



Regional Circular Materials Strategy Hunter and Central Coast 2022 - 2027





Acknowledgement of Country

The Hunter Joint Organisation acknowledges the country and history of the traditional custodians of the lands upon which we work and live. We pay our respects to the Elders past, present and emerging, of our region, and of Australia.

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Project Partners



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Part One

Introduction

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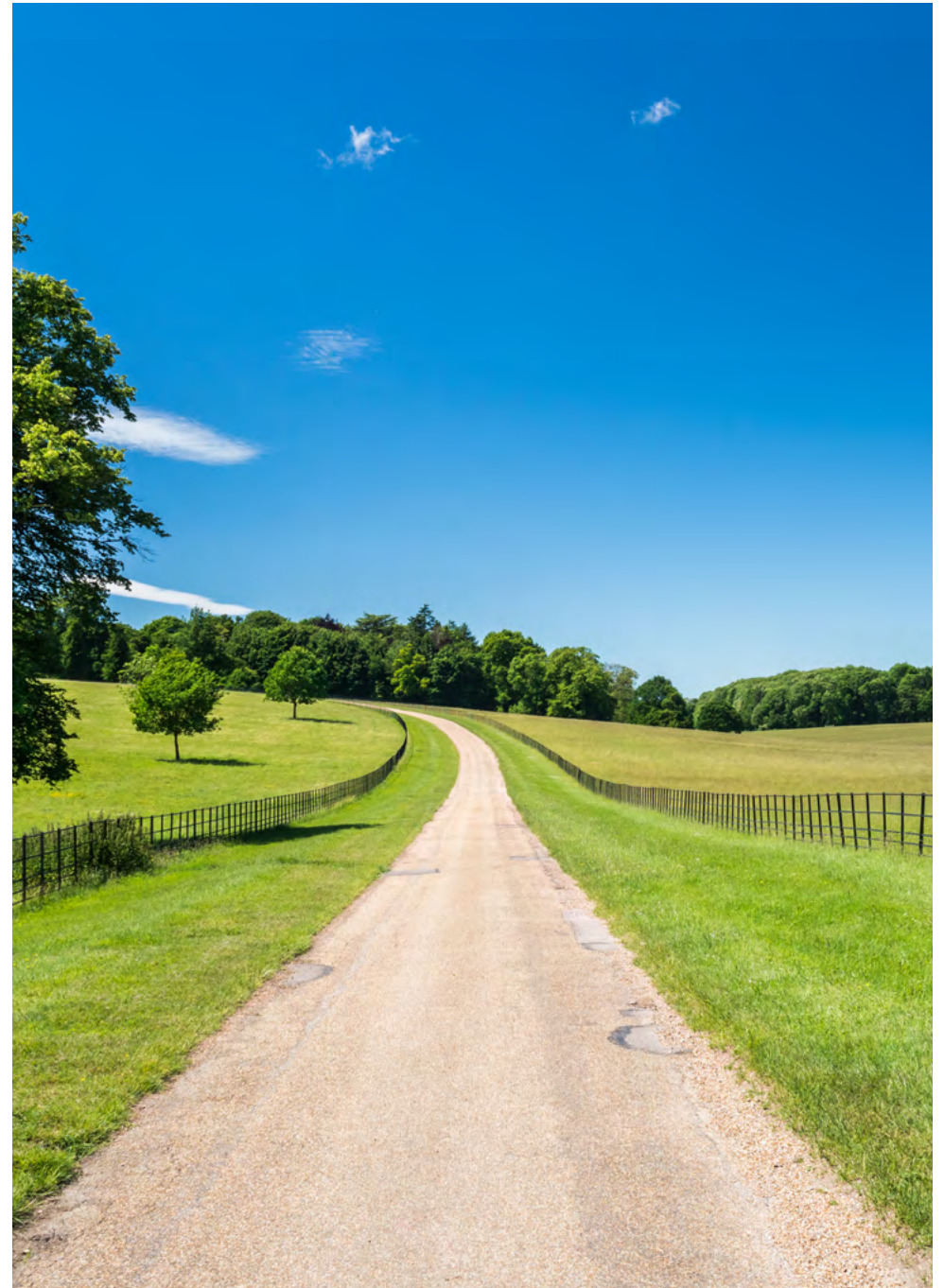
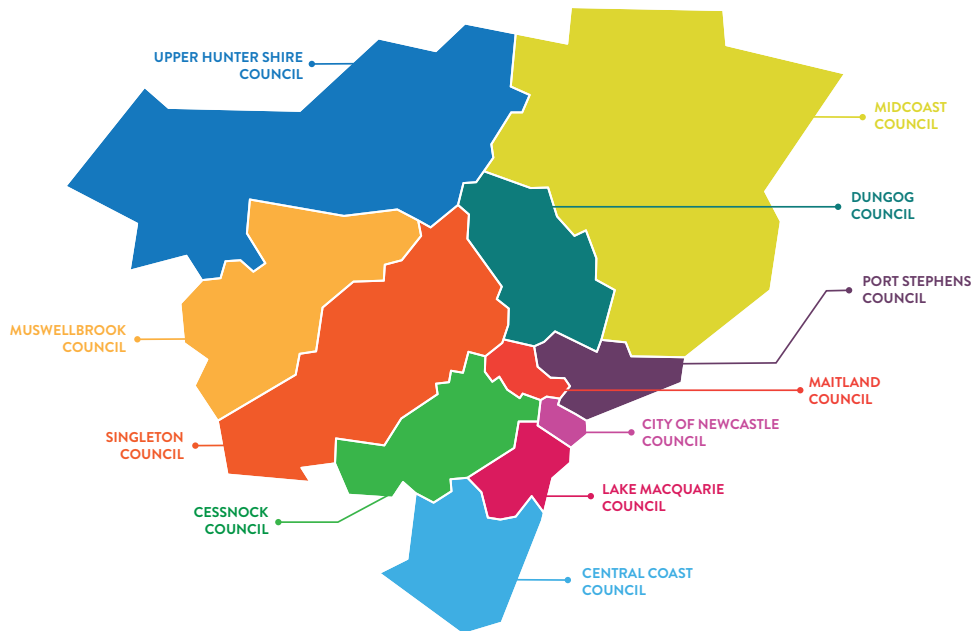
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Introduction

The 10 member councils of the Hunter Joint Organisation (Hunter JO) has partnered with Central Coast Council to develop this new Circular Materials Strategy for the region. The Hunter JO is responsible for the coordination of the Hunter and Central Coast (HCC) Regional Waste Group, and as such, will be referred to as the organisation responsible for delivering this strategy.



1.1 Purpose

The purpose of this document is to outline the Hunter Joint Organisation's (Hunter JO's) strategic direction as a regional response to the NSW EPA Waste and Sustainable Materials Strategy 2021-41 (WaSM). The Hunter and Central Coast Regional Circular Materials Strategy (Regional CMS or the Strategy) (formerly known as the Regional Waste Strategy), embraces a 20-year vision while focusing on the initiatives required in the 5-year period from 2022-2027 and how progress will be monitored. There is considerable value to be realised by the region working collaboratively to identify regional priorities and deliver strategic projects and programs.

This Strategy interprets national and state policies for our regional context and looks to local plans to develop regional strategic priorities and to identify common issues to be solved at a regional level.

Falling out of the Strategy is an Annual Action Plan, as well as the Hunter and Central Coast Circular Economy Roadmap (CE Roadmap). The CE Roadmap is identified by the Regional CMS as an important collaboration activity for the Hunter JO to lead on behalf of the region. It spans beyond government effort by adopting a whole-of-region approach to coordinating and elevating the circular evolution occurring in our region.

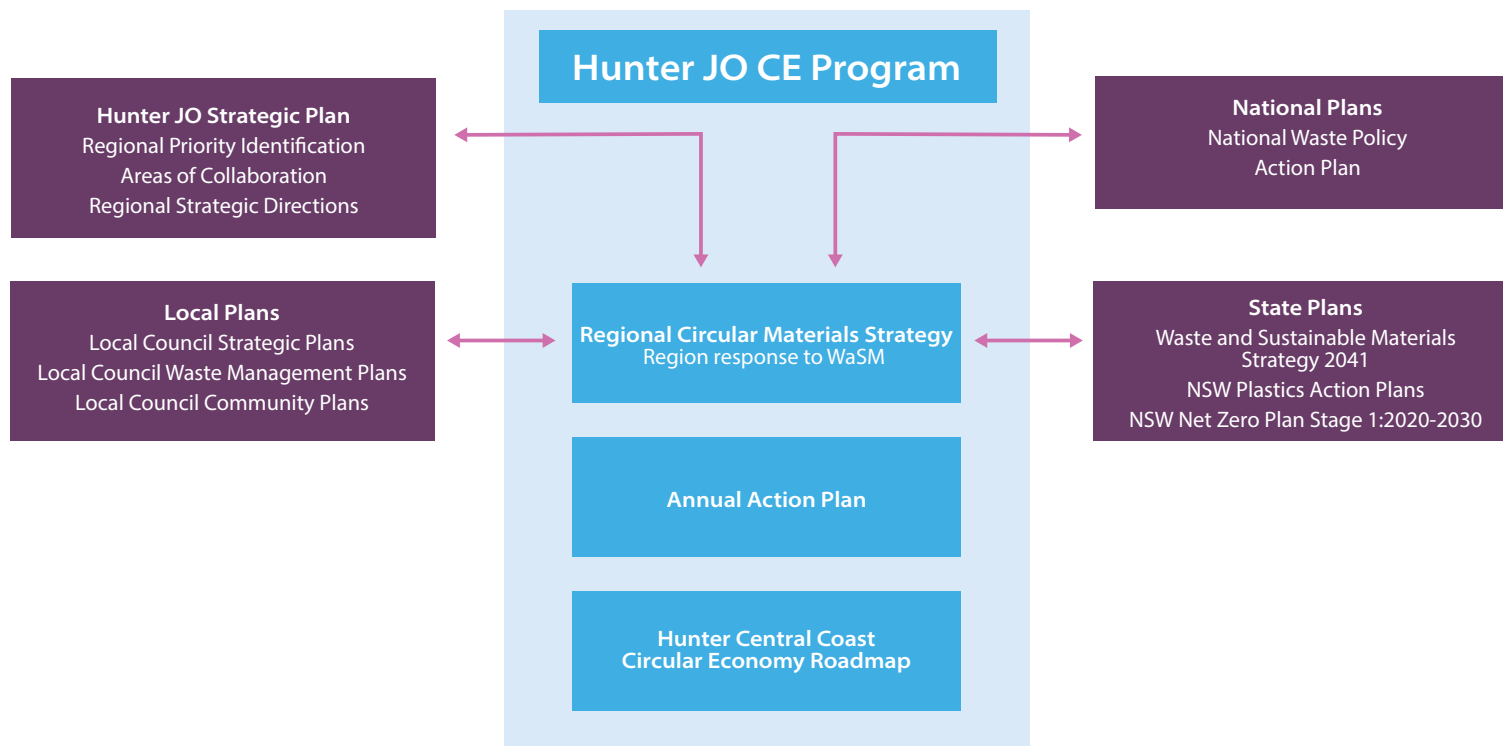


Figure 1: Hunter JO Circular Economy Program Strategic Context

The Hunter JO relies on external funding to deliver all of its functions in relation to the Regional CMS. The Hunter JO receives funding under the NSW Regional Support and Coordination Funding under the NSW Waste and Sustainable Materials Strategy 2021-41 (WaSM), which is in place until June 2027. As part of its commitment under this funding arrangement, the Hunter JO will:

- Prepare and oversee the delivery of this Regional CMS; and
- Coordinate the Hunter Central Coast Regional Waste Group

Under the previous Regional Waste Strategy, Hunter JO received additional non-contestable funding from the Better Waste and Recycling Fund for the delivery of projects under its action plan. Funding for regional projects has altered under WaSM to a contestable model, with a smaller pool of funding ring-fenced for local and regional government initiatives. The figure below summarises the likely grant funding streams from the NSW EPA. As a result, this Strategy must adopt a focused and flexible approach to its delivery, to allow for funding uncertainty in terms of project implementation.

Table 1 - NSW WaSM Funding Program

NEW INITIATIVES		BUILDING ON OUR SUCCESS	
Carbon recycling and abatement fund \$37m	Facilitating joint council procurement of waste services \$16m	Preventing illegal dumping \$16m	Litter prevention \$38m
Landfill gas capture infrastructure \$7.5m	Local government waste and resource recovery \$25.6m Funding for local government (\$10m) Continuation of Regional Coordination and Strategy Program (\$15.6m)	Household problem wastes \$66m	Aboriginal communities waste management \$5m
Diverting organics from landfill \$69m	Avoiding plastic waste \$13m Circular materials fund (\$10m)	Landfill consolidation and environmental improvements program \$6m	NSW Asbestos Coordination Committee \$5m
Circular innovation fund to support research into new technologies and uses for recycled content and opportunities to pilot them in government projects \$13m	Plastic Research Partnership (\$2m) Education program for single-use plastic phase outs (\$1m) Support for improved plastic nurdle management at manufacturing facilities	Business recycling \$15m	
Strategic infrastructure investment fund \$24m			

1.2 The Opportunity

Our current linear economy, a take-make-waste model, is having detrimental effects on the economy, the environment, and communities. Australia generates over 74 million tonnes of waste each year. Approximately 1 million tonnes of waste is landfilled each year from the Hunter and Central Coast. The system is failing and leading to systemic and complex social and environmental challenges. Circular economy is an economic model designed around closed-loop systems that maximises the value gained from materials already in the economy. Circular economy presents a huge environmental and economic opportunity. Estimates range from \$1,860 billion direct economic benefit for Australia over the next 20 years, and \$210 billion increase in Australia's gross domestic product and an additional 17,000 jobs by 2047- 48 from circular interventions in the food, transport and built environment sectors.

Circular economy will be a key factor in tackling climate change by reducing emissions generated for example through agriculture and manufacture of key materials like cement, plastics, steel and aluminium. It's estimated that circular economy will save Australia 165 million tonnes of carbon dioxide equivalent each year by 2040, which will be key in meeting all Australian state government targets of net zero by 2050.

The Hunter and Central Coast (HCC) recognise the benefits of circular economy for their local region and its merits for delivering on their strategic objectives for a sustainable, vibrant, and resilient region. With decreasing global demand for coal, local and state governments are supporting moves to diversify the economy and intensify investment in renewable energies in the region to build long-term economic resilience and support future-focused local jobs. The HCC's diversity in skills and industries, leading research institutions, and connectivity to domestic and overseas markets gives the region huge potential to become a regional leader in circular economy in Australia.

This circular model presents sizable economic, environmental and social benefits for Australia including... \$1,860 billion direct benefit over the next 20 years meaning \$billions of economic opportunity in the Hunter.

Local Government representatives, are uniquely placed to provide strategic direction, connect stakeholders across the local ecosystem to collaborate and share knowledge, and remove some of the barriers to support circular economy progress at scale. The Hunter Joint Organisation (Hunter JO) as Local Government representatives will support these initiatives as project partners or through enabling initiatives with the collaboration and funding from the NSW State Government.

The Hunter JO's strategy 2022-2026 highlights the region's need to grow and evolve as a powerhouse of the state and national economies, with "Jobs and a Growing Economy" a key theme in the strategy. The theme sees an opportunity to drive the circular evolution of our region's economy, built around circular economy principles as a driver of future jobs.

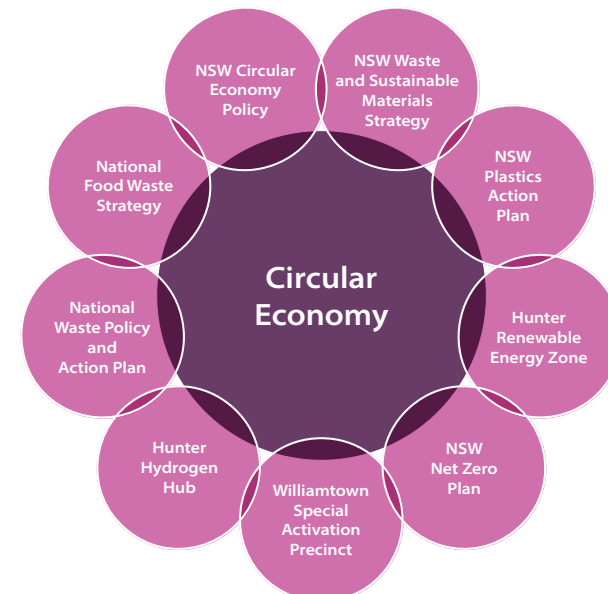


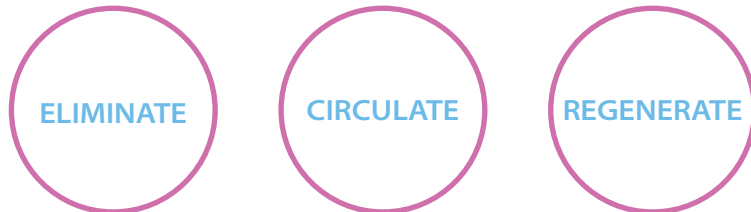
Figure 2 - Circular economy is at the heart of several national and state-level strategies.

1.3 Guiding Principles

1

THINK CIRCULAR NOT LINEAR

The Circular Economy provides a whole-of-system lens which broadens out our thinking around consumption and resource recovery, in order to find upstream solutions to current and future resource shortages and waste legacies, as well as a means to address critical climate change issues. This Strategy will integrate the Ellen Macarthur principles¹ of:



2

AIM FOR SYSTEM-WIDE CHANGE

The transition to a Circular Economy system requires system-wide transformation in order to reach optimisation of material and resource usage. This means working at all levels and scales to push and pull economic and other levers that will help bend the linear economy. Without this, our best intended efforts will remain peripheral and will not achieve the scale and buy-in in required to design out waste and pollution from our economies. The Regional CMS will look to ways in which it can contribute to systems-level change.

¹<https://ellenmacarthurfoundation.org/>

In approaching the development of the Regional CMS, some key guiding principles have been used to develop the scope and lens in which the Strategy looks at material use within the region, and how we can, overtime, assist the region to transition to a circular economy (CE).

3

START LOCAL AND BUILD MOMENTUM

The Regional CMS will focus on ways to support the local transition by:

- Strengthened Hunter and Central Coast waste and resource recovery infrastructure network to ensure continuity and localisation of core services with maximised resource recovery,
- Collaborative regional procurement models that provide better cost and environmental outcomes for the region, and
- Adoption of CE principles, business models and technologies in transforming upstream and downstream material flows to become more circular.

The early Strategy program will remain flexible to respond to uncertainty and will build maturity over time.

4

ALIGN OUR EFFORTS WITH THE NSW GOVERNMENT

Direction and funding for this Strategy is set by NSW government and will influence where we can best place our efforts, in order to achieve maximum collective impact. We will use the well-established waste hierarchy to prioritise our efforts to maximise the impact of our work in achieving sustainable material resource usage outcomes.



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Where are we today?

2.1 Previous Achievements & Learnings

Reflecting on the 2017-2021 HCC Waste Avoidance and Resource Recovery Strategy there is still a long way to go towards meeting the State's ambitious resource recovery target.

Greater focus on service changes or enhancement and infrastructure improvements is needed to drive noticeable improvement in resource recovery for the region.

Improved data capture and reporting in all areas, including behaviour change, litter and illegal dumping, is necessary to understand initiative efficacy.



Development of an infrastructure report for the Hunter Region

as part of the NSW infrastructure analysis project for improved planning.



Catalysing the Circular Economy through

4 Circular Economy events
Circular Economy Eco-system report
HCC material flow analysis
Circular Economy Procurement Project



Supporting the HCC Regional Illegal Dumping Squad

in their Communication and Action Plan to ramp up online and offline communications about illegal dumping.



Advocating for the provision of **Community Recycling Centre's** in the region **for the collection of problem wastes.**

There are currently 10 active centres.



Implementing behaviour change projects such as
The Small Acts Big Change Program
Green Caffein

See [Appendix 2](#) for more details

2.2 Service & Infrastructure Overview

There are currently 3 streams of council operated kerbside collection services available in the region (available in all LGAs with the exception of Port Stephens and Dungog Councils who don't currently offer a green bin service):

- Residual waste (Red Bin)
- Mixed recycling (Yellow Bin)
- Garden Organics (Green Bin)

Lake Macquarie City Council and Upper Hunter Shire Council's have also converted their Green Bin to a Food Organics & Garden Organics (FOGO) system and accept food scraps.



Food Organics services are currently available in 2 of the 11 HCC councils. There will be a need for significant infrastructure growth in HCC to meet 2030 commitments of municipal FOGO.

There are limited options for kerbside recycling in the lower Hunter Central Coast and solutions are actively being explored.

There is significant private sector investment and advancement occurring in the HCC.

Councils also provide various services including:

- Bulky/hard waste (drop-off and self-haul),
- Community recycling centres (CRC),
- Commercial waste collection,
- Public space waste management (such parks, gardens and sporting venues)
- Public event waste management, and
- Campaign recovery programs such as the annual Household Chemical Clean-Up and drumMUSTER programs.

Core HCC councils waste management and recovery services and infrastructure is summarised below in [Table 2](#) and [Figure 3](#). Planned municipal and private sector infrastructure and service enhancements are summarised in [Appendix 3](#).

Table 2 - Summary of Municipal Kerbside Services and Infrastructure

	CENTRAL COAST	CESSNOCK	DUNGOG	LAKE MACQUARIE	MAITLAND	MIDCOAST	MUSWELLBROOK	NEWCASTLE	PORT STEPHENS	SINGLETON	UPPER HUNTER
Kerbside Services											
Landfill (Red) & Recycling (Yellow)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Garden Organics	✓	✓		✓	✓	✓	✓	✓		✓	✓
Food Organics	TBA by 2030	2024	2024	✓	2024	2026	TBA by 2030	2024	TBA by 2030	2022/23	✓
Infrastructure											
Landfill (Years of space remaining + gas capture?)	✓ (multiple 20-50 + gas cap)	✓ (<3)	✓ (10-15)	✓ (<3)	✓ (<3)	✓ (15-20)	✓ (10-15)	✓ (>50 + gas cap)		✓ (>50)	✓
Transfer Stations	✓	✓			✓	✓ (multiple)	✓		✓		✓ (multiple)
Community Recycling Centre	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓
Materials Recovery Facility						✓		⚠ (by 2024)			
Garden Organics	✓			✓				✓	⚠ (by 2023)		✓
Food Organics	⚠ (TBA)			✓		⚠ (by 2026)		⚠ (by 2024)			✓

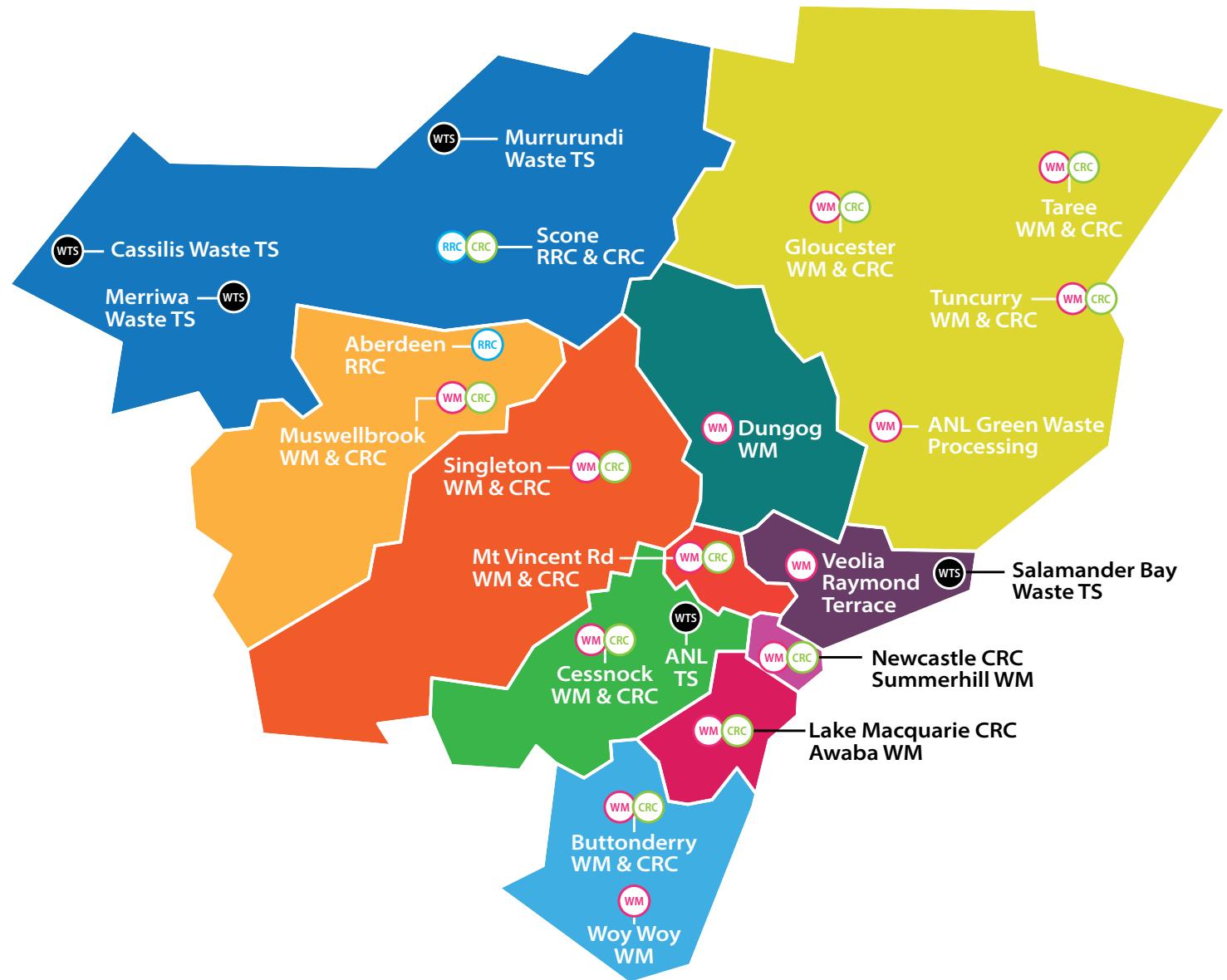


Figure 3: Summary of Municipal Infrastructure*

*Some of these facilities are not owned or operated by councils

2.3 Regional Challenges

In NSW, over the last 4 years, there has been no significant overall improvement in the state's resource recovery rate. The Hunter and Central Coast regions have experienced similar static recovery rates with the latest data showing our regional average resource recovery rate at 42% in 2020 compared to 46% for the state.

[Appendix 1 – Regional Forecast & Performance \(Section 5.1\)](#) outlines the regional challenges faced shown through the most recently available data. These challenges include:

- The Hunter Central Coast's total municipal waste generation will increase by 22.1%, by 2041, due to the equivalent population growth the region will experience over the same period.
- Recycling rates have been relatively static for the last few years with the notable exceptions of Port Stephens Council (affected by the MWOO ban) and Lake Macquarie Council introducing food organics collection in their green bin. Our Regional Waste Group member councils will see improved levels of resource recovery (between 50-60%) once food organic collections commence in all other council areas over the next few years.
- Councils can directly influence about 25% of the total waste generated in the region through our municipal waste systems. The remaining waste is managed by the commercial and construction sectors.

The Hunter JO used this data and a PESTLE analysis study to review the key regional waste and resource management challenges impacting Hunter & Central Coast Councils.

The Hunter JO will make the greatest regional impact for their members by focusing on two key challenges;

- advocating for political support on planning and investment in infrastructure, and
- supporting projects to meet State/Federal targets of 80% resource recovery by 2030.

When interviewed, the specific challenges raised by Regional Waste Group member councils are echoed within the two key regional challenges.

P	E	S	T	L	E
POLITICAL	ECONOMIC	SOCIAL	TECHNOLOGY	LEGAL	ENVIRONMENT
2 80% by 2030	4 Security of end-markets	Population growth	Emerging CE technologies / business model	6 Regulatory compliance	7 Food waste collection by 2030
1 Political support planning and infra	Transport cost of waste out of region	Community participation	Data management	Emissions reduction and net zero by 2050	Litter and illegal dumping
3 Levy hypothecation	Grant funding	8 At-source contamination	5 Landfills and Efw		9 Impacts of extreme weather events
	10 Recycled content procurement				Increase use of recycled plastics
					Problem waste - design out and manage

Figure 4: PESTLE Analysis of Key Regional Challenges

The PESTLE analysis provides a macroscopical view of challenges faced in the region with the majority of the challenges interdependent with each other.

A prioritisation exercise was conducted by Regional Waste Group members to understand the greatest challenges for each Council that would be best solved at a regional level over the next 5 years. The top 10 key challenges are highlighted, in order of priority in [Figure 4](#).

The highest consensus where the Hunter JO could influence the greatest regional impact was around:

- Political support for planning and investment in infrastructure, and
- Achieving the State/National Targets of 80% resource recovery by 2030.

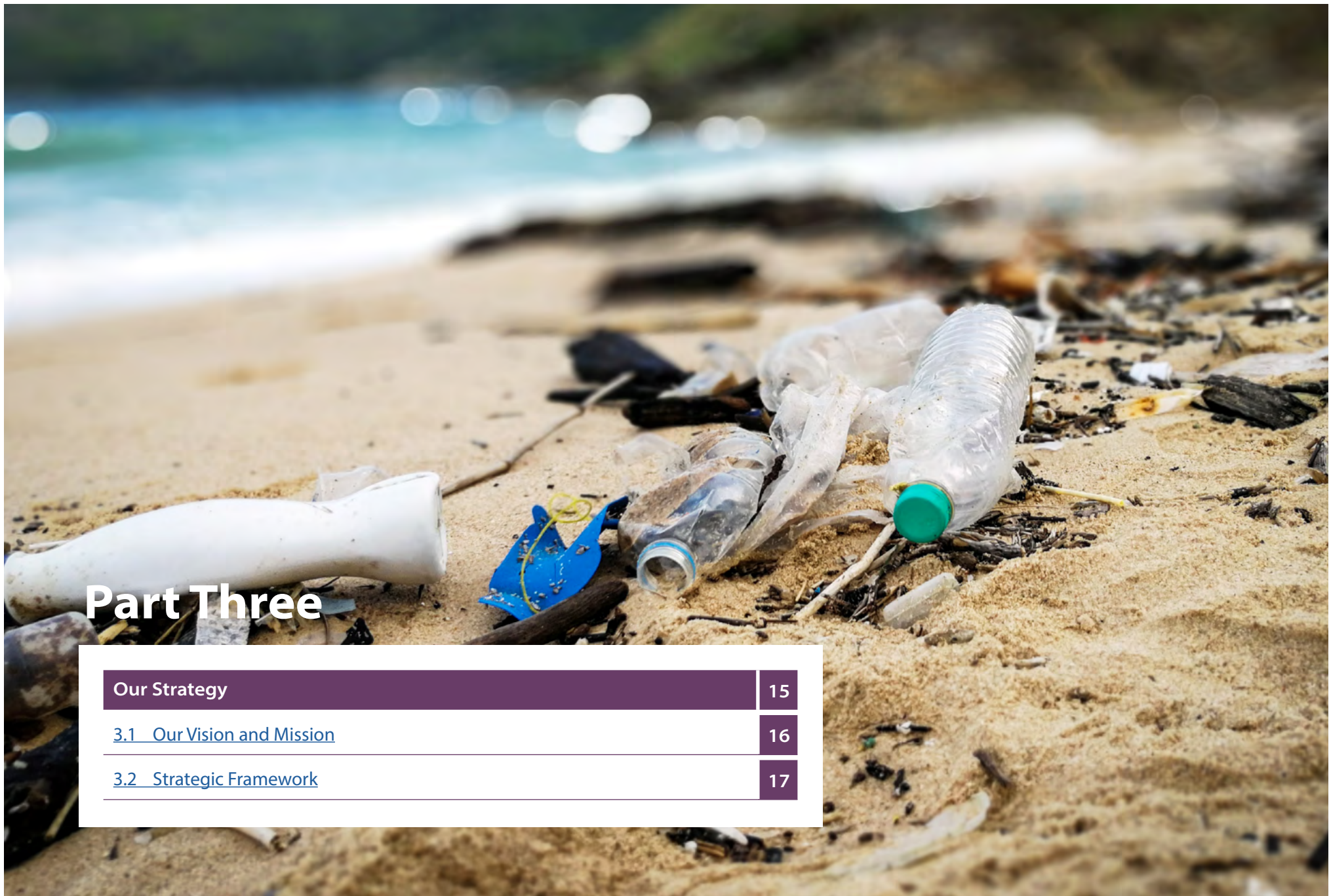
Specific challenges raised by Regional waste group members have previously included:

- A very distinctive **division in size and waste generated** by member Councils;
- Dwindling **human resources and experience/skills** within Local Government;
- Ever-increasing requirements for **regulatory compliance** - raises the expense to Councils of compliant service delivery;
- Individual Councils do not generally have an appetite to deliver their own **new regional infrastructure**, preferring to lead and facilitate private

investment;

- WaSM Strategy targets are greater than can likely be met by Councils individually, particularly the state's **80% recovery rate across all waste streams by 2030**;
- **Limited opportunity for significant gains in resource recovery**; 80% waste being managed by private contractors;
- A **stalling in improvement of the MSW resource recovery rate** by LG for at least the last five years;
- Member councils have previously indicated that **joint operational contracting and procurement** is not a high priority through Hunter JO;
- Recent **changes to the NSW EPA's EfW policy**, limiting thermal processes to specific geographical regions of the state; and
- **Changes to funding arrangements** for voluntary waste groups such as the Hunter Central Coast region, favouring greater project and diminishing program funding.

The prioritised PESTLE analysis and understanding Hunter JO member council challenges has formed a critical component in developing this Strategy and further strategic decision-making.



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Where are we going?

3.1 Our Vision and Mission

Our Vision

To transform the
Hunter Central Coast into
Australia's Leading Circular
Materials Region

Our Mission

We will achieve our vision through:

- Continual **collaboration** at regional, state and national levels to solve problems and knowledge share for greatest positive impact;
- Unlocking regional **circularity** solutions to transform upstream and downstream material flows to become more circular;
- Enhancing regional resilience through improved core **resource recovery** and waste infrastructure, operations, and services; and
- Ensure we always **protect the environment** and take a proactive, regenerative approach.

3.2 Our Strategic Framework

The strategic framework uses the mission statements to form four key Regional Themes, **Collaboration, Circularity, Resource Recovery and Protect the Environment**. This is further aligned with the NSW EPA Waste and Sustainable Materials Strategy 2021-41 (WaSM) themes and key priorities.

Regional Themes	 <p>COLLABORATION Collaborating to solve regional problems for greatest positive impact</p>	 <p>CIRCULARITY Enabling and influencing the circular economy</p>	 <p>RESOURCE RECOVERY Improved infrastructure and operations for circular outcomes</p>	 <p>PROTECT THE ENVIRONMENT Improved problem waste management and disaster resilience</p>
WaSM Themes	Strategic Collaboration	Avoid or Reduce	Recover Resources	Protect the Environment
WaSM Priorities	<ol style="list-style-type: none"> 1 Meeting our future infrastructure and service needs 2 Reducing carbon emissions through better waste and materials management 3 Building on our work to protect the environment and human health from waste pollution 	<ol style="list-style-type: none"> 1 Meeting our future infrastructure and service needs 3 Building on our work to protect the environment and human health from waste pollution 	<ol style="list-style-type: none"> 1 Meeting our future infrastructure and service needs 2 Reducing carbon emissions through better waste and materials management 	<ol style="list-style-type: none"> 1 Meeting our future infrastructure and service needs 3 Building on our work to protect the environment and human health from waste pollution

Figure 5: Strategic Framework

Each Regional Theme is affiliated with:

- **Outcomes** – What would success look like if the Regional Theme was achieved?
- **Success Measures** – How would we track success to know we're on the right path?
- **Strategic Directions** – How will we get to our goal of achieving the Regional Theme outcomes?
- **Key Regional Challenges** – How are Strategic Directions linked to the key regional challenges?



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Hunter Central Coast Circular Materials Strategy

To transform the Hunter Central Coast into Australia's Leading Circular Materials Region





REGIONAL THEMES	OUTCOMES What will success look like?	SUCCESS MEASURES How will it be measured?	STRATEGIC DIRECTION How will we get there?
 <p>COLLABORATION Collaborating to solve regional problems for greatest positive impact</p> <p>Strategic Collaboration • ① ② ③</p>	<ul style="list-style-type: none"> Regional knowledge sharing and collaboration Increased community knowledge Leveraged regional buying power Strong regional advocacy 	<ul style="list-style-type: none"> Community Surveys # Hunter JO meetings with external stakeholders 	<ul style="list-style-type: none"> Foster regional knowledge sharing and turn collaboration into action Support and deliver education and behaviour change programs that increase community knowledge and awareness of services Facilitate regional procurement of products and services Advocacy for regionally relevant issues and solutions
 <p>CIRCULARITY Enabling and influencing the circular economy</p> <p>Avoid or Reduce • ① ③</p>	<ul style="list-style-type: none"> Understanding of regional material flows Reduced waste per capita Increased recycled materials uptake Increased CE knowledge and adoption 	<ul style="list-style-type: none"> Waste tonnage/capita CE Knowledge and skills survey # organisations reporting CE progress Increased CE initiatives and reporting 	<ul style="list-style-type: none"> Manage regional data and insights to understand regional material flows Support the adoption of upstream Circular Economy solutions to reduce consumer waste generation - incl better design, reuse & repair and sharing Support the improvement of downstream markets and industry to increase uptake of recycled materials Investigate and support implementation of Circular Economy business models, technologies and precincts Improve Circular Economy knowledge and embed principles into practice
 <p>RESOURCE RECOVERY Improved infrastructure and operations for circular outcomes</p> <p>Recover Resources • ① ②</p>	<ul style="list-style-type: none"> Increased resource recovery incl organics Optimised waste and resource recovery services Reduced carbon emissions Localised material flows 	<ul style="list-style-type: none"> Overall Recovery Rate (%) CO₂e tonnes 	<ul style="list-style-type: none"> Investigate and implement solutions to increase resource recovery by improving infrastructure, operations and material quality Collaborate, conduct research and support programs to divert organic waste from landfill Undertake research and pilots of solutions that will reduce carbon emissions from current waste and resource recovery operations
 <p>PROTECT THE ENVIRONMENT Improved problem waste management and disaster resilience</p> <p>Protect the Environment • ① ③</p>	<ul style="list-style-type: none"> Improved recovery of problem waste streams Reduced illegal dumping and litter Regional service continuity 	<ul style="list-style-type: none"> CRC tonnes and recovery rates Illegal Dumping Incidents 	<ul style="list-style-type: none"> Identify and implement opportunities to improve problem and hazardous waste recovery Collaborate and support programs to reduce illegal dumping and litter Coordinate regional service continuity planning to improve emergency and disaster resilience

Figure 6: Strategy on a page

KEY: ① ② ③ = WaSM Priority Areas



Collaborate

Identifying and delivering on opportunities for strategic collaboration to solve regional problems for greatest positive impact. Through regional knowledge sharing, communication and engagement, advocacy, education and behaviour change, and procurement.

OUTCOMES - What will success look like?

“Collaborating to solve regional problems for greatest positive impact”

1. Regional knowledge sharing and collaboration with Hunter JO members
2. Highly connected and collaborative circular economy ecosystem function in the region.
3. Regional buying power leveraged with better cost and environmental outcomes
4. Strong regional advocacy to solve key regional challenges

SUCCESS MEASURES - How will it be measured?

An informed community

Community Surveys - number of participants, improved knowledge metric

Strong advocacy

Number of Hunter JO meetings/ workshops with industry, government, councillors, other regional groups

STRATEGIC DIRECTION - How will we achieve success?

a. Foster regional knowledge sharing and turn collaboration into action (Outcome 1)



b. Support and deliver education and behaviour change programs that increase community knowledge and awareness of services (Outcome 1,2)



c. Facilitate regional procurement of products and services (Outcome 3)



d. Advocacy for regionally relevant issues and solutions (Outcome 1,2,4)



Link to Regional Key Challenges



Strong: addresses 7-10 challenges



Moderate: addresses 4-6 challenges



Weak: address 3 or less challenges

FUNDING - WaSM Program Areas

- Regional Coordination and Strategy Program - \$15.6M
- Joint council procurement of waste services - \$16M
- Education program for plastic phase outs - \$1M



Circularity

Enabling and influencing the circular economy by understanding the full material supply chain creating cradle-to-cradle solutions. Focused on transforming upstream and downstream material flows to become more circular.

OUTCOMES - What will success look like?






“Enabling and influencing the circular economy”

1. Understanding of regional material flows
2. Reduced total waste generated per capita
3. Increased uptake of recycled materials
4. Increased Circular Economy knowledge and practice adoption




SUCCESS MEASURES - How will it be measured?

Reduced total waste generated per capita	Waste tonnage/capita - LGA WARR Report
Level of CE knowledge and skills within councils and organisations	CE knowledge and skills survey – Hunter JO Survey
Increased CE initiatives and reporting	Number of organisations reporting on CE progress – Hunter JO Survey

STRATEGIC DIRECTION - How will we achieve success?

a. Manage regional data and insights to understand regional material flows (Outcome 1,4)	 Moderate
b. Support the adoption of upstream Circular Economy solutions to reduce consumer waste generation - incl better design, reuse and repair and sharing (Outcome 2,3,4)	 Lower
c. Support the improvement of downstream markets and industry to increase uptake of recycled materials (Outcome 1,3,4)	 Moderate
d. Investigate and support implementation of Circular Economy business models and technologies (Outcome 1,4)	 Moderate
e. Improve Circular Economy knowledge and embed principles into practice (Outcome 4)	 Moderate

Link to Regional Key Challenges

-  Strong: addresses 7-10 challenges
-  Moderate: addresses 4-6 challenges
-  Weak: address 3 or less challenges

FUNDING - WaSM Program Areas

- Circular innovation fund - \$13M
- Strategic infrastructure investment fund - \$24M
- Avoiding plastic waste - \$13M
- Circular materials fund - \$10M
- Plastic research partnership - \$2M



Resource Recovery

Maintaining regional continuity and enhancement of core waste and resource recovery infrastructure, operations, and services.

OUTCOMES - What will success look like?




“Improved infrastructure and operations for circular outcomes”

1. Increased resource recovery particularly organic waste
2. Optimised waste and resource recovery services
3. Reduced carbon emissions from current operations
4. Localised material flows




SUCCESS MEASURES - How will it be measured?

Municipal Resource Recovery Rate	Overall Recovery Rate (%) - LGA WARR Report
Reduced carbon emissions	Carbon dioxide equivalent (CO2e) tonnes - baseline yet to be determined

STRATEGIC DIRECTION - How will we achieve success?

a. Investigate and implement solutions to increase resource recovery by improving infrastructure, operations and material quality (Outcome 1,2,4)	 Moderate
b. Collaborate, conduct research and support programs to divert organic waste from landfill (Outcome 1,3)	 Moderate
c. Undertake research and pilots of solutions that will reduce carbon emissions from current waste and resource recovery operations (Outcome 3)	 Lower

Link to Regional Key Challenges

-  Strong: addresses 7-10 challenges
-  Moderate: addresses 4-6 challenges
-  Weak: address 3 or less challenges

FUNDING - WaSM Program Areas

- Diverting organics from landfill - \$69M
- Local government waste and resource recovery - \$25.6M
- Carbon recycling and abatement fund - \$37M
- Landfill gas capture infrastructure - \$7.5M
- Landfill consolidation and environmental improvements - \$6M



Protect the Environment

Creating a regionally coordinated approach to protect our environment and human health through problem waste management. As well as improving regional disaster resilience and environmental regeneration.

OUTCOMES - What will success look like?




“Improved problem waste management & disaster resilience”

1. Improved recovery of problem and hazardous waste streams
2. Reduced illegal dumping and litter
3. Regional service continuity




SUCCESS MEASURES - How will it be measured?

Improved recovery of problem waste streams	CRC tonnes and recovery rates
Reduced illegal dumping and litter	Illegal Dumping Incidents

STRATEGIC DIRECTION - How will we achieve success?

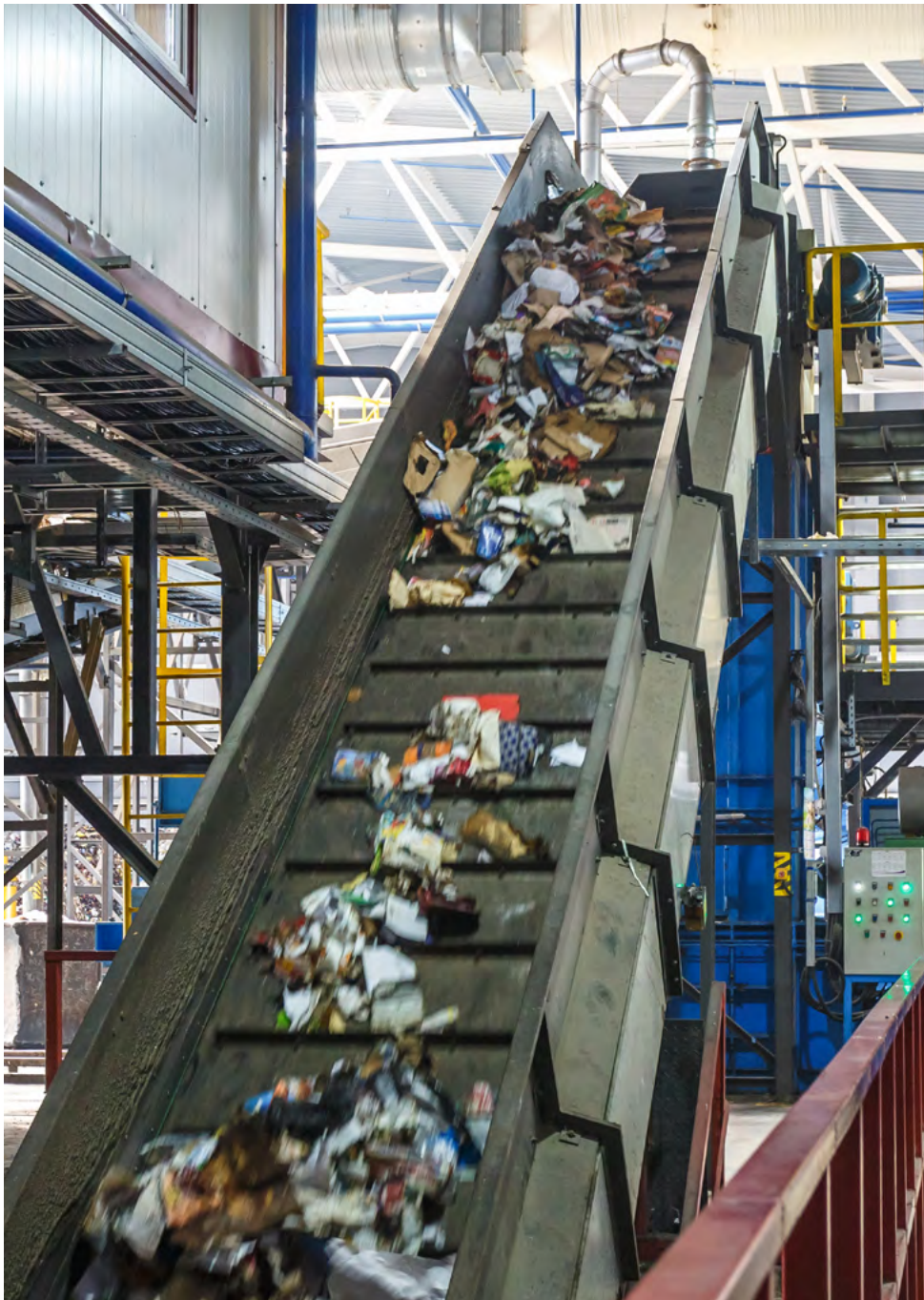
a. Identify and implement opportunities to improve problem and hazardous waste recovery (Outcome 1)	 Moderate
b. Collaborate and support programs to reduce illegal dumping and litter (Outcome 2)	 Lower
c. Coordinate regional service continuity planning to improve emergency and disaster resilience (Outcome 3)	 Lower

Link to Regional Key Challenges

-  Strong: addresses 7-10 challenges
-  Moderate: addresses 4-6 challenges
-  Lower: address 3 or less challenges

FUNDING - WaSM Program Areas

- Household problem waste - \$66M
- Prevent illegal dumping - \$16M
- Litter prevention - \$38M
- NSW Asbestos Coordination Committee - \$5M



4.7 Measuring Success

Each regional theme has key success measures that correlate to achieving the theme outcomes and overall Strategy vision. It is recognised that significant change takes time, and these measures are long term indicators of the Hunter JO's regional impact rather than the Hunter JO's performance delivering initiatives.





REGIONAL THEMES	SUCCESS MEASURES	DATA SOURCE/DEPENDENCIES
 COLLABORATION	Community Surveys - number of participants, improved knowledge metric	Councils
	Number of Hunter JO meetings/workshops with industry, government, councillors, other regional groups	Hunter JO
 CIRCULARITY	Waste tonnage/capita	LGA WARR Report
	Level of CE knowledge and skills within councils and organisations	Hunter JO Survey via CE Roadmap Program
	Increased CE initiatives and reporting	Hunter JO Survey via CE Roadmap Program
 RESOURCE RECOVERY	Overall Recovery Rate (%)	LGA WARR Report
	Carbon dioxide equivalent (CO ₂) tonnes	Methodology and baseline yet to be determined ¹
 PROTECT THE ENVIRONMENT	CRC tonnes and recovery rates	Councils
	Illegal Dumping Incidents	RID Squad/Councils

Figure 7: Success Measures

¹While no standard methodology exists to measure carbon impact of waste and resource recovery across each council yet. It was determined that this will be an important measure long term and efforts to report this measure should commence. The measure sits in the Strategy as a key indicator to ensure accountability to Hunter JO and members to commit to a methodology, begin baselining and reporting.

4.8 Strategy Delivery

This Strategy will be delivered through:

- **The Implementation Plan**

The Implementation Plan provides an indicative overview of Hunter JO's delivery of the Strategic Direction objectives of the Strategy over the next 5 years.

- **An Annual Action Plan**

The initiatives in the Annual Action Plan will:

- Link to a Regional Theme and Strategic Direction
- Outline the expected actions including estimated delivery timeframe
- Establish Hunter JOs role in the initiative
- Highlight initiative partners

The Annual Action Plan will be the active program for Hunter JO and be updated as per the initiative decision tree in [Appendix 5](#). A formal review of the program will be conducted annually to allow for adjustment to initiatives or timelines for delivery.

- **Actively pursuing funding**

The Hunter JO will stay abreast of WaSM Program Delivery grant programs.

The Hunter JO will pursue funding for initiatives that sit under a Strategic Direction that have moderate to strong links addressing regional challenges. Funding will not be "actively" sought for initiatives that have weaker links to addressing regional challenges. However, should non-competitive funding become available the Hunter JO would still fulfill a lower priority initiative.



Figure 8: Prioritisation Key



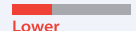
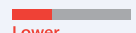










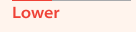




Where grant funding only applies to individual councils (i.e. regional groups cannot apply), Hunter JO is to communicate these opportunities to member councils. Contribution of this grant funding to Hunter JO for implementation and delivery of regional initiatives is up to the discretion of the member councils.

- **Continual communication and collaboration**

Hunter JO will engage member councils periodically to:

- Review and consider new initiatives or grant applications
- Provide updates on the Annual Action Plan to share wins or key learnings
- Report on regional impact through the Strategy key success measures.

5 Year Implementation Plan

REGIONAL THEMES	STRATEGIC DIRECTION - How will we get there - we will...	1	2	3	4	5	REGIONAL CHALLENGES LINK
 COLLABORATION	Foster regional knowledge sharing and turn collaboration into action						 Strong
	Support and deliver education and behaviour change programs that increase community knowledge and awareness of services						 Lower
	Facilitate regional procurement of products and services						 Lower
	Advocacy for regionally relevant issues and solutions						 Strong
 CIRCULARITY	Manage regional data and insights to understand regional material flows						 Moderate
	Support the adoption of upstream Circular Economy solutions to reduce consumer waste generation - incl better design, reuse & repair and sharing						 Lower
	Support the improvement of downstream markets and industry to increase uptake of recycled materials						 Moderate
	Investigate and support implementation of Circular Economy business models, technologies and precincts						 Moderate
	Improve Circular Economy knowledge and embed principles into practice						 Moderate
 RESOURCE RECOVERY	Investigate and implement solutions to increase resource recovery by improving infrastructure, operations and material quality						 Moderate
	Collaborate, conduct research and support programs to divert organic waste from landfill						 Moderate
	Undertake research and pilots of solutions that will reduce carbon emissions from current waste and resource recovery operations						 Lower
 PROTECT THE ENVIRONMENT	Identify and implement opportunities to improve problem and hazardous waste recovery						 Moderate
	Collaborate and support programs to reduce illegal dumping and litter						 Lower
	Coordinate regional service continuity planning to improve emergency and disaster resilience						 Lower



Part Five

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Appendices

5.1 Appendix 1 - Regional Forecast & Performance

Over the next 20 years (2021-2041), Figure 9, the Hunter Central Coast Region population will grow by 21.9% leading to a 22.1% increase in waste generation. The five lower Hunter Councils (Cessnock, Lake Macquarie, Maitland, Newcastle and Port Stephens) and the Central Coast are predominantly driving this growth and have the greatest influence on the population and economic growth across the region.

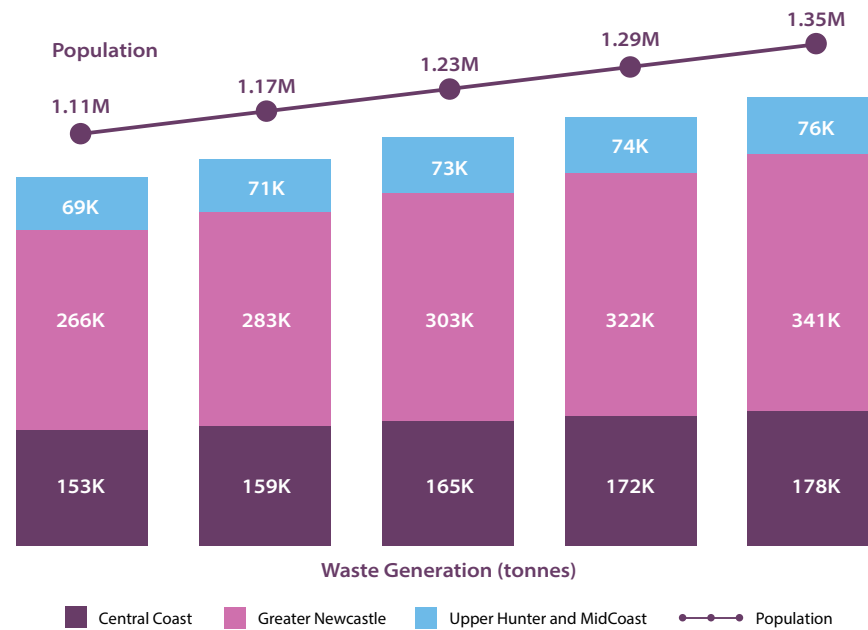


Figure 9: Waste Generation and Population Forecast

The HCC councils have achieved recycling rates, Figure 10, ranging between 21% and 54% in 2020. Port Stephens decrease between 2017 and 2018 was attributed to the ban of the application of mixed waste organic outputs (MWO) to land.

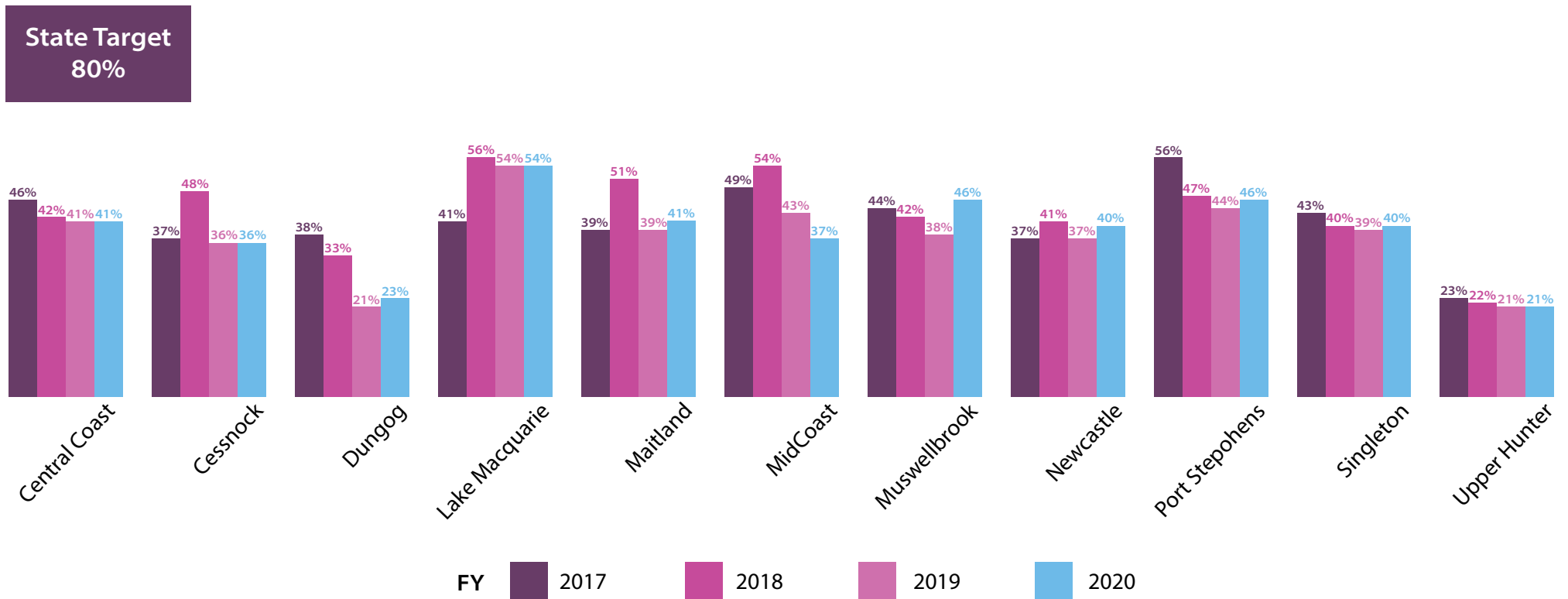


Figure 10: Annual Recovery Rate by Council

This data has been sourced from the EPA WARRP reports and variation in annual data may occur due to data availability and interpretation of the survey questions.

The HCC Councils have performed slightly below average, Figure 11, when compared to performance in other NSW geographic areas and the overall NSW average. However, overall, the state municipal recovery rate has not significantly improved over the last 4 years.

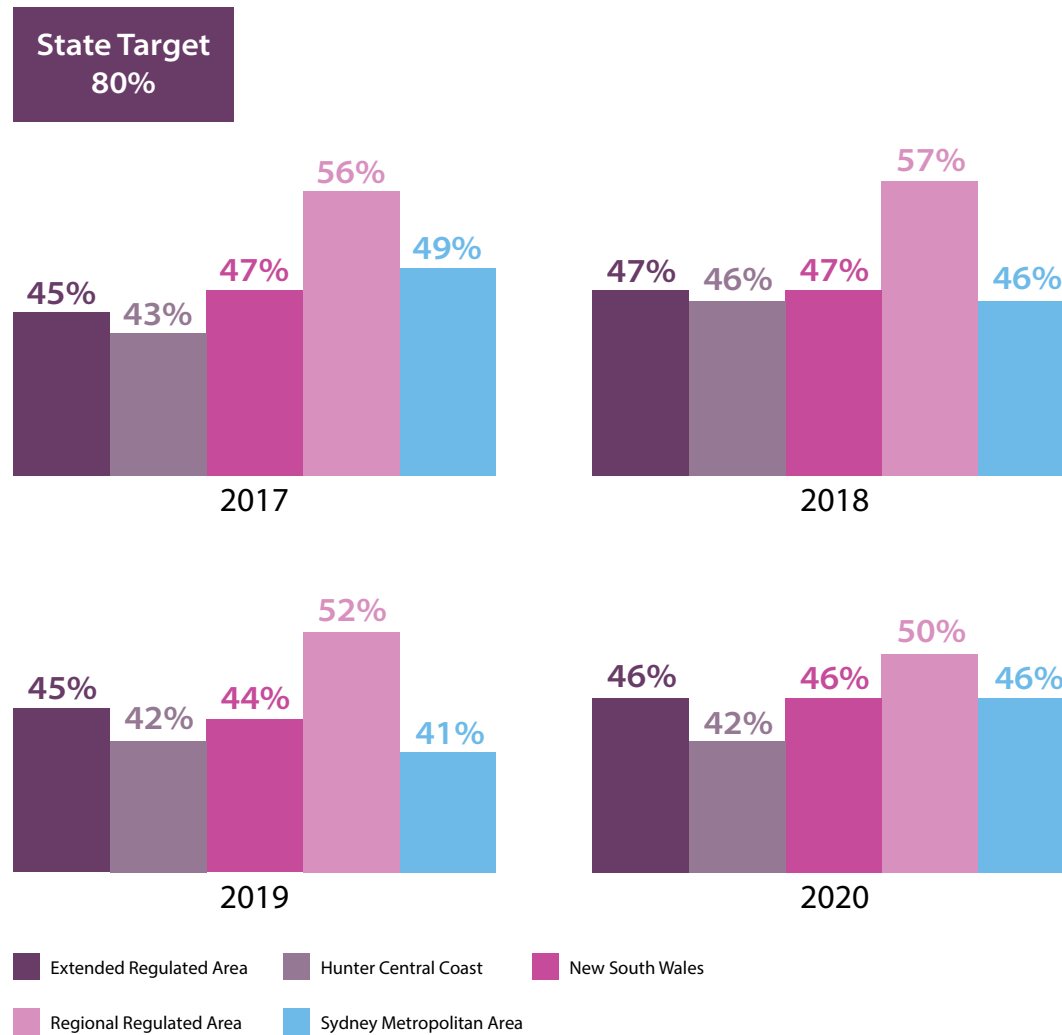


Figure 11: Annual Resource Recovery Rate by Regional Area

The Hunter JO, in 2019, commissioned a Material Flow Analysis (MFA) study of the HCC region (excluding Mid-Coast) across all key waste sectors; Municipal Solid Waste (MSW), Commercial & Industrial (C&I), and Construction & Demolition (C&D).

Key results from the MFA, as per Figure 12, indicates that while the C&D sector generates the most waste, greater than the other sectors combined, it was also the sector that achieved the greatest resource recovery. The MSW and C&I sector require the greatest work to move towards the 80% resource recovery policy targets. However, the Hunter JO influence is greatest in the MSW sector, through the directly managed contracts and infrastructure by member councils, whereas the C&I sector is mostly privately run.

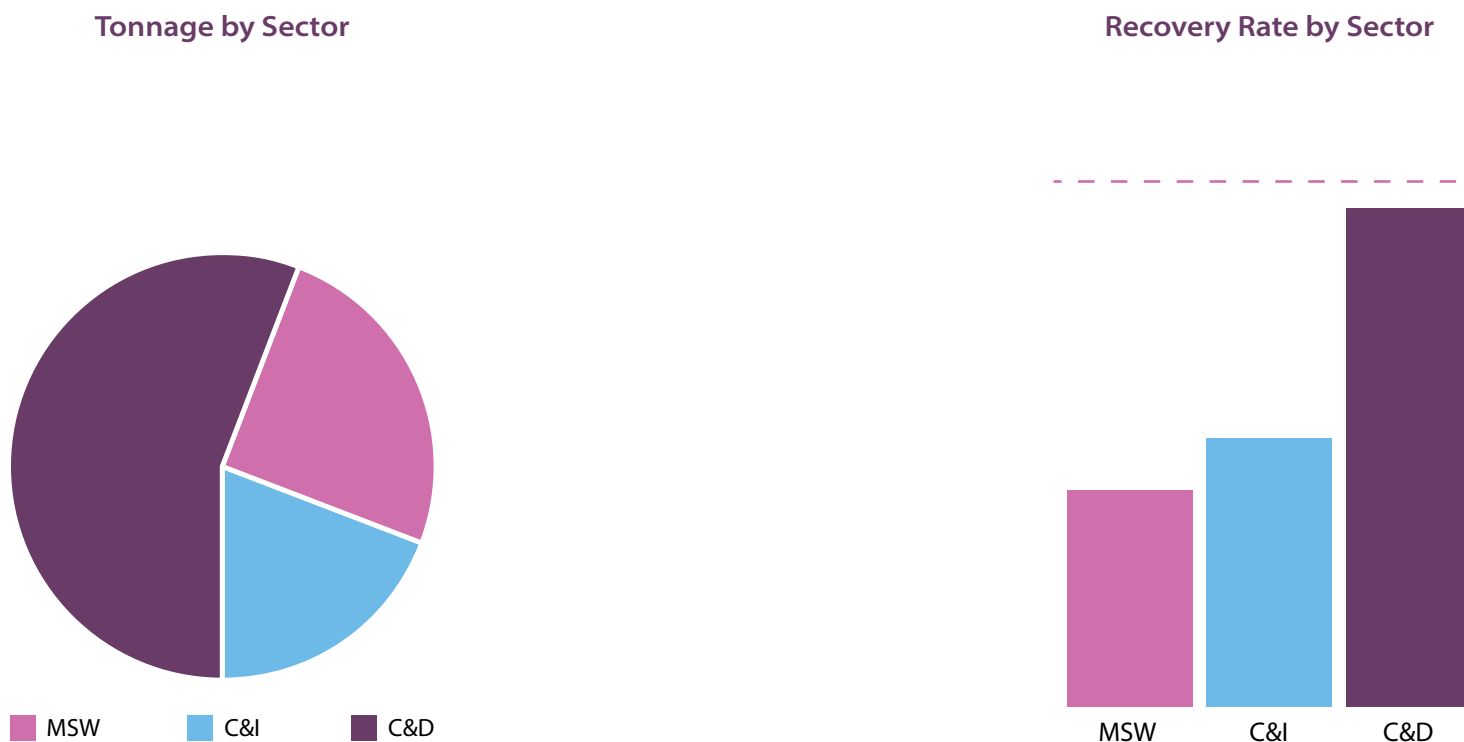


Figure 12: Generation and Recovery Rate by Sector

5.2 Appendix 2 - Previous Achievements & Learnings

The Hunter JO has reflected on the performance and achievements of initiatives conducted through the 2017-2021 Regional Waste Strategy, and a summary is presented in Table 3.

Table 3: Achievement and Learnings

TOPIC	2017 - 2021 PERFORMANCE & ACHIEVEMENTS	KEY LEARNINGS
Resource Recovery	<p>Hunter JO: No significant change, 1% decrease from 43% (2017/18) to 42% (2020/21)</p> <p>NSW: No significant change, 1% decrease from 47% (2017/18) to 46% (2020/21)</p> <p>Previous Target: 70%. New State Target: 80%</p> <p>Behaviour change projects such as:</p> <ul style="list-style-type: none"> • the Small Acts Big Change program • Green Caffein <p>Circular Economy Projects (as per topic below)</p>	<p>The regions performance is comparable to the rest of the State. The target set by State Government was an ambitious target that required significant service, technology and behaviour change to achieve.</p> <p>The previous Strategy had a strong focus on actions centred around behaviour change, including the Small Acts Big Change program, and whilst they play an important role on improving recovery and waste reduction it is challenging to measure and limiting in its ability to produce measurable results.</p> <p>Greater focus on service changes or enhancement and infrastructure improvements is needed to drive noticeable improvement in resource recovery. Pricing mechanisms and incentives should also be explored (e.g. smaller red-lidded bins, at a reduced costs, for those households that generate less waste).</p>
Waste Reduction and Avoidance	<p>Hunter JO: Increased by 3%, from baseline of 547.25kg/capital/year (2011/12) to 565.13 kg/capita/yr (2020/21)</p> <p>2020/21 KPI Comparison</p> <p>NSW: 478.6 kg/capital/year SMA: 394.7 kg/capita/year ERA: 558.9 kg/capita/year RRA: 594.7kg/capita/year</p> <p>Previous Target: 4% reduction by 2021/22 from the 2011/12 baseline New State Target: 10% reduction by 2030</p>	<p>Attendance at avoidance, reuse and repair workshops or waste avoidance behaviour is often by those members of the community that are already engaged. The region may consider utilising the results of the Taverner Research to develop targeted messaging to capture those members of the community that may not be engaged in the topics of avoidance, reuse and repair, similar to how the results were used to inform the Small Acts Big Change education program. In parallel with tracking tonnage data, routine assessment of community behaviours through research, like that undertaken by Taverner, is key to ensure messaging is relevant to current behaviours.</p>

TOPIC	2017 - 2021 PERFORMANCE & ACHIEVEMENTS	KEY LEARNINGS
Community Recycling Centres	10 community recycling centres (CRCs) active in region with Central Coast CRC opened in 2021.	Hunter JO will continue to actively advocate for the provision of facilities for the collection of problem wastes across the region
Illegal dumping	HCC Regional Illegal Dumping (RID) Squad and Hunter JO collaborated on a Communications and Education Plan to ramp up online and offline communications about the RID Squad and priority illegal dumping issues.	Improved data sharing between RID Squad and Hunter JO to assess effectiveness of programs.
Litter	A Regional Litter Plan and Implementation Plan was developed. 4 litter projects were implemented.	Improved capture of litter data to baseline and assess future performance. Research for new innovative solutions was deemed too expensive and requires additional State support.
Infrastructure & Planning	Infrastructure report for Hunter Region completed and participated in NSW infrastructure analysis project in 2020/21. Multiple training sessions offered in previous years. Certificate III & IV training for waste staff. Aggregated landfill gas collection project under the national Energy Reduction Fund (ERF) underway as part of CE Precincts project.	The alignment of planning policies and guidelines between jurisdictions is challenging, but beneficial and will continue to be a focus of the Hunter JO moving forward.
Circular Economy	Completed significant regional engagement work including: <ul style="list-style-type: none"> • Quarterly meetings of Circular Economy Sub-Committee of (Hunter JO Board) • Setup and co-chair of HCC Circular Economy Facilitators Group with quarterly meetings • Developed and implemented 4 Circular Economy events in the region Completed several projects, including: <ul style="list-style-type: none"> • Circular Economy Eco-system report • HCC material flow analysis and other data projects • Circular Economy Procurement Project 	Strong sentiment across the Hunter JO members to continue and expand on the works already undertaken. Supportive executive is critical to success Ability to test and trial circular economy projects/ allowing innovation is important to success Finding, developing and engaging circular economy champions across multiple sectors is important to foster collaboration and innovation Understanding the role of local government in circular economy and focussing in on what your can deliver and what you can advocate for.

5.3 Appendix 3 - Service & Infrastructure Overview

The table below summarises the regional infrastructure needs, which were mostly identified in the NSW Waste and Sustainable Materials Strategy - A guide to infrastructure needs document and industry insights.

Table 4: Hunter Infrastructure Needs

MATERIAL STREAM	HUNTER REGION INFRASTRUCTURE NEED	REASON
Mixed Recycling	Local capacity to process 70,000 tpa to 100,000tpa of kerbside recyclables	China National Sword Policy and COAG Export Ban. Closure of Gateshead MRF. Currently, there are no MRFs in the lower Hunter region. All lower Hunter councils transport their materials to the Central Coast or to Sydney.
Organics	<ul style="list-style-type: none"> 1 x small In Vessel Composter (IVC) (20,000 tpa) or 1 x medium outdoor aerated compost (FOGO, minor FO) (10,000 tpa to 50,000 tpa) 2 x medium IVC (20,000 tpa to 70,000 tpa per site) or 2 x large outdoor aerated compost (FOGO, minor FO) (>50,000 tpa per site) 2 x medium AD (FO) (30,000 tpa per site) 	<p>National and State governments target of 80% resource recovery and 50% food waste diverted from landfill.</p> <p>The NSW EPA, in October 2018, revoked the exemption for mixed waste organic outputs (MWOO) application for land. An estimated additional 176,000 tpa of processing capacity for organic material will need to be reconfigured from Alternative Waste Technology to FOGO facilities.</p> <p>Councils are to provide kerbside FOGO services to all households by 2030</p> <p>Selected commercial food businesses are to implement food organics recovery by 2025</p> <p>The NSW Government estimates that 1.1 million tpa in FOGO/FO processing capacity will be required (capacity deficit) to service metropolitan areas including Greater Newcastle.</p>
Landfill	Additional landfill capacity to accept >300ktpa or a medium-scale energy recovery facility by 2040.	Regional population and economic growth.

Planned municipal infrastructure and service enhancements are highlighted in Table 5.

Table 5: Municipal Infrastructure and Service Enhancement Pipeline

COUNCIL	MUNICIPAL - PLANNED INFRASTRUCTURE/SERVICE ENHANCEMENTS
Central Coast	EfW residual waste investigation, improve waste data capture, soft plastics collection, new FOGO facility
Cessnock	New Transfer Station 2024, re-instating a Buy-Back Shop
Dungog	Strategy development, soft plastics collection, assessment of introducing GO/FOGO service
Lake Macquarie	CE programs and leadership, Hydrogen Hub, business waste focus
Maitland	Major upgrades to Resource Recovery Centre including construction of Circular Economy/Reuse Centres
Mid-Coast	FOGO 'in-tunnel' composting at council facility – Tuncurry site
Muswellbrook	New Transfer Station, reviewing C&I and C&D processing
Newcastle	50-80,000 tpa MRF; 50,000 tpa FOGO processing facility, new Southern Access Rd from M1
Port Stephens	Reviewing refining former Bedminster tunnels for FOGO
Singleton	Soft plastics, Site Master Plan, reviewing C&D recycling, double-Pass bulky waste collection
Upper Hunter	Closing 4 landfills within 2 years

SOURCE: Interviews with member Council waste managers 2021.

There are a number of very substantial existing, planned and conceptual independent commercial waste management and resource recovery initiatives, detailed in Table 6, providing significant opportunity for improved resource recovery rates over the next five years.

Table 6: Private Sector Infrastructure Pipeline

AREA	PRIVATE ENTITY/CONTRACTOR - PLANNED INFRASTRUCTURE/SERVICE ENHANCEMENTS
Hunter Central Coast	<ul style="list-style-type: none"> • A long-term expression of interest (EOI) was issued, in 2022, for “Hunter Regional Recycling Solutions” to provide kerbside co-mingled recycling collection and processing services for the Hunter Central Coast. The project is being managed by Hunter Resource Recovery (HRR) an incorporated, not-for-profit joint venture company limited by guarantee between Cessnock City, Maitland City, Lake Macquarie City and Singleton Councils. • A residual waste (timber) collection business, using collected materials within manufacture of particle board and energy recovery.
Port Stephens	<ul style="list-style-type: none"> • Energy from Waste (EfW) facility at Tomago providing energy into industrial processes. • Resource recovery facility at Tomago for receipt and processing of up to 98,201 tpa of solid and liquid waste through a variety of recycling services, including: <ul style="list-style-type: none"> - A cardboard baling facility for source separated cardboard collected from businesses (up to 30,000 tpa); - A drill mud recycling from civil, construction and mining industries (up to 5,000 tpa); - A packaged food recycling plant (up to 2,000 tpa); - A garden organics primary processing plant for decontamination and shredding (up to 5,000 tpa); - A hazardous waste recycling facility for sorting and aggregating a range of spent solid materials and liquids containing oils and chemicals (up to 20,201 tpa);
Singleton	<ul style="list-style-type: none"> • Resource recovery and recycling facility processing up to 95,000 tpa of dry municipal, commercial and construction waste, including: <ul style="list-style-type: none"> - A Community Recycling Centre for household problem wastes - A tipping, sorting and processing areas for a range of household, business and building waste; - A product manufacturing area for landscaping and civil supplies.
Central Coast	<ul style="list-style-type: none"> • iQ Renew is active in a number of areas including: <ul style="list-style-type: none"> - Virtual Quarry, the largest of its kind in Australia, when fully commissioned will be crushing 110,000 tonnes of recovered glass per annum, making it capable of processing 50% of the recovered glass in NSW - SPEC facility is dedicated to creating streams of locally sourced, quality feedstock available for use in Australian based technologies such as mechanical and emerging advanced recycling to make new products. - Cat-HTR™ technology uses chemical recycling to convert non-recyclable or End-of-Life Plastics (otherwise sent to landfill) into chemicals to make new plastics and more sustainable fuels.

5.4 Appendix 4 - PESTLE Analysis

P Political

REGIONAL CHALLENGE	DESCRIPTION AND REFERENCE
Meeting State & National Target of 80% resource recovery by 2030	<p>The Australian Government, through National Waste Policy and Action Plan, and the State Government, through the NSW WaSM Strategy, has set an ambitious target of 80% average resource recovery rate from all waste streams (MSW, C&I, C&D) by 2030.</p> <p>Since the current (2020/21) average regional MSW recovery rate is 42%, and C&I is in a similar position, there is a significant gap for the state, regional and local councils to resolve within only 8 years.</p>
Lack of political support for planning and investment of infrastructure - local/state/national	<p>The NSW WaSM Strategy – Guide to Future Infrastructure Needs highlights an additional infrastructure need in the Hunter for:</p> <ul style="list-style-type: none"> • Organics: Three small to medium-sized (10,000 to 70,000 tpa) in-vessel or outdoor-aerated composters to cater for food organics and garden organics by 2030. Two medium-sized (30,000 tpa) anaerobic digesters to cater for food organics) by 2030. • Residual Waste: Additional landfill capacity to accept >300,000 tpa or a medium-scale waste to energy facility by 2040. <p>The lower Hunter region faced the closure of its only Materials Recycling Facility (MRF) in Gateshead in 2020, which was processing yellow bin recyclable materials. Material is now sent to the Central Coast or to Sydney.</p> <p>Greater political support at the local, state and national level is required for waste and recycling infrastructure by providing funding for the significant capital investment of new infrastructure, improved planning to fast-track critical infrastructure, protect existing infrastructure from urban encroachment, and modernise existing infrastructure to enhance capabilities.</p>
Taxation policy – section 88 waste levy hypothecated back into waste and resource recovery infrastructure and services	<p>The NSW Waste Levy is NSW's major economic instrument to encourage resource recovery and reduce waste to landfill. The funds generated from the levy are currently used for both general purpose programs as well as a range of waste and environmental programs. Greater direct hypothecation of the Waste Levy would allow government and industry to achieve the state and national targets.</p> <p>For example, City of Newcastle (CN), since 2015, has invested \$54 million into developing and expanding its waste and recycling facilities. CN has also paid \$270 million in section 88 waste levies to the NSW Government, while receiving only 2% (\$6.5 million) back in grants to help fund that infrastructure and deliver waste education programs to encourage behaviour change.</p>

E Economic

REGIONAL CHALLENGE	DESCRIPTION AND REFERENCE
Security of end-markets caused by market shocks (e.g. China Sword)	<p>Recyclable and waste materials are part of a global and local commodity market. Any disruption in these markets impact how these services are delivered. There is limited end-markets for any low-quality recyclables in the Hunter region and nationally. Greater work is required to create and align recycled materials as feedstock to local manufacturers to create more stable and circular supply chains.</p> <p>In 2018, the China National Sword policy came into effect and had global market repercussions for recyclable material, as China stopped accepting low quality materials from overseas. Australia since enacted a National Waste Export Ban restricting the export of waste glass, plastic, tyres and paper to support Australia to take responsibility for localised reprocessing and remanufacture.</p>
Cost to transport waste out of region due to lack of local infrastructure	<p>A significant part of the cost of providing waste services is in transport and not just the processing/disposal of the material. Additional cost is incurred should access to waste and resource recovery services be further afield. Should the transport costs become prohibitive, access to services will be restricted.</p> <p>Transportation challenges can include poor road networks, congestion, time restrictions, long travel times and lack of convenient aggregation points.</p> <p>Eliminating the need for long-haul transport of waste and recyclables will not only reduce transportation costs but also related greenhouse gas emissions.</p>
Securing grant funding for infrastructure and services (incl education and CE projects)	<p>State and National policies have developed several funding streams to execute their strategies. The most relevant include:</p> <ul style="list-style-type: none"> • Waste Less, Recycle More: The WaSM Strategy will also focus on new initiatives including carbon recycling and abatement, joint council procurement of waste services, diverting organics from landfill, strategic infrastructure investment and avoiding plastic waste. • Remanufacture NSW: Jointly funded by the Australian Government’s Recycling Modernisation Fund and NSW Waste Less, Recycle More initiative. A funding pool of \$35 million to support co-investment of infrastructure projects that will address export ban materials & provide opportunities for new innovative technologies using circular economy principles
Significantly increasing recycled content procurement	<p>The National Waste Policy and Action Plan, National Plastic Plan, NSW WaSM Strategy and NSW Circular Economy Policy commit to significantly increasing the use of recycled content by industry and government to stimulate local demand for recycled materials.</p> <p>This can be enacted by local councils through:</p> <ul style="list-style-type: none"> • Adoption of policy to improve recycled content procurement, • Development of procurement targets for recycled content, including how they will be calculated, achieved, and audited, • Reporting on progress in achieving procurement targets with recycled content, particularly those which have significantly increased use of recycled materials within infrastructure projects, and • Facilitate joint council procurement of waste services.

S Social

REGIONAL CHALLENGE	DESCRIPTION AND REFERENCE
<p>Population growth impacting waste generation and meeting waste reduction targets of 10% by 2030</p>	<p>The Hunter Central Coast Regions, in 2021-2041, population will grow by 21.9% leading to a 22.1% increase in waste generation. The per capita waste generation has increased by 3%, since 2011/12, despite improvements in the HCC Council's overall resource recovery rate. Further efforts focused on avoidance and not just recovery is required to shift waste avoidance and reduction behaviours. The National Waste Policy and Action Plan commits to reduce total waste generated in Australia by 10% per person.</p> <p>Household attitudes and behaviours were examined through an Australian Food Waste National Benchmarking Study. The study highlights that food waste is the largest opportunity area for waste avoidance and reduction and education should be a key focus area.</p> <p>Without managing our resources more efficiently, recycling infrastructure will struggle with increased waste and the negative impacts on the environment will continue to grow.</p>
<p>Improving community participation - awareness raising and improving access to services</p>	<p>In the Hunter Central Coast region,</p> <ul style="list-style-type: none"> • 90% of households have a red and yellow bin kerbside service, and • 79% of households have a green bin kerbside service. <p>There is a range of additional services offered by councils, including:</p> <ul style="list-style-type: none"> • bulky/hard waste (drop-off and self-haul), • community recycling centres and stations to dispose of household problem wastes • campaign recovery programs such as the annual Household Chemical Clean-Up and drumMUSTER programs. <p>There has been a rise of private recycling and reuse service offerings, including TerraCycle & Green Caffein, that complement council resource recovery efforts.</p> <p>Improving awareness and access to these services is an important step in community participation for resource recovery.</p>
<p>Managing and reducing at-source contamination - including residents, businesses, MUDS and culturally diverse users</p>	<p>The state-wide averages for contamination in 2020/21 in the kerbside recycling, GO and FOGO bins, are 11.5%, 0.7% and 1.9% respectively. High contamination also has a direct impact to facility gate rates as additional processing and disposal needs to be factored into the processing of the material.</p> <p>BehaviourWorks Australia conducted one of the largest trials to reduce contamination of household kerbside recycling. Key findings include:</p> <ul style="list-style-type: none"> • There are many barriers to good recycling, including physical barriers (i.e. complex packaging proliferation), social barriers (i.e. inaccurate advice given from trusted messengers, or judgement from others) and individual barriers (i.e. skepticism, lack of consequences, competing priorities). • Targeting contamination (rubbish in the recycling bin) and leakage (recycling in the rubbish bin) at the same time creates confusion. Focusing on what should not be in the recycling bin is more effective at getting it out, reducing contamination. • Traditional education approaches (e.g. signage and flyers) are not sufficient on their own to change behaviour. Adding behaviourally informed messaging to information can help a little but it can also backfire, so should be tested first. Personalised feedback on recycling behaviour is effective in reducing contamination.

T Technology

REGIONAL CHALLENGE	DESCRIPTION AND REFERENCE
<p>Understanding emerging technology/business models to improve Circular Economy outcomes i.e. marketplace, reverse logistics, boutique technologies</p>	<p>KPMG estimates that a circular economy could give Australia a \$23 billion GDP boost. Accenture’s Circular Advantage report, highlights several business models that would contribute towards a circular economy shift.</p> <ul style="list-style-type: none"> • Circular Supplies: Provide renewable energy or fully recyclable input material to replace single-lifecycle inputs • Resource Recovery: Recover useful resources/energy out of disposed products or by-products • Product Life Extension: Extend lifecycle of products and components by repairing, upgrading and reselling • Sharing Platforms: Enable increased utilization rate of products by making possible shared use/access/ownership • Product as a Service: Offer product access and retain ownership to internalise benefits of circular resource productivity <p>Hunter JO will require to keep abreast of CE innovation to reap the benefits and apply it most effectively to the region.</p>
<p>Improving data management and access for better consumer, investment and policy decisions (National Waste Policy)</p>	<p>The National Waste Policy and Action Plan states a commitment to make comprehensive, economy-wide and timely data publicly available to support better consumer, investment and policy decisions.</p> <p>The Australian Government has invested \$20.6 million to create a public-facing data repository - National Waste and Resource Recovery Data Hub. This will allow improved understanding of waste and recycle volumes, value and movement through the economy which will support effective decision making.</p> <p>At a localised level, the Hunter JO conducted a Material Flow Analysis, in 2019, to understand material flows of the HCC.</p>
<p>Understanding long-term landfill requirements and role for alternatives such as Energy from Waste</p>	<p>According to the NSW WaSM Strategy – Infrastructure Needs Guide, Greater Sydney’s inert landfill capacity will be exceeded in 2028 and putrescible by 2036. The Hunter will need to plan for additional landfill capacity to accept >300,000 tpa of residual waste by 2040.</p> <p>Landfills are a depleting and essential infrastructure for the foreseeable future. The development of new landfills is challenging due to:</p> <ul style="list-style-type: none"> • High cost of land, especially in metropolitan areas; • Difficulty in securing suitable properties close to transport infrastructure; • Reluctance of some councils or communities to have waste related infrastructure located in their vicinity; • Lack of timely data on waste flows and holistic information on the location and volume of waste generated; <p>Improved diversion rates will help extend the life of existing infrastructure, however, understanding the regions long-term landfill requirements and the role of alternatives, such as Energy from Waste, is critical for planning and needs to be understood early.</p>

L Legal

REGIONAL CHALLENGE	DESCRIPTION AND REFERENCE
<p>Meeting ever-increasing requirements or impacts of regulatory compliance. i.e. COAG ban of waste exports, MWOO, EFW in nominated precincts, Product Stewardship Act</p>	<p>There is a range of ever-increasing requirements that have direct impacts to the Hunter JO waste and resource recovery services, operations, and infrastructure. It is important that the Hunter JO keeps abreast of regulator compliance and the potential impact it has on the region. This has included:</p> <p>Waste Export Ban - In March 2020, the Australian, state and territory governments, and the Australian Local Government Association, as members of the former Council of Australian Governments (COAG) agreed that the export of waste glass, plastic (including processed engineered fuel), tyres and paper be regulated by the Australian government.</p> <p>Product Stewardship - The makers and importers of items on the product stewardship priority list must take responsibility for the impacts of their products on the environment across their entire life cycle. It goes above and beyond recycling and considers how the development, design, manufacture, import, sale, use and recovery of materials and products can be adjusted to improve environmental outcomes. The Minister may consider regulatory measures if industry does not act.</p> <p>MWOO - In October 2018, revoked the exemption for mixed waste organic outputs (MWOO) application for land. An estimated additional 176,000 tpa of processing capacity for organic material will need to be reconfigured from Alternative Waste Technology to FOGO facilities.</p> <p>Energy from Waste – The POEO Regulation 2022 Amendment (thermal energy from waste) prohibits the thermal treatment of waste for energy recovery unless it is undertaken in a nominated precinct. As of November 2022, only two precincts are available; Parkes Activation Precinct and Southern Goulburn-Mulwaree Precinct.</p>
<p>Meeting emissions reduction by 43% and net zero by 2050 (Climate Change Bill)</p>	<p>Climate Change Bill 2022 - Australia's greenhouse gas emissions reduction target commitments of a 43% reduction from 2005 levels by 2030 and net zero by 2050 is now legislated. Greater understanding is required on how this commitment will be met by the region or how it even be measured.</p>

E Environment

REGIONAL CHALLENGE	DESCRIPTION AND REFERENCE
Implementing council food waste collection service by 2030	<p>The National Food Waste Strategy and the NSW WaSM Strategy set out targets of halving food waste to landfill and achieving net zero emissions from organics in landfill by 2030. The NSW WaSM also commits to:</p> <ul style="list-style-type: none"> • food and garden organics from all NSW households by 2030 • food waste from targeted businesses and other entities that generate the highest volumes of food waste, including large supermarkets and hospitality businesses, by 2025. <p>Councils and businesses will need to ensure they have access to infrastructure to process food waste, implement a collection service and support the new recovery stream with appropriate education</p>
Reducing litter & illegal dumping (WaSM reduce litter by 60% by 2030 and plastics litter by 30% by 2025)	<p>Poor litter management costs the NSW economy more than \$162 million per year. The Australian Government's National Plastic Plan focuses on plastics in our oceans and waterways, including; marine plastic pollution and litter entering via stormwater with specific focuses on microplastics, cigarette butts & shipping waste.</p> <p>The NSW WaSM Strategy sets litter targets of overall litter reduction of 60% by 2030 and a plastic litter reduction target of 30% by 2025. The WaSM commits an additional \$16 million in funding to combat illegal dumping including maintaining programs such as the RID squads and the RIDonline reporting system.</p>
Managing increasing incidence of extreme weather events that impact service continuity	<p>The State of the Climate 2020 indicates Australia is projected to experience; longer fire seasons and more dangerous fire weather, heavy rainfall events to become more intense, and fewer tropical cyclones but at higher-intensity.</p> <p>Hunter JO member Councils identified the need for regional business continuity to drive a regional, strategic approach to providing waste services in the face of disruptions, stresses and catastrophic impacts of climate change (and extreme weather events), global pandemics and the varying fortunes of global markets for waste derived materials.</p> <p>In particular, member Councils identified the need for a combined regional approach for short-term sites to receive waste from natural disasters such as fires and floods, and longer-term regional landfilling options for these wastes and others derived from the impact of materials such as increased medical waste and unsorted, mixed waste.</p>
Significantly increasing the use of recycled plastics (National/State Target)	<p>The Australian Government, through National Waste Policy and Action Plan and the National Plastic Plan, commits to significantly increasing the use of recycled plastics by industry and government. This is further supported via the export ban of waste plastic and phasing out of problematic and unnecessary plastics by 2025.</p> <p>The NSW WaSM Strategy sets a goal, in line with the NSW Plastics Action Plan, triple the plastics recycling rate by 2030. Finding ways to use recycled plastics productively will increase market demand and ensure it does not end up in landfill.</p>
Designing out and managing problem waste materials. Eg. Hazardous, e-waste, textiles, hard-to-recover materials	<p>The NSW WaSM Strategy has made a commitment to invest \$127 million in household problem waste programs. This includes the establishment of Community Recycling Centres that capture commonly used but difficult/costly to recover/treat items such as batteries, paints, gas-bottles, etc.</p> <p>Poor management of problem waste material has adverse impacts to the environment and human health. However, poor disposal also contaminates kerbside recycling or can cause operational issues such as fires at processing facilities. This can be resolved by eliminating and/or improving management of problem waste materials.</p>

5.5 Appendix 5 - Initiative Decision Tree & Prioritisation Tool

Initiative Decision Tree

Provides a framework to understand whether an initiative would be considered part of the:

- Annual Action Plan (Active Program)
- The Bench (Initiative Backlog)

Or needs to be considered under the Initiative Prioritisation Tool.

Initiative Prioritisation Tool

The tool allows a formal process to prioritise initiatives to match them to available resourcing. The tool takes into consideration:

- **Effort**
 - Is there a resource that can deliver the initiative
 - Is there funding to deliver the initiative?
- **Impact**
 - Considers how strongly linked the initiative is at addressing regional challenges
 - Considers the number of councils impacted

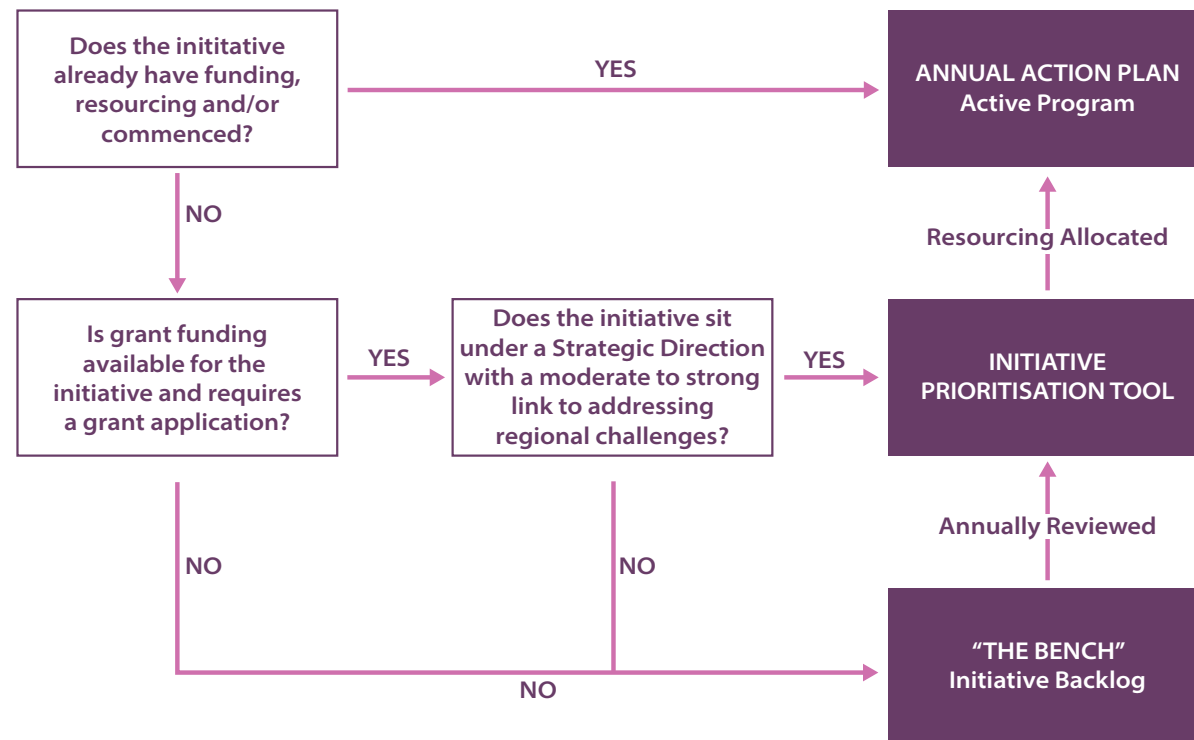


Figure 13: Initiative Design Tree



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