



Gladstone Regional Council

Waste Management and Resource Recovery Strategy

November 2019

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Introduction and background

Gladstone Regional Council (Council) is dedicated to maximising and improving recycling and resource recovery rates in the region. With Council's strong commitment to minimising the amount of waste disposed to landfill, along with the recent commencement of the State's waste levy, this Waste Management and Resource Recovery Strategy presents significant benefits to the region. Council aim to develop a realistic pathway to a zero waste to landfill future, based on the principles of the waste hierarchy.

In developing this Strategy, Council engaged GHD to undertake analysis of existing waste services, infrastructure and available data. Following this GHD identified a number of key issues and opportunities, which were discussed with Council stakeholders. After consultation, key priorities and recommended activities over the next 10 years were identified to support Council's Corporate Plan objectives. Two separate reports have been provided to Council detailing this work. This document, presented as the Gladstone Regional Council Waste Management and Resource Recovery Strategy, provides a summary of the key drivers, Council's current position as it relates to waste generation and management, challenges and opportunities for improvement, and a detailed list of proposed activities by priority, to support the identified improvement opportunities. Council intends that the priorities identified in this strategy will be implemented over a 10 year period. The priorities will be reviewed from time to time and updated and adapted as required in response.

Strategic drivers

Council's Waste Management and Resource Recovery Strategy was developed in line with national, state and local legislation, strategy and policy frameworks for sustainable waste management and resource recovery practices.

In Queensland, the *Waste Management and Resource Recovery Strategy 2019* is the guiding document for the management of Queensland's waste. The Queensland strategy has set targets for 2025, 2030, 2040 and 2050 to provide an ongoing measurement of progress. The targets set for 2050 include:

- 25% reduction in household waste
- 90% resource recovery rates across all waste types (i.e. only 10% of all waste goes to landfill)
- 75% recycling rates across all waste types

The Queensland Strategy has been supported by the introduction of a levy applied to most waste disposed to landfill in Queensland, based on upon the principles of the waste hierarchy illustrated below in Figure 1. These principles have been used to guide the development of the key priorities of Council's Strategy.

The *Gladstone Regional Council Corporate Plan 2019 – 2023* has a vision to “Connect, Innovate, Diversify” with a key strategic goal being for the health of our community and the environment. Key elements of the Corporate Plan, include a desire to target zero waste to landfill, increasing the recycling rate by 20% (compared to 2017/2018 baseline figures) and reducing carbon dioxide emissions and these are the driving forces behind this Strategy.

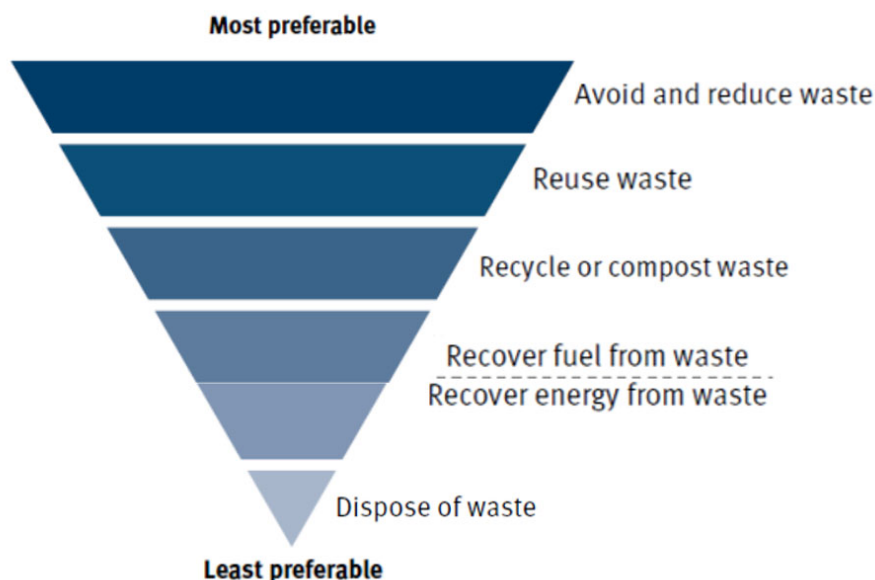


Figure 1 Waste and resource management hierarchy¹

¹ Queensland Government (2019), *Waste Management and Resource Recovery Strategy 2019*.

Current position

Population

The Gladstone region is located approximately 100 km south-east of Rockhampton and covers approximately 10,500 square kilometres. The Gladstone region is the second largest local government in the Fitzroy statistical region with an estimated population of 63,000 people (as of June 2016) and growth scenario projections estimating a population between 67,000 and 83,000 people by 2041², as outlined below in Figure 2.

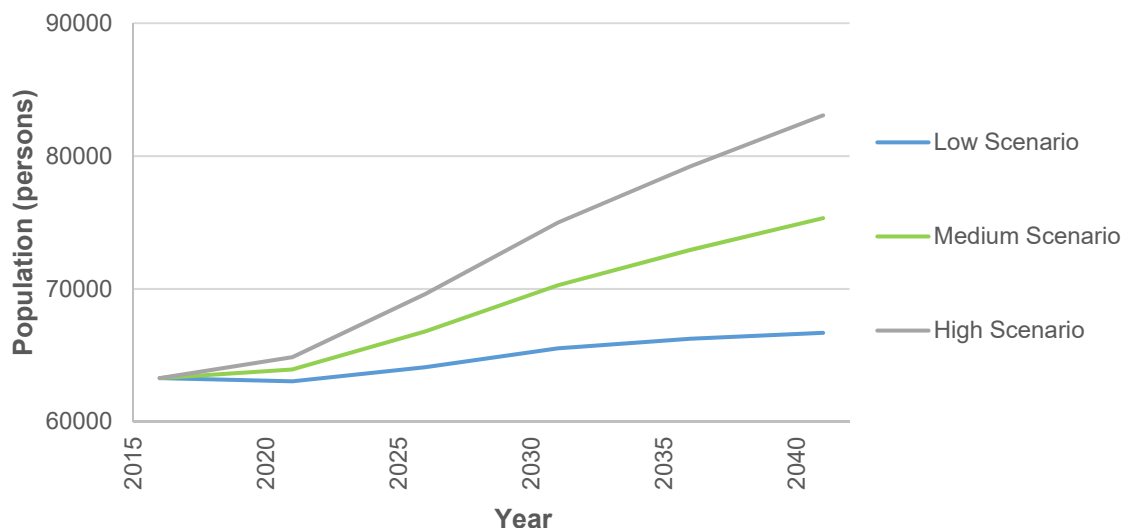


Figure 2 Gladstone population projections

Waste generation

With Gladstone being an industrial hub, waste generation in the region year to year tends to vary depending on economic activity and local projects. The waste generated can be categorised under three major headline streams:

- Commercial and Industrial (C&I)
- Construction and Demolition (C&D)
- Municipal Solid Waste (MSW)

In the 2017/2018 financial year, a total of 56,900 tonnes of waste was received at Council waste facilities. Of this, approximately 67% was MSW, 23% C&I and 10% C&D, illustrated below in Figure 3. This equated to a total of 38,000 tonnes of MSW or approximately 570 kg of MSW generated by each resident annually.

² Queensland Government Statistician's Office (2015), *Local government areas snapshot*.

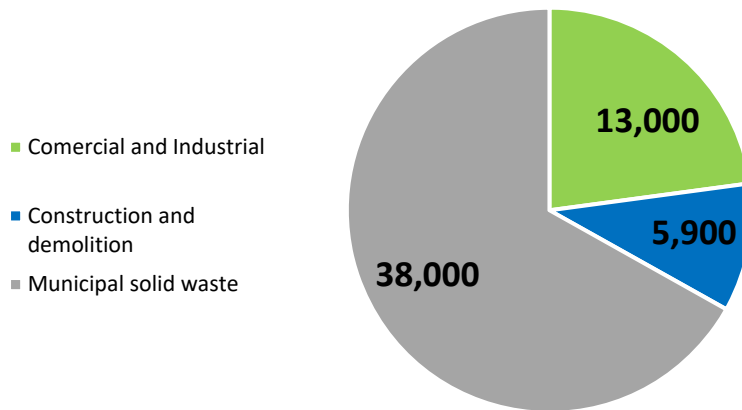


Figure 3 2017/2018 waste generation

Waste infrastructure and services

Council's current waste facilities include the Benaraby Regional Landfill and 13 transfer stations located throughout the region. Waste collection services for households in the region comprises a two bin kerbside service. The yellow lidded bin for commingled recyclables is collected on a fortnightly basis and the red lidded bin for residual waste for landfill disposal is serviced weekly. All general household waste collected via this service is disposed of at the Benaraby Regional Landfill and recyclables are transported to the Rockhampton Regional Council Materials Recovery Facility. An overview of the waste flows in the Gladstone region can be seen in Figure 4 on the following page.

Source streams

Waste infrastructure

Disposal/Recovery

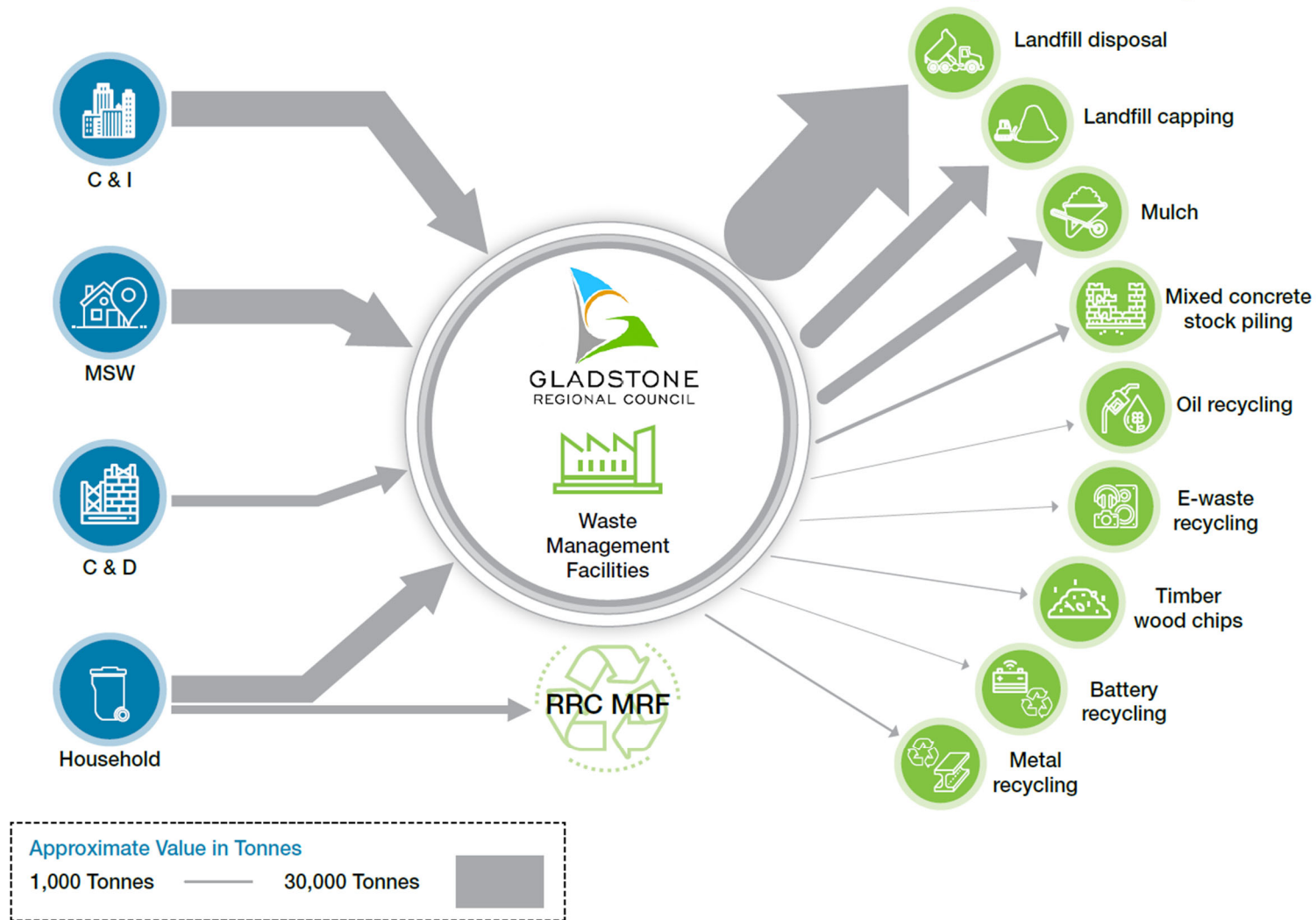


Figure 4 Gladstone region waste flow

Resource recovery

Resource recovery from a number of different waste streams is already being undertaken in the region, diverting materials such as clean fill, green waste, paper and cardboard, timber, metals and glass, as detailed in Figure 5 below. The amount of material recovered through these activities has followed an increasing trend over the last three years and is likely to continue as further resource recovery initiatives and technologies are introduced.

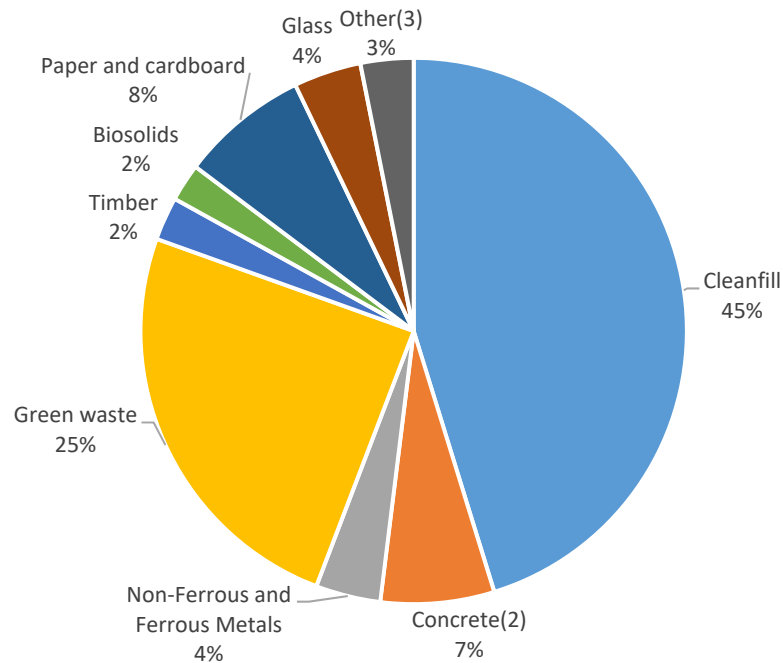


Figure 5 Materials recovered in Gladstone

³ Asphalt, brick and tile recovery have not been itemised under a waste type and have been included in the value for concrete.

⁴ 'Other' includes the following waste streams: steel cans, aluminium cans, mineral oil, salvaged items, contaminated soil, lead batteries, E-waste, chemicals, tyres and plastics. It should be noted that Council does not accept waste chemicals, the chemicals recovered were concealed in other waste and have been recovered prior to being sent to landfill.

Key challenges and opportunities

The key challenges and opportunities within the Gladstone region for waste and resource recovery management and increasing landfill diversion are highlighted below.

Challenges	Opportunities
Waste Services	
<p>The current two bin kerbside collection service offered by Council does not allow for recovery of garden organics and/or food organics (FOGO) at the kerbside.</p>	<p>It is estimated that 20-30% of waste in kerbside red lid bins is green waste, and a further 20-30% is food waste. To increase resource recovery, recycling and supporting the State targets introduction of additional kerbside services (a third organics bin) can be used to promote the separation of organics.</p> <p>There could be potential to work with local industry and business to improve recycling rates.</p>
Benaraby Regional Landfill	
<p>Landfill gas extraction from the landfill for electricity generation will likely decrease if organic material is diverted from landfill.</p>	<p>Available footprint at the site for future waste management and resource recovery infrastructure and general site operations.</p>
Energy from Waste	
<p>The applicability of Energy from Waste infrastructure in the Gladstone Region will continue to be reviewed over time, however the volumes of waste handled by Council currently and in the near future are not of sufficient scale to warrant investment by Council at this point in time.</p> <p>Technologies typically have high capital investment requirements, lengthy planning approvals and the potential for unstable markets for feedstock, products and by-products.</p>	<p>Technologies provide opportunities for increased landfill diversion for waste that could not otherwise be recycled or recovered.</p>
Organics processing infrastructure	
<p>The implementation of separated organics at the kerbside would require detailed planning and implementation, including development of business case, and an engagement and education program for users of the service.</p>	<p>Infrastructure provides opportunities to target the recovery of food organics and garden organics (FOGO).</p> <p>Facilities may be suitable for the region with the potential to co-locate at the Benaraby Regional Landfill or at the waste water treatment plant.</p> <p>There are infrastructure options that have the potential to produce energy and recycle organics.</p>

Challenges	Opportunities
Other resource recovery initiatives	
<p>Contamination rates in the region’s kerbside bins decrease resource recovery rates.</p> <p>Recyclables handled by Council are currently processed outside of the region at the Rockhampton Regional Council Material Recovery Facility.</p>	<p>The incorporation of recycled material in local council projects, through procurement processes.</p> <p>Council can utilise existing facilities at the Benaraby Regional Landfill for the storage and reprocessing of recycled material.</p>
Supporting infrastructure	
<p>Council currently operates 13 transfer stations, 11 of which are staffed, which can come with significant ongoing costs.</p>	<p>A review of the operation and efficiency of the Council transfer station network could identify opportunities to drive activity in recycling over waste disposal and other operational improvements.</p>
Waste data management	
<p>Inconsistencies in the current waste data set may hinder the ability to benchmark Gladstone’s performance across the region and develop achievable resource recovery and waste management targets.</p>	<p>The introduction of standard data collection systems would allow for clear and consistent data to be reported and monitored to highlight trends and track targets.</p>
Education and engagement	
<p>Council does not have an education officer to lead waste management education and engagement programs.</p>	<p>The development of an engagement and education program could assist with improving resource recovery and decreasing contamination rates in household kerbside recycling bins, as well as litter and illegal dumping.</p>

Waste strategy priorities

The priorities of Gladstone Regional Council's Waste Management and Resource Recovery Strategy are based on the waste and resource management hierarchy. Council will invest in reducing the generation of waste in the Gladstone region, and improving resource recovery to extract value from materials in the waste stream, before considering landfill disposal.

The hierarchy is the framework used to guide the order of preference for managing waste. Council is committed to managing waste at the highest practical level of the hierarchy in order to achieve the best outcome for both the environment and future generations.

The priorities in this strategy and their objectives, align with the different aspects of the waste hierarchy, as highlighted below.

Waste strategy priorities	Waste and Resource Management Hierarchy				
	Avoidance and waste reduction	Reuse	Recycle or compost	Recover fuel or energy	Dispose
Priority 1 – Waste education	✓	✓	✓	✓	✓
Priority 2 – Reuse of recovered material in local projects	✓	✓			
Priority 3 – Landfill diversion through recycling	✓	✓	✓		
Priority 4 – Optimise existing infrastructure			✓		✓
Priority 5 – Organics processing	✓		✓	✓	
Priority 6 – Regional collaboration	✓		✓	✓	
Priority 7 – Data collection and management	✓	✓	✓		✓

Priority 1 – Waste education

Council's focus is on waste education, a crucial driver to the success of any proposed service or infrastructure change. Education and engagement with the community plays a critical role in meeting waste management targets and reducing contamination rates. It is a key element in the successful implementation of this strategy, supporting the actions and objectives of other priorities.

Through education and engagement, Council aim to reduce household waste generation and litter and illegal dumping in the region, an issue that is costing Council approximately \$200,000 a year to address.

Objectives

- Reduce household waste generation and litter and illegal dumping in the region.
- Build community support for any changes to waste management services and infrastructure.

Actions for delivery

Action
Appointment of a waste and recycling education officer
Development of a Gladstone region waste and recycling education plan, in consultation with other Central Queensland councils where appropriate
Update and action existing Gladstone Regional Council <i>Litter and Illegal Dumping Prevention Strategy 2014</i>
Development of a community engagement and education program for proposed waste service and infrastructure changes

Priority 2 – Reuse of recovered material in local projects

The reuse of recovered material in local projects can prevent this waste from being disposed, as well as meeting the reuse waste hierarchy principle. Waste production in local projects can also be further reduced, and some instances avoided, by specifying the use of materials that contain recycled content and/or are recyclable and recoverable during construction.

Implementing recovered material into procurement specifications helps to work towards decreasing waste disposal, whilst also utilising recovered material in the Gladstone region.

Objectives

- Update Council procurement processes to drive resource recovery and reuse of recovered material in the Gladstone region.
- Ensure Council takes a leadership role in supporting the development of markets for recycled and recovered materials.

Actions for delivery

Action
Review contract conditions and procurement policies to identify barriers and opportunities to incorporating requirements for recycled content in Council procurement of goods and products
Review Council engineering specifications to identify barriers and opportunities to drive the take up of recycled content in Council works programs (major and minor works)
Consider the development of a Recovered Resources database or repository to foster trade of recovered materials such as clean fill, concrete, aggregate and other demolition products
Implement contract and policy changes to increase recycled content in Council procurement of goods and products
Update Council engineering specifications to drive the take up of recycled content in Council works programs (major and minor works)
Review and update Gladstone Regional Council procurement processes, where practicable, to incorporate the use of materials that are able to be reused or recycled at the end of their initial product lifecycle
Maintain active presence in Gladstone region industrial and business communities to stay abreast of emerging resource recovery and reuse opportunities and barriers
Collaborate with local industry to develop a plan to support the development of local and regional markets for recovered materials
Maintain active relationships with State Government and Local Government Association of Queensland to stay abreast of policy changes and funding opportunities to support market development

Priority 3 – Landfill diversion through recycling

A number of opportunities exist in the Gladstone region where landfill diversion could be increased through improved reuse and recycling initiatives. Council want to focus on increasing landfill diversion by maximising the amount of waste that is recycled and recovered. Increasing recycling rates involves significant community and business engagement and education, as well as service improvements to the local community, businesses and industry.

Contamination in recoverable and recyclable waste streams can affect the ability to recover material and ultimately results in disposal to landfill. In the Gladstone region, the main sources of contamination occur in kerbside and public recycling bins.

Objective

- Increase recycling and recovery rates from all waste streams to support activity towards Gladstone Regional Council's Corporate Plan goal of a 20% increase in recycling compared with 2017/2018 baseline.

Actions for delivery

Action
Consider broadening commercial recycling options provided by Council, including collection services together with attracting additional customers to waste facilities for recycling
Reduce contamination rates in yellow bin lid through development and implementation of education program
Explore introduction of a three bin kerbside collection system to recover food waste and/or green waste. Including consideration delivery model, service provision and regional collaboration
Develop an implementation plan for source separated organics i.e food waste, garden organics, or both (FOGO)
Implementation of the proposed "Precinct Upgrade" particularly recycling facilities at Benaraby Regional Landfill
Consider market led opportunities for provision of dry residual waste as feedstock for refuse derived fuel projects, by identifying suitably experienced private sector participants seeking to develop infrastructure or feedstock in the region

Priority 4 – Optimise existing infrastructure

Ongoing review of the existing waste collection services and Council operated waste infrastructure within the Gladstone region is required to ensure they continue to meet Council's own corporate and operational objectives.

Objective

- Optimise Gladstone Regional Council waste services and infrastructure to support efficient waste management.

Actions for delivery

Action
Operational efficiency review of current transfer station network including locations, operating hours, materials handled and staffing arrangements
Review of current waste collection services contracts (and commercial arrangements)
Ongoing monitoring to review the success of "Precinct Upgrade" at Benaraby Regional Landfill after implementation, in terms of improved recycling and resource recovery performance

Priority 5 – Organics processing infrastructure

Council will consider options for a future resource recovery or waste management facility in the region. There are numerous factors affecting the successful implementation of an organics processing technology for Council to consider.

The introduction of organics processing infrastructure supports the Council's Corporate Plan goals to target zero waste to landfills and also supports action towards higher waste hierarchy principles.

Objective

- Develop a plan to drive the reduction in organics disposed to landfill, aligned to Council and State government targets.

Actions for delivery

Action
Review waste generation and composition data
Determine Council's role in infrastructure delivery and operation
Conduct a detailed economic feasibility study for the proposed infrastructure, including market review for end products
Develop a business case and approach to market
Identify potential for collaboration with suitably experienced private sector participants to support development of organics processing infrastructure in the region
Implementation of stakeholder engagement and an education plan for proposed infrastructure
Organics infrastructure development (if deemed viable)

Priority 6 – Regional collaboration

Gladstone Regional Council are one of six local councils in the Fitzroy statistical region and are host to many industrial operations. The purpose of this priority is to explore the potential for collaboration with surrounding Councils in the Fitzroy region and local industry for future waste management opportunities.

Objective

- Further explore waste management opportunities at a regional level.

Actions for delivery

Action
Review appropriateness of kerbside recycling materials collected with respect to markets/reprocessing options for recovered commodities during contract review and retendering
Continue participating in co-mingled recycling processing services with Rockhampton Regional Council Material Recovery Facility
Assess collaborative opportunities with surrounding Local Government Authorities, including regional funding

Priority 7 – Data collection and management

Reliable and transparent data is crucial for tracking Gladstone's progress towards proposed targets, regional collaboration and waste infrastructure planning. Consistent and accurate data allows for meaningful reviews of waste reduction targets, performance evaluations and meaningful comparisons with the state and other local councils. By improving the region's waste data collection and management, Council can consistently monitor and review their progress towards a zero waste to landfill future.

The Queensland Government are currently working on improving waste data collection across the state, and a selection of the actions identified in this priority may or may not be in direct control of the Council.

Objective

- Improve and standardise waste data collection.

Actions for delivery

Action
Development of standard data collection systems and reporting template
Improve data collection of GRC waste generation and reuse (i.e. green waste and construction and demolition waste) to better inform decision making on changes in service and infrastructure planning
Include the provision of data in electronic format in contracts with waste service providers
Map regional waste data as a means to inform better waste management and infrastructure planning

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Document Status

Revision	Author	Reviewer		Approved for Issue		
		Name	Signature	Name	Signature	Date
Rev 0	G Costin N Ambrey	A Colella		A Colella		28/10/2019
Rev 1	N Ambrey	A Colella		A Colella		8/11/2019

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