

# Waste Management Strategy

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A submission to Kingborough Council

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## Strategy at a glance

### Where do we want to get to?

Kingborough Council (Council) wishes to achieve a planned and collaborative approach to waste management, which is cost effective, supportive of the local community and economy and improves recycling rates.

Kingborough Council's waste management and resource recovery priorities are to:

1. Deliver cost effective and efficient waste and recycling services to all residents of Kingborough;
2. Assist the community to avoid waste and to improve recycling rates to exceed Tasmania's state wide average;
3. Reduce emissions and energy usage and develop a truly sustainable community; and
4. Reduce the environmental impacts of littering and illegal dumping.

Council is committed to working with its community to transition to a low carbon lifestyle. One facet of this journey will be tackled by a planned and collaborative approach to waste management, which is cost effective, supportive of the local community and economy and achieves recycling rates which exceed Tasmania's state wide performance.

Council recognises and supports a need for greater regional cooperation and is committed to actively engaging in regional discussions and working closely with other neighbouring councils to jointly undertake activities which support Council's waste management and resource recovery priorities.

### Where are we today?

Kingborough is home to an estimated population of 36,000 residents. Council currently offer a kerbside garbage and comingled recycling collection service to residential properties. Garbage is collected weekly and transported directly to Copping landfill. Comingled recycling is collected fortnightly and recycled at a Materials Recovery Facility (MRF).

A critical component of Council's waste management system are its transfer stations, managed and operated by Kingborough Waste Services (KWS). KWS, a company wholly owned by Council, was established in 2011 and is responsible for the management of the Barretta and Bruny Island Transfer Stations (TSs).

To achieve this waste management strategy (the Strategy), Council wishes to identify a plan of action which will accomplish the key waste management goals identified, which are:

1. Increased recycling rates;
2. Best practice waste and resource recovery;
3. Efficient and sustainable governance of waste services; and
4. Effective community engagement.

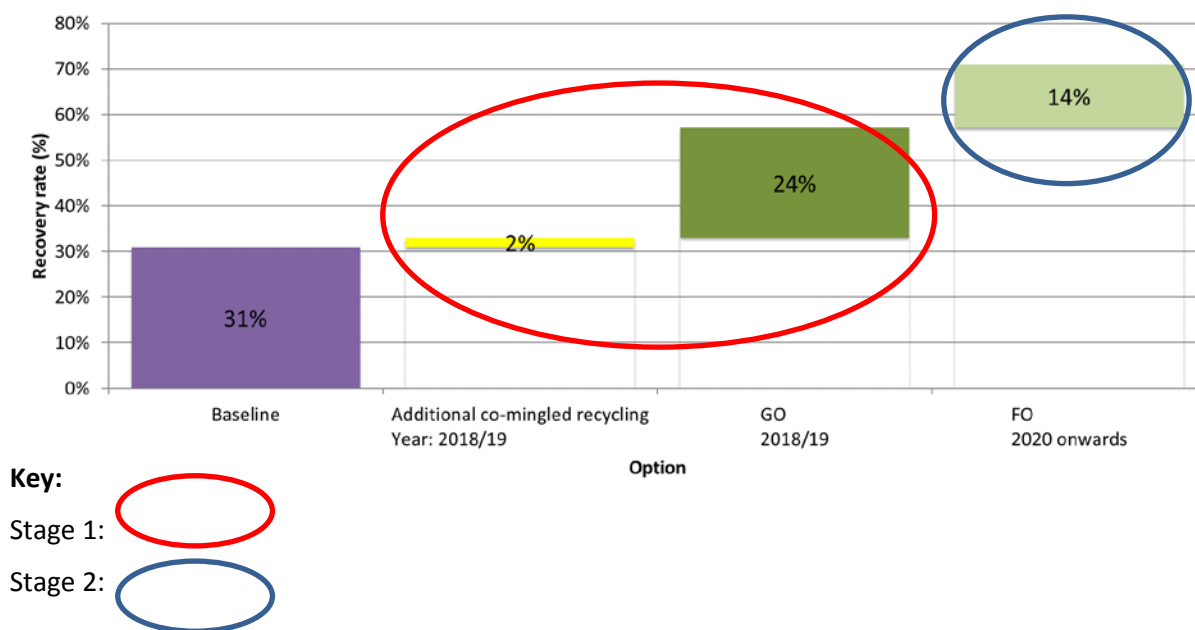
### How are we going to get there?

To increase recycling rates, a roadmap was developed to transition Council to a new household waste collection service that:

- Diverts as much material as possible from landfill;
- Reduces greenhouse gas emissions; and
- Provides the community with the greatest cost/benefit.

Complementing the two-stage introduction of new kerbside service (Figure 1) and to further increase recycling rates throughout the municipality there is an opportunity to extend kerbside services to more townships, where viable, and to provide access to waste and recycling drop off services to other smaller communities.

Figure 1 Kerbside service implementation plan<sup>1</sup>



It was identified that to further improve operation of Council's waste management services, Council should review its infrastructure against best practice. Council would then be able to assess the cost and benefits of facility upgrades and introducing systems to recycle more.

To provide greater transparency to the community and help to inform decisions regarding changes to future waste facilities and services, Council needs to establish baseline data of the community's waste generation as well as to expand the collection and reporting of waste and recycling data and the performance of services.

The management arrangements of Council transfer stations were reviewed to ensure they are able to sustainably provide services that meet the needs of the community. Ensuring costs are shared equitably by the users of the facility clearly defined performance objectives for Kingborough Waste Services (KWS) have been recommended. Recognising the benefits that KWS provides to Council, an opportunity exists to expand the role and function of KWS to include responsibility for delivering the implementation of Council's waste strategy and programs.

Community engagement undertaken to inform this strategy identified that the community's priorities included:

1. Improved recycling;
2. Better education regarding household waste management;
3. Increased frequency of collection;
4. Improved facilities at Barretta; and
5. Greater community involvement (in decision making).

<sup>1</sup> Note: the exact composition of the Kingborough garbage bins is unknown, hence these diversions rates are based on typical waste compositions from similar councils.

A need for greater community engagement was identified to provide both education on waste avoidance and improved recycling practices, and to obtain ongoing feedback of community satisfaction to help inform decisions about changes to waste services.

A commitment to greater regional cooperation and working closely with other neighbouring councils is also essential to support the delivery of the Strategy, for example via the delivery of regional waste avoidance and recycling education programs.

The Strategy sets out goals and objectives to achieve Kingborough Council's vision and provides a list of recommended actions to support this. These strategy actions are set out below (Table 1).

**Table 1 Summary of recommended actions**

Goal	Actions	Priority
<b>1</b>	<b>Increased recycling rates</b>	
<b>A</b>	Introduce new kerbside services: <ul style="list-style-type: none"> <li>Fortnightly 240l comingled recycling bin; and</li> <li>Fortnightly GO bin.</li> </ul>	High
<b>B</b>	Expand new kerbside service collection area to include Kettering.	High
<b>C</b>	Review remote sites and upgrade community access to secure garbage and recycling drop off points.	High
<b>D</b>	Collaborate with neighbouring councils seeking to establish regional organics processing solutions.	Medium
<b>E</b>	Review viability of implementing kerbside FOGO collections.	Medium
<b>F</b>	Expand participation in product stewardship (takeback) schemes at Council facilities.	Low
<b>G</b>	Implement food waste avoidance program (e.g. Love Food Hate Waste)	Medium
<b>2</b>	<b>Best practice waste and resource recovery infrastructure</b>	
<b>A</b>	Review and assess transfer stations against best practice (including tip shop).	High
<b>B</b>	Review viable options for Barretta transfer station to consolidate new kerbside services and best practice recommendation (including tip shop services).	High
<b>C</b>	Upgrade Barretta transfer station to support new kerbside services.	High
<b>D</b>	Upgrade transfer stations to support best practice recommendations.	High
<b>E</b>	Perform public place litter and recycling bin stations audits across municipality and review against best practice.	Medium
<b>F</b>	Install additional stations and/or upgrade existing bin installations at priority sites, identified through audits.	Medium
<b>3</b>	<b>Efficient and sustainable governance</b>	
<b>A</b>	Adopt KPI's and targets for the operation and management of Council transfer stations.	Medium
<b>B</b>	Establish Council policy and implement procedures for setting waste gate fees aligned with the user pays principle.	Low
<b>C</b>	Implement waste data system, to record and report key performance indicators, inform decision making and provide greater transparency to the community. (e.g. waste data from facilities, kerbside service providers and audits)	High
<b>4</b>	<b>Effective community engagement</b>	

Goal	Actions	Priority
	<b>A</b> Roll out ongoing and periodic measurement of community satisfaction with waste services.	High
	<b>B</b> Develop a community waste avoidance and new/expanded services education program.	Medium
	<b>C</b> Expand participation in product stewardship (takeback) schemes at Council facilities.	Medium
	<b>D</b> Investigate the causes and effects of illegal dumping and littering across the municipality	Low
	<b>E</b> Expand and improve recycling at council run or supported events.	Medium

## Glossary

Abbreviation	Definition
ABS	Australian Bureau Statistics
ACCUs	Australian Carbon Credit Units
C&D	Construction and demolition (waste)
C&I	Commercial and Industrial (waste)
CCM	Consolidated Cost Model
CoH	City of Hobart
EA	Enterprise Agreement
ERF	Emissions Reduction Fund
EPR	Extended Producer Responsibility
FO	Food organics
FOGO	Food organics and garden organics
GHG	Greenhouse Gas
GO	Garden Organics
KPI	Key Performance Indicator
Kingborough	Kingborough Council
KWS	Kingborough Waste Services
LGA	Local Government Area
MRA	MRA Consulting Group
MRF	Materials Recovery Facility
MSW	Municipal Solid Waste
PPR	Public Place Recycling
the Strategy	Waste Management Strategy

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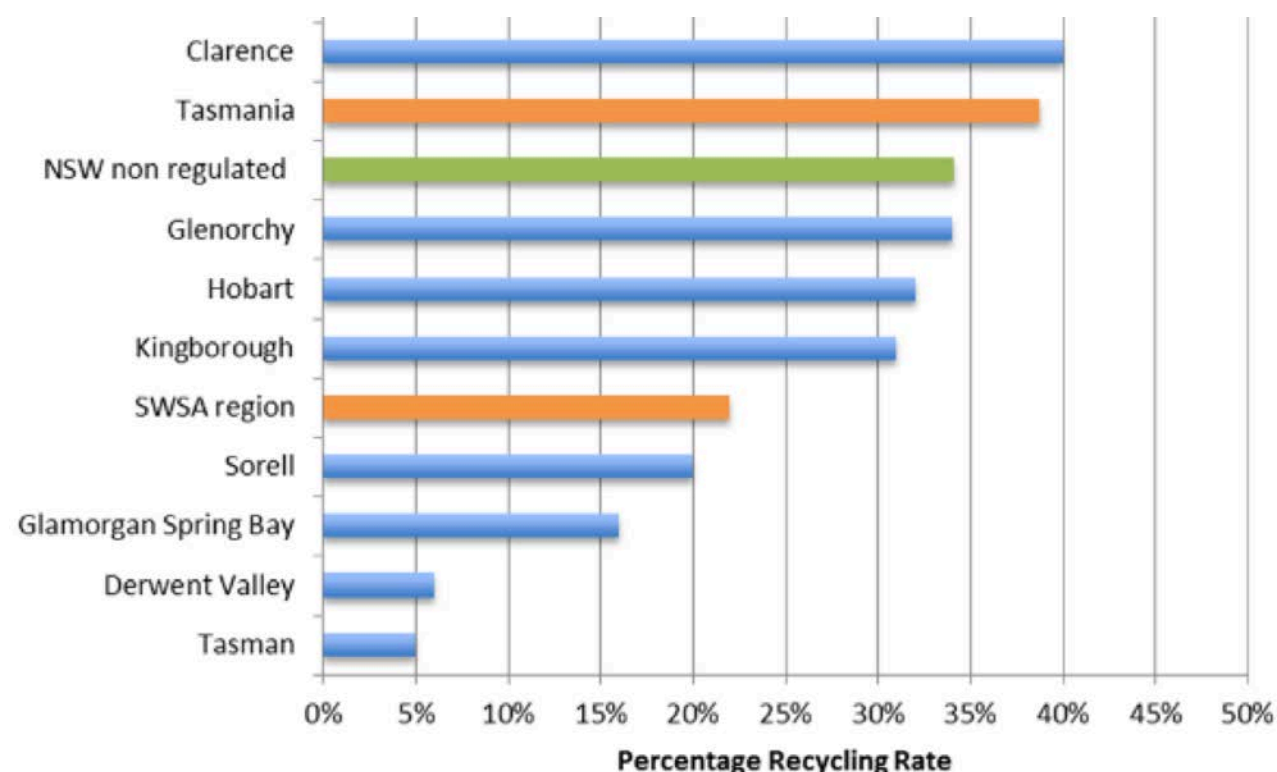
# 1. Where are we today?

## 1.1 Tasmania waste performance

The current recycling rate in Tasmania is an estimated 37%. Approximately, 635,000 tonnes of waste are generated in Tasmania, with 400,000 tonnes being landfilled<sup>2</sup>.

Figure 2 shows the recycling rates for the Southern Tasmanian Councils. Kingborough Council (Council) has a reasonably high recycling rate at approximately 31% (2014/15 data), however, it is still less than the Tasmanian average and other states.

Figure 2 Southern Tasmanian kerbside recycling rates 2014-15



Tasmania does not currently have any specific waste diversion targets and is behind other Australian states on the resource recovery rate spectrum. However, the trend to introduce organics collection by municipalities across the state will result in a dramatic increase in the coming years.

For example, the City of Hobart (CoH), Tasmania's largest municipality, has set its own targets of 50% diversion by 2020 and 70% by 2030. It is expected that the current diversion achieved by the COH will rise to at least 57% with the introduction of a fortnightly Garden Organics (GO) collection services.

## 1.2 Kingborough Council waste management system

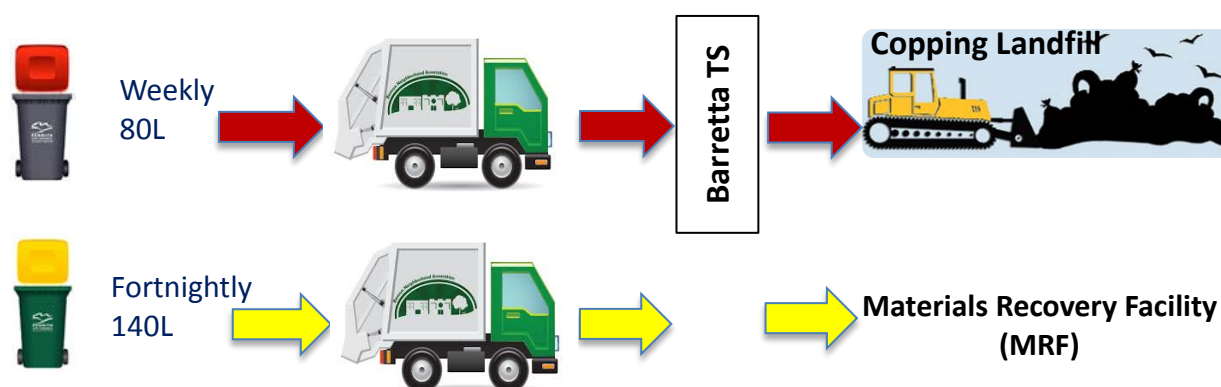
### 1.2.1 Kerbside collections

Kingborough Council is a Local Government Authority (LGA) covering 717 square kilometres of the southern part of Tasmania and has an estimated resident population of 36,000 in 2016 (Australian Bureau of Statistics (ABS), 2011).

Council currently offer the following two bin kerbside collection system:

<sup>2</sup> [http://epa.tas.gov.au/Documents/EPA%20Annual%20Report%202014-15\\_web.pdf](http://epa.tas.gov.au/Documents/EPA%20Annual%20Report%202014-15_web.pdf)

Figure 3 Schematic of current kerbside collections



From the recent community consultation performed by Council, approximately three quarters of residents are satisfied with their current kerbside waste service.

### 1.2.2 Remote communities

Kerbside services are not offered to all residents in the Kingborough local government area as some properties are considered too remote for it to be viable to offer a kerbside service. This is a common theme throughout Australia.

Therefore, some of these remote communities do not currently have any opportunity to recycle their materials. However, through a recent community survey over three quarters of the residents who do not receive a kerbside service demonstrated they would like a kerbside service to be added.

### 1.2.3 Disposal locations

All general waste from Council's kerbside service and waste drop off facilities/sites is transferred to Copping landfill. Along with Clarence City Council, Sorell Council and Tasman Council, Kingborough Council have shares or interest in the equity of the Copping Refuse Disposal Site Joint Authority which was established in 2001 to manage the landfill.

The Copping landfill has been operating successfully for over 10 years and is predicted to have up to 200 years' worth of void space remaining.

Council's recyclables are currently processed by SKM Recycling, one of very few recycling processors in Tasmania. Therefore, the cost associated with processing recyclables is very high when compared to other Australian jurisdictions.

There are few Garden Organics (GO) processors operating in southern Tasmania, and limited capacity within Kingborough's immediate vicinity. However, there is a potential for new facilities to emerge to support regional growth in organics collection.

### 1.2.4 Transfer stations

Council own two waste management facilities: a waste transfer station at Barretta and a waste transfer station at Main Road, North Bruny. The Barretta transfer station was previously a landfill site and the redevelopment of this site has involved the construction of a new waste management facility that includes:

- Re-use Shop;
- Recycling area;
- Green waste area; and
- General waste drop off points.

### 1.3 Kingborough Waste Services (KWS)

KWS was established in 2011 and is a Council owned company responsible for the management of the Barretta and Bruny Island transfer station's.

KWS operations are largely paid for by users. Gate fees are set by Council after considering the cost of providing the service. The fees are capped at a level to discourage illegal dumping. More recently the cost of operations has almost completely been offset by revenues derived from the facility, however the current gate fee structure does not cover the operational cost. Council funds the gap between income, from gate fees and the sale of recyclables, and the operating expenses.

### 1.4 Evidence based decisions

There are waste management issues that require ongoing data collection and analysis to be undertaken during the Strategy i.e. due to a lack of currently available information or waste data. For example, understanding the composition for waste deposited at transfer station increases the ability to identify the actions required to address a performance issue such as low resource recovery rate. Similarly monitoring and evaluating the effectiveness of council waste programs and service upgrades requires collection of waste and service performance data.

### 1.5 Organic Waste

Organic waste, comprising mostly garden waste and food waste, is the largest single category of potentially recoverable material currently in Kingborough Council's general waste stream. Whilst accurate data is not known for Kingborough, across Tasmania up to 60% of the kerbside general waste bin content has been identified as organics with garden waste and foodwaste being the major component.

This is a common issue faced by all councils and represents environmental, economic, public health and amenity issues. For a household waste food represents a significant annual cost with studies<sup>3</sup> estimating \$2,200 is wasted per household per annum. The decomposition of organic waste in landfill produces methane a significant contributor to Greenhouse Gas (GHG) emissions and unless managed well can lead to potential environment and public health risks. Where the cost of processing organics (e.g. at a commercial compost facility) is lower than the cost of disposing general waste to landfill the total cost of implementing a new organics collection service can be offset by these savings.

### 1.6 Waste education/community engagement

It is understood that the current education is deemed satisfactory, however it is not possible to determine the opportunity for improvement, from additional household education, given the lack of evidence to provide:

- The contamination levels of recycling collections; and
- The loss of recyclables to the general waste collection.

The implementation of a new kerbside system, or alterations to the current system, requires information and education to be provided to the community to support households to adapt and make the most of the new system. Therefore, a revised waste education program is vitally important.

Food waste is one of the most significant components in the general waste bin, and a major contribution to GHG emissions of municipal waste disposed in landfill. Currently, Council do not utilise any food waste avoidance programs (e.g. Love Food Hate Waste<sup>4</sup>), which provide an opportunity to households to save money and reduce GHG emissions. These programs have proven to be successful throughout Australia.

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<sup>3</sup> Sustainability Victoria Food Waste Analysis, 2014

<sup>4</sup> More information available at: <http://www.lovefoodhatewaste.vic.gov.au/>

In comparison to Kingborough Council, education programs targeting waste avoidance and improved recycling are deployed by many municipalities throughout Australia include school based education curriculum and broad based household education. These usually are presented as a combination of online material, collateral and media promotion (e.g. HalveWaste<sup>5</sup>).

## 1.7 Litter/illegal dumping

Litter and illegal dumping is a generic problem, across all states and territories. Litter not only detracts from the local amenity but also has the capability to get into our water ways, and consequently harm the marine environment. However, the causes and scale of the effect of litter and illegal dumping occurring in Kingborough Council local government area is unknown and requires further investigation prior to determining which strategies to adopt. Council has previously capped transfer station gate fees in order to mitigate against an escalation in illegal dumping.

## 1.8 Public place recycling (PPR) and litter bins

A lack of PPR stations throughout the LGA means materials that could otherwise be recycled are being landfilled. There is an opportunity to expand and upgrade all litter bin and PPR bin installation and signage to best practice, providing an improvement to both amenity and resource recovery rates. Kingborough Council has resolved to develop a policy to implement improved recycling at Council run or supported events.

## 1.9 Greenhouse gas

Kingborough Council is committed to work with its community to transition to a low carbon lifestyle. Landfilling valuable resources, especially organic material which significantly contributes to GHG emissions when landfilled, does not support this commitment.

Increasing recycling rates will decrease Council's emissions significantly. For example, if all the organic material currently landfilled, can instead be recovered through a composting process, Council would see a significant decrease in their GHG emissions.

## 1.10 Thin film plastic

Tasmania is currently ahead of the rest of Australia with the implementation of the Plastic Shopping Bags Ban Act 2013<sup>6</sup>. Other states in Australia have yet to follow suit, however, other countries have implemented similar bans (e.g. United Kingdom). However, thin film plastics are still present in Kingborough's household waste streams, e.g. food and other product packaging, and from commercial sources.

## 1.11 Extended Producer Responsibility–Product Stewardship Schemes

Extended Producer Responsibility (EPR) policies engage producers and others involved in the supply chain of a product to take responsibility for the environmental, health and safety footprint of those products. Under the Commonwealth *Product Stewardship Act 2011* a framework for three EPR schemes was introduced:

- Mandatory schemes;
- Co-regulatory schemes; and
- Voluntary schemes (either accredited or not).

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<sup>5</sup> More information available at: <http://www.halvewaste.com.au/>

<sup>6</sup> More information available at: <http://epa.tas.gov.au/sustainability/resources-for-the-community/plastic-shopping-bags>

There are no mandatory schemes created under the Act, and one co-regulatory scheme (the National Television and Computer Recycling Scheme). Most EPR schemes are voluntary, and include schemes for:

- Mobile phones (MobileMuster, an accredited scheme);
- Fluorescent lamps (Fluorocycle, an accredited scheme);
- Tyres (Tyre Stewardship Australia);
- Agricultural chemical containers (DrumMuster);
- Paint (Paintback);
- PVC (PVC Stewardship); and
- Newspapers.

Kingborough Council supports voluntary product stewardship (takeback) schemes (e.g. DrumMuster and Paintback) at the Barretta transfer station and at the Kingborough Council Civic Centre (e.g. MobileMuster).

## 2. Where do we want to get to?

Kingborough Council seeks to improve on its current operations through the development and implementation of a waste management strategy (the Strategy).

### 2.1 Kingborough Council vision

Kingborough Council wishes to achieve a planned and collaborative approach to waste management, which is cost effective, supportive of the local community and economy and improves recycling rates.

Council's waste management and resource recovery priorities are to:

1. Deliver cost effective and efficient waste and recycling services to all residents of Kingborough;
2. Assist the community to avoid waste and to improve recycling rates to exceed Tasmania's state wide performance;
3. Reduce emissions and energy usage and develop a truly sustainable community; and
4. Reduce the environmental impacts of littering and illegal dumping.

Council is committed to work with its community to transition to a low carbon lifestyle. One facet of this journey will be tackled by a planned and collaborative approach to waste management, which is cost effective, supportive of the local community and economy and achieves resource recovery rates which exceed Tasmania's state wide performance.

Council recognises and supports a need for greater regional cooperation and is committed to actively engaging in regional discussions and working closely with other neighbouring councils to jointly undertake activities which support Council's waste management and resource recovery priorities.

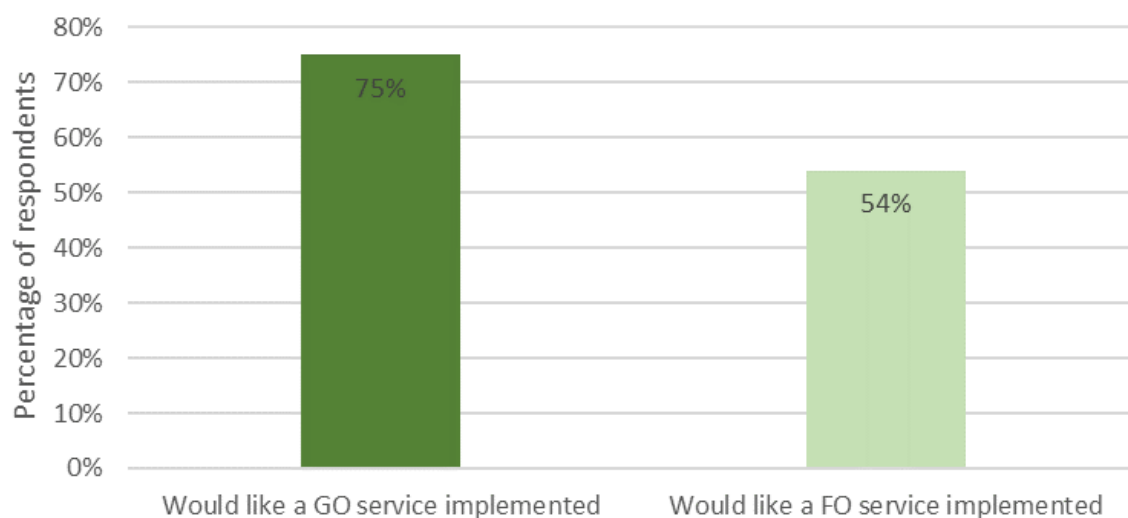
#### 2.1.1 Community consultation feedback

Council undertook community consultation throughout the municipality to inform this Strategy. The community ranked the following issues in order of importance of what they want the waste management system to deliver:

1. Improved recycling;
2. Better education regarding household waste management;
3. Increased frequency of collection;
4. Improved facilities at Barretta; and
5. Greater community involvement (in decision making).

The main outcomes from the community consultation, with regards to improved recycling through kerbside services, are displayed in Figure 4.

Figure 4 Main outcomes from community consultation



## 2.2 Kingborough Council goals and objectives

In order to achieve Council's vision for the strategy, four strategy goals have been established:

1. Increased recycling rates.
2. Best practice waste and resource recovery.
3. Efficient and sustainable governance.
4. Effective community engagement.

The objectives which will support these are shown below (Table 2).

Table 2 Kingborough Council goals and objectives

Goal		
1	<b>Increased recycling rates</b>	
	Objectives	Kerbside collection improved to recycle more materials.
		Kerbside collection expanded to service more communities.
		All communities have access to waste and recycling services.
2	<b>Best practice waste and resource recovery</b>	
	Objectives	Kingborough Council transfer stations offer best practice services.
		Kerbside collections efficiently consolidated for transport to disposal and recycling.
		Transfer station services support the recovery of priority materials (e.g. E-waste, gas bottles, tyres).
		Public place recycling bins at all priority council open spaces.
		Waste and recycling services minimise the community's carbon footprint and environmental impact.
3	<b>Efficient and sustainable governance</b>	
	Objectives	Management and operation of Council transfer stations is effective and sustainable.
		A user pays principle is applied to gate fees for Council waste facilities.
		Data on community waste generation and Council waste services is available to

		measure performance and inform decision making.
<b>4</b>	<b>Effective community engagement</b>	
	<b>Objectives</b>	Waste and recycling services satisfy the community needs and expectations.
		The community is adequately informed to avoid waste and to correctly use waste services.
		Littering and illegal dumping is reduced.

### 2.2.1 Goal #1: Increased recycling rates

A key priority for Kingborough Council is to increase the recycling rates. This aligns with the community expectations, identified through the community consultation, and will enable Council's performance to be amongst the leading Tasmanian local governments in terms of resource recovery. Increased recycling rates would be supported through a combination of:

- Improvement to kerbside collection systems to recycle more materials (e.g. new organics service);
- Expansion of kerbside collection, including comingled and organics collection, to service more communities, where it is cost effective (e.g. Kettering); and
- Providing easy access to waste and recycling services to all communities. For example, remote communities (e.g. Bruny Island), where it is not feasible to introduce a kerbside collection service, are provided with Self Service Bulk Bin Drop-Off Points. At all drop off points, security would be installed to prevent abuse of the system (e.g. key or swipe card access).

### 2.2.2 Goal #2: Best practice waste and resource recovery

Council infrastructure supports the efficiency of the kerbside waste collection services as well as providing an essential service for the disposal and recycling of material not collected through the kerbside system and for residents without a kerbside service. Consequently, it is a priority for Council to implement best practice waste and resource recovery infrastructure and services. Three key waste system elements where the implementation of best practice will directly benefit Council are:

- Transfer stations (Barretta and Bruny);
- Public place litter and public place recycling bins; and
- Kerbside collection services.

Implementation of best practice at Council's transfer stations should also consider the additional material collections required by the community (e.g. e-waste, hazardous household waste, gas bottles, tyres) as well as supporting the efficient kerbside consolidation and transfer of all garbage, comingled recyclables and organics.

### 2.2.3 Goal #3: Efficient and sustainable governance

Council seeks to ensure all waste management operations are managed transparently, efficiently and are sustainable. To ensure this occurs, the following objectives must be achieved:

- User pays principle applied to Council waste facilities;
- Management and operation arrangements of Council transfer stations is aligned with performance objectives; and
- An evidence base (data) is collected to measure community waste generation and the performance of waste and recycling services.

#### 2.2.4 Goal #4: Community effectively engaged

The fourth goal identified by Council is to provide effective community engagement to support delivery of waste and resource recovery services and support public participation in decision making. It is essential that waste services meet the needs and expectations of the community. Council will have achieved this goal if:

- The community is supported to avoid waste and adequately informed how to correctly use waste services (kerbside services and transfer stations/drop off);
- The community is satisfied with the waste and recycling services; and
- Littering and illegal dumping is reduced.

#### 2.2.5 Strategy considerations for KWS

KWS is a key asset to Council which in the future may expand its role to support and provide other essential waste and recycling services and programs to the community, however, firstly it is critical to Council that both Barretta and Bruny transfer stations, deliver best practice services in a cost effective reliable manner to the community.

A range of objectives have been established for the operation of Council owned transfer stations, as detailed below (Table 3).

**Table 3 Objectives to be achieved by KWS in the future**

Criteria	Objectives
Environmental /Resource Recovery	<ul style="list-style-type: none"><li>- Transfer station operation aligned with industry best practice<sup>7</sup>;</li><li>- Diversion of materials from landfill maximised; and</li><li>- Sustainable operation of the Tip Shop.</li></ul>
Financial Viability/Cost	<ul style="list-style-type: none"><li>- User pays principle implemented;</li><li>- Kerbside collected waste consolidation and transportation cost are minimised.</li></ul>
Integration with other services	<ul style="list-style-type: none"><li>- Transfer stations support consolidation and transport of material from existing and future kerbside services; and</li><li>- Transfer station consolidation reduces the impact and number of waste collection /bulk haul vehicles on the road.</li></ul>
Social	<ul style="list-style-type: none"><li>- Improved accessibility of transfer stations to the community;</li><li>- Adequate information and education provided to residents via transfer stations; and</li><li>- Impact of transfer stations on neighbouring communities minimised.</li></ul>

There is an opportunity to expand the role and function of KWS to include responsibility for delivering Council's waste strategy as well as managing the kerbside waste services and support programs. Under this scenario the goals and objectives for KWS would be expanded.

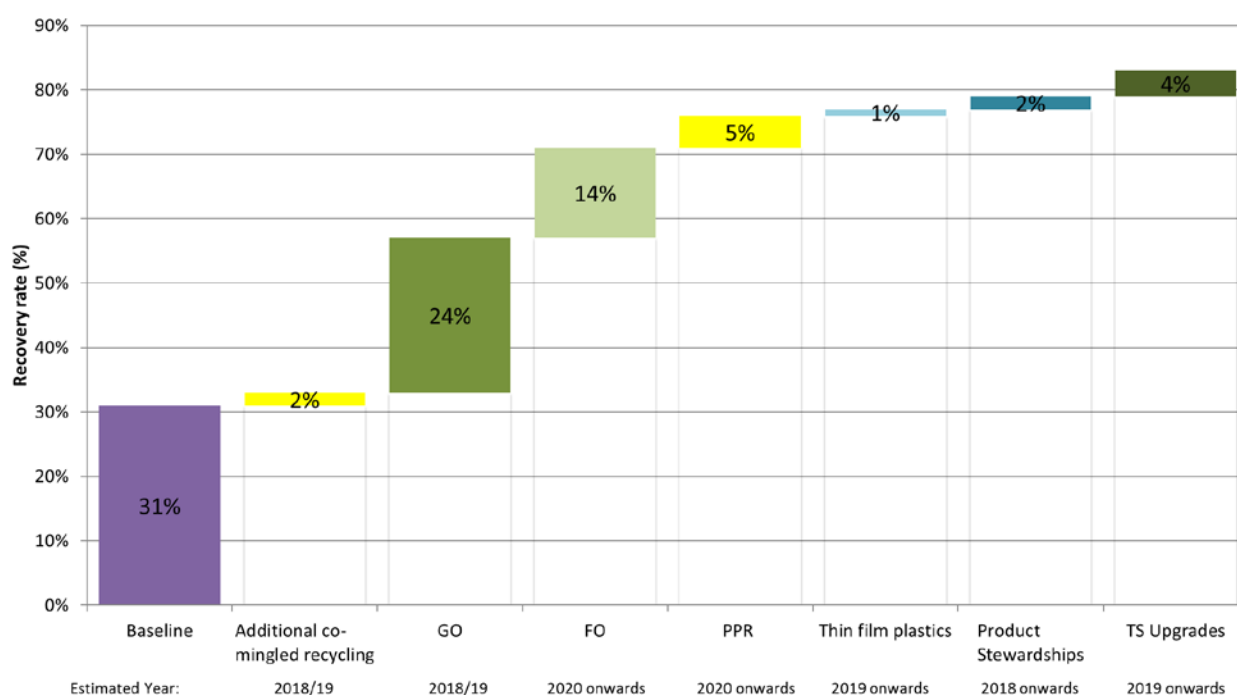
<sup>7</sup> There are no specific transfer station best practice guidelines for Kingborough Council, however, Northern Tasmanian Waste Management Group have developed best practice guidelines. NSW have developed guidelines (available [here](#)) and Victoria has guidelines in development.

### 3. How will we get there?

#### 3.1 Goal #1: Increased recycling rates

The contribution of proposed strategy actions to improving Council's recycling rates are shown below, Figure 5. The most significant impact on recycling rates would occur through upgrades to the current kerbside collection system, initially through introduction of Garden Organic (GO) kerbside collection and as second stage through the introduction of Food Organic (FO) collection using the GO bin. Other activities which contribute to improved recycling rates include expansion of Public Place Recycling (PPR), broadened support of product stewardship programs and upgrades to transfer stations (TS).

Figure 5 Waterfall diagram of all waste management projects<sup>8</sup>



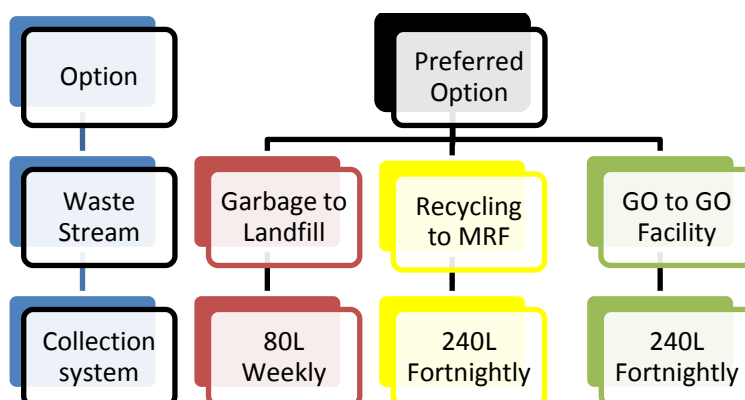
##### 3.1.1 Kerbside collection system to recycle more materials

The costs and benefits of a range of possible future kerbside collection service options<sup>9</sup> were assessed to establish which option provided the greatest economic, environmental, governance and social benefit to Kingborough. The assessment demonstrated that a fortnightly garden organics service and upgrading existing recycling bins provided the greatest cost/benefit to Council (schematic of system shown in Figure 6).

<sup>8</sup> Note: Given the lack of substantial data, the diversion apparent for some of these factors have been estimated utilising national averages.

<sup>9</sup> MRA completed thorough modelling utilising its bespoke consolidated cost model (CCM) to quantitatively analyse waste management options available to Kingborough Council. These outputs were combined with a qualitative assessment to ensure a quadruple bottom line (cost, environmental, governance and social) assessment was adhered to.

Figure 6 Proposed kerbside collection

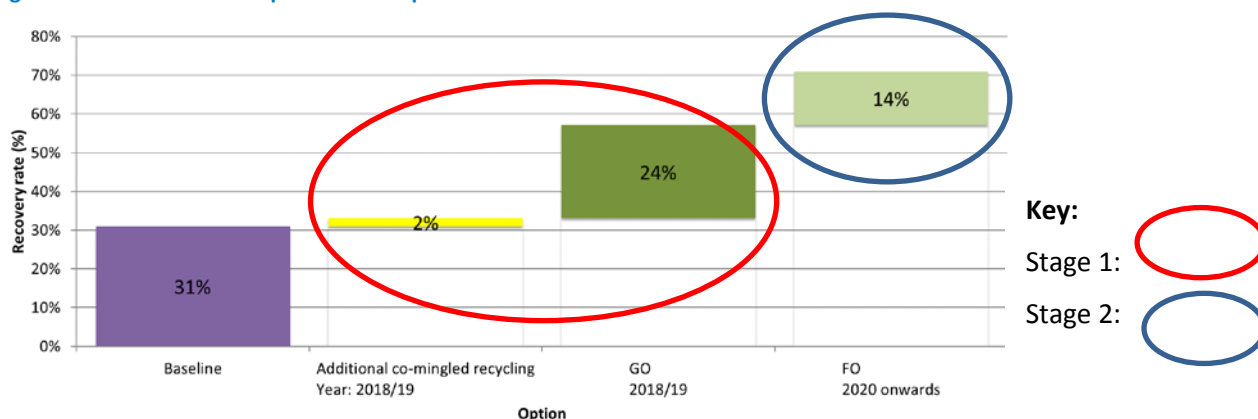


The benefits of the preferred option include:

- Increase in the resource recovery rate from 31% to 58%; and
- Reduction in greenhouse gas emission by 1,128 tonnes/annum of CO<sub>2</sub>-e.

As displayed in Figure 7, the introduction of a GO service provides a large increase in diversion from landfill, via the kerbside service, and the introduction of Food Organics (FO) (to make a Food Organics and Garden Organics (FOGO) stream) yields the greatest results.

Figure 7 Kerbside service implementation plan<sup>10</sup>



FO collection can only be implemented when an organics processing facility has been established which can accept FO and support Kingborough Council and other neighbouring councils to recycle this organic material. Hence, a two-stage rollout is proposed, as highlighted in Figure 6.

Stage 1:

- Extend service collection area to include Kettering;
- Replace existing comingled recycling bin with bins of larger capacity (240L); and
- Introduce a new GO bin to all households receiving a collection service.

Stage 2:

- Upgrade the service to FOGO by introducing FO collection to the GO bin; and
- Provide households with kitchen caddies and a year's supply of compostable caddy liners to collect food waste which is then placed in the bin with the GO.

<sup>10</sup> The exact composition of Council garbage bins is unknown; hence these diversions rates are based on typical waste compositions from similar councils.

Implementing GO collection, stage 1, will ensure that Kingborough Council exceeds the current Tasmania state recycling rate. Each of the two stages requires an accompanying community education and engagement program to adequately inform and prepare households for the upgraded service.

### 3.1.2 Kerbside collection system to service more communities

Analysis was also undertaken to assess the viability of extending kerbside services to more communities and to include the township of Kettering. The analysis established that it would be viable to extending the current collection areas to include Kettering when the new services were rolled out, without significantly impacting the cost to other residents and would expand the kerbside collection area to include more than 95% of the households.

For households that have never received a service, there are additional capital costs to be accounted for in Year 1 (e.g. bin infrastructure). Therefore, if waste collection service was extended to Kettering, there would be a slight increase in waste service costs per household to account for this infrastructure.

Analysis was undertaken to assess the viability to expand the kerbside collection services to all households in Kingborough, however the cost of providing kerbside collection services to sparsely populated and more remote communities is prohibitive.

### 3.1.3 All communities have access to waste and recycling services

Some areas in Kingborough are still deemed too remote and costly to be serviced by a kerbside collection system, however, to increase the recycling rates exhibited by Kingborough households in these areas require access to waste and recycling services.

Infrastructure upgrades are required in order to provide remote communities with both garbage and recycling drop off points. To ensure that these drop off points are not abused and are available for legitimate use by residents, security measures are recommended e.g. keys issued to households and Further security measures added (e.g. cameras) should illegal dumping become prevalent.

## 3.2 Goal #2: Best practice waste and resource recovery infrastructure

### 3.2.1 Transfer stations offer best practice services

MRA Consulting Group (MRA) assessed a range of options for the operation and management of the Barretta transfer station. During this assessment, several recommendations were identified to align the performance of Council's transfer stations with best practice, these include:

- Council perform an audit of the waste received at the transfer station as well as a review of operation of the facility, compared against industry best practice, in order to identify opportunities for an improvement in the recycling rates and services offered;
- A gap analysis of current infrastructure vs industry best practice and projected future needs of the community (e.g. over a 10-year period);
- An assessment of the cost benefit of infrastructure options to meet projected need (e.g. over a 10-year period);
- Gate fee system revised to align with user pays principle. Prior to this, Council should perform investigations into:
  - Communities willingness to pay to ensure that the community supports increased gate fees resulting from implementing changes to services;
  - Investigation into cause and effect of litter and illegal dumping considering the impact of gate fees; and
  - Detailed study of sources of materials e.g. municipal versus industrial sources, to ensure that residential rates would not be subsidising industrial waste disposal activities.
- Implement mechanisms to measure and monitor performance of facility (i.e. diversion rate).

### 3.2.2 Greenhouse gas (GHG) emission reduction

Introducing a FOGO collection service significantly reduces the community's GHG emissions. This reduction is achieved by diverting organic material away from landfill disposal to compost facilities which results in significantly less CO<sub>2</sub>-e being generated. When landfilled, organic material decomposes and forms methane a potent GHG.

The reduction in GHG emissions can be shown in relatable terms by comparing the equivalent tonnes of CO<sub>2</sub>-e to the number of cars removed from the road each year.

As displayed in Table 4, it is estimated that the reduction in GHG emissions from the introduction of a FOGO service is equal to the permanent removal of 984 cars from the road in Kingborough.

**Table 4 Detail of GHG emission reduction possible from kerbside options**

Option	Greenhouse Gas Emissions (tCO <sub>2</sub> -e pa)	Cars permanently removed from roads
Current system	10,099	-
Introduce a GO bin	8,971	271
Introduce a FOGO bin	6,007	984

Reducing the community's GHG emissions through a new organics collection service provides Council the opportunity to generate Australia Carbon Credits Units (ACCUs), through the Emissions Reduction Fund, hence offering further economic benefit.

## 3.3 Goal #3: Efficient and sustainable governance

### 3.3.1 Transfer station operation and management

During the assessment, MRA identified that governance model with the greatest benefit to Council is achieved through retaining KWS to manage and operate Barretta transfer station. The main advantages being:

- Strong alignment of organisation aims, objectives and values between KWS and Council;
- The experience and expertise of KWS Board members is retained to the benefit of KWS and Council;
- In-house experience of KWS operators is maintained;
- Kingborough Council has greatest ability to effect implementation of new services and delivery in accordance with best practice under current governance model;
- It is the most financially sustainable model; and
- It supports the opportunity to expand the role and function of KWS to include responsibility for delivering Council's waste strategy as well as managing the kerbside waste services and support programs.

To foster continual improvement, it is recommended that Council and KWS set clearly defined Key Performance Indicators (KPI's) to measure performance and implement best practice operation.

## 3.4 Goal #4: Effective community engagement

### 3.4.1 Waste and recycling services satisfy community needs

To ensure Council's waste and recycling continually satisfy community need, periodic measurement of community satisfaction is required. Through community satisfaction surveys, residents have the opportunity to raise their key waste management issues and enable Council to understand ongoing waste

issues and priorities. This provides Council the opportunity to engage and effectively support the community with respect to any changes to their waste management system.

### 3.4.2 Littering and illegal dumping is reduced

Littering and illegal dumping, in the municipality, requires further investigation specifically to identify the causes and the scale of the effects in Kingborough. With this baseline data, Council will be able to implement modifications to their waste management services to reduce the amount of littering and illegal dumping found in the area. Typically litter management strategies involve a range of actions including:

- Education;
- Litter Collection and Infrastructure;
- Regulation and Enforcement;
- Volunteering; and
- Partnering with other organisations.

Council has in the past capped transfer station gate fees in order to mitigate against an escalation in illegal dumping. Activities which directly target illegal dumping and might provide effective in Kingborough include:

- Installing dummy and real cameras at identified hot-spot sites;
- Installing lighting and signage based on chosen campaign slogan;
- Increasing beautification;
- Publicising all illegal dumping civil and criminal prosecutions; and
- Designing stickers for suspected illegal dumping from households.

## 4. How will the strategy be implemented?

The Strategy's results and recommendations have been developed into a list of recommendations and actions, with associated priority and timeframe for each action (Table 5). The focus of the first year of the strategy, 2017/18, is to investigate future service options and determine how they will be implemented. Changes to the kerbside system, flagged for 2018/19, would not occur until after the preliminary work has been completed.

**Table 5 Summary of recommended actions**

Goal	Recommendations	2017/ 18	2018/ 19	2019/ 20	2020/ 21	2021/ 22	Priority	Measures of Success
<b>1</b>	<b>Increased recycling rates</b>							
<b>A</b>	Introduce new kerbside services: <ul style="list-style-type: none"> <li>Fortnightly 240l comingled recycling bin; and</li> <li>Fortnightly GO bin.</li> </ul>						High	<ul style="list-style-type: none"> <li>Recycling rates exceed Tasmanian state wide performance;</li> <li>Kerbside recycling services comply with best practice;</li> <li>Rural/remote communities have access to both recycling and waste drop off services; and</li> <li>All facilities support product takeback programs (e.g. Mobile Muster<sup>11</sup> and Battery Back<sup>12</sup>).</li> </ul>
<b>B</b>	Expand new kerbside service collection area to include Kettering.						High	
<b>C</b>	Review remote sites and upgrade community access to secure garbage and recycling drop off points.						High	
<b>D</b>	Collaborate with neighbouring councils seeking to establish regional organics processing solutions.						Medium	
<b>E</b>	Review viability of implementing kerbside FOGO collections.						Medium	
<b>F</b>	Expand participation in product stewardship (takeback) schemes at Council facilities.						Low	
<b>G</b>	Implement food waste avoidance program (e.g. Love Food Hate Waste)						Medium	
<b>2</b>	<b>Best practice waste and resource recovery infrastructure</b>							
<b>A</b>	Review and assess transfer stations against best practice (including tip shop).						High	<ul style="list-style-type: none"> <li>Transfer stations comply with best practice;</li> <li>Council facilities</li> </ul>
<b>B</b>	Review viable options for Barretta transfer station to accommodate new kerbside services and best practice recommendation (including						High	

<sup>11</sup> More information available at: <http://www.mobilemuster.com.au/>

<sup>12</sup> More information available at: <http://www.batteryback.org/>

Goal	Recommendations	2017/ 18	2018/ 19	2019/ 20	2020/ 21	2021/ 22	Priority	Measures of Success
	tip shop services).							support efficient consolidation of kerbside waste collections; • All public place litter and recycling bins installations comply with best practice; and • Council managed open spaces are cleaner.
C	Upgrade Barretta transfer station to support new kerbside collection.						High	
D	Upgrade transfer station to support best practice recommendations.						High	
E	Perform public place litter and recycling bin stations audits across municipality and review against best practice.						Medium	
F	Install additional stations and/or upgrade existing bin installations at priority sites.						Medium	
G	Register proposed waste services under the ERF (i.e. to generate ACCUs) to support the financial sustainability of introducing new organics services.						Medium	
3	Efficient and sustainable governance							
A	Adopt KPI's and targets for the operation and management of Council transfer stations.						Medium	• Transfer station management & operation of meets Council performance targets; • Transfer station gate fees support the user pays principle; and • Community waste generation and Council waste service performance data is readily available.
B	Implement Kingborough Council policy and procedures for setting waste gate fees aligned with the user pays principle.						Low	
C	Implement waste data management system, to: record and report performance; inform decision making and provide greater transparency to the community.						High	
4	Effective community engagement							
A	Roll out ongoing and periodic measurement of community satisfaction with waste services.						High	• Improved household food waste avoidance; • Improved recycling and reduced contamination

Goal	Recommendations	2017/ 18	2018/ 19	2019/ 20	2020/ 21	2021/ 22	Priority	Measures of Success
	<b>B</b> Develop a waste avoidance and new/expanded services education program.						Medium	in new/expanded waste services; • All Council facilities support product takeback programs (e.g. Mobile Muster <sup>11</sup> and Battery Back <sup>12</sup> ); • The negative impacts of litter and illegal dumping are reduced; and • Recycling rates at council run or supported events increased.
	<b>C</b> Expand participation in product stewardship (takeback) schemes at Council facilities.						Low	
	<b>D</b> Investigate the causes and effects of illegal dumping and littering across the municipality.						Low	
	<b>E</b> Expand and improve recycling at council run or supported events.						Medium	

## Appendix 1 Preliminary Strategy Budget

A preliminary budget for the additional cost to council for the implementation of the strategy actions, excluding Council internal staff resources, is provided below (Table 6). Annual costs are quantified as “Low” (up to \$20,000), “Medium” (from \$20,000 up to \$50,000) or “High” (from \$50,000 up to \$75,000).

**Table 6 Strategy implementation budget**

Goal	Recommendations	2017/18	2018/19	2019/20	2020/21	2021/22
<b>1</b>	<b>Increased recycling rates</b>					
<b>A</b>	Introduce new kerbside services: <ul style="list-style-type: none"> <li>Fortnightly 240l comingled recycling bin; and</li> <li>Fortnightly GO bin.</li> </ul>	Medium	-			
<b>B</b>	Expand new kerbside service collection area to include Kettering.	Nil-See note 1	Nil-See note 1			
<b>C</b>	Review remote sites and upgrade community access to secure garbage and recycling drop off points.	Low (Trial)	Medium	.	.	
<b>D</b>	Collaborate with neighbouring councils seeking to establish regional organics processing solutions.		-			
<b>E</b>	Review viability of implementing kerbside FOGO collections.			Low		
<b>F</b>	Expand participation in product stewardship (takeback) schemes at Council facilities.		-	-	-	-
<b>G</b>	Implement food waste avoidance program (e.g. Love Food Hate Waste)		Low	Low	Low	Low
<b>2</b>	<b>Best practice waste and resource recovery infrastructure</b>					
<b>A</b>	Review and assess transfer stations against best practice (including tip shop).	Low				
<b>B</b>	Review viable options for Barretta transfer station to accommodate new kerbside services and best practice		Low			

Goal	Recommendations	2017/18	2018/19	2019/20	2020/21	2021/22
	recommendation (including tip shop services).					
	<b>C</b> Upgrade Barretta transfer station to support new kerbside collection.			TBC-See note 2		
	<b>D</b> Upgrade transfer station to support best practice recommendations.			TBC-See note 2		
	<b>E</b> Perform public place litter and recycling bin stations audits across municipality and review against best practice.		Medium			
	<b>F</b> Install additional stations and/or upgrade existing bin installations at priority sites.			Low	Low	Low
	<b>G</b> Register proposed waste services under the ERF (i.e. to generate ACCUs) to support the financial sustainability of introducing new organics services.	Low				
<b>3</b>	<b>Efficient and sustainable governance</b>					
	<b>A</b> Adopt KPI's and targets for the operation and management of Council transfer stations.	-	-			
	<b>B</b> Implement Kingsborough policy and procedures for setting waste gate fees aligned with the user pays principle.	-	-			
	<b>C</b> Implement waste data management system, to: record and report performance; inform decision making and provide greater transparency to the community.	TBC	TBC			
<b>4</b>	<b>Effective community engagement</b>					
	<b>A</b> Roll out ongoing and periodic measurement of community satisfaction with waste services.	Low	Low	Low	Low	Low
	<b>B</b> Develop a waste avoidance and new/expanded services education program.	Medium (Program Development)	High	High	High (Stage 2 FOGO Service)	High (Stage 2 FOGO Service)

Goal	Recommendations	2017/18	2018/19	2019/20	2020/21	2021/22
C	Expand participation in product stewardship (takeback) schemes at Council facilities.		-	-	-	-
D	Investigate the causes and effects of illegal dumping and littering across the municipality.		Medium	TBC	-	
E	Expand and improve recycling at council run or supported events (see note).	Low	Low	Low	Low	Low

<b>Legend</b>
<u>Low &lt;\$20,000</u>
<u>Medium ≥\$20,00 and &lt;\$50,000</u>
<u>High ≥\$50,000 and &lt;\$75,000</u>

*Note 1: The additional cost to council for the expanded kerbside services is not included in the strategy budget, it is assumed that this would be recovered from householders through service charges.*

*Note 2: The capital expenditure associated with major infrastructure upgrades to Council's transfer stations and alterations to the operation expenses arising from changes at the facilities have been specifically excluded from the strategy budget.*