URS

FINAL REPORT

Palerang Council

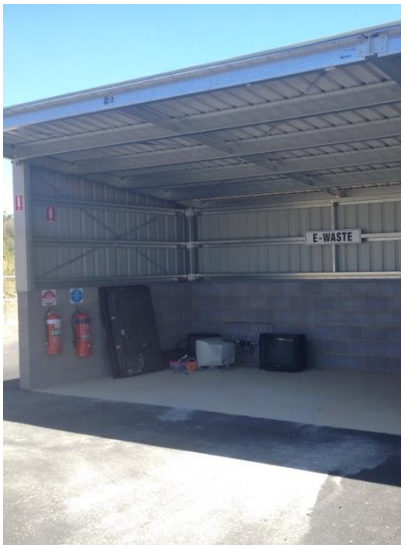
AUSTRALIA

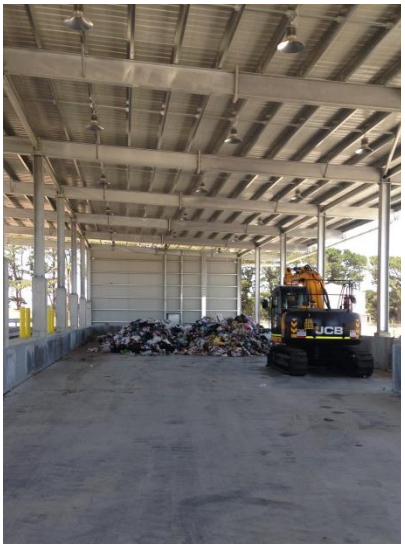
Waste Management Strategy 2015-2035

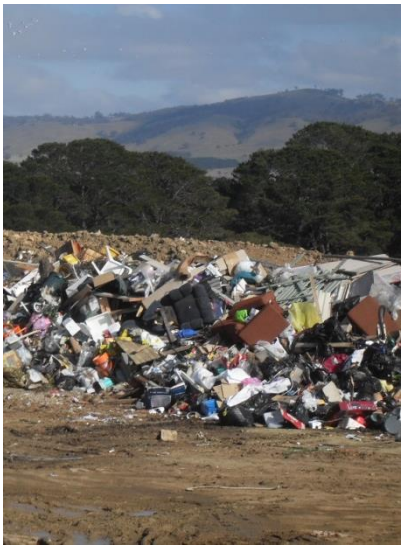
23 November 2015
43177927/URS/00E

Prepared for:
Palerang Council

Prepared by URS Australia Pty Ltd







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ABBREVIATIONS

Abbreviation	Description
ABS	Australian Bureau of Statistics
ACT	Australian Capital Territory
AWT	Alternative Waste Technology
C&D	Construction and Demolition
C&I	Commercial and Industrial
CDL	Container Deposit Legislation
CDS	Container Deposit Scheme
CRC	Community Recycling Centre
DEC	Department of Environment and Climate (now OEH)
EfW	Energy from Waste
EIS	Environmental Impact Statement
EPA	Environment Protection Authority
E-waste	Electronic waste
LEP	Local Environment Plan
LFG	Landfill Gas
LGA	Local Government Area
LGNSW	Local Government NSW
MRF	Material Recovery Facility
MSW	Municipal Solid Waste
NACRO	National Association of Charitable Recycling Organisations
NPW Act	*National Parks and Wildlife Act 1974*
NSW	New South Wales
OEH	NSW Office of Environment and Heritage
POEO Act	Protection of the Environment Operations Act 1997
RRC	Resource Recovery Facility
RVM	Reverse Vending Machine
RWMS	SERRG Regional Waste Management Strategy
SEPP	State Environment Planning Policy
SERRG	South East Resource Recovery Group
SERRROC	South East Resource Recovery Regional Organisation of Councils
TSA	Tyre Stewardship Australia
TSC Act	Threatened Species Conservation Act 1995
UTS	University of Technology Sydney
WARR Strategy	NSW Waste Avoidance and Resource Strategy 2014-21
WTS	Waste Transfer Station
Woodlawn	Woodlawn Waste Management Facility located at Tarago, operated by Veolia

EXECUTIVE SUMMARY

URS Australia Pty Ltd (URS) was commissioned by Palerang Council (Council) to update the Palerang Council Waste Management Strategy (referred to in this report as the 2005-2025 Waste Strategy). The 2005-2025 Waste Strategy outlined key actions to be implemented over a 20 year period from 2005 to 2025

This report outlines a 20 year waste strategy (from 2015 to 2035) for Palerang Council, which provides Council with a clear vision on the key waste management elements it will need to provide the community to manage their waste in a sustainable manner.

The strategy was prepared by reviewing existing information provided by Council, determining the waste generated in the Palerang Local Government Area (LGA), measuring the landfill diversion rates for mixed recyclables and organics, assessing the individual existing waste management infrastructure in particular the waste transfer stations (WTS), and comparing options to develop a preferred Council wide integrated waste management strategy to increase landfill diversion across the Council in line with the Waste Avoidance Resource Recovery (WARR) Strategy targets.

A.1.1 The Strategy

Based on a desktop review of waste management practices implemented by other government authorities and alternative waste management practices, the Waste Strategy outlines options for:

- Management of residential waste services for residual, recyclables and organic waste
- Increasing diversion from landfill of recoverable materials
- Management of public waste
- Management of problem waste

A.1.2 Public Consultation

In October 2014 Council mailed an information leaflet to residents entitled '*Palerang Council Waste Management Strategy Update*', see **Appendix A**. The newsletter informed the community that Council commissioned URS to update the 2005-2025 Waste Strategy and was therefore seeking community participation on what waste management measures would be appropriate for incorporation into the Waste Strategy for implementation over the next 20 years. Residents were invited to provide written feedback on current waste management practices in their community and provide input on what they would like addressed over the next 20 years.

The key issues raised by the community included:

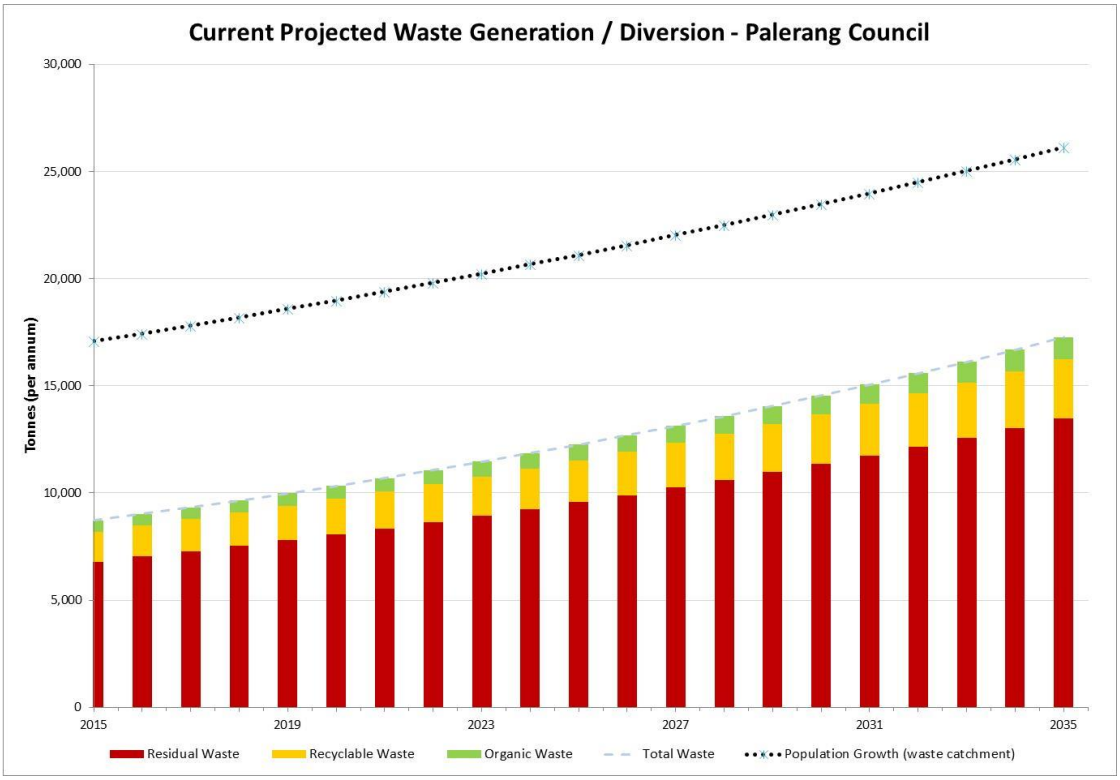
- Proposed operation of new WTS's and Resource Recovery Centre (RRC) – in particular introduction of gate fees for Palerang residents and opening hours
- Kerbside collection of residual waste and recycling – providing additional services to rural areas
- Concern over illegal dumping on private properties

- Request for bulky waste collection (kerbside clean-up) service for residents
- Increased community education on waste management and resource recovery
- Green waste management – feedback on the City to Soil Program

A.1.3 Waste Characterisation

In 2015, Palerang LGA will generate approximately 8,700 tonnes of municipal waste. By 2035, Palerang LGA will be generating approximately 17,000 tonnes of waste, as shown in **Figure ES 1**, based on current trends in population growth and waste generation rates. The estimated breakdown as a percentage (by weight) of residual (78%), recyclables (16%) and organics (6%) material in the total waste streams is also depicted in **Figure ES 1**.

Figure ES 1 Current project waste generation and diversion Palerang LGA



A.1.4 Council Waste Infrastructure

Based on the options analysis conducted in the 2005-2025 Waste Strategy, Council developed a staged plan to close the rural landfills servicing the Palerang waste catchments. The closure of these rural landfills will reduce the potential long term environmental liabilities for Council. The landfills listed in **Table ES 1** 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 ES 1** 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.

Table ES 1 Completed and planned changes to waste management infrastructure since the 2005-2025 Waste Strategy

Landfill	Planned Closure Date	Rehabilitation Date	Proposed/Implemented Waste Management Practice
Araluen	Closed	2015/16	Roadside domestic waste collection service supplemented by a bin compound.
Bungendore	Closed	2015/16	The Bungendore RRC and WTS opened in December 2014.
Braidwood	2016/17	2016/17	Council has purchased land for a RRC and WTS on Bombay Road immediately west of the sewerage treatment works. Development consent will be sought during 2015/16 with the view to opening the facility in 2016/17.
Captains Flat	Closed	Complete	WTS in operation.
Collector	-	-	Landfill to remain open for foreseeable future. Operated by Upper Lachlan Shire.
Macs Reef	Closed	2015/16	Macs Reef WTS was opened in December 2014.
Majors Creek	Closed	2015/16	Roadside domestic waste collection service supplemented by a bin compound.
Nerriga	2018/19	2019/20	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.

Table ES 2 provides a summary of the existing residual waste and recycling management practices provided in the LGA. Residual waste from kerbside collection, WTS's and bin compounds are disposed of at Woodlawn Waste Management Facility, Braidwood Landfill, and Nerriga Landfill by Council. Recycling collected by Council from kerbside collections or at WTS's and bin compounds is taken to the Hume MRF.

Table ES 2 Summary of Waste Management Catchment Facilities in Palerang Council

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

A.1.5 Alternative Options for Waste Management

Section 5 of the Waste Strategy outlines potential alternative options for management of the key waste streams in the Council including problem waste such as tyres, mattresses, waste collection in public areas and possible alternative waste technologies such as energy from waste.

A.1.6 Preferred Waste Management Strategy

Based on the alternative options assessment and feedback from the community the Waste Strategy lists, in **Table 6-3**, preferred options for waste management practices in the Palerang LGA, which may be implemented over the next 20 years to increase the Council's recycling rate and improve environmental outcomes in the community.

Based on implementation of all or some of these actions Council will work towards achieving a recycling rate of 50% by 2021.

Table ES 3 2021 Recycling Rate Target

	Palerang Recycling Rate calculated for 2015[1]	Palerang Recycling Rate Target 2021	2021 WARR Recycling Rate Target
Municipal Solid Waste	22%	50%	70%
Commercial & Industrial	Currently not tracked	50%	70%
Construction & Demolition	Currently not tracked	50%	80%

A target of 50% diversion by 2021 has been selected based on works implemented to date, which have achieved approximately 22% diversion from landfill in 2015, and considering planned resource recovery initiatives. Fifty percent is considered reasonable given the period of time to implement diversion strategies is six years, and the available funding to implement each action to increase diversion. Council will aim to meet this target and exceed it where possible.

A.1.7 Council 20 Year Financial Model Review

WTS Gate Fees

In December 2014 the Bungendore and Macs Reef WTS opened to the public. As such Council introduced a new gate fee structure for residents and non-resident users of these facilities.

Gate fees are structured to offset the cost of operation and disposal of waste to a licensed facility. Currently residual waste (putrescible and inert) is disposed of at the Veolia Woodlawn Waste Management Facility (Woodlawn), located at Tarago, NSW.

The 2015/16 gate fees for Bungendore, Mac Reef and Captains Flat are considered appropriate based on a review of Council's 20 year financial plan for waste management.

It is noted that the gate fees for tyres and mattresses could be increased. Under the current fee structure the gate fee does not cover the full cost of recovery/disposal. Council has identified in these instances fees are balanced to cover a proportion of the recovery/disposal cost and more importantly to encourage residents to dispose of waste responsibly, i.e. reduce illegal dumping.

General Waste Charge

In order for the Council Working Fund to maintain sufficient capital for implementation of options provided in **Section 6**, a 4% per annum increase in the general waste charge for the first 13 years, and a potential 3% per annum increase thereafter is recommended. This results in an increase in annual waste charges from between $326-$362 in 2015/16 to $500-$600 in 2025/26 and $670-$780 by 2034/35.

[1] These figures have been calculated based on the average recovery of Palerang LGA, and the best available information at the time.

A.1.8 Funding Opportunities

There are multiple options currently available to Council to assist funding of waste infrastructure and resource recovery programs. These include:

- Keep Australia Beautiful - funding the purchase of public space recycling bins and education initiatives which create an informed community (up to $10,000 per recipient).
- *Waste Less, Recycle More* – a variety of grant packages detailed in **Table 8-1**.
- Potential funding from the State Government to place at least 800 reverse vending machines across NSW.

1 INTRODUCTION

URS Australia Pty Ltd (URS) was commissioned by Palerang Council (Council) to update the 2005-2025 Palerang Council Waste Management Strategy (referred to in this report as the 2005-2025 Waste Strategy). The 2005-2025 Waste Strategy outlined key actions to be implemented over a 20 year period from 2005 to 2025.

Since preparation of the 2005-2025 Waste Strategy, some key recommendations have been implemented, while others have been postponed or modified for various reasons ranging from delays in obtaining planning approvals to unexpected capital expenditure. Key initiatives implemented since 2005 are discussed in **Section 4**.

Council recognises the importance of updating the 2005-2025 Waste Strategy to reflect changes that have occurred since 2005, including:

- updating the current waste management practices in the local government area (LGA);
- updating the Waste Strategy to reflect the introduction of new State wide waste management policies and regulations;
- identifying opportunities to work with the regional waste group, South East Resource Recovery Group (SERRG), for introduction of innovative resource recovery programs for problem waste;
- identifying priority areas for the next 20 years from 2015 to 2035; and
- reviewing Council waste fees and charges.

1.1 Palerang Council

Palerang Council was formed by proclamation on 11 February 2004. It has an area of approximately 5,200 square kilometres and includes the old Tallaganda Shire Council and eastern areas of the old Yarrowlumla Shire Council and remnants of both Mulwaree and Gunning Shires. As shown in **Figure 4-2**, the Council is situated between the Australian Capital Territory (ACT) and Queanbeyan Shire Council to the west and Eurobodalla Shire Council to the east.

Land use in the LGA is a mix of towns, village areas, rural/residential areas and rural areas. The main waste management infrastructure, including landfills and waste transfer stations (WTS), are located at:

- Bungendore (est. catchment pop. 5,730);
- Captains Flat (est. catchment pop. 772);
- Braidwood (est. catchment pop. 2,312); and the villages of
- Araluen (est. pop. 304);
- Majors Creek (est. catchment pop. 223);
- Nerriga (est. catchment pop. 362); and
- Macs Reef (est. catchment pop. 4,380).

Waste management services are also provided to the rural residential settlements of Royalla, Burra, Urila, Carwoola, Stoney Creek, Hoskinstown and Rossi. The estimated population of

the Palerang LGA is 15,836 however the waste catchment serviced by Council is estimated at 16,711. The overall growth of the Council is expected to be approximately 2.15% per annum based on the average population growth rate over the last five years[2].

In the rural areas of the LGA, sheep and cattle farming continues however there are few farmers in the LGA who rely solely on their property as a source of income. There is a trend in the LGA towards newer forms of Australian agriculture, such as vineyards, olive orchards and alpaca studs. Other rural areas of the LGA consist of forestry, National Park and Googong Dam (administered by the ACT Government). The eastern parts of the LGA consist primarily of grazing properties, softwood plantations and National Park. Most industry in the LGA is service, tourism or rural related. There are no large manufacturing industries or large scale livestock operations. The Waste Strategy is primarily designed to address the municipal solid waste management issues facing Council.

1.2 Current and Future Waste Generation

In 2015, Palerang LGA will generate approximately 8,700 tonnes of municipal waste. By 2035, Palerang LGA will be generating approximately 17,000 tonnes of waste following a business as usual case, as shown in **Table 1-1**.

The residual waste, recyclables and organic waste generation in the Palerang LGA over the next 20 years was estimated based on the following key sources of information:

- 2011 ABS population data for the Palerang LGA and information from the 'Social Atlas'[3]. An average a population growth rate of 2.15% was applied, based on population growth from 2009-2013.
- Present waste generation rate of 9.2 kg/capita/week, as given in the *NSW Local Government Waste Avoidance and Resource Recovery Data Report 2012-13*.
- Future increase in waste generation per capita consumption is based on a the national growth in waste per capita of 1.3%, as given in the *Review of Waste Strategy and Policy in New South Wales* (DECCW, 2010/1034).
- The estimated breakdown as a percentage (by weight) of mixed recyclables and residual material in the total waste streams as calculated based on data provided by Palerang for disposal to Woodlawn (residual), Hume (recyclables) and disposed of as part of the City to Soil program (organics).

To determine the Councils current landfill diversion rate the following data was analysed:

- Bungendore and Macs Reef WTS data – residual waste sent to Woodlawn;
- Remondis (operator of the Hume MRF in the ACT) comingled recycling receipts from December 2014 to April 2015; and
- *Review of the City to Soil Bin Service following its Trial, dated 7 May 2015.*

[2] Palerang Council Area, profile id, community profile, http://profile.id.com.au/palerang/population-estimate, viewed 27/10/14
[3] http://atlas.id.com.au/palerang/#MapNo=10173&SexKey=3&datatype=1&themtype=3&topicAlias=population-density&year=2011

Based on the data available the recycling rates identified in **Table 1-1** were determined. Council expects to show a significant improvement in diversion rates in the future as processes and operations are fine-tuned at the existing and future waste facilities.

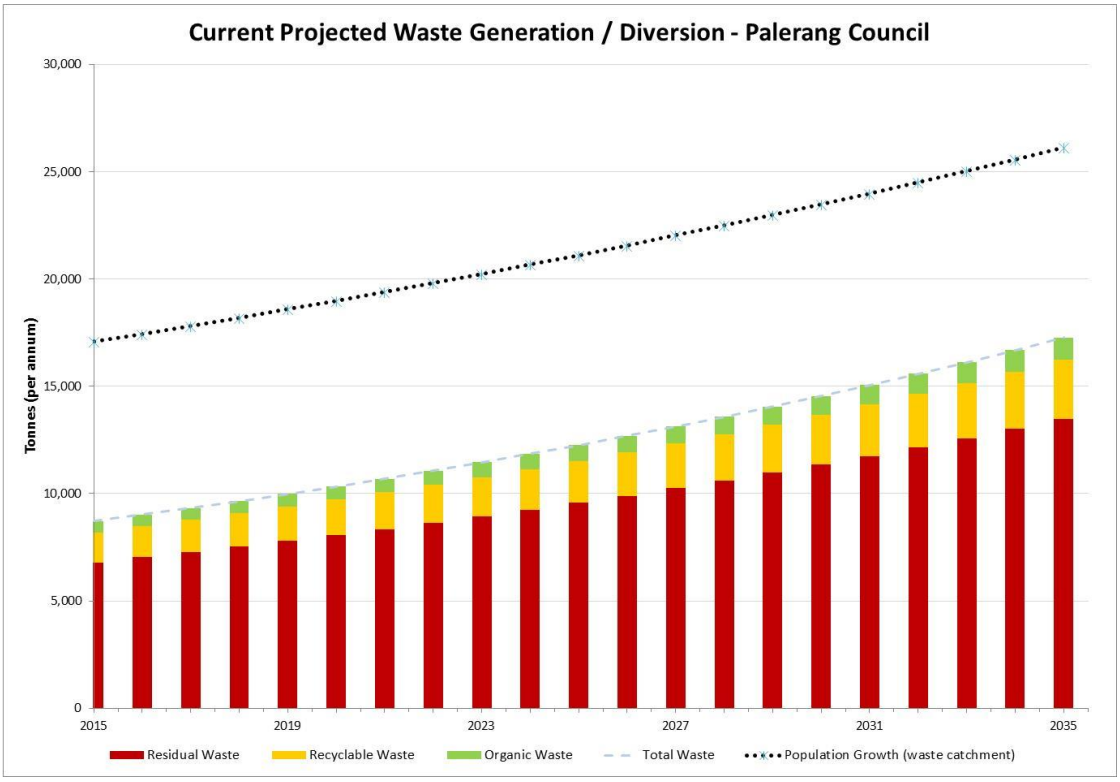
Table 1-1 Palerang LGA MSW Recycling Rate

Material	Recycling Rate calculated for 2015[4]
Recyclables	16%
Organics (food scraps/green waste)	6%

** The remaining 78% of waste generated is sent to landfill*

Based on the recycling rates calculated in **Table 1-1**, **Figure 1-1** illustrates the estimated tonnes of waste generated in the Palerang LGA from 2015 to 2035 and the proportion of mixed recyclables and organic waste which would be diverted from landfill if Council continues to operate as business as usual.

Figure 1-1 Current projected waste generation / diversion for Palerang Council



1.3 Objectives of the Waste Strategy

The Waste Strategy has been prepared to address the management of waste in the LGA over the next 20 years in a manner which maximises landfill diversion and resource recovery. The key objectives of the Waste Strategy are:

[4] These figures have been calculated based on the average recovery of Palerang LGA, and the best available information at the time.

- Provide an overview of the existing waste management practices and services offered in the LGA.
- Develop potential future waste management and resource recovery options for the Council over a 20 year timeframe.
- Provide cost estimates for implementation of the proposed Waste Strategy (included in the Council's financial plan review).

In this report the following terminology is applied:

Recycling Rate

The recycling rate for a particular waste stream (municipal solid waste (MSW), commercial and industrial (C&I), construction and demolition (C&D)) is the proportion of all materials recycled from that waste stream in a given year (measured in tonnes) compared with the sum of all waste generated from that waste stream in the same year. Recycling excludes recovery of energy from waste processes.

Landfill Diversion

Landfill diversion refers to the proportion of all materials (measured in tonnes) that are either recycled or otherwise recovered (such as through an energy-from-waste facility) compared with total waste generation in a given year disposed of to landfill.

1.4 Structure of the Waste Strategy

The Waste Strategy consists of the following sections.

Section 1: Introduction

Section 2: Development of the Waste Strategy: Provides an outline of the key information which influences the Waste Strategy and subsequent key tasks undertaken in development of the Strategy.

Section 3: Key Legislation and Guidelines: Outlines some of the key NSW waste management and environmental legislation and highlights the key trends and changes occurring in waste management.

Section 4: Current Waste Management Practices: Describes the current waste management practices implemented in Palerang LGA and the changes currently proposed by Council.

Section 5: Alternative Options for Waste Management: The section reviews options for alternative waste management in Palerang LGA and highlights where these options have been implemented in LGAs.

Section 6: Preferred Waste Management Strategy: Draws on the findings from the previous sections and incorporates an assessment of the preferred options for Council to increase resource recovery.

Section 7: Review of Council's 20 year financial plan for waste management.

Section 8: Waste Strategy Funding Opportunities: This section identifies potential sources of funding for the key recommendations in the Waste Strategy as outlined in **Section 6**.

2 DEVELOPMENT OF THE STRATEGY

In preparing this Waste Strategy the following key tasks were carried out.

2.1 Review of Background Information

URS undertook a review to identify Council's current waste management practices, proposed changes to waste management practices, industry best practice, regulatory and policy context, and the environmental impact of waste management across the Palerang LGA. Data reviewed included:

- The Palerang Council Waste Management Strategy 2005-2025
- Information from waste related reports, and studies provided by Council
- Information on costs to Council of existing waste management services provided by Council
- Population and growth rate (Australian Bureau of Statistics (ABS))
- Waste characterisation based on typical waste characteristics for similar areas in NSW. The waste characterisation includes the identification of materials that may be recoverable from the waste stream and future waste trends
- Bungendore and Macs Reef WTS weighbridge data from 8 December 2014 to 20 March 2015
- Palerang Council Domestic Kerbside Waste and Organics Bin Audits: 2008 and 2015 (EC Sustainable, 2015)
- Review of the City to Soil Bin Service following its Trial, file No. WM0016 (7 May 2015)

2.2 Review Current and Planned Changes to Council Waste Management Practices

Based on the options analysis conducted in the 2005-2025 Waste Strategy, Council developed a staged plan to close the rural landfills servicing the Palerang waste catchments. The closure of these rural landfills will reduce the potential long term environmental liabilities for Council. The landfills listed in **Table 2-1** 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 Resource Recovery Centres (RRC), WTS's and bin compounds. Construction of the RRCs and WTS's will improve Council ability to track recycling rates, and ultimately measure their landfill diversion rate. **Table 2-1** 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.

Table 2-1 Completed and planned changes to waste management infrastructure since the 2005-2025 Waste Strategy

Landfill	Planned Closure Date	Rehabilitation Date	Proposed/Implemented Waste Management Practice
Araluen	Closed	2015/16	Roadside domestic waste collection service supplemented by a bin compound.
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Nerriga	2018/19	2019/20	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.

2.3 Options Analysis: Identification of Waste Management Options for General Waste, Recyclable Materials and Problem Wastes

Based on a desktop review of waste management practices implemented by other government authorities and alternative waste management practices, the Waste Strategy outlines options for:

- Management of residential waste services for residual, recyclables and organic waste
- Increasing diversion from landfill of recoverable materials
- Management of public waste
- Management of problem waste

2.4 Review and Update the Palerang Council 20 Year Financial Plan

Based on the findings of the options analysis the Council's 20 year financial plan has been updated. Updating the Council's 20 year financial plan allows Council to more effectively review fees and charges implemented at the RRCs and WTS's.

Section 8 also identifies potential opportunities for government grants to support the key actions of the Waste Strategy such as the *Waste Less, Recycle More* initiative which supports Council's in non-levy paying areas to reduce illegal dumping and assist with closure and rehabilitation of rural waste tips.

2.5 Public Consultation

In October 2014, Council mailed an information leaflet to residents entitled '*Palerang Council Waste Management Strategy Update*', see **Appendix A**. The newsletter informed the community that Council commissioned URS to update the 2005-2025 Waste Strategy and was therefore seeking community participation on what waste management measures would be appropriate for incorporation into the Waste Strategy for implementation over the next 20 years.

Residents were invited to provide written feedback on current waste management practices in their community and provide input on what they would like addressed over the next 20 years.

Key questions Council sought input from the local community included:

- What new or additional waste and resource recovery services are required across the LGA? Council was particularly interested in hearing from more remote areas outside of the main towns; and
- Should the City to Soil green waste collection service continue or be expanded to other areas?

The community was given one month to provide feedback to Council. Input received before the 14 November 2014 has been considered when determining what options for waste management may be implemented over the next 20 years. A summary of the feedback received and the section of the report which addresses the submission is provided in **Appendix A**.

The key issues raised by the community included:

- Proposed operation of new WTS's and RRCs – in particular introduction of gate fees for Palerang residents and opening hours
- Kerbside collection of residual waste and recycling – providing additional services to rural areas
- Concern over illegal dumping on private properties
- Request for bulky waste collection (kerbside clean-up) service for residents
- Increased community education on waste management and resource recovery
- Green waste management – feedback on the City to Soil Program

The draft strategy will be available for public comment before the final strategy is adopted by Council.

3 KEY WASTE MANAGEMENT LEGISLATION AND GUIDELINES IN NSW

This section gives a summary of the key waste management and environmental strategies, legislation and guidelines in NSW, which will impact on waste management in the Council and therefore the actions outlined in this strategy.

3.1 Protection of the Environment Operations Act 1997

The *Protection of the Environment Operations (POEO) Act 1997* defines 'waste' for regulatory purposes and 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 is administered by the NSW Environment Protection Authority (EPA). Key issues which will need to be considered under this legislation include any discharge of leachate from the landfill sites, landfill gas generation and disposal of green waste.

3.2 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.

It provides for contributions (waste levy) to be paid by the occupiers of licensed waste facilities for each tonne of waste received at the facility or generated in a particular area; exempts certain occupiers or types of waste from these contributions; and allows deductions to be claimed in relation to certain types of waste. Council is currently not located within the levy paying area. It is noted that there has been indications from the NSW Government that the levy paying area may be extended to include Palerang LGA in the future. Council has strongly opposed the introduction of the levy in the Palerang LGA as stated in the '*Extension of the Waste Levy Options Paper'* (June 2014), prepared by Council.

The Waste Regulations introduce a number of changes to the way is which waste in managed in NSW. The changes which may have a direct effect on Council are identified below.

Proximity Principle: offence for transport of waste

The Waste Regulation "*makes it an offence to transport waste generated in NSW by motor vehicle for disposal more than 150 kilometres from the place of generation, unless the waste is transported to one of the two nearest lawful disposal facilities to the place of generation*"[5]. For the transport of restricted solid waste for disposal, the offence provision applies where waste is transported by motor vehicle to a place that is not the closest lawful disposal facility for that waste. However it is a defence that transportation may be carried out for lawful and genuine recycling, resource recovery, energy recovery, processing or re-use, noting that simply storing

[5] NSW EPA, Proximity Principle: Offence for transport of waste, http://www.epa.nsw.gov.au/wasteregulation/proximity-principle.htm, viewed 15/01/15

or sorting waste does not constitute any of these[6]. This has implications for Council when considering options for transport of waste outside of the LGA.

Tyres

From 1 July 2015, consignors and transporters of waste tyres will be required to monitor the movement of waste tyres within NSW. These requirements will apply to loads of waste tyres greater than 200 kilograms or more than 20 waste tyres, whichever weighs less. The disposal facility will be required to confirm details of receipt of the waste tyres.

The EPA is developing an electronic system to make this a simple and easy-to-use process that will be used by all relevant parties to record the required information.

In addition, the thresholds at which the storage of waste tyres requires an environmental protection licence (EPL) have significantly reduced. A site which stores more than 50 tonnes of tyres or 5,000 waste tyres on site at any time must be licensed under the POEO Act up to July 2015 (Waste Regulations, 2005). From July 2015, under the Waste Regulations (2014) a site which stores more than **5 tonnes of tyres or 500 waste tyres** on site at any time must be licensed[7].

Land Pollution Offence / Illegal Dumping

As of 1 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 that poses a risk to the community or the environment is unacceptable in NSW[8].

Land pollution defence for unlicensed landfills

Clause 111 of the Waste Regulations 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 that measures to reduce the risk of fire and odour/noise/dust emissions, control public access to the premises and general maintenance of the facility are implemented on site[9]. 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.

3.3 Waste Avoidance and Resource Recovery Act 2001

The *Waste Avoidance and Resource Recovery (WARR) Act 2001* promotes waste avoidance and resource recovery by developing waste avoidance and resource recovery strategies and programs, such as the extended producer responsibility scheme for industry.

[6] NSW EPA, Proximity Principle: Offence for transport of waste, http://www.epa.nsw.gov.au/waste/proximityprinciple.htm, viewed on 27/10/14
[7] NSW EPA, Waste tyres monitoring and licensing, http://www.epa.nsw.gov.au/waste/tyresfs.htm, viewed on 27/10/14
[8] NSW EPA, Prescribed waste for land pollution offence, http://www.epa.nsw.gov.au/waste/pollutoffencefs.htm, viewed on 27/10/14
[9] NSW EPA, Land pollution defence for unlicensed landfills, http://www.epa.nsw.gov.au/waste/landpollutionfs.htm, viewed on 27/10/14

3.4 NSW Waste Avoidance and Resource Recovery (WARR) Strategy 2014-21

The NSW Government's Waste Avoidance and Resource Recovery (WARR) Strategy provides the strategic direction for future waste management and resource recovery activities in the State. The Draft Strategy was released in 2003, with the final Strategy released in 2014. The priorities for waste reform were determined by the Government in the '*NSW 2021: A plan to make NSW number one'*.

Implementation of the key actions within the strategy will be funded by an estimated $465.7 million through the *Waste Less, Recycle More* initiative and will work in conjunction with other State-wide initiatives, such as the NSW Energy from Waste Policy Statement.

The WARR Strategy aims to drive the efficient use of resources, reduce the environmental impact of waste and improve the well-being of the NSW environment, community and economy. The WARR Strategy sets out long-term targets, while also providing a framework for the development of various implementation plans, which will focus actions over shorter periods of time. The first of these implementation plans is the 'NSW Illegal Dumping Strategy 2014'.

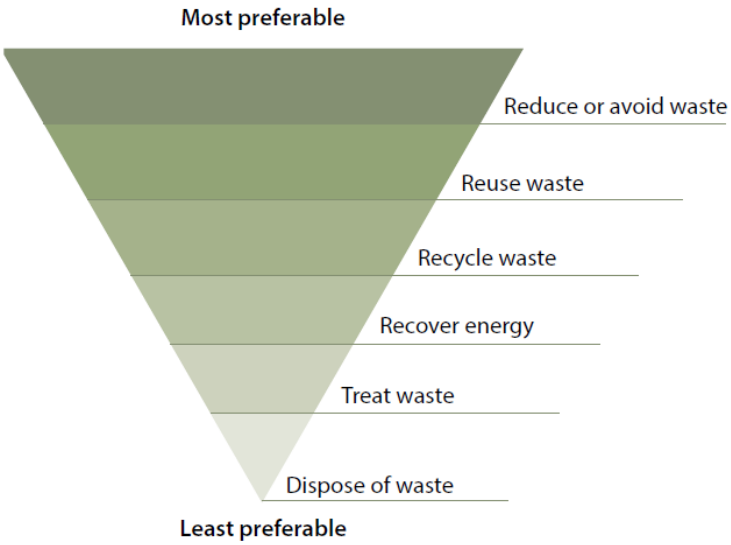
The WARR Strategy also outlines a number of 'responsibilities' for different sectors, including industry, business, and the waste and management industry. These responsibilities involve implementing in-house strategies and systems to meet 'Key Result Area' targets, listed in **Table 3-1**. The six key result areas continue the intent of the 2003 and 2007 strategies, but have been broadened to enable more targeted action. The targets are based on 2010-11 figures. A summary of the strategic strategy is provided in **Appendix C**.

Table 3-1 WARR Key Result Areas and Targets

Key Result Area	Target
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% • C&I waste from 57% (in 2010–11) to 70% • C&D 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 state-wide.
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 state-wide. As part of this strategy, by 2016–17: • Reduce the incidence of illegal dumping of waste detected 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.

The WARR Strategy is informed and driven by the waste hierarchy which underpins the objectives of the Waste Avoidance and Resource Recovery Act 2001. The waste hierarchy lists in order of preference the approaches needed to achieve efficient resource use (**Figure 3-1**).

Figure 3-1 The waste hierarchy (source: *NSW WARR Strategy 2014-2021, Figure 1*)



WARR Progress Reports were prepared in 2008 and 2010. The most recent data from 2010 progress report, as shown in **Table 3-2**, demonstrates NSW progress towards the 2021 targets. An estimate of Councils current recycling rate in 2014 is also provided.

Table 3-2 2014 WARR Strategy progress towards recycling rate targets

Waste Stream	2010-11 Measured Recycling Rate (NSW)[10]	Palerang Progress Towards Target (2014)[11]	2021 Recycling Rate Target
MSW	52%	22%	70%
C&I	57%	Not currently tracked	70%
C&D	75%	Not currently tracked	80%

3.5 South East Resource Recovery Group

The South East Resource Recovery Group (SERRG) is a voluntary regional organisation of councils, consisting of representatives from several councils in South East NSW, including Bombala, Boorowa, Cooma Monaro, Eurobodalla, Goulbourn, Harden, Palerang, Queanbeyan, Snowy River, Upper Lachlan, Yass Valley and Young Shire Councils interested in working together to meet waste management and resource recovery goals.

In 2012, SERRG developed a Regional Waste Stream Management Strategy for the region, which is designed to support SERRG councils' operations but not replace them. The strategy contains challenging and innovative actions to be implemented over the next 20 years. This bold strategy has been developed at a time of rapid innovation in the waste stream sector and

[10] NSW EPA, NSW WARR Strategy 2014-21, page 11
[11] Receipt of recyclables to Hume MRF (2014/15) and 2015 Waste Audit Data (City to Soil Trial)

coincides with the broader matter of sustainable practices gaining very significant traction in the wider community.

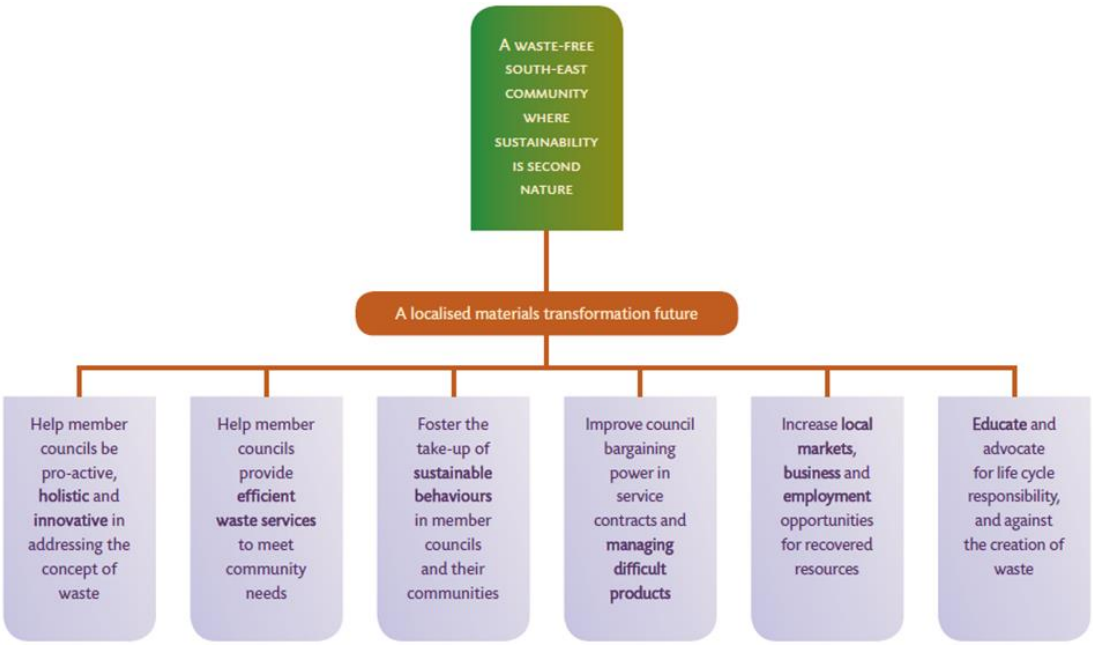
SERRG Regional Waste Management Strategy 2012-2032

The SERRG Regional Waste Management Strategy (RWMS) is based on a vision statement and supporting goals which member Councils have agreed on.

Vision Statement: A waste free south-east community where sustainability is second nature.

The goals/outcomes underlying the vision statement are illustrated in **Figure 3-2**.

Figure 3-2 SERRG Strategy Goals



Key outcomes and timing for the SERRG RWMS

The timing and progressive outcomes for implementation of the regional strategy are given below:

- 2012/13: Strategy endorsed, actions begun to be implemented
- 2016/17: Regional level action sets a strong base for coping with change
- 2020/21: Evidence of real change in way waste and waste streams are managed
- 2024/25: Sustainability is embedded in all waste stream and associated management activities
- 2028/29: Significant waste prevention and minimisation is a practical outcome
- 2032/33: Vision is a reality

Key Actions SERRG RWMS and application to Palerang Waste Strategy

A summary of the key action areas identified in the SERRG RWMS, and how these key action areas align with the Palerang Waste Strategy are provided in **Table 3-3**.

Table 3-3 SERRG Regional Strategy Action Areas Alignment with the Palerang Waste Strategy

Key Action Areas	Purpose	Palerang Waste Strategy
Promotion and Awareness	To promote Council's message in relation to improved resource recovery and significant waste prevention and minimisation goals	Development and Public Exhibition of the Waste Strategy is an important step in raising the community's awareness of the waste issues facing Council.
Integrated systems thinking and material flows– incorporating a holistic view to include fluids and energy	To incorporate a holistic view into council operations and include fluids and renewable energy	The Waste Strategy reviews the current waste management system and considers alternative options within a regional context.
Finances	To identify sources and obtain the finances to enable councils to significantly improve total waste stream management performance	The Waste Strategy incorporates a financial analysis of alternative options, and recommends a preferred strategy taking into consideration both financial and environmental outcomes.
Business development and employment	Fostering local economic development through innovative waste stream management	The Waste Strategy considers alternatives for the collection, recycling and disposal of waste which incorporate opportunities for both local and regional businesses.
Overturning end-of-pipe status of local government	Provide the support to help councils take a more pro-active stance, and not accept that managing waste streams is solely a local government responsibility	The Waste Strategy assists Council identify the key areas of improvement required within the current waste management system.
Improving SERRG operations	To provide best possible service to members	The Waste Strategy identifies key issues facing the Palerang LGA, which could be addressed based on collaboration with other Councils through the SERRG framework.

3.6 Environmental Guidelines: Solid Waste Landfills

The NSW EPA Environmental Guidelines: Solid Waste Landfills (1996) outline a performance-based approach to the management of landfills in NSW to meet certain Environmental Goals. The goals are related to the following key environmental issues as shown in **Table 3-4**.

Table 3-4 Environmental Goals

Environmental Issue	Environmental Goal
Water Pollution: Discharge of pollutants to ground and surface waters	• Preventing pollution of water by leachate • Detecting water pollution • Remediating water pollution
Air Pollution: Emissions of pollutants to the atmosphere	• Preventing landfill gas emissions • Detecting landfill gas emissions • Remediating landfill gas emissions
Land Management and Conservation	• Assuring quality of Design, Construction and Operation • Assuring quality of incoming waste • Recording of wastes received • Minimising landfill space used • Maximisation of recycling • Remediating landfill after closure
Hazards and loss of amenity	• Preventing unauthorised entry • Preventing degradation of local amenity • Preventing noise pollution • Adequate fire fighting capacity • Adequate staffing and training

Closure of the Bungendore, Macs Reef, Captains Flat, Araluen and Majors Creek landfills has significantly reduced Councils long term environmental liabilities in-line with the Environmental Goals outlined in **Table 3-4**. The planned rehabilitation of these landfills sites, and planned closure and rehabilitation of Braidwood landfill, will continue this environmental improvement process. It is noted that the EPA has released a Draft Solid Waste Landfill Guidelines for public consultation. The performance goals outlined in these guidelines should be taken into consideration by Council when undertaking future landfill operation and closure works.

4 CURRENT WASTE MANAGEMENT CHARACTERISATION AND PRACTICES

Key Initiatives Implemented Since Preparation of the 2005-2025 Waste Strategy

Since preparation of the 2005-2025 Waste Strategy, Council has made considerable progress improving waste management and resource recovery in the region while reducing potential environmental liabilities. Key actions implemented include:

- Construction of a WTS at Captains Flat and closure of the Captains Flat landfill;
- Construction of the Bungendore RRC and WTS and the Macs Reef WTS, which opened on 5 December 2014. The existing landfills at Bungendore and Macs Reef have been closed to the public and will be rehabilitated in 2015/16. Residual waste from the WTS's is taken to the Veolia Woodlawn Bioreactor, while recyclables continue to be taken to the Hume Material Recovery Facility (MRF);
- Closure of the Araluen and Majors Creek landfills and implementation of kerbside collection supplemented by bin compound options;
- Purchase of land for the Braidwood WTS, with a view to opening the facility in 2016;
- Establishment of co-mingled bin recycling stations at Ballalaba, Mongarlowe, Cookanulla Road, Barnet Drive, Mount Fairy/Boro fire shed, Tarago (Taylors Creek Road), Urila Reserve and Hoskinstown Road;
- Introduction of full domestic waste collection services for Royalla, Burra, parts of Urila and Williamsdale as well as at Araluen and Majors Creek, while continuing services at Braidwood, Bungendore and Captains Flat. Introduction of domestic waste collection (recycling only) services for Sutton East, Carwoola and Primrose Valley and parts of Urila;
- Implementation of the City to Soil green waste bin service trial in Braidwood, Bungendore and Captains Flat, with the decision made in May 2015 to continue the service. Council is currently assessing the best triple bottom line solution for composting of green waste and food waste;
- Organised household hazardous chemical waste collection days (Household Chemical Cleanout program); and
- Commenced preparation of an Environmental Monitoring and Closure Pan for the Bungendore and Macs Reef Landfills to be completed in 2015/16.

4.1 Waste Characteristics

Municipal Waste

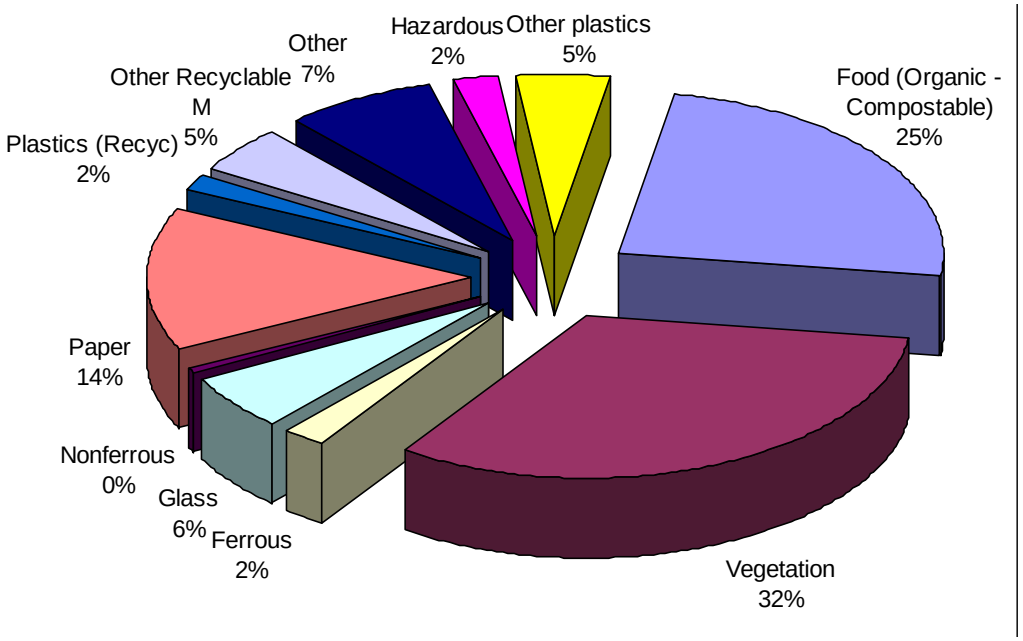
As discussed in **Section 1.2**, and shown in **Table 4-1**, Palerang LGA currently divert approximately 22% of MSW from landfill, of this:

- 16% is mixed dry recyclables which are sent to the Hume MRF; and
- 6% is organic waste including food scraps and green waste collected predominately through the City to Soil program, and green waste collected at the WTS's. The actual figure for green and food waste diversion may be higher given Palerang's large rural and semi-rural community which are likely to have home composting systems, which are not

taken into consideration when estimating landfill diversion rates as this is currently not tracked.

Presented below is the typical waste composition of domestic waste going to landfill in rural NSW, based on survey work carried out by NSW DEC (DEC, 2004). This figure has been presented to give an indication of the percentage of waste, which could be diverted, as a best case scenario, of waste currently going to landfill in the Palerang LGA. A waste audit[12] of residential residual bins in four rural NSW councils, including Palerang, returned similar findings (organics: 50.2%, paper: 20.1%, glass: 6.4%, plastic 11.1%) suggesting these figures are appropriate for determining material available for diversion from landfill.

Figure 4-1 Characteristics Waste to Landfill NSW (DEC, 2004)



Food and vegetation make up a significant proportion of the total waste stream (57%). The decomposition of food waste (together with other organic materials) in landfills is a contributor to greenhouse gas emissions across the State. The 2010 review stated that "*for every tonne of food waste diverted from landfill, 0.9 tonnes of $CO_{2\text{-}e}$ is saved*". Reducing food waste (organic-compostable), for example by implementing better home composting systems and programs, could significantly reduce organics waste to landfill. **Table 4-1** identifies Council's current diversion from landfill versus the potential diversion that may be achieved.

Table 4-1 Palerang LGA waste characterisation

Waste stream	Current MSW Recycling Rates in Palerang LGA	Potential 'Best Practice' Recycling Rates		2021 Municipal WARR Recycling Rate Target
Recyclables	16%	29%		70%
Food scraps	6%	33%	57%	
Green waste		24%		

[12] EC Sustainable Environmental Consultants (2008), Domestic Kerbside Waste Stream Audit for Groundswell, page 17

Construction and Demolition / Commercial and Industrial Waste

Palerang Council receive a small volume, approximately 100 tonnes of C&D waste each year, which is collected at the Bungendore WTS and disposed of at Woodlawn. Council do not currently track C&D waste volumes and recycling/diversion rates. It is recommended that Council collect data at the Bungendore WTS on C&D waste tonnes received and identify opportunities for diversion from landfill. Council is currently investigating opportunities for recycling of C&D waste, including construction of a C&D waste recycling facility.

Council do not currently track C&I waste quantities. These volumes are currently tracked under the municipal waste volume. It is recommended that Council conduct a bin audit of key C&I customers in Palerang LGA to determine the approximate volume of waste generated by this sector, and the rate of recycling. Following a bin audit of these customers Council can implement a program to increase the recycling rate, and therefore diversion from landfill, from the C&I waste stream.

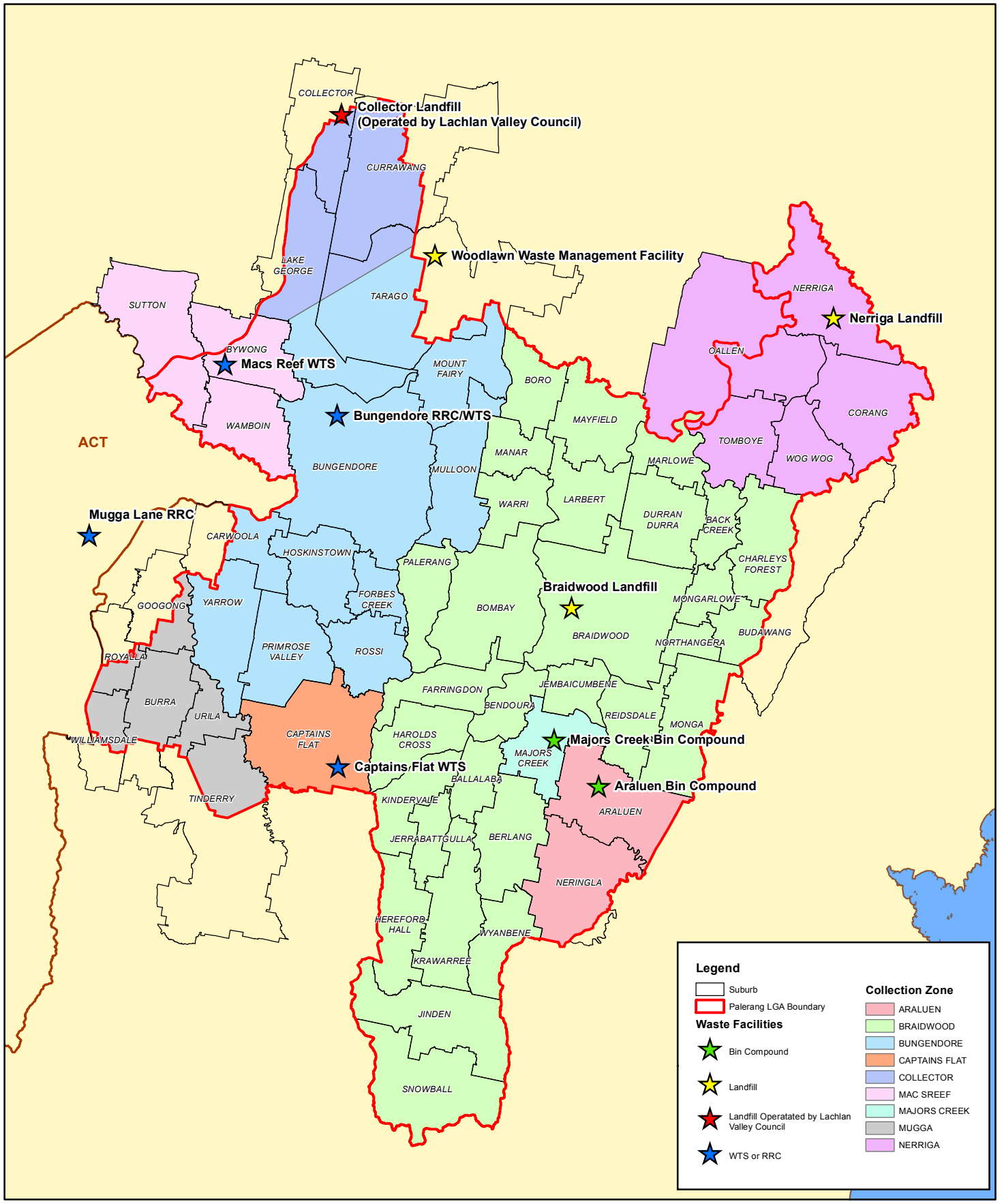
4.2 Collection and Management of Residential Waste, Dry Recyclables and Organics

4.2.1 Residential Residual Waste and Recycling Management

Table 4-2 provides a summary of the existing residual waste and recycling management practices provided in the LGA. Residual waste from kerbside collection, WTS's and bin compounds are disposed of at Woodlawn, Braidwood Landfill, and Nerriga Landfill by Council. Recycling collected by Council from kerbside collections or at WTS's and bin compounds is taken to the Hume MRF. The location of waste management infrastructure is shown in **Figure 4-3**.

Table 4-2 Summary of Waste Management Catchment Facilities in Palerang Council

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



PALERANG COUNCIL

PALERANG COUNCIL WASTE STRATEGY 2015 - 2035

PALERANG COUNCIL LOCAL GOVERNMENT AREA 2015

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Figure: **4-2**

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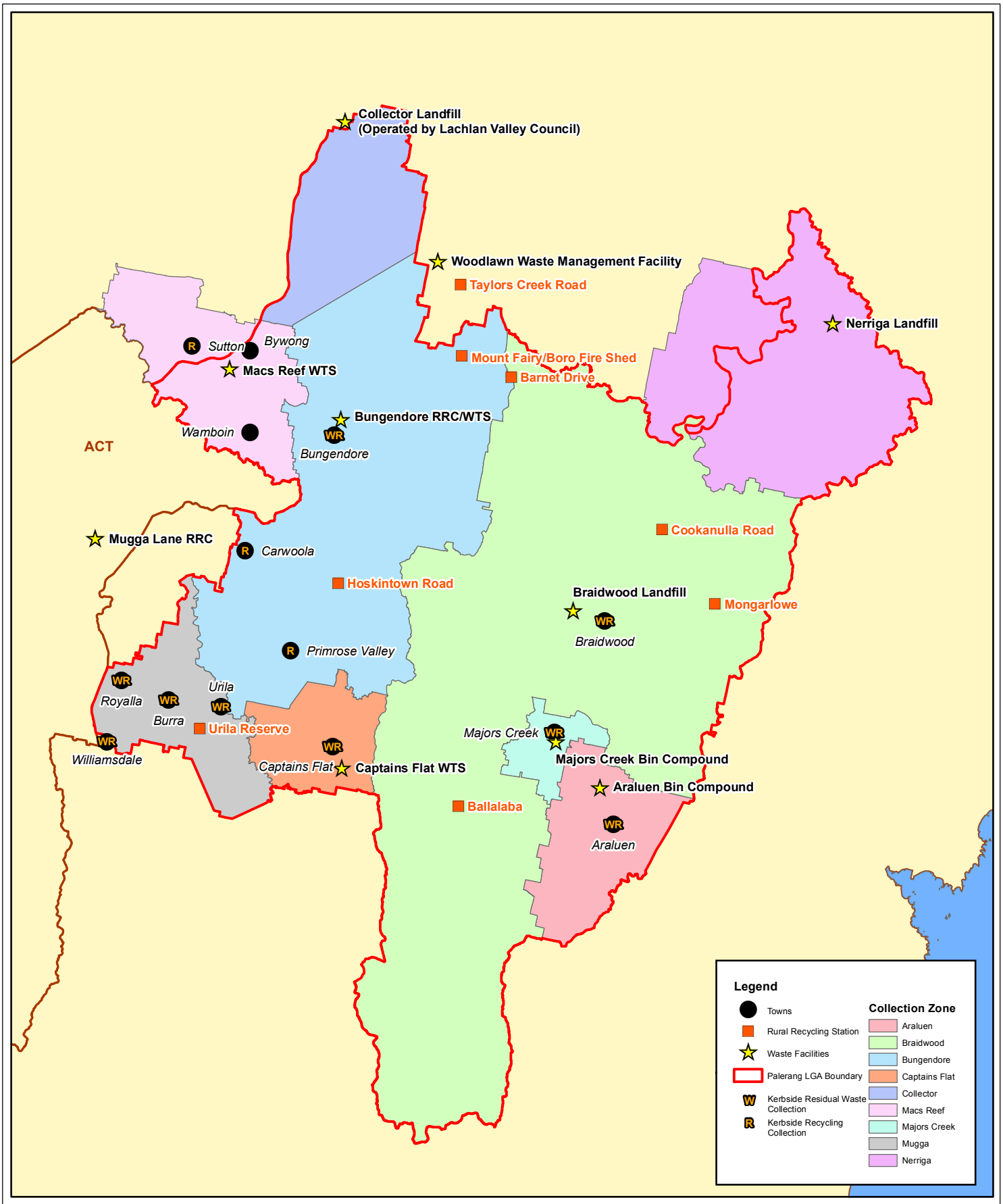

PALERANG COUNCIL

PALERANG COUNCIL WASTE STRATEGY 2015 - 2035

WASTE MANAGEMENT CURRENT SITUATION 2015

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Figure: 4-3

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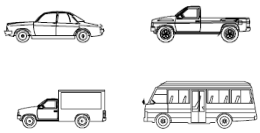
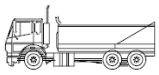
Waste Transfer Station Traffic Count

Council conducted a traffic count at Braidwood, Bungendore (prior to closure in December 2014) and Nerriga Landfills for a period of 6 weeks from 25 September to 5 November 2014, to identify the type of customer using the facilities. The findings of this study are presented in **Table 4-3**. The audit found that 86.5% of through traffic at the WTS's were small passenger vehicles and trailers (class 1 & 2); based on the vehicle type it can be assumed that the majority of waste is residual from primarily local residents. Vehicle classes 3 to 12 (trucks) represented 13.5% of the total vehicle traffic, and would carry C&D or C&I waste.

Table 4-3 Traffic Count - Average customer vehicle type (AUSTROADS classification)

Vehicle Class		Number of Vehicles			
		Braidwood Landfill	Nerriga Landfill	Bungendore Landfill	% of total
1 Car, Van, Wagon, 4WD, Utility		3,000	432	7,806	68.2
2 Trailer		136	10	2,870	18.3
3 Two axle truck		378	25	955	8.2
4 Three axle truck		214	18	254	2.95
5 Four/five axle truck		96	5	29	0.8
6 Three axle articulated		4	0	92	0.6

4.2.2 Organics Waste Management

Green waste is currently accepted at the Bungendore WTS, Captains Flat WTS, Nerriga Landfill and Braidwood Landfill where it is currently being stockpiled. The regulatory requirements for processing and reuse of green waste is discussed in **Section 5.1.2**. In addition to green waste (garden organics) received at the WTS's, Council have implemented options to divert green waste and food scraps through a kerbside collection system.

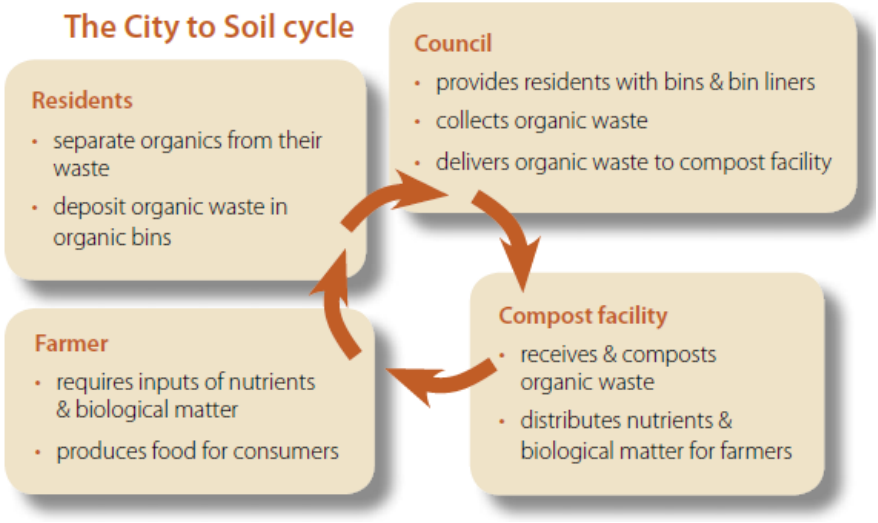
The City to Soil project was run as a trial to reconfigure its waste collections to include a new food scraps and garden waste collection to approximately 2070 householders in Bungendore, Braidwood and Captains Flat.

A 240 litre (L) 'City to Soil' green waste bin is collected on a fortnightly basis which takes lawn and plant clippings as well as kitchen scraps. Kitchen scraps can be placed in the 6 L aerated kitchen bench bins and biodegradable corn starch liner bags that have been delivered to each household, prior to disposal in the 240L green waste bin.

Collected material is transferred to a local farm on the Landtasia Organic Farm property at Mulloon for composting and subsequent return to the soil as an organic fertiliser.

The desired outcomes of the project are that:

1 The City to Soil project establishes economic models that are self-sustaining and can operate for the same or less cost as current models;
2 The model or systems result in measurable improvement in agricultural soils and productivity;
3 The project contributes to a range of broader environmental outcomes;
4 The community engages in the project through source separation of household organic waste;
5 The systems continues beyond the project timeframe, and are implemented in other settings; and
6 The City to Soil project results in a reduction of waste to landfill.



Based on the feedback received from the local community in November 2014, the City to Soil program is considered a good initiative by Council to reduce waste to landfill. To identify if the outcomes of the trial were met the Council commissioned an audit of the residual and green waste bins in March 2015. The review of the City to Soil program (7 May 2015) identified that:

- During the reporting period (1 July 2014 to 31 December 2014) 246.5 tonnes of organic waste was diverted from landfill.
- Although contamination levels are generally low, contamination levels have been seen to be increasing over time. The contamination rates for the reporting period averaged 0.25% by weight. This equates to 616kgs of contamination that had to be removed by hand.
- Compost produced from the collection is tested for compliance against the NSW Compost Exemption (2014) and the AS4454-2012 Australian Compost Standard. All compost produced and tested passed the regulatory requirements and has no restrictions on its application to land.
- Approximately 0.37kg/hh/wk of food scrap waste is collected in the green bin. This equates to 21 tonnes per year of food scraps being diverted from landfill per household. This is considered a poor outcome given the audit identified that there is potentially a further 150 tonnes of food scraps, per year, being disposed of in the residual bin.

In May 2015, Council have elected to continue the City to Soil program on a permanent basis. Council also resolved to undertake further investigations to implement best triple bottom line solutions for dealing with food and garden organics. In addition, to increase the success of the program by increasing the diversion of organics, in particular food scraps, and reduce contamination, Council will invest in waste education efforts. Further audits will be undertaken in the future to measure the performance of the program.

4.3 Problem Waste Management

Problem wastes include any products or materials which may harm human health and the environment, or may interfere with the recovery and recycling of other materials which makes their recovery more difficult or uneconomic. Problem waste includes tyres, mattresses, batteries, paint, gas bottles, e-waste, whitegoods, furniture, motor oils and fluids and other toxic and hazardous household products.

Table 4-4 identifies how problem wastes are currently management at in Palerang LGA. Second-hand items such as furniture, household items and working electronics can be brought to the Bungendore Buy-back shop to be resold.

Table 4-4 Problem waste management - Palerang Council

Problem Waste	Where residents can dispose of waste	Cost to Palerang Resident to drop off	Council recycling or disposal method
E-waste	• Bungendore WTS • Captains Flat WTS • Macs Reef WTS	FREE	Disposed of to an appropriate e-waste recycler
Green waste	• Bungendore WTS (no stumps, branches >250mm diameter) • Captains Flat WTS (no stumps, branches >250mm diameter) • Nerriga Landfill • Braidwood Landfill • Majors Creek Bin Compound • Araluen Bin Compound	FREE	Stockpiled at WTS's for mulching
Green waste	• Bungendore, Braidwood and Captains Flat kerbside collection (City to Soil Program)	Cost included in rates	City to Soil Program (Bungendore/ Braidwood and Captains Flat)
White Goods	• Bungendore WTS • Captains Flat WTS • Nerriga Landfill • Braidwood Landfill	FREE	Local Contractor
Scrap metal	• Bungendore WTS • Captains Flat WTS • Nerriga Landfill • Braidwood Landfill	FREE	Local Contractor
Large bulky items (including furniture)	• Bungendore WTS • Nerriga Landfill • Braidwood Landfill	Buy back items are FREE Landfill items – gate fee dependant on size of load	Items that are in good condition may be re-sold through the tip shop. Remaining items are landfilled at Woodlawn
Dead animals	• Bungendore WTS (does not accept large animals e.g. horse/cow) • Nerriga Landfill • Braidwood Landfill	$20-$32	Buried on site
Chemicals, paint, fire extinguishers, smoke detectors, gas bottles, household batteries	• Free Household Chemical Cleanout events are held each year at advertised locations • Bungendore RRC (Community Recycling Centre)	FREE	Materials collected at Community Recycling Centre (CRC) and during Chemical Cleanout events are disposed of by the EPA

Problem Waste	Where residents can dispose of waste	Cost to Palerang Resident to drop off	Council recycling or disposal method
Motor Oil	• Bungendore WTS (<40L) • Captains Flat WTS (<40L) • Macs Reef WTS (<40L) • Free Household Chemical Cleanout events are held each year at advertised locations • Bungendore RRC (Community Recycling Centre)	FREE	Materials collected during Chemical Cleanout events are disposed of by the EPA Other oils disposed of at Australian Oils for recycling
Car batteries	• Bungendore WTS • Captains Flat WTS • Macs Reef WTS • Free Household Chemical Cleanout events are held each year at advertised locations • Bungendore RRC (Community Recycling Centre)	FREE	Recycled
Fluorescent tubes / bulbs	• Bungendore WTS • Free Household Chemical Cleanout events are held each year at advertised locations • Bungendore RRC (Community Recycling Centre)	FREE	Fluorescent tubes are collected at the CRC and disposed of to an appropriate waste contractor
Mobile phones	• Bungendore WTS • Captains Flat WTS • Macs Reef WTS • Via the 'Mobile Muster' program. Prepaid postage envelopes are available from Bungendore and Braidwood post office.	FREE	Mobile Muster Recycling Program
Mattresses	• Bungendore WTS • Captains Flat WTS • Nerriga Landfill • Braidwood Landfill	$12	Council is investigating long term options for recycling and disposal of mattresses
Tyres	• Bungendore WTS • Captains Flat WTS • Nerriga Landfill • Braidwood Landfill	$5-$13	Council is investigating long term options for recycling and disposal of tyres

4.4 Public waste management

Council currently have public waste services at Braidwood and Bungendore town centres. The services provided include provision of 240L 'red lid' waste bins which are secured at permanent locations along major roads and at public spaces such as parks. Recycling bins are also provided at a small number of locations.

Plate 4-1 Public space - general waste collection 240L bins (left: Braidwood, right: Bungendore)

In addition to permanent public bins, following a request from the Majors Creek Festival organisers in 2014, Council purchased 40 additional 240L recycling bins to be used at community events, which may be run as a 'waste wise' event. As part of this arrangement Council will store these bins at the Braidwood or Bungendore WTS, and deliver them to a bin compound close to the event. Recycling collected during the events will be collected as part of the weekly recycling collection. Council will then collect the empty bins to be stored back at the Braidwood and Bungendore WTS. The arrangement is considered to be good value for the overall operation of the waste management system because it facilitates diversion of recyclables from landfill and fits in with other arrangements Council has in place for rural recycling stations and the acceptance of recycling delivered to any of its waste facilities – free of charge.

As a 'waste wise' event festival organisers have indicated the arrangements at their end to encourage the proper use of the recycling bins. The objective is to run the festivals as waste wise events, with the following arrangements to apply:

- The festival organisers and all stallholders will take responsibility for waste management by adopting sound purchasing and packaging policies, waste and recycling collection services and clean up practices – with the aim of diverting the maximum amount of material that would otherwise go to landfill.
- Food stallholders have a strict set of guidelines to which they are expected to adhere.
- There will be a Green Bond of $120 for each food and coffee stall to encourage adherence to festival waste arrangement policies and guidelines.

- Stalls will be randomly audited during the festival, and the Green Bond will be refunded to compliant stallholders at the end of the festival.

Council has also resolved to provide similar facilities to other events that agree to similar conditions.

4.5 Waste Re-use Initiatives

Garage Sale Trail

Garage Sale Trail is a non-for-profit mission to create positive social and environmental change. The program provides local solutions to waste education and community building by enabling a partnership between local government and communities.

Garage Sale Trail delivers a 3-4 month campaign to mobilise communities around Australia to hold garage sales on the same day. The result is the promotion of reuse, waste education, facilitating behaviour change and bringing communities together.

The strategic objectives of the program include, but are not limited to:

- Promoting re-use of goods within their communities
- Promoting sustainable living and positive behaviour change
- Reducing waste to landfill through education and provision of practical solutions

The program includes the capability to track metrics in order to measure outcomes of each event to report of Council's implementation and effectiveness of the waste hierarchy.

Palerang Council will be participating in the 2015 national Garage Sale Trail which is being supported by the NSW EPA through the Waste Less, Recycle More initiative. In addition, Councils are able to fund their Garage Sale Trail participation via the 'Better Waste and Recycling Fund'.

4.6 Illegal Dumping Issues and Management

Under Section 115 of the POEO Act it is an offence to dump waste in a manner that harms or is likely to harm the environment. Council may issue an on the spot fine to an individual for illegal dumping up to a maximum of $1,500, or up to $5,000 for corporations. In the event that dumped waste is found, after the fact, Council will investigate for evidence of where it may have come from, such as an address on mail. In the event that the Council can identify who dumped the waste the offender will be prosecuted. In the event of harm to the environment an individual may be fined up to $1,000,000 and/or 7 years' imprisonment, in the case of a corporation a fine of up to $5,000,000.

In 2013/14 financial year Council spent approximately $100,000 on managing roadside litter and illegal dumping. Council will focus the options for minimising these issues as part of the 20 year strategy, to limit illegal dumping and littering in public spaces, on roads and at Council waste management facilities.

Currently the Council participates in Clean Up Australia Day as a means of managing litter and to educate the community on illegal dumping.

5 ALTERNATIVE OPTIONS FOR WASTE MANAGEMENT

This section provides potential alternative options for management of the key waste streams in the Council LGA including problem waste such as tyres, mattresses, waste collection in public areas and possible alternative waste technologies such as energy from waste.

5.1 Collection and Management of Waste, Dry Recyclables and Organics

Council aims to maximise the tonnages of waste diverted from landfill while operating in a cost effective manner.

The RRC and WTS are equipped with weighbridges which allow Council to obtain reliable data on waste characteristics which should be regularly interrogated to identify trends in waste management across the LGA and to identify areas where material recovery may be improved. Operational residual waste and recycling bin compounds should be monitored regularly in order to ensure these facilities are being used correctly and to identify when additional education programs need to be undertaken. Council should develop a 'bin compound audit checklist' which is designed to:

- Assess the level of contamination of recycling bins;
- Assess the level of incorrect disposal of recycling material in residual waste bins, where an alternative recycling bin is provided; and
- Measure type and volume of illegal dumping.

Data collected from these inspections will be valuable for identifying where community education programs need to focus and help to identify priorities for problem waste management. This checklist can be completed during the weekly or fortnightly collection at a selected interval, e.g. monthly, quarterly.

Based on feedback from the community it was noted that the residual waste and recycling bin compound services constructed in smaller communities has been well received. It has been identified that these services may be beneficial in Gundillion, Manar, Boro, Mongarlowe and Nerriga (prior to the closure of the Nerriga Landfill). Council should develop a program for consultation with these communities to identify the preferred option for waste management, as has been conducted for other remote communities.

In addition to the move from operating local landfills to WTS's and bin compounds/ rural recycling stations, there are other options being implemented across NSW which help to reduce waste sent to landfill, these are discussed below.

5.1.1 Food Waste

The Review of Waste Strategy and Policy in NSW[13] defines the following management measures to reduce food waste going to landfill:

1. Awareness campaigns – to promote food waste avoidance and good practice in food waste management are necessary to reduce waste generation levels.
2. Incentive-based initiatives for increased and improved collection and processing.
3. Regulatory intervention – restrictions or bans on biodegradable waste disposal to landfill could be used to drive an increase in the recovery of food waste, as well as other biologically active materials.
4. Market development – the development of markets for potentially recyclable materials is essential to stimulate 'demand pull' and encourage investment in collection and processing infrastructure for food and other biodegradable waste.
5. Leveraging partnerships and policies – Sustainable Soils (currently being trialled through the City to Soil program).

As discussed in **Section 4.1**, vegetation comprises 32%, and food scraps comprise 25% of the typical waste found in the general 'red bin' in rural NSW (DEC, 2004). Council have elected to continue the City to Soil program for a minimum of two years in Braidwood, Bungendore and Captains Flat to close the food production loop and allow consumers to return unwanted and un-used organic material to the environment to replenish soil nutrients.

Alternative options for green waste and food scrap management are discussed below which may be implemented in other areas of the LGA whom do not have access to the City to Soil program. Programs such as these are offered at several councils across NSW. The community is often given the opportunity to attend workshops which provide new skills for composting, gardening and reducing waste.

Love Food Hate Waste

The NSW EPA 'Love Food Hate Waste' education program launched in May 2010 aims to increase knowledge and awareness of the economic and environmental impacts of wasteful consumption of food, and to help transfer and adoption of more sustainable behaviours surrounding food planning, preparation and storage to minimise food waste at the household and business level in NSW.

[13] DECCW, 2010, Review of Waste Strategy and Policy in New South Wales, Appendix L – Food waste impacts, avoidance and recovery systems, page 154, http://www.epa.nsw.gov.au/resources/warr/101034RevWasteStrat.pdf

Composting Programs

'Compost Revolution'[14] is an award winning program designed to help councils dramatically increase home composting across their LGA. Councils can join the Compost Revolution program by registering to be part of the program. The program is designed to offer residents online tutorials and a discounted compost bin or worm farm to reduce food waste sent to landfill. Council can determine a subsidy on products to promote residents to participate, for example, Leichhardt Council offer a 50% discount on the recommended retail price. The program includes real time analytics with advanced reporting including a built-in dashboard so you can track results in real-time, including carbon dioxide emissions avoided, tonnes of waste diverted and cost savings. Participant surveys are also conducted each year. This data is collected and provided as a report to the participating Council. There are currently more than 35 Councils across Australia who participates in the program. The program has the following benefits[15]:

- Cut household waste in half and divert approx. 2.3kg/ household / week from landfill.
- Proven effectiveness with a 90% resident retention rate.
- Built to scale, so you can move from pilot to LGA wide roll out with minimal workload increase; and
- Saves money on council waste management costs (payback in 2-5 years).

This program was supported by the Environmental Trust as part of the NSW EPA's *Waste Less, Recycle More* initiative.

Backyard Chickens

An alternative to composting that also reduces the amount of food waste entering landfill is keeping chickens. Back yard chooks not only eat nearly anything and are easy to look after but they will also provide a regular supply of eggs if kept healthy and well fed. As Palerang Council residents are largely rural some residents may already have chickens, or may be interested in getting chickens, given the appropriate training. Residents in towns with suitable yards may also be able to benefit from backyard chickens.

5.1.2 Green Waste

Green waste (garden waste) is currently accepted at the Bungendore and Captains Flat WTSs and the Nerriga and Braidwood landfills. Council may process and distribute green waste received at the WTS's under the *'pasteurised garden organics order 2014'* (referred to in this report as the 'pasteurised organics order'). The pasteurised organics order was issued by the EPA under clause 93 of the Waste Regulations, and imposes the following requirements that must be met by suppliers (Council) of pasteurised organics.

[14] Compost Revolution, http://compostrevolution.com.au/councils/ , viewed on 08/01/15
[15] Compost revolution, Overview Pamphlet, per comms David Gravina, 08/01/2015

The processor must[16]:

1 Undertake the process of pasteurisation, as a minimum. Pasteurisation means a process to significantly reduce the numbers of plant and animal pathogens and plant propagules. Pasteurisation requires that the entire mass of organic material be subjected to either of the following:
   - Appropriate turning of outer material to the inside of the windrow so that the whole mass is subjected to a minimum of 3 turns with the internal temperature reaching a minimum of 55°C for 3 consecutive days before each turn. Further requirements apply for materials with a higher risk of containing pathogens.
   - An alternative process which guarantees the same level of pathogen reduction, and the reduction of plant propagules.
2 Ensure that the pasteurised garden organics do not contain asbestos, engineered wood products and preservative treated or coated wood products;
3 Not mechanically size-reduce the pasteurised garden organics through methods such as hammer drilling, crushing or grinding, as a way of managing physical contaminant loading;
4 Ensure that the pasteurised garden organics are ready for land application prior to transport to customer;
5 On or before supplying pasteurised garden organics:
   - Prepare a written sampling plan which includes a description of sample preparation and storage procedures.
   - Ensure that the absolute maximum (% of dry weight) of glass, metal and rigid plastic (>2mm) does not exceed 0.5%, and plastics (light, flexible or film, >5mm) does not exceed 0.05%;
6 Testing of samples is carried out in accordance with the order; and
7 A written record including the sampling plan(s) and all test results are kept for a period of six years.

Should Council wish to apply pasteurised garden organics to Council land as a soil amendment, this must be done in accordance with the *'pasteurised garden organics exemption 2014'*.

5.1.3 Plastic Bags and Bottles

Plastic Bags

Planet Ark 'Plastic Bag Reduction' program works with councils and towns to go 'Plastic Bag Free'. Plastic bags have a negative impact on the environment and are often a cause of contamination in residential recycling bins. The first town in Australia to go plastic bag free was Coles Bay in 2003. The communities of Huskisson, Kangaroo Valley, Mogo and Oyster Bay in NSW and Birregurra, Cannon's Creek, Metung and Murtoa in Victoria are also plastic bag free.

[16] NSW EPA, Resource Recovery Order under Part 9, Clause 93 of the Protection of the Environment Operations (Waste) Regulation 2014, The pasteurised garden organics order 2014

Since the individual councils and towns banned plastic bags this has been followed by bans at a state level. The ACT, South Australia, Northern Territory and Tasmania have introduced legislation to ban lightweight single-use plastic bags.

The ACT Plastic Bag Ban came into effect on 1 November 2011 with the aim of restricting the use of single-use, lightweight plastic shopping bags and encouraging people to use re-useable shopping bags. The 2014 'Review of the Plastic Shopping Bags Ban' found that "*in the six months prior to the ban an estimated 266 tonnes of plastic bags (including single-use plastic bags, reusable plastic bags, bin liners and a proportion of reusable woven bags) was sent to landfill. However, for the period from 1 May 2013 to 31 October 2013 this appears to have decreased to an estimated 171 tonnes, a reduction of around 36%*"[17] and is now supported by 65% of Canberra grocery shoppers[17].

In order to increase awareness of waste management across Palerang LGA, reduce the environmental impact of plastic bags on the environment, and reduce contamination of recycling bins Council may look into the feasibility of working with the community to become plastic bag free over the next 5 years.

Reducing single-use plastic bags from the waste stream may not have a large impact on the total tonnes of residual of waste sent to Woodlawn; however other financial benefits may be seen in a reduction in litter and increase in community education regarding waste management and the associated environmental impacts.

Bottles

In 2009 Bundanoon became the first Australian town to ban commercially bottled water. The campaign to ban the sale of plastic bottles was appropriately called 'Bundy on Tap'. As part of the ban local businesses were consulted and their support obtained prior to the vote. In order to support the ban free water fountains were installed in the village and businesses sell reusable drink bottles and chilled filtered tap water.

Bottled water was voluntarily banned in Bundanoon due to the environmental impacts, including the high carbon footprint of bottled water which is 300 times greater than tap water. On average Australian bottled water costs 250 times that of tap water. With some brands 500 times more expensive[18].

Plastic bottle bans require community engagement and support. A plastic bottle ban may be something considered by individual towns or villages or at an organisational level such as schools and local government.

In order to increase awareness of waste management across Palerang LGA, reduce the environmental impact of plastic bottles on the environment Council may look into the feasibility of working with the community to become plastic bottle free over the next 5 years.

5.1.4 Public Waste Management

Currently in Palerang Council residual 'red' bins are provided for public use in Bungendore and Braidwood. At select locations in these towns recycling 'yellow' bins may also be provided. Increasing the volume of public waste that is recycled is beneficial to the

[17] ACT Government, April 2014, Review of the Plastic Shopping Bags Ban
[18] http://www.bundyontap.com.au/bottledwater.html, viewed 18/09/15

environment, council and will increase community education and awareness towards waste diversion from landfill. Council reported that public recycling bins are often subject to high contamination rates from improper use. In order to implement an effective public recycling program the following steps should be considered:

- Community education programs prior to installing the recycling bins and following. This may include signage to ensure the community is reminded of what may be placed in the public recycling bins.
- Selection of recycling material - to avoid contamination public recycling bins may be limited to bottles and cans, in particular drink containers. Limiting the type of material the bins accept may remove confusion over what food packaging may be accepted.
- Selection of bin receptacle – provide a bin which is not physically able to accept containers / products which are larger than a drink container.

Grants are available through Keep Australia Beautiful[19] for projects which focus on:

- Recycling away from home
- Practical projects that leave a legacy
- Projects that don't duplicate existing recycling activities
- Projects that result in measurable volumes of recycled materials
- Projects that have a strong focus on the recovery of beverage containers.

Applications for 2015 grants open in March up to $10,000 per recipient, and could be considered by Council for funding the purchase of public space recycling bins and education initiatives which stimulate an informed community.

5.1.5 Charity Clothing Bins

The National Association of Charitable Recycling Organisations (NACRO), who represent charitable recycling organisations throughout Australia, encourages local councils to adopt the use of charity clothing bins as a means to collect and divert consumer waste from landfills. Donations are collected at no cost to Council.

Charity clothing bins are primarily governed by charities, the leading charities in NSW and ACT are the St Vincent de Paul Society, the Smith Family and Lifeline. Council is committed to using a NACRO accredited charity whose members are committed to a Code of Practice for the safe and efficient operation of clothing recycling bins. Prior to engagement of a NACRO

[19] Keep Australia Beautiful, Beverage Container Recycling Grants, http://kab.org.au/beverage-container-recycling-grants/, viewed on 8/01/15

accredited charity Council are committed to developing a "Clothing Collection Bin Placement Policy[20]" for the safe and efficient management of clothing collection bins.

In order to achieve optimal use, charity clothing bins must be appropriately located, distinctly marked with a charity name and contact number to differentiate charity donation bins from commercial operator bins, emptied regularly, cleaned and maintained.

The contents must be consistently redistributed to individuals in need, or sold at a local charity shop to financially assist the invested charity and fund community support programs in which the charity is involved.

However if there is not the correct support from local community, the incorrect use of charity clothing bins can lead to dumping unwanted or unrecyclable items, which may result in additional costs to the charity for disposal of dumped waste to a licensed facility.

If used correctly, the implementation of charity clothing bins may act as an effective form of public waste management. Assisting in the diversion of waste from landfill, increasing the reuse and recycling of unwanted residential goods, opening opportunities for community groups and charities to acquire funding for local projects, support the environment with adequate recycling paths, and raise awareness of correct public waste management.

NACRO has estimated that Australian charity recycling techniques; recycling donation bins, household collection and in store donations, have diverted approximately 300,000 tonnes of clothing from landfill each year[21].

5.1.6 Container Deposit Scheme

As part of the NSW 2021 plan to make NSW the least littered State per capita by 2016 the NSW Government is currently looking at options that will deliver the highest environmental outcomes without imposing unnecessary costs on consumers. One of the options includes reverse vending machines (RVMs), currently being trialled by City of Sydney, and discussed below. Another mechanism for reducing litter being investigated by the NSW Government is a container deposit scheme (CDS).

Premier Mike Baird announced on the 22 February 2015, that the NSW Government will introduce RVMs across the state as part of a costs-effective CDS for the recycling of drink containers. A media release dated 22 February 2015 stated:

"By 1 July 2017, communities will be rewarded for their recycling efforts through the use of reverse vending machines as popular beaches, parks, and public spaces across NSW[22]."

[20] Palerang Council, Notice of Motion – Charitable Recycling Bins, 5 December 2013, File No. GV0009
[21] National Association of Charitable Recycling Organisations, 27 August 2013, NACRO Code of Practice for the Operation of Clothing Donation Bins , http://www.nacro.org.au/wp-content/uploads/2013/08/NACRO-Code-of-Practice.pdf

The Government estimates that at least 800 RVMs will be installed across NSW. Consultation with community and industry will be under taken during 2015 with a focus on:

- The location of RVMs;
- The incentive for community participation;
- The scope of containers to be redeemable under the scheme; and
- The involvement of local government and the recycling industry in the scheme.

The President of the Local Government NSW (LGNSW) councillor Keith Rhoades states that the introduction of CDS is a priority for NSW councils, and was part of the LGNSW's state Election Priorities 2015, as "a CDS will help decrease the number of recyclable containers ending up in landfill, save millions of dollars in clean-up costs for councils and lower greenhouse gas emissions" [23].

The benefits of a CDS may include an increase in recycling, creation of jobs, reduction in litter and opportunities for community groups and charities to raise money.

A CDS may have additional benefits for local councils. South Australia reported that as a result of the CDS compaction rates of recycling trucks has increased to up to 200kg/m^3, compared with a rate of between 120-140 kg/m^3 for NSW[24]. The 'Independent Review of Container Deposit Legislation (CDL) in New South Wales' conducted by UTS found that "*local councils would realise benefits from the introduction of a CDL, through reduced costs of kerbside collection and through the value of unredeemed deposits in the material collected at kerbside*"[25].

In addition the study found that "*the estimated value of the environmental cost of disposing of a single average beverage container to landfill, compared to recycling that container is 8-9¢. The cost of recovering that container through a combined CDL and kerbside recycling strategy is approximately 2-3¢*[25]".

A report commissioned by the Local Government and Shires Associations of NSW found that "*under a CDS, 83% of eligible CDS material would be diverted to the CDS system, reducing kerbside recycling quantities, and therefore MRF input, by 17%"…MRF material revenues would also be 31% higher under a CDS than they are today…the extent to which these additional revenues are passed onto councils would be subject to negotiations at the time of contact renewal… it is assumed that a proportion, if not all, would be passed on to councils through a gate fee reduction*[26]*".*

A review of the South Australia CDS and case study of RVMs is provided below.

South Australia – Container Deposit Legislation

South Australia introduced the CDL (Beverage Container Act 1975) in 1977 and is based on a polluter pays principle. In 2008 the refund amount increased from 5 to 10 cents. The SA EPA

[22] NSW Government, 22 February 2015, Getting bottles and cans out of our streets, beaches and waterways, media release, https://www.nsw.gov.au/media-releases-premier/getting-bottles-and-cans-out-our-streets-beaches-and-waterways
[23] Jacqueline Ong, 13/01/15, 'NSW welcome CDS news', WME Business Environment Network,
[24] SA EPA, Container deposits FAQs, http://www.epa.sa.gov.au/environmental_info/container_deposits/faqs, viewed 05/01/15
[25] Independent Review of Container Deposit Legislation in New South Wales, UTS, http://www.uts.edu.au/research-and-teaching/our-research/institute-sustainable-futures/our-research/major-projects-0
[26] Mike Richie & Associates, (2012), The impacts (cost/benefits) of the introduction of a container deposit/refund system (CDS) on kerbside recycling and councils, NSW

identifies that beverage containers make up only 2.2% of litter or landfill[27].The CDL is supported for its positive environmental impact but also for the financial benefit to community groups, sporting clubs and charities that collect empty containers for refund to raise money.

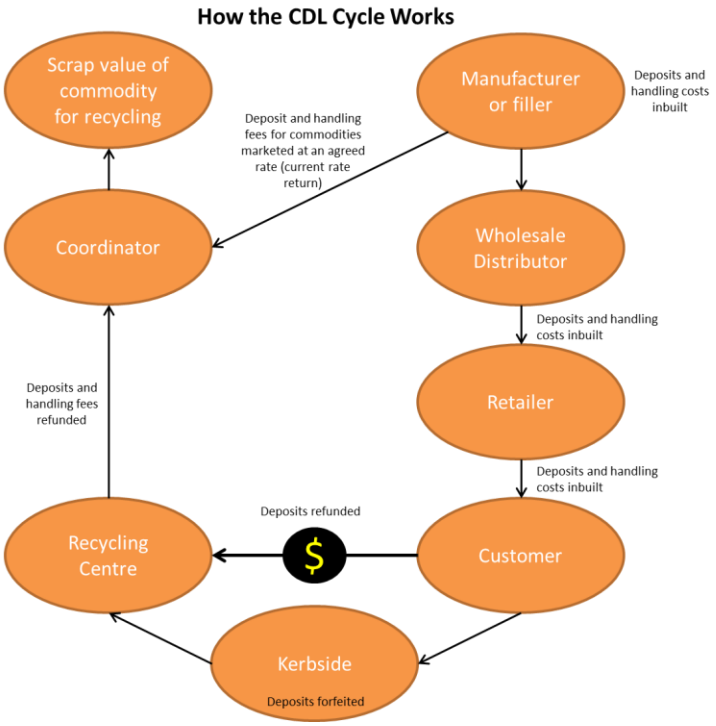
Recyclers of South Australia Inc. (RecyclersSA) report that tonnages rates achieved in SA for beer bottles, soft drink glass and plastic soft drink containers are far in excess of those achieved in other States of Australia. **Table 5-1** identifies the recycling rates of materials currently subsidised under the CDL.

Table 5-1 Recoverable return rate of Container Deposit litter in South Australia compared to national average

Recyclable	South Australia	Nationally
Glass soft drink bottles	85%	36%
Cans (aluminium)	84%	63%
Plastic Soft Drink containers (PET) (glass)	74%	36%
Liquid Paperboard	40%	-

Figure 5-1 illustrates how the SA CDL system works.

Figure 5-1 How the SA container deposit legislation cycle works[28]



[27] SA EPA, http://www.epa.sa.gov.au/environmental_info/container_deposits, viewed: 24/11/14
[28] RecyclersSA, http://www.recyclesa.com.au/, viewed 24/11/14

Envirobank[29] – Reverse Vending Machines: Case study – City of Sydney

The City of Sydney (CoS) has installed two RVMs at Haymarket and Circular Quay. Unlike a traditional vending machine where a customer inserts payment for an item that is then dispensed, an Envirobank RVM allows people to insert their empty cans or drink bottles and redeem rewards. 100% of the crushed containers are then recycled. The Envirobank RVMs benefits including recycling, reduction of litter and they serve to educate the community. Data collected by the RVM on the quantity and types of containers collected can then be used to inform the public on the achievements through the Council website and community newsletter.

The benefits of the Envirobank RVM include:

- No overflow – The RVM has a compression unit which gives the RVM a capacity 20 times the capacity of a single bin, which means they can be emptied less frequently. The unit can hold up to 3,000 cans and 1,600 PET bottles.
- Efficiency – The RVM has a continuous feed port which will accept 30 plastic bottles or 40 cans per minute.
- Zero contamination – The RVM technology reads all barcodes on items inserted into the machine. Any material unacceptable for recycling will be rejected.
- Auditable reporting for sustainability analysis - The RVM are wireless to provide immediate reporting. Each machine records the amount of recyclables collected by material type.

Envirobank also offer a mobile RVM for events.

Other councils who have used the RVMs include Ashfield Council, Shoalhaven City Council, Lake Macquarie Council, Charles Darwin University, Willoughby Council, Randwick City Council, Marrickville Council, 7-Eleven and Pittwater Council.

5.2 Problem Waste Management

Tyres

On the 20 January 2014 Tyre Stewardship Australia (TSA) was established by tyre importers to administer a national tyre product stewardship scheme. TSA aims to increase domestic tyre recycling, expand the market for tyre-derived products and reduce the number of end-of-life tyres that are sent to landfill, exported as baled tyres or illegally dumped[30].

Disposal of tyres in Palerang LGA has been identified as one of the major problem wastes. Tyres are currently stockpiled at Council landfills. The correct management and disposal of waste tyres is important for the following reasons[31]:

- Stockpiled tyres present a large fire hazard
- Dumping of tyres releases dangerous chemicals and heavy metals in to the environment

[29] Envirobank, http://www.envirobank.com.au/reverse-vending-machine/case-study/, viewed 24/11/14
[30] Product Stewardship for end-of-life tyres, http://www.environment.gov.au/protection/national-waste-policy/tyres, viewed: 17/10/2014
[31] TyreCycle, http://www.tyrecycle.com.au/why-recycle, viewed: 17/10/2014

- Increased levels of recycling would reduce the volume of greenhouse gases generated every year
- Tyres are a breeding ground for mosquitoes, pests and weeds

Sites which store tyres must do so in accordance with the Guideline for Bulk Storage of Rubber Tyres, prepared by the Fire & Rescue NSW[32]. A site which stores than 50 tonnes of tyres or 5,000 waste tyres on site at any time must be licensed under the POEO Act up to the June 2015. From July 2015, under the POEO (Waste) Regulations 2014 a site which stores than 5 tonnes of tyres or 500 waste tyres on site at any time must be licensed.

Council are currently investigating long term options for tyre disposal.

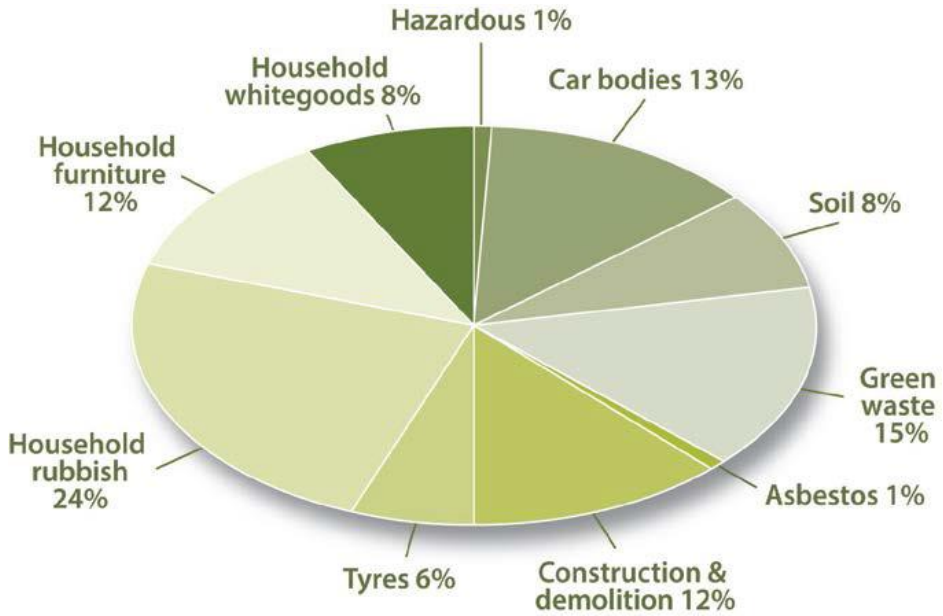
5.2.1 Illegal Dumping Issues and Management

Goal 22 (Protect our Natural Environment) in NSW 2021 identifies the reduction in illegal dumping as a priority.

The Waste Less Recycle More initiative includes $58 million over 5 years to tackle illegal dumping across the state.

The NSW Dumping Strategy 2014-2016 reported that, in general, household waste, green waste, garden waste and C&D waste, including asbestos waste, are the major problems for urban and rural local councils (**Figure 5-2**).

Figure 5-2 Types of waste materials illegally dumped, as reported by urban and rural local councils (source: NSW Illegal Dumping Strategy 2014-16, page 4)



Community Action - Encourage reporting of illegal dumping. The community is strongly encouraged to report incidents of dumping to the EPA's Environmental Line on 133 555. The EPA is working on a data collection system which is critical to understanding the nature, extent and cause of illegal dumping.

[32] Fire & Rescue NSW, 5 Dec 2014, version 3, Guideline for Bulk Storage of Rubber Tyres, Doc ID D14/76138

In order to combat illegal dumping the EPA Illegal Dumping Waste Strategy (page 8) identified the following actions which may be undertaken:

1 **Making dumping harder** - in most cases illegal dumping takes very little effort. It can take more effort to do the right thing than to dump waste illegally. Local councils and land managers can make access to dumping hot spots difficult by using infrastructure such as lighting, barriers or landscaping.
2 **Increasing the risk of getting caught** – the decision to commit a crime is influenced by the perceived risk of getting caught and the perceived benefits of the action. A perceived increase in the likelihood of getting caught will deter some offenders from illegal dumping.
3 **Reducing the rewards by denying the financial benefits** – a major motive for illegal dumping is to avoid the cost of legitimate disposal. For businesses that generate large amounts of waste, such as builders, the financial savings from illegal dumping can be substantial. Financial incentives to dump waste legally include getting the price structures right, issuing fines and requiring offenders to clean up dump sites.
4 **Reducing provocations by making legal disposal easier** – householders are more likely to be motivated to dump if they perceive that the waste collection service is not efficient or convenient. Individuals may also feel provoked to illegally dump in areas that are not aesthetically pleasing (for example, where other dumping is present), and they may feel their dumped waste won't make a difference. Local councils can curtail illegal dumping in their local government areas by adopting best practice waste collection.
5 **Removing excuses by educating and informing the community** – those who dump may find it easy to rationalise and find excuses for their behaviour. These excuses can be removed through targeted education, advertising waste collection and disposal services, keeping areas free of waste and displaying signs at known illegal dumping hot spots. Information is important to make householders and business aware of their responsibilities when it comes to proper waste disposal.

In order to carry out these steps Council may develop an illegal dumping management plan which outlines Council plans for addressing illegal dumping such as identifying illegal dumping hot spots, clean-up programs, erecting fencing and/or signs to deter dumping, and community education / participation programs.

Council received a grant under the NSW EPA *Waste Less, Recycle More* initiative available for local councils under the Combatting Illegal Dumping: Clean-up and Prevention Program to identify local illegal dumping sites and implement prevention and clean-up action to combat illegal dumping.

The Clean-up and Prevention program provides $2 million over four years and is available to local councils and public land managers through contestable funding rounds for grants up to $150,000. A total of $500,000 is available each year. Round 1 funding has been awarded to 15 applicants, totalling $1.56 million for clean-up and prevention projects[33].

Following the implementation of the Councils illegal dumping program, Council should review the success of the program and if required, review the program against the EPA Illegal Dumping Waste Strategy to identify areas where illegal dumping may be further addressed.

[33] NSW EPA, Illegal Dumping Grants, http://www.epa.nsw.gov.au/waste/illegaldumpgrants.htm, paged updated on the 18/11/14, viewed on 06/01/2015

5.2.2 Bulky Items Collection

In order to minimise illegal dumping on roadsides and at WTSs and bin compounds, Council may consider offering a bulky collection service, often referred to as a 'Kerbside Cleanup'. There are two systems which are implemented at several councils across NSW:

1 Offering residents a selected date(s) during the year when residents may place bulky items outside of their residence for collection by Council.
2 Offering residents a set number (e.g. one or two) clean-ups per financial year. These dates are requested by the resident by contacting Council and requesting a collection.

Bulky collections may be limited to items which are able to be lifted by two people; anything larger or heavier may not be accepted. Council may apply other restrictions such as not accepting TVs or computers which may be disposed of for free at Council waste facilities.

Council services a large area of rural residents where a bulky collection service for an individual residence may not be feasible. In this case Queanbeyan Council has implemented a rural clean-up system[34]. Queanbeyan Council provides a drop off point for large household items twice a year. Residents of rural areas may attend the drop points and deposit unwanted items with Council's waste collection contractors. The dates and locations of drop off points are marked on a flyer/letter which is provided to residents prior to the clean-ups.

5.3 Energy from Waste

In recent years there has been growing interest in NSW associated with the generation of renewable energy from waste (EfW). The NSW Energy from Waste Policy Statement released by the NSW EPA in March 2014 provided a policy framework and overarching criteria that would apply to facilities in NSW proposing to thermally treat waste or waste-derived materials for the recovery of energy. This policy statement does not apply to landfill gas to energy projects, which have been successfully undertaken in large scale landfills around Australia for several years.

Applicability to Palerang Council

Commercial EfW Facility

EfW technologies can be broadly categorised as high temperature thermal systems e.g. incineration, gasification and pyrolysis, and low temperature mechanical biological systems such as anaerobic digestion. Australia has a mixed history in the successful development of energy from waste facilities, and currently there are no large scale commercial high temperature MSW treatment systems in operation.

To successfully implement a commercial scale EfW facility the following key criteria should be met:

- ***Long-term availability of a suitable feedstock in terms of both waste characteristics and quantity.*** EfW plants require a reliable feedstock with high calorific value (e.g. low moisture food waste, plastic, paper/cardboard and wood waste). A minimum quantity of around 50,000 tonnes per annum of residual waste (post re-use and recycling) would be

[34] Queanbeyan City Council, Queanbeyan's Clean Up System (pdf), http://www.qcc.nsw.gov.au/Council-Services/Waste---Recycling/Kerb-Side-Cleanup, viewed on 06/01/14

required for a relatively small scale plant, however for a commercial standalone operation the preferred minimum throughput would be around 100,000 tonnes per annum.

Given the current residual waste generated in the Palerang LGA is less than 10,000 tonnes per annum (refer to **Figure 1-1**), the quantity of waste potentially available for an EfW facility is considered significantly less than that required for a viable commercial operation.

In addition, the 'SERRROC Regional Resource Recovery Strategy options – including waste prevention - Strategic Economic Solutions June 2010' report stated the following for alternative waste technologies (AWT's) such as EfW facilities:

"Discussions with industry indicate that the cost of mixed waste processing through AWT's will continue to be prohibitive for the foreseeable future, particularly in the SERRROC region where there are low volumes of material and large distances to travel. For Councils considering AWT's regional collaboration and collective contracting would be vital, however experience from other areas suggests that this process involves much risk, cost and complexity and is likely, in the end, to be sunk by politics. It is also clear that in the current generation of AWT technologies, there are many problems, with contamination being a major issue.

Given the cost and risk involved to any Council considering entering into this kind of long term contract, it is clear that source separation of organics is a lower risk and more appropriate solution for the SERRROC region. As one proponent of alternative waste technology (AWT) acknowledged, "In rural areas, local processing of organics is the best closed loop solution".

Landfill Gas (LFG) to Energy

URS is currently preparing a closure plan for the largest landfill in the Palerang LGA, Bungendore landfill, which will assess alternative methods for managing landfill gas which may be generated from the landfill. One of the options to be considered will be the active extraction of landfill gas and conversion into energy. Generally, to be commercially viable a LFG to energy system requires sufficient gas to power a 1 megawatt gas engine. Given the relatively low quantity of waste disposed of annually within the Bungendore landfill (<10,000 tonnes per annum) it is not expected that there would be sufficient gas generated for a commercially viable system. This will be confirmed as part of the closure plan works in 2015.

5.4 Community Education Programs

The key to implementing an effective waste management strategy and any resource recovery initiatives under such a scheme is ensuring the community has the appropriate education and training in order to utilise the services correctly.

Prior to and following the implementation of a waste program the community must be educated through a combination of information brochures, community workshops, via the Council website, and at community events, or in public spaces, such as signage.

To assist in improving diversion of recyclables through the kerbside and rural recycling stations a 'recycling guide' detailing what can and cannot be placed in kerbside and rural recycling station bins must be circulated to all applicable residents at least annually. One method to identify where education efforts need to be focused is to conduct audits of residential recycling bins and/or rural recycling bins. Following an audit of a street or rural

recycling station the residents can be provided with feedback on the quality of their recycling, or given additional information of how to decrease contamination from non-recyclable materials.

To ensure that waste management is fully integrated with Council activities and goals, Council may require a dedicated resource within Council to conduct regular surveys of the community, design and provide waste education material and workshops.

Under the *Waste Less, Recycle More* initiative the EPA has prepared the draft Education Strategy 2015-17 with the vision to "*optimise the use and quality of education in all Waste Less, Recycle More programs so that they promote positive behaviour change and lead to improvements in the environment and community wellbeing*".

Under the Education Strategy 2015-17 the EPA will look for stakeholders, including local council to incorporate the following principles about waste avoidance and resource recovery into their *Waste Less, Recycle More* education activities:

- fosters a spirit of active citizenship in caring for the environment
- reflects and addresses the needs, values and motivations of target audiences
- reinforces key messages over time and engages with new issues
- helps people connect their actions with outcomes
- has a positive 'call to action' and expects behaviour to change
- aims to generate positive social norms about the value of resources
- respects and reflects cultural and linguistic diversity, and local Aboriginal culture
- shows its effectiveness by being well researched, evaluated and reported.

The Education Strategy 2015-17 should be reviewed prior to implementation of all waste management programs outlined in the Palerang Waste Strategy, to ensure appropriate education campaigns and/or materials are developed to maximise community engagement and participation.

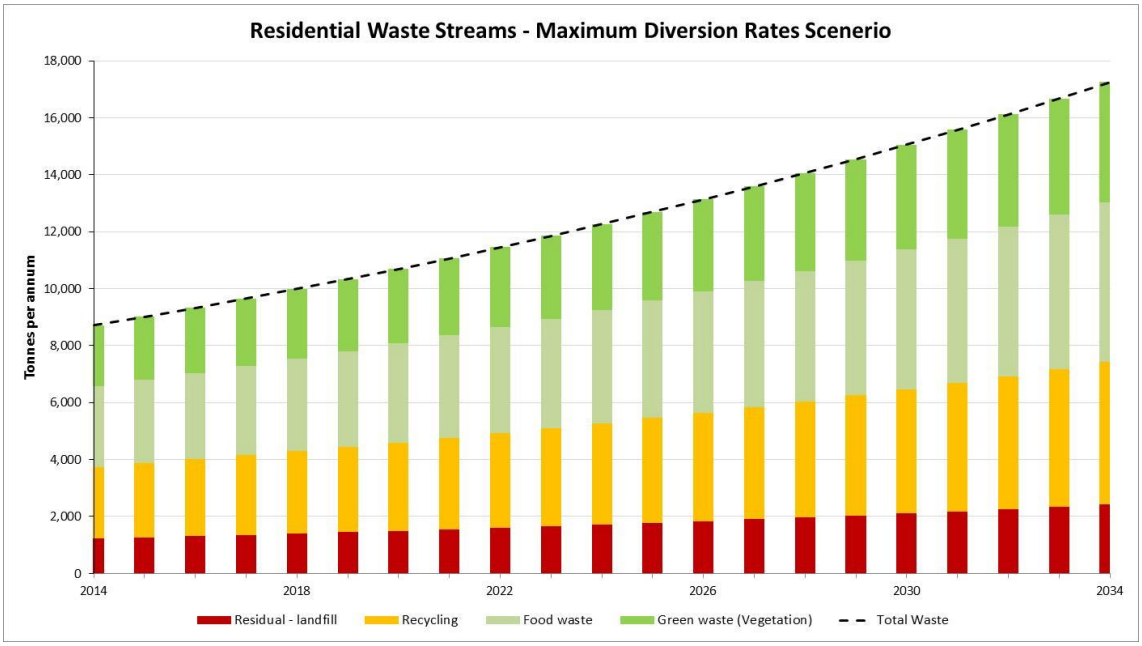
6 PREFERRED WASTE MANAGEMENT STRATEGY

Based on high level options assessment and feedback from the community this section provides a review of the preferred alternative options and recommendations for waste management practices which may be implemented over the next 20 years to improve the Council's recycling rate and improve environmental outcomes in the community.

Council is currently diverting approximately 22% of waste generated in the LGA from landfill, through recycling. As shown in **Figure 6-1**, 86% of the residential waste streams are potentially able to be recycled from mixed dry recyclables (29%), food scraps (32%) and vegetation (25%), based on survey work carried out by NSW DEC in 2004.

Figure 6-1 does not capture the potential to reduce overall waste generated in the LGA through waste avoidance programs such as Love Food, Hate Waste, but is based on a future waste generation rate increase of 1.3% as discussed in **Section 1.2**.

Figure 6-1 Residential waste stream – maximum diversion rates over time



Based on **Figure 6-1** and the recycling rates of similar councils, **Table 6-1** states the recycling rates which may be achieved by Council for municipal waste through the implementation of additional waste programs discussed in **Table 6-3**.

Table 6-1 Current and potential recycling rates

Waste Stream	Palerang 2015 Recycling Rate	Queanbeyan (2012-13)	Eurobodalla (2012-13)	Palerang Recycling Rate Target 2021
Recyclables	16%	21.5%	20.8%	25%
Organics	6%	24.3%	31.6%	25%

Based on implementation of all or some of these actions Council will work towards achieving a recycling rate of 50% by 2021.

Table 6-2 2021 Recycling Rate Target

	Palerang Recycling Rate calculated for 2015[35]	Palerang Recycling Rate Target 2021	2021 WARR Recycling Rate Target
MSW	22%	50%	70%
C&I	Current not tracked	50%	70%
C&D	Current not tracked	50%	80%

A target of 50% diversion by 2021 has been selected based on works implemented to date, which have achieved around 22% diversion from landfill in 2015, and planned resource recovery initiatives. Fifty percent is considered reasonable given the period of time to implement diversion strategies is six years, and the funding required to implement each action to increase diversion. Council will aim to meet this target and exceed it where possible.

Table 6-3 below presents the preferred waste management strategy for Council.

[35] These figures have been calculated based on the average recovery of Palerang LGA, and the best available information at the time.

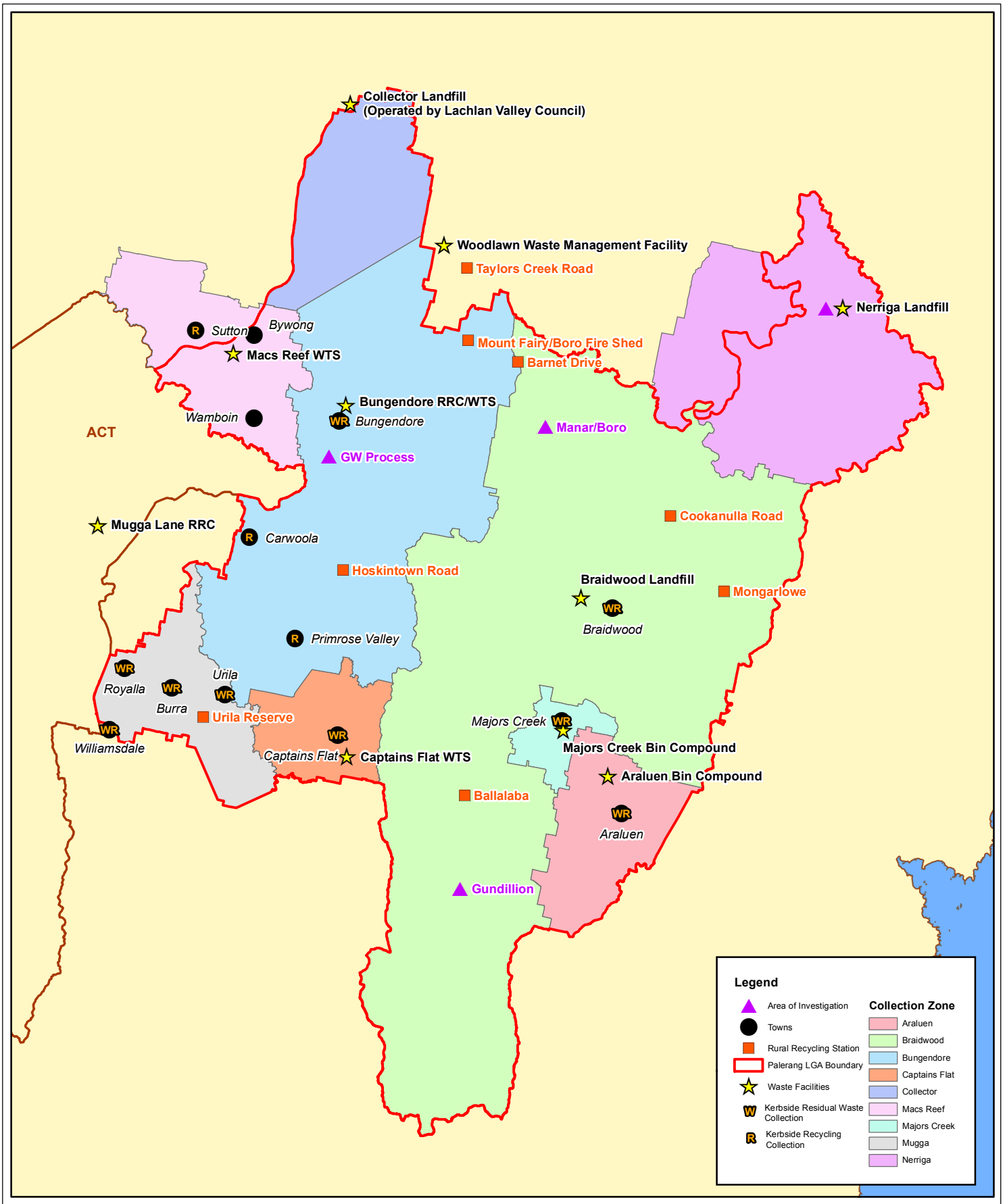
Table 6-3 Preferred options and recommendations for waste management in Palerang Council

Service	Waste Management Aspect	Preferred Option / Recommendation	Estimated potential to divert additional waste from landfill (%)	Priority
Residential	Putrescible	• Conduct surveys of rural areas which are not currently serviced by a residual garbage collection service, i.e. Gundillion, Manar, Boro, Mongarlowe and Nerriga, to determine best waste management service for these areas such as bin compounds.	-	Medium
		• 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, when a recycling/green waste bin is available. Based on the findings of each audit provide feedback to the individuals and/or community on issues/areas of improvement. Consider a rewards/penalty program to encourage correct separation of waste.	5%	High
	Recycling	• Conduct surveys of rural areas which are not currently serviced by a recycling collection service, i.e. Gundillion, Manar, Boro and Nerriga, to determine best waste management service for these areas such as bin compounds.	-	Medium
		• Conduct regular spot inspections of kerbside recycling bins and bin compounds to identify the level of contamination of recycling bins. Based on the findings of each audit provide feedback to the individuals and/or community on issues/areas of improvement. Consider a rewards/penalty program to encourage correct separation of waste.	5%	High
	Putrescible, Recycling and Green waste / Food scraps audits	• Conduct formal audits (once every two or three years) of kerbside bins and bin compounds to measure the diversion of recyclables and green waste from landfill. These audits will provide data which will inform further education programs or areas where additional services may be required. Based on the findings of each audit provide feedback to the community on issues/areas of improvement.	5%	Medium
	Green waste / Food scraps	• Continue the City to Soil program in Braidwood, Bungendore and Captains Flat. • Undertake an audit of kerbside collection bins to measure performance. • Invest in education efforts to increase diversion of organics, in particular food scraps and reduce contamination. • Investigate options to determine the best triple bottom line solution for food and organic garden waste. This includes investigating the viability of establishing a new Waste Management and Resource Recovery Facility and Works (Storage) depot near the Bungendore township.	Maximum 57% diversion (for residents with access to the C2S program)	High

Service	Waste Management Aspect	Preferred Option / Recommendation	Estimated potential to divert additional waste from landfill (%)	Priority
Residential (cont.)	Green waste / Food scraps (cont.)	• Conduct a viability study for implementation of the 'Compost Revolution' program and/or education workshops for maintaining outdoor chickens. This program should focus on residents outside of the kerbside green waste collection area to divert additional food waste from landfill.	Maximum 33% diversion (food scrap diversion of residents which do not have access to C2S)	Medium
	Bulky Waste	• Conduct a feasibility study to assess the implementation of a bulky waste collection 'kerbside collection' for urban and rural residents.	Decrease illegal dumping	Medium
C&D	Data	• Create a program for tracking C&D waste disposed at the Council WTS's. Based on the data obtained develop a plan for diversion of C&D waste from landfill. Investigate feasibility of developing a new C&D waste storage and recycling facility near the Bungendore township.	70% (WARR 2021 target)	Medium
C&I	Data	• Conduct a bin audit of all C&I customers in Palerang LGA to determine the approximate volume of waste generated by this sector each year (which is currently attributed to MSW), and the rate of recycling. Following the bin audit(s) of these customers Council can implement a program to increase recycling from the C&I waste stream and appropriate report on these figures.	70% (WARR 2021 target)	Medium
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 / frequency of collection.	-	Medium
	Recycling	• Place recycling bins in public areas where putrescible bins are currently located.	29% of recyclables in public spaces	High
	Recycling	• Investigate the use of RVMs in public spaces, at community events, or as part of community education programs. Investigate options for participating in the NSW Government program to provide 800 RVMs across NSW.	Increase in public spaces and provides education and community engagement	Low

Service	Waste Management Aspect	Preferred Option / Recommendation	Estimated potential to divert additional waste from landfill (%)	Priority
Public (cont.)	Green waste	• Review and implement a plan to comply with 'The pasteurised garden organics order 2014' for green waste stockpiles located at the Bungendore WTS and Braidwood and Nerriga Landfills to allow sale and distribution of mulch and/or garden organics to the public. Investigate the viability of establishing a new Waste Management and Resource Recovery facility near Bungendore township which would process green waste in accordance with the pasteurised garden organics order.	Volume received at WTS not currently measured, therefore unable to predict maximum diversion rate	High
	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 the recycling rate from events.	-	Red
	Illegal dumping	• Prepare an illegal dumping management plan which identifies the 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: Clean-up and Prevention Program. Based on the success of the program look at additional options for reducing illegal dumping and review the grant program.	-	High
	Reuse	• Council shall investigate the options for installing NACRO accredited charity bin(s) in town centres to divert re-use items, in particular clothing from landfill. Council will also develop a "Clothing Collection Bin Placement Policy" for the safe and efficient management of clothing collection bins.		High
General Practices	Education / Workshops	• The key to implementing an effective waste management strategy and any resource recovery initiatives under such a scheme is ensuring the community has the appropriate training in order to utilise the services correctly. Education can start from educating the community to encourage residents to decrease the volume of waste generated (Love Food, Hate Waste program). Further education may be provided through brochures, community workshops and during council events.	10%	High
	Data	• Create a program for improving data collection at Council waste facilities. Based on data collected, review diversion plans for all waste streams.	-	High
	Operation of Nerriga & Braidwood Landfills	• Review operations of Nerriga and Braidwood Landfill in accordance with clause 111 of the POEO Waste Regulation 2014.	-	High
	Plastic Free	• Identify community support for implementing a plastic bag and/or bottle free local government area.	-	Medium

Service	Waste Management Aspect	Preferred Option / Recommendation	Estimated potential to divert additional waste from landfill (%)	Priority
General Practices (cont.)	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 within Council to manage waste infrastructure (WTS and bin compounds), to conduct regular surveys of the community, design and provide waste education material and workshops.	-	High
	SERRG	• Work with SERRG to identify a regional approach to some (or all) problem waste streams in order to access greater funding under the *Waste Less, Recycle More* initiative.	-	Medium



PALERANG COUNCIL

PALERANG COUNCIL WASTE STRATEGY 2015 - 2035

PROPOSED WASTE MANAGEMENT SITUATION 2035

URS

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Figure: 6-2

Rev. A A4

7 COUNCIL'S 20 YEAR FINANCIAL PLAN

In December 2014, the Bungendore and Macs Reef WTS opened to the public. With the opening of the WTSs Council introduced a new gate fee structure for residents and non-resident users of these facilities.

Gate fees are structured to do two things:

1 Offset the cost of operation and disposal of waste to a licensed facility; and
2 Promote and reward separation of items which can be reused or recycled from being sent to landfill with residual waste.

Currently residual waste (putrescible and inert) is disposed of at Woodlawn Waste Management Facility. The gate fees charged at the WTS's, as per the *Palerang Delivery Plan and Operational Plan 2015-16,* are detailed in **Table 7-1**.

In order to determine what gate fees are charged at the WTSs Council maintain a 20 year Financial Plan to balance capital and operational costs and income.

Operational costs incurred by Council for waste management of the Palerang LGA in 2015 include, but not limited to:

- Operational costs of Braidwood (including waste collection (kerbside collection) costs) and Nerriga Landfill
- WTS Operational costs for Bungendore, Macs Reef, Captains Flat, Braidwood (based on operation commencing in 2016/17) (including waste collection and disposal)
- Operation of Araluen and Majors Creek bin compounds
- Operation of rural recycling stations
- Other non-domestic services such as Clean-up Australia day, public waste management, roadside litter / illegal dumping, education programs, environmental monitoring, and e-waste / chemical collections

Capital costs expected to be incurred by Council for waste management of the Palerang LGA in 2015/16 include, but not limited to:

- Construction (loan repayment) costs for all WTSs and rural recycling stations.
- Landfill closure costs for Bungendore, Macs Reef, Captains Flat, Braidwood, Araluen and Majors Creek.

7.1 WTS Gate Fees and General Waste Charge

WTS Gate Fees

In December 2014 the Bungendore and Macs Reef WTS opened to the public. As such Council introduced a new gate fee structure for residents and non-resident users of these facilities.

Gate fees are structured to offset the cost of operation and disposal of waste to a licensed facility and promote and reward the correct separation of waste. Currently residual waste

(putrescible and inert) is disposed of at the Veolia Woodlawn Waste Management Facility (Woodlawn), located at Tarago, NSW.

The 2015/16 gate fees for Bungendore, Mac Reef and Captains Flat are considered appropriate based on a review of Council's 20 year financial plan for waste management.

It is noted that the gate fees for tyres and mattresses could be increased. Under the current fee structure the gate fee does not cover the full cost of recovery/disposal. Council has identified in these instances fees are balanced to cover a proportion of the recovery/disposal cost and more importantly to encourage residents to dispose of waste responsibly, i.e. reduce illegal dumping. The cost of disposal of these items should be advertised to residents to give residents an understanding of the benefits of disposing of waste at the WTSs.

Where available the cost of disposal for residents in other Councils has been provided in **Table 7-1** for comparison.

Table 7-1 Waste Transfer Station Gate Fees 2015/16 Palerang Council

Item	With Tip Pass	Without Tip Pass	Goulbourn Council (residents)	Eurobodalla Council (residents)
Household (To Transfer Waste Bin) with Tip Pass				
Minimum Charge - small car boot or 1 wheelie bin	$5	$12	$4	$5-$11
Large Car Boot/Station Wagon or half a small trailer or half a small van or half a ute or 2 wheelie bins	$9	$16	$17	$5-$11
Utility/Trailers				
Small Trailer (6'x4'x1') to side height or ute to tray height or dual cab piled above sides or small van or 4 wheelie bins	$16	$28	$22	$5-$11
Small dual cab to height of tray or car boot and also on seats, station wagon in back area and on seats, or 3 wheelie bins	$12	$22	-	$13-27
8'x5'x1.2' trailer to side height or 6'x4'x1 trailer with cage or dual cab with cage or large van	$25	$44	-	$13-27
Small trailer (6'x4'x1') piled above sides, larger dual cab piled above sides	$20	$36	-	$13-27
8'x5'x1.2' trailer piled high or ute piled high above sides	$32	$56	$22	$13-27
8'x5'x1.2' trailer with large cage or ute with cage	$38	$68	$35	$13-27
Commercial Loads (Loads > 0.5 tonne)				
Dual Axle Trailers (Full Load)	$55	$82	-	-
Dual Axle Trailers (Half Load)	$33	$50	-	-
1-2 Tonne Truck (Full Load)	$82	$150	-	$18-$40
1-2 Tonne Truck (Half Load)	$44	$80	-	-
For larger vehicles (Received Bungendore WTS only) - $/tonne	$92	$140	$76/T	-

Item	With Tip Pass	Without Tip Pass	Goulbourn Council (residents)	Eurobodalla Council (residents)
Builders' Waste				
Dual Axle Trailers (Full Load)	$66	$100	-	-
Dual Axle Trailers (Half Load)	$38	$60	-	-
1-2 Tonne Truck (Full Load)	$99	$150	-	-
1-2 Tonne Truck (Half Load)	$50	$80	-	-
For larger vehicles (Received Bungendore WTS only) - $/tonne	$110	$165	-	-
Other Waste Items				
Tyres - light vehicle	$5	$8	$12	$4.50
Tyres - Truck/trailer	$13	$22	$28	Market rate
Mattresses	$12	$24	$40	$32
Dead animals - small (Bungendore ONLY)	$20	$30	-	$8
Dead animals - medium (sheep/calf/piglet) (Bungendore ONLY)	$32	$50	-	$203/T

General Waste Charge

As identified in **Section 6** there are a number of actions Council may wish to implement to increase recycling rates and ultimately landfill diversion in the Palerang LGA in the short and long term to work towards achieving the NSW WARR Strategy targets. Should Council proceed with one or more of the options identified in **Table 6-3** detailed costs should be obtained and included in the 20 year financial plan and reflected in the revised general waste charges and gate fees. In order to determine the waste charges required to cover implementation of the recommendations in **Table 6-3** an analysis of waste charges was undertaken in **Section 7.2**.

7.2 Implementation of the Waste Management Options Recommended in the Preferred Waste Management Strategy

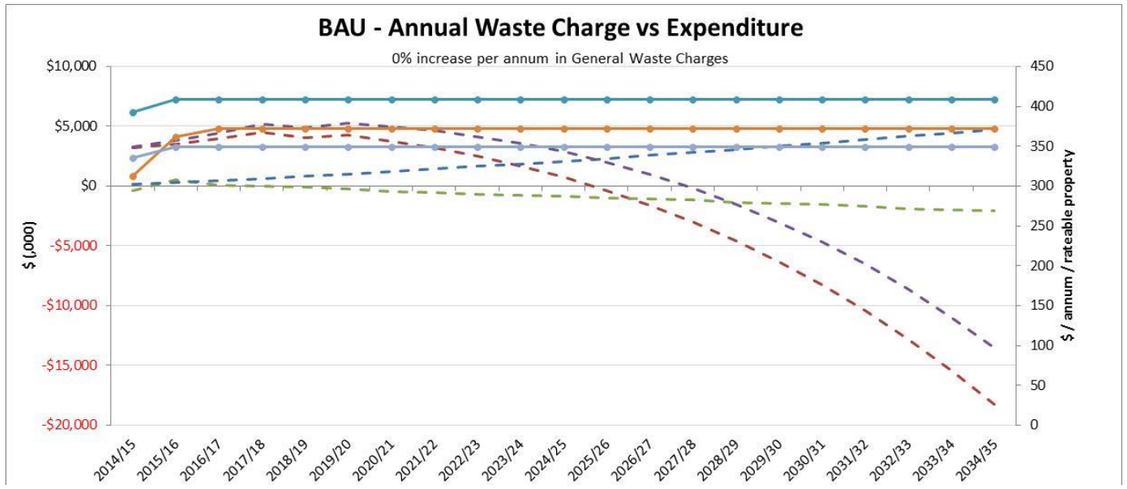
The waste charges for Palerang Residents in 2015/16 are as follows:

Resident Type	2014/15	2015/16
	$ / annum / rateable property	
Shire areas east of Queanbeyan Rover (without a DWC recycling service)	$348	$362
Shire areas east of Queanbeyan Rover (with a DWC recycling service)	$313	$326
Burra/Urila/Royalla Waste Charge – with roadside recycling bin collection	$22	$23
Landfill Charge – East of Queanbeyan River only	$45	$47
Burra/Urila/Royalla residents full access to landfills	$313	$326

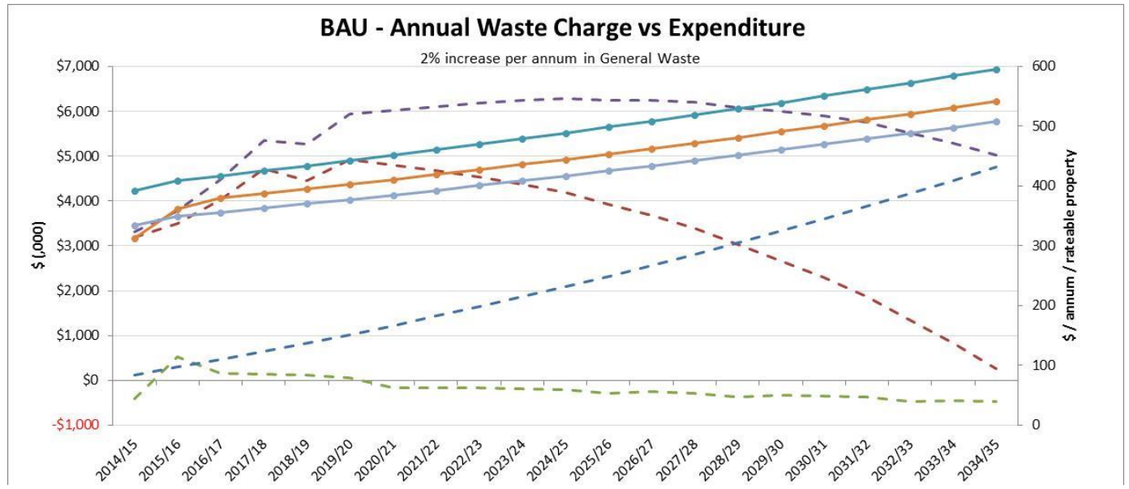
In order for Council to understand the financial impacts of the waste management strategy implemented across the LGA the 20 year Financial Plan has been used to access the impacts of each option to the Council, and rate of residential waste charges required to offset the cost of operation and disposal of waste.

The following scenarios for waste management were modelled:

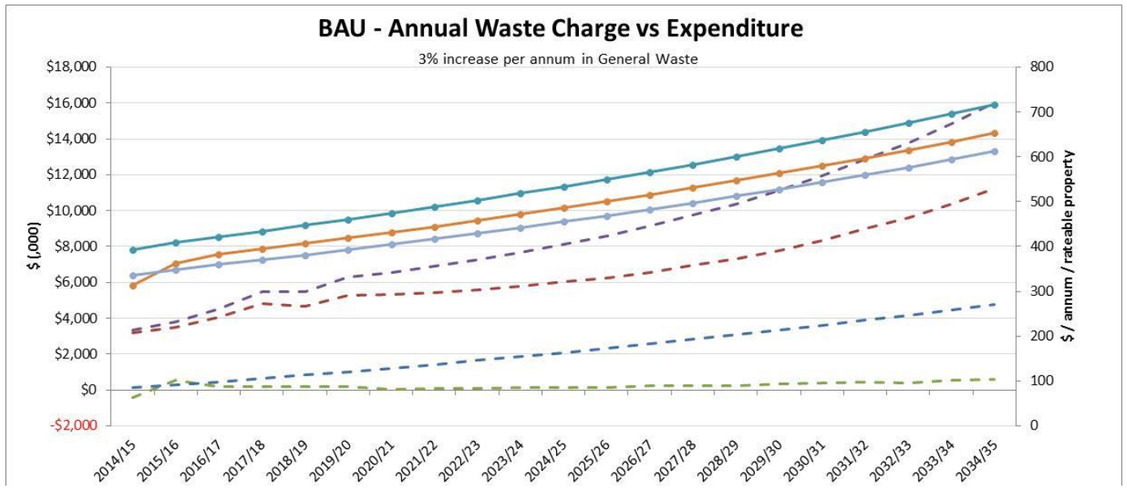
Scenario	Description	Section 6 Recommendations Implemented	Waste Charge Increase (%)
1	Business as usual	No	0%
2	Business as usual	No	2%
3	Business as usual	No	3%
4	Implementation of Recommended Actions	• Bulky Waste Service (approx. $17.65 per collection) – starting at $104,774 in 2016/17 based on one collection per year per household for urban and rural residents. • Public recycling bins - approximately $89,264 / year + installations costs. • Increase in education programs – minimum $15,000 / year. • Employment of a full time Waste Officer - $125,000 / year plus vehicle $10,000 / year. • Kerbside and bin compound auditing – approximately $30,000 / year. • Construction and operation of a green waste and C&D recycling facility – approximately $500,000 CAPEX and $150,000 OPEX per year starting in 2017/18.	0%
5	Implementation of Recommended Actions		3%
6	Implementation of Recommended Actions		4%
7	Implementation of Recommended Actions		4% (year 1-10) 3% (year 11-25)



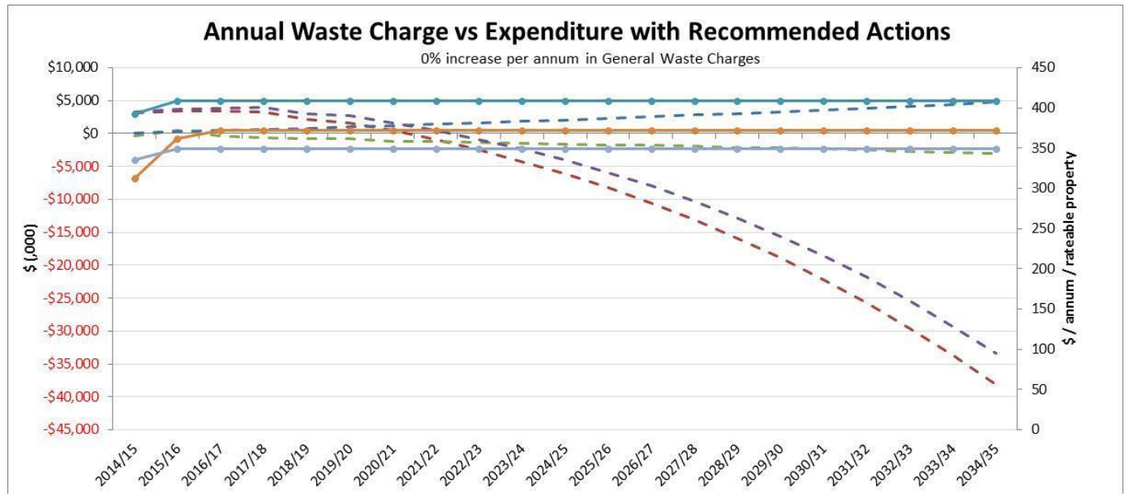
Scenario 1 Business as usual (BAU) 0% increase in Waste Charges



Scenario 2 Business as usual (BAU) 2% increase in Waste Charges



Scenario 3 Business as usual (BAU) 3% increase in Waste Charges



Scenario 4 Implementation of Recommended Actions 0% increase in Waste Charges

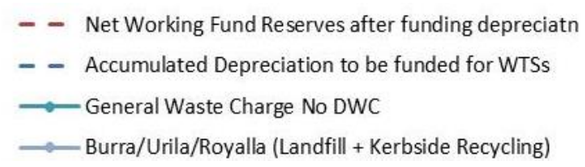
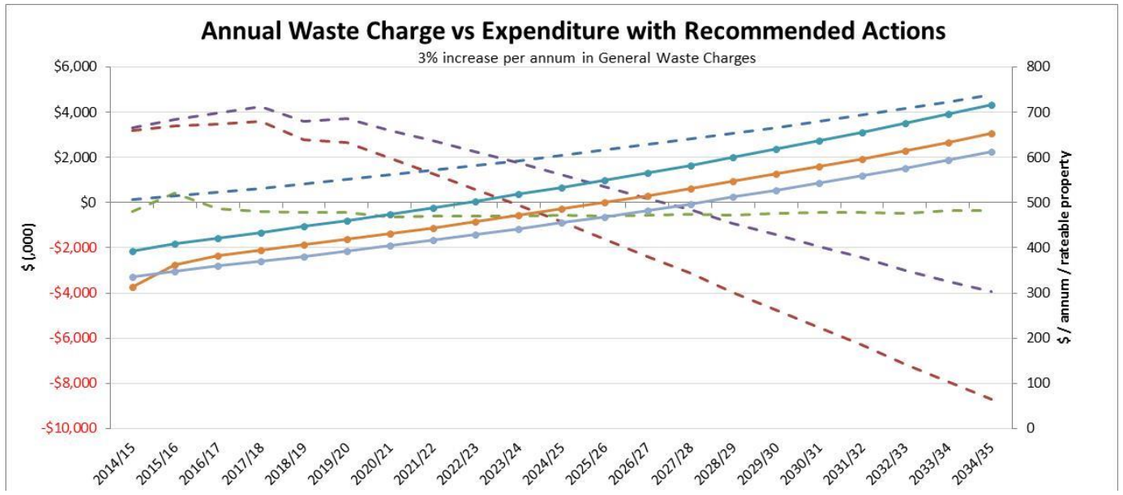
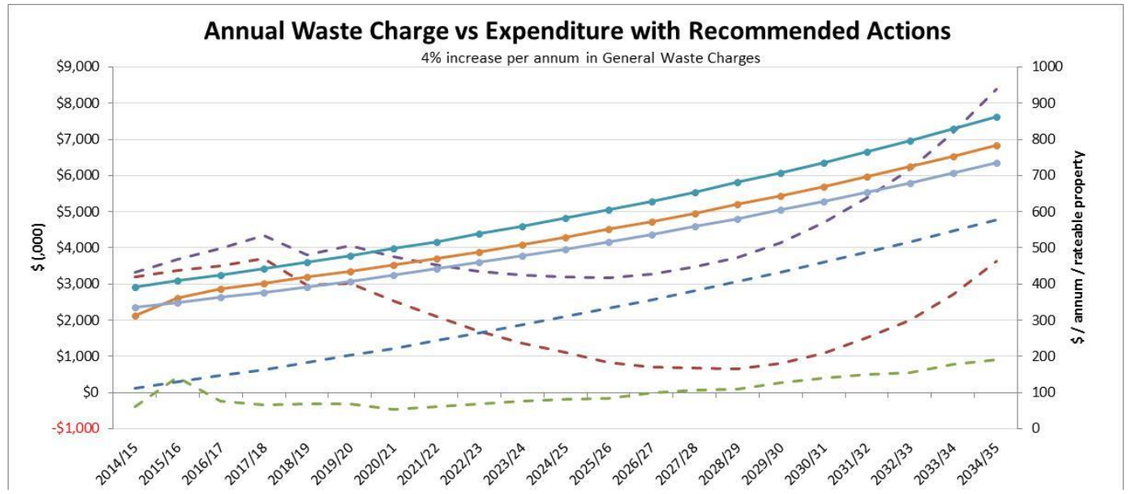


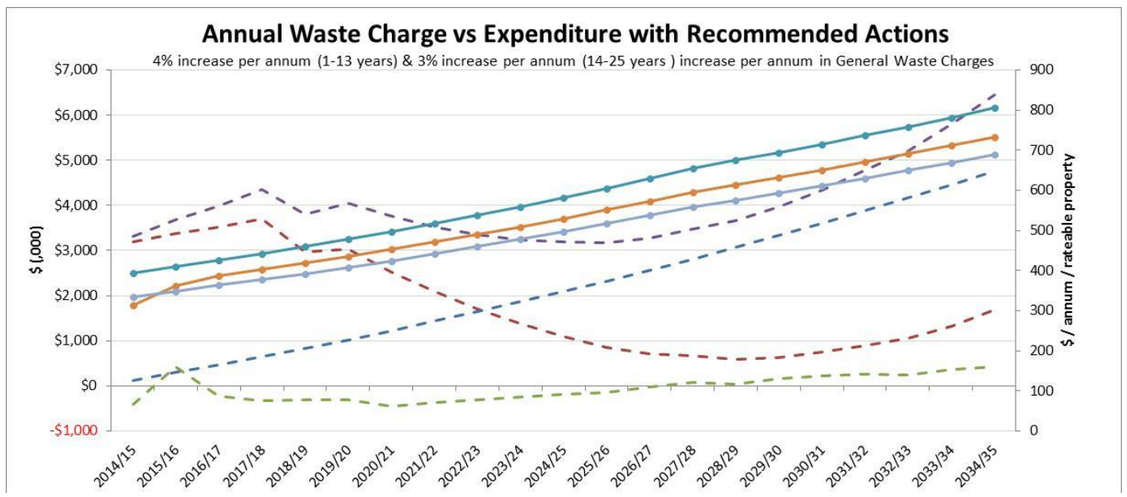
Figure 7-1 Waste Charges vs Waste Management Expenditure - Scenarios 1 - 7



Scenario 5 Implementation of Recommended Actions 3% increase in Waste Charges



Scenario 6 Implementation of Recommended Actions 4% increase in Waste Charges



Scenario 7 Implementation of Recommended Actions 4% (1-13yrs) & 3% (14-15yrs) increase in Waste Charges

*Notes: *The sudden drop in 'Net Working Fund Reserves', and 'Available funds after landfill reinstatements is due to the spending $400,000 for the Closure of Nerriga Landfill in 2018/19.*
***The drop in 'Net Working Fund Reserves', and 'Available funds after landfill reinstatements in 2021/21 is due to end of contract with Veolia for waste processed through the Bungendore WTS.*

7.3 Summary of Findings

As shown in Scenario 1, if Council continue to operate waste management in the Palerang LGA as business as usual, with no increase in annual waste charge, Council's Working Fund will be exhausted by 2025/26. Therefore Scenario 1 is not viable.

With a 2% to 3% increase per annum in the annual waste charges (from between $326-$362/annum to between $470-$450/annum), operating as business as usual, Council's Working Fund will be approximately $4-$6 million by 2025/26. Given the significant surplus of funds generated from a relatively small increase in the annual waste charges Council would have funds available to consider implementing some of the services and programs recommended in **Table 6-2**.

However as shown in Scenario 4, if Council were to implement the waste management options recommended in the preferred Waste Management Strategy (**Section 6**), with no increase in the annual waste charges the working fund will be exhausted by 2021/22. In order for the Council Working Fund to maintain sufficient capital for implementation of options provided in the **Section 6**, a 4% per annum increase in the annual waste charge for the first 13 years, and potential 3% per annum increase thereafter is recommended, as per Scenario 7. This results in an increase in annual waste charges from between $326-$362 in 2015/16 to $500-$600 in 2025/26 and $670-$780 by 2034/35.

Based on the number of recommendations Council implement from **Table 6-2** and the actual costs incurred at the time this increase in waste charges may vary slightly, therefore Councils Financial Plan should be updated as each recommendation is implemented.

8 WASTE STRATEGY FUNDING OPPORTUNITIES

This section outlines possible funding of key actions from preferred waste strategy including government grants and Council fees and charges.

8.1 Grant Funding Options

As discussed throughout the Strategy there are multiple options currently available to Council to assist funding of waste infrastructure and resource recovery programs. These include:

- Keep Australia Beautiful - funding the purchase of public space recycling bins and education initiatives which create an informed community (up to $10,000 per recipient).
- *Waste Less, Recycle More* – a variety of grant packages discussed below.
- Potential funding from the State Government to place at least 800 RVMs across NSW.

8.1.1 The NSW "Waste Less, Recycle More" Initiative

The *Waste Less, Recycle More* initiative is a $465.7 million WARR funding package over 5 years announced by the NSW government in 2013. Voluntary Regional Waste Groups across Regional and rural NSW will be supported with $13 million of funding as part of the *Waste Less, Recycle More* initiative over five years. Key components of the initiative are outlined below:

1 Waste and Recycling Infrastructure Package $250 million

- Organics Infrastructure Fund and Program $70 million
- Waste and Recycling Infrastructure Fund $60 million
- Systems for household problem wastes $70 million
- Recycling Innovation Fund $15 million
- Business Recycling Program $35 million

2 Local Government Waste & Resource Recovery Program $137.7 million

- Non-contestable funding for councils $70 million
- WaSIP 2012/13 $38.7 million
- Regional coordination and strategy $22 million
- Landfill consolidation and environmental improvements $7 million

3 Illegal Dumping $58 million

- Illegal dumping local council education, community engagement $5.5 million
- Regional Illegal Dumping Squads and Programs $8.3 million
- Illegal dumping clean-up programs $7.2 million
- EPA compliance $37 million

4 **Littering $20 million**

- Local litter programs $10 million
- Litter prevention programs $10 million

Outlined in **Table 8-1** is a summary of potential funding options for Councils such as Palerang, which are outside the levy paying area, from the *Waste Less, Recycle More* initiative.

Table 8-1 *Waste Less, Recycle More* key initiatives and potential funding

Key Action / Consequence of Proposed Strategy	Applicable Funding
***Waste Less Recycle More* Initiatives**	
Phased closure and rehabilitation of regional landfills	**Landfill Consolidation and Environmental Improvements grant** (total $7 million). Part of the Local Government Waste & Resource Recovery Program.
Managing Problem Wastes such as waste tyres, mattresses, EPS and household hazardous waste	**Improved systems for household problem wastes.** Total of $44.3 million for infrastructure and operation of community recycling centres exclusively for Councils. Part of the Waste and Recycling Infrastructure Package.
Illegal dumping due to closure of regional landfills	**Illegal Dumping Program:** Regional illegal dumping squads and programs, community education and engagement, combating illegal dumping: $13.8 million to local councils over 5 years.
Regional green waste collection and processing system (collaboration with surrounding councils)	**Local Government organics collection grants**: Local community and councils introducing organics collection systems and services, and community education and engagement: $17 million to local councils over 4 years.

9 LIMITATIONS

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

It is based on generally accepted practices and standards at the time it was prepared. No other warranty, expressed or implied, is made as to the professional advice included in this Report.

It is prepared in accordance with the scope of work and for the purpose outlined in the contract dated 25/08/2014.

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This Report was prepared between August 2014 and November 2015 and is based on the conditions encountered and information reviewed at the time of preparation. URS disclaims responsibility for any changes that may have occurred after this time.

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APPENDIX A PALERANG COUNCIL WASTE MANAGEMENT STRATEGY UPDATE - INFORMATION LEAFLET

Palerang Council Waste Management Strategy Update

October 2014 **Information Leaflet**

The Project

Palerang Council has commissioned URS Australia Pty Ltd (URS) to update the Palerang Council Waste Management Strategy. Council is seeking community participation on what waste management measures would be appropriate for incorporation into the Strategy for implementation over the next 20 years.

Palerang Waste Management Strategy 2005 - 2025

Although now outdated the current Palerang Waste Management Strategy adopted by Council in 2005, outlined a 20 year waste strategy from 2005 to 2025 for Council. The Strategy provided Council with a clear vision on the key infrastructure elements it needed to provide the community to manage waste in a sustainable manner. It has been very beneficial in guiding Council action on waste management.

Key Initiatives Implemented Since Preparation of the Strategy

Since preparation of the 2005-2025 Waste Strategy, Council has made considerable progress improving waste management and resource recovery in the region while reducing potential environmental liabilities. Key actions implemented include:

- Construction of a Waste Transfer Station (WTS) at Captains Flat and closure of the Captains Flat landfill;
- Construction of the Bungendore Resource Recovery Centre (RRC) / WTS and the Macs Reef WTS, which are planned to be operational from 4 December 2014. The existing landfills at Bungendore and Macs Reef will be closed from this date and rehabilitated in 2015. It is planned for residual waste from the WTSs to be taken to the Veolia Woodlawn Bioreactor, while recyclables continue to be taken to the ACT Material Recovery Facility (MRF);
- Closure of the Araluen and Majors Creek landfills and implementation of kerbside collection supplemented by bin compound options;
- Purchase of land for the Braidwood WTS, with a view to opening the facility in 2016;
- Establishment of co-mingled bin recycling stations at Ballalaba, Mongarlowe, Cookanulla Road, Barnett Road, Mount Fairy/Boro fire shed, Taylors Creek Road, Urila Reserve and Hoskinstown Road;
- Introduction of full domestic waste collection services for Royalla, Burra, parts of Urila and Williamsdale as well as at Araluen and Majors Creek, while continuing services at Braidwood, Bungendore and Captains Flat. Introduction of domestic waste collection (recycling only) services for Sutton East, Carwoola and Primrose Valley and parts of Urila;
- Implemented the **City to Soil** green waste bin service trial which will continue in Braidwood, Bungendore and Captains Flat, with a decision to be made in mid-2015 as to whether the service will continue on a permanent basis in subsequent years; and
- Organised household hazardous chemical waste collection days – next collection is scheduled for Saturday 25 October 2014 at Bungendore and Braidwood.

Bungendore WTS (Operational December 2014)

Why does the Strategy need to be updated?

Council recognises the importance of updating the Waste Strategy based on the changes which have occurred since 2005, including:

- updating the current waste management practices in the Council area;
- updating the Strategy to reflect the introduction of new State wide waste management policies and regulations;
- reviewing waste fees and charges;
- identifying opportunities to work with the regional waste group for introduction of innovative resource recovery programs for problem waste; and
- identifying priority areas for the next 20 years from 2015 to 2035.

PALERANG COUNCIL

Palerang Council Waste Management Strategy Update

October 2014 **Information Leaflet**

Palerang Waste Management Strategy 2015-2035

As part of the Strategy update Council would like to offer the community the opportunity to provide input on what waste management measures may be appropriate to implement over the next 20 years.
The updated Strategy will look at the transition from landfill facilities to waste transfer stations / bin compounds.
The Strategy will include an update of current waste/recycling collection and disposal arrangements for each community in the key waste catchment areas.
Key questions Council is seeking input from the community include:

- What new or additional waste and resource recovery services are required in your area? Council is particulalary interested in hearing from more remote areas away from the main towns; and
- Should the City to Soil green waste collection service continue or be expanded to your area? (A more detailed feedback survey on this service will be mailed out at a later date).

Project Timeframe

Council is seeking input from the community in the initial phase of the project to allow incorporation into the draft Strategy. Input received before the 28 November 2014 will be considered when determining what options for waste management may be implemented over the next 20 years at Palerang Council. Council will prepare a draft Strategy with reference to the community input received. It will be advertised for further public comment in early 2015 before a formal strategy is adopted.

City to Soil –Compost Product

Macs Reef WTS (Operational December 2014)

How to Provide Input:

If you would like to be provide input on waste management practices undertaken in your area please send written feedback to:

The General Manager
Palerang Council
PO Box 348
Bungendore NSW 2621 or
Email: records@palerang.nsw.gov.au
Subject: *Waste Management Strategy Update*
Please provide your feedback by 28 November 2014.

PALERANG COUNCIL

COUNCIL IS SEEKING INPUT FROM THE COMMUNITY REGARDING WASTE MANAGEMENT IN THEIR LOCALITY

APPENDIX B PALERANG COUNCIL COMMUNITY FEEDBACK PROVIDED OCTOBER / NOVEMBER 2014

Submission	Town / Locality	Key Issues	Topic	Section addressed in Waste Strategy
1	Not Stated	• Suggestion to provide a kerbside waste collection service and appropriate bins for properties outside of town limits. • Concern regarding the dumping of waste and toxic materials on private properties.	• Kerbside Collection of Residual Waste and Recycling • Illegal Dumping	• Section 5.1 • Section 5.2.1
2	Bungendore	• Requires clarification on how waste management for rural residents will be transitioned from the Bungendore Landfill to the Bungendore WTS from 4 December. Currently rural residents do not pay to dispose of their residual waste at Bungendore Landfill. Rural residents will now be required to pay a gate fee each time they dispose of residual waste. • Question whether rural residents should be able to dispose of residual waste at the WTS for free. Suggestion of using a pass or voucher system which may be issued to each resident outside of the township to dispose of their residual waste for free. Currently residents of Bungendore township pay $265 extra in their rates of kerbside waste collection (approx. $5.week). Resident believes the cost of petrol to drive to the WTS and gate fee for disposal will not be in line with the cost charged to town residents. • Suggestion to extend the radius of waste collection service outside the township of Bungendore. • Question – When the Bungendore Landfill is closed where are dead livestock to be disposed of? What will be the charge for disposal?	• Waste Fees and Charges • Kerbside Collection of Residual Waste • WTS Proposed Practices	• Section 7.1 • Section 5.1 • Section 4.2.1
3	Not stated	• Green waste bins not emptied by Council as they are too heavy to be lifted. Suggestion to increase the frequency of Green Waste collection during warmer months due to the increased frequency of grass mowing.	• Kerbside Collection of Green Waste	• Feedback provided to Council
4	Braidwood to Captains Flat	• Suggestion to provide a kerbside waste collection service to properties between Braidwood and Captains Flat once a week or every two weeks. • Suggestion – Could the opening hours of Braidwood tip be changed to include being opened during a morning(s)?	• Kerbside Collection of Municipal Waste • Landfill / WTS Opening Hours	• Feedback provided to Council

Submission	Town / Locality	Key Issues	Topic	Section addressed in Waste Strategy
5	Carwoola	• Question – kerbside collection of recyclables seems to be working well but is it working for Council and ACT MRF? • Concern about how well the new WTS will meet residents' needs. • Question – how will larger waste items be managed at the WTS? • Concern regarding the dumping of waste on private properties. • Suggestion to extend the kerbside collection services to include residual waste collection, in addition to recycling collection already provided. • Suggestion for Council to provide educational information regarding effective and efficient waste management on the Council website, via email. This information could include videos, flowcharts etc. which illustrate how the new waste disposal facilities (WTS) work.	• Kerbside Collection of Residual Waste • WTS and RRC Proposed Practices • Bulky Waste Collection • Illegal Dumping • Community Education	• Section 4.2 • Section 5.2.2 • Section 5.2.1 • Section 5.4
6	Not stated	• Suggestion for Council to provide more education to the community about green waste / organic waste (composting, mulching). This may be achieved through a monthly article in the Gazette about compost and organic principals or similar to increase education of the community. • Feedback that rural residents do not require green waste collection however may be appropriate for residents in units/flats. • Comment that the recycling system is rarely used.	• Community Education • Kerbside Collection of Green Waste	• Section 5.4 • Section 4.2.2
7	Bywong	• Suggestion to provide a bin compound on the corner of Bungendore Road and Doust Road similar to the bin compound at Sutton.	• Kerbside Collection of Municipal Waste.	• Section 5.1
8	Macs Reef	• Question – who gets to use the Macs Reef WTS? • Question – do rates cover the use of the Macs Reef WTS or am I required to pay for the service (gate fee)?	• WTS Proposed Practices • Waste Fees and Charges	• Section 7

Submission	Town / Locality	Key Issues	Topic	Section addressed in Waste Strategy
9	Braidwood	• Suggestion – Opening hours of Braidwood Landfill be changed to open at 9am on one or two days a week, as rural residents are often travelling into Braidwood town in the morning when the tip is closed? • Suggestion – provide information detailing what happens to recyclables once then are taken to Braidwood. Feedback provided from the community indicates the community believe recyclables are simply disposed of in the landfill. Council should develop a program to educate the community of the waste disposal process beyond the residents' responsibilities, to educate the community on the recycling lifecycle. • Concern that with regards to an ageing population and people with a disability, some people may find it physically difficult or impossible to load waste into their vehicle, drive to the tip and unload it. Does Council have any strategies for assisting such people in these circumstances?	• Landfill Opening Hours • Community Education • Waste Management for Elderly and Disabled persons.	• Feedback provided to Council • Section 4.2.1 • Feedback provided to Council
10	-	• Comment – the resident has found the City to Soil program to be helpful and hopes it continues.	• City to Soil	Noted
11	Wamboin and Bywong	• Question – what facilities (if any) will be available to residents in Wamboin and Bywong? • Question – is kerbside garbage collection envisaged for these areas, and will this include recycling bins or will the bins at the Wamboin Fire shed be retained? • Comment – if the bins are retained at the Wamboin Fire Shed, there needs to be an expansion of the facility, either by using skips or other large volume containers. The present bins are full within two days of them being emptied. • Comment – the cost of collection must be reasonable and on a par with that charged by waste contractor. • Question – what type of waste will be accepted by the Macs Reef WTS?	• WTS Current and Proposed Practices • Kerbside Collection of Residual Waste • Waste Fees and Charges	• Section 5.1 • Section 7 • Refer to Macs Reef WTS Gate Fees document on the Council website.

Submission	Town / Locality	Key Issues	Topic	Section addressed in Waste Strategy
12	Wamboin	• Concern regarding the way the recycle bins at the Bingley Way hall are used. No attempt to flatten large empty boxes, resulting in rubbish being blown everywhere. Have seen ACT registered vehicles dumping rubbish. • Suggestion to remove the bins at Bingley Way Hall. Instead, suggestion to have a weekly or fortnightly kerbside recycling. • Suggestion for green waste and other rubbish removal similar to the ACT Red Hill collection area so that items brought can be reused or converted to mulch or compost. • Suggestion to have annual clean-up days – when residents could leave items at their front gate and Council would collect it on an advertised day.	• Community Education • Kerbside Recycling Collection • Green Waste Management • Bulky Waste Collection	• Section 5.4 • Section 4.2.2 & 5.1.1 • Section 5.2.2
13	Manar	• Suggestion – Provide appropriate infrastructure (public toilet, public bins, and school bus shelter) at the corner of Kings Highway and Goulburn Road. This area is regularly used by Council, Telstra phone exchange, a rest stop for motorists and bus stop for school children; as such the area is also used as a urinal and dumping point for rubbish. • Suggestion to provide a kerbside waste collection service.	• Public Waste Management • Kerbside Collection of Residual Waste & Recycling	• Feedback provided to Council • Section 5.1
14	Manar	• Concern regarding change in waste fee charges with the implementation of the Bungendore WTS. Not good for remote area users who were affected by drought and concerns for increased rates of illegal dumping. • Suggestion for Council to provide residents with bins for residual waste and recycling which can be taken to the local tip for free (as per the current arrangement). • Suggestion for Council to provide a bulk waste pick-up day twice a year including farm chemicals (as provided by Queanbeyan Council).	• Waste Fees and Charges • Kerbside Collection of Residual Waste and Recyclables • Bulky Waste Collection	• Section 7 • Section 5.1 • Section 5.2.2
15	Bungendore	• Suggestion to be able to purchase compost from the Palerang City to Soil programme, as it is currently restricted to large consumption farmers. • Suggestion to have a second-hand shop near the site so people can purchase recycled goods.	• City to Soil Program • Note Bungendore RRC will include a Second-Hand shop at Bungendore	Noted
16	Braidwood	• Feedback – the City to Soil bins are wonderful and save the resident many tips to the tip and the cuttings are good for the environment. • Suggestion to have a clean-up day once or twice a year.	• City to Soil Programme • Bulky Waste Collection	Section 5.2.2

Submission	Town / Locality	Key Issues	Topic	Section addressed in Waste Strategy
17	Sutton East	• Suggestion to provide a kerbside waste collection service in Sutton East. • Suggestion that there should be no charge to residents for waste disposal at Council operated waste disposal facilities, these charges should be covered under their rates. • Concern over non-residents dumping waste at Council landfills without supervision by Council staff. This has led to tips being unnecessarily filled at rate payer's expense.	• Kerbside Collection of Residual Waste & Recycling • Waste Fees and Charges • Landfill Opening Hours / Management	• Section 5.1 • Section 7 • Feedback provided to Council
18	Mongarlowe	• Suggestion to have a co-mingled domestic waste service located with the co-mingled recycling station at the Mongarlowe Rural Fire Station. The service would assist the locals to be more sustainable, as it would enable the locals to reduce unnecessary extra travel to the Braidwood. What rate increases would be required for this service? Please note a full kerbside collection service would not be necessary for Mongarlowe and may result in unpopular, excessive Council rate increases. • Suggestion that that the City to Soil green waste collection service would be a secondary requirement to a domestic waste collection service. It is not necessary to have the service if Council does not even consider the domestic waste service for the area.	• Residual Waste Bin Compound • Kerbside Collection of Green Waste	• Section 5.1
19	Rossi	• Suggestion to enlarge the Hoskinstown/Plains Road Rural Recycling facility to take household (residual) waste, via 'red bins'. This would considerably reduce the number of journeys to the soon-to-commence Bungendore RRC thus lowering transport costs to residents and increasing convenience. This would also aggregate household waste, which would allow for greater disposal efficiency. • Suggestion to facilitate the purchase of approved compost tumblers through Council (which could provide a source of revenue to Council through the differential of wholesale price versus retail price).	• Residual Waste Management • Proposed Compost/ Food Waste Management	• Section 5.1 • Section 5.1.1
20	Wamboin	• Suggestion for opening hours for the Macs Reef WTS to be extended. Can it be open on some occasion other than weekends such as every second Friday and Monday?	• Tip Opening Hours	• Feedback provided to Council

Submission	Town / Locality	Key Issues	Topic	Section addressed in Waste Strategy
21	Braidwood	• Suggestion for provisions for managing electronic waste. • Comment that the processing facility should be local and close to the landfill/WTS, built in cooperation with other nearby Councils. • Suggestion to improve the level contamination of recycling, often put in recycling bins wrapped in a plastic bag, through community education.	• E-waste Management • WTS Current & Proposed Practices • Rural Recycling Stations • Community Education	• Section 4.3 • Section 5.1 • Section 5.4
22	Braidwood	• Suggestion that all plastics (in the Council) are either biodegradable or recyclable.	• Plastic waste	• Section 5.1.3
23	Wamboin	• Suggestion to provide a kerbside residual and recycling collection service for areas outside of the towns (for example, every fortnight).	• Kerbside Collection of Residual Waste and Recycling	• Section 5.1
24	Wamboin	• Suggestion for Council to contract or subsidise waste contractor services to provide recycling services to rural areas (Wamboin).	• Kerbside Recycling	• Section 5.1

APPENDIX C WARR STRATEGY 2014-2021 KEY AREAS AND RESPONSIBILITIES

Key Result Area & Target	Specific Strategies
1. Avoid and Reduce Waste Generation	
By 2021–22, reduce the rate of waste generation per capita	**Economic incentive**: the Waste Levy will continue to provide an economic incentive for waste generators to reduce their waste management costs, particularly in the C&I and the C&D sectors. **Behavioural change**: the Government will increase funding to programs such as the *Love Food Hate Waste* to encourage people to use resources more efficiently. **Product stewardship**: seeks to improve product and packaging design to minimise downstream waste generation. The NSW Government will work with the Commonwealth Government to introduce product stewardship initiatives at a national level under the Product Stewardship Act 2011. **Industrial ecology**: *Waste Less, Recycle More* will fund industrial ecology networks across NSW, aimed at encouraging industry to use a company's by-products of production as a resource by another company.
2. 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%	**Kerbside recycling**: increase effectiveness of kerbside recycling by: • standardising services across NSW • increasing the range of materials that can be recycled • increasing volume of materials recycled through community education and behaviour change **Food and organic waste**: target food and garden organic waste in municipal and C&I sectors, such as by using compost materials on Council playing fields and investing in new infrastructure. **Invest in infrastructure for C&I recycling**: incentives for smaller organisations to implement infrastructure changes, funding for larger organisations to develop industrial ecology networks. **Problem waste**: *Waste Less, Recycle More* to fund state-wide network of permanent drop-off points and collection events for common household wastes – e.g. paint, batteries, fluorescent lights. **New markets**: *Waste Less, Recycle More* to provide funding to establish new markets for recycled materials and encourage innovation in recycling technology. **Regional recycling plans**: initiative to provide funds to build capacity of local councils to develop recycling strategies and actions plans.

Key Result Area & Target	Specific Strategies
3. Divert More Waste From Landfill	
By 2021–22, increase the waste diverted from landfill from 63% (in 2010–11) to 75%	**NSW Energy from Waste Policy Statement**: sets a framework for the operation of purpose-built facilities to recover energy from residual wastes that are unable to be recycled and would otherwise be disposed of to landfill. The policy statement aims to increase investment in energy from waste infrastructure and provide regulatory certainty to industry and confidence to the community. **Large scale infrastructure**: *Waste Less, Recycle More* to provide $60 million over 5 years to co-fund large scale infrastructure and bring forward resource recovery projects, including energy from waste projects.
4. Manage Problem Wastes Better	
By 2021–22, establish or upgrade 86 drop-off facilities or services for managing household problem wastes state-wide	**New drop-off facilities**: the roll-out and servicing of permanent drop-off facilities and the upgrade of existing facilities for a core list of high-volume low-toxicity waste materials – paint, batteries, oil, gas bottles, fluorescent lights. **Continuing event based collection**: continuation of event based collection of high-volume low-toxicity waste materials. **Alternative collection**: trialling alternative collection methods, e.g. mobile collection facilities in high density areas. Product Stewardship: continuing to work with Commonwealth, and other state and territory governments, and key stakeholder to help implement additional product stewardship initiatives at a national level.
5. 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	**Increased funding:** *Waste Less, Recycle More* to provide $20 million over 5 years to facilitate coordinated little approach to: • increased education • increasing the number of officers with powers to enforce laws, and investigating new technologies to improve enforcement efforts • targeting litter ‘hot spots’ • developing infrastructure and coordination with the Commonwealth Government, other States and the packaging industry through the Australian Packaging Covenant • develop measuring and evaluation programs to help design more effective approaches. The key approaches will be detailed further in a Litter Prevention Strategy.

Key Result Area & Target	Specific Strategies
6. Reduce Illegal Dumping	
From 2013–14, implement the *NSW Illegal Dumping Strategy 2014-16* to reduce the incidence of illegal dumping state-wide. As part of this strategy, by 2016–17: • reduce the incidence of illegal dumping of waste 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	The NSW EPA Illegal Dumping Strategy 2014-16 was releases in December 2014. The key actions of the strategy include: • establishing strong and collaborative partnerships between State Government, local council, Aboriginal communities, regional illegal dumping squads, industry and the community • building capacity at local level so that councils, landowners, land managers and the community have the knowledge and expertise to implement practical regional solutions • increasing compliance and enforcement activities to detect, investigate and prosecute illegal dumping • conduct education campaigns to inform the community about the impacts of illegal dumping and correct disposal options • recognising and promoting cooperative efforts and regional successes so that other communities can learn from these activities and illegal dumpers will understand that illegal dumping is being targeted • build a robust evidence base through data collection and analysis illegal dumping incidents, attitudes and behaviour • trial a program to make it easier for home renovators to dispose of small amounts of asbestos

APPENDIX D OTHER APPLICABLE LEGISLATION, REGULATIONS AND GUIDELINES

This section briefly describes the key environmental planning legislation, which will need to be considered for any developments in the Council area, proposed under the waste strategy.

Table-D-1 Other Applicable Legislation, Regulations and Guidelines

Act / Regulation / Guideline	Description
State Environmental Planning Policy (SEPP) Infrastructure 2007	Section 123 states that: In determining a development application for development for the purpose of the construction, operation or maintenance of a landfill for the disposal of waste, including putrescible waste, the consent authority must take the following matters into consideration: (a) whether there is a suitable level of recovery of waste, such as by using alternative waste treatment or the composting of food and garden waste, so that the amount of waste is minimised before it is placed in the landfill, and (b) whether the development: (i) adopts best practice landfill design and operation, and (ii) reduces the long term impacts of the disposal of waste, such as greenhouse gas emissions or the offsite impact of odours, by maximising landfill gas capture and energy recovery, and (c) if the development relates to a new or expanded landfill: (i) whether the land on which the development is located is degraded land such as a disused mine site, and (ii) whether the development is located so as to avoid land use conflicts, including whether it is consistent with any regional planning strategies or locational principles included in the publication EIS Guideline: Landfilling (Department of Planning, 1996), as in force from time to time, and (d) whether transport links to the landfill are optimised to reduce the environmental and social impacts associated with transporting waste to the landfill. Schedule 3 identifies that any landfill, recycling facility and/or waste transfer station development if considered a traffic generating development, must be referred to the RTA.
Local Government Act 1993	Section 504 of the *Local Government Act* provides for Council to make a charge outside the ordinary rate, for the provision of domestic waste management services. The Act states “Income to be applied by a council towards the cost of providing domestic waste management services must be obtained from the making and levying of annual charges or the imposition of charges for the actual use of the service, or both.” The Act also states “Income obtained from charges for domestic waste management must be calculated so as to not exceed the reasonable cost to the council of providing those services.” This strategy outlines the reasonable costs of providing domestic the waste management services in Palerang Council over the next 20 years, based on existing costs provided by Council, and future cost forecasts.
Environmental Planning Assessment Act 1979	The *Environmental Planning and Assessment (EP&A) Act 1979* is the primary piece of legislation governing development within NSW. Part 4 of the EP&A Act details the development process for development that requires consent.

Act / Regulation / Guideline	Description
	Consent Authority The Tallaganda Local Environmental Plan 1991 and Yarrowlumla LEP 2002 permit the waste management works subject to Council consent, therefore the proposed developments constitutes local development and should be assessed under the provisions of Part 4 of the EP&A Act.
	State Significant Development The NSW Minister for Planning may direct a council to refer a particular development application made to it for determination by the Minister if, having regard to matters that in the Minister's opinion are of state significance or regional environmental planning, the Minister considers it is expedient in the public interest to do so. This may include development of a regional resource recovery centre in Palerang.
	Integrated Development Under Division 5 of the Act an integrated developed, as specified in Section 91, is a development (not being a State significant development or complying development), that requires a development consent and one or more government agencies approvals e.g. environment protection licence, Aboriginal heritage impact permit, water management work approval etc.
	Designated Development Under Division 2 of the Act a designated development is a development that is declared to be designated by an environmental planning instrument or the regulations. Schedule 3 of the Environmental Planning and Assessment Regulation 2000 lists development that is considered to be designated development. It should be noted that development that is considered to be designated is required to have an environmental impact statement submitted for approval as a component of the development application.
Heritage Act 1977	The *Heritage Act 1977* aims to protect and preserve items of non-indigenous heritage significance. The Act provides for the protection of items of local, regional and State heritage significance. The Act makes the Heritage Council the consent authority for any works that will impact local and State significant heritage items.
National Parks and Wildlife Act 1974	The *National Parks and Wildlife (NPW) Act 1974* governs the establishment, conservation and management of national parks, historic sites and certain other areas. The NPW Act also provides the basis for the legal protection and management of threatened native flora and fauna and Aboriginal sites within NSW. The implementation of the NPW Act is the responsibility of the NSW Office of Environment and Heritage (OEH). The following provisions of the NPW Act provide for the protection of flora, fauna and ecological communities and would be adhered to in the construction of the proposal. • Section 98 - A person shall not harm any protected fauna, or harm for sporting or recreational purposes game birds that are locally unprotected fauna, or use any substance, animal, firearm, explosive, net, trap, hunting device or instrument or means whatever for the purpose of harming any protected fauna. • Section 99 - A person shall not harm any threatened interstate fauna, or use any substance, animal, firearm, explosive, net, trap, hunting device or instrument or means whatever for the purpose of harming any such fauna. • Section 118A - A person must not harm any animal that is of, or is part of, a threatened species, an endangered population or an endangered

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	ecological community, or use any substance, animal, firearm, explosive, net, trap, hunting device or instrument or means whatever for the purpose of harming any such animal. • Section 118C - A person must not damage any critical habitat. • Section 118D - A person must not damage any habitat of a threatened species, an endangered population or an endangered ecological community if the person knows that the habitat concerned is habitat of that kind.
Threatened Species Conservation Act 1995	The objectives of the *Threatened Species Conservation (TSC) Act 1995* is to conserve biological diversity and promote ecologically sustainable development, provides for the conservation of threatened species, populations and ecological communities of animals and plants. It provides a framework for the assessment of any action that may impact on threatened species, populations and ecological communities. A development on land that is, or is part of, critical habitat or is likely to significantly affect the threatened species, populations or ecological communities, or their habitats, requires a species impact statement prepared in accordance with Division 2 of Part 6 of the TSA Act.
Native Vegetation Act 2003	The Native Vegetation (NV) Act 2003 encourages and promotes the management of native vegetation on a regional basis in the social, economic, and environmental interests of the State. Includes preventing broadscale clearing, improving existing vegetation and revegetation, and to protect high conservation value native vegetation, for its contribution to water quality, biodiversity, or the prevention of salinity and/or land degradation. Under Section 12 of the NV Act native vegetation must not be cleared except in accordance with a development consent or property vegetation plan.
Roads Act 1993	Section 138 of the Roads Act 1993 prohibits a number of activities, such as conducting work in, on or over a public road, without gaining consent from the appropriate roads authority.
Water Act 1912 and the Water Management Act 2000	The Water Management Act 2000 (WM Act) provides for the integrated and sustainable management of the State's waters. Among other matters, the WM Act details the framework for the development of water sharing provisions within defined management plans. Section 20 of the WM Act details the matters to be addressed within the water sharing provisions of management plans.
State Environmental Planning Policy (SEPP) 55 – Remediation of Land	SEPP 55 identifies the approval procedure required for any proposed remediation works associated with the closure and rehabilitation of the landfills in the Council.

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