DUBBO REGIONAL COUNCIL

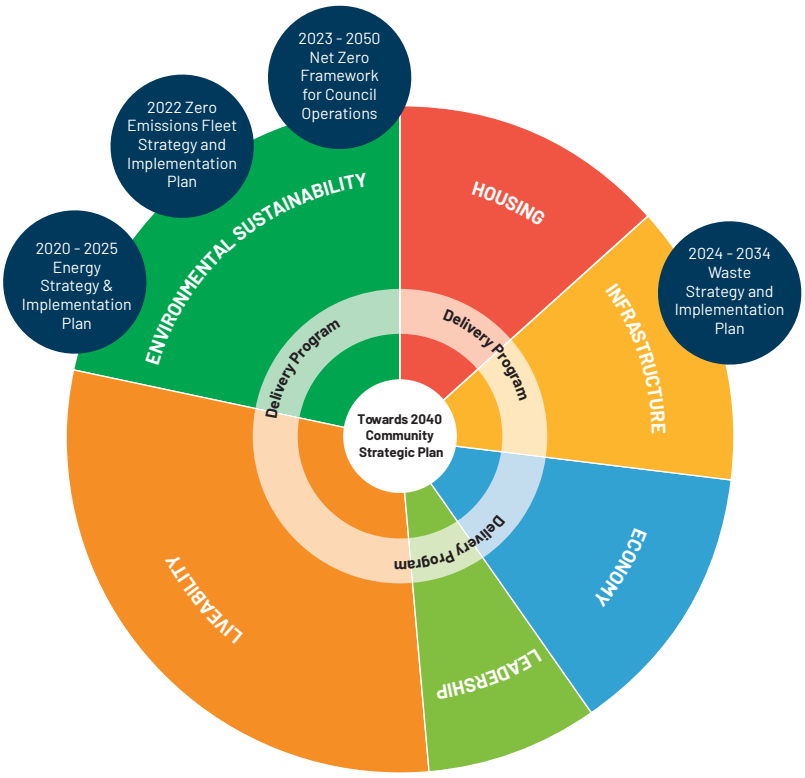
2025 - 2035
WASTE STRATEGY

How the 2025 - 2035 Waste Strategy connects with our other strategic plans

Strategic context

The 2025 - 2035 Waste Strategy and Implementation Plan are embedded into our Integrated Planning and Reporting Framework to ensure that initiatives and objectives are prioritised, well-coordinated and effectively resourced.

The Strategy informs the 4-year Delivery Program and annual Operational Plan. The Strategy is interlinked with other Council plans, frameworks, strategies and policies that have an impact on reducing waste sent to landfill for on-going progressive, sustainable, collaborative and responsible waste management services for the Local Government Area (LGA).



Towards 2040 Community Strategic Plan: Theme 2 Infrastructure

Goal	We have well-maintained, fit for purpose and new infrastructure that helps our community grow.
Objectives	2.2 Infrastructure meets the current and future needs of our community
Strategies	2.2.2 Solid waste management services meet the needs of the community
Actions	2.2.2.2 Prepare and implement the Local Government Area Waste Strategy

For more information on Council's plans visit:
dubbo.nsw.gov.au/About-Council
(A-Z Plans and Strategies)

or scan the QR code

Disclaimer statement

The information is current at time of completing this document and some information may change during the lifetime of the 2025 - 2035 Waste Strategy. Community members are advised to contact relevant service providers, organisers, authorities, and Dubbo Regional Council Customer Experience Team if they have any questions.

Acknowledgement of Country

We acknowledge the Wiradjuri people who are the traditional custodians of the land on which we live, work and play. We pay our respects to Elders past and present of the Wiradjuri Nation and thank them for their care of the land, water and sky and extend that respect to other Indigenous Australians.

Contents

Executive Summary

The management of waste globally, nationally and locally is in a transitional period. The acceptance of the current rate of natural resource consumption is being questioned and there is an appetite to be more efficient in managing and recovering resources in a way that minimises environmental and human health impacts and maximises the value returned from the materials being recovered.

This Waste Strategy provides the long-term strategic direction for Council's waste services, highlights past achievements and sets out how the waste and resource recovery needs of the Dubbo region will be met over the next decade.The Strategy provides a strategic direction for the region, moving towards a future where placing materials into landfill will be the last option, shifting towards circular economies and empowering the community and Council to make a positive difference by reducing, reusing, repairing and recycling more.

Council's leading source of greenhouse gas emissions within its operations is waste disposed to landfill, contributing 62% of Council's carbon footprint in 2021/2022. In order to address this statistic, a key purpose of the Strategy is the necessity to change our perception of waste. Where waste needs to be viewed as a potential resource and consider how this material can be reused in a circular economy.

The main Strategy objectives are focused on reducing waste, increasing resource recovery, transitioning to a circular economy, protecting the environment, whilst also considering how to reduce emissions and abate carbon generated by waste management and resource recovery activities.

> "...moving towards a future where placing materials into landfill will be the last option..."

Introduction

The purpose of the Waste Strategy and its supporting first term, five year Implementation Plan, is to provide an overarching blueprint for both reducing waste sent to landfill and for on-going progressive, sustainable, collaborative and responsible waste management services for the Local Government Area (LGA).

The Waste Strategy will consider opportunities to reduce waste, increase resource recovery and transition to a circular economy, whilst also considering how to reduce emissions and abate carbon generated by waste management and resource recovery activities.

Development of the Waste Strategy has been guided by Council's Community Strategic Plan and the Net Zero Framework. The themes and priorities align with the NSW EPA Waste and Sustainable Materials Strategy 2014: Stage 1: 2021–2027 (State WaSMS) and the NetWaste Regional Waste and Sustainable Materials Strategy 2023 – 2027 (NetWaste WaSMS) to ensure a consistent approach to addressing broad issues, whilst at the same time developing key focus areas (KFAs) and strategic actions within these to ensure specific issues within the LGA are addressed.

The Waste Strategy and Implementation Plan have been developed by Council in conjunction with Talis Consultants.

Scope of the Waste Strategy

The scope of the Waste Strategy is limited to the waste collected/received by Council from within its LGA. This includes:

- The Waste managed/processed either directly (by Council) or indirectly (under contract to Council);
- Waste managed/processed on a site owned/managed by Council or a contractor working directly for it; and
- Waste generated within the LGA or brought into the LGA for management/processing under one or both of the above arrangements.

It does not include waste collected and managed directly by the private sector from within the LGA.

Delivery Term of the Waste Strategy

Whilst the Waste Strategy takes on a 10-year planning and delivery horizon, its supporting Implementation Plan focusses on the initial 5-year period in support of the State's WaSMS Stage 1 and its particular focus and supporting funding arrangements.

Planning for delivery beyond this initial 5-year timeframe is subject to risk given the waste industry is currently experiencing rapid change and Council needs to adopt a more cautious, adaptive and flexible approach to improved service delivery.

Our Vision

"Create a community for today and tomorrow through delivering progressive, sustainable, collaborative and responsible waste management across the Dubbo Region."

Council is committed to delivering progressive, sustainable, collaborative and responsible waste management across the Dubbo Region, aligned to Council's core Vision, Purpose and Values , in order to create a community for today and tomorrow.

Our Vision, Purpose and Values

Our Vision

Creating Community for Today and Tomorrow

Our Purpose

Lead, Connect, Deliver

Our Values

Progressive

Be Curious, Courageous and Committed

- Challenging the status quo
- Finding better ways
- Seeking change and innovation

Sustainable

Balanced Approach to Growth and Opportunity

- Financially sound
- Social equity
- Conscientious leadership and governance
- Environmentally responsible

One Team

Working Together

- We take care of each other and ourselves
- Partnering to deliver better outcomes
- Fostering positive experience
- Investing in people

Integrity

Accountable for Our Actions

- Valuing and acknowledging our cultures
- Leading by example
- Open and ethical practices
- Upholding our commitments

Why reduce our waste?

Like many communities and councils across Australia, we are facing challenges with the management of solid waste. These challenges are driven by community expectations of local government to manage waste in a more sustainable way and in response to changing policy, regulation, strategies, plans and program funding opportunities at both a state and national level.

Within Australia, waste generation rates are increasing. The National Waste Report, released in December 2022, notes that 14 million tonnes of municipal solid waste (MSW) were generated from households in 2020/2021. This equates to 543 kg per capita per year, and 18% of the total amount of waste produced nationally. This is up by 12.8 million tonnes, or 20%, over the last 15 years due to both an expanding population and greater purchasing power brought about by a higher standard of living.

The generation and management of waste can have significant impacts on the environment. Impacts may include the release of greenhouse gasses associated with the breakdown of waste containing organic carbon, unsustainable consumption of non-renewable resources, and litter and illegal dumping, all of which impact native wildlife and land and aquatic environments.

A more sustainable approach that considers the environment, inter-generational equity for future generations, and a more circular approach to resource consumption and circulation within the productive economy needs to be integrated into waste management planning.

Global to local commitments to waste management

There are a number of global, national, state, regional and local commitments, as well as legislative and policy considerations at the national and state level that drive improvements in waste service delivery. These all guided the development of Council's Waste Strategy and its Implementation Plan.

A full list of global to local commitments, legislation and policy relating to waste management is provided within Appendix A, with key commitments highlighted and detailed below.

Global Commitments

- United Nations 2030 Agenda's Sustainable Development Goals (SDGs) - In 2015, countries adopted the 2030 Agenda for Sustainable Development and its 17 Sustainable Development Goals. The SDGs include Goals 11, 12 and 13, calling for responsible waste practices and management in order to reduce greenhouse gas emissions and impact on the environment.

State Commitments

- Net Zero Plan Stage 1 (2020 – 2030) – is the foundation for NSW's action on climate change and goal to reach net zero emissions by 2050, helping to achieve the State's objective to deliver a 70% reduction in emissions by 2035 compared to 2005 levels. The plan supports a range of initiatives targeting energy, electric vehicles, hydrogen, primary industries, technology, built environment, carbon financing and organic waste.
- Net Zero Targets - the State Government has introduced the Climate Change (Net Zero Future) Bill 2023 to legislate emission reduction targets. The bill commits the state to cutting greenhouse gas emissions, including those associated with waste, by at least 50% by 2030 and reaching net zero by 2050.
- NSW WaSMS Stage 1 – released in 2021, the WaSMS outlines the State Government's commitment to reducing waste and increasing recycling. The 20-year Strategy focuses on the environmental benefits and economic opportunities to reduce waste, improve waste management, and increase material recycling. The NSW government has also released the NSW Litter Prevention Strategy 2022–2030 and the Illegal Dumping Prevention Strategy 2022-2027, both of which underpin the WaSMS.
- NSW Plastics Action Plan –also released in 2021, supports the WaSMS and will assist in delivering a number of targets within the WaSMS. It outlines a suite of actions to address plastic at all points of the plastics lifecycle, from production and consumption to disposal and recycling.

Regional Commitments

- NetWaste's Regional Waste and Sustainable Materials Strategy 2023 – 2027 – adopted in 2023 - outlines a regional commitment for collective action to reduce waste and increase resource recovery across 25 member Councils, which spans almost 40% of the State. Council is the largest member of the NetWaste voluntary regional waste group.

Local Commitments

Local Government Act 1993 - sets out the legal framework, governance, powers, and responsibilities of Councils in New South Wales. The Act sets out the functions of Council, including its service function relating to waste removal and disposal.

Towards 2040 Community Strategic Plan (CSP) – outlines the local community's aspirations and Council's commitment to reducing waste including objectives 2.2.2 "Solid waste management services meet the needs of the community" and 6.2.3 "Waste management processes reduce our environmental footprint and impact on the environment". In addition, Council's annual Operational Plan (2023/2024) requires Council to implement a Local Government Area Solid Waste Strategy (2.2.2.2).

Net Zero Framework – adopted 26 October 2023, the Framework outlines Council's commitment to reducing greenhouse gas emissions to net zero within its operations by 2050. The Framework includes short, medium and long-term net zero targets and recommended short, medium and long-term emission reduction goals to achieve these Targets. Landfill waste is the leading source of Council's greenhouse gas emissions, contributing 62%.

What is considered best practice waste management?

The two guiding principles presented below provide the basis for driving improved change and best practice in waste management and resource recovery. The principles include the internationally recognised waste hierarchy and circular economy. Council's Waste Strategy and Implementation Plan has been developed with these guiding principles in mind.

Waste Management Hierarchy

The waste management hierarchy is an internationally adopted principle and concept which lists waste management options in order of preference according to their sustainability and environmental impacts.

The hierarchy has been adopted within the Waste Strategy as the basis for classifying and assessing the various waste management and resource recovery options which are being considered to assist Council with improving waste management across the LGA.

Figure 1: Waste Management Hierarchy

As shown in Figure 1, options, which achieve outcomes higher up the hierarchy, are preferred over those located further down the hierarchy.

Circular Economy

NSW is transitioning to a circular economy over the next 20 years, where resources are retained more within the productive economy.

A circular economy aims to 'close the loop on waste' by minimising what we throw away, and using and reusing our resources efficiently, making them as productive as possible, as shown in Figure 2. It encourages best practice waste management and resource recovery beyond the 'waste hierarchy' principles. The NSW Circular Economy Policy Statement (NSW EPA, 2019) guides the State Government's ambition and approach to a circular economy and establishes seven principles to maximise the use and value of resources including:

- Sustainable management of all resources;
- Valuing resource productivity;
- Design out waste and pollution;
- Maintain the value of products and materials;
- Innovate new solutions for resource efficiency;
- Create new circular economy jobs; and
- Foster behaviour change through education and engagement.

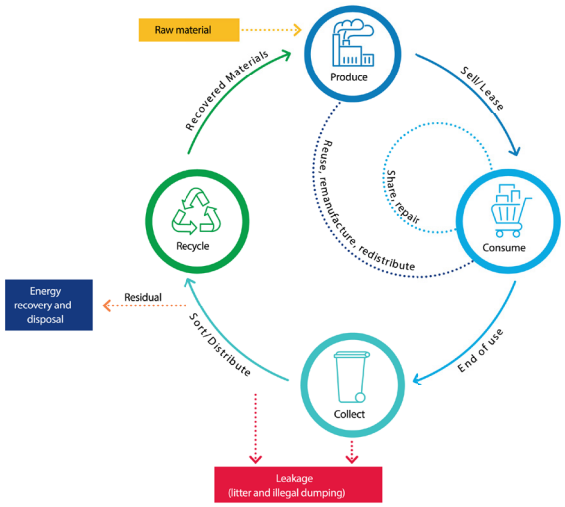


Figure 2: Circular Economy

Benefits of implementing a circular economy include job creation, reduction in carbon emissions and improved resource efficiency.

Many countries around the world are transitioning from a linear to a circular economy, with the first initial step shifting from the current linear approach, where resources are extracted to make products that eventually end up as waste and are disposed of, to a recycling economy. A recycling economy essentially acts as 'end-of-pipe' solution and while this shift to a recycling economy is undoubtedly a necessary component in moving towards a more circular economy, a truly circular economy will ensure that products and materials are designed, from the outset, to be reused, repaired, and remanufactured, resulting in minimal waste requiring disposal.

Figure 3 provides an overview of a linear, recycling and circular economy.

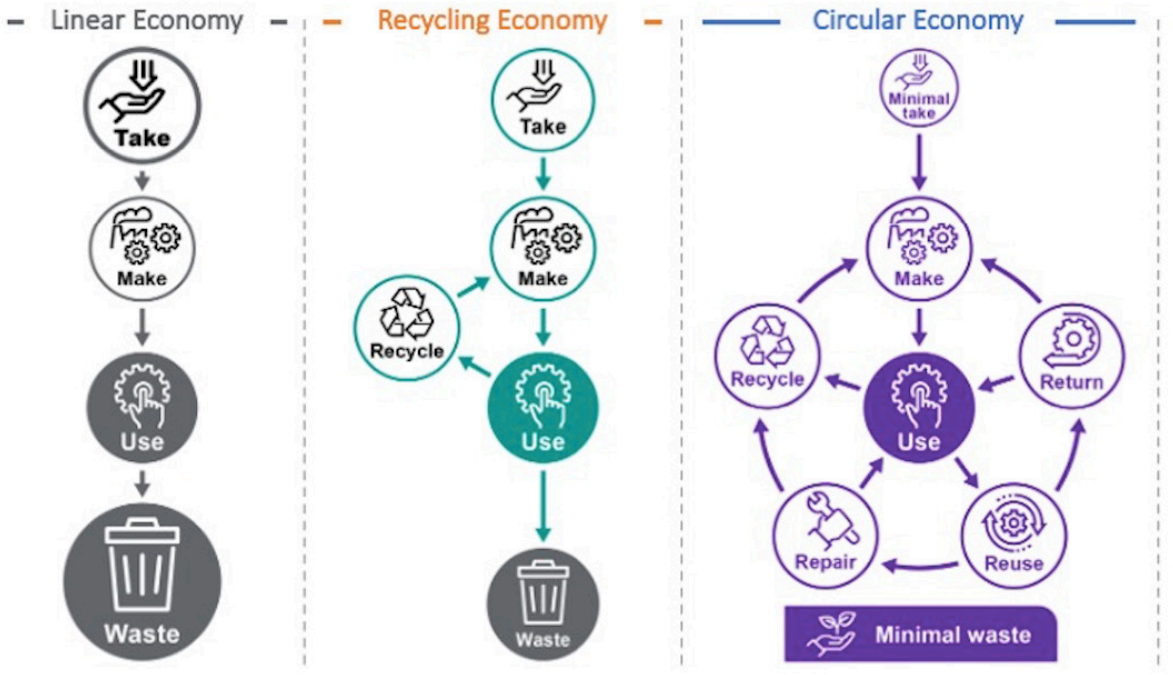


Figure 3: Overview of Linear, Recycling and Circular Economies

How much waste does the **NetWaste region** produce?

NetWaste is a voluntary regional waste group comprised of 25 member councils, including Dubbo Regional Council. The group spans almost 40% of the state, stretching from Lithgow in the East, West to Broken Hill, and north up to the Queensland border. Councils within the NetWaste region vary greatly in terms of area, population served and remoteness.

Current Waste Profile

Approximately 535,000 tonnes of waste was managed by member Councils in 2019/2020 , broken down as follows:

- Household or Municipal Solid Waste (MSW) – 256,328 tonnes;
- Non-household:
  - Commercial and Institutional – 105,707 tonnes; and
  - Construction and Demolition - 172,933 tonnes.

Figure 4 shows the breakdown of waste managed by Council based on source.

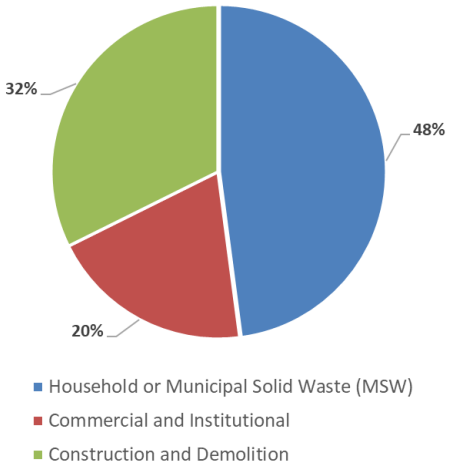


Figure 4: Breakdown of Council Managed Waste by Source

Of note, household waste makes up 46% of all waste managed by local government within the NetWaste region. Diversion rates of waste from landfill vary significantly between member councils, from 0% to 66%, with an overall weighted regional average of 39%.

Key non-domestic problematic wastes within the region include asbestos, textiles, glass, and disaster waste clean-up. Of note, both the region and Council are aware of increasing waste generation associated with renewable energy developments, including waste associated with initial installation and end-of-life solar panels and wind turbines. Other waste streams of note are those resulting from major infrastructure development in the region.

Future Waste Profile

Collectively, between 2022 and 2042, it is projected that NetWaste member Councils will need to manage an additional 2% residual waste, 12% of recycling and 19% of Food Organics and Garden Organics (FOGO). Table 1 provides a breakdown of 2022 tonnes and estimates tonnes for 2042 for the NetWaste region by general waste, recycling and FOGO.

Table 1: Projected Net Increase in Tonnage for Each Waste Stream between 2022 and 2042

Waste Stream	2022 (Tonnes)	2042 (Tonnes)	Net Increase (Tonnes)
General waste	327,555	335,492	7,937
Recycling	30,732	34,271	3,539
FOGO	28,233	33,520	5,287

How much waste does the **Dubbo region** produce?

Dubbo Regional Council Profile

There are 29,344 properties in the Dubbo region. Of these, 25,583 (87%) are Single Unit Dwellings (SUDs) and 3,761 (13%) are Multi Unit Dwellings (MUDs). An additional 3,754 non-residential and/or non-rateable structures as well as unoccupied private dwellings are also present within the region.

The main industries within the LGA are health, retail, education, government services, tourism, manufacturing, construction, agriculture, business services and transport. Dubbo is also 1 of 6 Councils in the Central-West Orana Renewable Energy Zone with 23 projects at varying stages of development

Current Waste Profile

A detailed breakdown of waste collected and managed by Council, both directly and under contract, over the previous five years may be found within Appendix C. Some key highlights are presented below.

The information presented below is based on the most up to date data available at the time of writing the Waste Strategy.

Total Waste Generation

On average, a total of 100,926 tonnes of waste per year is collected and managed by Council. Of this, 28% is collected from households i.e. is domestic in origin, whilst 72%, or 72,750 tonnes per year is not from households i.e. is non-domestic in origin.

Notably, approximately 50% of this total generation is contributed by mixed waste for disposal, and a further 25% of virgin excavated natural material (VENM) received for on-site landfill cell construction purposes.

Domestic Kerbside Waste Generation (Household)

On average, residents of the LGA generate 22.42 kilograms of waste per household per week (kg/hh/week), which is placed in their kerbside collection bins.

A breakdown of the amount of waste placed within the red (residual waste), yellow (co-mingled recycling) and green lidded (FOGO) kerbside collection bins from a range of data sources including audit and Council data is provided below. For comparison, a NSW Rest of State (ROS) average is also provided.

From the data there has been a decrease in collection of residual waste, co-mingled recycling and FOGO over the three-year period 2018/2019 to 2021/2022 across the diverse sources of data, but not a meaningful change between Council's own data sources between the two fiscal years 2021/2022 and 2022/2023.

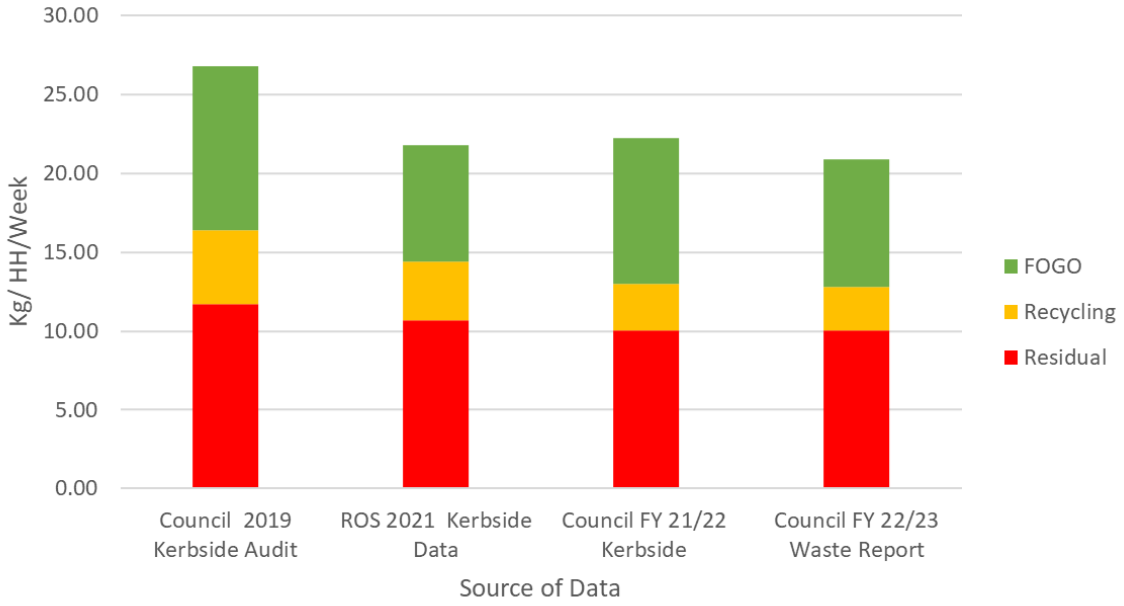


Figure 5: Breakdown of Kerbside Waste by Bin Type

Non-Domestic Waste Generation

On average, approximately 29,550 tonnes of Commercial and Institutional (C&I) waste and 40,420 tonnes of Construction and Demolition (C&D) waste was managed in the region over the five-year period 2017/2018 to 2021/2022.

Problem Wastes

Problem wastes are those whose recovery within the productive economy is expensive, or where landfilling is still the only sustainable management option. Their status is elevated when significant tonnages are delivered to Council's principal waste management facility at Whylandra each year, and/or when they generate leachate, odour, and greenhouse gasses, or cause post-disposal slumping within the landfill's compacted areas.

Examples of problem waste types include but are not limited to wooden pallets, fertiliser bulk bags, commercial cardboard and polystyrene, and poly and PVA piping.

Domestic solar panels are currently recycled and are therefore not considered a problem waste at this time. However, they may become problem wastes for Council in the future due to the projected increase in renewable energy infrastructure coming online across the region over the next 5 to 10 years. This pressure stems from both the construction and commissioning of infrastructure and the end of life.

Waste projections were developed for Council from 2021/2022 to 2041/2042 and are predominantly based on the data obtained from Whylandra, Environment Protection Authority (EPA) Waste Facility Data, EPA WARR Survey Returns, and Kerbside Collection data from 2021/2022. These projections assume the status quo for waste programs, in terms of programs offered by Council and their performance, and are based solely on a projected population growth of 1.3% per annum.

On this basis, total waste managed by Council is projected to increase over the 20-year period to 2043/2044 by around 33,000 tonnes per annum (TPA).

Domestic Kerbside Waste Generation

Figure 6 provides an annual breakdown of the projected tonnage of kerbside materials (residual waste, co-mingled recyclables and FOGO) generated between 2021/2022 and 2043/2044 on a business-as-usual (BAU) basis. Assuming current waste practices remain unchanged, 3,378 TPA is kerbside residual waste, 1,005 TPA is kerbside recycling and 2,550 TPA is kerbside FOGO.

Future Waste Generation Projections

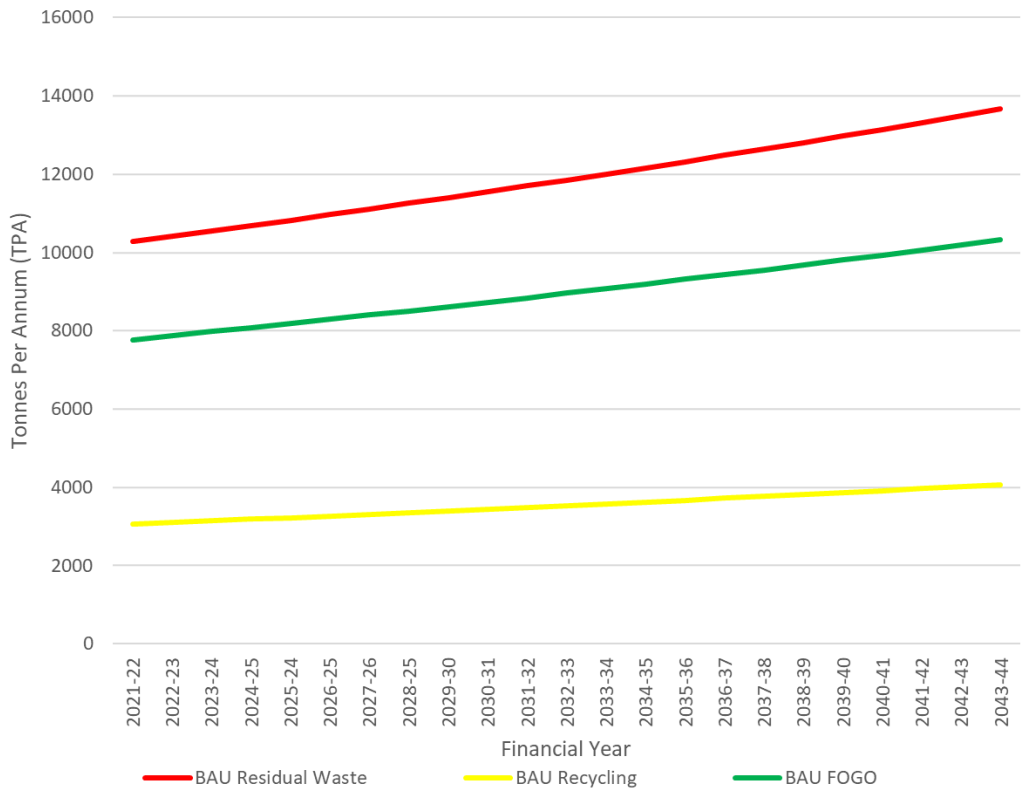


Figure 6: Kerbside Waste Projections for Council under BAU (FY 2021/2022 to FY 2043/2044)

If the current recyclable and FOGO content found within the domestic kerbside residual bin was to be diverted by being correctly placed in recycling and FOGO bins, the total projected domestic kerbside residual waste would decrease. As of 2019, 38% of the kerbside domestic residual waste was found to be FOGO and 26% was found to be recyclables.

Figure 7 shows kerbside waste projections for Council under improved separation at the domestic kerbside against the BAU projections. With the potential divertible materials, a conservative total of 1% yearly diversion of both waste streams from the kerbside residual has been used. While the BAU domestic kerbside waste stream tonnages experience a uniform increase, the potential improved resource performance of 2% per annum (1% evenly for FOGO and recyclables) ultimately offsets the growth in residual waste.

Most notable is the impact on FOGO processing infrastructure, increasing processing requirements by almost 6,000 TPA, within an already constrained operational footprint.

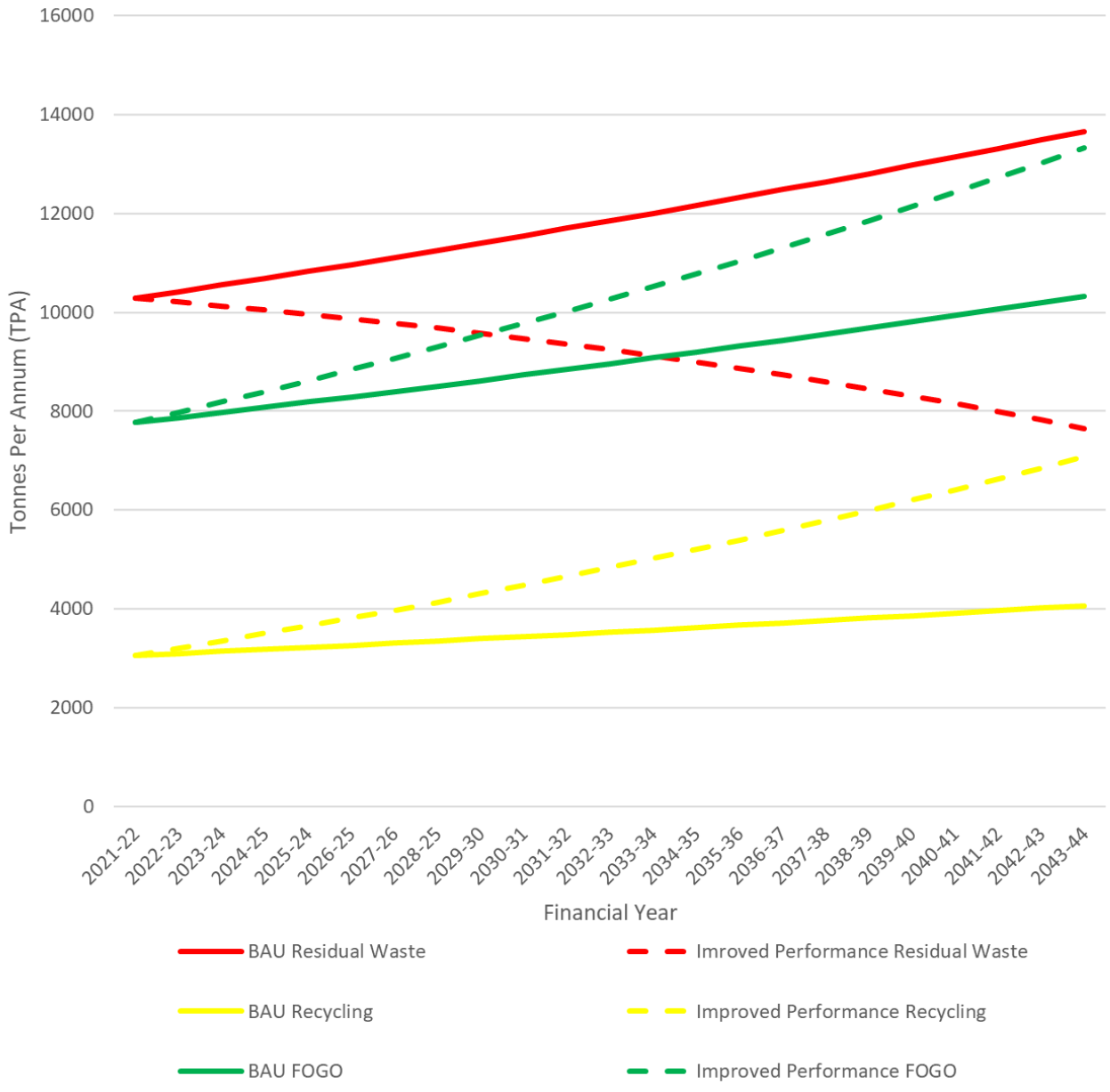


Figure 7: Kerbside Waste Projections for Council under improved separation at the kerbside

Non-Domestic Waste Generation

Of note, non-domestic self-haul mixed waste, currently landfilled, is projected to increase by 7,395 TPA and VENM soil by 7,999 TPA.

How is Council currently managing waste in the Dubbo region?

Appendix C outlines Council's current waste infrastructure, services, programs and initiatives. Of note, 91% of all waste is managed/processed directly by Council, with the remaining managed/processed by contractors.

Current Performance

Diversion of Waste From Landfill

Council currently diverts 45% of all materials managed from landfill.

Resource Recovery Rate

The resource recovery rate is significantly lower than the landfill diversion rate, as a significant amount of materials are retained on site within the landfill's environment protection licence (EPL) footprint for beneficial purposes. A significant contributing source of this performance is the receival and on-site use of large quantities of VENM and ENM soil for landfill cell construction, capping and daily cover purposes.

Figure 8 shows Council's resource recovery rate, showing proportion of material landfilled, used for onsite reuse and resource recovery.

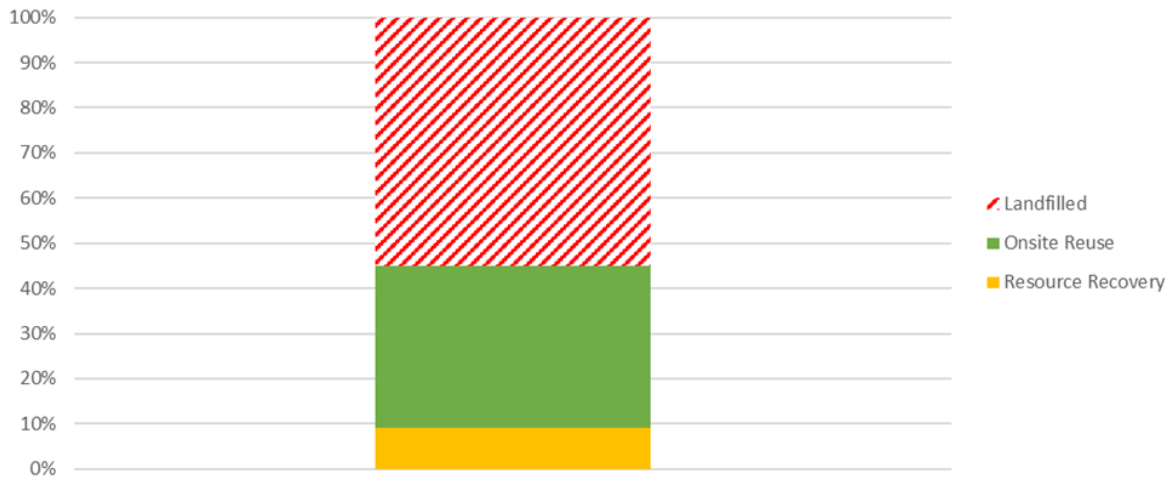


Figure 8: Resource Recovery Rate

Sorting self-haul mixed waste sent to landfill offers one of the greatest opportunities to improve diversion. On average, Council landfills over 35,000 TPA of this waste stream, or approximately one third of all waste managed.

Neither the waste diversion from landfill rate nor resource recovery rate consider weight loss associated with moisture and/or carbon loss during processing of organics.

How could Council improve its waste management and services for tomorrow?

Six Key Focus Areas and actions have been developed after considering the opportunities identified in the Strength, Weakness, Opportunities, Threats/Challenges (SWOT) analysis of Council's Waste Services. The full analysis can be found in Appendix E. The Waste Strategy and accompanying Implementation Plan provide a coordinated, cross-Council approach to delivering waste management services across the Dubbo Region

- Focus Area 1. Natural and Built Environment;
- Focus Area 2 Home;
- Focus Area 3 Business & Industry;
- Focus Area 4 Future – Children and Youth;
- Focus Area 5 Council – Staff and Councillors; and
- Focus Area 6 Council – Waste Operations.

Table 2 shows the linkage between these KFA's to the WaSMS Themes and Priority areas.

Table 2: DRC Strategy Key Focus Area Linkage to NSW WaSMS

Key Focus Area	WaSMS Theme				WaSMS Priority		
	Avoid or reduce	Recover Resources	Protect the Environment	Strategic Collaboration	Meeting our future infrastructure and service needs	Reducing carbon emissions through better waste and materials management	Building on our work to protect the environment and human health from waste pollution
Natural and Built Environment			✓				✓
Home	✓	✓					✓
Business and Industry	✓	✓	✓	✓		✓	✓
Future – Children and Youth	✓	✓	✓				✓
Council – Staff and Councillors	✓	✓	✓				✓
Council – Waste Operations	✓	✓	✓	✓	✓	✓	✓

Council's Waste Strategy includes waste targets it will strive to meet for each of the KFAs. The specific short, medium and long-term waste targets are detailed in each focus area.

The targets have been developed to align with Council's Net Zero Framework for its operations, the NSW WaSMS, and the NetWaste Regional Waste and Sustainable Materials Strategy Action Plan (2023-2027).

The targets will be integrated into Council's Integrated Planning and Reporting Framework as a 'Key Performance Indicators'.

Focus Area 1: Natural and Built Environment

Objective	Council will build positive community 'waste' behaviour towards, and pride in, the local natural and built environment		
Target Audience	General community and visitors to the Region		
What will success look like?	• Reduction in illegal dumping incidents; • Reduction in littering fines; • Increased implementation of sustainable event practices; and • Increased participation in public place recycling and FOGO.		
How will we measure success?	**Short Term Target**	**Medium-Term Target**	**Long-Term Target**
	Illegal Dumping Incidents - Year on Year Reduction	Illegal Dumping Incidents - Year on Year Reduction	Illegal Dumping Incidents - Year on Year Reduction
	Littering Fines - Year on Year Reduction	Littering Fines - Year on Year Reduction	Littering Fines - Year on Year Reduction

$ - $0 to $10,000	$$ - $10,001 to $50,000	$$$ - $50,001 to $100,000	$$$$ - $100,001+

Action	**Key Responsible Area**	**Indicative Resourcing**	**Year Commencing**				
			2025/ 2026	**2026/ 2027**	**2027/ 2028**	**2028/ 2029**	**2029/ 2030**
1.1 Ongoing review and evaluation of Council information, services and support required and available to assist the community and visitors to build positive behaviour towards and pride in our local built and natural environment (e.g. visitor survey, review of Council website information).	Resource Recovery & Efficiency; and Communications Team	$-$$	✓				
1.2 Develop, implement and maintain littering education and enforcement programs in collaboration with Community, Businesses and the NSW Government.	Resource Recovery & Efficiency; and Compliance Team	$$-$$$		✓			
1.3 Develop, implement and maintain an Illegal Dumping Strategy and Action Plan.	Resource Recovery & Efficiency; and Compliance Team	$$-$$$		✓			
1.4 Promotion and/or participation in national, state, regional and local community education and enforcement programs aimed at encouraging positive community behaviour towards the local natural and built environment (e.g. RID Online).	Resource Recovery & Efficiency	$-$$			✓		
1.5 Undertake surveys and annual reporting on littering and illegal dumping behaviour and incidents.	Resource Recovery & Efficiency; and Compliance Team	$-$$			✓		
1.6 Develop, implement and maintain a Sustainable Events Policy and Guidelines.	Resource Recovery & Efficiency; and Events Team	$-$$	✓	✓	✓	✓	✓
1.7 Develop, implement and maintain public place recycling and programs (increase resource recovery rate from public place bins)	Resource Recovery & Efficiency	$$-$$$			✓		

Focus Area 2: Home

Objective	Council will empower residents to sustainably manage waste		
Target Audience	Households		
What will success look like?	• Reduction in kerbside residual waste collection; • Increase in kerbside recycling collection; • Increase in kerbside FOGO collection; • Decrease in kerbside waste, recycling and FOGO contamination levels; • Increase in MUDS with recycling and FOGO services; and • Service levels meet customer needs and expectations.		
How will we measure success?	**Short Term Target**	**Medium-Term Target**	**Long-Term Target**
	Reduction in kerbside residual waste collection – Year on Year	Reduction in kerbside residual waste collection – Year on Year	Reduction in kerbside residual waste collection – Year on Year
	Increase in kerbside recycling and FOGO collection – Year on Year	Increase in kerbside recycling and FOGO collection – Year on Year	Increase in kerbside recycling and FOGO collection – Year on Year

$ - $0 to $10,000	$$ - $10,001 to $50,000	$$$ - $50,001 to $100,000	$$$$ - $100,001+

Action	**Key Responsible Area**	**Indicative Resourcing**	**Year Commencing**				
			2025/ 2026	**2026/ 2027**	**2027/ 2028**	**2028/ 2029**	**2029/ 2030**
2.1 Review and evaluate Council information and services required and available to assist households to adopt a sustainable lifestyle e.g. biannual waste service customer satisfaction survey, kerbside bin audits, review of Council website information.	Resource Recovery & Efficiency; and Communications Team	$-$$	✓				
2.2 Provision and promotion of Council Services available to assist households to adopt a more sustainable lifestyle, such as waste avoidance and reduction, domestic recycling and FOGO services.	Resource Recovery & Efficiency	$-$$		✓			
2.3 Promotion and/or participation in national, state, regional and local community education programs aimed at encouraging households to sustainably manage waste at home.	Resource Recovery & Efficiency	$-$$		✓			
2.4 Develop, implement and maintain educational programs aimed at encouraging households to reduce and sustainably manage waste at home.	Resource Recovery & Efficiency	$$-$$$		✓			
2.5 Review and evaluate level of awareness, knowledge, skills and motivation of households to reduce waste and increase waste diversion.	Resource Recovery & Efficiency	$-$$		✓			
2.6 Develop, implement and maintain a policy to reduce kerbside domestic collection bin contamination and increase correct bin usage.	Resource Recovery & Efficiency	$-$$	✓				

Action	Key Responsible Area	Indicative Resourcing	Year Commencing				
			2025/ 2026	2026/ 2027	2027/ 2028	2028/ 2029	2029/ 2030
2.7 Develop and deliver community waste avoidance and reduction education programs (e.g. Kerbside separation of FOGO and Co-Mingled recyclables).	Resource Recovery & Efficiency	$$-$$$			✓		
2.8 Annual reporting of household waste data, through CSP Reporting, including kg/hh/wk., contamination levels, amount landfilled and resource recovery rate.	Resource Recovery & Efficiency	$-$$			✓		
2.9 Support Reduction of Single-Use Plastics (e.g. Advocacy; Public Domain information).	Resource Recovery & Efficiency	$-$$				✓	
2.10 Deliver and support waste avoidance initiatives (e.g. Tip Shops at main waste facilities, Repair Café, Garage Sale Trail, Waste Apps.).	Resource Recovery & Efficiency	$$$$		✓			

Focus Area 3: Business and Industry

Objective	Council will empower local businesses and industry to sustainably manage waste		
Target Audience	Local businesses and industry		
What will success look like?	• Reduction in non-domestic residual waste collection; • Increase in non-domestic recycling and FOGO collection; and • Decrease in non-domestic waste recycling and FOGO contamination levels.		
How will we measure success?	**Short Term Target**	**Medium-Term Target**	**Long-Term Target**
	Reduction in non-domestic residual waste collection – Year on Year	Reduction in non-domestic residual waste collection – Year on Year	Reduction in non-domestic residual waste collection – Year on Year
	Increase in non-domestic recycling and FOGO collection – Year on Year	Increase in non-domestic recycling and FOGO collection – Year on Year	Increase in non-domestic recycling and FOGO collection – Year on Year

$ - $0 to $10,000	$$ - $10,001 to $50,000	$$$ - $50,001 to $100,000	$$$$ - $100,001+

Action	Key Responsible Area	Indicative Resourcing	Year Commencing				
			2025/ 2026	2026/ 2027	2027/ 2028	2028/ 2029	2029/ 2030
3.1 Review and evaluate Council information and services required and available to assist local businesses and industry to adopt a sustainable workplace (e.g. biannual waste service customer satisfaction survey, review of Council website information).	Resource Recovery & Efficiency; and Communications Team	$-$$	✓				
3.2 Provision and promotion of Council Services available to assist local businesses and industry to adopt a sustainable workplace.	Resource Recovery & Efficiency	$$-$$$		✓			

Action	Key Responsible Area	Indicative Resourcing	Year Commencing				
			2025/ 2026	2026/ 2027	2027/ 2028	2028/ 2029	2029/ 2030
3.3 Promotion and/or participation in national, state, regional and local community education programs aimed at encouraging local businesses and industry to sustainably manage waste.	Resource Recovery & Efficiency	$-$$				✓	
3.4 Provision of information to local businesses and industry on how to reduce and sustainably manage waste.	Resource Recovery & Efficiency	$-$$		✓			
3.5 Develop, implement and maintain Council educational programs aimed at encouraging local businesses and industry to sustainably manage waste.	Resource Recovery & Efficiency	$$-$$$				✓	
3.6 Formation of and participation in a Dubbo Region Circularity Cooperative. Includes development of website, educational and promotional materials, creation and running of working groups, grant applications for pilot CE projects.	Economic Development; Resource Recovery & Efficiency	$-$$	✓				
3.7 Development of a Circular Economy Roadmap, including identification of trends, opportunities, barriers, key stakeholders, and pathways to achieving CE within the Dubbo Region	Economic Development; Resource Recovery & Efficiency	$$-$$$		✓			
3.8 Collaboration with local business and industry to identify, investigate and implement, where feasible, circular economy mechanisms and solutions for current and future problem wastes (e.g. organics, glass, plastics, construction materials, renewables).	Resource Recovery & Efficiency	$$-$$$			✓		
3.9 Collaboration with local business and industry to identify, investigate, plan and implement where feasible circular economy precincts within the LGA.	Resource Recovery & Efficiency	$$$-$$$$		✓			
3.10 Develop a Sustainable Infrastructure Policy and Standards.	Resource Recovery & Efficiency; Development and Planning Team	$-$$					✓
3.11 Develop waste segregation guidance for C&D projects.	Resource Recovery & Efficiency	$-$$			✓		
3.12 Develop, implement and maintain Waste Management Guidelines for Councils Development Control Plan	Resource Recovery & Efficiency	$-$$	✓				
3.13 Generation of a Circular Economy and Strategic Projects Position. This role aims to develop and deliver circular economy programs and projects, for the community, Industry and internally for Council, to reduce waste generation, improve resource recovery and aid the reduction in emissions.	Economic Development; Resource Recovery & Efficiency	$$$-$$$$	✓				

Focus Area 4: Future (Children and Youth)

Objective	Council will empower childcare centres, pre-schools, schools, after school and vacation care, and youth services to sustainably manage waste in the workplace, and to deliver waste education to children and youth in Dubbo		
Target Audience	Childcare Centres, Pre Schools, Schools, After School & Vacation Care, Youth Services		
What will success look like?	• Provision of information to children and youth services on how to sustainably manage waste in the workplace and/or to deliver waste education; • Provision and promotion of waste services available to assist children and youth services to adopt a sustainable workplace, such as commercial recycling services; • Promotion and provision of tools, resources, and programs to assist children and youth services to adopt sustainable workplace practices and/or to deliver waste education; • Promotion, or if feasible coordination, of professional development days for children and youth services focusing on sustainable workplace practices and/or waste education; • Promotion, or if feasible coordination, of exhibitions, events, and festivals which foster children and youth pride in the local built and natural environment (Note: Any events are to be coordinated with City programs); • Promotion, or if feasible coordination, of environmental youth leadership programs (e.g. Oz Green) etc. • Recognition of children and youth services achievement in sustainably managing waste; and • Review and evaluation of Council information and services available to assist children and youth services to adopt a sustainable workplace and/or to deliver waste education.		
How will we measure success?	**Short Term Target**	**Medium-Term Target**	**Long-Term Target**
	Increase in office-based resource recovery rates – Year on Year improvement	Increase in office-based resource recovery rates – Year on Year improvement	Increase in office-based resource recovery rates – Year on Year improvement
	Public media support for resource recovery – Year on Year Improvement	Public media support for resource recovery – Year on Year Improvement	Public media support for resource recovery – Year on Year Improvement

$ - $0 to $10,000	$$ - $10,001 to $50,000	$$$ - $50,001 to $100,000	$$$$ - $100,001+

Action	**Key Responsible Area**	**Indicative Resourcing**	**Year Commencing**				
			2025/ 2026	**2026/ 2027**	**2027/ 2028**	**2028/ 2029**	**2029/ 2030**
4.1 Review and evaluate of Council information and services available to assist children and youth services to adopt a sustainable workplace and/or to deliver waste education.	Resource Recovery & Efficiency; and Communications Team	$-$$	✓				
4.2 Provision of information to children and youth on how to sustainably manage waste at home, at school and in the workplace and and/or to deliver waste education.	Resource Recovery & Efficiency	$$-$$$			✓		
4.3 Provision and promotion of Council Services available to assist children and youth services to adopt a sustainable schools, sporting groups, member groups and workplaces.	Resource Recovery & Efficiency	$-$$			✓		

Action	Key Responsible Area	Indicative Resourcing	Year Commencing				
			2025/ 2026	2026/ 2027	2027/ 2028	2028/ 2029	2029/ 2030
4.4 Promotion and provision of tools, resources, and programs to assist children and youth to adopt sustainable workplace practices and/or to deliver waste education.	Resource Recovery & Efficiency	$$-$$$			✓		
4.5 Promotion, or if feasible coordination, of professional development days for children and youth services focusing on sustainable workplace practices and/or waste education.	Resource Recovery & Efficiency	$$-$$$			✓		
4.6 Promotion, coordination, of exhibitions, events, and festivals, which foster children and youth pride in the local built and natural environment (Note: Any events are to be coordinated with City programs).	Resource Recovery & Efficiency; and Events Team	$$-$$$			✓		
4.7 Promotion, or if feasible coordination, of environmental youth leadership programs (e.g. Oz Green) etc.	Resource Recovery & Efficiency	$-$$			✓		
4.8 Recognition of children and youth services achievement in sustainably managing waste.	Resource Recovery & Efficiency	$-$$			✓		

Focus Area 5: Council – Staff and Councillors

Objective	*Council will empower Council staff and councillors to sustainably manage waste in the workplace*		
Target Audience	Council Staff, Councillors		
What will success look like?	• Reduction in non-domestic residual waste collection; • Increase in non-domestic recycling and FOGO collection; and • Decrease in non-domestic waste, recycling and FOGO contamination levels		
How will we measure success?	**Short Term Target**	**Medium-Term Target**	**Long-Term Target**
	Increase in office-based resource recovery rates - Year on Year Improvement	Increase in office-based resource recovery rates - Year on Year improvement	Increase in office-based resource recovery rates - Year on Year improvement
	Public media support for resource recovery Year on Year Improvement	Public media support for resource recovery Year on Year Improvement	Public media support for resource recovery Year on Year Improvement

$ - $0 to $10,000	$$ - $10,001 to $50,000	$$$ - $50,001 to $100,000	$$$$ - $100,001+

Action	Key Responsible Area	Indicative Resourcing	Year Commencing				
			2025/ 2026	2026/ 2027	2027/ 2028	2028/ 2029	2029/ 2030
5.1 Audit current Council internal waste management practices and identify education and delivery mechanisms to improve waste avoidance and resource recovery.	Resource Recovery & Efficiency	$$-$$$	✓				
5.2 Develop, implement and maintain policy, tools and resources to assist Council to implement sustainable waste management practices in the workplace.	Resource Recovery & Efficiency	$-$$		✓			
5.3 Provide information and promote Council Services available to assist Council staff and Councillors to sustainably manage waste in the workplace, such as commercial recycling services.	Resource Recovery & Efficiency	$-$$			✓		
5.4 Coordinate and/or implement Council staff and Councillor training/workshops in sustainable waste management practices in the workplace.	Resource Recovery & Efficiency	$-$$		✓			
5.5 Promote and/or participate in national, state, regional and local programs and/or networks aimed at encouraging and supporting Councils to sustainably manage waste at work.	Resource Recovery & Efficiency	$-$$			✓		
5.6 Ongoing review and evaluation of Council information, services and support required and available to assist Council staff and councillors to adopt a sustainable workplace e.g. biannual internal survey, review of Council website information.	Resource Recovery & Efficiency; and Communications Team	$-$$	✓				
5.7 Ongoing review of the extent to which sustainable waste management practices and procedures are in place across Council.	Resource Recovery & Efficiency	$$-$$$					✓
5.8 Annual recognition of Council staff and councillor achievements in waste management and sustainability.	Resource Recovery & Efficiency	$-$$			✓		
5.9 Annual reporting of Council waste data, excluding Waste Operations, via CSP reporting.	Resource Recovery & Efficiency	$$-$$$		✓			
5.10 Maximise uptake of Council Operational Projects using recycled products.	Resource Recovery & Efficiency; Infrastructure; Open Spaces; and Green Operation Teams	$$-$$$		✓			
5.11 Establish a standard method for measuring the success of education communication and engagements with Council and Community.	Resource Recovery & Efficiency; and Communications Team	$-$$				✓	

Focus Area 6: Waste Operations

Objective	Council will have the awareness, knowledge, skills, values, motivation and capacity to deliver its waste operations in a progressive, sustainable, collaborative and responsible manner		
Target Audience	Resource Recovery and Efficiency Team, Waste Contractors		
What will success look like?	• Reduction in non-domestic residual waste collection; • Increase in non-domestic recycling and FOGO collection; • Decrease in non-domestic waste, recycling and FOGO contamination levels; and • Providing a quality collection service that meets community expectations.		
How will we measure success?	**Short Term Target**	**Medium-Term Target**	**Long-Term Target**
	5% reduction of total waste generated per person by 2026/2027 compared with 2021/2022	10% reduction of total waste generated per person by 2029/2030 compared with 2021/2022 (NSW Target)	Maintain a 10% reduction of total waste generated per person by 2049/2050 compared with 2021/2022
	25% reduction in the amount of organics going to landfill by 2026/2027 compared with 2021/2022	50% reduction in the tonnes of organics going to landfill by 2029/2030 compared with 2021/2022 (NSW Target)	Maintain a 50% reduction in the tonnes of organics going to landfill by 2049/2050 compared with 2021/2022
	Increase materials recovery rates to 50% by 2026/2027	Increase materials recovery rates to 80% by 2029/2030 (NSW Target)	Increase materials recovery rates towards 90% by 2049/2050
	100% renewable electricity used to power on-site waste management and resource recovery operations	100% renewable electricity used to power on-site waste management and resource recovery operations	100% renewable electricity used to power on-site waste management and resource recovery operations
	No. of zero emissions waste fleet – Year on Year improvement	No. of zero emissions waste fleet – Year on Year improvement	No. of zero emissions waste fleet – Year on Year improvement
	Landfill methane flaring or combustion – quantity removed from landfill, Year on Year improvement	Landfill methane flaring or combustion – quantity removed from landfill, Year on Year improvement	Landfill methane flaring or combustion – quantity removed from landfill, Year on Year improvement
	0% of Council's annual landfill waste emissions are offset through the retirement of ACCUs generated from methane flaring at Council's landfill sites. (The number of ACCUs attributed to Council is currently being sold.)	5% of Council's annual landfill waste emissions are offset through the retirement of ACCUs generated from methane flaring at Council's landfill sites by 2029/2030	10% of Council's annual landfill waste emissions are offset through the retirement of ACCUs generated from methane flaring at Council's landfill sites by 2049/2050

$ - $0 to $10,000	$$ - $10,001 to $50,000	$$$ - $50,001 to $100,000	$$$$ - $100,001+

Action	Key Responsible Area	Indicative Resourcing	Year Commencing				
			2025/ 2026	2026/ 2027	2027/ 2028	2028/ 2029	2029/ 2030
6.1 Prepare Detailed Design and deliver Whylandra and Wellington Waste and Recycling Centre Master Plans.	Resource Recovery & Efficiency	$$$$	✓				
6.2 Evaluate and deliver pricing policy to meet community needs and expectations based on agreed levels of waste service delivery.	Resource Recovery & Efficiency	$$	✓				
6.3 Deliver long-term sustainable waste services (e.g. A LTFP at least linked to a Protected Waste Reserve, WoL LF, Fees and Charges, Minimum Reserve balance, Annual Operational Plans, and L/T Capital Plan).	Resource Recovery & Efficiency	$$$	✓				
6.4 Identify and apply for funding opportunities to provide financial benefits to Council and community for Waste Operations.	Resource Recovery & Efficiency	$	✓				
6.5 Develop and implement initiatives to reduce greenhouse gas emissions from fuel and purchased electricity used for Council Waste Operations e.g. energy efficiency upgrades, 100% renewable electricity, zero emissions waste fleet.	Resource Recovery & Efficiency; and Fleet Team	$$$$		✓			
6.6 Capture and manage landfill gas emissions from Whylandra and Wellington in line with Council's Net Zero Framework.	Resource Recovery & Efficiency	$$$$		✓			
6.7 Undertake and maintain climate change risk assessment and adaptation planning, including disaster recovery planning, continuity management planning.	Resource Recovery & Efficiency; and Risk Team	$$-$$$	✓				
6.8 Develop, implement and maintain a policy to support greater resource recovery for domestic and commercial materials(including but not limited to repurposing concrete, wooden pallets, mattresses, hard plastic products).	Resource Recovery & Efficiency	$-$$		✓			
6.9 Review mechanisms to recover resources from mixed waste delivered to sites, including greater presence of staff to promote increased separation of waste by customers, and limited separation of recoverable resources by Council staff following disposal by customers.	Resource Recovery & Efficiency	$-$$		✓			

Action	Key Responsible Area	Indicative Resourcing	Year Commencing				
			2025/ 2026	2026/ 2027	2027/ 2028	2028/ 2029	2029/ 2030
6.10 Leverage sustainable procurement to divert waste from landfill and support a circular economy (e.g. L/T Collection and Processing Contracts with NetWaste Councils; Internal Purchasing Policies; External Policy to underpin two-tier waste receival pricing at sites).	Resource Recovery & Efficiency	$-$$	✓				
6.11 Investigate and support innovative circular solutions (e.g. Mattress deconstruction; Partner/ collaborate with universities, research groups, and regional Sustainability Officers to identify innovative approaches to contribute to a regional circular economy; Collaborate with government and industry to facilitate research/pilot projects for reuse of recovered and recycled problem wastes).	Resource Recovery & Efficiency; and Economic Development Team	$$-$$$		✓			
6.12 Problem Wastes - Develop deconstruction options for tyres, solar panels, carpets and glass within a Circular Economy Hub concept.	Resource Recovery & Efficiency	$$$$		✓			
6.13 Review and assess development of a Resource Recovery Park concept at Whylandra to incentivise establishment of advanced resource recovery measures, including a community-run Circular Economy Hub.	Resource Recovery & Efficiency	$$$-$$$$		✓			
6.14 Plan expanded FOGO service delivery to meet requirements of EPA 2030 mandate. Extending current collection boundaries and including Multi-Unit Dwellings.	Resource Recovery & Efficiency	$-$$		✓			
6.15 Review and assess options for increasing capacity of FOGO processing operations by 50% by 2030 (including ongoing ability to accept FOGO from other LGAs).	Resource Recovery & Efficiency	$$-$$$		✓			
6.16 Procure post-2028 kerbside residual waste and co-mingled recycling collection, and recycling processing services.	Resource Recovery & Efficiency	$$$-$$$$		✓			

Monitoring, reporting and review

Monitoring

Council will annually assess progress made against the actions in the Implementation Plan, including the Waste Targets, as applicable.

Reporting

Reporting on progress of the Implementation Plan actions will be incorporated into Council's annual Delivery and Operational Plans, as per Council's IP&R requirements for Delivery and Operational Plans.

Tracking of waste targets will be done on an annual basis, however the reporting of progress against the targets will occur every four (4) years in the year of a Council election as per local government IP&R requirements for environmental issues.

Review

An operational review of the 5-year Implementation Plan will be completed in December 2027 to determine progress and to inform the development of the successive 5-year Implementation Plan.

The successive Implementation Plan will be developed in 2027 and will consider the performance of the preceding Plan. At this time, an operational review of the Waste Strategy will also be completed to ensure it remains relevant.

Resourcing

Estimated annual cost to deliver an initiative is provided within the planned fiscal year of implementation, although in reality, would continue each year whilst the initiative is being delivered.

Estimated capital cost to deliver an initiative is similarly provided within the planned year of implementation.

Appendix A: Acronyms

The following acronyms are used within the Waste Strategy and its supporting Implementation Plan.

Acronym	Full Form
CCMAP	Climate Change Mitigation and Adaptation Plan
C&D	Construction and Demolition (Waste)
CDS	Container Deposit Scheme
CE	Circular Economy
C&I	Commercial and Industrial (Waste)
CRC	Community Recycling Centre
CSP	Community Strategic Plan
DRC	Dubbo Regional Council (Council)
DWMC	Domestic Waste Management Charge
EPA	(NSW) Environment Protection Authority
EPL	(NSW EPA) Environment Protection Licence
EfW	Energy from Waste
FOGO	(Combined) Food Organics and Garden Organics
GO	Garden Organics
GHG	Greenhouse Gas (emissions)
IPART	Independent Pricing and Regulatory Tribunal
IP&R	Integrated Planning and Reporting (by Councils)

Acronym	Full Form
JO	Joint Organisation (of Councils)
KFA	Key Focus Area
LGA	Local Government Area
LF	Landfill
MRF	Material Recovery Facility
MSW	Municipal Solid Waste
MUDs	Multi-Unit Dwellings
NDIS	National Disability Insurance Scheme
OLG	Office of Local Government
ORRF	Organics Resource Recovery Facility
PFAS	Per- and Poly-Fluoroalkyl Substances
REZ	Renewable Energy Zone
ROS	Rest of State
SAP	Special Activation Precinct
SUDs	Single Unit Dwellings
TPA	Tonnes Per Annum
VENM	Virgin Excavated Natural Material
WaSMS	(NSW EPA) Waste and Sustainable Materials Strategy 2041

Appendix B: Global to local commitments, Legislation and Policy

Drivers for change, or more commonly referred to as drivers for improvement in waste service delivery and operational performance, broadly include the framework of regulations, policies, strategies, and guidelines (policy) at the local, regional, state, and national level, as well as a number of waste industry Guiding Principles. They influence and guide the development of new waste strategies by providing the context in which it needs to be developed and delivered.

These drivers are either related to waste management, or indirectly related, such as reducing greenhouse gas emissions/climate change/net zero emissions and the circular economy.

It is important to recognise that the current Policy environment at both the national and state level is very much in a state of flux, with rapid changes occurring, especially on the climate change front. The full extent of recent changes on the local government sector remains to be seen, but it is generally understood that Councils will shoulder increased responsibilities and costs related to waste management.

Key Policy drivers for change are considered to include:

- National Waste Policy (2018);
- National Waste Policy Action Plan (2019);
- National Food Waste Strategy;
- NSW Circular Economy Policy Statement (2019);
- Climate Change (Net Zero Future) Bill 2023;
- NSW DPIE Waste and Sustainable Materials (WaSM) Strategy (2021 – 2041);
- NSW EPA WaSM Program Funding (2021 onwards);
- NSW DPIE Plastics Action Plan (2021 – 2041);
- NSW DPIE Infrastructure Plan (2021 – 2041);
- NSW EPA Strategic Plan (2021 – 2024);
- NSW EPA Waste Delivery Plan;
- NSW EPA EfW Infrastructure Plan (2021); and
- NSW DPIE Net Zero Plan - Stage 1 (2020 – 2030).

National Framework

The Commonwealth Government has limited constitutional powers to engage directly in domestic waste management issues. This responsibility largely rests with State, territory, and local governments. The role of the Commonwealth Government has evolved in recent years as it has taken an increasingly strategic involvement in waste policy development.

National Waste Policy

The National Waste Policy – Less Waste, More Resources was released by the Department of the Environment and Energy in 2018 and provides a framework for collective action by businesses, governments, communities, and individuals until 2030.

The policy identifies five overarching principles underpinning waste management in a circular economy, including:

- Avoid waste;
- Improve resource recovery;
- Increase use of recycled material and build demand and markets for recycled products;
- Better manage material flows to benefit human health, the environment, and the economy; and
- Improve information to support innovation, guide investment and enable informed consumer decisions.

The policy guides continuing collaboration between all Australian governments, businesses, and industry. It does not remove the need for governments, businesses, and industries to implement tailored solutions in response to local and regional circumstances.

National Plastics Plan

Australia's National Plastics Plan, released on 4 March 2021 aims to drive a closed loop supply chain on plastics and address plastic waste in a multi-pronged way, proposing wide-ranging initiatives such as plastic-free beaches, new labelling guidelines, eliminating expanded polystyrene consumer packaging fill and food and beverage containers, and greater consistency in kerbside bin collections.

Actions to achieve these goals under the plan will:

- Phase out the most problematic plastics between July and December 2022 and introduce National Packaging Targets by 2025;
- Work to make beaches and oceans free of plastic;
- Introduce legislation to ensure Australia takes responsibility for its plastic waste;
- Invest to increase recycling capacity;
- Research to find new recycling technologies and alternatives to unneeded plastic; and
- Support the community to help Australia's recycling efforts.

Australian Packaging Covenant Organisation (APCO) – 2025 Targets

The Australian Packaging Covenant Organisation (APCO) is the entity in charge of managing and administering the Australian Packaging Covenant (the Covenant), which is a document that sets out how governments and businesses share responsibility for managing the environmental impacts of packaging in Australia.

The Covenant is agreed between the APCO, representing industry participants in the packaging supply chain, and commonwealth, State, and territory governments, and endorsed by environment ministers.

In 2018 Australia established the 2025 National Packaging Targets. See figure 7. These targets have been established to create a new sustainable pathway for the way packaging is managed in Australia.

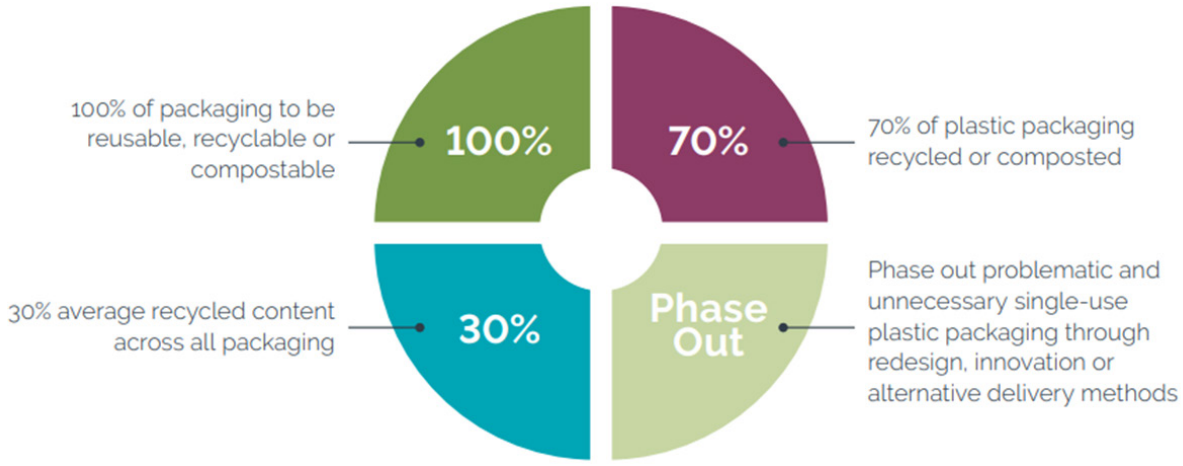


Figure 7: 2025 National Packaging Targets

These targets will require a complete and systematic change in the way we create, collect, and recover product packaging. Targets will apply to all packaging that is made, used, and sold in Australia and are in line with broader sustainable packaging shifts that are taking place globally. These shifts are aiming to reduce the volume of material entering landfill, improve recycling rates, and increase the use of recycled material in future packaging.

The Australian packaging consumption and recycling data 2018–19 report (APCO, 2021) shows improvements to packaging sustainability in a range of areas including a reduction in the volume of plastic (-6 percent) and an increase in the volume of recyclable packaging on market. Challenges continue to be the recycling rate of plastics, as whilst the recovery rate increased from 16 percent to 18 percent, considerable progress is still required to meet the 2025 target of 70 percent.

Emissions Reduction Fund

The Emissions Reduction Fund aims to reduce emissions by providing incentives for businesses, landowners, State and local governments, community organisations and individuals to adopt new practices and technologies. Legislation to implement the Emissions Reduction Fund came into effect on 13 December 2014.

There are many activities that are eligible to earn Australian Carbon Credit Units (ACCUs) under the scheme. One ACCU is earned for each tonne of carbon dioxide equivalent (tCO2-e) stored or avoided by a project. ACCUs can be sold to generate income, either to the Government through a carbon abatement contract, or on the secondary market. The potential waste management activities that may earn ACCUs include the introduction of a new or expanded purpose-built facility for processing solid waste that would have otherwise gone to landfill, to process commercial, industrial, construction, demolition and/or Class I or II municipal solid waste or utilise an enclosed composting facility. Councils and/or private industry that undertake these types of projects in accordance with the approved emissions reduction methods can then sell the resulting ACCUs to the Clean Energy Regulator or an alternate buyer on the secondary market. Council may consider the benefits of this approach within its longer-term strategic direction.

Waste Export Ban

In March 2020, the Australian, State and territory governments, and the Australian Local Government Association agreed to regulate the export of waste glass, plastic, tyres, and paper while building Australia's capacity to generate high value recycled commodities and associated demand. The Recycling and Waste Reduction Act 2020 and new rules made under the Act set out the export controls for each type of regulated waste material. Exporters need to hold a waste export licence and declare each export in line with the phased implementation dates below:

- Regulated export of waste glass since 1 January 2021;
- Regulated the export of waste plastics since 1 July 2021;
- Regulated the export of waste tyres since 1 December 2021; and
- Will start to regulate the export of some waste paper and cardboard from 1 July 2024.

Waste glass, regulated since January 2021 is either that recovered from an industrial, commercial, or domestic activity or a by-product of an industrial, commercial, or domestic activity. Phase one of the plastic exports rules, operational since July 2021, limit the export of waste plastics to that sorted into single resin or polymer type or processed with other materials into processed engineered fuel. From 1 July 2022 you cannot export plastic that has only been sorted - all plastics will need to be sorted and processed.

State Framework

The NSW State framework provide the objectives, requirements, and directions for the management of waste. The legislation describes the requirements for transporting, storing, processing, managing, recovering, and disposing of waste and recyclable material.

NSW Waste and Sustainable Materials Strategy 2041

In June 2021, the NSW government released the NSW Waste and Sustainable Materials Strategy 2041: Stage 1 – 2021-2027 (WaSM) as the first stage in a 20-year plan that focuses on the environmental benefits and economic opportunities to reduce waste, improve its management, and increase material recycling. The NSW WaSM 2041 sets a long-term vision for managing waste, planning for infrastructure, reducing carbon emissions, and refocusing the way NSW produces, consumes, and recycles products and materials. The WaSM updates NSW's priorities for waste and resource recovery to reflect the NSW Circular Economy Policy Statement, the Net Zero Plan Stage 1:2020–2030 and the National Waste Policy Action Plan.

To compliment the first stage of WaSM, the government also released the NSW Plastics Action Plan which sets out how problematic plastic materials will be phased out and the NSW Waste and Sustainable Materials Strategy: A guide to future infrastructure needs which sets out the investment pathway required to meet future demand for residual waste management and recycling.

WaSM makes the case for change on the basis that NSW creates around one-third of Australia's total waste, and this is forecasted to grow from 21 million tonnes to nearly 37 million tonnes by 2041. At current rates of generation and recycling, the residual waste landfills servicing Greater Sydney are likely to reach capacity within the next 15 years. The non-residual landfills will reach capacity within the current decade. In some regional areas landfill capacity is also likely to expire this decade.

Demand for recycled materials, particularly from the household and commercial waste streams, has steadily contracted with the closure of export markets. This has led to an oversupply of recycled materials and a corresponding decline in value, particularly for poorly sorted or hard-to-recycle paper and plastic.

In response to this the resource recovery industry has started to transition to more resilient business models, focused on value-adding and the production of high-quality, well-sorted recycled materials. As the prices for recycled material have declined but the cost of sorting and processing has increased, costs for councils, ratepayers and businesses are also under pressure.

In 2014, NSW set a target for landfill diversion of 75 percent of all waste by 2021. However, as of 2019/2020, it had only reached 65 percent. Construction and demolition (C&D) recycling had performed the best at a rate close to 80 percent, followed by commercial and industrial recycling at 53 percent. Municipal solid waste diversion (mostly household waste) had plateaued at just over 46 percent (NSW EPA, 2020). WaSM was positioned as an opportunity to refocus efforts and target investment where it is most needed.

The WaSM aims to reduce waste generated and increase recycling through adoption of the targets outlined in Figure 8.

Figure 8: NSW WaSM Targets

The State government has also committed to:

- Developing a NSW regional litter prevention strategy before June 2023;
- Reporting annually on the progress towards meeting these targets prior to a review of WaSM in 2027;
- Establishing new indicators to track the progress of infrastructure investment and cost of waste services; and
- Developing a new measure of the emissions performance of waste and materials management which tracks performance across the lifecycle of materials.

Mandating FOGO separation for all households and some businesses

Both the WaSM and the accompanying infrastructure needs guide focus on better management of organic waste. In 2019 an estimated 2.5 million tonnes of organic waste (such as food organics, garden organics, timber, and textiles) was sent to landfill. Emissions from organic waste decomposing in landfill make up more than 2 percent of total net annual emissions in NSW. Methane emissions from the decomposition of organic material in landfills can last up to 25 years in the atmosphere. WaSM indicates that increased diversion of organics from landfill and processing technologies like composting and anaerobic digestion are an important first step towards reducing emissions from waste.

The amount of organic material going to landfill can be reduced by collecting it separately and processing it at specialised organic waste facilities. WaSM recognises that many councils already provide a separate bin to collect garden organics from households and some (less than a third) also collect food organics.

Other organic material, like textiles and timber, finds its way into household bins. Audits of residential kerbside residual waste bins in the waste levy area in NSW show that:

- The proportion of food and garden organics waste overall was 41 percent in 2019; and
- Councils that provided a separate food and garden organics collection service had a far lower proportion of these materials in the residual waste bin (25 percent) compared to councils with only garden organics (41 percent) or no organics collection (54 percent).

To achieve the WaSM targets of halving food waste to landfill and achieving net zero emissions from organics in landfill by 2030, the government will require the separate collection of:

1. Food and garden organics from all NSW households by 2030; and
2. Food waste from businesses that generate the highest volumes, including large supermarkets and hospitality businesses, by 2025.

The government has committed to consulting with councils, businesses, and service providers on the best way to transition to these new arrangements, including the need for phasing in new or grandfathering existing contracts, managing the diverse needs of high-density housing, and working with service providers to ramp up processing capacity.

To help with the transition, the NSW Government will invest $65 million over five years from 2023. The funding will support the rollout of new collection services, the development of more processing capacity and a state-wide education campaign that will help households adjust to the changes and improve their recycling habits.

Infrastructure Needs

The transition to the source-separated collection of food and garden organics from households and source-separated collection of food organics from selected businesses will significantly increase the volume of clean organics entering the recycling system. Accordingly, there needs to be a corresponding capacity to reprocess this material.

Based on an assessment of waste and circular economy infrastructure needs over the next decade and beyond the government has identified three key areas to focus on – residual waste, organics, and plastics.

Recovery and recycling infrastructure will need to keep pace with demand and to support this there will need to be investment in new and upgraded facilities from now to 2030 to prevent any shortfall in capacity.

WaSMS sets out three priority areas:

1. Meeting future infrastructure and service needs as waste volumes grow;
2. Reducing carbon emissions through better waste and materials management; and
3. Building on work to protect the environment and human health from waste pollution.

Getting the right infrastructure in the right place will be critical to recover, reuse and extend the life of most materials. The WaSM Guide to Future Infrastructure Needs 2021 reviews the waste infrastructure requirements in NSW to underpin change.

While investment will largely be driven by industry, the NSW Government will play a role to help investment in the right place at the right time. WaSM indicates that, commencing in 2021 the Government will undertake feasibility assessments and engage with the community, local government and business about the infrastructure investment needed to meet the demands. It will undertake a coordination role to attract the right investment at the right time. The early priority will be to ensure there is a pipeline of residual waste management infrastructure, but it will also target complementary recycling and reprocessing infrastructure to help meet capacity gaps. This will involve coordinating functions across government, such as investment attraction, planning, environmental licensing, and grant funding.

Plastics Action Plan

The NSW Plastics Action Plan supports the NSW Waste and Sustainable Materials Strategy 2041. The NSW Plastics Action Plan outlines a variety of actions to address plastic across all elements of the plastic lifecycle (production, consumption, disposal, and recycling) including those in Figure 9.

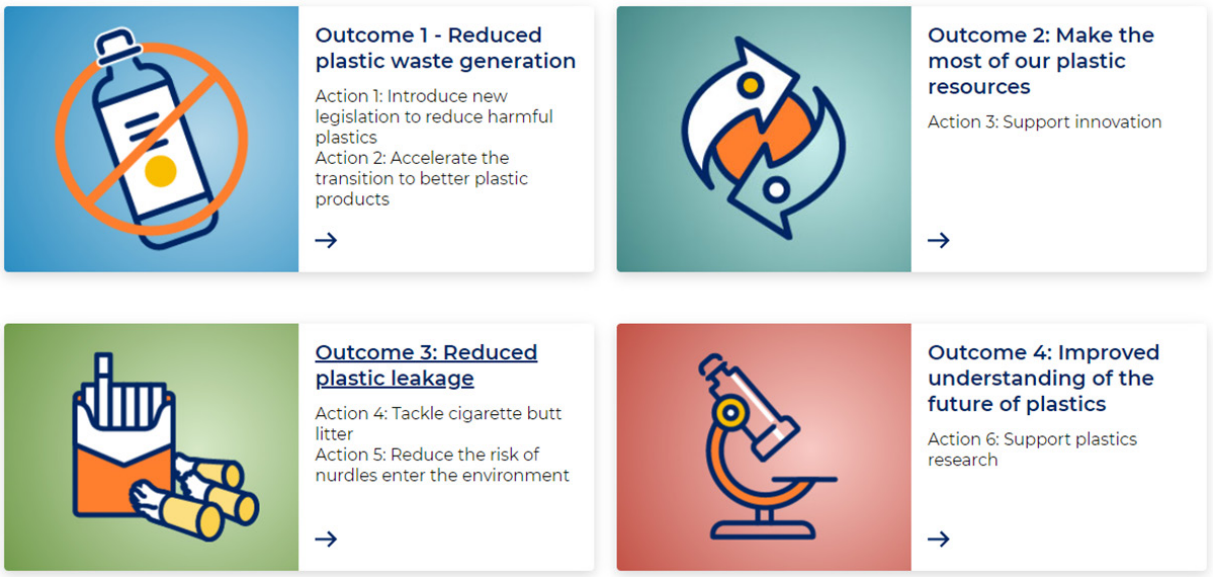


Figure 9: NSW Plastics Action Plan Actions

There are four outcomes that will achieve better management of plastics, reduce the impacts on the environment and make the most of these resources, the outcomes are supported by six actions.

NSW Energy from Waste Infrastructure Plan

The NSW Waste and Sustainable Materials Strategy 2041 commits to the adoption of a strategic approach to the role of thermal energy recovery from waste to ensure it protects human health and the environment and supports the transition to a circular economy. The recently released NSW Energy from Waste Infrastructure Plan 2041 guides strategic planning for future thermal energy from waste facilities and outlines how the NSW Government will facilitate the establishment and operation of energy from waste infrastructure to manage genuine residual waste.

Waste can be thermally treated to recover the embodied energy in that material. The energy can be recovered as heat or as a solid, liquid, or gaseous fuel. These outputs can be used to generate electricity or used directly in machinery, vehicles, and industrial processes (NSW Government, 2021, pg. 2).

Energy proposals must represent the most efficient use of the resource, adequately manage the risks of harm to human health or the environment, and maximise the environmental, social, and economic benefits to communities.

'Eligible waste fuels' including biomass and residues are listed in Part 3 of the Policy Statement and defined in the Eligible Waste Fuels Guidelines. These are excluded from this Plan and continue to be permitted across NSW where they comply with planning and regulatory frameworks.

The plan aligns with the 20-Year Vision for Regional NSW. Thermal energy from waste facilities only be established, or permitted to operate, in key, identified priority infrastructure areas or by the exception listed as follows:

- West Lithgow Precinct;
- Parkes Special Activation Precinct;
- Richmond Valley Regional Jobs Precinct;
- Southern Goulburn Mulwaree Precinct; or
- At facilities that use waste, or waste-derived, feedstock to replace less environmentally sound fuels (including coal or petroleum-based fuels) thermally treated (or approved to be thermally treated) at the site, and the energy produced from the waste is used predominantly to power the industrial and manufacturing processes on-site, rather than exporting that energy to the grid.

The Parkes Special Activation Precinct and West Lithgow Precinct are located within the NetWaste region and may pose opportunities for the member councils.

Local Framework

Local Government Act 1993

The Local Government Act 1993 sets out the legal framework, governance, powers, and responsibilities of councils in New South Wales. Guiding principles for councils include:

- Conducting functions in a way that provides the best possible value for residents and ratepayers;
- Planning strategically for the provision of effective and efficient services to meet the diverse needs of the local community;
- Collaborating co-operatively with other councils and the State government to achieve desired outcomes for the local community; and
- Working with others to secure appropriate services for local community needs.

Councils may provide goods, services, and facilities, and conduct activities, appropriate to the current and future needs within their local community and of the wider public. The Act sets out the functions of councils, including its service functions such as, providing community health, recreation, education and information services, environmental protection, and waste removal and disposal. A council must also levy an annual charge for the provision of domestic waste management services for each parcel of rateable land for which the service is available.

Summary of Policy

Key components of policy assessed as influential for development of a new waste strategy are summarised below under common subject matter headings.

Sustainable Procurement

- Adoption of policy to improve recycled content procurement;
- Development of procurement targets for recycled content, including how they will be calculated, achieved, and audited; and
- Reporting on progress in achieving procurement targets with recycled content, particularly those which have significantly increased use of recycled materials within infrastructure projects.

Strategic Infrastructure, Planning and Investment

- Analysis and reporting of requirements for infrastructure capacity to process paper/cardboard, glass, plastics, and tyres;
- Building industry capacity to collect, recover, recycle, and remanufacture from waste, including emerging wastes such as solar panels and wind turbines;
- Identification of opportunities to increase uptake of recycled content within development of buildings and infrastructure, in particular plastics, rubber and glass;
- Create new job opportunities associated with innovative technologies;
- Invest in innovation and innovative processing technologies which lower the cost of renewable energy and/or emissions released (clean technology program); and
- Consider future, new waste streams associated with a low carbon economy, such as batteries and solar panels.

Avoid Generation of Waste

- Support of programs for business and communities to avoid generation of waste and divert waste from landfill, particularly food waste, including community-based "repair" of waste;
- Delivery of targeted programs to businesses to identify and avoid waste generation, and increase efficiency in use of materials and their recovery from waste streams; and
- Reduce total waste per person by 10% by 2030.

Community Waste Awareness and Education Programs

- Use of community education programs to reduce food waste, in particular;
- Improve quality of co-mingled MRF recyclates through a "whole-of-value chain" approach; and
- Foster behaviour change through education and engagement.

Circular Economy (CE)

- Support and promotion of CE principles – support innovation, sustainable procurement, high quality consistent recycling, value organics, product stewardship, circular design, re-use and repair, and responsible packaging;
- Supporting and promotion of CE principles within businesses;
- Community and industry actively contribute to a CE;
- Leverage government purchasing power to stimulate and support the local CE;
- Design for the multiple uses at the highest value – such as reuse, sharing, remanufacturing and refurbishment in preference to recycling;
- Advocacy to support best-practice CE mechanisms, such as product stewardship and responsible packaging design;
- Development of new markets for recovered, re-processed and re-manufactured commodities;

- Resilient systems and robust markets are available to keep waste materials circulating and to de-carbonise the NSW economy;
- Support reuse of crushed glass, particularly road construction and other civil works;
- Support growth of sustainable markets for high quality, processed organics;
- Support reuse and repair; and
- Explore more effective means to improve data reporting and sharing of information.

Improved Waste Management and Resource Recovery

- Leveraging existing regional development programs to support better waste management and resource recovery;
- Achieve 80% average recovery rate for all waste streams by 2030;
- Ensure the harmful impacts of waste are reduced and waste minimised;
- Promote landfill consolidation and environmental improvements plans;
- Support increased supply of higher-grade paper available for recycling (to replace non-recyclable packaging);
- Support higher grade tyre crumbing, tyre-derived fuel, and exploring processing tyre-derived polymers (TDP);
- Investigate landfill options past 2040 (when existing capacity exhausted); and
- Focus on landfill diversion options for problem wastes such as plastics and textiles.

Improved Hazardous Waste Management

- Better management of end-of-life disposal of products containing hazardous substances.

Divert Organics from Landfill

- Delivery of kerbside FOGO collection for households and businesses;
- Support for organics processing facilities;
- Halve landfilled organic waste by 2030;
- Achieve net zero emissions from organic waste by 2030, including:
  - Separate collection of food and garden organics from all NSW households by 2030;
  - Separate collection of food waste from businesses that generate highest volumes – includes large supermarkets and hospitality, by 2025;
- Take action to reduce emissions and mitigate climate change impacts aligned with the principles in the NSW Net Zero Plan 2050;
- Increase uptake of landfill gas capture; and
- Create a carbon negative waste sector.

Reduce Litter

- Reduce overall litter by 60% by 2030 and plastic litter by 30% by 2025; and
- Reduce cigarette butt litter in particular.

Avoid Plastic Waste

- Eliminate single use plastics by 2025;
- Triple plastics recycling rate by 2030; and
- Accelerate transition to better plastic products.

Reduce Illegal Dumping and Waste Crime

- Reduce and prevent Illegal dumping.

Develop Energy from Waste

- Use non-combustion technology, particularly that derived from waste feedstock, producing energy on site for industrial and/or manufacturing purposes.

Appendix C: Waste generated and managed by Council

Table 3 outlines the total waste in tonnes managed and processed by council on average across 2017/2018- 2021/2022. The data used within this section has been sourced from the Whylandra and Wellington Facility Reports, the Waste and Resource Recovery (WARR) Surveys submitted by Council during this period and a kerbside collection data sheet supplied by council (Kerbside Collection).

For waste generated, Construction and Demolition (C&D) waste made up a notably larger portion of 43% compared to Commercial and Industrial (C&I) at 29% and Municipal Solid Waste (MSW) at 28%.

In terms of waste processing, 10,000T more of waste is disposed than diverted via dry recycling, clean recycling, resource recovery, composting or onsite re-use. Of the waste generated and processed by Council, approximately 96% of it is managed within the LGA while approximately 4% is managed elsewhere. The waste generated, processed and managed within the region are further outlined within sections.

Table 3: Average of Waste Managed by Council

	Waste (Tonnes)	Waste (%)
Generated: MSW	28,176	28
Generated: C & I	29,275	29
Generated: C & D	43,475	43
Processed: Disposed	55,562	55
Processed: Diverted [24]	45,364	45
Managed: Within Council Area	97,031	96
Managed: Outside of Council Area	3,895	4
Total Waste	**100,926**	

MSW contributes 28% of all waste managed by Council. This presents opportunity for gains through more extensive awareness and education programs. The quantity of C&D waste also presents opportunity for greater diversion through processing to higher market specifications. Across all waste streams, Council diverts 45% of its waste from landfill and as such further recovery is likely possible.

Waste Generated

Table 4 further breaks down the MSW, C&D and C&I generated waste tonnages within Table 3. For MSW and C&I it can be seen that the mixed waste and clean sorted recycling make up the largest portions of generated waste. Waste types of note within these streams include mixed waste (kerbside and self-haul), kerbside comingled recycling, kerbside FOGO, Self-Haul Go and Self Haul Wood/Trees/Timber. Conversely, C&D waste for sorting/disposal makes up the largest portion of CD waste. Waste types of note within this stream include Asbestos, Bricks and Terracotta and Virgin Excavated Natural Material (VENM).

Table 4: Dubbo Waste Generation Breakdown per Stream (Tonnes)

Waste Stream	MSW	C&D	C&I
Mixed Waste	18,092	3,837	27,654
Other Waste Streams for Disposal	15	1,113	403
C&D Waste for Sorting/ Disposal	750	38,525	0
Clean Sorted Recycling	9,027	0	1,136
Other Sorted Recycling	292	0	82

Waste Processed

Figure 10 further breaks down the diversion waste processing tonnages within Table 3 The diverted tonnages consisted largely of onsite reuse of materials with organics composting and Dry MRF recycling consisting of the next largest diversion portions.

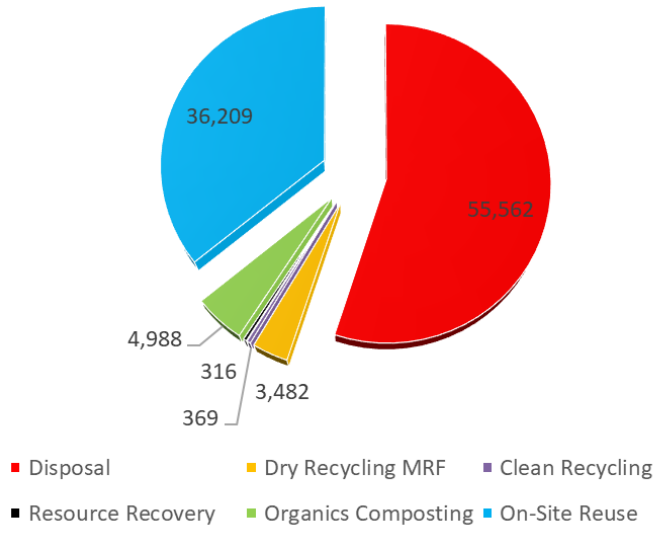


Figure 10: Dubbo Waste Generation Breakdown per Stream

Waste Managed

Table 5 further breaks down the management of waste tonnages from within the Council area and outside of the council area within Table 3. Of the waste managed within the Council area, the majority is managed by council at either the Whylandra or Wellington facilities with the kerbside FOGO being managed commercially by JR Richards. Of the waste managed outside of the Council area, all waste was managed outside of NetWaste at various commercial facilities.

Table 5: Dubbo Waste Management Breakdown per Stream (Tonnes)

	Within Council Region	Within NetWaste Region	Outside of NetWaste
By Council	92,015	0	0
By Commercial Entity	5,016	0	3,895

Data Assumptions

In order to determine the waste quantities outlined within Section 0, a series of estimates and assumptions had to be made regarding the Facility Data, WARR Surveys and Kerbside collection data and they are outlined below. It must be noted that these assumptions were not required for 2019/2020 as this data had been verified during previous work:

Assumptions Applicable to All Examined Years (2017/2018- to 2021/2022)

- Kerbside data (inclusive of mixed waste, recycling and FOGO) are sourced from the kerbside collection data sheet rather than WARR Survey or Facility Data
- Domestic Self Haul mixed waste streams are determined by kerbside mixed waste being deducted from total municipal waste determined within the facility reports
- Nondomestic Self Haul mixed waste is determined from the Commercial and Industrial section of facility reports
- Self-Haul Go has been sourced from Facility reports rather than Q26 of the WARR Survey as the 2019/2020, 2020/2021 and 2021/2022 responses did not have this information. By doing so consistency in approach between 5 years is achieved.
- All 'Other Sorted Recycling' Materials used Facility Report data as the 2019/2020, 2020/2021 and 2021/2022 responses did not have this information.
- Hazardous waste has been sourced from Q26 of WARR Survey as it was not an itemised line in the facility report (nothing to keep data consistent with)
- Nondomestic Problem waste is counted as Commercial and Industrial pharmacy or clinical within the facility report.
- Biosolid include only amount landfilled, not the amount sent directly for beneficial reuse at the wastewater treatment plant
- Waste Stream Processing for mattresses and batteries are split into 80% resource recovery and 20% landfill
- Waste Stream Destination for mattresses and batteries are split into council managed landfill and commercial outside NetWaste

2018/2019 Assumptions

- 0.1T of Fogo is landfilled as per Q44 of this year's WARR Survey while the remaining is composted

2021/2022 Assumptions

- 1210T of mixed waste was noted as being recovered in Q41 of the 2021/2022 WARR Return Survey

2021/22 Kerbside Waste Management Services

Table 6 details the variations in the Council Kerbside collection services available as of 2022/2023 as well as the kerbside waste collected across the 2021/2022 period. The kerbside services provided by Council consist of 2 variations of the residual waste service and set options for recycling and FOGO services. Additionally, for all households with a 2 or 3 bin service, a once-a-year 1m^3 kerbside clean-up service is available. It is noted that the households with each relevant kerbside service in Table 6 are lower than the listed households within Section 4.2.1 as the kerbside services are not used by all properties.

Table 6: Kerbside Collection Services Variations (2022/2023) and Collected Kerbside (2021/2022)

	Residual Bin		Recycling Bin	FOGO Bin	Bulky/Kerbside Pick Up/Hard waste
Size (L)	140	240	240	240	1m3
Frequency	Week	Week	Fortnightly	Weekly	Once a year per year
TPA Collected	10,280		3,061	7,770	839
Households (HH) with Service [27]	19,735		19,735	16,167	N/A
KG/HH/Week	10.02		2.98	9.24	N/A

Waste Generation Projections

Business As Usual (BAU)

Waste projections were developed for Dubbo from 2021/2022 to 2041/2042 and are predominantly based on the Facility Data, WARR Survey and Kerbside Collection data from 2021/2022. For instances where no data was noted for a waste type during the 2021/2022 data, the average of the same data sets from 2017/2018 – 2021/2022 period were used. It is worth noting that the only waste streams that this varied approach yielded any substantial difference for were biosolids (262.7T on average compared to 0T in 2021/2022) and Aggregate/Road base (310.1T on average compared to 0 in 2021/2022). All other waste types using the average combined for only 9.5 additional tonnes. Additionally, the projections use the region's population growth at a rate of a 1.3% per annum increase to note growth within the waste.

As can be seen below in Table 7, the projected total waste by 2041-2042 has increased by nearly 30,000T from the 2021/2022 levels. Assuming current waste practices remain unchanged or 'Business as Usual' (BAU), of the nearly 30,000T projected increase, 3000T is kerbside residual waste, 1,000T is kerbside FOGO and 2,300T is kerbside recycling.

Table 7: Yearly Projections for Council Waste Assuming BAU Waste Management Approach

Waste Stream	2022/2023	2027/2028	2032/2033	2037/2038	2042/2043
Total Waste	99,688	106,339	113,433	121,000	129,072
Kerbside Residual	10,414	11,108	11,849	12,640	13,483
Kerbside Recycling	3,101	3,308	3,528	3,764	4,015
Kerbside FOGO	7,871	8,396	8,956	9,554	10,191

BAU Approach Versus Increased Diversion

If the current recyclable and FOGO content found within the kerbside residual bin was to be diverted by being correctly placed in recycling and FOGO bins, the total projected kerbside residual waste would decrease. As of 2019, 38% of the residual waste was found to be FOGO and 26% was found to be recyclables with the following breakdown :

FOGO;

- Meat/chicken/fish/bones 7%;
- Fridge/Freezer 2%;
- Tea and Coffee 1%;
- Pantry Dry Goods 1%;
- Garden Waste 4%;
- Fruit and vegetable scraps 23%;

Recyclables;

- Paper & Newsprint 11%;
- Cardboard 4%;
- Glass bottle CDS acceptable 2%;
- Mixed acceptable plastic containers 3%; and
- Various other recyclable materials 6%.

With the potential divertible materials, a conservative total of 1% yearly diversion of both waste streams from the kerbside residual has been used with the following assumptions:

- As FOGO and recycling are currently active at council, any shift in diversion from residual waste will be a gradual and consistent over the 20 years of projections; and
- FOGO and recycling will not likely achieve 100% diversion from the residual waste bin.
  - Diverting an additional further 20% of both waste streams, meaning that 18% FOGO and 6% recyclables would remain within the residual stream is feasible;

As seen in Figure 11, while the BAU kerbside waste stream tonnages experience a uniform increase, the potential improved resource performance of 2% per annum (1% evenly for FOGO and recyclables) ultimately offsets the growth in residual waste. The tonnage offsets are further outlined in Table 8.

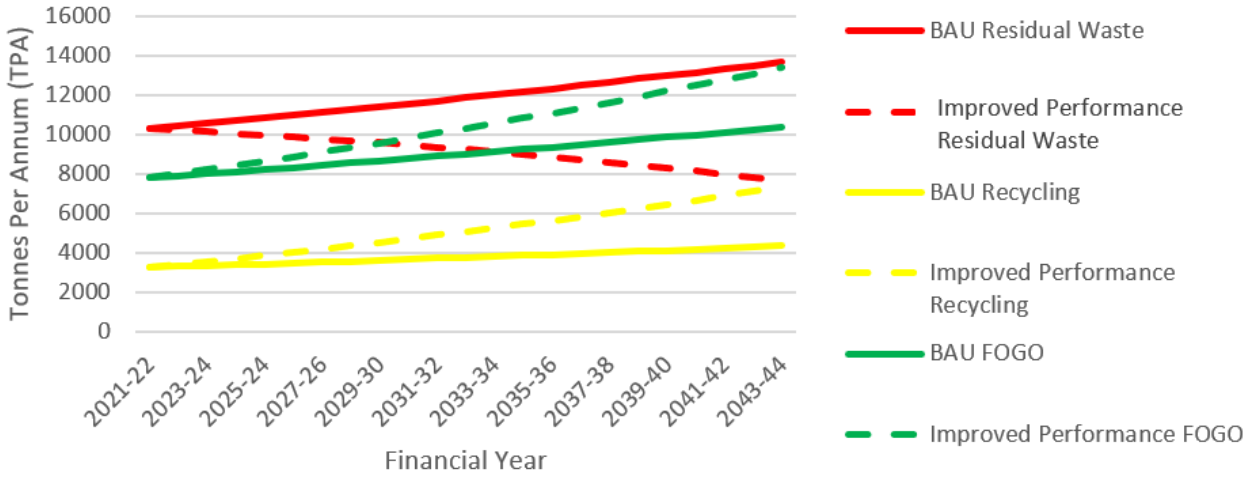


Figure 11: BAU Kerbside Tonnages vs Kerbside Tonnages with 1% Annual Diversion

Table 8: Kerbside Tonnages with 1% Annual Diversion vs Business As Usual (BAU) Kerbside Tonnages

Waste Stream	2021/2022	2026/2027	2031/2032	2036/2037	2041/2042
Kerbside Residual 1% Diversion	10280	9869	9358	8734	7986
Kerbside Residual Difference to BAU	0	- 1,097	-2,339	- 3,743	- 5,324
Kerbside Recycling 1% Diversion	3272	4039	4893	5843	6899
Kerbside Recycling Difference to BAU	0	-548	-1,170	-1,872	- 2,662
Kerbside FOGO 1% Diversion	7807	8876	10053	11348	12770
Kerbside FOGO Difference to BAU	0	-548	-1,17	-1,872	- 2,662

Appendix D

Council's Current Waste Infrastructure, Services and Programs and Initiatives

Kerbside Services

Council provides residents with comingled recycling, food and garden organics (FOGO) and general waste kerbside collection services, in addition to bulky goods/hard waste collection. Table 9 provides details on the kerbside collection services.

Table 9: Kerbside Collection Service Details

Residual Waste Service		Co-mingled Recycling Service		FOGO Service		Bulky/Hard Waste	
Bin	**Collection Frequency**	**Bin**	**Collection Frequency**	**Bin**	**Collection Frequency**	**Size**	**Collection Frequency**
140L or 240L	Weekly	240L	Fortnightly	240L	Weekly	$1m^3$	Once a year per year [29]

Council issues one tipping voucher per residence per fiscal year, allowing residents to visit a Council Waste Facility for free on one occasion (terms and conditions apply).

Council's kerbside contractor JR Richards (JRR) collects public space residual waste.

Waste Education

Council waste services are supported by targeted waste education resources, including the ConnectEd website that provides waste-related resources to the community, schools and children. Waste education services are supported by a shared Education Officer.

Council is also supported with waste education provided by NetWaste. NetWaste's regional education plan, Our Backyard. Our Stuff. Our Responsibility. Education Strategy 2022 – 2027, expands on, extends, and refines the actions, approaches, and energies of its previous waste education strategy. It considers the evolving context of waste management and community attitudes, capacities, and expectations, and offers innovative and non-traditional approaches to education and engagement. The plan contains specific, strategic NetWaste education and engagement actions to 2027.

Waste Sites and Infrastructure

Waste Sites

Several Council waste facilities are located within the LGA and include:

- Whylandra Waste and Recycling Centre (Dubbo);
- Wellington Transfer Station (an active landfill in the process of transitioning to a transfer station);
- Ballimore Transfer Station;
- Eumungerie Transfer Station;
- Geurie Transfer Station;
- Stuart Town Transfer Station; and
- Toongi Transfer Station

The Whylandra Waste and Recycling Centre is Council's principal waste management and recycling facility. The landfill has an estimated 70-100 years of capacity remaining, with the current unlined landfill cell having an estimated ten (10) years of capacity remaining. Council is keen to identify the location of next cell, considering Conservation Areas and Offsets, and has engaged Talis Consultants to prepare a Master Plan for the site. The site also has an active quarry that has an estimated six (6) to eight (8) months left.

The Wellington Transfer Station is currently operating as a landfill and receives self-haul residential waste and kerbside collection waste for disposal. However, the landfill will be closed within the next two (2) years. Upon completion of the closure works, the following waste streams will not be accepted at Wellington:

- **Commercial and Industrial Waste (C&I):** All C&I waste will be delivered directly to Whylandra post landfill closure;
- **Municipal Solid Waste (MSW):** 20% of the total MSW is collected at the kerbside and will be delivered directly to Whylandra post landfill closure. It is understood the 80% balance of self-haul waste will be received and transferred to Whylandra;
- **Veterinary Waste:** Will not be accepted at site post landfill closure; and
- **Soil (not contaminated or VENM):** Will not be accepted at site post landfill closure.

Council Waste Infrastructure

Table 10 provides an overview of Council waste and resource recovery infrastructure.

Table 10: Council Waste and Resource Recovery Infrastructure

Site	Landfill	MRF	Organics Processing	Transfer Station	CRC
Whylandra Waste and Recycling Centre	✓	✓	✓		✓
Wellington Transfer Station	✓	✓			
Ballimore Transfer Station				✓	
Eumungerie Transfer Station				✓	
Geurie Transfer Station				✓	
Stuart Town Transfer Station				✓	
Toongi Transfer Station				✓	
Toongi Transfer Station				✓	

Of Note:

- There are no "Tip Shops" at any of the waste facilities, although Council reports these have previously been requested by the community;
- Currently crushed concrete, brick and tile are used on site only due to risk of asbestos contamination, but opportunity exists to produce valuable product crushed to an engineered specification;
- The footprint of the Organics Recycling Facility (ORF) for FOGO processing would benefit from increased maturation pad area – however, under current contracting arrangements that is an issue of the incumbent processor (JRR), although Council acknowledges the upcoming impact of additional FOGO collection from MUDs as mandated by the NSW EPA by 2030 and any further improvement from separation at the kerbside, in addition to predicted increases in regional population;
- FOGO processing is based on to production of quality materials for markets as a matured compost, rather than a stabilised residual;
- The Whylandra FOGO processing facility also accepts FOGO from Mid-Western and Narromine Councils; and
- The Whylandra landfill (LF) has a remaining useful asset life estimated to be 40-50 years (2019), achieving a reported 0.9T/M3 during burial of waste.

Commercial Waste Infrastructure

Private sector waste infrastructure plays a notable role in delivering Councils waste services. The following privately owned and/or operated infrastructure noted in Table 11 are utilised by Council to process their FOGO, recyclables and other waste.

Table 11: Private Waste Processing Infrastructure Used by Council

Waste Stream	Infrastructure
Hazardous	Environmental Treatment Solutions (ETS), Sydney
Kerbside Comingled Recyclables	Visy, Sydney
Kerbside FOGO	JR Richards, Dubbo
Scrap Metal	Infrabuild
Mattresses	Molycop JLW Services Pty Ltd, Cootamundra
E-Waste	Matthews Metals, Dubbo
Tyres	JLW Services Pty Ltd (Molycop360), Cootamundra
Community Recycling Centre (Batteries and Oil)	Environmental Treatment Solutions (ETS), Sydney Infrabuild, Newcastle (Large batteries)
Household Chemical Cleanout	Environmental Treatment Solutions (ETS), Sydney

FOGO Processing

The current tunnel composting system located at Whylandra also manages feedstock from Mid-Western and Narromine Councils. The total annual throughput of the system includes around 5,000 TPA ex Dubbo, and another 5,000 TPA ex Mid-Western and Narromine combined.

The tunnels have a reported annual design capacity of 15,000 TPA and are in a satisfactory ongoing condition suitable to remain functional until at least 2030, and potentially beyond. However, as outlined in Section 3.3 Waste Generation Predictions, a combination of increased population, extended service delivery to MUDs, and improved separation by residents at the kerbside could see annual throughput increase by up to another 6,000 TPA for Dubbo alone, requiring an extension of the system's processing capacity.

In contrast, the maturation pad is already under-sized and expansion is required. Council estimates a further 50-75% increase in area of the pad will be required within the next 1-2 years.

In addition, Council's collection fleet may need to also expand to meet additional demand as it unfolds if Council retains its own fleet for collections as the current service delivery period expires in 2028.

Co-Mingled Recycling Processing

Co-mingled collections are currently aggregated by collection contractor JRR in Dubbo, which also includes collections from Narromine and Gilgandra (Mid-Western run their own MRF, and until recently, so did Gilgandra), as well as self-haul collections delivered to Council's various waste facilities. It is unknown if the contractor's own transfer station is sufficiently large to meet increased annual collections associated with an expanding population base and improved separation behaviour by residents at the kerbside, or if current processor, Visy, have capacity ongoing following expiry of the current contracted service delivery period expiring 2028.

Waste Contracts

Council contracts the collection of residual waste and co-mingled material to JRR, but collects FOGO itself as a means to share management and risk of separation and contamination. Current collection and processing contracts are in place until 2028 (10 year contract period) but by 2025 Council advises it will need to start the procurement process for the following service delivery period.

Details of Council's contracting arrangements and voluntary arrangements it periodically participates in through NetWaste are summarised below within Table 12.

Table 12: Details of Local and Regional Contracts

Contractor	Description	Contract Commencement	Contract Expiry
Council Managed Contracts			
Visy Recycling	Paper/Cardboard, Glass, Plastics, Ferrous Metals, Non Ferrous Metals Processing	1st July 2018	30th June 2028
JR Richards	Domestic Waste Collection - Residual Waste and Co-Mingled Recycling Domestic Waste Processing – Co-Mingled Recycling and FOGO (Dubbo Council, Mid-Western Council and Narromine Council within a regional, joint contract)	1st July 2018	30th June 2028
Infrabuild	Collection of Steel	Conducted for 2023	RFQ conducted annually
Matthews Metals	Collection of E-Waste	30th June 2023	30th June 2025
NetWaste Regionally Managed Contracts			
Premise Pty Ltd	Regional Environmental Monitoring of Licensed Landfills	1st July 2022	1st July 2025 (with option for two 12-month extensions)
Cleanaway Waste Management Ltd	Collection of Used Motor Oil	19th September 2020	19th September 2024
JLW Services Pty Ltd (Now Molycop360)	Collection and Recycling of Tyres	1st May 2020	June 2025
	Collection and Recycling of Mattresses	-	June 2025
Enviro Treatment Solutions (ETS)	Household Chemical Cleanout	Conducted for 2023	RFQ conducted annually- Cleanaway and ETS are the only bidders
	CRC Servicing	1st July 2023	1st July 2028

Strategic Waste Initiatives Afoot

- **Whylandra Waste and Recycling Centre Master Plan** – Talis Consultants are preparing a site Master Plan for Whylandra. This concept plan will lay out improved waste receival, sorting, and storage areas to increase the current landfill diversion rate, as well as providing concept plans for the next 50-years of landfilling.

- **Closure of Wellington landfill** – The current landfill will be closed and capped and the site transitioned to a transfer station. The management of leachate post-closure and the threat of downstream contamination via infiltration into stormwater leaving site via a current easement through the LF is being investigated;

- **Polystyrene Recycling Trial** - A polystyrene (EPS) recycling program was trialled at the Whylandra Waste and Recycling Centre. The trial allowed customers to drop off their polystyrene where it is transformed into blocks which are then transported to manufacturers to turn the material into a variety of new products, such as skirting boards, flooring, picture frames and railway sleepers. The trial ended in August 2023 and results are being assessed to determine potential for continuation and expansion;

- **Litter and illegal dumping initiatives** – Council organises clean-ups throughout the year to collect litter from prominent areas. It has developed small-scale litter campaigns, which typically involve signage and social media;

- **Fees and Charges** - Council has realigned waste receival fees to avoid non-domestic waste being taken to Whylandra from out of region (recent increase in site-based fees and charges over last 5 years have generally been limited to 4-10%/year);

- **Circular Economy Initiatives** – Council has commenced enquiries to process growing problem wastes (solar panels and tyres) on-site at Whylandra, linking benefits gained to its own Net Zero framework;

- **Energy from Waste (EfW)** – Council will remain keeping abreast of initiatives and developments afoot;

- **Waste Processing Infrastructure Delivery** – Council will remain a supporter of commercial services developing within the LGA, providing waste processing and CE services to Council under contract (such as FOGO and a MRF);

- **Multi-Unit Dwelling FOGO Collection** – Council has commenced pre-planning for a FOGO collection for MUDs and possibly large commercial premises by 2030 and 2025, respectively;

- **Solar Power Development** - some of Council's biggest electricity users will benefit from the upgrade, with panels installed on the Wellington and Dubbo Aquatic Leisure Centres, Dubbo Regional Theatre and Convention Centre, Dubbo Showground, Macquarie Regional Library and the Dubbo and Wellington Civic Administration Buildings, with possible expansion to areas such as Whylandra. Installation of the panels has been made possible through $270,000 of funding from the Australian Government's Local Roads and Community Infrastructure Program (LRCI); and

- **NetWaste Program Delivery (WaSMS)** – Council will continue to support waste initiatives aimed at avoiding or reducing waste, recovering resources, protecting the environment and strategic collaboration at a regional level.

Appendix E: Strengths, Weaknesses, Opportunities and Threats Analysis of Council's Waste Services

Strengths	Weaknesses	Opportunities	Threats/Challenges
Remaining landfill capacity (>50 years) Proximity to inland rail network Strategic approach to waste management Large operational site at Whylandra, with footprint to expand future resource recovery operations and significant buffer distances	Limited long term data collection and analysis Limited Council staff resources	Improved internal waste management performance, including Dubbo Airport, in consideration of the cost of collections from multi-source waste streams Consistency of waste bins provided across all DRC internal operations to improve resource recovery Improved resource recovery during the construction and demolition of infrastructure Development of a Resource Recovery Park concept at Whylandra for commercial and problem wastes from within the LGA, renewable projects and/or non-recyclable mixed waste from outside the LGA Explore mechanisms to improve separation of self-haul mixed waste Increase resiliency e.g. Disaster Waste Management Plan Ensure financial sustainability of Waste Operations Explore opportunities to contribute to the circular economy Improve waste diversion performance Explore funding opportunities for capital works	Changing policy landscape – e.g. climate change, PFAS[18], rate-based pricing Disaster waste Green energy waste Rising per capita waste generation Increasing frequency and magnitude of natural disasters Remoteness – increased transport costs, reduced economies of scale, diminishing interest by service providers, limited access recycling markets and processors NDIS[19] worker shortage for waste processing Limited number of local/ regional waste processors Emerging monopoly for processing services Commercial development of local resource recovery and/ or landfilling operations Increasing cost of providing resource recovery services Future disposal of renewable energy infrastructure e.g. solar panels, wind turbines Limited funding for strategic waste planning Rising costs of waste processing services

Appendix F: Sources

https://www.dcceew.gov.au/sites/default/files/documents/national-waste-report-2022.pdf

Dubbo WARR data survey 2021/2022

Household Chemical Cleanout and the receival facility change annually. ETS are the contractor during 2023

https://app.remplan.com.au/dubboregionalcouncil/community/summary?state=pj4ZioLePTq01XoljYLxpvcKFxF9xY, sourced August 2023

https://app.remplan.com.au/dubboregionalcouncil/economy/summary?state=D729lz8ODiLDwjQSDdx0jauVH7Hn9a, sourced August 2023

https://www.epa.nsw.gov.au/-/media/epa/corporate-site/resources/recycling/19p1379-circular-economy-policy-final

https://www.netwaste.com.au/about-us/rethinking-waste-netwaste-strategic-waste-plan

https://www.un.org/sustainabledevelopment/climatechange/

https://www.un.org/sustainabledevelopment/development-agenda/

National Disability Insurance Scheme to support resource recovery labour force employment

NSW EPA Circular Materials Fund: Circular Plastics Program Round 1 Guidelines for applicants, 2022

NSW Waste and Sustainable Materials Strategy 2041: Stage 1 – 2021-2027

https://www.dubbo.nsw.gov.au/News-and-Media/News-and-Resources/Council-News/2023/polystyrene-recycling-trial-now-open

Towards 2040 Community Strategic Plan

NetWaste Regional Waste and Material Strategy 2023 – 2027, represents the combined total tonnages collected by both Council and contractor operations, and processed/managed both inside and outside the LGA

West Lithgow Precinct was removed from the gazetted map but remains a priority infrastructure area.

World Economic Forum (https://www.weforum.org/agenda/2022/01/5-circular-economy-business-models-competitive-advantage/

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