

Waste Management and Resource Recovery Strategy 2025 - 2035

City of Karratha



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Acknowledgements

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ASK also gratefully acknowledge the cooperation of the City of Karratha staff that provided information and assistance in the development of this report.

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EXECUTIVE SUMMARY

The City of Karratha Waste Management and Resource Recovery Strategy 2025–2035 provides a comprehensive roadmap for transitioning the City toward a more sustainable, efficient, and inclusive waste management system over the next decade.

Developed by ASK Waste Management, the Strategy aligns with the Waste Avoidance and Resource Recovery Strategy 2030 (WARR Strategy) and addresses the unique challenges of the Pilbara region. It aims to prioritise resource recovery, implement better practices, and enhance community engagement to address the environmental effects of waste and encourage a culture of responsibility.

Regional Context

The City of Karratha spans over 15,000 square kilometres and includes the towns of Karratha, Dampier, Wickham, Roebourne, and Point Samson, as well as several Aboriginal communities. The region's economy is driven by mining, construction, and logistics, resulting in high per capita waste generation and complex waste streams. Geographic isolation, extreme climate conditions, and limited access to recycling infrastructure present significant challenges to sustainable waste management.

Waste services must also meet the needs of a culturally diverse population, including a large Aboriginal community and transient workforce. Diversity in cultural practices, housing arrangements, and service accessibility contributes to inconsistent waste generation patterns, variable contamination rates, and service gaps, particularly in remote areas. These factors also influence levels of knowledge and awareness of correct waste practices across the community, requiring tailored education and engagement to ensure equitable access and participation.

Performance

Due to regional isolation and associated challenges, the City's waste service performance remains below the aspirational targets set by the WARR Strategy 2030.

Currently, only 9% of total waste is diverted from landfill across all streams. Municipal solid waste (MSW) achieves a higher recovery rate of 26%, though still well below the target of 60–70%. Additionally, the City generates 2.76 tonnes of waste per capita, approximately 300 kg more than state

and national averages, largely driven by industrial activity in the mining and logistics sectors.

While the City is not currently mandated to meet these targets, improving performance is essential to align with state and national policy directions, secure future funding, and reduce environmental impacts.

Community Consultation

To inform the Strategy, ASK conducted a multi-method community consultation process between February and April 2025. This included an online survey, stakeholder interviews, and place-based workshops. Key community insights included:

- Strong support for improved waste management
- Mixed views on recycling access
- Low confidence in recycling knowledge
- High satisfaction for the Weekly kerbside collection, the 7 Mile Tip Shop, and drop-off facilities
- Underutilisation of hazardous waste services
- Education and engagement gaps
- Top priorities for future initiatives including reducing landfill, improving recycling rates, and exploring composting options

Industry stakeholders identified systemic barriers to resource recovery, including high transport costs to distant processing facilities, lack of local end markets, problematic waste streams, regulatory gaps and workforce shortages. They strongly supported regional collaboration to improve infrastructure investment and economies of scale and noted a disconnect between decarbonisation efforts and recycling priorities.

Strategic Goals and Actions (2025 – 2035)

The Strategy is structured around eight strategic goals, each supported by targeted objectives and actions.

1. Waste Infrastructure and Operations

Ensure infrastructure is environmentally responsible, compliant, and aligned with better practice standards. Key actions include: Resolve legacy stockpiles, Develop a masterplan for the Seven Mile Waste Disposal Facility, Explore methane capture and waste-to-energy feasibility.

2. Waste Services

EXECUTIVE SUMMARY

Deliver inclusive, efficient services that support waste avoidance and recovery. Key actions include: Improve kerbside recycling and bin standardisation, Assess feasibility of organics recovery and FOGO services, Enhance services in remote and Aboriginal communities.

3. Policies and Procurement

Strengthen governance and planning to enable strategic waste outcomes. Key actions include: Adopt waste-specific local laws, Integrate waste into strategic and emissions reduction planning.

4. Data, Information and Economics

Support evidence-based decision-making and financial sustainability. Key actions include: Conduct regular kerbside audits, Calculate whole-of-life costs for landfill operations.

5. Litter and Illegal Dumping

Reduce illegal dumping and littering across the City. Key actions include: Develop a coordinated litter and dumping strategy, Improve surveillance and community engagement.

6. Behaviour Change Programs

Empower the community to reduce waste through education and engagement. Key actions include: Deliver multi-year education campaigns, Tailor messaging for transient and culturally diverse populations.

7. Aboriginal Communities

Ensure services and infrastructure meet the needs of Aboriginal communities. Key actions include: Improve access and equity through formal partnerships, Align with Closing the Gap targets.

8. Regional Efficiencies

Advance collaboration to improve waste outcomes across the Pilbara. Key actions include: Establish a regional officers advisory group, Facilitate a regional waste management alliance.

Implementation and Monitoring

The Strategy sets out a clear, phased approach to implementation over the next decade, with actions prioritised as short-term (2025–2027), medium-term (2027–2030), and long-term (beyond 2030). Successful delivery will require integration into the City's Corporate Business Plan, Long-Term Financial Plan, and annual budgets, ensuring alignment with broader strategic and financial priorities.

Key principles include:

- Phased delivery of actions based on priority and complexity.
- Adequate resourcing, including project management, technical expertise, and communications support.
- Collaboration and partnerships with regional stakeholders, industry, and the community to leverage shared resources and expertise.

Monitoring will be embedded in the City's strategic planning and reporting frameworks, with regular reviews to ensure the Strategy remains responsive to emerging waste issues, legislative changes, and community needs.

1 INTRODUCTION

The City has engaged ASK Waste Management to develop its *Waste Management and Resource Recovery Strategy 2025 – 2035* (WMRRS or the Strategy). The Strategy is developed in alignment with the State Government's *Waste Avoidance and Resource Recovery Strategy 2030* (WARR Strategy) and the Department of Water and Environmental Regulation's (DWER) *Waste Plan Resource Kit*, as well as relevant City strategic documents.

The primary goal of the project is to establish a framework for effective and sustainable waste management within the City over the next decade. The strategy aims to prioritise resource recovery, implement better practices, and enhance community engagement to address the environmental effects of waste and encourage a culture of responsibility.

1.1 REGIONAL CONTEXT

The City of Karratha is located in the Pilbara region of north-western Western Australia, approximately 1,500 kilometres north of Perth. Covering an area of 15,238 square kilometres, it includes the towns of Karratha, Dampier, Wickham, Roebourne, and Point Samson, and the Aboriginal communities of Mingullatharndo, Weymul and Cheeditha.

As of 2024, the City had an estimated population of 24,716, with a median age of 32, reflecting a predominantly young, working-age demographic. Approximately 11.7% of the population identifies as Aboriginal and/or Torres Strait Islander, contributing to the City's rich cultural diversity. Economic output is approximately \$22.20 billion annually, driven by the mining, construction, and logistics sectors. The region has a high labour force participation rate, with 14,910 employed residents and a low unemployment rate of 2.0%. The median income of \$79,908 significantly exceeds the national average, largely due to the strength of the resource sector (City of Karratha, n.d).

Karratha serves as a logistics hub for the Pilbara's resource sector, with the Seven Mile Waste Disposal Facility playing a central role in supporting industrial operations. These industries generate a wide range of waste streams, contributing to significantly elevated per capita waste generation compared to metropolitan areas. The scale and intensity of industrial activity place considerable pressure on local waste services and infrastructure. Environmental conditions, including extreme heat and seasonal weather events, further complicate service delivery.

The City of Karratha faces complex waste management challenges driven by its geographic isolation, high industrial activity, and limited access to recycling infrastructure. Transporting waste and recyclables over long distances to metropolitan processing facilities is often economically unviable, undermining the financial sustainability of recycling programs and contributing to low recovery rates. These challenges are particularly pronounced in remote communities, as they lack local sorting and processing options, resulting in higher landfill reliance, an outcome inconsistent with federal and state policy objectives.

Furthermore, the lack of viable end markets for many recyclable material streams means that even when materials are collected, they may not be reprocessed into new products, further undermining recovery rates. While product stewardship programs exist for certain waste streams, many exclude collection and transport costs, shifting the financial burden to local governments and reducing the equity and effectiveness of these schemes.

The City's substantial transient workforce, particularly associated with fly-in-fly-out operations, can lead to inconsistent waste generation patterns and make it difficult to deliver consistent education and engagement initiatives, impacting participation and contamination rates. Workforce shortages also pose a problem, as it can be difficult to recruit and retain qualified staff for waste management roles in remote areas, particularly due to the hot and harsh working conditions that characterise the Pilbara region.

Standardised service approaches commonly used in local government often fail to meet the needs of culturally diverse communities. Several Aboriginal communities within the City of Karratha are located outside gazetted townsites, where access to standard waste services is often limited or inconsistent. These gaps highlight the importance of aligning waste strategies with the Federal Government's Closing the Gap Target 9, which seeks equal access to essential infrastructure for Aboriginal and Torres Strait Islander peoples.

Recognising and addressing these issues will be essential to developing a resilient and sustainable waste strategy for the City.

2 DRIVERS AND INFLUENCES

This section outlines the drivers and influences that are expected to impact the City's waste outcomes over the next decade.

2.1 GLOBAL INFLUENCES

Australia's waste policy is shaped by global trends, agreements, and disruptions that have redefined how waste is managed and valued. These influences have driven a shift from traditional disposal models toward a more circular, sustainable, and self-sufficient approach.

2.1.1 UNITED NATIONS SUSTAINABLE DEVELOPMENT GOALS (UNSDGS)

As a signatory to the UNSDGs, Australia aligns its waste strategy with goals such as *SDG 12: Responsible Consumption and Production*. This supports national targets for waste minimisation, recycling, and circular economy practices.

2.1.2 INTERNATIONAL ENVIRONMENTAL AGREEMENTS

Australia is a signatory to key global agreements that shape waste policy, including the 'Basal Convention', which regulates hazardous waste movements and the 'Paris Agreement', which influences waste policy through climate action, particularly in reducing landfill emissions.

2.1.3 INTERNATIONAL WASTE TRADE DISRUPTIONS

The 2018 Chinese waste import ban exposed Australia's reliance on overseas recycling markets. In response, Australia banned the export of unprocessed waste, prompting investment in domestic recycling infrastructure. This shift has placed greater pressure on regional areas to manage waste locally, despite limited infrastructure and economies of scale.

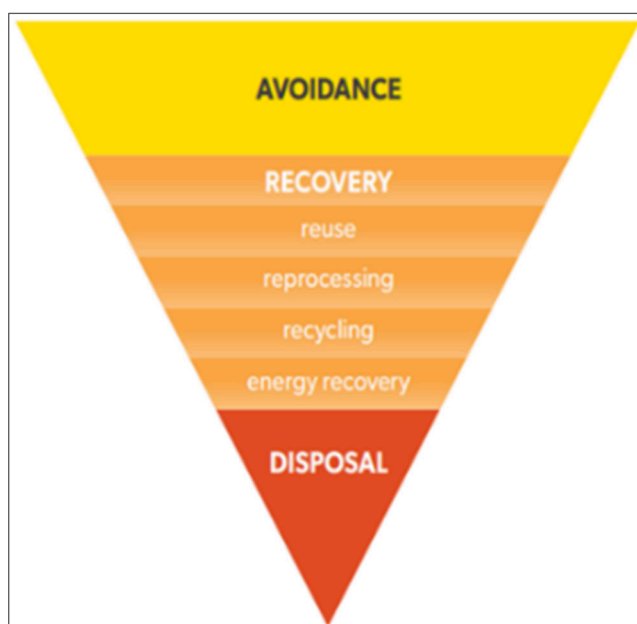
2.1.4 GLOBAL PUBLIC AND MARKET PRESSURE

Rising global concern over plastic pollution, marine debris, and environmental degradation has led to stronger public expectations and market shifts. This has accelerated the development of product stewardship schemes, single-use plastic bans, and the development of extended producer responsibility frameworks.

2.1.5 THE WASTE HIERARCHY

The waste hierarchy is a globally recognised framework that ranks waste management options by environmental preference, starting with avoidance and ending with disposal (**Figure 2.2**). Embedded in Australia's waste policy, it guides investment, infrastructure planning, and education, supporting the shift away from landfill toward more sustainable resource recovery practices.

Figure 2.1: Waste hierarchy



2.1.6 CIRCULAR ECONOMY MOMENTUM

Global momentum toward a circular economy, where materials are reused, recycled, and kept in circulation, has influenced Australia's policy direction. A circular economy refers to the flow of materials and energy – it moves away from the linear 'take, make, use and dispose' model to one that keeps materials and energy circulating in the economy for as long as possible. The key differences between the linear and circular economy and how this approach involves all sectors and consumers, rather than relying on the waste sector to recycle and recover what is possible at 'the end of the pipe', are provided in **Figure 2.2**.

Figure 2.2: Circular economy vs current approach (WARR Strategy 2030)

Current approach	Circular economy
<p>A linear flow diagram showing a single path from 'take' to 'make' to 'use' to 'dispose'.</p>	<p>A circular flow diagram showing a continuous loop of materials. The cycle includes: new materials, design, production/remanufacturing, distribution, consumption/use/repair/maintain, collection, and recycling, which feeds back into new materials.</p>
Linear flow of materials – 'take, make, use and dispose' model.	Circular flow of materials – materials sorted and retained in the economy for as long as possible.
Limited use of renewable materials and energy.	Preference for renewable materials and energy.
Significant volumes of materials disposed of and lost to the economy. Loss of embodied materials, energy and water.	Materials recovered as high up the waste hierarchy as possible. Embodied materials, energy and water retained in the economy. Organic materials re-enter and regenerate the environment safely (for example, as compost).
Materials managed locally and globally.	Preference to manage materials locally to reduce the costs and impacts of transport, and to provide local employment and investment opportunities.
Economic value of materials, employment and investment not fully accounted for.	Economic value of materials, employment and investment accounted for.
Limited focus on life cycle thinking.	Products designed and manufactured to minimise environmental impact through whole of life.

2.2 LEGISLATIVE DRIVERS

Australia's waste policy is shaped by a combination of global influences, national frameworks, and state legislation, all of which guide the transition toward a circular economy and improved waste outcomes. These drivers are described in the sections below.

2.2.1 NATIONAL

Australia's national waste policy is guided by the *National Waste Policy (2018)* and the *National Waste Policy Action Plan 2024*, released by the Australian Government through the Department of Climate Change, Energy, the Environment and Water (DCCEEW). These frameworks establish shared targets and responsibilities across all levels of government, industry, and the community. Key national targets include:

- Reduce total waste generated by 10% per person by 2030.
- Achieve an 80% average resource recovery rate from all waste streams.
- Halve the amount of organic waste sent to landfill.
- Phase out problematic and unnecessary plastics.
- Increase the use of recycled content in government and industry procurement.
- Improve national waste data collection and transparency.

These targets are supported by major national initiatives such as:

- The *Recycling Modernisation Fund*, which co-invests in new recycling infrastructure.
- The *COAG Waste Export Ban* on the export of unprocessed waste materials (plastic, paper, glass, tyres).
- The *National Food Waste Strategy (2017)*, released by the Department of the Environment and Energy, which aims to halve food waste by 2030.
- The *National Circular Economy Framework (2024)*, developed by DCCEEW, which serves as a blueprint for Australia's transition to a circular economy, setting out a national ambition to double Australia's circularity by 2035.

2.2.2 STATE

At the state level, Western Australia's waste policy is guided by the *Waste Avoidance and Resource Recovery Act 2007* (WARR Act) which provides the legislative foundation for waste management, resource recovery, and the operation of the Waste Authority. This Act underpins the *Waste Avoidance and Resource Recovery Strategy 2030*, developed by the Waste Authority and the Government of Western Australia which sets the strategic direction for transitioning to a low-waste, circular economy (see **Section 2.2.3**).

This strategic direction is supported by several key initiatives including:

- The *Waste Authority Business and Action Plan*, which outlines the specific actions, timelines, lead responsibilities and collaborations that will be progressed to achieve the waste strategy's objectives.
- The *State Waste Infrastructure Plan*, which provides a long-term framework for planning and developing waste infrastructure across WA.
- The *Plan for Plastics*, which phases out single-use plastics through regulation and education.
- The *Container Deposit Scheme (Containers for Change)*, which incentivises recycling through a refund system.

- The Waste Levy Framework, designed to encourage landfill diversion and support investment in recovery initiatives.
- The Local Government Waste Planning Requirements, which mandate the development of waste plans to support strategic alignment with the Waste Strategy 2030 (see **section 2.2.3**).

Waste activities are also regulated under the Environmental Protection Act 1986, which governs pollution control and licensing of facilities such as landfills. In combination with the WARR Act, it ensures waste services meet environmental standards and support broader sustainability goals.

Together, these instruments guide Western Australia's transition toward more sustainable waste practices and align with national and global policy directions.

Figure 2.3: Western Australia waste policy documents



2.2.3 WARR STRATEGY 2030

The *Waste Avoidance and Resource Recovery (WARR) Strategy 2030* provides the strategic framework for transitioning the state to a low-waste, circular economy. It is built around three core objectives:

- **Avoid** – Generate less waste
- **Recover** – Recover more value and resources from waste
- **Protect** – Protect the environment by managing waste responsibly

The strategy is supported by an action plan and underpinned by principles of shared responsibility, better practice, continuous improvement, and data-driven decision-making. Local governments are key to achieving the WARR Strategy's goals, particularly in managing municipal solid waste (MSW). Under the current strategy, the relevant targets include:

- 10% reduction in waste generation per capita by 2030.
- 70% material recovery rate for MSW by 2030.
- No more than 15% of MSW sent to landfill by 2030.
- Implementation of local government waste plans aligned with the WARR Strategy.

To support the Waste Strategy, local governments are required under section 40(4) of the *Waste Avoidance and Resource Recovery Act 2007* to prepare waste plans that demonstrate alignment with state objectives. This applies to all local governments in the Perth and Peel regions, as well as major regional centres, and aims to ensure consistent and coordinated waste service delivery across Western Australia.

The draft updates to the WARR Strategy 2025–2030, titled '*Beyond Waste 2030*', builds on the existing framework and introduce updated targets and five new strategic priorities. Updated MSW Targets include:

- 10% reduction in MSW generation per capita.
- 70% recycling rate in Perth and Peel.
- 60% recycling rate in major regional centres.

- 50% reduction in organic waste to landfill (from 2019–20 levels).
- No more than 15% of waste generated in Perth and Peel landfilled.
- Continued rollout of FOGO (Food Organics and Garden Organics) services in Perth, Peel, and major regional centres.
- Adoption of the 2030 litter reduction targets.
- Adoption of national circular economy metrics to measure avoidance and circularity.

The updated strategy also introduces five new strategic priorities: improving outcomes for regional and Aboriginal communities, increasing focus on waste avoidance, enhancing the management of high-impact materials, unlocking the economic potential of recycling, and strengthening emergency waste management and sector resilience. These updates reflect a stronger emphasis on regional equity, climate resilience, and economic opportunity, and will be supported by a new Action Plan. It is anticipated that the revised draft Waste Strategy and Action Plan will be released in the first quarter of the 2025-26 financial year, for a 28-day consultation period.

It is noted that the City of Karratha is not currently classified as a major regional centre under the definitions used in the *Waste Avoidance and Resource Recovery Strategy 2030* or its draft 2025 – 2030 update. As such, the City is not required to meet the specific material recovery targets set for Perth, Peel, or major regional centres, nor is it obligated to submit a local government waste plan to the Department of Water and Environmental Regulation (DWER).

While not mandatory for the City of Karratha at this stage, aligning its waste services and activities with the strategic outcomes and priorities of the WARR Strategy remains important. Doing so supports broader state objectives, positions the City for future funding and policy alignment, and ensures that local waste management practices contribute to long-term environmental and economic sustainability.

3 BASELINE WASTE DATA

3.1 POPULATION DATA

The City of Karratha encompasses the Karratha City urban centre and the town sites of Cossack, Dampier, Point Samson, Roebourne and Wickham. The population of the City of Karratha is shown in **Table 3.1**. The increase in population associated with tourism visitor nights has also been accounted for.

Table 3.1: City population data (Remplan, 2025)

Location	Permanent*	Tourism equivalent**	Total
Karratha (LGA)	24,716	3,803	28,519

*Population 2024: Remplan Data from City of Karratha

** Tourist data taken from Tourism WA, LGA Visitor Fact Sheet May 2023 – three-year average. Visitor nights divided by 365 to allow tourism numbers to be incorporated into population statistics.

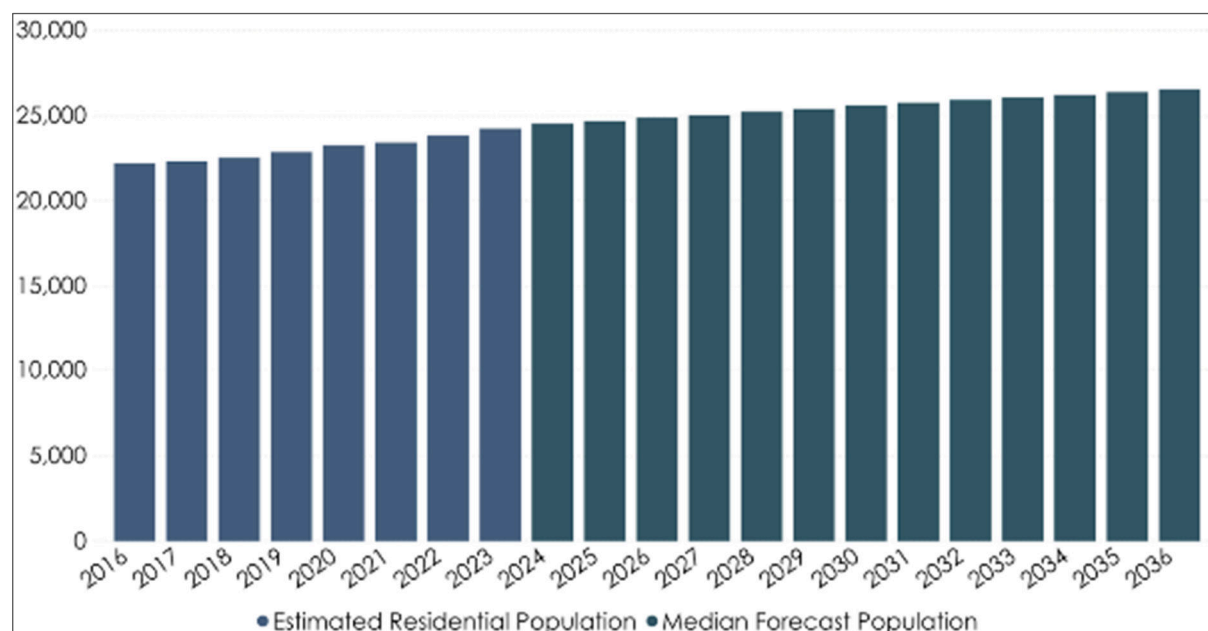
Population forecasts for 2025, based on Remplan data provided by the City, are presented for each locality within **Table 3.2**.

Table 3.2: City and town sites population (Remplan 2025 forecasts, 2025)

Area	Baynton	Dampier	Karratha (incl industrial)	Point Samson	Roebourne	Wickham	Stove Hill & Rural
Pop	4,992	1,461	14,213	255	1,060	2,218	710

According to the *Western Australia Tomorrow 12 Population Forecasts*, the population of the City of Karratha is projected to remain relatively stable, with an anticipated increase of 9.4% from 2023 to 2036 (Department of Planning, Lands and Heritage, 2025) (**Figure 3.1**).

Figure 3.1: Population growth and projections for Karratha (2016-2036)



3.1.1 HOUSEHOLDS

The ABS Census data shows that single-unit dwellings (SUDs) make up the vast majority of dwellings in the LGA, with the number of private dwellings in the area increasing from 6,325 in 2011 to 8,029 in 2021 (ABS, 2021).

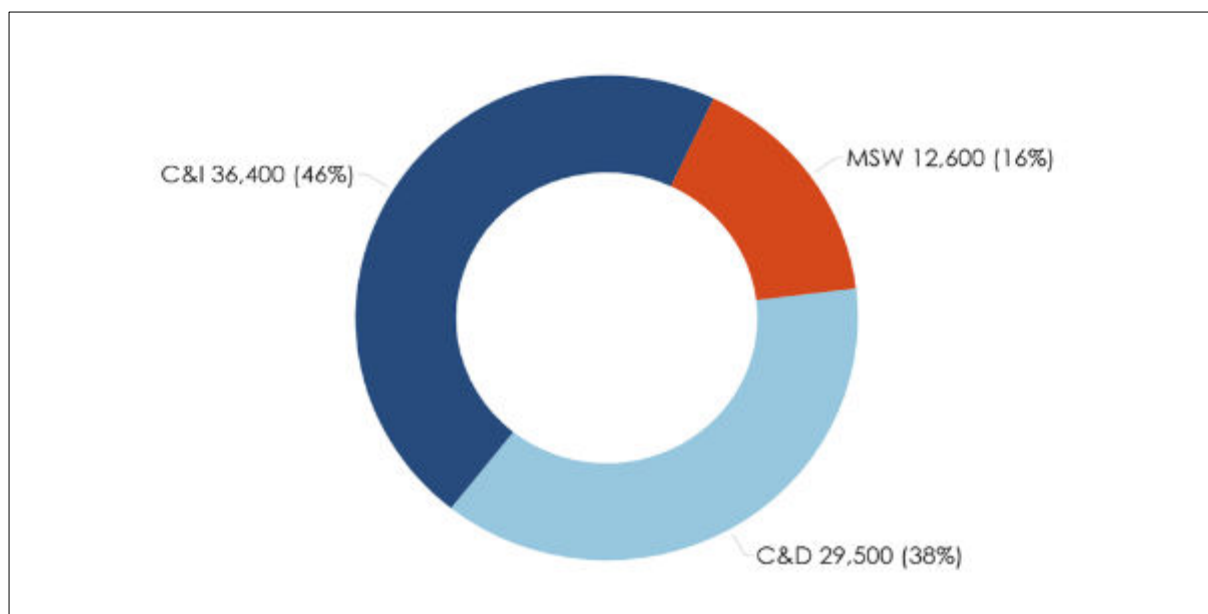
3.2 SOLID WASTE QUANTITIES

Waste data has been compiled into the following sector source categories:

- **Municipal Solid Waste (MSW)** – is primarily waste collected from households through kerbside waste and recycling collections. It includes biodegradable material, recyclable materials such as bottles, paper, cardboard and aluminium cans, and a wide range of non-degradable material including paint, appliances, old furniture and household lighting (National Waste Report, 2010). Municipal waste may include waste from small commercial premises or other similar activities where this is collected as part of the standard local government service (Waste Authority, 2019a).
- **Commercial and Industrial Waste (C&I)** – refers to waste generated by institutions and businesses, such as schools, restaurants, offices, government agencies and facilities, retail and wholesale businesses, and manufacturing industries. (Waste Authority, 2024b).
- **Construction and Demolition Waste (C&D)** – refers to waste generated from demolition, building activities, road and rail construction, maintenance, and land excavation related to construction (Waste Authority, 2024b).

The average annual quantity of solid waste that was managed by the City between the 2021/22 financial year and 2023/24 is 78,500 tonnes. This does not include liquid waste or any wastes that were generated and managed directly by industry with their own disposal sites. Over the three years the MSW, C&I and C&D waste streams comprised 16%, 46% and 38% respectively of the total waste quantities. The tonnages and breakdown by sector source is shown graphically in **Figure 3.2**.

Figure 3.2: Average percentage breakdown by sector source (2021/22 – 2023/24)



3.2.1 MUNICIPAL SOLID WASTE

Waste generated from the domestic sector of the community comprises, on average, approximately 16% of the total waste produced within the City as shown in **Figure 3.2**. The majority

of this waste is sourced from the City's kerbside waste and recycling collection services (59%), followed by waste dropped-off at the 7 Mile Waste Disposal Facility (32%), with a small additional amount coming from Wickham Transfer Station and from the pre-cyclone green waste collection (**Figure 3.3**). Kerbside residual waste constitutes over half of the MSW stream (52%), followed by dropped off mixed domestic waste, green waste, and kerbside recycling (22%, 10% and 7% respectively) (**Figure 3.4**).

Figure 3.3: Composition of MSW by source (2021/22 – 2023/24)

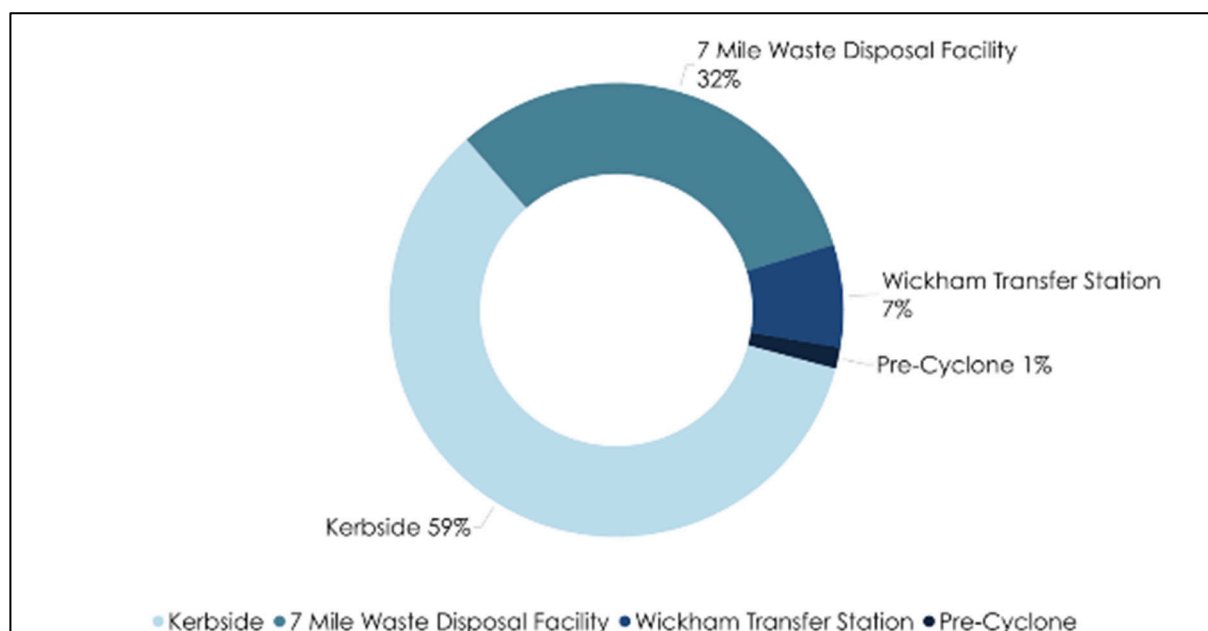
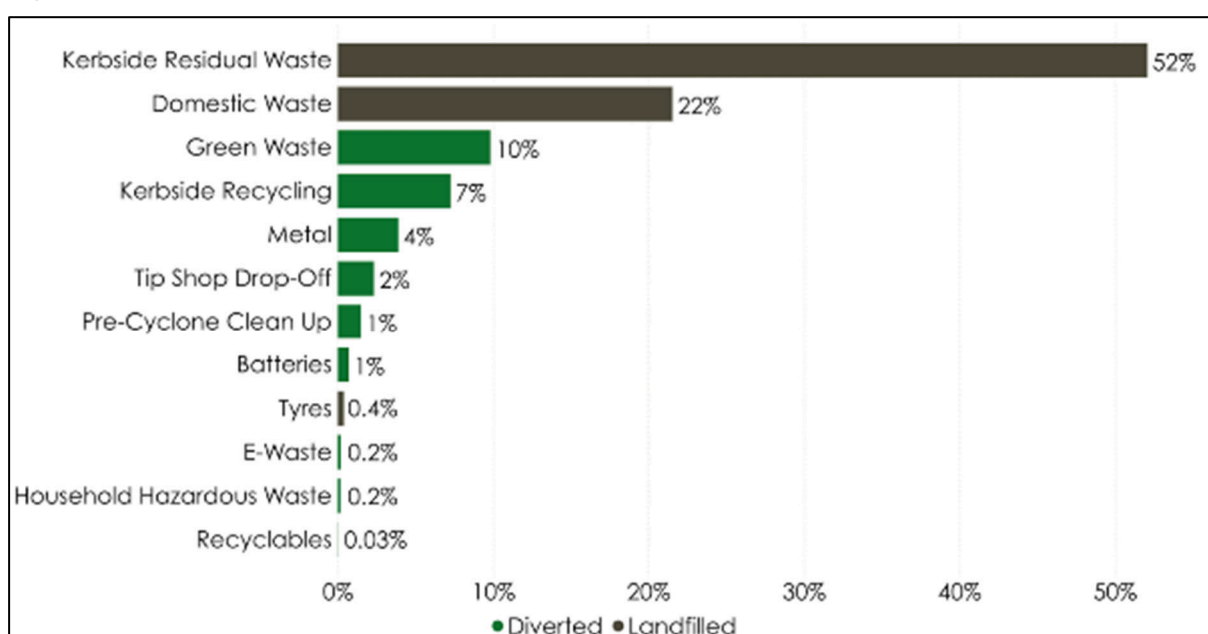


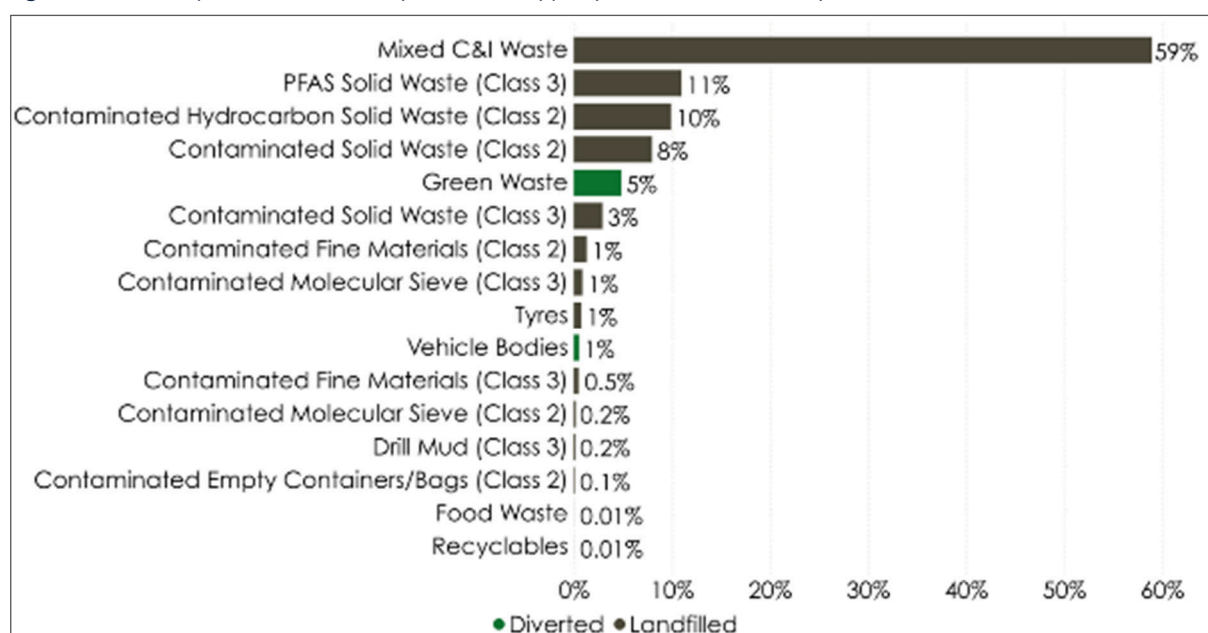
Figure 3.4: Composition of MSW by material type (2021/22 – 2023/24)



3.2.2 C&I WASTE

Waste generated from the commercial and industrial (C&I) sector comprises approximately 46% of the total waste handled by the City. **Figure 3.5** provides a breakdown of the City's average annual C&I waste stream composition by material type (2021/22 – 2023/24).

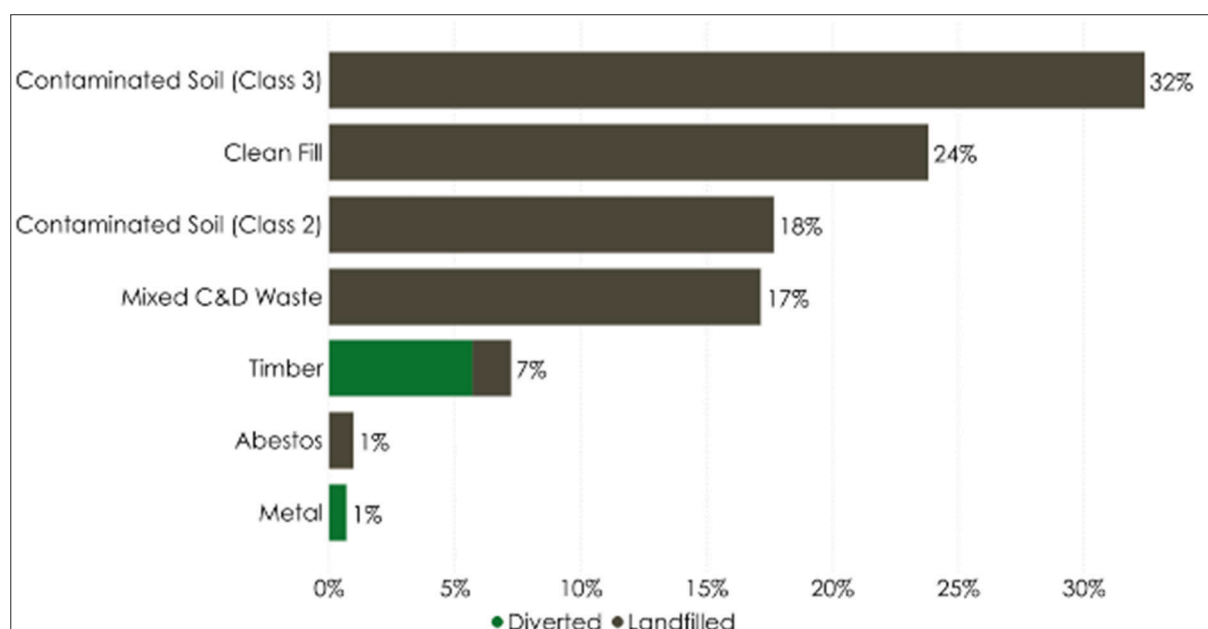
Figure 3.5: Composition of C&I by material type (2021/22 – 2023/24)



3.2.3 C&D WASTE

Waste generated from the construction and demolition sector (C&D) comprises approximately 38% of the total waste handled by the City. **Figure 3.6** provides a breakdown of the City's average annual C&D waste stream composition by material type (2021/22 – 2023/24).

Figure 3.6: Composition of C&D by material type (2021/22 – 2023/24)



3.3 WASTE GENERATION RATES

The City's waste generation rates have been benchmarked against the state's performance outcomes as listed in the *Waste Authority Annual Report 2023-24* and the Australian rates from the *National Waste and Resource Recovery Reporting* (Waste Authority, 2024a and DCCEEW,

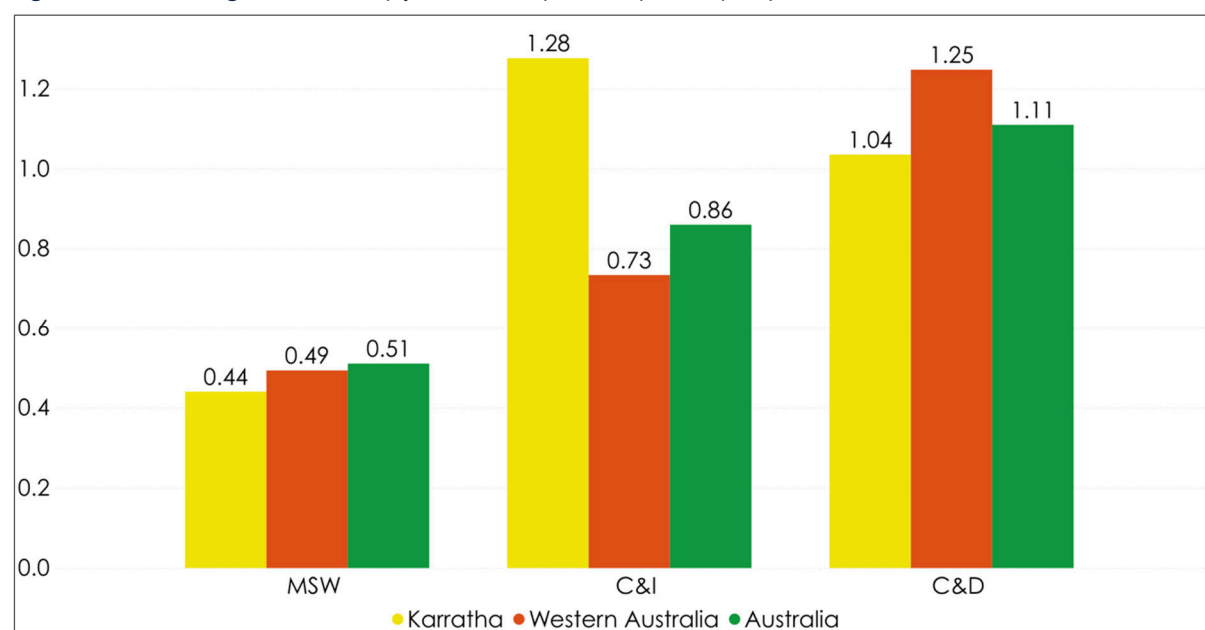
2024)(Table 3.3 and Figure 3.7). These rates have been calculated using the three-year average waste data from the City, divided by the LGA population, including visitor numbers.

The benchmarking indicates that the total waste generated per capita in the City is approximately 300kg above the state and national averages at 2.76 tonnes per capita. MSW and C&D generation is slightly below both WA and Australian averages. The rate of C&I waste generated is significantly higher than both WA and Australian averages, due to the significant mining and resources operations within the area.

Table 3.3: Waste generation values of the City compared to state and national averages (2021/22 – 2023/24 three-year average)

Waste stream	City of Karratha tonnes per capita	City of Karratha % breakdown	WA tonnes per capita	WA % breakdown	Australia tonnes per capita	Australia % breakdown
MSW	0.44	16%	0.49	20%	0.51	20%
C&I	1.28	46%	0.73	29%	0.86	35%
C&D	1.04	38%	1.25	51%	1.11	45%
Total	2.76	100%	2.47	100%	2.48	100%

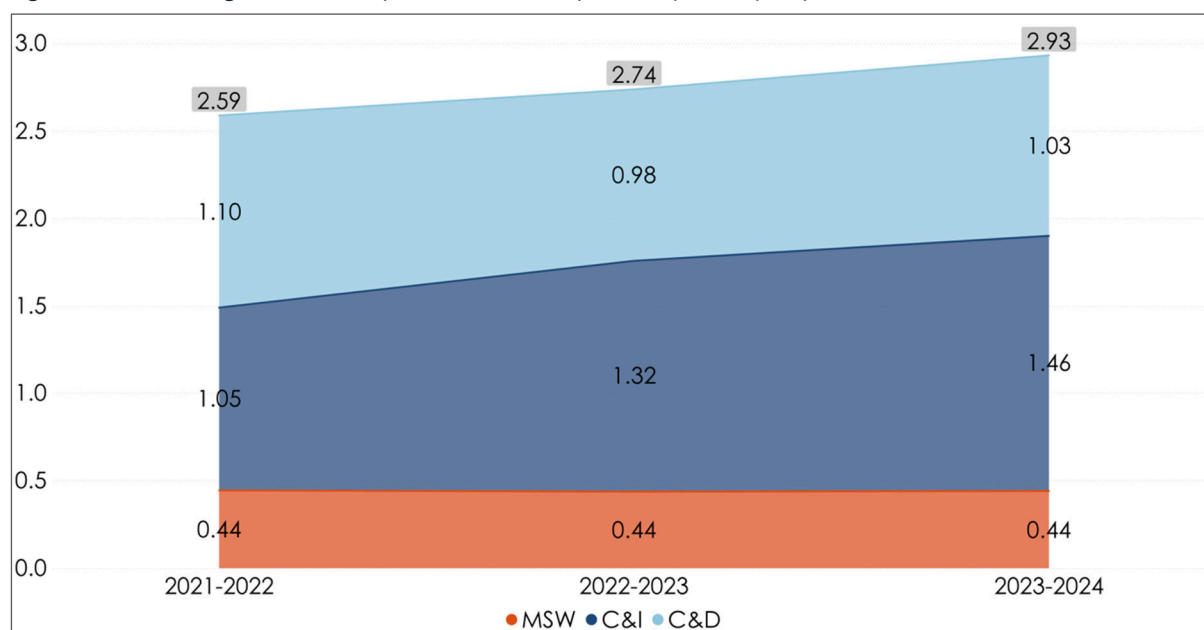
Figure 3.7: Waste generation by jurisdiction (tonnes per capita)¹



Over the last three years, per capita waste generation quantities varied by sector. MSW remains steady at around 0.44 tonnes, C&D waste decreased by 6%, while C&I waste increased 39% from 1.05 to 1.46 tonnes per capita, as shown in Figure 3.8.

¹ Karratha per capita rates based on a three year average (2021/22 – 2023/24), Western Australia and Australia rates are sourced from the National WARR Reporting 2022/23 (DCCEE, 2024)

Figure 3.8: Waste generation by sector source (tonnes per capita)

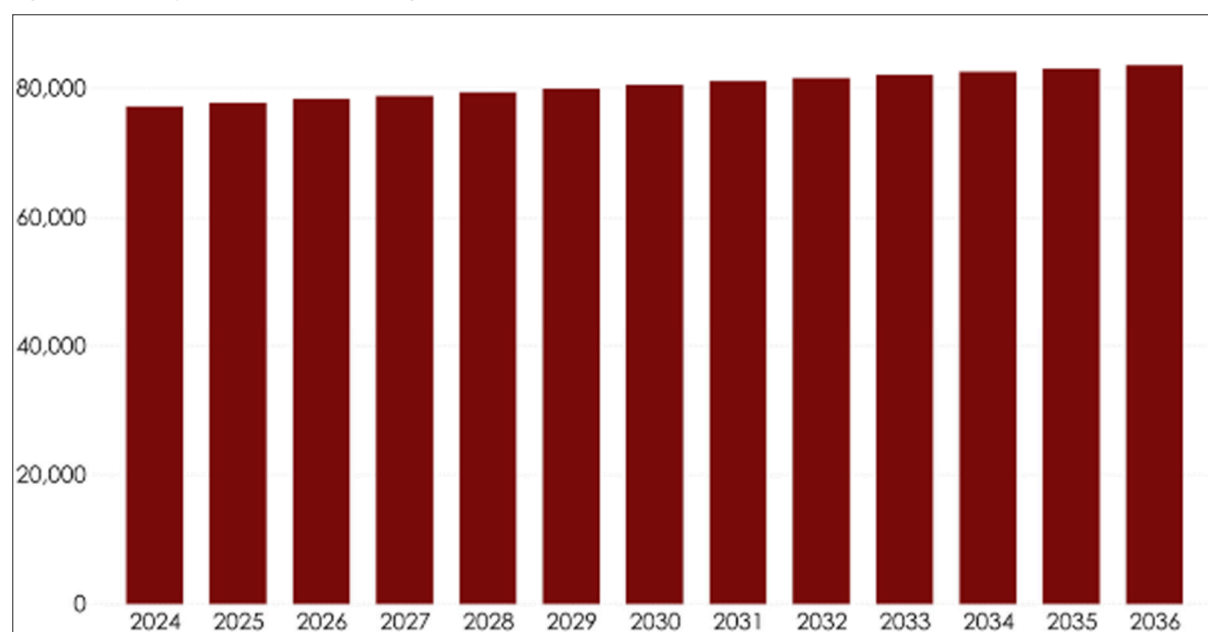


3.3.1 WASTE GENERATION PROJECTIONS

Waste generation projections have been made for the next 10 years based on the population growth data provided by the *Western Australia Tomorrow 12 Population Forecasts* (Department of Planning, Lands and Heritage, 2025). A median growth scenario has been adopted, and it has been assumed that waste generation per capita will remain constant.

The projections show approximately 84,900 tonnes per annum of waste being generated by 2036. This is an increase of 8% or 6,400 tonnes from the 78,500 tonnes per annum 3- year average for 2021/22 to 2023/24. **Figure 3.9** provides the total annual waste generation projection for the next 10 years until 2036.

Figure 3.9: Project annual waste generation by year (tonnes)



3.4 RESOURCE RECOVERY

The City provides a variety of recycling options for the community as outlined in **Section 4**. The average amount of waste diverted from landfill in the 2021/22 to 2023/24 financial years was 7,100 tonnes across all waste streams, equating to an overall recycling rate of 9%. As shown in **Table 3.4**, MSW recycling performance is comparatively higher at 26%, while the C&I and C&D sectors have recovery rates of 5% and 6%, respectively.

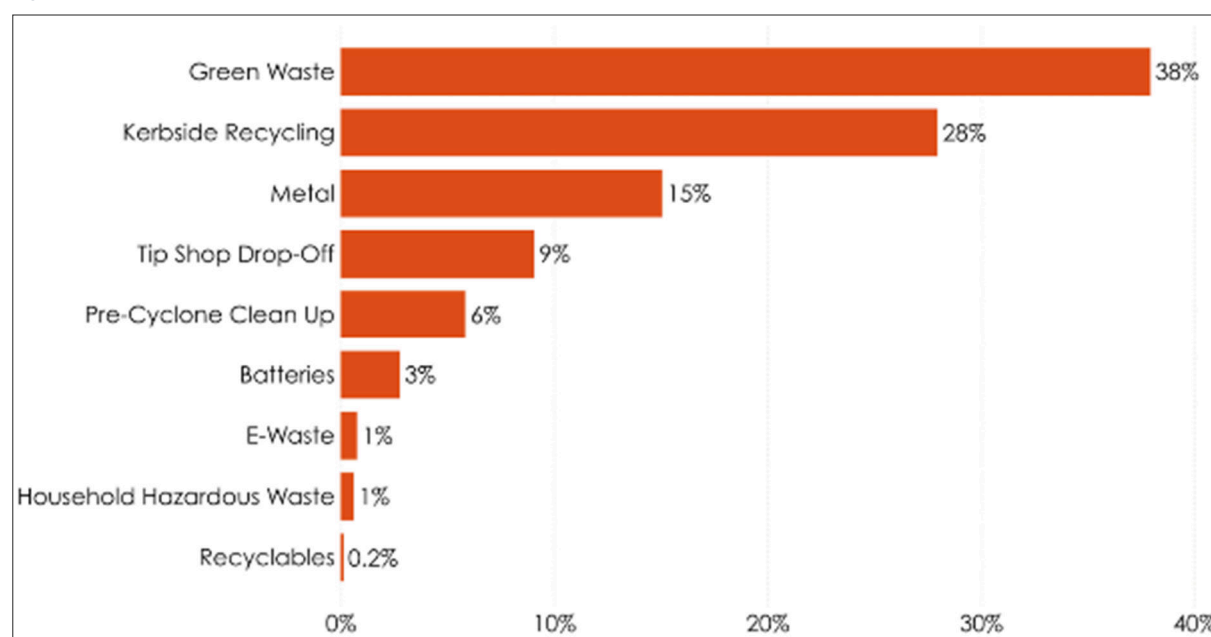
Table 3.4: Average tonnes, percentage and per capita values of waste recovered (2021/22 – 2023/24)

	MSW	C&I	C&D	Total
Average tonnes of waste recovered	3,300	1,900	1,900	7,100
Average percentage diverted from landfill	26%	5%	6%	9%
Average per capita diversion from landfill (kg/person)	116kg	66kg	66kg	248kg

3.4.1 MSW RECOVERY

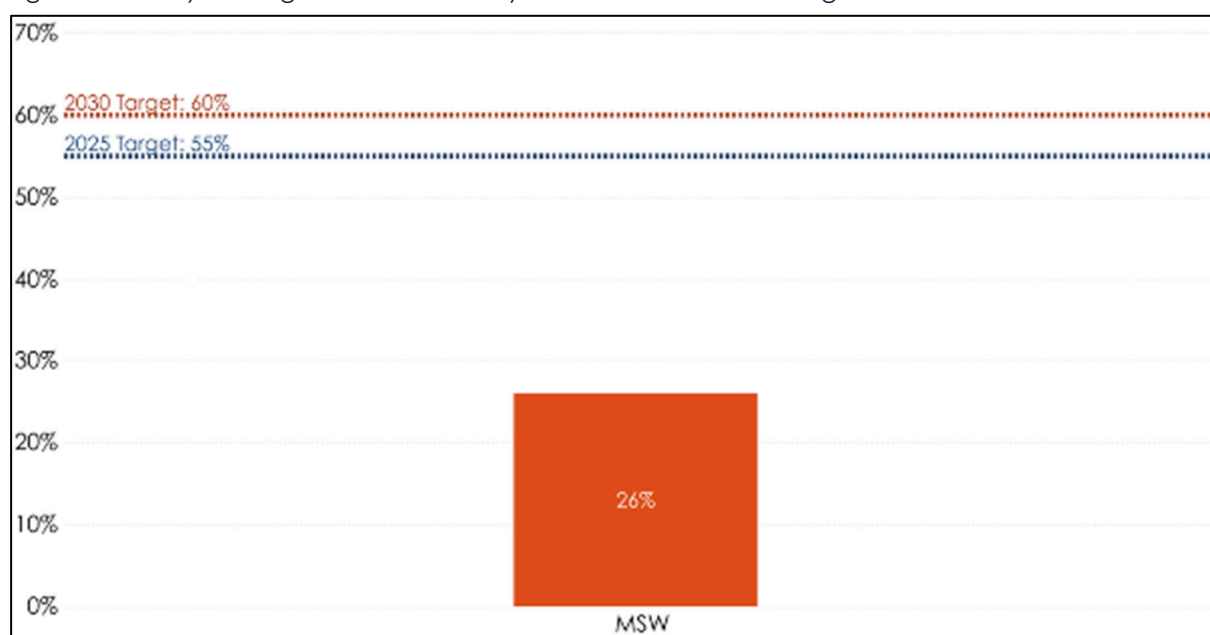
According to data provided by the City, the average amount of municipal solid waste (MSW) diverted from landfill for recycling and reuse over three years is 3,300 tonnes, corresponding to an average recycling rate of 26%. Most recycled materials were source-separated items either delivered directly to the facility or collected through kerbside recycling programs (**Figure 3.10**).

Figure 3.10: Composition of recycled MSW by material type (2021/22 – 2023/24)



The WARR Strategy 2030 includes a target to increase MSW recycling rate to 70% by 2030 in Perth and Peel regions and 60% by 2030 for major regional centres. **Figure 3.11** shows the City's resource recovery rate compared to the WARR Strategy targets set for major regional centres. It should be noted that the City of Karratha is not classified as a major regional centre within the WARR Strategy, and therefore these targets are considered aspirational for the City.

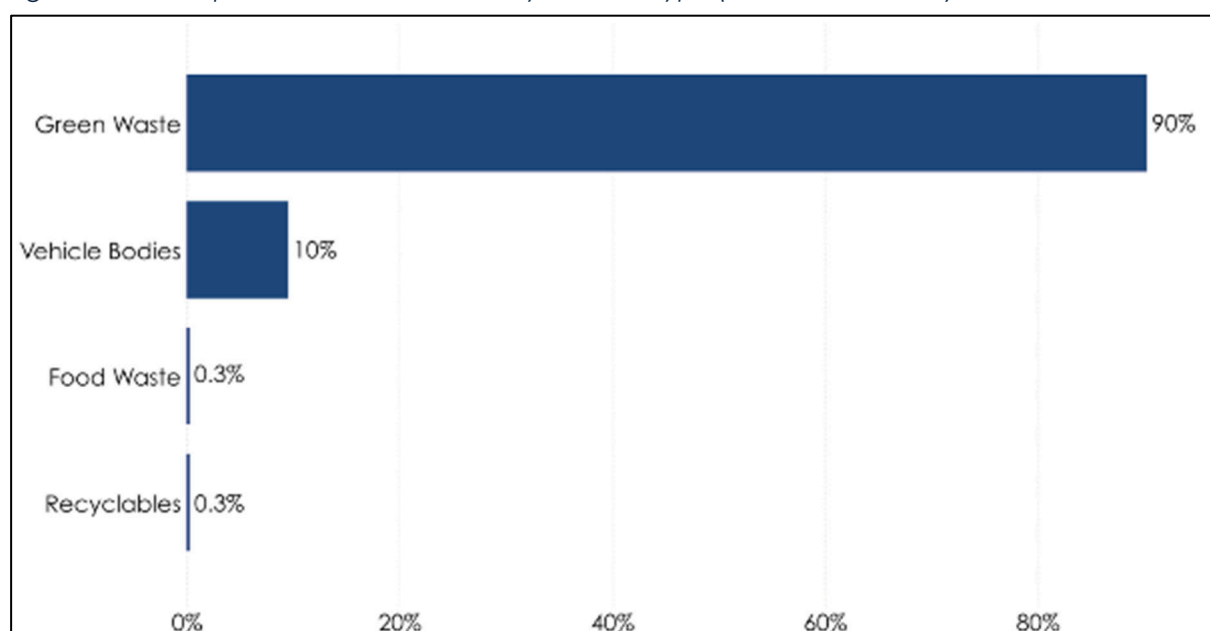
Figure 3.11: City average annual recovery rate and WARR 2030 targets



3.4.2 C&I WASTE RECOVERY

An average of approximately 1,900 tonnes per annum of C&I material was diverted from landfill for recycling and reuse between 2021/22 – 2023/24. This represents an average recycling rate of 5% for the C&I waste stream managed by the City. Almost all the material recovered from the C&I stream is green waste at 90% (**Figure 3.12**). The draft WARR Strategy 2030 sets targets for industry for recycling of C&I streams to 80% by 2030. These targets are for the C&I sector and do not apply to the City.

Figure 3.12: Composition of diverted C&I by material type (2021/22 – 2023/24)



3.4.3 C&D WASTE RECOVERY

An average of approximately 1,900 tonnes per annum of C&D material was diverted from landfill for recycling and reuse between 2021/22 – 2023/24. This represents an average recycling rate of 6% for the C&D waste stream managed by the City. All recovery is from timber (89%) and metal (11%).

The draft WARR Strategy 2030 sets targets for industry for recycling of C&D streams to 80% by 2030. These targets are for the C&D sector and do not apply to the City.

4 EXISTING SERVICES, INFRASTRUCTURE AND ACTIVITY

As part of the project methodology, a baseline assessment of the City's waste management services, infrastructure, and supporting activities was undertaken. This assessment was conducted against better practice benchmarks and state policy objectives to identify current performance, service gaps, and opportunities for improvement. The findings from this assessment have directly informed the development of strategic actions contained within **Section 6**. A summary of the assessment is provided in the sections that follow, with the full baseline report included in **Appendix A**.

4.1 WASTE INFRASTRUCTURE

The City of Karratha operates two key waste infrastructure sites: the Seven Mile Waste Disposal Facility (SMWDF) and the Wickham Transfer Station (WTS).

The SMWDF is the City's primary waste management site, licensed to accept a wide range of waste types including putrescible, inert, hazardous, and liquid wastes. It features a Class III landfill, transfer station, reuse shop, stockpile areas, wastewater treatment ponds and a landfill gas collection and flaring system. The site is licensed to accept up to 150,000 tonnes of putrescible waste annually and has approval for 12 landfill cells, with Cells 1 and 2 currently active. The site has been in operation since 1992 and is expected to meet the City's disposal needs until at least 2045, with potential for further expansion. While a Landfill Closure Management Plan (LCMP) has been developed, the site lacks a comprehensive masterplan to guide long-term development and integration of new infrastructure.

A key issue identified is the presence of significant legacy stockpiles of tyres, green waste, and concrete. These stockpiles have accumulated due to a combination of high transport costs to processing facilities in Perth, the absence of local processing infrastructure, and a lack of viable end markets. Tyres are often buried due to the cost of transport, posing fire and environmental risks. Green waste is routinely shredded but remains stockpiled due to limited demand and contamination concerns. An organics processing trial conducted in 2020 was unsuccessful due to contamination, regulatory constraints, and high operational costs. Concrete stockpiles persist despite the availability of crushing equipment in the region, as the current licence does not permit processing and there are no local buyers for recycled aggregate.

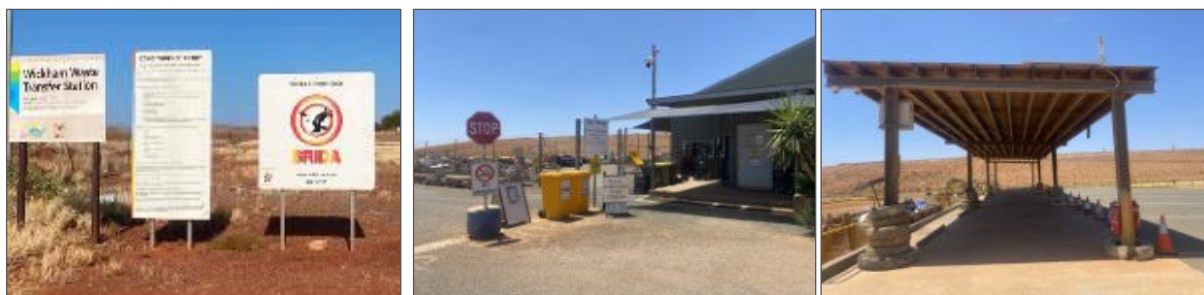
The Seven Mile Waste Disposal Facility has evolved to include reuse, recycling, and resource recovery functions. However, its current name reinforces outdated perceptions of a landfill-only operation and does not reflect the City's strategic direction.

The WTS services the eastern corridor communities including Roebourne, Wickham and Point Samson and is operated under contract. It accepts a broad range of domestic waste and recyclables, which are consolidated and transported to SMWDF. The facility is open daily and free to use, but it faces high servicing costs, and compliance issues related to waste storage and reporting.

Planned upgrades include the construction of two new landfill cells at SMWDF and minor improvements to the WTS. Ongoing alignment with evolving better practice guidelines and strategic development of infrastructure will be essential to ensure the City's waste facilities remain compliant, efficient, and capable of supporting long-term resource recovery objectives.

Key considerations for the strategy include resolving legacy stockpiles, improving compliance and efficiency at the WTS, planning for long term disposal capacity, and developing a masterplan for SMWDF to guide future investment and ensure alignment with better practice standards.

Figure 4.1: City waste infrastructure



4.2 WASTE SERVICES

The City of Karratha provides a range of waste services to its residents and businesses that include weekly kerbside waste and fortnightly recycling collections, an annual pre-cyclone green waste collection, and access to two staffed drop-off facilities at the SMWDF and the WTS.

The City kerbside service reaches all residential rateable properties, but issues such as inconsistent bin lid colours and high contamination rates in recycling (up to 36%) highlight the need for improved bin standardisation and community education. Food and organic waste generated within the City is currently sent to landfill due to no organics processing facility within the region. The pre cyclone green waste collection service has low participation, with only an estimated 30% of households engaging, and the resulting material is stockpiled due to a lack of viable end markets.

The SMWDF offers extensive drop-off options for a wide range of waste types, including household hazardous waste, e-waste, tyres, and scrap metal, and features a popular Reuse Shop. However, legacy stockpiles of tyres, concrete, IBCs and green waste present operational challenges.

Litter and illegal dumping are managed through public bin servicing and two regional litter contracts, but illegal dumping remains a persistent issue, particularly in remote areas, despite free disposal options for residents. The City's 'Bucks for Bags' program incentivises community clean-ups and has been well received.

Figure 4.2: Bucks for Bags Program images (City of Karratha Facebook)



Community feedback, particularly from Roebourne, highlights persistent issues with litter, illegal dumping, and perceived inequity in service delivery. Residents report damaged or missing bins, inconsistent collection, lack of bulk waste support, and low confidence in recycling knowledge. These concerns are compounded by reports of poor street cleanliness and a lack of culturally appropriate education materials.

Waste services for Aboriginal communities include weekly kerbside collection in Cheeditha and fee waivers for access to WTS for other communities. While these services provide basic coverage, there is scope to improve infrastructure and engagement to ensure equitable service delivery.

4.3 SUPPORTING WASTE INFORMATION AND ACTIVITIES

The City of Karratha's waste management framework is supported by a range of strategic planning instruments, policies, education initiatives, data systems, and regional considerations. Waste planning is integrated into the City's broader strategic framework through its *Council Plan* (CP). The CP includes objectives related to waste minimisation, sustainability, and environmental protection, and outlines measures for increasing diversion from landfill and reducing greenhouse gas emissions. The City's *Environmental Sustainability Strategy* and *Emissions Reduction Plan* also identifies waste as a key focus area, with actions aligned to the *Waste Avoidance and Resource Recovery Strategy 2030*.

Despite this strategic alignment, there are opportunities to further embed waste management into the City's planning instruments and regulatory framework. Strengthening the integration of waste-related considerations into local planning schemes, such as defining waste-related land uses and identifying appropriate buffers around waste facilities, will help safeguard future infrastructure development. Additionally, adopting waste-specific local laws under the WARR Act would enhance the City's ability to manage local waste issues more effectively.

Behaviour change programs are recognised as essential to improving waste outcomes, however delivery has been constrained by limited internal resources (at the time of writing). The City has recently transitioned waste education responsibilities to a technical officer and is working with its contractor, Cleanaway, to provide community resources such as online learning tools and school programs. A recycling audit is planned to inform future education efforts and the development of a waste education plan in collaboration with the City's Communications team.

The City maintains robust data systems through its weighbridge and gatehouse software, providing high-confidence waste data. Whole-of-life cost assessments for SMWDF operations have not been recently undertaken, which limits the City's ability to evaluate the financial viability of recovery initiatives. The City's waste operations are well-resourced, with a projected \$30 million waste reserve and a significant operating surplus. Free residential disposal may be undermining waste avoidance behaviours.

Regional collaboration among Pilbara local governments is limited, despite previous studies identifying shared infrastructure needs and opportunities. Past initiatives have proposed regional approaches to waste management, inert processing, and tyre recycling, but progress has been constrained by the absence of a coordinating agency. These findings suggest that renewed regional coordination could support infrastructure development, improve economies of scale, and enhance waste outcomes across the Pilbara, provided it is supported by a dedicated, funded coordinator. Without this role, regional projects risk being deprioritised, as local government staff are already stretched managing day-to-day operations and cannot absorb additional strategic responsibilities without resourcing.

5 COMMUNITY CONSULTATION

To inform the development of the Strategy, ASK undertook a multi-method consultation process between February and April 2025. The purpose of the consultation was to collect information on community attitudes, service usage, and industry challenges related to waste and recycling to guide the Strategy's actions.

The consultation was guided by a project *Community Consultation Plan* and the methodology included:

- An online community survey was conducted from 11 February to 11 March 2025 via the City's What We Make It engagement platform. The survey received 81 responses, representing approximately 0.4% of the City's population. While the sample size limits statistical validity and representativeness, the results provide indicative insights into community views and priorities.
- Place-based workshops, including a public session at the City Library and a targeted session with the Environmental Sustainability Advisory Group (ESAG) on 2 April 2025. A planned workshop in Wickham was cancelled due to low registrations.
- Stakeholder interviews held from 1–3 April 2025 with representatives from industry, government, and community organisations, including Rio Tinto, Chevron, Cleanaway, North West Alliance, and the Pilbara Development Commission.

Community insights showed:

- Strong support for improved waste management: 84% of survey respondents rated better waste management as important or very important.
- Mixed views on recycling access: Many residents felt recycling opportunities were limited, especially in public spaces and town centres.
- Low confidence in recycling knowledge: 58% of respondents reported moderate to low confidence in knowing what can be recycled, aligning with high contamination rates in kerbside recycling.
- General satisfaction with core services: Weekly kerbside collection, the 7 Mile Tip Shop, and drop-off facilities were well received.
- Underutilisation of hazardous waste services: Many residents were unaware of or did not use the HHW disposal point, raising concerns about improper disposal.
- Tip Shop success: The Tip Shop was highly valued, with suggestions to expand its role through repair cafés and infrastructure upgrades.
- Education and engagement gaps: There was strong demand for more education, especially for children and transient populations.
- Top priorities for future initiatives: Reducing landfill, improving recycling rates, and exploring composting options were most supported.

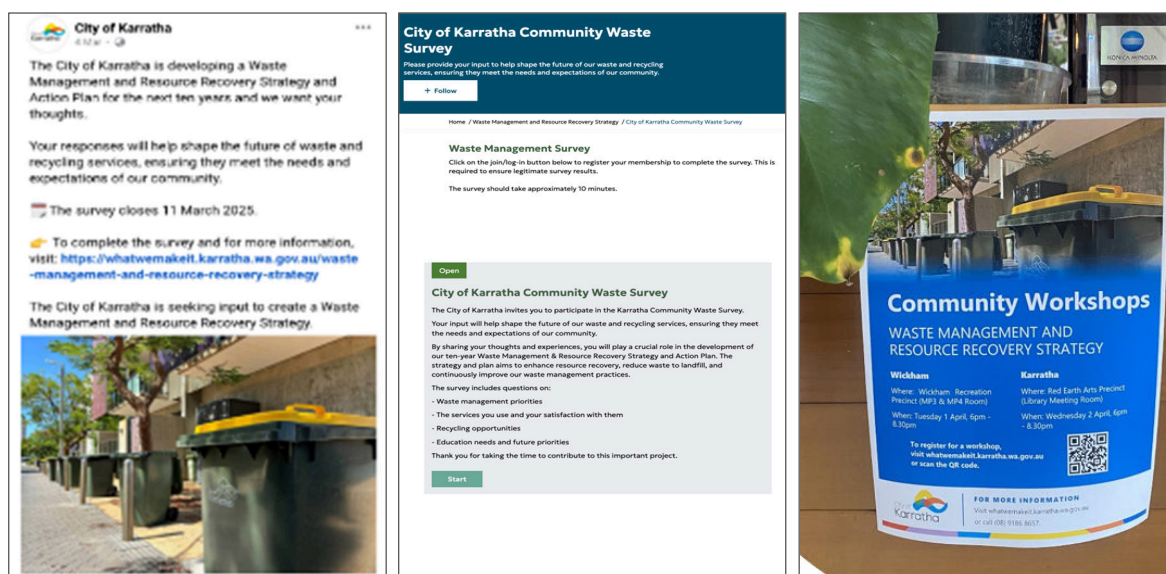
Industry insights included:

- Transport inefficiencies: Long distances to processing facilities (often in Perth) increase costs and emissions.
- Lack of end markets: Materials like tyres, concrete, and organics are often stockpiled or landfilled due to limited local reuse options.
- Problem waste streams: Tyres, e-waste, bulka bags, IBCs, and organics were frequently cited as difficult to manage.

- Support for regional collaboration: Stakeholders advocated for a coordinated regional approach to improve economies of scale and infrastructure investment.
- Policy and regulatory barriers: Existing frameworks, especially in the mining sector, lack incentives for resource recovery.
- Disconnect between decarbonisation and recycling: Sustainability efforts focus on emissions reduction, with recycling often overlooked.
- Workforce challenges: Labour shortages and harsh working conditions hinder the development of local recycling operations.

A copy of the consultation summary report is provided in **Appendix B**.

Figure 5.1: Consultation promotion



6 ACTION PLAN

This Action Plan outlines the strategic initiatives required to align the City's waste management practices with the outcomes of the Waste Avoidance and Resource Recovery (WARR) Strategy 2030, the Department of Water and Environmental Regulation (DWER) Waste Plan benchmarks, and the City's own waste objectives.

To ensure consistency with the City's strategic planning framework, the Action Plan is organised by goal, with each goal supported by specific objectives and corresponding actions. This format also supports future reporting and tracking of progress.

Each objective is presented using the following structure:

- Findings: Key insights identified during the development of the Strategy.
- Issues: Challenges or implications arising from the findings.
- Actions: Recommended actions to address issues and leverage opportunities.
- Cost: Estimated cost to implement the action.
- Priority: Prioritised as either **short** (one - two years), **medium** (three – five years) or **long term** (five years +).

The summary below outlines the eight strategic goals and associated objectives that form the foundation of the Action Plan. Detailed tables in the following sections present the recommended actions, estimated costs, and implementation priorities for each objective.

Goal 1: Waste Infrastructure and Operations

Ensure the City's waste infrastructure and operations are environmentally responsible, compliant, and aligned with better practice standards to support long-term waste management and resource recovery. The objectives include:

- Establish better practice infrastructure.
- Resolve legacy stockpile issues.
- Review WTS operations.
- Develop a masterplan for the SMWDF.
- Renaming of the SMWDF to reflect a resource recovery focus.
- Plan for long term disposal capacity.

Goal 2: Waste Services

Deliver efficient, accessible and inclusive waste services that support waste avoidance, enhance material recovery, and safeguard public health and the environment. The objectives include:

- Assess future resource recovery options.
- Assess the feasibility of organics recovery.
- Improve kerbside service provision.
- Enhance services in the eastern corridor.
- Increase the use of hazardous waste disposal services.
- Investigate the development of a recycling precinct.
- Expand public place recycling infrastructure.
- Upgrade bin infrastructure and access.

- Review the pre-cyclone greenwaste collection service.

Goal 3: Data, Information and Economics

Establish a robust data and information framework to support evidence-based decision making and enhance the effectiveness of the City's waste management planning. The objectives include:

- Conduct regular kerbside recycling audits.
- Calculate whole of life costs.
- Assess internal resource capacity.

Goal 4: Litter and Illegal Dumping

Move towards zero illegal dumping and reduce litter by 2035. The objectives include:

- Develop a Litter and Illegal Dumping Strategy.

Goal 5: Policy and Procurement

Strengthen governance and planning processes to enable strategic waste outcomes. The objectives include:

- Adopt waste local laws.
- Align the *Council Plan* with the *Waste Strategy*.
- Integrate waste related actions into the City's *Emissions Reduction Plan*.
- Embed waste management into local planning instruments.

Goal 6: Behaviour Change

Empower the community to reduce waste and improve recycling through sustained education and engagement. The objectives include:

- Strengthen waste education and behaviour change programs.

Goal 7: Aboriginal Communities

Ensure waste services and infrastructure meet the needs of Aboriginal communities. The objectives include:

- Improve services and infrastructure for Aboriginal communities.

Goal 8: Regional Efficiencies

Advance regional collaboration to improve waste outcomes and infrastructure investment. The objectives include:

- Establish a Pilbara region officers advisory group.
- Facilitate the formation of a regional waste management alliance.
- Advocate for regulatory reform to improve waste outcomes in the mining sector.

6.1 GOAL 1: WASTE INFRASTRUCTURE AND OPERATIONS

6.1.1 ESTABLISH BETTER PRACTICE INFRASTRUCTURE

Priority: Short term

Findings	Issues	Action	Estimated cost
<p>There are infrastructure upgrades that will require capital works in the next five years, including:</p> <ul style="list-style-type: none"> Progressive capping of cells 1 and 2 Construction of landfill cells 3 & 4 Upgrades to WTS Site assets (infrastructure) will need annual maintenance and renewal works over the life of the plan. <p>Additionally the City is developing an emissions reduction Plan to support climate goals. Draft actions within the Plan recommend feasibility assessments for advanced waste-to-energy (WTE) infrastructure and methane capture from closed landfill cells.</p> <p>The Waste Strategy 2030 requires all waste to be managed and/or disposed of using better practice approaches.</p> <p>The Waste Authority's better practice guidance for local government drop off services were released in 2022. The guidelines aim to support local governments in achieving the Waste Strategy's material recovery targets for municipal solid waste (MSW).</p> <p>Other infrastructure upgrades may arise as DWER's better practice documentation are released over the life of the Plan.</p> <p>The City has a strong solid waste reserve and generates significant income from gate fees.</p>	<p>Delayed capping increases environmental and operational risks. Cell 3 and 4 must be constructed before Cell 2 reaches capacity.</p> <p>Lack of alignment with evolving DWER better practice guidance may potentially limit the City's ability to meet recovery targets.</p> <p>Waste infrastructure which is not fully integrated into the City's Long-Term Financial Plan (LTFP) risks delays.</p> <p>Lack of integrated planning for emissions reduction infrastructure may delay implementation of innovative waste recovery infrastructure solutions.</p> <p>Methane emissions from closed landfill cells represent an opportunity for renewable energy generation.</p> <p>Regional collaboration and long-term financial planning are needed to support complex infrastructure like WTE facilities.</p>	<ol style="list-style-type: none"> Undertake a feasibility assessment to capture methane emissions from closed landfill cells for conversion into renewable energy. Benchmark existing services against the 2022 better practice drop off guidelines to identify gaps and opportunities for improvement. Maintain and deliver a phased capital works plan for infrastructure development and maintenance. Ensure asset development, maintenance and renewal works are incorporated into the City's LTFP, annual budgets and asset management plans. Assign clear responsibilities and timelines for each infrastructure upgrade project to ensure delivery and accountability. Regularly review waste infrastructure to ensure it aligns with DWER better practice guidance where practicable. Undertake a feasibility assessment for a regional advanced waste-to-energy facility to evaluate viability, costs, and potential partnerships. 	<p>Feasibility assessment \$30 - \$45K dependent on scope. Benchmarking, planning, and integration into financial and asset systems can be managed using existing staff resources and support from the City's finance and asset management teams.</p> <p>Specific funding will be required for capital works, which will need to be identified and prioritised through the Long-Term Financial Plan process.</p> <p>Capital costs are difficult to estimate at this stage, as they will depend on the scope and timing of individual infrastructure upgrades.</p> <p>Feasibility for regional waste to energy facility \$50,000 - \$100,000 dependent on scope.</p>

6.1.2 RESOLVE LEGACY STOCKPILE ISSUES

Priority: Short term

Findings	Issues	Action	Estimated Cost
Tyres Large volumes of used tyres are received and stockpiled or buried at SMWDF. A local business has expressed interest in a joint venture for tyre shredding and export. A voluntary stewardship scheme exists but it does not cover transport costs. Used tyre disposal across the region is an issue, with tyres being buried due to high costs of transport.	Stockpiling and landfill disposal of used tyres poses fire, environmental, and health risks. Tyres also consume large amounts of landfill space and are costly to manage due to their durability and volume. A voluntary tyre stewardship scheme that excludes collection and transport costs risks low participation, especially in remote areas, shifting financial burdens for disposal to local governments or consumers, ultimately undermining the scheme's effectiveness. The current resource levels within the City restrict the potential to move this proposal forward.	<ol style="list-style-type: none"> Undertake a feasibility and cost-benefit analysis of tyre shredding and transport options, including: <ul style="list-style-type: none"> City-led shredding and transport to Perth for recycling A joint venture for on-site shredding and export Advocate for a national mandatory tyre stewardship scheme that includes funding for collection and transport costs. 	A feasibility assessment will likely require external consultancy. Estimated cost \$20,000 - \$35,000 depending on number of options and depth of analysis required. The costs associated with advocacy can be delivered internally with additional time required for preparing submissions, providing responses, and offering feedback as needed.
Greenwaste The City receives significant amounts of greenwaste which is routinely shredded as required. Large stockpiles have accumulated as there is no demand for the material. An organics processing trial conducted by the City in 2020 showed limited viability for organics processing. There are no organics processors within the Pilbara region.	Stockpiling without end markets is unsustainable. Landfilling green waste contributes significantly more to greenhouse gas emissions than controlled stockpile burning, as anaerobic decomposition in landfills produces methane, with a warming potential that is 28 times more potent than carbon dioxide ² , whereas burning, releases primarily carbon dioxide with lower long-term climate impact. Burning is permitted under the licence. If organics processing was to prove feasible in the region, uncontaminated greenwaste collected by the City would form an important feed stock.	<ol style="list-style-type: none"> Undertake a supply chain and market assessment for shredded greenwaste /mulch to assess the financial viability of continuing to stockpile greenwaste. If no viable end market exists for greenwaste, consider controlled burning. Burning will have less environmental impact than landfill disposal due to methane emissions associated with landfilling. 	A supply chain assessment will likely require external consultancy. Estimated cost \$20,000 - \$35,000 depending on scope. Controlled burning could be delivered using internal resources, though it would require additional staff time for preparation, execution, and post-burn cleanup activities.

² Australian Government Clean Energy Regulator - <https://cer.gov.au>

Priority: Medium term

<p>Concrete</p> <p>Significant stockpile of C&D material exists at the SMWDF.</p> <p>The City is not concerned with asbestos contamination due to the lack of asbestos in the town generally and stringent gatehouse procedures.</p> <p>Concrete can be crushed to produce a recycled concrete aggregate (RCA) for use in civil infrastructure.</p> <p>The EPL does not permit crushing. The City has appropriate machinery on site to crush material if required. There are also local C&D recyclers available.</p> <p>There are no end markets for recycled concrete material within the region.</p> <p>Concrete is a major contributor to global warming, primarily due to the substantial carbon emissions generated during cement production.</p>	<p>Recycled concrete aggregate (RCA) offers several practical applications for civil construction applications, including:</p> <ul style="list-style-type: none"> • Internal applications at the landfill • Road base and subbase layers • Concrete pavement • Non-structural and structural concrete (up to 50 MPa) • General fill and embankments <p>There is emerging research³ and interest in using Recycled Concrete Aggregate (RCA) in landfill liner and cover systems, although it is not yet a widespread or standard practice.</p>	<ol style="list-style-type: none"> 1. Investigate potential applications for crushed concrete material within the SMWDF. 2. Undertake a cost assessment to estimate the operational expenses associated with processing existing stockpiles. 3. Determine viability to proceed with on site crushing based on Actions 1 and 2. 4. If decision to process on site, seek Licence Amendment from DWER to allow on site processing. 5. Monitor emerging research on RCA use in landfill systems. 	<p>These actions can be achieved using internal resourcing.</p> <p>Additional time will be needed for investigation, cost assessment and preparing the licence amendment application.</p> <p>Alternatively, this could be undertaken by an external consultant. Estimated cost \$10,000 - \$20,000 dependent on scope.</p>
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³ Performance evaluation of recycled Concrete Aggregate as Drainage material in combination with geosynthetics for landfill cover systems (Syed and Mishra, Jan, 2025)

6.1.3 REVIEW WICKHAM TRANSFER STATION OPERATION

Priority: Short term

Findings	Issues	Recommendation	Estimated cost
<p>The WTS services approximately 3,200 residents and receives around 1,000 tonnes of waste per year.</p> <p>The facility is open every day of the year except Good Friday, Christmas Day and New Years day, and all residents in the area have access to weekly kerbside waste and recycling collection.</p> <p>The operational contract costs the City approximately \$580,000 annually.</p> <p>There is a lack of data on customer usage which limits informed decision-making.</p>	<p>The cost per tonne of waste managed at the facility is disproportionately high compared to other services.</p> <p>The facility's current operation may not represent best value for money or align with community usage patterns.</p>	<ol style="list-style-type: none"> 1. Undertake an Operational Review of the Facility to assess cost-effectiveness, usage patterns, and service needs to determine whether current operations are justified. The review should include an analysis of operational efficiency improvements such as using a compactor to increase bin density, introducing sealed hooklift bins to reduce odour and extend storage time, upgrading to a truck with trailer capacity to reduce trips, adjusting servicing frequency based on actual waste volumes and composition. 2. Improve Data Collection and Monitoring: Require contractors to record waste types, volumes, and customer numbers to inform future service planning. 3. Engage the Community: Consult with residents to understand service expectations and potential impacts of any changes. 	<p>Conducting an operational review will likely require external consultancy, with an estimated cost of \$25,000–\$40,000, depending on the depth of analysis and scope of recommendations.</p> <p>Improving data collection and monitoring can be managed internally, though some external support may be needed for system setup or integration. Estimated cost: \$5,000–\$10,000.</p> <p>Community engagement can be delivered by existing staff, with additional costs for outreach materials and events estimated at \$5,000–\$10,000.</p> <p>Total estimated cost for implementing all recommendations: \$35,000–\$60,000</p>
<p>The facility is serviced once per week, with one hooklift bin collected at a time due to the truck not having a trailer.</p> <p>The licence requires that putrescible waste not be stored for more than four days.</p> <p>Most waste received is not putrescible, as residents have weekly kerbside collection.</p> <p>It is unclear whether bins are being compacted or achieving optimal density.</p>	<p>Weekly servicing may not meet licence conditions and results in high transport costs.</p> <p>Inefficient bin utilisation increases the number of trips and associated emissions and costs.</p> <p>Lack of compaction or sealed containment may pose odour or compliance risks.</p>		

6.1.4 DEVELOP A MASTERPLAN FOR SEVEN MILE WASTE DISPOSAL FACILITY

Priority: Short term

Findings	Issues	Action	Estimated cost
<p>The Seven Mile Waste Disposal Facility (SMWDF) is the City's primary waste management site and is expected to meet demand until at least 2044.</p> <p>The site currently lacks a formal masterplan, although a layout plan exists as part of the Landfill Closure Management Plan (LCMP).</p> <p>Implementation of the Waste Strategy may identify new infrastructure needs (e.g. organics processing, tyre shredding, recycling precinct) that will further expand the site's role.</p>	<p>Without a masterplan, future development may be ad hoc, leading to inefficiencies in site layout, traffic flow, and infrastructure investment.</p> <p>Opportunities to integrate new services (e.g. organics processing, tyre shredding, expanded reuse precinct) may be missed or poorly coordinated.</p> <p>Long-term planning is needed to ensure the site remains compliant, efficient, and aligned with community and environmental expectations.</p>	<ol style="list-style-type: none"> 1. Prepare a Comprehensive Site Masterplan: Develop a long-term masterplan for the SMWDF that integrates landfill cell development, transfer station upgrades and future expansion needs. 2. Ensure that future infrastructure needs identified through strategy implementation are incorporated into the site's masterplan and reflected in the facility's identity. 3. Link the masterplan to the City's Long-Term Financial Plan and capital works program to prioritise staged infrastructure upgrades. 	<p>Developing a comprehensive site masterplan will likely require external consultancy, given the complexity and scope of integrating future infrastructure needs.</p> <p>Estimated cost: \$30,000–\$50,000, depending on the depth of analysis, technical design requirements.</p>

6.1.5 RENAMING OF SMWDF TO REFLECT RESOURCE RECOVERY FOCUS

Priority: Medium term

Findings	Issues	Action	Estimated cost
<p>The facility has evolved beyond disposal to include reuse, recycling, and resource recovery functions.</p> <p>The current facility name emphasises disposal rather than recovery.</p>	<p>The existing name may reinforce outdated perceptions of the site as a landfill-only operation.</p> <p>It does not align with the City's strategic direction toward resource recovery and better practice waste management.</p>	<ol style="list-style-type: none"> 1. Consider renaming the facility to reflect its evolving role, e.g., "Karratha Regional Resource Recovery Facility" or similar. 2. Align the new name with the City's waste strategy goals and community education efforts to promote a shift in public perception. 	<p>This action will primarily involve internal resources, including updates to signage, digital platforms, and communication materials. Estimated cost: \$5,000–\$15,000, depending on the extent of branding updates and community engagement activities.</p>

6.1.6 PLAN FOR LONG TERM LANDFILL CAPACITY

Priority: Medium term

Findings	Issues	Action	Estimated Cost
<p>The City of Karratha <i>Local Planning Strategy</i> does not identify a future waste facility site.</p> <p>The current site is considered by the City to provide adequate disposal options for the next 25+ years.</p> <p>The current <i>Landfill Closure Management Plan</i> (LCMP) for the SMWDF provides an approximate closure date of 2047 but does not include some usable areas which could extend the life of the site.</p>	<p>Extending landfill lifespan delays the need for costly and time-consuming development of a new site, which can take 10 - 15 years to plan, approve, and construct. It also allows the City to make the most of existing infrastructure investments.</p> <p>Developing a landfill closure plan with a long-term view of the final landform and capping design—rather than incrementally expanding the footprint as airspace becomes limited—is essential for optimising site performance and legacy outcomes.</p> <p>A planned final landform enables integrated engineering solutions for construction efficiencies. It also allows for progressive capping and rehabilitation, spreading costs over time and maximising airspace utilisation through efficient filling.</p>	<ol style="list-style-type: none"> 1. Revise the LCMP to include a long-term vision for the final landform and capping design, incorporating all usable areas of the site. 2. Develop a staged closure plan based on the revised LCMP that supports progressive capping, efficient filling patterns, and integrated gas/leachate management. 3. Use the revised LCMP to guide capital investment and ensure the City maximises the operational life and value of the existing site. 	<p>Revising the Landfill Closure Management Plan (LCMP) and developing a staged closure plan will require external consultancy, due to the technical nature of landfill engineering.</p> <p>Estimated cost: \$50,000–\$80,000, depending on the level of detail, site complexity, and integration design for gas/leachate management systems required.</p>

6.2 GOAL 2: WASTE SERVICES

6.2.1 ASSESS FUTURE RESOURCE RECOVERY OPTIONS

Priority: Short term

Findings	Issues	Action	Estimated cost
<p>The City's baseline MSW recovery rate is below the 2025 & 2030 WA WARR Strategy targets.</p> <p>The City lacks a clear roadmap for achieving a 60% recovery rate by 2030.</p>	<p>Without a detailed analysis, investment in new services may be misaligned with actual recovery potential or cost-effectiveness.</p> <p>Without intervention, the City is unlikely to align with the state's recovery targets for major regional centres.</p>	<p>Undertake a comprehensive analysis of resource recovery options to identify the most effective and feasible pathways to achieving the 2030 recovery target.</p> <p>Include a cost-benefit analysis of each service option, considering environmental, social, and economic impacts. Evaluate options such as:</p> <ul style="list-style-type: none"> • FOGO (Food Organics and Garden Organics) feasibility (see action 6.2.2) • Centralised recycling brings centres or precincts • Other innovative or regionally appropriate solutions 	<p>A comprehensive analysis of future resource recovery options will require external consultancy, given the technical scope and need for cost-benefit evaluation across multiple service models. Estimated cost: \$40,000–\$65,000, depending on the number of options assessed, and depth of analysis.</p>

6.2.2 ASSESS THE FEASIBILITY OF ORGANICS RECOVERY

Priority: Medium term			
Findings	Issues	Action	Estimated cost
<p>Food and organic waste generated within the City is currently sent to landfill.</p> <p>A FOGO (Food Organics and Garden Organics) processing trial was conducted in 2020, but results indicated limited viability under current conditions.</p> <p>There are no organics processing facilities in the Pilbara region.</p> <p>Mining camps generate high volumes of food waste and have shown interest in organics recovery.</p> <p>City staff lack the capacity and technical expertise to manage a full scale FOGO operation.</p> <p>The City would prefer to act as a feedstock supplier rather than the facility operator.</p> <p>The City has scheduled the introduction of a community composting rebate scheme as part of the 25 - 26 budget. This program is aimed at incentivising household and community-scale composting.</p>	<p>National and State waste policy identifies organics – including food organics and garden organics (FOGO) – as a focus of actions and measurement to achieve recovery targets.</p> <p>Landfilling organics contributes significantly to greenhouse gas emissions and reduces landfill capacity.</p> <p>Without a processing facility, the City cannot implement a three-bin kerbside service, limiting recovery potential.</p> <p>Lack of regional collaboration and infrastructure presents challenges to the feasibility of organics recovery.</p>	<ol style="list-style-type: none"> 1. Implement the City Community Composting Rebate Program in 25-26. 2. Conduct a Feasibility Study to evaluate the viability of an organics processing facility within the City of Karratha region. The scope of the project could include: <ul style="list-style-type: none"> • Quantify organic waste generation across relevant sectors within the City (including mining, commercial, and municipal sources) • Evaluate transport logistics, contamination risks, and infrastructure needs • Identify potential end users to ensure market demand for compost • Engage with potential facility providers (e.g., Soilco or similar) to explore partnership opportunities recognising that the City may act as a feedstock supplier rather than the facility operator. 3. If feasible, use the findings of the feasibility study to develop a business case to inform investment, partnerships, and funding applications. 4. Should the project prove feasible, develop a long-term organics strategy to guide the City's role in organics recovery over the next 5 – 10 years and provide a framework for transitioning to better practice organics management. 	<p>Conducting an organics recovery feasibility study will require external consultancy, given the technical scope and lack of internal capacity. Estimated cost: \$40,000–\$65,000, depending on the depth of analysis, stakeholder engagement, and infrastructure assessment required.</p> <p>Additional costs may be incurred for developing a business case and long-term strategy if the project is deemed feasible. Estimated cost: \$50,000</p>

6.2.3 IMPROVE KERBSIDE SERVICE PROVISION

Priority: Short term

Findings	Issues	Action	Cost
Reduce Contamination in Kerbside Recycling Bins			
Kerbside bin audits and contractor feedback identified high contamination rates in recycling bins. Consultation revealed 58% of respondents reported low to moderate confidence in knowing what can be recycled. Community feedback highlighted a need for more education and clearer recycling guidance.	Contamination reduces the effectiveness of recycling efforts and increases processing costs. Improper sorting at the household level leads to rejected loads and undermines recovery targets. A lack of recycling knowledge contributes to improper sorting at the household level.	<ol style="list-style-type: none"> 1. Implement a Targeted Recycling Education Campaign focussing on common contaminants, correct sorting practices, and the environmental impact of contamination. Use visual guides, social media, and community events. 2. Consider introduction of Bin Tagging or Feedback Programs to help residents improve sorting habits. 3. Update and Distribute Clear Recycling Guidelines: Provide updated, easy-to-understand materials (e.g. fridge magnets, bin stickers, online tools) tailored to local recycling rules. 4. Monitor and Report Contamination Trends: Conduct regular bin audits to evaluate the effectiveness of interventions and adjust strategies as needed. 	<p>The City's Waste Education Officer can lead this campaign internally, with costs for materials and outreach estimated at \$10,000–\$25,000, depending on campaign scope and duration.</p> <p>The estimated cost for updating recycling guidelines is \$10,000 - \$20,000. This would typically cover design, printing, and distribution of updated materials, as well as integration into broader education campaigns.</p>

Priority: Medium term

Findings	Issues	Action	Cost
Standardise Kerbside Bin Colours			
The City's kerbside mobile garbage bin (MGB) lid colours are not uniform and do not comply with the Australian Standard (AS 4123.7-2006).	<p>Non-compliant bin colours (body and lid) can result in confusion and higher levels of contamination especially for short-term residents and holiday-makers.</p> <p>Inconsistent colours undermine public education efforts and reduce recovery performance.</p> <p>The Waste Authority encourages the use of AS 4123.7-2006 to achieve greater consistency in bin colours, which in turn will support more consistent messaging for resource recovery at both a state and local level.</p>	<ol style="list-style-type: none"> 1. Review options for standardisation of bin colours in line with AS 4123.7 -2006 as part of the kerbside bin collection service renewal or contract change due January 2027. 2. Support changes with clear community education to improve recognition and reduce contamination. 	<p>This action can be aligned with the next kerbside collection contract renewal in 2027. Costs will be absorbed into future procurement, but planning and community education may require \$10,000–\$20,000, depending on the scale of outreach.</p> <p>Bin upgrade costs will depend on breadth of changes required and can be offset through annual waste fees.</p>

Investigate Transition to Better Practice Kerbside Services			
<p>The City does not provide kerbside services in line with Waste Authority's better practice.</p> <p>A 2020 FOGO trial showed limited viability under current conditions.</p> <p>There are no organic processing facilities within the region.</p>	<p>The Waste Authority recognises three-bin kerbside services which collect FOGO as better practice.</p> <p>Without a FOGO processing facility, the City cannot implement a three-bin service, limiting recovery potential. A three-bin service that includes FOGO can achieve recovery rates of around 65 per cent.</p> <p>A lack of infrastructure and end markets limits the City's ability to adopt better practice services.</p>	<ol style="list-style-type: none"> 1. Apply the outcomes of the Organics Feasibility assessment and Resource Recovery Analysis (Action 6.2.2) to inform the design of a better practice kerbside system. 2. If organics processing proves feasible, plan for staged implementation of a three-bin service (including FOGO) as guided by organics processing infrastructure development timetables allow. 3. Develop and implement a community engagement and education plan to support the transition to a better practice kerbside system. 	<p>This may require external consultancy to assess design and collection options, with an estimated cost of \$10,000–\$20,000, depending on the depth of analysis required.</p> <p>If a third bin (FOGO) is introduced, funding will be required for bin procurement and delivery. These costs can be offset through annual waste fees and may be eligible for support under state programs such as Better Bins Plus: Go FOGO.</p> <p>A community education campaign to support rollout would be essential and could be delivered internally, with additional funding for materials and outreach support. Estimated cost: \$20,000–\$40,000, depending on campaign scope and duration.</p>

6.2.4 ENHANCE SERVICES IN THE EASTERN CORRIDOR

Priority: Short term

Findings	Issues	Action	Cost
<p>Community survey responses as part of the 2024 community survey and face to face feedback as part of the project highlight persistent litter, illegal dumping, and poor waste service standards in Roebourne.</p> <p>Residents report:</p> <ul style="list-style-type: none"> • Damaged bins (missing wheels, cracked lids) or missing bins • Inconsistent bin collection • Lack of support for bulk waste disposal • Low confidence in recycling knowledge • Poor street cleanliness and overgrown verges <p>There is a perceived inequity in service delivery compared to Karratha.</p> <p>Cleanaway report high contamination rates in bins, and stakeholder feedback indicates there is low confidence in knowing what can be recycled, and a strong desire for plain-language or image-based bin labels.</p> <p>The 22/23 City annual report states 'Roebourne and Point Samson have indicated that the City is underperforming in 'tip services'.</p>	<p>A uniform approach to the delivery of waste services does not meet the needs of all communities.</p> <p>Litter and dumping negatively impact health, safety, and community pride.</p> <p>Inconsistent services and a lack of culturally appropriate education reduce recycling and waste separation.</p>	<ol style="list-style-type: none"> 1. Conduct a targeted audit of bin services, bin condition, and litter hotspots in the Eastern Corridor. 2. Replace damaged bins and ensure all households have access. 3. Develop Culturally Appropriate Education Materials: Co-design bin stickers, signage, and guides with local stakeholders. 4. Establish a formal partnership with local stakeholders (e.g. NYFL) to explore and implement initiatives that support bulk waste removal from households and verges, enhance waste education, and coordinate community clean-up efforts. 5. Advocate for and explore partnership opportunities with a Containers for Change scheme operator to extend container refund services to Roebourne and surrounding remote communities (longer term action). 	<p>This action will likely require a combination of internal and external resources.</p> <p>While audits and stakeholder engagement may be managed internally, bin replacement, education material development, and bulk waste initiatives will require additional funding.</p> <p>Estimated cost: \$50,000–\$100,000, depending on the scale of bin replacement and the extent of community partnership programs.</p>

6.2.5 INCREASE USE OF HAZARDOUS WASTE DISPOSAL SERVICES

Priority: Short term

Findings	Issues	Action	Cost
<p>46% of survey respondents never use the Household Hazardous Waste (HHW) disposal point at the 7 Mile Waste Facility.</p> <p>41% never dispose of e-waste and batteries, and 83% never dispose of fluorescent tubing in the City's designated drop off points.</p> <p>Hazardous waste disposal was one of the least prioritised future initiatives by the community.</p>	<p>Low utilisation suggests a lack of awareness or accessibility, potentially leading to improper disposal in kerbside bins or illegal dumping.</p> <p>Improper disposal of hazardous waste poses environmental and health risks.</p> <p>The Community may not understand what qualifies as hazardous waste or where to take it.</p>	<ol style="list-style-type: none"> 1. Launch a targeted campaign to raise awareness about hazardous waste types, risks of improper disposal, and available drop-off services. 2. Incorporate HHW Messaging into Broader Waste Education programs (see Action 6.1). 3. Monitor and Evaluate Participation: Track usage of HHW services over time to assess the impact of education and service changes. 	<p>The City can deliver this action internally, leveraging the Waste Education Officer to develop and integrate hazardous waste messaging into existing programs. Costs will primarily relate to campaign materials, signage, and monitoring tools, with an estimated budget of \$10,000–\$20,000, depending on the scale and duration of the awareness campaign.</p>

6.2.6 INVESTIGATE THE DEVELOPMENT OF A RECYCLING PRECINCT

Priority: Medium term

Findings	Issues	Action	Cost
<p>The 7 Mile Tip Shop is highly valued by the community, with strong participation and satisfaction.</p> <p>Community and workshop feedback suggested expanding reuse and repair activities, including a repair café and a Men's Shed near the Tip Shop.</p> <p>Suggestions included providing shelter for the outdoor display area and creating a central hub for recycling and education.</p>	<p>The Tip Shop's potential as a community reuse and education hub is underutilised.</p> <p>The lack of infrastructure (e.g. shelter, workshop space) limits the expansion of reuse and repair activities.</p> <p>There is no existing precinct within the City to integrate reuse, recycling, education, and community engagement.</p>	<ol style="list-style-type: none"> 1. Develop a Concept Plan for a Recycling Precinct: Explore the expansion of the Tip Shop into a precinct that includes reuse, repair, recycling drop-off, and education facilities. 2. Engage Community Partners: Collaborate with groups like the local Men's Shed, and sustainability organisations to co-design and activate the space. 3. Upgrade Infrastructure: Provide shelter for the outdoor display area. 4. Seek Funding and Partnerships: Apply for grants and explore partnerships with local businesses and industry to support development and activation. 	<p>Development of a Recycling Precinct is likely to require external support for concept planning, infrastructure upgrades, and stakeholder engagement. While some initial planning could be done internally, estimated costs for concept development and basic infrastructure improvements (e.g. shelter, workshop space) could range from \$50,000 to \$150,000, depending on the scale and funding partnerships secured.</p>

6.2.7 EXPAND PUBLIC PLACE RECYCLING INFRASTRUCTURE

Priority: Medium term			
Findings	Issues	Action	Cost
<p>Community feedback highlighted a lack of public place recycling bins and limited access to drop-off points in town centres. Workshop participants expressed a desire for more accessible and visible recycling options.</p> <p>The City has previously resisted installing public place recycling bins due to high contamination rates.</p>	<p>Lack of access to convenient recycling infrastructure may discourage proper recycling behaviours.</p> <p>Inconvenient or distant drop-off locations reduce participation and increase contamination in kerbside bins.</p> <p>There is a missed opportunity to reinforce recycling as a community norm in public spaces.</p> <p>There is a need to balance accessibility with contamination risk.</p>	<ol style="list-style-type: none"> 1. Trial Public Place Recycling Bins in Controlled Locations: Install bins in high-visibility, high-foot-traffic areas (e.g. near libraries, civic centres) within City managed public facilities, with clear signage and regular monitoring. 2. Use Contamination-Resistant Bin Designs: Select bin types with restricted openings, clear labelling, and paired general waste bins to reduce contamination. 3. Monitor and Evaluate Contamination Rates: Conduct regular audits during the trial to assess contamination levels and identify problem materials or locations. 4. Explore Localised Drop-Off Points: Investigate the development of smaller, decentralised recycling stations within town areas to increase accessibility. 5. Integrate with Education Campaigns: Promote correct use of new infrastructure through signage, social media, and community outreach during the trial period. 6. Provide public place recycling bins for use at community events and make them available for hire by organisations hosting events. 	<p>Expanding public place recycling infrastructure will require external procurement of bins and signage, but installation and monitoring can be managed internally.</p> <p>A small-scale trial is estimated to cost \$15,000–\$20,000, depending on the number of bins, design features, and extent of education and monitoring activities.</p> <p>Action 4 will likely require external consultancy. A feasibility study and concept planning project is estimated to cost between \$25,000–\$40,000, depending on the number of sites assessed and the level of community engagement involved.</p>

6.2.8 REVIEW PRE CYCLONE GREEN WASTE COLLECTION

Priority: Medium term			
Findings	Issues	Action	Estimated Cost
The City provides a pre cyclone greenwaste collection service through an external contractor. Participation rates are estimated at approximately 30% with only 200 tonnes collected annually. Domestic greenwaste disposal is free at the City waste facilities.	Low participation rates in the service result in high per tonne collection costs. The service may not be cost-effective given the low volume of material collected. The lack of data on participation and reasons for low uptake limits the City's ability to review and improve the service.	<ol style="list-style-type: none"> 1. Undertake a review of the pre-cyclone green waste collection service to assess cost-effectiveness and community value. 2. Identify barriers to participation (e.g. awareness, convenience) and explore targeted improvements to increase uptake. 3. Collaborate with companies that own a significant number of residential properties to promote uptake of green waste collection service. 	The review can be conducted internally. However, if external support is required for community engagement or cost-benefit analysis, the estimated cost would be \$20,000–\$40,000, depending on the depth of analysis and consultation involved.

6.2.9 UPGRADE BIN INFRASTRUCTURE AND ACCESS

Priority: Medium term			
Findings	Issues	Action	Estimated cost
A review of 2024 Community survey open responses showed reported issues with damaged kerbside bins, including cracked lids, broken wheels, and bins damaged during collection. Overflowing public bins and infrequent servicing were common complaints, particularly in high-traffic areas and near shopping centres. Requests were made for more public bins, especially in parks, walkways, and remote areas.	<p>Damaged or missing bins reduce service quality and contribute to littering and hygiene issues.</p> <p>Overflowing or poorly located bins undermine public confidence in waste services and contribute to windblown litter, illegal dumping and negative amenity impacts.</p>	<ol style="list-style-type: none"> 1. Conduct an audit of kerbside bins and prioritise replacement of damaged or missing units, especially in high-complaint areas. 2. Review public bin placement, capacity and servicing frequency, especially in high-use areas to reduce overflow and improve accessibility. 3. Strengthen contractor performance monitoring and response to service requests. 4. Enhance Community Communication on bin use, collection schedules, and how to report issues through the City's website and community channels. 	<p>The City may choose to conduct the bin audit internally using existing staff, or contract it out to an external provider. Outsourcing the audit would provide a more detailed and independent assessment, with estimated costs ranging from \$15,000–\$30,000, depending on the scale and level of detail required.</p> <p>Bin replacement and servicing improvements would involve external procurement, with total implementation costs estimated at \$50,000–\$100,000 depending on the number of bins replaced, servicing adjustments, and extent of public bin infrastructure upgrades</p>

6.3 GOAL 3: DATA, INFORMATION AND ECONOMICS

6.3.1 CONDUCT REGULAR KERBSIDE AUDITS

Priority: Short term

Findings	Issues	Action	Estimated cost
<p>Kerbside MGB audits were conducted in 2015, 2016, and 2019 by an external consultant.</p> <p>The average bin weight was 17.5kg per household per week. General waste accounted for approx. 50% of the waste stream.</p>	<p>Audit data provides valuable insights into waste composition and contamination trends, which are essential for planning and prioritising recovery initiatives.</p> <p>Without regular audits, the City lacks up-to-date data to inform service improvements, education campaigns, and infrastructure investments.</p>	<ol style="list-style-type: none"> 1. Establish a regular schedule for kerbside MGB audits to monitor changes in waste composition, contamination rates, and service performance. 2. Use audit results to guide decision-making on resource recovery priorities, education strategies, and infrastructure planning. 	<p>Kerbside waste audits are generally outsourced, with costs typically ranging from \$15,000 to \$30,000 per audit round, depending on the scope, number of households sampled, and level of detail required.</p>

6.3.2 CALCULATE WHOLE OF LIFE(WOL) COSTS

Priority: Short term

Findings	Issues	Action	Estimated cost
<p>The City has not recently calculated the full cost of waste disposal and airspace establishment at the Seven Mile Waste Disposal Facility.</p> <p>The City maintains a strong waste reserve and generates significant income from gate fees, but long-term cost recovery and sustainability need to be assessed.</p> <p>Whole-of-life (WoL) costing is essential for evaluating the economic viability of resource recovery initiatives versus landfilling.</p>	<p>Without WoL cost data, the City may under- or over-invest in landfill infrastructure or miss opportunities to justify alternative waste treatment options.</p> <p>Lack of cost transparency may limit strategic financial planning and hinder the ability to set appropriate fees or secure funding.</p>	<ol style="list-style-type: none"> 1. Undertake a Whole-of-Life Costing Assessment for landfill operations and transfer station operations. 2. Incorporate WoL Costs into Financial Planning, asset renewal plans and Long term financial planning. 3. Use WoL costs to assess the economic case for investing in recovery infrastructure (e.g. organics, C&D processing) as alternatives to landfilling. 4. Ensure that current gate fees and reserve allocations are calculated on WOL costs and are sufficient to cover long-term landfill liabilities. 	<p>Action 1 will likely require external consultancy, with an estimated cost of \$15,000–\$30,000, depending on the depth of analysis.</p> <p>All other actions can be managed internally with minimal additional expense.</p>

6.3.3 ASSESS INTERNAL RESOURCE CAPACITY

Priority: Medium term			
Findings	Issues	Action	Estimated cost
<p>This Action Plan outlines initiatives that the City will undertake over the coming years.</p> <p>City staff have identified a lack of internal resources to deliver or expand community education programs, and adequate provision for investigating options for the resolution of problem waste streams.</p>	<p>There is a significant risk that inadequate resource capacity exists to implement actions contained within this Plan over and above existing workloads.</p> <p>Without adequate internal capacity, the City may face delays, or reduced effectiveness in delivering waste strategy outcomes.</p> <p>Resource constraints may also limit the City's ability to engage in regional collaboration, education, and infrastructure planning.</p>	<ol style="list-style-type: none"> 1. Ensure operational and workforce planning processes incorporate the resourcing needs of the Waste Strategy 2030. 2. Recognise that implementation of the plan is expected to generate savings, income, and efficiencies that can offset the cost of additional staffing. 	<p>The recent appointment of a Waste Education Officer addresses part of the internal capacity needs. However, to fully implement the Waste Strategy 2030, the City should review existing staff workloads to ensure the additional expectations of the strategy are realistically incorporated. While some actions may be absorbed internally, additional staffing or external support may still be required.</p>

6.4 GOAL 4: LITTER AND ILLEGAL DUMPING

6.4.1 DEVELOP A LITTER AND ILLEGAL DUMPING STRATEGY

Priority: Medium term			
Findings	Issues	Action	Estimated cost
<p>The 2024 Community Survey results had over 45 comments specifically referencing illegal dumping, making it the most frequently mentioned waste-related issue. Residents expressed frustration with persistent dumping in bushland, verges, and remote areas, particularly in Wickham, Roebourne, Cheeditha and Baynton. Comments highlighted a lack of enforcement, insufficient clean-up, and a desire for more community-led solutions. Overflowing or insufficient public bins were also raised as contributing factors to littering.</p> <p>Despite free disposal options and seven-day access to facilities, illegal dumping is reported as a persistent issue.</p> <p>There is currently no formal litter or illegal dumping strategy in place.</p> <p>The WARR Strategy 2030 includes a target to reduce littering by 30% by 2030 and encourages local governments to adopt coordinated litter prevention and enforcement approaches.</p> <p>Currently, the responsibility for managing litter and illegal dumping in public places in the City is divided amongst departments.</p>	<p>The size of the City and long travel distances make surveillance and timely response to illegal dumping difficult.</p> <p>The divided responsibilities across departments may lead to inefficiencies or gaps in enforcement and response, with minimal resources currently available for strategic management of litter and illegal dumping.</p> <p>The cost of cleaning up litter and illegally dumped waste is borne by the community.</p> <p>Community frustration is growing due to perceived inaction.</p>	<ol style="list-style-type: none"> 1. Develop a City-Wide Litter and Illegal Dumping Strategy aligned with the WARR Strategy 2030 litter reduction target. This could include: <ul style="list-style-type: none"> • Development of good data capture methods to support the development and implementation of responses to this problem. • Education, awareness and behaviour change initiatives to prevent the creation of litter and to achieve long-term positive behavioural change. • Review litter infrastructure to ensure it is adequate to facilitate the disposal of materials. • Consistent and effective enforcement strategies to change behaviour and reinforce the commitment to a community with less littering and illegal dumping. • Explore partnerships with external groups (e.g. environmental NGOs, community organisations) to support litter prevention through education and behaviour change initiatives. • Identification of responsibilities within the City for management of these cross-business unit functions. • Training and development requirements for City staff to increase their level of expertise in regard to effective management of litter and illegal dumping. 2. Enhance Surveillance and Reporting Tools: Explore the use of mobile apps, community reporting platforms, and targeted surveillance in high-risk areas. 3. Monitor and Evaluate Outcomes to inform future improvements and report against WARR Strategy targets. 	<p>Internal staff time will be required to develop the strategy. Alternatively, this could be outsourced.</p> <p>(Cost approx. \$20k - \$40k, dependent on scope)</p> <p>Funding support may be required for specialised tasks such as data system development, community engagement programs, and surveillance technology.</p> <p>The Keep Australia Beautiful Council Western Australia (KABC) provides Community Litter Grants which may be applicable.</p>

6.5 GOAL 5: POLICY AND PROCUREMENT

6.5.1 ADOPT WASTE LOCAL LAWS

Priority: Short term

Findings	Issues	Action	Estimated cost
The City has not yet implemented Waste specific local laws. Under the Waste Avoidance and Resource Recovery Act 2007 (WARR Act), local governments can enact waste local laws with improved enforcement provisions compared to those under the Health Act 1911.	Without a waste-specific local law, the City has limited regulatory tools to manage waste collection, disposal, and compliance effectively. The absence of enforceable provisions may hinder efforts to reduce contamination, manage illegal dumping, and ensure consistent service standards.	Adopt a waste local law based on WALGA waste local law template to improve the regulation and enforcement of waste and refuse.	If done internally with minimal external input, costs may range from \$5,000 to \$10,000, primarily covering staff time and minor legal consultation.

6.5.2 ALIGN STRATEGIC COMMUNITY PLANS AND OPERATIONAL PLANS WITH THE WASTE STRATEGY

Priority: Short term

Findings	Issues	Action	Cost
Waste plans are considered issue-specific informing strategies within the local government integrated planning framework. The Strategic Waste Management and Resource Recovery Strategy (the Waste Strategy) must be linked to the City's Strategic Community Plan (SCP), Corporate Business Plan (CBP), and annual operational plans to ensure implementation	Without formal integration into strategic and operational planning documents, actions within the SWMRP may not be progressed, funded, or resourced.	The Waste Strategy is endorsed by the Council to inform relevant City strategic community planning goals and annual corporate and operational plans.	This action can be undertaken using internal resourcing, particularly through collaboration between the City's waste, and corporate planning teams.

6.5.3 INTEGRATE WASTE RELATED ACTIONS INTO THE CITY'S EMISSIONS REDUCTION PLAN AND SUSTAINABILITY STRATEGY

Priority: Medium term			
Findings	Issues	Action	Cost
<p>Waste-related emissions from local government waste operations typically represent a significant portion of a municipality's total greenhouse gas emissions and highlights the importance of sustainable waste policies and infrastructure in achieving municipal climate goals.</p> <p>The National Waste Policy and WA Climate Policy both identify waste sector emissions as a priority for reduction.</p> <p>The City is in the process of quantifying emissions and developing reduction actions for all operations through its Emissions Reduction Planning project.</p>	<p>This Waste Strategy and Emissions Reduction Plan were developed concurrently.</p> <p>There is a need to ensure this strategy integrates with the Emissions Reduction Plan to complement climate action and reporting.</p>	<ol style="list-style-type: none"> 1. Integrate relevant waste-related actions into the Emissions Reduction Plan. 2. Refer to the Emissions Reduction Plan as the guiding document for identifying and implementing relevant waste-related emissions reduction measures. 	<p>This can be undertaken using internal resources,</p>

6.5.4 EMBED WASTE MANAGEMENT INTO LOCAL PLANNING INSTRUMENTS

Priority: Long term

Findings	Issues	Action	Cost
<p>The City's Local Planning Strategy references waste management but does not identify buffers or future waste facility sites.</p> <p>The Local Planning Scheme does not define waste-related land uses (e.g. resource recovery facility, waste disposal facility) as per the Planning and Development (Local Planning Schemes) Regulations 2015.</p> <p>The Seven Mile Waste Facility is expected to meet demand until 2044, but no future planning provisions are in place.</p> <p>The City has not adopted a local planning policy requiring the preparation of waste management plans for proposed developments in the City. Part C of the Residential Design Codes requires a waste management plan to be submitted for multiple dwelling development and 5+ grouped dwelling developments only.</p>	<p>Without defined land uses and buffers, there is a risk of land use conflict and encroachment by sensitive receptors.</p> <p>The absence of planning protections may limit the City's ability to expand or adapt waste infrastructure in the future.</p> <p>Lack of alignment with state planning regulations may reduce strategic clarity and investment confidence.</p> <p>Increased volumes of mixed construction and demolition waste are being disposed of in landfill if developments are not constructed and operated to maximise waste avoidance and resource recovery.</p>	<ol style="list-style-type: none"> 1. Update the Local Planning Scheme for waste-related land uses (e.g. resource recovery facility, waste disposal facility, waste storage facility) in line with the Planning and Development (Local Planning Schemes) Regulations 2015 as part of the next Scheme Review Process. 2. Identify and Protect Waste Infrastructure Sites with appropriate land use buffers to prevent encroachment. 3. Consider expanding the requirements for the submittal of waste management plans developments in the City. 	<p>These planning updates can be undertaken using internal resources, primarily through the City's strategic planning team as part of the next Scheme Review Process. No significant external resourcing is expected, and costs will be absorbed within existing operational budgets.</p>

6.6 GOAL 6: BEHAVIOUR CHANGE PROGRAMS

6.6.1 STRENGTHEN WASTE EDUCATION AND BEHAVIOUR CHANGE PROGRAMS

Priority: Short term

Findings	Issues	Action	Estimated cost
<p>58% of survey respondents reported low to moderate confidence in knowing what can be recycled.</p> <p>High contamination rates in kerbside recycling were reported by Cleanaway.</p> <p>79% of respondents agreed that the City should provide more education on waste reduction and recycling.</p> <p>Community and stakeholder feedback highlighted the need for consistent, targeted education—especially for transient populations.</p> <p>City staff have identified a lack of internal resources to deliver or expand community education programs.</p> <p>Language diversity, literacy and numeracy challenges, and the seasonal impacts of tourism were identified as important considerations in the development and delivery of waste education programs.</p>	<p>Waste generators play a significant role in determining resource recovery rates achieved by the City. This will be influenced through the participation in recycling services provided and the amount of contamination within collected materials.</p> <p>Lack of recycling knowledge contributes to contamination and improper disposal.</p> <p>Transient populations and limited community engagement reduce the effectiveness of one-off education efforts.</p> <p>Without behaviour change, infrastructure improvements alone will not achieve recovery targets.</p> <p>Resource constraints limit the City's ability to deliver sustained education and engagement.</p> <p>Without accounting for language, literacy, and seasonal population changes (e.g. tourism), education programs may fail to reach or resonate with key segments of the community, limiting their effectiveness and uptake.</p>	<ol style="list-style-type: none"> Develop and implement a Multi-Year Waste Education Strategy that includes: <ul style="list-style-type: none"> Ongoing community campaigns using local media, social platforms, events, and signage. Behavioural nudges such as bin tagging and feedback cards or visual cues to reinforce correct behaviours at the household level Pilot incentive-based waste reduction programs (e.g. rewards for low contamination) to encourage positive behaviours and test community response Tailored messaging and delivery methods for key audiences (e.g. new residents, schools, FIFO workers, indigenous communities) with tailored messaging and delivery methods. Secure Resources to Support Delivery Partner with stakeholders to support community-led initiatives like clean-up days and waste-free events. Collaborate with organisations like Rio Tinto to distribute recycling information to tenants. Seek Funding or Partnerships to Support Delivery: Explore grant opportunities or partnerships with local organisations to resource and deliver education programs. Evaluate and Adapt: Monitor contamination rates, service usage, and community feedback to refine education efforts over time. Review and enhance the City's grant programs to support and incentivise community groups and businesses to implement waste avoidance, resource recovery, and circular economy initiatives. 	<p>With the recent appointment of a Waste Education Officer, this action can be resourced internally. Additional funding will be required to support Strategy implementation, incentive schemes, and outreach efforts targeting diverse and transient populations.</p> <p>There may be potential to draw down Waste Authority funding to support waste education initiatives once developed.</p>

6.7 GOAL 7: ABORIGINAL COMMUNITIES

6.7.1 IMPROVE SERVICES AND INFRASTRUCTURE FOR ABORIGINAL COMMUNITIES

Priority: Short term

Findings	Issues	Action	Cost
<p>The City provides kerbside collection to Roebourne and Cheeditha, along with fee waivers for Mingullatharndo and Weymul communities to access the WTS.</p> <p>Waste services are limited in remote Aboriginal communities, and access to infrastructure is constrained.</p> <p>The <i>WARR Strategy 2030</i> and <i>Closing the Gap National Agreement</i> prioritise improved infrastructure, and community-led planning in Aboriginal communities.</p>	<p>Current services may not fully meet the needs of Aboriginal communities in terms of accessibility, cultural appropriateness, or infrastructure quality.</p> <p>There is no formal engagement or co-design process in place to ensure services reflect community needs.</p> <p>A lack of data and feedback mechanisms limits the City's ability to monitor service effectiveness or identify gaps.</p>	<ol style="list-style-type: none"> 1. Engage with Aboriginal organisations to understand infrastructure needs (e.g. bins, signage, drop-off points), barriers, and culturally appropriate service models. 2. Align actions align with the Closing the Gap commitments including Priority Reform 1 (formal partnerships and shared decision-making) and Target 9 (infrastructure and essential services). 3. Secure Funding for Service Improvements through state and federal programs. 	<p>Costs for this action will depend on scope of community engagement required and the extent of infrastructure upgrades proposed.</p> <p>Engagement can be carried out internally or alternately outsourced.</p> <p>Funding is expected to be sought through state and federal programs to support improvements.</p>

6.8 GOAL 8: REGIONAL EFFICIENCIES

6.8.1 ESTABLISH A PILBARA REGION OFFICERS ADVISORY GROUP

Priority: Medium term

Findings	Issues	Action	Estimated cost
There is limited opportunity for collaboration to progress initiatives across the region. There is no formal system for regional communication, cooperation and collaboration at a Local Government level.	Increased cost of services due to the limited economies of scale achieved. Limited information sharing and problem solving. No opportunity for regional collaboration on projects. Limited access to regional funding streams.	<ol style="list-style-type: none"> 1. Establish a Local Government Officers Group that meets regularly (at least quarterly) to discuss waste management and resource recovery matters. 2. Use the group to support regional planning, funding applications, and collaborative project delivery. This is an opportunity which, if actioned, could assist in reducing capital expenditure and increasing the economic feasibility of recycling and recovery programs in the region. 	The costs relate to internal City resources and the additional time spent preparing, disseminating information and holding additional meetings.

6.8.2 ADVOCATE FOR REGULATORY AND POLICY REFORM IN THE MINING SECTOR

Priority: Medium term

Findings	Issues	Action	Estimated cost
The mining and resources sector generates significant volumes of complex and problematic waste streams (e.g. tyres, bulka bags, IBCs). Current regulatory frameworks and voluntary stewardship schemes do not adequately address the transport, processing, or recovery of these materials in remote regions. Many mining companies have corporate sustainability strategies, but waste minimisation and recycling are often underrepresented. Local governments often bear the cost and risk of managing these waste streams due to limited industry accountability.	Local governments have limited influence over mining waste practices without stronger state or federal policy support. Opportunities for circular economy outcomes are missed due to fragmented regulation and inconsistent industry participation. Lack of visibility of waste performance in sustainability reporting reduces accountability and innovation.	<ol style="list-style-type: none"> 1. Advocate for Mandatory Product Stewardship Schemes for mining-related waste (e.g. tyres, bulka bags, IBCs) that include funding for collection and transport. 2. Advocate for the inclusion of waste minimisation and recovery obligations in regulation, mining agreements, environmental approvals and sustainability reporting. 3. Support the development of shared infrastructure and logistics solutions that align with both local government and industry sustainability goals. 4. Seek cooperation from major resource sector companies to provide annual waste generation and diversion data. This will complement existing emissions reporting obligations and support regional emissions reduction tracking. 	The costs are associated with the use of internal City resources and the extra time required for preparing submissions, providing responses, and offering feedback as needed.

6.8.3 FACILITATE THE FORMATION OF A REGIONAL WASTE MANAGEMENT ALLIANCE

Priority: Long term			
Findings	Issues	Action	Estimated cost
<p>Consultation revealed strong support for regional collaboration amongst stakeholders.</p> <p>Stakeholders identified duplicated efforts, inefficiencies, and a lack of coordination as barriers to effective waste management.</p> <p>There is no current mechanism to coordinate regional waste planning or infrastructure investment.</p> <p>The <i>Waste Strategy 2030</i> also sets targets for the commercial sector, which apply to many of the region's key stakeholders.</p> <p>The State Waste Infrastructure Plan (DWER, 2024) provides a strategic foundation for identifying regional infrastructure needs and opportunities.</p> <p>Regional infrastructure planning presents an opportunity to support local employment, entrepreneurship, and innovation.</p>	<p>Without coordination, stakeholders operate in silos, missing opportunities for shared infrastructure, transport efficiencies, and economies of scale.</p> <p>Regional development opportunities are constrained by the absence of a clear vision and roadmap for infrastructure investment and innovation.</p> <p>Problem waste streams and infrastructure gaps persist due to fragmented planning.</p> <p>Local governments may lack the capacity to independently assess or implement emerging technologies.</p> <p>Coordination and collaboration require an independent party to drive actions and maintain momentum. Without coordination, stakeholders may struggle to meet Waste Strategy targets individually.</p>	<ol style="list-style-type: none"> 1. Engage Stakeholders to Confirm Interest and Commitment: Conduct targeted engagement with local governments, industry, and service providers to confirm interest in forming a regional alliance. Identify shared priorities, potential contributions, and expectations to inform the structure and scope of the alliance. 2. Develop and establish a Regional Waste Management Alliance involving LGAs, industry, and waste service providers to drive collaborative waste management and resource recovery initiatives across the Pilbara region. 3. Determine a Sustainable Management and Funding Model for the Group: Identify and agree on a governance and funding model for the group. This may include appointing an independent coordinator (e.g. consultant, Pilbara Development Commission, or another agency). Explore cost-sharing among stakeholders or seek external funding to support this role. 4. Develop a Shared Regional Waste Vision: Co-design a strategic vision for waste and resource recovery in the Pilbara, aligned with state and national targets. 5. Identify and Prioritise Collaborative Projects: Use the Alliance as the coordinating forum to progress regional infrastructure planning, building on the State Waste Infrastructure Plan (DWER 2024). Projects could include shared transport solutions, stockpiling hubs, regional processing opportunities for problem waste streams, and developing and supporting local end markets for material streams. 6. Seek State Support and Funding: Advocate for state-led coordination and funding to support regional collaboration and infrastructure development. 	<p>Expected costs for this initiative will primarily involve the use of internal City resources to support stakeholder engagement, coordination, and planning activities. Additional funding may be sought externally to support the appointment of an independent coordinator and the development of shared infrastructure projects.</p>

7 IMPLEMENTATION, MONITORING AND REVIEW

7.1 IMPLEMENTATION

This Strategy sets a clear path toward more sustainable and efficient waste management for the next 10 years. Its implementation should be reviewed and adapted by the City over time, particularly for more complex actions that will require detailed project planning, feasibility assessments, or staged delivery.

To support effective implementation, the following principles are recommended:

- **Integration with Corporate Planning:** Actions should be embedded into the City's Corporate Business Plan, Long-Term Financial Plan, and annual budgets to ensure alignment with broader strategic and financial priorities.
- **Phased Delivery:** Actions have been prioritised by the City. Some actions will require staged delivery over multiple years.
- **Resourcing:** Adequate internal capacity and resourcing will be essential to deliver the Strategy. This may include dedicated project management, technical expertise, and communications support.
- **Collaboration and Partnerships:** Some actions will benefit from or require collaboration with regional stakeholders, industry, and the community. The City should continue to foster partnerships to leverage shared resources and expertise.

7.2 IMPLEMENTATION PLAN

To support delivery of the Strategy, **Table 7.1** presents a consolidated view of the strategic goals and objectives, along with indicative cost estimates and implementation timeframes. This table is intended to guide informed decision-making and resource allocation by summarising the key actions required across short-term (2025–2027), medium-term (2027–2030), and long-term (beyond 2030) horizons. Costs do not include internal resourcing or staff time allocations, which are assumed to be managed within existing operational budgets. This framework provides a practical tool to support annual operational planning, budget development, and long-term investment.

7.3 MONITORING AND REVIEW

Ideally, the progression of initiatives should be integrated into the City's Strategic Community Plan, with specific actions incorporated into annual Corporate Business Plans and reported to the community as part of regular performance updates.

In addition to tracking implementation progress, the Strategy should be treated as a dynamic document, reviewed and updated periodically to ensure it remains relevant to emerging waste management issues, legislative changes, and evolving community needs.

Table 7.1: Implementation Plan

Goal and Objective	Obj #	Estimated costs 2025 – 2027	Estimated costs 2027 – 2030	Estimated costs Beyond 2030+	Notes
Goal 1: Waste Infrastructure and Operations					
Establish better practice infrastructure	6.1.1	Benchmarking Maintain and deliver capital works program \$30,000 - \$50,000	Maintain and deliver capital works program \$50,000 - \$100,000	Maintain and deliver capital works program	Funding for Feasibility methane capture (short term) and Regional Waste to Energy (medium term) Benchmarking, planning, and integration into financial and asset systems can be managed using existing staff resources. Specific funding will be required for capital works, which will need to be identified and prioritised through the Long-Term Financial Plan process.
Resolve legacy stockpile issues	6.1.2	\$40,00 - \$70,000	\$10,000		Funding for assessment and analysis actions by consultant.
Review WTS operations	6.1.3	\$35,000 - \$60,000	Implement		Funding for operational review, data system upgrades, community engagement. Additional funding maybe required for infrastructure upgrades as result of operational review.
Develop a masterplan for the SMWDF	6.1.4	\$35,000- \$50,000	Implement	Implement	Design and costing by consultant, cost dependent on the depth of analysis, technical design requirements required.
Renaming of the SMWDF to reflect a resource recovery focus	6.1.5		\$5,000 - \$10,000		Funding for branding updates and community engagement activities.
Plan for long term disposal capacity	6.1.6		\$50,000 - \$70,000	Implement	Funding for revised LCMP and staged closure plan by consultant, cost dependent on scope of works required.
Goal 2: Waste Services					
Analysis of future resource recovery services	6.2.1	\$40,000 - \$60,000	Implement	Implement	Funding for resource recovery option analysis by consultant, cost dependent on scope of works required. Funding does not include implementation costs.
Assess the feasibility of organics recovery	6.2.2		\$40,000 - \$60,000	Implement	Funding for Composting Rebate Program (\$45K already identified) Funding for feasibility study. Additional costs may be incurred for developing a business case and long-term strategy if the project is deemed feasible.
Reduce contamination in kerbside recycling bins	6.2.3	\$10,000 - \$20,000			Funding for education materials and recycling guidelines.
Investigate options for MGB standardisation	6.2.3		\$10,000 - \$20,000	Implement	Funding for planning and community education. Bin upgrade costs are not included and will depend on breadth of changes required and can be offset through annual waste fees.
Investigate transition to better practice kerbside services	6.2.3		\$10,000 - \$20,000	Implement	Funding for assessment of design and collection options. Funding does not include 3 rd bin costs, or additional collection costs.
Enhance services in the Eastern Corridor	6.2.4	\$50,000 - \$100,000	Implement		Funding for bin replacement, education material development, and bulk waste initiatives. Costs will depend on the scale of bin replacement and the extent of community partnership programs.
Increase use of hazardous waste disposal services	6.2.5	\$10,000 - \$15000			Funding for campaign materials, signage, and monitoring tools.
Investigate the development of a recycling precinct	6.2.6		\$50,000 - \$100,000	Implement	Funding for concept development and basic infrastructure improvements (e.g. shelter, workshop space).
Expand public place infrastructure	6.2.7		\$40,000 - \$60,000	Implement	Funding for small scale public place recycling trial and feasibility study for local recycling stations.
Review pre cyclone green waste collection	6.2.8		\$20,000 - \$40,000	Implement	The review can be conducted internally. Alternatively can be undertaken by external consultant. Funding provided for review project including community consultation.
Upgrade bin infrastructure and access	6.2.9		\$15,000 - \$25,000	Implement	Funding for external bin audit. Does not include funding for bin replacement and infrastructure upgrades, servicing adjustments.
Goal 3: Data, Information and Economics					
Conduct regular kerbside audits	6.3.1	\$15,000 - \$25,000		\$15,000 - \$25,000	Funding for external waste audits, dependent on scope.
Calculate WOL costs	6.3.2	\$15,000 - \$30,000			Funding for WOL cost assessment, dependent on scope.
Assess internal resourcing capacity	6.3.3	Assess	Assess	Assess	While some actions may be absorbed internally, additional staffing or external support may still be required.
Goal 4: Litter and Illegal Dumping					
Develop a Litter and Illegal Dumping strategy	6.4.1		\$20,000 - \$40,000		Funding for Litter Strategy development. Funding does not cover implementation or specialised tasks such as data system development, community engagement programs, and surveillance technology.
Goal 5: Policy and Procurement					
Adopt Waste local laws	6.5.1	\$5,000			Funding for legal review.
Align Strategic Community Plans and operational plans	6.5.2	Implement	Implement	Implement	Internal resources.
Integrate waste related actions into the City's Environmental Sustainability Strategy	6.5.3		Implement		Internal resources.
Embed waste management into local planning instruments	6.5.4			Implement	Internal resources.
Goal 6: Behaviour Change Programs					
Strengthen waste education and behaviour change programs	6.6.1	Develop & implement	Implement	Implement	Internal resources. Funding will be required to support education strategy implementation.
Goal 7: Aboriginal Communities					
Improve services and infrastructure for aboriginal communities	6.7.1	Engage	Implement	Implement	Internal resources. Funding will be required for infrastructure upgrades that may be able to be sort through state or federal support programs.
Goal 8: Regional Efficiencies					
Establish a Pilbara region officers' advisory group	6.8.1		Establish and Implement	Implement	Internal resources.
Advocate for regulatory and policy reform in the mining sector	6.8.2		Implement	Implement	Internal resources.
Facilitate formation of a regional waste management alliance	6.8.3			Implement	Internal resources. Additional funding may be sought externally to support the appointment of an independent coordinator and shared infrastructure projects.

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APPENDIX A – BASELINE REPORT

Baseline Waste Report – Waste Management and Resource Recovery Strategy City of Karratha



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Acknowledgements

ASK Waste Management acknowledges the Traditional Owners of the land in which we work and live, and pays respects to Elders past, present, and emerging.

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1 INTRODUCTION

The City of Karratha is committed to delivering efficient and sustainable waste management, resource recovery, and recycling services. This Baseline Waste Report, which serves as a precursor to the development of the *Strategic Waste Management and Resource Recovery Strategy* (SWMRRS), provides a comprehensive overview of the current waste management services, infrastructure, and supporting activities implemented by the City of Karratha to handle waste generated within its jurisdiction. The information in this report serves as a basis for developing actions to address both existing and future waste management challenges in the City of Karratha, which will be detailed in the *Strategic Waste Management and Resource Recovery Strategy*.

2 BASELINE WASTE DATA

2.1 POPULATION DATA

The City of Karratha encompasses the Karratha City urban centre and the town sites of Cossack, Dampier, Point Samson, Roebourne and Wickham. The population of the City of Karratha is shown in **Table 2.1**. The increase in population associated with tourism visitor nights has also been accounted for.

Table 2.1 City population data (Remplan, 2025)

Location	Permanent*	Tourism equivalent**	Total
Karratha (LGA)	24,716	3,803	28,519

*Population 2024: Remplan Data from City of Karratha

** Tourist data taken from Tourism WA, LGA Visitor Fact Sheet May 2023 – three-year average. Visitor nights divided by 365 to allow tourism numbers to be incorporated into population statistics.

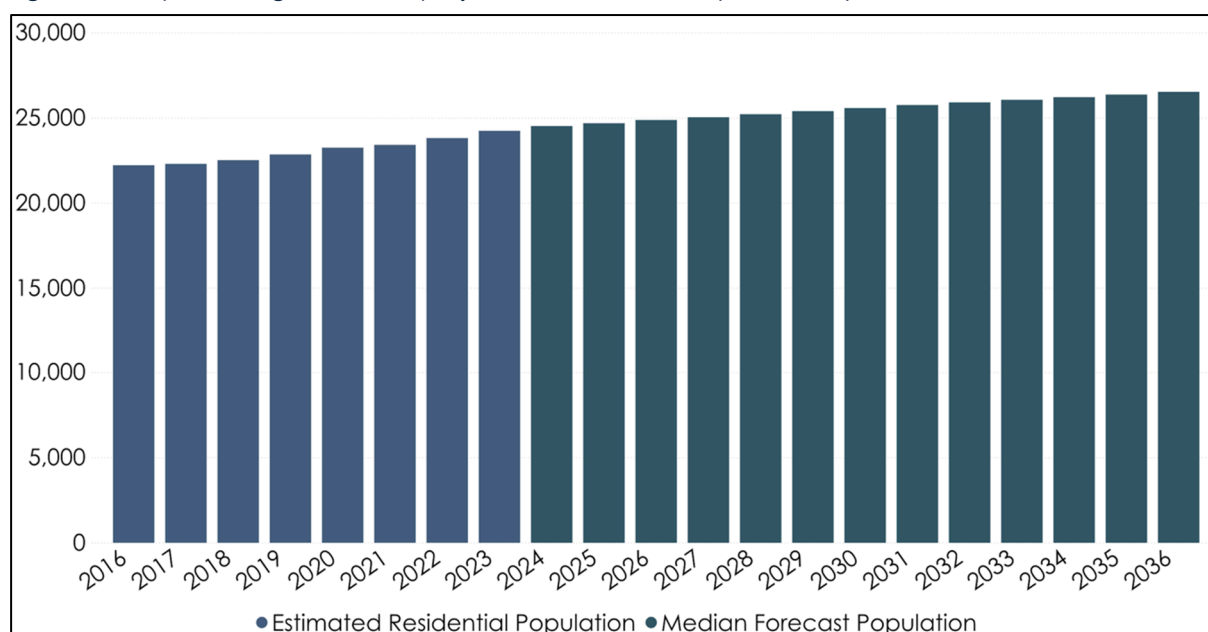
Population forecasts for 2025, based on Remplan data provided by the City, are presented for each locality within **Table 2.2**.

Table 2.2 City and town sites population (Remplan 2025 forecasts, 2025)

Area	Baynton	Dampier	Karratha (incl industrial)	Point Samson	Roebourne	Wickham	Stove Hill & Rural
Pop	4,992	1,461	14,213	255	1,060	2,218	710

According to the Western Australia Tomorrow 12 Population Forecasts, the population of the City of Karratha is projected to remain relatively stable, with an anticipated increase of 9.4% from 2023 to 2036 (Department of Planning, Lands and Heritage, 2025) (**Figure 2.1**).

Figure 2.1 Population growth and projections for Karratha (2016-2036)



2.1.1 HOUSEHOLDS

The ABS Census data shows that single-unit dwellings (SUDs) make up the vast majority of dwellings in the LGA, with the number of private dwellings in the area increasing from 6,325 in 2011 to 8,029 in 2021 (ABS, 2021)(Table 2.3).

Table 2.3 Karratha LGA dwelling counts and structures

Dwelling count	2011 ¹		2016		2021	
	#	%	#	%	#	%
Occupied private dwellings	5,285	83.6	6,168	73.8	6,308	78.5
Unoccupied private dwellings	1,040	16.4	2,185	26.2	1,721	21.4
Total dwellings #	6,325		8,353		8,029	
Dwelling structures	#	%	#	%	#	%
Separate house	3,992	75.5	5,113	82.9	4,951	78.5
Semi-detached, row or terrace house, townhouse etc.	660	12.5	705	11.4	893	14.2
Flat or apartment	265	5.0	209	3.4	330	5.2
Other	345	6.5	110	1.8	97	1.5
Total SUDs	4,652	92.1	5,863	94.8	5,844	93.2
Total MUDs and Other	610	7.8	319	5.2	427	6.8

2.2 SOLID WASTE QUANTITIES

2.2.1 CATEGORIES

Waste data has been compiled into the following sector source categories:

- **Municipal Solid Waste (MSW)** – is primarily waste collected from households through kerbside waste and recycling collections. It includes biodegradable material, recyclable materials such as bottles, paper, cardboard and aluminium cans, and a wide range of non-degradable material including paint, appliances, old furniture and household lighting (National Waste Report, 2010). Municipal waste may include waste from small commercial premises or other similar activities where this is collected as part of the standard local government service (Waste Authority, 2019a).
- **Commercial and Industrial Waste (C&I)** – refers to waste generated by institutions and businesses, such as schools, restaurants, offices, government agencies and facilities, retail and wholesale businesses, and manufacturing industries. (Waste Authority, 2024b).
- **Construction and Demolition Waste (C&D)** – refers to waste generated from demolition, building activities, road and rail construction, maintenance, and land excavation related to construction (Waste Authority, 2024b).

2.2.2 TOTAL WASTE QUANTITIES

The average annual quantity of solid waste that was managed by the City between the 2021/22 financial year and 2023/24 is 78,500 tonnes. This value does not include liquid waste or any wastes that were generated and managed directly by industry with their own disposal sites. Over the three

¹ 2011 Census data is for Shire of Roebourne, the LGA changed its name to City of Karratha from July 2014

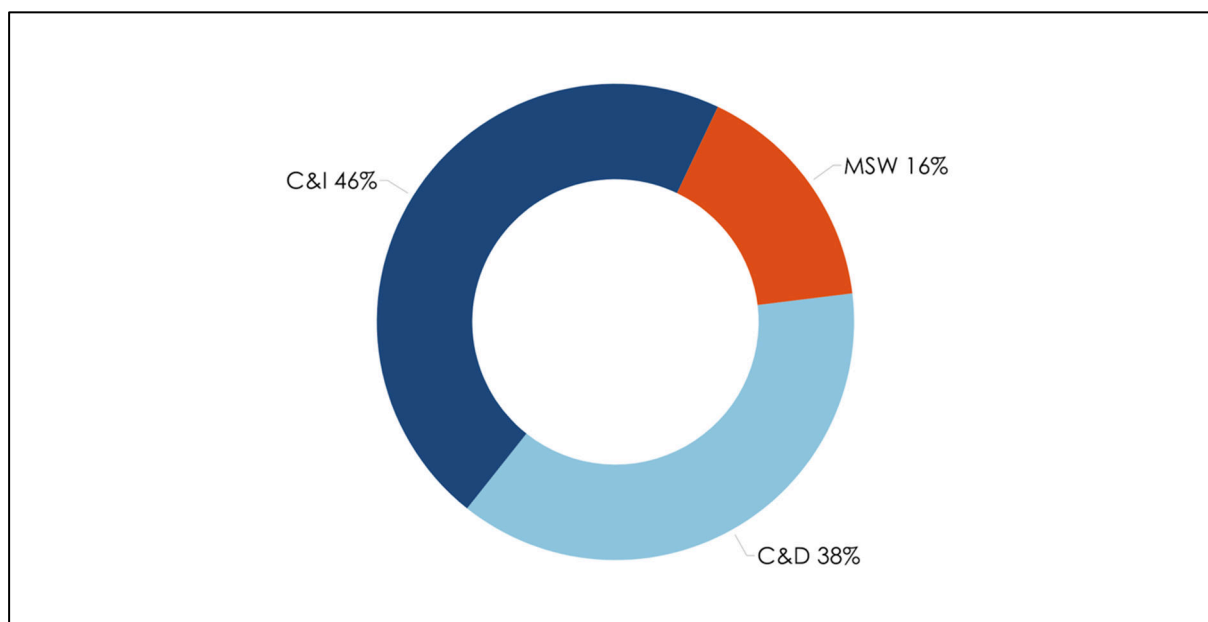
years the MSW, C&I and C&D waste streams comprised 16%, 46% and 38% respectively of the total waste quantities.

Table 2.4 provides the three year average estimated tonnes of waste generated within the City and percentage breakdown by sector source. The average percentage breakdown by sector source is shown graphically in **Figure 2.2**.

Table 2.4 Average estimated tonnes of waste and percentage breakdown generated within the City of Karratha (average of annual waste quantities 2021/22 – 2023/24)

Estimated tonnes of waste per year (rounded to nearest 100 tonne)			
MSW	C&I	C&D	Total
12,600	36,400	29,500	78,500
16%	46%	38%	100%

Figure 2.2 Average percentage breakdown by sector source (2021/22 – 2023/24)



2.2.3 MSW WASTE

Waste generated from the domestic sector of the community comprises, on average, approximately 16% of the total waste produced within the City as shown in **Figure 2.2**. The majority of this waste is sourced from the City's kerbside waste and recycling collection services (59%), followed by waste dropped-off at the 7 Mile Waste Disposal Facility (32%), with a small additional amount coming from Wickham Transfer Station and from the pre-cyclone green waste collection (**Figure 2.3**). Kerbside residual waste constitutes over half of the MSW stream (52%), followed by dropped off mixed domestic waste, green waste, and kerbside recycling (22%, 10% and 7% respectively) (**Figure 2.4**).

Figure 2.3 Composition of MSW by source (2021/22 – 2023/24)

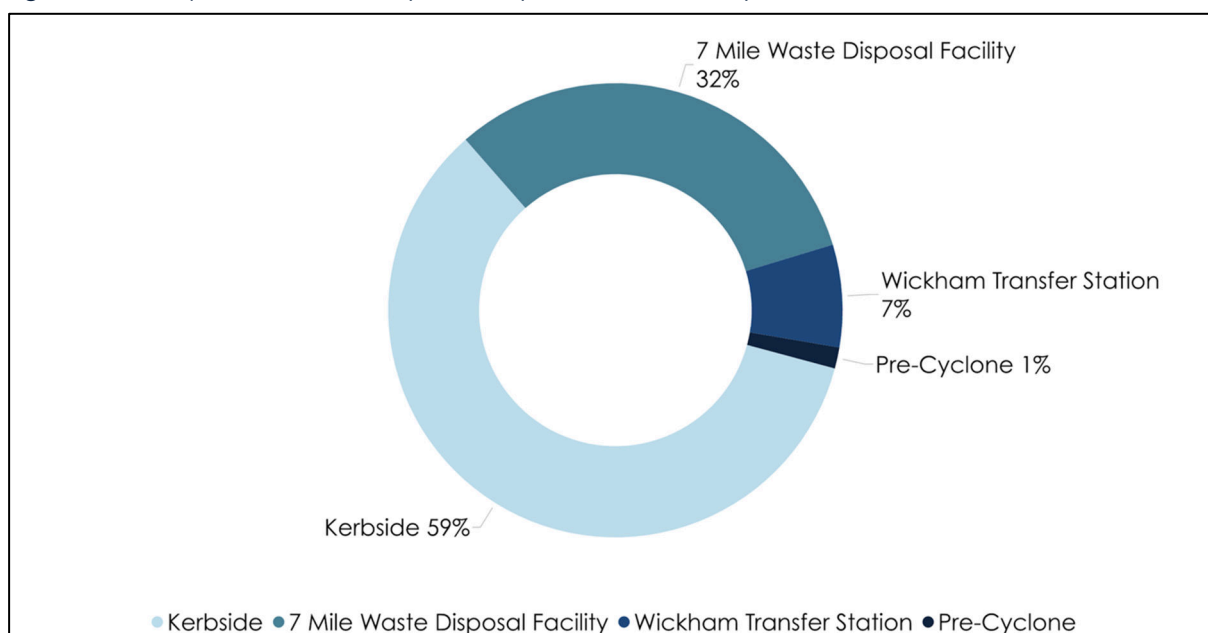
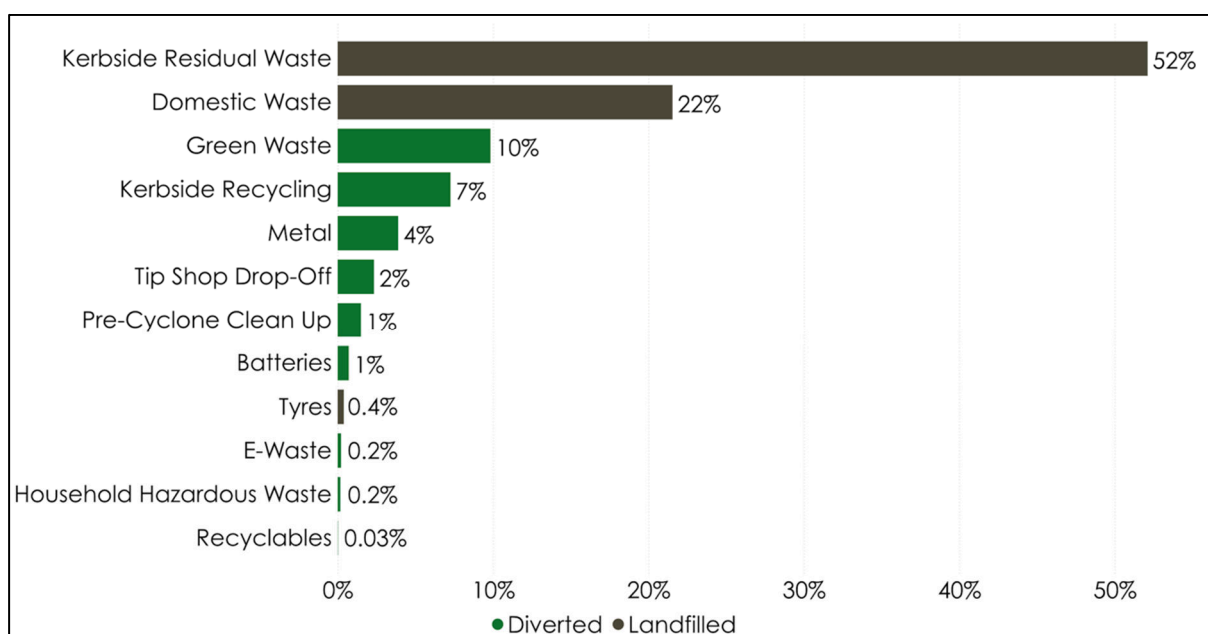


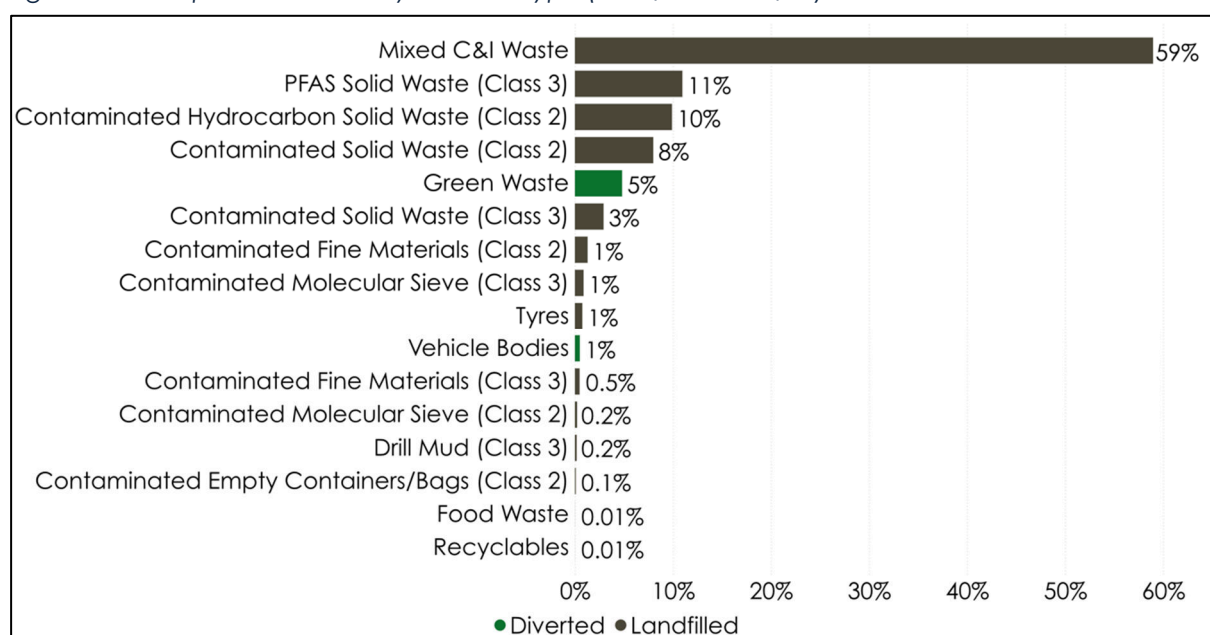
Figure 2.4 Composition of MSW by material type (2021/22 – 2023/24)



2.2.4 C&I WASTE

Waste generated from the commercial and industrial (C&I) sector comprises, on average, approximately 46% of the total waste handled by the City. Error! Reference source not found. provides a breakdown of the City's average annual C&I waste stream composition by material type (2021/22 – 2023/24).

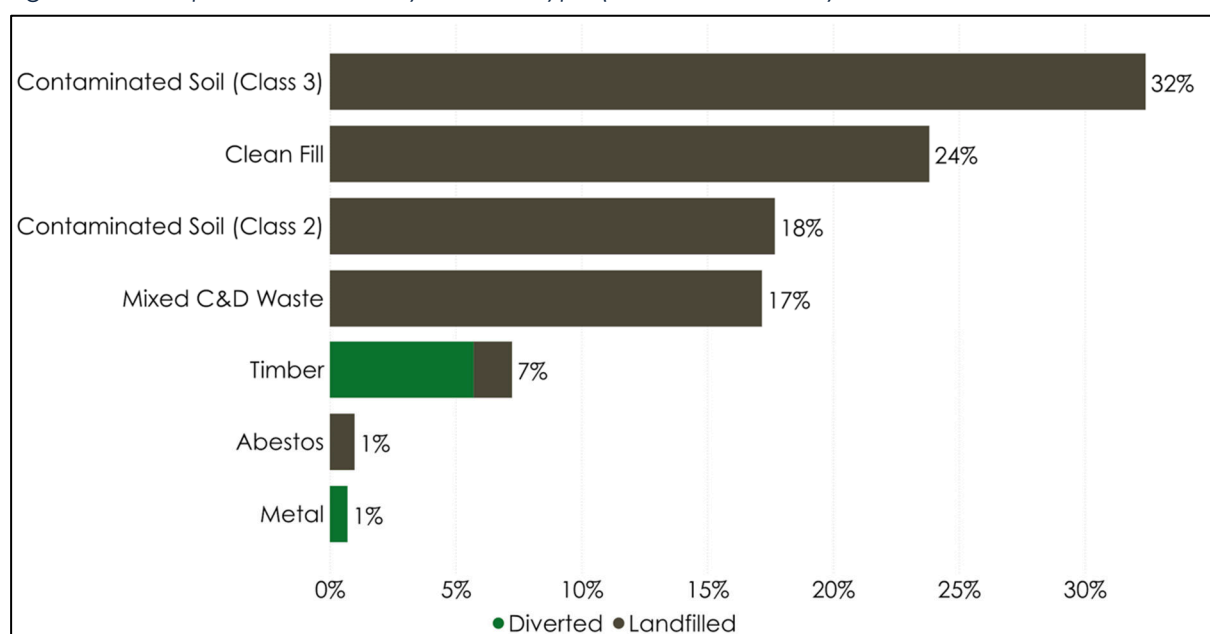
Figure 2.5 Composition of C&I by material type (2021/22 – 2023/24)



2.2.5 C&D WASTE

Waste generated from the construction and demolition sector (C&D) comprises, on average, approximately 38% of the total waste handled by the City. **Figure 2.6** provides a breakdown of the City's average annual C&D waste stream composition by material type (2021/22 – 2023).

Figure 2.6 Composition of C&D by material type (2021/22 – 2023/24)



2.3 WASTE GENERATION RATES

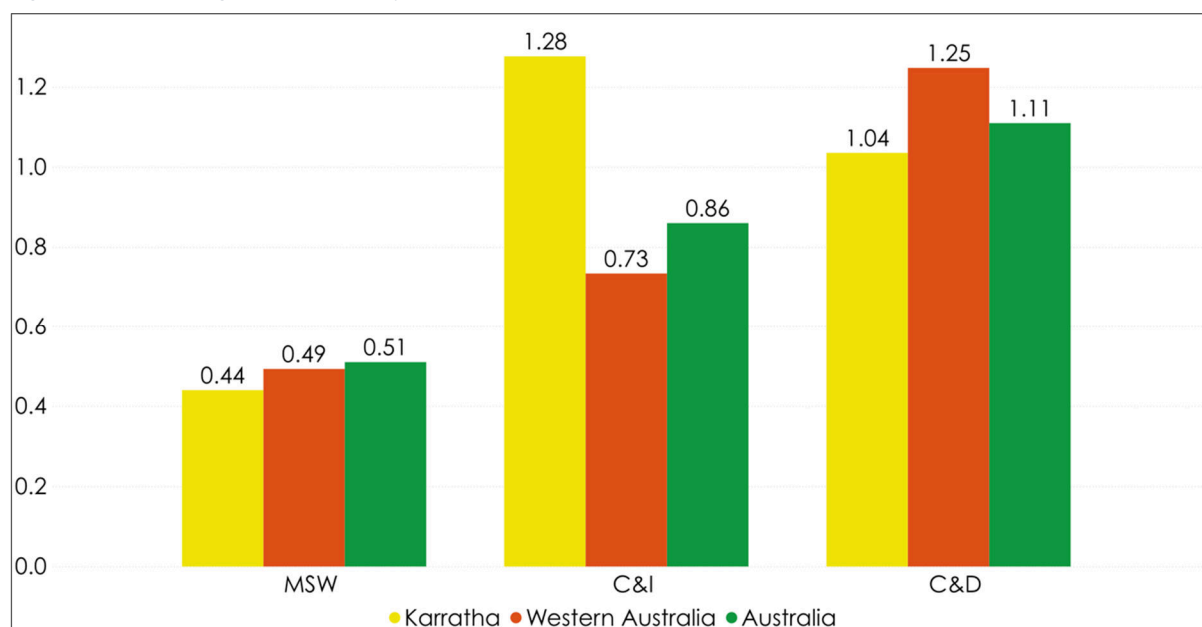
The City's waste generation rates have been benchmarked against the state's performance outcomes as listed in the *Waste Authority Annual Report 2023-34* and the Australian rates from the *National Waste and Resource Recovery Reporting* (Waste Authority, 2024a and DCCEEW, 2024) (**Table 2.5** and **Figure 2.7**). These rates have been calculated using the three-year average waste data from the City, divided by the LGA population, including visitor numbers.

The benchmarking indicates that the total waste generated per capita in the City is approximately 300kg above the state and national averages at 2.76 tonnes per capita. MSW and C&D generation is slightly below both WA and Australian averages. The rate of C&I waste generated is significantly higher than both WA and Australian averages, due to the significant mining and resources operations within the area.

Table 2.5 Waste generation values of the City compared to state and national averages (2021/22 – 2023/24 three-year average)

Waste stream	City of Karratha tonnes per capita	City of Karratha % breakdown	WA tonnes per capita	WA % breakdown	Australia tonnes per capita	Australia % breakdown
MSW	0.44	16%	0.49	20%	0.51	20%
C&I	1.28	46%	0.73	29%	0.86	35%
C&D	1.04	38%	1.25	51%	1.11	45%
Total	2.76	100%	2.47	100%	2.48	100%

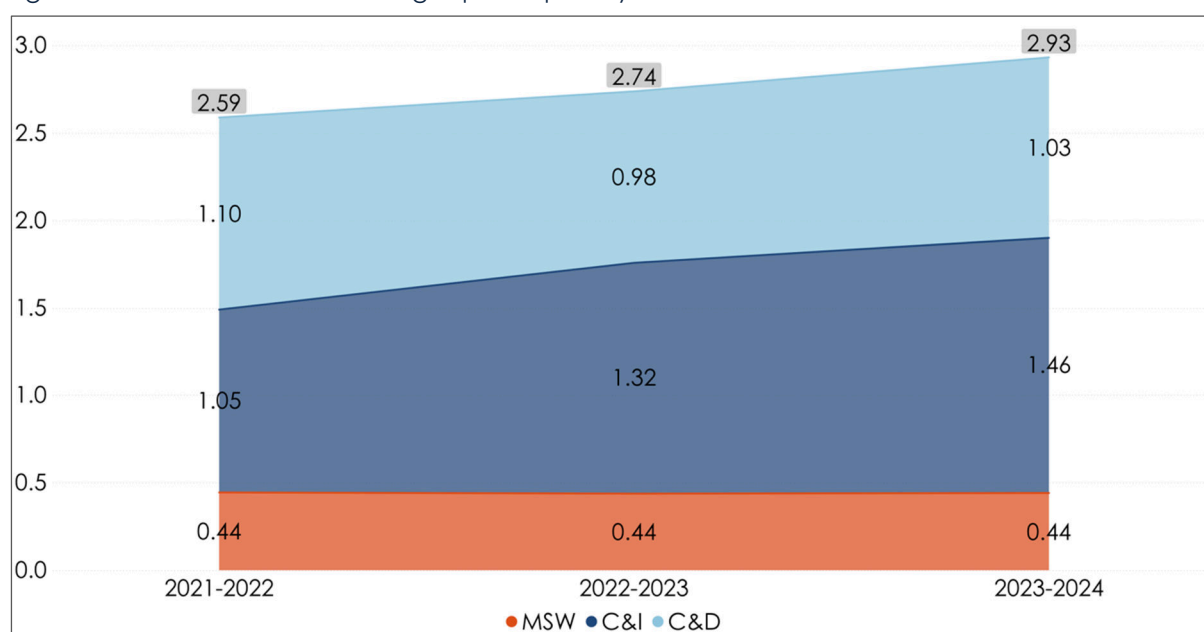
Figure 2.7 Waste generation by jurisdiction (tonnes per capita)²



Over the last three years, per capita waste generation quantities varied by sector. MSW remains steady at around 0.44 tonnes, C&D waste decreased by 6%, while C&I waste increased 39% from 1.05 to 1.46 tonnes per capita, as shown in **Figure 2.8**.

² Karratha per capita rates based on a three year average (2021/22 – 2023/24), Western Australia and Australia rates are sourced from the National WARR Reporting 2022/23 (DCCEE, 2024)

Figure 2.8 Karratha annual tonnages per capita by waste stream

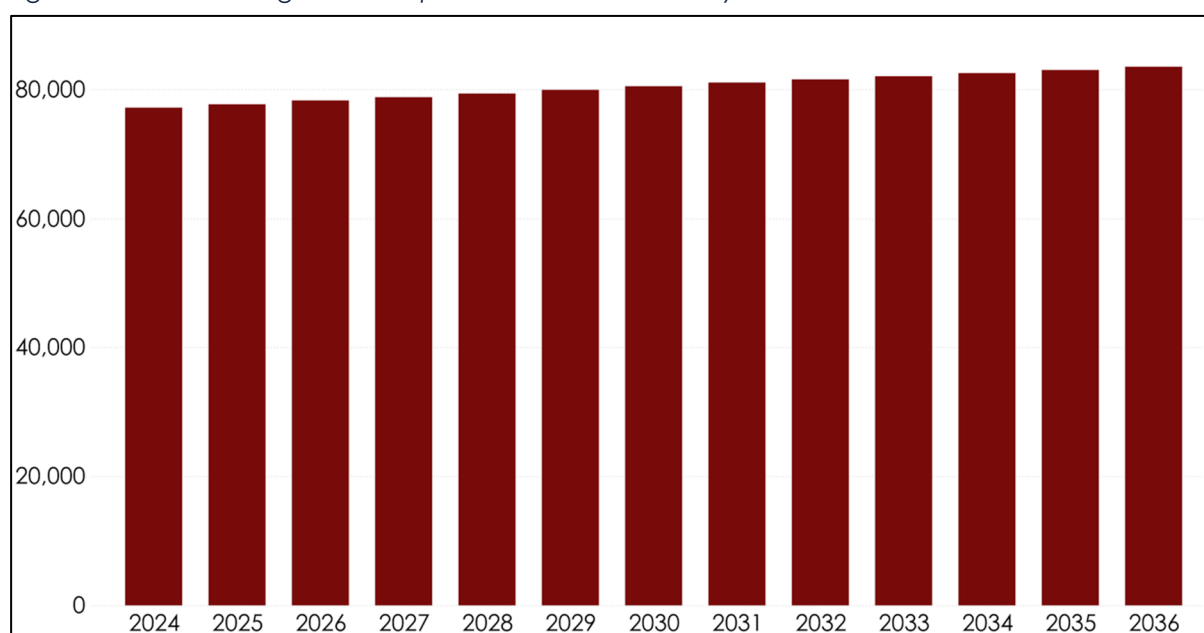


2.3.1 WASTE GENERATION PROJECTIONS

Waste generation projections have been made for the next 10 years based on the population growth data provided by the Western Australia Tomorrow 12 Population Forecasts (Department of Planning, Lands and Heritage, 2025). A median growth scenario has been adopted. For this projection it has been assumed that over the 10 years, waste generation per capita will on average remain constant.

The projection estimate results show approximately 84,900 tonnes per annum of waste being generated by 2036. This is an increase of 8% or 6,400 tonnes from the estimated average waste generation per annum for 2021/22 to 2023/24 of 78,500 tonnes per annum. **Figure 2.9** provides the total annual waste generation projection for the next 10 years until 2036.

Figure 2.9 Total waste generation predictions within the City to 2035



2.4 CITY RECYCLING RATE

The City offers numerous recycling options for the community as detailed in Section 3.

2.4.1 OVERALL RECYCLING RATE

The data provided by the City shows the three year average waste diverted from landfill was 7,100 tonnes across all waste streams. This represents a 9% recycling rate (**Figure 2.10** and **Table 2.6**).

Figure 2.10 Average annual recovery rate from all waste streams (2021/22 – 2023/24)

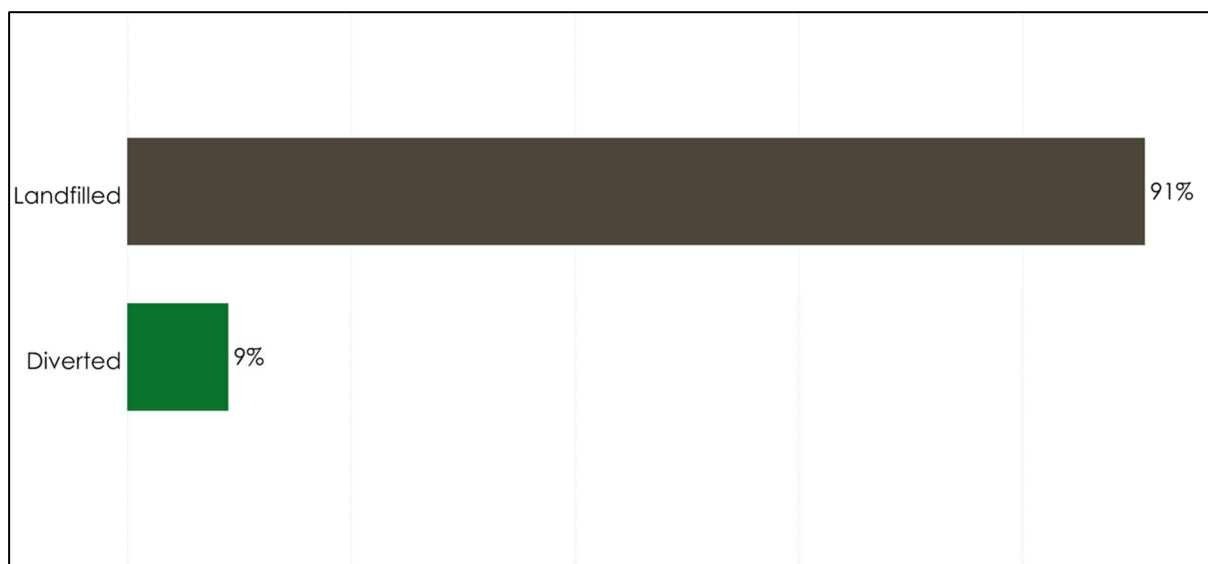


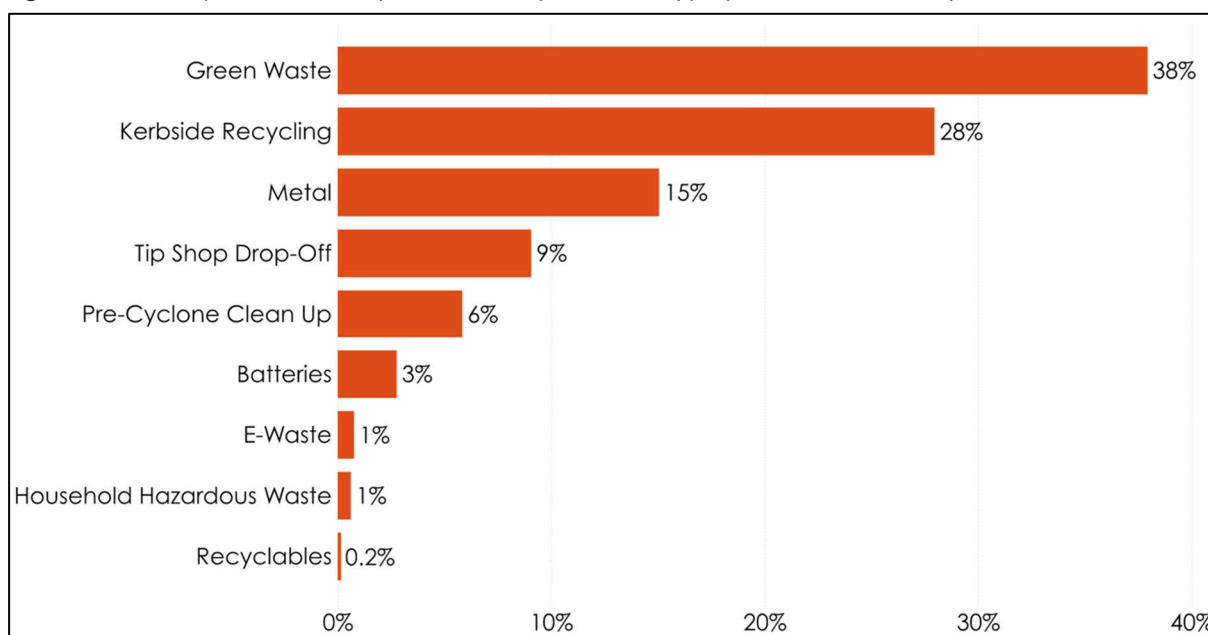
Table 2.6 Average tonnes, percentage and per capita values of waste recovered (2021/22 – 2023/24)

	MSW	C&I	C&D	Total
Average tonnes of waste recovered	3,300	1,900	1,900	7,100
Average percentage diverted from landfill	26%	5%	6%	9%
Average per capita diversion from landfill (kg/person)	116kg	66kg	66kg	248kg

2.4.2 MSW RECYCLING RATE

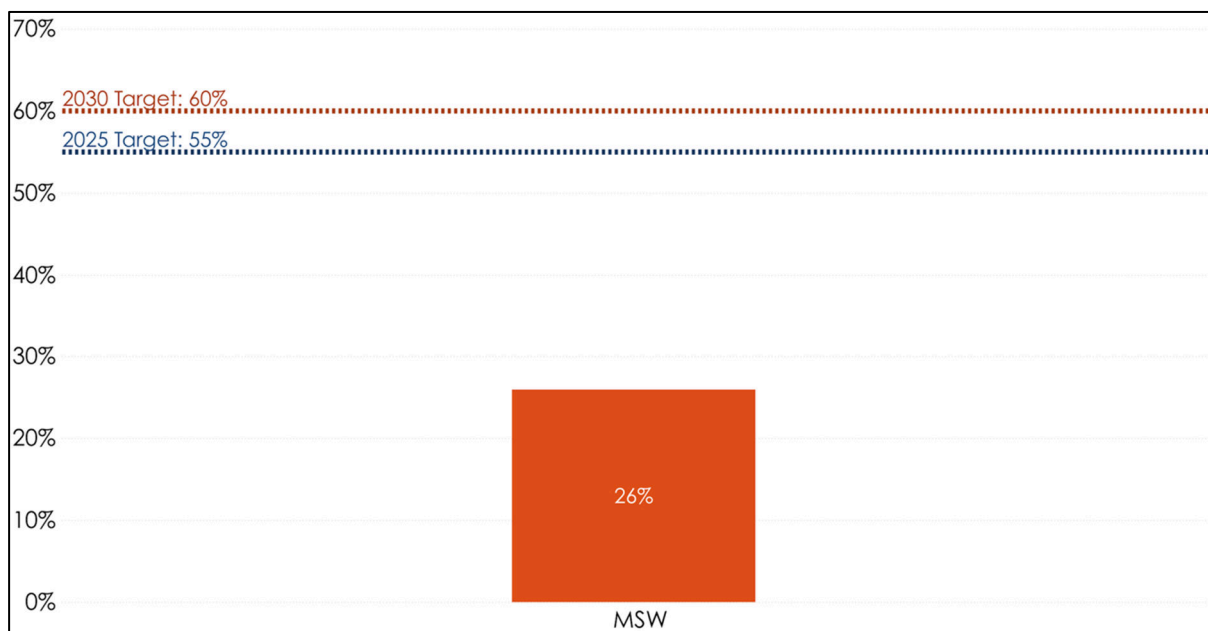
The data provided by the City shows the three year average for MSW waste diverted from landfill for recycling and reuse is 3,300 tonnes. This represents an average recycling rate of 26%. Most of the materials recycled were source separated materials dropped off at the facility or from the kerbside recycling collection (**Figure 2.11**).

Figure 2.11 Composition of recycled MSW by material type(2021/22 – 2023/24)



The WARR Strategy 2030 includes a target to increase MSW recycling rate to 70% by 2030 in Perth and Peel regions and 60% by 2030 for major regional centres. **Figure 2.12** shows the City's resource recovery rate compared to the WARR Strategy targets set for major regional centres. It should be noted that the City of Karratha is not classified as a major regional centre within the WARR Strategy, and therefore these targets are considered aspirational for the City.

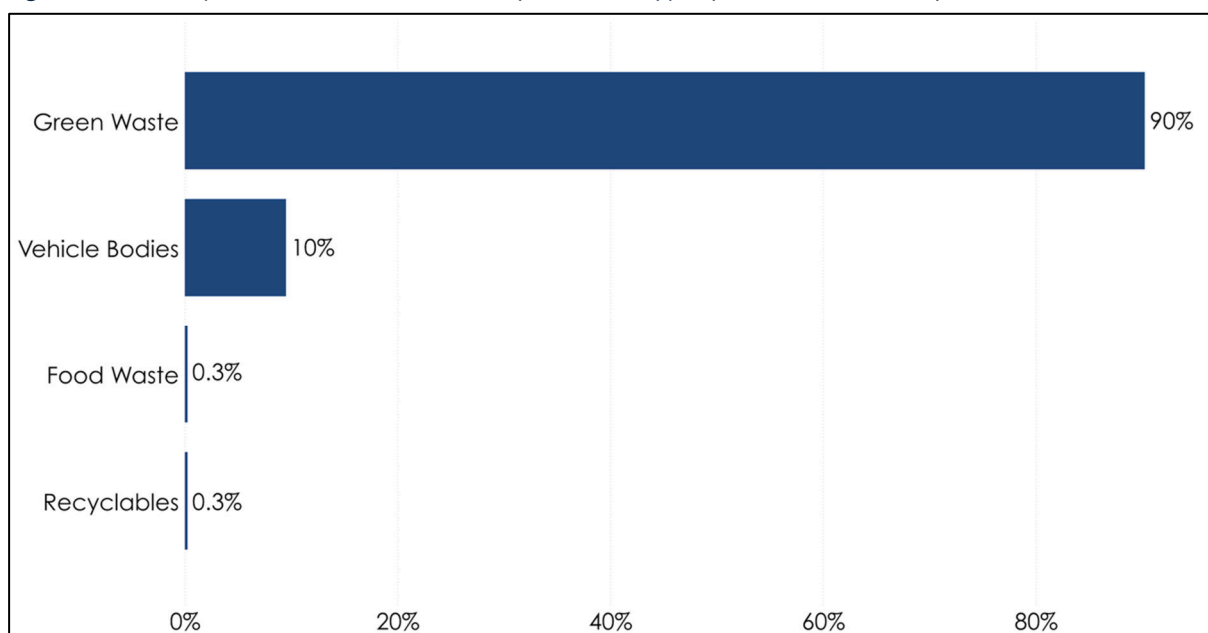
Figure 2.12 City average annual recovery rate and WARR 2030 targets



2.4.3 C&I RECYCLING RATE

An average of approximately 1,900 tonnes per annum of C&I material was diverted from landfill for recycling and reuse between 2021/22 – 2023/24. This represents an average recycling rate of 5% for the C&I waste stream managed by the City. Almost all the material recovered from the C&I stream is green waste at 90% (**Figure 2.13**). The draft WARR Strategy 2030 sets targets for industry for recycling of C&I streams to 80% by 2030. These targets are for the C&I sector and do not apply to the City.

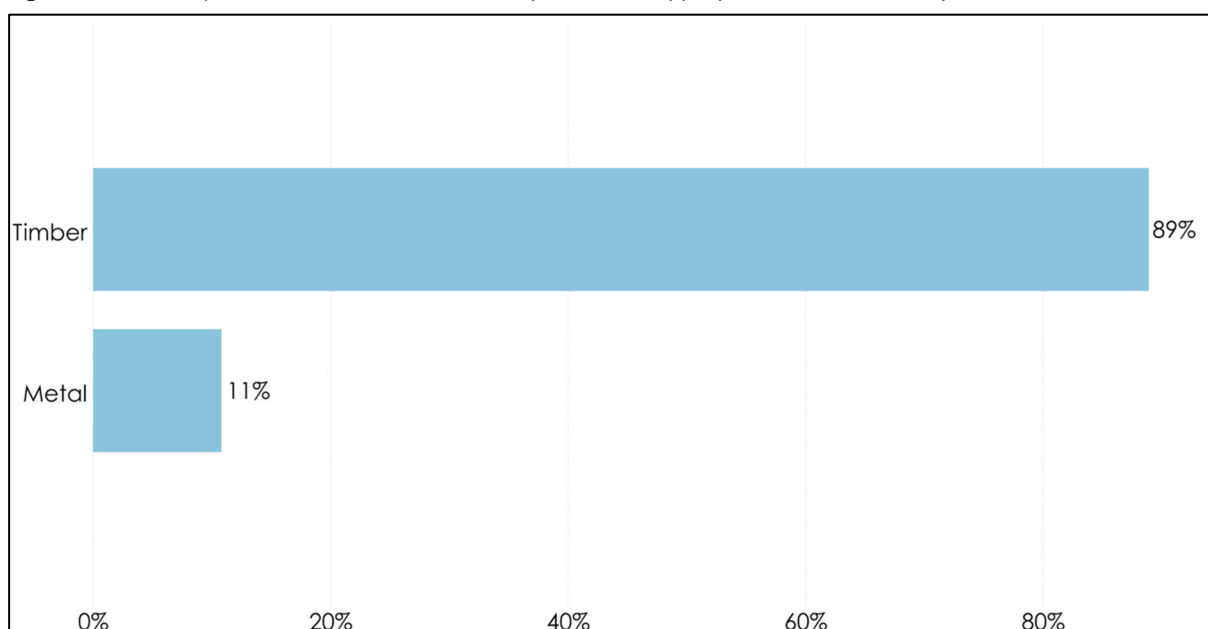
Figure 2.13 Composition of diverted C&I by material type (2021/22 – 2023/24)



2.4.4 C&D RECYCLING RATE

An average of approximately 1,900 tonnes per annum of C&D material was diverted from landfill for recycling and reuse between 2021/22 – 2023/24. This represents an average recycling rate of 6% for the C&D waste stream managed by the City. All recovery is from timber (89%) and metal (11%) (**Figure 2.14**). The draft WARR Strategy 2030 sets targets for industry for recycling of C&D streams to 80% by 2030. These targets are for the C&D sector and do not apply to the City.

Figure 2.14 Composition of diverted C&D by material type(2021/22 – 2023/24)



3 WASTE SERVICES

The City offers comprehensive waste management services, including kerbside collection, vergeside collection, drop-off facilities, litter control, sanitation services, and support for Aboriginal communities. This section provides an overview of these services to establish an understanding of the current waste management framework, forming a solid foundation for addressing both existing and future waste management challenges as part of the SWMP.

3.1 KERBSIDE & VERGESIDE

The City provides kerbside waste collection services and a vergeside pre cyclone green waste collection service. Details of these services is contained in **Table 3.1**.

Table 3.1 Kerbside & Vergeside service information

Type	Details	Supplementary notes and information
Waste	<ul style="list-style-type: none"> Single bin (240L) weekly kerbside waste collection service 	<ul style="list-style-type: none"> City owns kerbside MGBs Inconsistent MGB lid colour (green or red) which does not meet the Australian Standard requirement The collection contract will expire in 2027 No method used to verify bin is authorised for collection Main issues involve stolen and damaged bins
Recycling	<ul style="list-style-type: none"> Single bin (240L) fortnightly kerbside waste collection service Rateable properties (8546) Provided to 100 % of rateable properties Provided under contract 	<ul style="list-style-type: none"> Material transported to the Karratha Cleanaway waste facility where it is sorted and baled then transported to the Cleanaway Super Materials Recycling Facility (MRF) South Guildford, Perth Contamination rates reported by the Contractor are average across all LGAs, not specific to Karratha, as such the City must conduct regular recycling audits Split of CDS profit provided in contract High contamination rates reported in 2021 nearly twice the average at 30% Contamination includes soft plastic, organics, liquids, hazardous materials Regular kerbside audits undertaken, 2021 audit in Bularra and Nickol indicate a 60% average presentation rate
FOGO	<ul style="list-style-type: none"> Not provided 	<ul style="list-style-type: none"> No processing facility within the City
Pre cyclone green waste collection	<ul style="list-style-type: none"> Provided under contract 	<ul style="list-style-type: none"> Participation rate unknown, estimated at approximately 30% Based on community feedback, many properties not participating in the program and low quantities collected Approx 200 tonnes collected Green waste mulched on site Cost incorporated into Rates No noted service issues, program running successfully

3.2 DOMESTIC DROP OFF

The City provides service options for domestic waste drop off at its Seven Mile Waste Disposal Facility (7 mile or SMWDF) and the Wickham Transfer Station. Details on waste types collected are provided in **Table 3.2** and **Table 3.3**.

Table 3.2 Seven Mile Waste Disposal Facility waste drop off services

Waste Stream	Detail	Supplementary notes and information
Reuse and Recycle Shop	<ul style="list-style-type: none"> An outlet for reusable household items Operates on weekends 	<ul style="list-style-type: none"> Facility operated by City staff Staff assess items for re-use potential before pricing them for resale All electrical goods are tested and tagged before resale City advise the Reuse Shop is a well-loved and used service by the Community
Mixed waste	<ul style="list-style-type: none"> Transfer station for residential drop off of mixed waste provided Multi level drop off, providing three hooklift bins to collect mixed waste for transfer to landfill 	<ul style="list-style-type: none"> Restricts public access to tipping face Drop off area consists of a concrete hardstand and provides a free standing awning for weather protection Whilst the transfer station is multi level, the top of the hooklift bins are positioned higher than the level of the concrete drop-off apron, thereby reducing safety risks. No safety issues have been reported
Construction and demolition	<ul style="list-style-type: none"> Stockpile area for separated concrete, bricks and rubble materials within landfill Residential disposed at transfer station and transferred to material stockpiles 	<ul style="list-style-type: none"> C&D stockpiled for sometime and a significant stockpile exists The material is of varying sizes and degrees of contamination City is not concerned with asbestos contamination due to lack of asbestos in the town generally and stringent gatehouse procedures There are local C&D recyclers in the area, but will cost the City significantly to process No allowance for crushing on Licence
Cardboard	<ul style="list-style-type: none"> Cardboard from businesses charged Free for community Collected by Cleanaway 	<ul style="list-style-type: none"> Cardboard collected in hooklift bin in transfer station The cardboard is collected by Cleanaway then baled for transport to a recycling facility in Perth
Car batteries	<ul style="list-style-type: none"> Collected at transfer station Residential sources only 	<ul style="list-style-type: none"> Batteries palletised and collected by scrap metal contractor for recycling in Perth
E-waste	<ul style="list-style-type: none"> Collected at transfer station Free disposal from residential sources only No commercial sources accepted 	<ul style="list-style-type: none"> E-waste put onto pallet then put into cut off IBC for storage prior to transport to Perth Significant cost implications associated with transport
Waste Oil	<ul style="list-style-type: none"> Collected at transfer station 	<ul style="list-style-type: none"> Used oil dropped off at transfer station then decanted into oil collection shed by staff

	<ul style="list-style-type: none"> Residential sources free 	<ul style="list-style-type: none"> Waste oil is collected by oil recycling company Wren Oil
Scrap metal	<ul style="list-style-type: none"> Stockpile area for scrap metal Residential sources disposed at transfer station Residential free Some commercial free (clean waste, metal car bodies, trailers, boats , bikes) 	<ul style="list-style-type: none"> Significant annual returns from scrap metal due to high market prices The steel is collected from the facility and then exported for further breaking down and reuse
Whitegoods	<ul style="list-style-type: none"> Stockpile area for scrap metal provided Residential disposed at transfer station Residential free 	<ul style="list-style-type: none"> Whitegoods separated for degassing Once degassed placed in scrap metal pile Collected by scrap metal contractor
Tyres	<ul style="list-style-type: none"> Stockpile area for tyres provided DWER license allows the City to stockpile 200,000 tyres onsite Residential sources free (max 4 tyres per visit) 	<ul style="list-style-type: none"> Receive significant amounts and has problems with legacy stockpiles Not stored in compliance with licence as not stacked on their side walls, Stockpile greater than 60m² Sorting through issues with DWER on stockpile currently A local business is interested in pursuing a joint venture with the City to lease part of the site for tyre shredding and export for recycling. However, current resource levels limit the ability to progress this initiative
Greenwaste	<ul style="list-style-type: none"> Stockpile area for greenwaste provided Residential disposed at transfer station, commercial directly to stockpile 	<ul style="list-style-type: none"> Greenwaste routinely shredded for reuse High volume of greenwaste Accumulated stockpiles an issue, no markets for material
Aluminium cans	<ul style="list-style-type: none"> Collection point for aluminium cans in transfer station 	<ul style="list-style-type: none"> Cage provided by CDS operator and collected when full
Mattresses	<ul style="list-style-type: none"> Collection point for mattresses in transfer station 	<ul style="list-style-type: none"> Mattresses are shredded on site to remove the scrap metal and to reduce the material for ease of compaction into landfill
HHW	<ul style="list-style-type: none"> Collection point for HHW located within Transfer Station 	<ul style="list-style-type: none"> Program is funded by the Waste Authority for the collection and appropriate disposal of HHW Facilities provided for storage of separate HHW streams (note storage area not assessed for compliance with the DER <i>Guidelines for the design and operation of facilities for the acceptance and storage of household hazardous waste</i> (2013)) Collected by Cleanaway when have sufficient volume accumulated (21 pallets) for transport to Perth HHW includes Waste Authority approved materials and includes Fluro lamps, flares, gas cylinders, pesticides and herbicides, unknown chemicals

Used Paint	<ul style="list-style-type: none"> Collection point for used paint located within Transfer Station 	<ul style="list-style-type: none"> Program is funded by the Waste Authority for the collection and appropriate disposal of used paint (Paintback) Public can drop off used paint tins at no cost Program can only accept domestic quantities of materials
Plastic household containers	<ul style="list-style-type: none"> Collection point located within Transfer Station 	<ul style="list-style-type: none"> dropped off to Transfer Station hooklift bin and collected by Cleanaway
Household Glass jars and bottles	<ul style="list-style-type: none"> Collection point located within Transfer Station 	<ul style="list-style-type: none"> dropped off into 240L bins at Transfer Station and collected by Cleanaway
Mobile phone	<ul style="list-style-type: none"> Mobile muster collection point provided 	<ul style="list-style-type: none"> All makes and models of mobile phones, chargers and accessories and wearables including smart watches and fitness trackers accepted
Timber pallets	<ul style="list-style-type: none"> Collection point for pallets located within Transfer Station 	<ul style="list-style-type: none"> Dropped off at timber area and shredded. Re-used by Cleanaway in their fixation operation.

Table 3.3 Wickham Transfer Station drop off services

Wickham transfer station		
Mixed Waste	<ul style="list-style-type: none"> Hooklift bins provided for mixed waste 	<ul style="list-style-type: none"> Uncovered concrete hardstand area which utilises hooklift for the collection of general household wastes which are not suitable for kerbside collection Four hooklift bins provided (3 x general waste, 1 x metal only) Once a week servicing, swap one bin at a time as no trailer on hooklift New barriers installed to reduce OHS issues with split level
Green waste, scrap metal/whitegoods, Inert waste, Tyres, Timber pallets, Mattresses, IBCs	<ul style="list-style-type: none"> Separate hard stand stockpile areas 	<ul style="list-style-type: none"> Operational management contracted to BRIDA Material periodically transported to 7 Mile where is weighed through weighbridge and then aggregated into existing stockpiles or disposed to landfill
Cardboard, Aluminium and steel cans, Glass bottles and jars, Batteries, E-waste, Gas bottles	<ul style="list-style-type: none"> Separate collection containers 	
Reusable second hand goods	<ul style="list-style-type: none"> Fenced area provided for reusable second hand goods 	<ul style="list-style-type: none"> Customers can access on site
Used oil	<ul style="list-style-type: none"> Waste oil collection container provided 	<ul style="list-style-type: none"> Serviced by Wren Oil

3.3 COMMERCIAL DISPOSAL

The SMWDF also provides service options for commercial waste disposal. These include:

- **General Waste Disposal:** Commercial clients can dispose of general waste, but charges apply. All commercial vehicles must weigh in and out using the weighbridge. Class I, II and III waste is accepted in line with the DWER *Landfill Waste Classification and Waste Definitions 1996 (as amended 2019)*.
- **Recycling:** The facility encourages commercial customers to separate waste to facilitate recycling. Dedicated recycling areas are available, and reduced rates apply for uncontaminated loads of specific waste types, such as metal (free), processed green waste (free), and commingled recycling.
- **Special Waste Handling:** Certain types of waste, such as hazardous waste, quarantine waste, and controlled waste, require special handling and permits. Commercial clients need to complete a permit request form and follow specific procedures for these waste types.

3.4 LITTER & ILLEGAL DUMPING MANAGEMENT

The City offers a variety of services to manage waste and litter on public land. Public waste bins are strategically placed within the City and are serviced under the kerbside collection contract. Due to potential contamination issues, recycling bins are not provided. There are periodic issues with overfull bins, as well as occasional incidents of burnt bins in Roebourne and Wickham.

The City previously managed litter collection in-house but contracted out these services in 2019. Currently, two contractors cover the northern (Dampier and Karratha) and eastern corridors (Point Samson, Wickham, and Roebourne) of City. Contract responsibilities include litter management, roadside litter picking, event litter picking and cleaning of minor illegal dumping incidents. The eastern corridor contract also includes operating the Wickham Transfer Station as a base for equipment storage at no cost to the contractor.

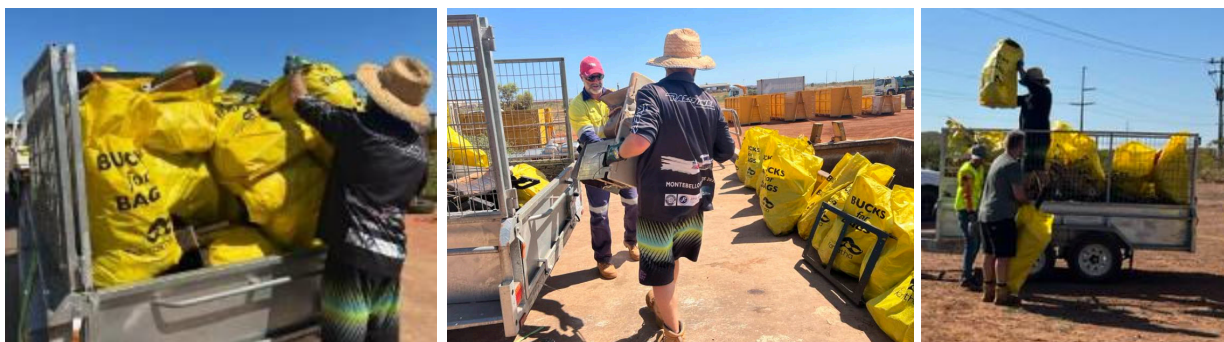
The key challenges faced by the City in managing these contractors involve ensuring consistent compliance with service standards, particularly given the vast areas of the City and the long travel distances involved. Despite free waste disposal allowances and seven-day access to waste facilities, illegal dumping remains a persistent issue across the City. The scale of the area makes regular surveillance and timely response challenging, leading to the accumulation of waste, including hard rubbish and construction debris. Additionally, accessibility can be problematic, making it difficult to remove dumped materials efficiently.

Responsibility for managing litter and illegal dumping is divided among three technical disciplines. The City's Ranger services are tasked with investigating and enforcing the Litter Act 1979 and conducting litter and illegal dumping investigations. When instances of illegal dumping are reported, the City Sanitation team arranges for collection and disposal through the litter contractors. The City's Environmental Health team addresses any illegal dumping or rubbish accumulation occurring on private land.

The City also administers a 'Bucks for Bags' program, enabling local community and not-for-profit groups to conduct litter clean-ups throughout the City and raise funds simultaneously. Ten dollars per full bag is reimbursed to groups, up to a maximum of \$2,000 per clean-up. Groups register their interest and once registered, receive gloves, recyclable/reusable collection bags, and litter pickers to assist with the clean-up. Rubbish collection locations are provided by the City. Over \$60,000 was provided to community groups in 2023/2024 as part of the program.

The City does not have a litter strategy.

Figure 3.1 Bucks for Bags Program images (City of Karratha Facebook)



3.5 ABORIGINAL COMMUNITIES

The Ngarluma/Yindjibarndi people are recognised as the traditional owners of a significant portion of land in the City (LPS, 2021). The City has three established Aboriginal communities outside of its major settlements. There are two small permanent remote community settlements, Mingullatharndo and Weymul, and one town based community being Cheeditha housing approximately 62 residents.

In addition to these, Roebourne, while not formally classified as a remote Aboriginal settlement, is a predominantly Aboriginal town with deep cultural significance. It is located on Ngarluma country and is home to many Ngarluma and Yindjibarndi people. Community feedback indicates persistent litter, illegal dumping, and poor street cleanliness and waste service standards in Roebourne. Residents report waste service challenges, including damaged or missing bins, inconsistent collection, and low recycling confidence. Community feedback has highlighted a perceived inequity in service delivery compared to Karratha.

The City provides a weekly kerbside waste collection service to Cheeditha. Fee waivers are provided to Mingullatharndo and Weymul residents to deliver and dispose of waste at the Wickam Transfer Station. A fee waiver is provided to WNNAC (West Nharluma Ngurin Aboriginal Corporation) to deliver their waste to the Wickham Transfer Station.

Ensuring adequate and appropriate waste infrastructure and services to meet the needs of Aboriginal communities is a priority outcome of the draft WARR Strategy 2030.

Figure 3.2 Image of Cheeditha community



4 WASTE INFRASTRUCTURE


The following sections outline the infrastructure provided by the City for managing solid and liquid waste. Understanding the number, type, capacity, location, challenges, and constraints of local government waste and resource recovery infrastructure is essential for effective planning of future maintenance and development needs.

4.1 SEVEN MILE WASTE DISPOSAL FACILITY

Relevant information in relation to the Seven Mile Waste Disposal Facility is provided in **Table 4.1**.

Table 4.1 Seven Mile Waste Disposal Facility overview

Item	Description
Address:	Seven Mile Road GAP RIDGE WA 6714
Zoning:	Public purposes: Waste disposal and treatment
Licence Holder:	City of Karratha
Operator:	City of Karratha
Period of use:	1992
Environmental Protection Licence:	L7021/1997/15
Licence class	<ul style="list-style-type: none"> Category 57: Used tyre storage (general) – 200,000 tyres Category 61: Liquid waste facility – 116, 500 tonnes/year Category 61A: Solid waste facility – 10,000 tonnes/year Category 62: Solid waste depot – 20,000 tonnes/year Category 64: Class II or III putrescible landfill site – 150,000 tonnes/year Category 67A: Compost manufacturing and soil blending – 5,000 tonnes/year
Waste types received:	Clean fill; liquid wastes (septage waste, sewerage waste, grease traps), other specified liquid wastes; inert waste type 1; inert waste type 2; putrescible wastes; other specified solid wastes; molecular sieve waste; household hazardous waste; electronic waste; special waste type 1 (asbestos wastes); special wastes type 2 (biomedical waste); special waste type 3; food organics; garden organics.
Infrastructure on site	<ul style="list-style-type: none"> Reuse shop and storage area Stockpiling areas Household hazardous waste (HHW) storage facilities including dangerous goods containers Class III landfill Wastewater treatment ponds (evaporation ponds 5, 6 HDPE lined) Leachate evaporation pond (HDPE lined) Transfer station Gatehouse and weighbridge Active Landfill gas collection system Landfill gas flare (Gasco Pty Ltd candlestick biogas flare) Edge TRT 622 tracked mounted trommel Various collection containers for waste streams accepted e.g. skip bins, banded storage containers, cages, IBCs Signs, fencing (incl. litter fencing), entrance gates, traffic control
Method of construction:	Combination of below and above ground cells

Item	Description
Landfill footprint:	<ul style="list-style-type: none"> Approval for 12 class III cells was approved by DWER in 2017 Cell Zero was recently capped and gas collection infrastructure installed Currently operating in active landfill cell 1 and 2. The City will be pursuing approval for cells 3 and 4 within the next 12 months Borrow pit situated in south eastern corner of site for sourcing of cover material. <p>Figure 4.1 Landfill cell layout 7 mile WDF (from EPL)</p> 
Type of liner:	Cell 0 is unlined, Cell 1 – 12 Composite lined: Geosynthetic Clay Liner, 2mm HDPE geomembrane
Type of capping:	Gas collection geocomposite, 1.5mm LLDPE, drainage geocomposite, 1m soil, 200mm soil/mulch, seedling layer
Remaining operational life:	Modelling undertaken as part of development of the closure plan indicates that landfill capacity will be exhausted by 2045, however City staff feel capacity much longer, and could potentially expand to encompass asbestos area or borrow pit if required
Landfill Closure Management Plan	LCMP developed for Facility by Talis consultants. Capping of Cell 0 recently completed and monitoring commenced in line with landfill gas management plan
Site Masterplan	No site masterplan developed, however site layout plan developed for LCMP which generally guides site development
Siting	<p>The Premises is located approximately 9km south-west of Karratha in the Gap Ridge industrial estate and covers an area of approximately 100 hectares. Residential and sensitive receptors are located approximately 1.1 km south east, 2.2km north east from the active boundary.</p> <p>The following ecological receptors are mapped within or close to the designated area off the Facility:</p> <ul style="list-style-type: none"> Pilbara groundwater area (groundwater typically 6-10m below surface) Pilbara surface water area Surface water lines are mapped 490m east of the Facility including 7 mile creek and minor non perennial water sources Roebourne Plain gilgari grasslands threatened ecological community <p>The depth to groundwater at the Premises ranges between 7.8 to 11.4 meters below ground level (mbgl), with a groundwater separation distance of 3.3 mbgl maintained from the base of the Class III landfill cells as a minimum following the wet season. (DWER, 2017)</p>

4.1.1 ORGANICS PROCESSING TRIAL

The City commenced an organics processing trial in 2020 sourcing food from four local worker accommodation camps and green waste from the significant stockpiles at the landfill. The aim was to determine if a suitable compost product could be produced, for use by the City's Parks and Gardens teams, and for sale to commercial providers.

Several issues arose during the trial including high rates of contamination of the food delivered from the camps, dieldrin levels being detected in the green waste, and the significant cost of staff and equipment used in the processing operation. Whilst around 500 tonnes of product was produced, the majority was not suitable for use as it failed to meet the Australian Standards for compost.

4.2 WICKHAM TRANSFER STATION

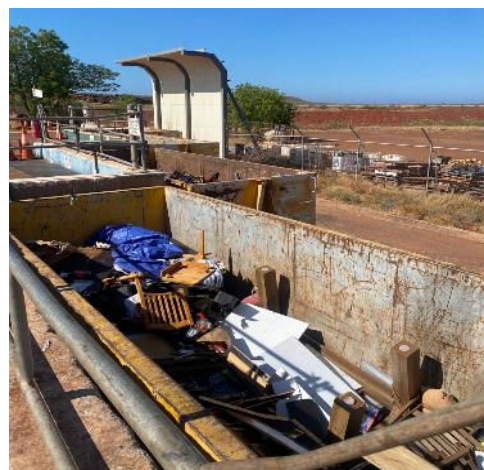
The Wickham Transfer Station is located approximately 4 kms south of the Wickham town centre and approximately 50 km from the City's Seven Mile Waste Disposal Facility. The Facility services an estimated population of approximately 3200 (ABS, 2021) from the townsites along the eastern corridor of the City including Cossack, Point Samson, Wickham and Roebourne. These towns also have access to the City's weekly kerbside waste and recycling collection service.

Waste received at the Facility is consolidated and transported to the SMWDF for weighing and either disposed to landfill or aggregated within existing recycling stockpiles. The Facility is operated under contract with the City. The contractor is responsible for facility operation, bin management, minor maintenance general site duties and administration duties. Only domestic waste is to be received at the Facility, and waste disposal is free of charge. An overview of the Facility is provided in **Table 4.2**.

Table 4.2 Wickham Transfer Station overview

Item	Description
Address:	Point Sampson – Roebourne Road ROEBOURNE WA 6714
Licence Holder:	City of Karratha
Operator:	Onsite operational responsibilities under contract
Environmental Protection Licence:	L7921/2003/4 expiry 2044
Licence class	62 - Solid waste depot 5,000 tonnes/yr
Waste types received:	Putrescible wastes, Inert waste type 1, Inert waste type 2, HHW (paint tins, fire extinguishers, aerosol cans, gas cylinders). E-waste
Infrastructure on site	<ul style="list-style-type: none"> A fenced and uncovered concrete hardstand area which utilises cut off IBC bins and lidded skip bins for collection of recycling streams It also includes a saw tooth multilevel drop off utilising skip bins for collection of residual waste for landfill disposal Hard stand areas are provided greenwaste, scrap metal, timber pallets, and used tyres
Opening Hours	<ul style="list-style-type: none"> Open every day except public holidays (7am to 4.30pm)
Issues	<ul style="list-style-type: none"> Geographical location and distance from Karratha results in challenges with oversight of the Facility by City Staff High costs involved in weekly servicing hooklift bins There are limited records kept by contractors e.g. waste stream source and material type by load, customer numbers being recorded at the gate Instances of commercial operators trying to dispose waste as 'domestic waste' to ensure no charge

- The City has indicated that the Facility is not very busy. However, residents are dissatisfied when they are unable to access the transfer station at their convenience. The City is concerned that reducing hours may lead to an increase in illegal dumping, as residents of the eastern corridor consider the 7-mile facility to be too far away.
- The EPL requires that putrescible mixed waste must not be stored on the premises for any longer than four days. Weekly Facility servicing means that this requirement is at times, not met.
- The EPL requires HHW and e-waste to be stored in open cut IBCs with a waterproof covering, which is currently not provided.



4.3 PLANNED UPGRADES

The City has allocated funds for the construction of two new class II landfill cells in 2025/2026. The estimated cost for this project is approximately six million dollars. Additionally, minor upgrades have been planned for the Wickham Transfer Station including office and amenity buildings and sign replacement.

5 SUPPORTING WASTE INFORMATION AND ACTIVITIES

5.1 STRATEGIC PLANNING

There are numerous strategies that influence and guide the City's strategic direction and planning in regard to waste.

All local governments plan for the future through the development of Community Strategic Plans (CSP) and Corporate Business Plans (CBP). This provides local governments with a framework for establishing local priorities and linking them with operational functions.

The SWMRRS will fit within the City's strategic planning framework as an issue-specific informing strategy. The SWMRRS actions once adopted will link to the CSP visions and objectives, with actions for implementation from the plan included as part of the annual CBP. New expenditure required to implement the waste plan actions will be incorporated into the City's CBP, Long Term Financial Plan, and annual budgets as appropriate.

The City of Karratha Community Strategic Plan (CSP) 2025 – 2035 is currently under review and in draft form. Goal 5 of the draft relates to waste and sustainability and states '*We respect and care for the natural environment*'. The key objectives are as follows:

1. Provide waste management, resource recovery and recycling services.
2. Implement sustainability measures in City operations and promote sustainability amongst community and industry.
3. Conserve and enhance the natural environment for current and future generations.

The priority focus areas of the Strategy include waste minimisation, environmental sustainability and decarbonisation. The success measures include; the same or higher ratings in the community survey for performance of waste facilities and sustainability initiatives; increased residential waste diverted from landfill; and reduced corporate scope 1 and 2 greenhouse gas emissions.

Other City strategies that influence and guide waste management within the City include its *Environmental Sustainability Strategy*. Waste is one of the five key focus areas within the document. The key objectives for the waste focus area align with the outcomes of the WARR strategy 2030 and include

1. Minimise waste generation.
2. Recover more value and resources from waste.
3. Protect the environment by managing waste responsibly

Within the waste focus area, there are 15 actions identified within the Strategy for implementation. This Strategy is currently under a review with the outcomes expected after finalisation of this strategy.

The City is also in the process of development an *Emissions Reduction Plan* for City services. This Plan is currently under development.

5.2 POLICIES AND PROCUREMENT

Local Government policies and procurement strategies can horizontally integrate waste management and resource recovery considerations through all facets of local government services and activities and contribute to the Waste Strategy objectives. **Table 5.1** details the City's current policies and procurement initiatives in relation to waste.

Table 5.1 CoK polices and procurement strategies relating to waste

Activity	Detail	Provided?	Discussion
Waste Contracts	The City currently has six contracts for provision of waste services	Yes	<ul style="list-style-type: none"> Provision of waste and recycling collection services (Cleanaway - July 2027) Disposal scrap metal and batteries (Ngardimu – 2026) Pre cyclone greenwaste collections (D&M waste management – 2027) Operation Wickham transfer station (BRIDA - 2024 + 2x1 extension options) Provision of Litter and sanitation services (Eastern Corridor) (BRIDA – 2024 + 2x1 extension options) Provision of sanitation & litter services (Northern corridor) (DEML – 2024 + 2x1 extension options)
Local laws and policies	Waste Local Law?	No	Waste is incorporated into the City Health Local Laws 2012. Waste Local Laws made under the WARR Act 2007 improve the management and control of waste disposal. WALGA have developed a model local law template for use by Local Government.
	Emergency waste management Plan?	No	The development of waste contingency plans in case of disruption or disaster, which aim to protect public health and safety, avoid waste generation, reduce the risk of illegal dumping, consider better practice options for managing waste and increase recovery, will assist the City to ensure timely, appropriate and coordinated responses to emergency situations.
	Waste management plans?	No	WALGA have developed a model local planning policy, planning conditions flow chart and guidelines for Waste management plans to assist local government. These guidelines demonstrate how waste avoidance and resource recovery considerations can be addressed in the construction, demolition and on-going operation of future developments.
Land use planning instruments	Objectives of the Waste Strategy (avoid, recover, protect) considered in local planning strategy?	Yes and no	Local Planning Strategy (part A: Oct 2020) states the City will ensure: <ul style="list-style-type: none"> facilities will be upgraded as needed and investigate emerging waste technologies to improve the City's waste management practices to be more sustainable sensitive receptors do not encroach towards waste facilities the City aims to continually increase the amount of waste diverted from landfill
	Local Planning Strategy identifies current and future waste facility site?	No	Current site is considered by the City to provide adequate disposal options for next 25-30 years.
	Local Planning Strategy identify buffers around	No	No identified buffers or future sites.

Activity	Detail	Provided?	Discussion
	existing and/or future sites to avoid land use conflict?		However it is noted in the LPS that the City will ensure sensitive receptors do not encroach towards waste facilities. (LPS, 98, page 13) and the capacity of the City's 7 Mile Tip is expected to meet demand to 2044
	Local Planning Schemes reflect the Planning and Development (Local Planning Schemes) Regulations 2015?	No	Resource recovery facilities, waste disposal facility and waste storage facility are not defined as land uses and included in the zoning table (as per Planning and Development (Local Planning Schemes) Regulations 2015). The City's local planning scheme should be updated to reflect these changes.
Procurement	Sustainable procurement policy?	Yes	Sustainability is included as a qualitative criterion (5% weighting) in the evaluation of tenders and panel applications. Where practical and appropriate, the City will support the purchasing of environmentally sustainable goods or services and will look for solutions and work with suppliers to: a) minimise the use of single use plastics; b) address waste management; and c) maximise energy and water efficiencies.
	Regional Procurement practices?	No	Due to distances between LGAs, regional procurement for goods and services generally not practicable

5.3 BEHAVIOUR CHANGE PROGRAMS

The Waste Authority define behaviour change programs and initiatives as activities that:

- increase awareness, skills and knowledge
- provide consistent messaging
- help people to use waste infrastructure
- encourage the adoption of specific, positive waste behaviours and attitudes.

Communication and engagement with waste generators and managers underpin many local government waste management activities and are vital to driving behaviour change needed to achieve the objectives and targets of the WARR Strategy 2030.

There is a need to educate and involve the community about waste management issues and programmes. Unless the community understand the reasons for their actions, and can see genuine and attainable results, there is little motivation for changes in behaviour. Without community involvement and participation the success of any resource recovery actions will be limited.

Waste education is now the responsibility of the Waste Technical Officer at the City, following a recent transition from a compliance-focused role. Current activities include reviewing the website and conducting a recycling audit to inform waste education planning requirements. This audit will help identify the needs for developing a waste education plan in collaboration with the City's Communications team.

The City, in partnership with its waste contractor Cleanaway, also provides waste education resources to help to inform the community about waste and recycling to improve resource recovery and reduce the amount of waste going to landfill. These resources include access to the Cleanaway's 'Greenius' online customer learning portal and its waste education school programs.

Figure 5.1 Cleanaway online resources available to City residents



5.4 DATA INFORMATION AND ECONOMICS

Data and information provide the key foundation for effective waste planning, monitoring, management and decision making. The City has access to a wide range of data and information to inform decision making as listed in **Table 5.2** below.

Table 5.2 CoK waste data and information

Source	Why is it important	City details
Waste stream data	Accurate data is required to comply with the annual waste and recycling reporting requirements under the WARR regulations 2008 and Annual reporting requirements under the DWER licence conditions.	The City has a weighbridge and maintains a licence agreement with Mandalay for the provision of a gatehouse software system to capture waste inputs and outputs through the facility. The City has access to a range of data on waste streams given the installation of a gatehouse software. There is a high confidence in the accuracy of measurement and tonnages given the weighbridge.
Waste composition data	Collecting waste composition data is essential for improving recycling rates, reducing contamination, and optimising waste management practices, ultimately leading to more efficient and sustainable kerbside recycling programs.	Kerbside recycling audits were conducted in 2018 and 2021. The City intends on undertaking a further audit in 2025. Based on 2021 audit: Average recycling bin weight approx. 7 kg, 60% presentation rate, contamination of bins an issue at twice the national average at 30%
Whole of life (WoL) operational cost of landfill	WoL costs enable the accurate assessment of the economic feasibility of resource recovery initiatives over landfilling. All waste management costs relating both domestic and commercial wastes need to adequately cover the life of the asset, or alternative revenue streams secured for any shortfalls quantified.	Full cost of waste disposal and airspace construction has not been recently calculated.
Financial analysis	Conducting a financial analysis for local government waste services is essential for efficient cost management, accurate budget planning, and ensuring transparency and accountability. It helps secure funding, measure performance, and manage financial risks effectively.	Current (24/25) waste budget for the City provides the City with approx. \$14 million operating surplus. Income for the City totals approx. \$24M and includes domestic and commercial kerbside fees (\$3M) and Gatefee income (\$21M) Operating expenditure totals \$10M and capital expenditure of \$1.8M.

Source	Why is it important	City details
		<p>Contract and consultant costs account for significant City expenditure followed by employment related costs.</p> <p>The City has a waste reserve established with projected balance of \$30M at EOFY24/25.</p> <p>Residents can dispose of household waste, recycling, general and green waste at the City's 7 Mile Waste Facility, free of charge.</p> <p>It is likely that free residential disposal is attributing to some smaller operators in the C&I streams being presented as residential.</p> <p>Free waste disposal options do not support or encourage a waste avoidance culture.</p>
Community opinion	Community opinion should be considered for the development of waste management strategies, plans and resource recovery measures for the Shires	Community consultation to be undertaken as part of Strategy development

5.5 REGIONAL WASTE MANAGEMENT

There is currently limited regional local government collaboration in regard to waste management. There have however been numerous projects and studies undertaken previously to advance waste management systems in the Pilbara.

In 2008 the *Pilbara Regional Strategic Waste Management Plan* was developed by Cardno BSD, which was recognised as the first of its kind in Western Australia. This plan focused on coordinating recycling efforts, increasing public awareness of waste management, and acquiring necessary equipment and technology. It included the appointment of a non-partisan recycling coordinator to oversee the coordination of recycling in the Pilbara.

In 2013, the 'Waste Data Study for the Pilbara Region and Shire of Broome' was conducted by Talis Consultants Pty Ltd in 2013, commissioned by the Waste Authority of Western Australia. The purpose of the study was to gather comprehensive data on key waste streams to assist in infrastructure planning and policy, facilitate the advancement of waste management systems, and provide a framework for future waste data management in the Pilbara and Shire of Broome.

The study identified significant pressure on existing waste management systems due to resource development in the region. Key outcomes included the identification of infrastructure needs, market opportunities, and the necessity for improved waste management practices to handle future growth sustainably. Infrastructure included the development of Class III and IV landfill cells for hazardous and non-hazardous waste, inert processing facilities for recycling construction and demolition waste, material recovery facilities (MRFs) for sorting recyclables, green waste processing facilities for composting and mulching organic waste, waste-to-energy (WTE) facilities to convert waste into renewable energy, and bio-remediation facilities for treating contaminated soils.

The '*Pilbara Priorities Assessment project*' conducted by Talis consultants in 2014 and funded by the Waste Authority and Pilbara Development Commission, aimed to enhance waste management systems in the Pilbara region by addressing key waste streams, infrastructure needs, and market opportunities. Through waste projections modelling, industry and local government consultations, and data analysis, the project identified potential infrastructure opportunities across the region. Additionally, it highlighted market access improvements including developing community resource recovery parks, transfer facilities, adopting quality standards for recycled materials, and government support for using and purchasing energy from waste-to-energy (WTE) facilities.

A cross industry stakeholder group was used to prioritise needs for the region based on the recommendations in this study. Four priority projects were identified and included:

1. Tyres and Conveyors

The project aims to address data gaps and recommend policy settings for waste tyres and conveyors. A working group was to be established to develop a comprehensive waste tyre strategy for the Pilbara region.

2. Class III and IV Landfill Cells

This project focuses on setting improved common standards for Class III and IV landfill cells, ensuring their economic viability. It emphasises collaboration between landfill operators and waste generators to support best practices.

3. Regional Approach to Waste Management

The goal is to facilitate and formalise collaboration among government entities, local governments, waste generators, collectors, and processors. The project aims to raise the profile of waste management and define a unified waste vision with stakeholders.

4. Inert Processing Facility in Port Hedland

This project involves managing asbestos risk using approved processes and integrating special sites into the current landfill facility. It aims to create a market for reprocessed products and conduct a detailed feasibility study for inert processing in Port Hedland.

In response to these reports, the Shire of Ashburton recently completed construction of the Pilbara Regional Waste Management Facility. The facility includes infrastructure such as Class III and IV landfill cells, inert processing, and green waste processing.

Progress on other actions has been limited due to the absence of a designated agency responsible for coordinating and developing actions.

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APPENDIX B: COMMUNITY CONSULTATION OUTCOMES REPORT

Consultation Outcomes – Waste Management and Resource Recovery Strategy City of Karratha



August 2025



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Acknowledgements

ASK Waste Management acknowledges the Traditional Owners of the land in which we work and live, and pays respects to Elders past, present, and emerging.

ASK also gratefully acknowledge the cooperation of the City of Karratha staff that provided information and assistance in the development of this report.

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EXECUTIVE SUMMARY

To inform the development of the City of Karratha's *Strategic Waste Management and Resource Recovery Strategy 2025–2035*, ASK Waste Management undertook a multi-method consultation process between February and April 2025. The consultation aimed to gather insights into community attitudes, service usage, and industry challenges related to waste and recycling.

The methodology included:

- An online community survey conducted from 11 February to 11 March 2025 via the City's What We Make It engagement platform. The survey received 81 responses, representing approximately 0.4% of the City's population. While the sample size limits statistical validity and representativeness, the results provide indicative insights into community views and priorities.
- Place-based workshops, including a public session at the City Library and a targeted session with the Environmental Sustainability Advisory Group (ESAG) on 2 April 2025. A planned workshop in Wickham was cancelled due to low registrations.
- Stakeholder interviews held from 1–3 April 2025 with representatives from industry, government, and community organisations, including Rio Tinto, Chevron, Cleanaway, North West Alliance, and the Pilbara Development Commission.

Community feedback showed strong support for improved waste management, with priorities focused on reducing landfill, increasing recycling rates, and exploring composting options. While satisfaction with core services was high, concerns were raised about limited accessible recycling infrastructure, low confidence in recycling knowledge, and underutilisation of hazardous waste disposal services. The 7 Mile Tip Shop was highlighted as a successful initiative with potential for expansion.

Industry stakeholders identified key challenges including high transport costs, lack of local processing infrastructure, and absence of end markets for recycled materials. Problematic waste streams such as tyres, e-waste, and

organics were commonly cited. There was strong support for regional collaboration, improved regulatory frameworks, and investment in infrastructure to enable more efficient and sustainable waste management.

These findings provide a clear mandate for action and will inform the Strategy's priorities and initiatives. Key themes include enhancing education, expanding infrastructure, fostering regional partnerships, and aligning policy to support circular economy outcomes.

1 INTRODUCTION

ASK Waste Management (ASK) has been engaged by the City of Karratha (the City) to develop a *Strategic Waste Management and Resource Recovery Strategy* (the Strategy). To inform the development of the Strategy ASK carried out community consultation to acquire insights into the community's knowledge, attitudes, and behaviours concerning waste and recycling. This report outlines the findings from the public consultation activities.

1.1 CONSULTATION METHODOLOGY

A Community Consultation Plan (CCP) was previously established to direct project consultation efforts. A copy of this plan is contained in **Appendix A**.

A variety of communication and engagement techniques were employed as part of the project consultation. These included an online community survey, targeted conversations with cross-industry stakeholders, and place-based community workshops.

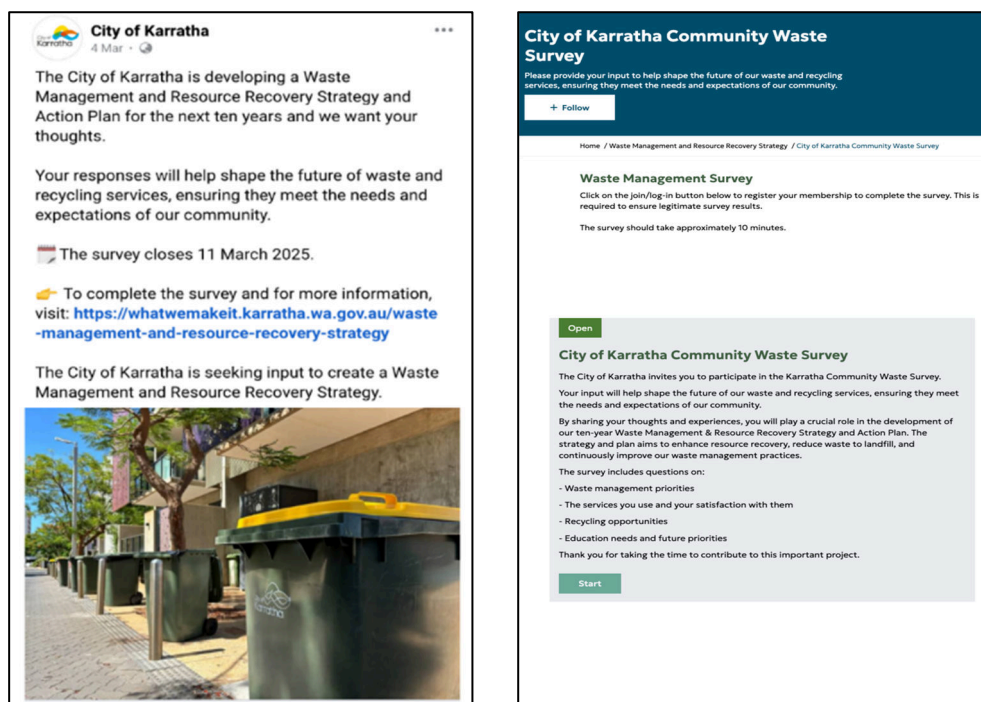
1.2 WASTE SURVEY

The City and ASK developed an online survey to gather feedback on community knowledge; use of, and satisfaction with, current services; views on waste and recycling; and priorities for future waste management.

The survey was created using the City's *What We Make It* engagement platform and was structured to gain quantitative data with responses restricted to predetermined multiple choice options, ranking questions, or checkboxes. The survey was released on the 11th of February 2025 and ran for approximately 4 weeks, closing on the 11th of March 2025. The City promoted the survey on its Facebook page and via other communication channels (Error! Reference source not found.). The *What We Make It* platform also encouraged residents to complete the survey.

A copy of the survey questions is provided in **Appendix B**.

Figure 1:1 Survey promotion examples



1.3 PUBLIC WORKSHOPS

Three place-based workshops were organised to facilitate community engagement and collect qualitative feedback on waste and recycling in the City. Members of the community were invited to register for the public workshops through the Karratha engagement platform available at whatwemakeit.karratha.wa.gov.au.

The first workshop for the eastern corridor was to be held at the Wickham Recreation Centre on Tuesday, 1st April but was cancelled due to a lack of registrations. The second workshop for the northern corridor was scheduled to take place at the City Library on Wednesday, 2nd April which was attended by seven community members. An additional workshop for the City of Karratha Environmental Sustainability Advisory Group was arranged for Wednesday, 2nd April, at the City offices.

1.4 STAKEHOLDER CONVERSATIONS

Stakeholder mapping was undertaken by the City to identify relevant stakeholders for more targeted conversations on waste and recycling. These stakeholders included community members, representatives from traditional owner groups, commercial businesses, and large-scale industries (**Table 1.1**).

Table 1.1: Stakeholder list

Stakeholder groups	Stakeholders
Environmental sustainability community groups	City of Karratha Environmental Sustainability Advisory Group
Traditional owner representatives/organisations	Ngarluma Yindjibarndi Foundation (NYFL) Brida
Commercial businesses/representatives	Karratha & Districts Chamber of Commerce and Industry Waste collection organisations (Cleanaway and North West Alliance) Large-scale industry waste producers (Rio Tinto, Chevron)
Government organisations	Pilbara Development Commission

The City contacted the identified stakeholders to introduce the project and advise that the ASK engagement team would be contacting them for input. ASK contacted the stakeholders to arrange a meeting time and location. ASK mobilised to the City from April 1st – 3rd to conduct face-to-face conversations with interested stakeholders.

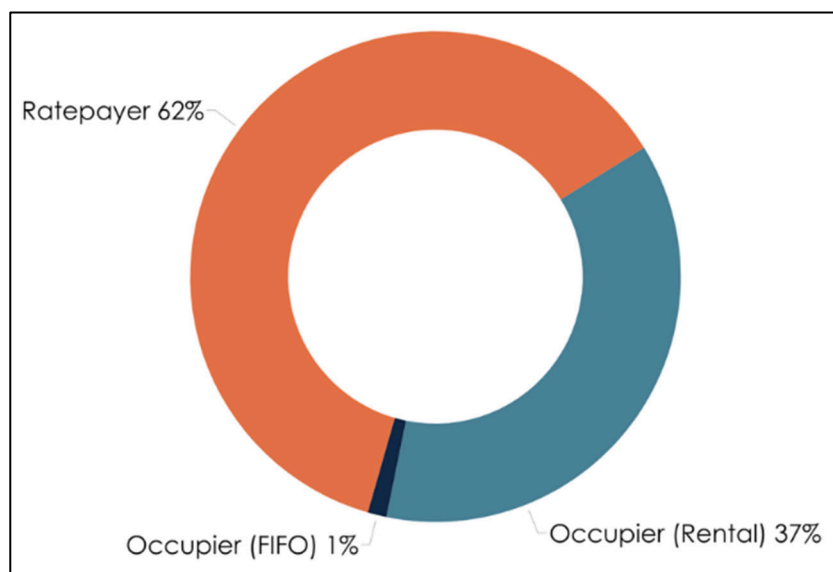
2 SURVEY OUTCOMES

The online community survey collected high-level quantitative feedback from participants. This section examines the results of the survey in detail.

2.1 RESPONDENTS

The survey received 81 responses over the four weeks. This represents a response rate of approximately 0.4% of the City's population. Among the respondents, 62% identified as ratepayers, 37% described their living situation as occupiers (rental), and 1% as occupiers (FIFO) (**Figure 2.1**).

Figure 2:1: Living situation



Approximately 80% of respondents indicated Karratha as their usual place of residence, followed by Dampier at 9%, Wickham at 5%, Baynton at 4%, and Ieramugadu (Roebourne) at 3% (**Figure 2:2**).

Figure 2:2: Usual place of residence



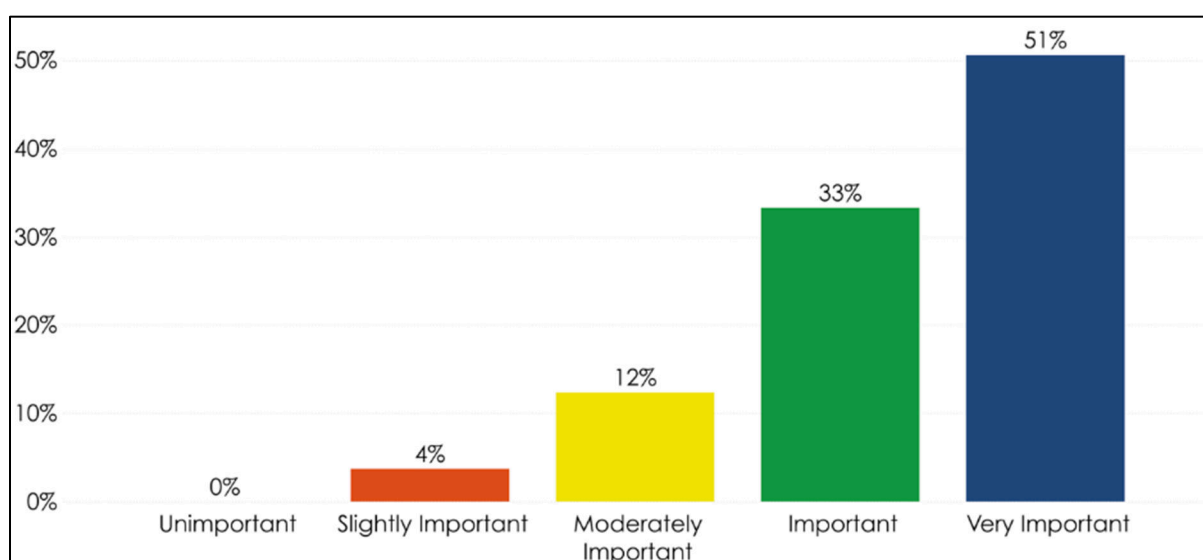
2.2 UNDERSTANDING OF CITY WASTE MANAGEMENT SERVICES

Respondents were asked a series of questions about the City's waste management services. The questions were designed to gain an overview of the community's understanding and views on the services available to them.

2.2.1 IMPORTANCE OF MANAGING WASTE BETTER

Around 84% of respondents consider it *important* to *very important* for the City to manage waste better. Only a small fraction (16%) rated it as *moderately* or *slightly important*, and no respondents found it *unimportant* (**Figure 2:3**).

Figure 2:3: Waste management importance

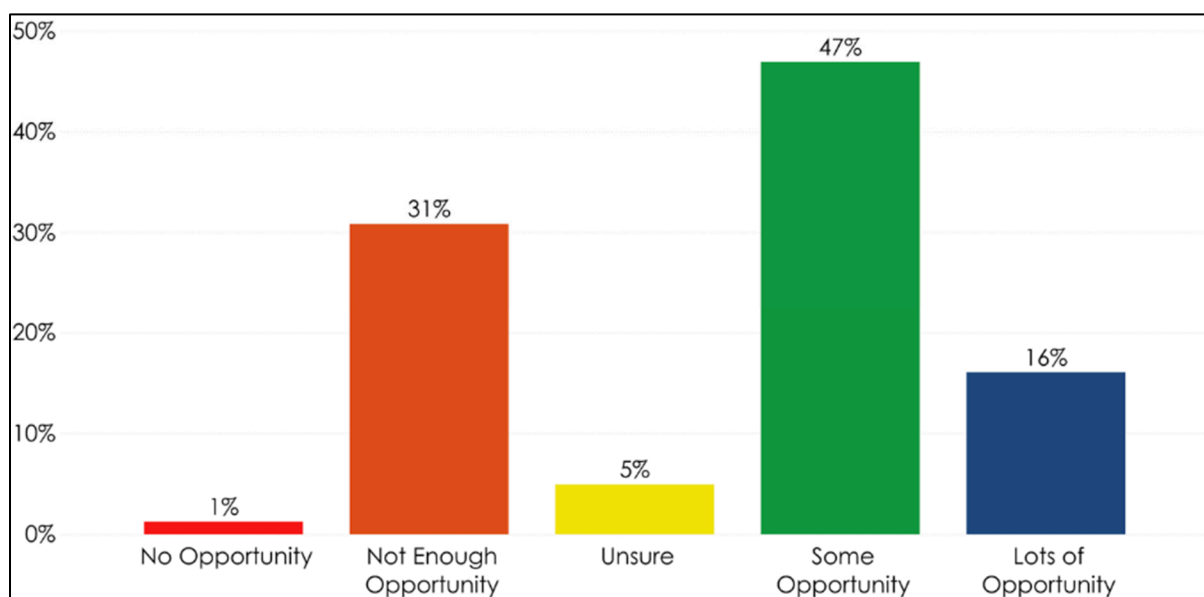


2.2.2 RECYCLING IN THE CITY

The survey included multiple questions designed to assess the community's views on recycling opportunities, the effectiveness of current initiatives, and their comprehension of recycling practices.

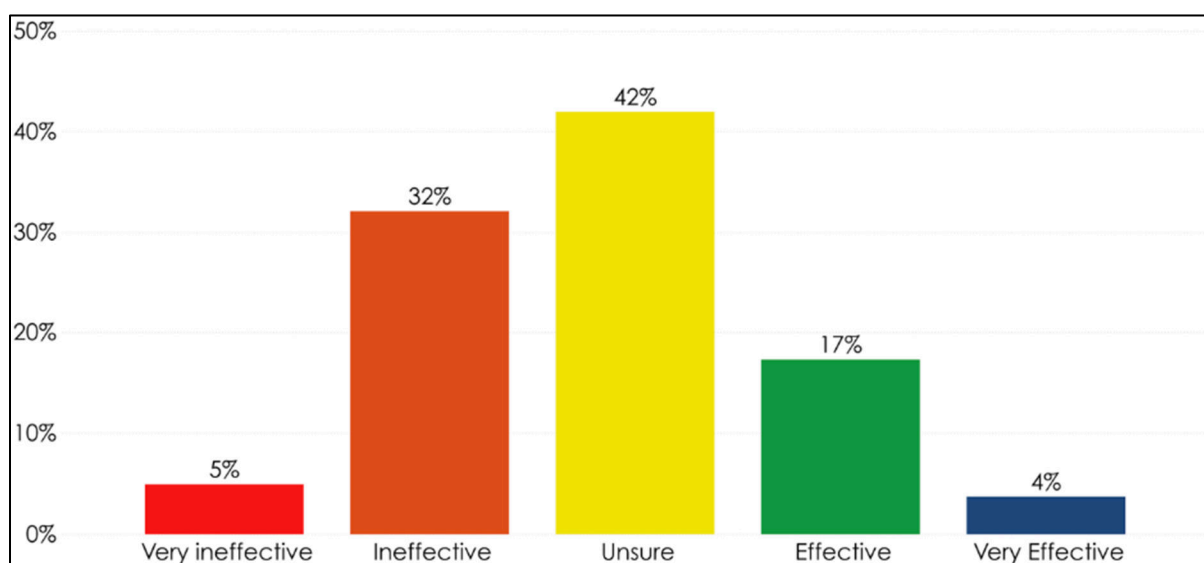
When asked if residents have adequate opportunity to recycle within the City, just over a third believed there to be *no* or *not enough opportunity* (1% and 31% respectively), almost half stated there was *some opportunity* (47%), and another 16% indicated *lots of opportunity* (**Figure 2:4**).

Figure 2:4: Recycling opportunities within the City



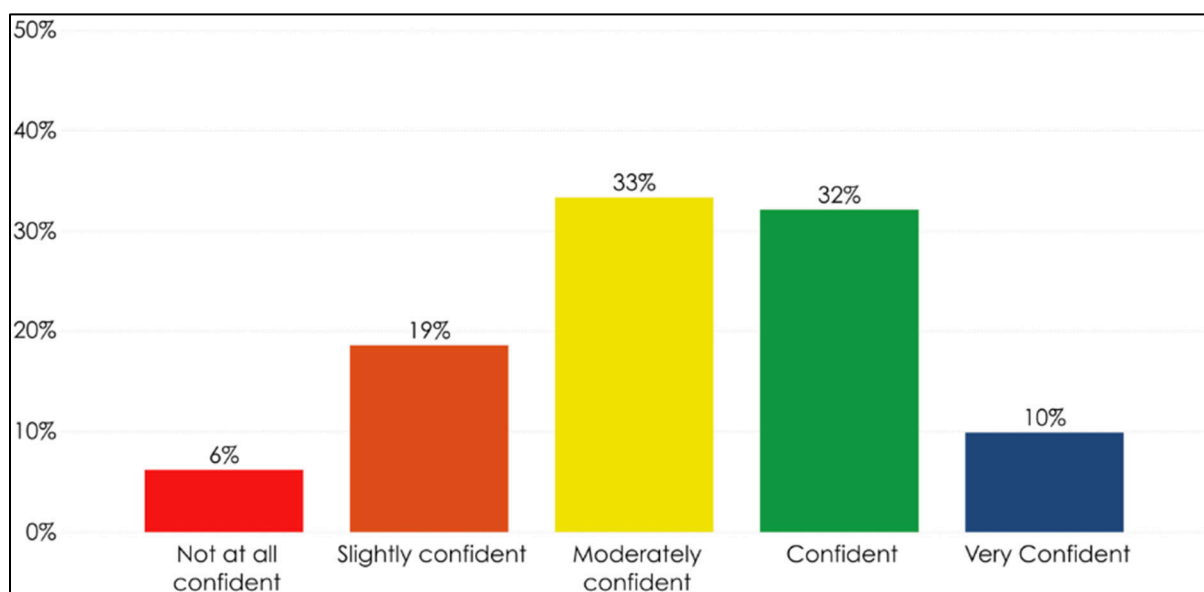
Regarding the effectiveness of current recycling efforts in reducing waste to landfill, the majority indicated they were *unsure* or found the efforts to be *ineffective*. Only 21% considered current recycling efforts to be *effective* in reducing waste to landfill (**Figure 2:5**).

Figure 2:5: Effectiveness of recycling efforts in reducing waste to landfill



The last question in this section assessed the respondents' confidence in their understanding of what can be recycled in the City. The survey results show that only 42% of respondents felt *confident* to *very confident* in their knowledge of what can be recycled within the City. A significant portion, 58%, were less confident. This includes 33% *moderately confident*, 19% *slightly confident* and 6% *not at all confident* (**Figure 2.6**).

Figure 2:6: Recycling confidence

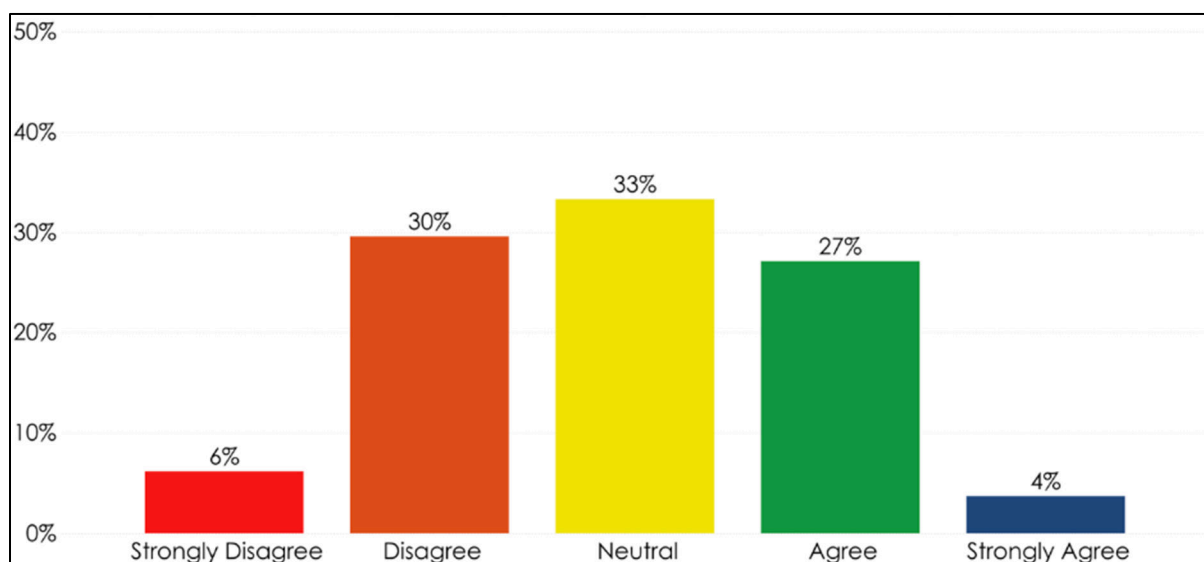


2.2.3 CITY WASTE INITIATIVES

Survey questions were formulated to gauge respondents' level of agreement with statements concerning City waste initiatives.

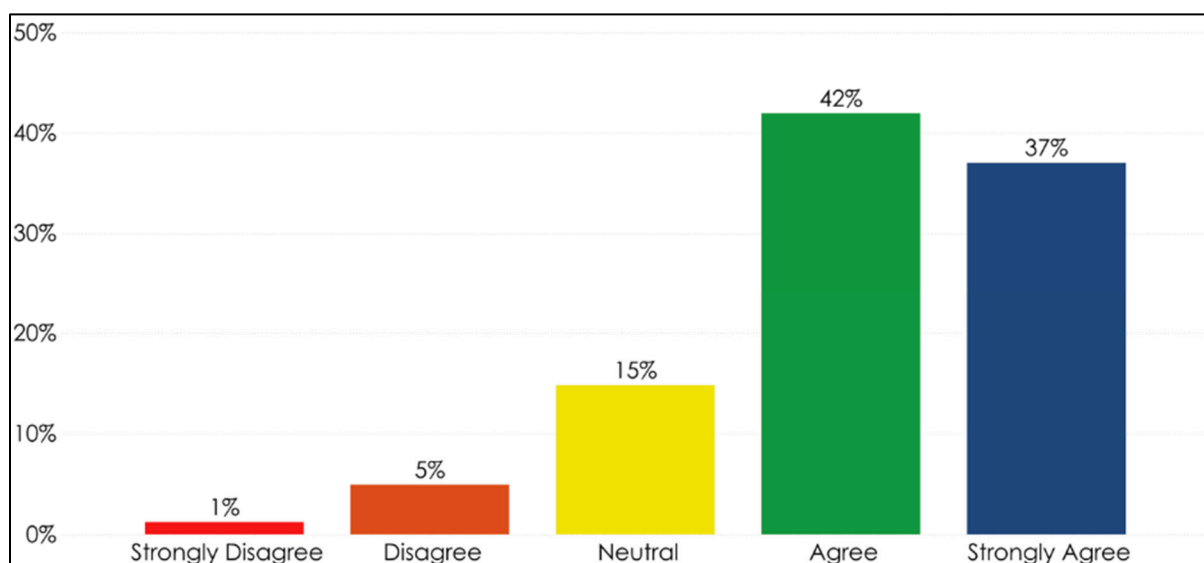
When asked if the City's current waste management services and policies effectively address the community's needs, the responses were divided: 36% *disagreed* (6% strongly), 33% were *neutral*, and 31% *agreed* (4% strongly) (**Figure 2:7**).

Figure 2:7: Effectiveness of services and policies addressing community needs



A significant majority of respondents (79%) *agreed* or *strongly agreed* (42% and 37%) that local government should provide more education on waste reduction and recycling. Only 6% *disagreed*, while 15% were *neutral*. (**Figure 2.8**).

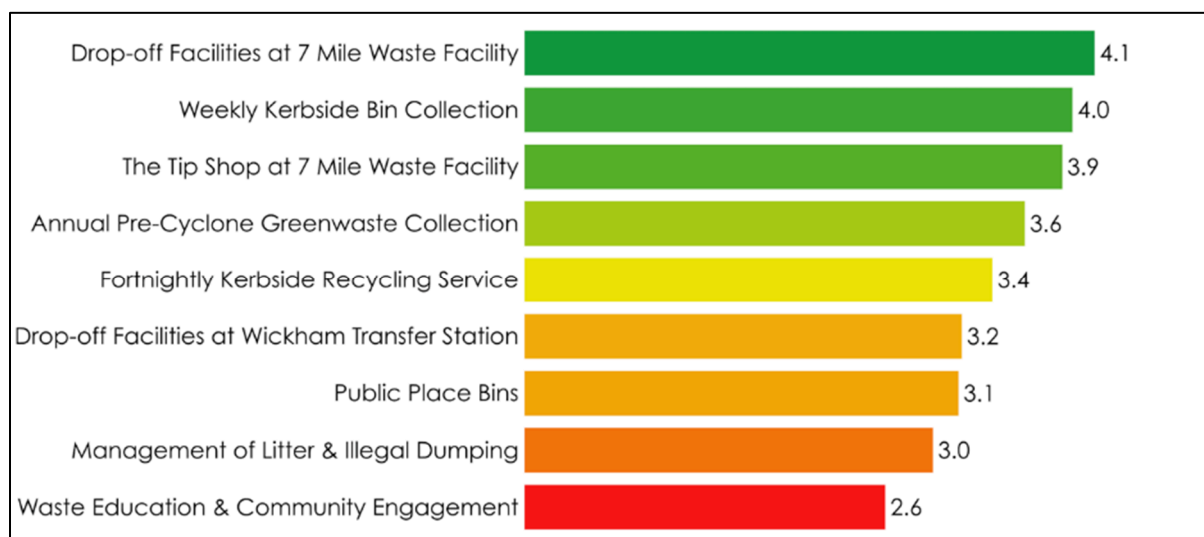
Figure 2:8: Need for more education on waste reduction and recycling practices



2.2.4 SERVICE SATISFACTION AND VALUES

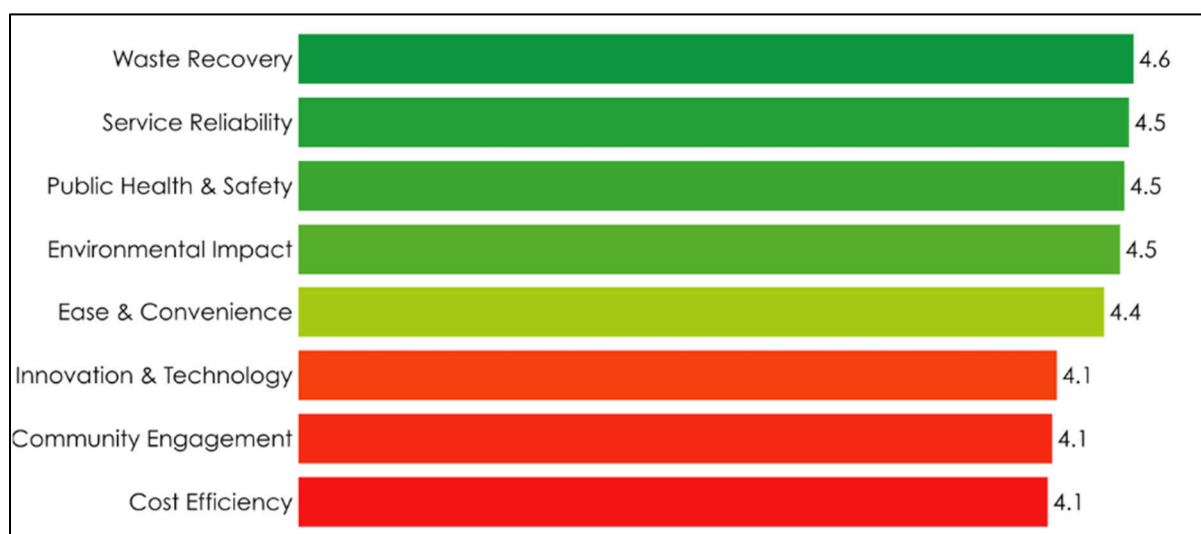
The survey asked respondents to rate their satisfaction with City services from 1 (*very dissatisfied*) to 5 (*very satisfied*). The overall average score across all services was 3.4, with scores ranging from 2.6 to 4.1. Drop-off facilities at the 7 Mile Waste Facility, the Weekly Kerbside Bin Collection and the Tip Shop at 7 Mile Waste Facility scored the highest, while Management of Litter and Illegal Dumping and Waste Education and Community Engagement received the lowest scores (**Figure 2:9**).

Figure 2:9: Satisfaction with City services



The importance of key factors valued by the community regarding how waste is managed in the City was assessed as part of the survey. Respondents were asked to rank factors on a scale from 1 (*unimportant*) to 5 (*very important*). All factors received high scores, with averages ranging from 4.1 to 4.6. Waste Recovery received the highest score (4.6), followed by Service Reliability, Public Health and Safety, and Environmental Impact (each scoring 4.5). Innovation and Technology, Community Engagement, and Cost Efficiency scored the lowest (4.1) (**Figure 2:10**).

Figure 2:10: Factors guiding how waste should be managed in the City

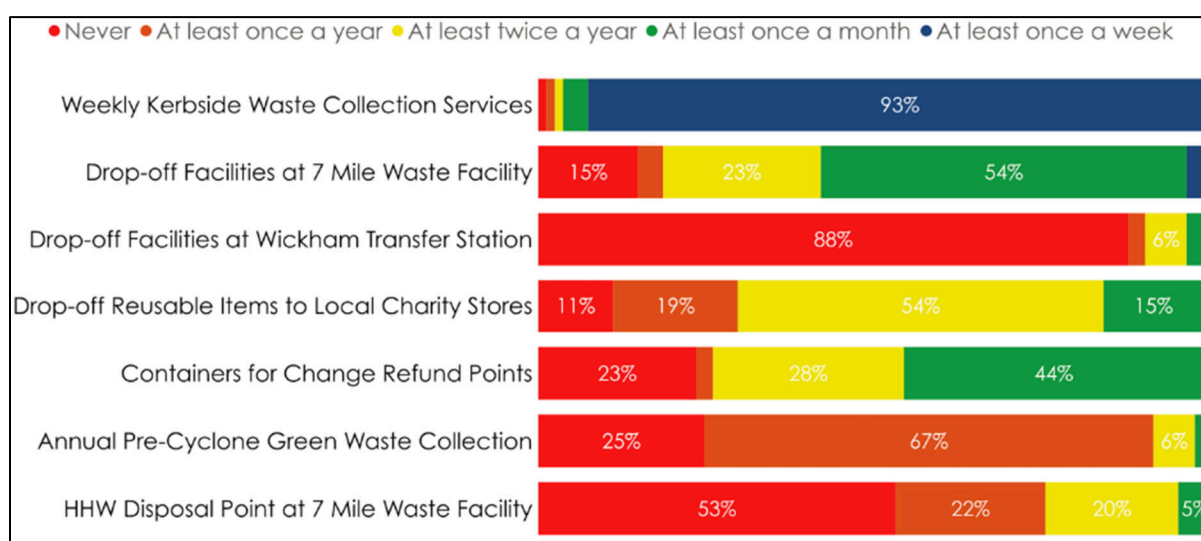


2.2.5 SERVICE USE

Several survey questions were designed to assess the community's usage patterns of key waste management services within the City.

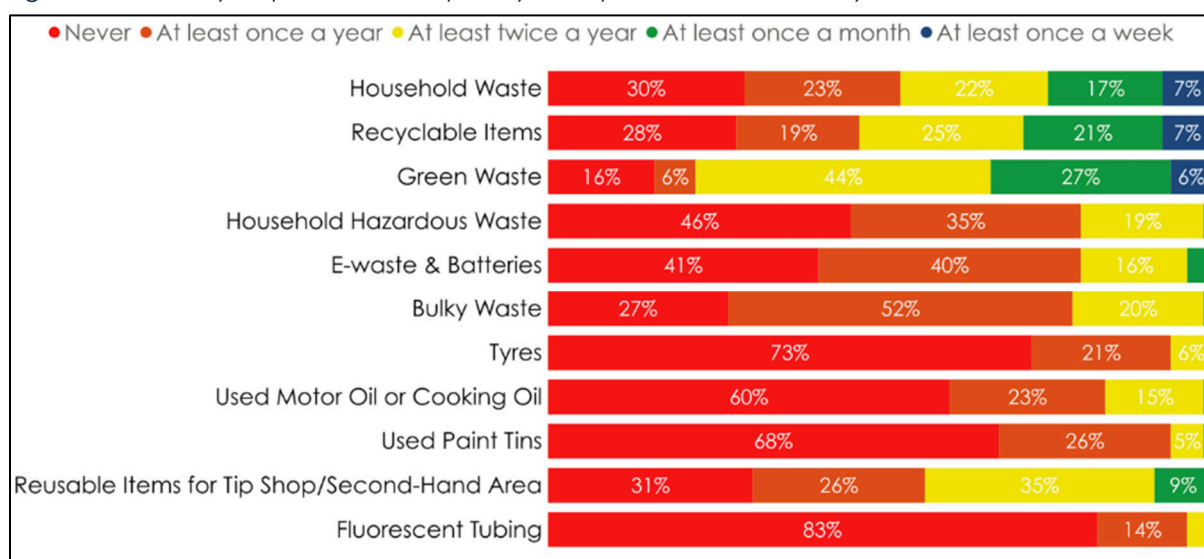
The first question sought to ascertain the frequency with which respondents used various waste management services for disposing of waste, reusable items, or recyclables. Respondents could choose from five options: *never*, *at least once a year*, *at least twice a year*, *at least once a month*, and *at least once a week*. Weekly Kerbside Waste Collection Services were utilised once a week by 93% of respondents (**Figure 2.11**). Additionally, more than half of the respondents used Drop-off Facilities at the 7 Mile Waste Facility *at least once a month*, if not more frequently (54% and 4%, respectively). Conversely, most respondents indicated that they *never* used the Wickham Transfer Station (88%) or the Household Hazardous Waste (HHW) Disposal Point at the 7 Mile Waste Facility (53%).

Figure 2:11: Use of services



A further question inquired how frequently respondents dropped off certain items of household waste at the City's facilities, using the same scale as the previous question, ranging from *never* to *at least once a week* (**Figure 2:12**).

Figure 2:12: Survey responses on frequency of disposal of waste at City facilities



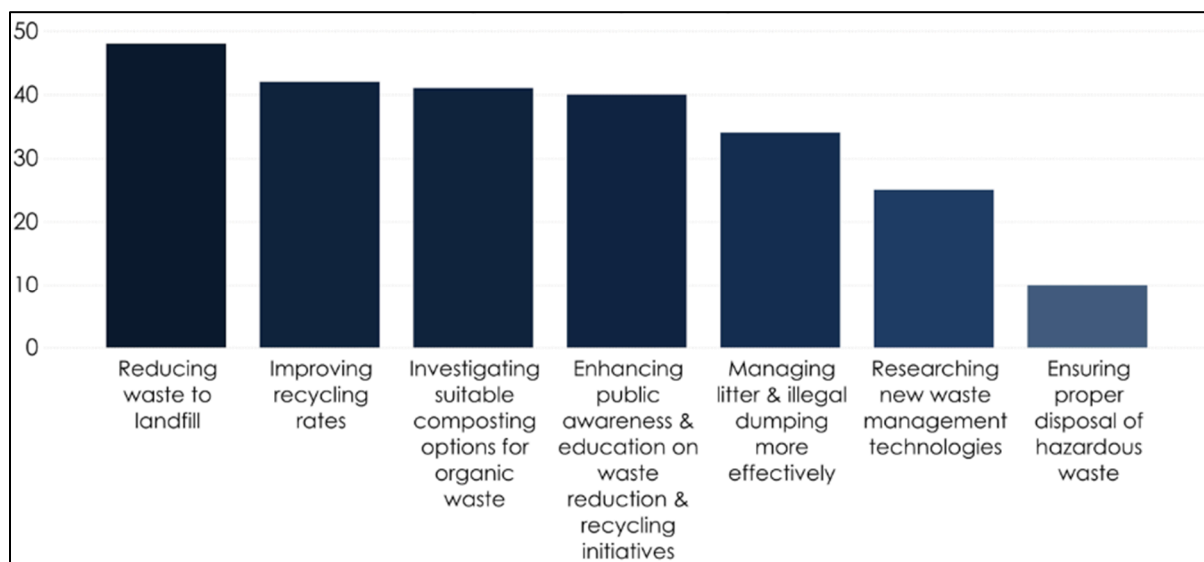
Key insights from the data include:

- **Household Waste:** Most residents (30%) do not need to dispose of household waste at the City's waste facilities, likely due to access to weekly kerbside collection services. Some residents drop off household waste *at least once a year* (23%), while others do so *at least twice a year* (22%). Only a small proportion (7%) dispose of household waste at the facilities *at least once a week*.
- **Recyclable Items:** 53% drop off recyclable items *at least twice a year*, indicating a strong habit of recycling by survey respondents. Whereas a further 28% *never* drop off recyclable items.
- **Green Waste:** Disposal of green waste is fairly regular, with 44% doing so *at least twice a year*, and 27% *at least once a month*, indicating a consistent and frequent need for green waste disposal.
- **Household Hazardous Waste:** Nearly half (46%) *never* dispose of household hazardous waste at the HHW disposal point at the 7 Mile Waste Facility.
- **E-Waste & Batteries:** 41% *never* dispose of e-waste and batteries, but 40% do so *at least once a year*, showing some level of periodic disposal.
- **Bulky Waste:** Most people (52%) dispose of bulky waste *at least once a year*, likely due to the infrequent need to discard large items or annual 'shed' cleanouts.
- **Tyres:** A significant proportion (73%) of individuals *never* dispose of tyres, likely due to infrequent replacement needs or because the disposal of used tyres is managed by the tyre fitter.
- **Used Motor Oil or Cooking Oil:** 60% *never* dispose of used motor or cooking oil.
- **Used Paint Tins:** A significant majority, 68%, *never* dispose of used paint tins.
- **Reusable items for tip shop:** A significant portion, 70%, drop off reusable items for the Tip Shop, between *weekly* to *yearly*, with the most common frequency being *at least twice a year*.
- **Fluorescent Tubing:** The data shows that 83% of people *never* dispose of fluorescent tubing.

2.2.6 FUTURE WASTE INITIATIVES

The last question of the survey asked respondents to vote for the top three initiatives for future waste management services they believe should be prioritised by the City. *Reducing waste to landfill, improving recycling rates, and investigating suitable composting options for organic waste* were the top three most selected initiatives. The least voted initiatives were *researching new waste management technologies* and *ensuring proper disposal of hazardous waste* (**Figure 2:13:**).

Figure 2:13: Priorities for future waste management services



3 WORKSHOPS

3.1 ESAG SESSION

A workshop for the City of Karratha Environmental Sustainability Advisory Group was held on Wednesday the 2nd April at the City offices. Seven members attended the workshop. The workshop provided baseline information for group members, including information on:

- Key drivers for improved waste management and recycling
- Overview of City services and performance
- Overview of community waste survey themes and outcomes.

Input was gathered on the committee's perspectives on current practices, environmental impacts, future priorities, policy considerations, collaboration opportunities, and community engagement. A summary of the responses provided by the ESAG is contained in **Table 3.1** below.

Table 3.1: Summary of ESAG input

Current waste management practices
1. What do you believe are the main challenges and barriers to effective waste management in the community?
<ul style="list-style-type: none"> • People in the community aren't always very engaged or aware when it comes to environmental issues. Because a lot of residents don't stay in the region long term, there isn't always a strong sense of pride in looking after the environment. • Lack of public place recycling bins doesn't convey to the community that recycling is important. • Recycling options are not generally located in the town centre, and you have to travel to 7 Mile.
Environmental Impact
2. What environmental concerns do you have related to waste management in the City? How do you think the City can better address these environmental concerns?
<ul style="list-style-type: none"> • Stopping people from dumping rubbish and littering • A green waste pick-up service • Somewhere to drop off fish scraps • A bigger tip shop • A place to take kitchen scraps for composting.
Policy and Regulation
3. Are there any local policy initiatives that should be considered for development as part of the Waste Strategy?
<ul style="list-style-type: none"> • Kitchen scrap collection service or a drop-off point • Letting residents order one skip bin a year as part of their rates to help reduce dumping and littering • Refining the City's sustainable procurement policy to make waste and recycling a mandatory inclusion.
Collaboration and Partnerships
4. How can the City foster stronger partnerships with local businesses and industry to enhance waste management?

- Set aside land for businesses and give them a hand with getting approvals from the government
- Support local businesses and start-ups
- Work together with other councils in the Pilbara and maybe even the Kimberley – to share ideas and resources to help reduce waste and recycle more
- Put more pressure on the companies that are adding so much to the landfill
- Investigating the development of a Men's Shed near the tip shop to encourage the repair of items destined for landfill.

Community Engagement

5. How involved do you feel the community is in waste management initiatives? How can the City better engage the community in sustainable waste management practices?

- Not very involved
- More clean-up days and incentives for the community
- More education programs, particularly with kids.

Future Priorities

6. What are the key priorities for waste management and resource recovery that the Environmental Sustainability Advisory Committee believes should be incorporated into the Strategy?

- Turning waste into electricity for the Council to use
- Recycling stuff like old solar panels and batteries, and finding a way to recycle tyres instead of just sending them to landfill
- Food and Garden Organics collection service, or subsidies for self-composting
- Desire for local processing solutions and regional solutions
- Roof/shelter for the outside display area at the tip shop to protect items from weather impacts
- Easy and accessible drop-off locations for recycling streams
- Diverting waste from landfill
- More effective education
- Potentially providing incentives for better waste behaviours.

3.2 PUBLIC WORKSHOP

A public workshop was held on Wednesday, 2nd April at the City Library. Seven community members attended. The workshop provided baseline information for group members, including information on the project; key drivers for improved waste management and recycling; and an overview of City services and performance.

Attendees shared their views on current practice and concerns, improvements and changes required and future priorities. A summary of the responses provided is contained in **Table 3.2**.

Table 3.2: Summary of workshop comments

- Because a lot of residents don't stay in the region long term, there isn't always a strong sense of pride in looking after the environment.
- The City should be more innovative .
- Accessible recycling was desired closer to the City centre.
- More sustainable procurement is required.
- City should lead by example, there should be recycling bins at the City's buildings, events, and public place bins.
- Some camps and managed estates are lacking basic access to recycling bins.
- Attendees raised priorities, including:
 - Glass processing
 - Food waste diversion options
 - Textile processing

- Soft plastics processing
- Greater education
- A recycling map showing where in the City you can recycle different materials
- Recycling hubs closer to the City
- CRC
- Second-hand markets
- Repair cafes
- Waste champions in different City departments
- The City should take tiny steps to reduce barriers.

4 STAKEHOLDER CONVERSATIONS

ASK mobilised to the City in early April to conduct face-to-face conversations with interested stakeholders. The approach was informal meetings aimed at gaining an understanding of key issues and challenges stakeholders face in terms of waste management and recycling in the City and gathering suggestions and ideas from stakeholders on how to improve waste management practices, infrastructure, and services in the City of Karratha.

Stakeholders interviewed included Pilbara Development Commission, Rio Tinto, North West Alliance, Cleanaway and Chevron. Other organisations include the Chamber of Commerce, Ngarluma Yindjibarndi Foundation (NYFL), and Brida were contacted but did not participate.

The key points from these discussions are summarised below.

4.1 NORTH WEST ALLIANCE

North West Alliance (NWA) is a commercial waste management operator in the Pilbara region, servicing major mining and gas companies. They collect, transport, treat and dispose of liquid, solid and hazardous waste streams, with a focus on maximising the diversion of waste from landfill.

North West Alliance are actively developing their sites with a resource recovery focus, investing in new infrastructure, including an industrial weighbridge for cardboard recovery and recently constructed a tank farm for large-scale hydrocarbon waste processing.

Discussions with NWA highlighted the challenges of processing problem waste streams regionally due to long distances and a lack of local facilities, often requiring transport to Perth. NWA reports that clients are typically incentivised to recycle when waste causes a 'pain point' like excessive storage or disposal costs. Their clients tend to focus their sustainability efforts on decarbonisation rather than waste diversion, unless waste becomes a major issue.

Key points from the conversation include:

- More remote sites tend to have their own landfills where they dispose of their waste, sites closer to the City are more likely to send their waste to the City landfill.
- Interested in regional organics processing, particularly for food waste from mining camps, suggesting smaller hubs due to distances between sites.
- Interested in regional collaboration with the City and other stakeholders, suggesting that waste generators should drive this.
- Future priorities for NWA include investigating how to increase transport efficiencies, and finding solutions for problem waste streams, including large tyres, bulka bags, IBCs, e-waste, vapes, HDPE and PVC piping, wood and lithium batteries.
- Support for a regional approach and vision for waste management.
- In the longer term they hope to be able to circularise mine site operations and closure.
- Identified infrastructure gaps – industrial timber shredding, tyre processing, recyclable processors.
- Future focuses for the organisation include: cardboard recycling hydrocarbon treatment, de-carbonisation, liquid hazardous waste treatment, diverting more waste from landfill, potential diversification of the use of the cardboard baler, and implementation of the Veolia Green Up Strategy.

4.2 RIO TINTO

The City of Karratha serves as a central location for Rio Tinto's operations in the Pilbara region. The company has engaged a single service provider to manage the collection and disposal of waste generated by its various operations in this region. Some operations have on-site landfills for the disposal of certain waste streams, while the contractor is responsible for handling all other waste materials generated. With the recent expiration of the waste collection contract, Rio Tinto is currently in the process of appointing a new contractor. The scope of this contract has been updated to prioritise the waste hierarchy, moving beyond solely seeking the lowest disposal cost.

Key points from the conversation include:

- Common waste streams generated include: conveyors, idlers, hydrocarbons, cardboard, pallets, mixed waste, batteries, steel, concrete, ballast, rail sleepers, and green waste from camps.
- Recycled waste streams include steel, ballast and conveyors.
- Challenges with specific wastes include e-waste, tyres (especially at remote sites), conveyors and rail, as they are difficult to store due to safety issues.
- Rio Tinto operations are currently focused more on decarbonisation, with resource recovery and improved waste management seen as outside of 'sustainability'. Site-specific sustainability strategies could focus more on waste, including requiring increased recycling infrastructure to support greater recycling rates.
- Implemented Containers for Change at all their sites, after some difficulties with other recycling initiatives for employees. Some camps lack adequate recycling infrastructure to support better recycling outcomes.
- Support for a regional approach and collaboration on waste management, suggesting the region lacks a coordinator, e.g. someone who sees the problem wastes and quantities that need to be processed across the region, and identifies collaboration opportunities.
- Open to collaboration for a solution to general waste, organic waste and green waste from camps and sites.
- Suggests it would be advantageous to have more local processing rather than sending material down to Perth, or to develop stockpiling hubs for different waste streams from all different sector sources for consolidation before transport to gain economies of scale and improve transport efficiencies.
- Desire to recycle the concrete waste they produce; they have developed concrete storage facilities with the hope to gain the economies of scale to then get a crusher in to process. However, they have no use for the amount they would produce, need to find an end market for the recycled product.
- It was noted that Rio Tinto is a property manager to a significant number of properties in Karratha and can assist the City to increase awareness for tenants on correct recycling habits and facilities available in the City.

4.3 PILBARA DEVELOPMENT COMMISSION

The Pilbara Development Commission works in partnership with both government and private organisations to enhance the Pilbara economy. The interview underscored the minor role of domestic waste relative to the substantial quantities of commercial waste generated in the region and highlighted the challenges in advancing waste management and resource recovery in the mining sector.

It was noted that industries generally lack the economic motivation to alter their waste management practices. Given the profitability of the current status quo, there is limited incentive to prioritise local processing and increase waste diversion for minimal cost savings. Regulatory change is seen as necessary to drive progress, along with public advocacy for change.

Other key points from the interview include:

- Major barriers for local processing of waste include scarcity of appropriately zoned land, lack of housing, the undesirability of manual labour roles required for recycling, as well as the hot and poor conditions.
- Understand that it is difficult for the government to implement new regulations around resource recovery, when backlash to 'over-regulation' can be severe.
- Used tyres are a major problem in the region and should be backloaded and processed but are being buried because it is cheaper.
- A major barrier to increasing resource recovery is due to the way mines are regulated, including the Mining Act, or for larger mines, State Agreements, which lack provisions and targets for resource recovery and reuse.
- Regional waste coordination and collaboration would be great but suggested it should be state-run. The 'Western Australia's Energy Transformation Strategy' was suggested as a good example of government and industry collaboration working to achieve the state's energy goals.
- The Pilbara Development Commission's current environmental priorities include e-fuels, green iron, decarbonisation and development of new strategic industrial areas.

4.4 CLEANAWAY

Cleanaway Karratha provides waste and recycling services to residents, councils, businesses, and industries in the region. Services include general and commingled waste collection and treatment, high-pressure water blasting, vac truck services, and liquid waste solutions. Their local site functions primarily as a transfer station for kerbside recycling, which is baled and sent to Perth.

Key challenges include high contamination levels in kerbside recycling, difficulty finding local workers for potential processing facilities, and managing large influxes of waste during camp refurbishments.

Important takeaways from the interview include:

- Consistent education initiatives are needed due to the transient community (e.g. people are generally here for either two, five or ten years).
- Cleanaway previously undertook a feasibility study to develop a materials recovery and processing facility in Karratha; however, it was deemed too expensive for one council, but it could be feasible with regional council collaboration.
- Face issues with specific items like large tyres, which are not accepted by the City.
- Have a history of working together with the City on big projects and are open to collaboration with the City on waste management and resource recovery.

4.5 CHEVRON

Chevron operates in the energy industry, specifically focusing on the oil and natural gas sector. Chevron's operations in the Pilbara region of Western Australia are primarily centred around two major natural gas projects, the Wheatstone Project, and the Gorgon Project at Barrow Island.

Waste produced from projects varies based on operations and maintenance activities and will be shifting as Chevron moves to the decommissioning phase of the WA Oil Fields and related facilities and infrastructure on Barrow Island. Key points from the discussion included:

- Some wastes they generate for treatment or disposal in Karratha include general waste, various construction & demolition wastes, e-wastes including batteries, liquid and sludge wastes, contaminated soils, wastewater treatment plant biosolids, hydrocarbon-contaminated wastes, and spent molecular sieves and associated ceramic balls.
- Various waste streams that are not possible to treat or dispose of in Karratha due to their physical or chemical characteristics are transported to specialist waste facilities, including Class IV or Class V waste facilities. For some wastes, they also need to ensure the availability of auxiliary industrial services in conjunction with treatment and disposal, e.g. cleaning and decontamination of ISO containers following emptying of liquid wastes. Source separation of CDS containers has also been challenging.
- Chevron look to minimise, reduce, reuse and recycle wherever possible, with disposal as the last option as per the waste hierarchy. Residual waste streams requiring transport off-site are directed to various facilities best suited to the specific waste stream.
- Like everyone in the region, logistics and lack of regional facilities are an ongoing challenge for many waste streams, e.g. lack of regional processing or recycling facilities for FOGO, tyres, commingled recyclables, and most e-waste.
- The main waste streams recycled include comingled recyclables, uncontaminated construction and demolition wastes such as concrete or metals, e-wastes including batteries and various hydrocarbon-based wastes.
- Chevron advise that they are continually seeking improvements in waste management and circular economy applications.
- There are many improvement opportunities for infrastructure developments in the region to help divert from landfill (e.g. aforementioned wastes unable to be recycled in the Pilbara). Energy recovery also warrants consideration and could provide opportunities to manage various industrial wastes that are currently either being landfilled or needing to be transported out of the region for treatment and disposal.

5 FINDINGS

The outcomes of the consultation provide both qualitative and quantitative data to inform the future design and delivery of the City's municipal waste services. While the consultation included a range of engagement methods, including workshops and interviews, a significant portion of community input was gathered through an open-response survey. The findings therefore offer valuable insights but should be interpreted with an understanding of the survey's limitations, particularly in terms of sample size and representativeness. The overall picture that emerged from the data is discussed below.

5.1 COMMUNITY OUTCOMES

5.1.1 STRONG SUPPORT FOR IMPROVED WASTE MANAGEMENT INITIATIVES

A significant majority of respondents believe the City must manage waste better, indicating strong community support for waste reduction, recycling, and environmental protection programs.

5.1.2 MIXED OPINIONS ON RECYCLING OPPORTUNITIES

There is a divide in opinions regarding the adequacy of recycling opportunities within the City. While some respondents feel there are sufficient opportunities, others believe there are not enough. Workshop participants expressed a desire for more accessible recycling options, including public place recycling bins and drop-off points closer to the City centre.

5.1.3 UNCERTAINTY ABOUT RECYCLING EFFECTIVENESS

Many respondents are unsure about the effectiveness of current recycling efforts in reducing landfill waste, suggesting a need for better communication and transparency about the impact and outcomes of recycling programs.

5.1.4 VARIED CONFIDENCE IN RECYCLING KNOWLEDGE

Confidence levels in recycling knowledge among the community vary, with a substantial portion reporting moderate or lower confidence. Feedback from Cleanaway, highlighting high rates of kerbside recycling contamination, corroborates this finding and emphasises the necessity for enhanced education and information dissemination.

5.1.5 GENERAL SATISFACTION WITH WASTE SERVICES

Overall satisfaction with waste services is positive. The 7 Mile Waste Disposal Facility drop off services, tip shop and kerbside waste collection service were well received. However, areas for improvement include waste education, community engagement, and the management of litter and illegal dumping.

5.1.6 UNDERUTILISATION OF HHW DISPOSAL

While many respondents use recovery services such as drop-off facilities, charity stores, and Containers for Change refund points, the low use of the HHW disposal point is concerning. This may indicate improper disposal in kerbside bins or a lack of awareness of available services.

5.1.7 LEVERAGE THE TIP SHOP'S SUCCESS

Survey and workshop feedback indicate a high level of participation and satisfaction with the 7 Mile Waste Disposal Facility tip shop, highlighting its potential as a central hub for recycling, reuse, and community education within the City. Workshop suggestions to support this initiative included the development of a suitable building for a repair café to be located near the tip shop for use by

the local 'Men's Shed' for the repair of second hand items, and providing a roof or shelter for the outside display area at the tip shop would protect items (and customers) from weather impacts, ensuring they remain in good condition for reuse.

5.1.8 DISPOSAL HABITS FOR HAZARDOUS WASTE NEED ATTENTION

There is a need for continued efforts to educate and facilitate the proper disposal of hazardous waste, including e-waste, batteries, used motor oil, and fluorescent tubing. Despite its importance, ensuring proper disposal of hazardous waste received the fewest votes as a priority for future initiatives, indicating a need for increased awareness about the risks of improper disposal and the benefits of proper methods.

5.1.9 DIVIDED PERCEPTIONS OF CURRENT SERVICES AND POLICIES MEETING COMMUNITY NEEDS

Community perceptions about the effectiveness of current waste management services and policies in addressing community needs are mixed. While some residents are satisfied others identified gaps in service provision, recycling effectiveness, and expressed a need for more education and better accessibility to services. This suggests that improvements in communication, education, and service accessibility are necessary to better meet community expectations and enhance overall satisfaction.

5.1.10 MORE EDUCATION AND INFORMATION ARE NEEDED

There is strong support for more education and information on waste reduction and recycling practices. Both survey and workshop participants emphasised the need for educational programs and incentives to encourage better waste behaviours and reduce contamination.

Given respondents' lack of certainty regarding recycling knowledge and its effectiveness, coupled with high contamination rates in kerbside recycling, enhanced educational initiatives are crucial to boost community knowledge, confidence, and participation in more sustainable waste management practices.

5.1.11 PRIORITISATION OF FUTURE INITIATIVES

The community prioritises initiatives focusing on reducing waste to landfill, improving recycling rates, and exploring composting options for organic waste. Workshops also suggested investigating innovative solutions such as turning waste into electricity, recycling old solar panels and batteries, and finding ways to recycle tyres. Additionally, there is a desire for local processing solutions, partnerships with local businesses and industry and regional collaboration to address waste management challenges.

5.2 INDUSTRY OUTCOMES

5.2.1 TRANSPORT EFFICIENCIES

The absence of local reprocessing facilities for many waste streams generated in the region forces stakeholders to transport waste long distances, often to Perth. Stakeholders often work in isolation, leading to duplicated efforts, inefficiencies, and significantly increased transport costs. Long-distance transport also contributes to higher carbon emissions, exacerbating environmental concerns.

5.2.2 LACK OF END MARKETS

The absence of end markets for recycled materials significantly hampers waste management efforts in the region. Without viable markets to sell or repurpose processed waste, materials such as

organic waste, green waste, concrete, and tyres often end up being stockpiled or landfilled. To address this issue, it is crucial to develop and support local end markets, ensuring that recycled materials can be economically and sustainably reintegrated into the supply chain.

5.2.3 PROBLEM WASTE STREAMS

Stakeholders identified several problematic waste streams including tyres, e-waste, vapes, bulka bags, IBCs, and organic waste.

5.2.4 SUPPORT FOR COLLABORATION ON CROSS-INDUSTRY SOLUTIONS

Multiple interviewees noted advantages in greater collaboration between stakeholders in the region on waste issues. A lack of coordination currently limits the development of economies of scale and efficient recovery solutions. The need for a cross-industry working group or alliance was suggested for finding solutions for problem waste streams and improving transport efficiencies through regional partnerships.

5.2.5 REGULATORY FRAMEWORKS AND POLICY

Stakeholders noted that regulatory changes and stronger policy support are needed to improve waste outcomes in the mining and resources sector. This could encourage greater investment in regional recycling infrastructure.

5.2.6 DECARBONISATION VERSUS RECYCLING DISCONNECT

There was a clear disconnect between the prioritisation of decarbonisation and the role of recycling and waste minimisation in achieving sustainability goals. For stakeholders in the mining sector, efforts focused on reducing carbon emissions through measures such as electrifying vehicles and carbon capture. In contrast, recycling and resource recovery were often viewed as secondary concerns, typically addressed only when waste management issues became significant pain points, such as excessive storage issues or high disposal costs. However, recycling and waste minimisation are integral to decarbonisation, as they reduce greenhouse gas emissions and conserve resources, and should be more strongly integrated into sustainability strategies.

5.2.7 RECRUITMENT ISSUES

Labour shortages in waste and recycling roles are a challenge, exacerbated by harsh working conditions, safety concerns, and competition from higher-paying industries. Attracting and retaining workers remains a key issue.

5.3 LIMITATIONS OF SURVEY FINDINGS

While the community survey outcomes provide valuable insights into local perspectives, it is important to acknowledge its limitations. The survey received 81 responses, representing approximately 0.4% of the City of Karratha's population. This smaller sample size may not fully reflect the views of the broader community, and the findings should be viewed as indicative rather than representative. Further targeted consultation could enhance the reliability of the findings.

6 CONCLUSION

Feedback gathered through the community survey offers a valuable foundation for understanding prevailing views and priorities. While the sample size and open-response format may limit the extent to which the findings reflect the broader population, the insights gained remain meaningful and contribute constructively to the development of future strategic directions.

Community outcomes demonstrated strong support for better waste management, prioritising future needs to reduce waste to landfill, improve recycling rates and explore composting options for organic waste. The results highlighted the need for improved recycling opportunities and education whilst the underutilisation of some City services and the success of the 7 Mile Tip Shop indicate areas for improvement and potential leverage.

Industry stakeholders across the Pilbara region reported similar challenges, particularly those arising from the area's remoteness and distance from reprocessing facilities. These factors contribute to inefficiencies, elevated costs, and increased carbon emissions. Addressing these issues will require collaborative solutions, investment in local infrastructure, and the development of sustainable end markets.

These key insights into community and industry perspectives on waste management will inform the development of actions and priorities to be outlined in the *Strategic Waste Management and Resource Recovery Strategy 2025–2035*.

APPENDIX A – COMMUNITY CONSULTATION PLAN

APPENDIX B - SURVEY QUESTIONS

Question	Question type	Response options
1. Are you a:	Multiple choice	<ul style="list-style-type: none"> • Ratepayer • Occupier (rental) • Occupier (FIFO) • Visitor/Tourist
2. How important is it to you that the City works to manage waste better, like reducing waste in landfills, recycling more and protecting the environment from waste?	Rating	<ul style="list-style-type: none"> • Unimportant • Slightly important • Moderately important • Important • Very important
3. In your opinion, do residents have adequate opportunity to recycle within the City?	Rating	<ul style="list-style-type: none"> • No opportunity • Not enough opportunity • Unsure • Some opportunity • Lots of opportunity
4. How effective do you believe the current recycling efforts are in reducing waste to landfill within the City?	Rating	<ul style="list-style-type: none"> • Very ineffective • Ineffective • Unsure • Effective • Very effective
5. How confident are you in your knowledge of what can be recycled within the City?	Rating	<ul style="list-style-type: none"> • Not at all confident • Slightly confident • Moderately confident • Confident • Very confident
6. How much do you agree with the statement "The current waste management services and policies provided by the City effectively address the community needs"?	Rating	<ul style="list-style-type: none"> • Strongly disagree • Disagree • Neutral • Agree • Strongly agree
7. How much do you agree with the statement "The local government should provide more education and information about waste reduction and recycling practices"?	Rating	<ul style="list-style-type: none"> • Strongly disagree • Disagree • Neutral • Agree • Strongly agree

Question	Question type	Response options
<p>8. 5. How satisfied are you with each of the current waste management services provided by the City?</p> <ul style="list-style-type: none"> • Weekly kerbside bin collection • Fortnightly kerbside recycling service • Drop-off facilities at the 7 Mile Waste Disposal Facility ("the tip") between Karratha and Dampier • The tip shop at the 7 Mile Waste Disposal Facility • Drop-off facilities at Wickham Transfer Station • Annual pre-cyclone green waste collection • Management of litter and illegal dumping • Public place bins • Waste education and community engagement 	Rating matrix	<ul style="list-style-type: none"> • Very dissatisfied • Dissatisfied • Neither satisfied nor dissatisfied • Satisfied • Very satisfied
<p>9. How important do you believe each of the following factors are when deciding how waste is managed within the City of Karratha?</p> <ul style="list-style-type: none"> • Environmental impact • Waste recovery • Cost efficiency • Service reliability • Community engagement • Public health and safety • Ease and convenience • Innovation and technology 	Rating matrix	<ul style="list-style-type: none"> • Unimportant • Slightly important • Moderately important • Important • Very important
<p>10. How often do you use the following waste management services provided within the City to dispose of waste and/or reusable items or recyclables?</p> <ul style="list-style-type: none"> • Weekly kerbside waste collection services • Drop-off facilities at the 7 Mile Waste Facility in Karratha • Drop-off facilities at the Wickham Transfer Station • Drop off reusable items at local charity stores • Annual pre-cyclone green waste collection conducted by the City • Household Hazardous Waste disposal point at 7 Mile Waste Facility 	Rating matrix	<ul style="list-style-type: none"> • Never • At least once a year • At least twice a year • At least once a month • At least once a week

Question	Question type	Response options
<p>11. How often do you drop off the following types of household waste at either the 7 Mile Waste Disposal Facility or the Wickham Transfer Stations?</p> <ul style="list-style-type: none"> Household waste (items normally placed in rubbish bins) Recyclable items (glass, plastics, paper, cardboard, etc.) Green waste Household hazardous waste (household chemicals, pesticides/herbicides, gas cylinders, etc.) E-waste and batteries Bulk waste (old furniture, mattresses, whitegoods, etc.) Tyres Used motor oil or cooking oil Used paint tins Reusable items for the 7 Mile Tip Shop or Second-Hand Area at Roebourne Fluorescent tubing 	Rating matrix	<ul style="list-style-type: none"> Never At least once a year At least twice a year At least once a month At least once a week
<p>12. Please select the top three initiatives for future waste management services you believe should be prioritised by the City of Karratha</p>	Checkbox	<ul style="list-style-type: none"> Improving recycling rates Reducing waste to landfill Investigating suitable composting options for organic waste Enhancing public awareness and education on waste reduction and recycling initiatives Researching new waste management technologies Managing litter and illegal dumping more effectively Ensuring proper disposal of hazardous waste