



Ku-ring-gai Council Waste Management Strategy



Ku-ring-gai Council Waste Strategy

Funded by the Better Waste and Recycling Fund through the waste levy

EXECUTIVE SUMMARY

This Waste Management Strategy uses the principles of the waste hierarchy, Council's 2018 – 2021 Delivery Plan and the community's feedback on services from two residential surveys to allow for consideration for services that will be provided to the community for the next waste management service Contracts.

In 2018 – 2019 Council collected a total of 55,608 tonnes of domestic waste of which 32,255 tonnes is recovered through kerbside collections for recyclable food and beverage containers, paper products and vegetation green waste as well as providing additional recycling events such as e-waste and chemical clean-outs and the facility for the disposal of batteries, mobile phones and fluorescent lights.

This has achieved a 58% household diversion from landfill rate. When all Council waste services are taken into account, including recycling from businesses and Council's operations, the overall diversion rate is 70%.

Council's target is 60% of total household waste diverted from landfill.

Council has two waste performance indicators in its 2018-2021 Delivery Program. These are:

- Kilograms of waste generated per resident
- Percentage of household waste diverted from landfill.

To help shape the draft, resident surveys regarding waste management issues were undertaken in 2015 and again in 2018. The feedback from these Surveys highlight what residents are happy with and what consideration should be given to improve services.

As a result of community feedback the draft Waste Strategy proposes a number of actions in the following key areas;

- Maintain the domestic waste and recycling services
- Adjust clean-up service to 4 services per year
- Introduce a bulky green waste service in line with the clean-up service
- Introduce waste recovery at the kerb-side for e-waste, mattresses and metals
- From Council's previous resolution in considering additional bush fire protection for residents include in the collection tender an option for a weekly green waste collection
- Continue research and development into further recovery opportunities for recycling including soft plastics
- Provide additional resources for community information, promotion and education
- Continue with development of engineering waste recovery including road re-surfacing and other opportunities with civil project works.
- Continue with Council's commercial waste and recycling services for business and schools in the local government area.
- Continue to improve litter and dumped waste management

Specifically the Surveys showed a consistent high satisfaction level with Council's core services for waste, recycling and green waste. Community feedback also suggests amending the bulky waste clean-up service to 4 booked services per year would be sufficient.

In addition an enhancement to the booked clean-up is proposed to include recovery of electronic waste, mattresses and metals and to include a bulky green waste collection to substitute the mobile chipping and green waste voucher service.

Council also provides a service for the collection of waste from commercial businesses in the Ku-ring-gai Council area.

We will continue to do what the community is highly satisfied with and engage in improved waste reduction where markets are available. Council has and will continue to investigate markets for recovery of additional material such as soft plastics. Where some materials are not currently economically viable or processes are not

available for recycling and reuse, Council will continue to stay informed and look for future markets for these materials. In keeping with the Waste Hierarchy Council will continue to build on educating the community on avoidance and reuse opportunities.

Targets for recovery of materials have been calculated for Council's two waste performance indicators. These are shown in table 1 below with the current diversion rate.

Table 1 Current and additional options for domestic recovery.

Target Municipal Solid Waste	Materials Recovered	Tonnes per Year	Kilogram per Person	Diversion 2018/19	State Average	Regional Average
2018/19 Recovery	<div></div> Paper and cardboard from Blue bin <div></div> Mixed containers from Yellow bin <div></div> Greenwaste from Green Bin <div></div> Some residual waste processed via Veolia MBT (subject to negotiated regulatory changes) <div></div> Whitegoods <div></div> Chemical collection events	32,255	256	58%	42%	53%
Potential materials for recovery (based on audit results 2018)	<div></div> Additional greenwaste from quarterly bulky collection and weekly pick-up <div></div> Residual waste processed via Veolia MBT(temporarily unavailable) <div></div> Paper and cardboard from red bin <div></div> mixed containers from red bin <div></div> green waste from red bin <div></div> metals from red bin <div></div> e-waste from red bin <div></div> e-waste recovery from bulky waste <div></div> metals recovery from bulky waste <div></div> Mattress recovery from bulky waste	9,756 0 110 2,230 290 330 722 116 228 110	110	12%		

The table shows the current range of materials recovered through the domestic collection system which included the kerbside services and drop off events. Also shown is a list of potential material that could be recovered based on the results of the Domestic Kerbside Audit 2018. Recovery of this material is predicated on the introduction of recovery from our bulky waste collection, the introduction of additional kerbside collection of green waste and increased education to reduce the amount of material placed in the wrong bin.

Council's ten-year action plan is shown below.

Table 2 Ten-year Action Plan

Priority Area	Action	Short Term (1-2 Years)	Medium Term (3-5 Years)	Long Term (5-10 Years)
Residential Services				
Core services	Continue to use private contractor for collection of waste	✓	✓*	✓
Processing contracts	Recycling Processing contracts to be limited to two-year terms with Review options thereafter.	✓		
	Administer the management of the regional waste disposal and processing contract under the Northern Sydney Council's Waste Services Alliance.	✓	✓	✓
	Subject to market availability include soft plastics as an option in recycling processing contract and mixed recycling bin		✓	✓
	Maintain technical and up to date industry-based knowledge relating to the processing and marketing of recyclables for inclusion in future contracts	✓	✓	✓
Kerbside Collection Contract	Council to re-tender waste management collection Contract in 2020, 12 months before September 2021	✓		
	Tender document to include estimates of future 10-year population growth and increase in the number of multi-unit dwellings.	✓		
	New kerbside service tender documents to include options for weekly and fortnightly green waste services.	✓		
	Tender to include the option of a quarterly bulky green waste collection.	✓		
Bulky waste service	Amend the current process for requesting a bulky waste service to allow for a maximum of four collections per year	✓		
	New kerbside service tender documents to include the option of a separate collection for e-waste, metals and mattresses subject to established stable markets for these products.	✓		
Problem waste service	Provide chemical collection events twice per year	✓	✓	✓
	Continue research and development into possible Community Recycling Centre sites in the region.	✓	✓	✓
Commercial Waste Service				
Non-domestic services	Continue a market-driven approach to providing non-domestic waste and recycling services.		✓	
Litter and Public Place Waste				
Bin numbers and locations	Audit parks and reserves every two years to reconcile service numbers and locations against previous audits.		✓	
Event Waste Management	Maintain public event waste recovery	✓	✓	✓
Litter reduction	Implement litter reduction programs at locations where grant funding has been obtained	✓	✓	✓
	Conduct post-program litter audits at identified locations every two years and implement additional maintenance and cleansing services where necessary	✓	✓	✓
Research and Development				
Additional materials	Maintain technical and market knowledge for food and green waste services, soft plastics and glass recycling.	✓	✓	✓
	Maintain technical and market knowledge with processing of recyclables for inclusion in future contracts	✓	✓	✓
	Continue to research and investigate additional recovery and recycling of waste materials included in the bulky waste service.		✓*	✓

Priority Area	Action	Short Term (1-2 Years)	Medium Term (3-5 Years)	Long Term (5-10 Years)
Education				
Programs	Provide education programs for services promoting waste recovery and waste avoidance for all sections of the community including schools and businesses.	✓	✓	✓
	Promote alternative avenues for the community to recycle materials that are not included in Council's services	✓	✓	✓
	Maintain the promotion and education of waste and recycling via a range of delivery mediums including social media, newsletters and Web based information	✓	✓	✓
	Co-ordinate waste education across all relevant Council units	✓	✓	✓
	Include contamination reduction actions and targets for the collection contractor as part of the next collection contract		✓	
	Maintain multi-lingual information for residents and businesses on waste and recycling services	✓	✓	✓
	Review the presentation of Council's webpage for waste and recycling services to make the presentation more intuitive	✓		
	Continue to promote alternative avenues for the community to recycle materials that are not included in Council's services	✓	✓	✓
	Continue to provide community education programs on illegal dumping to reduce dumping and support regulatory action	✓	✓	✓
	Continue to educate resident's appropriate disposal of problem waste	✓	✓	✓
	Include contamination reduction actions and targets for the collection contractor as part of the next collection contract	✓	✓	
	Maintain technical knowledge and market-based programs for promoting and educating the community on best practice resource recovery	✓	✓	
Resourcing	Prepare a business case for additional resources in education programs	✓		
Illegal Dumping				
Regulatory action	Provide support for regulatory action with on-going monitoring and reporting of illegal dumping incidents, community impacts and trends	✓	✓	✓
	Provide resources to remove illegal dumping in a timely manner.	✓	✓	✓
Regional participation	Participate in regional illegal dumping programs where appropriate to Ku-ring-gai Council	✓	✓	✓
Operational waste management				
Recycled materials	Use recyclable materials in infrastructure projects where the cost benefit supports the inclusion of these products	✓	✓	✓
Recycling Services	Include waste recovery options in construction project specifications.	✓	✓	✓
	Include specifications for using recycled glass and plastics in road surfacing where the material is cost effective	✓	✓	✓
Alternative Disposal facilities	Review alternative facilities for delivery of general optional waste where waste recovery options are available	✓	✓	
Regional Programs				
Participation	Participate in regional waste related programs and projects where appropriate to Ku-ring-gai Council	✓	✓	✓

* To be decided before preparation of next kerbside contract.

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1 Introduction

Ku-ring-gai Council is located on Sydney's North Shore and covers an area of 84 km². Known as the 'Green Heart' of Sydney, Ku-ring-gai contains a diverse natural habitat regarded as the last remaining area of biodiversity significance in the Sydney metropolitan area. Our name 'Ku-ring-gai' is a derivation of the name of the Guingai people, traditional owners of the land of which Ku-ring-gai Council is a part.

Neighbouring councils include Willoughby to the south, Ryde to the south-west, Northern Beaches to the east and Hornsby to the north and west. Housing stock is predominantly low-density residential although the number of multi-unit dwellings (MUDs) has increased in recent years and now comprise about 30% of all dwellings. There are large areas of national park and bushland.

Our Community Strategic Plan identifies the community's aspirations for its future and how Council and other stakeholders will contribute towards their achievement.

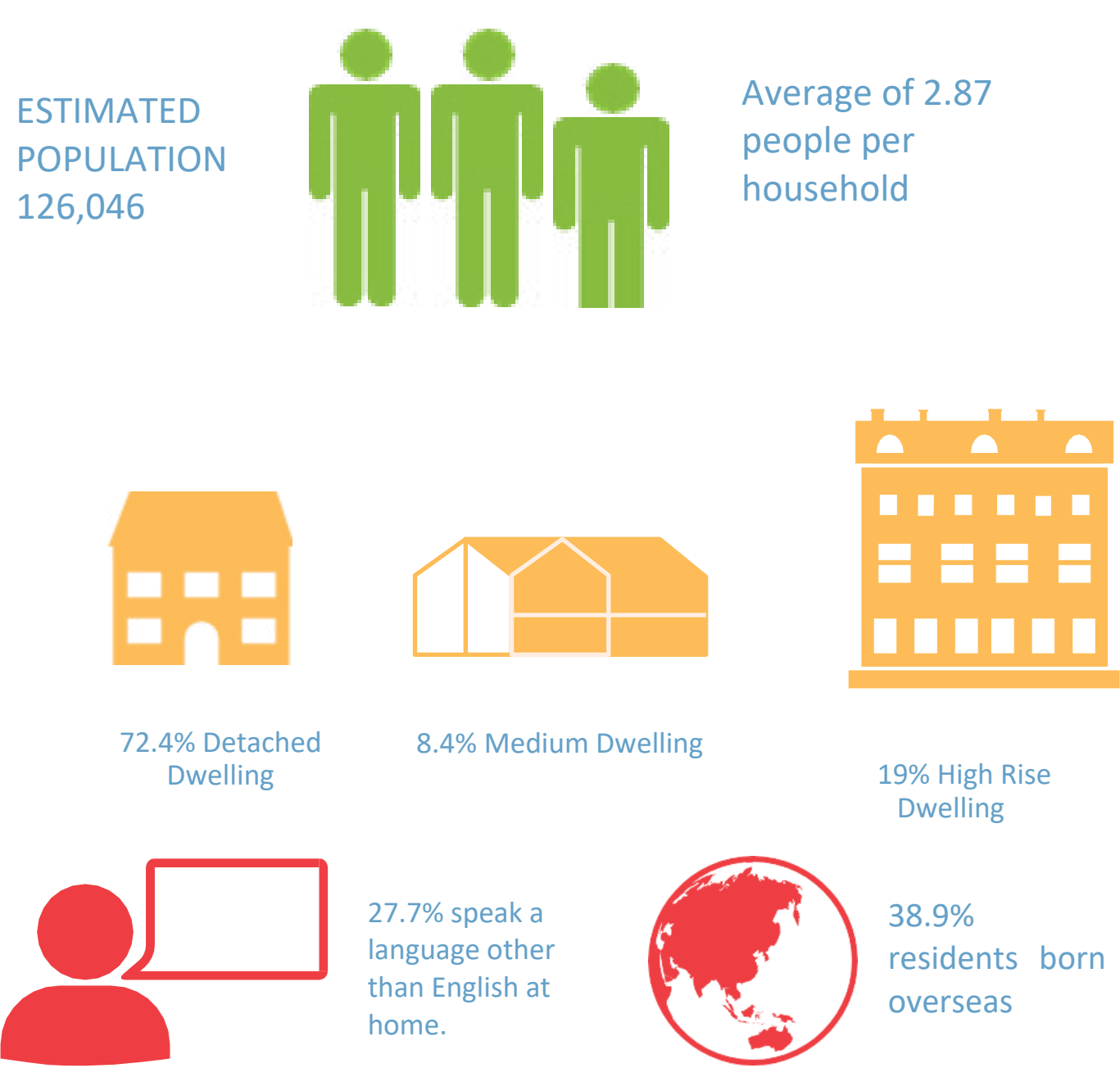
Our Waste Strategy is predicated on our community's objective. (See figure 1.)

OUR COMMUNITY VISION is a Ku-ring-gai that is a creative, healthy and liveable place where people respect each other; conserve the magnificent environment and society for the children and grandchildren of the future

Community Strategy Plan	Delivery Program - Term Achievement - 3 Year	Operational Plan – Tasks Year 2
N5.1 - A community progressively reducing its consumption of resources and leading in recycling and reuse	N5.1.1: - The community is effectively engaged in improved waste reduction, reuse and recycling.	N5.1.1.1: Deliver effective and efficient waste management services.
		N5.1.1.2: Finalise and adopt a Waste Strategy for Ku-ring-gai local government area.
		N5.1.1.3: Deliver community waste education programs.
		N5.1.1.4: Deliver grant funded Waste Less Recycle More projects.
		N5.1.1.5: Participate in the Northern Sydney Regional Organisation of Councils (NSROC) Regional Waste Disposal Contract.
		N5.1.1.6: Implement Regional Waste Plan

Figure 1 - Objectives and Actions from Community Strategic Plan through to Operational Plan

Ku-ring-gai’s population is around 126,046 people who live in 41,150 dwellings, an average of 2.95 people per household¹.



¹ <https://profile.id.com.au/ku-ring-gai/home>

Council has two main performance indicators that measure our progress toward the achievement of our community’s goals. These are:

- Percentage of household waste diverted from landfill. Council’s target is 60% of total household waste diverted from landfill²
- Kilograms of waste generated per resident per year

Population growth is estimated to be 1.1-1.2% per year for the foreseeable future. Figure 2 shows the projected population and number of households to 2036.

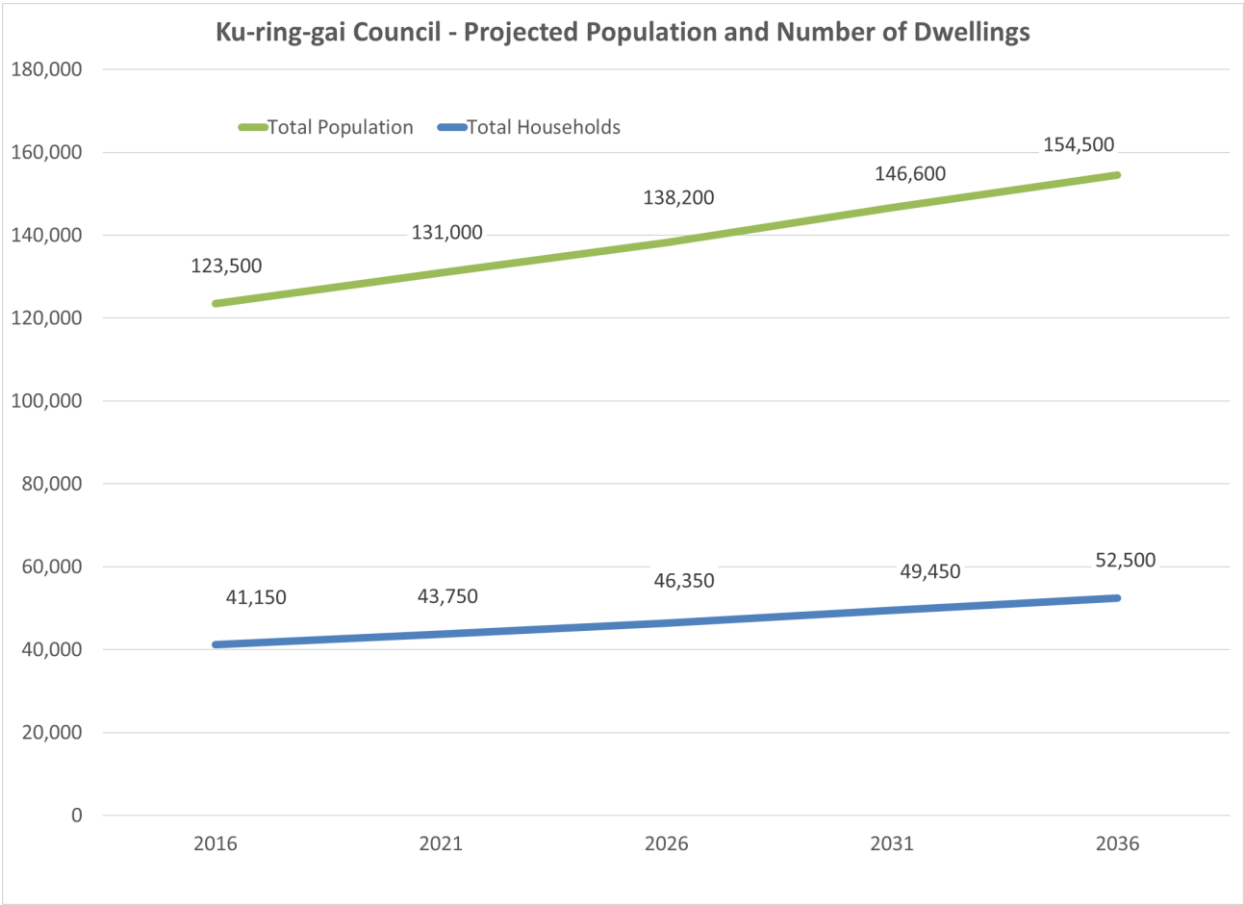


Figure 2 – Projected population and number of dwellings

² Ku-ring-gai Council Delivery Program 2018-21

Over all the waste streams generated and collected by Council, through domestic, operational and commercial waste, 27,041.26 t of garbage was generated in 2018-2019 and 63,270 t of recyclables. This is an overall diversion rate of 70.06% and is shown in Figure 3 below.

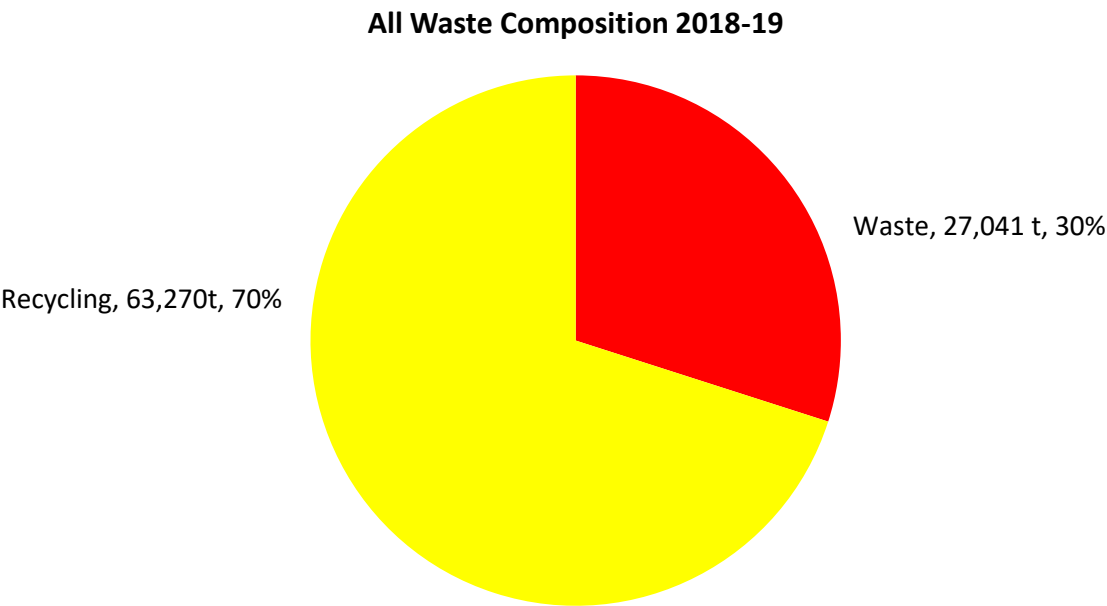


Figure 3 - All waste composition 2018-2019

At an overarching level, the waste management hierarchy (Figure 4) provides the guiding principles for how waste is to be managed and handled.

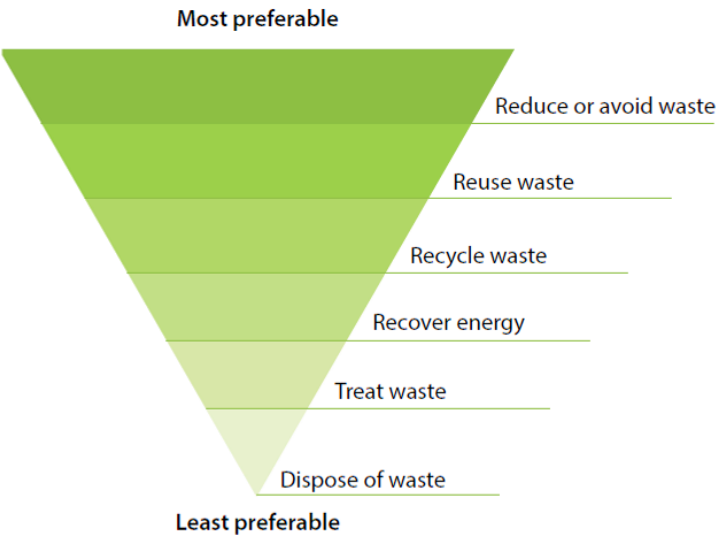


Figure 4 - Waste management hierarchy ³

³ NSW Waste Avoidance and Resource Recovery Strategy 2014-2021

One of the prime drivers behind the strategy is the NSW Waste Avoidance and Resource Recovery Strategy 2014–2021 (WARR Strategy). The WARR Strategy addresses targets for five key result areas:

- Avoiding and reducing waste generation per capita in NSW
- Increasing recycling
 - Municipal solid waste to 70%
 - Commercial and industrial waste to 70%
 - Construction and demolition waste to 80%
- Diverting more waste from landfill to 75%
- Managing problem wastes better through establishing or upgrading 86 drop-off facilities or services for managing household problem wastes
- Reducing litter
- Reducing illegal dumping.

The strategic and legislative contexts for Council are shown below.



Table 3 Legislation, regulations and strategic documents

Document Name	Summary
National Waste Strategy	The National Waste Policy is a Commonwealth Government policy that aims to guide the development of legislation and policy in Australian states and territories. Any initiative Council undertakes to address waste management and to improve recovery and recycling and the efficiency of the services could be classified under one or more, or even all, of the five steps listed in the National Waste Strategy. These in turn go towards achieving the aims of the Strategy.
Local Government Act 1993	The <i>Local Government Act 1993</i> controls almost all aspects of local government and its operation in NSW. It sets out a number of tasks and responsibilities for local councils for waste management including the requirements to provide residential waste management services and how they are charged
Waste Avoidance and Resource Recovery Act 2001	The <i>Waste Avoidance and Resource Recovery Act 2001</i> is the overarching waste management legislation in NSW. The main elements of the WARR Act are: <ul style="list-style-type: none"> • The requirement to prepare a state waste strategy • The requirement to pursue extended producer responsibility initiatives by identifying and regulating ‘wastes of concern’ • The WARR Act implications for Council are mostly through the WARR Strategy. Council is, through the development of this strategy, addressing the targets and requirements of the WARR Strategy and the handling of wastes of concern.
Protection of the Environment Operations Act 1997	The <i>Protection of the Environment Operations Act 1997</i> is the principal environmental protection legislation in NSW and is administered by the NSW Environment Protection Authority. The Act defines waste and sets out the waste classifications, licensing requirements and other regulatory controls that apply to waste in NSW. Council handles waste and has certain obligations under the Act, for example, the requirement to report pollution incidents where material harm to the environment is caused or threatened. Council, as a ‘public authority’ under the Act, also has some powers.
Protection of the Environment Operations (Waste) Regulation 2014	The Protection of the Environment Operations (Waste) Regulation 2014 sets out obligations that apply to waste managers, consigners, transporters and receivers dealing with waste
WARR Strategy 2014-2021	The <i>Waste Avoidance and Resource Recovery Strategy 2014–21</i> (WARR Strategy) sets objectives to avoid waste generation, increase recycling, divert waste from landfill, manage problem wastes, reduce litter and reduce illegal dumping. The WARR Strategy is the guiding document for local governments in managing waste under their control.
Waste Avoidance and Resource Recovery Amendment (Container Deposit Scheme) Act 2016	The <i>Waste Avoidance and Resource Recovery Amendment (Container Deposit Scheme) Act 2016</i> establishes and facilitates the collection of EPA-approved beverage containers for a refund at collection points.
Waste Less, Recycle More	Waste Less, Recycle More is a NSW Government initiative that provides funding for business recycling, organics collections, market development, managing problem wastes, new waste infrastructure, local councils and programs to tackle illegal dumping and litter.
NSROC Regional Profile Report and Directions Report	The NSROC strategy is one of the key drivers for Council’s waste strategy.
Ku-ring-gai Community Strategic Plan	The Ku-ring-gai Community Strategic Plan details the aims the community and Council wish to achieve in the future and provides guidance for future works.
Ku-ring-gai Delivery Program and Operational Plan	The delivery program outlines how Council will achieve what has been set out.
Product Stewardship Act 2011	National Scheme for Televisions and Computers
Draft Product Stewardship Amendment (Packaging and Plastics) Bill 2019	Brings responsibility for end-of-life products into the market. Sets targets that aim to reduce amount of packaging and plastics consumed.

1.1 Regional Programs

1.1.1 Northern Sydney Regional Organisation of Councils

Ku-ring-gai Council is a member of the Northern Sydney Regional Organisation of Councils (NSROC). NSROC is a voluntary organisation of local councils established to provide strong local government leadership, to work co-operatively for the benefit of the Northern Sydney region, and to effectively advocate on agreed regional positions and priorities.

Currently, in addition to Ku-ring-gai Council, its other members include, Hornsby Shire Council, Hunters Hill Council, Lane Cove Council, Mosman Council, North Sydney Council, City of Ryde Council, Willoughby City Council.

Figure 5 shows Ku-ring-gai Council's location, the other NSROC member councils and neighbouring councils and the approximate location of relevant waste management facilities.

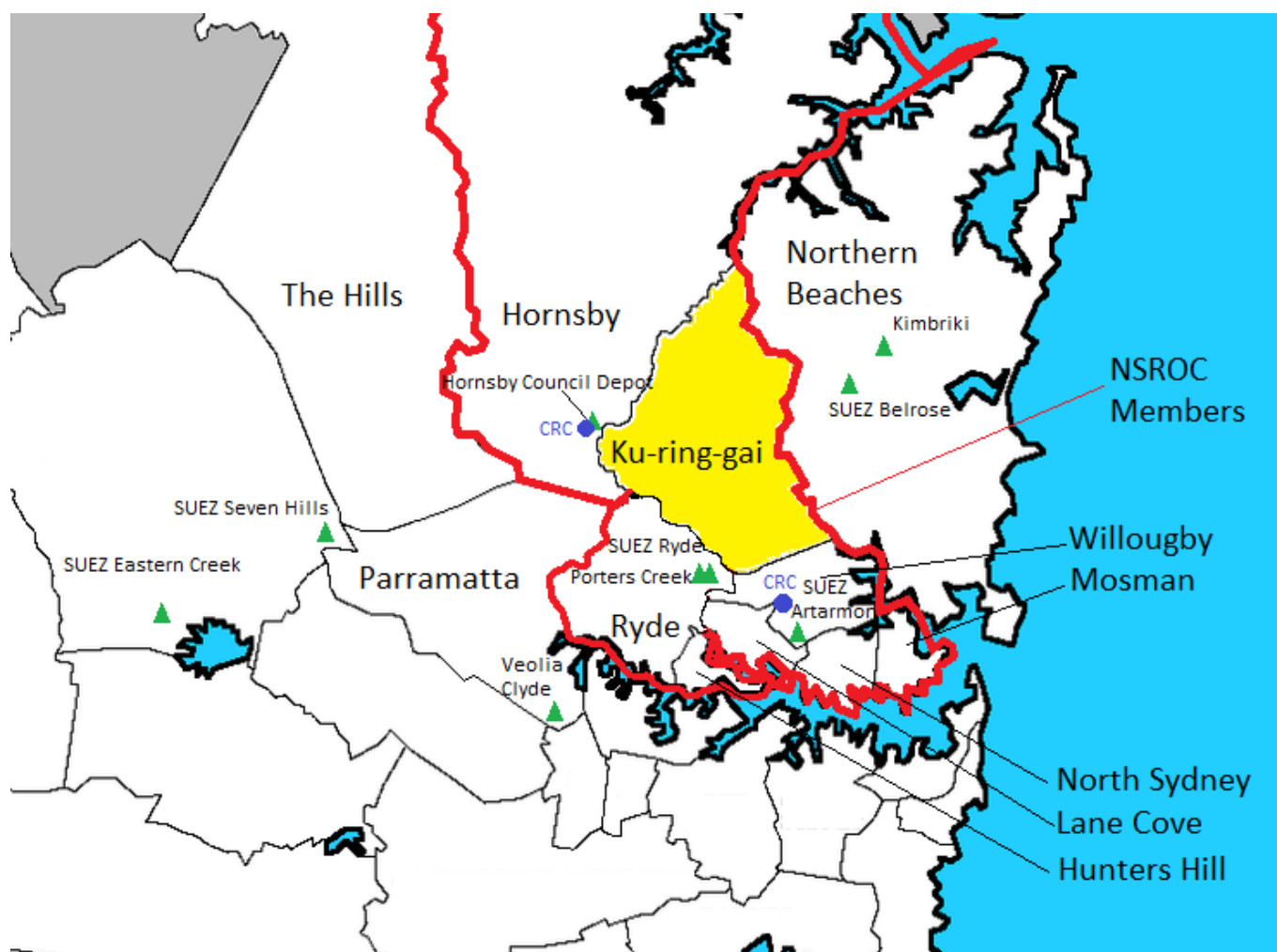


Figure 5- Ku-ring-gai, NSROC councils and waste facilities

1.1.1.1 NSROC Strategy

In 2014 NSROC commissioned its Regional Waste Avoidance and Resource Recovery Strategy. At that time Mosman Council was not a member of NSROC. The Strategy was updated in June 2018.

The NSROC Strategy sets the targets shown in Table 4 below.

Table 4 NSROC Strategy targets

Target	Relevance to WARR Themes	Current Performance/achievement
70 % municipal solid waste diversion by 2021-22	Increase recycling Divert more waste from landfill	53% waste diversion rate for the region
1% per capita reduction in waste generation by 2021-22 (based on regional 2013-14 data)	Avoid and reduce waste generation	2% increase from baseline data
Access to waste drop-off centre for all NSROC LGA residents on the basis of 1 per 50,000 households by 2021-22 OR within 11 km of home	Divert more waste from landfill Manage problem wastes better Reduce illegal dumping	Currently 1 CRC per 122,500 households. 2 CRC's in total.
20% reduction in reported illegal dumping incidents by 2021-22 (based on regional 2012-13 data)	Reduce illegal dumping Manage problem wastes better	Current data for the region not available.
20% positive change to survey responses describing the Northern Sydney community's view towards taking responsibility for their own litter by June 2021 based on public surveys undertaken within the region	Litter	Current data not available and will be collated and evaluated in 2019/20.

To achieve these regional targets five key focus areas have been identified for action:

- Regional illegal dumping program
- Regional community education programs
- Investigate improved planning guidance for waste management in mixed use developments and MUDs
- Other regional procurement contracts, for example, for recyclables processing, organics, problem wastes, collections, council operational wastes, shared facilities and
- Regional plastics waste management strategy.

Council will participate in NSROC programs and projects where appropriate to Ku-ring-gai.

1.2 Residential Waste Survey

1.2.1 Introduction

Council undertook two surveys of residents, the details of which are described below, which showed that overall satisfaction with Council waste services is very high. Nine out of ten respondents indicated that they were either very satisfied or somewhat satisfied with Council's services.

1.2.2 Survey method

In March 2015, Ku-ring-gai Council commissioned Jetty Research to conduct a random and representative telephone survey of 605 local residents to measure their use, knowledge and priorities relating to Council waste services. The survey also sought to understand current residents' needs regarding waste services and evaluate a number of options for how these services could be provided in the future.

The 2015 survey was replicated in December 2018 when a total sample size of 619 was achieved. This survey measured changes over time in resident waste needs and satisfaction with waste services. This provided guidance on what residents considered to be the major waste issues that Council should be addressing.

Based on the number of households within the Ku-ring-gai LGA, a random sample of 619 adult residents implies a margin for error of +/- 4.0% at the 95% confidence level. This means that if we conducted a similar poll twenty times, results should reflect the views and behaviour of the overall survey population – in this case 'all Ku-ring-gai LGA adult residents excluding council employees and councillors' - to within a +/- 4.0% margin in 19 of those 20 surveys.

In addition to the representative telephone survey, Council also distributed an online survey to ensure that all residents keen to have a say on local waste and recycling services had the opportunity to do so. In all, 1,402 valid online surveys were received by the 11 February deadline.

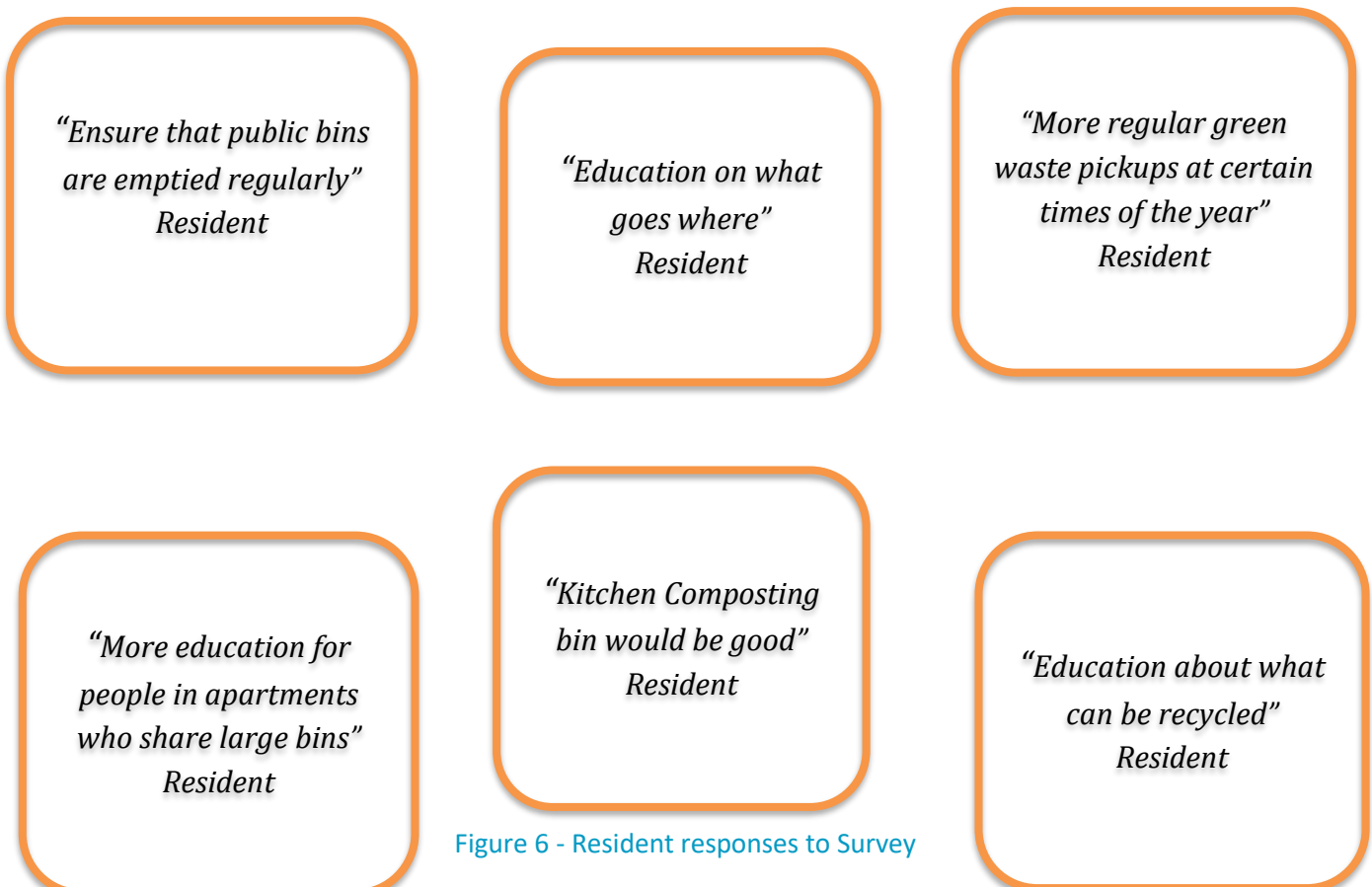


Figure 6 - Resident responses to Survey

Key Results of Residential Survey

1. Overall satisfaction with Council waste services was high, as was satisfaction ratings for each individual waste service.
 - a. Over half (55%) scored the waste service 5 out of 5 (i.e. very satisfied), a slight increase on 2015's 49%
 - b. The proportion satisfied and corresponding mean levels of satisfaction with the mobile chipping service, e-waste events and whitegoods clean ups, indicates a decline in 2018 from results reported in 2015. Satisfaction with all other waste services remained high and stable.
2. Satisfaction with public place litter bin services was high with a mean satisfaction rating of 3.7 and only 9% dissatisfied (with dissatisfaction being driven by the perception there were not enough bins and they were not emptied frequently enough).
3. Awareness of the domestic weekly/fortnightly waste collection (including red, blue, yellow and green bins) and general clean-ups was high while the e-waste events, chemical collection events and mobile chipping services were less well known.
 - a. Awareness of both general clean ups and chemical collection events has declined in 2018 (74% vs. 82% and 20% vs. 30% respectively).
4. Similar to 2015, the general clean-up had the highest levels of use (aside from the weekly domestic pick-up).
 - a. 74% of residents indicated that they had used the general clean-up service in the past year.
 - b. Residents utilised the general clean-up services on average 1.5 times in the past year, with 33% using the service once, 23% using it twice, 9% using it three times, 4% using it four times and 4% using it five times (unchanged on 2015).
 - c. The mobile chipping service, whitegoods clean-up and e-waste collection events all had very low frequencies of use.
5. There has been a shift away from phone bookings and towards online booking of general clean-ups since 2015.
 - a. Over two in five residents (44%) booked their general clean-up online (23% in 2015) with around a quarter (26%) phoning Council (48% in 2015).
 - b. 20% of bookings were by phone as they prefer speaking to a real person.
 - c. Some 87% of those who booked their general clean up online found the online booking system easy to use.
6. Similar to 2015 results, there was mixed opinion regarding the reasonable number of clean-ups per year offered at any one residence. The mean number of clean-ups considered reasonable was 4.23 (a slight decrease on 2015's 4.47). This suggests that if Council were to amend the number of clean-ups allowed, Council would need to offer at least 4 general waste pick-ups to meet community expectations.
7. One collection per year of each of the e-waste, metals and mattress collections would be enough to satisfy around three quarters or more residents with 24% reporting they would use an e-waste collection twice or more in a year, 12% would use a metals collection twice or more and 4% a mattress collection.
8. Preference was split reasonably evenly between those preferring to dispose of chemical waste via an annual event or through a year-round drop off centre.
9. 61% (3 in 5 residents) were happy with their fortnightly green bin service while 33% were not (of those 33%, 70% who are unhappy with their green bin collection reported that they would prefer a weekly collection, 23% would like a second bin and 17% would like a seasonal collection).

1.3 Issues impacting waste management

There are several major issues affecting waste management in NSW which also influence the preparation of this strategy. Preparation of this Council's Strategy has taken into account current circumstances to meet community expectations for a new collection contract commencing in 2021.

1.3.1 China National Sword

In 2018 China changed its policy on accepting mixed plastics and mixed paper and cardboard from sources outside the country. Named 'National Sword', the policy specified that material delivered to China could not have contamination of more than 0.5%. The purpose of this policy change was to stimulate internal markets and it effectively banned mixed plastics and mixed paper and cardboard from being imported into China. Other countries in Asia began accepting mixed plastics and mixed paper for processing, in some cases to bring the material to the Chinese specification.



The effect of the change was worldwide and has had a significant impact on Australian kerbside collection services. In some cases, contracts for the processing of kerbside recyclables from certain council areas were not renewed. In others, local governments had to renegotiate some elements of their kerbside contract costs. This was the case for Ku-ring-gai, which renegotiated the cost of processing both kerbside comingled containers and paper and cardboard with its processor, Polytrade.

As an entirely separate issue, the market for recycled glass containers has also collapsed. Glass collected at kerbside was previously recycled into new glass containers. Now, glass containers can be imported fully formed more cheaply than they can be made in Australia, which has severely reduced the market for locally-sourced glass cullet. This situation was compounded by a regulatory requirement in NSW that limited the amount of material that could be stockpiled at any one site.

1.3.2 Organics Waste Recovery

This draft proposes to enhance the recovery of green waste via additional services that allow all residential properties access to these services. This is to address the seasonal needs associated with vegetation waste on land and addresses the issues surrounding reducing the fire risk of those properties in fire prone zoned land which Council has previously considered last year.

Specifically services are proposed to include a bulky green collection similar to the booked clean-up service, and include a weekly collection of the green waste bin as an option in the future waste collection tender scheduled for early next year. This will substitute the current green waste voucher and mobile chipping service and avoid the current situation where residents are required to self-deliver the vegetation to the processing facilities.

In considering further organics recovery such as food and green (FOGO) that remains in the red lidded waste bin there are a number of issues that prevent Council from formally considering this type of service in the next collection Contract. These relate to lack of processing assets within reasonable distance of the Ku-ring-gai LGA, the current Regional Waste disposal Contract that has already contracted this waste and the lack of established markets for the processed material.

1.3.2.1 Regional Processing Contract

The regional processing Contract specifies that kerbside waste will be delivered to Veolia's Woodlawn facility, either to be processed at its mixed waste mechanical and biological treatment (MBT) facility or disposed of in the adjacent Woodlawn Bioreactor Landfill. Ku-ring-gai Council is legally obligated to provide the current contents of the red bin until 2025.

For Veolia's MBT to properly process waste, it has been set up to accept a forecast amount of waste from NSROC councils of a certain composition. This requirement is written into the Contract, which means that Ku-ring-gai cannot deliver waste of a different composition during the life of the Contract. By introducing a FOGO service, residents would be required to put food into the green waste bin and not in the residual garbage bin. This would change the composition of the residual garbage being delivered to Woodlawn and Council would be in breach of the Contract. The Contracts first expiry date is 2025 however options for a further two five-year extensions are available.

A further risk that is a cause for concern is the NSW EPA's action in changing the regulatory environment for the current market for material processed from a mixed waste processing facility (MBT). This matter is currently the subject of consultation within the waste industry.



Figure 7 - Seniors tour of Woodlawn Bioreactor Landfill

1.3.2.2 Location of processing facilities

There is one FOGO processing facility in the Sydney metro area located in Penrith, or about a two-hour return journey for each collection vehicle. No current transfer station options are currently available and sending kerbside FOGO from Ku-ring-gai to this facility would be logistically and operationally inefficient.

1.3.2.3 Significant Impact to both Green Waste & Waste Collection

The consideration of a mixed food and green waste service (FOGO) would result in a significant change to the kerbside bin service currently being used by residents. A FOGO service would still require a red lidded bin for general waste, which would still include organic material and food not diverted by residents into the green waste and the FOGO green lidded bin service would change to a weekly service due to the food organics being added. As a case study it is noted that after inception of the FOGO service in Penrith City Council, the Council had to also provide an additional weekly service for the red lidded waste bin collection to cater for households consisting of young families or aged residents resulting in a total of 4 bins being presented on recycling weeks.

The facilities available for accepting this type of waste stream for Council's in the Sydney Metropolitan area is very limited with the Suez Penrith facility being the only facility currently operating. There are still contamination issues with this type of waste stream and there has not being any additional facilities announced for Council's in the Sydney area. Notwithstanding this issue Ku-ring-gai Council's general waste including its food waste contained in the red lidded waste bin is contracted to Veolia under the Regional Waste Disposal Contract which not due for its first extension till 2025.

Action

- Maintain technical and market knowledge for FOGO.

1.3.3 New State Government Waste Strategy

The Department of Planning, Industry and Environment has recently commenced developing a new 20 year Waste Strategy for NSW. The focus for the 20 year Strategy is centred on sustainability, reliability and affordability. The Strategy will also identify issues that are likely to emerge and reform directions.

2 All Dwellings

2.1 Profile

Ku-ring-gai Council produces 55,608 tonnes of domestic waste per year of which 32,255 t is recovered through kerbside collections for recyclable containers, paper and cardboard and green waste as well as Council's e-waste and chemical collection programs.

Data shows that, even though the population in the Ku-ring-gai Council area has increased, the total overall amount of waste has hardly changed in the last ten years. This is shown in Figure 8 below.

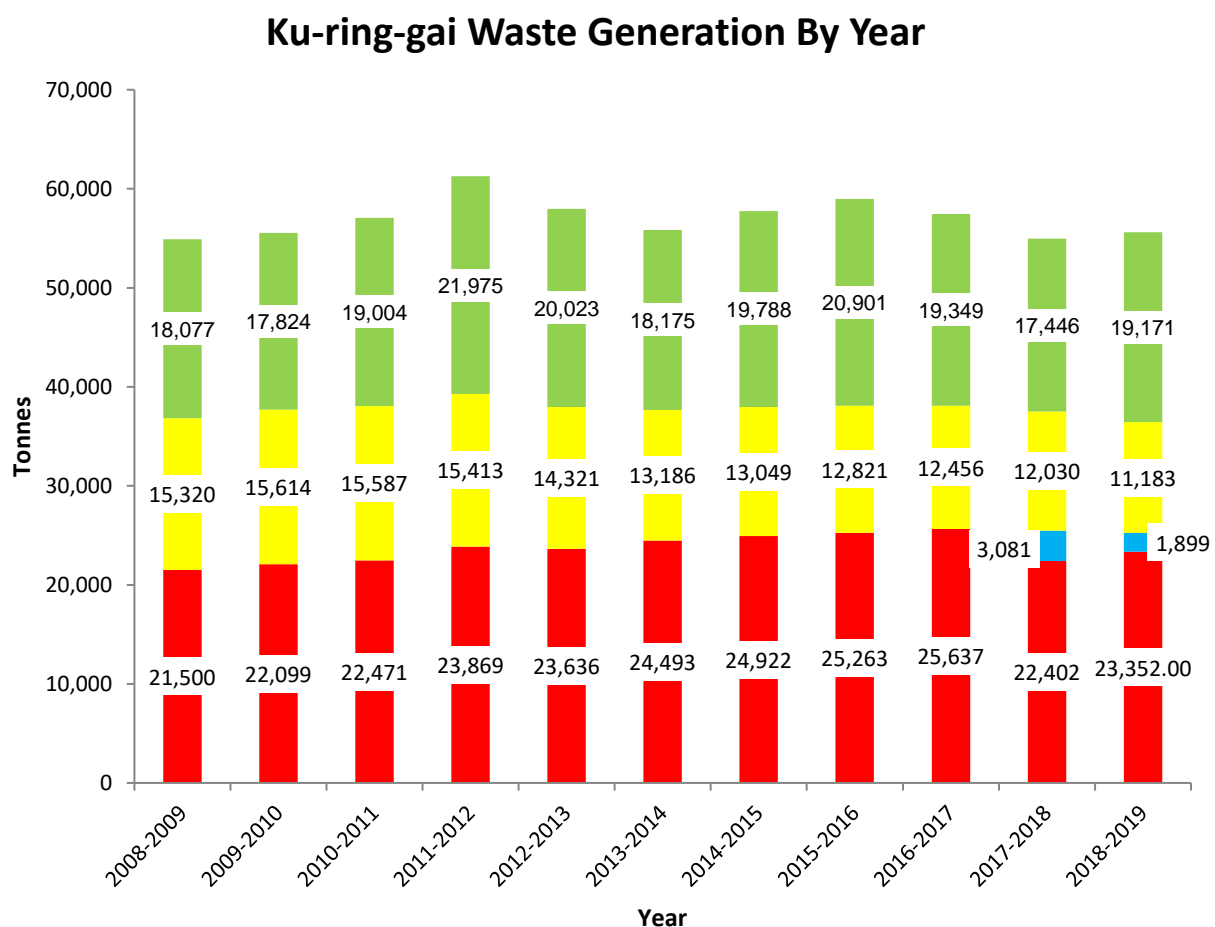


Figure 8 - Ku-ring-gai Waste Generation per Year

Waste to landfill has slowly but steadily increased since 2008-2009. This is most likely due to the increases in population as the per person garbage generation rates have remained steady at approximately 200 kg per person per year since 2011-2012. Recycling quantities has trended downwards due to decreases in the paper stream. Fluctuations in green waste quantities relate to weather and climate conditions.

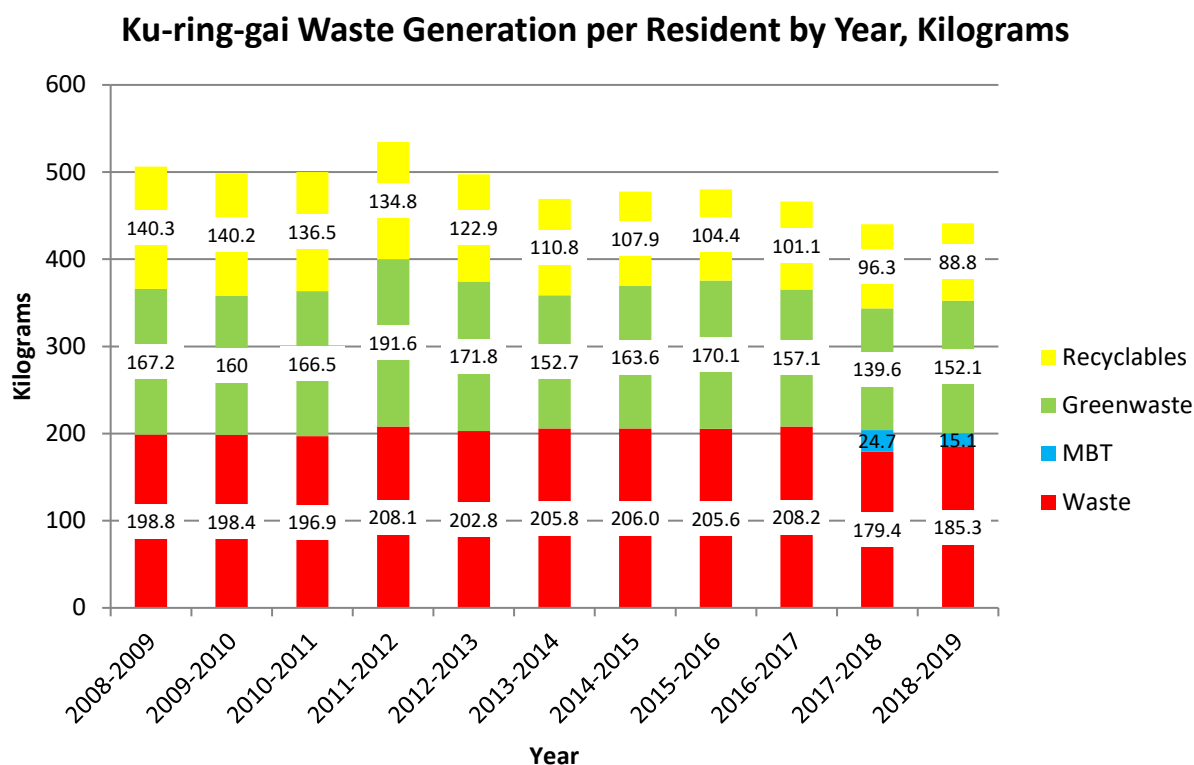


Figure 9 - Waste generation per resident per year

In 2018-19 the waste to landfill generation rate decreased to 185.3 kg per person per year because 1,899 t of mixed waste was processed through Veolia's Woodlawn MBT facility.

Recycling generation per person per year was 140.3 kg in 2008-2009. This has fallen to 88.8 kg in 2018-2019. The per person per year generation rate for green waste was 167.2 kg in 2008-2009. This has fallen to 152.10 kg in 2018-2019.

There are a number of reasons for the changes in generation rates

- Light weighting of beverage containers
- The impact of the Container Deposit Scheme
- Decreased consumption of newspapers and magazines
- Weather and climate changes

With the reductions in recovered material, recyclables and green waste, there has been a corresponding drop in household diversion. Between 2008-2009 and 2011-2012 overall diversion was between 60% and 61%. In 2016-2017 it was 55.4% and reached 58% in 2018-2019 because 1,899 t of mixed waste was processed at Veolia's Woodlawn facility. This is shown in figure 10.

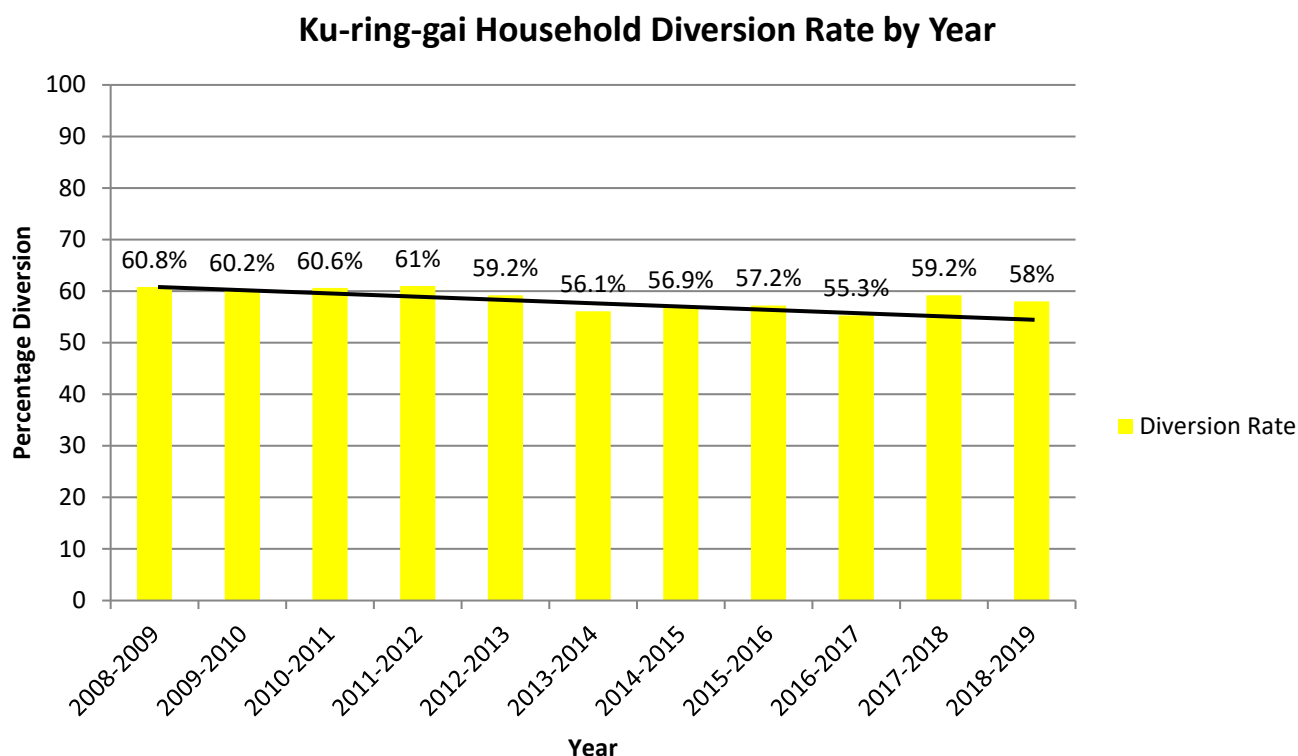


Figure 10 - Household diversion by year

2.2 Core Waste Services

Council provides ‘core waste services’, as well as a range of other waste collection, education and support services. The results of the residential waste survey (Section 1.2) indicated that residents are satisfied with the core waste services provided by Council. 93% of residents were either satisfied or highly satisfied with Council’s waste service. The mean satisfaction rate for the red bin was 4.4 out of 5.

The core services include a kerbside weekly waste collection for all dwellings. Domestic waste is collected by Council’s contractor, Veolia, and delivered to the Clyde Transfer Terminal and from there transferred by rail to the Woodlawn Bioreactor Landfill.



All kerbside recyclables are collected by Veolia and delivered to MRFs operated by Polytrade.

Paper and cardboard are processed at Polytrade’s Enfield facility and comingled containers are processed at its Rydalmere MRF.

Greenwaste bins are collected by Veolia and delivered to Kimbriki.

Figure 11 – Kerbside bins

2.3 Waste Stream

2.3.1 Profile

An audit of the four kerbside waste streams (garbage, paper and cardboard, recyclable containers and green waste) across the Ku-ring-gai Council area was conducted in October and November 2018. The results are shown below.

Composition of Kerbside residual stream



Garbage Stream

- 48.9% of the garbage stream is organic material
- 14.1% is material that could be recovered through the existing kerbside recycling system

2.3.2 Service Details

Garbage services are shown in Table 5 below.

Table 5 Garbage Services

Dwelling Type	Description	Frequency of Collection
Single dwellings ⁴	120 L waste bin full service. This is the standard single dwelling service.	Weekly
	240 L waste bin full service	Weekly
MUDs ⁵	Shared 240 L or 660 L	Weekly
	240 L for individual unit	Weekly

Additional 240 L bins for garbage are available at extra cost. Council's contractor operates small vehicles for collecting garbage in MUDs.

⁴ Free standing houses, terraces or town houses where each dwelling has its own set of bins

⁵ Multi-unit dwellings are apartments and other types of residential buildings where residents share bins.

2.3.3 Options, Opportunities and Challenges

The results of the survey shown in Section 1.2 indicate that residents are satisfied with the core waste service provided by Council which includes the weekly garbage collection service. In 2018 the Residential Waste Survey asked residents to rate their satisfaction levels with the Council provided waste services. 93% of residents were either satisfied or highly satisfied with Council's waste service. The mean satisfaction rate for the red bin was 4.4 out of 5.

No changes are proposed for the residual waste collection service.

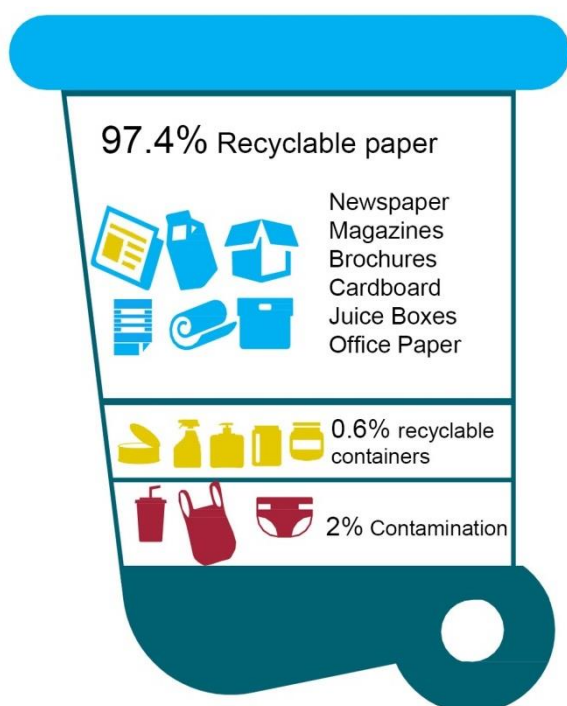


Figure 12 - Collection of domestic bins

2.4 Recycling Stream

2.4.1 Profile – Paper and Cardboard,

Composition of the Kerbside Paper and Cardboard Stream



Paper and cardboard Stream

- Contamination in this stream is low at 2.7%
- 0.6% is comingled containers

2.4.2 Service Details

Table 6 Paper Services

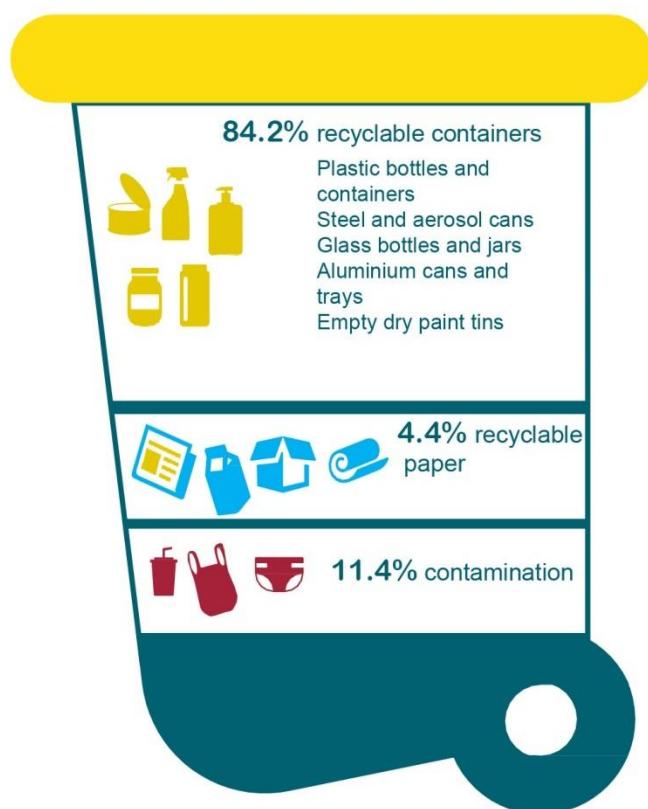
Dwelling Type	Description	Frequency of Collection
Single dwellings ⁶	240 L paper recycling,	Fortnightly
MUDs ⁷	Shared 240 L or 660 L	Weekly

⁶ Free standing houses, terraces or town houses where each dwelling has its own set of bins

⁷ Multi-unit dwellings are apartments and other types of residential buildings where residents share bins.

2.4.3 Profile – Comingled Containers

Composition of the kerbside comingled containers stream



Comingled containers stream

- 84.2% is recyclable containers
- Contamination in this stream is 11.4%
- 4.4% is paper and cardboard

2.4.4 Service Details

Table 7 Mixed Container Services

Dwelling Type	Description	Frequency of Collection
Single dwellings ⁸	240 L mixed recycling	Fortnightly
MUDs ⁹	Shared 240 L or 660 L	Weekly

2.4.5 Options, Opportunities and Challenges

The results of the survey shown in Section 1.2 indicate that 93% of residents are satisfied or very satisfied with the yellow bin service provided by Council. 92% of residents are satisfied or very satisfied with the blue bin service provided by Council. No changes are proposed for the recycling services.

There are fluctuations in the markets for recyclable materials worldwide. The market for recycled glass containers has significantly decreased in value. Glass containers can be imported fully formed more cheaply than they can be made in Australia. The situation has compounded by a change in regulations in response to stockpiling to minimise fire risk at Resource Recovery Centres.

However domestic market development is now occurring with alternate applications for glass and plastics for road surface materials and in the case of plastics refilling into alternate fuel sources. It is envisaged these markets have the potential to accommodate all recyclable materials currently being stocked piled.

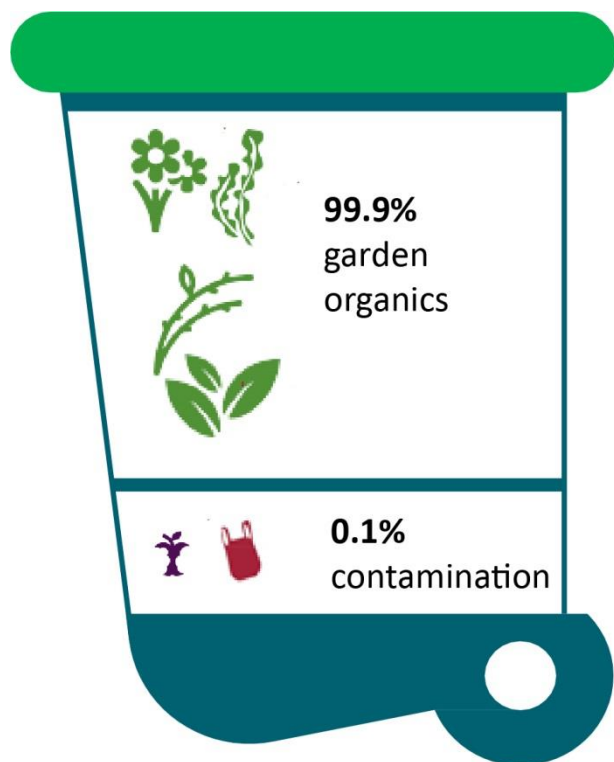
⁸ Free standing houses, terraces or town houses where each dwelling has its own set of bins

⁹ Multi-unit dwellings are apartments and other types of residential buildings where residents share bins.

2.5 Greenwaste

2.5.1 Profile

Composition of the Kerbside Greenwaste Stream



Greenwaste Stream

- Contamination in this stream is 0.1%

2.5.2 Service Details

Greenwaste services are shown in Table 8 below.

Table 8 Greenwaste Services

Dwelling Type	Description	Frequency of Collection
Single dwellings ¹⁰	360 L	Fortnightly
MUDs ¹¹	Greenwaste service is available for a fee. One 360 L greenwaste bin charged separately to property rates	Fortnightly

Additional 360 L bins for greenwaste are available at extra cost. There is also an opt-out option for the greenwaste service. Greenwaste bins must be placed kerbside for collection.

2.5.3 Options, Opportunities and Challenges

The results of the survey shown in Section 1.2 indicate that 88% of residents satisfied or very satisfied with the fortnightly greenwaste service provided by Council. The core waste service provided by Council includes the fortnightly greenwaste service. However, when asked whether their green bin collection was generally adequate for their needs, 61% were satisfied and 33% (207 respondents) were dissatisfied. Of those dissatisfied, most said they wanted an increase in greenwaste capacity, either a bigger bin, a second bin or a weekly service.

¹⁰ Free standing houses, terraces or town houses where each dwelling has its own set of bins

¹¹ Multi-unit dwellings are apartments and other types of residential buildings where residents share bins.

Although multiple answers were allowed, 70%, (145 respondents), said they would be happy with a weekly collection. In total, 24% of respondents wanted a weekly collection and some of these would probably be happy with other options so long as there was greater capacity.

Council has since resolved that the option for a weekly greenwaste service be included in the next kerbside tender.

Until 2020, residents in bushfire zones can also obtain three garden organic vouchers which give them free disposal at Kimbriki. This allows for the disposal of one box-trailer or ute load of garden organics, up to 300 kg, per day at Kimbriki.

2.6 Bulky waste

2.6.1 Profile

In October and November 2018, Council commissioned an audit of bulky waste collections. Figure 13 below shows the composition of the kerbside bulky waste stream.

The audit showed the following composition:



Figure 13 - Composition of the Bulky Waste Stream

2.6.2 Service Details

Council currently provides on-call bulky waste clean-up collections every month. Residents are allowed to book up to 12 bulky waste collections per year subject to availability and they can book three bulky waste collections in advance. Satisfaction levels for the bulky waste service remain high.

In addition to the bulky waste collection, Council also operates a whitegoods collection for a fee. Some respondents to the survey indicated there should be more separation of materials placed out in bulky waste collections.

2.6.3 Options, Opportunities and Challenges

The Residential Waste Survey 2018 asked respondents to rate their satisfaction levels with the Bulky Waste Clean-up service. 73% of residents were either satisfied or very satisfied with the bulky waste clean-up service. 24% were either neutral or unsure.

The Residential Waste Survey results regarding use and satisfaction levels have remained stable from 2015 to 2018 (see Table below).

Residential Survey	
2015	2018
Satisfaction with Clean up Service	
71% satisfied or very satisfied	73% satisfied or very satisfied
- 53% very satisfied	- 57% very satisfied
- 18% satisfied	- 16% satisfied
- 15% Unsure	- 13% Unsure
Satisfaction is high and stable from 2015 to 2018	
Perception of reasonable number of Clean Ups per year	
Mean = 4.47/year	Mean = 4.23/year
66% 4 or less	65% 4 or less
35% more than 5	30% more than 5
20% more than 6	18% more than 6
1% unsure	5% unsure
Perception of reasonable number of clean ups is stable	

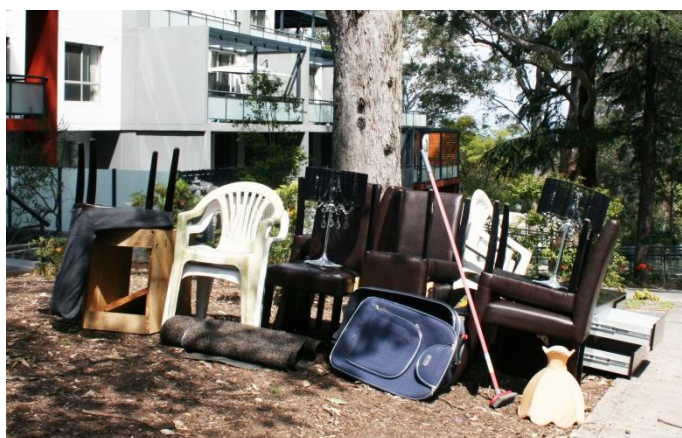


Figure 14 - Examples of bulky waste materials

Use of the bulky waste collections service is high but most residents who use it do so only once or twice a year.

Out of 21,354 booked collections in 2017-2018, almost 70% of household's book one bulky waste collection per year and that 87.1% book no more than two per year (see Figure 15). The results of the residents' survey conducted by Council indicate that a quarterly bulky waste collection would be satisfactory for most residents.

Bulky Waste Clean up collection use

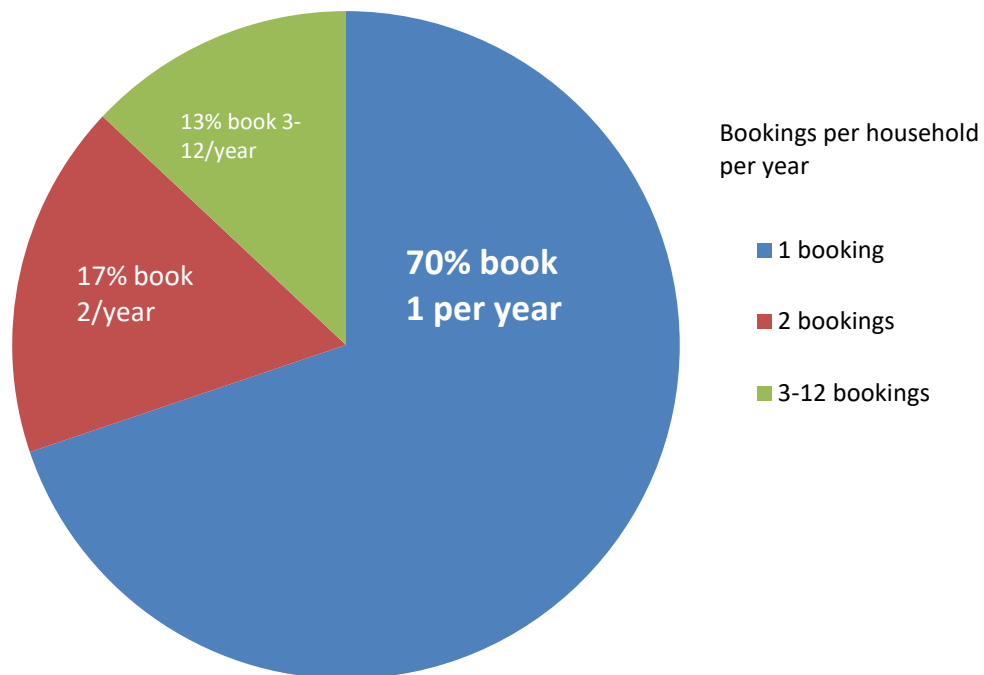


Figure 15 - Bulky Waste Collection Use

Council will include the option for recovery from the bulky waste collection as part of the next kerbside Contract including the recovery of e-waste, textiles, metals, whitegoods and mattresses. The service will be extended to 5 per week instead of the 4 day per week service currently in place. This will provide additional services and reduce the waiting time for bookings.

2.7 Chipping Service

2.7.1 Service Details

Council operates a quarterly kerbside chipping service (Figure 16). Between July 2018 and June 2019, 1057 mobile chipping services were booked.

The number of booked chipping services is falling. In 2018-2019 an average of 264 services were booked each quarter compared to a high of 353 in 2016. The Residential Waste Survey 2018 indicated that only 27% of respondents were aware of the service and 2% had used the service.



Figure 16 - Mobile chipping service

2.7.2 Options, Opportunities and Challenges

The residential waste survey revealed that residents are largely unaware of the availability of the chipping service and use of the service has been decreasing. Council will consider a quarterly collection of tree trimmings for processing at a greenwaste facility in its next collection contract instead of providing a chipping service. It is expected this will resolve concerns about the low usage as well as EPA concerns about spreading weed species when leaving bags of mulch behind. It will also accommodate bushfire pruning of a size that does not fit in the bin. It is proposed to substitute this service with a bulky green waste collection.

2.7.3 Waste Service Recovery

Table 12 below shows current recovery and the material targeted for future recovery.

Table 12 indicates the current range of materials recovered through the domestic collection system which includes the kerbside services and drop off events.

Also shown is a list of potential material that could be recovered based on the results of the Domestic Kerbside Audit 2018. Recovery of this material is predicated on the introduction of recovery from our bulky waste collection, the introduction of additional kerbside collection of greenwaste and increased education to reduce the amount of material placed in the wrong bin.

Providing additional greenwaste recovery opportunities is in response to Ku-ring-gai's community call for additional services. Increasing community education on putting the right material in the right bin will reduce 'leakage' in the red, blue and yellow bin. 23% of additional comments in the Residential Waste Survey called for more knowledge about the services offered and what to put in each bin.

Table 9 - Kerbside Waste Recovery

Target Municipal Solid Waste	Materials Recovered	Tonnes per Year	Kilogram per Person	Diversion 2018/19	State Average	Regional Average
2018/19 Recovery	<div></div> Paper and cardboard from Blue bin <div></div> Mixed containers from Yellow bin <div></div> Greenwaste from Green Bin <div></div> Some residual waste processed via Veolia MBT (subject to negotiated regulatory changes) <div></div> Whitegoods <div></div> Chemical collection events	32,255	256	58%	42%	53%
Potential materials for recovery (based on audit results 2018)	<div></div> Additional greenwaste from quarterly bulky collection and weekly pick-up <div></div> Residual waste processed via Veolia MBT(temporarily unavailable) <div></div> Paper and cardboard from red bin <div></div> mixed containers from red bin <div></div> greenwaste from red bin <div></div> metals from red bin <div></div> e-waste from red bin <div></div> e-waste recovery from bulky waste <div></div> metals recovery from bulky waste <div></div> Mattress recovery from bulky waste	9,756 0 110 2,230 290 330 722 116 228 110	110	12%		

2.7.4 Actions

- Continue to use private contractor for collection of waste materials.
- Administer the management of the regional waste disposal and processing contract under the Northern Sydney Council's Waste Services Alliance
- Recycling Processing contracts to be limited to two-year terms with review options thereafter
- Maintain technical and market knowledge with processing of recyclables for inclusion in future Contracts.
- Next kerbside service tender specifications to include options for
 - Weekly and fortnightly green waste services
 - Quarterly bulky green waste collection.
 - Separate collection for e-waste, metals and mattresses subject to established stable markets for these products.
- Amend the current process for requesting a bulky waste service to allow a maximum of four per year.
- Continue to research and investigate additional recovery and recycling of waste materials included in the bulky waste service.
- Increased community engagement

3 Multi-Unit Dwellings

3.1 Future MUD growth



Figure 17 below depicts the numbers of major dwelling types in Ku-ring-gai since 1991. The chart shows that while the number of separate houses has risen slightly from just under 30,000 in 1991 to just over 30,000 in 2016, the number of MUDs (multi-unit dwellings - medium density and high-density apartments) has increased at a faster rate.

The number of MUDs has risen from a total of around 3,500 in 1991 to more than 11,600 in 2016. Council's MUD database currently shows 624 MUD blocks for a total of 12,550 dwellings. The proportion of MUDs in Ku-ring-gai is almost 28% of all dwellings compared to 11% in 1991.

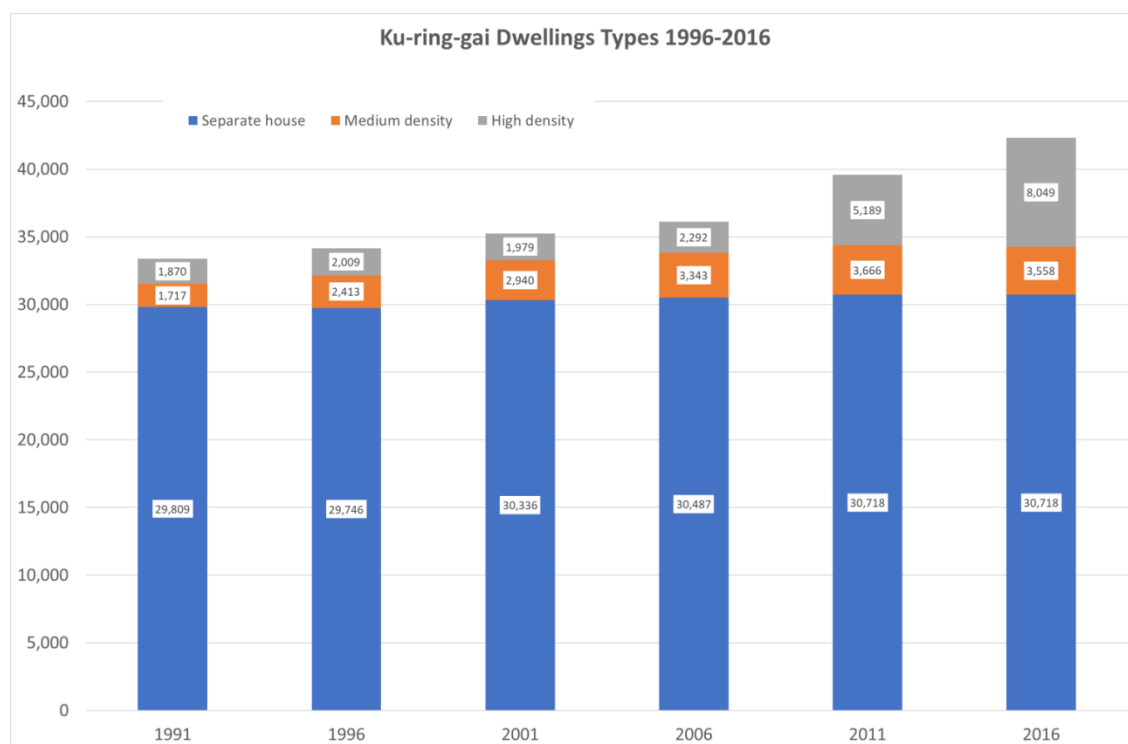


Figure 17 - Dwellings type numbers 1991-2016

Table 10 shows that by 2036 the number of single dwellings is expected to rise by 9% from 2018 figures, while the number of MUDs is expected to rise by 80%. By 2036 the proportion of MUDs in Ku-ring-gai will be 39%, compared to 28% in 2018.

Table 10 - Projected residential dwelling growth to 2036

Type	2018	2036	Increase	Percent Increase
Single dwellings	31,600	34,491	2,891	9%
MUDS	12,177	21,858	9,681	80%
Total Households	43,777	56,349	12,572	
Percent MUDs	28%	39%		

There are a range of waste-related problems that are more prevalent in MUDs than in single dwellings. Recycling streams in MUDs tend to be more highly contaminated than those in single dwellings. There are also higher instances of dumped waste in MUD bin rooms. Ku-ring-gai Council has experienced both these issues and as well as problems with the size of bulky waste collections outside large MUD blocks. Increases in the number of MUDs will amplify these problems.

Waste storage facilities must also be provided in MUDs that are of adequate size, properly managed and designed to allow safe and convenient access for residents and collection staff.

Consequently, Council will include the predicted growth in multi-unit dwellings in the collection tender document to ensure future contractors are aware of this issue and can accommodate changes in the number of MUDs in their service provisions.

Action

- Tender document to include 10-year projections for population growth and increases in MUDs.

3.2 Bulky waste

The bulky waste collection service at high density MUDs has caused some concerns. Almost all Ku-ring-gai MUDs have nature strips at the front of their properties and bulky waste is collected from these areas at the kerbside. Council's contractor cannot enter MUD blocks to pick-up bulky waste items due to the size of the collection vehicles.

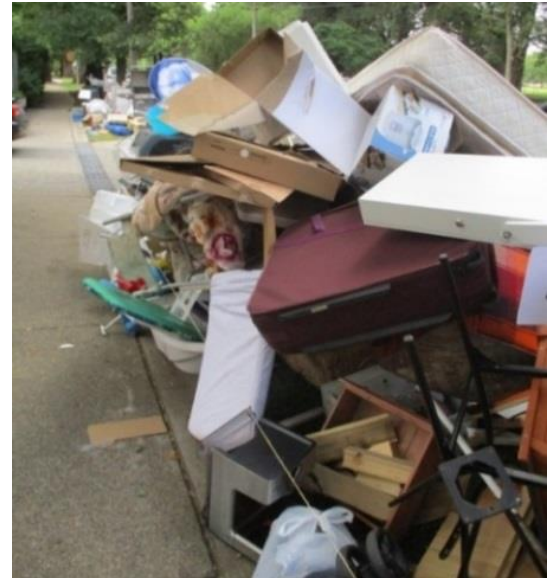


Figure 18 - Problem bulky waste outside Multi-storey dwellings

When several units book a bulky waste collection, large amounts of material are placed on the kerbside where, in some cases, there is limited space (see Figure 18). This problem is amplified when unbooked material is added. Narrow nature strips, access to kerbside and traffic contribute to these problems in large scale MUD blocks. In addition, when residential occupancy begins to turn over, furniture and other bulky waste is often left behind on the nature strip by vacating residents. Considering the likely growth in the number of MUDs in Ku-ring-gai, this could become a serious issue.

3.3 Education

Council conducted a visual survey of 600 MUDs bin rooms in 2018. Visual audits are not statistically rigorous however the visual inspections align with the results from the Kerbside Audit. The survey reported that 30% of comingled recyclables bins had some contamination compared to the paper and cardboard bins, for which only 11% had some contamination. This aligns with the data which shows that comingled recycling bins have quite high contamination compared to paper and cardboard bins. The survey also inspected bin room education material and found that 55% of MUDs had the correct signage on the disposal of waste. One of the key roles for a Council waste education officer would be to address contamination and education issues in MUDs.

3.4 Actions

Actions for MUDs are the same as for single dwellings as detailed in Section 2.74 with the addition of:

- Provide additional resources to enhance waste education for the LGA.

4 Problem Waste

4.1 Service Details

Problem wastes include materials that are not collected as part of the regular kerbside service and create difficulties for collection due to the hazards they present. They typically include chemicals, paint and smoke detectors among others.

Council holds two chemical collection events per year. One is funded by the EPA and the other by Council. In 2017-2018, 149.7 t of material was collected at these events.

Batteries, fluorescent lights and mobile phones are also collected by Council from both public drop-off facilities and Council's own offices and operations. Since the service began in December 2017, 292 kg of batteries, 63 kg of fluorescent lights and 57.5 kg of mobile phones have been collected.



4.2 Options, opportunities and challenges

The NSW EPA is also addressing these waste types by providing funding for the establishment of CRCs and providing a contractor to collect the materials to 2021. The CRC program indicates the EPA's desire to move away from funding events and towards funding permanent facilities. The EPA has nominated Ku-ring-gai for a Community Recycling Centre and Council has investigated the establishment of a CRC but has experienced difficulties finding an appropriately zoned site. Council will consider joint funding of a CRC in a location convenient to its residents.

In the meantime, Council encourages the use of Kimbriki, Artarmon and Belrose Transfer Stations and CRCs at Artarmon and Thornleigh for problem waste, all of which are close to Council's boundaries. Facilities are available at Gordon Library for the disposal of small problem waste such as batteries, mobile phones and fluorescent globes. These are brought to Council's depot and combined with items generated from Council's offices and operations

4.3 Actions

- Provide chemical collection events twice per year.
- Continue research and development into possible Community Recycling Centre sites within the region.

5 Public Place Litter Bins

5.1 Profile

An audit of litter bins was undertaken in November 2017. Samples were collected from litter bins in the town centres. The composition of the audited material can be found in figure 19 below.

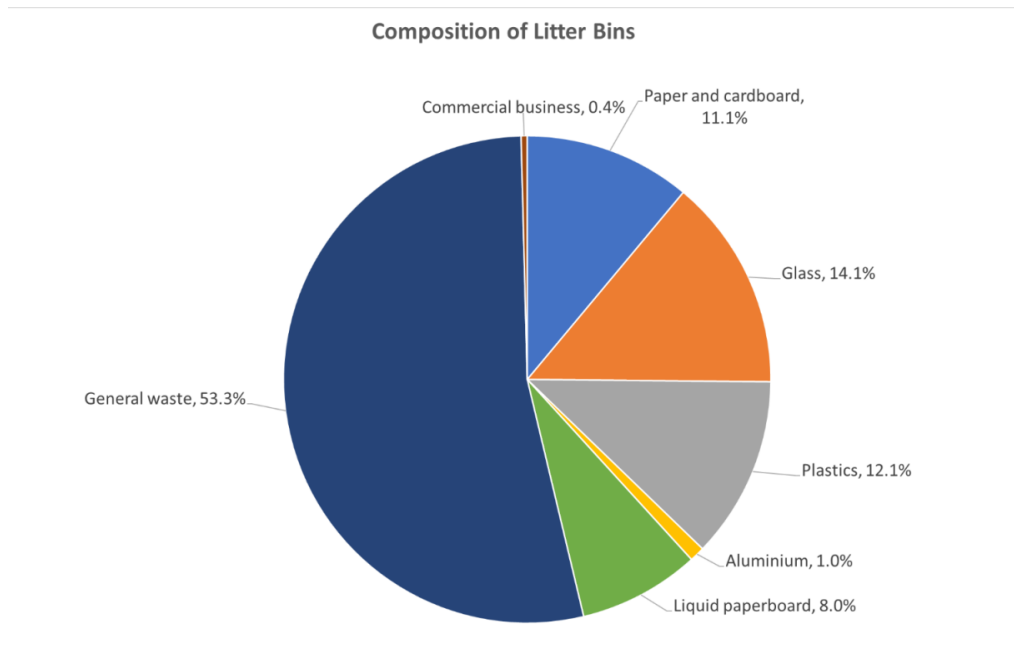


Figure 19 - Composition of the litter stream

On average, each litter bin contained 2.3 kg of waste with more than half of this (53.3%) general waste. Even though the litter bin composition strictly indicates 46% should be recovered, the audit noted that only 18% (plastic and glass) would be suitable for recovery. The other materials are exposed to contamination such as food soiled cardboard and paper.

In 2013, the NSW Premier set an ambitious target to reduce the volume of litter in NSW by 40% by 2020. Litter reduction is one of 12 key priorities for the NSW Government. This target has allowed Council to focus on addressing this issue locally.



Figure 20 - Litter prevention work in town centres

In 2013 Council implemented the Litter Free Ku-ring-gai Program. A key factor in reducing litter and long-term behaviour change is to make it easy for people to 'do the right thing' by improving physical infrastructure. It includes repairing or improving the street litter bins, seating and landscaping. All town centres and neighbourhood villages have been included in the program and evaluation indicates an average reduction in litter of 85.5% across all sites. This is a significant reduction across Ku-ring-gai Council and higher than the WARR Strategy target of 40%. Litter prevention trials have also been undertaken at St Ives Showground, Lindfield Oval and North Turramurra Recreation Area with a view to rolling out further projects.

Through the Litter Free Ku-ring-gai Program, Council has undertaken landscaping and other improvements, including regular bin cleaning and litter collections, to discourage littering and graffiti. Litter is collected as part of maintenance schedule by Council staff.

5.1.1 Sports fields and parks



There are 300 parks in the Ku-ring-gai Council area. Litter bins in parks and sports grounds are either 120 L or 240 L capacity and fitted on stands or in frames. The previously-used open top cradle bins are being phased out. An audit of litter bins in parks and reserves to reconcile service numbers and locations should be undertaken every two years.

There are no recycling bins in any public places in Ku-ring-gai due to concerns over high levels of contamination and the cost to introduce a service mid-contract.

5.1.2 Event Litter bins

Council is preparing a Sustainable Event Management Policy which outlines the requirements for Council and external event organisers providing events to comply with the Policy. These will include providing recycling and in some cases the recovery of food waste at major events



Figure 21 - Event waste at Medieval Faire 2019

5.2 Options, opportunities and challenges

The Community Satisfactory Survey 2019 rates control of litter of high importance to our community. The survey also found that the Community had a high satisfaction level. This is supported by the 2018 Residential Waste Survey which found less than 10% of respondents were dissatisfied with Public Place Litter Bins. Dissatisfaction centred predominantly on the number of bins available and the frequency of collection

High levels of contamination occur in public place recycling. For implementation across Ku-ring-gai LGA it is estimated the cost for bin installation would be over \$550,000. This cost does not include collection costs that would be incurred with any new collection Contract. Waste audit data of public place recycling indicates the quantity of recyclables in public litter bins is also low and could be impacted from the Container Deposit Scheme introduced by the State Government in 2017.

The target for litter reduction across the council area is the WARR Strategy's target of 40%. Currently Council is performing above that with an average reduction in litter across the town centres of 85.5%.

5.3 Actions

- Undertake litter audits in parks and reserves every two years to reconcile service numbers and locations against previous audits
- Implement litter reduction programs at locations where grant funding has been made available.
- Conduct post-program litter audits at identified locations every two years and implement additional maintenance and cleansing services where necessary.
- Maintain public event waste recovery.

6 Illegal Dumping

6.1 Profile

Data indicates a reduction in the number of incidents of illegal dumping in Ku-ring-gai over the last eight years. This is shown in Figure 22. Since July 2018 there have been 913 illegal dumping incidents reported through Council's database.

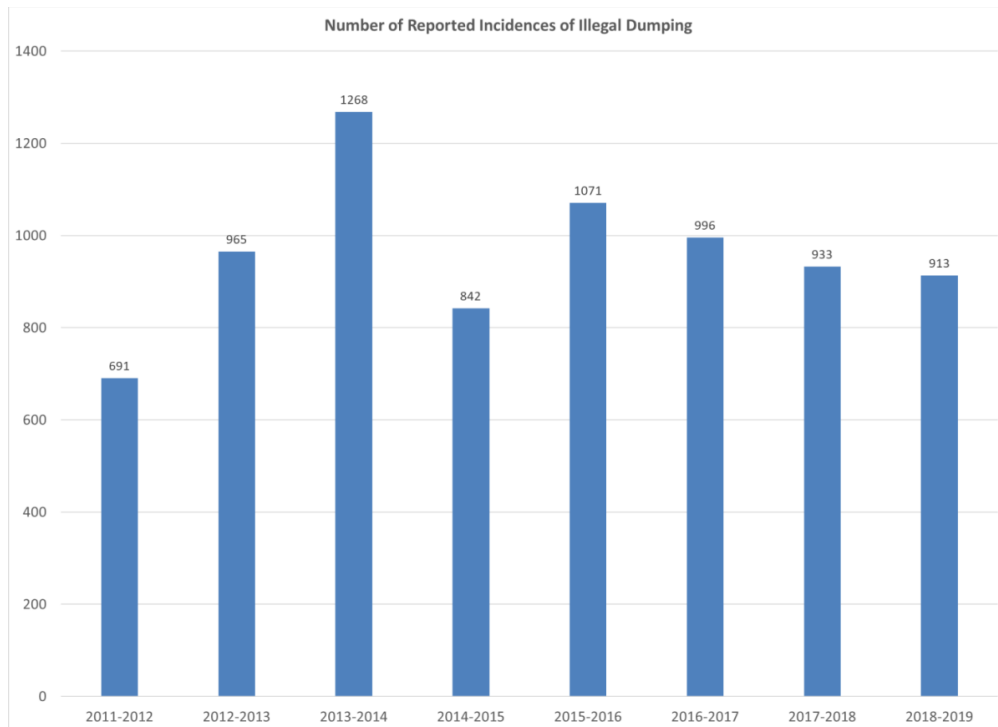


Figure 22 - Number of reported incidences of illegal dumping 2011-2012 to 2018-2019

By far, most reported incidents are on nature strips. An example can be seen in Figure 233 below. Illegally dumped mulch is often found in parks and on roads from both commercial and residential sources.



Figure 23 - Illegally dumped waste

6.2 Options, opportunities and challenges

There are wide ranging reasons as to why illegal dumping occurs. A high proportion of illegal dumping in Ku-ring-gai is household material that ends up on nature strips that has not been booked for a bulky waste collection. Illegal dumping also occurs in parks and bushland. Greenwaste and mulch from small business owners is a commonly dumped material.



Figure 24 - Taped illegally dumped waste

Prior to 2015 and in response to a rising trend in illegal dumping, Ku-ring-gai employed an Illegal Dumping Investigator. Council has had many successes in investigating and penalising dumpers and has substantially reversed this upward trend (see Figure 222). Since 1 January 2017, Council's Illegal Dumping Investigator has served 49 infringement notices ranging from clean-up notices, aggravated littering and Transport of Waste for Companies. Council has also had three successful prosecutions.

Council's illegal dumping program uses a range of educational material which advises residents of the correct way to dispose of their waste, including marking illegally dumped waste (Figure 244). The program has a range of tools available to increase awareness and discourage dumping including an illegal dumping camera surveillance program.

6.3 Actions

- Provide support for regulatory action with on-going monitoring and reporting of illegal dumping incidents, community impacts and trends.
- Participate in regional illegal dumping programs where appropriate to Ku-ring-gai.
- Provide resources to remove illegal dumping in a timely manner

7 Commercial Waste Services

7.1 Profile

In February 2019 Council had 585 commercial garbage customers and 398 commercial recycling customers. In 2018-2019, 2,929 t of garbage was generated from customers and 630 t of recyclables.

7.2 Service Details

Council provides a service for the collection of waste from commercial businesses in the Ku-ring-gai Council area. Businesses can choose between 240 L and 660 L mobile bins and 1.5 m³ and 3.0 m³ bulk bins (Figure 255) to be collected up to six days per week. The same bins and services are also available for commercial paper and cardboard while commercial recyclables can be collected in 240 L and 660 L bins. Commercial customers can select bin sizes and collection frequencies to suit their needs.



Figure 25 - Examples of Council's commercial bin options

Council competes with other commercial waste contractors by providing waste services to commercial customers through a contractual arrangement with its kerbside contractor, Veolia. This is a Category 2 business with the purpose of generating income for Council. Fees are governed by the *Local Government Act 1995*.

7.3 Options, opportunities and challenges

There are opportunities to expand the service and suitable resources should be provided to investigate these opportunities. Council should also:

- Review current services and bin types
- Consider preparing a marketing strategy to increase the profile of Council's services.

Council should continue to provide the service so long as it generates income. Once this is no longer the case the service should be reviewed and ceased if there are no other options.

7.4 Actions

- Continue a market-driven approach to providing non-domestic waste and recycling services

8 Operational Waste

8.1 Profile

Council generates waste from its own operations at both the depot and in the field. In 2018-2019, 759 t of garbage was generated and sent to landfill and 28,700 t of recyclable material was generated and recovered including re-milling of asphalt and concrete sent to concrete crushing facilities. This represents a diversion rate of 89.3% as shown in Figure 26.

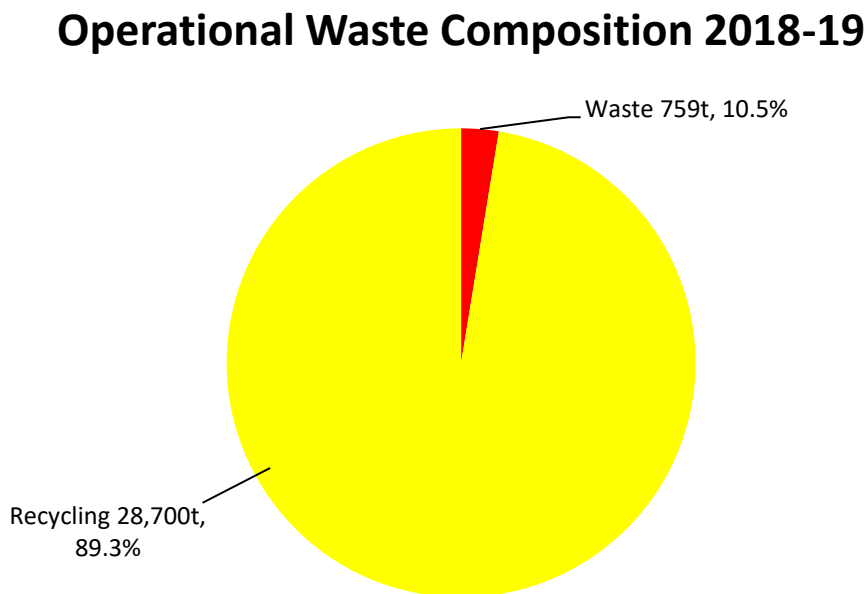


Figure 26 - Operational waste composition

8.2 Service Details

The depot is the base for Council operations and has offices attached for operational staff. On-site operational waste is sorted into residual, comingled containers and paper and cardboard streams.

Some waste generated in the field is brought back to the depot and stored on site before removal (27).



Figure 27 - Waste in bunkers and bulk bins at the depot

Other waste is placed in several bulk bins and collected by Bingo Bins as shown in Table 11.

Table 11 Depot bulk waste bins

Bin size (m ³)	Material	Destination	Frequency	Comments
17	Soil	Belrose	On call	About 4 t each time
17	Mixed waste	Kimbriki	Every two weeks	Waste is dropped in an adjacent bunker by staff
17	Metals		On call	About 3 t each time
25	Greenwaste	NRC Rouse Hill	On call	

8.3 Options, opportunities and challenges

8.3.1 Disposal Options

Ryde Transfer Station

Ryde Transfer Station is located at the end of Wicks Road, Ryde. It is immediately adjacent to Ryde City Council's Porters Creek waste facility. SUEZ has been operating Ryde Transfer Station since 2011 when it acquired WSN Environmental Solutions, the state government business unit that operated transfer stations and putrescible landfills.

In recent years, SUEZ has scaled back operational hours at the site. The site is for sale with the condition that it not be sold to a competitor.

If the site closes as a waste facility, there will be some effect on Ku-ring-gai Council's operations. Council delivers dumped waste and litter there which would need to be delivered to another site. The immediate alternative is Artarmon Transfer Station which is also operated by SUEZ, but it is less convenient than Ryde and will result in more travel time for Council staff and greater expense to Council.

The options for a regional transfer station are being researched by NSROC. Council supports this initiative and the development of any other asset that will benefit the region.

8.3.2 Roads and Construction

Major infrastructure projects are part of Council's Technical Services function and are undertaken by civil contractors selected through a tender process. Council prefers resource recovery activities and most contractors are recycling as a matter of course. Council's procurement policy also includes preferences for using recycled material.

Council's Technical Services Unit is currently exploring options for using recovered waste in asphalt manufacture. Two types of asphalt made from up to 35% recycled waste including plastic bags, glass and green waste are being trialled. Boral's 'biogenic' bitumen was used in Saiala Road, Killara in June 2018 and is responding well to normal traffic flows. Downer-EDI's 'Reconophalt' is the other product being trialled. This incorporates plastic bags, glass bottles and toner cartridges as a portion of the bitumen content.

8.4 Actions

- Preference the use of recyclable materials in infrastructure projects where the cost benefit supports the inclusion of these products.
- Procure recycling services for construction and other operational waste to be delivered to facilities that sort and recover these materials.
- Include specifications for using recycled glass and plastics in road surfacing where the material is cost effective.
- Review alternative facilities for delivery of general operational waste.

9 Soft Plastics

9.1 Options, opportunities and challenges

This section presents information on the market landscape for soft plastics, a material that Council could potentially add to its recycling service. The information presented relates to the availability of outlets for such materials. Further research will be required.

Soft plastics are often described as those plastics that can be easily crunched or broken by hand including:

- HDPE - example supermarket carrier bags
- LDPE - example vegetable or magazine packaging and
- Polypropylene - example magazine wrapping.



Coles and Woolworths supermarkets host collection bins for soft plastics across most major metropolitan centres. The system is a voluntary, industry-led product stewardship initiative, the cost of which is covered by well-known manufacturers such as Arnott's, Bird's Eye, Tip Top, Goodman Fielder, Kellogg's, Kimberly-Clark, Lion, Nestle and SunRice. REDcycle co-ordinates the supermarkets' program and sends material to REPLAS for processing.¹² REDcycle currently provides four soft plastic recycling points in Ku-ring-gai Council area through Coles and Woolworths.¹³

There is limited opportunity and local market available for recyclable soft plastics in NSW outside of the REDcycle program. Should alternate viable markets become available then this could be included in the recycling bin.

Council provides community education that seeks to raise awareness of the issues relating to soft plastics including:

- encouraging residents to avoid excessively packaged goods
- avoiding unnecessary single use and soft plastics such as straws or plastic bags
- buying in bulk and
- Switching to reusable food containers.

9.2 Actions

- Maintain technical and market knowledge for soft plastics and glass recovery
- Include soft plastics as an option in recycling processing contracts.

¹² <https://www.redcycle.net.au/>

¹³ <https://www.redcycle.net.au/where-to-redcycle/>

10 Education

Education is a key focus in Council's Delivery Plan. Education programs and initiatives assist the Ku-ring-gai community to reduce waste and minimise the amount of waste being sent to landfill. Over the last few years it has taken on an even greater importance as State and Federal governments address the future of recycling in Australia.

Council offers a range of education and engagement programs across key areas:

- Reduce or avoid waste
- Reuse waste
- Recycle waste
- Dispose of waste
- Home composting



Figure 28 -Composting workshop at Kimbriki

10.1 Options, Opportunities and Challenges

It is proposed to apply a greater focus on education, particularly for MUDs, but also to more widely publicise other Council services. Community feedback indicates more education and information be provided in relation to waste services.

10.2 Actions

- Provide education programs for services promoting waste recovery and waste avoidance for all sections of the community including schools and businesses
- Prepare a business case for additional resources in education programs
- Provide education programs for services promoting waste recovery and waste avoidance for all sections of the community including schools and businesses.
- Promote alternative avenues for the community to recycle materials that are not included in Council's services

- Maintain the promotion and education of waste and recycling via a range of delivery mediums including social media, newsletters and Web based information
- Co-ordinate waste education across all relevant Council units
- Include contamination reduction actions and targets for the collection contractor as part of the next collection contract
- Maintain multi-lingual information for residents and businesses on waste and recycling services
- Review the presentation of Council's webpage for waste and recycling services to make the presentation more intuitive
- Continue to promote alternative avenues for the community to recycle materials that are not included in Council's services
- Continue to provide community education programs on illegal dumping to reduce dumping and support regulatory action
- Continue to educate resident's appropriate disposal of problem waste
- Include contamination reduction actions and targets for the collection contractor as part of the next collection contract
- Maintain technical knowledge and market-based programs for promoting and educating the community on best practice resource recovery



Figure 29 - Example of waste education material



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