Goulburn Mulwaree Council

Waste Management: Waste and Resource Recovery Strategy

Sustainably managing Goulburn Mulwaree's waste for the long term

Version1.2 - for Public Exhibition

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Executive Summary

Goulburn Mulwaree Council (GMC) is responsible for the collection and disposal of waste generated in domestic premises within the local government area. It also accepts commercial and industrial and some construction and demolition wastes for disposal.

This Waste and Resource Recovery Strategy has been prepared to guide GMC in the discharge of its responsibilities.

In preparing this strategy, Council established a Waste Management Project Team consisting of community members, councillors and council officers. The working party distilled the issues in managing waste into four thematic areas, these being:

- Waste Generation (avoidance);
- Waste Diversion (recovery);
- Waste Disposal; and
- Other

and established the vision of "***Sustainably managing Goulburn Mulwaree's waste for the long term"***.

The Project Team then identified strategies and constraints to achieving the strategy. Actions were then developed to overcome these constraints. These are addressed in a series of Action Tables that are contained in Section 8 of this document and form the substance of the Strategy.

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Glossary of Terms and Abbreviations

Abbreviation / Term	Definition
C&D	Construction and Demolition
C&I	Commercial and Industrial
Council	Goulburn Mulwaree Council
CPEa	Collaborative Planning and Engineering Associates Pty Ltd
Dirty MRF	A MRF that is used for sorting mixed solid waste that contains recyclables
DWM	Domestic Waste Management
EP&A Act	Environmental Planning and Assessment Act 1979
EPA	Environment Protection Authority
EPL	Environmental Protection Licence
GMC	Goulburn Mulwaree Council
GWMC	Goulburn Waste Management Centre
Inert Waste	Waste that will not degrade in the short term, and which has a negligible risk to the environment
KPI	Key Performance Indicator
LGA	Local government area
MRF	Materials Recovery Facility. Generally used to sort recyclable materials
Organic Waste	Wastes of biological origin such as paper and cardboard, food, green and garden waste, animal waste and biosolids and sludges
POEO Act	Protection of the Environment (Operations) Act 1997
Putrescible Waste	Waste that contains matter that will break down under microbiological activity; generally this is organic matter. The NSW EPA classifies Putrescible Waste as General Solid Waste.
Revolve or Reviva	A "tip shop" that sells recovered materials and may also repair items for sale
RID	Regional Illegal Dumping Squad
SEROC	South East Region of Councils
SERRG	South East Resource Recovery Group of the SEROC
Transfer Station	A facility to which waste and recyclables can be delivered for subsequent forwarding to a MRF or landfill
TS	Transfer Station
WARR	Waste and Resource Recovery
WRAPP	Waste Reduction and Procurement Policy

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1. Introduction

Goulburn Mulwaree Council (the Council or GMC), as a local government entity prescribed under the *Local Government Act 1993* is responsible for the collection and disposal of waste generated in domestic premises within the local government area.

The management of waste is one of the core functions of local government within NSW.

The Integrated Planning and Reporting obligations on local government require long term financial planning which, in GMC's case, translates into its Community Strategic Plan. This, along with the rapidly changing nature of waste management technology and practices, more stringent environmental standards, greater community expectations and landfill space rapidly diminishing at the Council's major landfill at Goulburn, the Goulburn Waste Management Centre (GWMC), mean that Council has to prepare a guide for the future to aid it in responsibly fulfilling its waste management obligations. This Waste and Resource Recovery Strategy (the Strategy) is that guide.

1.1 Acknowledgements

Several people have contributed to the development of the Strategy. These include the members of the Council's Waste Management Project Team which comprised councillors Bob Kirk (Chairman) and Sam Rowland, and community members Mrs Margaret Cunningham, Mr Kevin Watchirs, Mr Richard Orchard and Mr Peter Mowle, the Director of Engineering Mr Terry Cooper and the Manager Waste and Recreation Mr Robert Hughes. Their involvement and input is acknowledged.

1.2 Disclaimer

This document has been prepared for a particular purpose, using information made available by the client in accordance with the client's instructions. Users of this document should note the assumptions and approximations used. Any use of the document outside of the stated purpose is at the user's risk.

1.3 About the Goulburn Mulwaree Local Government Area

The GMC local government area (LGA) is situated in the Southern Tablelands of NSW. It covers an area of 3,232 square kilometres and is strategically located on the Sydney-Canberra corridor with good rail and road access. Both the Sydney-Melbourne main highway (Hume Freeway) and railway lines pass through the LGA. Goulburn is within easy commuting distance of both the Southern Highlands and Canberra.

Although there is a local airfield at Goulburn, the nearest major airport is at Canberra about 1 hour away. The International airport at Sydney is around 2 hour's drive from Goulburn.

Goulburn, which is Australia's first inland city and the largest centre within the LGA, plays an important role as the regional service centre for the surrounding rural villages of Marulan, Tallong, Bungonia, Windellama, Tirrannaville, Lake Bathurst, Tarago and Towrang.

1.3.1 A Snapshot of Goulburn Mulwaree Local Government Area's Wastes

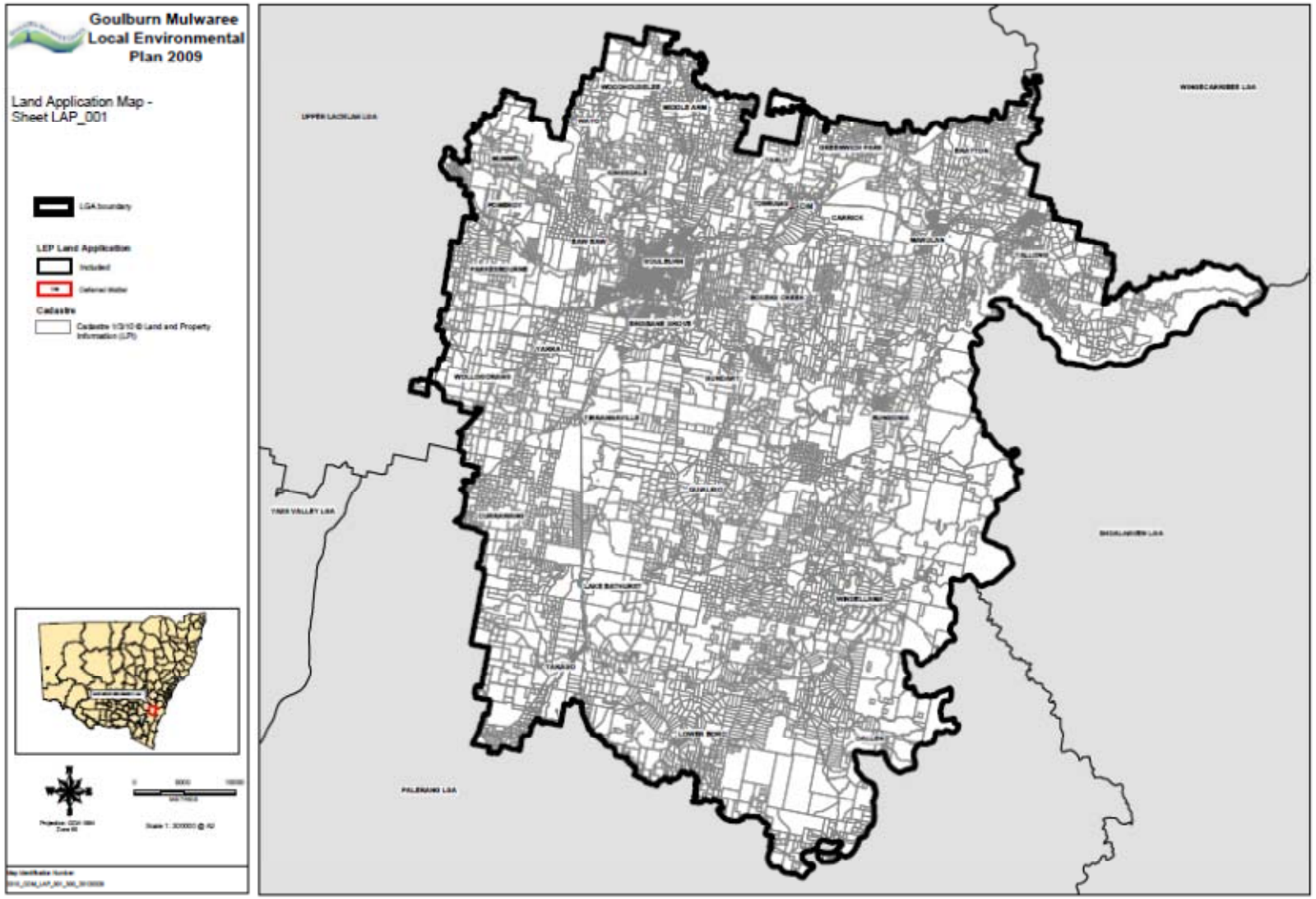
The Goulburn Mulwaree LGA has a population of approximately 28,000 people and is growing at a steady rate. Although the LGA covers an area of 3,220 km^2, the majority of the population are urban dwellers with approximately 10,250 domestic garbage charges levied. There are also 3,000 rural waste cards issued.

Key issues are:

- Approximately 40,000 tonnes of waste is being disposed per annum and this quantity is rapidly increasing
- There is limited landfill capacity which is fast being consumed
- Future landfill capacity will cost anywhere between 5-20 times more to develop than in the past
- The community is currently doing a good job on household kerbside recycling but there is room for improvement
- Business recycling isn't doing so well and needs a major kick-start
- There is a need to improve recycling/recovery of organics and domestic recyclables and construction & demolition waste and to keep these materials out of the landfill
- There is a case to examine domestic kerbside and business waste and recycling collection/processing and disposal systems so as to ensure maximum recovery of recyclable/reusable materials and minimise waste to landfill

Current and future waste infrastructure and services should be reviewed and examined in the light of new core strategic objectives that are developed in the waste strategy.

Figure 1: Map of Goulburn Mulwaree LGA



2. Goulburn Mulwaree Demographics

2.1 Population

The official population as at 30 June 2011 is 28,285. The LGA has generally experienced steady growth with the annual population changes since 30 June 2001 as follows:

Table 1: Estimated Residential Population 2001 - 2011

Goulburn Mulwaree Council area			
Year (ending June 30)	**Number**	**Change in number**	**Change in percent**
2001	26,623		
2002	26,755	+132	+0.50
2003	26,834	+79	+0.30
2004	26,884	+50	+0.19
2005	27,018	+134	+0.50
2006	27,213	+195	+0.72
2007	27,157	-56	-0.21
2008	27,509	+352	+1.30
2009	27,878	+369	+1.34
2010	28,128	+250	+0.90
2011	28,285	+157	+0.56
Source: Australian Bureau of Statistics, Regional Population Growth, Australia (3218.0).			

The long term average increase over the period from 2001 is 166 persons per annum. Since 2007 the average annual increase has been 282 persons per annum.

Projecting these figures forward, if current trends continue, it could be expected that by 30 June 2032 the population of the LGA could be between 31,609 and 34,207 persons.

2.2 Dwellings

The total number of dwellings within the LGA as at the 2006 census was 11,955. At the 2011 census this number had increased to 12,773.

Table 2 below shows the annual change in house building approvals since 2004/05. It is evident that the number of approvals has increased over the past 2 years. This trend is expected to continue as house prices remain relatively high and generally keep increasing in the large urban centres of Canberra and Sydney. Canberra in particular is within easy commuting range of the LGA.

Of the total number of dwellings in the LGA, approximately 3,000 are rural and receive no kerbside waste or recycling collection service.

Table 2: Change in Annual House Building Approvals 2004-5 to 20011-12

Year (ending June 30)	Building Approvals - Houses	Change in Number	% change
2004-05	107		
2005-06	58	-49	54.2%
2006-07	82	+24	141.4%
2007-08	116	+34	141.5%
2008-09	98	-18	84.5%
2009-10	113	+15	115.3%
2010-11	120	+7	106.2%
2011-12	150	+30	125.0%
Source: Australian Bureau of Statistics, Building Approvals, Australia (8731.0)			

The average number of house approvals over the period in **Table 2** is 105.5 pa. Over the last 3 years this has increased to an average of 127.7 pa.

Projecting both of these averages forward to 2032, the number of dwellings in the LGA at that time (assuming that the current trends continue) could be expected to be between 14,989 and 15,454. This is a 22.5% to 25.9% increase over the current number of dwellings.

There is insufficient data currently available to determine the mix of new urban and rural dwelling growth or whether some of the building approvals are redevelopments of existing dwellings. However, the implication for the resource recovery strategy is that waste generation will continue to grow. Without substantial waste minimisation and resource recovery strategies, the domestic waste volume in 20 years' time can be expected to be approximately 25% greater than at present. A similar increase can be expected in the number of properties requiring a domestic collection service. By extrapolation, it is also reasonable to assume that the other waste streams of Commercial and Industrial (C&I) and Construction and Demolition (C&D) could have comparable increases. The Resource Recovery Strategy will have to consider this additional work load and volume of material.

The recent waste audit conducted for GMC has identified that total waste generation is increasing at a rate that far outstrips population growth as shown in **Table 3** below (the line that excludes clean fill). Modern life styles are generating more waste than ever. Regardless of council's ability to influence or impact the waste generation rates, it is its responsibility to manage the waste generated in its area. Under the Local Government Act it is required to provide domestic waste management services. Council could avoid Commercial and Industrial (C&I) and Construction and Demolition (C&D) wastes and leave them to the private waste collection and landfill companies, however these also provide an opportunity to maximise the services and returns to the community.

Table 3: Waste to Landfill

	2009-10	2010-11	2011-12
Goulburn*			

Excluding Clean Fill	18,781 t	21,078 t	23,188 t
Including Clean Fill	36,765 t	42,418 t	36,594 t
Marulan	1,999 t	1,856 t	2,544 t
Tarago	1,200 t	1,109 t	1,365 t
Total **Excluding Clean Fill**	**21,980 t**	**24,043 t**	**27,097 t**
Total **Including Clean Fill**	**39,964 t**	**45,383 t**	**40,503 t**

* includes waste transferred from Tarago

3. Current Position

3.1 General

Goulburn Mulwaree LGA has a population of around 28,924 (2011 Census) residents who live in approximately 11-12,000 dwellings. The Council provides garbage, recycling and garden/food organics kerbside collection services to its residents in Goulburn and Marulan as part of its waste services to the community. Residents and waste generators also have access to three Waste Management Centres located at Goulburn, Marulan and Tarago. Council and a number of Commercial Waste/Recycling Collection Providers service the needs of the business community. There are also a number of small skip bin and trash pack operators collecting waste materials in the area from both households and businesses.

Residents in the serviced areas receive a weekly 140 litre garbage service collected by Council using two dedicated side lift trucks; a fortnightly 240 litre recycling service collected by Endeavour Industries using two dedicated converted tipper trucks with an enclosed cage and side lift setup; and a monthly garden/food waste organics collection service (on a voluntary opt in basis) using a number of Council's rear load trucks.

These residents can also access an annual hard rubbish collection service, which is offered in the third week in September each year. The Goulburn urban area has been divided into five (5) areas for the hard rubbish collection service, with the collections occurring over a five-day period. This service allows residents to undertake an annual household clean up and the ability to dispose of this material free of any Waste Management Centre self-haul charges.

3.2 Council's Waste Management Centres

Council operates three main waste facilities that include the:

3.2.1 Goulburn Waste Management Centre

The site's main features and operations include:

- A weighbridge and gatehouse facility;
- Small Vehicles Transfer Station - includes 4 x 16m^3 bins and 8 car bays; clear/brown/green glass bins sit aside the transfer station; motor oil disposal bin; car batteries set down area;
- Recycling Drop-off Area - cardboard; plastics; steel & aluminium cans; scrap steel set down areas (Metals deposited here are relocated to the main steel pile);
- Garden Waste Drop Off Area;
- Concrete, bricks and tiles stockpile;
- A number of bulk metals stockpiles;
- Two active tipping and landfill areas - one for small domestic and commercial vehicles; and one for larger commercial and trade waste vehicles, along with internal transfer station waste bin disposals. The Centre also has an unused

Reusables or Revolve facility near the Transfer Station which provides potential for much increased resource recovery;

- An asbestos disposal burial pit;
- Bulk mattress stockpile; and
- Bulk TV stockpile.

- Under the current staffing level regime there is only partial supervision of the various public drop-off areas.
- The facility is located at 100 Sinclair Street Goulburn and is open from 8am to 4.45pm, seven days a week, except Christmas day and Good Friday.

3.2.2 Marulan Waste Management Centre

The site's main features and operations include:

- A gatehouse facility (with no weighbridge) and staff amenity room (with no dedicated mains power);
- Recycling drop off area (for cardboard, glass, bottles and cans);
- Garden waste drop off area;
- Bulk metals stockpile area;
- Landfill tip face; and
- Clean fill borrow pit area.

- The facility is located at Wilson Road, Marulan and is open Friday to Monday from 8am to 4.45pm.

3.2.3 Tarago Transfer Station

The site's main features and operations include:

- Utilising a rear loader collection truck, which is parked at the base of a concreted two-space parking bay where residents drop their waste directly into the bowl of the rear loader truck. The material is periodically compacted by the trucks operator throughout the day;
- The rear loader truck is based at the Goulburn Waste Management Centre and travels to and from site daily four days a week. The collected waste material is disposed at the Goulburn WMC daily or as required. This rear load truck is available for other duties on Tuesdays, Wednesdays and Thursdays such as recycling, garden waste, hard rubbish clean-up and trade waste collections.
- There is also a recycling drop off area for the Tarago Transfer Station and recyclable materials are transferred to Endeavour Industries' Materials Recovery Facility (MRF) by Council's hook lift and rear load vehicles.

- The facility is located at Lumley Road Tarago and is open Friday to Monday from 8am to 4.45pm.

3.3 Waste Generation

3.3.1 Overview

Like all communities within Australia, Goulburn's population generates waste on a daily basis that must be managed. Waste is generated at a source where an activity takes place and it is then typically placed into a collection container to be sent for landfill disposal or a form of recycling. Waste is also often stored on premises and only cleared away periodically when there is a Council provided clean up or the waste owner self-hauls the materials to a waste facility or engages a commercial collection company to remove it.

Community waste generation is typically divided up into standard Waste Streams, which include:

- Domestic / Municipal – household waste
- Commercial and Industrial (C&I) – business waste, including Council's own "Operational Waste"
- Construction and Demolition (C&D) – building related waste

3.3.2 Waste Generated Per Person

> "Between 1996-97 and 2006-07, the volume of waste produced per person in Australia grew at an average annual rate of 5.4%. In 1996-97, Australians generated approximately 1,200kg of waste per person. By 2006-07, this had increased to 2,100kg per person. International evidence suggests that economic growth contributes to growth in waste generated per person (Productivity Commission 2006). Australia's economic prosperity over the past couple of decades has contributed to the growing generation of waste. Australians are among the highest users of new technology, and waste from obsolete electronic goods (e-waste) is one of the fastest growing types of waste". (ABS 2006).
> *Source: ABS Web Site –Waste Management Statistics*

Using the above ABS total waste generation rate of 2.1 tonnes of waste per person per year, it is reasonable to anticipate that the Goulburn LGA would generate in the vicinity of 40,000 to 60,000 tonnes per year depending on the level of C&I and C&D waste generation occurring.

This waste material will, however, be managed in a variety of ways depending on who generates it, where it is generated and what services and facilities area available to assist in its management. It is not likely that all of this material will end up being managed by a Council waste facility. Some will be managed by the waste generator themselves in activities such as home composting or worm farming; consumption by chooks and other farm animals; home mulching and reuse; reuse of materials; donations to charities; diverting clean fill to other development sites; holding bulk metals on farms; even burning or burying rubbish on farms; and the like. There are also a number of commercial or private waste operators in the Goulburn LGA that source waste as a business opportunity. Such businesses may seek to directly attract or capture metals, green waste, masonry products and soils which can be processed into other saleable products such as mulches, composts, soil blends, aggregates and ferrous and non-ferrous metals sales.

Table 4: Waste Generation Overview

	2009-10	2010-11	2011-12
Goulburn WMC			
Waste to Landfill (Excluding Cleanfill)	18,781 t	21,078 t	23,188 t
Waste to Landfill (Including Cleanfill)	36,765 t	42,418 t	36,594 t
Green Waste	2,228 t	3,521 t	3,726 t
C&D	573 t	681 t	403 t
Metals	150 t	150 t	150 t
Standard Recyclables	125 t	125 t	125 t
Total (Excluding Cleanfill)	21,857 t	25,555 t	27,592 t
Total (Including Cleanfill)	39,841 t	46,895 t	41,358 t
Marulan WMC			
Waste to Landfill	1,999 t	1,856 t	2,544 t
Green Waste	20 t	20 t	20 t
Metals	100 t	100 t	100 t
Standard Recyclables	5 t	5 t	5 t
Total	2,124 t	1,981 t	2,669 t
Tarago WMC			
Waste to Landfill	1,200 t	1,109 t	1,365 t
Green Waste	5 t	5 t	5 t
Metals	35 t	35 t	35 t
Standard Recyclables	3 t	3 t	3 t
Total	1,243 t	1,152 t	1,408 t
Endeavour Industries			
Total	3,263 t	2,864 t	3, 976 t
Estimated Waste Generation			
Total (Excluding Cleanfill)	28,497 t	31,552 t	35,645 t
Total	**46,481 t**	**52,892 t**	**49,411 t**

Table 5: Kerbside Collected Materials

	2009-10	2010-11	2011-12
General Waste	3,598 t	3,631 t	3,560 t
Green / Food	1,315 t	1,597 t	1, 636 t
Recycling	3,263 t	2,864 t	3,976 t
Clean-up Service	N/A	N/A	161 t
Total Domestic Kerbside	**8,176 t**	**8,092 t**	**9,333 t**

Table 6: Domestic Sector Resource Recovery Rates

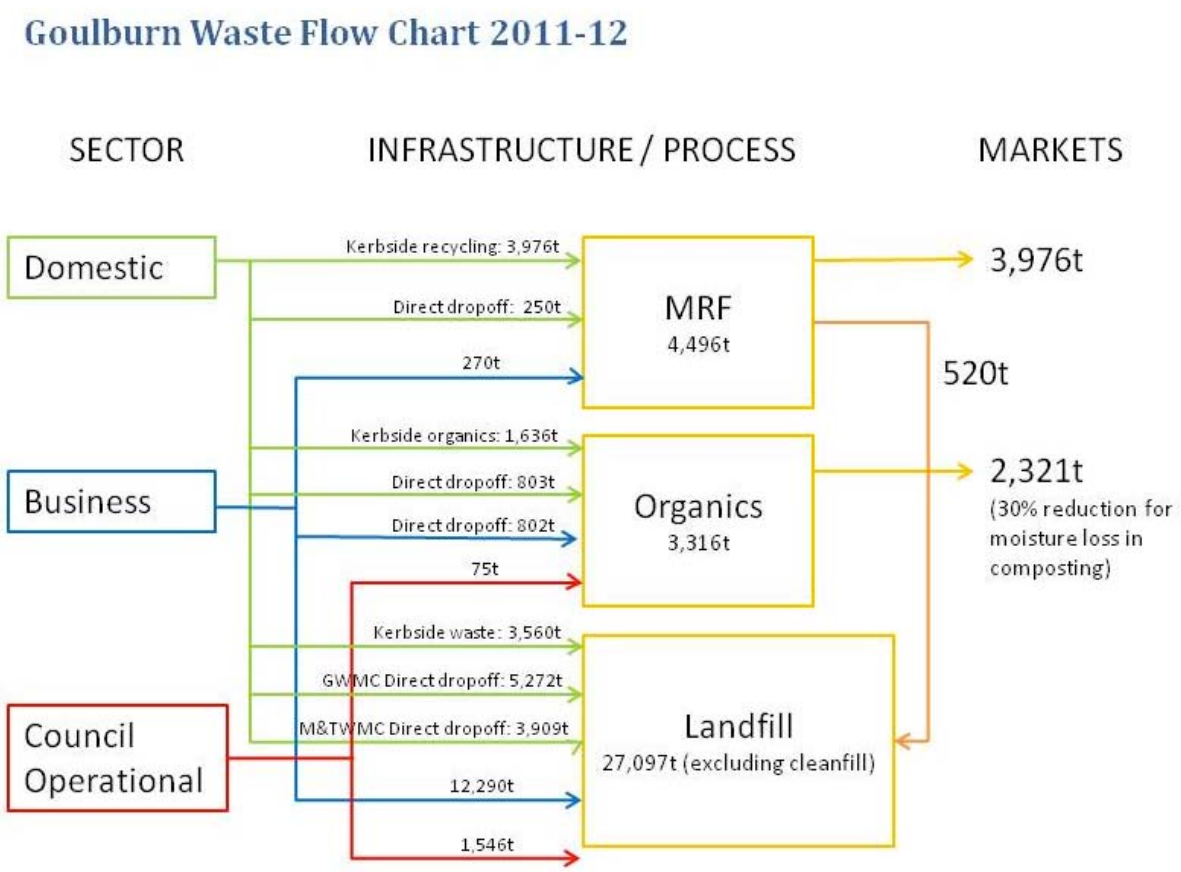
	2009-10	2010-11	2011-12
Goulburn Domestic (Excluding Marulan & Tarago)			

General Waste	3,598 t	3,631 t	3,560 t
Green / Food	1,315 t	1,597 t	1, 636 t
Recycling*	3,263 t	2,864 t	3,976 t
Clean-up Service	N/A	N/A	161 t
Total Domestic Kerbside	**8,176 t**	**8,092 t**	**9,333 t**
Domestic Self Haul (Non-weighed)	6,127 t	6,137 t	5,417 t
Total Domestic Waste Generation	**14,303 t**	**14,229 t**	**14,750 t**
Total Waste to landfill	**9,725 t**	**9,768 t**	**8,977 t**
Total Recycling	**4,578 t**	**4,461 t**	**5,773 t**
Total Resource Recovery	***32%***	***31%***	***39%***
Goulburn Domestic (Including Marulan & Tarago)			
Marulan (Waste to landfill)	1,999 t	1,856 t	2,544 t
Marulan Recycling	125 t	125 t	125 t
Tarago (Waste to landfill)	1,200 t	1,109 t	1,365 t
Tarago Recycling	43 t	43 t	43 t
Total Domestic Waste Generation	**17,670 t**	**17,362 t**	**18,827 t**
Total Waste to landfill	**12,924 t**	**12,733 t**	**12,886 t**
Total Recycling	**4, 746 t**	**4,629 t**	**5,941 t**
Total Resource Recovery	***27%***	***27%***	***32%***

3.3.3 Goulburn Materials Flow Chart

The following figure shows the major waste generators and the resulting materials flow in tonnes for 2011-12 through existing infrastructure and services within Goulburn's current waste management systems. It covers the three main waste streams including Domestic, Business (C&I) and Council's Operational waste. It excludes the Construction and Demolition Sector as data on this sector is not currently available.

Figure 2: Flow Chart of Goulburn's Waste Stream



4. Environmental Considerations

How does a waste and resource recovery strategy impact the environment? Can it make a difference? This section sets out some of the pertinent issues and places activities within the GMC council area within the broader environmental context. However, in considering these issues it should be borne in mind that the key issue is for the Goulburn community to develop the strategy that best serves its local needs but at the same time being mindful of the bigger picture and in the context of external constraints.

4.1 Environmental Sustainability

There is general acknowledgement in the wider community that all is not as it should be in terms of our environment. Decline in species diversity is well documented and more recently, concerns have been expressed, backed by increasing scientific evidence, that the changes in our environment and in particular climate change will impact our lifestyle and may even limit the ability of the planet to sustain life as we know it. The generation and disposal of waste is only one aspect of this complex problem. Through developing a strategy that encourages resource recovery, minimises waste to landfill and which adopts best practice disposal techniques for the facilities at Council's disposal, the Goulburn Mulwaree community will be doing its part to demonstrate that it is acting in an environmentally responsible manner.

There are some terms that are important in the consideration of the concept of Environmental Sustainability. These are (the definitions are taken from Wikipedia):

> **Ecologically sustainable development** is the environmental component of sustainable development. It can be achieved partially through the use of the precautionary principle, namely that if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation. Also important is the principle of intergenerational equity, namely that the present generation should ensure that the health, diversity and productivity of the environment is maintained or enhanced for the benefit of future generations; the conservation of biological diversity and ecological integrity; and improved valuation, pricing and incentive mechanisms, namely that environmental factors should be included in the valuation of assets and services.
>
> These principles can be embodied in the new waste and resource recovery strategy.
>
> **Environmental degradation** is the deterioration of the environment through depletion or damage to resources such as air, water and soil; the destruction of ecosystems and the extinction of wildlife.
>
> Environmental degradation is one of the ten threats officially cautioned by the High Level Threat Panel of the United Nations.

> Environmental degradation is of many types. When natural habitats are destroyed or natural resources are depleted, the environment is degraded.

It is now generally acknowledged that the rate of consumption of the earth's natural resources has far exceeded the planet's ability to replenish them. In other words, as a species humankind's rate of consumption is unsustainable.

Council's response to this could possibly come through the adoption of a Charter of Goulburn Mulwaree Council Waste Roles and Responsibilities e.g. public sanitation, collection, environmentally beneficial reuse of resources and responsible disposal practices as well as cost effectiveness.

The nearest correlation between these factors and Council's Community Strategic Plan[1] (CSP) is with Strategy 4.2.1 which is "to protect, maintain and improve the diversity of our native fauna and flora provided there is a balance between environmental protection, population growth and development". It is clear that the new waste and resource recovery strategy should inform and integrate with future editions of the CSP.

The new waste and resource recovery strategy must clearly align with one of the six strategic goals of the CSP; "A Sustainable Environment".

4.2 Climate Change

Most people in south eastern Australia are gradually becoming aware of the impacts of climate change on their lifestyle, particularly with respect to the temporal distribution of rainfall. Generally speaking, droughts are becoming longer and extreme climatic events more frequent and more severe.

There are anecdotally many contributors to climate change, but scientific research suggests that not least is the production of the greenhouse gases carbon dioxide (CO_2) and methane (CH_4). The former is a major product of the combustion of fossil fuels and so is generated in the extraction, processing, transport, consumption and disposal of natural resources. The latter is a product of the decomposition of organic matter, such as in a landfill and is acknowledged to be approximately 25 times more potent as a greenhouse gas than CO_2. However, methane emissions from landfills are only a very small component of greenhouse gas generation in Australia overall.

It is evident that both the conservation of resources and minimising the quantities of organic matter in landfills will assist in reducing the production of these two greenhouse gases. An added benefit of keeping organic matter (carbon) out of landfills is the opportunity to return at least some of it to regional soils, thereby benefitting not only the global environment but also greatly enhancing local agricultural pursuits. GMC has already recognised the value of this through its active support of the Groundswell organics project. This is also consistent with Strategy 4.3.1 of the CSP "to implement initiatives that address climate change".

[1] *Goulburn Mulwaree Council Community Strategic Plan 2012-2022.* Goulburn Mulwaree Council

5. Legislation and Government Policy

Council must comply with many pieces of legislation and subservient policies, both state and federal, in the performance of its waste management functions. The bulk of the regulation and strategic direction for waste management is a state responsibility. The key legislative instruments are:

- Local Government Act 1993 (LGA). In particular Sections 496, 504 & 510
- Local Government (General) Regulation 2005
- The Protection of the Environment Operations Act 1997 (POEO), particularly Sections 75 & 76
- The Protection of the Environment Operations Amendment (Scheduled Activities and Waste) Regulation 2008
- The Waste Avoidance and Resource Recovery Act 2001 (WARR)
- The Sydney Water Catchment Management Act 1998 (SWCM)
- Work Health and Safety Act 2011 (WHS)
- National Greenhouse and Energy Reporting Act 2007 (Cwth) (NGER)
- Clean Energy Act 2011 (Cwth) (CEA)

A consequence of this legislation is that the operation of the GWMC must also comply with its Environmental Protection Licence (Licence No 6780) and also the Landfill Environmental Management Plan (LEMP) and the Operations Plan for the site. The MWMC does not meet the licensing threshold and so is unlicensed. It does, however, have a voluntary LEMP with which it must comply.

Council must also comply with The Environmental Guidelines: Solid Waste Landfill 1996 (Prepared by the then NSW Department of Environment and Climate Change (DECC)) in the management of its landfills.

As both the GWMC and in particular the MWMC are located within the area that drains to the Sydney drinking water catchment, the requirements of the Sydney Water Catchment Authority must also be adhered to.

5.1.1 Council Policy

The conduct of the waste management business is largely governed by Council's corporate policies and objectives, which are overlain by the Community Strategic Plan 2012-2022. These policies and objectives translate into the four year Delivery Plan and will incorporate not only the direction that Council wants the business to go, but also a number of the externalities such as environmental sustainability that are embodied within these corporate policies and objectives.

Individual actions are contained within the Council's annual Operational Plan.

It is noted that the landfills and other waste management infrastructure such as the Tarago transfer station and mobile garbage bins are significant assets that do not appear to be included in Council's Asset Management Strategy 2011.

The context of these Integrated Planning and Reporting Documents is shown in **Figure 3** below.

Figure 3: Council's Corporate Planning Framework

5.1.2 Stakeholders

There is a wide range of stakeholders for the Council's waste business and the management of waste within the Goulburn Mulwaree LGA. These include:

- Councillors
- Council staff
- Waste collection and transport contractors (council and private)
- Waste and recycling processing contractors
- SERRG
- Government agencies e.g. EPA and SCA
- Customers (domestic, rural and commercial)

5.1.3 SERRG Policy

SERRG is the South East Resource Recovery Group of the South East Region of Councils (SEROC). SERRG is part of a state-wide network of resource recovery groups (collectively known as RENEW NSW) that are funded by the NSW Office of Environment and Heritage and which are charged with developing policies and strategies to assist member councils in achieving targets/goals of the NSW Government's Waste and Resource Recovery Strategy.

GMC is a member council of SERRG. SERRG released its draft Regional Waste Stream Management Strategy 2012-2032 in mid-2012 (RWSMS).

The strategy document indicates that GMC recovered 46.5% of domestic waste collections during 2009/10, the equal 4th best performer in the region (with Queanbeyan City)[2].

As a member council, GMC is committed to endorsing the objectives and actions contained within the SERRG strategy and incorporating them into its own. The Implementation Plan within the RWSMS lists detailed activities for the period to 2012-15, and will be updated every 3 years. The detail of who is to do what and when is yet to be finalised. It would be appropriate for GMC to give in-principle commitment to meet these obligations once they are better defined.

The detailed Implementation Plan is reproduced in **Appendix B**.

5.1.4 Local Government Act 1993

In addition to defining the general constitution, powers and responsibilities of local government in NSW, The Local Government Act 1993 (*LGA*) and in particular sections 496, 504 & 510 requires GMC to collect and dispose of waste from domestic premises within the council area. It also establishes the charging and funding regimes for providing these services.

There is no requirement (or impediment) on councils to collect or accept wastes from industrial and commercial sources. However, as the owner of disposal facilities, councils normally get involved in the receipt and sometimes the collection of these wastes.

Similarly, for the rural community council may become a service provider by default or offer services not provided by the commercial market place, but that meet Council's Waste Strategy objectives or initiatives.

5.1.5 Protection of the Environment Operations Act 1997

The Protection of the Environment Operations (*POEO*) Act 1997 generally regulates activities that impact, or which could potentially impact, the environment. It provides for the licensing of scheduled premises (which includes the GWMC which is covered by Environmental Protection License (EPL) No 6780) and empowers the NSW Environment Protection Authority (EPA) to issue Environment Protection Notices. The Sydney Catchment Authority has similar powers in respect of non-regulated activities in catchment areas (both the GWMC and MWC are within the Sydney catchment areas). The *POEO* also enables regulation of transport of some waste and other hazardous materials.

5.1.6 Protection of the Environment Operations (Waste) Regulation 2005

The Protection of the Environment Operations (Waste) Regulation 2005 establishes requirements relating to non-licensed landfill sites, non-licensed waste activities and non-licensed waste transporting, for e.g. the way in which waste must be stored or transported, reporting and record-keeping requirements. It also provides for the contributions to be paid by the occupiers of scheduled waste facilities (the S88 levy – see section **5.1.10** for more details) for each tonne of waste received at the facility or generated in a particular area and exempts certain occupiers or types of waste from these contributions.

[2] Note: this data has since been updated by the 2012 Waste Data & Information Report

5.1.7 Waste Avoidance and Resource Recovery Act 2001

The purpose of the Waste Avoidance and Resource Recovery (WARR) Act 2001 is to promote waste avoidance and resource recovery. It establishes a scheme to promote extended producer responsibility in place of industry waste reduction plans.

5.1.8 Sydney Water Catchment Management Act 1998

This Act confers powers on the Sydney Catchment Authority, including to regulate certain activities within the confines of the Sydney Catchment Area so as to protect and manage the catchment.

5.1.9 Other State Legislation

There are many other pieces of state legislation that control the way that councils manage their waste operations. Two key instruments are the Environmental Planning and Assessment (*EP&A*) Act 1979 and the Work Health and Safety (*WHS*) Act 2011.

The *EP&A* regulates the process for approving new and amended waste facilities, including landfills, transfer stations, materials recovery facilities (MRF) and Alternative Waste Treatment facilities (AWT) – sometimes referred to as Advanced Waste Treatment facilities. The *WHS* establishes requirements for the health and safety of staff, contractors and visitors at GMC worksites, which include landfills and transfer stations, as well as for collection staff and contractors working for or on behalf of GMC.

In addition, Council must comply with documents such as the Environmental Guidelines – Solid Waste Landfills which sets benchmarks for the construction and operation of landfills, and the Liquid and Non-Liquid Waste Classification Guidelines, both issued by the EPA. The latter assists council is determining what materials are and are not acceptable within its landfills.

5.1.10 NSW Government Policy

Waste Reduction and Resource Recovery Strategy 2007

The NSW Government during 2007 released its Waste Reduction and Resource Recovery Strategy 2007[3] (the WARR Strategy), which sets targets in a number of key result areas. Broadly, these targets are:

Table 7: NSW Government WARR Strategy Targets

Preventing and avoiding waste	To hold level the total waste generated for 5 years from the release of *Waste Strategy 2003*.
Increased recovery and use of secondary resources	By 2014, to: Increase recovery and use of materials from the municipal waste stream, from 26% (in 2000) to 66% Increase recovery and use of materials from the commercial and industrial waste stream, from 28% (in 2000) to 63% and Increase recovery and use of materials from the construction and demolition sector, from 65% (in 2000) to 76%.

[3] *Waste Avoidance and Resource Recovery Strategy 2007* Department of Environment and Climate Change NSW, October 2007

Reducing toxic substances in products and materials	By 2014 or earlier: To phase out priority substances in identified products as a first choice or, if not possible, to achieve maximum recovery for re-use.
Reduce litter and illegal dumping	Reduce total amount of litter reported annually. Reduction in total tonnages of illegally dumped material reported by regulatory agencies and Regional Illegal Dumping (RID) squads annually.

These targets provide a framework for the development of Council's resource recovery strategy. In particular, GMC can best influence the recovery rates from self-hauled waste to landfills through revised landfill management practices, and increased recovery from kerbside collections through education and in particular revised organics collection methodologies.

GMC is recovering around 60% of the materials in the domestic kerbside collection service, which is getting close to the 66% WARR diversion target. However, there is very little recovered from domestic waste self-hauled to the waste management centres.

At the time of preparing this strategy the WARR Strategy Targets were being revised.

Table 8: Domestic Sector Resource Recovery Rates[4]

	2009-10	2010-11	2011-12
Goulburn Domestic (Excluding Marulan & Tarago)			
General Waste	3,598 t	3,631 t	3,560 t
Green / Food	1,315 t	1,597 t	1, 636 t
Recycling*	3,263 t	2,864 t	3,976 t
Clean-up Service	N/A	N/A	161 t
Total Domestic Kerbside	**8,176 t**	**8,092 t**	**9,333 t**
Domestic Self-Haul (Non-weighed)	6,127 t	6,137 t	5,417 t
Total Domestic Waste Generation	**14,303 t**	**14,229 t**	**14,750 t**
Total Waste to landfill	**9,725 t**	**9,768 t**	**8,977 t**
Total Recycling	**4,578 t**	**4,461 t**	**5,773 t**
Total Resource Recovery	***32%***	***31%***	***39%***

[4] Source: *Waste Data & Information Report* - Collaborative Planning & Engineering Associates January 2013

	2009-10	2010-11	2011-12
Goulburn Domestic (Including Marulan & Tarago)			
Marulan (Waste to landfill)	1,999 t	1,856 t	2,544 t
Marulan Recycling	125 t	125 t	125 t
Tarago (Waste to landfill)	1,200 t	1,109 t	1,365 t
Tarago Recycling	43 t	43 t	43 t
Total Domestic Waste Generation	**17,670 t**	**17,362 t**	**18,827 t**
Total Waste to landfill	**12,924 t**	**12,733 t**	**12,886 t**
Total Recycling	**4, 746 t**	**4,629 t**	**5,941 t**
Total Resource Recovery	***27%***	***27%***	***32%***

Table 8 above reveals that GMC is well short of achieving the state WARR targets although the overall recovery rate is slowly improving.

Increasing recovery from the commercial, industrial and construction sectors is not as easy and GMC has less control over these. However, with improved waste management facility management practices and revisions to market impacts i.e. fees and charges, substantial improvements are still attainable.

Landfill Levy

The NSW Government imposes a landfill levy (the S88 Levy) on the deposition of waste in what is known as the regulated area. At the present this only includes the Sydney metropolitan area (SMA), the extended regulated area (ERA) including the Illawarra and Hunter regions and the Regional Regulated Area (RRA) which encompasses the north coast of NSW and the Blue Mountains.

The levy is currently $107.80/tonne in the SMA and the ERA and $53.70/tonne in the RRA. The SMA levy is forecast by 2016 to be $128/tonne + CPI. The levy is designed to encourage resource recovery and recycling.

GMC is currently outside the regulated area but on the border with the levy boundary (ERA). A high risk factor is associated with allowing waste into the LGA from levy areas as this could potentially attract EPA attention and moves to stop the migration of waste from a levy area to a cheaper non-levy area by "pushing" Goulburn into a levy situation.

Council has the ability to establish a policy to cease this waste migration and avoid any such regulatory attention and risks of significantly more costly waste to landfill charges.

At the time of writing the NSW Government is consulting with a view to extending the levy across the rest of NSW, possibly with small regional landfills receiving less than 5,000 tonnes of waste per annum remaining exempt from the levy. Prudence suggests that GMC should manage its waste business on the assumption that the levy could be extended at some time in the near future.

Councils that are subject to the waste levy actively seek to reduce the quantity of waste that they dispose to landfill as a means of reducing their levy liability. GMC should do likewise so that it not only maximises the life of its landfills, but so that it has the necessary processes in place should the levy be extended to include the GMC LGA.

The Waste Reduction and Purchasing Policy

In September 1997, the NSW Government introduced its Waste Reduction and Purchasing Policy (WRAPP). The WRAPP requires all state government agencies including State Owned Corporations to develop and implement a WRAPP Plan to reduce waste and increase the purchase of recycled content materials.

It also contains a proposal committing the NSW Government to become carbon neutral by 2020.

The WRAPP is not binding on non-state government agencies, including GMC. However, it sets a useful framework for targeting sustainability in day to day operations and its pursuance would be a good demonstration to the community of corporate responsibility in sustainability.

5.1.11 National Waste Policy

In late 1999 the Federal Government released its National Waste Policy: Less Waste More Resources (NWP).

This document has been endorsed by State Environment Ministers and establishes an overall framework for Australia to reduce waste to landfill up until 2020.

The aims of the *NWP* are to:

- avoid the generation of waste, reduce the amount of waste (including hazardous waste) for disposal, manage waste as a resource and ensure that waste treatment, disposal, recovery and re-use is undertaken in a safe, scientific and environmentally sound manner, and
- Contribute to the reduction in greenhouse gas emissions, energy conservation and production, water efficiency, and the productivity of the land.

There are a number of principles, which seek to guide an outcome of less waste and more resources by 2020 in 8 different areas as follows:

Where we want to be in 2020:

1. Australia manages waste, including hazardous waste, in an environmentally safe, scientific and sound manner, and has reduced the amount per capita of waste disposed.
2. Waste streams are routinely managed as a resource to achieve better environmental, social and economic outcomes, including saving water, energy, greenhouse gas emissions and finite resources, and to increase productivity of the land.
3. Australia has increased the amount of products, goods and materials that can be readily and safely used for other purposes at end of life.
4. Opportunities to safely manage, reduce and recycle waste are available to all Australians, including approaches that have been tailored to meet the needs of remote and rural communities.
5. The risks associated with waste and hazardous substances are understood and managed to minimise current and intergenerational legacy issues.
    - Australia manages its products, materials and chemicals that contain potentially hazardous substances, in particular those that are persistent, bio-accumulative and toxic, consistent with its international obligations and using best available evidence, techniques and technologies.

- Local stockpiling of hazardous waste has been significantly reduced, particularly for rural and remote areas.
- There are consistent and clear requirements for disposal of hazardous material, and for content labelling of manufactured goods, that also provide a level playing field for Australian manufacturers and importers, and informs consumers.

6. The interaction of regulatory frameworks and operational processes across government agencies aligns with world's best practice and facilitates waste avoidance, resource recovery and appropriate end of life management arrangements within their own operations as well as by business and the community.
7. There are efficient and effective Australian markets for waste and recovered resources, and local technology and innovation are sought after internationally.
   - Businesses, including those in manufacturing and the supply chain, embrace innovations that support the creation of value from potential waste streams and minimise their environmental footprint.
   - As part of a seamless national economy, there is a consistent and coherent regulatory environment that facilitates business activity in resource recovery and waste management.
8. Governments, industry and the community have embraced product stewardship and extended producer responsibility approaches.
   - Product stewardship and extended producer responsibility is adopted in business operations, leading to improvements in the design, longevity and disassembly of products, a reduction in hazardous content, less waste and more thoughtful consumer choices.

The policy sets out 6 key directions and 16 priority strategies that are to be either conducted or coordinated nationally. These are now starting to be enacted and include strategies such as product stewardship, the national television and computer recycling scheme and a recently released (September 2012) Food and Garden Organics Best Practice Collection Manual.

5.1.12 Clean Energy Legislative Package (Cwth)

In July 2011 the Commonwealth Government enacted a raft of legislation aimed at slowing the impacts of climate change through the provision of a clean energy future.

The major thrusts of this legislation relevant to GMC include:

- Carbon Pricing Mechanism:
  The Carbon Pricing Mechanism imposes an initial price from 1 July 2012 of $23/tonne CO_2-e (carbon dioxide equivalent) on major energy users and CO_2 emitters. This is the price that is to be paid for "carbon permits" and will increase at 2.5% pa in real terms for the first 3 years. From 1 July 2015 it will be revert to a "cap and trade" emission trading scheme with the price linked to the European emissions trading market.

  Owners of landfills will be required to purchase permits when their landfill emits more than 25,000 t CO_2-e annually. Emissions from legacy waste (that is waste that is already in the landfill prior to the commencement date of 1 July 2012) are included in assessing the 25,000 t CO_2-e threshold. However, permits will not have to be purchased for the emissions from the legacy wastes.

Future regulation will be made in 2015 with respect to landfills that emit more than 10,000 t CO_2-e and are within a prescribed distance of a large (>25,000 t CO_2-e) landfill. At present these landfills are not "captured" by the legislation but may be in the future.

There is currently a question as to whether the GWMC is caught by this legislation. If it is, this has major cost implications for the operation of the facility and for waste disposal within the LGA. The waste strategy should be able to mitigate these through ensuring reduction in the quantity of material overall that is landfilled as well as dramatically reducing the proportion of organics landfilled. Organics are the major contributor to landfill gas generation.

- Carbon Farming Initiative
  The Carbon Farming Initiative contains incentives for the farming, forestry and land sectors to reduce carbon pollution and increase the amount of carbon stored on the land. Land managers can earn carbon credits by storing carbon or reducing greenhouse gas emissions on the land. These credits can then be sold to people and businesses wishing to offset their emissions. This obviously has major incentives for landfill owners in reducing their emissions or sequestering carbon. However, it will only apply to emissions from legacy wastes and not from those placed in a landfill after 30 June 2012.

5.1.13 National Greenhouse and Energy Reporting Act 2007 (Cwth)

The National Greenhouse and Energy Reporting (*NGER*) Act 2007 introduced a single national framework for reporting and dissemination of information about greenhouse gas emissions, greenhouse gas projects, and energy use and production of corporations.

The objectives of the NGER Act as quoted on the Clean Energy Regulator web site are to:

- underpin the introduction of an emissions trading scheme;
- inform government policy formulation and the Australian public;
- help meet Australia's international reporting obligations;
- assist Australian, state and territory government programs and activities, and
- avoid the duplication of similar reporting requirements in the states and territories.

Corporations that meet a National Greenhouse and Energy Reporting (NGER) threshold must report their:

- greenhouse gas emissions
- energy production
- energy consumption, and
- other information specified under NGER legislation.

The reporting threshold is currently set at 25,000 t CO_2-e pa. GMC is thought to be below this threshold and so does not have to report. However, given the projected growth in population and hence waste generation, there is no certainty that this will remain the case. To address this GMC should be actively seeking to reduce waste to landfill through increased resource recovery and in particular, the diversion of organic materials away from the landfill.

5.1.14 National Greenhouse and Energy Reporting (Measurement) Determination 2008 (Cwth)

The National Greenhouse and Energy Reporting (Measurement) Determination 2008 (*the Determination*) was made under subsection 10 (3) of the *NGER* Act and provides methods, and criteria for methods, for the estimation and measurement of the following items arising from the operation of facilities:

a. greenhouse gas emissions;
b. the production of energy; and
c. the consumption of energy

The reporting of gaseous emissions from landfills is particularly covered in Chapter 5 of *the Determination*. The estimation of emissions is a complex matter that is evolving as new research is conducted.

5.1.15 Product Stewardship Act 2011 (Cwth)

The Product Stewardship Act (*PSA*) 2011 paves the way for any number of product stewardship activities and schemes to be set up, as well as for existing schemes and projects to be accredited.

Products currently on the *NWP* implementation plan for product stewardship action include televisions and computers, packaging, tyres and mercury containing lights.

A Regulation for the National Television and Computer Recycling Scheme came into effect in November 2011. This is an **Extended Producer Responsibility (EPR) Scheme** in that it requires the manufacturers or importers of equipment such as televisions, computers and printers to collaborate in recovering or recycling end of life product.

Additionally, there is a voluntary product stewardship scheme for used tyres. There is also a scheme for used oil, in which GMC participates through accepting used oil at the various waste management centres, and a National Environment Protection Measure (NEPM) is in place on Used Packaging Materials. The Department of the Environment, Water, Heritage and the Arts is working cooperatively with the plastics industry to better utilise end of life plastics.

A detailed listing of the status of EPR schemes in NSW as at December 2010 is attached in **Appendix C**.

6. Key Recommendations from Waste Audit

In 2012 Council commissioned a Waste Data and Information Report to better understand the current waste management systems, approaches and practices within the LGA, as well as an assessment of the composition of the various waste streams. This section presents for Council's consideration relevant summarised key recommendations from this report:

- Review allowing the acceptance of commercial waste that is generated from outside the Goulburn LGA and delivered to the Goulburn Waste Management Centre by commercial collection companies that are also based outside the Goulburn LGA;
- Consider upgrading the current monthly household organics collection service to a fortnightly service and re-issuing domestic kitchen food waste separation bins that don't require biodegradable bin liner bags;
- Consider utilising two automated side lift trucks to deliver the upgraded kerbside organics collection service and the current recycling collection service on alternative weeks;
- Consider the feasibility of installing a second outbound weighbridge at the GWMC and establishing weight based charges for materials delivered (with a minimum usage charge) for commercial (and possibly domestic) users;
- Consider closing the Small Vehicles Landfill/Tip-face (the second tip face at the GWMC) and requiring all small vehicles to utilise the transfer station facility. Also require transfer station bins to be weighed at the Weighbridge before waste is deposited in landfill to provide accurate data on the self-haul waste stream; should the levy be extended this will almost certainly be a mandatory requirement;
- Investigate the possibility of establishing social enterprise approaches to recovery of recyclables in the direct drop-off waste stream and specific items such as mattresses;
- Investigate options to minimise cash transactions at WMC's and to provide customers with convenient electronic payment methods;
- Develop an education and promotion strategy that encourages rural waste generators to source separate standard recyclables and organics and to deposit these materials in designated recycling areas at WMC's;
- Install specific and readily identifiable recycling stations and containers (including instructional signage) at under desk, copier rooms, kitchen and suitable operational areas within Council facilities.

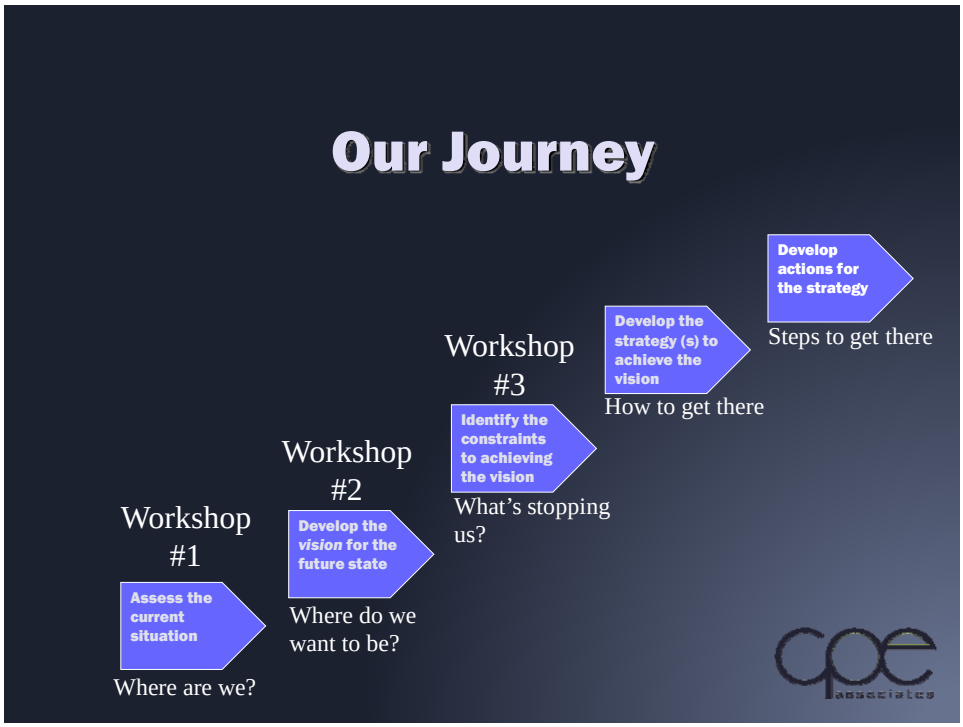
7. Strategy Development Process

The following process was followed in developing the Strategy to ensure that it takes account of relevant factors:

i. Preparation of a background position paper.
This paper describes the environment in which GMC operates including descriptions of the physical, demographic and legislative parameters and environmental considerations. It also describes the services provided by the Council.
The majority of the content of the background paper has been incorporated into this Strategy document.

ii. Council established a Waste Management Project Team consisting of community members, councillors and council officers.

To assist the project team the following program was developed:



The Project Team held three workshops where issues pertaining to the strategy were progressively developed. The 3 workshops focussed on:

a. Assessing the Current Situation and identifying themes and related issues for consideration

b. Developing a Vision for the Strategy

c. Identifying the constraints to achieving the vision

The outputs from the workshops have been used to develop a draft Strategy for further consideration by the Waste Management Project Team.

7.1 Working Party Workshop Outputs

Table 9 lists the outputs from the first workshop.

The issues that were identified in this workshop were grouped into 4 thematic areas:

- Waste Generation (avoidance);
- Waste Diversion (recovery);
- Waste Disposal; and
- Other

Using these themes and reviewing other existing Waste Strategies a number of potential strategies and issues were identified. These were:

- Less Waste Generated;
- Maximising Resource Recovery in the Waste Stream;
- Best Practice Operation;
- Future Disposal Options; and
- Enforcement.

Table 9: Themes and Issues Identified from First Workshop

Themes	Related Strategies from Other Sources	Suggested Strategies	Related Issues Identified in First Working Party Meeting
Waste Generation (Avoidance)	Promotion and Awareness	Less Waste Generated	Waste Education
	Advocacy		Advocacy
	Planning Controls		Minimising packaging waste
	Less Waste Generated		Lead by Example
Waste Diversion (Recovery)	Maximising Resource Recovery	Maximising Resource Recovery in Waste Stream	Reducing the amount of material going to landfill
	Price Control		Maximising recovery and recycling
	Full resource Recovery		Maximising waste streaming
	Integrated Thinking		Increasing the range of materials that can be recycled
	Business Development and Employment		Value adding to the waste stream
	Over-turning end of pipe status of LG		Reducing the amount of material going to landfill
	Services		Waste diversion at the waste management centre 'gate'
	Future Pricing		Waste diversion at the landfill face
	Diversion of Organics		Management of organic and household

Themes	Related Strategies from Other Sources	Suggested Strategies	Related Issues Identified in First Working Party Meeting
			waste
	Pricing and Forward Planning		Using the management of waste to generate local employment
	Levels of Service - Collection		
	Levels of Service - Disposal	Pricing	Pricing to encourage recovery and recycling
	Resource Recovery		
	Home Composting		
	Illegal Dumping		
	Tourism		
	Public Place Recycling		
	Structural Manipulation		
	Example		
Waste Disposal	Best Practise Operation	Best Practise Operation	Maximising/extending the life of waste management centre
	Landfill Extension		Improved landfill compaction
	carbon neutral waste sector		Management of waste generated outside Goulburn Mulwaree
	Landfill management		Funding closure costs
	Future Landfill options	Future Disposal Options	Alternate locations to dispose of waste
	Enforcement		Expansion of the Goulburn Waste Management Centre
		Enforcement	
Other	Continuous Improvement		Setting of achievable benchmarks for waste targets
	Improving SERRG Operation		Financial planning for the future
	A clean environment		Planning for potential future changes
	Carbon neutral waste sector		Paying today for savings tomorrow and options to minimise the effects and encourage intergeneration equity
	Illegal Dumping		
	Financial Planning and Waste Management		
	Finances		
	Environment		
	Asset Management		
	Human Resources		
	Finance		
	Governance and Risk		

The second workshop established the Vision for the Strategy as "***Sustainably managing Goulburn Mulwaree's waste for the long term"***. It also considered themes and strategies for consideration in the strategy.

The third workshop reviewed the themes and draft strategies developed in the second workshop and identified constraints for the draft strategies and issues.

The issues and their constraints are a shown in **Table 10** below.

To achieve the vision, it is necessary to address the constraints, so they have been used as the basis for developing the detailed strategies and actions that form the basis of this Waste and Resource Recovery Strategy.

Table 10: Constraints Identified in 3rd Workshop

Issue	Constraints Identified
Waste Education	* Limited budget for Waste Education Officer - Funded 2 days per week * Contractual arrangements at schools and in commercial sector
Advocacy	Limited control and influence at a local level
Packaging Waste	* Limited control and influence at a local level * Commercial Practice * Identifying genuine markets for products
Lead by Example	* May come at additional cost. How is it funded?
Reduce Waste to Landfill	* current service levels encourage landfilling * staff levels do not support separation of recycle products etc
Increasing Range of Recyclable materials	* Limited capacity at the local level * Access to ready markets * Systemic inertia e.g. slow uptake on e-waste etc * better education on recycling * lack of current information on what is recyclable
Value adding to the waste stream	* Limited capacity at a local level * economy of scales (volumes of materials generated) * distance to markets
Waste diversion at the WMC gate	* technology i.e. weighbridge and software * weighbridge location and site layout * staffing levels
Waste diversion at the landfill face	* staffing levels * site layout - ready access to recycling areas
Management of organics and household waste	* frequency and type of service provided * competition with C&I sector * reuse of materials - end market
Local employment generation	Engagement with local businesses
Pricing to encourage recovery and recycling	* Capacity of community to pay * Political willingness * Private industry engagement (e.g. mattresses) * Illegal disposal
Maximising life of GWMC	* Reducing the volume of waste going to landfill * amount of clean fill being landfilled
Improved landfill compaction	Adequacy of landfill equipment

Issue	Constraints Identified
Waste emanating outside the LGA	Difficult to identify and police eg mixed commercial loads
Funding closure costs	* Political willingness * Future legislation
Alternate disposal locations	* Limited choice and distance to alternate locations * Transport costs
GWMC Expansion	Cost and approval process
Enforcement	* Political willingness * Resources
Setting benchmarks for targets	Knowing what is achievable
Financial planning for the future	Willingness to implement
Planning for potential future changes	Foreseeing the future e.g. where is carbon pricing heading, expansion of Section 88 levy
Managing intergenerational equity	Political willingness

The detailed strategies and actions required to deliver the Vision are developed in the following Chapter.

8. The Waste and Resource Recovery Strategy

Using the information obtained in the first 3 Working Party workshops, the following strategies, actions and associated timeframes have been developed

8.1 Theme: Waste Generation (Avoidance)

8.1.1 Strategy: generating less waste

Table 11: Generating Less Waste

Issue	Constraint	Actions	Timeframe
Waste Education	Limited Budget (funded 2 days per week)	• **Allocate a portion of waste revenue for education with the aim of increasing the number of days per week** • Prioritise education topics and target initiatives to maximise strategy outcomes • Actively pursue grant funding for education initiatives • Further pursue opportunities to resource-share education with neighbouring councils and / or SERRG • Require education as a component of any waste / recycling collection contracts (including day-labour collection service) • Conduct periodic community surveys to gauge effectiveness of education programme outcomes and initiatives	• 2014/15 • Ongoing • Ongoing • Ongoing • Ongoing • 2014/15 and every 4 years thereafter
Advocacy	Limited control at a local level	• Prioritise issues for advocacy based on importance and relevance • Be proactive in advocating for industry-wide issues e.g. packaging covenant, e-waste • Develop and leverage strategic partnerships e.g. with SERRG and LGA	• Annually • Ongoing • Ongoing
Minimising Packaging Waste	Limited control at a local level	• Engagement with C&I Sector to better manage their wastes (both in purchasing and disposal) • GMC to incorporate packaging requirements (e.g. take back) in procurement • Develop waste minimisation guidelines such as: o WRAPP (for GMC) o Waste-not chapter in the GMC Local Environment Plan	• 2015/16 • 2014/15 • 2014/15
Lead by example	Funding additional cost	• GMC to identify the products currently purchased that could be replaced with recycled products • In conjunction with Education strategy, GMC can work at maximising resource recovery from office buildings and operations and demonstrate to the community how it can / should be done for little or no additional cost • Adopt and promote use of WRAPP • Measure waste generated in GMC operations and establish resource recovery targets as Key Performance Indicators (KPI) • Maintain waste management facilities to high environmental standards commensurate with	• 2014/15 • 2014/15 & ongoing • 2014/15 • 2015/16 • Ongoing

Issue	Constraint	Actions	Timeframe
		obligations and funding constraints	

8.2 Theme: Waste Diversion (Recovery)

8.2.1 Strategy: maximising resource recovery from the waste stream

Table 12: Maximising resource recovery from the waste stream

Issue	Constraint	Actions	Timeframe
Increasing the proportion of recycled product	Service levels encourage landfill vs recycling • Maximising recovery & recycling • Maximising waste streaming	• **Review domestic kerbside collection service to encourage recycling and resource recovery e.g. collection frequency, number, type and size of bins** o Establish a community based committee o Review kerbside recycling collection frequency o Review kerbside organics collection frequency • Encourage home-based composting (also links to education) • Prepare a business case to provide a commercial (C&I) recycling service • Investigate options to incorporate food and garden organics into the domestic kerbside collection service • Investigate options to provide a commercial food organics collection service • Identify a location separate to GWMC for organics drop-off and processing (possibly partnering with a private service provider) or encourage diversion elsewhere • Investigate options to recover clean timber and use for mulch/firewood/add to compost • When establishing or renewing contracts negotiate performance specifications for MRF and other materials recovery • Prioritise actions towards areas of poorest recovery performance (anecdotally the commercial and rural sectors)	• 0/09/2014 • 30/06/2014 • 31/03/2014 • 30/06/2015 • 31/03/2015 • 31/03/2014 • 30/06/2014 & ongoing • Ongoing • Ongoing
Increasing the materials that can be re-used or recycled	Limited capacity at a local level	• Seek opportunities to recover a broader range of materials e.g. fluorescent tubes • Review opportunities for C&D recovery (soils, recycled concrete and masonry) and means for achieving this (will require liaison with C&D sector and education input) • Review potential for increased organics recovery e.g. household and commercial food waste, biosolids	• Ongoing • 31/12/2015 • 30/09/2014

Issue	Constraint	Actions	Timeframe
Value adding to the waste stream	Limited capacity at a local level	• Provide incentives for recovered materials processors to establish in Goulburn. Consider opportunities for Revolve type operation and vertical integration in the business community • Examine opportunities for pre-processing (e.g. dirty MRF) and / or for improving transport economies to market	• Ongoing • 30/06/2016
Reducing the amount of material going to landfill	Staffing levels	• Review and optimise staffing at GWMC to maximise resource recovery and landfill life within the bounds of financial capacity and corporate objectives. Note requirement of EPA licence re staffing • Partner with organisations such as Resource Recovery Australia (affiliated with Community Recycling Network Australia (CRNA)) http://communityrecycling.com.au/ and identify projects for LG that would suit Goulburn	• 30/06/2014 & ongoing • Ongoing
	Possible introduction of S88 levy or other impost	• Monitor legislation for possible impacts e.g. S88, Clean Energy Act • Commence accurately recording material flows on and off site • Review clean fill receipts versus site requirements	• Ongoing • 31/12/2013 • 31/03/2014
Waste diversion at the GWMC gate	Limited technology (weighbridge and software) plus the design of the weighbridge	• Review GWMC site entry procedures • Identify, prioritise and cost preferred weighbridge software and site entry layout requirements in light of revised strategy • Implement documented requirements subject to funding availability • Review Rural Waste Card scheme	• 31/03/2014 • 31/03/2014 • Ongoing • 31/03/2014
Waste diversion at the landfill face	Staffing levels and access to recycling areas to encourage recycling	• Review and optimise staffing at GWMC to maximise resource recovery and landfill life within the bounds of financial capacity and corporate objectives. Note requirement of EPA licence re staffing • Consider mechanisms to encourage staff participation in resource recovery programmes • Revisit layout of GWMC and improve drop-off areas to encourage and facilitate separation • Investigate removal of all but large vehicles from tipping face and redesign small vehicle drop-off and transfer station, including enclosed area to manage litter • Review recycling drop-off facilities to encourage recycling • Investigate recovery of items for reuse and repair in partnership with commerce or social enterprise e.g. Reviva tip-shop type operations. Include mattresses and tyres	• 31/03/2014 & ongoing • 31/12/2014 • 30/06/2014 • 30/06/2014 • 30/06/2014 • 31/12/2014
Management of organic and	Frequency of service provision	• Review domestic kerbside collection service to encourage recycling and resource recovery e.g.	• 30/06/2014

Issue	Constraint	Actions	Timeframe
household waste		collection frequency, number, type and size of bins	

8.2.2 Strategy: using pricing to direct behaviour and provide for the future

Table 13: Using pricing to direct behaviour and provide for the future

Issue	Constraint	Actions	Timeframe
Pricing to encourage resource recovery and recycling	Increase in illegal dumping	• **Review opportunities for creation or participation in a Regional Illegal Dumping (RID) squad through consultation with SERRG & EPA** • Actively pursue prosecution of offenders and publicise	• 30/06/2014 • Ongoing
	Capacity of the Community to pay	• **Review price controls so that they encourage separation of recoverable materials and also acceptance of clean fill only when it's needed** • Ensure pricing reflects User Pays and eliminates cross-subsidisation • Ensure that pricing takes into consideration the whole cost of waste disposal, including landfill closure and monitoring costs and provision for development of new/replacement facilities. • Ensure clear separation of domestic waste charges from other waste related activities and that DWM pays its share of waste disposal costs	• Ongoing • Ongoing • Ongoing • Ongoing
	Political willingness	• Develop financial model and long term financial plan for waste, including site closure and replacement funding	• 31/3/2015

8.3 Theme: Waste Disposal

8.3.1 Strategy: conducting operations at or near Best Practise

Table 14: Conducting operations at or near Best Practise

Issue	Constraint	Actions	Timeframe
Maximising/extending the life of the waste management centres	Reducing the volume of material going to landfill	• Review operations to ensure maximum space utilisation (e.g. compaction or other processing equipment and methodology), cell sequencing, finished levels, cover alternatives (refer Sec 8.2.1) • Review options to improve record keeping of materials received and removed from the site i.e. weigh all vehicles in and out • Consider alternate disposal locations (refer Sec 8.3.2) • Target problematic wastes e.g. asbestos, animals, for receipt via booking system only • Investigate options to coordinate operations with new Endeavour MRF premises	• 31/12/2014 & ongoing • 30/06/2014 • Ongoing • 30/06/2014

Issue	Constraint	Actions	Timeframe
			• 31/12/2014
Improved landfill compaction	Current age, condition and appropriateness of existing compaction equipment	• Review equipment for appropriateness • Review options to supply equipment from landfill budget or from plant fund • Assess whether plant should be owned, leased or contract • Prepare and implement Asset Management plan for landfill equipment	• Ongoing • 31/09/2014 • 31/09/2014 • 31/09/2014
Management of waste generated outside Goulburn Mulwaree	Difficult to identify waste origins	• Establish procedure to identify wastes brought for disposal from outside the LGA	• 31/12/2013
Funding closure costs	Political willingness	• Develop and cost closure plan, with a reserve to be established to build up funds including contingency – also review need to borrow (evaluate in the financial model and include in the long-term financial plan)	• 30/09/2014

8.3.2 Strategy: Identify and assess options for future waste disposal

Table 15: Identify and assess options for future waste disposal

Issue	Constraint	Actions	Timeframe
Alternate locations to dispose of waste	Limited choice and what is available is distant	• Evaluate risks and opportunities e.g. transfer disposal responsibility to others (risk is that Council becomes a price taker and loses control of costs), noting ongoing need to maintain GMWC after closure	• 31/03/2104 & Ongoing
Expansion of the Goulburn Waste Management Centre	Cost and approval process	• Undertake cost benefit analysis of proceeding with stage 2 of GWMC vs. alternate disposal option • Assess benefits / disbenefits of outsourcing operation of GWMC • Review future and function of Marulan WMC and Tarago TS	• 30/09/2014 • 31/12/2014 • 31/03/2015
Demonstrate efficiency and value for money for existing collection and disposal services	Political willingness	• Investigate options for market testing of collection and disposal services provided by council	• 30/06/2015

8.3.3 Strategy: Enforcement to discourage inappropriate behaviour

Table 16: Enforcement to discourage inappropriate behaviour

Issue	Constraint	Actions	Timeframe
Providing enforcement	Political willingness	• Utilise enforcement so that it is seen as part of a multi-faceted approach to waste management in	• Ongoing

Issue	Constraint	Actions	Timeframe
		conjunction with community education • Integrate GWMC site management procedures (including enforcement) with other site activities	• Ongoing
	Resources	• Pursue opportunities for creation or participation in a Regional Illegal Dumping (RID) squad through consultation with SERRG & EPA	• 30/06/14

8.4 Theme: Other

8.4.1 Strategy: Continuous Improvement

Table 17: Continuous Improvement

Issue	Constraint	Actions	Timeframe
Setting benchmarks for targets	Knowing what is achievable	• Establish & review/monitor targets in line with WARR (currently under review) and SERRG strategies & council's ability to fund initiatives • Include performance against targets in GMC annual and State of the Environment reports	• 30/06/2014 • Ongoing

8.4.2 Strategy: Financial Planning for the future

Table 18: Financial Planning for the future

Issue	Constraint	Actions	Timeframe
Providing adequate funding to enable future obligations and activities	Political willingness to implement the strategy	• Develop financial model and long term financial plan for waste • Actively monitor the waste industry and its legislative environment to identify potential changes • Establish waste management as a cost-neutral, self-funding cost centre in Council's budget • Establish reserves and use these and appropriate borrowings • Review, monitor and ensure environmental compliance e.g. licence conditions & other relevant legislation	• 30/09/2014 • Ongoing • 31/03/2015 • 31/03/2014 • Ongoing

8.4.3 Strategy: Anticipate and plan for the future

Table 19: Anticipate and plan for the future

Issue	Constraint	Actions	Timeframe
Planning for potential future changes	Foreseeing the future e.g. carbon price, S88 levy	• Remain active in influential and decision making bodies e.g. SERRG & LGA • Be proactive in initiating change to reflect anticipated developments • Retain involvement in industry groupings e.g. Waste Management Association of Australia	• Ongoing • Ongoing • Ongoing
Managing intergeneratio nal equity	Political willingness	• Obtain good data on current and future liabilities • Develop financial model and long term financial plan for waste • Establish reserves and appropriate borrowings to fund long term requirements	• Ongoing • 30/09/2014 • 31/03/2014 & ongoing

9. References

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Appendix A.Photos

Photo 1: Aerial View of GWMC

Photo 2: Recycling Collection Vehicle

Photo 3: Waste Education in conjunction with Event Management

Photo 4: Endeavour Industries Materials Recovery Facility processing line

Appendix B. SERRG Strategy Implementation Plans

The Implementation Plans as contained within the Regional Waste Stream Management Strategy are reproduced in the following pages.

12. IMPLEMENTATION PLANS

The tables below contain the specifics of the SERRG activities for the years 2012–13 until 2014–15 to meet NSW Government EPA funding arrangements. These will be up-dated every three years.

Key themes Action areas	Year 2012–13 program	Year 2013–14 program	Year 2014–15 program
1 Regional Education and sector training	• Hold regional school forums • Develop Education Working party operations • Develop promotional materials, hold council staff briefings and develop whole-of-system review mechanisms	• Hold regional school forums • Continue Education Working party operations • Continue to develop and utilise promotional materials, hold council staff briefings and develop whole-of-system review mechanisms	• Hold regional school forums • Continue Education Working party operations • Continue to utilise promotional materials, hold council staff briefings and develop whole-of-system review mechanisms
2. Regional Data	• Set up system in conjunction with EPA to obtain data initially on waste streams but later with Councils on a range of areas • Develop regional data analysis reports	• Set up system in conjunction with EPA to obtain data initially on waste streams but later with Councils on a range of areas • Develop regional data analysis reports	• Set up system in conjunction with EPA to obtain data initially on waste streams but later with Councils on a range of areas • Develop regional data analysis reports
3. Regional communication	• Maintain and extend use of web site • Develop regional e-zine • Participate in regional events and forums	• Maintain and extend use of web site • Develop regional e-zine • Participate in regional events and forums • Monitor and evaluate outcomes	• Maintain and extend use of web site • Develop regional e-zine • Participate in regional events and forums • Monitor and evaluate outcomes
4. Regional infrastructure inc Transfer stations, No-Waste DCP,	• Initiate review programs together with councils • Pilot new system approaches • Prepare to run a zero roads program	• Initiate review programs together with councils • Pilot new system approaches • Run a pilot zero roads program	• Initiate review programs together with councils • Pilot new system approaches • Extend the zero roads program
5. Organics diversion inc bio-solids, LFHW	• Use reports, catalyse reviews and hold forums, organise information tours to extend organics diversions systems; maintain LFHW program promotions, work with local food production and associated networks	• Use reports, catalyse reviews and hold forums, organise information tours to extend organics diversions systems; maintain LFHW program promotions, work with local food production and associated networks	• Use reports, catalyse reviews and hold forums, organise information tours to extend organics diversions systems; maintain LFHW program promotions, work with local food production and associated networks

6 Business waste management, development and private sector employment	• Hold meetings with businesses to identify issues, including littering and new business opportunities • Establish a Business Sustainability network	• Hold meetings with businesses to identify issues, including littering and new business opportunities • Establish a Business Sustainability network	• Hold meetings with businesses to identify issues • Support the operations of a Business Sustainability network
7. Regional contracts and difficult products	• Obtain data and work toward common period contracting for Council members • Seek funding for Pilot tests for difficult products • Initiate arrangements to become a centre for product knowledge	• Obtain data and work toward common period contracting for Council members • Seek funding for Pilot tests for difficult products • Initiate arrangements to become a centre for product knowledge	• Obtain data and work toward common period contracting for Council members • Seek funding for Pilot tests for difficult products • Initiate arrangements to become a centre for product knowledge
8 Waste wise events and littering	• Promote negative impacts of littering through support for regional events and RID squad activity • Develop standardised regional street litter and bin enclosure strategy with associated infrastructure • Develop a draft events no-waste contract for all suppliers at regional events	• Promote negative impacts of littering through support for regional events and RID squad activity • Assist implementation of standardised regional street litter and bin enclosure strategy with associated infrastructure • Assist use of events no-waste contract for all suppliers at regional events	• Promote through support for regional events • Assist implementation of standardised regional street litter and bin enclosure strategy with associated infrastructure • Assist use of events no-waste contract for all suppliers at regional events
9. Regional strategy and policy development	• Advocate for life cycle responsibility and against the creation of new forms of 'waste • Monitor wider waste stream and sustainability actions at all levels of government	• Advocate for life cycle responsibility and against the creation of new forms of 'waste • Monitor wider waste stream and sustainability actions at all levels of government	• Advocate for life cycle responsibility and against the creation of new forms of 'waste • Monitor wider waste stream and sustainability actions at all levels of government
10. New financing models	• Initiate detailed reviews with Council members and identify priority options • Consultant to assist	• Initiate detailed reviews with Council members and identify priority options • Consultant to assist	• Initiate detailed reviews with Council members and identify priority options • Consultant to assist

11. SERRG OPERATIONS AND STRATEGY	• Monitor and review meetings outcomes and membership views and develop a relevant, inclusive and positive benchmarking methodology to assist improve SERRG operations • Assist in sustaining formerly SOT projects with regional benefits	• Monitor and review meetings outcomes and membership views and use benchmarking methodology to assist improve SERRG operations • Maintaining support for former SOT projects	• Monitor and review meetings outcomes and membership views and use benchmarking methodology to assist improve SERRG operations. • Maintaining support for former SOT projects • Continue links with Renew • Maintain links with the ACT and the South West Regional Waste Management group
HOUSEHOLD HAZARDOUS WASTE	• Continue as long as funding provided	• Continue as long as funding provided	• Continue as long as funding provided
MEDICAL WASTE PROJECTS – SHARPS	• Implement a detailed communication strategy regarding safe and proper disposal of SDU's	• Monitor program for effectiveness	• Monitor program for effectiveness

Appendix C.NSW Extended Producer Responsibility Statement Status – 'Wastes of concern' and other existing voluntary industry EPR schemes

The following table is taken from the NSW Extended Producer Responsibility Priority Statement 2010[5] published by the Department of Environment, Climate Change and Water NSW.

Waste	Status	National Priority Waste?	Is the waste dealt with by an existing EPR scheme?
Packaging	Waste packaging is subject to a national co-regulatory extended producer responsibility scheme. The Australian Packaging Covenant (APC) commenced on 1 July 2010 and is underpinned by the National Environment Protection (Used Packaging Materials) Measure 2010 and regulation in each State and Territory. It follows National Packaging Covenants spanning 2000–2010. The focus of the new APC is on: • packaging design. The Covenant specifically works with packaging producers and users to improve the design of packaging to use less materials and to make them more re-useable and recyclable once they are finished with. Signatories need to comply with new Sustainable Packaging Guidelines for all new packaging with a phase in for existing packaging • away from home, public place, and workplace recycling. • litter reduction – through better design and changing behaviour. The recycling rate for packaging increased from 39% in 2003 to 58% in 2009.[3] The midterm review of the Covenant in 2008 found that Australia was on track to meet the target recycling rate for packaging of 65% by 2010 (Lewis, 2008).[4] With the global economic downturn, however, the recycling rate only increased marginally in 2009 and is unlikely to increase significantly in 2010. The Australian Packaging Covenant Strategic Plan has set a continuous improvement target of 70% in 5 years time (ie to 2015). NSW is a signatory to the Covenant and works closely with stakeholders to support the process. Nationally, a Consultation Regulatory Impact Statement (RIS) is being developed on options to increase packaging recovery and reduce packaging litter, including a national container deposit option. The RIS is scheduled to be released for public consultation at the end of 2011. NSW and Qld are co-leading this work.	✔	**Yes** Australian Packaging Covenant 2010 is a co-regulatory extended producer responsibility scheme. It applies to any 'brand owner' of a product, including the first importer of the product. Non-signatories in NSW are subject to Part 5B of the Protection of the Environment Operations (Waste) Regulation. As at 30 June 2010, NSW had 326 signatories to the Covenant, of a total of 788 nationally (41%). For more information see **www.packagingcovenant.org.au**

[5] *NSW Extended Producer Responsibility Priority Statement* Department of Environment, Climate Change and Water NSW, December 2010

Waste	Status	National Priority Waste?	Is the waste dealt with by an existing EPR scheme?
Mobile Phones	The mobile phone industry (Australian Mobile Telecommunications Association) runs the MobileMuster scheme to recover unused mobile phones and accessories. In 2008, a 5 year commitment from this sector was secured as part of national action to increase the recovery of handsets. In its Annual Report published Dec 2009, MobileMuster reported: • 122 tonnes of mobile phone components were collected for recycling, up from 97 tonnes in 07/08 • this includes 806,000 handsets and batteries • 38% annual collection rate of discarded mobiles • 8% annual collection rate of net imports for 2008/09 • around 75% of material in mobile phones is recycled. These figures continue to rise and good progress is being made. MobileMuster is exploring a variety of ways of attracting old phones out of storage, which continues to be a significant factor in recovery: • between 14 to 16 million handsets are estimated to be stashed away in drawers and cupboards • 31% of mobile phone users have 2 or more old mobiles at home • 70% have 1 old mobile at home. • 79% of people chose to keep or give away their old mobile phone. At February 2009 awareness of mobile phone recycling was 79% up from 46% in March 2005.	✔	**Yes** MobileMuster is a voluntary extended producer responsibility scheme funded by telecommunications carriers and handset brand owners – through a 42c levy on each handset sold. Consumers can drop old phones off at over 3500 retail stores and drop off points around Australia, as well as post handsets and accessories back for free through Australia Post. For more information see **www.mobilemuster.com.au**
Agvet Chemicals	The agricultural and veterinary (agvet) chemical industry established the ChemClear voluntary extended producer responsibility program in 2003, following on from the previous ChemcCollect scheme. ChemClear has collected 234 tonnes of chemicals nationally, including 83 tonnes in NSW to 2009. ChemClear, together with DrumMuster (see below) is funded by a 4c/litre or kilogram levy which is paid by agvet chemical producers and passed on to consumers. Since 2006, the NSW government has provided funding that subsidises the farmers' cost of disposal of unregistered or unidentifiable chemicals (group 2 chemicals) for NSW farmers. NSW continues to support the ChemClear scheme remove these wastes from the environment and treat for appropriate disposal or recycling. In 2009/10 NSW provided assistance of $60,000.	✔	**Yes** ChemClear provides free collection and disposal of agvet chemicals nationally. It also subsidises the collection and transport of unregistered or unidentifiable agvet chemicals (group 2 chemicals), with the user paying for disposal – with assistance from government. For more information see **www.chemclear.com.au**

Waste	Status	National Priority Waste?	Is the waste dealt with by an existing EPR scheme?
Agvet chemical containers	In 1999, the Agvet chemical industry established an agreement with the Australian Local Government Association (ALGA) to provide a national program for the collection and recycling of Agvet chemical containers for crop production and on-farm animal health products. The drumMUSTER program is run by the agvet chemical industry in parallel to ChemClear and the programs together include some 72 manufacturers of Agvet chemicals. drumMUSTER provides chemical users with a defined route for the safe disposal of used, clean chemical containers at over 700 reception sites across Australia. The drumMUSTER program covers all of NSW and service agreements are in place with the majority of NSW Councils. Since the inception of the program in May 1999 there have been 15,821,958 containers collected across Australia to October 2010. This represents 20,642 tonnes of recyclable materials. drumMUSTER has 743 active collection sites across Australia provided by 494 collection agencies. 430 Local councils are participating in the program with 64 other agencies providing collection services. As with ChemClear, NSW continues to support drumMUSTER in removing hazardous materials from the waste stream and the environment.	✔	**Yes** drumMUSTER provides free collection and recycling of agvet chemical containers. For more information see **www.drummuster.com.au**
PVC	In 2002, the Vinyl Council of Australia, the peak industry body representing the PVC industry, released the PVC Product Stewardship Program, which committed the industry to reducing the impact of PVC including: • undertakings in production and storage • the safe use of additives • waste management • research and public reporting. In 2008, the PVC industry reported: • the phase-out of lead stabilisers in pipes and fittings by PIPA members • vinyl chloride monomer (VCM) emissions from resin manufacturing below the Commitment standard • medical waste recycling trial launched. Specific targets for 2009/10 were also established, including: • residual VCM in finished resin powder not greater than 1 ppm • VCM emissions no greater than 30g/tonne PVC • maintain commitment to avoid the use of cadmium stabilisers • to complete phase out of lead in all applications by 2010.		**Yes** The PVC Product Stewardship Program is a voluntary, industry led scheme with ongoing commitments to addressing the environmental impacts of PVC, a material used in many hundreds of applications. For more information see **www.vinylcouncil.org.au/ ProductStewardship**

Waste	Status	National Priority Waste?	Is the waste dealt with by an existing EPR scheme?
Used oils and lubricants	The Australian Government runs the Product Stewardship for Oil (PSO) program under the *Product Stewardship (Oil) Act 2000*, which collects a statutory levy on petroleum-based oils and their synthetic equivalents and pays benefits to oil recyclers subject to the type of processing undertaken. Approximately 270 million litres of used oils and lubricants were recycled in the scheme in the financial year 2008–2009 (an increase from 195Ml in 2001–2). An independent review of the *Product Stewardship (Oil) Act 2000* was tabled in the Commonwealth Parliament on 14 May 2009. The independent review made 9 key recommendations to improve the scheme including: making improvements to data, scheme promotion for certain oil grades, changes in governance and internal processes to avoid issues such as double claiming, and simplification of categories and definitions used to structure the scheme. The Commonwealth government has not yet responded to the recommended changes.	✔	**Yes** The Product Stewardship for Oil program is a fully regulated product stewardship scheme run by the Australian Government. For more information see **www.environment.gov.au/settlements/waste/oilrecycling/program/index.html**
Computers and Televisions	In November 2009, Australian Environment Ministers considered a Decision Regulatory Impact Statement for TVs and computers and agreed that the Commonwealth will implement an Extended Producer Responsibility Regulation under new National Product Stewardship Framework legislation. The Regulation will support the implementation of industry-funded and run schemes that are committed to nationally collect and recycle 80% of end of life televisions and computers within 10 years. The Commonwealth has committed to implement the legislative framework in 2011. NSW has been a lead jurisdiction together with the Commonwealth in facilitating the development of the industry product stewardship schemes.	✔	**Impending** Industry-run scheme/s for TVs and computer collection and recycling were approved by Australian Environment Ministers in Nov 2009. Schemes will commence in 2011, following Commonwealth legislation to support the schemes. For more information see: **www.productstewardship.asn.au**
Tyres	Australian Environment Ministers considered a proposal for a tyres EPR scheme in 2009. Regulatory impact analysis found that the market for waste tyres has shifted significantly and the proposed scheme was out of step with current Australian market conditions. A revised approach was required. Ministers resolved to work with the tyre industry to develop a voluntary scheme for potential endorsement under the new National Product Stewardship Framework. An Industry/government Implementation Working Group was established in May 2010 to complete this work. NSW is a member of the working group.	✔	**Under development** For more information see: **www.environment.gov.au/settlements/waste/tyres/index.html**

Waste	Status	National Priority Waste?	Is the waste dealt with by an existing EPR scheme?
Plastic Bags	Light-weight plastic shopping bags are a national and state priority waste due to littering. According to a Regulatory Impact Statement (RIS) prepared in 2008 for Australian Environment Ministers, 1-2% of plastic bags become litter. Light weight plastic bags litter in NSW make up significantly less than 1% of the total by volume and items littered in the 2010 Litter Index by Keep Australia Beautiful, but they are highly visible in the littering stream. In 2008 Ministers considered the RIS, but did not reach consensus on an agreed approach and instead agreed to develop Australian Standards for degradable plastics to complement the existing standards on compostable plastics. This work is continuing. The impact of plastic bags is also being considered as part of a national regulatory impact statement being prepared on the impacts of packaging waste. This includes valuation of the community's preparedness to pay to reduce litter from packaging, including plastic bags. This work is due for release and public consultation in 2011.	✔	**No** Plastic bag waste will be part of a national regulatory impact statement on the impacts of packaging waste, due for public consultation in 2011. Australian Environment Ministers are also developing standards for compostable plastic bags.
Batteries	Some battery types contain hazardous materials, notably heavy metals (e.g. lead, cadmium and mercury). Recovery rates for batteries vary. Recovery of lead acid batteries is relatively high. Recovery of consumer portable batteries (single use and rechargeable) is very low. In 2008–09, batteries (overwhelmingly lead acid) accounted for over 75 tonnes of material collected through the NSW government's Household Chemical Cleanout program. The NSW government has been working with the battery industry, recyclers and other stakeholders to develop a product stewardship response for all batteries. The industry established the Australian Battery Recycling Initiative (ABRI) to help progress this work. In November 2010 the NSW Minister proposed to Australian Environment Ministers that batteries become a national priority waste and work on an EPR scheme by industry be accelerated.		**No** NSW has proposed the inclusion of batteries in a workplan for expanded national product stewardship priorities. Australian Environment Ministers will consider the workplan in 2011.
Paint	Paint is the largest proportion of materials collected in the NSW Household Chemical Cleanout program (59.32% in 2009–10), representing a significant cost to the State government and the community ($544,418 in 2009–10). The paint industry has undertaken a number of small-scale collection trials in Victoria and NSW over several years, but so far has not moved to establish a product stewardship scheme despite promises by the industry to do so. The Australian Paint Manufacturers Federation (APMF), the peak industry body representing domestic manufacturers, has just commenced a two-year trial in Victoria for commercial paint and has indicated it will roll out a national scheme in 2013. In November 2010 the NSW Minister proposed to Australian Environment Ministers that paint become a national priority waste and work on an EPR scheme by industry be accelerated.		**No** NSW has proposed the inclusion of paint in a workplan for expanded national product stewardship priorities. Australian Environment Ministers will consider the workplan in 2011.

Waste	Status	National Priority Waste?	Is the waste dealt with by an existing EPR scheme?
Cigarette butts	According to the Keep Australia Beautiful Litter Index, cigarette butts are the largest portion of the litter stream in NSW, representing almost half of all littered items. The cigarette industry is made up of three major players in Australia, British American Tobacco Australia (BATA), Imperial Tobacco and Philip Morris. There is no peak industry body. Litter reduction initiatives are undertaken on an individual company basis. In 2003, BATA established the Butt Littering Trust (BLT) to focus on changing butt littering behaviour. BLT reports that it has delivered over 70 national projects to reduce butt littering and cites reductions in butt littering in project areas of approximately 25%. The program has received some $4.4m in funding from BATA over 6 years and has received in principle commitments from BATA to finance future activities against a business plan that seeks to involve other tobacco industry participants under a new name, 'Butt Free Australia'. Imperial Tobacco reports that they "provide funding to KESAB (Keep South Australia Beautiful), an organisation that runs a number of campaigns aimed at improving the Australian environment. KESAB's "Please Butt It, Then Bin It" campaign involves councils, businesses and local communities in a co-ordinated approach to minimising butt litter by encouraging behavioural. Support is typically in the form of funding and publicity materials including butt bins, posters, stickers and personal ashtrays. Philip Morris has not reported any recent anti-littering initiatives, although it contributed to KESAB in the past.		**No** Some individual company litter reduction initiatives are in place but these need to be more effective.
Treated Timber	The peak industry group, the Timber Development Association (TDA), has established the National Timber Product Stewardship Group, an industry/government steering group set up to identify and facilitate product stewardship initiatives in the industry. In 2007, TDA released a product stewardship strategy, "Timber-More Life", which set a national target to double the recovery rate of wood waste by 2017. In 2007, the recovery rate was estimated to be 32%. Currently, the industry has been working with the Department of Environment, Climate Change and Water (DECCW) to develop protocols for recycling utility poles and bridge timbers in NSW and has worked with recovery facilities to improve the identification of treated timber. The industry and DECCW is also undertaking projects to improve the recovery of timber pallets, which make up almost half of the wood waste in the commercial and industrial stream. A major inhibitor of timber waste recycling is the presence of treated timber containing arsenic and other contaminants.		**No** While industry initiatives are underway, any EPR action would be best handled nationally.

Waste	Status	National Priority Waste?	Is the waste dealt with by an existing EPR scheme?
Other electrical equipment	This category covers a wide range of products, including white goods (e.g. washing machines, refrigerators, air-conditioning, microwaves, dishwashers), consumer electronics (e.g. DVD players, stereos, portable music players), small appliances (e.g. kettles, vacuum cleaners, power tools, toys) and lighting products (e.g. fluorescent tubes, emergency lighting). The major industry association for this category of products is the Australian Electrical and Electronic Manufacturers' Association (AEEMA). Another association, the Australian Information Industry Association (AIIA) reports on a variety of sustainability programmes that have been progressed either directly or as a result of the work of member companies. Unsurprisingly due to the wide variety of types of waste generated, a number of different initiatives are underway or in development. For example, NSW households can take advantage of the Fridge Buyback scheme run by DECCW. This has been supported by a three-year grant of $2.8 million from the NSW Climate Change Fund. FluoroCycle is a new EPR scheme available for the recycling of mercury containing lighting from the commercial and public lighting sector (see below). Other waste electrical or electronic goods may in the longer term be collected by extension of the producer responsibility work currently underway for TVs and computer products.		**No** There is potential to develop EPR action following the rollout of the TVs and computers EPR scheme.
End of life vehicle (ELV) residuals	APRAA (the Auto Parts Recyclers Association of Australia) estimates that in 2010 over 750,000 ELVs could enter the waste stream. End of life vehicle recycling is well established in Australia – recycling from vehicles achieves rates in excess of 80%. Shredder residue (known as 'floc') is a high volume mix of materials generated as a mixed waste in the vehicle recycling process, and is the major component of vehicle material to landfill. About half of floc comprises plastics that could be recycled given separation of appropriate quantities and qualities. In response to previous priority statements opinions were divided about whether ELV residuals should constitute a waste of interest: recycling from vehicles already achieves rates in excess of 80%, yet over 150,000 tonnes of floc material is still disposed of to landfill each year, and whilst separation of floc into recoverable material streams is complex, international advances in technology for shredder residue make separation more feasible. Australia's vehicle manufacturers, importers and those involved in the recycling chain are represented by a variety of bodies including the Federal Chamber of Automotive Industries (FCAI), the Federation of Automotive Product Manufacturers (FAPM) and the Auto Parts Recyclers Association of Australia (APRAA). Increased support from vehicle manufacturers and importers for authorised vehicle treatment stations to conduct fluid removal and dismantling processes prior to metal shredding could have an impact on reducing shredder floc.		**No** Greater focus is needed on more recovery of non-metal waste from end of life vehicles both before and after shredding.

Waste	Status	National Priority Waste?	Is the waste dealt with by an existing EPR scheme?
Office paper	Product stewardship has been coordinated by Paper Round, the peak body for office paper recycling since 2006. Paper manufacturers, importing sectors, major printers and one of the key paper recyclers are represented in Paper Round. A number of product stewardship initiatives from Paper Round members have been instigated. These include improved collection information, take back schemes and the release of more recycled and carbon neutral papers. Paper Round and DECCW worked together in the project to develop a material flow chart for printing and communications papers (inc office papers) across NSW. This process resulted in a more accurate estimation of likely flows in; and probable usage and disposal quantities. Whilst office paper recovery in NSW figures have been difficult to establish exactly, Paper Round estimates that annual consumption of office paper in NSW is approximately 530,000 tonnes, with up to approximately 300,000 tonnes collected for recovery. Exports of recovered fibre continue to increase and Australia-wide exports have risen from 340,000 tonnes in 2004 to over 1,200,000 last year. NSW typically accounts for 33% of the Australian paper market. Paper Round report that three specific challenges for improved paper recovery remain: 1) Improving the economics of collections at small and medium business sites and strip office locations, and developing appropriate programs (e.g. security shredding at collection); 2) Finding alternative uses for contaminated paper that can no longer be utilised in the paper making process; 3) Avoidance of contamination in office paper waste.		**No** Opportunities exist for better resource recovery action by paper waste generators and waste recyclers through initiatives including potential precinct-based commercial waste recovery.

Other Existing Voluntary Industry Schemes

Waste	Status	National Priority Waste?	Is the waste dealt with by an existing EPR scheme?
Newspapers	2010 marks twenty years of voluntary agreements between Commonwealth, State and Territory Governments and the Publishers National Environment Bureau (PNEB), representing Australia's leading newspaper and magazine publishers. Over that period, Australia has increased the recycling of newsprint from 28% prior to 1990 to approx 82% today. The fourth successive five year agreement was welcomed by Australian Environment Ministers in July 2010. The PNEB's latest Industry Plan 2011–2015 includes commitments for broader sustainability initiatives including cleaner production and reducing production impacts.		**Yes** The Publishers National Environment Bureau has run an EPR scheme since 1990. For more information see **www.pneb.com.au**
Mercury containing lamps	The FluoroCycle program is a government and industry initiative to increase recycling of mercury-containing lamps from the commercial and public lighting sector. Approx 90% of waste mercury containing lamps are currently generated in the commercial sector and lamps make up the largest source of consumer generated mercury waste to landfill in Australia. Fluorocycle provides recognition for organisations that commit to recycle their lamps. The program is funded by the Commonwealth, which has engaged Lighting Council Australia to manage the program for a three year period. The scheme was launched in July 2010. The phase out of incandescent globes by the Commonwealth government has raised consumer awareness and concern about mercury containing lamps in households, primarily Compact Fluorescent Lamps (CFLs). While the Commonwealth has developed the FluoroCycle program to enhance recycling of commercial mercury containing lamps, there is no national approach to household lighting waste. The DECCW Household Chemical CleanOut program collects fluorescent globes and tubes.	✔	**Yes** for commercial and public lighting. **No** for household lighting. There is potential for Fluorocycle to expand to domestic lamps in future. For more information see **www.fluorocycle.org.au**