

# Waste Management Plan

2016 – 2021

Increasing diversion from landfill

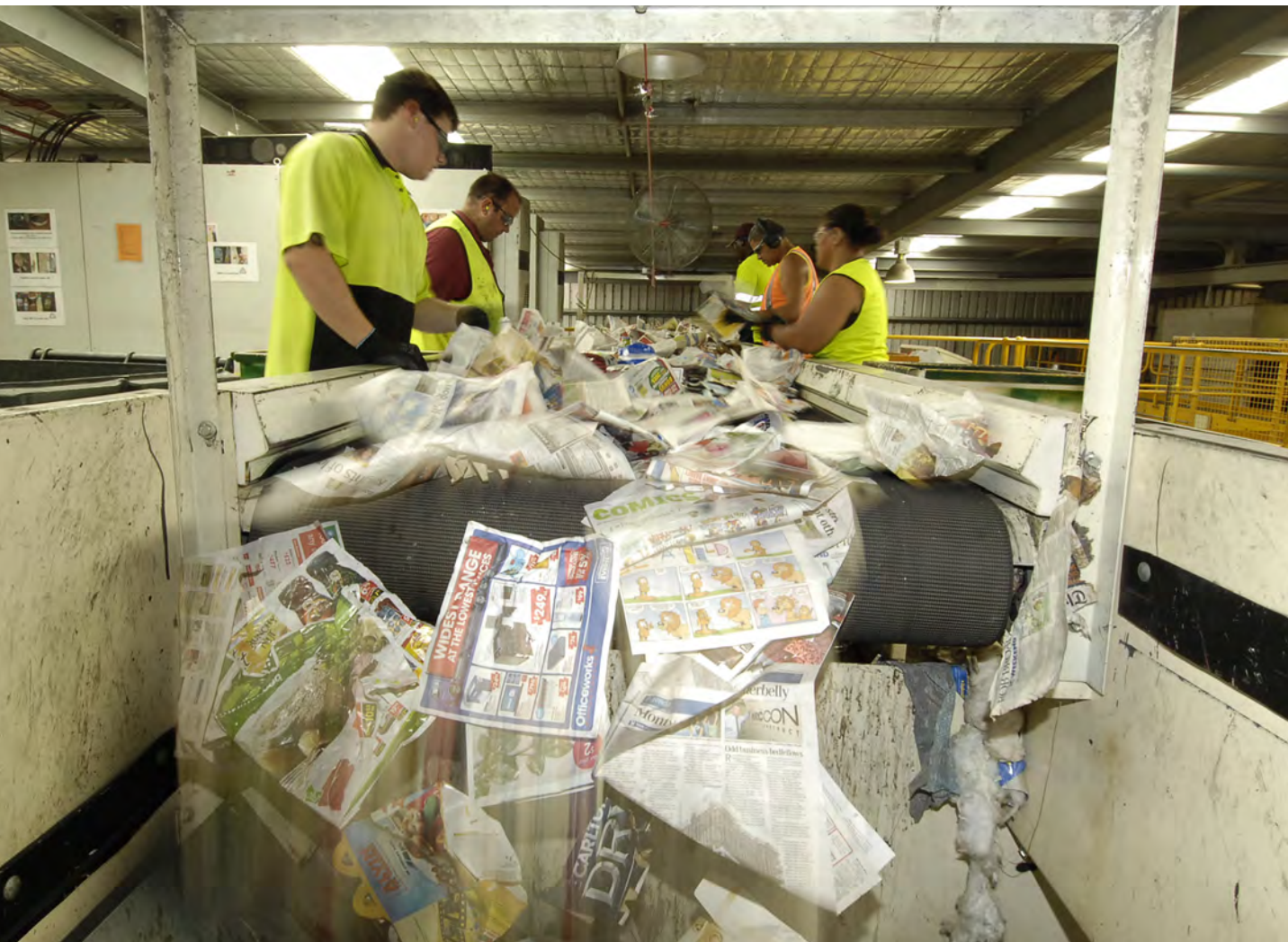


# Contents

<b>Acronyms</b>	<b>3</b>		
<b>1.0 Introduction</b>	<b>4</b>		
1.1 Purpose	4		
1.1.1 Objectives	5		
1.1.2 Targets	5		
1.2 <i>Strategic Waste Minimisation Plan 2010 – 2014</i>	6		
1.3 Strategic Alignment	7		
1.4 Key Drivers for Waste Management	10		
1.4.1 Reaching Diversion Targets	10		
1.4.2 Reducing Environmental Impact	11		
1.4.3 Increasing Costs of Waste Disposal	11		
1.4.4 High Levels of Waste	11		
<b>2.0 Framework for Waste Management</b>	<b>12</b>		
2.1 External Stakeholders	12		
2.2 Legislation and Regulation	16		
2.2.1 Federal Legislation and Regulation	16		
2.2.2 State Legislation and Regulation	16		
2.3 Policy Framework	18		
2.3.1 Federal Policy	18		
2.3.2 State Policy	18		
2.4 Regional Context	21		
<b>3.0 Current Approach and Position</b>	<b>22</b>		
3.1 Household Waste	22		
3.1.1 Changes to Waste Tonnages and Diversion Rates	25		
3.1.2 Levels of Household Waste	26		
3.1.3 Cost of Household Waste Services	26		
3.2 Public Space Waste	28		
3.3 Corporate Waste	30		
3.4 Waste Education and Engagement	31		
3.5 Internal Stakeholders	32		
<b>4.0 Future Approach for Waste Management</b>	<b>33</b>		
4.1 Identifying Key Challenges	33		
4.1.1 Meeting Community Expectations	33		
4.1.2 Availability and Cost of Appropriate Infrastructure	33		
4.1.3 Changing Behaviour and Increasing Participation	34		
4.1.4 Existing Contracts	34		
4.2 Informing the Plan	35		
4.2.1 Benchmarking	35		
4.2.2 Research and Modelling	35		
4.2.3 Understanding Community Perceptions	37		
4.3 Future Planning for Waste Management	39		
4.3.1 Planning Horizons	39		
<b>5.0 Waste Management Plan</b>	<b>40</b>		
5.1 Waste Management Focus Areas	40		
5.2 Waste Management Projects	40		
5.2.1 Project Descriptions	42		
<b>6.0 Implementation</b>	<b>56</b>		
6.1 Overarching Target and Key Performance Indicators	56		
6.2 Monitoring and Review	58		
<b>Appendix 1</b>	<b>59</b>		
Department of Water and Environmental Regulation – proforma Local Government Waste Plan 2021			
<b>References</b>	<b>75</b>		

# Acronyms

APC	Australian Packaging Covenant
AWT	Alternative Waste Treatment
BAU	Business as Usual
CBD	Central Business District
CCTV	Closed Circuit Television
CH <sub>4</sub>	Methane
CO <sub>2</sub>	Carbon Dioxide
CO <sub>2</sub> -e	Carbon Dioxide equivalent
DER	Department of Environment Regulation
EfW	Energy from Waste
ERF	Emissions Reduction Fund
GRI	Global Reporting Initiative
HHW	Household Hazardous Waste
KFA	Key Focus Area
MBT	Mechanical Biological Treatment
MRC	Mindarie Regional Council
MRF	Materials Recovery Facility
MWAC	Municipal Waste Advisory Council
RRF	Resource Recovery Facility
SCRG	Strategic Community Reference Group
t	Tonnes
tpa	Tonnes per annum
WALGA	Western Australian Local Government Association
WARR Act	<i>Waste Avoidance and Resource Recovery Act 2007</i>
WOC	Works Operation Centre



# 1.0 Introduction

Waste management is a key area of responsibility for local government. The City of Joondalup provides a broad range of waste services to the community including collecting and processing household waste, providing and emptying street bins, removing litter from public areas, providing waste services at City events, and managing the City's corporate waste. The City spends approximately \$20million per annum on waste services and in 2014/15 collected just over 90,000 tonnes of waste. The City also has a role in waste education and behaviour change, research and advocacy, and regional planning of waste management approaches and infrastructure.

The City's *Waste Management Plan 2016 – 2021* (the Plan) focuses on improving the City's management of waste, increasing diversion from landfill and providing the groundwork to inform long term planning for waste. This will be done in the context of State and Federal waste management policy and legislation, regional planning and collaboration with Mandarie Regional Council and its member Councils, existing waste management contracts and agreements, and developments in the private sector and in new technologies.

The *Waste Management Plan 2016 – 2021* recognises that the management of waste is a significant and rising cost for the City and its ratepayers, is subject to high community expectations, and can have a significant impact on the environment. Through the development and implementation of the Plan the City has undertaken the necessary strategic planning to guide and continually improve its waste management practices.

## 1.1 Purpose

The *Waste Management Plan 2016 – 2021* will guide the City's waste management practices over the next five years to ensure increased diversion from landfill and to inform future long term planning for waste management.

### 1.1.1 Objectives

To guide the development of the *Waste Management Plan 2016 – 2021* a number of overarching objectives have been identified that encompass the entire Plan.

#### Objective 1

Minimise waste to landfill through application of the waste hierarchy.

#### Objective 2

Engage with the community to increase participation in sustainable waste management practices.

#### Objective 3

Provide a quality and cost-effective waste management service to the community.

#### Objective 4

Minimise the environmental impact of waste generation, collection and disposal.

#### Objective 5

Maintain effective relationships with key stakeholders to maximise regional outcomes.

#### Objective 6

Ensure the City's long term planning is informed by research and best practice.

Achievement of these overarching objectives will require a range of responses across a variety of areas. The Plan identifies four broad key focus areas: waste services, community participation and engagement, research and development, and stakeholders and partnerships. The Plan includes a number of specific projects which align with one or more of the key focus areas and contribute to the overarching objectives.

### 1.1.2 Targets

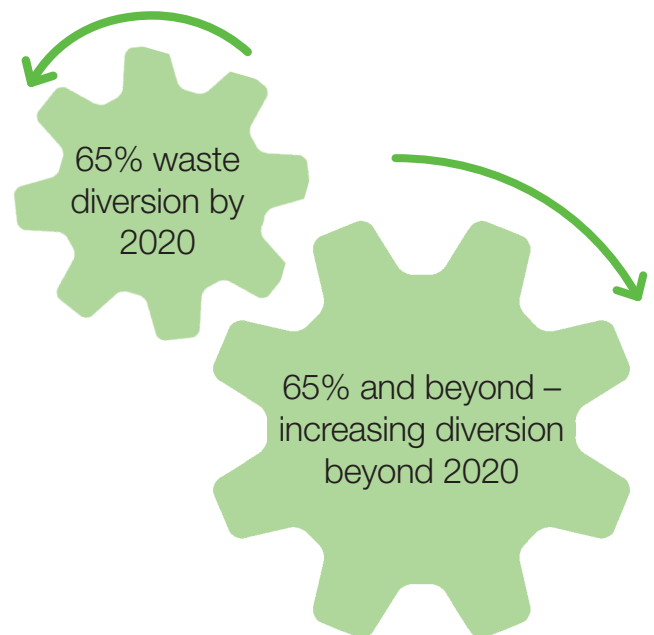
Targets identified for the *Waste Management Plan 2016 – 2021* align with the State Government waste recovery targets included in the *Western Australian Waste Strategy: Creating the Right Environment*. The *Western Australian Waste Strategy* targets for the Perth Metropolitan area are for:

- 50% of municipal solid waste to be diverted from landfill by 2015, and
- 65% of municipal solid waste to be diverted from landfill by 2020.



Figure 1

#### Waste Management Plan 2016 – 2021 Waste Diversion Targets



The City has achieved the 50% diversion target early, diverting 50% of household waste from landfill in 2013 –14 and 2014 – 2015. To achieve the 65% diversion target by 2020 the City will need to make changes to its waste management practices – the City is unlikely to reach this target if it continues with business as usual. The 65% target is bold enough to drive change within the City's waste management practices, while still being achievable.

The Plan also considers longer term planning for waste management beyond 2020 where the City will aim to increase diversion from landfill above 65%. Achievements made within the five year timeframe of this *Waste Management Plan 2016 – 2021* will lay the foundations for the City to increase diversion from landfill above 65% beyond 2020.



## 1.2 Strategic Waste Minimisation Plan 2010 – 2014

The City's previous strategic planning document for waste management was the *Strategic Waste Minimisation Plan 2010 – 2014*, which provides direction for the City to progress waste services and initiatives in the future.

The *Waste Management Plan 2016 – 2021* builds upon the key achievements of the *Strategic Waste Minimisation Plan* which are summarised in Figure 2.

Figure 2

### Key Achievements of the Strategic Waste Minimisation Plan 2010 – 2014

- 50% of domestic waste collected in 2013/14 was diverted away from landfill.
- Customer satisfaction ratings in 2014 of 97% for the green lid bin service and 89.8% for the yellow lid bin service.
- Review of the processing arrangements for the recyclables collected by the City in the domestic yellow-lidded bin leading to a new contract significantly reducing City expenditure on this service and an increase in the recovery of recyclables.
- Introduction of e-waste recycling days in order to divert electronic waste from landfill.
- Introduction of mattress recycling to divert waste collected off the verge.
- Delivered 160 waste education sessions in primary schools and 50 school bus tours to waste facilities.
- Production of a *Short Guide to Green Events* to encourage waste minimisation and recycling at key City events.
- Production of a *Green Office Guide* for City staff and the introduction of dual use bins so that staff can recycle at work.
- Annual production of a *Guide to Domestic Waste* that is distributed to all residents.



### 1.3 Strategic Alignment

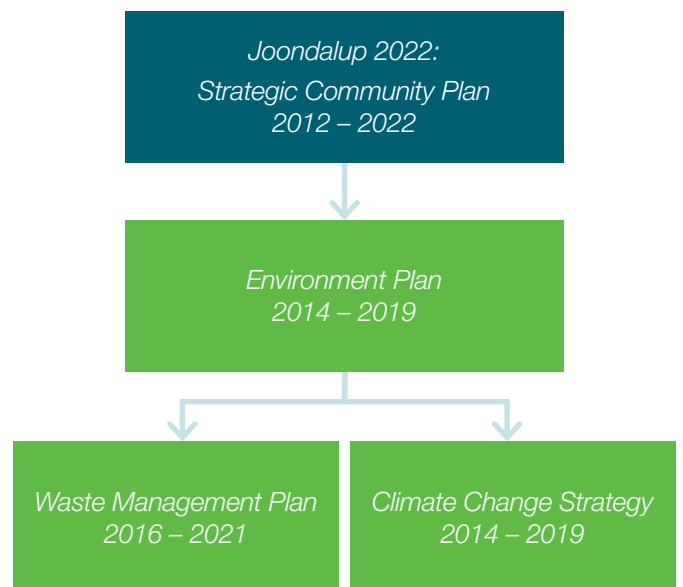
Waste management is an integral component of a local government’s responsibility and service to the community. For the City’s waste management activities to be effective it is important that the *Waste Management Plan 2016 – 2021* is aligned to the City’s broad range of strategic planning documents. Figure 3 outlines the relationship of the Plan with the City’s other strategic planning documents.

*Joondalup 2022: Strategic Community Plan 2012 – 2022* is the City’s long-term strategic plan outlining its commitment to achieving the vision and aspirations of the community and regional stakeholders. *Joondalup 2022* is the overarching document for all of the City’s strategic planning documents.

The *Environment Plan 2014 – 2019* is one of the strategies that inform *Joondalup 2022*. It provides strategic direction for broad environmental management across the City and also outlines a framework for the development of issue specific plans to address key environmental issues. The *Waste Management Plan* and the *Climate Change Strategy* are both issue specific plans within this framework, and both the *Environment Plan* and *Climate Change Strategy* identify the development of a *Waste Management Plan* as a project.

Figure 3

Relationship of the Waste Management Plan with other City of Joondalup Strategic Planning Documents



To ensure that the *Waste Management Plan 2016 – 2021* is delivering outcomes that align with the City's broader strategic planning, the purpose, objectives, key focus areas, and key performance indicators of the Plan must align with these strategic planning documents. Table 1 provides an overview of the alignment of the Plan with the City's broader strategic planning documents.



Table 1

### Strategic Alignment of the Waste Management Plan 2016 – 2021 with the City's Broader Strategic Planning Documents

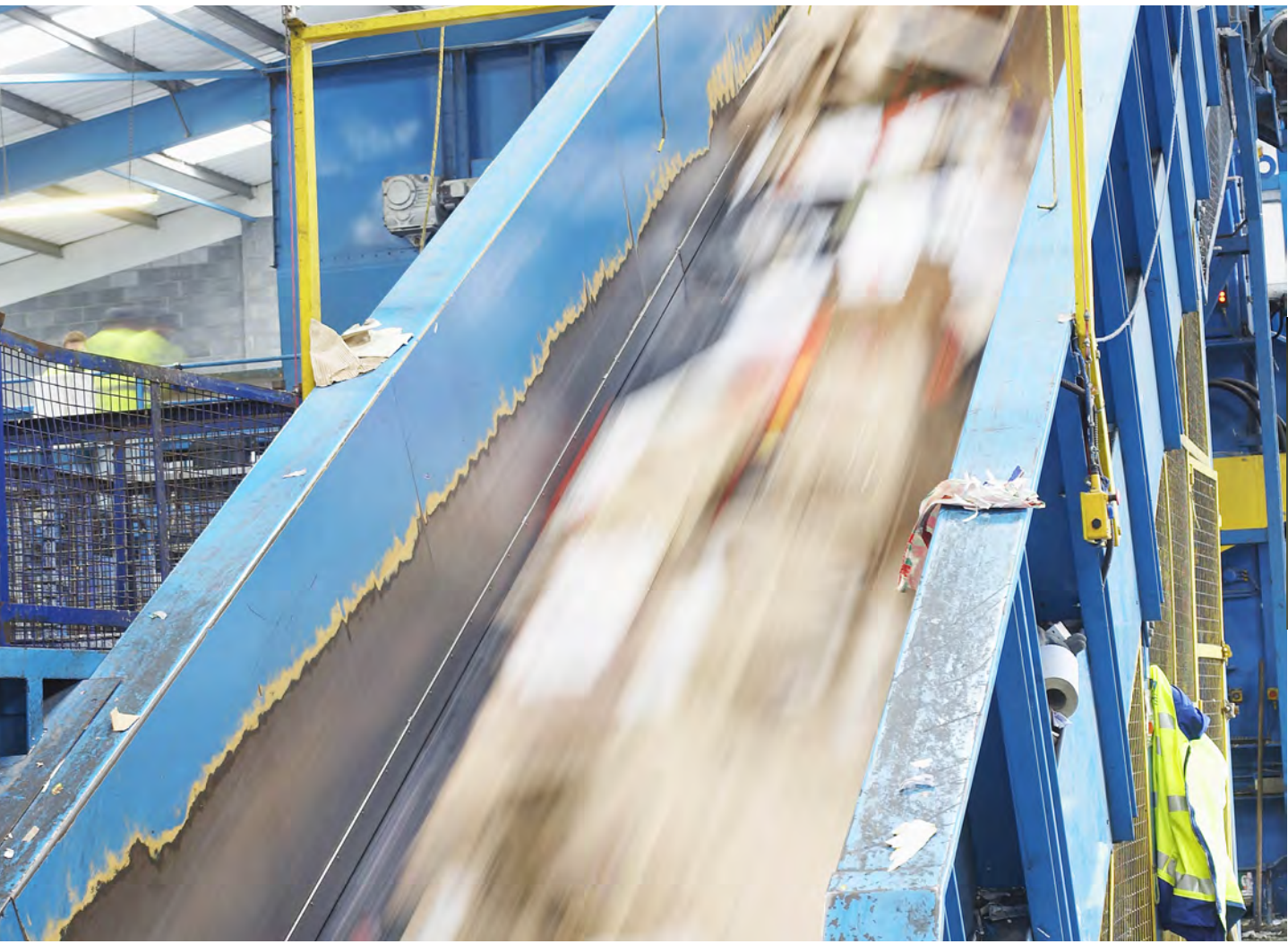
	Waste Management Plan 2016 – 2021	Climate Change Strategy 2014 – 2019
<b>Overall purpose/aim</b>	To guide the City's waste management practices over the next five years to ensure increased diversion from landfill and to inform future long term planning for waste management.	Provide guidance to the City's climate change activities over the next five years. The Strategy has a dual purpose of both mitigation and adaptation.
<b>Relevant Key Focus Area (KFA)/Theme</b>	KFA 1: Waste Services KFA 2: Community Participation and Engagement KFA 3: Research and Development KFA 4: Stakeholders and Partnerships	KFA 4: Natural Environment KFA 6: Community Wellbeing
<b>Relevant objectives</b>	<ul style="list-style-type: none"> <li>• Minimise waste to landfill through application of the waste hierarchy.</li> <li>• Engage and educate the community in sustainable waste management practices.</li> <li>• Provide a quality and cost-effective waste management service to the community.</li> <li>• Minimise the environmental impact of waste generation, collection and disposal.</li> <li>• Ensure the City's long term planning is informed by research and best practice.</li> <li>• Maintain effective relationships with key stakeholders to maximise regional outcomes.</li> </ul>	<ul style="list-style-type: none"> <li>• To reduce the City's greenhouse emissions through effective energy management and improved energy efficiency.</li> <li>• To support and encourage the community to reduce their greenhouse emissions.</li> </ul>
<b>Measurement</b>	Target – 65% of diversion of household waste from landfill by 2020. <ul style="list-style-type: none"> <li>• Total residential waste generated (tonnes/yr)</li> <li>• Residential waste generated per capita (tonnes/capita/yr)</li> <li>• Residential waste diverted from landfill (%) (tonnes/yr)</li> <li>• Amount of residential waste recycled as a percentage of total waste generated (tonnes/yr)</li> <li>• Total amount of corporate waste generated (tonnes/yr)</li> <li>• Percentage of corporate waste diverted from landfill (%)</li> <li>• Waste present in natural areas</li> </ul>	<ul style="list-style-type: none"> <li>• Reduce net greenhouse gas emissions by 5% per capita below 2012/13 consumption by 2018/19.</li> </ul>





	Environment Plan 2014 – 2019	Joondalup 2022: Strategic Plan 2012 – 2022*
<b>Overall purpose/aim</b>	To ensure that the City’s operations are delivered in an environmentally sustainable manner and that the City takes measures to effectively influence positive environmental behaviours within the community.	City of Joondalup’s long-term strategic planning document that outlines its commitment to achieving the vision and aspirations of its community and regional stakeholders.
<b>Relevant Key Focus Area (KFA)/Theme</b>	Theme 4: Waste Management Theme 5: Community Involvement	Theme 5: Natural Environment
<b>Relevant objectives</b>	<ul style="list-style-type: none"> <li>To minimise waste to landfill through sustainable waste management practices which incorporate reduce, re-use, recovery, and recycling principles.</li> </ul>	<ul style="list-style-type: none"> <li><i>Environmental Resilience</i> – To continually adapt to changing local environmental conditions.</li> <li><i>Community Involvement</i> – To build a community that takes ownership of its natural assets and supports their ongoing preservation and conservation.</li> </ul>
<b>Measurement</b>	<ul style="list-style-type: none"> <li>Total residential waste generated (tonnes/yr)</li> <li>Residential waste generated per capita (tonnes/capita/yr)</li> <li>Residential waste diverted from landfill (%) (tonnes/yr)</li> <li>Amount of residential waste recycled as a percentage of total waste generated (tonnes/yr)</li> </ul>	<ul style="list-style-type: none"> <li>EN12 Waste Present in Natural Areas</li> <li>EN23 Total Waste Diverted from Landfill (Percentage)</li> <li>EN23 Waste Diverted from Landfill (Tonnes)</li> </ul>

\* Note: The City’s Annual Report includes the use of the Global Reporting Initiative (GRI). The GRI is a best practice sustainability reporting framework that establishes guidelines, principles and indicators for organisations to measure and report against their economic, environmental and social performance. The numbering EN12 etc, is a reference to the relevant GRI indicator.



### 1.4 Key Drivers for Waste Management

Four key drivers for improving the City’s waste management practices have been identified (see Figure 4).

#### 1.4.1 Reaching Diversion Targets

The *Waste Management Plan 2016 – 2021* has set a 65% landfill diversion target of household waste by 2020 to align with the *Western Australian Waste Strategy* targets. Whilst the City made a significant achievement in reaching the *Western Australian Waste Strategy* 2015 target of 50% diversion a year early, reaching the 65% target will be a challenge and will require the City to find new solutions for waste management.

Figure 4

#### Key Drivers for Improving the City’s Waste Management





### 1.4.2 Reducing Environmental Impact

The creation of waste and the disposal of waste can have a significant impact on the environment for a number of reasons, including:

- Resources, materials and energy used to produce, package and transport products are lost when the products are disposed to landfill.
- Landfills take up large amounts of land and can be noisy, odorous and unsightly. Landfills (and the land surrounding them) are likely to become alienated land for many years into the future.
- Waste materials in landfill can take from months to hundreds of years to break down, or may not break down at all, meaning the environmental impacts of landfills will last for generations.
- The breakdown of waste within landfill can create pollutants and toxins which can contaminate groundwater, surface water and the atmosphere.
- The breakdown of waste in landfill also creates methane, a greenhouse gas. Waste can continue to emit methane for well over 50 years after it has been landfilled. By diverting waste from landfill the City is reducing landfill emissions.
- Transport associated with the collection of waste creates greenhouse gas emissions and other air pollutants. Efficiencies in reducing transport costs will have a positive environmental impact by reducing greenhouse gas emissions and air pollutants.

There are significant environmental controls relating to landfill sites to reduce their potential environmental impact including lining and capping of landfills, monitoring of groundwater and controls on what can be disposed.



### 1.4.3 Increasing Costs of Waste Disposal

It costs significantly more to dispose of waste to landfill than it does to recycle waste; \$155.00/tonne compared to \$24.00/tonne. The cost of disposing waste to landfill will significantly increase in coming years as the Waste Avoidance and Resource Recovery Levy, which is applied to metropolitan waste received at all landfills, increases. Increasing the proportion of household waste placed in the yellow-lidded bin and increasing diversion rates will provide significant ongoing cost savings for the City and its ratepayers.

### 1.4.4 High Levels of Waste

The City has been shown to be a high generator of waste, particularly in regards to bulk waste collection. This will only increase as the City's population and the amount of waste households generate increases. In order to reach diversion targets, reduce environmental impact and reduce the cost of delivering waste services, steps need to be taken to reduce the amount of waste generated within the City.



## 2.0 Framework for Waste Management

The waste management framework that exists externally to the City can have a significant influence of the City's waste management activities and has provided the context for the development and implementation of *Waste Management Plan 2016 – 2021*. This framework includes external stakeholders, legislation and regulation, Federal and State Government policy, best-practice research and regional planning. An overview and discussion of the external framework for waste management is provided below.

### 2.1 External Stakeholders

The City's external stakeholders can significantly influence the City's waste management activities and should be considered within the development of this Plan. These external stakeholders are identified in Figure 5.

Figure 5

External Stakeholders for the City's Waste Management Activities



The City has reviewed how external stakeholders influence the City's waste management activities and how the City can work effectively with them to maximise waste management outcomes. The City's relationship with these external stakeholders can be one of engagement, collaboration, advocacy, contractual, service provision or compliance. Further detail on the relationships between the City and external stakeholders is provided in Table 2.

Table 2

## City's Relationships with External Stakeholders

External Stakeholder	Description	Relationship
<b>Western Australian Local Government Association (WALGA)</b>	WALGA aims to facilitate, encourage and promote economically sound, environmentally safe and efficient waste management practices for Western Australia, endorsed and supported by local government.	Advocacy Engagement Learning
<b>Municipal Waste Advisory Council (MWAC)</b>	The MWAC is a standing committee of WALGA and is actively involved in: <ul style="list-style-type: none"> <li>• State-wide co-ordination of recycling issues</li> <li>• Review of waste management legislation</li> <li>• Production of position papers on waste management.</li> </ul> MWAC has delegated authority to represent WALGA in all matters relating to solid waste management.	Advocacy Engagement Learning
<b>Waste Authority</b>	The Waste Authority is the State Government statutory body with responsibility for developing a Waste Strategy to encourage waste avoidance and maximise the recovery of materials which would otherwise go to landfill. Its other primary roles include providing strategic and policy advice to the Western Australian Government, and implementing policies, plans and programs consistent with the Waste Strategy.	Advocacy Engagement Learning Alignment
<b>Federal Government</b>	Sets overarching policy and legislation at a national level. Also undertakes National Waste Reporting which provides key national waste and recycling information for Australia including online data sets and time series analysis.	Advocacy Alignment
<b>Department of Environment Regulation (DER)</b>	The DER is the State Government's key environmental regulatory agency. Its purpose is to advise on and implement strategies for a healthy environment for all Western Australians. From 2016 one of its three service areas will be <i>Waste Policy and Programs – facilitating enhanced and coordinated waste management.</i>	Advocacy Alignment Compliance



External Stakeholder	Description	Relationship
<b>Mindarie Regional Council (MRC)</b>	<p>The MRC provides waste disposal, waste recovery and waste education services on behalf of its seven member councils (including the City of Joondalup). The MRC manages Tamala Park which includes a landfill facility, recycling centre for the public, public transfer station, and an education centre. The MRC also manages a resource recovery facility at Neerabup. The MRC undertakes research at a regional level as required by its member Councils.</p> <p>By working collaboratively on a regional scale the City can reduce the cost of waste management, establish joint contracts, and create economies of scale in service delivery.</p>	<p>Collaboration Contractual</p>
<b>MRC Member Councils and other local governments</b>	<p>The City of Joondalup is one of seven member Councils along with the Cities of Perth, Stirling, Vincent, and Wanneroo, and the Towns of Cambridge and Victoria Park. The City also partners with individual member Councils and other local governments to create efficiencies and economy of scale when contracting waste services.</p>	<p>Collaboration Contractual</p>
<b>Waste industry/ market</b>	<p>Contracts between Local Government and the private sector for the collection and processing of waste have increased as waste tonnages have become sufficient to make private sector involvement financially viable. There is a significant role for the private sector in the collection and processing of waste into the future, as substantial investment will be needed to ensure there is sufficient infrastructure in place to process increasing waste volumes and meet the targets in the <i>Western Australian Waste Strategy</i>.</p>	<p>Contractual</p>
<b>Customers/ community</b>	<p>The City delivers waste services to the community and the community pays for these services through their rates. Ensuring the community is satisfied with the waste services delivered and is engaged in any changes to waste services is of critical importance to the City.</p>	<p>Engagement Service provider</p>

## 2.2 Legislation and Regulation

The City must be guided by and comply with Federal and State legislation that regulates the management of waste.

### 2.2.1 Federal Legislation and Regulation

Federal waste legislation includes the *Product Stewardship Act 2011* which provides a framework for managing the environmental, health and safety impacts of products, particularly those impacts associated with the disposal of products. Product stewardship places a shared responsibility on everyone involved in the lifespan of the product (including manufacturers) and not just the end-user. The framework includes voluntary, co-regulatory and mandatory product stewardship.

#### CITY'S RESPONSE

- The City provides e-waste collection drop off days for residents.
- The City provides education to the community on responsible waste management and sustainable purchasing including consideration of how products are produced and can be disposed of.
- The City includes sustainable procurement which includes considering the waste implications of purchases in its Protocol for Purchasing of Goods and Services.

The *Carbon Farming Initiative Amendment Bill 2014* established the Emissions Reduction Fund (ERF). The ERF provides incentives to businesses to reduce emissions by using auctions to purchase emissions reductions at the lowest cost. To participate in auctions, projects need to reduce emissions by at least 2,000 tonnes of carbon dioxide equivalent (CO<sub>2</sub>-e) each year and follow prescribed methods. Current methodologies potentially relevant to local government waste management are alternative waste treatment and landfill gas capture.

#### CITY'S RESPONSE

The City is unable to participate in the ERF as an individual local government as alone it would not be able to achieve the emissions reductions required. However, there is scope for local governments to form partnerships and develop projects that would meet the emission reduction requirements.

- The City will remain aware of the implementation of the ERF and opportunities for local government partnerships that may develop at a regional or metropolitan-wide scale.

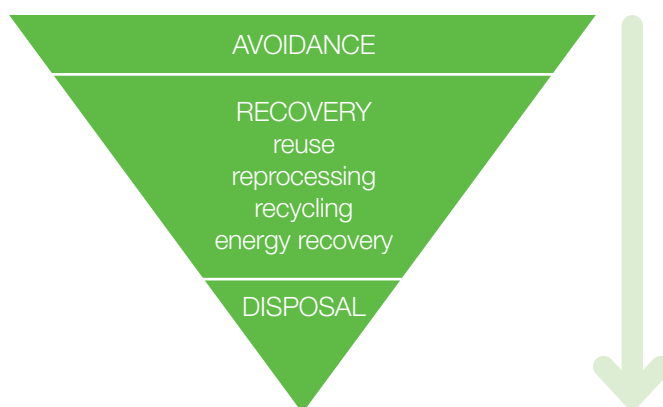
### 2.2.2 State Legislation and Regulation

The major legislation relating to waste management in Western Australia is the *Waste Avoidance and Resource Recovery Act 2007 (WARR Act)* which establishes the Waste Authority and its functions. The *WARR Act* has a particular focus on local government functions, and contains mechanisms relating to local government waste services, including waste local laws, waste plans and collection permits.

The *WARR Act* also provides a hierarchy of waste management options based on their general environmental desirability (see Figure 6). The hierarchy is a useful guide to aid in decision making and should be applied in the context of other economic, social and environmental constraints. The most preferred option for waste management under the waste hierarchy is to avoid or to minimise the generation of waste in the first instance. The second preferred option is to recover the resources in the waste through reuse, reprocessing, recycling, and energy recovery. The final and least preferred option is to dispose of the waste to landfill.

Figure 6

#### Hierarchy of Waste Management Options





The *WARR Act* is currently under review. Potential changes to the Act may affect the responsibilities of local government in waste management and the role of regional councils. In particular the review of the *WARR Act* may lead to the establishment of statutory waste groups, statutory waste infrastructure plans and the compulsory membership of local governments in order to provide investment certainty.

#### CITY'S RESPONSE

- The development of the *Waste Management Plan 2016 – 2021* meets requirements within the *WARR Act* for local governments to develop waste plans.
- The *Waste Management Plan 2016 – 2021* identifies how its projects align with the waste hierarchy identified in the *WARR Act*.
- Any changes to the *WARR Act* will be incorporated into future versions of the *Waste Management Plan*.

The *Waste Avoidance and Resource Recovery Levy Act 2007* imposes a levy, known as the landfill levy, on certain waste when received at disposal premises. The landfill levy is an economic instrument to reduce waste to 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.

The 2014 – 15 State Government Budget included an increase to the landfill levy (see Table 3). The increased levy will significantly impact on the costs associated with disposing of waste to landfill.

Table 3

#### Landfill Levy Increases

Year	Putrescible Waste <sup>1</sup>	Inert Waste <sup>2</sup>
2014 – 2015	\$28.00 per tonne	\$8.00 per tonne
2015 – 2016	\$55.00 per tonne	\$40.00 per tonne
2016 – 2017	\$60.00 per tonne	\$50.00 per tonne
2017 – 2018	\$65.00 per tonne	\$60.00 per tonne
2018 – 2019	\$70.00 per tonne	\$70.00 per tonne

<sup>1</sup> Putrescible waste is waste able to be decomposed by bacterial action.

<sup>2</sup> Inert waste is waste that will not decompose.

#### CITY'S RESPONSE

- The City has included the landfill levy and future increases of the levy in its financial review of waste services and financial modelling of future waste management options.

The *Litter Act 1979* makes provisions for the establishment and membership of the Keep Australia Beautiful Council, prevention of litter, enforcement, proceedings and penalties and regulations and rules. The Act authorises the Keep Australia Beautiful Council (as part of the Department of Environment Regulation), local government, police and other litter enforcement agencies to take action against those who litter.

#### CITY'S RESPONSE

- The City collects litter from the City's public open spaces, verges, medians, and natural areas.
- The City supports community litter collection and prevention activities such as Clean Up Australia Day, Keep Australia Beautiful campaigns and litter collection by Friends Groups.
- The City has authority under the *Litter Act 1979* to enforce penalties for illegal dumping.

## 2.3 Policy Framework

The Plan has been developed to align with the State and Federal policy framework. Key state and federal policies are described below and the City's response is identified.

### 2.3.1 Federal Policy

The *National Waste Policy: Less Waste, More Resources (2009)*<sup>3</sup> sets Australia's waste management and resource recovery direction to 2020. The aims of the *National Waste Policy* are to:

- Avoid the generation of waste, reduce the amount of waste (including hazardous 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.
- Contribute to the reduction in greenhouse gas emissions, energy conservation and production, water efficiency and the productivity of the land.

#### CITY'S RESPONSE

- The objectives and projects of the City's *Waste Management Plan 2016 – 2021* align with the aims of the *National Waste Policy*, particularly in the reduction and management of waste as a resource.

The *Australian Packaging Covenant (APC)* is an agreement between government, industry and community groups to find and fund solutions to address packaging sustainability issues. It aims to encourage the design of more sustainable packaging, increase recycling rates and reduce packaging litter. Signatories to the Covenant develop an action plan for achieving the objectives of the Covenant and submit an annual progress report. Until recently, the Western Australian Local Government Association (WALGA), through the Municipal Waste Advisory Council was a signatory and represented the interests of Local Government on the Covenant Council. WALGA has now resigned from the APC citing significant concerns with the operation and effectiveness of the Covenant.

#### CITY'S RESPONSE

- The City is not a signatory of the *Australian Packaging Covenant* however the City supports sustainable procurement which includes considering the waste implications of purchases in its Protocol for Purchasing of Goods and Services.
- The City provides education to the community on reducing packaging waste through its purchasing decisions.

### 2.3.2 State Policy

The *Western Australian Waste Strategy: Creating the Right Environment*<sup>4</sup> aims to engage the Western Australian community over the next decade in moving to a low-waste society by providing the required knowledge, infrastructure and incentives to change behaviour. The Strategy has established recovery targets for municipal solid waste in the Perth Metropolitan Region of 50% by 2015 and 65% by 2020. It has also established state-wide recovery targets of 60% by 2015 and 75% by 2020 for construction and demolition waste, and 55% by 2015 and 70% by 2020 for commercial and industrial waste.

As part of its Waste Strategy, the Waste Authority has committed to developing a *Waste and Recycling Infrastructure Plan for the Perth Metropolitan and Peel Regions*. The aim of the Plan will be to determine the waste management infrastructure required to meet the future needs of the Perth and Peel and to assist in achieving the targets of the Waste Strategy.

#### CITY'S RESPONSE

- The *Waste Management Plan 2016 – 2021* targets align with the municipal solid waste targets identified in the *Western Australian Waste Strategy*.
- The City has considered the *Western Australian Waste Strategy* in the development of this Plan and will ensure the Plans objectives and projects align with the general objectives of the *Western Australian Waste Strategy*.
- The City will consider outcomes of the *Waste and Recycling Infrastructure Plan for the Perth Metropolitan and Peel Regions* once developed in the delivery of its waste management projects and future versions of the *Waste Management Plan*.

Strategic objective three of the *Western Australian Waste Strategy* is to develop better practice guidelines, measures and reporting frameworks and promote their adoption. To date, two Better Practice guidelines have been developed for local government.

<sup>3</sup> DEWHA (2009).

<sup>4</sup> Waste Authority (2012).

### Better Bins Kerbside Collection Guidelines

The *Better Bins Kerbside Collection Guidelines*<sup>5</sup> have been developed to help local government select kerbside collection systems that can achieve increased resource recovery rates. The guidelines are based on the experiences of Western Australian and interstate local governments and contain information on bin types, colours and collection frequencies, and expected performance benchmarks.

The guidelines identify that in the short to medium term, higher recovery is likely to be delivered through:

- Source separation using a three-bin collection system, with separate bins for general waste, dry recyclables and garden organics.
- Collection systems where general waste is processed through an alternative waste treatment facility.

#### CITY'S RESPONSE

The Mindarie Regional Council has modelled the application of different scenarios for the Region to reach its diversion targets, including the Better Bins three bin system. Multi-criteria assessment found that a two bin system was the preferred option for the Region.

- In the short-term the City will optimise the two bin system through the trial and introduction of a larger 360L recycling bin (see Project 1).
- In the medium-term the City will continue to review its household waste service on an ongoing basis including consideration of moving to a three bin system or other alternative models (see Project 14).
- The Plan also considers the use of an additional alternative waste treatment facility as part of its longer term planning (see Project 16).

### Better Practice Vergeside Collection Guidelines

The *Better Practice Vergeside Collection Guidelines*<sup>6</sup> aim to identify better practice recovery solutions for verge side collections to maximise resource recovery and increase community engagement. In developing the Guidelines a review was undertaken of local government vergeside collection services (both hard and green waste). The review found that vergeside collection services accounted for 12% of the entire local government waste stream in 2012/13. Of this amount, only 7% of hard waste was recovered and 95% of green waste was recovered. In addition, consultation with local government identified a range of significant issues with vergeside collections such as increasing waste volumes, increasing costs, very low recovery rates and illegal disposal of material on the verge.

The Guidelines provide different options for optimising vergeside collection services including provision of information, frequency of collection, and type and volume of materials allowed. The Guidelines also included the following targets:

- On average less than 70kg of hard waste per household.
- At least 50% recovery for hard waste.
- At least 95% recovery for green waste.

#### CITY'S RESPONSE

- The City has modelled different options for its vergeside collection service, including collection, processing, cost and potential diversion rates.<sup>7</sup>
- The City has conducted a community survey to obtain community feedback on proposed options for future bulk waste collection services.
- The City will implement an improved bulk waste collection service based on the outcomes of options modelling and assessment and community consultation (see Project 2).

<sup>5</sup> Waste Authority (2014).

<sup>6</sup> WALGA (2014)b.

<sup>7</sup> Hyder Consulting (2014)a



### Waste Authority Community Perceptions Research

In 2013 the Western Australian Waste Authority commissioned research into community perceptions and behaviours around waste management and recycling in Western Australia<sup>8</sup>. Creating the behaviour change needed to increase active recycling, reduce waste generation and achieve diversion targets would require a strong understanding of current behaviours and attitudes, underlying motivations, incentives and barriers (perceived and actual) to change.

The research identified the different community stages of behaviour change for recycling (see Table 4).

**Table 4**

#### Stages of Behaviour Change for Recycling

<b>&lt;1%</b>	Pre-Contemplation	These residents have never considered recycling or would never consider recycling.
<b>10%</b>	Contemplation	These residents have thought about recycling and are likely to recognise the importance of recycling and waste minimisation but are currently not practicing any recycling behaviours.
<b>56%</b>	Action	These residents are recycling some of the time but not consistently. This is the largest group and a strategic priority as diversion can be significantly increased by creating greater recycling rates and greater consistency among this group.
<b>34%</b>	Maintenance	These residents believe that they are currently recycling all they can all of the time. Ensuring the retention of this group at this behaviour stage will not create significant gains in recycling rates but will prevent declines.

In general the research found:

<sup>8</sup> Colmar Brunton (2013)



- The community felt that recycling and waste management performance in Western Australia needed to improve.
- Recycling knowledge and information amongst the community was limited.
- Community attitudes towards waste management did not necessarily correlate to behaviour.
- Information about recycling is required and must have strong standout and new information.
- Residents are engaged with recycling and report a willingness to participate, although education is required.
- Changing behaviour in the community will likely require a combination of information, incentives and consequences.

#### CITY'S RESPONSE

- Engaging with the community on waste management and also educating the community about waste management is a key theme within the *Waste Management Plan 2016 – 2021*.
- The City has taken into consideration the outcomes of the Waste Authority's community perceptions research in the identification and design of projects for the *Waste Management Plan 2016 – 2021*.

## 2.4 Regional Context

The Mindarie Regional Council's (MRC) *Strategic Community Plan 2013/14 – 2033/34* provides a shared vision for waste management in the Region and demonstrates how the MRC will deliver environmentally sustainable waste management for its communities, including reducing the amount of waste being generated, increasing resource recovery, and diversion from landfill<sup>9</sup>.

The MRC recently commissioned a *Waste Processing Infrastructure Options Assessment Report* to provide an assessment of the most appropriate regional waste infrastructure approach for the members of the Mindarie Regional Council. The Report modelled the application of different infrastructure scenarios for the Region, their potential to reach diversion targets and made recommendations on the most appropriate infrastructure for the Region.

#### CITY'S RESPONSE

- The City works in partnership with the MRC and member Councils in the delivery and contracting of waste collection, processing and disposal services.
- The City, in partnership with the MRC and member Councils, has undertaken research and modelling on different scenarios for regional waste infrastructure approaches in order to achieve State government waste diversion targets.
- The City will take into consideration regional research, collaboration and outcomes in the development of this Plan and in its future planning.

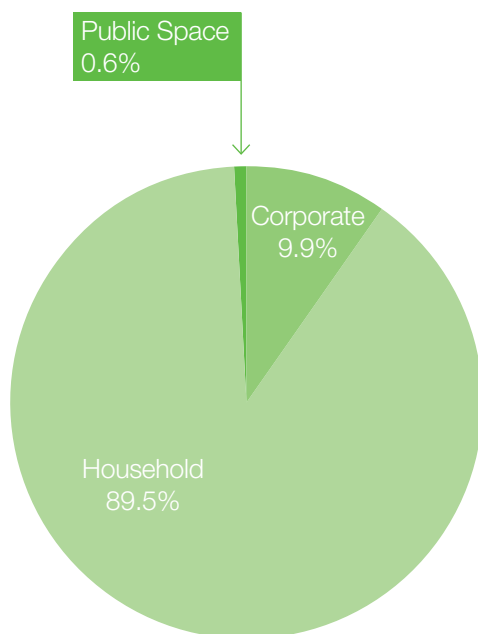
<sup>9</sup> Mindarie Regional Council (2013)

## 3.0 Current Approach and Position

The City collects waste from a variety of sources such as household, public spaces and corporate waste. By far the biggest source of waste for the City is household waste, followed by corporate waste and then public space waste, as shown in Figure 7.

Figure 7

### Waste Sources for the City of Joondalup



Current waste collection, processing and disposal arrangements and statistics for the different waste sources are described below.

### 3.1 Household Waste

Household waste is a key area of waste management for the City as it represents the largest amount of waste generated and provides the greatest opportunity for the City to reduce waste and increase diversion.

The City works with the MRC and member Councils as well as private contractors for the collection, processing and disposal of waste. The City uses a number of facilities to process household waste including a Resource Recovery Facility, Materials Recovery Facility and Greens Recycling Centre. Waste that is not processed is disposed of in landfill. A summary of these facilities and how they relate to the waste hierarchy is provided in Table 5.

Household waste is collected through weekly and fortnightly collection services and a variety of drop off services. In 2014/15 the City collected 90,150 tonnes of household waste. Half of this was diverted from landfill, meeting the *Western Australian Waste Strategy* target for 2015.

A breakdown of the amount of waste collected, processing methods and diversion rates for each of the City's waste collection streams for 2014/15 is provided in Figure 8 (page 24). Some key considerations include:

- The City diverts 100% of green waste from landfill through the Wangara Greens Recycling Facility.
- 75% of the waste from the yellow lid bin is diverted from landfill through the Materials Recovery Facility and 25% goes to landfill. There is an opportunity to increase the diversion rate by increasing the amount of recyclable materials placed in the yellow-lidded bins.
- 41% of the waste from the green lidded bin is diverted from landfill through composting at the Resource Recovery Facility. Diversion rates could be increased if the capacity of the Resource Recovery Facility was increased or another alternative waste treatment facility was available.
- Only 4% of hard waste collected in the bulk waste collection was diverted from landfill. Improving this diversion rate will be dependent on the establishment of new diversion or processing arrangements.









Table 5

## Summary of Waste Processing Facilities used by the City

Processing Facility	Processing Description	Waste Hierarchy
<b>Resource Recovery Facility (RRF)</b>	<p>The RRF is an alternative waste technology treatment plant that processes 100,000 tpa of household waste producing 40,000 tpa of high quality soil improver and compost.</p> <p>The RRF is managed by the Mindarie Regional Council.</p>	Reprocessing
<b>Materials Recovery Facility (MRF)</b>	The Cities of Joondalup, Wanneroo and Swan have recently entered into a three year contract with a private contractor for the processing of recycling at a materials recovery facility which sorts recyclables before baling and selling materials for recycling into new items.	Recycling
<b>Greens Recycling Centre</b>	The Wangara Greens Recycling Centre mulches green waste collected as part of the bulk waste collection and green waste brought in by residents. It is not actively composted or managed to Australian Standards 4454 – 2012.	Reprocessing
<b>Tamala Park Recycling Centre</b>	Managed by the MRC the Tamala Park Recycling Centre accepts drop off of second hand goods and recyclables. Items are then either sent for recycling or sold for reuse in the tip shop. Residents can also drop off household hazardous waste for safe disposal.	Reuse Recycling Disposal
<b>Tamala Park Landfill</b>	The landfill site at Tamala Park is managed by Mindarie Regional Council and provides disposal services to all member Councils.	Disposal
<b>Landfill Power and Gas</b>	Landfill Power and Gas has a contract with Mindarie Regional Council to extract landfill gas from the landfill site which is used to produce energy and is supplied to the state power grid for on-sale to commercial customers.	Energy Recovery

Figure 8

Summary of City Waste Management Collections in 2014/15

Green lid bin (weekly)	52,828 tonnes	 Resource Recovery Facility <hr/>  Landfill	→ 41% → 59%
Yellow lid bin (fortnightly)	15,787 tonnes	 Materials Recovery Facility <hr/>  Landfill	→ 75% → 25%
Bulk hard waste (every nine months)	10,347 tonnes	 Mattress and Metals Recycling <hr/>  Landfill	→ 4% → 96%
Bulk green waste (every nine months)	5,309 tonnes	 Greens Recycling Facility	→ 100%
Self-haul green waste (four vouchers/household/year)	5,878 tonnes	 Greens Recycling Facility	→ 100%
Hazardous household waste (HHW) (as needed)	1 tonne	Tamala Park for Safe Disposal	

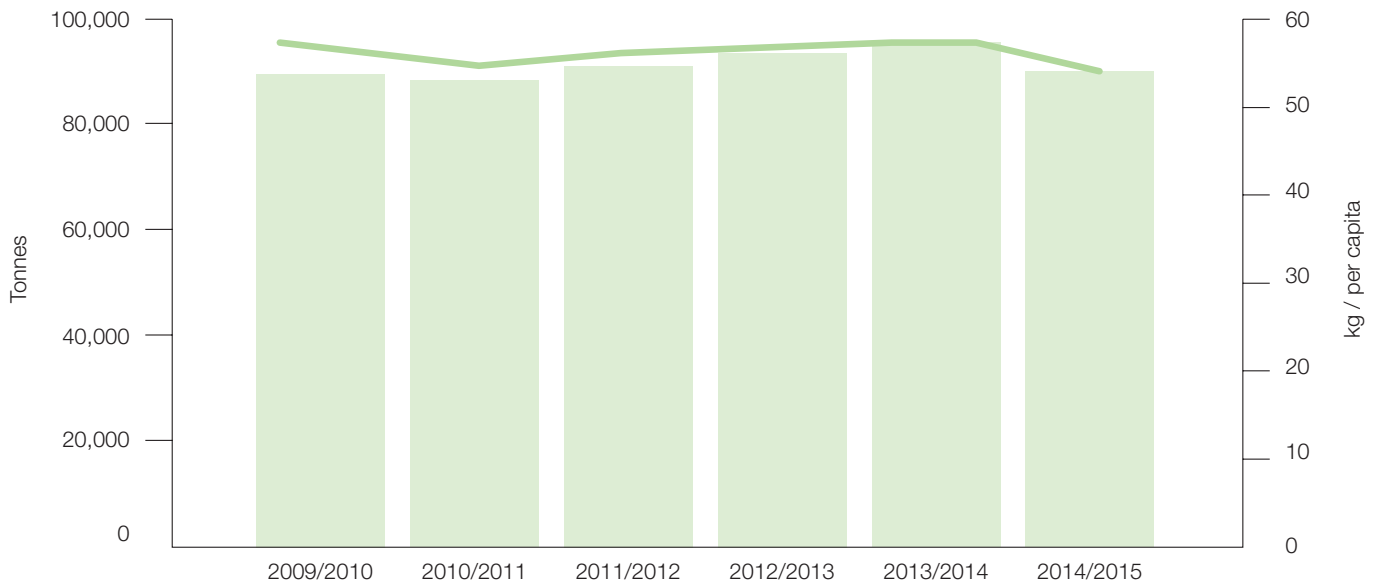


### 3.1.1 Changes to Waste Tonnages and Diversion Rates

From 2009/2010 the amount of waste collected in the City gradually increased until 2014/2015 when there was a drop in the amount of waste collected. During this time the population within the City increased by 5.96% resulting in a decrease in residential waste collected per capita of 5.1% in 2014/15 compared to 2009/2010 (see Figure 9).

**Figure 9**

#### Tonnes of Residential Waste Collected



Tonnes collected	89,616	88,447	91,188	93,593	95,577	90,150
kg/capita	55.99	53.49	55.30	56.06	56.67	56.67

Since 2007/08 the City's diversion from landfill has increased by 35%, as shown in Figure 10. A key component of this increase was the establishment of a Resource Recovery Facility in 2009/10 which enabled organics from the green-lidded bin to be diverted. More recent increases from 44% in 2010/11 to 50% in 2014/2015 can be attributed to increasing waste diversion rates from all sources.

### 3.1.2 Levels of Household Waste

Research conducted by WALGA as part of developing the *Better Vergeside Guidelines* in 2012/13 the City collected significantly more hard waste through its bulk waste collection than any other local government in Western Australia (12,632t) and collected the second largest amount of green waste (5,257t)<sup>10</sup>.

Even when the number of households within the City is taken into account the amount of waste collected annually per household (1,513kg) is nearly a third more than the metropolitan average (1,090kg). These higher tonnage

rates can largely be attributed to higher tonnages for the green-lidded bin and bulk waste (see Figure 11). The amount of hard waste collected in the bulk waste collection is nearly three times the Perth metropolitan average.

### 3.1.3 Cost of Household Waste Services

A review of household waste services in 2013/14 detailed the cost of delivering waste services and identified areas in which improvements can be made (see Table 6). In particular the review found that the City was paying above typical industry rates for the processing of recyclables (yellow-lidded bin). As a result, the City has entered a new three year contract for recycling processing with a private contractor that will increase recovery rates for the City and has reduced the cost of processing the yellow-lidded bin to \$24.00 per tonne.

Table 6

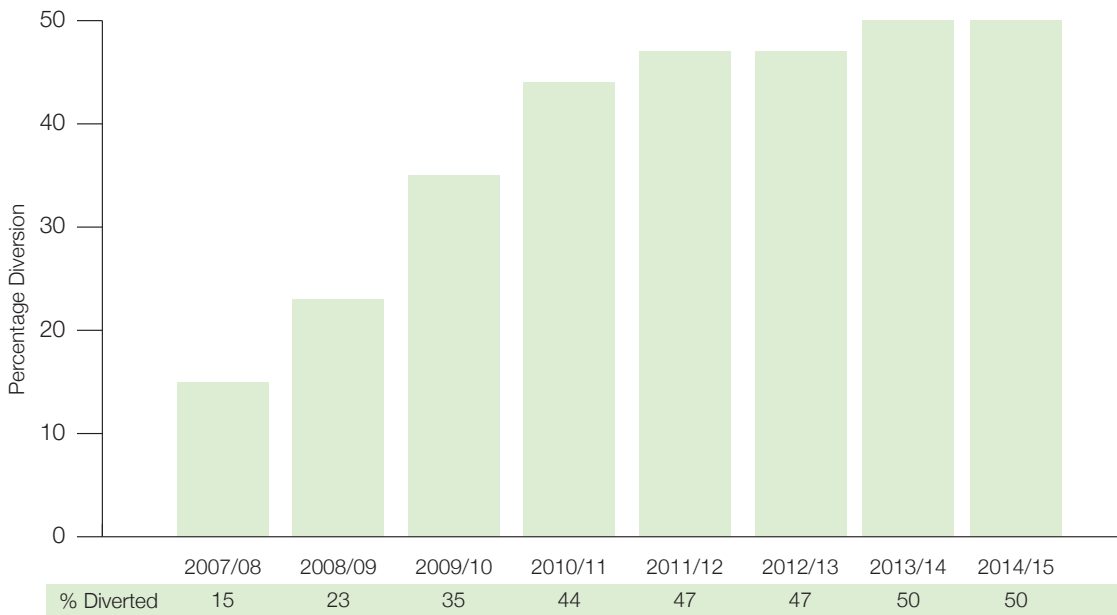
#### Service Delivery Cost Review 2013/14

Service	Cost in 2013/14	Typical Industry Rates	Total cost 2013/2014	
<b>COLLECTION COSTS</b>	Green lid bin (per bin lift)	\$0.91	\$0.80 – \$1.20	\$2.7million
	Yellow lid bin (per bin lift)	\$0.89	\$1.00 – \$1.40	\$1.3million
	Bulk waste (per household)	\$25.37	\$8.00 – \$22.00	\$1.47million
	Garden waste (per household)	\$9.00	\$7.00 – \$15.00	\$0.524million
	Self-haul garden waste (per tonne)	\$46.00	n/a	\$0.228million
<b>PROCESSING</b>	Green lid bin (per tonne)	\$116.00 – \$143.00 landfill \$230.00 – RRF	\$120.00 – \$160.00 landfill \$190.00 – \$260.00 RRF	\$6.8million
	Yellow lid bin (per tonne)	\$90.00 – \$200.00	\$40.00 – \$90.00	\$3.4million
	Bulk waste (per tonne)	\$116.00 – \$143.00	\$120.00 – \$160.00	\$1.6million
	Garden waste (per tonne)	\$53.00	\$43.00 – \$85.00	\$0.23million
	Self-haul garden waste (per tonne)	\$53.00	\$45.00 – \$85.00	\$0.264million

<sup>10</sup> WALGA (2014)a

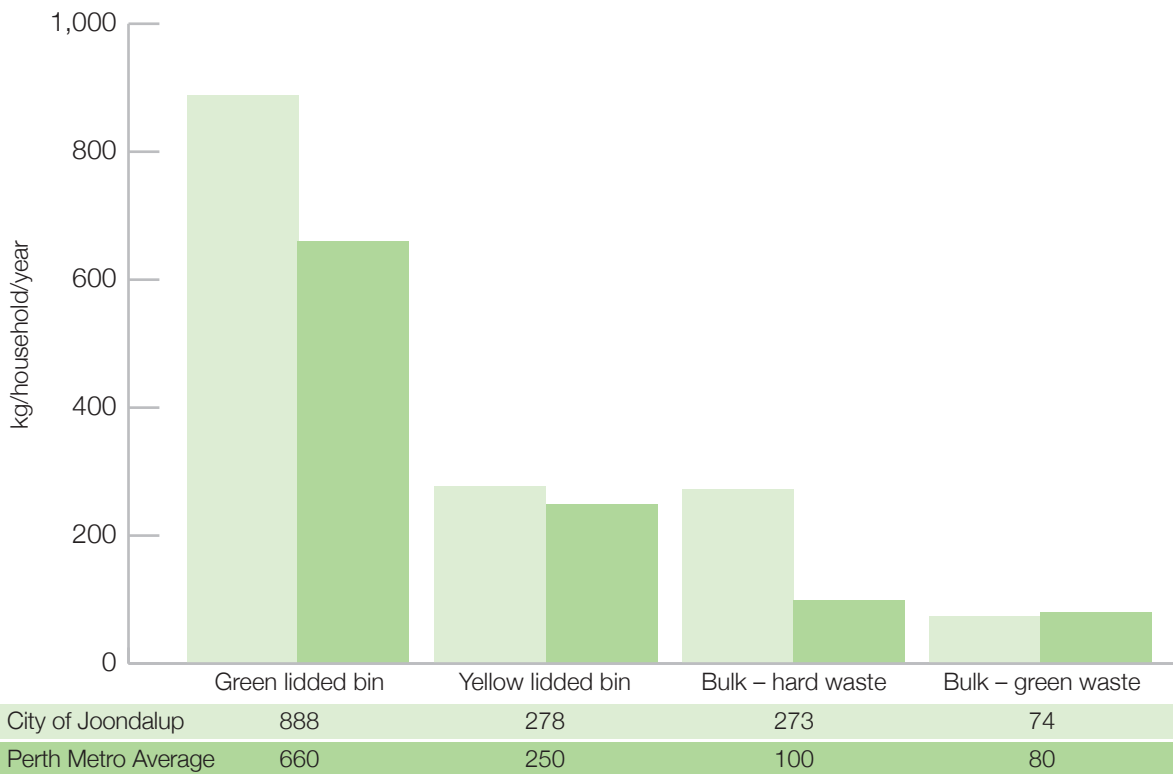
**Figure 10**

**Annual Percentage of Waste Diverted from Landfill**



**Figure 11**

**City of Joondalup 2012/2013 Tonnages Compared to the Perth Metropolitan Area Average**



### 3.2 Public Space Waste

The City collects waste from its public spaces through litter collection, rubbish bins in streets and parks, and rubbish and recycling bins at City events. In 2014/2015 the City collected 603 tonnes of waste from its public spaces. While this represents only 0.6% of the total waste collected by the City, making improvements to the City's public space waste practices has benefits in both educating the community about waste management and demonstrating the City's commitment to sustainable waste management.

Recycling bins are provided at key City events as well as rubbish bins. However contamination levels of these recycling bins is often quite high limiting the amount that can be diverted from landfill. Visual estimates suggest that approximately 50% of the contents in the recycling bins are not recyclable. There is an opportunity for the City to increase its collection of recyclables in public spaces and at events. Yellow-lidded bins at events need to be accompanied with information and education, and an adjacent green-lidded bin to decrease contamination levels and enable this waste to be diverted from landfill.

Litter in parks, public open spaces and natural areas can result in reduced amenity, enter and pollute nearby waterways and provide a hazard for local native fauna. The City measures the amount of waste material present within ten of the City's key conservation areas annually. In 2014/2015, the waste material present averaged 42 items per hectare.



<sup>11</sup> Carbon dioxide equivalent (CO<sub>2</sub>-e) is a measure to compare the emissions from various greenhouse gases based upon their global warming potential.



### 3.3 Corporate Waste

The City generates waste through its corporate operations and has a responsibility to lead by example with its corporate waste management. This includes minimising the amount of waste the City generates and maximising diversion of waste from landfill. In 2014/15 the City generated 10,022 tonnes of waste through its corporate activities and diverted 76.3% of this from landfill (see Table 7). The largest source of corporate waste for the City is waste from the City's civil construction works, which is sent to a resource recovery facility specialising in construction waste achieving 100% diversion of waste from landfill. The City also diverts 100% of its greens waste from landfill.

The City collects waste from its main administration centre, WOC administration centre, libraries, leisure centres, and community centres. The City has large recycling skip bins at its main administration centre, WOC administration centre and Craigie Leisure Centre. In addition the main administration centre and WOC administration centre have yellow-lidded recycling bins within its office areas for recycling. Table 7 shows that 313 tonnes of general waste was collected from the City's administration centres and other facilities and only 8.4% of this was recycled. However this does not include the recycling within the yellow-lidded bins.

Table 7

#### Sources of Corporate Waste

Source	Description	Tonnages 2013/14	% Diversion of Waste from Landfill
Construction Waste	Construction and demolition waste from the City's civil construction works.	6,076	100%
Greens Waste	Green waste from the landscaping and maintenance of the City's parks and public open spaces.	1,545	100%
General Waste - WOC	General waste from the City's Works Operation Centre that cannot be recycled with the greens or construction waste.	2,088	0%
General Waste – administration centres and other facilities	Waste generated within the City's administration areas (i.e. food waste, paper, plastics, etc). Only includes recycling from the large skip bins.	313	8.4*
<b>Total</b>		<b>10,022</b>	<b>76.3%</b>

\* Note: This does not include paper and cardboard recycling.

### 3.4 Waste Education and Engagement

Effective waste management is dependent upon appropriate waste behaviour, including the placement of waste in the correct bins. Information on waste services and the environmental impact of waste can improve participation in recycling, reduce contamination of the yellow-lidded bin and reduce the amount of waste generated. The City currently undertakes waste education and engagement through written information, the City’s website and a number of waste education programs (see Table 8).

There is significant opportunity to improve the City’s waste education programs to ensure clear messages, targeted information and incentives for change are provided.

The City also undertakes staff waste education through its Think Green Office Program to ensure City staff minimise the amount of waste they generate and dispose of and recycle waste appropriately.

**Table 8**

#### Summary of the City’s Waste Education Information



The City’s Guide to Domestic Waste and Recycling is produced annually and is delivered to every household to provide information on the City’s waste management services.



The City’s website provides residents with information on the City’s waste management services and how they can reduce the impact of their waste.



School Connections – Reduce, Reuse, Recycle, Recover is a practical recycling program for schools delivered in partnership with Cleanaway.



The City supports residents participating in the Garage Sale Trail, a national program that coordinates garage sales to happen in the one day to build community spirit and encourage the diversion of waste from landfill.



Clean Up Australia Day is a national event encouraging community members to pick up litter in their local environment. The City promotes this event and provides support by collecting and disposing of the rubbish that is collected.

### 3.5 Internal Stakeholders

The City's Infrastructure Management Services is the lead Business Unit in the delivery and improvement of waste management for the City, however the broad nature of waste management means that a number of Business Units across the organisation are also involved, as shown in Figure 12. The City's waste management activities include enforcement of illegal dumping, litter removal, corporate waste services, assessing appropriate provision for waste services in planning applications, planning and providing for waste services at public events, and providing waste education and information.

Figure 12

#### Internal Stakeholders for the City's Waste Management





# 4.0 Future Approach for Waste Management

If the City is to meet and move beyond its 65% diversion target it needs to strategically plan its future approach to waste management based on sound and informed decision making.

To inform the City’s future approach for waste management the City has identified a number of key challenges, benchmarked against local, national and international waste plans, undertaken research and modelling and taken steps to understand community perceptions regarding waste management.

## 4.1 Identifying Key Challenges

The City has identified a number of key challenges to improving its waste management practices and achieving its diversion targets (see Figure 13). The City will need to consider these challenges in its future planning for waste management and in the identification and design of projects within this Plan.

### 4.1.1 Meeting Community Expectations

Community feedback on the City’s waste management services is largely positive. In its 2013/14 Customer Satisfaction Survey the City received a 97% satisfaction rating for its green lidded bin service and an 89.8% satisfaction rating for the yellow-lidded bin service.

The City’s existing household waste service has been in place for a number of years and the City’s residents have become accustomed to weekly rubbish collections, fortnightly recycling collections and a bulk waste service every nine months. Potential changes to the existing service such as introducing additional bins, increasing or decreasing the volumes of collections or changing the frequency of collections would be a significant change to the existing service.

Any waste management service changes will need to ensure community expectations for a quality waste service are met. This will require engagement with the community to inform the community about the nature and the purpose of the change and to understand community attitudes towards the change. Community expectations will need to be balanced with managing the financial costs of waste management and meeting the City’s diversion targets.

### 4.1.2 Availability and Cost of Appropriate Infrastructure

The City has met the *Western Australian Waste Strategy* 50% diversion of waste from landfill by 2015 target. However to meet and move beyond the 65% diversion target will require considerable improvements. Modelling undertaken at the regional level (see section 4.2.2) has identified that achieving these higher diversion rates will require the use of an additional alternative waste treatment facility, most likely an energy from waste facility. There is currently no energy from waste facility within Western Australia, although there are a number proposed. The establishment of an alternative waste treatment facility would also have significant costs.

Figure 13

### Key Challenges for Waste Management



There is a significant role for the private sector in the collection and processing of waste into the future, as substantial investment will be needed to ensure there is sufficient infrastructure in place to process increasing waste volumes and meet the *Western Australian Waste Strategy* targets.

The City doesn't currently have access to an energy from waste facility, whether one can be established at a regional level or whether the City is able to establish a contract with a private facility will impact on the City's ability to meet its aspirational 65% and beyond target.

#### 4.1.3 Changing Behaviour and Increasing Participation

The provision of appropriate waste infrastructure is only one component of an effective waste service. Householder behaviour and participation is critical to ensuring the waste system works, this includes reducing the amount of waste generated and placing items in the correct bin.

Improving household waste behaviour and participation in waste management will be a challenge for the City. Waste education and waste programs need to be based on behaviour change principles and an understanding of the community's attitudes and perceptions towards waste.

#### 4.1.4 Existing Contracts

The City is committed to a number of existing collection contracts (see Table 9). The City is also committed under the Mindarie Regional Council Constitution agreement to take its general waste to Tamala Park. The City needs to work within these existing agreements and may need to wait until existing contracts expire before it can make certain changes to its waste services. Improving waste management in the longer term will require informed and strategic long term planning to enable the City to make improvements as contracts expire and opportunities arise.

**Table 9**

**Timeframes of the City's Existing Waste Management Contracts and Agreements**

Contract/ Agreement	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21
Recycling Collection	Expires 30 June 2016					
Domestic Collection	Expires 30 June 2016					
Bulk Waste Collections						
Greens Facility						
Resource Recovery Facility*						
Materials Recovery Facility	Expires 1 December 2017					
Tamala Park Landfill*						

\* MRC members gate fee rate is applied

■ Existing contract   ■ Option for contract extension   ■ Subject to ongoing agreement

## 4.2 Informing the Plan

A number of key activities have been undertaken to inform the development of the Plan including benchmarking of other local, national and international waste management plans, research and modelling of waste service options for the City, engaging with the community on potential new waste services and assessment of regional infrastructure.

### 4.2.1 Benchmarking

The City has undertaken benchmarking of the City's *Waste Management Plan 2016 – 2021* against other local, national and international waste management plans. The Plan aligns broadly with local, national and international waste strategies themes and targets. In particular it aligns with waste strategies developed by other local governments that have a focus on diverting waste from landfill and increasing recycling.

### 4.2.2 Research and Modelling

The introduction of waste service changes or improvements can require significant upfront capital costs and ongoing operational costs. Therefore it is important that the impact of these changes on waste expenditure and diversion rates are thoroughly researched and modelled, before changes are made.

#### Modelling of Different Waste Scenarios

The MRC recently contracted the development of a report titled *Waste Processing Infrastructure Options Assessment*<sup>11</sup>. The purpose of the report was to assess the most appropriate regional waste infrastructure approach for member Councils in order to achieve the *Western Australian Waste Strategy* targets of 65% diversion by 2020.

The report conducted a multi-criteria assessment of different scenarios using combinations of either the two-bin or three-bin system along with the use of different waste processing facilities. The multi-criteria assessment took into account environmental, financial, social and risk criteria. The assessment also took into account that the Town of Cambridge and City of Stirling had already moved to a three-bin system prior to this research being undertaken.

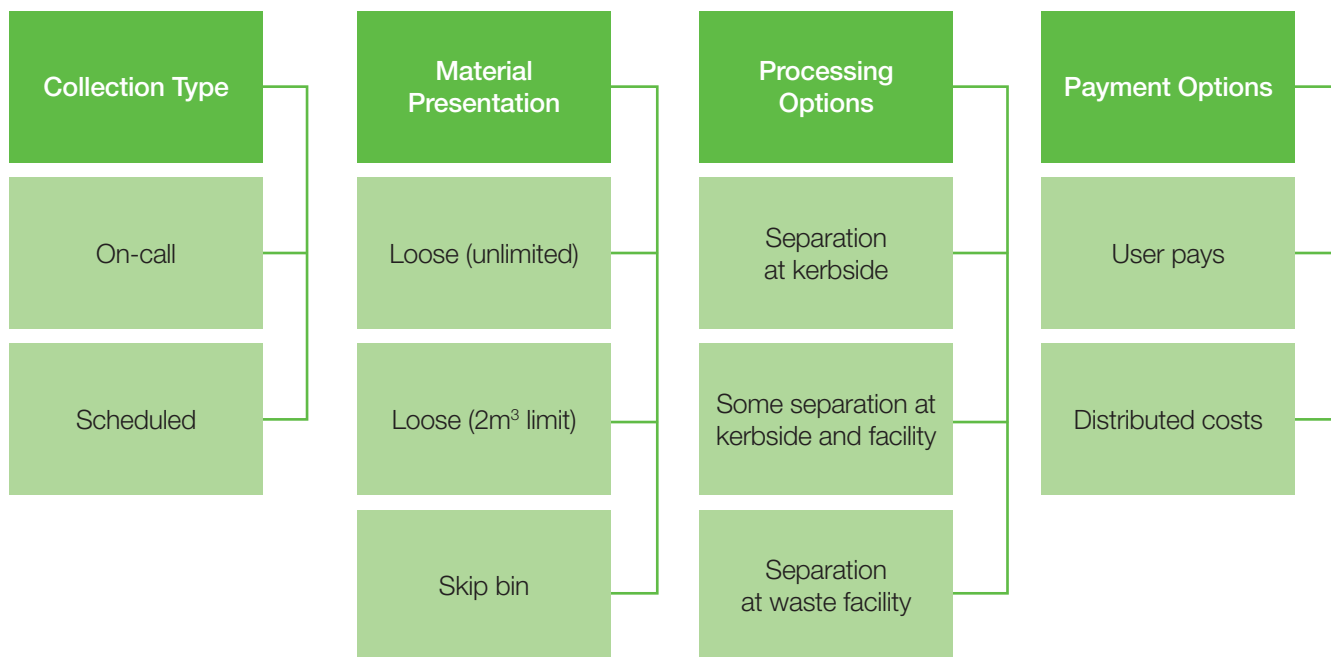
The multi-criteria assessment found only two scenarios would deliver the diversion targets by 2020. Both these scenarios included the use of an energy from waste facility to recover energy from the residual waste stream. The highest ranked scenario included the City's current two-bin collection system with all residuals going to an energy from waste facility.

The report also provided recommendations on waste processing facilities, capacity requirements and preferred locations based on the preferred scenario. The outcomes of this report have been endorsed by the MRC and will form a basis for its future approach.

<sup>12</sup> Hyder Consulting (2015)

Figure 14

## Bulk Waste Collection Options for Modelling



## Researching Bulk Waste Options

The City offers a scheduled bulk waste collection service (rubbish and green waste) every nine months, with a charge included in the annual rates (distributed costs). The City has the highest per household bulk waste collection tonnage in Western Australia – over double the Western Australian per household average – and the majority goes to landfill. Improving the bulk waste collection service, reducing the amount of waste collected and increasing diversion will reduce costs, increase amenity, reduce health and safety risks, and reduce the impact on the environment.

The City has researched and modelled different options for improving the City's bulk waste collection including different collection types (scheduled or on-call), how materials are presented, processing options and payment models (see Figure 14<sup>12</sup>).

The results of the modelling found that moving to an on-call bulk waste service would provide significant cost savings for the City and reduce the amount of waste going to landfill. Changing to an on-call user pays system would provide even further savings and higher diversion rates. However these potential changes would be a significant service change for both the City and community. Any changes will need to be made in consultation with the community and consider the logistical and administrative requirements of such a change.

<sup>12</sup> Hyder (2014)a

### Modelling the Business as Usual Scenario

The City has modelled the effect that continuing with business as usual, not improving the City's waste management practices and failing to reach the City's diversion targets will have on the City's waste expenditure and the waste fee applied to each household by 2019/20.

The model shows that business as usual will result in an average increase in waste expenditure for the next four years of 3.83% per year. This equates to the City having to spend an extra \$3,283,000 on waste services in 2019/20 compared to 2015/16. If this cost was passed onto households the household waste fee would increase from \$346.00 in 2015/16 to \$402.00 by 2019/20. The business as usual scenario is not a preferred option for the City going forward.

#### 4.2.3 Understanding Community Perceptions

It is critical that community perceptions of waste management are understood, particularly in regards to any proposed service changes. This will ensure that community expectations are met, changes are accepted and the corresponding behaviour change is achieved. The City has used a number of approaches to improve its understanding of community perceptions.

#### Strategic Community Reference Group

The role of the City's Strategic Community Reference Group (SCRG) is to provide advice to the Council on matters of significant community interest and strategic initiatives. As part of obtaining community input into the development of the Plan the City provided a presentation to the SCRG on the key challenges facing the City's waste management services, proposed key themes and objectives, and a series of potential projects.

Key feedback from the SCRG included that:

- The Plan should include corporate waste and public space waste as well as household waste.
- The City needs to improve its understanding of community perceptions regarding waste management needs and wants.
- There should be significant engagement with the community prior to the introduction of any changes in service to ensure that the need for change is understood and accepted by the community.

The City has taken into consideration the SCRG's feedback in development of the Plan, particularly in regards to engaging with the community on potential service changes.

### Bulk Waste Survey

The City's bulk waste collection service has been under review due to the upcoming expiry of the bulk waste collection contract and the above average amounts of waste collected. However the bulk waste collection service is an important service for residents, and any proposed changes are likely to generate a significant amount of interest from the community.

The City has identified a number of potential service delivery models for the bulk waste collection service, which could significantly change the service. Prior to identifying a preferred service delivery model the City conducted a community survey to understand community perceptions. The purpose of the survey was to:

- Better understand the principles underpinning community behaviours and preferences for bulk waste collection services.
- Obtain community feedback on proposed options for future bulk waste collection services within the City.
- Inform and educate the community on the external drivers that will affect the provision of bulk waste collection and processing services in the future.

Survey respondents were sought through a direct mail out to a random sample of 3,000 residents/ratepayers and from the general resident/ratepayer community through the City's website and general promotion. The City will take into consideration the results of the survey when making potential future changes to the bulk waste collection service.

## Bin Tagging Trial

The City participated in a Bin Tagging Trial implemented by WALGA and funded by the Waste Authority. The aim of the Bin Tagging Trial was to increase recycling rates and reduce contamination through a combination of information provision, enforcement and incentives. The Bin Tagging Trial was delivered to approximately 2,000 City households and included the following steps:

- A baseline visual audit of green and yellow-lidded bins to allow the success of the program to be monitored.
- Follow up audits where households were provided with feedback on their performance via 'tags' attached to the green and yellow-lidded bin handles.
- If a household continued to contaminate their bins, their yellow-lidded bin was stickered shut and the tag instructed them to remove the contamination and place the bin out the following fortnight for collection.
- The final level of enforcement involved the option to remove the recycling service.

The trial demonstrated that the program was successful in changing behaviour and reducing contamination of the yellow-lidded bin (see Table 10). Key results were:

- Correct recycling rates increased from 52% to 78.5%, a 26.5% improvement.
- Percentage of bins with recycling in plastic bags dropped from 10.4% to 3.6%.
- The number of households with items that could be recycled in their green-lidded bin decreased from 62% to 27%.
- Only 11 yellow-lidded bins were taped during the trial, the lowest number of the three local governments participating<sup>13</sup>.

Table 10

## Bin Tagging Trial Results

	Week 1	Week 2	Week 3	Week 4
<b>Green-lidded bin</b>				
Recyclable items in the waste bin	62.4%	55.0%	43.9%	27.7%
Green-lidded bin was not placed on the verge	10.3%	7.3%	9.7%	12.2%
<b>Yellow-lidded bin</b>				
Recycling contents correct	52.3%	55.2%	63.7%	78.5%
Yellow-lidded bin was not placed on the verge	14.7%	11.1%	14.2%	21.4%
Recycling contained in plastic bags	10.4%	5.3%	8.2%	3.6%

\*Increase in the number of yellow-lidded bins not placed on the verge was likely a result of changing sunrise patterns.

<sup>13</sup> WALGA (2015)

## 4.3 Future Planning for Waste Management

This Plan will guide the City's waste management activities over the next five years and sets a diversion target of 65% by 2020. However given the long timeframes required for undertaking technical analysis, establishing new waste infrastructure, creating new waste contracts, and putting new systems in place, this Plan will also consider longer term planning beyond 2021.

Future planning for waste management will be an ongoing process for the City, influenced by limitations of existing contracts, future changes to the *Western Australian Resource Recovery Act*, developments in the private sector, and actions taken by the City in the shorter term.

To guide its future planning, the City has identified three planning horizons (see Table 11). Horizon 1 and 2 are within the timeframe of this Plan, while Horizon 3 extends beyond the timeframe of this Plan and aims to take the City beyond the 65% diversion target.

**Table 11**

### Overview of the City's Three Planning Horizons for Waste Management

	Timeframe	Objectives
<b>Horizon 1</b>	2016 – 2019	Optimising the current system
		Research and data collection
<b>Horizon 2</b>	2016 – 2021	Improving knowledge
		Improving knowledge
		Decision making Positioning the City for Horizon 3
<b>Horizon 3</b>	2016 to beyond 2021	Introduction/use of new infrastructure Moving beyond 65% diversion

### 4.3.1 Planning Horizons

Major improvements to waste management infrastructure or processes will generally require partnerships with other local governments, management or amendments of long term contracts, significant investment, and community engagement and behaviour change. Therefore, any change or improvement should be based on sound technical analysis and informed decision making. This Plan (Horizon 1 and Horizon 2) will have an emphasis on improving the City's knowledge to ensure it can make informed decisions for the future.

Horizon 1 (2016 – 2019) is the implementation phase of the *Waste Management Plan 2016 – 2021* and will focus on projects that optimise diversion from the City's current waste management systems through application of the waste hierarchy. Horizon 1 will also include projects to improve the City's knowledge of waste management and put the City in an informed position for future decision making as part of Horizon 2.

Horizon 2 (2016 – 2021) will focus on making decisions about the City's long term waste management approach using the outcomes of Horizon 1. By the end of Horizon 2 waste service improvements will have enabled the City to reach its 65% diversion target and decisions made in Horizon 2 will put the City in a position to further increase and move beyond the 65% target.

Research and modelling has identified that if the region is to increase diversion beyond 65% it will require the use of an energy from waste facility. Energy from waste is the process of generating energy in the form of electricity and/or heat from the incineration of waste and is a form of energy recovery. Energy recovery is recognised in the Waste Hierarchy as a preferred option over disposal to landfill, and has an important role alongside other waste management options for achieving diversion targets and minimising environmental impacts.

The City doesn't currently have access to an energy from waste facility. The investigations of Horizon 1 and the decisions made in Horizon 2 will determine whether the City commits to using an energy from waste facility from Horizon 3 onwards (also dependant on the position of the MRC). This will build on the increased diversion already achieved in Horizons 1 and 2.

# 5.0 Waste Management Plan

## 5.1 Waste Management Focus Areas

Key focus areas have been developed to address key waste management issues and opportunities for the City. Outcomes for each key focus area have been identified and are provided below in Table 12. How each key focus area relates to the overarching objectives of the *Waste Management Plan 2016 – 2021* (identified in section 1.2.1) is shown. Implementation of projects within the key focus areas will ensure a multi-faceted approach to waste management and achievement of the overarching objectives of the Plan.

## 5.2 Waste Management Projects

In order to achieve the objectives of the *Waste Management Plan 2016 – 2021* projects have been identified within each of the four key focus areas. Some projects may contribute to achieving objectives across multiple key focus areas. Projects will be implemented over the life of the Plan and will be subject to regular monitoring and review; projects are identified as Horizon 1 or 2. A list of the projects is provided in Table 13. A full description of each project is provided in section 5.2.1.

Table 12

### Waste Management Focus Areas and Objectives

Key Focus Area	Outcomes	WMP Objectives					
		1	2	3	4	5	6
<b>Waste Services</b>	The City provides high quality waste services to the community that are environmentally and financially sustainable. The amount of waste diverted from landfill is increased.	•		•	•		
<b>Community Participation and Engagement</b>	The City leads behaviour change in the community by facilitating and promoting avoid, reduce, reuse and recycle waste practices. Improving knowledge and understanding in the community of the City's waste management services.	•	•		•		
<b>Research and Development</b>	The City's waste management services and service improvements are based on current research, best-practice and waste technology improvements.	•			•	•	
<b>Stakeholders and Partnerships</b>	Working with the Mandarie Regional Council and member Councils to ensure positive waste management outcomes. Partnerships and funding opportunities with other local governments and State Government are identified to ensure positive waste management outcomes.	•			•		•



Table 13

## List of Waste Management Projects

Project No	Title	Planning Horizon	Key Focus Area				Waste Hierarchy
			Waste Services	Community Participation and Engagement	Research and Development	Stakeholders and Partnerships	
1	Recycle 360 – Implementation of larger recycling bins	1	•	•	•		Recycling
2	Improving bulk waste collection services	1	•	•			Avoid, Reuse, Recycling, Disposal
3	Bin tagging program	1	•	•			Recycling, Disposal
4	Community waste behaviour change program	2	•	•			Recycling
5	Securing long term recycling processing arrangements	1	•			•	Recycling
6	Household Waste Composition Audit	1			•		Avoid, Recycling, Disposal
7	Collaborate with the MRC and WALGA on research and advocacy projects	2			•	•	Avoid, Reuse, Reprocessing, Recycling, Energy Recovery, Disposal
8	Pilot public place recycling in the Joondalup CBD	1	•	•	•		Recycling
9	Managing the City's corporate waste	2	•				Avoid, Reuse, Recycling
10	Implement public place recycling at major events	2	•	•			Recycling
11	Develop options for improving the value of green waste	1	•		•		Reprocessing
12	Investigate potential models for improving waste collection services in high density areas and multi-unit dwellings	1	•		•		Recycling, Disposal
13	Litter collection and prevention	2	•	•			Avoid, Disposal
14	Develop options for a household hazardous waste service	1	•	•	•		Disposal
15	Continued review and improvement of household waste services	2	•		•	•	Reprocessing, Recycling, Disposal
16	Developing future waste infrastructure requirements	2	•		•	•	Recycling, Energy Recovery, Disposal

### 5.2.1 Project Descriptions

A summary of each project is provided below including project descriptions, project objectives and deliverables.

Project 1	
Recycle 360 – A Better Bins Project	
<b>Project Status</b>	<b>Project Commencement</b>
New Project	2015/16
<b>Project Description</b>	
<p>In order to increase the amount of materials recycled it is proposed to trial the use of larger (360L) yellow-lidded recycling bins within the City. The provision of a larger bin will increase a households recycling capacity without requiring a more frequent collection service and avoid higher transport and collection costs and associated emissions. The trial will initially target larger households of four residents or more.</p> <p>Complementary measures including marketing and promotion, community education and engagement and auditing of recyclables collected will also be delivered as part of the Project.</p> <p>The Project will be assessed to determine its effectiveness for increasing diversion from landfill as well as uptake and acceptance of the larger bin by the community.</p>	
<b>Project Objectives</b>	
<ul style="list-style-type: none"> <li>• Increase the amount of recyclable materials collected through the yellow-lidded bin collection.</li> <li>• Reduce contamination of the yellow-lidded bin.</li> <li>• Increase the awareness, understanding and participation in recycling by the community.</li> <li>• Assess the potential for 360L recycling bins to be rolled out across the City.</li> </ul>	
<b>Deliverables</b>	
<ul style="list-style-type: none"> <li>• Delivery of 360L recycling bins to households.</li> <li>• An up to 5% increase in the landfill diversion rate.</li> <li>• Marketing and promotional materials to support the delivery and uptake of the project.</li> </ul>	



## Project 2

### Implement improved Bulk Waste Collection Service

#### Project Status

New Project

#### Project Commencement

2015/16

#### Project Description

The City offers a scheduled bulk waste collection service (rubbish and green waste) every nine months, with a charge included in the annual rates (distributed costs). The City has the highest per household bulk waste collection tonnage in Western Australia, over double the Western Australian per household average and the majority goes to landfill. Improving the bulk waste collection service, reducing the amount of waste collected and increasing diversion will reduce costs, increase amenity, reduce health and safety risks and reduce the impact on the environment.

The City has undertaken modeling of different bulk service options and engaged with the community to determine their preferences for the different bulk service options. Improvements to the service will be based on the outcomes of the modeling and the community preferences survey.

#### Project Objectives

- To implement an improved bulk waste collection service.

#### Deliverables

- Establishment of the new bulk waste service collection.

**Project 3****Bin Tagging Program****Project Status**

New Project

**Project Commencement**

2016/17

**Project Description**

Improving household participation and waste management practices by ensuring waste items are placed in the correct bin can significantly influence the effectiveness of household waste collection and processing.

The City participated in a trial of a Bin Tagging Program being implemented by WALGA and funded by the Waste Authority. The Bin Tagging Program is a community engagement and enforcement program that aims to increase the recycling rate from kerbside collections and reduce contamination. The Program used a combination of information provision, specific feedback, enforcement, and incentives to encourage residents to change their behaviour.

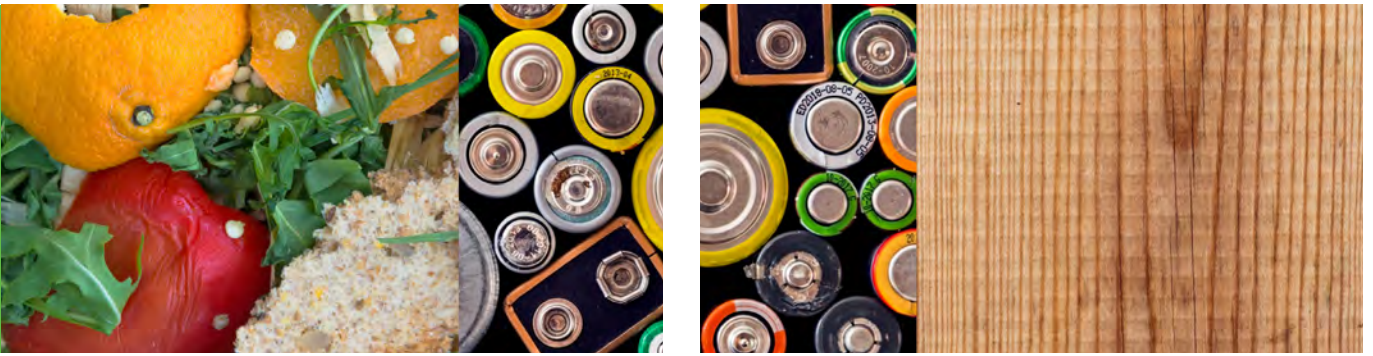
The trial was found to significantly improve waste management practices and reduce contamination of the yellow-lidded bin. Given the success of the trial the program will be implemented across the City. This will not only reduce costs but will also increase diversion from landfill.

**Project Objectives**

- To reduce contamination of recycling bins in participating households.

**Deliverables**

- Rollout of the Bin Tagging Program across the City.



## Project 4

### Community Waste Behaviour Change Program

#### Project Status

New Project

#### Project Commencement

2016/17

#### Project Description

Improving waste behaviours and participation in waste management and recycling can significantly influence the effectiveness of household waste collection and processing. In particular residents can use reduce, reuse and recycle principles to reduce the amount of waste generated, use home-based waste management options such as composting and worm farms, and ensure waste items are placed in the correct bin, reducing contamination.

This project will introduce a coordinated waste education and promotion program to avoid, reduce, reuse and recycle waste, increase diversion from landfill, encourage appropriate disposal and reduce cost. The program will include:

- Provision of information and education through a targeted marketing campaign.
- Investigation and consideration of financial incentives through differentiated pricing i.e. by introducing a choice in bin sizes at different costs, rates discounts, user pays principles for some services, higher costs for waste bins than recycling bins, etc.
- Enforcement and specific feedback through rollout of the Bin Tagging Program across the City.
- Community-wide feedback by providing time relevant information on the City's progress towards targets.

The development of the program should give consideration to:

- Building upon the City's existing waste information and materials and environmental education programs.
- Identifying and influencing target behaviours that will have the most impact on tonnages and diversion.
- Engaging with different target groups (households, schools etc).
- Focussing on key messages the City wants to deliver.

#### Project Objectives

- Decrease the amount of household waste generated through changed purchasing decisions.
- Improve community knowledge of the City's waste management services.
- Improve community participation in recycling and reduce recycling contamination rates.
- Investigate different options for using financial incentives to encourage behaviour change.

#### Deliverables

- Implementation of a comprehensive waste education and promotion program.
- Rollout of the Bin Tagging Program across the City.

## Project 5

### Secure Long-term Recycling Processing Arrangements

#### Project Status

New Project

#### Project Commencement

2015/16

#### Project Description

Until recently the City's recyclables (yellow-lidded bin) were sent to the Wangara Recycling Centre, operated by City of Wanneroo on a cost-sharing basis with the Cities of Joondalup and Swan. Due to ageing infrastructure and a range of operational issues including temporary shutdowns, processing costs associated with the centre increased above industry standards. As a result the Cities of Joondalup, Wanneroo and Swan have entered into a three year contract with a private contractor for the processing of recycling at a materials recovery facility until longer term arrangements can be put in place.

The combined recycling tonnage of City of Wanneroo, City of Joondalup and City of Swan is anticipated to reach 100,000 tpa in 2030, from the 42,000 tpa processed currently. There is a need to establish an arrangement to process this amount of material and to reduce transport distances, therefore reducing operational costs and environmental impact.

It is proposed that the long term processing solution for the region could be undertaken in partnership with the Cities of Wanneroo and Swan to provide the critical mass for a facility in the northern corridor in the long term. The City of Joondalup will also continue to work with Mindarie Regional Council and member councils on options for regional solutions.

#### Project Objectives

- Increase future capacity for processing recyclables.
- Identify a long-term solution for recycling processing in the region that minimises transport distances and has capacity for future tonnage.

#### Deliverables

- A long term solution for recycling processing arrangements for the City.



## Project 6

### Household Waste Composition Audit

#### Project Status

New Project

#### Project Commencement

2016/17

#### Project Description

A waste composition audit is used to quantify the amounts and types of waste being generated, providing a breakdown of the different material types within a bin. A waste composition audit can assist in:

- Identifying amount of waste generated and average percentage of bin capacity used.
- Quantifying contamination rates and identifying most common contaminants.
- Identifying materials that can potentially be diverted, through reduce, reuse and recover principles.

This will help to improve waste management processes, guide waste education messages and can also help to monitor the success of any improvements.

The City does not currently have any accurate household waste composition data. The City should undertake a waste composition audit for its green and yellow-lidded bins. This data can then be used to inform policy decisions, identify service improvements and tailor education messages.

This audit can also provide a baseline data set from which the City can monitor the success of future service improvements and program activities using follow up audits.

#### Project Objectives

- To improve the City's understanding and knowledge of household waste composition.
- To ensure the City's waste management processes and activities are informed by sound analysis and understanding of waste generated.

#### Deliverables

- Waste composition data of green and yellow-lidded household bins.

**Project 7****Collaborate with the MRC and WALGA in research and advocacy projects****Project Status**

New Project

**Project Commencement**

2015/16

**Project Description**

Local governments working together through the Western Australian Local Government Association (WALGA) and regional bodies can create new opportunities and increase positive outcomes, particularly in the areas of research and advocacy.

WALGA is the peak lobbying and advocacy organisation for local government in Western Australia and will lobby, advocate and negotiate, on behalf of local government on matters that affect the sector. This includes State and National government policy and legislative changes. WALGA also undertakes a significant amount of research including establishing pilot programs to test new waste management approaches, and the development of discussion papers, guidelines and other resources to support local governments.

The Mandarie Regional Council also has a significant role to play in researching and advocating for waste management infrastructure and service arrangements within the region. Particularly in relation to the processing and diversion of waste materials brought in by member Councils to Tamala Park.

The City, through supporting and partnering with the MRC and WALGA on research and advocacy projects, can maximise opportunities and benefits for the City. This will keep the City informed of the latest developments and best practice approaches to waste management, facilitate the City's participation in pilot projects and provide a greater advocacy voice on waste management issues for the City.

**Project Objectives**

- To leverage opportunities for research and advocacy through the MRC and WALGA.

**Deliverables**

- Partnerships with the MRC and WALGA on research and advocacy projects.





## Project 8

### Pilot public space recycling in the Joondalup CBD

#### Project Status

New Project

#### Project Commencement

2016/17

#### Project Description

The City collects waste from rubbish bins in streets and parks, however it does not currently provide recycling bins in public spaces. Providing opportunities for recycling in the City's public spaces will have the benefits for both educating the community about waste management and also demonstrating the City's commitment to sustainable waste management.

This project will implement a pilot for public space recycling in the Joondalup Central Business District (CBD). The Joondalup CBD is a high profile area for the City which attracts a range of visitors. The pilot will assess how effective the program is and whether there is potential to implement public space recycling in other areas of the City.

The provision of recycling bins in the Joondalup CBD will need to be accompanied with information and education to decrease contamination levels and enable this waste to be diverted from landfill.

#### Project Objectives

- To trial public space recycling in the Joondalup CBD and determine its effectiveness.

#### Deliverables

- Tonnes of recyclables collected in the Joondalup CBD during the Pilot.
- Levels of contamination in recycling bins during the Pilot.

**Project 9****Managing the City's corporate waste****Project Status**

New Project

**Project Commencement**

2015/16

**Project Description**

The City generates waste through its corporate operations including waste from its administration activities, construction and demolition waste and greens waste from maintenance of the City's parks and open spaces. The City will lead by example in the management of its corporate waste, including:

- Implementing the Think Green Office program to educate staff and encourage behaviours to reduce waste and improve recycling practices.
- Recycling corporate waste such as paper, printer cartridges, batteries, mobile phones etc.
- Reviewing how recycling collection services at the City's leisure centres, libraries and community centres can be improved.
- Reviewing and improving the City's collection of corporate waste data.
- Identifying and implementing opportunities to transition corporate processes online and reduce the use of paper.

**Project Objectives**

- To decrease the amount of waste generated by the City through its corporate activities.
- To increase the amount of corporate waste recycled.

**Deliverables**

- Amount of waste generated by the City's corporate activities.
- Amount of corporate waste diverted from landfill.



## Project 10

### Implement public space recycling at major City events

#### Project Status

New Project

#### Project Commencement

2015/16

#### Project Description

The City provides general waste services at City events and at some key events the City also provides and collects recycling bins. Providing recycling at key City events has benefits in both educating the community about waste management and also demonstrating the City's commitment to sustainable waste management.

While recycling bins are provided, often the level of contamination is high which reduces the amount of waste diverted from landfill. There is opportunity for the City to increase its collection of recyclables at City events, however this needs to be accompanied with information and education to decrease contamination levels and enable this waste to be diverted from landfill.

The City will continue to implement recycling at key City events and expand to other City events as opportunities arise. It will also investigate how to improve recycling at events and reduce contamination.

#### Project Objectives

- To provide recycling services at key City events.
- To improve participation and reduce contamination of recycling at key City events.

#### Deliverables

- Recycling bins to be provided at key City events.
- Increased diversion of recyclables collected at key City events.

**Project 11****Develop options for improving the value of green waste****Project Status**

New Project

**Project Commencement**

2016/17

**Project Description**

The City collects green waste as part of the bulk waste collection service and residents are also provided with four free green waste tip vouchers annually. The City delivers 11,500tpa of green waste to the Wangara Recycling Centre where it is mulched.

Green waste at the Wangara Recycling Centre is not actively composted or managed to Australian Standards 4454 – 2012 and therefore is not of high quality and does not have a strong market value. It is however, diverted from landfill.

This project will investigate alternative collection and processing options to improve the quality and value of the material produced. Consideration should be given to:

- Reducing contamination of the green waste collected.
- Processing the material to AS4454.
- Pathogen-free certification so that it can be used for Council's parks and operations.

**Project Objectives**

- Identify options for improving the value of green waste collected in the City.

**Deliverables**

- Options for improving the value of processed green waste.



## Project 12

### Investigate potential models for improving waste collection services in high density areas and multi-unit dwellings

#### Project Status

New Project

#### Project Commencement

2017/18

#### Project Description

The management of waste from high density areas including multiple unit dwellings presents different challenges for waste management compared to servicing single house dwellings. This includes the need for different types of bins (i.e. large commercial bins rather than the traditional wheelie bin), higher contamination rates, difficulty in linking specific waste to an individual property (which makes enforcement and incentives difficult), and potential difficulties in accessing and collecting bins.

Through the City's *Local Housing Strategy*, ten areas within the City have been identified as being suitable for higher residential densities. This means that properties in these areas could be developed to accommodate a greater number and range of housing.

This project will investigate the impact increased housing density and in particular multiple unit dwellings will have on the City's waste collection services and the need for a different level of waste services for high density areas will be considered. This may require the development of a set of standards for waste provision in multiple unit dwellings which would provide developers with the information to ensure waste management is adequately considered in development applications.

The City will also give consideration to Western Australian Local Government Association's Planning for Waste Management Project which provides resources and guidelines to assist local governments with incorporating waste management considerations into the planning and building approval process. This includes a Model Local Planning Policy and Draft Guidelines for Waste Management Plans for new developments.

#### Project Objectives

- To understand the implications of higher density areas and multiple unit dwellings on the City's waste services.
- Investigate options for improving the effectiveness of waste services in high density areas and multiple unit dwellings.

#### Deliverables

- Develop a set of standards for waste provision in multiple unit dwellings.

**Project 13****Litter collection and prevention****Project Status**

Existing Project

**Project Commencement**

2015/16

**Project Description**

Litter in parks, public open spaces and natural areas can result in reduced amenity, enter and pollute nearby waterways, create a hazard for local native fauna, and increase the risk of fire. The City will continue to collect litter within the City's public open spaces, verges, medians, and natural areas.

The City will also continue to support community litter collection and prevention activities such as Clean Up Australia Day, Keep Australia Beautiful Campaigns and litter collection by Friends Groups. The City offers support through promoting these events and collecting and disposing of the waste collected.

The City also has the authority under the *Litter Act 1979* to enforce penalties for illegal dumping although identifying the person responsible for illegal dumping can be a challenge. If a hotspot for illegal dumping in local areas is identified the City will consider the use of closed circuit television equipment (CCTV) to assist in deterring or identifying offenders.

**Project Objectives**

- To minimise the amount of litter within the City's parks, public open spaces and natural areas.

**Deliverables**

- A reduced amount of litter within the City's parks, public open spaces and natural areas.

**Project 14****Investigate options for a household hazardous waste service****Project Status**

New Project

**Project Commencement**

2017/18

**Project Description**

Household products that are no longer needed and contain chemicals or substances that can be harmful (i.e. flammable, toxic, reactive, or corrosive) are called Household Hazardous Waste (HHW). The City's residents can drop-off HHW at Tamala Park for appropriate disposal or storage.

The incorrect storage and disposal of household hazardous waste can impact on the environment, and the health and safety of residents and local government employees who may have to deal with illegally dumped HHW.

Options for improving the collection of HHW, such as a mobile service or local collection days, will be investigated as part of this project. Aspects that will be considered include reduced environmental impact, likely participation rates, disposal and storage implications, and financial impact.

**Project Objectives**

- Investigate options for improving the collection of household hazardous waste.
- Increase the appropriate disposal of household hazardous waste.

**Deliverables**

- An improved household hazardous waste collection service.

## Project 15

### Continued review and improvement of household waste services

#### Project Status

New Project

#### Project Commencement

2017/18

#### Project Description

Based on research and modelling, a preferred scenario for future waste infrastructure has been identified for the Region. In the short-term this means the City will continue with a two bin system for its household waste service. However the City will continue to investigate options for improving household waste services and will remain cognisant of changes to best practice, State Government policy and legislation and infrastructure and technology advancements which may provide opportunities for the City to further improve its household waste service.

Ongoing reviews may include potential changes such as number of bins, configuration of bins (i.e. what can be put in each bin), bin size, colour of bin lids, etc., and will take into consideration existing contracts, infrastructure requirements, financial modelling, potential for increasing diversion, regulatory environment, best practice, current research, and action at a regional level.

The City will engage with the community prior to implementing any potential changes to waste services to ensure changes can be trialled and implemented successfully.

#### Project Objectives

- To continually review and improve the City's household waste services.
- To remain aware of changing policy, regulation and best practice in household waste services.

#### Deliverables

- An effective household waste management service that maximises diversion rates.

## Project 16

### Developing future waste infrastructure requirements

#### Project Status

New Project

#### Project Commencement

2015/16

#### Project Description

The MRC's Resource Recovery Facility currently has capacity to process 100,000tpa of mixed waste or 85,000tpa of source separated organics. MRC member Councils collectively generate approximately 300,000tpa. The current facility cannot process all of the MRC members material, and therefore the remainder is disposed of to landfill at Tamala Park.

If MRC members are to achieve their waste diversion targets, an additional alternative waste treatment facility will be required. This additional waste treatment facility is likely to be an energy from waste facility. The MRC has conducted research into options for reaching the *Western Australian Waste Strategy* diversion targets including infrastructure required, optimal locations for infrastructure and alternative waste technologies.

This project will involve working with the MRC and member councils to progress recommendations from the infrastructure assessments report including investigating the potential for an energy from waste facility.

#### Project Objectives

- Support investigations by the MRC into waste infrastructure requirements for the Region including an energy from waste facility.

#### Deliverables

- An agreed approach at a regional level for future waste infrastructure requirements.



## 6.0 Implementation

Effective and coordinated implementation is critical to achieving the objectives of the Plan. Implementation of the Plan will be coordinated by establishing key performance indicators and setting up processes for monitoring and review.

### 6.1 Overarching Target and Key Performance Indicators

A target of 65% of waste diverted from landfill by 2020 is the City's overarching target for implementation of the *Waste Management Plan 2016 – 2021*. A specific target has been set for the amount of household waste diverted from landfill as household waste is the City's largest source of waste, provides significant opportunities for improvements, and has consistent and reliable data.

Key performance indicators have also been developed to allow for appropriate reporting and evaluation of the *Waste Management Plan 2016 – 2021* and will be reported on during the annual review process (see Table 14). An aspirational trend has been set for these key performance indicators rather than targets as they do not have as extensive or as reliable datasets. The potential for setting more specific targets for these key performance indicators will be assessed for future waste management plans.

The City reports against the following indicators in its Annual Plan:

- Total waste diverted from landfill (%)
- Waste diverted from landfill (tonnes)
- Waste present in natural areas.



Table 14

## Waste Management Plan Key Performance Indicators

Indicator	Purpose	Source	Aspirational Trend
<b>Household Waste</b>			
<b>Total household waste generated (tonnes/yr)</b>	To provide an indication of how much waste is being generated in the City and the directional trend.	Tonnage data provided through measurement of individual waste streams.	Decrease ↓
<b>Household waste generated per capita (tonnes/capita/yr)</b>	To provide an indication of whether residents are reducing the amount of waste generated when changes in population are taken into account.	Tonnage data provided through measurement of individual waste streams. Population data provided by .id community profile.	Decrease ↓
<b>Percentage of household waste recovered through the materials recovery facility (%)</b>	To provide information on whether households are increasing their participation in recycling.	Tonnage data provided through measurement of individual waste streams.	Increase ↑
<b>Corporate Waste</b>			
<b>Total amount of corporate waste generated (tonnes/ yr)</b>	To provide an indication on whether the City is decreasing the amount of waste generated through its corporate activities.	Tonnage data obtained from City's corporate waste collection contracts.	Decrease ↓
<b>Percentage of corporate waste diverted from landfill (%)</b>	To determine whether the City is increasing its diversion of corporate waste.	Tonnage data obtained from City's corporate waste collection contracts.	Increase ↑
<b>Public Space Waste</b>			
<b>Waste present within Natural Areas</b>	To provide an indication of whether the City's litter collection and prevention activities are effective.	Annual measurement of the amount of waste material present within ten of the City's key conservation areas.	Decrease ↓

## 6.2 Monitoring and Review

The *Waste Management Plan 2016 – 2021* will undergo three phases of monitoring and review, annual monitoring and review, minor review at the completion of Horizon 1 and major review at the completion of Horizon 2 (see Table 15).

Table 15

### Monitoring and Review Process for Waste Management Plan 2016 – 2021

Level of Review	Timeframe	Description
Annual Review	Annually	In line with the City's Project Management Framework, annual review of the Plan will include an: <ul style="list-style-type: none"> <li>• Assessment of the progress and status of each waste management project.</li> <li>• Assessment of progress towards the City's key performance indicators.</li> <li>• Identification of any implementation issues or significant lack in progress.</li> </ul>
Minor Review	Completion of Horizon 1	The Plan will undergo a minor review at the completion of Horizon 1 to determine if there has been any significant developments within the external framework (State Government policy and regulation, best practice research, waste infrastructure developments at the regional scale and in the private sector) that may warrant updating of the Plan or the inclusion of additional waste management projects for Horizon 2.
Major Review	Completion of Horizon 2	At the completion of Horizon 2 the Plan will undergo a major review that will inform the development of a new <i>Waste Management Plan 2021 – 2026</i> for Horizon 3.



# Appendix 1

## Local government waste plan

### City of Joondalup

## Part 1 - services and performance

### 1.0 Introduction

Part 1 of the City of Joondalup waste plan establishes the City's waste profile and baseline information in relation to the objectives and targets set out in the Waste Avoidance and Resource Recovery Strategy 2030 (Waste Strategy):

**Avoid** - Western Australians generate less waste.

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

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

Where data was available, the Department of Water and Environmental Regulation (DWER) has pre-filled sections of Part 1. If any of the pre-filled information is incorrect, please amend accordingly and advise of the changes.

Please take the time to ensure that you complete each section, where relevant. In some tabs, you may need to scroll down to ensure that you have not missed any sections.

## Part 1 - Services and performance

### 2.0 Integrated planning and reporting

All local governments plan for the future<sup>1</sup> through the development of strategic community plans and corporate business plans. Waste plans form part of local government integrated planning and reporting as an issue-specific informing strategy.

Table 1: Links between plan for the future and waste management (Please complete the table, even if the answer is "waste isn't mentioned in our SCP or CBP")

<b>Strategic Community Plan</b>	
Title:	Joondalup 2022: Strategic Community Plan 2012-2022
Came into force:	2012
Date of next review:	Revised in 2018. A new Strategic Community Plan is currently being developed which is planned to be completed in 2022.
Waste-related priorities:	Demonstrate current best practice in environmental management for waste.
<b>Corporate Business Plan</b>	
Title:	Corporate Business Plan 2020/21 - 2024/25
Came into force:	2020
Date of next review:	2021 (reviewed annually)
Waste-related priorities:	Environmental resilience: identify and respond to environmental risks and vulnerabilities. Implementation of the Waste Management Plan 2016-2021 is listed as a project.
<b>Environment Plan</b>	
Title:	Environment Plan 2014 - 2019
Came into force:	2014
Date of next review:	A new Environment Strategy is planned to be completed in 2023.
Waste-related priorities:	To minimise waste to landfill through sustainable waste management practices which incorporate reduce, re-use, recovery and recycling principles.
<b>Waste Management Plan</b>	
Title:	Waste Management Plan 2016 - 2021
Came into force:	2016
Date of next review:	2021. A new Waste Management Plan is planned to be adopted by 2022.
Waste-related priorities:	<p>The aim is to guide the City's waste management practices over the next five years to ensure increased diversion from landfill and to inform future long term planning for waste management.</p> <p>Objectives include:</p> <ul style="list-style-type: none"> <li>• Minimise waste to landfill through application of the waste hierarchy.</li> <li>• Engage with the community to increase participation in sustainable waste management practices.</li> <li>• Provide a quality and cost-effective waste management service to the community.</li> <li>• Minimise the environmental impact of waste generation, collection and disposal.</li> <li>• Maintain effective relationships with key stakeholders to maximise regional outcomes.</li> <li>• Ensure the City's long term planning is informed by research and best practice.</li> </ul> <p>Targets include:</p> <ul style="list-style-type: none"> <li>• 50% of municipal solid waste to be diverted from landfill by 2015</li> <li>• 65% of municipal solid waste to be diverted from landfill by 2020.</li> </ul>

<sup>1</sup> 'Plan for the future' means a plan made under section 5.56 of the Local Government Act 1995 and Division 1 and 3 of Part 5 of the Local Government (Administration) Regulations 1996.

## Part 1 - Services and performance

### 3.0 Avoid

Avoidance of waste generation is the preferred waste management option in the waste hierarchy. This section looks at waste generation rates and the reduction required to contribute to the state's waste generation reduction targets - **2025**: Reduction in MSW generation per capita by 5%, **2030**: Reduction in MSW generation per capita by 10%.

Reviewing this data is a critical element of waste planning as it can show how waste generation has changed, identify potential reasons for changes and indicate areas to target in *Part 2 – Implementation plan* (Table 21).

Table 2: City of Joondalup population, households and waste generation compared with state averages and targets for 2025 and 2030

(Local government to review prefilled data)

	Actual							Targets	
	2014-15 (baseline)	2015-16	2016-17	2017-18	2018-19	2019-20	2024-25	2029-30	
Population <sup>(1)</sup>	168,920	161,050	160,260	159,470	159,977	159,806	166,118 <sup>†</sup>	170,318 <sup>†</sup>	
Households <sup>(1)</sup>	60,329	57,518	57,236	56,954	58,726	58,999	61,659 <sup>‡</sup>	63,799 <sup>‡</sup>	
Total domestic waste generated <sup>(2)</sup>	90,296	86,853	83,878	82,140	83,899	80,513.69			
Waste generation per capita/year <sup>(2)</sup>	535	539	523	515	524	504	508	481	

(1) Source (except 2014-15): Western Australia Tomorrow Population Report No. 11 <https://www.dph.wa.gov.au/information-and-services/land-supply-and-demography/western-australia-tomorrow-population-forecasts>. Population for 2014-15 from Western Australia Tomorrow Population Report No. 10. Population for intercensal years extrapolated. Households estimated using 'Average people per households' from 2016 ABS Census Quickstats.

(2) Source: Local Government Census data - domestic waste

#### Additional comments (local government to insert any additional comments that may be applicable)

The current reduction in waste collected by the City was due to the reduction in the bulk hard waste collected as the City introduced containerised bulk hard waste collection in October 2016. \*Source: Australian Bureau of Statistics 2020, Regional Population Growth (3218.0), Australian Government, Canberra.

<sup>†</sup>Source: .id (informed decisions) 2018, City of Joondalup Population Forecast, Population, forecast.id.com.au/joondalup

<sup>‡</sup>Source: .id (informed decisions) 2018, City of Joondalup Population Forecast, Households, forecast.id.com.au/joondalup

## Part 1 - Services and performance

### 4.0 Recover

Where waste generation is unavoidable, efforts should be made to maintain the circulation of materials within the economy. Table 3 gives the overall recovery rate for your local government compared to Waste Strategy targets and the state average. This is broken down into the proportion of the recovery which was materials recovery (reuse, reprocessing or recycling) or energy recovery. The Waste Strategy includes a target that from 2020, energy should only be recovered from residual waste (see *Guidance Document – Table 1*, for more information).

Table 3: City of Joondalup population, households and recovery rate compared with state averages and targets for 2020, 2025 and 2030

(LG to review the pre-filled data and amend/update if necessary. Add additional comments if necessary.)

	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020 target	2025 target	2030 target
Population <sup>(1)</sup>	168,920	161,050	160,260	159,470	159,977	159,806			
Households <sup>(1)</sup>	60,329	58,226	57,500	59,181	58,726	58,999			
Overall recovery (%) <sup>(2)</sup>	49%	44%	56%	59%	59%	57%	65%	67%	70%
Materials recovery	49%	44%	56%	55%	57%	56.7%	>80%	>80%	>80%
Energy recovery	0%	0%	0%	0%	0%	0%	<20%	<20%	<20%
Perth metro average <sup>(3)</sup>	36%	38%	40%	41%	42%	not available			

(1) Source (except 2014-15): Western Australia Tomorrow Population Report No. 11 <https://www.dph.wa.gov.au/information-and-services/land-supply-and-demography/western-australia-tomorrow-population-forecasts>. Population for 2014-15 from Western Australia Tomorrow Population Report No. 10. Population for intercensal years extrapolated. Households estimated using 'Average people per households' from 2016 ABS Census Quickstats.

(2) Source: Local Government Census data - domestic

(3) Source: Waste Authority data fact sheets <http://www.wasteauthority.wa.gov.au/programs/data/data-fact-sheets/>

**Additional comments (local government to insert any additional comments that may be applicable)**

Since 2018-19 the percentage of recovery has dropped to 56.7% (for 2019-20), due to the lower percentage of materials being recovered from the bulk hard waste stream being down from 38% to approximately 25%. The City's general waste is also not being processed at the RRF due to the removal of the green waste which reduced the remaining organics in the general waste bins diversion rate. It is also due to the reduced recovery in recycling materials from the kerbside recycling due to the Cleanaway MRF fire in December 2019. This led to the City's recycling to be processed at an alternative facility (SMRC) which has only 73% recovery compared to 85% recovery at the Cleanaway MRF. The overall recovery includes the councils waste recovery percentages.

## Part 1 - Services and performance

### 5.0 Protect

Objective 3 of the Waste Strategy is to protect the environment by managing waste responsibly, with targets for achieving better practice, reducing litter and illegal dumping. **By 2030 all waste is managed by and/or disposed to better practice facilities, by 2030 move towards zero illegal dumping and zero littering.**

### 5.1 Better practice

Adoption of better practice approaches to waste management is an important way in which local government can better protect the environment from the impacts of waste, and contribute to achievement of the targets under objective 3 of the Waste Strategy. See *Guidance Document - 5.0 Better practice, Table 4* for a summary of the Waste Authority's current and planned better practice guidelines.

Table 4: Better practice approaches and programs adopted by the City of Joondalup

(LG to complete the table)

Waste management activity/service	Waste Authority better practice guideline or program	Date of adoption/implementation	Comment
The City has implemented the three bin system with a GO bin not a FOGO bin and diverts green waste from landfill.	Better bins kerbside collection guidelines 2016	Adoption January 2018, Commencement of roll out January 2019	The City completed extensive research and modeling to inform the decision of introducing the third bin as GO instead of FOGO. The City understands that the current best practice is FOGO and will continue to monitor the infrastructure and markets and consider implementation of FOGO in the future.
Bulk Hard Waste containerised in skip bins and separate collections of up to 4 white goods and 6 mattresses all in an on request system. All waste is sent for recycling with recovery of approximately 25% from skips, 75% from white goods and 80% from mattresses	N/A (Waste Authority Position Statement on Source Separation)	Adoption March 2016, Commencement of service October 2016	Previous to the introduction of this on-request service, the City was the highest generator of waste in WA for the bulk waste service. The City's decision to introduce this service has led to a reduction in total waste collected from 90,000t in 2014/15 to 80,000t in 2019/20 and contributed to an increase in recovery from 44% to 57% of waste recovered.
Other drop off events for e-waste and charity clothing held twice a year for each waste stream	N/A (Waste Authority Position Statement on Source Separation)	Council adoption June 2015 / Implementation September 2015	The City runs the e-waste and charity clothing drop off events to assist residents in responsibly disposing of their waste and ensuring the items are recovered.

## Part 1 - Services and performance

### 5.0 Protect

Objective 3 of the Waste Strategy is to protect the environment by managing waste responsibly, with targets for achieving better practice, reducing litter and illegal dumping, by 2030 all waste is managed by and/or disposed to better practice facilities, by 2030 move towards zero illegal dumping and zero littering.

#### 5.2 Litter

The data in Table 5 was reported by the your local government in the 2017-18 local government census. Additional information to be provided by the local government in Table 6 is available.

Table 5: 2017-18 litter data (LG to review pre-filled and complete the table)

	Response and comments
Litter hotspot used on a regular basis for littering in 2017-18	The City's contracted Litter Team have a collection schedule including the major arterial roads and the perimeter and pathways in natural areas. Litter in natural areas is also measured and reported in the annual review of the City's Environment Plan and as part of the Annual Report.
What are the main items littered at these hotspots?	The main litter items that are found are takeaway food bags and boxes. The amount of bottle and can items have reduced with the introduction of Containers for Change.
Current measures aimed at contributing towards the zero littering target	<ul style="list-style-type: none"> <li>The City conducts the following measures towards the zero littering target: <ul style="list-style-type: none"> <li>• supports the community participating in Clean Up Australia Day and organises a staff clean up event</li> <li>• supports the Keep Australia Beautiful Council (KABC) Adopt a Spot program</li> <li>• has a partnership with KABC</li> <li>• installs temporary and permanent signage at littering hot spots</li> <li>• conducts a new litter campaign on public waste bins in popular coastal areas</li> <li>• developed a Short Guide to Green Events which includes tips to reduce waste and recycling at City events</li> <li>• developed a Think Green Living Guide which includes tips on disposing of litter appropriately in parks and natural areas</li> <li>• educational materials regarding littering through a variety of mediums such as website, brochures and signage in natural areas</li> <li>• contracts litter crews in natural areas and main arterial roads with a specific waste team to collect litter from hot spots</li> <li>• annually measures waste present in natural areas (Items/per ha/year).</li> </ul> </li> </ul>
Estimated cost of cleanup (due to collection, disposal, education, enforcement and enforcement)	The City contracts Intellife a disability enterprise to collect litter throughout the City's main arterial roads and natural areas the costs of this includes litter collection team costs and disposal costs for 2018-19 costs were \$225,165 and 2019-20 costs were \$242,760 and education costs are not included in this. In addition the City supports local Friends Groups and Adopt a Spot groups in their clean ups by lending litter pickers and collecting and disposing of the collected litter. The Rangers usually caution litterers and rarely fine residents for littering as there is generally photo evidence required. Residents can also register as a litter reporter and provide details of witnessed litter incidents to KABC via a litter report.

Source: Local government Census data 2017-18

**Additional comments (local government to insert any additional comments that may be applicable)**

The City in general takes pride in presenting a clean and litter free environment for the use of the residents and visiting public this drives the City's

Table 6: Additional litter information (LG to complete the table where information is available)

Is littering increasing or decreasing in your local government authority?	Litter in natural areas is measured each year in 12 key natural areas within the City which is reported annually in the Annual Report and the Environment Plan annual review. The City has employed Intellife, a Western Australian Disability Enterprise, since August 2017 to collect litter from the perimeters and path edges of natural areas which has resulted in a reduction in litter.
How were the costs associated with cleaning up litter calculated? Employee time? Dollar value? Both?	The costs are calculated using the cost to engage Intellife (litter collection contractor) and also from the tipping fees for the disposal of collected litter by Intellife.
Does the city have a litter strategy? If not, what is the ETA for completing one?	The City has a project in the Waste Management Plan 2016-21 which targets litter collection and prevention with the objective to minimise the amount of litter within the City's parks, public open spaces and natural areas. This will also be targeted in the new implementation plan including litter in waterways. The City also as a requirement of the Environment Plan to measure the litter found in natural areas which allows for yearly comparison and then development of actions required to reduce any litter quantities.
Have any of the city's compliance and waste education officers undergone training on litter prevention? If so, what training?	The City's Waste Officers have not undergone training on litter prevention, however the Coordinator Waste Services has attended the Illegal dumping training at WALGA.
What current policies and guidelines does your council enact to prevent litter? E.g. Event planning guidelines on the use of balloons in council facilities and the release of helium balloons; no cigarettes on the beach; no single use plastics at events.	<p>The City has a requirement for construction / developments to have and use a Waste Management Plan to reduce the impacts of waste on the environment e.g. prevent littering and recycling of any salvageable material.</p> <p>The City has developed a Short Guide to Green Events including reference to minimising use of single use plastics at events.</p> <p>In November 2015, Council resolved to maintain the City's current practice and not release balloons at City organised events. The City has also developed a Think Green Living Guide which includes reference to not releasing balloons into the environment.</p> <p>The City of Joondalup Local Government and Public Property Local Law 2014 (last amended in 2019) states that a person must not smoke in contravention of a sign erected on a beach which prohibits the act of smoking and includes a penalty of \$50.</p> <p>The City annually measures the litter found in natural areas using the methodology provided by WALGA for Urban Natural Area Management KPIs with an indicator of the volume of discarded foreign material per ha in high priority management areas. Three 30m x 20m transects are assessed in each of the 12 key natural areas and the number of foreign materials is averaged per hectare.</p> <p>The City also counts the work orders relating to litter collection in the natural area over the year since the introduction of Intellife, which has reduced as follows:</p> <ul style="list-style-type: none"> <li>• 90 work orders in 2017</li> <li>• 70 work orders in 2018</li> <li>• 31 work orders in 2019</li> <li>• 47 work orders in 2020.</li> </ul>
How does your local government measure the effectiveness and impact of programs designed to reduce littering and illegal dumping?	
Which division of your organisation is responsible for litter management/prevention? Waste services? Compliance (e.g. Rangers)? Infrastructure?	Litter management and prevention is the responsibility of the Waste Services Business Unit which is part of the Infrastructure Management Services Directorate. The City's Rangers received 937 complaints in regards to littering in 2019/20. Litter prevention is the responsibility of Rangers through issuing fines and warnings. The Waste Services team works with the community to support litter collection by providing pick up sticks, gloves and litter collection for any local residents and groups that run clean up events throughout the year and on Clean Up Australia Day.
How important is litter management to your organisation? (1 - Not at all important; 5 - Highly important).	5



## Part 1 - Services and performance

### 5.0 Protect

Objective 3 of the Waste Strategy is to protect the environment by managing waste responsibly, with targets for achieving better practice, reducing litter and illegal dumping. By 2030 all waste is managed by and/or disposed to better practice facilities, by 2030 move towards zero illegal dumping and zero littering.

### 5.3 Illegal Dumping

The data in Table 7 was reported by your local government in the 2017-18 local government census. Additional information to be provided by the local government in Table 8 if available.

Table 7: 2017-18 illegal dumping data (LG to review pre-filled data and complete the table)

Cost of cleaning up illegally dumped waste during 2017-18	Response and Comments
\$ 50,000	The Waste Services team is responsible for cleaning up illegally dumped materials. Rangers are responsible for the reporting and enforcing of penalties. It is estimated that cleaning up illegally dumped waste costs the City approximately \$50,000 per year.
14	Rangers issued 14 infringements and 4 cautions for illegal dumping in the City in 2019-20. The following locations were identified as being used regularly for illegal dumping in 2019/20: 3x Barwon Park, Craigie, 3x Blackfriars Road, Joondalup, 3x Blackfriars Road, Hillarys, 8x Burns Beach Road, 3x Chadstone Park, Craigie, 4x Delamere Ave, Currambine, 4x Dalamere Park, Currambine, 3x Goollelal Drive, Kingsley, 3x Grand Boulevard, Joondalup, 5x Heppburn Avenue, 9x Hooking Road, Kingsley, 5x Joondalup Prom, Mullaloo, 3x Portwood Cross, Joondalup, 3x Regents Park, Joondalup, 4x Trappers Drive Woodvale, 5x West Coast Drive, Sorrento, 3x Whitfords Ave, Craigie.
What are the main items dumped at these sites?	Bulk junk, asbestos
Current measures aimed at contributing towards the zero illegal dumping target	City Ranger patrols are conducted dealing with observed offences and responding to littering complaints and conduct surveillance where litter and illegal dumping is ongoing. The City also runs an on-request bulk hard waste service which allows for residents to dispose of their bulk waste on demand which may lead to a reduction in illegal dumping which tends to occur when residents find they need to dispose of waste quickly

Source: Local government Census data 2017-18

Table 8: Additional illegal dumping information (LG to complete the table where data is available)

Is illegal dumping increasing or decreasing in your local government authority?	The complaints the City received about litter and illegal dumping has reduced from 1,073 complaints in 2016-17 to 937 complaints in 2019-20. Infringements given by City Rangers for litter and illegal dumping has ranged between 8 and 21 during 2016-2020 with 8 being in 2017-18.
How does your local government measure the effectiveness and impact of programs designed to reduce illegal dumping?	The City currently doesn't have any dedicated illegal dumping reduction programs however the introduction of the on request bulk hard waste and ranger patrols and infringements are measures that can effect the amount of illegally dumped waste. The amount of infringements for littering an illegal dumping is reported annually for Census
Which division of your organisation is responsible for illegal dumping management/prevention? Waste services? Compliance (e.g. Rangers)? Infrastructure?	Waste Services is responsible for the education activities to prevent and reduce illegal dumping and Rangers for enforcement and compliance.

Table 9 indicates the type of detailed data local governments may collect to enable better targeted monitoring and enforcement of illegal dumping. Please provide this information here, if available.

Table 9: Detailed illegal dumping data collection by the City of Joondalup

Date of data collection: 2019-2020 for City land only - no tonnes recorded (LG to complete the table if data available)

Waste Type	# of incidents	Total approximate Weight (tonnes)	Change from previous year	Regulatory notices issued
C&I				
C&D				
E-waste				
Household waste	156 mattresses			
Mulch & green waste				
Scrap metal	56 white goods			
Soil & excavated material				
Hazardous/problem waste				
Other	Of the 76 regular sites that were recorded the waste type is not added to the general waste bay at the WOC.		Not recorded	
<b>TOTAL</b>	<b>% of total incidents</b>			
Cleaned up by				
Local government	100%			
Land owner	unknown			
Offender	unknown			
<b>TOTAL</b>				
				Cleanup costs (\$)
				\$50,000 in total

## Part 1 - Services and performance

### 6.0 Waste management tools

#### 6.1 Waste services

Local government data relating to the waste collected, recovered and landfilled is presented in Table 10. It is important to review this data when developing Part 2 – Implementation Plan, as it can:

- provide an understanding of how different systems are performing (e.g. recovery levels)
  - highlight the need for any new collection systems or infrastructure
  - identify the timing and capacity of any new collection systems or facilities required to meet the changing needs of local governments.
- In working towards alignment with the Waste Strategy, the local government should focus on the materials resources with the greatest potential to support the objectives and targets of the Waste Strategy.

NE: DWER is currently developing a range of better practice guidelines. Better practice rates will need to be updated as the guidelines are released.

Table 10: Significant sources and generators of waste in 2019-20 (LG to reviewed pre-filled data and updated to 2019/20. Add additional comments if necessary)

Service/Sources	Tonnes collected	Tonnes recovered	Recovery rate	Better Practice rate	Target rate 2025	Target rate 2030
Kerbside	mixed waste	4,155				
	comingled recyclables	18,095				
	green waste	17,667	54%	%		
	oil and car batteries	13				
Vergeside	FOGO	-				
	green waste	5,149	67%	%		
	hard waste	4,991				
Drop-off	mixed waste	-				
	e-waste/charity clothing	51				
	green waste	2,460	100%	%	55% major regional centres	60% major regional centres
	hard waste	-				
Public place	hazardous waste	-				
	mixed waste	604	0%	%	67% Perth and Peel	70% Perth and Peel
Special event	comingled recyclables	-				
	mixed waste	-				
Commercial	comingled recyclables	-				
	mixed waste	-				
	paper/cardboard	-				
Local government waste	illegal dumping clean up	-				
	street sweepings	-				
	roadworks	-				
	other C&D activities	-				
roadside pruning	-					
other	-					
<b>TOTAL</b>	<b>81,112</b>	<b>45,627</b>	<b>56%</b>			

Source: Local Government Census Data 2017/18

**Additional comments** (local government to insert any additional comments that may be applicable)

The City undertook the compositional audit in 2017/18 before the introduction of the GO bin and has included an action in the implementation plan to carry out a series of waste compositional audits after the introduction of the GO bin and the containers for change program. This data will assist the City in planning for future waste services and infrastructure requirements.

Table 11 provides space for the local government to include bin audit information for kerbside waste services, if available. Bin audits can help local governments understand the material composition in kerbside bins, highlight where additional efforts are required to increase performance and assist in planning for future service options such as FOGO collection. See Appendix for full breakdown of composition categories

Table 11: Compositional audit data for kerbside waste services (Complete if data is available. Add additional comments if necessary).

General waste bin		16.71
Yield per household (kg/hh/week)		
Per capita (kg/per capita/week)		
Audit year		2017
<b>Composition</b>		<b>Total %</b>
Recyclables (paper, cardboard, plastics, steel, aluminium, glass)		24.74
Organics (organics, wood/timber, textiles, earth)		69.1
Hazardous (medical, sanitary/ hygiene, nappies, chemicals, paint, batteries, fluorescent tubes, light bulbs, oil, building material)		4.27
Other (electronic waste, miscellaneous)		1.94
<b>Recycling bin</b>		
Yield per household (kg/hh/week)		11.4
Per capita (kg/per capita/week)		
Audit year		2018
<b>Composition</b>		<b>Total %</b>
Recyclables (paper, cardboard, plastics, steel, aluminium, glass)		83.7
Organics (organics, wood/timber, textiles, earth)		15.3
Hazardous (medical, sanitary/ hygiene, nappies, chemicals, paint, batteries, fluorescent tubes, light bulbs, oil, building material)		0.26
Other (electronic waste, miscellaneous)		0.65
<b>Garden organics or FOGO bin</b>		
Yield per household (kg/hh/week)		N/A
Per capita (kg/per capita/week)		
Audit year		
<b>Composition</b>		<b>Total %</b>
Recyclables (paper, cardboard, plastics, steel, aluminium, glass)		
Organics (organics, wood/timber, textiles, earth)		
Hazardous (medical, sanitary/ hygiene, nappies, chemicals, paint, batteries, fluorescent tubes, light bulbs, oil, building material)		
Other (electronic waste, miscellaneous)		

# Part 1 - Services and performance

## 6.0 Waste management tools

### 6.2 Waste infrastructure

The number, type, capacity and location of key existing local government owned and/or operated waste and resource recovery infrastructure is required to understand the future need for different facility types. **This section is not relevant to local governments that do not own/operate waste facilities.**

Table 12: Current waste and resource recovery infrastructure operated by the local government (LG to complete the table)

Facility name (and licence number if applicable)	Facility Type	Location	Managed by	Licence category and approved production or design capacity	Material type	Service/activity	Remaining Capacity (if applicable)	Anticipated Closure (year)
N/A								
Other								

Table 13 provides space for local governments to provide information about planned waste and resource recovery infrastructure, if relevant.

Table 13: Planned waste and resource recovery infrastructure

Location	Managed by	Licence category and approved production or design capacity (if known)	Waste type	Service/activity	Estimated operation start date

**Additional comments (local government to insert any additional comments that may be applicable)**

The City does not operate any waste infrastructure however the City is one of the seven member councils of the Mandarie Regional Council that runs the Tamala Park Tip and Recycling Center and Tip Shop.

## Part 1 - Services and performance

### 6.0 Waste management tools

#### 6.3 Policy and procurement

##### 6.3.1 Contracts

Information on your local government's existing waste contracts should be detailed in Table 14. When reviewing services, it is a good opportunity to evaluate how they are performing, opportunities for regional collaboration and to identify any opportunities for improvement, review or renegotiation.

Table 14: Existing waste management contracts (LG to complete the table)

Contractor	Services	Contract commencement	Contract expiry	Notes/comments
SUEZ	waste and recycling bin kerbside collection services	Jul-18	July 2021 with 2 x 1 year possible extension	
	greens waste bin kerbside collection	1/02/2019 (variation)	July 2021 with 2 x 1 year possible extension	The green waste kerbside collection was written into the original collection contract as a possible variation.
	kerbside greens waste processing	Feb-19	February 2022 with 2 x 1 year extensions	
Cleanaway	Bulk hard waste collection services	Sep-16	September 2019 with 2 x 1 year possible extensions	
	skip bin hard waste processing, white goods and mattress recycling	Sep-16	September 2019 with 2 x 1 year possible extensions	
	Kerbside Recycling processing	Dec-19	December 2022 with 2 x 1 year possible extensions	Recycling bin processing contract including, car batteries and used engine oil.
Incredible Bulk	Collection of bulk greenwaste	Jul-17	July 20 with 2 x 1 year possible extension	
Trident	supply of waste bins	Sep-18	September 2021 with 2 x 1 year possible extension	

##### 6.3.2 Waste local laws and policies

Information on your local government's existing local laws, strategies or policies that may complement/support this waste plan and contribute to the Waste Strategy objectives should be detailed in Table 15.

Table 15: Existing waste-related local laws, strategies and policies (LG to complete the table)

Type of local law, strategy or policy	Name of local law, strategy or policy	Came into force	Due for review	Comments
Waste Local Law 2017 (amended 2018)	Waste Local Law 2017	2017	2021	

**Part 1 - Services and performance**

**6.0 Waste management tools**

**6.3 Policy and procurement**

6.3.3 Land use planning instruments

Information on your local government's existing local planning instruments which contribute to the management of waste should be detailed in Table 16.

Table 16: Existing waste-related land use planning instruments related to waste management. (LG to complete the table)

	TITLE: Local Planning Strategy	NEXT REVIEW DUE: 2022
	ENDORSED BY/WAPC: 1-Nov-17	
Local Planning Strategy	Is waste considered and reflected in the Local Planning Strategy?	NO The Strategy doesn't consider waste however the waste and planning teams have developed a development waste plan guideline for future developments or multiple dwellings giving consideration for waste or the issue of waste collection from the new developments and infill housing.
	Does the Local Planning Strategy identify current and future waste facility sites?	NO No as the City does not maintain or run any facilities and does not have any waste treatment sites within its boundaries
	Does the Local Planning Strategy identify buffers around existing and/or future sites to avoid land use conflict?	NO No as there are no waste treatment facilities within the City's boundaries
	TITLE: Local Planning Scheme No. 3,	
	GAZETTED: 23 October 2018 updated 18 February 2020	
Local Planning Scheme	Are resource recovery facilities, waste disposal facility and waste storage facility defined as land uses (as per Planning and Development (Local Planning Schemes) Regulations 2015, Schedule 1, Part 6 cl. 38.) and included in the council Local Planning Scheme zoning table, with either a P/I/D/A/X permissibility?	NO The City has no waste treatment facilities within its boundaries and so no zoning is required for this land use type
	If these land uses are not defined and not in the zoning table, how does the Scheme deal with such land uses (i.e. is an alternative definition used to that in the Regulations 2015? Or are these land uses zoned as "Use not listed"?)	N/A
	Does the Local Planning Scheme identify statutory buffers as Special Control Areas for strategic waste infrastructure facilities to avoid encroachment by incompatible land uses?	NO The City has no waste treatment facilities within its boundaries and so no zoning is required for this land use type
	TITLE: The Container Deposit Scheme Infrastructure Local Planning Policy	Aug-20
	RELATIONSHIP TO WASTE STRATEGY OBJECTIVES: To provide conveniently located infrastructure to ensure the container deposit schemes' effective reduction of litter, increased recycling and protection of the environment.	
Local planning policies	Does the local government have any local policies which relate to the objectives of the Waste Strategy (reduce generation, increase recovery, protect the environment)?	YES This local policy will assist in protecting the environment from litter by assisting the community to take part in the Container Deposit Scheme which encourages litter collection or scheme approved containers.

6.3.4 Sustainable procurement

Local governments can be significant consumers whose purchasing decisions and procurement policies can have positive impacts. This section reviews activities relating to procurement of infrastructure, goods and services that avoid waste, promote resource recovery or encourage greater use of recyclable and recycled products. Information on existing sustainable procurement policies or practices that may contribute to the Waste Strategy objectives should be detailed in Table 17.

Table 17: Existing sustainable procurement policies and practices (LG to complete the table)

Sustainable procurement policy	Date adopted by council	Actions implemented e.g. switching to recycled printer paper	Alignment with Waste Strategy targets, objectives or focus materials
Purchasing Policy May 2020 (C-1070-05/20)		The City will use sustainable procurement for the purchasing of goods and services and choose products with less environmental and social impacts than competing products and services and consider environmental and social impacts along with value for money outcomes when making purchasing decisions.	Aligns with reduce, recover and avoid dependent on procurement activity.

## Part 1 - Services and performance

### 6.0 Waste management tools

#### 6.4 Behaviour change programs and initiatives

Communication and engagement with waste generators and managers underpins many local government waste management activities, and are vital in driving behaviour change needed to achieve the objectives and targets of the Waste Strategy.

Behaviour change programs and initiatives refers to activities that increase awareness, skills and knowledge; provide consistent messaging; help people to use waste infrastructure; and encourage the adoption of specific, positive waste behaviours and attitudes.

Most local governments have existing behaviour change programs and initiatives and it is important to evaluate their effectiveness. This section includes an opportunity for a high level qualitative assessment process to understand what has worked and what has not. The results can be used to inform actions for *Part 2 – Implementation plan (Table 21)*.

Information on the local government's existing waste behaviour change programs or initiatives should be detailed in Table 18. This may include participation in Waste Authority funded programs, or programs/initiatives run by the local government.

Table 18: Behaviour change programs and initiatives, including Waste Authority programs and other local government initiatives. (LG to complete the table)

Local government program/initiative	Description	Outcomes achieved as a result of the program (Qualitative/quantitative)	Evaluation method	What's worked/not worked	Suggested improvements
SUEZ schools education program	The City contracts SUEZs waste educator to engage with primary schools within the City to run curriculum based education sessions about waste and recycling with approximately 18 sessions in schools annually.	Contact numbers through sessions and participant numbers.	Number of participants	The schools program is helpful to educate children regarding which items go into each bins. Schools are happy for this program to be run as it has a curriculum based learning program and is free for the schools.	The program could be tailored to introducing the concept of reducing waste and/or focused on the value of recycling of other items such as e-waste.
Mindarie Regional Council Education team has been made redundant so no longer provides the City's community with the following waste education or information - Earth Carers, school incursion, events education	Mindarie Regional council previously ran a waste education program for the whole region. This ceased in September 2020 and now rests with member Councils.	The outcomes were not measured through this program	There is no evaluation method used for this program however the Earth Carers program did result in educated volunteers that were valuable support for events information and new waste reduction initiatives in the community.	This program is no longer available through the MRC.	Not applicable as no longer available.
The City runs some waste education sessions / workshops for residents on the topic of composting and worm farming at home, waste minimisation and reduction.	The City's Waste Team runs waste education workshops and information sessions for residents to attend to learn about waste issues and how to reduce waste such as single use plastic.	Contact numbers through sessions and participant numbers.	Number of participants	The workshops were well attended by residents	Increase education program to replace the reduction in service from the MRC in education.

#### Additional comments (local government to insert any additional comments that may be applicable)

The Mindarie Regional Council previously ran a waste education program within the City but no longer have an Education Team. The City runs other waste education programs and contracts SUEZ (waste collection contractor) to run waste education sessions in primary schools. The City is considering what gaps have been left by the MRC Education Team no longer operating, considering the limited capacity and resources the City has available to run waste education. The City is considering further its current resourcing to improve waste education for the community.

## Part 1 - Services and performance

### 6.0 Waste management tools

#### 6.5 Data

Table 19 provides an opportunity to assess existing waste data practices, identify strengths and gaps and consider the kinds of data activities which could be included in the *Part 2 – Implementation Plan* to improve the local government's waste data. It should be completed based on the data/information covered in *Part 1* of this document, as well as the individual experience of the officer/s responsible for collecting and using waste data.

Where 'no', please comment on:

- the kinds of data that is missing, where data gaps exist
- barriers to collecting or accessing adequate data
- the kinds of data collection, analysis or reporting practices that are not currently in place which would assist local government waste management functions.

Table 19: Assessment of waste data (LG to complete the table)

	YES	NO	Comment
Does the local government have access to adequate waste data to complete Part 1 of the waste plan?	yes		Yes the City collates all the data monthly that is supplied by all the contractors of the waste services the City provides. Some of the detailed data around litter and illegal dumping could be improved with respect to tonnages.
Does the local government use waste data when undertaking planning activities for waste projects/programs?	yes		Yes the City does use the waste data that has been collected and also other Councils data if they are running services the City is planning to implement and if the Councils are willing to share.
Does the local government have access to adequate waste data for this purpose?	yes		The City has used the waste data captured to assess the outcomes of the projects implemented
Does the local government use waste data when monitoring or assessing waste projects/programs?	yes		
Does the local government have access to adequate waste data for this purpose?	yes		
Does the local government use adequate waste data to measure progress toward the targets and objectives of the Waste Strategy?	yes		The City captures waste data and reports this annually through the Census to DWER. The data captured is also assessed by the City annually in the annual reporting against the <i>Waste Plan 2016-21</i> and measures this against the targets of the City's waste plan and the state waste plans objectives and targets.
Does the local government have access to adequate waste data for this purpose?	yes		
Does the local government have access to adequate waste data to fulfill annual data reporting obligations under the WARR Regulations? (previously undertaken through the Waste and Recycling Census)	yes		Yes the City captures and reports the waste data annually. The main area of data that is missing some details regarding the breakdown of the litter and illegal dumping incidents and items found by weight.
Are there any types of waste data that the local government does not currently collect or have access to that would be helpful/useful?	yes		There is a lack of data around illegal dumping and littering items found, incidents, locations, costs of removal and tonnages.
Are there any ways which local government waste data collection, storage or use could be improved?	Yes		Yes the City captures and reports the waste data annually. The main area of data that is missing some details regarding the breakdown of the litter and illegal dumping incidents and items found by weight.
Is the data collected by the local government accurate? Are any new strategies needed to improve accuracy?	yes		The data the City records is mostly from contractors and supplied from the invoicing systems so is generally accurate. The City's waste team runs checks of the data supplied to ensure it matches the invoices and actions of the contractors.
Does the pre-filled data provided in this template align with the data the local government has? i.e. is this pre-filled data accurate?		NO	The data was mostly correct but was still not complete with all the recycling and collection of waste including e-waste and charity clothing, used oil and car batteries
Any additional comments?			

## Part 1 - Services and performance

### 7.0 Summary

The purpose of Part 1 of the waste plan is to consolidate information about current waste management practices, to enable you to assess and identify:

- current waste management performance
- alignment between current waste management practices and the Waste Strategy
- strengths and successes, as well as gaps and opportunities for improvement.

Table 20 provides space to analyse the data and information presented in Part 1, and should be used to determine waste management priorities for the short, medium and long term, and translate these priorities into actions in Part 2 – Implementation plan (Table 21).

Table 20: Assessment of current waste management performance and prioritisation of future actions (Completing this table is optional)

	Avoid	Recover	Protect
<b>State waste strategy objectives</b>	2025 5% Reduction in waste generation per capita	2025: Increase material recovery to 70% 2025: All local government in the Perth metropolitan region provide consistent three bin kerbside collection systems that include separation of Food Organics and Garden Organics (FOGO). From 2020: recover energy only from residual waste.	West Australians protect the environment by managing waste responsibly, 2030 move towards zero illegal dumping and zero littering
<b>Waste management achievements</b> (for example, performance/achievement against Waste Strategy targets or objectives or where particular waste management objectives have already been met)	The City's Waste Generation has reduced since the 2014-15 baseline year where the City's waste generation was <b>90,296 tonnes</b> in total or <b>535 kg/household</b> to in the 2019/20 period where the City's waste generation was <b>80,513 tonnes</b> in total or <b>504 kg/household</b> . The City has reduced the total waste generated toward the target in the state waste strategy. The City organises waste education for community groups focusing on reducing waste such as single use plastics. The City also provides information stations at events for community awareness on the City's waste services and education on reducing waste and correct use of bins.	The City implemented a three bin system in January 2019 with a Garden Organics(GO) bin which is currently the only available option for the City's municipal waste separation. FOGO was considered, however, is not a viable option until a facility within reasonable distance can process the volume of FOGO that the City generates. The City also sends its bulk hard waste for processing and recovery with only the residual sent to landfill. The City's material recovery has improved from <b>49% in 2014-15 to 57% in 2019-20</b> , well above the Perth metro average which in 2018-19 it was 42% and trending toward the state targets.	The City runs education programs and drop off events, to protect the environment from hazardous waste and help residents to not dispose of their harmful wastes in the general waste stream. Items such as household batteries, mobile phones, printer cartridges, CFL globes and e-waste can be dropped at locations around the City. The City also has an action in the current waste plan to manage litter collection and prevention.
<b>Opportunities for improvement</b> (for examples, where performance against Waste Strategy targets or objectives could be improved or where waste management objectives have not been met)	The City is aims to assist the community in reducing their waste generation over the next 5 years by running education campaigns and workshops to support the behaviour change required for the long term waste reduction.	The City recovers 57% from the waste it collects currently. To achieve the 65% recovery the City will have to put introduce further measures and resources in the future to achieve the state government target.	The City could improve its waste management of litter and illegal dumping by running campaigns and projects to reduce litter and illegal dumping. The litter and illegal dumping is removed usually the day its reported and this gives less chance of the waste causing harm to the wildlife and environment.
<b>Priority areas for action in Part 2 – Implementation plan</b>	<b>Ongoing (activities currently under way and/or continuously undertaken)</b>	The City has a number of activities that are ongoing including working collaboratively with WALSA and IMRC on advocacy projects. The City also has community waste behaviour programs including education on reducing waste and managing waste with the smaller 140L bin.	
	<b>Short term (within the next 1-2 years)</b>	The City's short term goals for waste include: <ul style="list-style-type: none"> <li>• gather and record better data on litter and illegal dumping tonnages.</li> <li>• investigate better practice waste collection in high density areas and multi-unit dwellings.</li> <li>• investigate options for household hazardous waste disposal.</li> <li>• further management of the City's corporate waste to reduce waste going to landfill.</li> <li>• run a household waste composition audit program routinely across different domestic services to further inform the City on possible waste diversion projects.</li> </ul>	
	<b>Medium term (within the next 3-5 years)</b>	The City's medium term goals include: <ul style="list-style-type: none"> <li>• investigate alternative waste treatment facilities and FOGO processing for future waste diversion.</li> <li>• secure long term recycling arrangements which will successfully recover high yields of materials.</li> <li>• continued review and improvement of household waste services including Waste to Energy (WtE).</li> <li>• community waste reduction initiatives including focussing on litter reduction in public places.</li> </ul>	
	<b>Long term (more than five years)</b>	Investigate WtE and service arrangements to ensure <b>only residual waste</b> is sent to landfill or WtE.	



Part 2 - DRAFT Implementation plan (page 1)

Table 21: Implementation plan

Waste Management Tool	Action (or link to existing local government plan/document that details this activity)	Is this action in the City's current waste plan?	Detailed actions/sub-actions (OR link to existing local government plan/document that details this activity)	Milestones (SMART - Specific, Measurable, Achievable, Relevant, Timed)	Target (SMART)	Timeframe for delivery (completion date)	Cost of Implementation (incorporated into annual budget and Corporate Business Plan? Y/N - (if not, why?))	Aligns to Waste Strategy Objectives			Responsibility for implementation (branch, team or officer title, not the names of individual officers)	Identified Risks (Impact/consequences and mitigation strategies)	City's waste management plan 2016-21 relevant current projects
								Avoid	Recover	Protect			
1 Waste services	Investigate and consider the transition from a GO bin to a FOGO bin, when or if a suitable facility within proximity to the City is available that can process the quantity of FOGO waste that the City generates at a reasonable cost.	Existing	<ol style="list-style-type: none"> <li>1. Review State Government better practice guidance on 3 bin FOGO service. Identify developments of capable infrastructure for FOGO treatment.</li> <li>2. Develop a business case and modelling, including preferred service options and specifications, performance measures and funding requirements.</li> <li>3. Go to tender for FOGO processing and apply for better bins plus funding for assistance with implementation.</li> <li>4. Roll out the service change including undertaking extensive education and information campaign.</li> <li>5. Undertake monitoring and evaluation of the contamination issues as reported by the processing contractor.</li> </ol>	<ol style="list-style-type: none"> <li>1. State governments Better Practice kerbside guidance reviewed by June 2022</li> <li>2. Business case developed by March 2024 to align with contract expiry</li> <li>3. SHOULD A BUSINESS CASE SUPPORT FOGO ----</li> <li>3. Develop a comprehensive information and education program by June 2024</li> <li>4. Consider a possible 12 month trial covering 2,000 - 6,000 residents to be completed by September 2024</li> <li>5. Evaluation of contamination as reported by the processing contractor to be completed by the end of the first year of full rollout</li> </ol>	<p>develop a business case that achieves a target of 80% of residents will have access to FOGO by early 2024, and decide on implementation if a FOGO processing facility that can process the City's waste capacity can be found.</p>	Dec-25	N. But, At the time of project planning the cost of implementation will be incorporated into the annual budget and corporate business plan.	<ul style="list-style-type: none"> <li>✓</li> <li>✓</li> <li>✓</li> </ul>	Finance, Waste Services, Communications and Stakeholder Management.	<p>Risks: State Government doesn't support the waste industry to build infrastructure that is large enough to process the City's FOGO waste. Community push back on the change in the general waste collected fortnightly and FOGO collected weekly, high contamination rates of the FOGO bin, cost overruns.</p> <p>Mitigation: Lobbying state government to assist the waste industry to increase FOGO processing capacity. Increase education, behavior change programs and data monitoring for pre/during/post change of services.</p>	(Project 15, continued review and improvement of household waste services) - The City's current plan project objectives to improve domestic waste services following the Strategy's better practice kerbside guidelines		
2 Waste infrastructure	Continue to monitor the development of waste infrastructure in the Perth Metropolitan area, including alternative waste treatment and recycling facilities and determine possible opportunities for the City	Existing	<ol style="list-style-type: none"> <li>1. Identify waste infrastructure in the area including current capacity/remaining capacity and infrastructure performance</li> <li>2. Determine historical population and forecast population and waste projections</li> <li>3. Identify future challenges and opportunities with current waste infrastructure.</li> <li>4. Forecast future waste infrastructure needs and undertake a needs analysis for the future.</li> </ol>	<ol style="list-style-type: none"> <li>1. Continue to monitor waste infrastructure and develop a business case by March 2024 to inform future waste infrastructure needs.</li> </ol>	Business Case developed and considered by March 2024.	Mar-24	Y	<ul style="list-style-type: none"> <li>✓</li> </ul>	Finance and Waste Services	<p>Risks: insufficient staff knowledge/resources to undertake population forecasting and waste projections</p> <p>Mitigation: Engage consultant as required when additional support is identified.</p>	(Project 16 Developing future waste infrastructure requirements) - This project aligns with the City's current plans project which considers the waste infrastructure that the City may need in the future.		
3 Policies and procurement	Continue implementation of the procurement process which takes into account the consideration where possible environmental sustainability, ecological issues and social implications.	New	<ol style="list-style-type: none"> <li>1. Continue the incorporation of recycled materials when constructing City infrastructure projects by taking and informed approach that considers whole of life costs and long term financial and environmental implications.</li> </ol>	<ol style="list-style-type: none"> <li>1. Review the environmental weightings during the procurement process when purchasing of Goods and Services in line with the protocol.</li> </ol>	Seek to include an environmental consideration on all contracts where possible, otherwise on a case by case basis.	Ongoing	Y	<ul style="list-style-type: none"> <li>✓</li> <li>✓</li> </ul>	finance (contracts) and waste services	<p>Risks: increased use of recycled or alternative material not financially viable</p> <p>Mitigation: review on a case by case basis.</p>	This is not listed specifically in the City's current Waste Management Plan. However, this aligns with the City's current purchasing practices and policies.		
4 Data	Household waste and recycling composition audit program	Existing	<ol style="list-style-type: none"> <li>1. Identify an external party that conducts waste composition audits to quantify the amounts and types of waste being generated and provide a breakdown of the different material types collected from the general waste bin, recycling bin and green waste bin.</li> <li>2. The results from the audits analysed to quantify the change in waste composition after the three bin service introduction and allow the City to plan for waste to energy and FOGO and future education.</li> </ol>	<ol style="list-style-type: none"> <li>1. Contract an external party to carry out the audits by June 2022</li> <li>2. Auditing program for the routine audit of waste streams over a rolling program</li> <li>3. Receive and review results of the audits when undertaken.</li> <li>4. Plan waste education and future services from audit findings.</li> </ol>	Waste composition auditor to be contracted by December 2021 with results to be provided by June 2022.	Jun-22	Y	<ul style="list-style-type: none"> <li>✓</li> <li>✓</li> </ul>	Waste Services, Contractor	<p>Risks: insufficient resources to undertake auditing.</p> <p>Mitigation: Engage consultant early on with clear communication of project scope and what the City hopes to gain from the auditing. Ensure enough resources are allocated to complete the project</p>	Expanded - (Project 6 Household waste composition audit) - This project aligns with the City's current purchasing practices and policies.		
5 Data	Improve data collection of illegal dumping	New	<ol style="list-style-type: none"> <li>1. Create a standard database for illegal dumping incidents in the City and ensure officers will use for data capture of illegal dumping</li> <li>2. Continue to monitor and seek improvement of illegal dumping services and data recording where possible.</li> <li>3. Develop an information and education campaign aimed at reducing illegal dumping.</li> </ol>	<ol style="list-style-type: none"> <li>1. Set up illegal dumping working group to review current illegal dumping data, identify data gaps and recommend improvements by October 2021</li> <li>2. Illegal dumping working group to hold meetings with key stakeholders to refine scope of database by January 2022</li> <li>3. Implement changes required to commence improved data capture by Dec 2022</li> </ol>	Have an improved data recording system in place for illegal dumping by Dec 2022	Dec-22	Y	<ul style="list-style-type: none"> <li>✓</li> </ul>	Waste Services, Rangers, contractors	<p>Risks: Poor stakeholder buy-in to inform development of illegal dumping database and its ongoing use.</p> <p>Mitigation: Actively establish and manage stakeholder relationships, clearly communicate the project benefits to each stakeholder.</p>	There are no current projects in the City's plan for data collection for illegal dumping, a previous project 13 (litter collection and prevention) is for litter only.		

Part 2 - DRAFT Implementation plan (page 2)													
Waste Management Tool	Action (OR link to existing local government plan/document that details this activity)	Is the City's current waste plan?	Detailed actions/sub-actions (OR link to existing local government plan/document that details this activity)	Milestones (SMART - Specific, Measurable, Achievable, Relevant, Timed)	Target (SMART)	Transferees for delivery (completion date)	Cost of implementation incorporated into annual budget and Corporate Business Plan? Y/N - (if not, why?)	Aligns to Waste Strategy Objectives			Responsibility for implementation (names of individual officers)	Identified Risks (Impact/consequences and mitigation strategies)	City's waste management plan 2016-21 relevant current projects
								Avoid	Recover	Protect			
6	Behaviour change programs and initiatives Implement community waste reduction program initiative.	Existing	1. Research waste reduction education suppliers. 2. Review resources to enable delivery of an education program for residents to participate in to assist them in reducing the amount of waste they produce. 3. Develop a communications plan to encourage residents to take part in the education program. 4. Run the program with the educator.	1. Review requirements and appropriately resource waste education by Q1 2021-22 financial year. 2. Develop communications to encourage residents to take part in the education program by June 2023. 3. Commence education program by January 2023. 4. Have residents complete waste generation survey program to measure the success and behaviour changes.	Run a waste reduction education program by Jun 2023	Jun-23	Y	✓	✓	✓	Waste Services	(Project 4 Community waste behaviour change program) - The City's current plan project lists this action as an objective.  Risks: Lack of resourcing, poor resident uptake, no behaviour change.  Mitigation: pro-actively promote the benefits of the education program, clearly communicate the impact benefits to stakeholders, ensure the City has enough resources to complete the project.	
7	Behaviour change programs and initiatives Provide enhanced community education to increase awareness and encourage behaviour change around illegal dumping	New	1. Engage with residents, body corporates and landowners near where illegal dumping is an ongoing issue. 2. Maintain and improve partnerships with key landowners to seek cooperation in minimising and removing illegal dumping. 3. Develop illegal dumping awareness campaign material for a range of types of offenders (e.g. renovators, builders, property owners) including illegal dumping. 4. Publicise in various ways illegal dumping enforcement activities as part of the annual report.	1. Draft a communications plan regarding behaviour change for illegal dumping to be completed by September 2021 2. Commence implementation of the communications campaign around illegal dumping. 3. Annual waste and resource recovery survey to identify illegal dumping hotspots. 4. Communicate in Council publications (newsletters, ads) by Nov 2022	30% decrease in the recorded amount of illegally dumped material from agreed baseline	Dec-23	Y	✓	✓	✓	Waste Services, Communications and Stakeholder Management, Rangers.	The City's current plan does not have any projects that target illegal dumping reduction given its low levels of occurrence. This project is targeting illegal dumping around reducing illegal dumping.  Risks: Lack of stakeholder commitment, lack of behaviour change by community.  Mitigation: Develop robust communications plan to enlist community behaviour change, ensure clear communication of project objectives, ensure support, secure support from Rangers, to assist in the delivering illegal dumping enforcement.	
8	Behaviour change programs and initiatives Implement a targeted litter program to reduce the volume of litter at identified hotspots in the City.	Existing	1. Run litter audits to identify hotspots where litter is causing impact on natural areas and public places. 2. Establish a baseline quantity and main type of litter found in the key locations. 3. Determine main behaviour change actions required to support the project. 4. Plan any key infrastructure changes required over the 12 months to support the project. 5. Monitor and evaluate changes for 6 months after actions 4 & 5 are complete.	1. Litter audit to be completed at at least 5 locations by December 2021 2. Implementation plan to be developed by March 2022 3. Infrastructure and education activities to be complete by March 2023. 4. Project monitoring and evaluation to be completed by Dec 2024.	Downward trend observed by end of Dec 2024	Dec-24	Y	✓	✓	✓	Rangers, Waste Services, Strategic Organisational Development	Risks: Competing priorities for waste projects.  Mitigation: Manage expectations so that timelines established are able to be met, ensure sufficient time is allocated for delivery. Clearly communicate goals to City officers and staff, ensure ongoing support and success. Ensure enough resources are in place to complete the project.	(Project 13. Litter collection and prevention) - this is an existing project and the targets meet the city's current plans project objectives.
9	Managing the City's corporate waste Review the City's corporate waste and implement reduction and recovery targets	Existing	1. Refine the internal corporate waste data collection to identify waste generation from internal and external operations. 2. Review the highest proportion of corporate waste generated and identify possible diversions. 3. Determine main behaviour change actions required to support the project. 4. Plan any key infrastructure changes as opportunity presents following the data capture. 5. Monitor and evaluate changes and record waste reduction activities.	1. Review the corporate waste data capture system to commence by December 2021. 2. Identify possible waste diversions and waste reduction improvements through purchasing practices by December 2022. 3. Implement any infrastructure and education that will be completed by the end of Dec 2023. 4. Project monitoring and evaluation to be completed by Dec 2024	Downward trend observed by end of Dec 2024	Dec-24	Cost of implementation incorporated into the annual budget.	✓	✓	✓	Finance, Waste Services, Strategic Organisational Development	Risks: competing priorities, stakeholders limited participation, delays in achievement of milestones.  Mitigation: manage expectations so that timelines established are able to be met, ensure sufficient time is allocated for delivery, ensure communication to City officers and staff, ensure enough resources are in place to complete the project.	(Project 9 Managing the City's corporate waste) - this is an existing project and the targets meet the City's current plans project objectives.

# References

Colmar Brunton (2013) *Implementation of Waste Strategy*, Waste Authority, Perth.

Department of the Environment, Water, Heritage and the Arts (2009) *National Waste Policy: Less Waste, More Resources*, Australian Government.

Hyder Consulting (2014)a *Bulk Waste Options and Issues*. Prepared for the City of Joondalup, Perth.

Hyder Consulting (2015) *Waste Processing Infrastructure Options Assessment*. Prepared for the Mindarie Regional Council, Perth.

Mindarie Regional Council (2013) *Strategic Community Plan 2013/14 – 2033/34: Winning Back Waste*. Mindarie Regional Council.

WALGA (2014)a *Background Paper: Better Practice Verge Collection Guidelines*, WALGA, Perth.

WALGA (2014)b *Better Practice Verge Collection Guidelines*, WALGA, Perth.

WALGA (2015) *Bin Tagging Pilot Program – Summary of Outcomes*, WALGA, Perth.

Waste Authority (2012) *Western Australian Waste Strategy: Creating the Right Environment*. Government of Western Australia, Perth.

Waste Authority (2014) *Better Bins Kerbside Collection Guidelines* Government of Western Australia, Perth.



**T:** 08 9400 4000

**F:** 08 9300 1383

Boas Avenue Joondalup WA 6027

PO Box 21 Joondalup WA 6919

**[joondalup.wa.gov.au](http://joondalup.wa.gov.au)**



*This document is available in alternate formats upon request.*

11045 – revised 6 April 2021