City of Canning

A welcoming and thriving city

Strategic Waste Management Plan 2019

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Acronyms, Terms and Descriptions

Acronym or Term	Description
C&D	Construction and Demolition
C&I	Commercial and Industrial
CBP	Corporate Business Plan
CDS	Container Deposit Scheme
DWER	Department of Water and Environmental Regulation
E-waste	Electronic waste
FOGO	Food Organics and Garden Organics
HHW	Household Hazardous Waste
IPRF	Integrated Planning and Reporting Framework
KPI	Key Performance Indicator
LGA	Local Government Area
MWAC	Municipal Waste Advisory Council
MRF	Materials Recovery Facility
MSW	Municipal Solid Waste. MSW is the solid waste generated from domestic (household) premises and local government activities
MUD	Multi-unit development
RRRC	Regional Resource Recovery Centre
SCP	Strategic Community Plan
SMRC	Southern Metropolitan Regional Council
SWMP	Strategic Waste Management Plan
WA	Western Australia
WARR Act	Waste Avoidance and Resource Recovery Act 2007
WtE	Waste to Energy

1. Executive Summary

Canning is a unique and evolving City that reflects the needs of our diverse community. With over 93,000 residents, two of Perth's premier industrial areas as well as areas that are rich in natural biodiversity, sustainable waste management is an essential service we need to responsibly deliver for and to our community.

The City of Canning's vision is to create a welcoming and thriving City. This vision will allow our community the opportunity to grow, prosper, connect, build and lead. Aligning with this overall City vision, our vision for waste management is for the City of Canning to be a leading Western Australian (WA) Local Government in sustainable waste management, influencing the Perth metropolitan area by facilitating solutions to emerging waste management issues.

This Strategic Waste Management Plan (SWMP) outlines the City of Canning's approach in achieving this vision by setting out our objectives that cover our key focus areas, implementing indicators to aim and measure ourselves against and putting in place the actions needed to accomplish our aims. It covers our current approach, the legislative environment we operate within, key projects to be implemented and the challenges and opportunities we face now and into the future. The SWMP covers three separate time horizons spanning from 2019 through to 2030 and beyond. The SWMP will undergo reviews during this time period however it is recognised that to achieve strategic outcomes, a longer term vison and objectives need to be defined.

2. Introduction

Canning is a unique and evolving City that reflects the needs of our diverse community. There are approximately 93,000 residents living in the City of Canning (id. Forecast 2017). The City provides over 64,000 full time jobs, contains two of Perth's premier industrial areas (Canning Vale and Welshpool) as well as being home to Perth's largest retail outlet in Westfield Carousel. Canning is also rich in natural assets and areas of local biodiversity, where we manage 42 wetland, river and bushland sites.

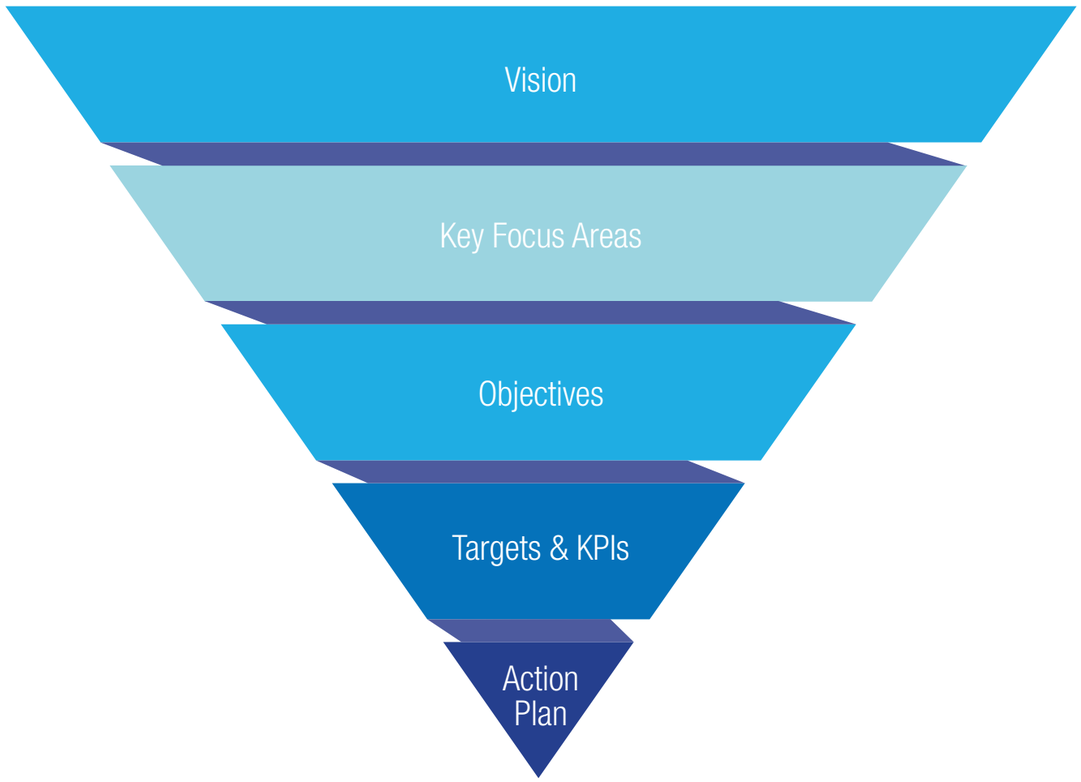
As a result of the City's diverse demographics, and our position and capacity for industry, various opportunities and challenges exist when it comes to how we manage waste now and into the future. The City of Canning is committed to managing our community's waste in a sustainable and environmentally responsible manner. We understand that sending waste to landfill has long term impacts from an environmental, social and economic perspective and that there are numerous opportunities to divert waste from landfill that will benefit our community.

The City of Canning's vision is to create a welcoming and thriving City. The Strategic Community Plan (SCP) encompasses this vision, and uses a number of goals which are the cornerstone of the City's work:

- **Grow** – natural areas where people and wildlife flourish
- **Prosper** – a thriving local community
- **Connect** – an inclusive, safe and vibrant community
- **Build** – accessible, pleasing urban spaces that are fit for purpose
- **Lead** – accountable, responsible and forward thinking administration.

Aligning with the overall City vision, our vision for waste management is for the City of Canning to be a leading WA Local Government in sustainable waste management, influencing the Perth metropolitan area by facilitating solutions to emerging waste management issues.

The *Waste Avoidance and Resource Recovery Act 2007* (WARR Act) specifies the inclusion of a waste plan, which details strategies to manage waste, reduce waste and implement actions to meet targets, as part of local government planning for the future. This Strategic Waste Management Plan (SWMP) outlines the City of Canning's approach in achieving our vision by setting out objectives that cover our key focus areas, implementing indicators to aim and measure ourselves against and putting in place the actions needed to accomplish our aims.



2.1 Key Focus Areas

The City has determined the following key focus areas as fundamental to our vision:

- **Sustainable waste services:** we will reduce environmental impacts, and deliver services that are efficient, effective, and financially viable and ensure community needs are met.
- **Create, utilise and build on partnerships:** we will work with all relevant sectors and stakeholders to enhance waste management outcomes.
- **Engaging with the community:** we will have a well-informed community that understands and embraces effective waste management practices.
- **Research, development and innovation:** we want to be at the forefront of waste technologies, facilitate research and development and be innovative in our thinking.

2.2 Objectives

The objectives we put in place shape the direction of the SWMP. Our objectives are:

1. Minimise waste generation and ensure the use of diversion techniques are central to our approach in all aspects of waste management.
2. Increase resource recovery through improving waste management practices in separation, collection and processing.
3. Minimise the environmental impact of waste within our City, encompassing generation, collection and disposal outcomes.
4. Build, maintain and enhance relationships with key stakeholders to maximise regional outcomes.
5. Connect with our community to educate and encourage positive and sustainable waste behaviour.
6. Apply innovative thinking to waste management and facilitate research and development in waste management technologies and facilities, using our unique position for industry and growth.

2.3 Targets and Key Performance Indicators

In order to measure our progress against achieving our objectives, we have put in place targets and performance indicators for short term, medium term and longer term planning. Where alignment is necessary, such as with the WA Waste Strategy, we have adopted the state based targets for waste diversion from landfill. These targets include:

- 65% of municipal solid waste (MSW) diverted from landfill by 2020
- 70% of commercial and industrial waste diverted from landfill by 2020
- 75% of construction and demolition waste diverted from landfill by 2020

We recognise that in order to achieve these targets, we need to implement and drive changes to City wide waste management practices.

In addition to the above targets, as this SWMP is framed to look forward into the medium and longer term planning horizons, we have also put in place targets and indicators within these timeframes to align with, and drive progress towards, our own City of Canning vision.

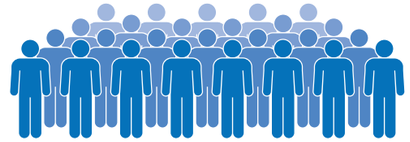
2.4 Scope

The scope of this SWMP includes (within the context and boundary of our local area):

- All waste generated by City of Canning which the City has direct operational control over and development of initiatives to improve its management.
- City of Canning waste management facilities and other City owned assets and their potential for further development and/or enhancement.
- The legislative context which will inform the SWMP and impacts the SWMP direction.
- Potential new opportunities to better serve our community's waste management needs.
- Emerging waste management technologies which the City could feasibly implement, or help facilitate the implementation.
- The key challenges and future opportunities for sustainable waste management within the Local Government sector and broader waste management industry.

3. A Snapshot of our Profile

Area: 64.8km²



Population 93,274

Land Use

The City of Canning is a growing residential area, with industrial and commercial precincts. The City has significant river foreshore areas and parklands.

Our Identity

Our population comprises 50% of residents born overseas and 40% speaking a language at home other than English; including Mandarin, Cantonese, Indonesian and Punjabi as the most common. The majority of our residents are aged 25-49.

The Way We Live

There are 35,683 households in the City of Canning, with 50% of these occupied by one or two people. The most common housing type is a separate household (77%). 22% are medium density households with only 1% being high density living.

4. Strategic Context

4.1 Federal Framework and Regulatory Context

4.1.1 Product Stewardship Act

The *Product Stewardship Act 2011* provides the framework for managing the environmental, health and safety impacts of products, taking into account a lifecycle perspective. The Act places a shared responsibility on all those involved in the lifespan of the products, from the manufacturer to the end user. The framework includes voluntary, co-regulatory and mandatory product stewardship. This approach is outlined below:

- **Voluntary accreditation of schemes** encourages product stewardship without the need for regulation and provides the community with certainty that voluntary accredited schemes are meeting specific requirements that ensure they carry out their activities in a transparent and accountable manner. This includes arrangements such as Mobile Muster and FluroCycle.
- **Co-regulatory product stewardship schemes** are delivered by industry and regulated by the Australian Government. For example, where there is a requirement to meet a certain recycling target, details of the activities to be carried out by a scheme operator will be detailed separately in regulations for each scheme. For example, the National Television and Computer Recycling Scheme.
- **Mandatory product stewardship schemes** would place a legal obligation on parties to take certain actions in relation to a product. Requirements that can be placed on parties using the legislation include the labelling of products, making arrangements for recycling products at end of life, or requiring a deposit and refund to be applied to a product. There are currently no entirely mandatory stewardship schemes in place under the Act.

4.1.2 National Waste Policy

The National Waste Policy – Less Waste More Resources was released by the Department of Sustainability, Environment, Water, Population and Communities in November 2009 and provides a direction for waste in Australia to 2020 with a view to reduce waste generation and manage waste as a resource to deliver economic, environmental and social benefits.

The National Policy sets six key outcomes for waste management by 2020, which are supported by a series of objectives. The six key outcomes are:

1. **Taking responsibilit**y - Shared responsibility for reducing the environmental, health and safety footprint of products and materials across the manufacture-supply-consumption chain and at end-of-life.
2. **Improving the market** - Efficient and effective Australian markets operate for waste and recovered resources, with local technology and innovation being sought after internationally.
3. **Pursuing sustainability** - Less waste and improved use of waste to achieve broader environmental, social and economic benefits.
4. **Reducing hazard and risk** - Reduction of potentially hazardous content of wastes with consistent, safe and accountable waste recovery, handling and disposal.
5. **Tailoring solutions** - Increased capacity in regional, remote and Indigenous communities to manage waste and recover and re-use resources.
6. **Providing the evidence** - Access by decision makers to meaningful, accurate and current national waste and resource recovery data and information to measure progress and educate and inform the behaviour and the choices of the community.

The National Waste Policy also recognises the important role of local government authorities (LGAs) in providing waste management services and infrastructure. The National Waste Policy outlines waste outcomes and strategies at a national level that indirectly affects the City by providing strategies to assist in achieving the national outcomes outlined within the Policy.

The National Waste Policy is currently being updated by Commonwealth, State and Territory ministers, due for completion by the end of 2018.

4.1.3 Emissions Reduction Fund

The Emissions Reduction Fund is the Federal Government's scheme currently in place that is working to reduce Australia's emissions in line with our target under the Paris Agreement of 26-28% below 2005 levels by 2030. The $2.55 billion fund provides for the purchasing of emission reductions though approved projects.

Key areas in which the fund may be applicable to strategic waste projects includes:

- Alternative waste treatment
- Landfill gas
- Source separated organic material
- Wastewater treatment

Projects must meet a set of eligibility requirements in order to be considered.

4.2 State Framework and Regulatory Context

4.2.1 Local Government Act

The *Local Government Act 1995* does not outline any specific requirements regarding waste management, however takes a broad approach to how a local government provides its general function. The Act does outline that a local government should use its best endeavours to implement the principles of intra and intergenerational equity through the integration of environmental protection, social advancement and economic prosperity.

4.2.2 Environmental Protection Act

The *Environmental Protection Act 1986* (EP Act) is the principal piece of environmental legislation in Western Australia for the prevention, control and abatement of pollution and environmental harm. The relevant waste sections in this Act were repealed once the WARR Act was gazetted. However, the EP Act is applicable as the overarching environmental protection legislation in Western Australia.

4.2.3 Waste Avoidance and Resource Recovery Act

The *Waste Avoidance and Resource Recovery Act 2007* (WARR Act) came into force in July 2008. Some of the key requirements include:

- Stipulation of the development of a waste plan as part of a LGA's future planning. The waste plan can include -
  - Population profiles for the area.
  - Significant sources and generators of waste received by the local government.
  - Options for reduction, management and disposal of waste received by the local government.
  - Proposed strategies and targets for managing and reducing waste received by the local government.
  - An implementation program that identifies the required action, timeframes and resources for achieving strategies and targets.
- Legislative frameworks for waste avoidance and resource recovery systems.
- The establishment of the Waste Authority.
- Development of the State Waste Strategy.
- Provision of municipal solid waste (MSW) services by LGAs.
- Levies on waste.
- The complementary *Waste Avoidance and Resource Recovery Levy Act* (WARR Levy Act).

The primary objective of the WARR Act is to contribute to sustainability, and the protection of human health and the environment in Western Australia, and the move towards a waste free society by:

- Promoting the most efficient use of resources, including resource recovery and waste avoidance.
- Reducing environmental harm, including pollution through waste.
- The consideration of resource management options against the following hierarchy -
  - Avoidance of unnecessary waste creation and resource consumption.
  - Resource recovery (including reuse, reprocessing, recycling and energy recovery).
  - Disposal.

Section 5 of the WARR Act presents a Waste Hierarchy, which ranks waste management options from most desirable to least desirable in terms of environmental impact, with the aim of utilising the higher end of the hierarchy most and the lower end when no other option is feasible. The hierarchy is a waste management tool that can be used alongside other decision making tools to inform assessments and evaluation.

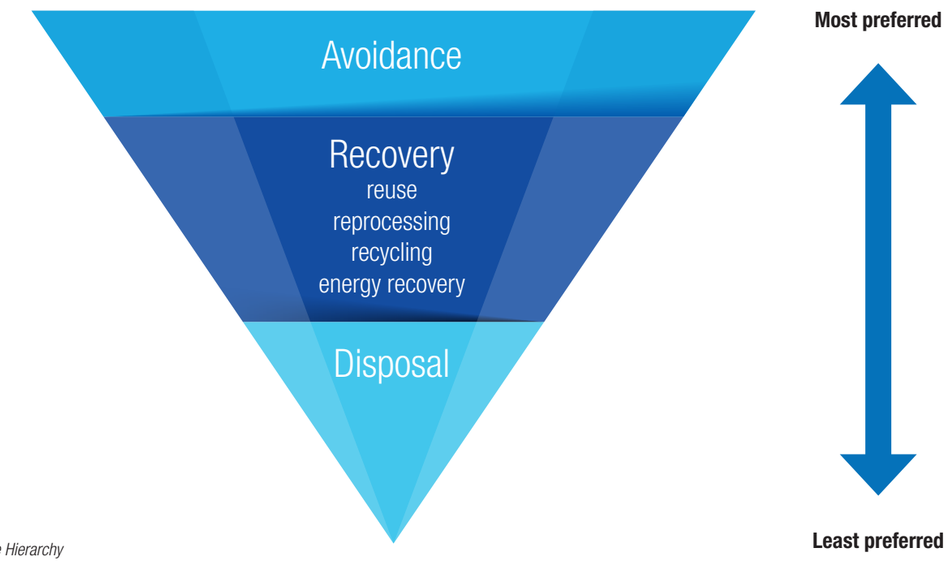


Figure 1: WARR Act Waste Hierarchy

4.2.4 Waste Avoidance and Resource Recovery Levy Act

The *WARR Levy Act 2007* requires the payment of a levy per tonne of waste disposed of to landfill. The levy currently applies only to waste received at metropolitan landfills, or non-metropolitan landfills which receive metropolitan waste.

A review of the landfill levies undertaken by the Waste Authority resulted in the development of a five year schedule of landfill levy increases as shown in Table 1.

Period	MSW ($/tonne)	Approx. Inert Rate ($/tonne)	Inert Rate ($/m³)
Pre January 2015	28	8	12
January 2015 – June 2016	55	40	60
July 2016 – June 2017	60	50	75
July 2017 – June 2018	65	60	90
July 2018 – June 2019	70	70	105
July 2019 onwards	70	70	105

Table 1: Landfill Levy Rates

4.2.5 Western Australian Waste Strategy

The Western Australian Waste Strategy (WA Waste Strategy) was developed pursuant to the State WARR Act. The WA Waste Strategy aims to provide the required knowledge, infrastructure and incentives to change current behaviour to more sustainable waste management practices.

The objectives of the Strategy are:

- Initiate and maintain long-term planning for waste and recycling processing, and enable access to suitably located land with buffers sufficient to cater for the State's waste management needs.
- Enhance regulatory services to ensure consistent performance is achieved at landfills, waste transfer stations and processing facilities.
- Develop best practice guidelines, measures and reporting frameworks and promote their adoption.
- Use existing economic instruments to support the financial viability of actions that divert waste from landfill and recover it as a resource.
- Communicate messages for behaviour change and promote its adoption, and acknowledge the success of individuals and organisations that act in accordance with the aims and principles in the Strategy and assist in its implementation.

The WA Waste Strategy aimed to engage the Western Australian community to progress towards a low-waste society and establish recovery targets for landfill diversion in the MSW, C&I and C&D sectors. These targets are shown in Table 2.

Waste Stream	Region	2015	2020
Municipal Solid Waste	Metropolitan areas	50%	65%
	Regional centres*	30%	50%
Commercial & Industrial	State wide	55%	70%
Construction & Demolition	State wide	60%	75%

** Regional centres include Albany, Avon, Busselton, Geraldton, Greater Bunbury, Kalgoorlie, Karratha and Peel.*

Table 2: WA Waste Strategy Landfill Diversion Targets

In October 2018, the Waste Authority released the Draft Waste Strategy 2030. This Strategy is aiming to build on the progress of the first (current) waste strategy and to then transform waste management within Western Australia, to move to a circular economy. The Draft Waste Strategy 2030 also introduces a new set of targets, moving away from landfill diversion and instead focussing objectives and targets on avoidance, recovery and environmental protection.

Objectives	Avoid Western Australians generate less waste	Recover Western Australians recover more value from waste	Protect Western Australians protect the environment by managing waste responsibly
Targets	2025 – 10% reduction in waste per capita	2025 – Increase material recovery to 70%	2030 – No more than 15% of waste generated in Perth and Peel regions is landfilled
	2030 – 20% reduction in waste per capita	2030 – Increase material recovery to 75%	2030 – All waste is managed and/or disposed to better practice facilities
		2020 – Recover energy only from residual waste	

Table 3: Draft Waste Strategy 2030 Objectives and Targets

4.2.6 Better Bins Kerbside Collection Guidelines

The Better Bins Kerbside Collection Guidelines 2016 forms part of the Better Bins Kerbside Collection Program which is a State Government initiative that provided funding to local governments to improve their kerbside collection services, support higher resource recovery and assist in the achievement of the State Government's municipal solid waste targets. The Better Bins Program offered local governments up to $30 per household to implement a best practice kerbside collection service. Applications for this Program close 30 June 2019. It is expected that clarity on the future of the Program will be provided following the release of the final Waste Strategy 2030.

4.2.7 Waste to Energy Position Paper

The State Government has released a number of documents highlighting its acceptance of waste to energy (WtE) technology and paving the way for its use within WA.

The Waste Authority subsequently released a Position Statement regarding WtE in May 2013. This Position Statement advises that the Waste Authority considers WtE to be a more desirable disposal method than landfill. It should only be used on genuine residual waste that could not be reasonably reused, reprocessed or recycled, and would otherwise go to landfill. The Waste Authority also supports siting arrangements for WtE facilities that place them close to the source of waste generation. The position paper outlines a variety of key conclusions including:

- The waste management service should be specific to a particular waste stream and no single waste management process or technology is suitable for all waste streams and all circumstances.
- Energy recovery from waste is a recognised option at the lower end of the waste hierarchy.
- That WtE technologies should be utilised following reasonable efforts to avoid, reuse, reprocess and recycle waste.
- WtE processes are the preferable option to landfill for the management of residual waste.
- WtE technologies have the potential to divert substantial volumes of waste from landfill and produce a beneficial product.

4.2.8 Container Deposit Scheme

The WA Government has announced the introduction of a state-wide Container Deposit Scheme (CDS) which is expected to start in early 2020. A container deposit scheme allows consumers to take empty beverage containers covered by the Scheme to a refund point in exchange for a refund. A refund of 10 cents will be available for all returned eligible beverage containers.

The Scheme has many benefits including reducing litter, increasing recycling, protecting the environment and providing opportunities for social enterprise participation.

The Scheme is intended to complement kerbside recycling and existing waste services. The refund will encourage people to collect and recycle beverage containers consumed away from home. Key features of the WA Container Deposit Scheme are expected to align with the existing and proposed schemes in other States and Territories in terms of structure, operations, labelling and value of the deposit.

The impacts of the CDS on the City can include:

- Reduced litter and reduced cost of litter clean up. The disposal costs will only be slightly reduced due to the lightweight nature of these products.
- Reduced quantity of waste collected in public spaces.
- Potential decrease in the City's overall recycling rate.

4.3 Status of the Waste Management Industry

4.3.1 China Blue Sky 2018

China was the global hub for recyclable materials and for at least two decades it was receiving recyclables, especially plastics, with high levels of contamination. Most of the recyclables that were shipped to China were not suitable for other regional and local end-users in, for example, USA, EU and Australia due to their low quality. Due to this, the western world was able build high recycling rates, whilst not having to deal with the quality of the products going forward, and China received cheap, low-end materials that were further processed or used as a cheap fuel, with vast environmental impacts in both cases.

In 2017, the Chinese Government announced the introduction of its National Sword Program to curb on the illegal running of foreign waste into China, targeting industrial waste, electronic scrap and plastics. On 18 July 2017 China announced to the World Trade Organisation that it will no longer accept certain types of solid wastes from 31 December 2017, which included plastics waste, unsorted waste paper and waste textile materials. The National Sword Program was replaced by China Blue Sky 2018 in March of 2018. China adopted strict 'contamination thresholds' in bales of these materials from 1 March 2018 and materials can only still be exported to China if they have a contamination rate of 0.5 per cent or less.

This has impacted international and local recycling markets by creating uncertainty and by Australian recycling markets currently not having the capacity to absorb the materials now banned by China. Other countries that import baled recyclable materials for reprocessing have also sought to change the contamination acceptance criteria for the material, creating a flow on effect from China's restrictions. The market conditions are dynamic and materials recovery facility (MRF) operators are responding to ongoing fluctuations.

4.3.2 Developments in Western Australia

There has been, and will continue to be, significant transformation in the waste management industry across Western Australia. The most recent changes include the introduction of landfill diversion targets by the Waste Authority in 2012, increases in the landfill levy, the introduction of a plastic bag ban and the pending introduction of a Container Deposit Scheme. In this context the State Government has also commenced a review of the Western Australian Waste Avoidance and Resource Recovery Strategy (the WA Waste Strategy), with a Draft Waste Strategy 2030 being released in October, that will inform the Government's future waste management objectives and policies. Additionally, the Kwinana Waste to Energy Project, Australia's first waste to energy facility, received financial close in October of 2018 and is scheduled to open by the end of 2021. These changes to the waste management industry will collectively have a significant impact on how the waste management services of the City and across Western Australia are provided.

4.3.3 Circular Economy

A circular economy is a regenerative system in which waste and losses are minimised and resources are maximised through ongoing use for as long as possible. The circular economy represents the flow of both materials and energy.

The aim is for materials to be managed as high up in the waste hierarchy as possible, to deal with materials locally and to reduce the costs and impacts of transport. The circular economy creates local employment and creates an economic value of materials, with a focus on life cycle thinking.

The circular economy, along with the waste hierarchy, is the preferred guiding concept put forward by the Draft Waste Strategy 2030 in relation to the management of waste.

Figure 2: Circular Economy Approach (Source: Draft Waste Strategy 2030)

4.3.4 The Need for Change

The above outlines some of the evolving developments, challenges, opportunities and associated risks currently occurring in the waste industry. This SWMP recognises the need to also evolve, adapt and take the lead where required, to ensure the continued sustainable delivery and future proofing of our waste services to our community.

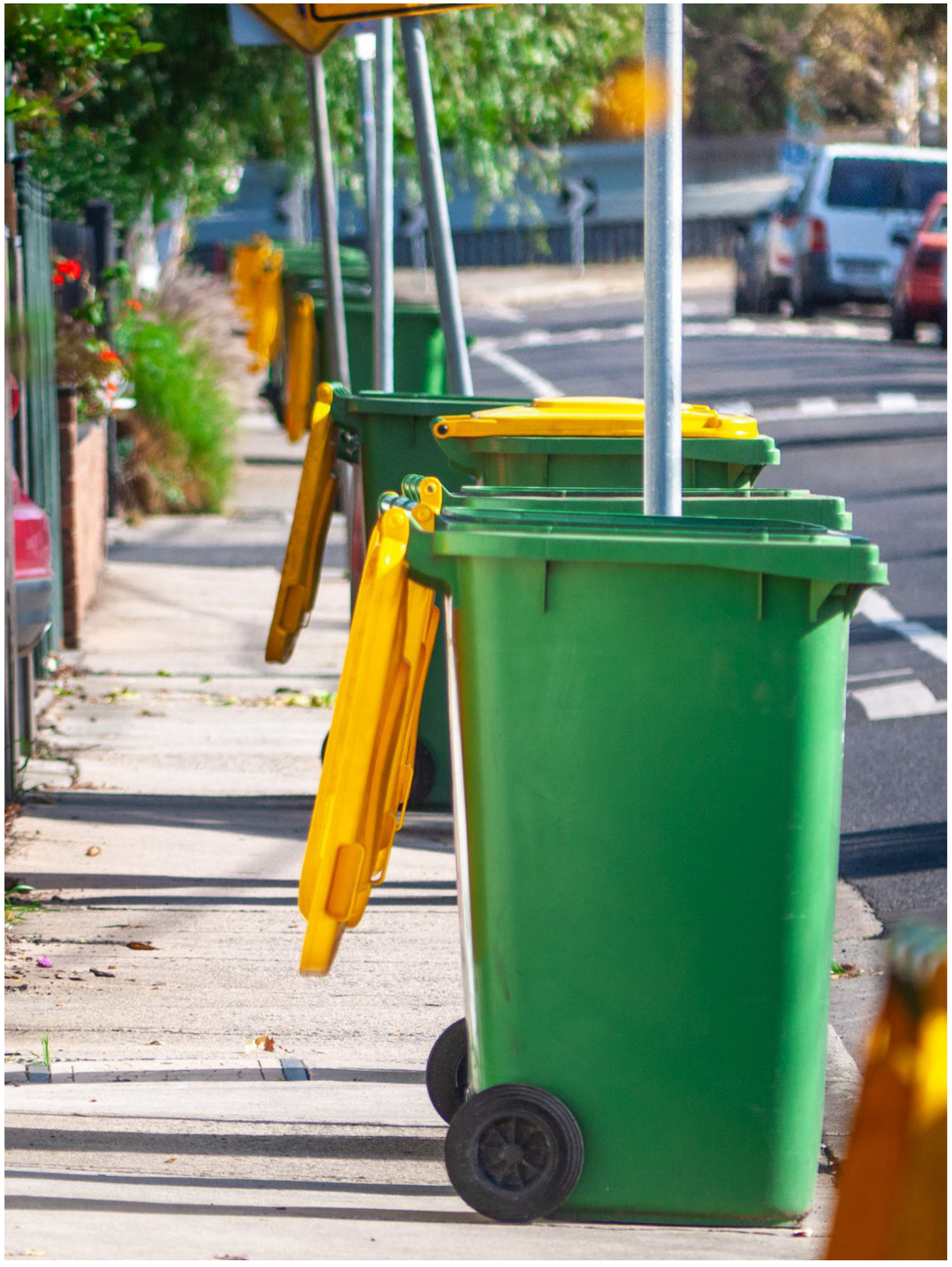
4.4 External Stakeholders

External stakeholders have the ability to influence the City's waste management activities, and as such need to be included within the development of this SWMP. Table 4 outlines the external stakeholders which have been considered, and their capacity to influence.to the management of waste.

External Stakeholder	Description	Relationship
Western Australian Local Government Authority (WALGA) and Municipal Waste Advisory Council (MWAC)	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. MWAC is a standing committee of WALGA, with delegated authority to represent WALGA in all matters relating to solid waste management.	Advocacy Engagement
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 Alignment Engagement Compliance
Federal Government	The Australian Government is responsible for national legislation, strategies and policy frameworks for waste, including measures that give effect to obligations under international agreements.	Advocacy Alignment Compliance
Department of Water and Environmental Regulation	The key environmental regulatory authority in Western Australia.	Advocacy Alignment Compliance
Waste industry/market	The associations and enterprises representing the different waste sectors including solid waste, recycling and resource recovery, which also drive the demand for finished products from waste that gives waste a value. The waste industry will be relied on to make informed infrastructure and technology decisions that meet waste market needs and will help move WA towards becoming a circular economy.	Advocacy Service Provision
Local community/customers	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 Provision
Southern Metropolitan Regional Council (SMRC)	The SMRC is a statutory local government authority established in the southern part of metropolitan Perth. The SMRC operates the Regional Resource Recovery Centre (RRRC) in Canning Vale, which it leases from the City of Canning.	Collaboration Contractual

External Stakeholder	Description	Relationship
SMRC Member Councils and other Local Governments	Close in proximity (regionally) and the City of Canning can partner with SMRC and other local governments to create efficiencies. SMRC Member Councils include: • City of Melville • City of Kwinana • City of Fremantle • Town of East Fremantle • City of Cockburn	Collaboration
Rivers Regional Council (RRC)	The RRC has led the project for the Kwinana Waste to Energy Project in which the City of Canning has committed to sending residual waste tonnages. Member councils include: • City of Armadale • City of Gosnells • City of Mandurah • City of South Perth • Shire of Murray • Shire of Serpentine-Jarrahdale	Contractual
Eastern Metropolitan Regional Council (EMRC)	The EMRC operate the Red Hill Waste Management Facility where the City disposes of its MSW.	Contractual
Waste contractor (Suez)	Recycling waste contractor and operator of the Materials Recovery Facility (MRF) where the City takes its materials for recycling	Contractual Collaboration

Table 4: External Stakeholders to City of Canning



5. Our Population and Demographics

5.1 Population Profile

Each local government, state and territory within Australia has different geographic, spatial and demographic profiles which contribute to how waste is generated and subsequent opportunities and challenges for waste management. Product and service demand, and the type and amount of waste generated, are strongly linked to population factors such as growth, density and distribution, and demographic and lifestyle factors (National Waste Reporting 2013).

The City of Canning is one of the most culturally diverse LGAs in Western Australia and our City is continually evolving. The City's estimated residential population in 2017 was 93,274 living in 35,683 dwellings. The forecast population growth rates for the City, our demographics, employment and household types, all impact upon our current waste management services to our community as well as shaping our future planning. The below sections detail our population profile.

5.2 Growth Rates

Between 2016 and 2036, the population for the City of Canning is forecast to increase by 31,216 persons (33.35% growth), at an average annual change of 1.45% (.id profile 2018).

City of Canning	Forecast year				
Summary	**2016**	**2021**	**2026**	**2031**	**2036**
Population	93,595	102,335	109,681	117,282	124,811
Change in population (5yrs)	-	8,740	7,346	7,601	7,529
Average annual change	**-**	**1.80%**	**1.40%**	**1.35%**	**1.25%**
Households	33,162	36,436	39,604	42,825	45,913
Average household size	2.80	2.79	2.75	2.72	2.70
Population in non-private dwellings	759	759	759	759	759
Dwellings	36,099	39,203	42,131	45,069	47,825
Dwelling occupancy rate	91.86	92.94	94.00	95.02	96.00

Source: .id profile 2018

Table 5: City of Canning Forecast Growth Rates

5.3 Demographics and Employment

The demographics of the City of Canning play a large role in our waste strategy moving forward, especially regarding how we communicate and engage with our community. Taking into account our diversity, we need to frame our waste communication and education to meet the needs of our community. The following tables give a snapshot into our demographics.

City of Canning	2016			2011		
English proficiency	**Number**	**%**	**Greater Perth %**	**Number**	**%**	**Greater Perth %**
Speaks English only	50,088	55.5	73.5	54,550	63.8	77.8
Speaks another language, and English well or very well	30,470	33.8	17.3	23,155	27.1	14.3
Speaks another language, and English not well or not at all	5,366	5.9	2.9	3,886	4.5	2.4

Source: .id profile 2018

Table 6: Proficiency in English

In the City of Canning, 5,366 people who were able to speak another language in 2016 reported difficulty speaking English. 50% of our population in 2016 were born overseas, and 30% had arrived within five years prior to 2016.

City of Canning	2016			2011		
Language (excludes English)	**Number**	**%**	**Greater Perth %**	**Number**	**%**	**Greater Perth %**
Mandarin	8,588	9.5	2.3	5,540	6.5	1.5
Cantonese	2,945	3.3	1.0	2,988	3.5	1.0
Indonesian	1,624	1.8	0.5	1,535	1.8	0.5
Punjabi	1,610	1.8	0.6	763	0.9	0.3
Filipino/Tagalog	1,426	1.6	1.0	846	1.0	0.6

Source: .id profile 2018

Table 7: Top 5 Languages Spoken at Home (other than English)

The largest age group in the City of Canning is 35-49 year olds, classed as the parents and homebuilders group. The main type of employment area was professionals and this is influenced by the economic opportunities available in our area, the education status and the working and social aspirations of the population. Occupation and employment is a key measure in evaluating our socio-economic status and skill base.

City of Canning	2016			2011		
Service age group (years)	**Number**	**%**	**Greater Perth %**	**Number**	**%**	**Greater Perth %**
Babies and pre-schoolers (0 to 4)	5,085	5.6	6.5	4,788	5.6	6.6
Primary schoolers (5 to 11)	7,621	8.4	9.0	6,699	7.8	8.7
Secondary schoolers (12 to 17)	6,623	7.3	7.2	6,836	8.0	7.9
Tertiary education and independence (18 to 24)	11,043	12.2	9.4	11,967	14.0	10.2
Young workforce (25 to 34)	14,923	16.5	15.8	13,069	15.3	14.7
Parents and homebuilders (35 to 49)	18,022	20.0	20.9	17,038	19.9	21.6
Older workers and pre-retirees (50 to 59)	10,448	11.6	12.2	10,641	12.4	12.4
Empty nesters and retirees (60 to 69)	8,671	9.6	9.7	7,619	8.9	9.2
Seniors (70 to 84)	6,214	6.9	7.5	5,570	6.5	7.0
Elderly aged (85 and over)	1,549	1.7	1.8	1,287	1.5	1.6

Source: .id profile 2018

Table 8: Age Structure

5.4 Household Types

Household type is an important factor in determining of the City of Canning's residential role and function. A greater concentration of higher density dwellings is likely to attract more young adults and smaller households, often renting. Larger, detached or separate dwellings are more likely to attract families and prospective families.

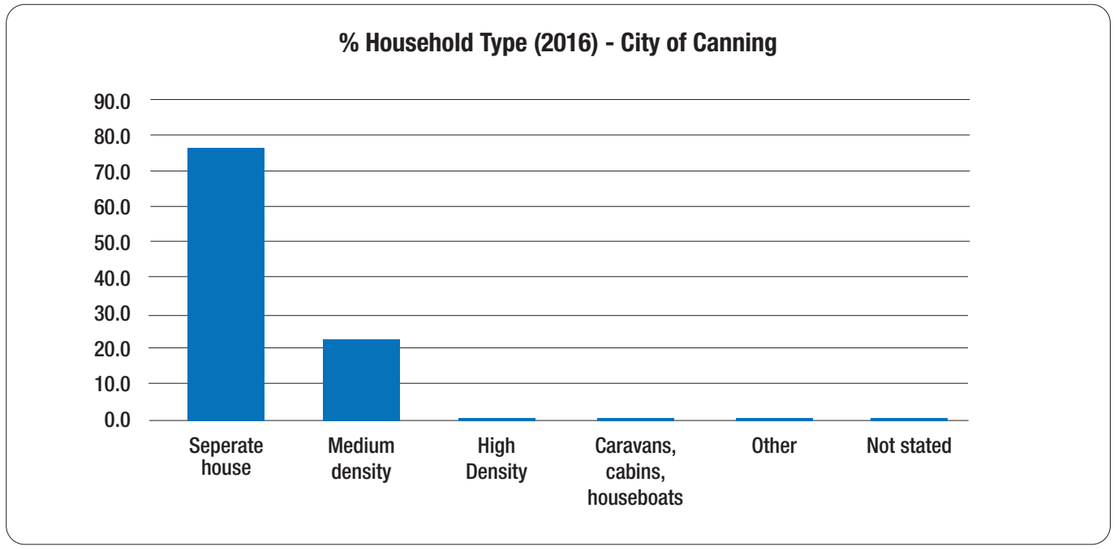


Figure 3: % Household Type Breakdown (Source: .id profile 2018)

The total number of residences in our City increased by 2,121 between 2011 and 2016. The largest changes in the type of dwellings found in the City of Canning between 2011 and 2016 were:

- Separate house (+1,205)
- Medium density (+819)

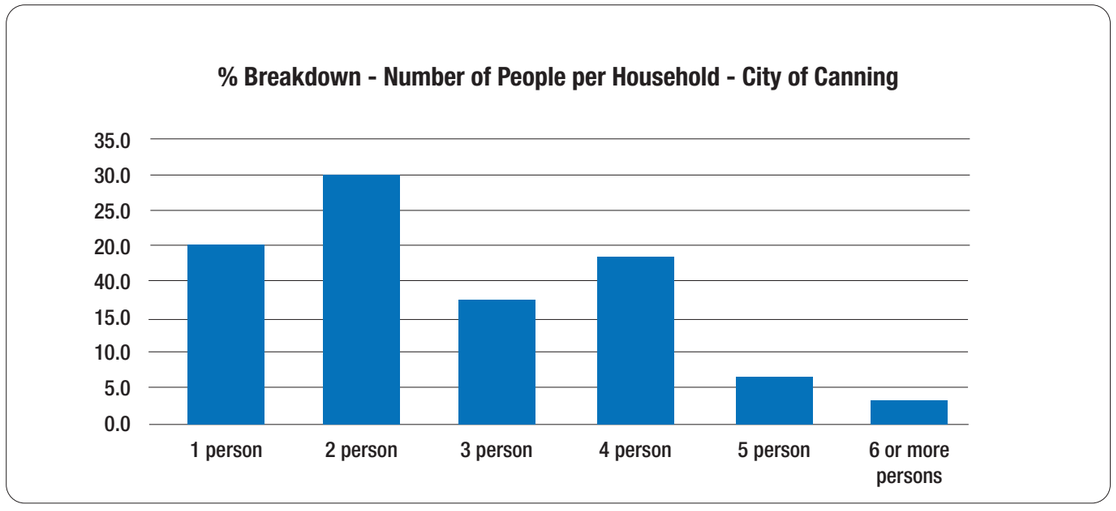


Figure 4: % Breakdown – Number of People per Household

50% of our residents live in a one or two person household. The size of households generally follows the life-cycle of families. Household size can also be influenced by the amount of affordable housing.

5.5 Impact on Waste Planning

Population, demographics, and household size and type all contribute to our planning for waste management services to our community. As our population and waste generation volumes are coupled, our future waste planning needs to account for population increases. This SWMP is looking to decouple waste generation and population through the application of our objectives, targets and action plan which are aligned with a circular economy approach and the waste hierarchy.

As highlighted, the City also has considerable language and cultural diversity, which requires specific planning and consideration when educational and awareness communications are delivered to the community to ensure positive waste management behaviours are understood and adopted.

6. City of Canning Waste - Current Approach and Position

6.1 Strategic Alignment

Waste management forms an essential part of our services as a Local Government to our community. This SWMP needs to align with relevant external and internal strategic documents and direction. Primarily, the WA Waste Strategy, soon to be Waste Strategy 2030, is the guiding document which sets the direction for the State and how we move forward regarding our waste management. The City of Canning also has a number of other strategic documents to which this SWMP align to, which are detailed below.

6.1.1 WA Waste Strategy

The WA Waste Strategy sets the direction for waste in Western Australia. As a significant stakeholder, local governments have a large role in ensuring this direction is met. The targets outlined in the WA Waste Strategy drive the targets set out in this SWMP, so as to ensure the City of Canning is contributing and aligning to the State based goals.

6.1.2 Integrated Planning and Reporting Framework

The Integrated Planning and Reporting Framework (IPRF) is the overarching framework that encompasses the Strategic Community Plan (SCP), the key document in shaping the City's future direction and services, and the Corporate Business Plan (CBP), the driving force behind the delivery of the SCP. Strategic documents driven by the IPRF include the long term financial plan, Asset Management Plan, Workforce Plan, Local Planning Strategy, Digital Strategy and Risk Management.

6.1.2.1 City of Canning Strategic Community Plan

Our Strategic Community Plan (SCP) is the key tool in guiding planning and priorities in the City for 2017 through to 2027. Within the SCP, a range of aspirations, objectives and performance indicators are in place to assess outcomes achieved towards the community vision for Canning.

Waste management falls under the 'Grow' goal of the SCP, with the aspiration that 'resources are managed sustainably'. This SWMP aligns to that aspiration, including that as the first key focus area of the Plan.

The SCP sets out an objective for better waste management; following the principles of the waste hierarchy, aiming for a target of 50% diversion of waste from landfill, in line with the previous WA state based target.

A major review is undertaken on the SCP every four years, with a small scale review every two years. The objectives and targets of this SWMP will continue to align and link in with the SCP during the next review period.

6.1.2.2 City of Canning Corporate Business Plan

The CBP outlines how new projects and services will be delivered and improved to meet the needs of the community. This plan further details the operational activities that will occur to meet the overarching strategies and targets within the SCP.

6.1.2.3 Asset Management

The City of Canning procures and maintains significant assets to deliver its waste services, including the waste collection fleet, WTS and associated plant and infrastructure. The replacement value of these assets is $13,170,184. The current (2018-2019) depreciation value of these assets is $6,614,062. Ongoing upgrades to the existing assets are required to ensure they meet current standards for operational safety and customer service. Some of the initiatives outlined in the SWMP action plan will increase the requirement for additional capital assets if they are owned by the City.

In addition, there are ten identified contaminated sites owned or administered by the City. Whilst the contaminated sites (ie. former landfills) are considered an asset, they come with considerable liability regarding work to be undertaken for the relevant investigations and subsequent remediation measures. Some limited investigation has already been conducted, however further work in this area is expected to be significant and ongoing for an extended time period.

6.1.3 Sustainability

The City of Canning is committed to an ongoing journey towards more sustainable processes and outcomes. Our Sustainability Policy CM194 outlines the City's commitment to the adopted four sustainability principles:

To reduce and eventually eliminate:

- Fossil fuel dependence and wasteful use of scarce metals and minerals
- Reliance upon persistent chemicals and wasteful use of synthetic substances
- Encroachment upon nature (eg. land, water, wildlife, bushland, soil, ecosystems)
- Conditions that systematically undermine people's ability to meet their basic human needs

The City is implementing a Low Carbon Canning Strategy to ensure the City is well placed for climate resilience and to adapt to the impacts of climate change. This SWMP is linked to the Low Carbon Strategy through the relationship between waste, greenhouse gas emissions and climate change. Where relevant, objectives and targets have been aligned between waste management and sustainability goals.

6.2 Benchmarking

In order to gain perspective on our waste performance in relation to WA regionally and compared to other randomly selected WA local governments, the City of Canning undertook a benchmarking exercise to compare our diversion from landfill performance.

Between 2016 and 2036, the population for the City of Canning is forecast to increase by 31,216 persons (33.35% growth), at an average annual change of 1.45% (.id profile 2018).

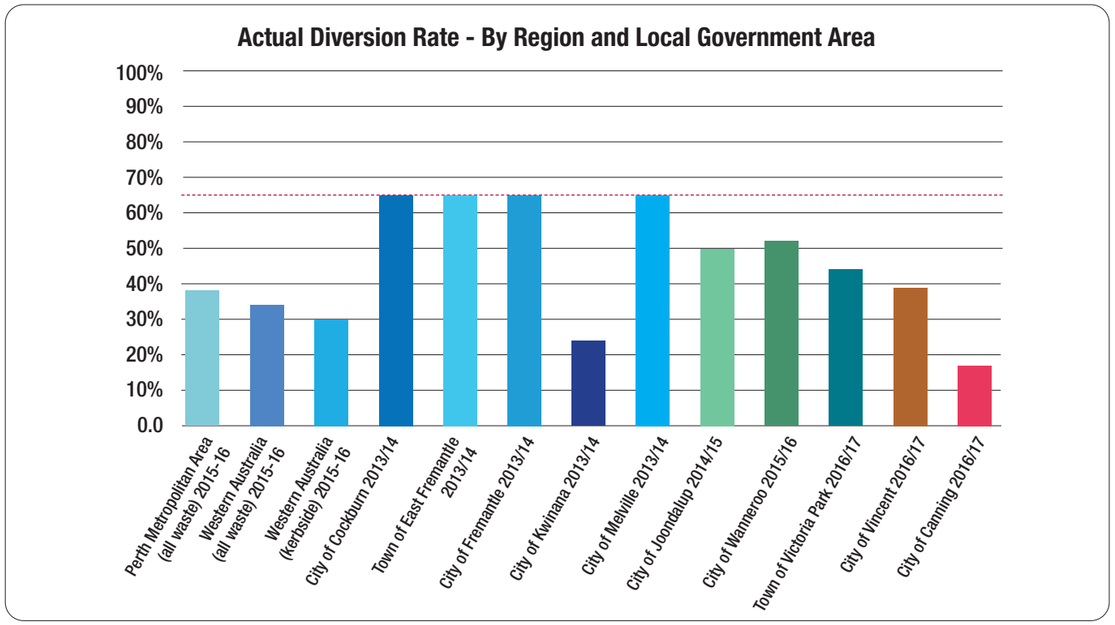


Figure 5: Waste to Landfill Diversion Rate Benchmarking

The results show that Canning is lagging behind WA and the Perth metropolitan area as a whole, as well as other LGAs, regarding the percentage of waste we divert away from landfill. Although this is not a desirable position, it highlights that there is scope and opportunity for our City to make vast improvements and significantly change and enhance our waste management performance in order to become a leader in waste management in WA. Recovery rates and diversion from landfill percentages will be increased once the City sends kerbside municipal solid waste (MSW) to the Kwinana Waste to Energy facility when it commences operations. The full realisation of the improved diversion rates will come to light once the end use is determined for the bottom ash residue, which is a by-product of the thermal waste treatment.

6.3 Our Services

The City of Canning's waste services for our community covers a broad range of items including recyclables, household hazardous waste (HHW), white goods, construction and demolition waste as well as general rubbish. To manage this, our services cover kerbside and verge side collections, and drop off facilities such as our Waste Transfer Station on Ranford Road, Canning Vale. Waste collection services are provided by our in house fleet of collection vehicles as detailed in Table 9.

Quantity	Vehicle Type
8	24 cubic metre capacity Side Loaders servicing kerbside MSW
3	29 cubic metre capacity Side Loaders servicing kerbside recycling
3	Rear loaders
3	Articulated wheel loaders
2	Rear loaders servicing MUDs, parks and 1100L bulk bins
1	Hook Lift Truck
1	Tipper truck with crane used for traffic management and illegal dumping collections
1	Utility used for delivery and servicing
2	Prime movers, WTS duties
2	Front end loaders, WTS duties
3	Semi-trailers
1	Materials handler (currently being procured)

Table 9: City of Canning Waste Vehicle Fleet

Tonnages of general waste and recycling from kerbside services are monitored, as well as materials that are dropped off at our WTS through our weighbridge system.

Service Type	Frequency	Receptacle
MSW (kerbside)	Weekly	240L green lid wheelie bin
Recycling (kerbside)	Fortnightly	240L yellow lid wheelie bin
Bulk hard (verge side)	Twice a year, scheduled	Not provided
Bulk green (verge side)	Twice a year, scheduled	Not provided
Whitegoods	On demand	Not provided

Table 10: City of Canning Waste Services

6.4 Waste Destination Points

Waste source	Destination	Waste Hierarchy
MSW (kerbside)	Collected by our waste trucks and transported to the Redhill Landfill Facility	Disposal
Residual waste (post 2020)	Kwinana Waste to Energy facility	Energy Recovery
Recycling (kerbside)	Collected by our recycling trucks and taken to the Bibra Lake Materials Recovery Facility (MRF)	Recycling
Bulk hard (verge side)	Collected by our in house fleet and taken to the WTS for sorting	Reuse Recycling Disposal
Bulk green (verge side)	Collected by our in house fleet and taken to the WTS for processing	Recycling
Cardboard	Free drop off the WTS, where it is sent for recycling	Recycling
E-waste	Free drop off at the WTS, where it is then taken for recycling	Recycling
HHW	Free drop off at the WTS where waste is taken for correct disposal	Recycling Disposal
Mattresses	Drop off at the WTS and sent for recycling/disposal	Recycling Disposal
Tyres	Drop off at the WTS and sent for recycling/disposal	Recycling Disposal

Table 11: Destinations of City of Canning Generated Waste

6.5 Our Waste Profiles

Residential waste collected by our kerbside services constituted almost 75% of total waste for the City and is by far the largest source of waste. Verge side collection services for bulk household junk and green waste collections accounted for 16% of the waste profile. Seven per cent of waste came from external sources through the Ranford Road WTS and 4% was corporate waste, from the City's Engineering and Parks departments.

Given that kerbside MSW is such a large percentage of the City's overall waste footprint, it provides the greatest area for improvement in terms of waste avoidance, reduction and diversion. Diversion from kerbside MSW could result in improvements to the kerbside recycling percentage, if recyclable materials are being disposed of in MSW bins rather than recycling bins. Community education would predominantly drive this change.

2017-2018 Waste Profile – City of Canning

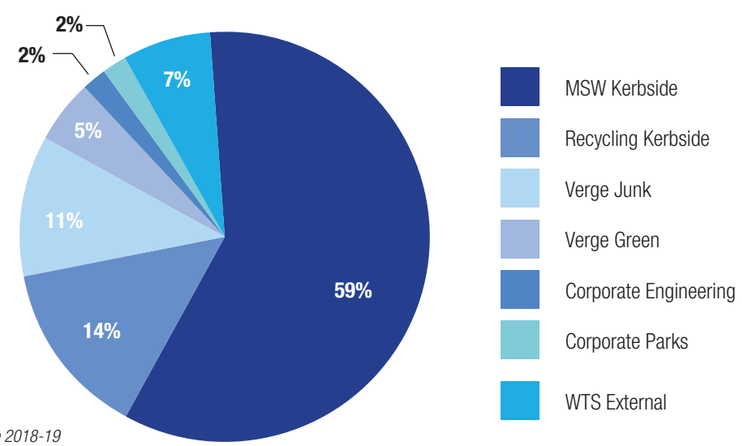


Figure 6: City of Canning Waste Profile 2018-19

6.5.1 Residential Kerbside Municipal Solid Waste

Residential kerbside MSW is collected weekly, in a 240L green lidded bin.

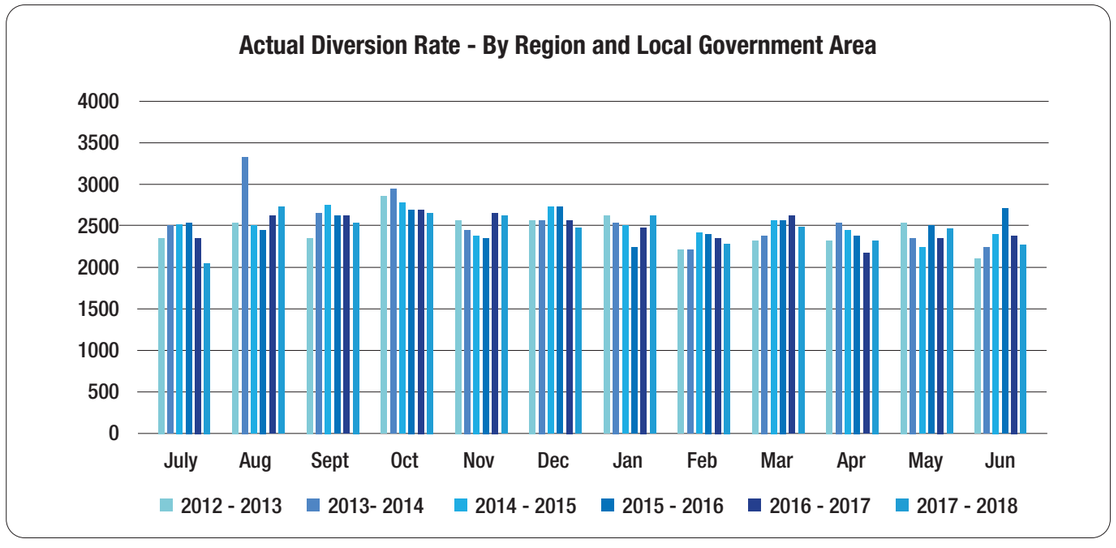


Figure 7: MSW Tonnages Sent to Landfill

When comparing on a monthly basis, it can be seen that tonnages are quite evenly spread over the year, with October historically being the month with the highest tonnages collected. This can be due to seasonal reasons, such as an increase in green waste generation.

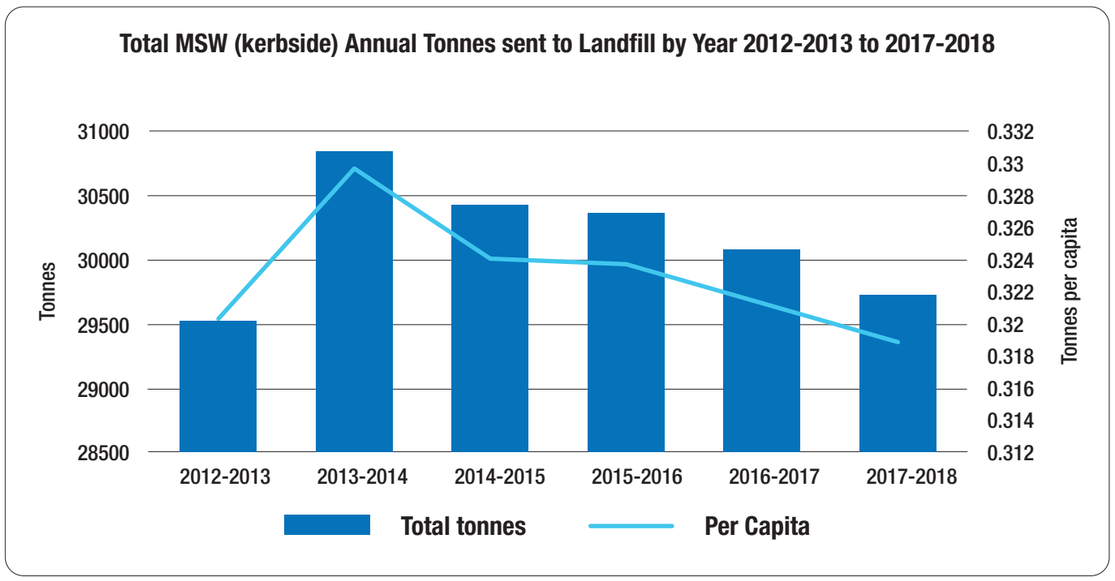


Figure 8: Total Annual MSW Tonnages sent to Landfill (actual and per capita)

Waste statistics collected for tonnages of MSW sent to landfill show that FY 2013-2014 was the year of highest tonnages of total waste sent to landfill as well as tonnages per capita for the past six years. Comparing 2017-2018 statistics to 2012-2013 statistics, our waste to landfill generation increased by 1%, and our population also increased by 1%. However, although our population is increasing, total tonnages have been on a decreasing trend from FY 2013-14 onwards.

6.5.2 Residential Kerbside Recycling

Recycling is collected fortnightly, in a 240L yellow lidded bin. Residents have the option to purchase a second bin at a discounted price should they generate more recycling.

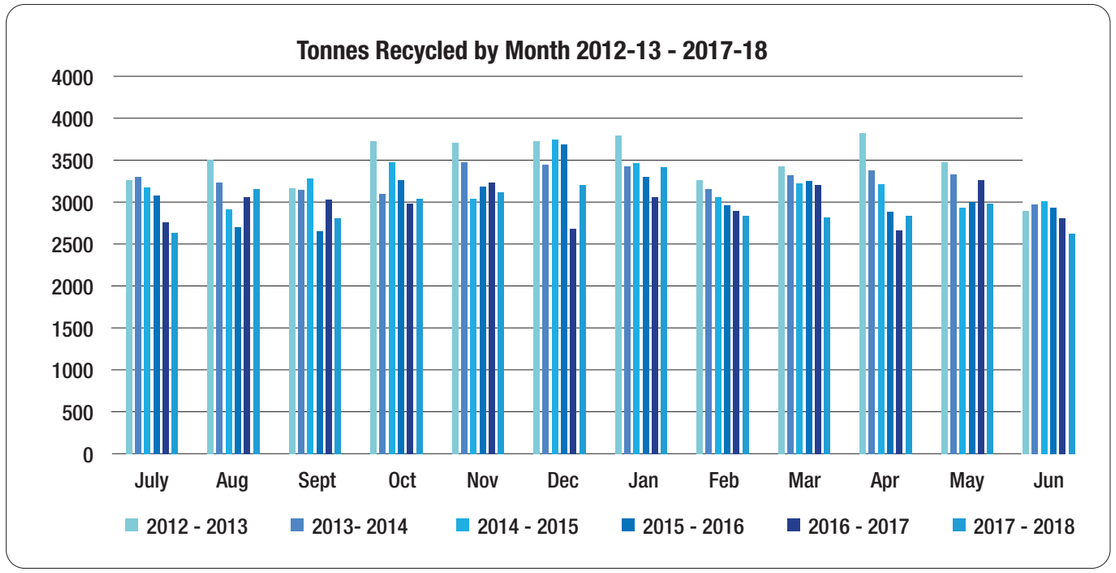


Figure 9: Tonnages Recycled

Statistics by month show a relatively even spread, however June is historically the month with the lowest recycling tonnages.

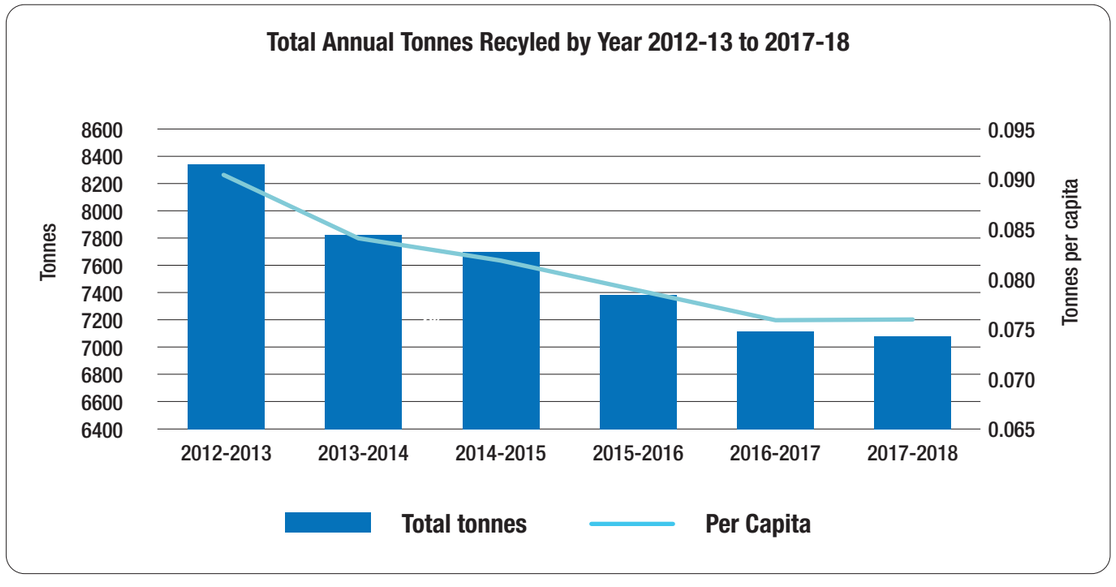


Figure 10: Tonnages Recycled (actual and per capita)

From 2012-2013 through to 2017-2018 tonnes sent for recycling have decreased by 15%. This equates to a 16% reduction on a per capita basis. It is unclear as to what has caused this decline as no previous recycling investigations have been undertaken. As part of this SWMP, a future action to establish the current baseline, actively promote recycling and monitor effectiveness has been put in place. Additionally, benchmarking against other local government entities recycling rates will also be completed to compare performance.

6.5.3 Bulk Verge Junk and Green Waste

Bulk verge collections for residential green waste and residential junk are each conducted twice per year at scheduled intervals for pre-determined zones within Canning.

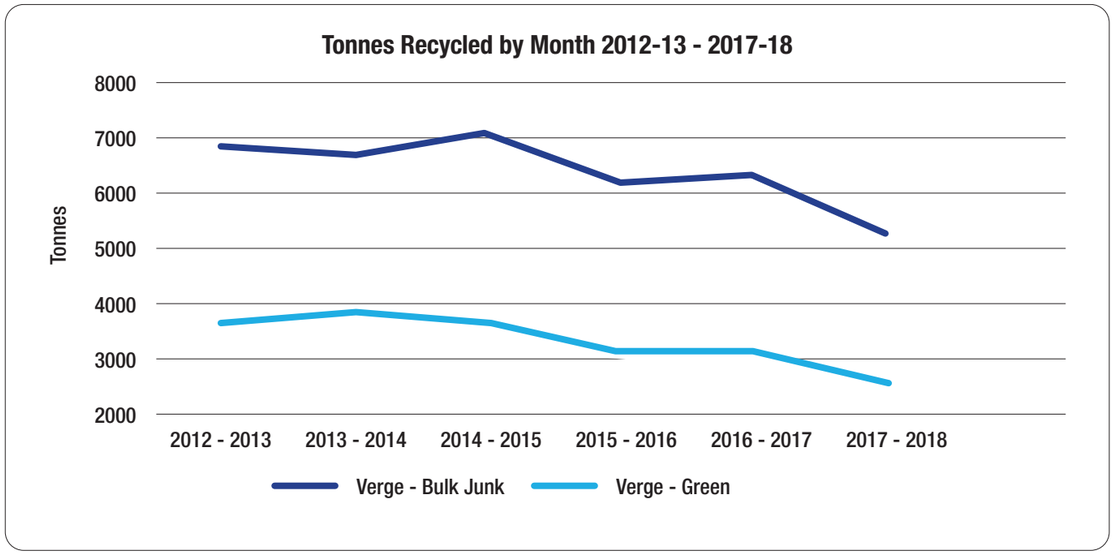


Figure 11: Bulk Verge and Green Waste Collection Tonnages

Bulk verge junk waste is taken to the WTS and items such as e-waste and scrap metals can be sorted and sent for recycling. Other bulky waste that has no further treatment option is sent to landfill.

Verge green waste is also taken to the WTS, where it is mulched, and collected by a green waste recycler for reprocessing.

Verge collection tonnages for both green and junk show a gradual decrease in tonnages from 2012-2013 through to 2017-2018.

6.5.4 Whitegoods on Demand Collection

The City of Canning has recently committed to introduce an on-demand collection for residents for whitegoods. This service can be booked through the City's website. Current acceptable items include refrigerators, freezers, washing machines and dryers. These items can be reprocessed and this change in service delivery is designed to bring about more efficiency in the bulk verge collection service.

6.5.5 Public Space Waste

The City collects waste from public spaces through general waste bins in parks and streets, as well as litter collection. Additionally, general waste and recycling bins are provided for some key City events.

The City has trialled recycling bins in public spaces, however high levels of contamination resulted in the waste not being suitable for recycling. This highlighted the need for further community engagement and education regarding recycling and to reconsider alternative success strategies for this initiative. This is considered important from both an engagement perspective as well as demonstrating our commitment to sustainable waste management.

Introducing waste management plans, or as a bare minimum recycling bins, at City events is another area where further focus is needed to drive improved recycling performance, which again relies on increased community engagement and education.

Furthermore, the City's administrative and approval processes for large public events (not run by the City) could also be modified to require the implementation of specific event waste management plans that align with the SWMP.

6.5.6 Commercial Kerbside Collection

Each commercial premises in the City is provided with one 240L MSW bin, which is collected weekly. On request, these premises will also be provided with a 240L recycling bin, which is collected fortnightly. Recycling services are only provided on request due to historically high levels of contamination from this sector.

6.5.7 Commercial Waste

The City currently accepts waste from commercial clients at the WTS. There is an opportunity to increase the customer service provided to this group of the community, recognising that our commercial stakeholders are a valuable part of what contributes to our welcoming and thriving City.

6.5.8 City of Canning Corporate Waste

Corporate waste generated as a result of our own operations provides an opportunity for the City to lead by example. This includes waste generated from our administration centre, works depot, libraries, leisure centres, as well as waste generated from our parks, infrastructure and building maintenance and operations.

Opportunities are available for processes to be implemented which increase efficiency, reduce costs and consistency as well as recovery for corporate waste generation.

6.5.9 Illegally Dumped Waste

The City responds to reports of illegal dumping, which results in the removal of the dumped waste and its subsequent disposal. This results in a significant cost to the City, both in terms of time and money, as well as reduced public amenity. The majority of illegal dumping is collected by the Waste Reduction team but other parts of the organisation also collect and dispose of illegally dumped materials. A coordinated approached in responding to illegal dumping and the ability to track trends in this area is included as part of the SWMP action plan.

6.5.10 Household Hazardous Waste

HHW represents a small proportion of the waste stream, but can also be problematic in terms of how the waste is processed. HHW includes items such as:

- Batteries
- Light globes and tubes
- Paint
- Chemicals
- Batteries
- Aerosols
- Poisons/toxics

The City provides free access and drop off for HHW at the Ranford Road WTS.

As part of this SWMP, this City will investigate improvements in the collection of these materials to reduce the risk of incorrect disposal through kerbside services.

Further work and improvements can be made to the management of HHW which can include the introduction of greater controls around production and product stewardship. This falls outside of the direct control of the City of Canning however, we can continue to advocate through our relationships with external stakeholders.

6.5.11 Food Organics and Garden Organics Management

Through our Sustainability initiatives, the City provides learning courses to encourage food organics and garden organics management at home. These courses include how to set up and use worm farming equipment and Bokashi Bin equipment.

6.6 Ranford Road Waste Transfer Station

The City owns and operates a Waste Transfer Station (WTS) located in Canning Vale on Ranford Road, adjacent to the decommissioned former Canning Vale landfill site. The WTS is managed in accordance with an operating licence issued by the Department of Water and Environmental Regulation (DWER) L6958/1997/12 and has a capacity of 40,000 tonnes per annum.

Figure 12: Aerial View of Ranford Road WTS

The WTS is also located in close proximity to the Southern Metropolitan Regional Council's (SMRC) waste management facility.

Figure 13: Aerial View of the WTS and Adjacent Land Uses

Table 12 summarises the types of waste brought through the transfer station in 2017-2018.

Waste Type
Bulk household junk (verge collections)
Refuse self-hauled by residents
Mattresses
Various HHW (as part of the HHW Program)
Oil
E-waste
Asbestos
Inert (C&D)
Steel
Wood
Green waste
Cardboard
Tyres
TOTAL tonnes 2017-2018 WTS: 17,215

Table 12: Waste through the WTS - 2017-2018

The WTS at Ranford Road, due to its position and potential for growth, has been identified as a key asset in forward waste management planning for the City of Canning, which presents regional collaborative opportunities.

Under its current operating licence, the WTS can accept up to 40,000 tonnes of Class 1 Landfill classified material per year. A number of opportunities exist that can improve the general operation of the WTS as a resource recovery centre. These are detailed in section 7.

6.7 Waste Education and Community Engagement

Waste education and engagement with our community is essential in order to achieve our desired waste outcomes and shape the City's waste behaviour. The need for waste education has increased from 2018 due the China Blue Sky 2018 Policy and subsequent changes as to what can be placed in the yellow lid recycling. As part of this SWMP, the City will be developing a comprehensive waste education and engagement plan to build on what we are already doing, and to provide the direction for ongoing communications regarding waste management and to address an area of unmet need.

Our current education and engagement methods are detailed in Table 13.

Method	Description
City of Canning website	We provide information on our website around waste collection services, what can and can't go into green and yellow lid bins, and the WTS.
Annual Waste Guide	An annual guide, available in hard copy and electronic forms, providing information on annual waste services.
Social media	A platform to raise awareness and engagement of contemporary issues, including Facebook, Instagram, Twitter and LinkedIn.
Community workshops and courses	The City of Canning facilitates and subsidises workshops and courses for the community aimed to educate about waste and improved management techniques that can be employed at home.
Community newspaper (Canning Examiner)	Used to promote waste related information in the form of an advertisement or similar.
Posters and flyers	Used to promote waste related information in an eye catching and easy to understand manner, positioned in community facilities.
Waste truck decals	Used to promote waste related key messages in an eye catching manner.

Table 13: Waste Education Methods

6.8 Internal Stakeholders

The Clean Canning sub-program is responsible for the day to day waste management operations, including the management and maintenance of associated fleet and infrastructure, and strategic direction for the City of Canning. However, as waste is such a broad area, it covers many different parts of the organisation. Table 13 outlines the internal stakeholders and their role in waste management.

Internal Stakeholder	Waste Management Role
Parks and Place Improvement	Green waste generator and consumer.
Business Development	Collaborate and engage with businesses, attract new investment and businesses to Canning to address any gaps in the waste industry.
Land Utilisation	Determining the use of land parcels with the City.
Public Relations and Marketing	Assist in communicating and engaging with the community on waste related information.
Community Safety Services	Assist in the identification and enforcement of illegal dumping.
Build Canning	Construction and demolition waste generator.
Sustainability	Incorporate and integrate waste within the Sustainability portfolio, including targets, actions and education.
Events	Planning and providing waste management services at events.
Customer Service	Assist in providing waste management information to the community in the first instance.

Table 14: City of Canning Internal Stakeholders

7. Future Approach for City of Canning's Waste Management

The City of Canning's vision is to create a welcoming and thriving City. Aligning with the overall vision, our vision for waste is to be a leading Western Australian Local Government in sustainable waste management, influencing the Perth metropolitan area by facilitating solutions to emerging waste management issues.

In order to achieve our vision, we have apportioned our objectives, targets and actions to achieve these into three different horizons, so as to position ourselves for 2030 and beyond.

Firstly, we need to build the foundation in Horizon 1. This involves taking stock of the activities we are currently carrying out and then implementing those additional actions which will bring us to a point of having a solid foundation – doing all the things we should be doing (including some we are currently not) in the waste management space.

Horizon 2 then builds on Horizon 1 to improve, and then position ourselves for Horizon 3. This involves going over and above the norm, pushing the boundaries, setting stretch targets and implementing various pilot initiatives for testing and simulation. It also involves engaging in, and facilitating, various research and development projects, and assessing where Canning can contribute in helping to alleviate the challenges in the local recycling industry, using our unique position for industry and growth.

Horizon 3 is the realisation of the work in the two previous horizons and being recognised within the Perth metropolitan area as having the ability to influence decisions and facilitate solutions within the local waste industry. This is also the horizon where work continues to be carried out to further enhance our position, meet ambitious targets and continue to build on partnerships.\

	Time Block	Status
Horizon 1	2019 - 2022	Build the Foundation
Horizon 2	2023 - 2030	Strengthen and Position
Horizon 3	2030 - Beyond	Be a Leader

In setting out the future approach for the City of Canning's waste management direction, the SWMP has identified and detailed the drivers, challenges, opportunities and risks to achieving our vision.

7.1 Drivers

A number of drivers exist for the City in achieving our vision for waste. Key drivers are detailed below.

7.1.1 Reducing the environmental impact of waste

The environmental impacts of waste are wide ranging. Waste represents a loss of embodied energy and resources and when landfilled it releases greenhouse gases such as methane (which has a global warming factor more than 20 times more potent than carbon dioxide). Landfills themselves are a source of environmental impact, and are associated with contamination issues which cause further environmental, social and health issues. Waste litter in the natural environment causes animal mortality as well as reducing public amenity.

Additionally, the collecting, transporting, sorting and processing of waste cause environmental impacts such as resource consumption and carbon emissions.

Due to this, it is crucial that the environmental impacts from waste are avoided and minimised where possible. This SWMP considers the reduction of the environmental impact of waste as essential to the plan.

7.1.2 Achieving targets

Setting and aiming for ambitious targets drives the need for new solutions to respond to existing challenges. The WA Waste Strategy and Draft Strategy 2030 have identified a set of targets which Western Australia as a state is aiming for, which the City provided feedback and comment to the Waste Authority on. This SWMP has adopted the state based targets and in doing this is ensuring that Canning is doing its part towards meeting the state goals.

7.1.3 Providing an effective and sustainable service for our community

The waste services we provide to our community are an essential part of our role as a Local Government. Ensuring these services meet the needs of the community, are cost effective and are carried out in a way that ensures they can continue to be carried out in the future is central to this SWMP.

7.2 Challenges

Challenges exist to the City of Canning in achieving the objectives of this SWMP. These challenges can either be directly within our control, or within our sphere of influence. Some key challenges have been identified below.

7.2.1 Changing community behaviour and reducing contamination rates

Contamination rates from kerbside services typically can range from 10% - 30%. Contamination can occur to both our MSW and recycling waste streams, where incorrect items are placed in the incorrect bins. Household behaviours are critical in ensuring the success of our waste system. An auditing program, which will involve snapshot audits of different suburbs across Canning to give a representative sample of recycling behaviours of different demographics has been included as part of the SWMP action. These snapshot audits will also inform follow up improvement and educational strategies.

7.2.2 Meeting community expectations

The existing community kerbside and verge side waste services have been in place for a number of years, including the weekly MSW collection, fortnightly recycling collection, and bi-annual bulk junk and green waste verge collections. Introducing changes to the existing system, such as the introduction of a third kerbside bin, or moving bulk junk verge collections to an on demand service, would significantly change the overall service delivery.

Any changes that are made to waste services would need to have been assessed from a community perspective to ensure that they meet the needs and expectations of the community. Community engagement regarding any changes is essential to inform the community of the nature and reason for any changes, and to gauge community attitudes towards the changes. Any community needs would need to be balanced with balancing financial considerations as well as meeting reduction targets.

7.2.3 Availability of local recycling infrastructure

There is currently limited infrastructure in Western Australia that conducts commercial scale recycling, which (is in part) why issues have arisen with the introduction of the China Sword Policy. Much of Western Australia's recycling commodities are shipped overseas to countries in South East Asia for reprocessing.

The Draft Waste Strategy 2030 promotes the move towards a circular economy and with this comes local reuse, reprocessing and recovery of materials to retain them in the economy for as long as possible. The preference is to do this locally, to reduce costs, as well as the impacts of transport, and to provide local employment and investment opportunities.

Investment and leadership (from the State Government and the waste levy) is needed to fund research and development in the Western Australian recycling industry, and to help alleviate and overcome the challenges that currently exist.

7.3 Opportunities

With challenges there are also opportunities. The City of Canning particularly has many opportunities to improve waste management practices and to move towards achieving our vision, due to our current position, our location and our desire to improve. Some high level opportunities that exist for the City are detailed below.

7.3.1 Local business and industry

Business plays a major role in our community. The City of Canning contains two of Perth's premier industrial areas, being Canning Vale and Welshpool. This provides opportunity to potentially introduce local recycling facilities to assist in overcoming challenges in the Western Australian recycling industry, working with local businesses, social enterprises and start-ups.

7.3.2 Research, development and innovation

Research and development in the waste sector will largely shape how waste is dealt with in the future, in terms of improving its management and reducing its environmental impact. Research and development drives innovation. The City of Canning will seek to further build on key partnerships with tertiary institutions and potentially commercial entities where we will pursue to facilitate new outcomes in waste management.

7.3.3 Partnership with other external stakeholders and other local governments

Working in partnership with external stakeholders represents a large area of opportunity to collaborate and implement waste management improvement initiatives. This can represent a regional approach to waste planning, where different approaches to waste infrastructure and service provision are undertaken in order to achieve waste solutions.

7.3.4 Waste Precinct planning

The City currently operates its WTS at Ranford Road in Canning Vale, adjacent to the former landfill site and the SMRC leased facility, owned by the City of Canning. This area, already used for waste management purposes, could potentially be reconfigured to incorporate a 'waste precinct', which can accommodate other entities (joint-ventures, partnerships with tertiary institutions, government agencies, not-for profits, start-ups) that address areas of unmet need in the waste management industry and deal with problematic waste streams and challenges (such as new technologies in recycling).

As a minimum, a Waste Precinct adjacent to the WTS would eliminate the duplication of some waste services/facilities (green waste disposal/processing) and may lead to improved economies of scale in relation to others (recyclable drop off points; HHW).

The WTS could transition to a resource recovery facility, which could be more community facing and include existing and expanded operations such as:

- Community recycling hub (for example, a Recycling Shop)
- Household Hazardous Waste services
- Green waste processing and reuse
- Bulk material reuse/recycling activities
- Waste management operational facilities
- Electric vehicle charging facilities

7.3.5 Multi-Unit Development (MUD) planning

The Bentley Regeneration Project is aiming to significantly increase infill densities and create 1,500 new dwellings. This project will also deliver housing diversity to Bentley which will include apartment living opportunities, group dwellings and terraced dwellings.

MUDs require planning in waste management regarding specific access and service requirements, suitable storage requirements for separate waste streams and consideration of design to help decrease contamination of waste streams.

Opportunities exist to incorporate small scale waste management strategies with MUD areas.

Additionally, much of the student accommodation in the City of Canning is part of multi-unit developments. This can be a challenging area for waste management due to a transient population. Planning to accommodate for this specialised need will assist in reducing illegal dumping, increasing engagement and increasing public amenity of these areas.

7.3.6 Government planning and leadership

The release of the Waste Strategy 2030 has brought with it a view towards significant change in how waste is managed in Western Australia. The move towards a circular economy will require State Government leadership and planning to achieve this vision and to flow down to local governments to assist the State Government in fulfilling this.

7.4 Waste to Energy

The City of Canning has entered into a 20 year supply agreement with the Regional Rivers Council (RRC) to send our residual MSW to the Kwinana Waste to Energy facility, which is due to open by the end of 2021. This is the first waste to energy facility constructed in Australia.

The Western Australian Environmental Protection Authority (EPA) has defined residual waste as:

'Waste that remains after the application of a best practice source separation process and recycling systems, consistent with the waste hierarchy as described in section 5 of the Waste Avoidance and Resource Recovery Act 2007 (WARR Act), and the Waste Strategy approved or revised from time to time under the WARR Act.'

Based on current waste data figures, the City of Canning collects approximately 30,000 tonnes of kerbside waste which is then sent to landfill. From 2021, and/or once the facility commences operations, this waste will be sent to the Phoenix Waste to Energy Facility. Sending our MSW waste to this facility will assist in using waste as a resource and keeping it within a circular economy, as well as providing electricity from a 'renewable' source. Although this will represent an improvement to our diversion from landfill rates, the City of Canning is committed to implementing measures higher up the waste hierarchy to ensure the best recovery processes are implemented for our resources.

7.5 Risks

Risks are inherent in all operations of waste management. Key high level risks pertaining to information in this SWMP have been detailed below.

7.5.1 Waste to Energy Facility

Risks exist from entering into the Energy to Waste facility agreement. These risks include:

- Financial cost associated with the City failing to provide committed tonnages that cannot be offset by other participants.
- Throughput tonnage uncertainty.
- Absence of testing against reference plants in the Australian context.
- Unproven ash management technology in Australia.

However, the last three risks will be minimised over time once the technology is fully implemented.

7.5.2 Rising costs of waste management

The cost of managing waste in a local government are continually rising. This has mostly been due to the waste levy, a State Government fee imposed on waste sent to landfill, designed to act as an economic instrument to reduce waste sent to landfill and fund waste improvement initiatives.

The City of Canning currently send the bulk of waste generated in our LGA to landfill. Over the past eight years, the levy has comprised 33% to our waste to landfill expenditure. The current rate of $70 per tonne equates to approximately 50% of the disposal costs. The figure below illustrates the continuing increase of this fee, and high likelihood this fee will remain to rise in future years. It therefore makes economic, as well as environmental and social sense, to reduce waste generation and waste sent to landfill.

Figure 14: Total Waste to Landfill Costs, including Landfill Levy

7.5.3 Not meeting community expectations

The community expect that the City of Canning will provide reliable, efficient and sustainable waste services. Any changes brought about by this SWMP may impact community satisfaction, due to the current system being in place for a considerable amount of time. The City needs to ensure that a high level community engagement is carried out, and that expectations are balanced with financial and environmental considerations.

7.5.4 Environmental impacts and climate change

The generation of waste, as well as its treatment, contributes to the consumption of resources. Sending waste to landfill represents a loss of these resources, as well as the associated impacts to the environment. When waste in landfills breaks down, it produces methane, which is a greenhouse gas that has a global warming forcing factor 20 times greater than carbon dioxide. The accumulation of greenhouse gases in the Earth's atmosphere is contributing to climate change, one of the major risks affecting communities across the globe. The impacts of climate change are already being experienced, which include increased average temperatures, rising sea levels and increased frequency and severity of extreme weather events such as flood, drought and bushfires.

Landfills produce leachate, which if not managed correctly, can cause the migration of contaminants to groundwater and soil and to adjoining areas.

Environmental impacts are also associated with the collection services the City offers, including resource consumption and carbon emissions of our fleet.

There is a risk of environmental impacts occurring (legacy and emerging) from not improving waste management practices.

8. Build the Foundation Initiatives (Commence 2019 - 2021)

Initiatives	Timeframe	Waste Hierarchy Position	Year 1 Estimated ($)	Year 2 Estimated ($)	Year 3 Estimated ($)
1. Implement an improved waste data management system, to assist in determining opportunities to minimise waste generation and increase recovery • Develop a consistent method to collect, track and report on waste data, that includes setting of targets in line with the State Waste Strategy and measuring and reporting progress against these targets	1 year	Avoid Reuse Recycle	$50,000	N/A	N/A
• Conduct bin auditing and tagging of kerbside bins, and use data collected to further educate the community and monitor progress			$70,000	$50,000	$70,000
• Develop a coordinated approach in responding to illegal dumping with the ability to track trends in this area			$20,000	N/A	N/A
2. Develop and implement a Community Waste Education Strategy, to connect with the community and encourage positive and sustainable waste behaviour • Conduct targeted community waste campaigns through different media channels aimed at a specific issue at least once per year to improve recycling and reduce contamination rates	1-2 years	Avoid Reuse Recycle	$50,000	$50,000	$50,000
• Provide feedback to the community on relevant information on the City's progress towards targets			$20,000	$15,000	$15,000
• Continue to offer waste educational opportunities to the community such as the Living Smart courses			$5,000	$5,000	$5,000
• Engage with schools (through new or existing programs) to provide waste and recycling education			$15,000	$15,000	$15,000
• Provide educational materials to known problematic areas in the City on correct waste management techniquess			$20,000	$20,000	$20,000
• Conduct a review of waste communications at all City of Canning facilities to ensure consistency across the board			$20,000	N/A	N/A

Initiatives	Timeframe	Waste Hierarchy Position	Year 1 Estimated ($)	Year 2 Estimated ($)	Year 3 Estimated ($)
3. Increase the recovery of waste generated via the City's operations and events • Develop improved outcomes for City generated C&D and Green Waste, including reuse and reprocessing for use in City operations, where possible, ensuring compliance with relevant legislation and guidelines	1 year	Avoid Reuse Recycle	$15,000	N/A	N/A
• Improve waste management at City events, including the offering of increased segregation options and education			$21,000	$15,000	$15,000
• Develop consistent processes for the current City waste generation centres and drop off points in terms of storage and collections			$4,000	N/A	N/A
• Conduct a public space recycling waste trial/pilot at a determined area			$16,000	N/A	N/A
• Build waste requirements in to procurement policies			$24,000	N/A	N/A
• Develop waste management planning guidelines for new developments/projects			$8,000	N/A	N/A
• Conduct a fuel efficiency analysis on the waste truck fleet and determine potential areas for improvement.			$24,000	N/A	N/A
4. Implement increased recovery through a reuse and recycling centre • Explore options to increase recovery of wastes, through the implementation of a reuse shop or similar	1-2 years	Reuse Recycle	$50,000	$500,000 -$1,000,000	Cost neutral
• Explore options to improve the operation of the RRWTS, which can include various initiatives such as a CDS collection point, electric car charging point as well as improved signage, layout and drop off option		Reuse Recycle	$30,000	$150,000	N/A
5. Increase waste handling and recovery through the WTS • Look for increased opportunities to serve our local community and increase waste handling through the RRWTS	1-3 years	Reuse Recycle	$20,000	$20,000	$20,000
6. Identify and implement methods of increasing accessibility to dispose of wastes including, but not limited to, HHW and e-waste • Investigate options for waste drop off units and locations for the community to utilise for the disposal of various household hazardous waste	1-3 years	Reuse Recycle	$24,000	$6,000	$6,000

Initiatives	Timeframe	Waste Hierarchy Position	Year 1 Estimated ($)	Year 2 Estimated ($)	Year 3 Estimated ($)
7. Establish a Waste Precinct in Canning Vale • Explore the feasibility of the establishment of a Waste Precinct in Canning Vale at the current SMRC site and or Ranford Road WTS			$150,000	$100,000	Implementation costs dependent on outcome of feasibility
8. Improve recycling of challenging wastes • Improve recycling of challenging wastes, such as mattresses, taking into account a lifecycle perspective of disposal/recovery options	1-5 years	Recycle Recover	$200,000	$200,000	$200,000
9. Introduce a best practice kerbside waste collection service • Investigate the potential for the introduction of a third organics bin, in light of the Kwinana Waste to Energy facility	2-5 years	Recycle Recover	$40,000	$40,000	Implementation $3,000,000 Ongoing $3,000,000 -$4,800,000
10. Investigation and remediation of City's closed landfill • Prepare a Contaminated Sites Strategy for City of Canning contaminated sites, including former landfill sites	1-10 years	Avoid	$50,000 - $100,000	$500,000 - $2,000,000	Remediation costs dependent on outcome of investigations
11. Create and build on regional collaboration and partnerships to achieve positive waste outcomes • Continue collaboration with WALGA to create new opportunities, drive positive outcomes and leverage advocacy opportunities	Ongoing	Avoid Reuse Recycle Recover	$15,000	$15,0000	$15,000
• Engage with the SMRC and SMRC member councils, other LGs where mutually beneficial waste outcomes can be achieved			$15,000	$15,000	$15,000
12. Apply innovative techniques and facilitate research and development for waste solutions within Canning • Explore opportunities to partner with local innovators, start-ups and businesses to provide small scale solutions and positive outcomes for waste management	Ongoing	Avoid Reuse Recycle Recover	$15,000	$12,000	$12,000
• Continue, and build on, collaborative opportunities with local tertiary institutions to facilitate R&D			$15,000	$12,000	$12,000
• Conduct a gap analysis of local businesses in Canning and potential determine areas for growth in local industry to meet waste management outcomes			N/A	$35,000	N/A

9. Monitoring and Review

A key to ensuring success is the oversight, monitoring and reporting of the progress of the SWMP to key stakeholders.

As part of this SWMP, a mechanism to track and report on progress will be implemented.

This SWMP will be reviewed at least once annually to ensure currency and adequacy. A major review will be conducted every five years.

Appendix 1: Waste Management Planning

The Waste Management Planning sheet details specific projects and initiatives, linking them to the identified key focus areas and objectives.

Time Horizon	Timeframe	Key Focus Area	Objectives	Initiatives/Actions
Build the foundation	2019 - 2022	Sustainable waste services	1. Minimise waste sent to landfill and ensure the use of diversion techniques are central to our approach in all aspects of waste management 2. Increase resource recovery through improving management practices in separation, collection and processing 3. Minimise the environmental impact of waste within our City, encompassing generation, collection and disposal outcomes	1. Develop a consistent method to collect, track and report on waste data, that includes setting of targets in line with the State Waste Strategy and measuring and reporting progress against these targets 2. Investigate the potential for the introduction of a third organics bin, in light of the Phoenix Waste to Energy project 3. Develop waste management planning guidelines for new developments/projects 4. Develop improved outcomes for City generated C&D and Green Waste, including reuse and reprocessing for use in City operations, where possible, ensuring compliance with relevant legislation and guidelines 5. Explore options to increase recovery of wastes, through the implementation of a reuse shop or similar 6. Investigate options for waste drop off units and locations for the community to utilise for the disposal of various household hazardous waste 7. Explore options to improve the operation of the RRWTS, which can include various initiatives such as a CDS collection point, electric car charging point as well as improved signage, layout and drop off options 8. Improve waste management at City events, including the offering of increased segregation options and education 9. Develop consistent processes for the current City waste generation centres and drop off points in terms of storage and collection 10. Conduct a public space recycling waste trial/pilot at a determined area 11. Conduct a fuel efficiency analysis on the waste truck fleet and determine potential areas for improvement 12. Build in waste requirements to procurement policies 13. Prepare a Contaminated Sites Strategy for City of Canning contaminated sites, including former landfill sites 14. Develop a coordinated approach in responding to illegal dumping with the ability to track trends in this area 15. Improve recycling of challenging wastes, such as mattresses, taking into account a lifecycle perspective of disposal/recovery options
		Create, utilise and build on partnerships	4. Build, maintain and enhance relationships with key stakeholders to maximise regional outcomes	1. Continue collaboration with WALGA to create new opportunities, drive positive outcomes and leverage advocacy opportunities 2. Engage with the SMRC and SMRC member councils, other LGs where mutually beneficial waste outcomes can be achieved 3. Explore the feasibility of the establishment of a Waste Precinct in Canning Vale at the current SMRC site and/or RRWTS
		Engaging with the community	5. Connect with our community to encourage positive and sustainable waste behaviour	1. Conduct bin auditing and tagging of kerbside bins, and use data collected to further educate the community 2. Conduct targeted community waste campaigns through different media channels aimed at a specific issue at least once per year to improve recycling and reduce contamination rates 3. Provide feedback to the community on relevant information on the City's progress towards targets 4. Continue to offer waste educational opportunities to the community such as the Living Smart courses 5. Engage with schools (through new or existing programs) to provide waste and recycling education 6. Look for increased opportunities to serve our local community and increase waste handling through the RRWTS 7. Provide educational materials to known problematic areas in the City on correct waste management techniques 8. Conduct a review of waste communications at all City of Canning facilities to ensure consistency across the board
		Research, development and innovation	6. Apply innovative thinking to waste management and facilitate research and development in waste management technologies and facilities, using our unique position for industry and growth	1. Explore opportunities to partner with local innovators to provide small scale solutions and positive outcomes for waste management 2. Continue, and build on, collaborative opportunities with local tertiary institutions to facilitate R&D 3. Conduct a gap analysis of local businesses in Canning and potential determine areas for growth in local industry to meet waste management outcomes

Time Horizon	Timeframe	Key Focus Area	Objectives	Initiatives/Actions
Strengthen and position	2023 - 2030	Sustainable waste services	1. Minimise waste sent to landfill and ensure the use of diversion techniques are central to our approach in all aspects of waste management 2. Increase resource recovery through improving management practices in separation, collection and processing 3. Minimise the environmental impact of waste within our City, encompassing generation, collection and disposal outcomes	1. Investigate options for the procurement and utilisation of electric powered or other renewably sourced fuel waste trucks 2. Investigate potential models/options for providing waste collection services for multi-unit dwellings 3. Conduct a zero waste to landfill street pilot on a residential street, through education and engagement, service provision, measurement and feedback 4. Conduct a zero waste to landfill for local industry pilot, through education and engagement, service provision, measurement and feedback 5.Implement feasible options that will improve the operation of the RRWTS, which can include the introduction of a reuse centre, CDS collection point, electric car charging point as well as improved signage, layout and drop off options
		Create, utilise and build on partnerships	4. Build, maintain and enhance relationships with key stakeholders to maximise regional outcomes	1. Partner with neighbouring LGs and facilitate the introduction of a Waste Precinct in Canning Vale, aimed at being a regional hub for recycling and other forward thinking waste management facilities
		Engaging with the community	5. Connect with our community to encourage positive and sustainable waste behaviour	1. Conduct bin auditing and tagging of kerbside bins, and use data collected to further educate the community 2. Conduct targeted community waste campaigns through different media channels aimed at a specific issue at least once per year to improve recycling and reduce contamination rates 3. Provide feedback to the community on relevant information on the City's progress towards targets 4. Continue to offer waste educational opportunities to the community such as the Living Smart courses 5. Engage with schools (through new or existing programs) to provide waste and recycling education 6. Look for increased opportunities to serve our local community and increase waste handling through the RRWTS 7. Provide educational materials to known problematic areas in the City on correct waste
		Research, development and innovation	6. Apply innovative thinking to waste management and facilitate research and development in waste management technologies and facilities, using our unique position for industry and growth	1. Explore opportunities to partner with local innovators and businesses to provide larger scale solutions and positive outcomes for waste management 2. Continue, and build on, collaborative opportunities with local tertiary institutions to facilitate R&D 3. Implement Smart City waste initiatives such as smart bins and other intuitive initiatives where technology allows
Be a Leader	2030 - Beyond	Sustainable waste services	1. Minimise waste sent to landfill and ensure the use of diversion techniques are central to our approach in all aspects of waste management 2. Increase resource recovery through improving management practices in separation, collection and processing 3. Minimise the environmental impact of waste within our City, encompassing generation, collection and disposal outcomes	1. Expand zero waste to landfill streets to zero waste to landfill suburbs to have a 'Zero Waste Canning'
		Create, utilise and build on partnerships	4. Build, maintain and enhance relationships with key stakeholders to maximise regional outcomes	1. Continue to partner with other WA LGs and build on the Waste Precinct in Canning Vale, further positioning the regional hub for recycling and other forward thinking waste management facilities
		Engaging with the community	5. Connect with our community to encourage positive and sustainable waste behaviour	1. Implement a Zero Waste Community Strategy
		Research, development and innovation	6. Apply innovative thinking to waste management and facilitate research and development in waste management technologies and facilities, using our unique position for industry and growth	1. Investigate the concept of landfill mining at the Ranford Road closed landfill site 2. Implement a Smart City Waste Strategy, encompassing previous initiatives

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