

The Macarthur WARR Strategy
2014-2017

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The best value, most socially acceptable and environmentally sustainable management of waste across the Macarthur region.

That's what we want.

”

The NSW Government's 'NSW 2021' plan encourages a regional approach to identifying and implementing waste avoidance and recycling programs that will contribute to achievement of the 'Waste Less Recycle More' program objectives. The Macarthur Waste Avoidance and Resource Recovery Strategy is the result of collaboration between Camden, Campbelltown and Wollondilly Councils.



Macarthur Regional Organisation of Councils
Camden, Campbelltown, Wollondilly



This strategy has been supported by the NSW Environment Protection Authority (EPA) with funding from the waste levy.

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1. Acronyms

- ABS** - Australian Bureau of Statistics
- ARRT** - Advanced Resource Recovery Treatment
- CDS** - Container Deposit Scheme
- C&I** - commercial and industrial
- C&D** - construction and demolition
- DCP** - Development Control Plan
- E-waste** - electronic waste
- EPA** - New South Wales Environment Protection Authority
- LGA** - Local Government Area
- MACROC** - Macarthur Regional Organisation of Councils
- MCSL** - Macarthur Centre for Sustainable Living
- MGB** - mobile garbage bin
- MRF** - Materials Recovery Facility
- MSW** - Municipal Solid Waste
- SAWT** - SITA Advanced Waste Treatment
- WARR** - Waste Avoidance and Resource Recovery

2. Macarthur Region Organisation Of Councils (MACROC) – An Overview

The Macarthur Regional Organisation of Councils (MACROC) was formed in 1985. It represents the Local Government Areas (LGA) of Camden, Campbelltown and Wollondilly. MACROC's role is to identify issues of regional

importance and advocate for positive regional outcomes. Priorities for the Macarthur region include managing population growth, transport infrastructure planning, employment generation and environment protection.

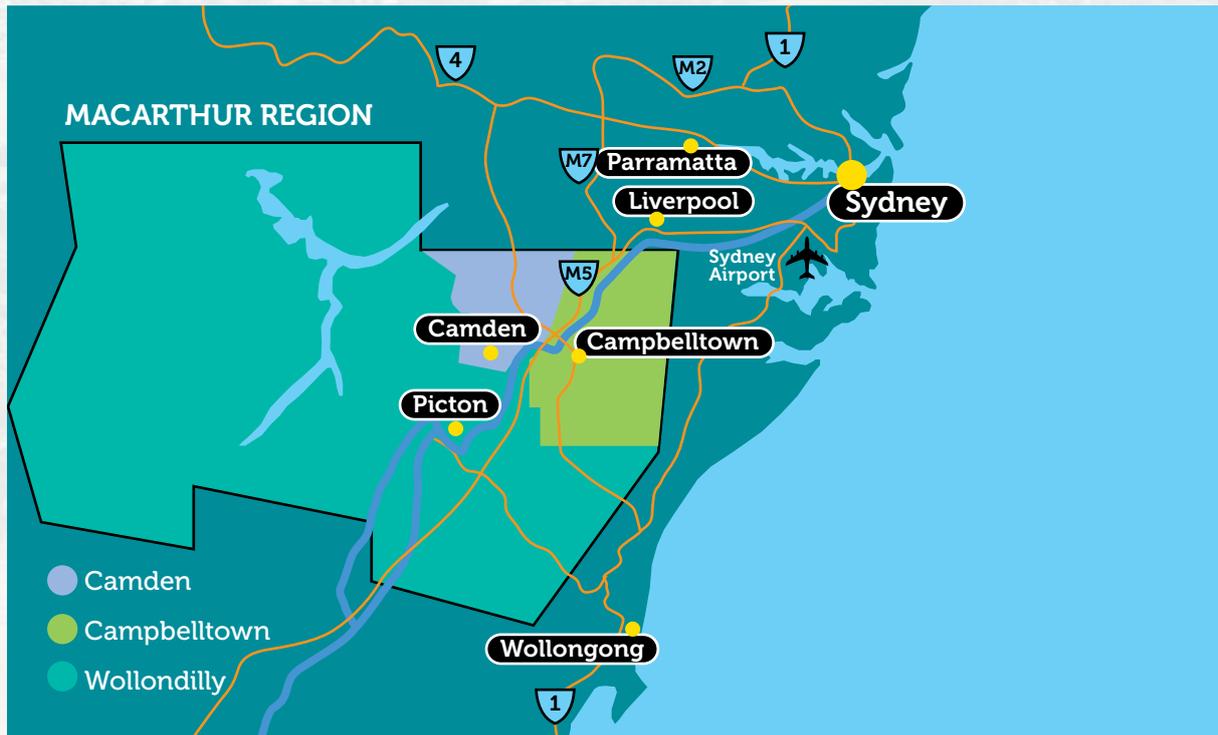


FIGURE 1: MACARTHUR REGION

The Camden LGA has a land area of 20,132 hectares (201 square km), population of 63,248 (2013 ABS estimation), and a population density of 3.14 persons per hectare (314 per square km)¹.

The Campbelltown LGA has a land area of 31,222 hectares (312 square km), population of 154,538 (2013 ABS estimation), and a population density of 4.95 persons per hectare (495 per square km)². The Campbelltown LGA is the most populated and has the highest population density in comparison to the other councils within the MACROC region.

The Wollondilly Shire LGA has a land area of 255,697 hectares (2,557 square km), population of 46,295 (2013 ABS estimation), and a population density of 0.18 persons per hectare (18 per square km)³. The Wollondilly LGA is the largest and the least populated of the three LGAs.

In total, the Macarthur region covers an area of 328,905 hectares (3,289 square km), has a population of 264,081 (2013 ABS estimation), which equals to 0.80 persons per hectare (80 per square km)⁴, and has 17,052 operating businesses as of 2015.

¹ Profile.ID, 2014. *Community Profile Camden*, Available at: profile.id.com.au/camden/home.

² Profile.ID, 2014. *Community Profile Campbelltown*, Available at: profile.id.com.au/campbelltown/home

³ Profile.ID, 2014. *Community Profile Wollondilly Shire*, Available at: profile.id.com.au/wollondilly/home

⁴ Profile.ID, 2014. *Community Profile MACROC*, Available at: profile.id.com.au/macroc/home

3. Introduction

The Macarthur region has experienced steady growth over the past 10 years and is expected to grow by more than 100,000 additional households over the next 20 years. As the community grows, it will create additional challenges for waste management within the region, one of which will include managing the increasing waste generated through population growth. The councils will need to ensure that adequate planning, services and infrastructure are in place to manage this increase in waste generation. By encouraging the community to create less waste in the first instance and facilitating alternatives to landfill, the councils can ensure that the amount of waste being generated does not exceed the capacity of available facilities and services.

Under the NSW Government's 'NSW 2021: A plan to make NSW number one', funding has been made available through the Waste Less, Recycle More initiative to assist councils in developing Waste Avoidance and Resource Recovery (WARR) Strategies. The Macarthur WARR Strategy (the Strategy) has been prepared in collaboration with the region's waste management teams and has a focus on reducing waste generation and ensuring sufficient services and infrastructure are available into the future.

'NSW 2021' sets goals of increasing recycling and reducing waste to landfill, reducing illegal dumping in Sydney, the Illawarra, Hunter and Central Coast by 30% and having the lowest litter count per capita in Australia by 2016. These goals are expected to be achieved with the allocation of funding through the Waste Less, Recycle More initiative to support local councils, businesses, communities and industry in long term strategic waste and recycling initiatives.

Each of the Macarthur councils currently has a kerbside collected Municipal Solid Waste (MSW) recovery rate/landfill diversion of 66% or above, which meets or exceeds the NSW Government's target for municipal waste. While the councils have individual arrangements in place for the collection of kerbside collected MSW, they have jointly initiated a long term contract for its receipt, processing and disposal. These current arrangements will assist the region to remain on track to achieve the NSW Government's increasing waste diversion and resource recovery targets under 'NSW 2021'. Planning beyond this contract is a critical aspect of the Strategy, to ensure that the region's waste resources are managed in a responsible and sustainable way into the future.

The Strategy outlines the Macarthur councils' current position and sets out a strategic approach to managing waste in the region into the future.

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The Macarthur region is expected to continue to grow by more than 100,000 additional households over the next 20 years.

We need to create less waste.

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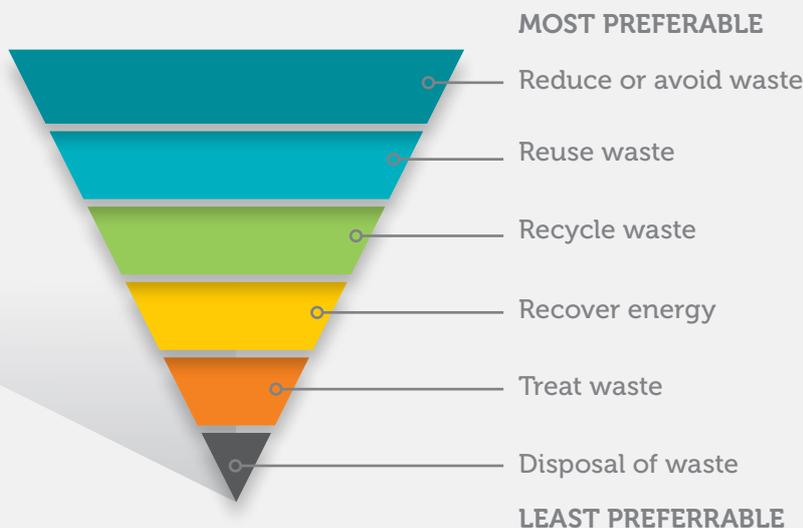
Under the Strategy and a number of federal and state government policies and programs, the councils will strive to ensure that as much value is derived from recovered resources as possible to protect the environment, ensure financial and long term viability of waste collection and processing solutions, and to control and minimise the costs of waste management and resource recovery for the community.

As part of the Strategy, MACROC will submit an updated action plan to the EPA each year

and report on progress. The Strategy adheres to the principles of the Waste Hierarchy, establishing a preference to avoid creating waste in the first instance, and to dispose of untreated waste to landfill only as a last resort. The principles of the Waste Hierarchy are outlined in **Figure 2**.

The themes in the Strategy have been adopted in consideration of the key characteristics of the region that will relate to its future waste management.

**FIGURE 2:
WASTE HIERARCHY**



4. Strategies and policies driving waste avoidance and resource recovery in the Macarthur region

A summary of key policy drivers which set the scene for waste management in Australia is outlined below. The legislative framework is constantly evolving and requires regular monitoring.

4.1 National policy drivers

National Environment Protection Act 1994 (Cwth) – binds all state and territory jurisdictions to the principles of Ecologically Sustainable Development.

National Waste Policy 2009 Less Waste, More Resources – sets a national waste management framework for the period 2009–2020.

Product Stewardship Act and Product Stewardship (Televisions & Computers) Regulations 2011 – require manufacturers of TVs and computers to provide for the end-of-life recycling of these products. Paints and

batteries are likely to be the next products to be covered by such an arrangement.

The Australian Packaging Covenant – a voluntary co-regulatory arrangement which requires manufacturers, importers or brand owners to take responsibility for the packaging they produce.

Container Deposit Scheme – this approach has been proposed under the National Waste Policy 2009. A decision on a federal CDS is expected prior to the expiry of the Australian Packaging Covenant in July 2015.

4.2 State government policy drivers

Waste Avoidance and Resource Recovery Act 2001 – aims to encourage the efficient use of resources and reduce environmental harm, in accordance with the principles of ecological sustainable development and sets the framework for the NSW Government's WARR Strategy.

NSW Government WARR Strategy 2007–2014 – addresses four key areas:

- Preventing and avoiding waste
- Increasing recovery and use of secondary materials
- Reducing toxicity in products and materials
- Reducing litter and illegal dumping.

The current NSW Government targets for increasing the recovery and use of secondary materials are:

- Municipal Waste – **66%**
- Commercial and Industrial Waste – **63%**
- Construction and Demolition Waste – **76%**

The draft NSW WARR Strategy 2013–21 contains revised targets, with new definitions distinguishing 'Recycling Rate' and 'Diversion Rate'.

Reducing Waste: Implementation Strategy 2011–2015 – focuses on activities where there is the greatest potential for resource recovery.

NSW 2021 – the NSW Government's strategic 10-year business plan, with 32 goals and specific targets for increasing recycling, reducing litter and illegal dumping.

NSW Waste and Environment Levy – a levy imposed on all MACROC materials that are landfilled.

Waste Less, Recycle More – a funding package of \$465.7 million over five years commencing 2012–13 to assist in meeting recycling targets, stimulating investment in infrastructure and combating illegal dumping and littering.

Protection of the Environment and Operations Act 1997 (POEO Act) – a key piece of legislation that underpins all activities related to waste and the environment.

Protection of the Environment Operations Amendment (Illegal Waste Disposal) Act 2013 – includes stronger penalties for offenders who commit or are privy to waste offences.

4.3 Local policy drivers

Integrated Planning and Reporting – an integrated approach to the development of council budgets and activities, including a Community Strategic Plan, Delivery Program and Operational Plan.

Camden

Camden 2040:

Camden 2040 was prepared as a strategic response to the large-scale urban and population growth that has been planned for the area under the State Government's Metropolitan Strategy. It acknowledges that whilst many in our community would prefer not to have this growth occur, that is now part of the future of the Camden area. It emphasises that with this growth will bring new opportunities and facilities that have not previously been available, but needs to be managed actively and effectively in order to deliver quality places and lifestyles for the people of the Camden area, as well as protecting and enhancing the important history and character of the area that is so highly valued.

Campbelltown

Creating our Future Together: Campbelltown's Community Strategic Plan 2013-2023

Campbelltown's Community Strategic Plan is a 10 year plan that sets the community's high level objectives for the LGA and the strategies to be implemented to achieve these objectives.

Campbelltown (Sustainable City) Development Control Plan (DCP) 2012

The Campbelltown Sustainable City DCP outlines the objectives and requirements for certain developments in relation to waste minimisation including objectives and design requirements for waste management plans, construction and demolition phases of the development and ongoing waste management requirements when the development is complete.

Wollondilly

Wollondilly Vision 2025

The Wollondilly Vision 2025 document defines how the community sees Wollondilly's future and the type of community it wants it to become.

Wollondilly Community Strategic Plan 2033

The plan identifies the aims of the community and sets out the strategies that council will use to achieve these aims. The plan addresses environmental considerations including waste.

Sustainable Wollondilly Plan

This plan establishes how Council will work towards a more sustainable future and includes a commitment to implement a waste management and resource recovery strategy.

Wollondilly Environment Management Strategy and Policy

The purpose of this document is to guide implementation of the environmental activities identified in the Wollondilly Community Strategic Plan 2033.

Wollondilly Waste Minimisation and Resource Recovery Strategy 2013-2018

Council has adopted a WMRR Strategy that is consistent with achieving the waste targets set out in the Community Strategic Plan 2033.

Wollondilly Shire Council Development Control Plan (DCP) 2011

The DCP provides waste minimisation and management guidance to developers and others involved in demolition and constructions work.

The current NSW Government
diversion targets

Municipal
Waste
66%

Commercial and
Industrial Waste
63%

Construction and
Demolition Waste
76%

5. Current status

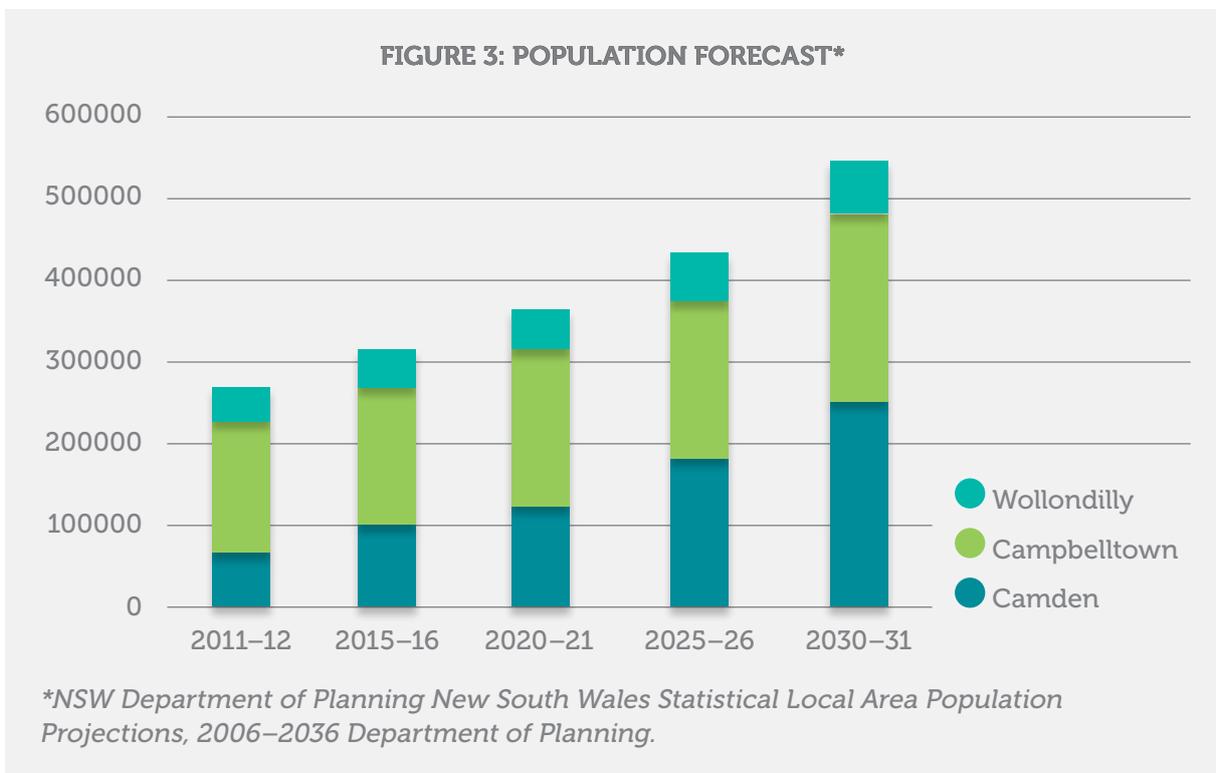
5.1 Population and demographics

The Macarthur region is growing rapidly. In 2011–2012, its population was just over 250,000. It is expected that this will grow by 100,000 by 2021, and reach approximately 500,000 by 2031.

Figure 3 demonstrates the significant population growth within the Macarthur region. Population growth is resulting in increased waste volumes, which will affect

the capacity of existing and future waste infrastructure and services.

Camden's population is expected to increase to a projected total of 256,000 by 2031. These figures are based on the Sydney Region South West Growth Centre area being fully developed, making Camden one of the fastest growing councils in NSW.



The MACROC councils
utilise a three-bin system
for the collection of MSW





Kerbside clean-up services are provided to residents across the Macarthur region

5.2 Waste and resource recovery collection and processing systems

Councils within the region provide the community with access to a range of services that endeavour to manage waste efficiently and cost effectively, with minimal impact on health and the environment.

Waste and recyclables collections

Domestic garbage: Collection of domestic garbage varies between the councils. Each provides a weekly service, however bin sizes and colours vary. Councils are transitioning to Australian Standard compliant bins for domestic garbage, which specifies a dark green or black container and a red lid.

Recyclables: Collection services include a 240L mobile garbage bin (MGB). Service frequencies vary between councils with Camden providing a weekly collection and Campbelltown and Wollondilly fortnightly collections. Bin and lid colours comply with the Australian Standard, which specifies a dark green or black container and a yellow lid.

Garden organics: Collection services include a 240L MGB. Camden provides a weekly collection, while the other councils provide fortnightly collections on alternating weeks with recyclables collection. Councils are transitioning to Australian Standard compliant organics bins, which specify a dark green or

black body and a lime green lid. Combined food and garden organics collections are not currently provided. Existing services and contractual obligations require food waste to be placed in the domestic garbage bin.

Kerbside clean-ups: The number and frequency of kerbside clean-ups vary across councils. Campbelltown provides four kerbside clean-ups per year on an on-call basis. Camden provides two kerbside clean-ups per year, also on an on-call basis. Wollondilly offers a twice-yearly scheduled service.

Additional services available to residents: In addition to council kerbside clean-up services, residents use a variety of local waste disposal facilities which accept a range of waste types.

Waste and recyclables processing

Materials collected at the kerbside are delivered to various facilities within the Spring Farm Resource Recovery Facility (Spring Farm RRF). This includes domestic garbage, recyclables, garden organics and materials from clean-ups. **Figure 4** (next page) provides an overview of the processing of the councils' waste.

FIGURE 4: WHAT HAPPENS TO OUR WASTE?

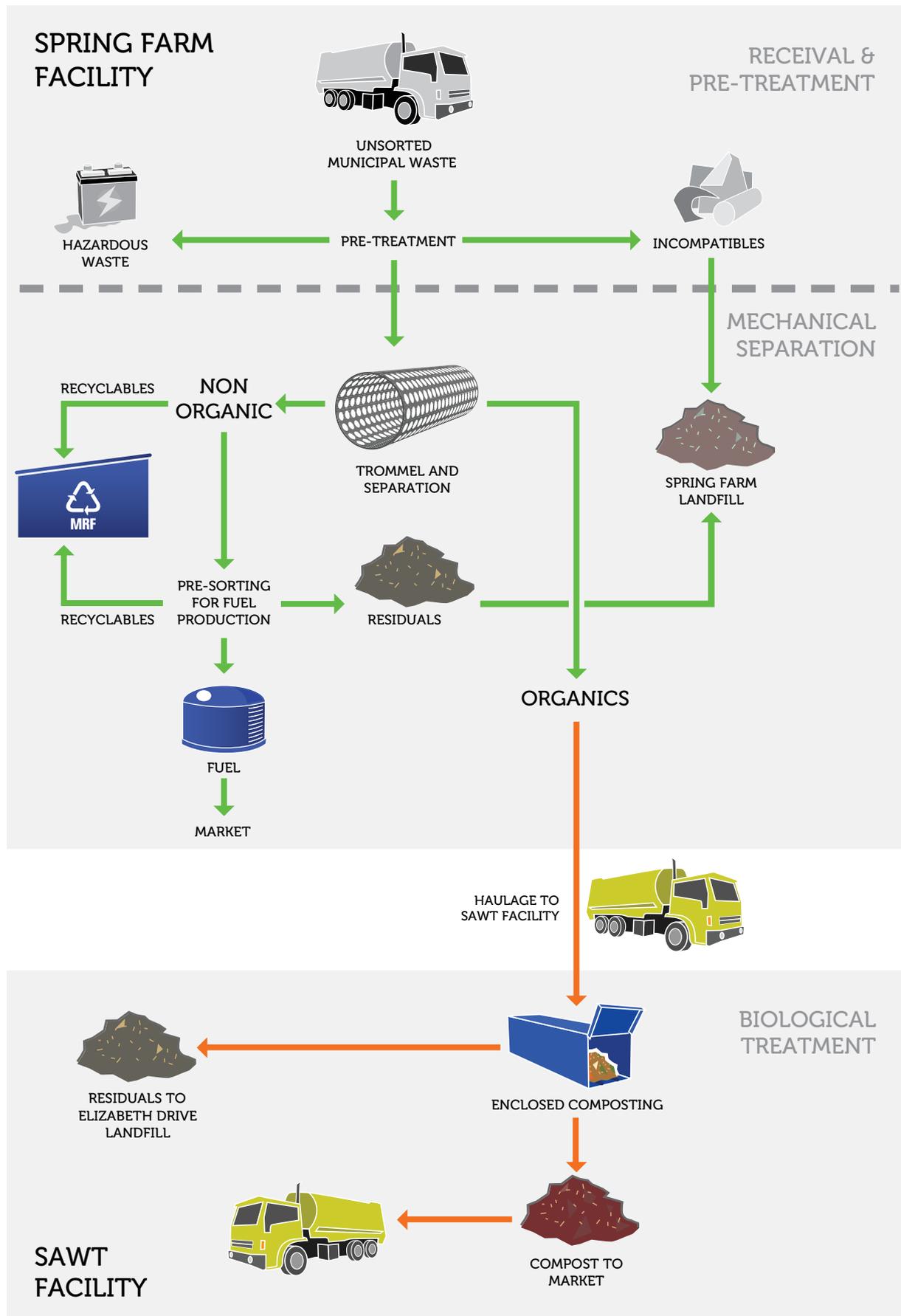
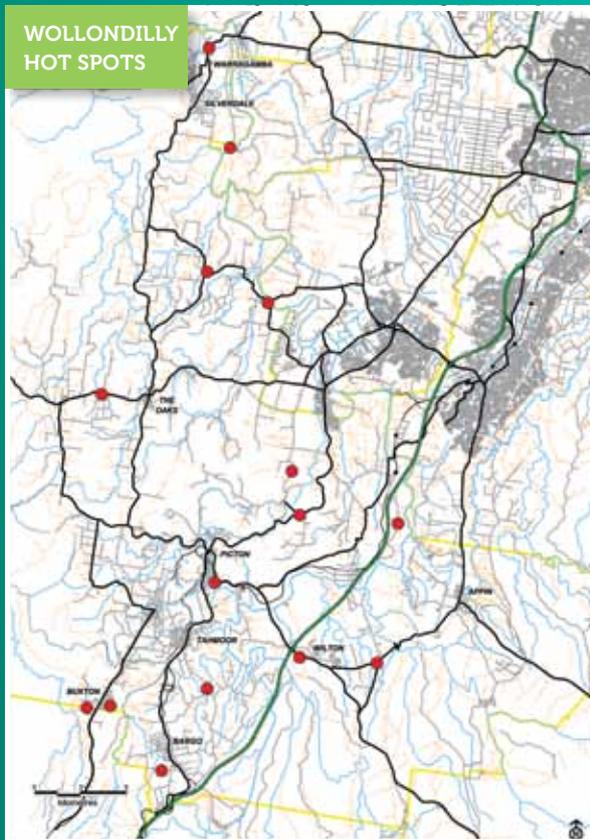
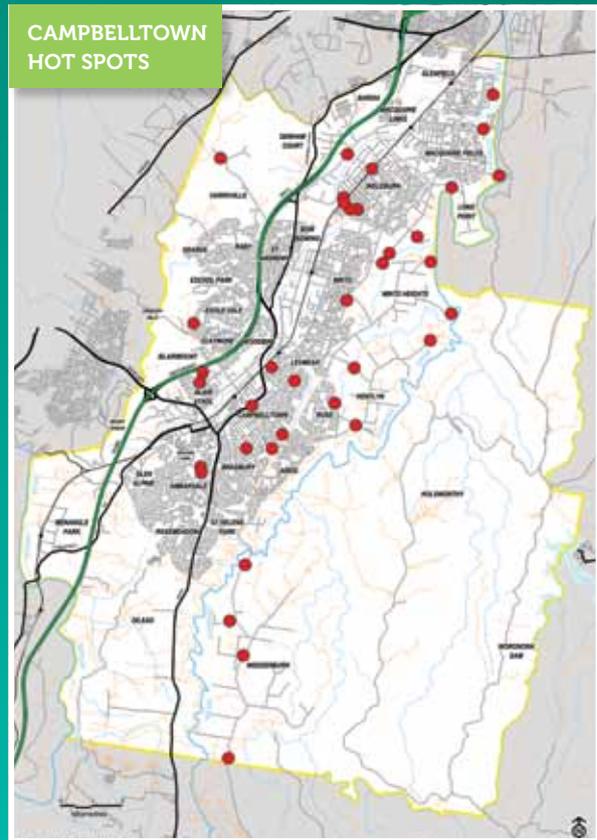
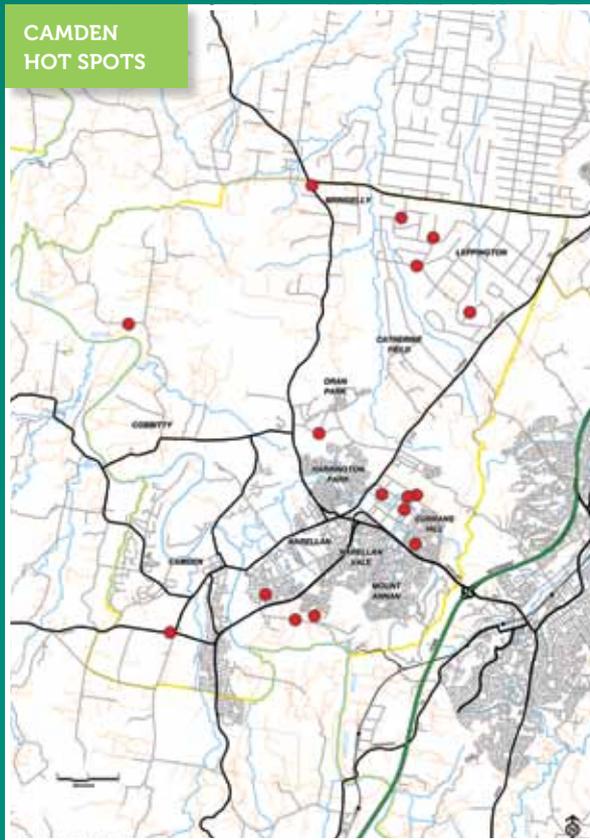


FIGURE 5: ILLEGAL DUMPING AND LITTER HOT SPOTS



LEGEND

Dumping "hot-spots"

● Illegal dumping

Illegal dumping and litter

The councils are responsible for the collection of illegal dumping and litter. **Figure 5** identifies a number of known hot spots across the LGAs. Although the issue is not limited to the areas indicated on the maps, these hot spots are the focus of current efforts to reduce the incidence, effects and costs of illegal dumping and littering.

5.3 Current performance

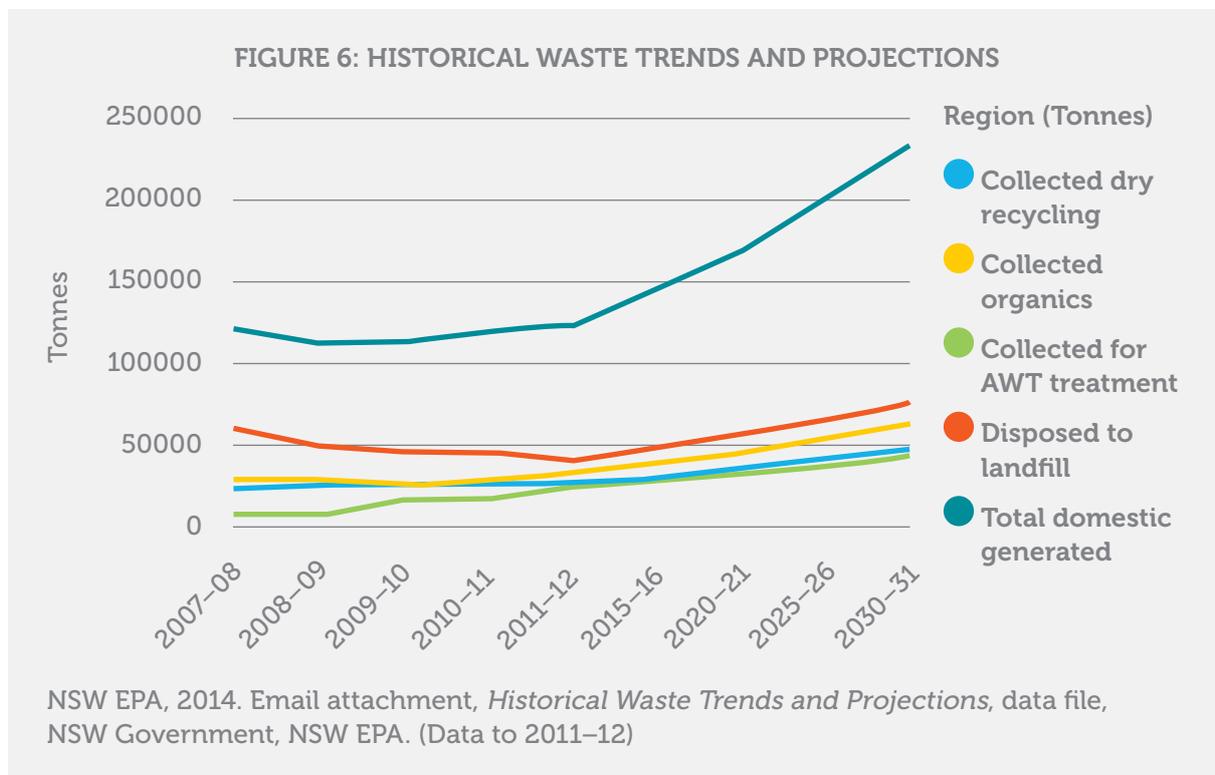
Through various technologies, the region is achieving an average 71% diversion of kerbside collected MSW from landfill via the Advanced Resource Recovery Treatment (ARRT) facility, SITA Advanced Waste Treatment (SAWT) facility, Materials Recovery Facility (MRF), Garden Organics Resource Recovery facility, and the SITA Organics facility.

The ARRT facility can process up to 90,000 tonnes per year of domestic garbage, with a landfill diversion rate of up to 73%.

The MRF is capable of processing at least 30,000 tonnes of recyclables annually with a recovery rate in excess of 90%. In 2013-14, the MRF was achieving between 92% and 100% diversion from landfill for recyclables delivered to and processed at the facility.

The Garden Organics Resource Recovery facility is capable of processing 30,000 tonnes of garden organics annually. In 2013-14, the Garden Organics Resource Recovery facility and the SITA Organics facility were achieving between 90% and 99% diversion of council-collected garden organics. While this diversion rate is high, it can only be achieved with the removal of contaminants. As the decontamination process is extremely labour-intensive and costly, and poses a potential obstacle to the production of high quality compost, it is an issue targeted for action in the Strategy.

In 2013-14, the region disposed of 33,904 tonnes of kerbside collected MSW to landfill, equating to 29% of the total kerbside collected MSW produced.⁵ The remaining 71% was recycled, reused or used for energy generation.



⁵ SITA Campbelltown, Camden and Wollondilly Diversion Reports 2013-14



Baled aluminium cans recovered from the MRF

Audits of kerbside garbage bins in 2011 and 2012 revealed that recyclables form a large portion of residual waste. Organics make up the majority of this, with other materials such as paper, plastics, glass and metals making up a significant portion of the remaining waste.

The audit results also indicate that contamination rates are high in some areas in both recyclables and garden organics bins. **Figure 7** provides a breakdown of recyclable and other materials most often appearing in domestic garbage bins.

Approximately half the domestic garbage bin content is organic material. This is recovered in the ARRT process. Paper products which make up the next largest portion are also recovered during this treatment process. Recyclables are, where possible, extracted from the waste and diverted to the MRF.

While the ARRT process extracts recyclables from the domestic garbage stream and diverts them to the MRF for recovery, there is some potential for greater recovery of recyclables if residents placed those items in the recyclables bins in the first instance.

Figure 8 outlines the materials most often appearing in the recyclables bin. Paper and glass are the most commonly recycled items by weight, but not necessarily by volume.

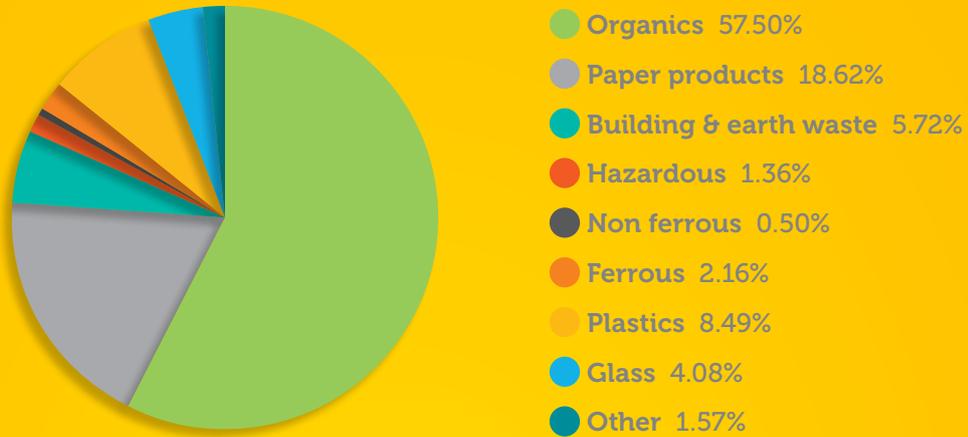
Contaminants in garden organics bins mostly comprise domestic garbage and recyclables. Despite de-contamination processes, remnants of inorganic materials can sometimes be found in compost derived from garden organics. This affects compost quality and limits the markets for the end product.

Annual Household Chemical Clean-out event

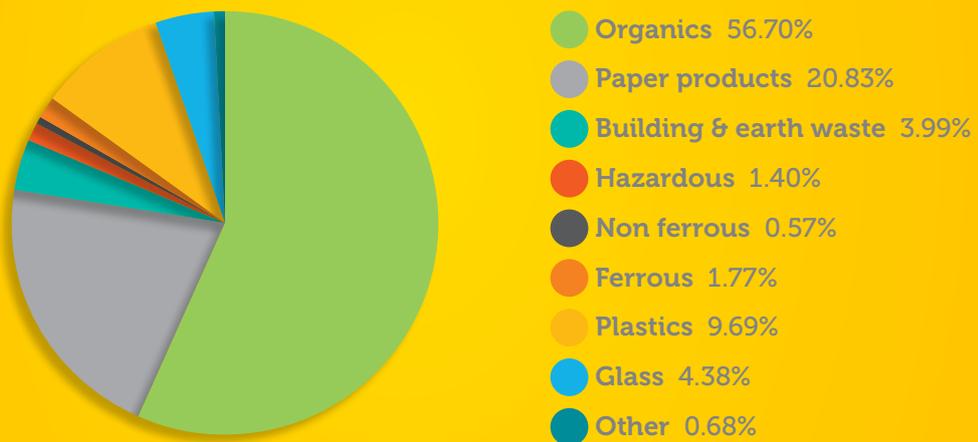


FIGURE 7: CAMDEN, CAMPBELLTOWN AND WOLLONDILLY – PERCENTAGE COMPOSITION OF DOMESTIC GARBAGE BY WEIGHT⁶

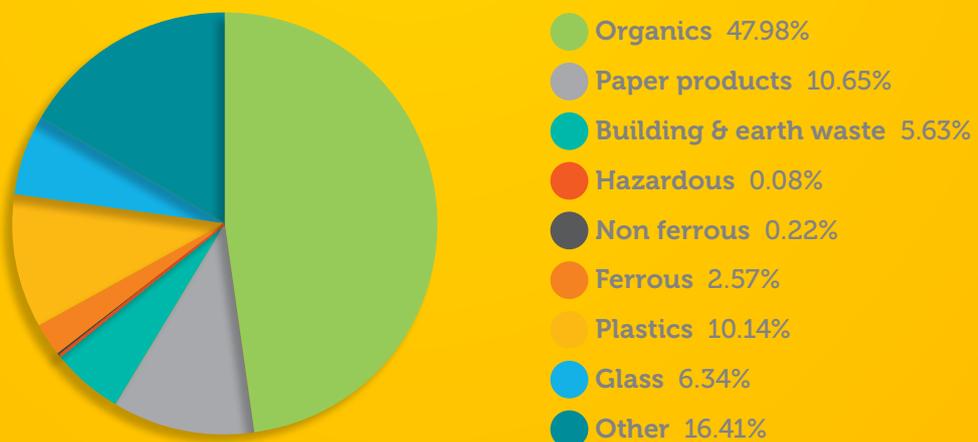
Camden



Campbelltown



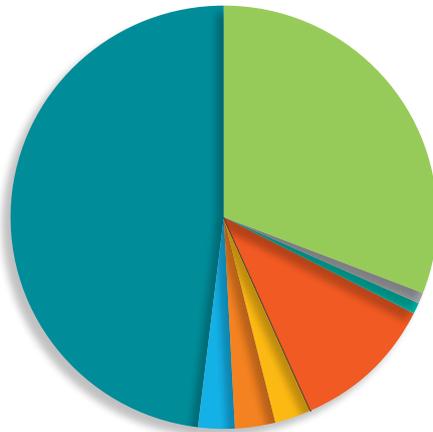
Wollondilly



⁶Source: McGregor Environmental Services Domestic Kerbside Waste Stream Audit for: City of Campbelltown October 2011, Camden Council June 2011, and McGregor Environmental Services Characterisation of Domestic Waste Wollondilly Shire Council September 2012

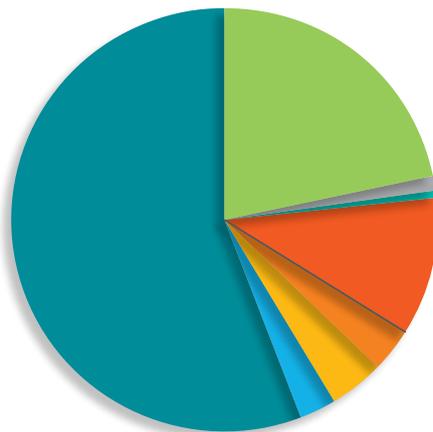
FIGURE 8: CAMDEN, CAMPBELLTOWN AND WOLLONDILLY – PERCENTAGE COMPOSITION OF RECYCLABLES BY WEIGHT⁷

Camden



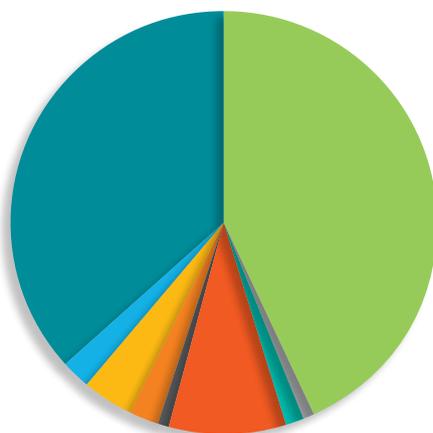
- Glass containers 30.13%
- Aluminium cans 0.88%
- Liquid paperboard 0.77%
- Contaminants 10.56%
- Other plastic (incl. PVC) 0.13%
- HDPE 2.70%
- PET 2.92%
- Steel cans 2.77%
- Paper 46.71%

Campbelltown



- Glass containers 21.22%
- Aluminium cans 1.02%
- Liquid paperboard 0.67%
- Contaminants 10.05%
- Other plastic (incl. PVC) 0.14%
- HDPE 3.11%
- PET 4.04%
- Steel cans 2.71%
- Paper 54.24%

Wollondilly



- Glass containers 43.26%
- Aluminium cans 0.75%
- Liquid paperboard 1.30%
- Contaminants 8.90%
- Other plastic (incl. PVC) 0.84%
- HDPE 2.40%
- PET 3.82%
- Steel cans 2.35%
- Paper 36.40%

⁷ Source: McGregor Environmental Services Domestic Kerbside Waste Stream Audit for: City of Campbelltown October 2011, Camden Council June 2011, and McGregor Environmental Services Characterisation of Domestic Waste Wollondilly Shire Council September 2012

5.4 Measuring performance

The councils' high recovery rate/landfill diversion for kerbside collected MSW is achieved by a combination of a three-bin collection system, and advanced processing technology for recyclables, garden organics and domestic garbage.

Figure 9 shows the councils' recovery rate/landfill diversion performance against the NSW average. During 2013–14, the region's overall kerbside recovery rate/landfill diversion exceeded the NSW Government target of 66%.

FIGURE 9: 2012–13 WASTE STATISTICS FOR THE MACARTHUR COUNCILS COMPARED WITH THE NSW AVERAGE⁸

Waste performance		
Key performance indicator	Macarthur councils (kerbside bins and clean up only) 2013-14	NSW (domestic waste only: kerbside, clean up and drop off) 2012-13
Recovery rate/landfill diversion	Camden:	46.5%
	Campbelltown:	
	Wollondilly:	
	Reg. Average:	

5.5 Waste and resource recovery collection, processing and disposal contracts

Each of the Macarthur councils has its own arrangements in place in relation to collection services, ranging from long term contracts through to council staffed and equipped services.

Camden Council employs labour and vehicles directly to collect kerbside collected MSW, recyclables and garden organics. Council employees are also responsible for provision of services to Council facilities and collection and disposal of waste arising from Council business activities and services.

Campbelltown and Wollondilly Councils contract service providers for collection and transport of kerbside collected MSW.

Council employees or contractors are also engaged to provide waste and recycling collection and disposal services to the councils' facilities, as well as collection and disposal of street sweeper waste, litter and illegally dumped waste.

The councils share a joint contract with SITA Australia Pty Ltd for the processing and disposal of kerbside collected MSW. This contract commenced in 2009 and will expire in May 2024.

Figure 10 contains a summary of the contractual arrangements for the collection of waste in the Macarthur region.

⁸ Data from SITA Campbelltown, Camden and Wollondilly Diversion Reports 2013–14 and NSW Local Government Waste and Resource Recovery Data Report as reported by councils 2012–13 (NSW EPA)

“

Sustainable and adaptive management of waste and recovered resources.

That’s our mission.

”

FIGURE 10: KERBSIDE WASTE AND RESOURCE RECOVERY COLLECTION AND PROCESSING CONTRACTS

CAMDEN				
Services covered	Service provider	Contract duration (years)	Contract expiry date	Specific conditions
 Garbage collection	Council	In-house service	In-house service	No medical waste, batteries, tree stumps or building materials.
 Recyclables collection	Council	In-house service	In-house service	Items must be loose. Containers to be rinsed. No waxed cardboard or containers contaminated with excessive food.
 Garden organics collection	Council	In-house service	In-house service	Only organic plant material. No food scraps, soil or tree stumps.
 Kerbside clean-up collection	Council	In-house service	In-house service	Up to three cubic metres, two clean-ups per year per household on-call. Only toys, beds, mattresses, furniture, household electrical, white goods and garden organics.
 Garbage, recyclables, garden organics and kerbside clean-up processing/disposal	Contract	15	31 May 2024	All materials collected from kerbside.

FIGURE 10: (CONTINUED)

CAMPBELLTOWN				
Services covered	Service provider	Contract duration (years)	Contract expiry date	Specific conditions
 <p>Garbage collection</p>	Contract	9	1 April 2023	No medical waste, batteries, tree stumps or building materials. This contract has a 1 year 14 month extension option.
 <p>Recyclables collection</p>	Contract	9	1 April 2023	Items must be loose. Containers to be rinsed. No waxed cardboard or containers contaminated with excessive food. This contract has a 1 year 14 month extension option.
 <p>Garden organics collection</p>	Contract	9	1 April 2023	Only organic plant material. No food scraps, soil or tree stumps.
 <p>Kerbside clean-up collection</p>	Contract	9	1 April 2023	Up to two cubic metres, four times per year per household on-call. Only toys, beds, mattresses, furniture, household electrical, white goods and garden organics. This contract has a 1 year 14 month extension option.
 <p>Garbage, recyclables, garden organics and kerbside clean-up processing/disposal</p>	Contract	15	31 May 2024	All materials collected from kerbside.



FIGURE 10: (CONTINUED)

WOLLONDILY				
Services covered	Service provider	Contract duration (years)	Contract expiry date	Specific conditions
 Garbage collection	Contract	10	30 June 2015	No medical waste, batteries, tree stumps or building materials.
 Recyclables collection	Contract	10	30 June 2015	Items must not be bagged. Containers to be rinsed. No waxed cardboard or containers contaminated with food.
 Garden organics collection	Contract	10	30 June 2015	Only organic plant material. No food scraps, soil or tree stumps.
 Kerbside clean-up collection	Contract	10	30 June 2015	Up to one and a half cubic metres, twice per year per household. No hazardous materials, medical waste, garden organics, commercial waste, household garbage or chemicals.
 Garbage, recyclables, garden organics and kerbside clean-up processing/disposal	Contract	15	31 May 2024	All materials collected from kerbside.



5.6 Current waste infrastructure in the region

Spring Farm Resource Recovery Facility

The Spring Farm RRF is located in the Camden LGA and is contracted to receive and process kerbside collected MSW from the Macarthur councils and Wingecarribee Shire Council. **Figure 11** provides an overview of the infrastructure in operation at the Spring Farm RRF to process the region's waste.

The Spring Farm RRF occupies 38 hectares of land within the Camden LGA and comprises:

- **Advanced Resource Recovery Technology Facility (ARRT Facility)** – The councils' domestic garbage is delivered to this facility, where it is separated through manual and mechanical separation technology. The organic fraction is transferred to the SAWT facility at Kemps Creek, where it is subject to in-vessel composting, producing low-grade compost. The inorganic fraction is further sorted, with household recyclables re-directed to the MRF on the same site. Inorganics that meet certain criteria are baled and transported off-site for use in an 'energy-from-waste' facility. The residual inorganic material is deposited in the landfill.
- **Landfill** – The landfill is licensed to accept non-putrescible waste only, including the inorganic component of the councils' domestic garbage and kerbside clean-up waste. The landfill also accepts non-putrescible waste from other external sources.
- **Materials Recovery Facility (MRF)** – The MRF receives and processes materials collected from residents' recyclables bins. This facility uses traditional MRF technology. Residual waste rejected from the MRF is re-directed to the ARRT facility for further processing.
- **Garden Organics Resource Recovery Facility** – The current joint contract requires the contents of all residential garden organics bins to be delivered to this facility. Contaminants are manually removed and the garden organics are loaded into airtight concrete tunnels, where they undergo in-vessel composting. The tunnels are

monitored and computer-controlled to maintain specific temperature, moisture and oxygen levels at different stages of the composting process. Upon maturation, the garden organics are removed and transported to the nearby SITA Organics Facility. Here, the garden organics are further screened for contaminants and blended with other materials to create various end-products such as high and low grade compost and soil mixes.

A temporary arrangement currently exists where Campbelltown City Council's garden organics are delivered directly to the SITA Organics Facility for processing.

- **SITA Organics Facility** – Approximately 2km from the Spring Farm RRF is the SITA Organics Facility. This facility operates open windrows for composting organics. On maturation, the organics are blended with other materials to create various end-products such as high and low grade compost and soil mixes. NOTE: The SITA Organics Facility does not form part of the Spring Farm RRF.
- **Resident and commercial drop-off areas** – The Spring Farm RRF operates as a commercial facility, allowing residents and commercial waste collection companies to drop off both putrescible and non-putrescible waste.

Within the scope of the councils' kerbside collected MSW processing and disposal contract exists opportunities for the development of a visitors centre (for site tours, community education and environmental awareness initiatives), a 'revolve shop' and a retail centre for the re-sale of recovered items and products such as mulch, compost and landscaping materials.

Camden and Campbelltown Councils do not own any operational solid waste management facilities. Wollondilly Council owns and operates the Bargo Waste Management Centre. Major licensed infrastructure accessible to the Macarthur region is outlined in **Figure 11**. Smaller, privately operated facilities operate throughout the region that do not meet current thresholds requiring them to be licensed.



Dry waste landfill located at SITA Australia's Spring Farm Resource Recovery Facility

FIGURE 11: WASTE INFRASTRUCTURE ACCESSIBLE TO THE MACARTHUR REGION

Facility type	Name	Location	Licenses	Type of material sent	Contract end date
Materials recovery facility	Spring Farm Materials Recycling Facility	275 Richardson Road, Spring Farm	EPL20021	Recyclables	2024
Recovery facility	Spring Farm ARRT Mixed Waste and Organics Facility	Richardson Road, Spring Farm	EPL12588	Organics	2024
	Benedict Sands - Menangle	Menangle Road, Menangle	EPL3991	Organics	n/a
	SITA Organics	Glenlee Road, Campbelltown	EPL5647	Organics	2024
	W2R	769 The Northern Road, Bringelly	EPL11539	Organics	n/a
Waste treatment facility	Environmental Treatment Solutions	12 Shaw Road, Ingleburn	EPL20076	Hazardous	n/a
Landfill	Bargo Waste Management Centre	Anthony Road, Bargo	EPL6061	Dry waste	n/a
	Veolia Environmental Services Woodlawn Eco Project	619 Collector Road, Tarago	EPL 11436 EPL 11455	Residual	n/a
	Spring Farm Resource Recovery Facility	275 Richardson Road, Spring Farm	EPL5105	Residual	2024
	Glenfield Waste Disposals	Cambridge Avenue, Glenfield	EPL4614	Dry waste	n/a

5.7 Community consultation

The councils conducted a brief community survey during the drafting of the Strategy. The purpose was to determine the level of engagement and satisfaction within the community with the waste services and infrastructure currently provided.

The survey also aimed to assist the councils to better understand and scope more extensive consultation, which will be required to inform planning for the management of waste in the future. Further community consultation will be undertaken at various stages of implementation of the Strategy and in relation to future planning.

5.8 Waste industry consultation

The councils invited representatives from the waste industry to submit comments in relation to their role and interests in the region, as well as provide insights into the issues and opportunities that may need to be considered in the Strategy. The councils invited submissions via the NSW Waste Contractors and Recyclers Association (WCRA).

Veolia Environmental Services submitted a response, detailing current and planned waste management and processing infrastructure comprising:

- **Woodlawn Eco-Project:** a landfill bioreactor recovers energy from residual waste and currently accepts approximately 20% of Sydney's waste
- **Woodlawn Mechanical Biological Treatment Facility:** when completed, this facility will produce compost suitable for rehabilitation of the Woodlawn mine site and will further enhance the resource recovery capacity of the site

- **Camellia Materials Recovery Facility:** this proposed recycling facility will process non-putrescible general solid waste mainly from commercial and industrial sources, kerbside clean-up and general solid waste material
- **Horsley Park Landfill:** methane produced at this facility is piped to the adjoining Austral Bricks site where it is used for brick production, demonstrating the opportunity for landfills to support local energy needs.

The councils' consideration of future infrastructure needs will include options both within and outside the region. Facilities and services in adjoining LGAs and regions capable of processing municipal solid waste, commercial and industrial waste and construction and demolition waste remain options to be considered to assist with Macarthur's future waste management needs to future planning.

The Macarthur Centre for Sustainable

Living provides free composting workshops



5.9 Existing programs and initiatives

Apart from the regular collection of residential bins, a number of resource recovery programs exist throughout the region. The programs are encouraged by both the councils and the EPA in order to minimise waste contamination and to increase resource recovery rates. Many of these programs are free, but require residents to deposit their waste at certain locations.

Annual Household Chemical Cleanout event –

The EPA organises annual chemical waste clean-ups, which are hosted by councils. These events encourage householders to bring unwanted chemicals and hazardous materials to drop-off locations for safe disposal. Keeping chemicals and other hazardous materials out of MSW provides for a safer community and reduces damage to the environment.

E-waste drop off facilities – The appropriate disposal of E-waste is encouraged by the councils through their promotion of the drop-off facilities which have been created across the region under the product stewardship scheme (currently televisions and computer equipment only). Because E-waste can be inconvenient or difficult to drop off, the councils continue to accept E-waste in kerbside clean-ups.

Annual Free Recyclables Drop-off event –

On the first Saturday after New Year's Day, Campbelltown City Council holds a free event at which residents may drop off any items that they would normally dispose of in the recyclables bin. In addition, residents may drop off polystyrene. This event was created following observations that residents had excess recyclables and polystyrene following Christmas and New Year festivities.

Home composting and worm farms –

The use of worm farms and compost bins are encouraged to divert of food waste from the domestic garbage stream. Free workshops are provided for adults and primary school students on how to use these systems.

Development Control Plans – Development Control Plans (DCPs) set out council policies and guidelines on a range of matters, including waste management requirements for residential dwellings and commercial premises, subdivisions, construction and demolition works.

Councils require that Waste Management Plans form part of Development Applications for certain types of developments, including multi-unit and mixed use dwellings. Within the Waste Management Plan, the applicant must identify the amount of waste to be generated and the methods for managing and ensuring resource recovery, recycling and responsible disposal.



Home composting is encouraged across the region in order to minimise the amount of organic material in the waste stream



Love Food Hate Waste Program – *Love Food Hate Waste* is a program developed by the NSW EPA to raise awareness of food waste and its impact. The program is focused on educating the community to reduce food waste by more prudent purchasing and storage and reuse of excess food.

Camden Council's *Project Lunchbox* is supported by the NSW EPA and funded through the *Love Food Hate Waste* program. For more information see www.camden.nsw.gov.au/page/project_lunchbox.html

Wollondilly Council utilises the *Love Food Hate Waste* program to encourage the community to reduce food waste and buy local fresh produce through, for example, the *Wollondilly Harvest Experience*. For more information on this initiative see www.wollondillyharvestexperience.com.au

Macarthur Centre for Sustainable Living (MCSL)

The MCSL is supported by the MACROC councils and the Royal Botanic Gardens and Domain Trust. It is a not for profit organisation that hosts a variety of activities and experiences focused on sustainable living.

The MCSL offers school and community access programs to educate the community about sustainable living and technologies. The MCSL facilitates the councils' community waste education programs targeted at adults and children. These programs include community workshops on home composting, worm farms, keeping chickens and reducing food waste, all with a strong theme of waste avoidance and reduction. In addition to workshops and activities based at the centre, the MCSL provides workshops and interactive learning activities at schools, such as audits of the schools' waste bins and 'Recyc-Olympics' events. The Recyc-Olympic event was developed by Campbelltown Council as a fun way for children to learn the appropriate use of each of the three household waste bins. This event has proven to be popular at both schools and at major community events.

Macarthur Centre for Sustainable Living (MCSL)



Waste and recycling guides and other educational material

The councils produce educational materials to promote good recycling and waste management behaviour and make this information available via websites, brochures, and advertising. The Strategy identifies the benefit in a regional approach to coordinating waste education.

Spring Farm RRF - The councils' kerbside collected MSW processing and disposal contractor provides tours of the Spring Farm ARRT facility to adults and students.

Waste generated through council operations

The councils produce waste, either directly or through their contractors, by ongoing operations including:

- civic centre and other administration building operations
- child care facilities
- libraries
- leisure centres
- sporting facilities
- cultural centres
- tourist information centres
- council-run special events (e.g. festivals, new year's eve event, fun-run, etc)
- community halls
- arboricultural activities.

Some of this waste is diverted from landfill. For example, staff at some council administration buildings have access to separate paper/ cardboard collection and recycling, and recyclables bins similar to those provided to households. Vehicle tyres collected either as illegally dumped waste or from councils' plant and fleet are sent to recycling facilities. Scrap metal collected as part of some council operations is also sent to recycling facilities. Residual waste is collected from the councils' sites by contractors and landfilled.

Building waste, organics and soil generated through council operations

The councils produce building waste, organics and soil through:

- building refurbishment
- building demolition
- building construction
- pavement construction, maintenance or re-construction
- earthworks.

Where possible, materials generated from pavement maintenance and re-construction are reused in further pavement construction projects. More bulky recyclable materials such as concrete are transported to recycling facilities. Residual waste is taken to landfill by either council staff or contractors.

The MCSL provides eco-tours to school children



Children learn how to use the three household waste bins at the Recyc-Olympics

6. Future opportunities

The councils currently achieve a recovery rate/landfill diversion of more than or equal to 66% for kerbside collected MSW, which already meets the NSW Government's 2014 target. To improve on this achievement, the councils have identified the following future opportunities to assist in achieving other key regional and state targets.



Waste and recycling infrastructure needs

The Strategy identifies future waste and recycling infrastructure as a matter of critical importance to the Macarthur region.

The Spring Farm RRF is a privately owned and operated suite of waste processing facilities. It is the only infrastructure within close proximity to the councils capable of processing their kerbside collected MSW. The current processing and disposal contract that allows the councils' access to these facilities expires in 2024, so they must ensure that they will have access to competitively priced and environmentally sound infrastructure beyond this timeframe. To achieve this objective, the councils need a variety of infrastructure options from which to choose.



Management of food waste

Councils recognise that waste avoidance is a priority and that food waste remains a significant portion of domestic garbage. By encouraging residents to produce less food waste, councils can reduce overall volumes and costs.



Education and engagement

The survey conducted as part of the consultation for the Strategy identified an opportunity to consult more widely within the community, and also a need for broader and more targeted education. Additional consultation will be undertaken to understand community views in relation to fees for service, willingness to pay and value for money in relation to service levels. The Strategy focuses on greater use of non-kerbside services and a better understanding of recycling requirements.



Multi-unit dwellings and high turnover occupancy premises

Both multi-unit dwellings and tenanted premises present unique challenges for waste collection and on-site waste management. Areas with high occupant turnover present challenges for education and behavioural change. This area has been identified as a key issue in the Strategy.



Engagement with neighbouring councils and regions

The region shares boundaries with a number of other councils. These councils are also considering waste avoidance and resource recovery options for their LGAs and the regional groups that they work with. Where a mutual benefit is identified between the region and neighbouring councils, wider collaboration on projects may occur.



Problem wastes

Problem wastes are those items that are potentially harmful to users or the environment. The NSW EPA has identified seven problem wastes: paints, oils, gas bottles, car and household batteries, fluorescent tubes and globes and smoke detectors. The Strategy aims to support wherever possible the establishment of facilities under relevant product stewardship schemes, to enable residents to safely and responsibly dispose of problem wastes.



Future waste and recycling infrastructure is a matter of critical importance to the Macarthur Region

The councils will need a variety of infrastructure options from which to choose



E-waste

With the changeover to digital broadcasting and the increase in computers and other electronic goods in the home, the volume of E-waste has seen a steady increase. The Federal Government introduced product stewardship legislation that requires the television and computer industries to contribute to the collection and processing of E-waste. The councils will maintain a role in promoting resident drop-off of E-waste at authorised facilities in the region. Increased resident participation in E-waste drop-off at these facilities is likely to result in a reduction of E-waste in kerbside clean-ups.



Council-generated non-domestic waste

The Strategy identifies opportunities to achieve greater landfill diversion for council-generated non-domestic waste by approaching this issue from a regional perspective.



Funding opportunities

The NSW government has launched a funding package to support the Waste Less, Recycle More program. The councils have opportunities to access grant funding over the next three years to support initiatives that will contribute to the achievement of the state's waste avoidance and resource recovery objectives and targets.



Illegal dumping

The councils have an interest in sharing resources to combat illegal dumping. The cost of legal waste disposal, lack of awareness of proper disposal methods, and financial gain are all motivators for illegal dumping. Some materials collected from illegal dumping incidents and kerbside clean-ups could be recovered for reuse or recycling.



Litter

Littering is as challenging as illegal dumping in terms of identifying, educating and where necessary, penalising offenders. Apart from greater enforcement of littering regulations, the Strategy will focus on education.

7. Strategic direction

The Strategy identifies a number of opportunities to improve waste management performance. These include waste avoidance, reduction of contamination in recyclables and garden organics, addressing the challenging areas of littering and illegal dumping, and extending waste avoidance and recycling initiatives to the councils' non-domestic waste streams. There are also opportunities to ensure that waste collection systems are aligned with the anticipated growth across the region.

The Macarthur councils have the opportunity to help the community achieve environmental and financial benefits by addressing the above opportunities.

A review of the region's current position has identified five key areas:

- **Local and regional planning**
- **Waste avoidance and reduction**
- **Recycling and landfill diversion**
- **Litter and illegal dumping**
- **Management of problem wastes.**

These key areas allow the work already begun by the councils to continue, to address gaps and enhance current efforts. Consideration is also given to the principles of the waste hierarchy, establishing a preference to avoid creating waste in the first instance and to dispose of untreated waste to landfill only as a last resort.

With the anticipated increase in multi-unit dwellings across the region, the councils will need to ensure that their planning and development controls include guidelines and rules that will support the objectives of the Strategy.

VISION

To achieve the best value, most socially acceptable and environmentally sustainable management of waste across the Macarthur region.

MISSION

Sustainable and adaptive management of waste and recovered resources.



STRATEGY

To maximise resource recovery, diversion of waste from landfill and waste avoidance and appropriate disposal of waste through community education, increased engagement with stakeholders and working cooperatively across the region.

AIMS

- Planning for waste and recovered resource processing and disposal for the region beyond 2024.
- Encouraging waste avoidance, with a focus on food waste in particular.
- Removing more recyclable materials from our domestic garbage stream.
- Reducing the levels of contamination in recyclables and garden organics bins.
- Reducing the incidence of littering.
- Reducing the incidence of illegal dumping.
- Applying for funding to support regional initiatives for education, community engagement and enhancement of existing Council-operated services and facilities.

8. Themes

The themes have been developed through identification of priority areas following consultation with stakeholders and the community. The themes take into account the region's ability to achieve the Vision through the development of measureable objectives and achievable targets. They will ensure that the Macarthur region will continue to deliver a waste service that is adaptive and collaborative.

Future regional planning and initiatives will focus strongly towards the Strategy's targeted outcomes, setting the foundation for processing and disposal of waste for the Macarthur region beyond 2024.

THEME 1: LOCAL AND REGIONAL PLANNING

Objective 1.1: Ensure adequate infrastructure to manage the future requirements of regional waste services.

Target: Ensure accessible infrastructure exists for transfer, processing and/or disposal of MSW, for both current needs and needs beyond the term of the current regional contract.

Objective 1.2: Plan the management of regional waste services.

Target: Increase the number of shared services between councils within the Macarthur region and advocate for regional input at a State and Federal level in relevant waste legislation and non-legislative initiatives.

Objective 1.3: Ensure planning controls provide for appropriate waste management conditions for future development.

Target: Include specific waste management conditions in each council's planning instruments.

THEME 2: WASTE AVOIDANCE AND REDUCTION

Objective 2.1: Reduce waste per capita.

Target: Reduce the average weight of MSW per household by 3% by 2017.

THEME 3: RECYCLING AND LANDFILL DIVERSION

Objective 3.1: Review the service options available to residential and commercial properties.

Target: Ensure councils have an appropriate range of waste collection services available to residential and business properties.

Objective 3.2: Facilitate a reduction of contamination levels in the waste streams.

Target: Reduce/maintain each MACROC council's contamination rate in the pre-collection recyclables stream to below 8% by 2017.

Target: Reduce/maintain each MACROC council's contamination rate in the pre-collection organics stream to below 4% by 2017.

Objective 3.3: Facilitate the recovery of resources from waste streams for beneficial reuse.

Targets: Maintain or exceed 66% recovery rate/diversion rate for kerbside collected MSW across the region.

11. Definitions

Australian Packaging Covenant -

the voluntary co-regulatory arrangement between industry and all levels of government. When individual organisations sign the covenant, they agree to undertake certain actions to reduce waste and increase recycling. Those that do not sign the covenant are subject to penalty measures enforceable by state government.

Commercial and industrial waste (C&I) -

solid waste generated by the business sector as a result of institutional, commercial, manufacturing or industrial activity, as well as solid wastes created by state and federal government entities, schools and tertiary institutions. Does not usually include waste from construction and demolition (C&D) activities.

Composting -

the process of controlled biological decomposition of organic wastes. Composting can take place on materials separated from the waste stream either at the source, in the initial stages of a recovery process such as backyard, neighbourhood and regional facilities, or it can be accomplished in large quantities in windrows, static piles and enclosed vessels.

Construction and demolition waste (C&D) -

waste arising from residential, civil and commercial construction and demolition activities, such as fill material (for example, soil), asphalt, bricks and timber. Does not include waste from the commercial and industrial waste stream.

Contamination rate - the amount of material collected for recycling which is subsequently rejected (e.g. due to incorrect material type as a percentage of total recyclable material collected).

Diversion rate - the percentage of the waste stream diverted from disposal.

Domestic garbage - household waste deposited by residents into designated garbage bins. Contents may include items that are non-recyclables, including disposable nappies, sanitary items, food waste, plastic bags and plastic film.

E-waste - any manufactured product containing electric or electronic components. Usually refers to computer equipment, such as desktop and laptop devices, monitors, printers etc, but also includes DVD and video players, MP3 players, televisions, lighting, electronic tools, toys, leisure and sporting equipment, medical equipment, industrial monitoring and control equipment and vending machines.

Extended Producer Responsibility (EPR) -

manufacturers of consumer products should be responsible for the full lifecycle of their products, from original manufacturing to final disposal. EPR is also known as product stewardship, manufacturer responsibility or cradle-to-grave.

Garden organics - waste deposited by residents in their garden organics bins or presented in applicable council clean ups. Contents may include grass clippings, tree prunings and cut flowers.

In-vessel composting - composting in an enclosed container so that the biological decomposition of organic material can be controlled, thereby accelerating the decomposition process and capturing gases to reduce odours.

Kerbside clean-up - the collection of residential waste from the kerbside for items that cannot fit into any of the council provided bins and excludes hazardous waste materials.

Landfill - a site for the disposal of garbage and other waste materials by burial.

Landfill diversion rate - the amount of material not sent to landfill as a percentage of the total waste generated.

Materials Recovery Facility (MRF) - a facility at which recyclable materials are separated into individual commodities using a variety of mechanical and manual sorting techniques. In its basic, mechanised form, a MRF consists of a conveyor belt on which co-mingled recyclables are tipped at one end and, as the belt moves, items are removed according to type. Apart from picking by hand, mechanical separation methods include tumbling drums (trommels), magnets, optical sorters, rotating discs, blown air, inclined moving belts, vibrating trays and rubber flaps and other devices.

Municipal solid waste – solid waste collected by the councils. It includes waste generated from domestic (household) premises and local government activities such as building and repairs, street-sweeping, litter and street tree-logging. May also include some waste originating from commercial activities, office buildings, institutions such as schools and government buildings, and small businesses that use municipal services.

Putrescible waste – organic waste that can decompose, such as food scraps.

Recovery rate – the amount of material recovered or used to generate energy from a product group as a percentage of overall consumption.

Recyclables – Waste deposited by residents in their recyclables bins (commonly known as the ‘yellow-lid’ bin). This includes glass, steel, aluminium and plastic food and beverage containers, clean paper and cardboard.

Recycling – system of recycling in which the generator segregates wastes according to material type and places them in containers for separate collection.

Recycling rate – the percentage of material recycled relative to the total waste generated.

Residual – waste that requires handling in a disposal facility (for example, a landfill) and may comprise non-recyclable waste materials from a MRF or other processing facility or composting operation.

Source separation – physical sorting of the waste stream into its components at the point of generation.

Transfer station – an intermediate facility for the temporary storage of waste, which is then consolidated and transferred by road, or by rail, to a landfill or other facility for disposal or recycling.

Waste hierarchy – the concept that waste should be dealt with according to a structure of actions of decreasing priority, starting with reducing it, then reusing it, then recycling it. In its simplest form, the Waste Management Hierarchy is often given as ‘Reduce, Reuse, Recycle’ but there are other variations including ‘Reduce, Reuse, Recycle, Dispose’, ‘Reduce, Reuse, Recycle, Recover and Residuals Management’, ‘Avoidance, Reuse, Recycling, Recovery of Energy, Treatment, Containment, Disposal’.

