

QPRC Waste Strategy - Briefing Paper

Current status of waste management in the QPRC region



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Client: Queanbeyan-Palerang Regional Council

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Abbreviations / Glossary

Abbreviation	Description
ABS	Australian Bureau of Statistics
ACT	Australian Capital Territory
C&D	Construction & Demolition
C&I	Commercial & Industrial
CDS	Container Deposit Scheme
Commingled Recyclables	Materials that are able to be recycled or reprocessed through a materials recovery facility
CRJO	Canberra Region Joint Organisation
DWM	Domestic Waste Charge – Charge levied for the kerbside collection of bins
EfW	Energy from Waste
EPA	Environment Protection Authority
ERP	Quarterly Population Estimates
FOGO	Food and Garden Organics
GHG	Greenhouse Gas
GO	Garden Organics
GST	Goods and Services Tax
GWC	General Waste Charge – Charge levied to cover waste management costs not directly related to kerbside collections
LGA	Local Government Area
MBT	Mechanical Biological Treatment
MRF	Materials Recovery Facility
MSW	Municipal Solid Waste
NSW	New South Wales
NTCRS	National Television and Computer Recycling Scheme
Organic waste	Waste from plants or animals that can be composted into material suitable for reuse
PEF	Process Engineered Fuel
PET	Polyethylene Terephthalate
POEO	NSW Protection of the Environment Operations Act 1997
QCC	Former Queanbeyan City Council
QPRC	Queanbeyan-Palerang Regional Council
Residential Waste	Waste sent to landfill
RRC	Resource Recovery Centre
WARR	Waste and Resource Recovery
WTS	Waste Transfer Station

Executive Summary

The Queanbeyan-Palerang Regional Council (QPRC or the Council) is located in the Southern Tablelands region of New South Wales and covers an area of about 5,300 km². The Council was formed in May 2016 after the amalgamation of former Queanbeyan City Council and Palerang Council, and serves a population of approximately 58,100 people. Major townships include Queanbeyan, Bungendore, Braidwood and Googong. There are also several rural villages and a number of large residential populations living in rural-residential to the west near the ACT border.

In light of the amalgamation, Council is reviewing and consolidating its existing waste strategies. This will provide an opportunity to address key issues the Council is facing including pressures on existing waste services from forecast population growth, the need to increase resource recovery rates, streamline waste services and charges and address key national and regional waste issues which may impact on the Council.

A number of actions identified in the Palerang Council Waste Strategy and the former Queanbeyan City Council Waste Strategy have been implemented or completed. Key projects related to the construction or improvement to facilities and their costs are outlined in the table below.

Table Ex 1 Major waste project implemented in QPRC LGA

Facility	Description	Approximate Cost
Braidwood Waste Transfer Station	Facility accepting residual waste, recyclables and organics from municipal, commercial & industrial and construction & demolition sources	\$5,500,000
Bungendore Resource Recovery Facility	Largest facility in LGA. Facility accepting residual waste, recyclables and organics from municipal, commercial & industrial and construction & demolition sources	\$4,500,000
Captains Flat Waste Transfer Station	Local facility accepting mainly residential waste streams	\$400,000
Macs Reef Road Waste Transfer Station	Local facility accepting residential waste streams.	\$2,000,000
Queanbeyan Waste Minimisation Centre	Purchase of new mulcher	\$1,000,000
Queanbeyan Waste Minimisation Centre	Construction of a Community Recycling Centre	\$200,000

In addition, Council has implemented a number of other key actions such as commencing construction of the Braidwood Waste Transfer Station, entered into a contract with J.J. Richards & Sons for the delivery of waste collection services within the former QCC LGA, entered into a contract with Soft Landings for the processing of mattresses from the QPRC LGA and completing a comprehensive waste audit for the QPRC LGA. It is noted that following amalgamation, some actions identified in the previous strategies may no longer be relevant or supported.

QPRC Waste Collection Services

QPRC provides waste services broadly consistent with those offered by other CRJO councils, however, it should be noted there are considerable variations across the region. Within the QPRC LGA there are also variations in waste services and practices between the former Queanbeyan and Palerang councils. The current kerbside collection services provided within QPRC LGA are summarised in the table below.

Table Ex 2 QPRC kerbside waste collection services

Catchment	Number of Services	Residual	Recycling	GO	FOGO	Collection Contractor
Braidwood	768	140L (W)	240L (F)	N/A	240L (F)	Council
Bungendore	1,441	140L (W)	240L (F)	N/A	240L (F)	Council
Burra/Royalla/Urila	628	240L (F)	240L (F)	N/A	N/A	Council
Captains Flat	275	140L (W)	240L (F)	N/A	240L (F)	Council
Carwoola/Primrose Valley	367	N/A	240L (F)	N/A	N/A	Council
Majors Creek/Araluen	376	240L (F)	240L (F)	N/A	N/A	Council
Queanbeyan – Urban	15,856	140L (W)	240L (F)	240L (F)	N/A	J.J. Richards
Queanbeyan –Urban	1568	240L (W)	240L (F)	240L (F)	N/A	J.J. Richards
Queanbeyan – Multi-unit shared^	2,898	240L (W)	240L (F)	240L (F)	N/A	J.J. Richards
Queanbeyan – Rural	869	240L (F)	240L (F)	N/A	N/A	J.J. Richards
Sutton Acres	177	N/A	240L (F)	N/A	N/A	J.J. Richards
Vacant (no service)	4,218					

Waste Fees and Charges

A number of households in the QPRC LGA pay a domestic waste management charge which covers costs associated with kerbside waste collection such as wages of waste operational and management staff, loan repayment; waste contracts waste disposal fees and educational activities.

The majority of residents in the former Palerang LGA also pay a general waste charge. This charge funds a number Council's waste management activities including design and construction costs for new facilities, loan repayments and rehabilitation of closed landfills. In addition, former Palerang LGA residents issued with a 'tip pass' pay a Landfill Charge to cover costs of disposal of waste within landfills in the former Palerang LGA.

Council imposes a mandatory charge for businesses in the former QCC LGA for the availability of business related waste services provided by Council.

Number of Households and Waste Generation Rates

The total number of households in the QPRC LGA is given in the table below.

Table Ex 3 Total number of households QPRC LGA

	2016	2021	2026	2031	2036	2050	Difference (2016-2050)
Total LGA	27,180	28,898	31,365	34,040	36,453	40,552	13,372

MSW generation was estimated based on average generation rates provided in the QPRC Household Kerbside Bin System Audit as given below. Waste generation has not been modelled based on current diversion rates but on estimated generation per waste type.

Table Ex 4 Household waste generation rates (source: EC Sustainable, 2018)

Waste Type	Rate	Unit
Residual	3.6	kg/household/week
Recycling	4.8	kg/household/week
Organics	8.8	kg/household/week

To identify the estimated volume of waste generated by the LGA up to 2050, the rates of waste generation in Table 15 were applied to:

- the number of households per year (refer to Table 14)
- 0.7% waste growth rate per year¹

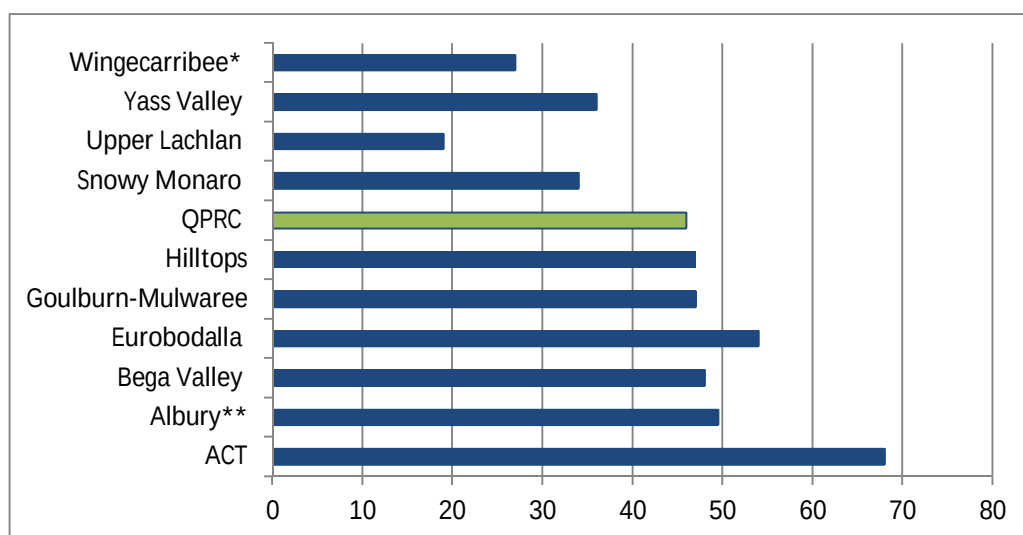
The estimated waste generation for the QPRC LGA from 2016 through to 2050 is given in the table below. This assumes business as usual in relation to ongoing waste management activities.

Table Ex 5 QPRC Waste generation 2016 – 2050 (tonnes per annum)

	2016	2021	2026	2031	2036	2041	2046	2050
Residual	6,692	7,381	8,295	9,322	10,338	11,150	11,981	12,680
Recycling	5,019	5,536	6,221	6,992	7,753	8,363	8,986	9,510
Organics	12,269	13,532	15,208	17,091	18,952	20,442	21,966	23,246
Total	23,980	26,448	29,725	33,405	37,043	39,955	42,933	45,435

Recycling Rate Compared to Other Similar Councils

Figure Ex 1 summarises the MSW recycling rates of comparable councils and the ACT, and highlights QPRC to illustrate how Council currently performs with respect to similar LGA's in the region.

Figure Ex 1 MSW recycling rate % per council (source: CRJO Waste Strategy 2017 unless noted otherwise)

*Sourced from Wingecarribee 2016-17 WARR Survey

** Sourced from 2014-15 NSW Local Government Waste and Resource Recovery Data Report 2014-15

¹ Australian National Waste Report 2016, identified that over nine years, excluding fly ash, waste generation increased by about 19% or an average of 1.9% per year and per capita generation trended upwards with a 7% overall increase over nine years or an average increase of 0.7% per year (REC & Blue Environment, 2016, page 42).

As highlighted in the above figure QPRC is currently performing at around the median when compared to other Councils in the local region with a recycling rate of around 46%. The NSW EPA reported an overall recycling rate across NSW for MSW of 58% in the latest Progress Report.

Next Steps

This discussion paper will support the following key next steps in the preparation of the new Waste Strategy for QPRC:

- Provide background information to the first QPRC Waste Strategy Working Group (WSWG) Meeting currently scheduled for the early September
- Provide background information for a Council meeting currently scheduled for mid-October to seek Council endorsement prior to proceeding with the first Community Consultation session.
- Provide background information for the first Community Consultation sessions to be held in mid-October
- Support identification of alternative waste management and resource recovery options. These options will be identified based on findings from our site inspections, discussions with QPRC staff, information in the background briefing paper, and outcomes of the initial WSWG meeting and Community Consultation sessions.

1.0 Why is QPRC developing a Waste Strategy?

The Queanbeyan-Palerang Regional Council (QPRC or the Council) is located in the Southern Tablelands region of New South Wales (NSW) and covers an area of about 5,300 km². The Council was formed in May 2016 after the amalgamation of former Queanbeyan City Council and Palerang Council, and serves a population of approximately 58,100 people. Major townships include Queanbeyan, Bungendore, Braidwood and Googong. There are also several rural villages and a number of large residential populations living in rural-residential to the west near the ACT border. The Council LGA and main waste facilities are shown in Figure 1.

In light of the amalgamation, Council is reviewing and consolidating its existing waste strategies. This will also provide an opportunity to address key issues the Council is facing:

- To assist QPRC to meet the objective of a sustainable, “clean green” community outlined in the QPRC 2017 Strategic Directions paper.
- Predicted population growth in the LGA to grow to 76,000 people by 2031²
- Not achieving *NSW Waste Avoidance and Resource Recovery Strategy 2014-2021* (WARR Strategy) targets
- Different fees and charges regimes based on the former LGA boundaries
- Different waste services provided across the local government area (LGA)
- Delivery of the same service by Council staff in some areas and by Contractors in other areas
- Sporadic, adhoc waste education activities
- Differences in gate fees at disposal and recycling facilities for the same materials from different areas

1.1 Significant projects arising from previous waste strategies

A number of actions identified in the Palerang Council Waste Strategy³ and the former Queanbeyan City Council Waste Strategy⁴ have been implemented or completed. Key projects related to the construction or improvement to facilities and their costs are identified in Table 1. In addition, Council has implemented or completed the following actions:

- Entered into a contract to construct the Braidwood Waste Transfer Station
- Entered into a contract with J.J. Richards & Sons for the delivery of waste collection services within the former QCC LGA
- Entered into a contract with Soft Landings for the processing of mattresses from the QPRC LGA
- Active participation in a Regional Illegal Dumping squad and associated enforcement activities
- Offered businesses within the QCC LGA access to the ACTSmart waste reduction program (now expanded to cover the entire QPRC LGA)
- Carried out a comprehensive waste audit for the QPRC LGA

A full list of identified actions and the status of each action from the previous strategies are contained in Appendix B and C. Following amalgamation, some actions identified in the previous strategies are no longer relevant or supported.

² QPRC (2017), Strategic Directions Discussion Paper, published March 2017 <https://yourvoice.qprc.nsw.gov.au/strategic-directions-discussion-paper>

³ URS (2015), Waste Management Strategy 2015-2035 for Palerang Council

⁴ APC (2013), Waste and Resource Recovery Strategy 2013-2023 for Queanbeyan City Council

Table 1 Key waste facility projects

Facility	Description	Approximate Cost
Braidwood Waste Transfer Station	Facility accepting residual waste, recyclables and organics from municipal, commercial & industrial and construction & demolition sources	\$5,500,000
Bungendore Resource Recovery Facility	Largest facility in LGA. Facility accepting residual waste, recyclables and organics from municipal, commercial & industrial and construction & demolition sources	\$4,500,000
Captains Flat Waste Transfer Station	Local facility accepting mainly residential waste streams	\$400,000
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Queanbeyan Waste Minimisation Centre	Purchase of new mulcher	\$1,000,000
Queanbeyan Waste Minimisation Centre	Construction of a Community Recycling Centre	\$200,000

AECOM was appointed by Council to develop the new Waste Management Strategy for the region.

The objectives of the project are to:

- provide an overview of the existing waste management practices and services offered.
- engage and gauge community views on waste and potential waste management options.
- develop potential future waste management and resource recovery options for the Council over a 30-year timeframe, including an estimate of the cost to implement each option.
- develop a strategy to assist Council in meeting the WARR Strategy targets.
- develop a strategic business plan and financial model to ensure the sustainability of the Waste Strategy over a 30-year timeframe including quantification of a typical residential bill.

This briefing paper responds to the first objective above, and explores the range of existing waste services and facilities provided across QPRC and how they compare to services provided by neighbouring councils within the Canberra Region Joint Organisation (CRJO⁵).

The briefing paper includes the following information:

Section 1: Background and overview to why the waste strategy is being prepared

Section 2: National, State and Regional Waste Management

Section 3: Regulatory Context

Section 4: Existing Services in the QPRC Local Government Area (LGA)

Section 5: Council Fees and Charges

Section 6: Population, Waste Generation and Resource Recovery

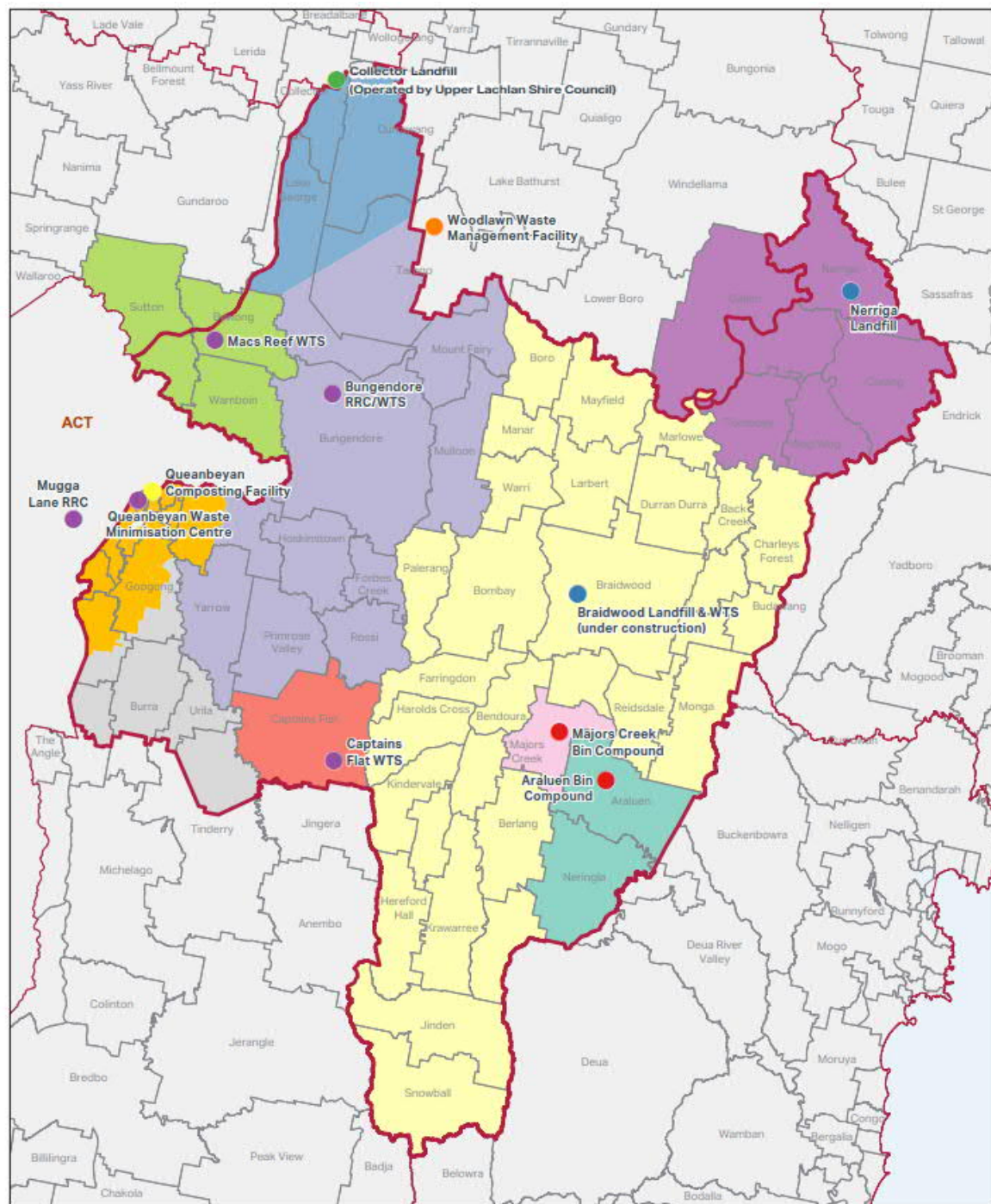
Section 7: Benchmarking in the Region

Section 8: What Can / Cannot QPRC Influence

Section 9: Next Steps

⁵ CRJO: Canberra Region Joint Organisation comprises of Bega Valley, Eurobodalla, Hilltops, Goulburn Mulwaree, Queanbeyan-Palerang, Snowy Monaro, Upper Lachlan, Wingecarribee and Yass Valley Councils along with the ACT Government.

Figure 1 QPRC local government area and waste facilities



LOCAL GOVERNMENT AREA

Legend

QPRC LGA Boundary

Waste Facility

Bin Compound

QPRC Operated Landfill

Landfill Operated by Upper Lachlan Shire

Council

WTS or RRC

Privately Operated Landfill

Waste Processing Facility

Waste Catchment

ARALUEN

BRAIDWOOD

BUNGENDORE

CAPTAINS FLAT

COLLECTOR

MAC SREEF

MAJORS CREEK

MUGGA

NERRIGA

QUEANBEYAN

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2.0 National, State and Regional Waste Management

This section provides an overview of the current National, State and Regional waste management environment, including consideration of key trends, constraints and opportunities of potential relevance to QPRC.

Table 2 Summary of market trends in waste management

Market	Factor	Potential Impact to QPRC
National	China Sword Policy – National recyclable materials price volatility	Potential increases in gate fee for recyclables sent to Hume MRF. Greater incentive to establish local markets for reuse/recycling of materials rather than export.
	Growing Community Awareness from media coverage (e.g. War on Waste)	Increasing local community awareness and pressure to increase resource recovery and reduce waste to landfill.
ACT	The Hume MRF	Variances in gate fee charged to former Palerang and Queanbeyan Councils. Potential increases in gate fees due to National recyclables price volatility. Impact of CDS on recyclable volumes, materials and costs.
	ACT Mugga Lane Landfill	Former QCC LGA sent kerbside collected waste to Mugga Lane Landfill in the ACT. Increases in gate fees expected at Mugga Lane Landfill which will impact QPRC.
	ACT and Cooperation with QPRC	ACT Government is looking for a processing site to take Food and Garden Organics (FOGO). QPRC could potentially co-operate with ACT to establish a site able to take FOGO from both the ACT and QPRC LGA.
NSW	Regional Cooperation	QPRC is a member of the CRJO, which is made up of nine NSW councils and the ACT Government. Potential to investigate shared services leading to cost efficiencies across the region.
	Energy from Waste (EfW)	Regulatory and market uncertainty in NSW regarding EfW in the state, which may influence QPRC position on sending residual waste to an EfW facility in the region.
	Woodlawn Mechanical Biological Treatment Facility	QPRC MSW processed at the Woodlawn MBT would enable the Council to achieve its WARR target for MSW with a single initiative.
	NSW Waste Less Recycle More 2017-2021 Extension	Potential NSW Government funding available to support initiatives identified in the new Strategy.

2.1 National Waste Market Factors

2.1.1 China “National Sword” Policy

Australia has an open export-orientated economy that operates within global supply chains. It is typically not possible for an Australian jurisdiction to achieve full resource recovery within its own boundaries. A circular economy requires some waste streams to be transported outside of regional economies for processing and provision back into national and global supply chains. This does not preclude significant local economic benefits being achieved via well targeted policies favouring local processing and purchasing.

Nonetheless, the prices of most recyclable materials are set in global commodity markets. For example, the value of recovered steel and aluminium is closely linked to the international price of newly smelted steel and aluminium, and recovered plastics prices are linked to the price of crude oil. Until very recently, much of the reprocessing of recyclable materials has been undertaken in China.

In 2013, China launched “Operation Green Fence”, a wide sweeping national program aimed at improving local environmental outcomes and industry restructuring by reducing waste importation and contamination of recyclable materials. The latest phase of this operation called “National Sword” bans the import of many materials along with increased enforcement. On 1 January 2018 China implemented the National Sword policy, which restricts the import of 24 categories of solid waste including types of plastic, unsorted paper and metals. Furthermore, the National Sword also imposes a new 0.5% contamination limit for the remaining recyclable materials not covered by the ban, and restricts the number of import licences issued. Most Material Recovery Facilities (MRFs), including the Hume MRF used by QPRC, cannot readily meet these requirements.

As the ACT MRF sends most of the materials it processes to local manufacturers, its direct exposure to “National Sword” is reduced. Following the recent upgrades at the MRF, it also produces some of the highest quality product in the country. Nonetheless, given the global fluctuations in prices, “National Sword” is having an impact on their revenue.

The policy change in China has greatly dented the demand in global markets for recycled materials, impacting not just Australia but also North America and many Asian and European countries. For example, earlier this year Visy stopped accepting kerbside recycling material collected from eleven western Victorian councils, leaving councils uncertain about where to send their yellow-bin recyclables⁶.

Global prices for many recycled materials started falling when the Chinese government reconfirmed National Sword to the World Trade Organisation in September 2017. For example, mixed paper has dropped from its decade-long range of \$200-250/tonne to between \$0-80/tonne. Mixed plastic has dropped from \$250-350/tonne to around \$50/tonne⁷.

The domestic market for glass has also collapsed across Australia although this related as much to the net importation of bottled beverages as to the National Sword policy. Net importation of bottles leads to Australia having more recycled glass than it needs for local manufacture. Improved recovery of glass containers via the various state and territory Container Deposit Schemes (CDS) will only exacerbate this problem.

Global market volatility creates significant risks for Australian companies and councils seeking to invest in resource recovery and reprocessing infrastructure.

However, the recent developments present a number of opportunities to repurpose waste for beneficial use locally, thus avoiding global market pressures. For example, crushing glass to replace sand and gravel in civil works or processing tyres to replace bitumen in road construction and resurfacing. If such initiatives are undertaken with agreements to ensure supply of tyres and glass and the purchase of asphalt produced then an attractive investment environment can be created. Such approaches can have positive economic and social benefits within the local community as well as achieving waste policy outcomes.

2.1.2 Growing Community Awareness

Over the last year there has been growing interest among the general community across Australia in waste management and resource recovery driven by increasing media coverage of the sector in particular the ABCs popular series *War on Waste*, which first premiered in May 2017 and recently concluded its second series in August 2018. Reflecting the popularity of the subject, the program recently won the 2018 Logie Award for most outstanding Factual or Documentary program.

⁶ <https://www.theage.com.au/national/victoria/recycling-on-the-brink-of-collapse-in-victoria-20180131-p4yz5f.html>

⁷ *The National Sword Crisis* (2018) https://www.insidewaste.com.au/digital_assets/87d277c6-9778-4399-8b35-a59f99c40db3/IW_FEB-MAR18_PREBIND3.pdf

The show has cast a spotlight on a number of key areas which can be influenced by QPRC in their new waste strategy including:

- Reducing plastic bags and associated litter
- Increasing e-waste recycling
- Re-use / sale of second hand items such as furniture
- Community education programmes designed to reduce contamination rates in kerbside recyclables and organics
- Reducing food waste to landfill

2.2 ACT Waste Market Factors

Closer to the QPRC region, changes in the ACT can have implications for waste management in QPRC. QPRC uses a number of ACT waste facilities including:

- the Materials Recovery Facility (MRF) for co-mingled (yellow bin) recyclables in Hume; and
- the putrescible landfill at Mugga Lane, Symonston.

Recent changes in the waste market in the ACT which will influence the QPRC waste strategy are discussed below.

2.2.1 The Hume MRF

The ACT's clean MRF is currently run by Re.Group for the ACT Government. Re.Group upgraded the MRF over 2016-17 to count beverage containers to ensure maximisation of returns from the recently introduced ACT Container Deposit Scheme. The upgrades also include installing a glass processing facility that can make a clean glass suitable for civil applications such as sand or gravel replacement.

Neither former Queanbeyan or Palerang councils had a contract with the MRF, each council paid a historical gate fee agreed with the previous MRF operator. The two councils are currently charged substantially different gate fees by Re.Group under these informal arrangements.

2.2.2 ACT Landfill

The ACT has only one putrescible landfill which is located at Mugga Lane, Symonston. Currently, MSW from the former Queanbeyan City Council (QCC) LGA is sent to Mugga Lane while MSW from the former Palerang LGA is sent to Veolia's Woodlawn landfill at Tarago.

The commercial gate fees at Mugga Lane landfill are currently \$155.05/tonne⁸. The ACT Government "Waste Roadmap" discussion paper, released in May 2018, implies gate fees will need to increase further⁹.

Meanwhile, waste sent to Veolia's Woodlawn facility from the former Palerang LGA has a gate fee of less than \$90/tonne (refer to Section 2.3.3 below for further details on the Woodlawn facility). Veolia's greenhouse gas (GHG) emission reporting also indicate that Woodlawn achieves better GHG capture than Mugga Lane landfill. This means that the carbon footprint of disposing of former QCC LGAs waste to Woodlawn may be lower than for disposal to Mugga Lane landfill in the ACT, even with freight¹⁰.

2.2.3 ACT Cooperation with QPRC

In August 2016 the ACT Chief Minister and Administrator of the QPRC signed the first ACT – QPRC Letter of Intent¹¹. This Letter signals the intention of the ACT Government and QPRC to formalise a relationship underpinned by the NSW/ACT Memorandum of Understanding and the NSW South East Regional Plan, and outlines the principles and priority areas to be progressed between the ACT and the former QCC LGA.

⁸ https://www.tccs.act.gov.au/about-us/fees_and_charges

⁹ https://www.yoursay.act.gov.au/application/files/8615/2575/8129/WFS_roadmap.pdf

¹⁰ A carbon footprint assessment (ISO 14067) would be required to confirm this.

¹¹ http://www.cmd.act.gov.au/_data/assets/pdf_file/0020/1017335/2016-08-19-ACT-QPRC-Letter-of-Intent-SIGNED.PDF

The principles for engagement include:

- optimising best for region outcomes;
- pursuing a borderless approach to key infrastructure; and
- sharing information and data to inform planning and policy development and initiatives.

The ACT Government is currently rolling out an opt-in fortnightly third-bin garden-waste collection service across the Territory. The 2018 Waste Roadmap discussion paper suggests that this should be expanded to take food waste, commonly known as a FOGO service in NSW.

The ACT has not yet established a suitable site to take the ACT's garden waste. A site capable of processing FOGO would cost millions of dollars. If the site were to utilise windrow composting rather than in-vessel processing then a large site will need to be found. Given the price of land in the ACT, proximity to adjoining residential areas and site slopes around the ACT, it is possible that a suitable site will not be able to be found within the ACT boundary. This is an area where QPRC and the ACT could potentially work together to locate and develop an organics processing facility which can accommodate FOGO from both regions.

2.3 NSW Waste Market Factors

According to the NSW WARR Progress Report 2014-15 there are six material categories that are responsible for over 80% of the waste produced in NSW by weight. These are:

- masonry (29% of total waste);
- organics (29%);
- metals (11%);
- paper and cardboard (8%);
- plastics (4%); and
- glass (2%).

There are readily accessible markets for the first three categories of waste in the QPRC surrounds. The markets for plastics are weak, particularly since the implementation of China's National Sword project. The market for recycled glass is also weak, however it should be possible to establish local markets for the beneficial reuse of glass.

2.3.1 Regional Cooperation

QPRC is a member of the CRJO, which is made up of nine NSW councils and the ACT Government¹². In 2016 the CRJO councils had a combined population of 228,141¹³ people or 625,538 with the ACT.

The CRJO has released its Regional Waste Strategy for 2018-2023. In summary, significant transition has occurred in the waste industry over the last decade, and there now exists 'pull' and 'push' mechanisms to drive change. Regional waste strategies, such as the one developed by CRJO, are one component, facilitated and supported by the NSW EPA, to achieve quantum change in waste management performance.

The Regional Waste Strategy has been based on a medium term five (5) year period to drive more rapid initial change towards greater recycling and waste diversion from landfill; particularly for NSW Council members. It is suggested the region first maximises performance of existing services and assets before analysing options for new and improved regional infrastructure to deliver continued long-term improvement.

The Regional Waste Strategy aims for greater efficiency from existing services, reducing litter, and reducing illegal dumping followed by evaluating new regional services and supporting infrastructure to recover more resources from the waste stream.

¹² <http://www.canberraregion.org.au/>

¹³ Forecast.id

The CRJO will be eligible for government investment to establish new joint organisations in regional NSW that provide a cooperative working arrangement with the NSW Government to address regional challenges and opportunities.

As a part of this study, AECOM is benchmarking the range and performance of waste services delivered by councils within the CRJO (refer to Section 6). AECOMs initial investigations have found the limited data of variable quality with waste generation totals appears to be particularly weak with regard to C&D and C&I waste generation and recycling rates.

2.3.2 Energy from Waste (EfW)

In 2015 the NSW EPA released the NSW Energy from Waste Policy Statement¹⁴. This policy is broadly supportive of EfW but is quite prescriptive and creates a relatively complex regulatory environment for potential projects. In 2017, the NSW parliament established an enquiry into EfW¹⁵. Recently the development application for a 552,500 tonne per annum EfW facility proposed by Dial-a-Dump Industries at Eastern Creek in Western Sydney was refused by the NSW Independent Planning Commission. Hence, the regulatory framework for EfW project in NSW remains somewhat uncertain.

Nevertheless, new EfW projects – particularly for the use of refuse derived fuels – are progressing. Two of potential relevance to QPRC are:

- the cement kiln in Berrima which is now using a Solid Waste Derived Fuel as well as coal to power the facility¹⁶; and
- EfW facility to be integrated with the Mt Piper power station near Lithgow¹⁷

These facilities will create a domestic market for contaminated paper and cardboard, timber from the C&D sector, as well as film and mixed plastics.

2.3.3 Woodlawn Mechanical Biological Treatment Facility

In July 2017 Veolia commissioned Stage 1 of a Mechanical Biological Treatment (MBT)¹⁸ facility at Woodlawn with a capacity of 144,000 tonnes per year. The capacity of Stage 1 has been taken up by contracts from the Sydney region. Currently, waste sent to Woodlawn from QPRC is sent to the landfill rather than the MBT. This facility can recover 50-60% of MSW producing a compost/soil amendment and sorted materials for recycling. The gate fees for this facility are commercial-in-confidence but are likely to be more than twice the cost of landfill at the same facility¹⁹.

Nonetheless, having QPRC MSW processed at the Woodlawn MBT would enable the Council to achieve its WARR target for MSW with a single initiative.

Veolia is also looking to make a refuse derived fuel from its MBT residuals. This could increase the resource recovery rate of the facility to over 80%.

2.3.4 NSW Waste Less Recycle More 2017-2021 Extension

Since 2012 the NSW Government has allocated over \$800 million under the Waste Less, Recycle More initiative to fund resource recovery, litter reduction and other waste related projects. The NSW EPA Waste Less Recycle More Phase 2 (also referred to as 2017-2021 Extension) provides \$337 million in grants to eligible projects as summarised in Figure 2 below.

¹⁴ <https://www.epa.nsw.gov.au/-/media/epa/corporate-site/resources/epa/150011enfromwasteps.pdf>

¹⁵ <https://www.parliament.nsw.gov.au/committees/inquiries/Pages/inquiry-details.aspx?pk=2436>

¹⁶ https://www.boral.com.au/sites/default/files/media/field_document/Berrima-Cement-cmtty-meeting-presentation-270717.pdf

¹⁷ <https://www.energyaustralia.com.au/about-us/media/news/energy-recovery-plant-could-supply-40000-homes-create-300-jobs>

¹⁸ MBT is the common name used in Europe for these facilities. In NSW they are often called Advance Waste Treatment (AWT) facilities. In the ACT they are often called residual-waste or dirty Material Recovery Facilities (Dirty MRFs).

¹⁹ Personal communications, Jim Hennessey, Sales Manager Veolia, 2 July 2018

Figure 2 NSW EPA Waste Less, Recycle More funding initiatives



In addition to the grant programs noted in the above graphic, more recently the NSW EPA has announced new programs under the Waste Less Recycle More initiative designed to support local recycling sector address issues arising from the China Sword policy. There are several programs of direct relevance to QPRC, which may assist in funding initiatives recommended through the QPRC strategy. The key programs of potential interest are noted below:

- Better Waste and Recycling Fund
- Bin Trim business grants
- Circulate, NSW EPA Industrial Ecology Program
- Civil Construction Market Program
- Combatting Illegal Dumping: Clean Up and Prevention Program
- Community Recycling Centre Fund
- Council litter grants
- Funding for regional collaboration
- Funding for voluntary regional waste groups
- Landfill consolidation and environmental improvements
- Local Government Organics Collection System Grants Program
- Love Food Hate Waste education

- Major Resource Recovery Infrastructure Program
- Pilot Program to Reduce Illegal Dumping on Charitable Recyclers
- Product Improvement Program Grants
- Waste Recovery Facility Expansion and Enhancement Program
- Weighbridge Fund.

3.0 Regulatory Context

This section summarises the current legislative and regulatory environment at a State and National level including likely changes in the short to medium term which may influence the QPRC waste strategy.

3.1 New South Wales Regulation

3.1.1 Protection of the Environment Operations (POEO) Act 1997

The *Protection of the Environment Operations (POEO) Act 1997* establishes management and licensing requirements along with other provisions to deliver environmentally appropriate outcomes. The POEO Act also establishes the ability to set various waste management requirements via the regulations. It is the primary piece of legislation regulating pollution control and waste disposal in NSW.

The POEO Act defines waste as:

- something that is discharged or deposited in the environment such that it causes an alteration in the environment; or
- something that is discarded, rejected, unwanted, surplus or abandoned; or
- any processed, recycled, re-used or recovered substance produced wholly or partly from waste that is applied to land, or used as fuel, but only in the circumstances prescribed by the regulations; or,
- anything prescribed by the regulations to be waste.

A material or product is not precluded from being waste under NSW law merely because it may be processed, recycled, re-used or recovered.

Waste is generally categorised into three groups:

- Municipal Solid Waste (MSW) – largely comprising of household waste but often including other council wastes such as street sweepings and rubbish collection from bins in parks and public spaces;
- Commercial and Industrial (C&I) waste – the waste made by businesses or industry. However, if business waste is collected by the local council it may be categorised as MSW; and
- Construction and Demolition (C&D) waste – the waste produced in construction and building activities including demolition.

Across Australia C&D waste from the building sector and C&I waste from other businesses are generally larger sources of waste than MSW from households.

QPRC manage predominately MSW, however additional C&I services are provided to small businesses and some waste facilities operated by QPRC accept C&D waste. Therefore management of all three categories of waste are discussed in this briefing paper.

QPRC operates the Bungendore Resource Recovery Facility on Tarago Road. The Bungendore facility was issued an environment protection licence (EPL no. 21023) in August 2018. The EPL includes requirements for groundwater monitoring and noise monitoring.

3.1.2 Protection of the Environment Operations Waste Regulation 2014

The *Protection of the Environment Operations Waste Regulation 2014* (the Waste Regulations) was introduced on 1 November 2014. The Waste Regulations sets out provisions covering the way waste is managed in terms of storage and transportation as well as reporting and record keeping requirements for waste facilities. The Waste Regulation also makes special requirements relating to asbestos and clinical waste.

The key areas of the Waste Regulations of importance to QPRC include:

- Management of tyres
- Illegal dumping
- Unlicensed landfills

These are discussed in further detail below.

Tyres

Since July 2015, consignors and transporters of waste tyres have been required to monitor the movement of waste tyres within NSW. These requirements apply to loads of waste tyres greater than 200 kilograms or more than 20 waste tyres, whichever weighs less. The disposal facility is required to record all details of receiving waste tyres.

The EPA has developed an electronic system called WasteLocate²⁰ to make this a simple and transparent process that can be used by all relevant parties to meet reporting obligations.

In addition, the threshold for storing waste tyres has been significantly reduced. A site which stores more than 5 tonnes of tyres or 500 waste tyres on site at any time requires an environment protection license (EPL).

Illegal Dumping

Since November 2014, the *Protection of the Environment Operations (General) Regulation 2009* contains a list of wastes that automatically constitute land pollution under section 142A of the POEO Act. These wastes include:

- hazardous waste
- restricted solid waste
- >10 tonnes of asbestos waste; and
- >5 tonnes of waste tyres or more than 500 waste tyres.

This amendment is designed to send a strong signal to polluters that dumping waste poses a risk to the community and the environment and is unacceptable in NSW.

To support efforts to reduce illegal dumping and littering the NSW EPA has developed the Don't be a Tosser campaign, which enables the public to report litterers and dumpers online. If provided with enough information, the NSW EPA then issues fines accordingly.

Unlicensed Landfills

Clause 111 of the *Protection of the Environment Operations (Waste) Amendment Regulation 2017* introduces a defence to land pollution at unlicensed landfills. The clause provides minimum operational standards which must be implemented at an unlicensed landfill site. The minimum standards require landfill operators to:

- manage and reduce the risk of fire, odour, noise, and dust emissions;
- control public access to the premises; and
- undertake general maintenance.

This clause is relevant to the ongoing operation of Nerriga and Braidwood landfills which need to be operated in accordance with clause 111 until their closure and rehabilitation.

²⁰ <https://wastelocate.epa.nsw.gov.au/>

3.1.3 Waste Avoidance and Resource Recovery (WARR) Strategy

The *NSW Waste Avoidance and Resource Recovery Act 2001* reflects the importance the community places on minimising waste and maximising resource recovery by requiring the WARR Strategy to be reviewed and replaced every five years.

Section 12 of the Act specifies that the strategy must:

- include targets that address waste reduction, resource recovery and diversion of waste from landfill
- be benchmarked against international best practice
- undergo a public consultation process.

The WARR strategy promotes the waste hierarchy, which is often paraphrased as “*reduce, reuse, and recycle*”.

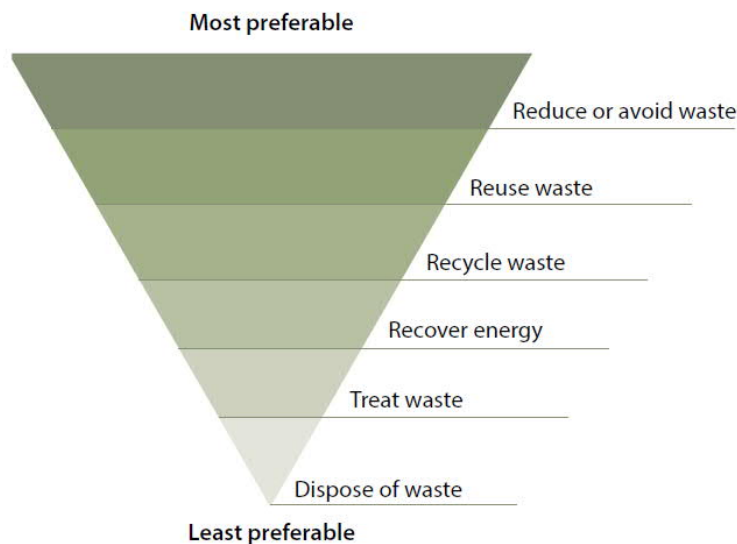


Figure 3 The NSW EPA waste hierarchy (source: NSW WARR Strategy 2014-2021)

The waste hierarchy should be understood as a ‘heuristic’ or ‘rule of thumb’. It provides a guideline for considering options prior to more detailed analyses. There are wastes the Government would not seek to reduce the generation of, such as end-of-life tyres, because protecting public safety is more important. With regards to reuse or recycling, glass containers can be recycled into new glass containers, or crushed to make sand and gravel replacements. The most sustainable option may depend on the specific location of the product and the distance required to transport it to eligible recycling markets. In this instance, the more sustainable waste management option for QPRC may differ between Braidwood and Googong.

WARR Strategy Performance Report

The most recent WARR Strategy Progress Report 2014-15 was released in 2017 and summarises the improvements NSW has made towards meeting the 2014 targets set out in Waste Avoidance and Resource Recovery Strategy 2007 (‘2007 WARR Strategy’). This progress report is the first since the 2014 target year passed and as such is the first opportunity to measure the state’s progress against the targets set in 2007.

The following table outlines 2007 WARR Strategy Targets, versus the resource recovery performance in metropolitan NSW, the non-levy area of NSW, the former QCC LGA and former Palarang LGA as provided in the WARR Strategy Progress Report. It should be noted that former Queanbeyan and Palarang Councils existed separately during this time, and therefore the WARR data is also separate. QPRC performance is also provided based on the recycling rate achieved in 2016/17 as report in the CRJO Regional Waste Strategy 2018-2023.

Table 3 2007 WARR Strategy targets and QPRC performance

Waste Category	2014 WARR target	Sydney Metro 2014-15	Non-levy 2014-15	Former Palerang LGA 2014-15	Former Queanbeyan LGA 2014-15	QPRC 2016/17
Municipal Solid Waste (MSW)	66%	58.2%	56%	43.4%	48.8%	46%**
Commercial and Industrial Waste (C&I)	63%	61.2%	50%	-	-	Not available*
Construction and Demolition Waste (C&D)	76%	72.7%	57%	-	-	Not available*

* C&I or C&D recycling collection services are delivered primarily by the private sector and limited data is available for QPRC to measure overall performance against these targets.

** Source: CRJO, Regional Waste Strategy (2018-2023), Appendix 6

The Waste Avoidance and Resource Recovery (WARR) Strategy 2014-2021

The latest WARR strategy was released by the NSW EPA in 2014 and sets new recycling targets to be achieved by the year 2021-22 as summarised below.

The Waste Avoidance and Resource Recovery Strategy 2014-2021

Avoid and reduce waste generation

By 2021–22, reduce the rate of waste generation per capita

Increase recycling

By 2021–22, increase recycling rates for:

- municipal solid waste from 52% (in 2010–11) to 70%
- commercial and industrial waste from 57% (in 2010–11) to 70%
- construction and demolition waste from 75% (in 2010–11) to 80%

Divert more waste from landfill

By 2021–22, increase the waste diverted from landfill from 63% (in 2010–11) to 75%

Manage problem wastes better

By 2021–22, establish or upgrade 86 drop-off facilities or services for managing household problem wastes statewide

Reduce litter

By 2016–17, reduce the number of litter items by 40% compared with 2011–12 levels and then continue to reduce litter items to 2021–22

Reduce illegal dumping

From 2013–14, implement the NSW Illegal Dumping Strategy 2014–16 to reduce the incidence of illegal dumping statewide

As part of this strategy, by 2016–17:

- reduce the incidence of illegal dumping in Sydney and the Illawarra, Hunter and Central Coast regions by 30% compared with 2010–11
- establish baseline data to allow target-setting in other parts of the state

3.1.4 NSW Landfill Levy

The landfill levy is one of the key instruments that the NSW Government uses to encourage less waste generation and increased resource recovery. Some of the revenue collected from the landfill levy is used to help fund resource recovery initiatives by industry and local Governments.

The 2018-19 NSW waste levy is currently:

- \$141.20/tonne in the Metropolitan Levy Area
- \$81.30/tonne in the Regional Levy Area.

The concessional waste levy rate for virgin excavated natural material is:

- \$127.08/tonne in the Metropolitan Levy Area
- \$73.17/tonne in the Regional Levy Area.

The levy on trackable liquid waste for 2018-19 is \$75.60/tonne.

QPRC is currently not located within the levy paying area. While a review conducted by consultancy firm KPMG in 2012 for the NSW EPA recommended extending the regional levy to the QPRC area²¹, AECOM understands this is unlikely in the medium term.

Nonetheless, the existing levy structure impacts the Council and changes the market conditions for recycling operations and waste movement. This is due to recyclers charging a small margin below landfill cost and the large amounts of waste that are being moved from NSW to Queensland and from the ACT to Veolia's Woodlawn Landfill (near Tarago). It is now likely that the movement of waste to Queensland may greatly reduce given the proposed introduction of a \$70/tonne waste levy in south east Queensland from early 2019²². This will lead to further changes in the NSW waste market.

3.1.5 Container Deposit Schemes

The NSW container deposit scheme (CDS), Return and Earn, began rolling out across NSW on 1 December 2017. The scheme was established under the *Waste Avoidance and Resource Recovery Amendment (Container Deposit Scheme) Act 2016 No 57* and the *Waste Avoidance and Resource Recovery (Container Deposit Scheme) Regulation 2017*.

The scheme enables individuals and businesses to return eligible containers and receive 10c per container. As of June 2018 there are three drop-off points in Queanbeyan/Jerrabomberra but none across the rest of the QPRC.

The ACT is implementing a complementary CDS via the *Waste Management and Resource Recovery Amendment Act 2017*, which commenced on 30 June 2018.

CDS radically transforms the value of used beverage containers to councils. For example eligible glass beverage containers have gone from less than \$100 a tonne, at times costing the Hume MRF over \$80/tonne to recycle, to being worth over \$500/tonne²³. PET bottles, which might have been worth \$50-350/tonne, could now earn \$5,000-\$10,000/tonne under the CDS²⁴.

QPRC is able to claim the 10c from containers collected through kerbside recycling collections once a revenue sharing model is agreed with the MRF. This is a potential opportunity to offset costs related to waste management.

3.2 ACT Waste Legislation

The ACT passed the *Waste Management and Resource Recovery Act 2016* (the Waste Act) in August 2016. The Waste Act requires all waste facilities to be licenced and all waste transporters to be registered. Rigorous reporting requirements are stipulated for waste facilities and transporters. The ACT is currently implementing the Waste Act and its various requirements.

²¹ <https://www.epa.nsw.gov.au/your-environment/recycling-and-reuse/warr-strategy/policy-makers>

²² <https://www.brisbanetimes.com.au/politics/queensland/waste-levy-announced-for-queensland-to-stem-interstate-dumping-20180601-p4ziv3.html>

²³ Assuming a typical 375ml bottle weight of 170grams.

²⁴ Assuming a weight range of 10-20g per eligible container

For some time the ACT has been home to poor waste operators with facilities that practiced uncontrolled stockpiling or 'above ground landfilling'. Waste stockpiling has resulted in many fires in the ACT. The progressive enforcement of the new Waste Act's provisions are likely to result in some of these poor waste operators shutting down their ACT sites and seeking to establish new facilities interstate, potentially in QPRC.

Under the Waste Act, Council is considered both a waste management business (as Council operates the composting facility located at Oaks Estate in the ACT) and a waste transporter. For example, when a Council waste vehicle travels from Queanbeyan to Bungendore along the Kings Highway (within the ACT) the Waste Act is triggered. The fact that Council is subject to conditions of the Waste Act leaves Council vulnerable to potential changes to this Act and Regulations enacted under it. For example, under the Waste Act the ACT Government may decide to implement a waste levy in the future for waste transporters and waste management businesses. This will have a potential impact on Council in particular related transport of recyclables from QPRC to the Hume MRF in the ACT.

3.3 Australian Government (Cwth)

At the National level the key Federal responsibilities that impact on waste management in the QPRC are corporations' law, the *Environment Protection and Biodiversity Conservation Act 1999*, and national product stewards schemes.

Product stewardship schemes involve businesses taking responsibly for the full lifecycle of their products and materials to ensure they are appropriately managed to minimise impact on the environment and human health. In Australia the Commonwealth's *Product Stewardship Act 2011* can be used to establish mandatory, coregulatory and voluntary schemes.

Paintback, established in 2016, is an example of a voluntary product stewardship scheme. It allows households and professional painters to drop off their paint containers and any unwanted paint for free. The scheme is funded by a 15c/L (excl. GST) levy applied to the paint wholesalers. Unfortunately, at present the nearest free drop-offs for QPRC residents are in Canberra and Wollongong.

The National Television and Computer Recycling Scheme (NTCRS) is the only example of a co-regulatory product stewardship scheme in Australia presently. The NTCRS was established in 2011 and to date, more than 1,800 collection services have been made available to the public with more than 230,000 tonnes of TV and computer e-waste collected and recycled under the scheme²⁵. Individuals and businesses can drop off up to 15 items at a time (a keyboard, mouse and monitor equals one item). Unfortunately, at present the nearest free drop off to QPRC residents are in the ACT.

New product stewardship schemes are under consideration or development. The Minister for the Environment and Energy (Cwth) has listed the following product classes as priorities for assessment during 2017-18:

- batteries
- electrical and electronic products
- elastic oil containers
- photovoltaic systems and
- plastic microbeads and products containing them.

²⁵Evaluation of the National Television and Computer Recycling Scheme (NTCRS) ACIG for the Dept of the Environment and Energy. October 2017
Department of the Environment and Energy <http://www.environment.gov.au/system/files/resources/407f8a95-080b-4daa-8189-747c000d5fa3/files/ntcrs-evaluation-report.pdf>

4.0 Existing Services in the QPRC LGA

4.1 Residential Waste Services

QPRC provides waste services broadly consistent with those offered by other CRJO councils. Nevertheless, there are considerable variations across the CRJO and within QPRC where waste services and practices between the former Queanbeyan and Palerang councils.

4.1.1 Kerbside Collection

Former QCC residents receive a three bin kerbside service. This includes a 240L fortnightly collection for recyclables, a 240L fortnightly collection of garden waste and a 140L or 240L weekly collection of residual waste. Kerbside collections in the former QCC LGA are provided under contract by J.J. Richards. The contract with J.J. Richards commenced in April 2015 and will conclude in April 2022. The contract includes an optional extension to 2025.

Former Palerang LGA residents living in Braidwood, Bungendore and Captains Flat also receive a three bin service consisting of 140L weekly collect for residual, a 240L fortnightly collection for recyclables and a 240L fortnightly collection for food and garden waste (FOGO) service.

Former Palerang LGA residents living in Royalla/Burra/Urila receive a two bin service consisting of 240L fortnightly collection for residual waste and a 240L fortnightly collection for co-mingled recycling. Residents living in Carwoola/Primrose Valley receive one 240L fortnightly collection for co-mingled recycling and currently self-haul their residual waste, which is also the case for Sutton Acres. Residents living in Majors Creek/Araluen receive a 240L fortnightly residual waste collection and a 240L fortnightly co-mingled recycling service.

The current waste collection services and the associated catchment services in QPRC are summarised in Table 4 below. The former Palerang LGA collection services are provided directly by Council staff using Council-owned trucks.

More remote rural residents within the QPRC are required to self-haul all their wastes to council provided collection points (e.g. bin compounds, rural recycling stations, waste transfer stations (WTSS) and landfills) which are located across the LGA as shown in Table 7. The location of these facilities is shown in Figure 4.

Table 4 QPRC waste collection services

Catchment	Number of Services	Residual	Recycling	GO	FOGO	Collection Contractor
Braidwood	768	140L (W)	240L (F)	N/A	240L (F)	Council
Bungendore	1,441	140L (W)	240L (F)	N/A	240L (F)	Council
Burra/Royalla/Urila	628	240L (F)	240L (F)	N/A	N/A	Council
Captains Flat	275	140L (W)	240L (F)	N/A	240L (F)	Council
Carwoola/Primrose Valley	367	N/A	240L (F)	N/A	N/A	Council
Majors Creek/Araluen	376	240L (F)	240L (F)	N/A	N/A	Council
Queanbeyan – Urban	15,856	140L (W)	240L (F)	240L (F)	N/A	J.J. Richards
Queanbeyan –Urban	1568	240L (W)	240L (F)	240L (F)	N/A	J.J. Richards
Queanbeyan – Multi-unit shared [^]	2,898	240L (W)	240L (F)	240L (F)	N/A	J.J. Richards
Queanbeyan – Rural	869	240L (F)	240L (F)	N/A	N/A	J.J. Richards
Sutton Acres	177	N/A	240L (F)	N/A	N/A	J.J. Richards
Vacant (no service)	4,218					

(W) Weekly collection, (F) Fortnightly collection, N/A Collection service not offered

[^] Some shared multi-unit bins are collected twice weekly

4.1.2 Bulky Waste

Households in the former Queanbeyan LGA are provided two kerbside clean-ups per financial year, the cost of this service is covered through rates. These are accessed by contacting Council and booking in their collection, and are able to place one trailer load of materials out for collection. For residents living in either multi-unit dwellings or rural areas of the former QCC LGA, two collections are provided on fixed dates.

The approximate number of annual bulky good collections undertaken by Council in the former QCC LGA are summarised below.

Table 5 Approximate number of bulky good collections in former QCC LGA

Year	Loads
2012-13	3206
2013-14	2888
2014-15	2564
2015-16	2717
2016-17	2582
2017-18	2792

Given there around 18,000 dwellings in the former QCC LGA, it would appear that the number of residents utilising the bulky goods collection service is relatively small.

Bulky goods collections were included in the previous Palerang Waste Management Strategy. Due to significant safety issues and resourcing constraints it has not yet been implemented. Former Palerang LGA residents currently self-haul their bulky waste to transfer stations.

4.1.3 Waste Disposal

Residual waste collected from the former Palerang LGA through kerbside collection, WTS's and bin compounds are disposed of at Woodlawn Waste Management Facility or Braidwood Landfill. Recycling collected by Council from kerbside collections or at WTS's and bin compounds is taken to the Hume MRF.

Residual waste collected from the former QCC LGA catchments are sent to Mugga Lane Landfill in the ACT. Recycling collected by Council from kerbside collections is taken to the Hume MRF.

FOGO material from the former Palerang LGA was previously sent to Landtasia Organic Farm in Mulloon for composting. However, this arrangement ended in 2017 and Council is currently investigating alternative arrangements for processing this material. In the interim, FOGO collections are taken to Bungendore RRF where the food waste component is extracted. The green waste components go to Council's green waste pile and food waste is sent to GoTerra, a worm-farming business. The former QCC LGAs garden waste was composted at Oaks estate near the sewage treatment plant.

A summary of where MSW is currently disposed of by QPRC is provided in Table 6.

Table 6 Waste disposal summary

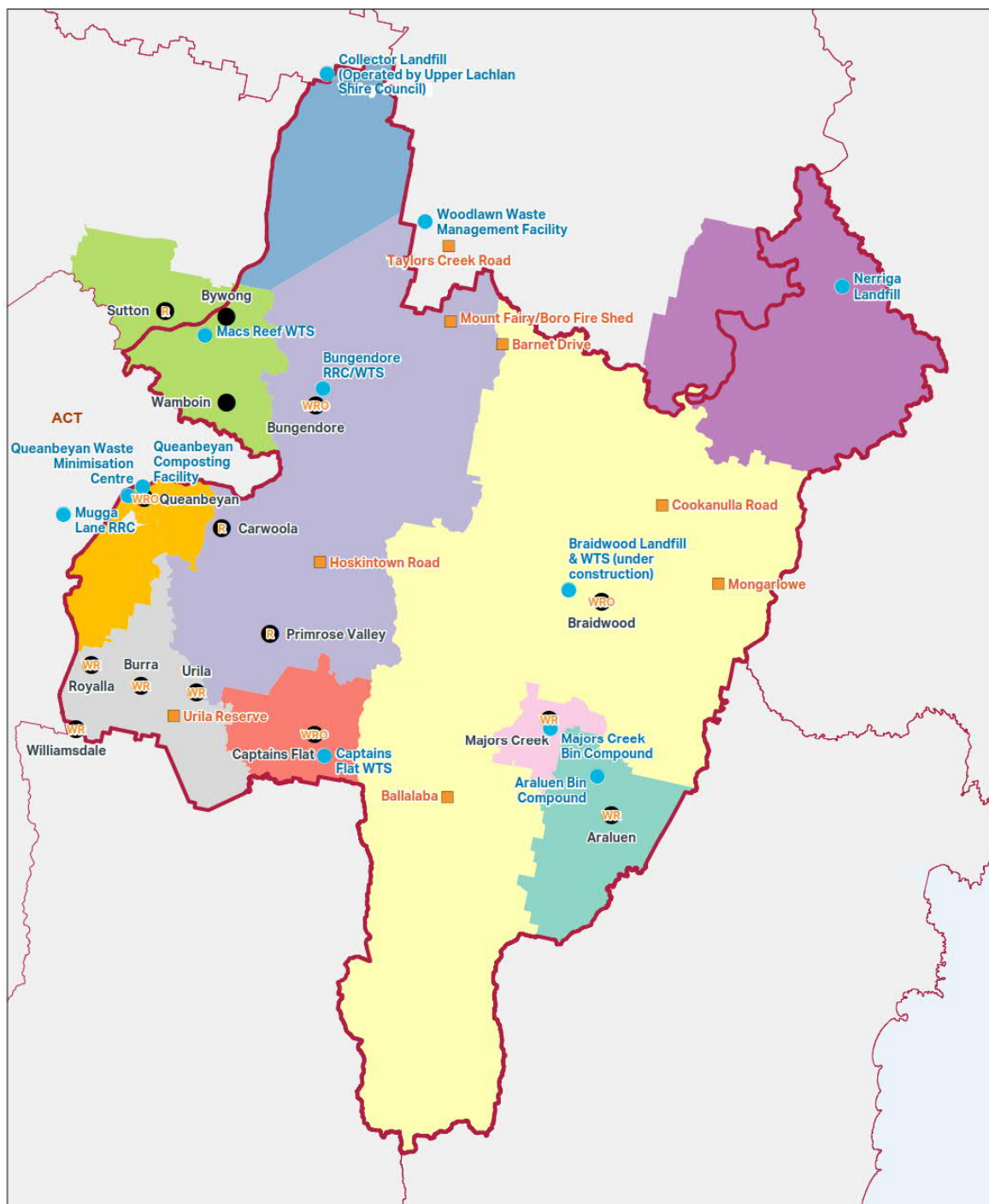
	Former Palerang LGA	Former QCC LGA
Waste Category	Disposal Facility	Disposal Facility
Residual	Woodlawn Waste Management Facility, Braidwood Landfill or Nerriga Landfill	Mugga Lane Landfill, ACT
Recycling	Hume MRF	Hume MRF
Organics	Green waste – Woodlawn for reuse as mine rehabilitation material Food waste – GoTerra Worm Farm	Oaks estate near the sewage treatment plant
Bulky Waste	Self-haul by residents to WTS	Bungendore Resource Recovery Facility and Braidwood Landfill

The waste services provided by the QPRC for each waste catchment are summarised in Table 7.

Table 7 Summary of waste services for the main townships in the QPRC

Waste Catchment	Township/ Locality	Residual Kerbside Collection	Recycling Kerbside Collection	Bin Compound	Rural Recycling Station	WTS	RRC	Landfill
Araluen	Araluen	✓	✓	✓				
Bungendore	Bungendore	✓	✓			✓	✓	
	Primrose Valley		✓					
	Carwoola		✓					
	Hoskinstown				✓			
	Mount Fairy				✓ (2 sites)			
	Tarago				✓			
Braidwood	Braidwood	✓	✓					✓
	Durran Durran				✓			
	Mongarlowe				✓			
	Ballalaba				✓			
Captains Flat	Captains Flat	✓	✓			✓		
Collector	-							✓
Mac's Reef	Bywong/ Wamboin					✓		
	Sutton East		✓					
Majors Creek	Majors Creek	✓	✓	✓				
Nerriga	Nerriga							✓
Burra District	Royalla	✓	✓					
	Burra	✓	✓					
	Urila	✓ (select areas)	✓ (select areas)		✓			
	Williamsdale	✓ (select areas)	✓					
Queanbeyan	Queanbeyan	✓	✓				✓	

Figure 4 Waste facilities in the QPRC



QUEANBEYAN-PALERANG REGIONAL COUNCIL WASTE STRATEGY 2018-2048

AECOM

Legend

- | | | | |
|-------------------------|-------------------------|---------------|------------------------------------|
| QPRC LGA Boundary | Waste Catchment ARALUEN | COLLECTOR | Kerbside Residual Waste Collection |
| Waste facility | BRAIDWOOD | MAC SREEF | Kerbside Recycling Collection |
| Town | MAJORS CREEK | MUGGA | Kerbside Organics Collection |
| Rural Recycling Station | NERRIGA | BUNGENDORE | |
| | QUEANBEYAN | CAPTAINS FLAT | |

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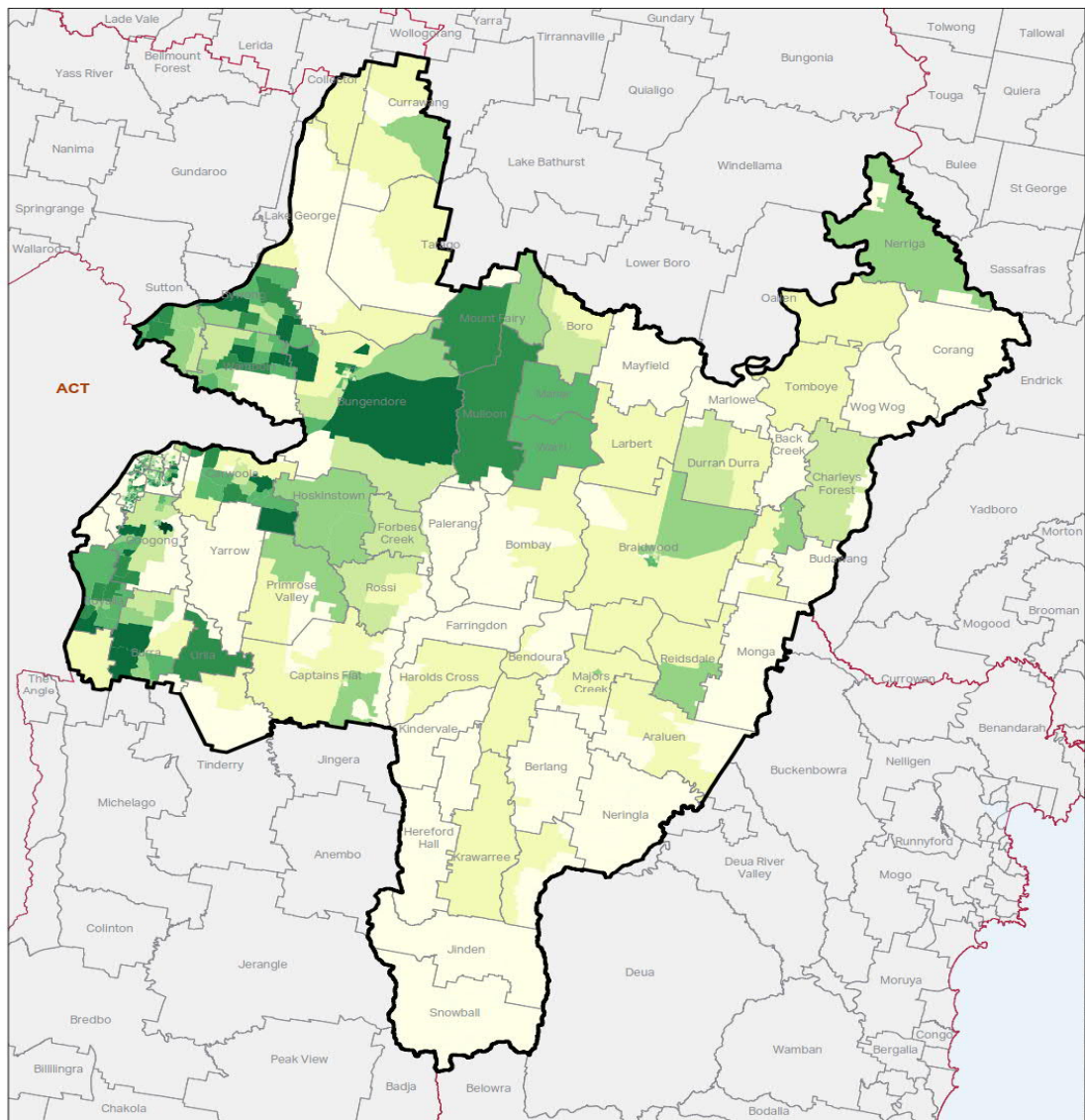
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Source:

4.1.4 Access to Self-Haul Facilities

AECOM undertook an analysis of residents' access to existing waste facilities. Waste facilities in the QPRC were plotted in ArcGIS and the population was overlaid using ABS 2016 Census data. ArcGIS was used to calculate the distance of each household to a landfill-resource management centre or transfer station. Average speeds of 95km/h were assumed for the main roads; 75km/hr for secondary roads; and 45 km/hr for urban areas. The distribution of population in the LGA is shown in Figure 5. The time (minutes) required for residents to access a waste facility is shown in Figure 6.

Figure 5 Population distribution map (source: Australian Bureau of Statistics, 2016)



PERSONS BY MESH BLOCK

AECOM



0 10 20 km

Legend

Queanbeyan-Palerang LGA
Boundary

0 - 20	101 - 120
21 - 50	121 - 150
51 - 70	151 - 200
71 - 100	201 - 302

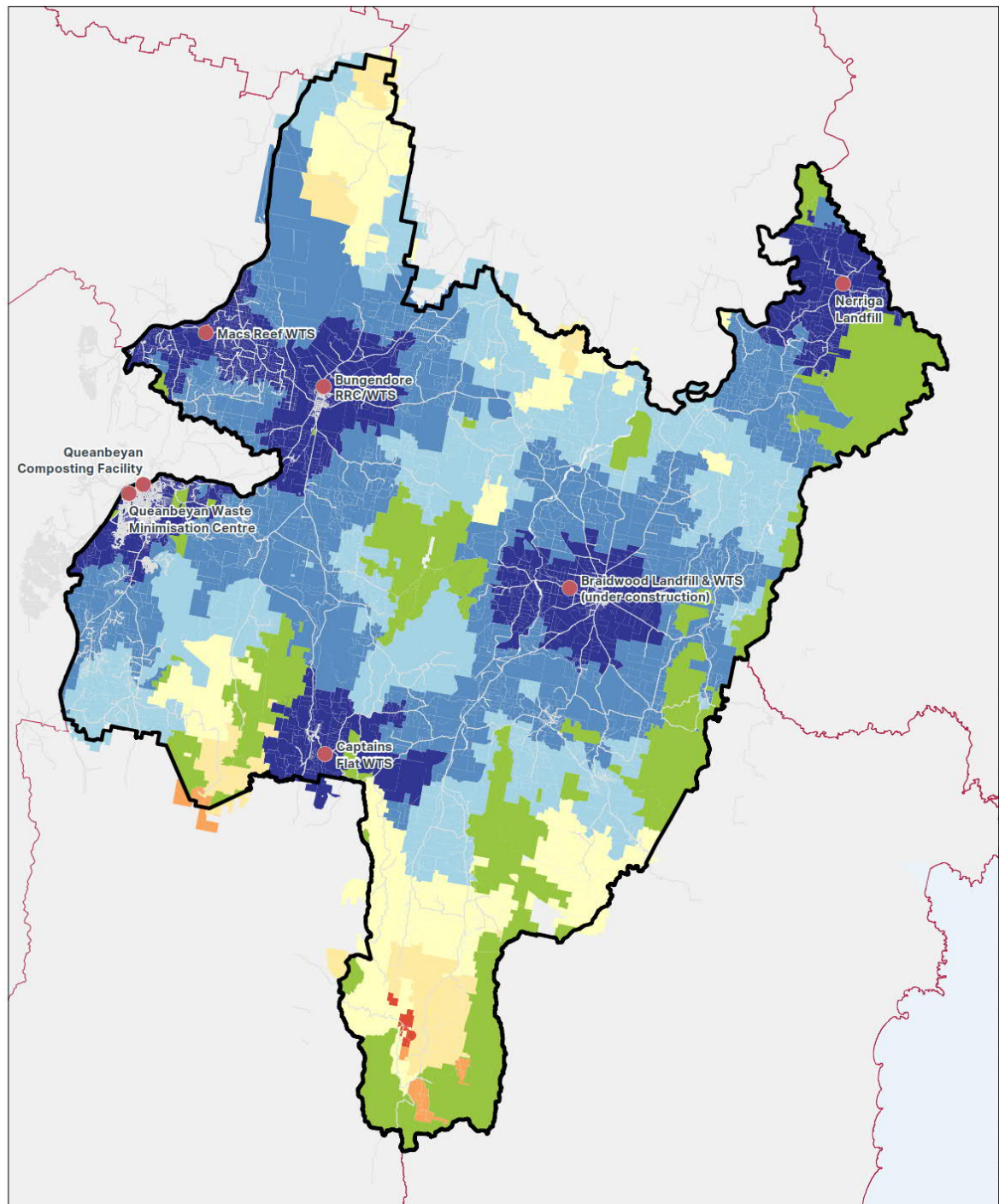
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Source:

Figure 6 Illustrative map – travel time in minutes to the nearest waste facility

FIGURE 6: ILLUSTRATIVE MAP
TRAVEL TIME IN MINUTES TO NEAREST WASTE FACILITY**AECOM****Legend**

- Queanbeyan-Palerang LGA
 - Waste facility
 - National Parks & Wildlife Service reserve
- | | |
|---------|---------|
| 0 - 10 | 41 - 50 |
| 11 - 20 | 51 - 60 |
| 21 - 30 | 61 - 70 |
| 31 - 40 | 71 - 80 |

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Source:

4.1.5 Education

Education activities are limited within the QPRC LGA and often occur in an adhoc fashion. QPRC funds Keep NSW Beautiful to run the EnviroMentors program²⁶ in local primary schools. In March 2018 five local primary schools chose to participate. The Bournda Environmental Education program²⁷ also runs waste education activities for QPRC schools (via the CRJO). Bournda helped two QPRC schools undertake waste audits in 2017-18.

QPRC staff also provides presentations to local schools, if requested, on an adhoc basis. In addition, QPRC staff also attend community events such as local shows to provide community education and undertake occasional bin inspection programs.

4.2 Council Provided Waste Services for Business

Businesses located in the former QCC LGA can access the following QPRC waste services:

- 1 x 240 L residual waste bin
- 240 L co-mingled recycling bins provided based need and storage space available
- 240 L co-mingled greenwaste bins provided based need and storage space available

If they generate more residual waste than this then they are required to organise their own waste services.

The former Palerang region of QPRC provides approximately 123 services to the commercial and non-residential sector according to the 2016-17 WARR survey.

The services currently offered to businesses in the region are summarised in Table 8.

Table 8 Council provided waste services for local businesses

Service	Former Palerang LGA	Former Queanbeyan LGA
Residual	Yes	Yes
Recycling	Yes	Yes
FOGO	No	No
GO	No	Yes
Bulky good drop-off	Yes	No
Waste reduction education	No	Yes

4.2.1 Business Recycling Programs

Within the former QCC LGA, QPRC has also been supporting business participation the ActSmart business recycling program²⁸ since 2012. Approximately 20-30 new business have participated in the program each year since then with some 32 choosing to remain accredited in the system - voluntarily recording and sharing waste and recycling data.

A further 76 former QCC LGA businesses have participated in the NSW EPA Bin Trim²⁹ program. Recently further Bin Trim funding was allocated to the region and local businesses are being encouraged to participate.

These businesses recycling and waste reduction programs have been shown to significantly reduce waste to landfill from participating businesses. However, the participation rate remains a relatively

²⁶ <http://knswb.org.au/our-programs/enviromentors/>

²⁷ <http://bourndaeec.nsw.edu.au/>

²⁸ <https://www.actsmart.act.gov.au/what-can-i-do/business/recycling>

²⁹ <https://www.epa.nsw.gov.au/your-environment/recycling-and-reuse/business-government-recycling/bin-trim>

small portion of the 4,500 or so business in the QPRC area³⁰. Hence, the overall impact of these programs, on resource recovery in the QPRC, at their current participation rates, is likely to be modest.

4.2.2 Food Rescue

QPRC recently received a funding grant through the EPA Waste Less Recycle More program to help reduce food waste and rescue food for provision to vulnerable groups via OzHarvest. A Food Rescue Project Officer will be appointed in 2018 who will work with QPRC businesses and OzHarvest to progress this valuable initiative.

While the quantities of waste diverted through food rescue tend to be relatively small – they provide significant social benefits to disadvantaged members of the community, educational benefits for all involved and often provide economic benefits to the participating businesses.

4.3 Construction and Demolition Waste

C&D waste from the former QCC LGA is taken to the ACT C&D MRF at Mugga Lane or the Capital Concrete Recycling (CCR) Facility at Pialligo. Soil is also taken to the CCR facility. In 2018-19 a new soil facility is expected to open at Mugga Lane.

Building operations in the former Palerang LGA take C&D waste to the Bungendore WTS. C&D businesses are encouraged to separate materials through pricing mechanisms. Concrete and metals are sent to appropriate facilities for recycling, and residual waste is transported to Woodlawn for disposal. A relatively small amount of C&D waste is also received at the Braidwood landfill. Council does not currently accurately and comprehensively track overall C&D waste volumes and recycling/diversion rates.

The largest new area of development in the QPRC is the Googong estate which is expected to grow from 892 to 3,748 households by 2031³¹. C&D waste from this area is currently transported approximately 20 km to the Re.Group MRF in Canberra through Jerrabomberra, or to CCR through Karabar and Queanbeyan.

4.4 Planned Changes to Waste Infrastructure

The former Palerang Council has been undertaking a staged plan to close the rural landfills servicing the former Palerang waste catchments. The closure of these rural landfills will reduce the potential long term environmental liabilities for Council although there are significant costs associated with closing these facilities. The landfills listed in Table 9 have been closed or have been identified by Council for closure. In place of the landfill sites, Council has developed a plan to construct a series of RRC, WTS's and bin compounds. Construction of the RRCs and WTS's will improve Council's ability to track resource recovery rates and therefore develop programs to increase diversion rates. Table 9 details the planned closure and rehabilitation dates for these facilities, and the planned waste management practices which will service the communities over the next 20 years.

³⁰

http://stat.abs.gov.au/itt/r.jsp?RegionSummary®ion=10102&dataset=ABS_REGIONAL_ASGS&geoconcept=REGION&measure=MEASURE&datasetASGS=ABS_REGIONAL_ASGS&datasetLGA=ABS_NRP9_LGA®ionLGA=REGION®ionASGS=REGION

³¹ .idcommunity (2018), Googong: Population, households and dwellings. <<https://forecast.id.com.au/queanbeyan-palerang/population-households-dwellings?WebID=150>>

Table 9 Completed and planned changes to waste management infrastructure

Landfill	Planned Closure Date	Rehabilitation Date	Proposed/Implemented Waste Management Practice	Actual/Estimated Costs to Close Old Landfill
Araluen	Closed	2019/20	Roadside domestic waste collection service supplemented by a bin compound.	\$500,000 (estimated)
Bungendore	Closed	2018/19	The Bungendore RRC and WTS opened in December 2014.	\$1,500,000 (estimated)
Braidwood	2018/19	2019/20	Council has begun construction of a RRC and WTS on Bombay Road immediately west of the sewerage treatment works.	\$2,000,000 (estimated)
Captains Flat	Closed	2015/16	WTS in operation.	\$500,000 (actual)
Collector	-	-	Landfill to remain open for foreseeable future. Operated by Upper Lachlan Shire.	-
Macs Reef	Closed	2018/19	Macs Reef WTS was opened in December 2014.	\$1,500,000 (actual)
Majors Creek	Closed	2019/20	Roadside domestic waste collection service supplemented by a bin compound.	\$500,000 (estimated)
Nerriga	2019/20	2020/21	Nerriga Landfill will continue to operate until 2018/19 dependent on public consultation. In association with closure of the landfill an alternative waste management service will be investigated.	\$500,000 (estimated)

5.0 Council Fees and Charges

5.1 Existing Domestic Waste Management Charges

Council has a number of different fees and charges which are applicable depending on the location of the property. A summary of the domestic waste charges applicable in 2018/19 is shown in Table 10 and Table 11. Domestic waste management charges are applied to residents with a kerbside waste collection. Additional charges for extra or larger bins are not shown. The full Revenue Policy is available from Council's website.

Table 10 Domestic waste charges former QCC 2018-19

Code	Description	Domestic Waste Charge	Number of services
DW1	Domestic Waste 140L waste bin, 240L recycling and 240L green waste	\$319	12,056
DW2	Domestic Waste 240L waste bin, 240L recycling and 240L green waste	\$425	1,606
DW7	Multi unit Shared service 240L waste bin, 240L recycling	\$291	3,245
DW8	Multi unit Shared service including shared greenwaste (requested by body corporate)	\$319	58
DW10	Vacant Domestic Waste Charge	\$25	620
DW11	Rural Waste Availability Charge for occupied premises outside of the urban Domestic Waste Collection areas	\$47	326
DW 15	Rural Waste Collection - Optional fortnightly 240L waste bin and 240L recycling per annum	\$346	38
DW17	Rural Waste Collection - Optional fortnightly 240L recycling only per annum	\$176	8

Table 11 Domestic waste charges former Palerang Council 2018-19

Type	Description	Domestic Waste Charge	Number of services
DWP1	Domestic Waste Urban - 140L waste bin collected weekly, 240L recycling and 240L Green Waste collected fortnightly	\$375	2,060
DWP4	Domestic Waste Rural 240L waste bin collected fortnightly and 240L recycling bin collected fortnightly	\$303	735
DWP6	Domestic Waste Rural – Bin compound 240L waste bin and 240L recycling bin collected fortnightly	\$228	49
DWP8	Sutton East, Carwoola, Urila and Primrose Valley – 240L Recycling Bin collected fortnightly	\$105	508
DWP10	Sutton East, Carwoola, Urila and Primrose Valley – Additional 240L Recycling Bin collected fortnightly	\$85	16
DWP12	Annual Domestic Waste Charge – Vacant Land (urban)	\$25	11

The domestic waste management charge covers the following costs associated with management of residential waste:

- Wages of operational and management staff
- Corporate overheads
- Loan repayments
- Insurance
- Depreciation
- Vehicle operational and maintenance costs
- Waste Contracts
- Purchase of bins and other assets
- Waste disposal fees
- Education activities

Further detail on costs will be provided at later stages of the waste strategy project.

5.2 General Waste Charge (former Palerang LGA)

The majority of residents in the former Palerang LGA pay a general waste charge. In 2018/19 this charge is either \$25 (for vacant properties without a 'tip pass'), \$361 or \$400 per rateable property. This charge funds the following components of Council's waste management activities:

- Design and construction costs for new facilities
- Wages of operational and management staff
- Corporate overheads
- Loan repayments
- Insurance
- Depreciation
- Vehicle operational and maintenance costs
- Waste Contracts
- Rehabilitation of closed landfills
- Maintenance of facilities
- Waste disposal fees
- Education activities

Further detail on costs will be provided at later stages of the waste strategy project.

5.3 Landfills Charge (former Palerang LGA)

Any property issued with a 'tip pass' within the former Palerang LGA pays a Landfill Charge. This charge covers the cost of disposing of waste at landfills within the former Palerang LGA. This cost is separated from the General Waste Charge following a ruling by the Australian Taxation Office.

The Landfill Charge is \$52 for the 2018/19 financial year. It is expected that this cost will be removed following closure of the remaining landfills in the Palerang LGA.

5.4 Business Waste Management Charge (Former QCC LGA)

Council recognises that many businesses operate private waste removal services because of the nature of their manufacturing or business processes. In these premises Council's waste service is not required. However, Council incurs costs in the administration and provision of the waste and recycling bins in business premises. As a result, Council imposes a mandatory charge for businesses in the former QCC LGA for the availability of the service and an optional charge if the owner chooses to actually have a waste or recycling bin collected from the premises. The business waste management charge covers the following costs:

- Access to the ACTSmart business and office recycling program
- Access to School Waste Education Program (schools only)
- Access to Queanbeyan WAMI
- Loan repayments
- Insurance
- Depreciation
- Wages
- Overheads
- Vehicles costs
- Waste Contracts
- Purchase of bins and other assets
- Waste disposal fees

Further detail on costs will be provided at later stages of the waste strategy project.

6.0 Population, Waste Generation and Resource Recovery

6.1 Population and Households

6.1.1 Population Data

According to the Australian Bureau of Statistics 2016 Census, QPRC LGA population currently stands at 59,136. Council's population is forecast to increase by 32.4% to a total of 78,756 by 2031³². Most of this population growth is expected to occur in greater Queanbeyan and the new estates of Tralee and Googong and the township of Bungendore. These trends are reflected in the number of growth in households over the next 30 years in the QPRC LGA.

6.1.2 Household Data

QPRC provided their modelling for growth in household numbers across a number of localities. The estimated number of households in QPRC from 2016 to 2050 with and without a Domestic Waste charge is provided in Table 12 and Table 13.

Table 12 Number of households with domestic waste charge from 2016 to 2050

Locality	Number of Households with Domestic Waste charge						
	2016	2021	2026	2031	2036	2050	Difference (2016-2050)
Carwoola-Greenleigh-The Ridgeway	827	844	907	980	1,055	1,131	304
Crestwood	2,439	2,556	2,608	2,642	2,672	2,864	425
Googong	866	1,682	2,672	3,812	4,928	6,190	5,324
Jerrabomberra	3,284	3,292	3,299	3,306	3,312	3,551	267
Karabar	3,483	3,495	3,525	3,547	3,572	3,830	347
Queanbeyan	3,221	3,399	3,449	3,489	3,529	3,783	562
Queanbeyan East	2,176	2,332	2,368	2,395	2,420	2,594	418
Queanbeyan West	1,323	1,333	1,345	1,360	1,375	1,474	151
Royalla - Burra	614	629	639	649	659	706	92
Tralee - Environa	7	105	510	1,075	1,500	1,608	1,601
Bungendore	1,792	1,912	2,549	3,111	3,572	4,410	2,618
Braidwood	772	819	869	922	978	1,154	382
Captains Flat	278	280	282	284	286	292	14
Araluen	166	170	174	178	182	193	27
Burra/Williamsdale	453	458	463	468	473	490	37
Carwoola	330	341	352	363	375	409	79
Majors Creek	212	217	222	227	232	246	34
Primrose Valley	42	43	44	45	46	48	6
Royalla	219	224	229	234	239	256	37
Sutton Acres	177	181	185	189	193	205	28
Urila	30	30	30	30	30	30	0
Total	22,711	24,342	26,721	29,306	31,628	35,464	12,753

³² Queanbeyan-Palerang Regional Council | population forecast, idcommunity – demographic resources. Viewed 31 May 2018, <<https://forecast.id.com.au/queanbeyan-palerang>>

Table 13 Number of households without a domestic waste collection service

Locality	Number of households without Domestic Waste Charge						
	2016	2021	2026	2031	2036	2050	Difference (2016-2050)
Bungendore	783	799	815	831	847	893	110
Braidwood	1539	1564	1590	1617	1644	1718	179
Captains Flat	70	71	72	73	74	77	7
Araluen	97	98	99	100	101	104	7
Burra/Williamsdale	251	256	261	266	271	288	37
Carwoola	17	17	17	17	17	17	0
Majors Creek	48	49	50	51	52	55	7
Macs Reef	1231	1261	1291	1322	1354	1447	216
Collector	91	93	95	97	99	105	14
Nerriga	342	348	354	360	366	384	42
Total	4,469	4,556	4,644	4,734	4,825	5,088	619

The approximate total number of households in the QPRC LGA (including households with and without the domestic waste charge) is given in the table below.

Table 14 Total number of households QPRC LGA

	2016	2021	2026	2031	2036	2050	Difference (2016-2050)
Total LGA	27,180	28,898	31,365	34,040	36,453	40,552	13,372

6.2 QPRC Waste Generation Rates

6.2.1 Municipal Solid Waste

QPRC commissioned the QPRC Household Kerbside Bin System Audit (EC Sustainable, 2018) of kerbside waste bins in 2018. The results from this report have been used to model waste generation for the QPRC LGA. The audit identified that on average the composition of waste generated by residents is residual to landfill (21%), recyclables (28%) and organics (food and garden) (51%). Based on the average kilograms of waste type per household per week (kg/hh/wk), as shown in Table 15, the total waste generation for all households in the LGA was modelled. Waste generation has not been modelled based on current diversion rates but on estimated generation per waste type.

Table 15 Household waste generation rates (source: EC Sustainable, 2018)

Waste Type	Rate	Unit
Residual	3.6	kg/household/week
Recycling	4.8	kg/household/week
Organics	8.8	kg/household/week
Total	17.2	kg/household/week

To identify the estimated volume of waste generated by the LGA up to 2050, the rates of waste generation in Table 15 were applied to:

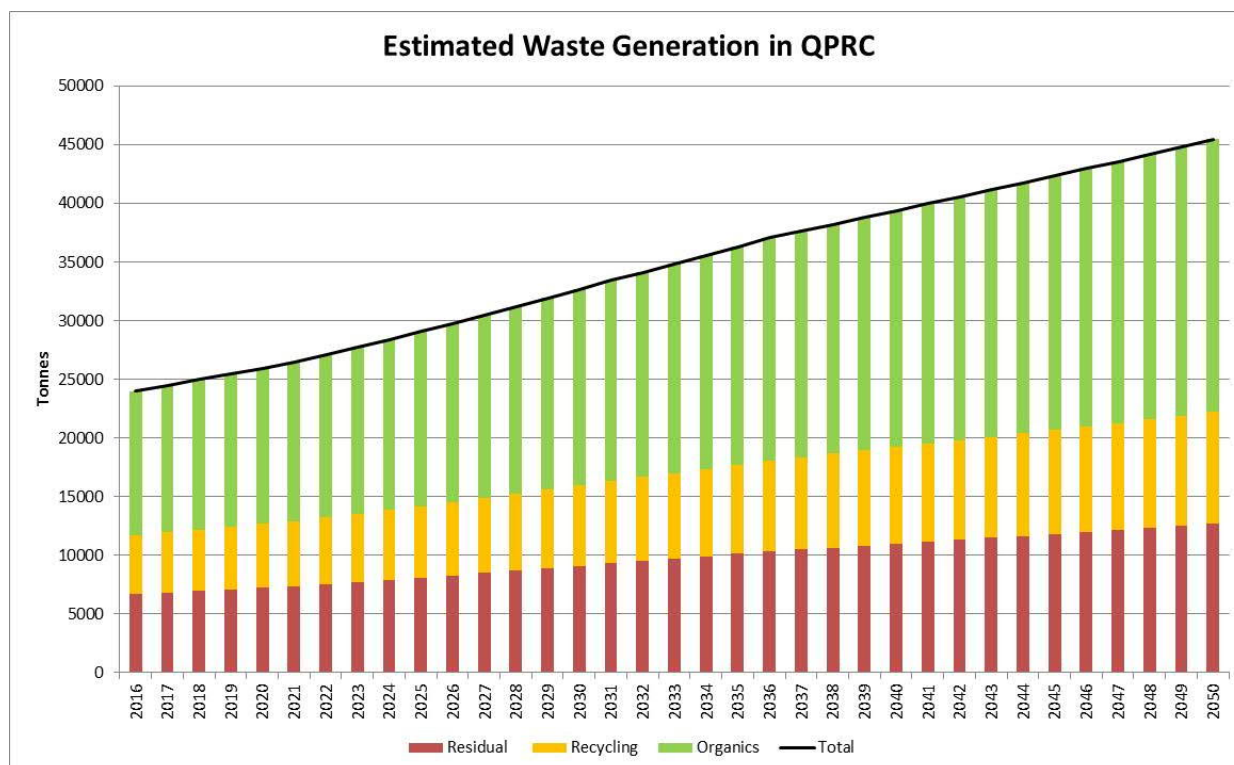
- the number of households per year (refer to Table 14)
- a 0.7% waste growth rate per year³³

The estimated waste generation from 2016 through to 2050 is given in Table 16 and illustrated in Figure 7.

Table 16 Waste generation 2016 – 2050 (tonnes per annum)

	2016	2021	2026	2031	2036	2041	2046	2050
Residual	6,692	7,381	8,295	9,322	10,338	11,150	11,981	12,680
Recycling	5,019	5,536	6,221	6,992	7,753	8,363	8,986	9,510
Organics	12,269	13,532	15,208	17,091	18,952	20,442	21,966	23,246
Total	23,980	26,448	29,725	33,405	37,043	39,955	42,933	45,435

Figure 7 Estimated Waste Generation in QPRC LGA based on current generation rates



6.2.1.1 Council Drop-off Facility Information

Drop off (self-haul) is domestic material delivered by residents directly from households to a council drop off facility or a council mobile service(s). This includes material dropped off by residents such as Residual Waste, Dry Recycling, Garden Organics, E-waste, Mattresses, Metals, Hazardous, other (e.g.; Batteries, Globes, Cartridges, etc.). The following information is from the QPRC 2016-17 WARR survey.

³³ Australian National Waste Report 2016, identified that over nine years, excluding fly ash, waste generation increased by about 19% or an average of 1.9% per year and per capita generation trended upwards with a 7% overall increase over nine years or an average increase of 0.7% per year (REC & Blue Environment, 2016, page 42).

Table 17 Council drop-off facility information (source: QPRC WARR Survey 2016-17)

Name of Facility	Tonnes Received	Tonnes disposed of to Landfill	Measurement Method
Queanbeyan Waste Minimisation Centre	2,436	24	Council Methodology
Bungendore Resource Recovery Centre	3,588	2,213	Weighbridge
Macs Reef Waste Transfer Station	500	391	Weighbridge
Braidwood Landfill	1,149	939	Council Methodology
Captains Flat Waste Transfer Station	0	0	Council Methodology
Nerriga Landfill	169	67	Council Methodology
	7,842	3,634	-

6.2.2 Commercial and Industrial Waste Generation

As noted in Section 4.2 a commercial service is offered by QPRC to businesses in the former QCC LGA. According to the QPRC 2016-2017 WARR Survey the following waste quantities were collected by Council from the commercial and non-residential sector:

- Residual Waste –from 667 premises – 570 tonnes
- Recyclables – from 447 premises – 135 tonnes
- Greenwaste – 48 premises - 0.004 tonnes

QPRC provide the former Palerang LGA with 123 waste and recycling services to the commercial and non-residential sector however does not separately record these quantities from municipal waste.

The above quantities based on services provided by QPRC to the C&I sector, are expected to represent only a small percentage of the overall C&I waste generation in the LGA, with the majority collected by private waste contractors and delivered to facilities in the ACT region.

6.2.3 Construction and Demolition Waste Generation

As noted in Section 4.3 C&D waste is currently received at Bungendore Transfer Station and Braidwood landfill. The following figures are noted in the 2016-17 WARR Survey:

- Concrete 53.8 tonnes - passed onto external processor
- Mixed C&D: 584.6 tonnes – landfilled
- Sand, soil and rubble – 584 tonnes – Internal council use (recycled/reused)

The quantities noted above are expected to represent only a small percentage of the overall C&D waste generation in the LGA with the majority delivered to processing facilities in the ACT region as noted in Section 4.3.

6.3 Resource Recovery

Average resource recovery rates for the whole of Australia and NSW are presented in Table 18. As noted in Section 3.1.2 QPRC achieves around 46% resource recovery from the MSW sector, which is in-line with the average for the NSW Regional regulated area.

Table 18 Estimates of average resource recovery in Australia and NSW 2014-15³⁴

Waste Category	Australia	Sydney Metro	Rest of NSW (no levy)
Municipal Solid Waste (MSW)	51%	58%	56%
Commercial and Industrial Waste (C&I)	64%	61%	50%
Construction and Demolition Waste (C&D)	64%	73%	57%

Based on the waste bin audits undertaken in 2018 (EC Sustainable, 2018) the current kerbside diversion rates and potential diversion rates based on improved additional resource recovery is given in Table 19. As shown in Table 19 with improved resource recovery there is potential to increase the kerbside diversion rate from 46% to around 78%.

Table 19 Diversion rates - current and potential (source: EC Sustainable, 2018)

Diversion rate type		Diversion rate (% by weight)					
		Former QCC LGA		Former Palerang LGA			Overall
		Urban	Rural	Urban	Rural – 1-bin	Rural 2-bin	
Current kerbside diversion rate		45.1	35.5	54.8	73.4	38.8	46.7
With additional recovery of these material types from the waste bins	Recyclables	52.7	40.7	61.3	-	45.3	54.0
	Garden organics	45.5	36.0	55.4	-	43.8	47.3
	Other FOGO compliant material	69.9	53.4	72.0	-	69.8	70.4
	All above	77.9	59.2	79.2	-	81.4	78.2

³⁴ Based on Table 3 NSW WARR progress report 2017 <https://www.epa.nsw.gov.au/-/media/epa/corporate-site/resources/waste/17p0083-warr-strategy-progress-report-2014-15.pdf?la=en&hash=6C52BEF220E9C0EB2BF63368EE965E1673B0EDF8> and the Australian National Waste Report 2013 <<http://www.environment.gov.au/system/files/resources/4b666638-1103-490e-bdef-480581a38d93/files/wgrra.pdf>>

7.0 Benchmarking in the Region

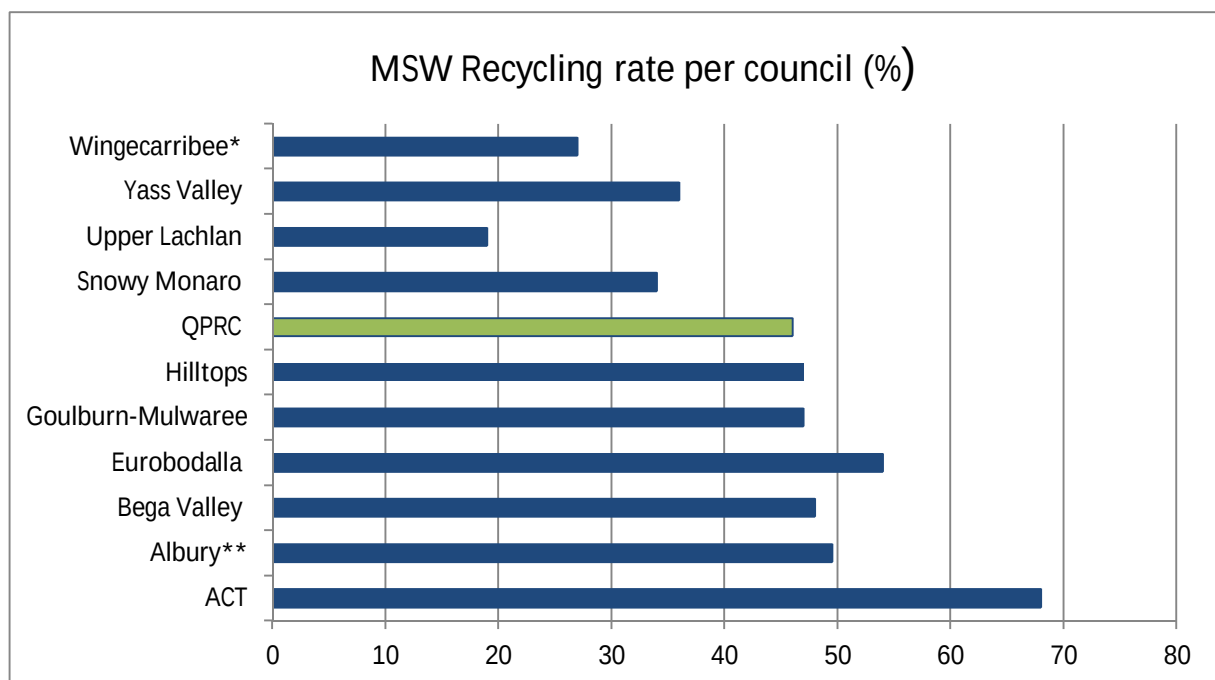
Waste generation and services data for other councils in the QPRC region and beyond has been provided by the CRJO by way of their Regional Waste Strategy³⁵. This information was supplemented by consultation with individual councils who provided additional information and findings from the latest NSW Local Government Waste and Resource Recovery Data Report 2014-15. AECOM has compiled this data into a benchmarking table, which can be found in **Appendix A**. Key findings are summarised below and in the following sub-sections:

- All councils in the region provide a weekly residual waste collection service however some townships don't receive the service such as Carwoola, Primrose Valley and Sutton Acres.
- All councils in the region provide a 240L fortnightly recycling collection service, except for Snowy Monaro which offers varying bin sizes (120L, 240L, or 360L).
- All councils except for Yass and Upper Lachlan provide either a 240L Garden Organics (GO) or Food and Garden Organics (FOGO) service.
- All councils in the region offer a bulky waste collection service to sections of the community.

7.1 MSW Recycling Rates

Figure 8 summarises the MSW recycling rates of comparable councils and the ACT, and highlights QPRC in green to understand how Council currently performs with respect to the surrounding LGA's in the region.

Figure 8 MSW Recycling rate per council in percentage (source: CRJO Waste Strategy 2017 unless noted otherwise)



* Sourced from Wingecarribee 2016-17 WARR Survey

** Sourced from 2014-15 NSW Local Government Waste and Resource Recovery Data Report 2014-15

As highlighted in the above figure QPRC is currently performing at around the median when compared to other Councils in the local region with a recycling rate of around 46%. The NSW EPA reported an overall recycling rate across NSW for MSW of 58% in the latest Progress Report.

³⁵ Wright (2018), Regional Waste Strategy for the Canberra Region Joint Organisation (CRJO), June 2018

7.2 Garden and Food Organics Recovery Rates

Figure 9 presents the quantity of organics (Garden and / or Food Organics) that each comparable council is recovering.

Figure 9 Annual organics recycling per council in tonnes per capita

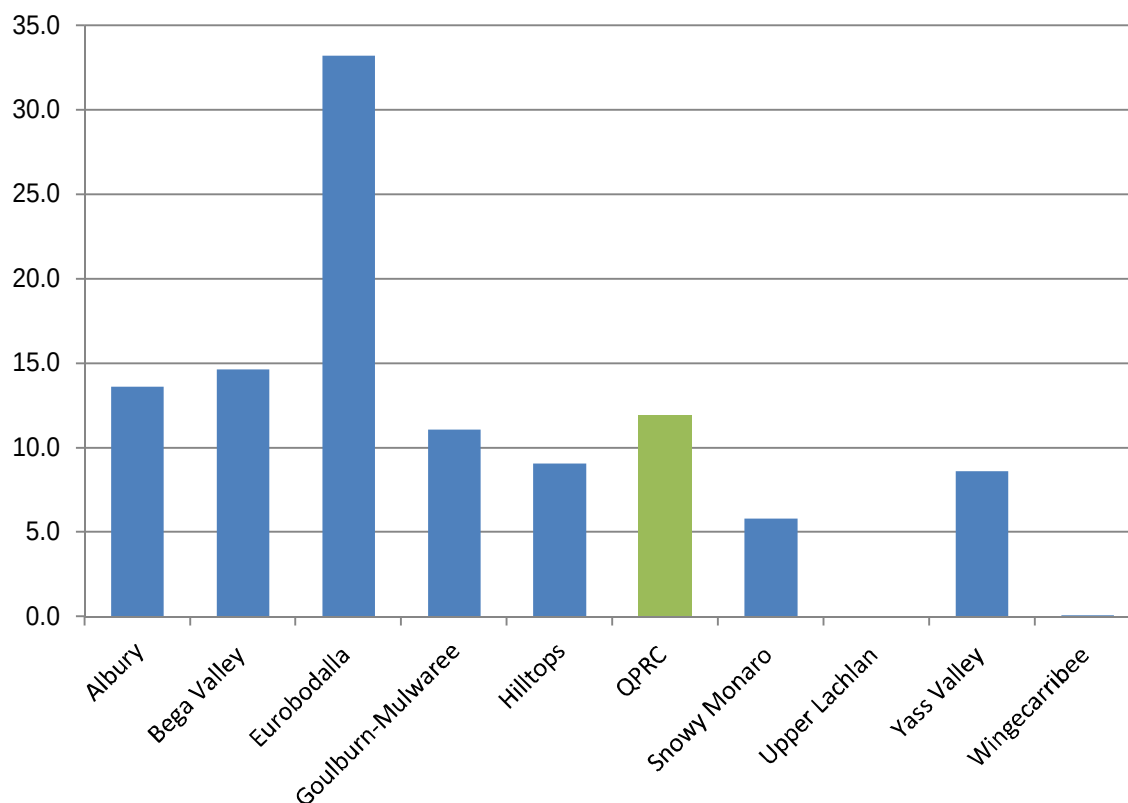
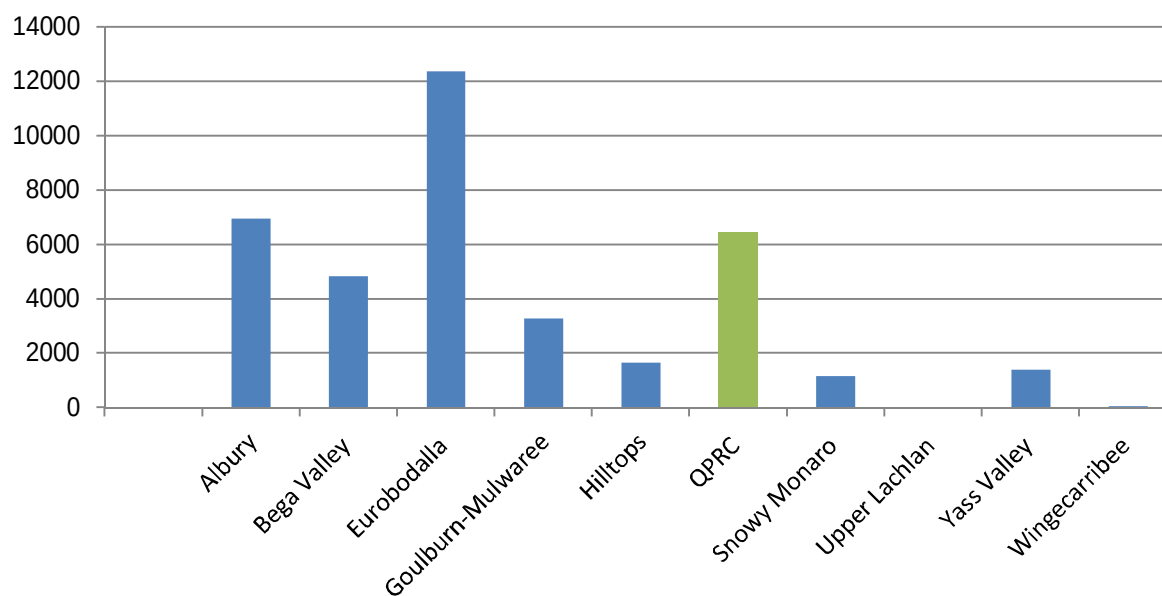


Figure 10 Annual organics recycling per council in tonnes total



7.3 Waste and Recycling Service Providers

Table 20 provides a summary of who (In House or Contractor) provides the waste collection services in each LGA.

Table 20 Waste and recycling service providers (source: CRJO Regional Strategy 2017)

Member	Waste/Recycling Contractor	Organics Contractor
Yass	In House	No Service
Bega ¹	Cleanaway	Cleanaway
Eurobodalla	Suez	Suez
Goulburn-Mulwaree	In House	In House
Upper Lachlan ²	In House	No Service
Hilltops	Elouera Industries	Cleanaway
QPRC	JJ Richards (Former QCC LGA) In House (Former Palerang LGA)	JJ Richards (Former QCC LGA) In House (Former Palerang LGA)
Snowy Monaro	Remondis / In House	In House
ACT	Suez	Corkhill Brothers
Wingecarribee	JJ Richards	JJ Richards
Albury	Cleanaway	Cleanaway

Note 1. Bega Recently tendered its waste, recycling and FOGO collections, to start July 2018

Note 2. Will review/re-new their recycling contract in June/July 2018

As shown in Table 20 generally Councils in the region contract out their waste, recycling and organics collection services.

7.4 Waste Fees and Charges

Benchmarking waste rates, fees and charges in the region needs to be treated with caution given the varying methods for developing and assigning fees in each region.

Table 21 outlines current residual (mixed) waste disposal fees and annual domestic waste charges at a number of facilities in the CRJO region and similar Councils.

Table 21 Waste fees and charges (source: councils published annual rates and fees/charges 2018)

Member	Residual Waste Drop Off Domestic Rate (\$/tonne)	Residual Waste Drop Off Rate Commercial (\$/tonne)	Annual General Domestic Waste Charge Rateable Residential Properties
Yass	\$30	\$90	\$387
Bega	\$156	\$218	Standard Residential - \$473.65 Standard Rural - \$416.15 Standard Multi-Unit \$473.65
Eurobodalla	\$135	\$135	\$313.90
Goulburn-Mulwaree	\$208	\$208	Rural Waste Card \$320
Upper Lachlan	Not Available	Not Available	Condobolin - \$459 Other Areas - \$345
Hilltops	No Charge for Rate payer/Residents	\$140	Varies: Harden/ Murrumburrah \$438 Boorowa \$200 Galong \$350 Young \$322
QPRC	Queanbeyan WMC Utes and Trailers \$7 per visit	Queanbeyan WMC Utes and Trailers \$7 per visit	Varies: Former QCC LGA – DW1 - 2018/19 - \$319 (140L waste, 240L recycling, 240L greenwaste)
	Former Palerang LGA facilities Varies depending on load size	Former Palerang LGA facilities \$155 per tonne without Tip Pass \$100 per tonne with Tip Pass	Varies: Former Palerang LGA – DWP1 – 2018/19 - \$375 (140L waste, 240L recycling, 240L greenwaste)
Snowy Monaro	\$155	\$195	\$440 (Domestic Waste and Recycling Collection) \$539 (Domestic Waste, Recycling & FOGO Collection Cooma only)
ACT	\$96.05	\$155.05	No separate Domestic Waste Charge (included in General Rate)
Wingecarribee	\$323.60	\$323.60	80L Waste Service - \$422 140L Weekly Waste Service \$526 240L Weekly Waste Service \$680
Albury	\$153	\$153	\$250 Default Service Option

As can be seen from the above table the QPRC General Waste Charges are generally in-line (if not lower) than other similar Councils in the CRJO region. Further details on the QPRC waste management charges are provided in Section 5.0.

8.0 What Can / Cannot QPRC Influence in the Waste Sector?

8.1 What QPRC Can Influence

QPRC can control the range, price, accessibility and convenience of waste services provided to households in the region.

While most waste services to the C&I and C&D sectors in the QPRC are provided by the private sector, Council can choose to intervene in these markets using planning controls, by subsidising additional waste services and/or infrastructure.

Council can provide infrastructure and services on a user pays basis or fund these initiatives through specific levies within the rates bills to residents or businesses.

Council can ensure that suitably zoned and located land is made available for developing and operating waste management and resource recovery infrastructure.

Council can improve resource recovery in both the residential and non-residential sectors through delivering and supporting targeted education campaigns designed to raise awareness on what can and cannot be recycled, reducing litter and avoiding waste generation.

8.2 What QPRC Cannot Influence

QPRC cannot influence national and global consumer trends that lead the quantities and composition of waste generated. It can, however support individuals, families, school, community organisations and businesses to make better decisions around purchasing and waste disposal to reduce local waste generation.

In general, local councils have only limited influence over the State and Federal regulatory environment. The QPRC agreement with the ACT Government and relationship through the CRJO provide QPRC will direct channel to progress its views to the highest levels of the ACT Government.

QPRC cannot influence national and global markets for recyclable materials. It can, however, create stable markets for various local recyclable streams through its purchasing policies and programs.

9.0 Next Steps

This discussion paper will support the following key next steps in the preparation of the new Waste Strategy for QPRC:

- Provide background information to the first QPRC Waste Strategy Working Group (WSWG) Meeting currently scheduled for the early September
- Provide background information for a Council meeting currently scheduled for mid-October to seek Council endorsement prior to proceeding with the first Community Consultation session.
- Provide background information for the first Community Consultation sessions to be held in mid-October
- Support identification of alternative waste management and resource recovery options. These options will be identified based on findings from our site inspections, discussions with QPRC staff, information in the background briefing paper, and outcomes of the initial WSWG meeting and Community Consultation sessions. Based on our initial research and discussions with Council, provided below are some preliminary options for consideration by Council and the WSWG:
 - Sending QPRC MSW to Veolia's Woodlawn MBT.
 - Negotiating formal arrangements with Re.Group (current Hume MRF owner and operator) for the use of the Hume MRF. This agreement could cover CDS eligible containers. A lower gate fee may be achieved via QPRC agreeing to purchase MRF glass for use in roads and civil works.
 - Supporting the objectives of the NSW CDS scheme through:
 - Establishing a sorting facility to remove CDS containers from yellow-bin collections prior to its provision to the Hume MRF
 - Promoting and supporting staff and residents participation in the NSW EPA “dob in a tosser” campaign.
 - Installing public place recycling bins for CDS containers.
 - Establishing CDS waste collection services at commercial operations including hotels and clubs.
 - Assisting sporting clubs or community groups to establish CDS collection operations.
 - Establishing a facility to restore and refurbish the better pieces of furniture, recovered from bulky waste collection or drop-off at local transfer stations. This furniture could be resold within the region or more widely.
 - Gaining better access to existing product stewardship schemes as well as earlier access to new schemes as they are established. Options include establishing Council run drop off centres for items covered under product stewardship schemes and then transporting this waste to free drop off centres³⁶.
 - Expanding former QCC LGAs third bin service to take food waste. This could be done on a fortnightly or weekly basis. Such a change should be introduced in combination with a community education campaign.
 - Co-operation with the ACT Government to establish an organics processing site able to take food and garden organics from both QPRC region and the ACT.
 - QPRC may wish to further investigate opportunities to support local business development through their purchasing practices, waste management contracts, the provision of appropriately zoned land, increased education activities and/or direct investment.

³⁶ This would need to be done regularly enough to ensure each load was below any threshold for commercial waste (e.g. less than 15 computers at a time taken to the Mugga lane drop offs or less than X L of paint).

10.0 Limitations

AECOM Services Pty Limited (AECOM) has prepared this report in accordance with the usual care and thoroughness of the consulting profession for the use of Queanbeyan Palerang Regional Council and only those third parties who have been authorised in writing by AECOM to rely on this Report.

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It is prepared in accordance with the scope of work and for the purpose outlined in the AECOM conditions of tendering included in the proposal dated 17 March 2018.

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It is the responsibility of third parties to independently make inquiries or seek advice in relation to their particular requirements and proposed use of the site.

Any estimates of potential costs which have been provided are presented as estimates only as at the date of the Report. Any cost estimates that have been provided may therefore vary from actual costs at the time of expenditure.

Appendix A

Benchmarking Table

Appendix A Benchmarking Table

Jurisdiction	Population (2016 census) Area (ha) Towns with >1000 people	Waste Facilities Utilised by each Council	Waste Facilities in the LGA	WARR Performance	Dedicated waste resources / Initiatives
Bega Valley Shire Council	33, 253 6,279km ² Bega – 4,668 Merimbula – 3,544 Tura Beach – 2,921 Tathra – 1,675	Shoalhaven Recycling MRF in Bomaderry	<u>Landfills</u> CWF Eden <u>Transfer Stations</u> Bermagui Cobargo Candelo Bemboka Wallagoot Merimbula Eden	MSW Recycling Rate: 48% Organics recycled: 4,833t	No dedicated resource
Eurobodalla Shire Council	37, 232 3,422 km ² Batemans Bay – 11,294 Moruya – 3,982 Narooma – 3,342 Tuross Head – 2,120 Dalmeny – 1,932 Malua Bay – 1929 Batehaven – 1,776 Broulee – 1,717 Tomakin – 1,001	Suez Recycling MRF in Moruya	<u>Landfills</u> Surf Beach Brou <u>Transfer Stations</u> Yarragee Road Moruya	MSW Recycling Rate: 54% Organics recycled: 12,377t	As required Own initiatives: Review existing strategy

Jurisdiction	Population (2016 census) Area (ha) Towns with >1000 people	Waste Facilities Utilised by each Council	Waste Facilities in the LGA	WARR Performance	Dedicated waste resources / Initiatives
Goulburn-Mulwaree Council	29,609 3,220km ² Goulburn – 22,890 Marulan – 1,178	Endeavour Industries Recycling MRF in Goulburn	<u>Landfills</u> Marulan WMC Goulburn WMC <u>Transfer Stations</u> Tarago	MSW Recycling Rate: 47% Organics recycled: 3,282t	Waste Education & Project Officer Own initiatives: new recycling infrastructure
Hilltops Council	18,498 7,139km ² Young – 7,170 Harden – 2,030 Boorowa – 1,211	Elouera Industries Recycling MRF in Cootamundra Ecofill Landfill in Jugiong	<u>Landfills</u> Booroowa Young Bendick Murrell Koorawatha Reids Hill Bribbaree Rye Park Milvale Tubbul <u>Transfer Stations</u> Young Booroowa Harden	MSW Recycling Rate: 47% Organics recycled: 1,660t	Limited resources Own initiatives: Developing new strategy

Jurisdiction	Population (2016 census) Area (ha) Towns with >1000 people	Waste Facilities Utilised by each Council	Waste Facilities in the LGA	WARR Performance	Dedicated waste resources / Initiatives
Queanbeyan-Palerang Regional Council	56, 368 5,319km ² Queanbeyan – 26,162 Jerrabomberra – 9,528 Bungendore – 4,178 Googong/Tralee – 2,759 Braidwood – 1,651	Re.Group Recycling MRF in ACT Queanbeyan Waste Minimisation Centre (WAMI) ACT Govt. Landfill in ACT	<u>Landfills</u> Braidwood Nerriga <u>Transfer Stations</u> Bungendore Macs Reef Captains Flat	MSW Recycling Rate: 46% Organics recycled: 6,460t	Limited resources
Snowy Monaro Shire Council	20,218 15,162km ² Cooma – 6,742 Jindabyne – 2,629 Bombala – 1,387 Berridale – 1,197	Re.Group Recycling MRF in ACT	<u>Landfills</u> Bombala Cooma Jindabyne <u>Transfer Stations</u> Adaminaby Berridale Bredbo Cathcart Nimmitabel Numeralla Delegate	MSW Recycling Rate: 34% Organics recycled: 1,175t	One full time employee Own initiatives: FOGO kerbside expansion to Bredbo, Michelago, Nimmitabel Mobile CRC to rural areas

Jurisdiction	Population (2016 census) Area (ha) Towns with >1000 people	Waste Facilities Utilised by each Council	Waste Facilities in the LGA	WARR Performance	Dedicated waste resources / Initiatives
Upper Lachlan Shire Council	7,695 7,102km ² Crookwell – 2,641	Re.Group Recycling MRF in ACT	<u>Landfills</u> Crookwell Gunning Tuena Bigga <u>Transfer Stations</u> Collector Taralga	MSW Recycling Rate: 19% Organics recycled: 0t	Education Campaign to support planned improvements to kerbside services No recorded initiatives.
Yass Valley Council	16,142 3,999km ² Yass – 6,506 Murrumbateman – 3,219 Sutton – 1,660	Re.Group Recycling MRF in ACT Ecofill Landfill in Jugiong	<u>Landfills</u> Gundaroo Eco-Fill Jugiong <u>Transfer Stations</u> Binalong Bookham Bowning Yass Murrumbateman Wee Jasper	MSW Recycling Rate: 36% Organics recycled: 1,389t	No recorded resources No recorded initiatives
ACT	396,397 168km ² Canberra	Re.Group Recycling MRF in ACT Corkhill Brothers GO processing in ACT ACT Govt. Landfill in ACT	<u>Landfills</u> ACT Government Landfill <u>Transfer Stations</u> Corkhill Brothers Re.Group MRF	MSW Recycling Rate: 68*% Organics recycled: _**	

Jurisdiction	Population (2016 census) Area (ha) Towns with >1000 people	Waste Facilities Utilised by each Council	Waste Facilities in the LGA	WARR Performance	Dedicated waste resources / Initiatives
Wingecarribee	47, 882 2,689 km ² Bowral – 12,949 Mittagong – 8,999 Moss Vale – 8,579 Bundanoon – 2,729 Robertson – 1,865		<u>Landfills</u> Wingecarribee RRC <u>Transfer Stations</u> Wingecarribee RRC	MSW Recycling Rate: 27% Organics recycled: 45t	Waste Education Officer No recorded initiatives

Appendix B

Implementation
Strategies: Queanbeyan
City Council

Number		Number	Action	Status
Rural Waste Services				
1	QCC	QCC1	Offer the rural community an optional 240L garbage service and/or 240L recycling bin, serviced on alternate fortnights	Completed
2	QCC	QCC2	Close the recycling drop-off facility at Fernleigh Park following introduction of the above services	Completed
General Waste				
3	QCC	QCC3	Offer the community an optional 80L general waste bin for low waste generators at a reduced waste charge – linked to 2015 contract	Not incorporated into the waste collection contract
Recycling Services				
4	QCC	QCC4	Improve recycling recovery through increased awareness/education programs – endeavour to capture 50% of current recyclables in general waste bin and reduce contamination to <10%	Ad hoc education activities but no structured program
5	QCC	QCC5	Develop and/or implement a recycling bin contamination policy which can revoke service where there are serious and continual issues	Not commenced
6	QCC	QCC6	Council engage a bin auditor to routinely inspect every recycling bin prior to collection to identify offending households (earlier if funds permit)	Not commenced
7	QCC	QCC7	Where additional recycling bin capacity is required, provide as an option a 360L recycling bin at minimal additional charge.	Implemented
			In preparation for the next waste collection contract, specify that the collection fleet must be capable of collecting bins ranging 240-360L for recycling	Implemented
8	QCC	QCC8	Maintain the current contractual arrangements with ACT NOWaste and Remondis in relation to acceptance and processing of all recyclables generated by Council.	Council maintains contractual arrangements in line with our legislative and regulatory requirements
Garden Waste Service				
9	QCC	QCC9	Where additional garden waste bin capacity is required, Council provide additional 240L bin on cost-recovery basis	Implemented
10	QCC	QCC10	Develop a comprehensive business plan to consider all options, costs and risks in relation to collection, transport, processing and marketing of the finished product from both the self-hauled and existing garden waste collection.	Not commenced
11	QCC	QCC11	Promote mulch sales to the community	Ad-hoc promotions but no structured program
Garden and food waste				
12	QCC	QCC12	Undertake a comprehensive business plan to consider the full range of options, costs and risks for a combined food and garden waste service	Not commenced
13	QCC	QCC13	Apply to the State Government 'Waste Less Recycle More' grant funding to offset the cost of implementation based on \$35/Hhld and \$20,000 for waste audit	Not commenced
14	QCC	QCC14	Conduct a trial to ascertain the take-up rate, contamination rates and issues associated with food/ green waste collection and services.	Not commenced

Number		Number	Action	Status
Rural Waste Services				
15	QCC	QCC15	Council review trial by: • conduct a waste audit to quantify participation, contamination, diversion, recovery and carbon reduction impact • conduct survey regarding collection frequency to determine if changes should be introduced to the garden/food and general waste bins	Not commenced
16	QCC	QCC16	Introduce a source-separated food waste collection service to all households with an existing garden waste bin	Not commenced
17	QCC	QCC17	Provide each householder with a new 240L ventilated MGB, kitchen caddy and supply of bio-bags – March 2015	Not commenced
18	QCC	QCC18	Engage a full-time waste education officer on contract for 12 months	Not commenced
19	QCC	QCC19	Offer an 'opt in' service for med-density housing where the body corporate nominate their building to be part of the program	Not commenced
WAMI				
20	QCC	QCC20	Install new and improved directional signage regarding the location of the WAMI	Completed
21	QCC	QCC21	Investigate reconfiguration of the existing site to offer an expanded drop-off area for low toxic problem wastes as defined by the NSW EPA – gas bottles/fire extinguishers, paint, lead acid batteries, florescent tubes, smoke detectors and used motor oil	Community Recycling Centre to open before Christmas 2018
22	QCC	QCC22	Apply for 'Waste Less Recycle More' funding grant funding to provide new and upgrade existing drop-off facilities for low toxic problematic waste	Completed. Community Recycling Centre to open before Christmas 2018
23	QCC	QCC23	Council enter into negotiations with SEROC and DHL in relation to providing a permanent e-waste (computer, peripherals and televisions) collection point at the WAMI	E-waste product stewardship program has effectively collapsed in the area. One-off collection events held annually in Queanbeyan and E-waste facilities provided at Mugga Lane
24	QCC	QCC24	Support SEROC/SERRG to coordinate a regional tender for processing of mattresses	Not commenced. Mattresses sent to Soft Landings for processing
25	QCC	QCC25	Provide expanded facilities at the WAMI for mobile phones, toner cartridges, scrap metal, used chemicals, unwanted but reusable household items, clothing and textiles .	CRC constructed. Additional items provided for depending on available space
26	QCC	QCC26	Investigate an alternative location for the operation of the Men's Shed	Not commenced
27	QCC	QCC27	Install weighbridge for accurate data recording of all deliveries in and out of the facility	No longer supported as site constraints mean that a weighbridge cannot be installed in a safe and efficient location.
28	QCC	QCC28	Establish a DrumMuster compound for used plastic agricultural containers	Not commenced

Number		Number	Action	Status
Rural Waste Services				
29	QCC	QCC29	Lobby the federal government to extend EPR on all e-waste, mattresses, gas bottles, fire extinguishers, paint and smoke detectors	Not commenced
30	QCC	QCC30	Council support and promote the introduction of a regional mattress recycling program.	Completed. Mattresses sent to Soft Landings for processing
31	QCC	QCC31	Conduct a feasibility study into the various operating models in other locations to assist in determining the preferred structure to suit Council's risk profile in relation to the future operation of a reuse shop.	Not commenced
32	QCC	QCC32	Engage with local charities and undertake an EOI with the local community to determine the level of interest in operation of a reuse shop at a Council-provided facility as social enterprise	Not commenced
33	QCC	QCC33	Investigate an alternative larger site and develop a master plan for all recycling/reuse activities in the same location	Not commenced
Bulky Waste Clean-Up Service				
34	QCC	QCC34	Maintain bulky waste service to twice per annum for single households in the urban areas with additional services on a fee for service or 'pay as you go' basis	On-going
35	QCC	QCC35	Maintain bulky waste service in med-density areas to two per year	On-going
36	QCC	QCC36	Maintain the current service level to rural community of two scheduled services per year.	On-going
37	QCC	QCC37	Promote trash-and-treasure days or second-hand Saturday/Sunday to encourage reuse	Council supports the Garage Sale Trail
38	QCC	QCC38	Continue to review opportunities to maximise diversion of hard waste from landfill	On-going
Litter Management				
39	QCC	QCC39	Council continue to support and promote litter reduction initiatives	On-going
40	QCC	QCC40	Council monitor developments re national CDS program.	Completed. CDS implemented in ACT and NSW
Illegal Dumping				
41	QCC	QCC41	Contact ACT Government and local police to determine interest in working cooperatively as a dedicated group of officers in tackling illegal dumping and pursuing offenders.	Completed. Regional Illegal Dumping squad created.
42	QCC	QCC42	Seek funding if appropriate from 'Waste Less Recycle More' funding package	On-going
43	QCC	QCC43	Establish and maintain a database and map to identify incidences of repeat illegal dumping activity	Completed. EPA portal utilised for this purpose
44	QCC	QCC44	Install motion activated cameras in target 'hot spots' in an effort to reduce activity	Implemented. Cameras installed as necessary at problem locations
45	QCC	QCC45	Work cooperatively with real estate agents ensuring all new tenancies and home-owners aware of the services and penalties	On-going
46	QCC	QCC46	Encourage ongoing dialogue between rangers, health surveyors, real estate agents and strata managers to reduce dumping incidents.	On-going

Number		Number	Action	Status
Rural Waste Services				
47	QCC	QCC47	Undertake a media campaign to raise awareness of the issue of dumping and the penalties and enforcement activities of Council rangers	Not commenced
Event Waste Management				
48	QCC	QCC48	Apply waste-wise event management principles for events organised at Council venues.	On-going
49	QCC	QCC49	Provide recycling opportunities at shopping precincts, swimming pool, sports fields and parks	On-going
50	QCC	QCC50	Council consider the purchase of specific bins, hoods and signage to clearly differentiate what products go where for use at events and sporting functions.	Completed
Tender for collection and processing				
51	QCC	QCC51	Prepare tender documents for a new waste collection contract for urban areas with variable bin size including: • General waste 80L–240L, recycling 240L–360L & garden organics 240L • Provide options based on existing and alternative destinations based on extra time/ distance for: • garden organics/food • residual waste from general waste bin • Seek prices to: • deliver and service special event activities • provide recycling services to C&I • require a financial commitment to education • include RFID for bins and vehicles • fuel-efficient vehicles	Tender conducted and Contract awarded
52	QCC	QCC52	Issue an EOI for med/long-term waste processing options of residual waste	Not commenced
53	QCC	QCC53	Ensure contractual arrangements in place with ACT NOWaste/Remondis in relation to acceptance and processing of all recyclables	Council maintains contractual arrangements in line with our legislative and regulatory requirements
54	QCC	QCC54	That Council seek EOI from interested parties to: • process the existing stockpile of 7,000– 10,000m³ of garden waste into grades suitable for sale • receive and process the estimated 3,000t garden organics delivered to the WAMI • Receive and process the anticipated 1800t of garden waste arising from the garden organics kerbside collection OR 3,500t garden/food waste from kerbside collection • 4,000t stockpile of bio-solids from QCC STP • 850tpa of bio-solids from QCC STP	Not commenced
Education				
55	QCC	QCC55	Communicate to the community the range of bin sizes and fee options available	On-going through Council communications
56	QCC	QCC56	Engage KABC to deliver the annual school education program to all public and private schools within the Council area	On-going
57	QCC	QCC57	Market test all graphics and educational material to gauge community understanding prior to release.	Not commenced

Number		Number	Action	Status
Rural Waste Services				
58	QCC	QCC58	Continue to provide education in a range of mediums for all ages and demographics	On-going, however no structured program
59	QCC	QCC59	Develop bin stickers for placement on either the outside of all bin lids or front of bin.	Not commenced
60	QCC	QCC60	Develop, promote and implement training in organics management including low waste gardening, composting, worm farming	Not commenced
61	QCC	QCC61	Provide subsidised worm farms and compost bins for those households attending training and seeking to manage organics on site	Not commenced
62	QCC	QCC62	Provide worm farms and compost bins at cost for the broader community	Not commenced
63	QCC	QCC63	Promote the State Government 'Love Food Hate Waste' program and website	Participated in LFHW program in 2017
64	QCC	QCC64	Promote businesses and solutions for people wishing to donate or recycle items.	On-going
Regional collaboration				
65	QCC	QCC65	Continue to work collaboratively within the region for the benefit of the region	On-going
66	QCC	QCC66	In partnership with SERRG & SEROC, consider the opportunity for a Sustainability Hub to co-locate resource recovery, education facilities, reuse centre and small business opportunities	Action no longer supported by regional group
Development Control Plan				
67	QCC	QCC67	Develop a DCP for garbage storage areas for to ensure sufficient space and access for servicing	Not commenced
Commercial and industrial				
68	QCC	QCC68	Conduct waste audit to determine weight and composition	Not commenced
69	QCC	QCC69	Review pricing policy based on audit results	Not commenced
70	QCC	QCC70	Promote waste collection services to the C&I sector by offering multiple lifts of 240L bins	Council provides multiple recycling bins to C&I sector at their cost
71	QCC	QCC71	Council to promote existing recycling and organics services offered to the C&I sector	Not commenced. Action no longer supported due to difficulty in ensuring promoted businesses are complying with best practices
72	QCC	QCC72	Council continue to promote and support the Free ACTSmart Business Program	On-going
73	QCC	QCC73	Support the training of a Council staff member in the Bin Trim tool and then undertake outreach to the business community on waste management	Council is utilising the Southern Region Business Enterprise Centre for this action
74	QCC	QCC74	Council promote the Bin Trim and Sustainability Advantage programs to the business community as free or government-assisted programs	On-going

Appendix C

Implementation Strategies: Palerang Council

Strategy	Service	Waste Management Aspect	Action	Expected outcome	Estimated Diversion Potential	Priority	Status
PC1	Residential	Putrescible	Conduct surveys of rural areas which are not currently serviced by a residual garbage collection service to determine best waste management services for these areas	Surveys on whether to introduce kerbside collections, transfer stations or bin compounds	N/A	Medium	Not commenced
PC2	Residential	Putrescible	conduct regular spot inspections of kerbside residual bins and bin compounds to identify where recyclables and/or organics are being incorrectly placed in the residual bin (where recycling/greenwaste bins are provided)	feedback to individuals and/or community on issues/areas for improvement. Consider rewards/penalty system	5%	High	Ad hoc inspection carried out, however no structured program of inspections
PC3	Residential	Recycling	Conduct surveys of rural areas which are not currently serviced by a recycling collection service to determine best waste management services for these areas	Surveys on whether to introduce kerbside collections, transfer stations or bin compounds	N/A	Medium	Not commenced
PC4	Residential	Recycling	conduct regular spot inspections of kerbside recycling bins and bin compounds to identify contamination levels	feedback to individuals and/or community on issues/areas for improvement. Consider rewards/penalty system	5%	High	Ad hoc inspection carried out, however no structured program of inspections
PC5	Residential	Putrescible/Recycling/ Organics	Conduct formal audits (2-3 year interval) of kerbside bins and compounds to measure diversion from landfill.	Diversions rates input to education programs feedback to public on areas for improvements	5%	Medium	Audit conducted in early 2018
PC6	Residential	Organics	Continue City to Soil Undertake audit of kerbside collections to assess performance Invest in education efforts to increase diversion of organics and reduce contamination Investigate options to determine best triple bottom line solution for food and organic garden waste including investigation of new greenwaste/depot site	Diversions rates input to education programs feedback to public on areas for improvements new greenwaste/depot site	57%	High	City to Soil continues with different processors Audit conducted in early 2018 Ad hoc education activities but no structured program

Strategy	Service	Waste Management Aspect	Action	Expected outcome	Estimated Diversion Potential	Priority	Status
PC7	Residential	Organics	Conduct viability study for implementation of "Compost Revolution" program and/or education workshops for maintaining chickens for areas outside green waste collection areas	implementation study	33%	Medium	Not commenced
PC8	Residential	Bulky Waste	Conduct feasibility study to assess the implementation of a bulky waste collection for urban and rural residents	implementation study	decreased illegal dumping	Medium	Not commenced
PC9	C&D	Data	create a program for tracking C&D waste disposed at Council facilities Based on data, develop C&D diversion plans Investigate feasibility of new C&D waste storage and recycling facility near Bungendore	C&D diversion plans feasibility study	70%	Medium	C&D disposal information enhanced through improved data capture at facilities
PC10	C&I	Data	Conduct a bin audit of all C&I customers in LGA to determine approximate volume of waste generated by sector and recycling rates. Following audit, develop and implement program to increase diversion	Audit Diversion plans	70%	Medium	Not commenced
PC11	Public	Putrescible	Conduct a review of public waste management services provided. This may include surveying where public bins are currently located and auditing their utilisation/collection frequency	Audit	N/A	Medium	Not commenced
PC12	Public	Recycling	place recycling bins in public places where putrescible bins are located	additional recycling bins	29%	High	Recycling bins being installed in Bungendore and Braidwood town centres
PC13	Public	Recycling	investigate the use of reverse vending machines in public places, at community events or as part of education programs. Investigate options for participating in NSW government program to provide 800 RVM across NSW	investigation report	increase in public space recycling and provides education and community engagement	Low	CDS commenced, however no drop off locations within the former Palerang LGA. 3 locations within former Queanbeyan LGA

Strategy	Service	Waste Management Aspect	Action	Expected outcome	Estimated Diversion Potential	Priority	Status
PC14	Public	Green waste	Review and implement a plan to comply with relevant orders at all facilities to allow sale and distribution of mulch and/or garden organics to public investigate viability of establishing new facility near Bungendore	management plan feasibility study		High	Preliminary investigations commenced for new site for composting activities, however, delayed following amalgamation
PC15	Public	Events	continue operating events as "waste wise" events with deployment of additional recycling bins to service the events and develop a method for collecting data to measure recycling rates	monitoring measures		High	On-going
PC16	Public	Illegal dumping	Prepare an illegal dumping management plan which identifies methods Council will use to address illegal dumping continue to monitor the success of illegal dumping efforts implemented by Council, following receiving a grant under the Combatting Illegal Dumping program. investigate additional options for reducing illegal dumping and review grant program	illegal dumping management plan		High	Not commenced, however, Council involved in the Regional Illegal Dumping Squad.
PC17	Public	Reuse	investigate options for installing a NACRO accredited charity clothing bin in town centres develop "Clothing Collection Bin Placement Policy"	Clothing Bin Placement Policy identified bin locations		High	Not commenced
PC18	General Practices	Education/Workshops	key to implementing an effective waste management strategy and any resource recovery initiatives is ensure the community has appropriate training and education	waste reductions, community workshops, education campaigns	10%	High	Ad hoc education activities but no structured program
PC19	General Practices	Data	Create a program for improving data collection at Council waste facilities. Based on data collected, review diversion plans for all waste streams	improved data collection improved diversion plans		High	Improved data collection through installation of weighbridges at major facilities and more frequent data collation.

Strategy	Service	Waste Management Aspect	Action	Expected outcome	Estimated Diversion Potential	Priority	Status
PC20	General Practices	Operation of Nerriga and Braidwood Landfills	Review operations of Nerriga and Braidwood Landfills in accordance with clause 111 of the POEO Waste Regulation 2014	compliant landfills		High	Both landfills scheduled for closure. Improved management practices at each facility through actions of Program Coordinator – Waste
PC21	General Practices	Plastic free	identify community support for implementing a plastic bag and/or bottle free local government area			Medium	Not commenced
PC22	General Practices	Waste Facilities and Services Officer	To ensure that waste management is fully integrated with Council activities and goals, Council should review hiring a dedicated resource with Council to manage waste infrastructure, conduct regular surveys of the community, design and provide waste education material and workshops				Program Coordinator - Waste engaged to manage waste infrastructure and waste operations. Following amalgamation, activities identified in this action will be shared amongst a number of Council employees
PC23	General Practices	SERRG	Work with SERRG to identify a regional approach to some (or all) problem waste streams in order to access greater funding under the <i>Waste Less, Recycle More</i> initiative				On-going