

City of Joondalup

DRAFT

WASTE MANAGEMENT PLAN 2015 – 2020

Increasing diversion from landfill

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ACRONYMS

APC	Australian Packaging Covenant
AWT	Alternative Waste Treatment
BAU	Business as Usual
CBD	Central Business District
CCTV	Closed Circuit Television
CH ₄	Methane
CO ₂	Carbon Dioxide
CO ₂ -e	Carbon Dioxide equivalent
DER	Department of Environment Regulation
EfW	Energy from Waste
ERF	Emissions Reduction Fund
GO	Garden Organics
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 \$20 million 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 2015 – 2020* (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 Mindarie 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 2015 - 2020* 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 2015 – 2020* 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 Overarching Objectives

To guide the development of *Waste Management Plan 2015 – 2020* 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

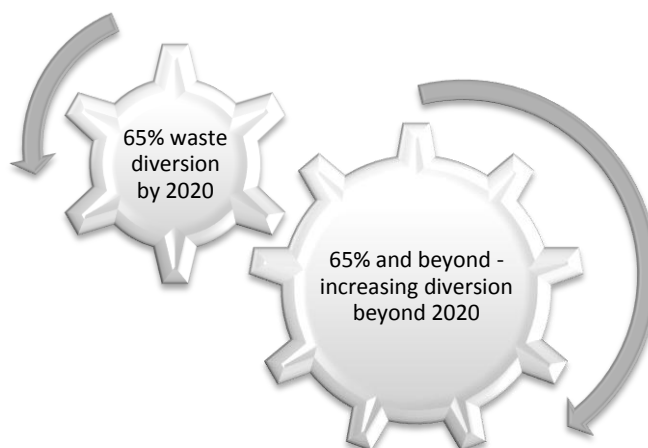
Targets identified for the *Waste Management Plan 2015 – 2020* align with the State Government waste recovery targets included in the *WA Waste Strategy: Creating the Right Environment*. The *WA Waste Strategy* targets for the Perth Metropolitan area are for:

- 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.

The City has achieved the 50% diversion target early; diverting 50.0% of household waste from landfill in 2013 - 2014 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 considered bold enough to drive change within the City's waste management practices, while still being achievable.

The *Waste Management Plan* also considers longer term planning for waste management beyond 2020 and increasing diversion from landfill above 65%. Achievements made within the 5 year timeframe of this *Waste Management Plan* will lay the foundations for the City to increase diversion from landfill above 65% beyond 2020.

Figure 1 Waste Management Plan 2015 – 2020 waste diversion targets



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 provided direction for the City to progress waste services and initiatives in the future.

The *Waste Management Plan 2015 – 2020* 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.

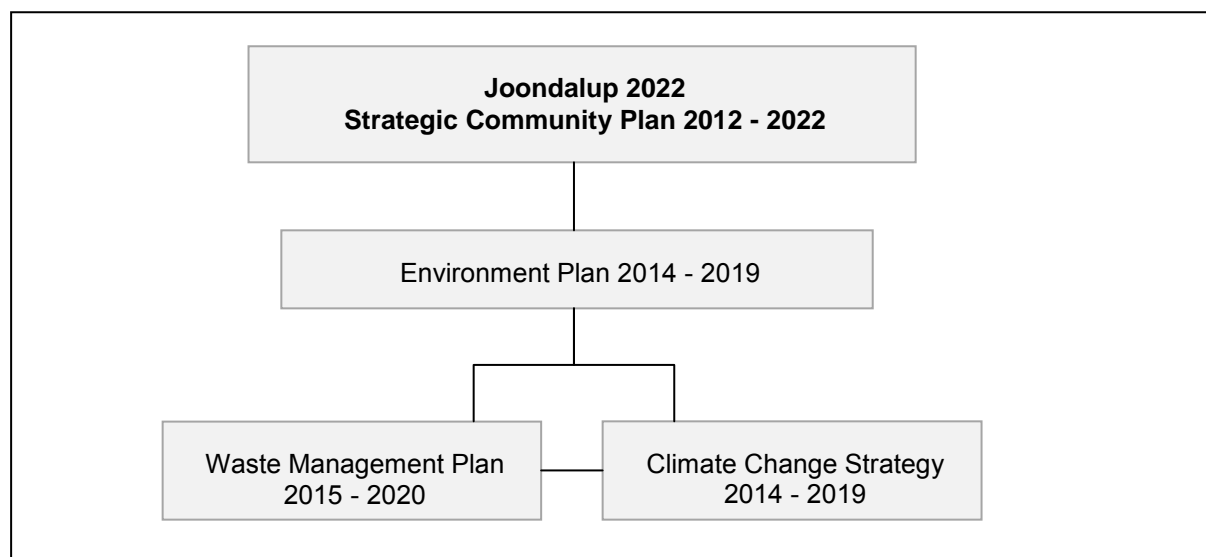
1.3 STRATEGIC ALIGNMENT

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 2015 - 2020* 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 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* 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 strategic planning documents.

Table 1 Strategic alignment of the *Waste Management Plan 2015 – 2020* with the City’s broader strategic planning documents

	Waste Management Plan 2015 - 2020	Climate Change Strategy 2014 - 2019	Environment Plan 2014 - 2019	Joondalup 2022: Strategic Plan 2012 – 2022*
Overall purpose/ aim	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.	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.
Relevant Key Focus Area (KFA) / Theme	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	Theme 4: Waste Management Theme 5: Community Involvement	Theme 5: Natural Environment
Relevant objectives	<ul style="list-style-type: none"> Minimise waste to landfill through application of the waste hierarchy. Engage and educate the community in sustainable waste management practices. Provide a quality and cost-effective waste management service to the community. Minimise the environmental impact of waste generation, collection and disposal. Ensure the City’s long term planning is informed by research and best practice. Maintain effective relationships with key stakeholders to maximise regional outcomes. 	<ul style="list-style-type: none"> To reduce the City’s greenhouse emissions through effective energy management and improved energy efficiency. To support and encourage the community to reduce their greenhouse emissions. 	<ul style="list-style-type: none"> To minimise waste to landfill through sustainable waste management practices which incorporate reduce, re-use, recovery and recycling principles. 	<ul style="list-style-type: none"> <i>Environmental Resilience</i> – To continually adapt to changing local environmental conditions. <i>Community Involvement</i> - To build a community that takes ownership of its natural assets and supports their ongoing preservation and conservation.

	Waste Management Plan 2015 - 2020	Climate Change Strategy 2014 - 2019	Environment Plan 2014 - 2019	Joondalup 2022: Strategic Plan 2012 – 2022*
Measurement	<p>Target - 65% of diversion of household waste from landfill by 2020</p> <ul style="list-style-type: none"> • Total residential waste generated (tonnes/yr) • Residential waste generated per capita (tonnes/capita/yr) • Residential waste diverted from landfill (%) (tonnes/yr) • Amount of residential waste recycled as a percentage of total waste generated (tonnes/yr) • Total amount of corporate waste generated (tonnes/yr) • Percentage of corporate waste diverted from landfill (%) • Waste present in natural areas 	<ul style="list-style-type: none"> • Reduce net greenhouse gas emissions by 5% per capita below 2012/13 consumption by 2018/19. 	<ul style="list-style-type: none"> • Total residential waste generated (tonnes/yr) • Residential waste generated per capita (tonnes/capita/yr) • Residential waste diverted from landfill (%) (tonnes/yr) • Amount of residential waste recycled as a percentage of total waste generated (tonnes/yr) 	<ul style="list-style-type: none"> • EN12 Waste Present in Natural Areas • EN23 Total Waste diverted from Landfill (Percentage) • EN23 Waste Diverted from Landfill (Tonnes)

* 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.

Figure 4 Key Drivers for Improving the City's Waste Management



1.4.1 Reaching Diversion Targets

The *Waste Management Plan 2015 - 2020* 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.

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 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; landfill currently costs the City \$155/tonne compared to \$24/tonne for processing of material in yellow-lidded bin. 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 of Joondalup has been shown to be a high generator of waste, particularly in regards to the bulk waste collection. This will only increase as the City's population increases 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 on the City's waste management activities and has provided the context for the development and implementation of *Waste Management Plan 2015 – 2020*. 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 these 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
Western Australian Local Government Association (WALGA)	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
Municipal Waste Advisory Council (MWAC)	The MWAC is a standing committee of WALGA and is actively involved in: <ul style="list-style-type: none"> - State-wide co-ordination of recycling issues; - Review of waste management legislation; and - Production of position papers on waste management. MWAC has delegated authority to represent WALGA in all matters relating to solid waste management.	Advocacy Engagement Learning
Waste Authority	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
Federal Government	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
Department of Environment Regulation (DER)	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
Mindarie Regional Council (MRC)	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. 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.	Collaboration Contractual
MRC Member Councils and other local governments	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.	Collaboration Contractual
Waste industry/ market	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 State Waste Strategy.	Contractual
Customers/ community	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.	Engagement Service provider

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

National 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 (CO₂-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 of Joondalup is unable to participate in the ERF as an individual local government as alone it wouldn't 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.

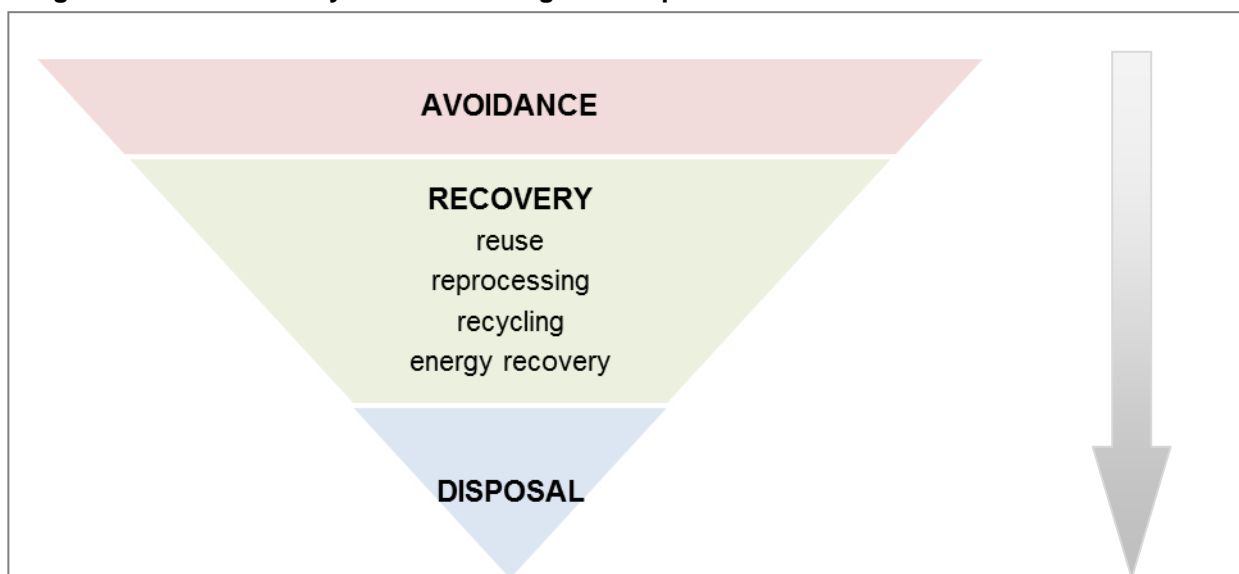
- The City will remain aware of the implementation of the ERF and opportunities for local government partnerships that may develop at a regional or metropolitan-wide scale.

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 2015 – 2020* meets requirements within the *WARR Act* for local governments to develop waste plans.
- The *Waste Management Plan 2015 – 2020* 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 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; modify behaviour in the waste management sector; and support programs which aim to reduce waste going to landfill.

The 2014 - 2015 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 ¹	Inert Waste ²
2014-2015	\$28 per tonne	\$8 per tonne
2015-2016	\$55 per tonne	\$40 per tonne
2016-2017	\$60 per tonne	\$50 per tonne
2017-2018	\$65 per tonne	\$60 per tonne
2018-2019	\$70 per tonne	\$70 per tonne



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)*³, 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; and
- Contribute to the reduction in greenhouse gas emissions, energy conservation and production, water efficiency and the productivity of the land.

City's response

¹ Putrescible waste is waste able to be decomposed by bacterial action.

² Inert waste is waste that will not decompose.

³ DEWHA (2009)

- The objectives and projects of the City's *Waste Management Plan* 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*⁴ 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 2015 - 2020* targets align with the Perth Metropolitan Region 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.

Better Bins Kerbside Collection Guidelines

⁴ Waste Authority (2012)

The *Better Bins Kerbside Collection Guidelines*⁵ 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; and
- 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 2 bin system was the preferred option for the Region.

- In the short term the City will optimise the 2 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 3 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*⁶ 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; and
- 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.⁷

⁵ Waste Authority (2014)

⁶ WALGA (2014)b

⁷ Hyder Consulting (2014)a

- 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).

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 Australia⁸. 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 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

<1%	PRE-CONTEMPLATION	These residents have never considered recycling or would never consider recycling.
10%	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.
56%	ACTION	These residents are recycling some of the time but not consistently. This is the largest group and a strategic priority and diversion can be significantly increased by creating greater recycling rates and greater consistency among this group.
34%	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:

- 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, and
- 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 2015 - 2020*.
- The City has taken into consideration the outcomes of the Waste Authority's community

⁸ Colmar Brunton (2013)

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 landfill⁹.

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

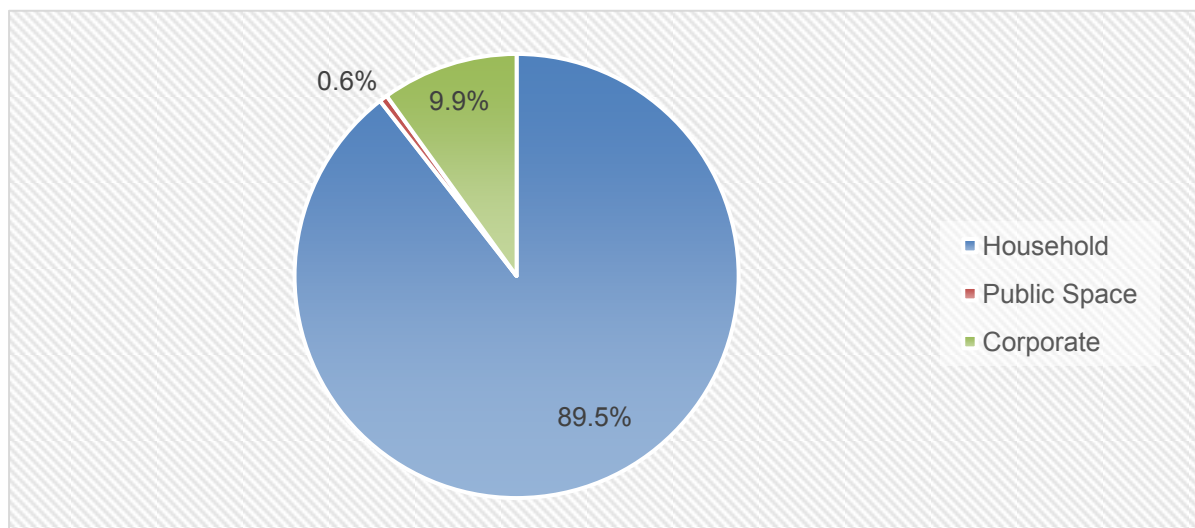
- The City works in partnership with the MRC and member Councils in the delivery and contracting of waste collection, processing and disposal services.
- The City, in partnership with the MRC and member Councils, has undertaken research and modelling on different scenarios for regional waste infrastructure 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.

⁹ 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 2014-2015



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.

Table 5 Summary of Waste Processing Facilities used by the City

Processing Facility	Processing Description	Waste Hierarchy
Resource Recovery Facility (RRF)	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. The RRF is managed by the Mindarie Regional Council.	Reprocessing
Materials Recovery Facility (MRF)	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	Recycling

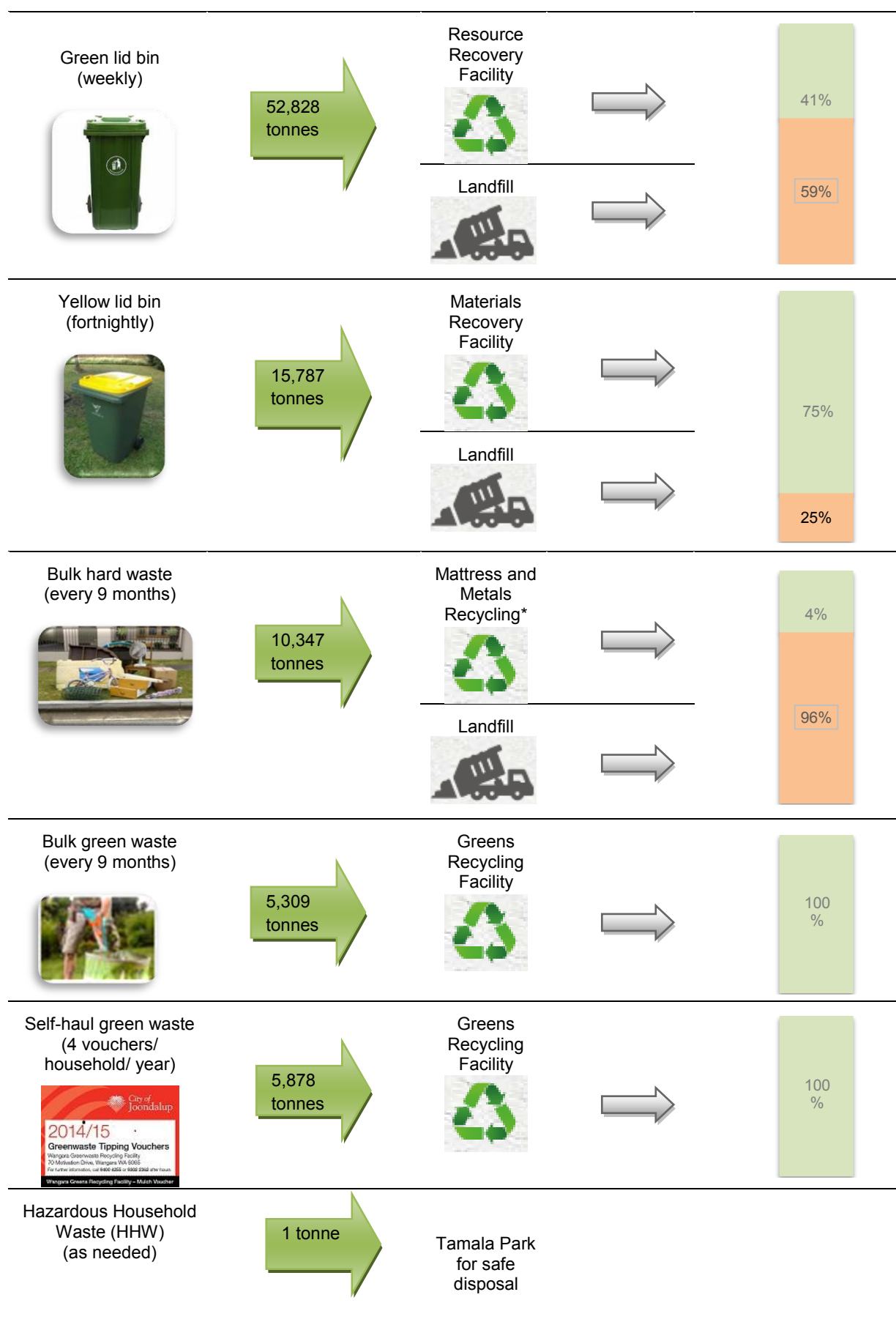
Processing Facility	Processing Description	Waste Hierarchy
	selling materials for recycling into new items.	
Greens Recycling Centre	The Wangara Greens Recycling Centre mulches green waste collected as part of the bulk waste collection and green waste brought in by residents. It is not actively composted or managed to Australian Standards 4454:2012.	Reprocessing
Tamala Park Recycling Centre	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
Tamala Park Landfill	The landfill site at Tamala Park is managed by Mindarie Regional Council and provides disposal services to all member Councils.	Disposal
Landfill Power and Gas	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

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. 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 nearly 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 bin.
- 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 higher diversion rate will be dependent on either the continuation of these pilot projects or the establishment of new diversion or processing arrangements.

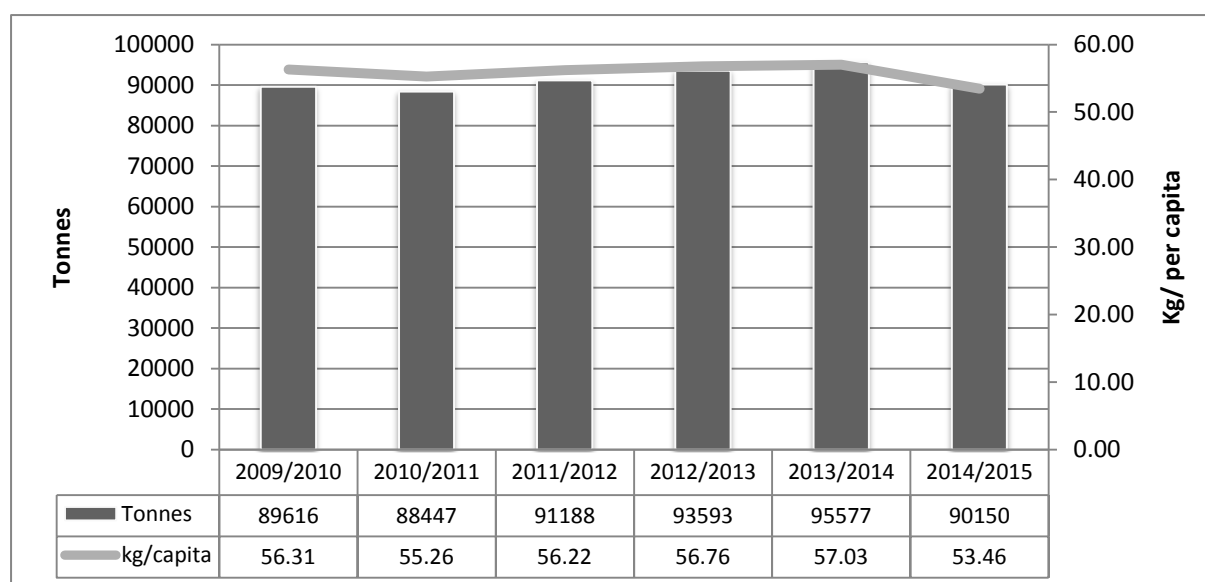
Figure 8 Summary of City Waste Management Collections in 2014-15



3.1.1 Changes to Waste Tonnages and Diversion Rates

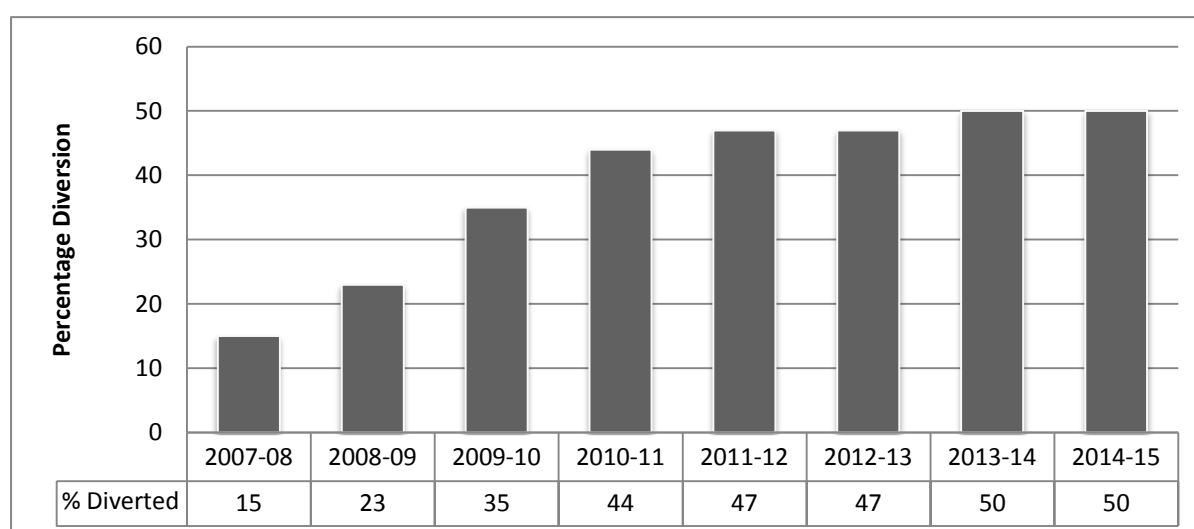
From 2009-2010 the amount of waste collected in the City had been gradually increasing, until 2014-2015 when there was a drop in the amount of waste collected. During this time the population within the City increased by 5.96%, resulting in a decrease in residential waste collected per capita of 5.1%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

Figure 9 Tonnes of Residential Waste Collected



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 2010-2011 to 50% in 2014-2015 can be attributed to increasing waste diversion rates from all sources and the introduction of other recycling initiatives such as recycling of mattresses and metals as part of the bulk waste collection.

Figure 10 Annual Percentage of Waste Diverted from Landfill

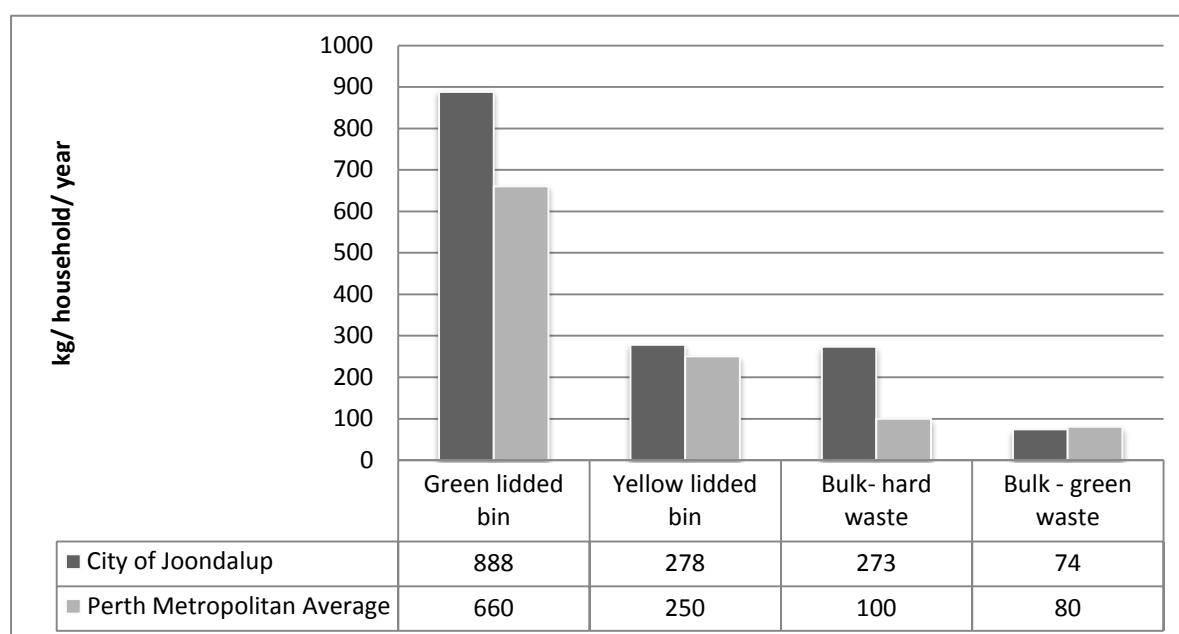


3.1.2 Levels of Household Waste

Research conducted by WALGA as part of developing the *Better Vergeside* Guidelines found that in 2012-13 the City of Joondalup 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)¹⁰.

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 area average.

Figure 11 City of Joondalup 2012-13 Annual Tonnages Compared to the Perth Metropolitan Area 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 entered a new 3 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 per tonne.

¹⁰ WALGA (2014)a

Table 6 Service Delivery Cost Review 2013-14

Service		Cost in 2013-14	Typical Industry Rates	Total cost 2013-2014
Collection Costs	Green lid bin (per bin lift)	\$0.91	\$0.80 - \$1.20	\$2.7 million
	Yellow lid bin (per bin lift)	\$0.89	\$1.00 - \$1.40	\$1.3 million
	Bulk waste (per household)	\$25.37	\$8.00 - \$22.00	\$1.47 million
	Garden waste (per household)	\$9.00	\$7.00 - \$15.00	\$0.524 million
	Self- haul garden waste (per tonne)	\$46.00	n/a	\$0.228 million
Processing Costs	Green lid bin (per tonne)	\$116 - \$143 landfill \$230 – RRF	\$120 - \$160 landfill \$190 - \$260 RRF	\$6.8 million
	Yellow lid bin (per tonne)	\$90 - \$200	\$40 - 90	\$3.4 million
	Bulk waste (per tonne)	\$116 - \$143	\$120 - \$160	\$1.6 million
	Garden waste (per tonne)	\$53.00	\$43 - \$85	\$0.23 million
	Self-haul garden waste (per tonne)	\$53.00	\$45 - \$85	\$0.264 million

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 2014-15 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 needs 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 2014-15, the waste measured averaged 42 items per hectare.

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 2014-2015	% 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%*
Total		10,022	76.3%

* 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 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.

Table 8 Summary of the City's Waste Education and Waste Programs



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.

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.

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



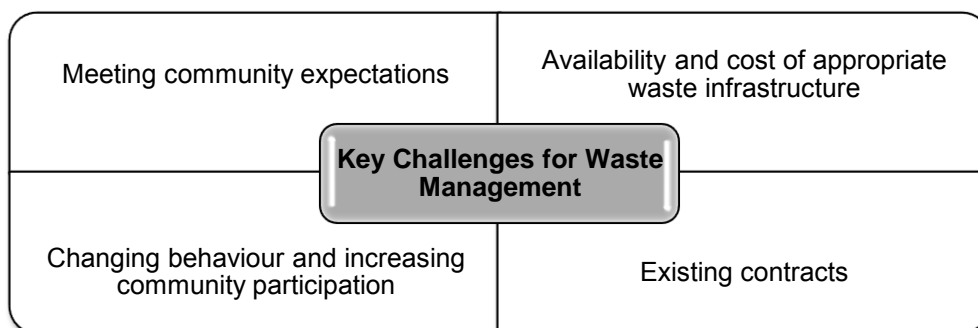
4.0 FUTURE APPROACH FOR WASTE MANAGEMENT

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 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.

Figure 13 Key Challenges for Waste Management



4.1.1 Meeting Community Expectations

Community feedback on the City's waste management services is largely positive. In its 2013-2014 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 9 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 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.

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 waste 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
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
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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 2015 – 2020* 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*¹¹. 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 recommendation 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 the basis for its future approach.

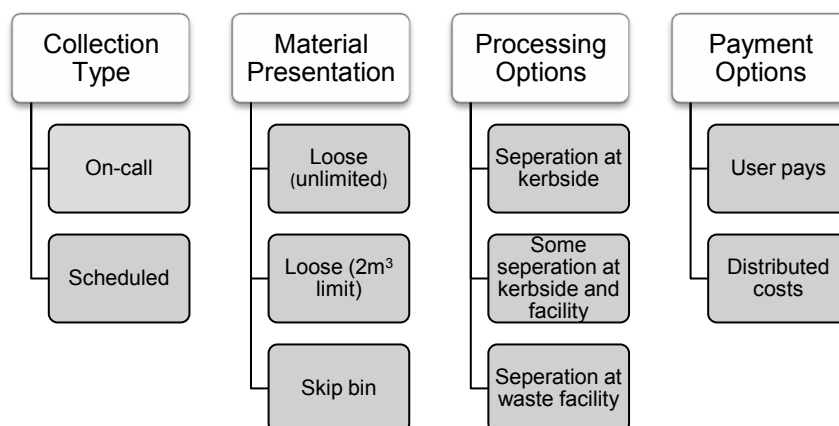
Researching Bulk Waste Options

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.

¹¹ Hyder Consulting (2015)

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 14¹².

Figure 14 Bulk Waste Collection Options for Modelling



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.

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 4 years of 3.83% per year. This equates to the City having to spend an extra \$3,283,000 on waste services in 2019-2020 compared to 2015-16. If this cost was passed onto households the household waste fee would increase from \$346 in 2015-16 to \$402 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

¹² Hyder (2014)a

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:

- 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 participating¹³.

Table 10 Bin Tagging Trial Results

	Week 1	Week 2	Week 3	Week 4
Green-lidded bin				
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%
Yellow-lidded bin				
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.

4.3 FUTURE PLANNING FOR WASTE MANAGEMENT


This Plan will guide the City's waste management activities over the next 5 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 2020.

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

¹³ WALGA (2015)

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
Horizon 1	2015 - 2018	Optimising the current system Research and data collection Improving knowledge
Horizon 2	2015 - 2020	Improving knowledge Decision making Positioning the City for Horizon 3
Horizon 3	2015 to beyond 2020	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 (2015 – 2018) is the implementation phase of the *Waste Management Plan 2015 - 2020* 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 (2015 – 2020) and 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 to 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* (identified in section 1.2.1) is also 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.

Table 12 Waste Management Focus Areas and Outcomes

Key Focus Area	Outcomes	WMP Objectives					
		1	2	3	4	5	6
Waste Services	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.	•		•	•		
Community Participation and Engagement	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.	•	•		•		
Research and Development	The City's waste management services and service improvements are based on current research, best-practice and waste technology improvements.	•			•	•	
Stakeholders and Partnerships	Work with Mindarie 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.	•			•		•

5.2 WASTE MANAGEMENT PROJECTS

In order to achieve the objectives of the *Waste Management Plan 2015-2020* 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 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	1 & 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	1 & 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	1 & 2	•				Avoid, Reuse, Recycling
10	Implement public place recycling at major events	1 & 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	1 & 2	•	•			Avoid, Disposal
14	Develop options for a household hazardous waste service	1	•	•	•		Disposal
15	Continued review and improvement of household waste services	1 & 2	•		•	•	Reprocessing, Recycling, Disposal
16	Developing future waste infrastructure requirements	1 & 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	
Project Status New Project	Project Commencement 2015-16
Project Description <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>	
Project Objectives <ul style="list-style-type: none"> ▪ Increase the amount of recyclable materials collected through the yellow-lidded bin collection. ▪ Reduce contamination of the yellow-lidded bin. ▪ Increase the awareness, understanding and participation in recycling by the community. ▪ Assess the potential for 360L recycling bins to be rolled out across the City. 	
Deliverables <ul style="list-style-type: none"> ▪ Delivery of 360L recycling bins to households. ▪ An up to 5% increase in the landfill diversion rate. ▪ Marketing and promotional materials to support the delivery and uptake of the project. 	

Project 2 Implement improved Bulk Waste Collection Service	
Project Status New Project	Project Commencement 2015-16
Project Description <p>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.</p> <p>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.</p>	
Project Objectives <ul style="list-style-type: none"> ▪ To implement an improved bulk waste collection service 	
Deliverables <ul style="list-style-type: none"> ▪ Establishment of the new bulk waste service collection. 	

Project 3 Bin Tagging Program

Project Status New Project	Project Commencement 2015-16
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 <ul style="list-style-type: none"> To reduce contamination of recycling bins in participating households. 	
Deliverables <ul style="list-style-type: none"> 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: <ul style="list-style-type: none"> 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: <ul style="list-style-type: none"> 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. 	

<ul style="list-style-type: none"> Engaging with different target groups i.e. households, schools etc. Focussing on key messages the City wants to deliver.
Project Objectives <ul style="list-style-type: none"> 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 <ul style="list-style-type: none"> Implementation of 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 <p>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.</p> <p>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.</p> <p>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. City of Joondalup will also continue to work with Mindarie Regional Council and member councils on options for regional solutions.</p>	
Project Objectives <ul style="list-style-type: none"> 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 <ul style="list-style-type: none"> A long term solution for recycling processing arrangements for the City 	

Project 6 Household Waste Composition Audit	
Project Status New Project	Project Commencement 2015-16
Project Description <p>A waste composition audit is used to quantify the amounts and types of waste being generated,</p>	

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; and
- 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 <p>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.</p> <p>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.</p> <p>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.</p> <p>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 etc. and provide a greater advocacy voice on waste management issues for the City.</p>	
Project Objectives <ul style="list-style-type: none"> ▪ 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 its public spaces 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 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

- Tonnages 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; and
- 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.

<ul style="list-style-type: none"> ▪ To increase the amount of corporate waste recycled.
Deliverables <ul style="list-style-type: none"> ▪ 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 <p>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.</p> <p>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.</p> <p>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.</p>	
Project Objectives <ul style="list-style-type: none"> ▪ To provide recycling services at key City events. ▪ To improve participation and reduce contamination of recycling at key City events. 	
Deliverables <ul style="list-style-type: none"> ▪ 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 <p>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 11,500 tpa of green waste to the Wangara Recycling Centre where it is mulched.</p> <p>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.</p> <p>This project will investigate alternative collection and processing options to improve the quality and value of the material produced. Consideration should be given to:</p> <ul style="list-style-type: none"> • Reducing contamination of the green waste collected; • Processing the material to AS4454; and • 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
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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
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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, 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 <ul style="list-style-type: none"> • Investigate options for improving the collection of household hazardous waste. • Increase the appropriate disposal of household hazardous waste. 	
Deliverables <ul style="list-style-type: none"> • 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 2 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	

<p>opportunities for the City to further improve its household waste service.</p> <p>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.</p> <p>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.</p>
<p>Project Objectives</p> <ul style="list-style-type: none"> ▪ 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.
<p>Deliverables</p> <ul style="list-style-type: none"> ▪ An effective household waste management services that maximises diversion rates.

Project 16 Developing future waste infrastructure requirements	
<p>Project Status New Project</p>	<p>Project Commencement 2015-16</p>
<p>Project Description</p> <p>The MRC's Resource Recovery Facility currently has capacity to process 100,000 tpa of mixed waste or 85,000 tpa of source separated organics. MRC member Council's collectively generate approximately 300,000 tpa. The current facility cannot process all of the MRC members material, therefore the remainder is disposed of to landfill at Tamala Park.</p> <p>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 WA Waste Strategy diversion targets including infrastructure required, optimal locations for infrastructure and alternative waste technologies.</p> <p>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.</p>	
<p>Project Objectives</p> <ul style="list-style-type: none"> ▪ Support investigations by the MRC into waste infrastructure requirements for the Region including an energy from waste facility. 	
<p>Deliverables</p> <ul style="list-style-type: none"> ▪ 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 household waste diverted from landfill by 2020 is the City's overarching target for implementation of the *Waste Management Plan 2015 – 2020*. A 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 2015 – 2020* 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.

Table 14 Waste Management Plan Key Performance Indicators

Indicator	Purpose	Source	Aspirational Trend
Household Waste			
Total household waste generated (tonnes/yr)	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
Household waste generated per capita (tonnes/capita/yr)	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
Percentage of household waste recovered through the materials recovery facility (%)	To provide information on whether households are increasing their participation in recycling.	Tonnage data provided through measurement of individual waste streams.	Increase
Corporate Waste			
Total amount of corporate waste generated (tonnes/yr)	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
Percentage of corporate waste diverted from landfill (%)	To determine whether the City is increasing its diversion of corporate waste.	Tonnage data obtained from City's corporate waste collection contracts.	Increase
Public Space Waste			
Waste present within Natural Areas	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

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.

6.2 MONITORING AND REVIEW

The *Waste Management Plan 2015 – 2020* 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 2015 - 2020

Level of Review	Timeframe	Description
Annual Review	Annually	<p>In line with the City's Project Management Framework, annual review of the Plan will include an:</p> <ul style="list-style-type: none"> • Assessment of the progress and status of each waste management project. • Assessment of progress towards the City's key performance indicators. • Identification of any implementation issues or significant lack in progress.
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 2020 – 2025</i> for Horizon 3.

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DRAFT WASTE MANAGEMENT PLAN 2015 – 2020

Community Engagement Communication Plan

Purpose of the Consultation

- To obtain feedback from stakeholders and the community regarding the City of Joondalup Draft Waste Management Plan 2015–2020

Who will be engaged?

The following stakeholders will be consulted:

- Western Australian Local Government Association (WALGA)
- Municipal Waste Advisory Council (MWAC)
- Waste Authority
- Department of Environment Regulation (DER)
- Mandarie Regional Council (MRC)
- Local Resident and Ratepayer Associations
- Local Parliamentarians
- Strategic Community Reference Group Members
- Community Engagement Network

The City of Joondalup community will also be consulted.

How will they be engaged?

Affected Stakeholders

Affected stakeholders will receive a personally addressed letter explaining the purpose and objectives of the Draft Waste Management Plan with a link to the Online Survey Form and Plan on the City's website. Hard Copies of the Draft Waste Management Plan will be available upon request.

General Public

The Draft Waste Management Plan will be available on the City's website with a link to the Online Survey Form and Plan. Community Engagement Network members will also receive the information through email.

Anonymity

It will be a requirement for respondents to include their name and address in order for the Online Survey Form to be accepted as a valid response. This will be stated on the Online Survey Form.

Date of Commencement and Duration of Consultation

- The community consultation process will be conducted over a 21-day period from Tuesday 24 November 2015 to Tuesday 15 December 2015
- The mail-out to key stakeholders will commence Tuesday 24 November 2015.

Summary of Documents Required for the Consultation

- Electronic copy of Draft Waste Management Plan 2015–2020
- Covering letters to key stakeholders;
- Electronic copy of Online Survey Form; and
- Hard copies of the Draft Waste Management Plan 2015–2020 (if necessary)