City of Cockburn

Waste Strategy 2020–2030

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Acknowledgement of Country

The Mayor, Councillors and staff of the City of Cockburn acknowledge the Whadjuk Nyungar people of Beeliar boodja as the traditional custodians of this land. We pay our respect to the Elders, past, present and emerging.

Executive Summary

The City of Cockburn holds sustainability as a key strategic value, and is committed to the responsible collection, processing and disposal of waste on behalf of the wider community. Sustainable waste management requires a strategic approach to ensure the best economic, social and environmental outcomes.

The City is responsible for the collection and disposal of kerbside and vergeside general waste, recyclables and garden organics from its approximately 43,000 households. It also owns and operates the Henderson Waste Recovery Park (HWRP), which processes community drop-off materials, hazardous household waste (HHW), e-waste, construction and demolition (C&D) waste, commercial and industrial (C&I) waste and other problematic items, such as tyres and mattresses.

This Strategy and associated Implementation Plan (Annex 1) aligns with the key objectives of the State Government's Waste Avoidance and Resource Recovery Strategy 2030, which are considered in all decision-making relating to waste management in the City:

Objective 1 – Avoid
Generate less waste

Objective 2 – Recover
Recover more value and resources from waste

Objective 3 – Protect
Protect the environment by managing waste responsibly

The Strategy addresses the transition to Energy from Waste (EfW) for general waste processing, the introduction of a 140L general waste bin across the City, a review of the City's vergeside collection system and the incorporation of smart technology for improved efficiency of waste collections.

The Strategy also outlines the planned development of the new Cockburn Resource Recovery Precinct, including leased sites for complementary waste businesses, and a modern Community Drop-off Facility. This will include the filling of existing landfill space at the Henderson Waste Recovery Park, the capping of landfill cells and the potential closure of the landfill business leading to post-closure management of the operation. The costs associated with the capping of remaining cells and post closure management is identified in the Long Term Financial Plan 2020-21 to 2029-30. These funds may be brought forward depending on the available landfill space. The capped landfill cells can be used for container storage and/or renewable energy infrastructure.

Communication and education around sustainable waste practices is integral to meeting the objectives and targets outlined in this Strategy. A comprehensive waste education and community engagement program is embedded in activities

across the Strategy and Implementation Plan in order to reach a wide demographic through a variety of channels. The program is designed to meet changing needs of the waste sector and the community over the life of the Strategy. It seeks to help residents, visitors and businesses to understand their role in sustainable waste management. This includes working towards becoming a smart city; using digital technologies in all our initiatives to improve performance, efficiency and customer experience.

The Department Water and Environmental Regulation (DWER) City of Cockburn Waste Plan, which is also referred to as the Implementation Plan, will be reviewed annually. The Implementation Plan and associated budget will be reviewed annually to ensure a proactive and flexible approach. The Strategy itself will be reviewed after 5 years.

1 Waste Management Vision

Sustainability is a key strategic value for the City of Cockburn. The City has identified the following vision statement to ensure sustainability of its waste management activities:

> ***To lead and support a community that avoids waste generation, reduces environmental impacts and considers the waste that is produced as a valuable resource to be recovered, reused and recycled utilising the latest technologies available.***

The City has adopted the Western Australian State Government's Waste Hierarchy (Figure 1), which provides a framework for prioritising waste practices to achieve the best environmental, economic and social outcomes:

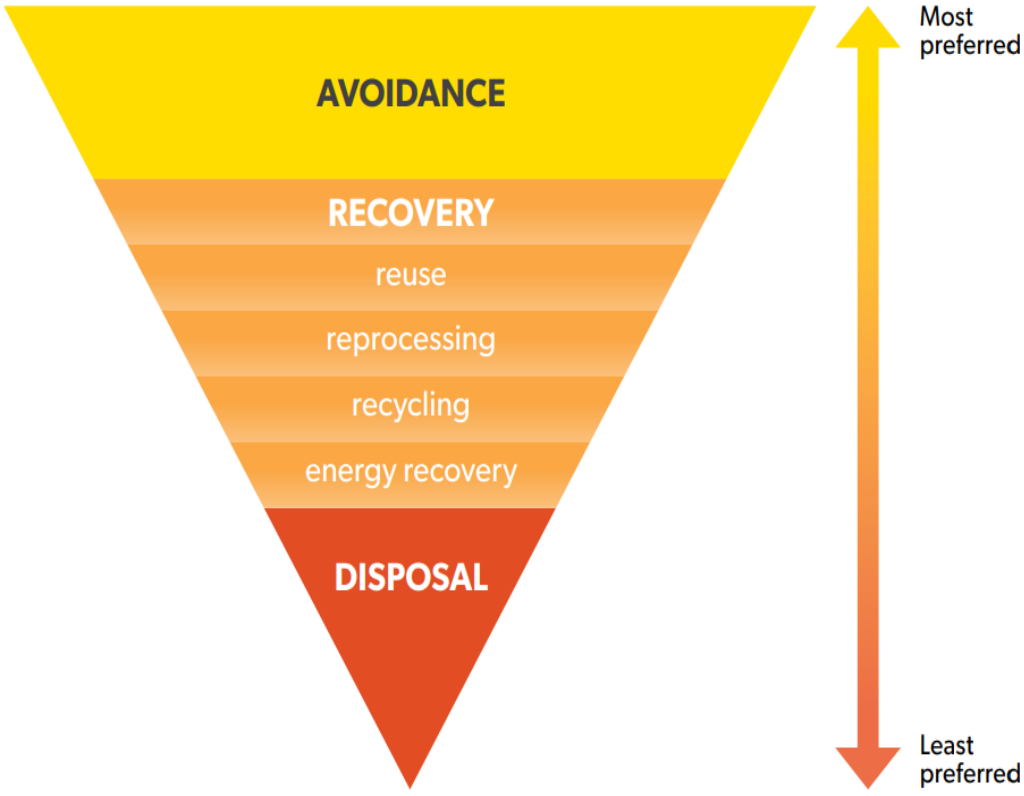

Figure 1: Waste Hierarchy[1]

The hierarchy recognises the City's priority as the avoidance of waste generation. Recovery, reuse, reprocessing and recycling of valuable materials are vital where waste production is unavoidable. Energy recovery is the least preferred recovery option and should be limited to those materials that cannot be recovered by any other means. Disposal to landfill is the least favourable outcome. The Climate Change Strategy 2020- 2030 Objective number four nominates zero non - hazardous waste to landfill by 2030. This hierarchy underpins the objectives of this Strategy and associated Implementation Plan and will continue to guide the City's waste management programs into the future. The City will strive to meet or exceed targets

[1] Source: Waste Authority 'Waste Avoidance and Resource Recovery Strategy 2030'

set by State Government and act as leaders in waste management.

2 Introduction

The City of Cockburn, like many other metropolitan local governments in Western Australia, is facing challenges in the management of solid waste resulting from:

- Population rise leading to increased waste generation;
- Limitations of existing resource recovery facilities;
- Decreasing availability of landfill space;
- The growing significance of sustainable practices and climate change; and
- Lack of consistency and community understanding regarding waste management approaches.

The City's population in 2020 is 120,417 and is projected to increase to 170,000 by 2041. While efforts to minimise the use of resources are gaining momentum, waste generation per capita in Australia is increasing by an average of 1% each year (DEE, 2017[2]). This coincides with a landfill levy of $70 per tonne in Western Australia and finite remaining landfill capacity in the metropolitan area. The City is responsible for ensuring that waste is suitably managed in the long term to ensure effective and economic resource recovery and minimisation of resource loss.

This Strategy has been prepared to provide a clear direction and coordinated approach to effectively manage the long term sustainability of waste practices in the City. While waste management is an issue of national, state and local significance, the City prides itself on providing the best services to its ratepayers by ensuring that appropriate funds are directed to waste management and education, in line with the overarching City of Cockburn Strategic Community Plan 2020-2030. The City recognises its responsibility to support state and national government solutions to ensure optimum results for the community.

[2] Department of the Environment and Energy, Australian National Waste Report 2016

3 Existing Waste Services

The City's current waste services are outlined in Figure 2 below:

SERVICES	DETAILS
 Red top 240L or 140L Bin – General Waste (MSW) Collection	**Weekly** Energy from waste converts MSW to energy 
 Yellow top 240L Bin – Recycling Collection	**Weekly** Recyclables processed in a Materials Recovery Facility (MRF) 
 Lime green top 240L Bin – Garden Waste Collection	**Fortnightly** Garden Waste processed into mulch at Henderson Waste Recovery Park. Eligible properties only. 
 Junk Kerbside Collection	Two per year 
 Green Waste Kerbside Collection	Two per year 
 Trailer passes for HWRP	Six per year 

Figure 2: City of Cockburn waste services offered in 2020

4 Achievements to Date

Since the launch of the City's first Waste Management and Education Strategy in 2013, the City has delivered a suite of successful waste management programs and projects, including:

- Purchased plant to expand Henderson Waste Recovery Park operations and to reduce reliance on contractors;
- Designed and constructed a waste education display trailer, in partnership with the Australian Association of Environmental Education;
- Established a waste education area at Henderson Waste Recovery Park, which includes seating in a grassed area under the 'Bike Tree' project – an upcycled sculpture with an LED sign powered by renewable energy;
- Developed and implemented a schools waste education program in alignment with WA Government's Waste Wise Schools Program;
- Supported and developed a strong partnership with the national Garage Sale Trail, Responsible Cafes, Grow It Local and Take 3 for the Sea programs;
- Installed innovative accelerated evaporation leachate reduction equipment at HWRP;
- Developed and reviewed waste collection and disposal risk management plans in accordance with the City's Enterprise Risk Management Policy;
- Constructed a new household hazardous waste store at HWRP;
- Established an e-waste contract under the Product Stewardship Legislation;
- Prepared and implemented Landfill Closure, Leachate, Asbestos and Landfill Gas Management Plans;
- Developed a long-term financial model for landfill closure including site remediation;
- Introduced a policy to require Waste Management Plans for multi-unit developments.
- Instigated the recovery of e-waste, steel and mattresses from bulk verge collections;
- Designed and commenced rollout of public place recycling enclosures following a successful trial;
- Appointed a full time Waste Education Coordinator;
- Implemented new weighbridge software to enable scanning of trailer passes;
- Successfully completed an 'In Your Kitchen' waste trial, which formed the basis of the education program associated with the garden waste bin rollout;
- Implemented a three bin system at over 30,000 properties;
- Delivered a face to face waste education program to improve waste diversion via door knocking and auditing;
- Secured Waste Authority grant funding for garden waste bins and community

education;

- Purchased and commissioned a green waste decontamination plant at HWRP;
- Purchased polystyrene and cardboard compaction presses at HWRP;
- Outsourced the processing of the City's comingled recyclables;
- Completed the future development strategy for HWRP;
- Signed a 20 year contract for the City's energy from waste future for general waste and residual waste streams;
- Development of Wastewise Events Policy to reduce single use plastics at events across the City;
- Implemented Clean Ocean Cockburn project aimed at reducing littering including installation of WA's first Seabin, beach bin trial on Coogee Beach and Clean Ocean Cuppas program with coastal cafes;
- Further developed 'Site Redevelopment Concepts' around Development WA's Latitude 32 / Western Australian Planning Commission strategic planning initiatives; and
- Introduced household hazardous waste recycling hubs to each of the City's public libraries for collection of batteries, mobile phones, light globes and printer cartridges.
- Capping of Cell 6
- Adopted the City of Cockburn Waste Local Law 2020

5 Strategic Alignment

The City of Cockburn Strategic Community Plan 2020-2030 articulates an overarching vision for where the City wishes to be by 2030. It includes five strategic outcomes for Cockburn, each accompanied by an associated strategic objective. This Waste Strategy is specifically aligned to four of these strategic outcomes (see Table 1).

Table 1: City of Cockburn Strategic Community Plan 2020-30 objectives relating to Waste Strategy

Outcome	Strategic Objective
Local Economy	1.5 Support and promote the benefits of buying locally.
Environmental Responsibility	2.1 Sustainably manage water, energy and other resources and promote the use of environmentally responsible technologies. 2.5 Minimise the City's waste to landfill through reducing, reusing, re-purposing, re-gifting and recycling of waste. 2.6 Reduce adverse outcomes arising from climate change through planning, adaptation, mitigation, infrastructure and ecological management.
Community, Lifestyle and Security	5.2 Deliver value for money through sustainable financial management, planning and asset management. 5.5 Provide high quality accessible customer service and experiences for all our community.
Listening and Leading	3.6 Provide community, sport, recreational, and cultural facilities and infrastructure to meet our community needs.

The City's Long Term Financial Plan 2020-2021 to 2029-2030 details what is proposed over the next ten years as a means of ensuring the City's long-term financial sustainability. The Corporate Business Plan provides the operational link between the Strategic Community Plan and Long Term Financial Plan. From these planning processes, annual budgets are developed for specific projects to achieve the Strategic Community Plan objectives.

The Waste Strategy has been fully costed and is reflected in the Long Term Financial Plan 2020-2021 to 2029-2030, Workforce Plan 2016-17 to 2021-22 and Annual

Budget. Labour costs and staffing resources have been considered and capital and operational costs have been detailed. The Strategy will be resourced through reserve funding, grant contributions and ongoing municipal contributions.
This Strategy is also aligned with the Waste Avoidance and Resource Recovery Strategy 2030 though the City of Cockburn's Department Water and Environmental Regulation's (DWER) Waste Plan (Appendix 1).

6 Consultation

Elected Member and internal staff consultation was conducted over 9 Waste Forums since March 2016. Extensive industry consultation occurred in 2017 and 2018 to determine the future strategy for the redevelopment of the Henderson Waste Recovery Park

Customer surveys continue to record high satisfaction rates with both the Waste Collection Service (kerbside collection and bulk verge service) and the Henderson Waste Recovery Park.

The Community Scorecard Survey 2020 rated the kerbside collection at 94% and the bulk verge service at 93%. This result has remained constant for many years.

The results from the Customer Satisfaction Survey for Henderson Waste Recovery Park have the commercial customers rating the service as 100% and the domestic customers as 98%. This means that 98% of the respondents rate the service 7 or more out of 10. The survey also revealed that both the commercial and domestic customers rated the service highly with 76.5% of respondents scoring the Site at 9 or 10 out of 10.

Feedback from the independent consultant's customer surveys has been considered during the development of this Strategy and also for continuous improvement purposes.

7 Waste Strategy Objectives

The City will achieve its vision for waste management and education through the delivery of the following objectives. Individual actions have been identified to meet these objectives in Appendix 1: Cockburn Waste Management Plan (Implementation Plan).

Objective 1- **Avoid:** Generate less waste

There is growing awareness that the production of waste through inferior quality products, aggressive advertising, designed obsolescence and excessive packaging leads to cycles of consumerism and increased waste generation rates.

The City will address this issue through support and implementation of extended producer responsibility, product stewardship programs and education programs to reduce both its own waste production and that of the wider community.

Waste Reduction and Education Programs
Key actions associated with this objective will include the introduction of a smaller 140L general waste bin across the City to encourage a reduction in the volume of waste being sent to EfW or landfill. This also acts as a powerful symbol regarding the importance of reducing general waste, given the non-renewable resources and embodied energy that are lost once a product is placed in this bin. An ongoing educational bin tagging program will assist the community in identifying which items should be disposed of in a more efficient manner. A waste communications campaign will work towards increasing recognition of the resource value of waste, in order to inspire the community to reduce their waste production.

The City will conduct a community consultation to investigate options for the bulk verge waste collection system. Research has shown that moving to a pre-booked bulk waste collection can reduce waste tonnages and increase resource recovery.

Objective 2 – **Recover**: Recover more value and resources from waste

The City is responsible for processing the community's waste in the most environmentally and financially responsible manner. Key resource recovery actions are outlined below:

Redevelopment of Henderson Waste Recovery Park
The City will continue to develop a business case to construct and operate a Cockburn Resource Recovery Precinct at the Henderson Waste Recovery Park site. The Future Development Strategy for Henderson Waste Recovery Park from January 2016 incorporates a Community Drop-off Facility, Weighbridge, Reuse Shop, Administration Building and Education Centre built on the southern side of the site, off Dalison Avenue.

A layout plan of the Cockburn Resource Recovery Precinct is shown in Figure 3 below:

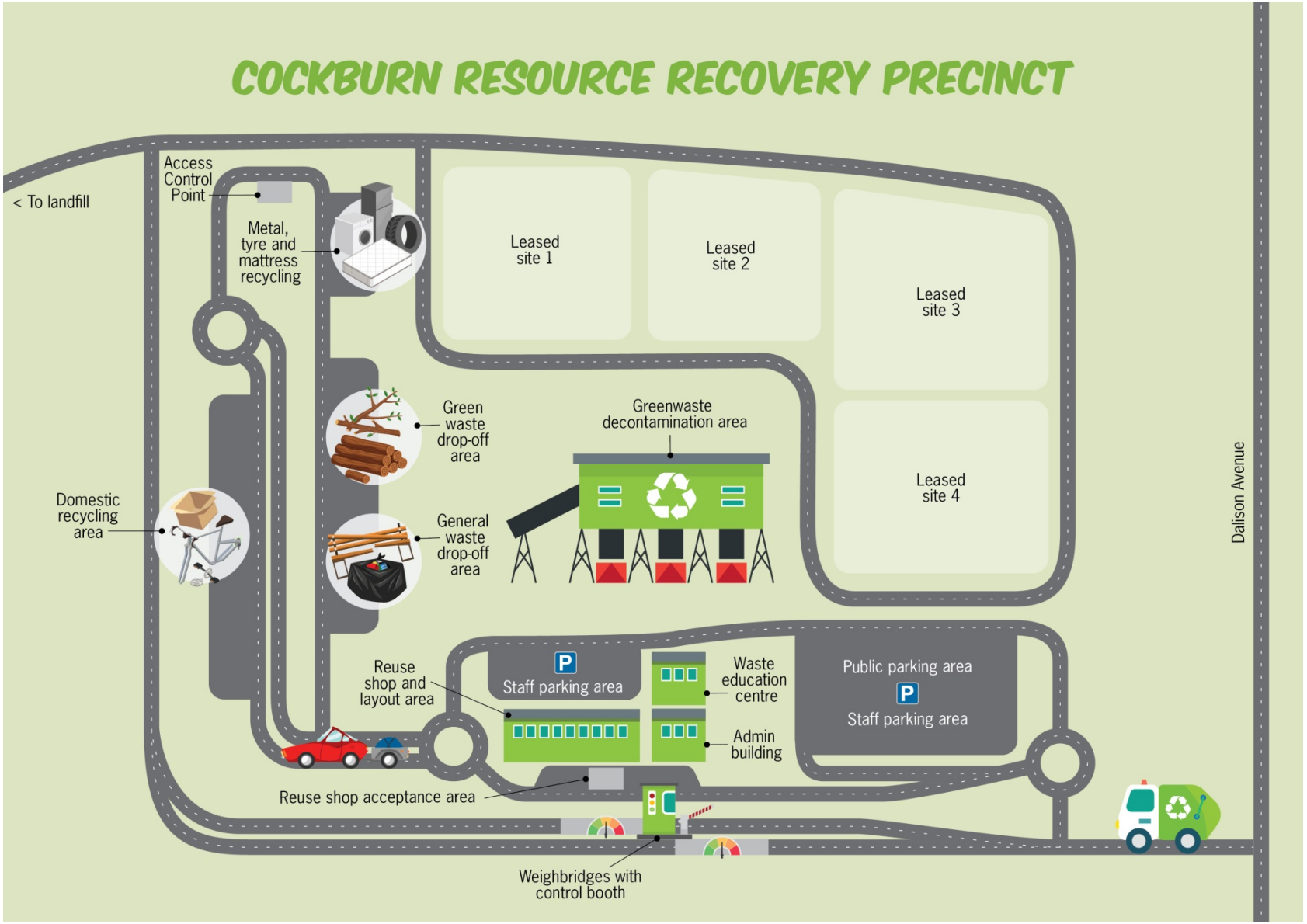

Figure 3: Future layout of the Cockburn Resource Recovery Precinct

The Future Development Strategy includes the development of leased sites at the Cockburn Waste Precinct to enable diversion of waste streams away from landfill into reprocessing and reuse.

The concept recommends the development of leased areas for complementary waste contractors to further process recovered inert, steel, green waste, timber, paper and e-waste.
If the concepts identified in the Future Development Strategy are implemented in their entirety, the resource recovery rate for the Cockburn Resource Recovery Precinct will increase from 8% to 70%.

The resource recovery cycle for the City's future waste services is outlined in Figure 4 below:

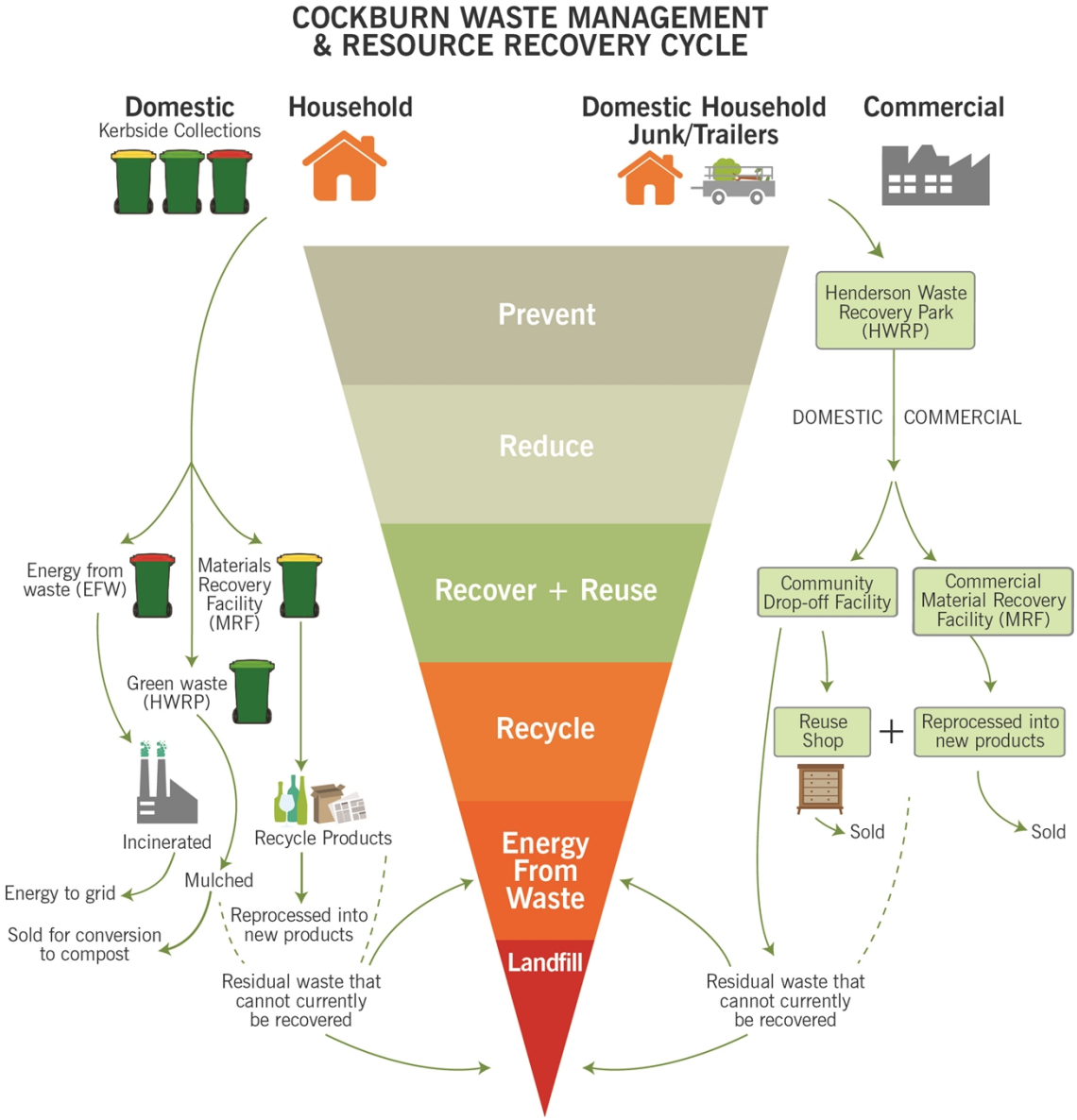

Figure 4: City of Cockburn resource recovery cycle

Waste Education

The role of leaders in waste management is to prevent the creation of waste and highlight the negative environmental consequences of consumerism. In order to do this effectively, the City recognises the importance of providing education services to

the community as an integral component of its waste management program. Critically, the importance of individual responsibility must be emphasised, as sustainable waste management begins with each member of our community. The City will continue to ensure our community is provided with both the relevant information to make informed decisions and the resources to contribute to sustainable waste management outcomes.

Key actions relating to this outcome over the life of this Strategy will include the development of a Waste Education Centre at the new Cockburn Resource Recovery Precinct, along with the development of educational materials and resources across the wider site.

A Waste Communication Plan will be developed to expand the City's waste education offerings across schools, community events and City facilities. Importantly, this will seek to educate people through the consistent approach recently adopted by the WA State Government via their "Waste Sorted" and "Own Your Impact" campaigns.

Energy from Waste

As a consequence of the substantial increase in the landfill levy, sending residual non-recyclable waste to an energy from waste (EfW) facility has become a more economical option than sending it to landfill for disposal.

Two EfW plants, which will accept pre-sorted commercial, industrial, construction, demolition and source separated (by resident) municipal solid waste, are currently proposed to be built in the industrial areas south of Fremantle.

The City has awarded a Waste Supply Agreement to New Energy who will be constructing an EfW plant at East Rockingham in a consortium with Hitachi Zosen Inova. The plant is expected to be completed in 2022. The EfW plant will require commissioning tonnages of general waste in the lead up to the plant reaching its operational capacity.

Figure 5 below outlines how an EfW plant converts non-recyclable waste into energy to be fed into the electricity grid, along with bottom and fly ash:

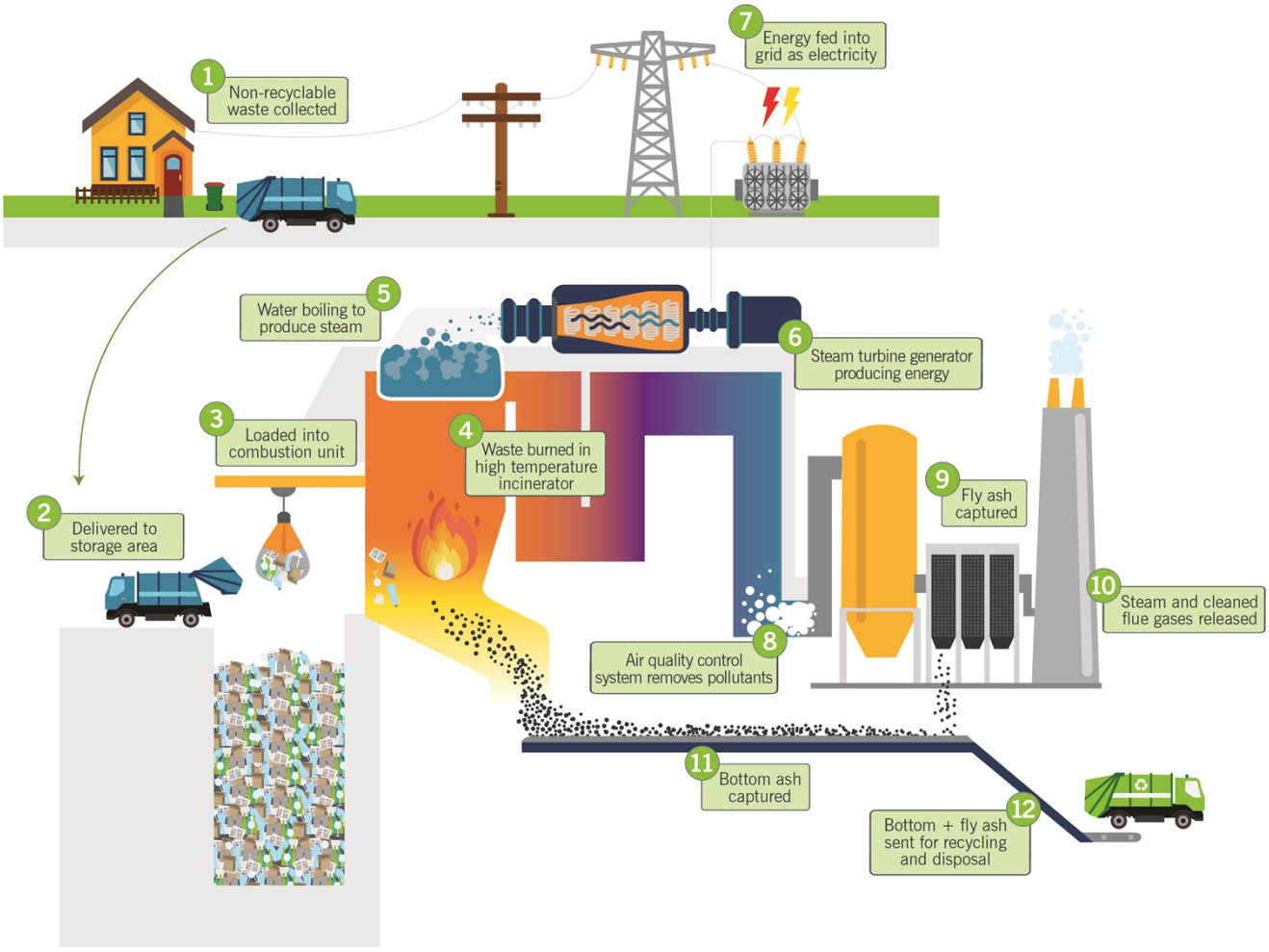

Figure 5: Energy from Waste plant operations

Commercial Food Waste Collection Service
The City is planning to develop a commercial food waste collection service to ensure that organic material is recovered for its highest possible reuse.

Options for the recovery of domestic food waste will also be considered, including the potential to convert the City's Garden Organics (GO) bins to Food Organics and Garden Organics (FOGO), should processing of this material become operationally and financially viable.

The City will continue to invest in education and subsidies around the processing of food waste in the home through composting, worm farming etc.

Fee Structure Monitoring
The City will continue to monitor its fees and charges to ensure that they reflect the true value of waste, in order to encourage reduction, recovery and reuse over disposal.

Smart Cities
The City will prepare for becoming a Smart City by using digital technologies in all our initiatives to improve performance, efficiency and the customer's experience, in alignment with the Digital Strategy 2019-2029.

Objective 3 – **Protect**: Protect the environment by managing waste responsibly

The City of Cockburn is committed to excellence in the protection of the natural environment. Key actions to achieve this objective are outlined below:

Climate Change Impact

The majority of the City's current greenhouse gas emissions are generated from solid waste to landfill at the Henderson Waste Recovery Park. Figure 6 below shows that 59% of the City's corporate emissions are produced from waste to landfill, with 30% from electricity consumption and 11% from fuel combustion for facilities and fleet.

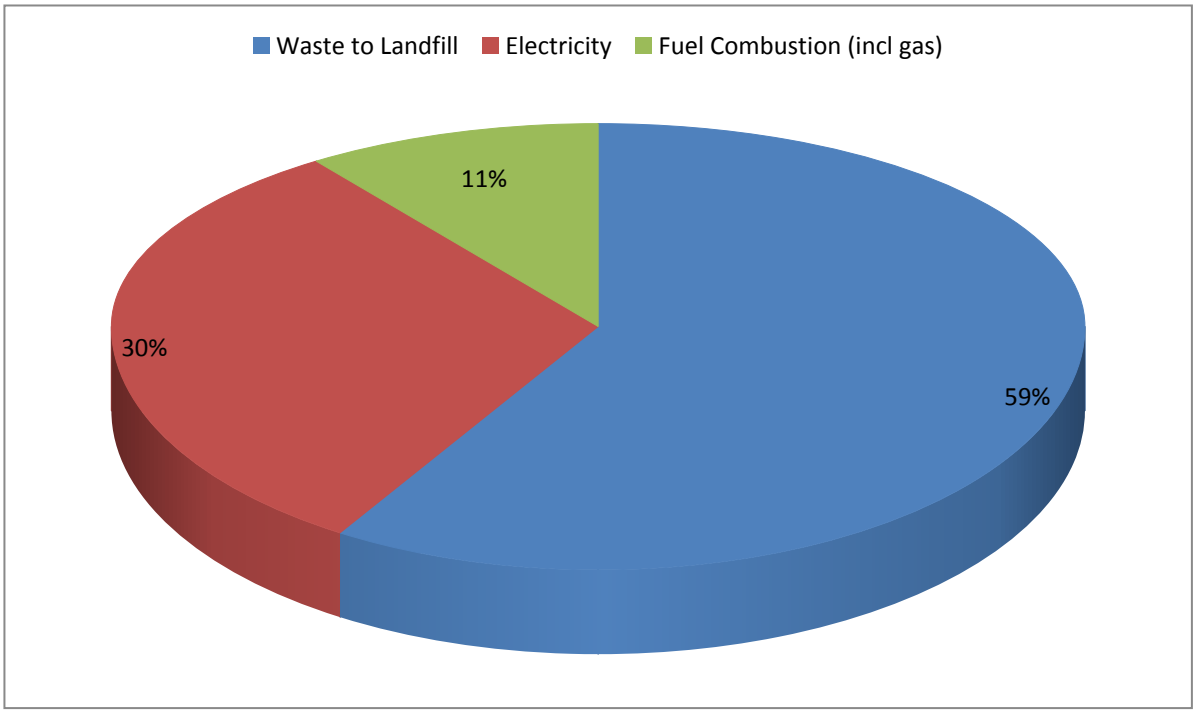

Figure 6: City of Cockburn 2016-*17 emissions, by source*

The Climate Change Strategy 2020 – 2030 outlines ten waste related actions for waste management in Section Four. One of these is the Waste Management Vision for 100 per cent of non-hazardous waste to be diverted from landfill by 2030. The City aims to reduce these emissions by covering and capping both northern and southern landfills and continuing to extract methane gas for combustion and conversion into grid electricity.

Increasing renewable energy generation across the site, including solar photovoltaics, wind turbines and hydrogen, will continue to be investigated and implemented where feasible. The funding for this project is identified in the Long Term Financial Plan 2020-2021 to 2029-2030, however this may be brought forward subject to the Hydrogen Power Study.

Pollution Management

The Henderson Waste Recovery Park is subject to stringent environmental management requirements from the State Government. Pests and vermin are also managed on an ongoing basis.

Key actions to mitigate pollution at HWRP include the relining of leachate ponds and the installation of a leachate evaporation plant to ensure that no groundwater

pollution occurs. A groundwater monitoring program will continue after the closure of landfill cells at the site to ensure long-term pollution control.

Mobile litter fencing will be maintained to ensure that waste is not able to leave the HWRP site.

The City will continue to work on preventing littering and illegal dumping. The City's mapping system will be updated to allow detailed tracking of dumping offences in order to develop targeted solutions.

The suite of waste management services provided to the community by the City will be continually reviewed to mitigate the risk of harmful environmental effects of illegal dumping and litter. This will include community consultation on a pre-booked verge collection service.

8 Resourcing the Plan

Market competition has seen a reduction in the waste tonnes received and a corresponding reduction in income. The resourcing requirement for this Strategy has taken this downturn into consideration ensuring financial sustainability.

Significant reserve funds will be required in the next decades, to cap the three uncapped landfill cells and ensure post closure management. The Long Term Financial Plan 2020-2021 to 2029-2030 has identified these costs from the Landfill Rehabilitation Model. The construction of the Cockburn Recovery Precinct will also require additional reserve funding.

Appendix 2 contains the operational and capital expenditure required until 2028 to implement the Waste Strategy and Implementation Plan.

9 Performance Measures and Targets

Progress against this strategy will be reviewed in the City's Annual Report and annual State of Sustainability Report. This Strategy is also aligned with the Waste Avoidance and Resource Recovery Strategy 2030 though the City of Cockburn's Department Water and Environmental Regulation's (DWER) Waste Plan (Appendix 1).

The City of Cockburn has developed targets for waste avoidance and resource recovery. These targets will be realised through ongoing leadership, financial commitment and effective implementation actions, as outlined in Appendix 1 and 2.

Waste Avoidance

The State Government's Waste Avoidance and Resource Recovery Strategy 2030 sets targets for the reduction in waste generation per capita by 2025 and 2030, based on a 2014/15 baseline (see Table 2 below):

Table 2: WA State Government Community Waste Avoidance Targets[3]

Objective	**AVOID** Western Australians generate less waste
2025 Target	Reduction in MSW generation per capita by 5%
2030 Target	Reduction in MSW generation per capita by 10%

Waste generation figures include waste from:

- Kerbside bins (general waste, recycling and garden organics);
- Bulk verge collections;
- Residential drop off to Henderson Waste Recovery Park;
- Public place bins; and
- Events bins.

The City of Cockburn implemented Western Australia's largest program of bin auditing and waste education from 2016. Between 2014-15 and 2018-19, this resulted in the City's per capita waste generation reducing by 10%. Having already met the State Government's waste avoidance targets for 2030, the City aims to go even further, reaching a 12% reduction by 2024-25 and a 15% reduction by 2029-30 (Table 3).

Table 3: City of Cockburn Waste Avoidance Targets

	Actual Waste Generation		**Avoidance Targets**	
	2014-15 (baseline)	**2018-19**	**12% reduction by 2024-25**	**15% reduction by 2029-30**
Waste generation per capita per year (kg)	585	527	515	497

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eResource Recovery

The City's overall material recovery targets for 2025 and 2030 are in line with the State Government's targets as outlined in the 'Waste Avoidance and Resource Recovery Strategy 2030' (Table 4):

[3] Waste Authority 'Waste Avoidance and Resource Recovery Strategy 2030' p25

Table 4: Western Australia[4] and City of Cockburn community material recovery targets

	Actual Material Recovery		Material Recovery Targets	
	2017-18	**2018-19**	**2024-25**	**2029-30**
Percentage of material recovered	49%	52%	67%	70%

[4] Waste Authority 'Waste Avoidance and Resource Recovery Strategy 2030' p29

10 Risks

Strategic risks relating to waste management have been identified in the City's Engineering and Works Operational Risk Management Register 2020 as follows:

- Failure to adequately provide for Post Closure Management of HWRP;
- Failure to protect the environment adjacent to landfill;
- Failure of HWRP to compete with other metropolitan landfills;
- Inability to collect general household waste and operate the HWRP;
- Failure to engage with community to correctly use bins;
- Failure to attract and retain experience/trained waste employees;
- Inability to influence or manage legislative changes;
- Failure to provide functioning waste plant and equipment;
- Failure to provide collection services from multi-unit developments or under-width thoroughfares;
- Failure to maintain financial sustainability of all Waste Services Units;
- Failure to capture and safely transfer methane.

The City has considered these risks in the development of this Strategy and associated Implementation Plan and aims to mitigate these risks as far as is reasonably practical.

Appendix 1 City of Cockburn Waste Plan (Implementation Plan)

Table 5 outlines the actions which the City of Cockburn will take over the next five years to contribute to the achievement of relevant Waste Strategy targets and objectives. This implementation plan is based on the approved City of Cockburn Waste Plan (Part 2- Implementation Plan), September 2020.

Table 5: Implementation plan (based on the City of Cockburn Waste Plan, approved by DWER on 11 September 2020)

Waste Management Tool	Action	Is the action new or existing?	Detailed actions/sub-actions	Milestones	Target	Time frame for delivery (completion date)	Implementation Cost	Aligns to Waste Strategy Objective/s			Responsibility for implementation
								Avoid	Recover	Protect	
Behaviour change programs and initiatives	-Implement waste education campaign including school waste education programs, waste education workshops and events, community tours to HWRP, -Council staff waste education programs and Council recycling facilities	Existing	Social media campaigns; Print media campaigns; Website Billboards; Resource Recovery Calendars; Deliver HWRP tours for school groups; Deliver incursions to schools; Support other school waste education activities such as school fairs, educating parents and carers etc; Develop events and workshops to deliver through the Sustainable Living Events booklet, issued every 6 months; Deliver regular community tours to HWRP, through Sustainable Living Events program, bespoke tours for community groups etc; Audit council facility bins; Provide education and behaviour change programs to staff and facility users.	1. Implement social and print media campaign focussed on waste hierarchy by 30/06/2025 2. Review website monthly to ensure A-Z of waste is up to date with Consistent Communications updates 3. Incorporate WasteSorted toolkit resources onto all applicable materials 4. Prepare and distribute resource recovery calendar to residents annually by 1 July 5. 20 HWRP tours in 2021/22	12% domestic per-capita waste reduction by 2025 (on 2014-15 baseline) 67% overall domestic material + energy recovery by 2025 (on 2014-15 baseline) Deliver waste education to all Cockburn schools by 2024/25 Ensure at least 20% of Sustainable Living Events are waste-related. Increase number of	2024/25	Y - OP	X			Waste Education Coordinator

				6. 20 incursions in 2021/22 7. Develop and publish events program by 1 July and 1 Jan each year 8. Henderson tours to be incorporated into Sustainable Living Events Program in July and January annually. 9. All facilities with Cockburn staff working on site to be audited by July 2021.	HWRP tours year on year. 100% of council facilities to have access to internal and external recycling bins (including recreational facilities) by July 2022.						
	Fully fund a permanent Waste Education Officer	New	Add Waste Education Officer position to Workforce Plan and secure budget.	Workforce plan approval by March 2021.	Waste Education Officer to be in role by end 2021/22	2021/22	Y - OP	X			Waste Manager
	Encourage and promote waste initiatives via the Sustainability Grants Program	Existing	Continue to support waste-related grant proposals.	Review and assess Sustainability Grant Proposals in March annually.	20% of all grants issued to address waste-related issues.	Ongoing	N/A	X			Waste Education Coordinator
	Review the feasibility of creating waste virtual tours	New	Investigate the possibility of producing virtual tours of CRRP to be delivered from the Waste Education Centre or online.	Decision to be made on feasibility of creating a virtual tour prior to development of interpretive signage.	Feasibility study to be completed by end 2022/23.	2022/23	N/A	X			Waste Education Coordinator
	Review the feasibility of adopting a WALGA endorsed Waste App to reduce printing	New	Engage with community on preferences for waste information by including a question in community survey; Review community feedback, costs and benefits; Prepare report to executive with recommendation.	Report to council for decision on utilising externally developed Waste App by end 2021/22.	If approved, app to be rolled out before start of 2022/23.	2022/23	N/A	X			Waste Education Coordinator

	Identify new businesses and residents through the 'New Bin Request System' for distribution of waste education information	New	Investigate opportunity to provide waste separation and disposal information to residents when new bins are delivered.	Liaise with Waste Collection Team to ensure that waste education materials are provided to all new household by July 2021.	System for providing information to new residents to be operational by July 2021.	2020/21	N/A		X		Waste Education Coordinator
	Continue to implement a preventative Illegal Dumping program	Existing	-Development of new system for capturing illegal dumping data through ESRI system; -Roll out tablets to illegal dumping crew to receive jobs and capture data; -Continue attending Roundtable on Illegal Dumping meetings; Continue engaging with internal illegal dumping working group.	New illegal dumping data capture system to be developed by end 2020/21. 2021/22 to form new baseline for ongoing measurement.	10% reduction in illegal dumping by 2023/24 based on 2021/22 baseline.	New data system to be completed by end 2020/21	N/A			X	Waste Collection Services
Policies and Procurement	Ensure all City tender documents allow for the consideration of reuse of recycled products e.g. road base.	New	Develop working group to consider how best to encourage inclusion of recycled products into tenders and RFQ's.	Working group members to be identified and approached by January 2022.	Working group to be established before end 2021/22.	Ongoing	N/A		X		Waste Education Coordinator
	Trial the use of an electric waste truck.	New	Purchase and commission an electric waste truck; Review performance, costs and benefits and report to Executive.	Electric vehicle to be in operation by 1 July 2020.	Report to Executive by end 2020/21.	2020/21	Y - CW			X	Waste Collection Services
	Undertake a feasibility study for the use of hydrogen powered waste trucks.	New	Consider outcome of feasibility study from grant funded consultant.	Study to be delivered by June 2020.	Study to be considered by Council and a decision made by end 2020/21.	2020/21	Y - OP			X	Manager Assets and Infrastructure

Waste services	Develop business case for the introduction of financial incentives to reduce domestic general waste bins to 140L in those on the 2 bin system.	New	Research costs and benefits of reducing the size of the 240L general waste bin to 140L. Prepare report to council.	1. Develop business case and report to Council on costs and benefits of reducing size of general waste bins to 140L for properties on 2 bin system. 2. If approved by Council, coordinate rollout of 140L general waste bin.	Report delivered to Council by end 2023/24.	2023/24	Y - OP	X			Waste Manager
	Consult community for an on-demand verge collection service.	New	Deliver community consultation on the option to switch to an on-demand verge collection system.	Develop consultation plan by 1 July 2020 in association with Community Engagement Team.	Consultation to be completed by end 2021/22.	2021/22	Y - OP	X			Waste Manager
	Undertake a FOGO feasibility assessment in the 2022/23 financial year.	New	Feasibility assessment to include an assessment of the technology available for processing FOGO and the viability of this service. The feasibility assessment will inform the City on its next steps in regards to a FOGO service, ensure time is available to implement any change before the 2025 Waste Strategy deadline, if this is recommended.	Feasibility study to be commissioned by 1 January 2023.	Feasibility study to be completed by 30 June 2023.	2022/23	Y - OP		X		Waste Manager
	Conduct commercial food waste trial.	New	Roll out commercial food waste trial to agreed participants by end 2019/20; Review results and submit report to Council.	Grant was extended by 6 months to account for commercial food waste business closures due to COVID-19. 1. Training of businesses to commence June 2020. 2. Bins to be provided and trial commenced by end July 2020.	Commercial food waste trial to be completed by 30 November 2020.	30-Nov-20	Y - OP		X		Waste Manager

Data	Conduct a waste audit to determine concentrations of organics of C & D and C & I at HWRP.	New	Appoint consultant; Conduct site survey; Report delivery.	Consultant to be appointed by 1 October 2024.	Report delivered by end 2024/25.	2024-25	Y - OP			X	Waste Disposal Services
	Investigate deployment of technology to assist in the reduction of illegal dumping.	New	Investigate options such as CCTV for sites regularly used for illegal dumping.	Feasibility study to commence start 2021/22.	Feasibility study to be completed by end 2021/22.	2021/22	N/A			X	Business Systems
Waste Infrastructure	Plan and open the Cockburn Resource Recovery Precinct at the Henderson Waste Recovery Park site.	New	Detailed design to be completed; Construction.	1. Detailed design to be completed by December 2020. 2.Construct a covered Transfer Station, community drop off facility, Reuse Shop and waste education centre 3.Design and manufacture interpretive signage and education resources 4.Develop leased land.	New site to be completed by 2022.	2021/22	Y - CW				
	Final cover and capping of Northern and Southern Landfills.	New	Utilise available airspace Final capping of Northern Landfill – 170,500m2; Final capping of Southern Landfill – 94,600m2.	Develop strategies to attract waste tonnes to fully utilise available airspace.	Final cover and capping to commence from 2022, when landfill cells are fully utilised.	2022/23 onwards	Y - CW			X	Waste Disposal Services
	Invest in onsite renewable energy generation.	Existing	Review consultant's report on Cockburn Energy Precinct.	Consider options post capping of cell 6.	Decision to be made on renewable energy options for capped cell 6 by end 2021/22.	2021/22 onwards	Y - CW			X	Waste Disposal Services
	Relining of leachate ponds A and B	New	Review pond liner performance and renew as required.	Pond liners to be replaced after 23 years.	Replace leachate pond liners in 2035.	2035	Y - CW			X	Waste Disposal Services
	Post closure management of Cells 1-7.	Existing	Review cover and capping layers weekly for 30 years to ensure cover and capping layers are stabilised.	As cells are covered and capped, post closure management reviews to commence.	All cell covering and capping to be stable for 30-years post closure (closure dates variable depending on cell).	2020/21 onwards	Y - CW			X	Waste Disposal Services

Appendix 2: Waste Services Financial Plan

Table 6: 10 Year Financial Plan for Waste Services.

PROJECT	CW/OP	2020/21	2021/22	2022/23	2023/28	Project Cost
OBJECTIVE 1 : **Avoid** - Reduce the Generation of Waste						
Waste marketing and communication	OP	$80,000	$80,000	$80,000	$400,000	$640,000
Fully Fund a Permanent Waste Education Officer	OP		$100,000	$100,000	$500,000	$700,000
Reduce domestic MSW & Recycling bins to 140lt	OP		$50,000			$50,000
Introduce 140L bins	CW			$200,000	$200,000	$400,000
3-Bin (FOGO Feasibility Study)	OP			$50,000		$50,000
Resident Worm Farming and Composting Subsidy Scheme	OP	$15,000	$15,000	$15,000	$75,000	$120,000
Schools waste education	OP	$20,000	$20,000	$20,000	$100,000	$160,000
Upgrade waste education display trailer	CW	$2,000	$2,000	$2,000	$10,000	$16,000
Community waste education seminars, workshops and events	OP	$35,000	$35,000	$35,000	$175,000	$280,000
Coordinate & expand community and school program at HWRP	OP	$7,000	$7,000	$7,000	$35,000	$56,000
Rollout recycling and education to the City's out-centres	OP	$10,000	$10,000	$10,000	$50,000	$80,000
Design & install interpretive signage & education resources	CW			$50,000		$50,000
OBJECTIVE 2 : **Recover** – Recover More Value and Resources from Waste						
Scope on the Green/Junk waste recovery	OP	$75,000	$80,000	$90,000	$450,000	$695,000
Implement Public Place Recycling	CW	$50,000	$60,000	$60,000	$300,000	$470,000
Continue waste audits beyond 3rd bin rollout	OP	$315,000	$250,000	$200,000	$150,000	$915,000
Separate and shred green waste and timber packaging	OP	$150,000	$150,000	$150,000	$750,000	$1,200,000
Maintain Product Stewardships E-Waste & Paint	OP	$5,000	$5,000	$5,000	$5,000	$20,000
Support and maintain a HHW Program	CW	$30,000	$30,000	$30,000	$150,000	$240,000
Design & doc - Community Recycling Centre and Waste Ed Centre	CW	$306,000				$306,000
Support upgrades to weighbridge software	OP	$15,000	$15,000	$15,000	$75,000	$120,000
Commercial food waste project	OP	$18,000				
OBJECTIVE 3 : **Protect** – Protect the Environment by Managing Waste Responsibly						
Budget for fleet growth	CW		$800,000		$1,730,000	$2,530,000
Continued attendance at National & International Conferences	OP	$10,000	$10,000	$10,000	$50,000	$80,000
Employ FT operational staff to match program delivery	OP		$200,000		$500,000	$700,000

Post closure management Cells 1-7	CW					$0
Develop leased land at HWRP for Cockburn Waste Precinct	CW					
Construct a Community Recycling & Waste ED Centre off Dalison Ave.	CW	$3,000,000	$13,000,000			$16,000,000
Operate the Community drop off facility	CW					$0
Gradual pollution event - excess on $5mil insurance cover	CW	$10,000	$10,000	$10,000	$50,000	$80,000
Waste Audit - Organics, C&D and C&I	OP					$0
Final cover to both landfill areas	CW					$0
Final Capping of Northern Landfill-170,500m2 x @$76/m2	CW					$0
Final Capping of Southern Landfill-94,600m2 x @ $76/m2	CW					$0
Install passive gas extraction systems to both landfills	CW					$0
Invest on onsite renewable energy generation	CW					$0
Options of Wind Power Generation HWRP	OP				$10,000	$10,000
Purchase carbon credits when threshold is tripped	OP					$0
Manage and reduce Leachate volumes	OP	$150,000	$150,000	$50,000	$250,000	$600,000
Install Leachate evaporation plant	CW					$0
Ongoing groundwater monitoring program	OP	$34,000	$36,000	$38,000	$200,000	$308,000
Relining of Leachate Ponds A and B	CW			$175,000	$202,000	$377,000
Maintain adequate mobile litter fencing	CW	$40,000				$40,000
CW total	CW	$3,438,000	$13,902,000	$527,000	$2,642,000	$20,509,000
OP Total	OP	$939,000	$1,213,000	$875,000	$3,775,000	$6,784,000
Total	**Total**	**$4,377,000**	**$15,115,000**	**$1,402,000**	**$6,417,000**	**$27,293,000**

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