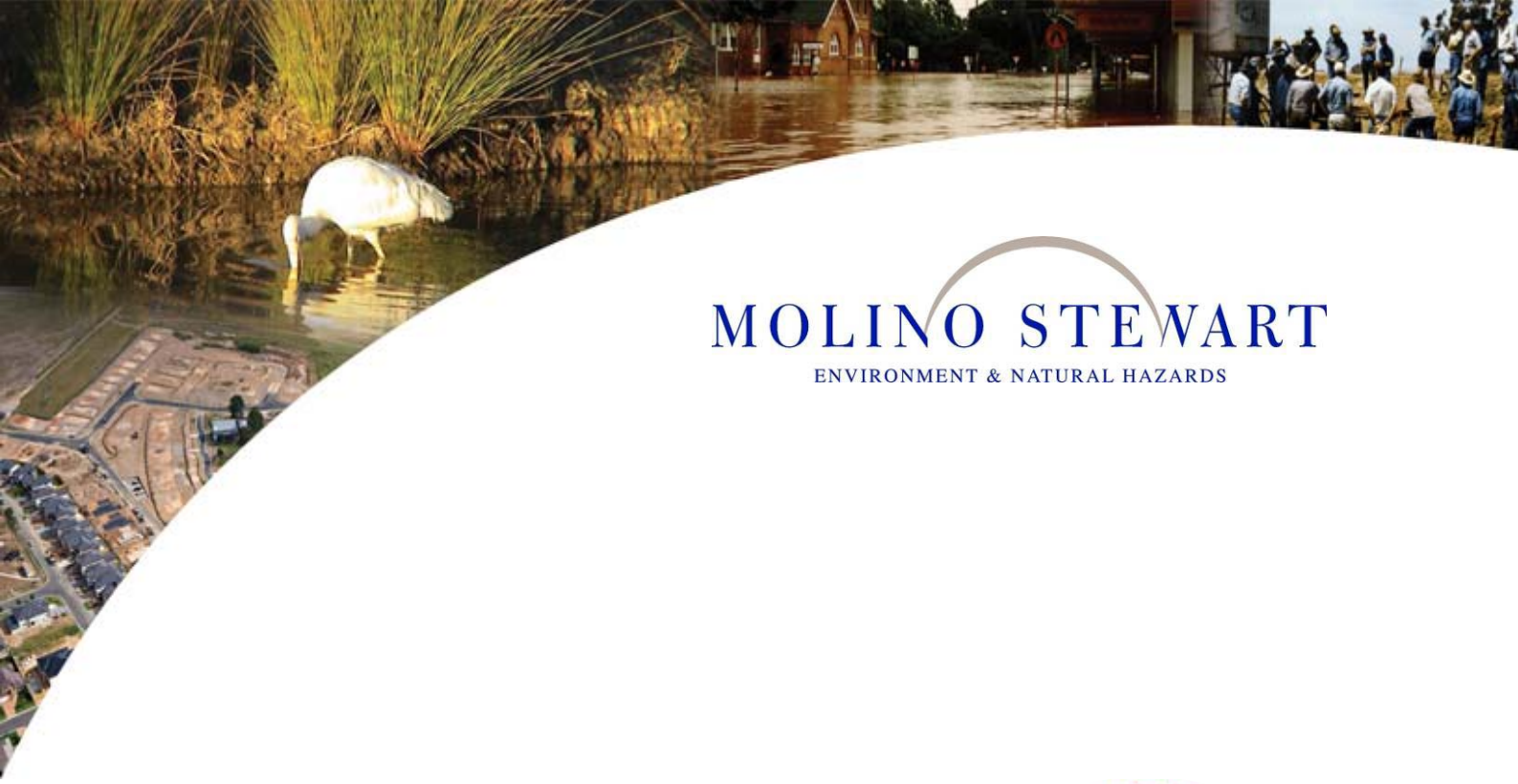

MOLINO STEWART

ENVIRONMENT & NATURAL HAZARDS

Waste and Recycling Strategy 2011-2016

Final Report

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Waste and Recycling Strategy 2011-2016

FINAL REPORT

for

Lithgow City Council

by

Molino Stewart Pty Ltd
ACN 067 774 332

JULY 2011

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DOCUMENT CONTROL

Document Reference	Lithgow Waste Strategy v4 - final
Project	Waste and Recycling Strategy 2011-2016
Document Type	Final Report
Author	Sharon Makin

REVISION HISTORY

Date	**Version**	**Name**	**Comments**
27/4/2011	1	S Makin	First draft for review
15/6/2011	2	S Makin	Final draft for review
4/7/2011	3	A Karwaj	Draft finalised and formatted
18/7/2011	4	A Karwaj	Final report

DOCUMENT APPROVAL

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1 INTRODUCTION

Lithgow City Council provides a comprehensive range of solid waste services to the rate payers of the Local Government Area. A number of the services are aimed at waste minimization and resource recovery.

Council currently provides a mixture of kerbside and landfilling waste services throughout the LGA.

Council operates seven landfills and three transfer stations. Lithgow Solid Waste Facility (SWF) is the primary landfill for the Local Government Area. A number of the current rural landfills are nearing the end of their operational life. Council has identified and is in the process of developing a central waste management facility at Blackmans Flat. Works are to commence at this site in 2011 to constitute physical development and preserve the development consent.

An extension to the life of Lithgow SWF for at least 10 years has also been identified.

Closure plans have been prepared for the rural landfills with Council reviewing its options in relation to additional waste management facilities such as waste transfer stations.

Also the current Garbage and Recycling Contract expired in June 2009 (but currently operating under a short term extension) which provides an opportunity to review the current kerbside waste removal services, explore options to improve the services by targeting the service to the needs of the community and improve the rate of recycling.

To date, Lithgow City Council's success in waste management has been achieved by mostly targeting the less complex domestic sector. Future improvement will be far more challenging. Council will need to look at innovative ways of reducing the social and environmental impacts from delivering waste services and to develop and implement new initiatives and allocate more resources to the commercial/industrial, construction/demolition sectors and to broadening the scope of recycling and reuse.

Future success will also rely on

- regional collaboration;
- partnerships that add value,
- Federal and State Governments providing the leadership and regulatory frameworks and
- Engagement with the community and business.

Lithgow City Council does not have an existing Waste and Recycling Strategy. This document provides a strategy that:

- Provides a detailed review of the major waste management issues facing Lithgow and identifies actions required to improve the delivery of waste management services.
- Provides background data on Lithgow's waste generation, recycling and landfill rates. This data has been used to identify trends so areas for improvement can be identified and actioned and
- Provides guidance on waste management services to July 2016 and beyond in line with the Management Plan and Strategic Plan.

Council has adopted the Management Plan 2011-2016 on the 30th May 2011. This plan has an objective "to provide waste and recycling collection services that encourage a reduction in land filling". This strategy supports the objective of the plan.

2 STRATEGIC CONTEXT

2.1 LITHGOW COUNCIL MANAGEMENT PLAN 2011-2015

The Local Government Act 1993 requires that Councils prepare a Management plan to identify the Council's activities for at least the next four years.

The Management Plan 2011 to 2015 meets this requirement. This plan highlights the future focus of the provision of waste services to the community over this four year period such that Council has an objective to "provide waste and recycling collection services that encourage a reduction in land filling". This will be achieved by:

- Collecting street litter bins in Lithgow, Portland and Wallerawang
- Collecting park, lookouts and recreation area litter bins
- Providing kerbside garbage and recycling collection service to all residents within the collection service area
- Providing garbage disposal facilities within the LGA at:
    - Angus Place
    - Capertee
    - Cullen Bullen
    - Glen Davies (until reaches capacity)
    - Lithgow
    - Portland
    - Wallerawang
- Providing a green waste collection service to residents in Lithgow, Lidsdale, Marrangaroo, Portland, Rydal and Wallerawang
- Assisting the Sydney Catchment Authority with in kind contributions for a free chemical collection service for residents,
- Attending meetings and participating in Netwaste activities

The success of the Management plan activities will be determined by

- A collection service provided to an acceptable standard and within budget
- Achievement of a reduction in garbage material collected from 2010/2011
- Achievement of an increase in recycling material collected from 2010/2011
- Providing 4 green waste collection services per year and an increasing number of greenwaste bookings from 2010/2011
- Providing 2 clean up collection service per year and an increasing number of bookings
- Completion of nominated project works
- Attendance at Netwaste meetings and
- Participation in Chemical muster program

2.2 LITHGOW CITY COUNCIL STRATEGIC PLAN

In 2007 Lithgow Council in consultation with the community developed a Strategic plan outlining the future of the local council area. The Vision to be

"A centre of Regional excellence that:

- *Encourages community growth and development*
- *Contributes to the efficient and effective management of the environment, community and economy for present and future generations".*

To support the Vision the strategy identified five key aims. The management of waste has strong links to this aims as outlined:

Aim 1. "A recognised leader in the broader context."

The waste management strategy contains a number of provisions that will not only achieve positive waste management goals but will enable Council to demonstrate that it is a leader in waste management both locally and regionally.

Aim 2. "A community that is healthy, educated and sustainable."

The provision of comprehensive waste management services is well recognised as a critical public health service. The strategy aims to enhance existing waste management services and recommends the expansion of the kerbside collection area to a number of rural villages. The strategy also recognises the importance of education and recommends that waste education funding be doubled and that an education plan be developed to ensure funding is effectively utilised.

Aim 3. "An environment that is protected and sustained."

The delivery of waste management services can have significant environmental impacts both direct and indirect. A major focus of this strategy is to recognise and recommend actions that will minimise environment risk and provide opportunities to offset environmental impacts that cannot be eliminated. The current rural landfill sites present Council and the community with a major environmental, public health and financial risk. The strategy proposes a program to close and rehabilitate all rural landfills and develop waste transfer stations. The strategy also recognises that there are indirect social and environmental impacts known as externalities resulting from the delivery of waste services and proposes a method to fund actions that will minimise or offset these impacts.

Aim 4. "A strong local economy."

Effective waste collection services and accessible waste processing and disposal facilities plays a critical role in a strong local economy. The long term life and close location of the Lithgow SWF and Lithgow Recycling Centre are a major asset for business and the wider community. Managing the landfill in an environmentally sound and efficient manner that maximises its life is a fundamental theme of the strategy. Every effort must be made to divert waste away from landfill so that the landfill is available for the disposal of material that has no viable alternate use. It should also be recognised that the provision of waste management services including the viable reuse of materials is and can be a major local employer that contributes to a strong local economy.

Aim 5. "The Community is supported by sustainable services and infrastructure."

Waste management services have been provided in Lithgow for many decades and it is the aim of this strategy to ensure waste services are enhanced and sustainable into the future. Reducing waste going to landfill, developing and maintaining infrastructure to maximum effect, attaining elevated community engagement in sustainability and waste management through awareness and education and engaging in regional cooperation are fundamental to this strategy.

Another key principle of the strategy is to ensure waste related pricing is based on full and true costs so that waste funding is sustainable and that pricing sends the right economic signals that will assist Council meet its waste management goals.

The Strategy contains a number of Principal Activity areas with one being environment with the goal of *"Balancing, protecting and enhancing our diverse environmental elements, both natural and built, for the enjoyment and support of both current and future generations".*

Within this strategy is an Objective "To Implement Waste Management Best Practice". The activities to support this objective have been captured in the Current Management plan outlined in section 2.1.1

The waste strategy has been prepared in keeping with the strategic plan.

2.3 RESOURCE NSW: WASTE AVOIDANCE AND RESOURCE RECOVERY STRATEGY 2003, 2007, 2010

The development of a *NSW Waste Avoidance and Resource Recovery Strategy 2003* was released in February 2003 by the then Resource NSW (now NSW OEH). Its purpose is to develop a framework and to support implementation of state-wide, regional and local programs to avoid waste and recover resources. The four key outcome areas put forward within the strategy are:

1. Preventing and avoiding waste;
2. Increased recovery and use of secondary resources;
3. Reducing toxic substances in products and materials; and
4. Reducing litter and illegal dumping.

Within Section 2.5 of the Strategy document, Local Councils are identified as playing a major role in waste management, being largely responsible for dealing with municipal waste through garbage, recycling and hard rubbish collections. In addition, the policy, educative and economic roles are acknowledged. Notably, Section 2.11 acknowledges the unique challenges faced by regional NSW in terms of population characteristics and transport distances in relation to opportunities for resource recovery. Thus it recognises that a different support structure is required to support initiatives in these areas and commits to providing funding support for the regional plans, focusing on specific waste streams and initiatives, developed by regional groups (including (NetWaste) established throughout NSW. Notably, the document reports that extra tonnages of municipal, commercial & industrial (C&I) and construction & demolition (C&D) wastes for recovery within rural parts of NSW are yet to be calculated and that this data must be collated, particularly in the case of organic waste.

This strategy was updated in 2007.

The NSW Waste Avoidance and Resource Recovery Strategy 2007 (the 'Waste Strategy') provides an essential framework for reducing waste generation and improving the efficient use of resources. The strategy sets waste avoidance and resource recovery goals and targets for 2014 in four key result areas:

- preventing and avoiding waste
- increasing the recovery and use of secondary materials across municipal, commercial and industrial (C&I) and construction and demolition (C&D) sectors
- reducing toxicity in products and materials
- reducing litter and illegal dumping.

The NSW Waste Avoidance and resource recovery strategy has an objective in

"Supporting waste reduction in rural and regional NSW - Focus for action"

It continues program funding for 8 voluntary regional waste groups covering 90% of rural and regional NSW.

The eight Voluntary Regional Waste Groups, which cover 90% of rural and regional NSW, have undertaken three-year regional planning for 2006-09 in consultation with their member councils. Programs have been designed to tackle the regions' waste and resource recovery issues and to contribute to the State's waste and resource recovery targets. These programs tackle waste across each of the three key waste streams – municipal, commercial and industrial and construction. DECC will continue to provide funding support for key programs identified in the regional plans. These build on the considerable successes of the past few years and include: regional consolidation of waste facilities and services to improve environmental outcomes

- an increased focus on resource recovery in the commercial and industrial sectors
- integrated management planning for organics processing and reuse within the regions
- waste reduction and management planning with local businesses and
- improved data that can be used to encourage the establishment of reprocessing facilities and development of local markets.

In 2010, the NSW Government commissioned a review of the Waste Strategy to ensure that the policies and programs applied to waste management and resource recovery were optimised and sufficient to achieve 2014 resource recovery targets. The review found that state and local government, the community and industry all accept the need for greater resource recovery and waste minimisation.

Five new focus areas have been proposed:

1. Making it easier for households to separate and recover their waste
2. Making it easier for businesses to separate and recover their waste
3. Reducing or removing problem wastes to improve resource recovery and produce environmentally safe recyclable materials
4. Facilitating investment in waste infrastructure
5. Reducing litter and combating illegal dumping

Comprehensive actions have been developed for the 5 keys areas and are relevant in the development of this waste strategy. The actions are contained in Appendix A.

2.4 NATIONAL WASTE MANAGEMENT STRATEGY

On 5 November 2009 Australia's environment ministers through the Environment Protection and Heritage Council endorsed the *National Waste Policy: Less Waste, More Resources* (the National Waste Policy). The National Waste Policy aims 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.

The National Waste Policy establishes Australia's waste management and resource recovery agenda across six key directions for the period to 2020:

1. Taking responsibility—shared responsibility for reducing the environmental, health and safety footprint of products and materials across the manufacture-supply-consumption chain and at end-of-life.
2. Improving the market—efficient and effective Australian markets operate for waste and recovered resources, with local technology and innovation being sought after internationally.
3. Pursuing sustainability—less waste and improved use of waste to achieve broader environmental, social and economic benefits.
4. Reducing hazard and risk—reduction of potentially hazardous content of wastes with consistent, safe and accountable waste recovery, handling and disposal.
5. Tailoring solutions—increased capacity in regional, remote and Indigenous communities to manage waste and recover and re-use resources.
6. Providing the evidence—access by decision makers to meaningful, accurate and current national waste and resource recovery data and information to measure progress, educate and inform the behaviour and the choices of the community.

Sixteen priority strategies that build on these key directions are also identified.

Strategy 1: To establish a national framework underpinned by legislation to support voluntary, co-regulatory and regulatory product stewardship and extended producer responsibility schemes to provide for the impacts of a product being responsibly managed during and at end of life.

Strategy 2: Governments as significant procurers of goods, services and infrastructure embody and promote sustainable procurement principles and practices within their own operations and delivery of programs and services to facilitate certainty in the market.

Strategy 3: To better manage packaging to improve the use of resources, reduce the environmental impact of packaging design, enhance away from home recycling and reduce litter.

Strategy 4: To introduce a national definition and classification system for wastes (including hazardous and clinical wastes) that aligns with definitions in international conventions provides for when a product or material ceases to become a waste, and reflects these classifications in relevant policies and instruments.

Strategy 5: To facilitate the development of a suite of agreed national principles, specifications, best practice guidelines and standards to remove impediments to the development and operation of effective markets for potential wastes.

Strategy 6: To provide access to knowledge and expertise in sustainable procurement and business practices.

Strategy 7: Building on existing commitments, continue to phase down the amount of biodegradable material sent to landfill.

Strategy 8: Ensure the safety and health risks arising from landfill gas emissions are managed across all landfills through appropriate regulation and license requirements.

Strategy 9: To develop a strategy for measures to address emissions from disposal of waste to landfills and other waste activities and these support the operation of a future Carbon Pollution Reduction Scheme.

Strategy 10: *T*o achieve major improvements in waste avoidance and re-use of key materials in the commercial and industrial waste stream.

Strategy 11: All governments continue to encourage best practice waste management and resource recovery for construction and demolition projects.

Strategy 12: To ensure that: our international obligations are met; hazardous materials entering the waste stream are reduced; transboundary movement of hazardous waste is effectively, efficiently and

legally undertaken within Australia and complies with international requirements; product stewardship is adopted to provide for the impacts of a product with potentially hazardous materials being responsibly managed during and at the end of life; and facilities are available to handle and dispose of hazardous substances that become waste in an environmentally sound manner.

Strategy 13: To adopt a system that aligns with international approaches, to reduce hazardous substances in products and articles sold in Australia that represent a potential risk during and at end of life to human health, safety or the environment.

Strategy 14: To identify regional and remote waste and resource recovery actions to build capacity and ensure an appropriate suite of services is available to communities.

Strategy 15: To undertake an audit of existing waste infrastructure and local capability in selected remote Indigenous communities as part of a larger municipal and essential services audit under the Council of Australian Governments'

Strategy 16: To develop and publish a three-yearly current and future trends waste and resource recovery report. This will be underpinned by a system that provides access to integrated national core data on waste and resource recovery that is accurate, meaningful and up-to-date and available online.

3 REGULATORY FRAMEWORK

Waste infrastructure planning and management have long been recognised as significant issues at both the State and Local Government levels in NSW, evidenced by the number of related statutes, which include the:

- Local Government Act 1993;
- Environmental Planning and Assessment Act 1979;
- Environmental Planning and Assessment Regulation 2000;
- Protection of the Environment Administration Act 1991;
- Protection of the Environment Operations Act 1997;
- Protection of the Environment Operations (Waste) Regulation 1996;
- Waste Avoidance and Resource Recovery Act 2001;
- Contaminated Land Management Act 1997;
- Public Sector Employment and Management (Environment and Conservation) Order 2003;
- Statue Law (Miscellaneous Provisions Act (No.2) 2003; and
- State Environmental Planning Policy No.48 – Major Putrescible Landfill Site.

Waste management legislation is complex and detailed examination of regulations surrounding the provision of waste-related services and infrastructure development is required to ensure statutory compliance. In addition to statutes, the Environment Protection Authority of NSW (NSW EPA) has produced *Environmental Guidelines for Solid Waste Landfills* and *Environmental Guidelines for the Assessment, Classification and Management of Liquid and Non-Liquid Wastes* to assist operators in meeting environmental obligations.

3.1 STATE LEGISLATION

An overview of NSW-based legislation, regulation and policy relevant to waste management planning for Lithgow Council is presented below.

3.1.1 Local Government Act 1993

Under Chapter 6 of the *Local Government Act 1993*, Councils' non-regulatory functions include the provision, management or operation of "waste removal, treatment and disposal services and facilities". Significantly, s.504 of the Act prescribes not only how the cost of services is to be recovered, but also broadly, the level of these charges. This may limit a Council's ability to pursue more expensive waste management options, which might result in a significant increase in their annual waste charges.

It is interesting to note that, while subsection (1) states that a Council must not apply income from an ordinary rate towards the cost of providing domestic waste management's services, subsection (1A) allows income from an ordinary rate to be lent (by way of internal loan) for use by Council in meeting the cost of providing domestic waste management services. Other sections of the Act relate to Councils' authority to approve (or otherwise) management of waste (s.68, part C), and a requirement to include waste-related issues within the Environmental section of Annual Reports (s.428 (2) (c) (v)).

3.1.2 Environmental Planning and Assessment Act 1979

Section 91 of the *Environmental Planning and Assessment Act 1979* links development consent for waste facilities above nominated threshold levels (see Section 2.1.3), being "integrated developments", to approvals prescribed within the *Protection of the Environment Operations Act 1997*.

Specifically, environment protection licences must be sought to authorise the carrying out of scheduled activities at any premises described as a waste facility that receives in excess of the prescribed quantity of waste annually (see Section 2.1.4).

3.1.3 Environmental Planning and Assessment Regulation 2000

The *Environmental Planning and Assessment Regulation 2000* sets forth the steps that are required to gain development consent for the establishment or alteration of new and existing developments or activities. This includes the lodgement of Development Applications (DAs), accompanying information requirements and associated charges. Notably, Part 1, Schedule 3 (Item 32) of this regulation sets threshold criteria for designated developments. Here, waste management facilities or works are taken to be those that "store, treat, purify or dispose of waste or sort, process, recycle, recover, use or reuse material from waste". More specifically, waste management facilities or works:

> *1(a) that dispose (by landfilling, incinerating, storing, placing or other means) of solid or liquid waste: that includes any substance classified in the Australian Dangerous Goods Code or medical, cytotoxic or quarantine waste, or*
>
> *that comprises more than 100,000 tonnes of "clean fill" (such as soil, sand, gravel, bricks or other excavated or hard material) in a manner that, in the opinion of the consent authority, is likely to cause significant impacts on drainage or flooding, or*
>
> *that comprises more than 1,000 tonnes per year of sludge or effluent, or*
>
> *that comprises more than 200 tonnes per year of other waste material, or*
>
> *1(b) that sort, consolidate or temporarily store waste at transfer stations or materials recycling facilities for transfer to another site for final disposal, permanent storage, reprocessing, recycling, use or reuse and:*
>
> *that handle substances classified in the Australian Dangerous Goods Code or medical, cytotoxic or quarantine waste, or*
>
> *that have an intended handling capacity of more than 10,000 tonnes per year of waste containing food or livestock, agricultural or food processing industries waste or similar substances, or*
>
> *that have an intended handling capacity of more than 30,000 tonnes per year of waste such as glass, plastic, paper, wood, metal, rubber or building demolition material, or*
>
> *1(c) that purify, recover, reprocess or process more than 5,000 tonnes per year of solid or liquid organic materials, or*
>
> *1(d) that are located:*
>
> *in or within 100 metres of a natural water body, wetland, coastal dune field or environmentally sensitive area, or*
>
> *in an area of high water table, highly permeable soils, acid sulphate, sodic or saline soils, or*
>
> *within a drinking water catchment, or*
>
> *within a catchment of an estuary where the entrance to the sea is intermittently open, or*
>
> *on a floodplain, or*

within 500 metres of a residential zone or 250 metres of a dwelling not associated with the development and, in the opinion of the consent authority, having regard to topography and local meteorological conditions, are likely to significantly affect the amenity of the neighbourhood by reason of noise, visual impacts, air pollution (including odour, smoke, fumes or dust), vermin or traffic.

As a result, Part 1 of Schedule 3 of this regulation requires that for facilities exceeding these threshold levels, an Environmental Impact Statement (EIS) needs to be prepared to accompany a DA to establish a new or alter an existing development. Within the EIS, consideration must be given to alternatives to carrying out the development or activity, environmental effects, measures to mitigate adverse effects and justification for the development. The effect of this regulation is that it introduces a rigorous assessment process for the establishment of new (designated) waste facilities or the alteration of existing waste operations. Thus extensive study and planning must be carried out in order to gain development consent for proposed facilities. This often introduces a significant cost and time factors into establishing major facilities. For those developments which are not deemed to be designated developments i.e. those not exceeding threshold requirements, Part 1 subclause (1)(c) of this Regulation requires that development applications must be accompanied by a Statement of Environmental Effects (SEE).

3.1.4 Protection of the Environment Administration Act 1991

The objectives of the *Protection of the Environment Administration Act 1991* are:

a) to constitute the Environment Protection Authority (EPA);

b) to provide integrated administration for environment protection; and

c) to require the Authority to perform particular tasks in relation to the quality of the environment, environmental audit and reports on the state of the environment.

Within this Part 3 of this Act, the objectives of the EPA are stated as being:

6.(1)(a) to protect, restore and enhance the quality of the environment in New South Wales, having regard to the need to maintain ecologically sustainable development; and

6. (1) (b) to reduce the risks to human health and prevent the degradation of the environment.

Notably, Part 4 or the Act outlines the responsibilities and powers of the EPA including its responsibility for reporting on the state of the environment every 3 years. Of particular relevance to Councils is Part 4 Sections 12 in which the EPA is assigned the power of direction to any public authority. Specifically, the EPA may from time to time:

12. (1) (a) direct any public authority to do anything within the powers of the public authority which will, in the opinion of the Authority, contribute to environment protection; or

12. (1) (b) direct any public authority to cease doing anything which, in the opinion of the Authority, adversely affects environment protection.

However, it should be noted that the power of direction is subject to a consultation process as laid out in the remainder of Section 12.

3.1.5 Protection of the Environment Operations Act 1997

The *Protection of the Environment Operations Act 1997* is a key legislative instrument in the overall management of waste and its effects on the environment. This is evident from its direct reference to the *Waste Avoidance and Resource Recovery Act 2001* (s.3 (g)). This Act forms a key instrument in the permitting and operating of waste facilities, specifying licences, operating documentation, operating standards, and remedies for waste-related activities, which may include remediation works.

The Act prescribes the licensing requirements and environmental standards to which facilities conducting scheduled activities should operate. Specifically, Schedule 1 of this Act lists solid waste landfills receiving over 5,000 tonnes per year of solid waste, or solid waste and inert waste, as EPA-licensed activities. The meaning of solid wastes is further defined in Schedule 1, Part 4.

A notable feature of this Act is the system of penalties ranging from Tier 1 offences for wilful or negligent (criminal) acts of environmental damage, through to Tier 3 offences against the Act or regulations referred to within the Act. Tier 2 and 3 offences are strict liability offences, often resulting in a monetary fine. This system of penalties reflects the seriousness with which the NSW EPA views acts of environmental pollution. Coupled with broad description of breaches e.g. a person must not pollute, cause or permit waters to be polluted (s.120), the Act imposes a heavy responsibility on individuals and corporations to ensure that the environment is not harmed as a consequence of its activities.

In terms of ensuring adherence to relevant environmental standards and licence requirements, Chapter 7 of this Act details the investigative powers of the NSW Environment Protection Authority and its officers. Here, an authorised officer is may enter any premises at where the officer reasonably suspects that pollution has been, is being or is likely to be caused. In addition, evidentiary search powers are assigned to authorised officers in carrying out their investigations.

The POEO Act establishes the waste and environment levy (the levy) which is payable by scheduled waste facilities (those requiring a licence) in the regulated area (see below) and state wide for intractable liquid waste. The levy applies to waste disposed to landfill or intractable liquid waste facilities. The solid waste levy applies in the regulated area of NSW which is made up of the Sydney Metropolitan Area (SMA), the Extended Regulated Area (ERA – Illawarra and Hunter regions) and, as of July 2009, the Regional Regulated Area (RRA – including the Blue Mountains, Wollondilly and the area north of Port Stephens to the Tweed). A flat levy is charged on solid waste regardless of the type of waste, but the rate varies across the three geographical regions.

It is to be noted that payment of the Levy does occur in the Lithgow Local Government Area should waste be transported from Sydney or the other regulated areas for disposal at a licensed landfill. Section 88 of the Act requires payment of contributions by the license holder of the waste facility. Two of Lithgow City Council's landfills are licensed. The payment of the levy outside is to deter the disposal of waste outside of the regulated areas in an attempt to avoid the landfill disposal costs.

In Sydney, the levy commenced at $0.51 per tonne in 1971, is currently at $70.30 per tonne and is scheduled to increase annually until 2015–16 to about $120 per tonne in today's dollars.

The ERA rate is currently slightly lower but will catch up to the SMA rate, while the RRA will reach $70 per tonne in 2015–16.

The levy works by increasing the cost of waste disposal, thereby providing a strong economic incentive to reduce waste generation and promote resource recovery. The levy is designed to discourage landfill disposal and drive resource recovery investment. As the levy increases, it encourages waste generators to review their practices and makes recycling options more financially viable in comparison to landfill.

3.1.6 Protection of the Environment Operations (Waste) Regulation 1996

The *Protection of the Environment Operations (Waste) Regulation 1996* establishes requirements relating to non-licensed waste facilities, waste activities and transporters. These requirements relate primarily to operation and reporting. The regulation also details financial contributions by occupiers of scheduled waste facilities and monitoring requirements.

3.1.7 Waste Avoidance and Resource Recovery Act 2001

The *Waste Avoidance and Resource Recovery Act 2001* sets forth the State's overall objectives in the responsible and sustainable management of waste. It is notable that the waste hierarchy has been enshrined within the objects of the Act i.e.

> *3(b) (i) Avoidance of unnecessary resource consumption;*
>
> *3(b) (ii) Resource recovery (including reuse, reprocessing, recycling and energy recovery); and*
>
> *3(b) (iii) Disposal.*

The hierarchy discourages consumption and encourages resource recovery in its many forms, thereby placing an increased emphasis on alternative technologies for recovering resources and treating waste.

3.1.8 Contaminated Land Management Act 1997

The *Contaminated Land Management Act 1997* establishes a process of investigating and (where appropriate) remediating land in areas where contamination presents a significant risk of harm to human health or some other aspect of the environment. Most significantly, it sets out accountabilities for managing contamination if a significant risk of harm is identified, which includes a hierarchy of liability for land contamination.

This is evidenced by s.10 (2) (d) (i) which states that "those who generate pollution and waste should bear the cost of containment, avoidance or abatement". Hence there is a clear link with managing waste in a responsible and sustainable manner. Here, it is understood that the NSW EPA has served remediation orders on Local Councils held to be responsible for the contamination of land which is deemed to present a significant risk of harm. It is further understood that one such notice specifically related to a former waste disposal facility which was previously operated by a Sydney metropolitan Council and requires it to remediate the site at Council's cost. As a result, a clear link has been established between contaminated land which presents significant risk of harm and the past and present activities of Local Councils. Furthermore, given the increasingly stringent environmental standards for "polluting" activities, the issuing of such a notice has the ability to impose significant financial burden upon a local Government and its constituents.

On 10 December 2003, this Act was amended by the assent of the *Contaminated Land Management Amendment Act 2003*. Whilst this Act deals mainly with the accreditation of site auditors, it also includes an amendment which enables the recovery in court, of a portion of investigation costs from those who have had partial responsibility for the contamination of land.

3.2 GUIDELINES

3.2.1 State Environmental Planning Policy No.48 – Major Putrescible Landfill Sites

This Planning Policy relates to the siting and establishment of major putrescible landfill sites, being facilities that receive waste from more than one local government area and have the capacity to receive:

> *6(a) (i) More than 75,000 tonnes per annum of waste; or*
>
> *6(a) (ii) More than 650,000 tonnes of waste over the life of the site.*

One of the main objectives of this instrument is to ensure that the use of landfill sites as a means of waste disposal is weighed against other waste management and waste disposal alternatives.

3.2.2 Environmental Guidelines: Solid Waste Landfills

The purpose of the Environmental Guidelines: Solid Waste Landfills (Guidelines) is to "launch" a consistent and environmentally responsible approach to managing landfills across NSW. The NSW DEC (EPA) holds the view that such an approach is vital to instilling community confidence in landfilling activities and avoiding extremely costly land remediation programs. As a result, rather than prescribing actions or designing specifications and standards, the NSW DEC (EPA) has selected a performance-based criteria approach for its Guidelines to promote and achieve the best environmental outcomes for the effective treatment and disposal of waste.

The Guidelines assume five principal environmental management techniques for landfills, which an owner / occupier must consider in order to achieve the best environmental outcome.

1. Site selection;
2. Design and construction;
3. Monitoring;
4. Site operations management; and
5. Remediation and post closure management.

The Guidelines focus on environmental management during the planning process and actual life of a landfill, by providing an outline of issues and goals that need to be managed. These include a system for regulating landfills and some current techniques for managing these issues. From this, current and future occupiers of landfills are required to acknowledge the environmental issues they are expected to manage, recognise goals and performance levels expected of them, and consider their strategic approach to landfilling throughout the life cycle of a landfill facility. It is understood from the NSW DEC (EPA) that these guidelines are likely to be updated within the next year or two.

3.2.3 Environmental Guidelines: Assessment, Classification & Management of Liquid & Non-liquid Waste

The purpose of these environmental guidelines is to provide general assistance to parties generating, storing, transporting, treating, processing, reprocessing or disposing of waste to fulfil their licensing requirements. As such, the document draws together common issues relating to liquid and non-liquid wastes. The guideline outlines:

- the obligations of those required to hold licences as well the general environmental obligations of those who do not need a licence,
- the classification and assessment process for both liquid and non-liquid wastes
- the rules set out within the Waste Regulation for the management of liquid and non-liquid wastes once they have been classified, as well as discussing good management practices and the constraints on sending particular wastes to certain landfill facilities,
- common issues arising from the classification and management of waste, drawing out some implicit and explicit linkages between various aspects of waste regulation and discusses these in relation other aspects of environmental regulation. These take the form of general answers to common questions including:
    - o • the handling of chemical waste;
    - o • the extent to which a generator is responsible for the assessment and classification of waste;

- o • sampling and testing of waste;
- o • relevant documents;
- o • acid sulphate soils in landfills.

3.3 OTHER RELEVANT DOCUMENTS

3.3.1 NSW EPA: Industry Sector Rural Waste Landfills Compliance Performance Report - December 2002

As part of its Industry Sector Compliance Audit Program, the then NSW EPA (now NSW DECCW) conducted compliance audits of 30 rural landfill facilities across NSW. Waste disposal facilities within the NetWaste region that were audited include:

1. Bathurst Waste Management Centre - Bathurst City Council;
2. Daroobalgie Waste Dept - Forbes Shire Council;
3. Glenlogan Road Landfill Facility - Cowra Shire Council; and
4. Mudgee Waste Disposal Depot - Mudgee Shire Council.

It should be noted that three of the four facilities audited are located in the Eastern subregion. The objectives of the audits were to address each facility's compliance with the statutory instruments issued to it and with legislation administered by the NSW EPA, and to outline a program of follow-up actions needed to address non-compliances and to improve environmental performance. The key issues identified from the audits related to:

- • prevention of air pollution;
- • prevention of water pollution;
- • land management and conservation;
- • prevention of hazards and loss of amenity;
- • monitoring; and
- • administrative requirements.

It is understood from the NSW DECCW (EPA) that this program of auditing rural landfills is likely to continue. At this stage, it is not known whether this program will focus solely on licensed facilities or whether non-licensed facilities will also be audited.

3.3.2 Extended Producer Responsibility Statement 2004

In March 2004, the DEC released the Extended Producer Responsibility Priority Statement 2004.

This document identifies 16 wastes of concern with nine of these wastes receiving priority focus. The intention of this statement is to put the industries producing the identified waste on notice to act to reduce the amount and/or impact of their products in the waste stream. The criteria used to identify waste of concern suited to management by Extended Producer Responsibility (EPR) schemes were:

- detrimental environmental and/or public health impacts resulting from the recovery and/or disposal of the product;
- total volume of the waste requiring disposal and/or the percentage of the waste stream it comprises;
- potential for waste avoidance, reuse or beneficial resource recovery;

- potential to contaminate waste streams and limit opportunities for resource recovery;
- likelihood of illegal disposal through dumping or littering;
- level of community concern about the waste; and
- extent to which EPR is the appropriate tool for managing the waste.

In determining the extent to which EPR is the appropriate tool for managing a particular waste, consideration was given to whether:

- there are clearly identifiable producers;
- the producers have a reasonable capacity to take action;
- there is a well structure or organised industry sector; and
- there is a capacity to influence the whole supply chain.

Using the above assessment criteria, the DECCW has identified the following 16 wastes of concern that are suitable for management by EPR schemes:

1. computers;
2. televisions;
3. used tyres;
4. nickel cadmium batteries, excluding mobile phone batteries;
5. plastic bags;
6. agricultural / veterinary chemicals
7. agricultural / veterinary chemical containers;
8. mobile phones and batteries;
9. packaging waste, excluding plastic bags;
10. cigarette litter;
11. electrical products, excluding computers, televisions and mobile phones;
12. end-of-life vehicle residuals;
13. household hazardous and chemical wastes;
14. office paper;
15. polyvinyl chloride (PVC); and
16. treated timber.

Extended Producer responsibility is now supported through the National Waste Management Strategy as well (refer section 2.1.4).

3.4 LEGISLATIVE IMPLICATIONS

From the above legislation, regulations and policies, it is clear that the effective and responsible management of waste is a clear and important objective of the NSW Government. Furthermore, it may be seen that appropriately managed waste streams are increasingly being viewed as potential resources and therefore increasing efforts are being made to recover resources with the result of maximising environmental sustainability.

Along with the encouragement of responsible waste management, there is an increasing "tightening" of legislation to deal with parties (including Local Governments) causing environmental degradation as

a result of poor waste management practices. This is evidenced by the numerous guidelines and associated reporting requirements and has seen the formation of hierarchies of responsibility along with the assignment of substantial penalties for environmental breaches or where a risk of significant harm is believed to exist. These point to an increasing requirement for those assigned with the responsibility of managing waste to ensure that their operations incorporate mechanisms to deal with risk in a pro-active manner. Such mechanisms include constant monitoring of facilities, maintenance and updating of operating practices / procedures and long term planning to meet future requirements.

It is increasingly recognised that manufacturers need to exercise some degree of responsibility for the wastes which result from the consumption of their products. This is being considered in the development and implementation of extended producer responsibilities and stewardship schemes.

The NSW Waste Avoidance and Resource Recovery Strategy 2010 provides a framework for reducing waste and making better use of resources. A number of strategies proposed in the current plan will support and assist local governments in reducing waste to landfill.

The introduction of a waste and environment levy in NSW from July 2009 under the Protection of the Environment Operations Act 1997, in the Sydney metropolitan Area (SMA) and Regional Regulated Area (RRA) has resulted in significant financial increases to dispose of waste in Sydney, Wollongong, Newcastle and the Blue Mountains. Prices have recently increased to $70.30 per tonne with companies now looking at ways to reduce the amount of waste to landfill or more competitive landfilling options.

An increase in the fee also has the potential to increase the likelihood of illegal dumping as people try to avoid the additional costs.

Lithgow City Council does not currently have to pay the levy for locally disposed waste however waste being transported for disposal from the regulated areas is liable to the fee. Council therefore need to understand the source of materials bought for disposal, particularly privately delivered larger loads of construction and demolition materials. A tracking system needs to be in place to log such materials and then to issue payment of the levy to the NSW State Government.

4 WASTE PROGRAMS

4.1 NETWASTE

NetWaste is a collaborative waste management project sponsored by two regional organisations of councils, the Central West (CENTROC) and Orana Regional Organisation of Councils (OROC), located in the central and western region of New South Wales, Australia. The region comprises 31 councils, covering a total area of 317,942 square kilometres and having a population of more than 300,000 people. The total NetWaste area represents over one third of New South Wales.

The vision of NetWaste is to "establish a waste management model to ensure cost effective environmental best practice for participating NetWaste Councils". To date, four subregional waste management plans have been produced.

Subregional Waste Management Plans are developed for the NetWaste region, taking into consideration the Councils of Bathurst, Blue Mountains, Cowra, Evans, Lithgow, Mudgee, Oberon and Rylstone. The Eastern subregion collectively covers an area of 24,584 square kilometres.

The aim of the subregional waste management plan is to identify waste management methodologies and proposals that are achievable within individual localities, whilst having regard for the existing geographical constraints, economic environment and initiatives. The plan is required by the participating Councils to provide direction for the ongoing management of waste services and collaborative interaction opportunities, to serve as a resource across the whole NetWaste region and furthermore to supplement the Central West NetWaste subregional waste management plan.

The plan outlines strategies to improve the delivery and planning of waste management services across the subregion. In formulating strategies to assist member Councils, the following issues have been taken into consideration:

- the ongoing roles and actions of the three regional NetWaste staff that will work to ensure the collaborative waste management initiatives are optimised;
- waste management priorities and the need to address localised requirements for economic service provision;
- trends in waste management that might assist member Councils to take advantage of collaborative activities within the subregion;
- environmentally and economically sustainable waste management practices having regard to geographical dependency;
- resource sharing opportunities between Councils in the subregion and broader NetWaste region;
- existing and planned waste management and resource utilisation initiatives;
- resource recovery opportunities having regard for potential benefits of group aggregation characteristics;
- educational support initiatives; and
- inter-organisational learning and research.

This strategy has taken into account the strategies contained in the Sub Regional and Regional Management Plans.

4.2 SUSTAINABILITY ADVANTAGE

Sustainability Advantage (SA) is a business support program run by OEH to assist organisations in the establishment of sustainable practices. The program has been in place since 2007 and has over 300 member organisations including Councils. Lithgow City Council is not a member of the SA program.

The program assists organisations through a range of modules which build capability in resource efficiency, stakeholder engagement, staff engagement, vision and commitment planning and carbon management.

As part of the program, three Industrial Ecology clusters have been developed with the aim to develop innovative waste resource use across companies.

One such cluster is Newcastle based. Companies from the cluster have been in contact with Lithgow City Council regarding the potential use of the recycling centre or landfill sites to manage and develop viable uses for a range of materials.

OEH are also working with the Waste Management Association of Australia in the development of a National industrial ecology network.

5 CARBON MANAGEMENT

The Australian Government is acting to reduce carbon pollution through the commitment under the Kyoto Protocol and a range of strategies including the potential for carbon taxes or trading schemes.

In 2009, the Government published draft legislation to establish the Carbon Pollution Reduction Scheme (CPRS). The CPRS was a 'cap and trade' scheme. This means a cap is set on the emissions that will be covered by the Scheme, permits are issued up to the amount of this emissions cap and the permits are able to be traded. The intent behind a cap and trade scheme is that emissions reductions can be achieved at the lowest possible price.

Under this proposed scheme, landfills which had emissions of 25,000 tonnes of CO2-e or more a year were required to participate in the scheme.

Councils with landfills with these emissions would have been required to purchase sufficient eligible emissions units to cover its direct emissions. By reducing the emissions the amount of units to be bought under the scheme is decreased.

The CPRS was not successfully supported and not introduced. However, the Federal Government are now proposing a carbon tax, the details of which are yet to be announced.

Carbon emissions associated with landfills may be captured under the tax so efforts to reduce or capture such emissions on larger landfills are recommended.

6 PROFILE OF COUNCIL'S CURRENT ACTIVITIES AND WASTE

6.1 MANAGEMENT

The Water and Waste Department of Lithgow City Council is a strategically focused unit within the Regional Services division with primary functions including:

- Collection of household waste and recyclables
- Collection of municipal waste and recyclables
- Operation of waste disposal facilities including the Lithgow Solid Waste Facility (landfill), Wallerawang, Portland, Angus Place, Capertee, Cullen Bullen and Glen Davis Garbage Depots, refuse transfer stations at Hampton, Meadow Flat and Tarana and the Lithgow Recycling Centre
- Disposal of bulk commercial wastes and the
- Management of former landfills.

To provide the services in a timely and cost effective manner a number of contractors are utilised.

The kerbside garbage and recycling service is currently undertaken by JR Richards Pty Ltd. This contract has been in place since July 2002 for a term of 7 years. The contract provides for the kerbside collection of a 240L waste bin and a 60L crate for recyclables on a weekly basis. The contract has been extended on an indefinite basis; however it may be terminated by giving 180 days' notice.

The Lithgow SWF is managed under contract by Henry Plant and Equipment Hire and has been in place since 1994. The contract is in force until the new facility at Blackman's Flat is commissioned but as the life of Lithgow SWF is possibly to be extended a review of the contract may be required.

SITA operate a number of skip bin collection services from the rural transfer stations.

6.1.1 Waste Stream Data

The following table (Table 1) provides details of the total waste stream that Council is managing, the makeup of domestic waste and the amount of resources being diverted from landfill for beneficial use. It is to be noted that the data is estimated based upon the vehicle type and loadings as no weighbridge facilities are available.

Table 1: Council total waste stream data

Sita Transfer Stations	**YTD 2010/2011**	**Comparison with last year**	**YTD 2009/2010**
Meadow Flat	289	84	205
Tarana	557	193	364
Hampton	191	-350	541
Total			
Richards	2,738	-8	3,663
Council Sweeper	1,626	-99	2,335

Litter Bins	285	-2	381
Eng Works	5,717	851	6,367
Private Cars	113	-10	160
Utes	3,317	-350	4,691
General Business	1,121	-390	1,857
Sita Comm/Ind 15m3	6,519	550	7,940
Cleanaway	835	343	721
Trucks/VENM			
C	496	-1109	1,882
D	1,027	-960	2,372
E	5,584	2885	3,401
Utes/Trailers	12	-5	21
Ash	-	0	-
Building Demolition			
D	533	221	480
E	9,368	4812	7,119
Total	9,900		7,599
Utes	136	-72	276
Asbestos	12	1	14
LCC Sewerage	-	-7	7
Greenwaste - COMM	-		-
D	22	-141	174
E	186	-243	593
Greenwaste - DOM	-		-
D	88	-2467	2,589
E	21	21	-
Utes	693	0	948
Lithgow Council	1,910	353	2,478
Cleanup	-	-174	174
Con Fill			
C	22	22	-
D	22	-122	144
E	483	186	296

Bio Solids - LCC	-	-284	284
Recycle Steel (Tonnes)	487	33	598
TOTAL	55,345		61,784
RECYCLED	10,526		15,230
LANDFILL	44,819		46,555

6.2 LANDFILLS

Lithgow City Council currently operates seven landfills and three transfer stations throughout its Local Government Area (LGA). The landfills accept putrescible and non-putrescible waste and are located at Lithgow, Portland, Wallerawang, Angus Place, Capertee, Cullen Bullen and Glen Davis. The three transfer stations are located at Hampton, Meadow Flat and Tarana. All the rural landfills are nearing the end of their operational life (refer to Table 2).

Table 2: Proposed closure dates for Lithgow City Council landfills

Landfill Name	**Date of Proposed Closure**
Angus Place	October 2011
Cullen Bullen	October 2012
Wallerawang	April 2013
Glen Davis	September 2013
Portland	April 2016
Capertee	March 2018

Investigations have shown that Lithgow SWF has the potential to be extended. This may be for a period of ten years if two stages are approved or potentially a further twenty five years, subject to a five stage plan approval.

Lithgow Solid Waste Facility is located off Geordie Street, Lithgow

The Lithgow Solid Waste Facility is Lithgow City Council's primary landfill. It has operated at this location for over 70 years. It is licensed to accept general wastes as well as certain regulated waste. A recycling centre operates separately adjoining this site.

Angus Place Garbage Depot Wolgan Road, Angus Place.

Angus Place Garbage Depot has been in operation for in excess of 40 years. Throughout this period the Depot has primarily received municipal waste with some industrial waste from nearby coal mines. The site consists of:

- An active municipal waste trench,
- Designated areas for builders' rubble and green waste surrounded by earth mounds; and
- Large areas of stockpiled trees; and various earth mounds.

Annually in the order of 950 tonnes are received at the landfill.

Capertee Garbage Depot, Capertee

Capertee Garbage Depot has been in operation for in excess of 30 years. Throughout this period the Depot has primarily received municipal waste. Capertee Garbage Depot is located 1 km south west from the township of Capertee. Access is provided from Hearne St. The land has an area of 4.7ha.

Annually in the order of 560 tonnes are received at the landfill. Of this quantity, metals are separated for recycling, and where possible greenwaste is mulched and used on site for landscaping and rehabilitation works. Clean soil is used for rehabilitation.

Cullen Bullen Garbage Depot, Castlereagh Hwy, Cullen Bullen

Cullen Bullen Garbage Depot has been in operation for in excess of 40 years. Throughout this period the Depot has primarily received municipal waste.

The site consists of

- An active municipal waste trench and
- Designated areas for builders' rubble and green waste surrounded by earth mounds.

Annually in the order of 1,050 tonnes are received at the landfill.

Glen Davis Garbage Depot, Glen Davis.

The commencement of the site coincided with the beginnings of the nearby oil shale mine during the 1930s. Throughout its operational period the Depot has been the main local receptor for household Waste. Access to this depot is restricted to Glen Davis and Glen Alice residents. The site consists of the current municipal waste trench and building and green waste stockpiles.

Annually in the order of 360 tonnes are received at the landfill.

Portland Landfill, Portland/Cullen Bullen Rd, Portland.

The site has been in operation from the 1930s with approval for the disposal of night soil.

The landfill site is divided into three main areas.

1. The putrescible waste area, comprising several open waste disposal cells.
2. The differentiated waste area where scrap metal, green waste and building waste are stockpiled and
3. The former nightsoil area.

Annually in the order of 7,300 tonnes are received at the landfill.

Wallerawang Landfill, Pipers Flat Road, Wallerawang.

This landfill has been in operation for in excess of 50 years. The depot has primarily received municipal waste with some sump oil, tyres, scrap metal and builders rubble.

The site consists of:

- An active municipal waste trench
- Designated areas for builders' rubble and green waste surrounded by earth mounds;
- Rehabilitated areas; and
- Various earth mounds.

Annually in the order of 2,830 tonnes are received at the landfill.

The smaller landfills are not manned so residents are required to separate building waste, green waste, steel and putrescible waste at all the Landfills. Appropriate signage is provided at these facilities.

Proposed Central Waste Facility

As current landfills are nearing the end of their life, Council has planned a new Central Waste Facility on the site of the old Western Main Colliery at Blackmans Flat. The facility will only be concerned with the disposal of waste that is generated from within the boundaries of the Lithgow Local Government Area. Development consent was secured in 2006 for this facility.

A Condition of Consent imposed obligations for the closure of the seven existing landfills. This condition states that:

> *"All existing landfills within the Sydney Catchment Authority area of operations are to be closed within 6 months after the commencement of operations of the Blackmans Flat Waste Management Facility. The closure plans for the existing landfills are to be developed in consultation with the Sydney Catchment Authority."*

In subsequent negotiations with Lithgow City Council, the Department of Environment, Climate Change and Water's (DECCW) has stated the requirement that the six rural landfills must be closed as soon as possible with all waste then transferred to the Lithgow facility. Negotiations with DECCW (now OEH) have seen draft timelines for the closure of the six landfills in line with the dates contained in Table 2.

6.3 TRANSFER STATIONS

Council currently operates three transfer stations at the following locations. Only household domestic waste is able to be disposed of at these facilities, although some recycling is provided at Hampton:

- Hampton, Rydal/Hampton Road, Hampton.
- Meadow Flat, Curly Dick Road, Meadow Flat.
- Tarana, off Main Street, Tarana.

6.4 KERBSIDE COLLECTION

Kerbside waste collection services are primarily governed by the contract between Council and JR Richards & Sons. Kerbside collection is provided to a number of villages and Lithgow suburbs. The collection route and day of pick up is outlined in Figure 1.

The current domestic service includes the weekly collection of a 240litre mobile garbage bin and 60 litre recycling crate. The bin and crate are emptied on the same day but by different vehicles.

Standard items of glass, aluminium, steel, plastics, paper and cardboard can be placed into the crate.

The recyclable materials are transported to Lithgow SWF and separated through a Materials Recovery Facility (MRF) operated by JR Richards. Council own the shed in which the MRF is housed.

Urban areas of Lithgow, Portland and Wallerawang n receive a bulky household goods kerbside collection service in September and March each year.

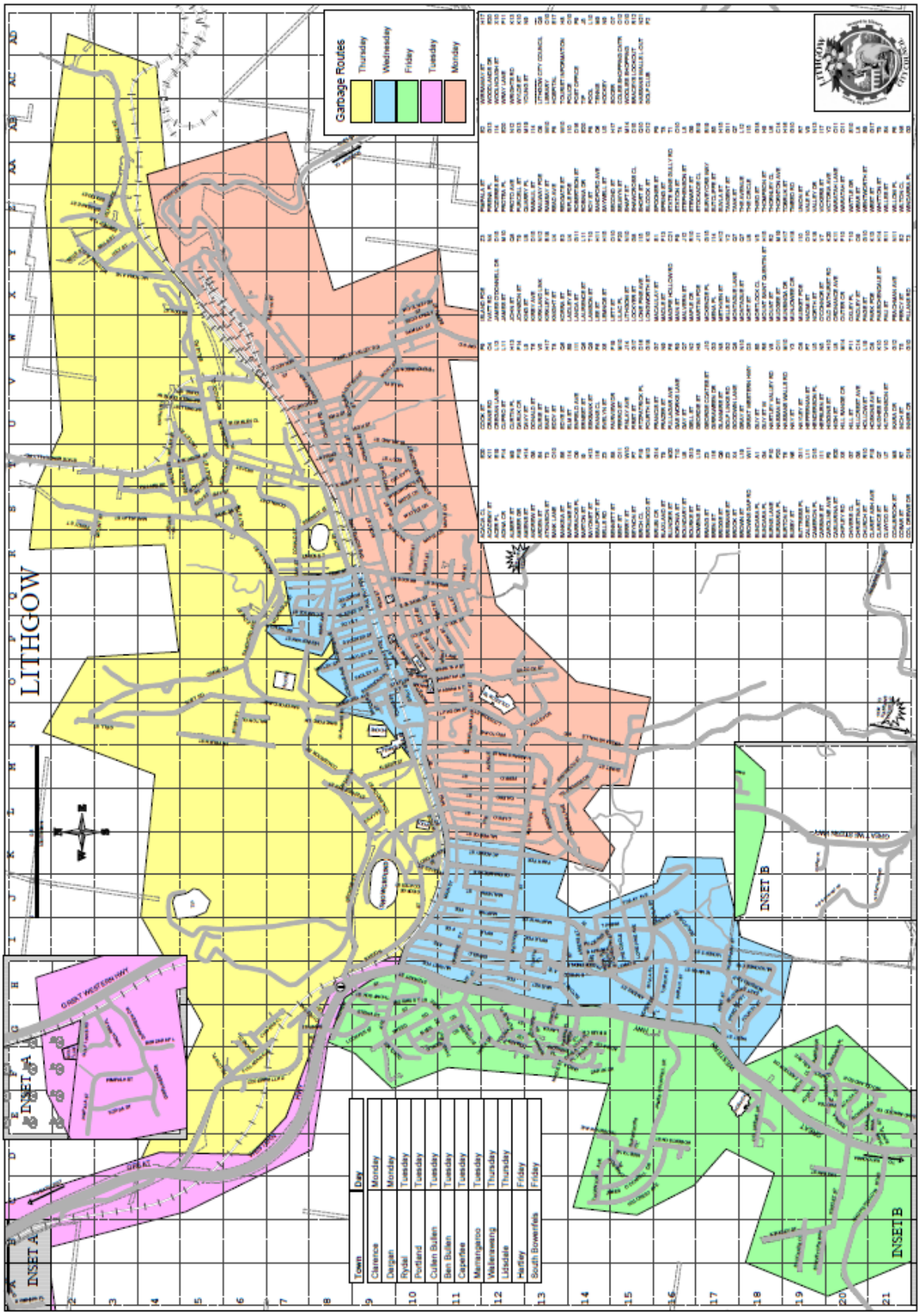

Figure 1: Kerbside Collection Routes

6.5 CONSTRUCTION AND DEMOLITION

NetWaste recently undertook a selective tender process on behalf of the NetWaste Councils for the regional wide management of Construction and Demolition (C&D) waste. Unfortunately no contract was awarded. Lithgow City Council did not receive enough volume of C&D to make it worthwhile to participate.

However Netwaste are looking to organise a one off processing of such materials in 2011.

C&D waste is handled separately at the Lithgow SWF where some of it is further processed for reuse on the landfill site by Henrys. Unused material is landfilled.

6.6 COMMERCIAL AND INDUSTRIAL

A weekly collection service is provided to commercial businesses. This is the same as the residential collection and allows for the collection of 1 240 L mobile garbage bin and a 60 l recycling crate.

Industrial businesses manage their own services associated with larger front lift and collection bins.

Council has assisted OEH, under the Sustainability Advantage program to find users of plastics within the region thereby reducing a potential waste being landfilled.

6.7 HOUSEHOLD HAZARDOUS WASTE

HHW refers to household chemicals items which are often out of date or which pose a threat to the local environment. Items that make up this waste stream also typically have limited disposal options, particularly in rural and regional areas. The HHW waste stream is made up for wide-ranging list of items and includes items such as paint, household chemicals, pool cleaners, general pesticides, smoke detectors and household batteries.

NetWaste coordinated a regional HHW collection campaign in late 2009 with 14 Councils participating and a total of 8,737kg of material collected. Significant time and funding has also been committed to investigating the viability and issues associated with establishing permanent storage units of this waste stream over the past 3 years. DECCW previously allocated $90,000 in funding to NetWaste to assist with the establishment of these facilities, which is to be matched dollar for dollar by participating councils.

There are currently limited services available to residents in the NetWaste region for the correct disposal of items such as paints, smoke detectors, gas bottles, solvents and household cleaners, which are collectively known as household hazardous chemicals. In previous years, annual collection campaigns have been held throughout the region, with the last one held in 2009. Given the limited availability of disposal options, it is considered beneficial for Councils to participate in a regional collection undertaken by a single contractor.

NetWaste recently undertook a selective tender process on behalf of the NetWaste Councils for the upcoming NetWaste Regional Household Chemical Collection campaign.

13 of the 28 NetWaste Councils registered interest in participating in a regional campaign. Lithgow expressed an interest in being involved in this Contract and was therefore included in the tender process.

A milk-run collection was held throughout the NetWaste region in November/December 2010.

6.8 RESOURCE RECOVERY

6.8.1 Ewaste

E-waste is the collective term for electronic items that are unwanted, and have no resale value or market and is a type of waste that has limited disposal options, particularly in the central west. Not only does e-waste take up valuable space when disposed in landfill sites, but the components that are used to make the items, such as lead and mercury can contaminate the soil and groundwater through leaching.

In recognition of the issues with management of e-waste, Lithgow City Council is one of sixteen Councils in the NetWaste region participating in an important program to provide an e-waste recycling service in partnership with Sims Metal Management (SMM). The material collected through this campaign is sent to the Sims E-Recycling Facility in Sydney for recycling, where valuable components of the e-waste can be recovered for other uses.

This is the fourth year of the e-waste collection program in the NetWaste region, with over 48 tonnes of material collected and recycled so far.

Lithgow City Council accepted e-waste from local residents as a free service at the Lithgow Recycling Centre, Geordie Street, Lithgow from 27th May until 17th June 2011.

A broader range of items were eligible for collection through the program in 2011 in recognition of the growing range of e-waste that is requiring disposal.

There are some items that Council can receive an income for from SMM. The items eligible and how Council receives the income is as follows:

Income can be received for:

- Computer Towers
- Printers & faxes
- Copiers
- Servers
- Scanners
- Projectors
- DVD & Video Players

Councils have 2 options to receive the income from the above items:

Councils can place the ferrous items in the scrap metal pile and be paid the scrap metal rebate from SMM (currently at $185 + GST per tonne), this was not done in 2011 as Council does not use SMM for scrap metal collection, or;

Package the above items and transport them to the local scrap metal merchant. This was the option chosen in 2011.

For the remaining non-ferrous items, there is a recycling cost to Council however this can be largely absorbed through the credit value offered by SMM - there are 16 NetWaste Councils participating this year, so each Council has $2,000 recycling credit. Details of this component of the program are as follows:

There is a cost associated with recycling:

- Computer monitors
- Televisions

- Keyboards and mice
- Laptops
- Telephones
- Electronic games and joysticks
- CDs & DVDs
- Cameras
- Speakers & stereos

These items need to be packaged and delivered to Sydney for recycling – transport is to be arranged and paid for by individual Councils. The recycling cost for these items is $550 + GST per tonne; however these costs are absorbed through the $2,000 recycling credit available to each Council.

Material that is delivered to Sydney was packaged using pallet crates that were purchased by Council specifically for this task.

Table 3: E-waste collection in 2011

E-Waste Collection 2011	**Number Collected**
Monitors (all sizes)	179
TVs (all sizes)	36
Keyboards	41
Mice	2
Laptop / Notebook	4
Telephones	4
Electronic games & joysticks	2
CD & DVD players	0
Cameras	0
Speakers & stereos	6
Printers	36
Scanners	24
Microwaves	4
Ferrous items	5 crates

The e-waste recycling service is only available for a limited time, so the E-Waste collection service is not as convenient as it could be.

Twelve pallet crates for the storage of E-Waste throughout the year have been installed at the Lithgow Recycling Centre. These have the potential to hold up to 40 monitors each. This will ensure year-round collection and ease of delivery to Sydney for recycling.

6.8.2 Paper/cardboard

Paper and cardboard is collected and recycled as part of the kerbside collection program for both domestic and C&I premises.

It is separated at the MRF, bailed and collected by JR Richards who hold a supply contract with a paper recycler.

Larger quantities of cardboard and /or paper from commercial and industrial premises are managed independently. These may be collected in crates, cages or compacted prior to collection by a recycler.

6.8.3 Greenwaste

Lithgow Council provides a greenwaste collection service during the growing season. This occurs in October, December, February and April. This material is retained separate to the landfill and processed to commercial mulch material.

A large number of NetWaste Councils currently divert garden organics and wood and timber (Material) from landfill, with processing of this material carried out under a single contract. The previous contract arrangement expired on 4 July 2010. NetWaste recently undertook an open tender process on behalf of 16 of the 28 NetWaste Councils for this service, with Lithgow City Council expressing interest in being involved in this Contract and therefore included in the tender process.

Orange City Council was appointed as the administering Council for the purpose of the tender process, with an Evaluation Panel undertaking an evaluation of the tenders in accordance with the Request for Tender (RFT) documents. The resulting Contract is a fixed rate arrangement for an initial two (2) year period, with there being no option for price variation during the Contract Term. The Schedule of Rates is structured for payment upon completion of the Works based on a processed cubic metre rate, and hourly rate for use of shears to process larger sized Material (if necessary).

Engagement of Shoalhaven Recyclers means Lithgow City Council pay the Contractor for the service provided in accordance with the Schedule of Rates. Lithgow Solid Waste Facility receives approximately 560 tonnes of greenwaste per annum which if fully converted to a 50mm coarse mulch will cost approximately $9,000.

6.8.4 Mattresses

Lithgow City Council participated in a NetWaste survey some time ago for information on discarded mattresses in its LG area. This was in response to an innovation in processing of mattresses into their components for recycling

Organisations such as Mission Australia have such recycling centres established in a number of regions. It was found that Lithgow City Council does not have a particular problem with mattresses at landfills.

For the time being Lithgow SWF will continue to accept mattresses as part of general garbage.

6.8.5 Plastic bags

Lithgow City Council does not have a policy regarding the use of plastic bags and their disposal in landfills within the LGA.

Council however participated in a NetWaste Plastic Bag Replacement Project aimed to change people's behaviour and raise awareness of alternatives to using plastic bags. NetWaste purchased 10,000 non-woven shopping bags and distributed them evenly between participating NetWaste councils including Lithgow. Community members received one free non-woven bag for every 20 plastic bags they handed in to the council.

6.8.6 Other

a) Pressure Vessels (gas bottles), batteries, paints, oils

Through NetWaste, DECCW funding was granted for the installation of permanent storage units for HHW. This has been refocused to assist Councils purchase storage units for lead acid batteries and gas cylinders. Discussions have also been held with WorkCover about design and the possibility of establishing POBB units (paint, oil, batteries and bottles).

b) Tyres

Tyres are only collected at the Lithgow SWF. Only residential tyres are accepted with a limit of the disposal of 6 tyres per vehicle.

c) Steel

Steel scrap is collected and sent for recycling from Lithgow SWF.

d) White Goods

White goods are collected and stored separately to scrap metal. This includes fridges, washing machines, dryers etc. and sent for recycling.

e) Event Management

Planning for waste–wise events has begun. Council will be able to provide services and advice to those running public events in regards to recycling and waste management. Council can provide a number of 240L garbage bins on request for events.

6.9 EDUCATION

Council has a dedicated Sustainability Officer position for 2 years who is responsible for educating the Community on waste matters in conjunction with the Water and Waste Manager with the aim to reduce the amount of waste both generated and for ultimate disposal to landfill.

A major part of the two-year Urban Sustainability Project (USP) is community education focussing on household sustainability, of which waste reduction embracing the three Rs – reduce, reuse, recycle – is a significant component.

The project will encourage household behaviour to:

- reduce waste through shopping choices;
- reuse items within the household, community, and via second hand goods trading;
- participate in recycling schemes

The project uses the following methods:

- information production
- events and exhibitions
- small group workshops
- support networks

Behaviour change is an ongoing process dependent upon not only the availability of information but also acceptable role models, easy-to-follow processes and an attitude of community support for the

behaviour. The USP aims to provide these for community waste reduction practices over the next two years.

In particular the project will facilitate:

- home composting and worm farming
- shopping with packaging in mind
- promotion of swap and reuse schemes
- understanding and participating in recycling schemes.

NetWaste has also undertaken education across the region in waste avoidance, reduction and reuse particularly at schools via the Greenhouse project.

An Early Childhood Services Waste – wise Education Project has also commenced.

As part of the Lithgow Urban Sustainability Project, a survey was designed to find out about household environment practices. The survey was conducted to find out what actions Lithgow citizens currently take to reduce waste, energy and water use in their homes. It was found that:

- 86.7% of respondents said they already separated recyclables for collection.
- 76.7% of respondents said they would recycle more if they had a wheelie bin for recyclables.

Over the next 12 months Council will run community workshops to increase household sustainability, make homes more comfortable and save you money on water and energy bills.

6.10 CARBON MANAGEMENT

There are no formalised carbon management arrangements in place associated with the landfills, transfer stations or waste management activities at Lithgow City Council. The Council does calculate and report on its waste operations carbon footprint as part of its annual reporting process.

7 FUTURE – COMMUNITY FORECAST 2016

At the 2006 Australian Bureau of Statistics (ABS) Census, the Lithgow Local Government Area population was 19 756. Lithgow is part of the ABS Central Western Region Statistical Division. The population of the Lithgow Local Government Area was 11.6% of the population of the Central Western Region and 0.3% of the population of NSW.

The population of the Lithgow Local Government Area grew slightly between 2001 and 2006, by 337 people or 1.7%.

The Lithgow Local Government Area includes the urban centres of Lithgow, Portland and Wallerawang (being population clusters of more than one thousand people under the Australian Standard Geographical Classifications 2001) plus a number of rural localities. Cullen Bullen is a population cluster classified as a rural locality (200 – 999 people). Other smaller rural populations are Ben Bullen, Capertee, Glen Alice, Glen Davis, Hartley, Sodwalls, Rydal, Hampton, Tarana and Marrangaroo.

The breakdown of the population of the Lithgow Local Government Area by ABS Urban Centre/Locality classification is in the table below.

Table 4: Lithgow LGA population

Urban Centre/Locality	**Population**
Lithgow	11,298
Wallerawang	1,906
Portland	1,882
Cullen Bullen	199
Other	4,114
Total	19,756

Source: ABS Census of Population and Housing 2006

The latest population projections produced by the NSW Department of Planning in 2005 (NSW Statistical Local Area Population Projections 2001 -2031 2005 Release. NSW Department of Planning), project almost no population increase for Lithgow over the 25 years between 2006 and 2031. Their projection is a population of 20 840 in the year 2031 (currently 19 756).

Forecast population growth can also be deduced from the ABS which was commissioned in 2008 by the NSW Department of Health & Ageing to develop population projections for every local government area in Australia. The results indicate that Lithgow's population is expected to increase slightly to 2017, after which the population is expected to progressively decline.

Table 5: Lithgow Local Government Area forecast population growth (2007 – 2027)

Year	**Forecast Population**
2007	20 660

2012	20 799
2017	20 832
2022	20 705
2027	20 412

Source: ABS 2008, NSW Dept Health and Ageing

Lithgow is expected to experience compound annual population growth of around -0.06% per annum. All forecasts should be considered with caution as they do not take into account changes to population resulting from employment growth or major changes to base industries.

It needs to be noted however that Lithgow City Council, in its 2007 Lithgow City Council Strategic Plan has identified a desirable growth rate of 1% to 2% per year for the period to 2025. This would increase the total population to between 25,500 and 31,000.

This increase in population over the next 15 years needs to be taken into account when considering the funding and provision of waste services. In the short term for the period of the waste strategy 2011-2016 population does not play a large factor in the proposed waste strategies and facility requirements as the increase is not significant.

8 BEST PRACTICE

8.1 MANAGEMENT

Waste management can be provided in a number of ways based on whichever is most convenient and cost effective. This may be through the use of in house staff, contractors or a combination of both.

Fees for the provision of services vary across Councils.

Wingecarribee Shire Council and Blue Mountains City Council are both within the Extended Regulated area and have to pay the environmental levy of $60.30. Bathurst Council is within the Netwaste area with Lithgow and outside of the Levy requirements.

The fees charged by the Councils for the disposal of similar products at the Transfer Stations or landfills are compared in the table below.

Table 6: Fees for disposal

Waste Type	**Blue Mts Council ($)**	**Wingecarribee Council ($)**	**Bathurst Council ($)**
Sorted household recyclables	free	Free	Free
Mixed waste including ewaste (tonne)	119.00	214.00	50.00
Mixed waste (minimum charge)	12.00	11.00	3.00
Green waste (tonne)	119.00	60-80.00	30.00
Green waste (minimum charge)	-	11.00	3.00
Car tyres (each)	8.50 (max 5 tyres)	5.00	14.00
Truck tyres	230.00 (tonne)	16.00	27.50 (each)
Clean Fill (tonne)	34.00	14.00	39.00
C &D (tonne)	71.75	102.00	-

8.2 LANDFILLS

In 2010 the NSW State Government introduced new planning regulations which stipulate that new landfill applications must have a "suitable level of recovery of waste" either by using alternative waste processing facilities or by composting food and garden waste.

The term, Alternative Waste Technologies (AWT), describes a technology that:

- Diverts waste away from landfill;
- Recovers resources from the waste stream; and

- Minimises the impact on the environment.

AWTs are described as "alternative" because they offer a more sustainable solution than waste disposal methods such as landfill, landfill bioreactors and incineration. AWTs can include mechanical separation methods, biological processes, thermal technologies and mechanical biological treatment.

Figure 2: Example of best practice AWT (Macquarie University)

Two examples of AWT best practice are SITA's Ecolibrium™ Mixed Waste Facility and Veolia's Woodlawn "Eco-Precinct".

SITA's most advanced AWT, the Ecolibrium™ Mixed Waste Facility, is located at the Spring Farm Advanced Resource Recovery Park in Narellan. This is Australia's first fully integrated waste processing facility and is comprised of:

- Ecolibrium™ Mixed Waste Facility, which incorporates a facility for renewable energy production
- Ecolibrium™ Organics Facility
- Materials Recycling Facility
- Highly engineered landfill, which produces renewable energy from landfill gas
- Resource Recovery Facility and
- Shop for the sale of recovered resources

An important feature of the facility is the integration and optimisation of all waste, resource and material flows within the site. The only materials leaving the site are the recovered resources sold for recycling and re-use.

The Woodlawn facility, between Goulburn and Canberra, is a large multi stage project being developed on the site of an old copper, lead and zinc open-cut mine. It incorporates three

components. The mine void is used as a large landfill incorporating an in-situ bioreactor which generates green energy by accelerating the decomposition process of residual wastes to maximise the yield of biogas. The bioreactor currently has an annual putrescible waste input of 500,000 tonnes with an application currently under consideration to increase the annual input to 1.13 million tonnes.

The Woodlawn Alternative Sorting and Processing (WASP) facility will be designed to extract reusable materials and produce compost for onsite mine rehabilitation, with the objective of returning the degradable land back into productive land. Approval has been granted for this facility to process up to 240,000 tonnes of mixed waste per year. Approval has also been granted for the Woodlawn Composted Organics and Greenwaste (WOCOG) facility which would handle up to 40,000 tonnes of garden organics per year.

For both facilities, waste is sourced from beyond the immediate Local Government Area.

Other landfill operators have limited the type of materials that can be disposed to landfills resulting in innovative ways of dealing with the materials.

Such a ban is being proposed by OEH in the Waste Strategy for the banning of all “biodegradable (organic) waste” to landfill. This, however is proposed once biodegradable bags have been proven sustainable and feasible.

In 2009, Oslo in Norway placed such a ban on landfilling of biodegradable waste. Exceptions apply for waste with a total organic carbon content not exceeding 10% and waste with loss on ignition not exceeding 20%. The ban implies that biologically degradable waste such as paper, wood, textiles and food waste must be disposed of in alternative ways.

Denmark banned landfilling of high calorific power waste, and also organic waste, in 2003. It operates a general state tax on waste that is differentiated so that it is most expensive to landfill waste, cheaper to incinerate it and tax exempt to recycle it.

Some councils have similar schemes with residents whereby the use of smaller waste bins results in a reduced annual garbage rate.

8.3 TRANSFER STATIONS

The “Maximising Minimisation” theme of the 2011 National Transfer Stations Conference & Expo (to be held in Adelaide 31/8/2011) reflects the best practice trend for these facilities, which is towards treating transfer stations as resource recovery centres. This trend was highlighted in Sustainability Victoria’s, Guide to Best Practice at Resource Recovery Centres (2009), the previous release of which was titled: Guide to Best Practice at Resource Recovery and Waste Transfer Facilities. This change in title acknowledged the change of focus to resource recovery centres and the increasingly important function they play as alternative technologies change the way we manage waste in the future.

The role of resource recovery centres is to receive used resources and separate it into constituent materials for recovery; any residual waste which is not recoverable is aggregated for appropriate disposal. The recovered materials may be processed on-site or transported to an alternative facility for further processing.

Resource recovery centres also play an important function in increasing the awareness of their users and local communities on the efficient use and reuse of materials, and the role that recovery plays in establishing sustainable consumption behaviours.

A best practice example is provided by the winner of the Best Small Transfer Station in the 2009 National Transfer Station Excellence Awards “Wodonga Council’s Transfer Station and Resource Recovery Centre”. Incorporating energy and water conservation in its practices, this facility receives approximately 7,500 tonnes of MSW and other products per year with a significant proportion diverted to recovery.

Waste transfer stations can take various forms based upon the requirements of the surrounding population. The design of the transfer stations depends on the materials to be collected, sorted and how the station will be staffed and accessed.

CCTV or video cameras are now standard in the operations of rural transfer stations.

8.4 KERBSIDE COLLECTION

Numerous investigations have indicated that there is a range of approaches to dealing with municipal waste and no 'one best way'. However some sort of source separation is a fundamental premise for all systems with varying use of co-mingling. MRFs are commonly used to separate the co-mingled recyclable materials.

MRFs use automated and manual sorting to separate mixed recyclable materials into groups of specific materials such as brown glass. The outputs are suitable for reuse, recycling or reprocessing. Once these materials have been sorted into specific streams, such as metals, glass and plastics, they can be recycled.

A review of waste practices was undertaken by NSW DECCW in 2010. The study team determined that 55 different arrangements of kerbside collection were in place across LGAs in NSW. These differed based on locality and population.

In 2006 DECCW published *Preferred Resource Recovery Practices by Local Councils* providing a guide to the preferred minimum service levels for kerbside resource recovery and residual waste collections. The preferred minimum service standard is:

- 80, 120 or 240-litre bin residual waste collection
- Either 2 x 120-litre bins (one for paper/cardboard and one for containers) each collected fortnightly on alternate weeks, or a 240-litre bin fully commingled fortnightly recycling collection
- 240-litre bin fortnightly garden organics collection for high garden organics generation areas, or a tied and bundled garden organics collection for low garden organics generation areas.

Current best practice in kerbside collection and recycling has now moved to include the collection of all organic wastes not just green waste.

Services are provided via additional bins for kerbside separation or drop off points such as those at Transfer Stations.

In NSW, 1.75 million tonnes of organic material were diverted from landfill in 2009 (including 777,000 tonnes garden, 102,000 tonnes food, 75,000 tonnes wood, and agricultural organics including 519,000 tonnes of manure). This is a 39% increase in diversion since 2003, when comprehensive data was first collected.

Organic food waste is typically recycled either using enclosed aerobic windrow composting along with other biodegradable materials, including garden vegetation; or, through anaerobic digestion (food only excluding garden vegetation), for example at the Earthpower facility in Sydney which generates electricity and fertiliser from the process.

Where source separation is not carried out, food may be processed into pasteurised and biologically stabilised organic outputs for use as compost or soil amendment material, providing prescribed conditions are met. This takes place at various AWT sites in NSW.

Facilities currently available in proximity to Sydney are SITA's SAWT facility, and UR-3R and ArrowBio (operated by WSN Environmental Solutions) which recover recyclable matter and compost.

Outside Sydney a number of facilities have been established under contract by the private sector for councils, such as Tryton Worm Farm in Lismore, Biomass Solutions in Coffs Harbour, Remondis in Port Macquarie and SITA's Bedminster Composting Plant in Port Stephens. Other councils with food

waste recovery systems include Penrith City Council, Bellingen Shire Council, Nambucca Shire Council, Camden Council, Wollondilly, Liverpool City Council and Lane Cove Municipal Council.

Examples of source-separated food waste collections from households show that these can contribute to high recycling rates. For example, Coffs Harbour and Lismore councils have included food in a weekly green organics collection in 240-litre 'green' bins. This is in addition to a separate 'yellow bin' fortnightly collection for paper, cardboard and containers. Coffs Harbour achieves an overall recycling rate of 87.6% and Lismore 68.5%.

There are also a number of programs such as The Love Food Hate Waste education program which was launched in May 2010 to assist in community education.

Overseas, the management of municipal waste involves a number of initiatives to achieve high recycling rates.

Flanders in Belgium has the highest recycling rate for municipal waste in Europe. Key features of its system include a collection system based on maximum source separation; establishment of resident waste limits of 150kg waste per year per person and payment for disposal of any residual waste over the limit; a landfill ban for household waste; an innovative approach to waste infrastructure (where half of household recyclables are collected in 'recycling bring-back yards'); direct charging of householders for waste disposal; significant use of home composting (by 25% of households); producer responsibility schemes for household packaging and other wastes; and incineration of waste with energy recovery (25% of waste incinerated). As a result, only 1.1% of municipal waste ends up in landfill in Flanders.

Oslo, in Norway has an annual charge of between US $150–370 per household to finance kerbside recycling which only collects paper and drinking cartons. Glass, metal, plastics and packaging must be delivered by householders to 537 local collection sites across the city.

8.5 CONSTRUCTION AND DEMOLITION

The Reducing Waste: Implementation Strategy 2011–2015 notes that *"NSW is tracking well towards its 2014 recycling targets for C&D waste, but we need to refocus our efforts to guarantee that the 2014 resource recovery targets will be achieved."* This target is for 76% of C&D waste to be recycled, compared to the 2000 baseline recycling level for C&D of 65%.

The NSW C&D Division of the WMAA (Waste Management Association of Australia) has issued a Code Of Best Practice For Waste Processing In The Construction & Demolition Industries. This document advocates the use of project based waste management plans to include waste minimisation, recycling and disposal. These plans should be mandatory on larger projects and should be developed prior to construction with review to ensure that waste recovery is maximised.

The NSW C&D Division of the WMAA has also issued a construction and demolition guidelines document. The guidelines provide best practice processes for minimising the potential for contamination (particularly asbestos) in recycled C&D Materials. The aim is to reduce risk in handling C&D waste and also to boost recycled product sales.

In December 2010, the Federal Government's environment department invited tenders to prepare a status report on construction and demolition waste, covering each state and territory. The status report will assist governments and industry "to grow effective markets and inform the development of a national standards and specifications for the use of recovered construction and demolition waste in roads and infrastructure."

To date C&D best practice is the understanding of the materials that will be available, the planning for their removal and separation at source to allow efficient recycling or the potential for reuse back in the new development.

8.6 COMMERCIAL AND INDUSTRIAL

Significant opportunities exist to improve resource recovery rates from the C&I waste stream. In 2008–09, the NSW resource recovery rate from C&I waste was only 8% for plastics; 16% for wood; 18% for food waste; and 53% for both paper/cardboard and glass.

Best practice comprises a number of strategies including education, minimisation programs, networking to share learnings and resources and smart collection systems.

Lithgow City Council has been involved through the SA program on one occasion a matching service to assist waste producers find businesses who will take commercial quantities of specific waste products.

The Waste Management Association of Australia in partnership with OEH are developing a national program for resource sharing and use based upon a program established in the UK called "National Industry Symbiosis program" (NISP). The aim is to develop a national database to link organisations that require raw materials and those that can provide them from waste materials. The program also endeavours to identify opportunities for the use of materials or the development of smart technologies. To date workshops have been held in Wollongong, Newcastle, Sydney and Melbourne with organisations valuing the networking and information as to the resources that are potentially available.

For example, in 2009, Dunlop Flooring successfully trialled the use of recycled carpet off-cuts from Ontera carpets and mattress ticking from the Salvos as an alternative to raw materials for foam underlay. Used mattresses and carpet are reusable materials that contain polyurethane and rubber, and are an ideal resource to replace the raw materials historically used. An investment of $500,000 in new equipment has resulted in Dunlop saving $1.5 million a year by incorporating 92 per cent recycled content in their foam underlay without reducing product quality. Dunlop plans to build on its success and expects to process an additional 5,000 tonnes of old carpet and used mattresses in 2012.

The NSW DECCW Reducing Waste: Implementation Strategy 2011–2015 proposes several components of best practice business waste collection.

Large businesses are to be encouraged to move to best practice systems of source-separated materials and / or a range of alternative waste technologies.

For small to medium businesses the best practices recommended are:

- *providing isolated C&I businesses, such as corner or individual shops, with kerbside waste collection services similar to their residential customers*
- *encouraging other small to medium businesses to move to the best practice model of a two-bin system and/or alternative waste treatment*
- *investigating the development of place-based or precinct solutions for small to medium C&I businesses – a possible approach would be for industry groups, such as local chambers of commerce, and local councils to contract waste services on behalf of local businesses in the same way that regional organisations of councils do for councils.*

Statutory changes are also proposed to *empower local councils to require commercial and industrial premises to have satisfactory collection arrangements for their waste, including appropriate verification of such arrangements, in accordance with DECCW guidelines*.

8.7 HAZARDOUS HOUSEHOLD WASTE

The Reducing Waste: Implementation Strategy 2011–2015 notes that:

> "*Making the disposal of problem wastes which need specialist treatment more convenient for households, via accessible drop-off facilities, would help reduce contamination and improve recovery of recyclables.*"

The strategy focuses on producer responsibility/product stewardship to deal with household hazardous waste but also recommends:

> "*subsidising the recovery of particular problem wastes from households, in conjunction with identifiable major producers, such as the paint industry, with three-yearly reviews to ensure the subsidies are reliable and sufficient to support resource recovery, and that the economic needs remain valid*".

The strategy recommends expanding the number of local waste collection centres (drop-off points) with the aim of achieving at least one centre for every 50,000 residents across NSW. Funding from infrastructure grants is proposed to subsidise the capital costs of progressively providing permanent local collection centres for problem wastes to supplement the existing mobile collection events.

The strategy also sets a target date of 30 September 2011 for development of:

- *"best practice design standards and a locational strategy for a network of permanent local waste collection centres"*
- *"an operational policy outlining the role of the permanent local waste collection centres, including a proposed list of problem wastes that can be received"*
- *"a financial management plan for the operation of the local waste collection centres that provides for overall cost recovery while allowing residents to dispose of small quantities of problematic residential waste within their local government area free of charge."*

To support the drop off collection centres are programs such as ChemClear and DrumMUSTER. Lithgow City Council already participates through Netwaste in these programs.

ChemClear is an industry-run product stewardship scheme that provides a safe collection and disposal service nationally for unwanted agricultural and veterinary chemicals. Registered chemicals that are produced by manufacturers who are part of the ChemClear scheme are collected free of charge. Other chemicals, including chemicals that are de-registered, out-of-date, mixed, unlabelled, unknown, or produced by a manufacturer not contributing to the stewardship program, can also be collected for a fee. The next NSW ChemClear collection run is scheduled for June (http://www.council.lithgow.com/env_agChemWaste.html).

DrumMUSTER is the national program for the collection and recycling of empty, cleaned, non-returnable crop production and on-farm animal health chemical containers. Clean, empty containers that are free of any chemical residue can be delivered to one of over 700 collection sites across Australia. The Lithgow LGA has two drumMUSTER sites (180 Mort St, Lithgow and Adam's Shed, GWH, Hartley).

8.8 RESOURCE RECOVERY

8.8.1 E-Waste

Under the National waste Management strategy a national product stewardship framework has been established. Initially a national television and computer product stewardship scheme is to be developed. This will include the development of a National code of practice for e-waste recyclers with the aim to transition this document to an Australian Standard by December 2012. As of mid-2011, the enabling legislation was still being debated in federal parliament.

The Reducing Waste: Implementation Strategy 2011–2015 proposes prohibitions on disposal of e-waste to landfill by 1 July 2015.

In the long-run adoption of product stewardship for e-waste should lead to more efficient recycling and disposal. But similarly to household hazardous waste, local waste collection centres (drop-off points)

are currently the most efficient method for aggregating collection of e-waste from households and small businesses.

The commercial value of e-waste is evidenced by the number of operators providing e-waste collection services from larger business or aggregated collection points, such as Sims Group, Veolia, MRI Australia and 1800 E Waste.

Unwanted e-waste in working condition can also sometimes be donated to local schools or charities or refurbished for commercial resale. Local programs to encourage such reuse can provide resources to those unable to afford new items and a visible community benefit to encourage participation in e-waste recycling.

8.8.2 Paper/cardboard

Kerbside collection systems accompanied by consumer education, provide a viable resource recovery source for paper and cardboard. Modern office or shopping centre developments can also be required to separate collection of paper and cardboard as these represent a significant proportion of their waste. Smaller businesses can also generate significant quantities of paper/cardboard waste which can be collected through inclusion in the household kerbside collection scheme or by providing drop off points for separated waste, including paper and cardboard.

Several Councils have implemented cages for the collection of cardboard where by the boxes are required to be flattened and passed through a slot. This ensures the cardboard is compressed and any contamination from polystyrene or other internal packaging has been removed.

8.8.3 Greenwaste

Green waste collections in NSW are increasing. A 2006 survey of Sydney councils found that 29 out of 43 councils surveyed (67%) offered a weekly, fortnightly or monthly collection. Others offered a call up booking collection service or collect green waste either on designated collection days or as part of periodic household bulk rubbish collection days. Only one council offered no green waste collection service, while the semi-rural Blue Mountains council offered a scheduled kerbside chipping service bi-annually.

Most of this material is shredded for use as mulch or compost.

However, these green waste collections only deal with what is the lesser component of the household organic waste stream. A 2008-09 analysis of the composition of household waste identified that food makes up 40% of the household waste in the residual (red) bin and this could potentially be added to the 11% non-food organic compostable (garden waste) to form a consolidated organic waste stream.

The Reducing Waste: Implementation Strategy 2011–2015 incorporates the objective of removing organics from household residual waste bins, however there are two key obstacles to creating a consolidated organic waste stream:

- food waste is often disposed of in plastic bags which compromise the recoverability of the resultant organic waste stream
- soiled nappies (and like products) need to be collected weekly and thus removed from residual (dry) waste so those bins can be collected less frequently.

The strategy recommends the adoption of compostable bags by the food and grocery retail sector with potential to prohibit non-compostable bags by 1 July 2016. It also recommends assessment of alternative treatment options for the disposal of used nappies.

Putrescible organic waste can provide an energy source (see Woodlawn landfill example). The commercial viability of this will depend not only on the quantity of waste fuel available, but also on the

ability to cost-effectively use the power generated for local uses or potentially by generating revenue from feed-in to the grid.

Alternatively, organic waste can be composted to provide a commercial product for sale or for use by council as a substitute for purchase products. Two best practice examples of this are:

SITA's Ecolibrium™ Organics Facility near Narellan, which is a fully enclosed, environmentally controlled tunnel composting system, similar to the highly successful Port Macquarie composting facility used by Hastings Council. Tunnel composting is a simple technology that uses natural decomposition processes in an enclosed, controlled environment. The decomposition process takes place inside concrete tunnels and takes as little as 21 days to produce high quality compost material.

Lord Howe Island's Vertical Composting Unit (VCU). In operation since 2000, the VCU goes beyond other composting options because it's able to process the Island's entire organic waste including meat, dairy products, food scraps, green waste, cardboard, paper and sewage sludge. Since its installation the VCU is processing between 0.8 to 1.2 tonnes per day. This produces between 0.5 - 0.75 tonnes of compost, which local residents are using on their gardens.

There is also a move with some organisations to sort their greenwaste particularly the timbers. Timbers are becoming more valuable to some companies in relation to carbon credits and it is likely that a market may exist in the future for timbers, rather than as mulch.

8.8.4 Mattresses

Australia sends 1.25 million mattresses to landfill each year with most people disposing of a mattress every 8-10 years. Mattresses are one of the most common items put out on the verge for Council collections with almost all going to landfill. The average mattress takes up 0.75 cubic metres of space in landfill and contains: 12.5 kilograms of steel, 2 kilograms of wood and 1.5 kilograms of foam.

There are several commercial mattress recycling businesses operating in NSW, including Soft Landing in the Illawarra region and Newcastle Mattress Recyclers serving the Newcastle and Mid North Coast regions.

8.8.5 Plastic Bags

Although plastic bags make up only a small proportion—about 2 per cent—of the litter that goes to landfill, by their nature plastic bags are a very visible component of the litter stream. A Nolan-ITU report indicated that 20 million to 30 million bags each year are inadvertently littered from waste management activities, such as landfills and bins at shopping centres and malls. In addition, their material persistence means that the number of bags in the environment will increase over time. Bags can be particularly damaging to the marine environment.

The most environmentally damaging plastic bags in terms of litter and impact on wildlife are the lightweight bags most commonly distributed from supermarkets. Of the 6.9 billion bags consumed annually in Australia, 6 billion are made of high-density polyethylene [HDPE]. Because of their light weight, bags made from HDPE—for example, supermarket singlet bags—tend to balloon in the wind and are the source of inadvertent litter blown from garbage bins and landfill.

Countries such as Ireland, South Africa, Denmark, Sweden and Germany have successfully implemented strategies to deal with the environmental impact of plastic bags. Some communities in New South Wales have demonstrated their support for a reduction in plastic bag consumption by a total ban on plastic bags in their towns as part of the Planet Ark plastic bag free campaign. Coles Bay in Tasmania and Kangaroo Valley and Huskisson in New South Wales have led Australia in this initiative.

Further, a mix of management solutions has been implemented in Australia over the last few years. Public awareness strategies and voluntary measures appear to be the most common methods used to address consumer behaviour. In the marine environment legislation has been effective in curbing plastic bag litter from shipping. As well as the introduction of regulations relating to the littering of plastic bags and programs encouraging consumers to recycle plastic bags, over the past 10 years there have been several attempts in other States and Federal Parliament to introduce a levy on plastic bags.

There is a move to only use biodegradable plastic bags which is supported by both the National Waste Management Strategy and NSW Waste Strategy.

8.8.6 Other

a) Pressure Vessels (gas bottles), batteries, paints and oils

The best practice management of these wastes is in line with that of Household Hazardous wastes whereby collection days, take-back schemes or drop off locations are provided for the community to leave their wastes for proper disposal or treatment.

b) Tyres

A Tyre product stewardship scheme is to be developed under the National Waste Management Strategy. Reuse methodologies for the removal of steel and crumbing of the rubber are available and in use in NSW to produce rubber based products such as park furniture, soft fall for playgrounds, pavers etc.

c) Steel

Steel has been a valuable recycled by product for over twenty years. Best practice is to provide drop off locations for larger steel waste such as cars with skip bins for the collection of other manageable steel products. As Steel is a valued commodity, contracts are usually in place for the purchase of the waste.

d) Event management

Sustainability Victoria's Public Place Recycling, Best Practice Guidelines (2007) recommends a two bin system for events and provides a detailed guide to best practices in signage, placement, bin size and type, etc.

Sustainability Victoria also ran the Waste Wise Events certification program for five years, ending in 2009. This program developed a number of useful resources for best practice waste management at events. The Event Planner waste action tools can be accessed at: http://www.slf.org.au/eventplanner/guide/actiontools.

8.9 EDUCATION

Education centres are being incorporated into a number of new waste recovery centres, including both the Woodlawn and Ecolibrium™ Mixed Waste Facility.

Wollongong City Council have an education centre associated with their landfill and run a range of programs for school groups and the community. Wingecarribee Shire Council have a dedicated waste officer assisting with community and school education similar to that of Lithgow City Councils Sustainability officer.

The Reducing Waste: Implementation Strategy 2011–2015 recommends using targeted education, communication and partnerships for both household and C&I waste:

- *to improve resource recovery by households, such as conducting a series of targeted media and education campaigns to help householders reduce waste generation, recycle their waste and decide 'what to put in what bin; and*
- *to improve waste avoidance and resource recovery by businesses, for example, by conducting a series of targeted education campaigns to promote waste reduction and recycling at work as well as at home*.

The strategy also recommends a renewed public education campaign to address littering and illegal dumping, backed up by training programs for enforcement officers.

Many schools also have active recycling and waste education programs. Imaginative councils could provide input and participation to these school programs which not only directly educate children, but which also provide indirect awareness and education to their parents, combined with a sense of obligation which may be greater than can be easily achieved through other channels.

8.10 CARBON MANAGEMENT

There are two options for the management of carbon emissions from landfill and the generation of energy.

Option one is the recovery of energy from waste which has the potential to deliver good environmental outcomes in relation to resource conservation, including less waste to landfill, significant reductions in greenhouse gas emissions and contributing to the NSW energy supply. Wastes which have a high calorific value are suitable for combustion.

NSW are currently developing a policy for the implementation of waste to energy facilities.

There is significant use of energy from waste options in Europe in particular. For example, approximately 40% of municipal waste in France is treated by energy from waste applications.

In the United States, California is an established market leader in bio-energy, which involves the recovery of electricity from the burning of forestry, agricultural and urban biomass (organic wastes).

Option 2 involves the reduction of methane emissions from landfills with the creation of energy for use on a landfill site or for supplying back to the NSW grid. Several of these systems are already in operation and have been so for a number of years.

Most recently Brisbane City Council have contracted Landfill Gas Industries to build a plant at a remediated landfill site at Willawong. The Landfill site is closed however underground wells and a piped gas harvesting system had been previously installed. Power will be generated and sold back to the grid.

Another landfill gas facility at Rochedale has been generating power since 2004 and produces enough renewable electricity each year to power 6,500 homes.

9 STRATEGY OPTIONS

9.1 MANAGEMENT

The current management of waste systems and landfills within Lithgow Council and the involvement in regional contracts through Netwaste is efficient and effective. The systems are managed through Council with strategic contracts in place.

It therefore makes sense to continue with the management via the Lithgow City Council Environment and Development Department.

However, dependent on the strategies to be implemented by Council, contracts may need to be reviewed.

All new tenders should require companies to provide best practice technologies and where possible incentives for performing sustainably and minimising waste / maximising recycling.

The Environment Levy is used as an incentive for Councils and the users of their services to reduce their waste to landfill. Costs attributed to households and organisations need to be realistic to change behaviour.

There is no indication that the NSW State Government will move to include Lithgow Local Government Area into a Regulated Area and require the payment of the waste levy.

However Council should evaluate the full cost of delivering the waste services taking into account indirect social and environmental costs known as externalities. This cost should be reflected within the costs for use of landfills and other waste services.

Council should review their waste disposal costs in light of the other costs charged by regulated and non-regulated councils.

The revenue raised by including externalities should be used to fund sustainability projects that will aim to neutralize the adverse social and environmental impacts from the delivery of waste management services. For example, to neutralize the impact of greenhouse gas emissions from the regional landfill, revegetation or energy reduction projects may be undertaken.

It is also recommended that an annual waste management levy be considered to be applied to all rateable properties. Funds raised from this charge could be used to help fund non–domestic waste services including the network of waste transfer stations. This application of this levy will be dependent on the other levies in place in the local Government Area and what will be acceptable to the ratepayers.

Council also need to have a system in place to identify any material that may have been generated outside of the Lithgow LGA, within one of the Regulated Areas. Any such material disposed at a licensed landfill requires the payment by Council of the Levy to State Government.

The responsible management of domestic waste has been the focus to date for Council. However if Council wishes to meet its objective "to provide waste and recycling collection services that encourage a reduction in land filling" Council may need additional or reallocated resources to manage new or modified waste management systems.

9.2 LANDFILLS

Council already has well established plans in place for the development of Blackman's Flat, the extension of Lithgow SWF and closure of the 6 nominated rural landfills.

It is recommended that best practice be implemented in the management and development of the sites, including systems for handling a range of recycling, composting or organic material management, leachate management and methane gas extraction and use.

Best practice in waste management now calls for a range of waste treatment options including the utilisation of "AWTs" (Alternative Waste Technologies).

New planning legislation supports the best practice with calls for new landfills to have a "suitable level of recovery of waste" either by using AWTs or by composting food and garden waste.

9.2.1 Blackman's Flat

It is recommended that council view Blackmans Flat as a best practice facility and implement a range of waste management technologies keeping in mind that this facility will not operate as a landfill for at least 10 years if the option to extend Lithgow SWF is accepted.

As the development consent only lasts for 5 years (December 2011) unless the development consent is activated by physical commencement, Council has obtained legal advice and is proceeding in accordance with that advice to ensure the consent does not lapse. It is considered worthwhile that the transfer Station be developed including recycling facilities in the first instance at the site. This allows the community to utilise the facility with a focus on recycling and reuse.

9.2.2 Lithgow SWF extension

A review of the potential to extend the operational life of land filling at the LSWF has been undertaken. The results of this review demonstrate that there is capacity to significantly extend the operational life of the LSWF.

Landfill surveys and volume calculations between 31 July 2008 and 19 April 2010 were used to determine an average annual filling rate at the LSWF of 33,310 m3/year. The landfill volume provided by each stage of the proposed extension was determined using three dimensional modelling with the operational period of each stage then calculated using this average annual filling rate. The operational life of each stage is subject to change based on changes in population/waste generation, the possible return of waste from closed rural landfills and the introduction and success of recycling and reuse programs.

Table 7 provides an estimate of the landfill life with the proposed extension based on an average filling rate of 33,310 m^3/year.

Table 7:Lithgow SWF extension

Stage	Volume Available (m^3)	Years Operational Period	Start	End
1	148,000	4.4	2010	2014
2	177,000	6.3	2014	2020
3	119,000	3.3	2020	2023
4	132,000	3.3	2023	2027
5	220,000	6.6	2027	2034
Total	796,000	24	2010	2034

The Lithgow SWF is the principal site for waste disposal in the Lithgow area. The landfill is compliant with current Environment Protection Authority standards and has a long term life of up to 25 years

(subject to approval by DECCW). It is therefore suggested that the extension of the landfill for at least stages 1 and 2 be implemented. It is recommended however that the infrastructure for improved reuse / recycling opportunities be considered, such as methane gas drainage and organic material reuse facilities.

9.2.3 Closure of landfills

The closure of the rural landfills will cause some concern in the community. Community engagement is recommended to ensure those using the facilities understand their short term options until other waste management facilities are in place.

This may also be part of a broader engagement outlining the overall waste strategies including kerbside collection options.

9.3 TRANSFER STATIONS

Lithgow City council has a requirement to close a number of rural landfill sites. The closures will mean inconvenience to some rural residents who will no longer have waste disposal facilities within their immediate community. The installation of transfer stations operating as drop off locations maintains the service to the local community and ensures that waste is managed in an acceptable manner.

Council already operates 3 transfer stations at meadow Flat, Hampton and Tarana. With the closure of Angus place, Cullen Bullen, Wallerawang, Portland and Gen Davies over the next 4 to 5 years, the consideration of the location of 1 or 2 transfer stations is required.

Centralising waste disposal by converting one or more of the landfill sites to transfer stations from which material requiring disposal is then hauled, to either Lithgow SWF or Blackmans Flat in the longer term makes sense. Landfill material collected at the transfer station can be periodically transported to a larger landfill facility in the region for disposal. Separation and stockpiling of recoverable waste materials can still be undertaken, with these either being treated on-site in the same way as the active landfill, or being transported off-site when a sufficient volume is reached.

As council already own the land associated with the rural landfills and they are currently utilised as a waste facilities it is recommended that Council sites transfer stations on these sites rather than seek greenfield location. However, the volume of waste that is currently disposed to each site needs to be considered to ensure the location of the transfer station is a viable option. The introduction of other waste management strategies may also impact on the use of the transfer station.

From 2009 / 2010 the annual tonnage for each landfill is as below in the table.

Table 8: Landfill annual tonnage

Landfill Location	**Annual Tonnage (2009/2010)**
Angus Place	950
Capertee	560
Cullen Bullen	1050
Portland	7300
Wallerawang	2830
Glen Davis	360

Transport distances are critical to the viability and acceptability of a waste transfer station.

The distance that the local community and other facility users are willing to travel to dispose of garbage and recyclables should be established (e.g. by conducting a community survey). The facility should be located within an acceptable distance from the community it is designed to serve.

The distances from the facility to landfill and resource processing plants should be minimised. Research suggests that for rural areas a maximum distance of 30kms is reasonable for residents to use a waste transfer station.

Taking into consideration the location of each landfill site, the distance to travel and the volume of materials collected, transfer stations are best likely developed at Capertee and possibly Glen Davis.

Residents of Glen Davis and Glen Alice are located approximately 34 to 36 kms from Capertee. This is just beyond the maximum distance that is reasonable for residents to travel to dispose of their waste. It is noted that 360 tonnes of material is managed at the Glen Davis Landfill. It is recommended that a transfer station be constructed in the Glen Davis/Glen Alice area to coincide with the closure of Glen Davis landfill.

It is recommended that residents of Capertee be consulted in relation to the closure date for Capertee landfill. Based on the community feedback, a determination can be made as to whether a transfer station is required at Capertee.

All other areas where landfills are to be closed are within sufficient distance of other transfer stations, Lithgow SWF or the new proposed facility at Blackmans Flat.

It is noted that kerbside collection is provided to all the villages associated with rural landfills with the exception of Glen Davis/Glen Alice. These facilities and hence the transfer stations are most likely to be utilised by the semi-rural / rural landholders who are required to travel some distance to services.

It is recommended that a transfer station be included in the development of Blackman's Flat and this be developed to coincide with the closure of Cullen Bullen landfill

Consideration should also be given to the upgrade of the existing three transfer stations. These stations currently only accept waste with little or no opportunity for recycling and materials separation. Planning has already commenced to upgrade Tarana.

The NSW Waste Strategy proposes the establishment and expansion of local waste collection centres with an aim for one collection centre for every 50 000 residents. Lithgow City Council may be entitled to at least one of the centres within the LGA. The location of such a centre may be appropriately placed at one of the transfer station sites.

9.4 KERBSIDE COLLECTION

There are a range of options for the effective collection of municipal waste and recycling at the kerbside. The DECCW waste Strategy proposes:

- *encouraging councils to adopt best practice systems for household collections through:*

  (a)urban and large regional centres adopting as a minimum –

  (i) three-bin collection systems with separate bins for dry recyclables, food/garden and residual waste, WITH: 'increasing the recovery of organic material.

It is therefore recommended that the various waste collection services across the region including garbage and bulky household goods collections, garden organics and recycling collections be reviewed. The different services should be designed to cater for delivering the most cost effective sustainable package of services to as many residents in the region as possible. Factors that influence the services available in a particular location include the distance to transport material to a processing facility; the capacities for semi-rural properties to self-manage some waste types since most rural

properties have the capacity to mulch or manage garden organics on site and finally the isolation of some properties in the region, where collection services are impractical and not cost effective.

Best Practice would indicate that a three bin system be considered for all current kerbside collection areas, to collect waste (smaller bin), greenwaste / organics and comingled recyclables. However, the downstream infrastructure and markets need to be available to process the materials collected.

Council would need to consider the capability of the MRFs required, the management of organic materials through composting or energy recovery, the type of transfer station design and the land required to manage more of these materials. This needs to be considered in the development of both Blackman's Flat (particularly as this is a long term landfill site) and the extension of Lithgow SWF.

It may be more suitable to consolidate the current kerbside collection scheme in the short term by replacing the recycling crate with a bin and offering residents the choice of a smaller waste bin with a financial incentive to do so.

Expansion to a three bin system could be progressive with initially only greenwaste being collected while Council considers the management of other organic materials. The collection of other organic materials could then be introduced once biodegradable bags are available or the State poses bans on organics to landfills.

Moving to a three bin system in the medium term would place Council in a position to move towards best practice at a future date.

The introduction of a three bin system may operate as such:

- Garbage Collection (Red Bin) - Weekly
- Kerbside garbage collection occurs weekly, where the service is provided. The red-lidded bin can be used for non-hazardous household waste.
- Recycling Collection (Yellow Bin) - Fortnightly
- Kerbside recycling collection occurs fortnightly, where the service is provided. The yellow-lidded bin can be used for household recycling. Residents would be encouraged not to put recyclable items in plastic bags, or put plastic bags in the recycling as they damage the machines that sort the recycling.
- Garden Organics Collection (Green Bin) - Fortnightly
- Kerbside garden organics (or green waste) collection would occur fortnightly, where the service is provided. The green-lidded bin can be used for smaller garden organic material. Larger items such a tree stumps and branches can be taken to the local waste management facility.
- The biannual Clean up Collection service should remain.

Both the modification of the current "two bin" system or a move to the three bins will require a new waste collection contract including possible upgrades of the existing MRF.

It is also important to note that collection systems are only as good as the people who use the services. Council need to be sure that the residents and commercial and industrial properties will use either an upgraded 2 or 3 bin kerbside collection system.

Council have an objective "*to provide waste and recycling collection services that encourage a reduction in land filling"* with targets to reduce waste to landfill and increase recycling. Providing either a 2 or 3 bin system aimed at collection of the same materials will achieve the objective in the short to medium term.

It is recommended that Council seek indicative costs from service providers to implement both the 2 and 3 bin system and the associated management and MRF upgrades.

This will then allow Council to consider any increased fees that residents may have to pay before seeking community input to the preferred proposal.

It is also recommended that Council commence discussions with Netwaste and other service providers as to the opportunities to implement best practice technologies and management over the next five to ten years for the management of organic materials.

Such planning should be considered for inclusion into any new transfer station design as well as those for Blackmans Flat.

9.5 CONSTRUCTION AND DEMOLITION

Councils waste data shows that 9900 tonnes of construction and demolition waste was received in the current year to date, with some of the material being sorted, crushed and used at the Lithgow SWF.

Best practice for such waste is separation at source with reuse at the site or recycling.

It is noted that Netwaste has in the past investigated tender opportunities for regional C&D management but without success.

It is recommended that Council undertake a review of the C&D received to sites and determine whether Council itself, can sort, crush and either sell or reuse the materials in road base or drainage materials.

Planning controls for building works should also be reviewed to ensure there is a requirement that upfront planning is undertaken on the management of materials including separation at the source and potential reuse on site.

9.6 COMMERCIAL AND INDUSTRIAL

Council have had some involvement with Commercial and Industrial (C&I) waste management through the provision of the kerbside collection service and education campaigns.

There are a range of programs available to engage with C&I businesses to minimise waste at their premises and operations and to reuse and recycle where possible.

The NSW Environment Trust annual Sustainability grant funding has over the last several years supported C&I resource efficiency programs aimed at giving businesses the capacity to minimise their wastes from packaging, raw materials etc.

The Sustainability Advantage program supports organisations in understanding and becoming resource efficient. Council are able to play role and influence these organisations as a member themselves, through facilitation or network support.

Council can also play a role in establishing linkages with businesses in regards to resource use through the Economic development services that Council offers. Reducing waste and being innovative with raw materials usually in the long term saves money.

Council can also support business through the development of broader contracts for materials recycling to gain benefits on behalf of smaller C&I organisations. Council has the benefit of being able to see possible linkages through understanding the businesses in a locality.

Consideration should be given by Council to the impact of changes to any kerbside collection schemes and what the C&I organisations require.

Council should also look at the opportunities to partner with C&I organisations in educating the community on waste management and minimisation. This can particularly be the case regarding plastic bag usage or in the case of larger grocery organisations the minimisation of food wastes.

9.7 HAZARDOUS HOUSEHOLD WASTE

Council already has an effective management system in place for the collection of HHW. Via Netwaste, a regional chemical collection campaign is organised and facilitated on an annual basis.

It is recommended that Council continue to support and utilise this program for the collection and disposal of household hazardous waste.

However a hazardous waste store should be developed at the Lithgow SWF to allow for the safe collection of chemicals and other items such as batteries, gas bottles, paints and mercury fluorescent tubes over the year.

A similar store should also be included in the future development for Blackmans Flat.

9.8 RESOURCE RECOVERY

9.8.1 Ewaste

Council have been implementing best practice in the collection and disposal / sale of ewaste. This has been undertaken on an annual basis through a regional based program facilitated by Netwaste.

However Council have noted the volume of ewaste collected and have installed 12 cages at the Lithgow SWF for the ongoing collection of materials across the year.

As the National Television and computer Product Stewardship Scheme is implemented, Council needs to understand the opportunities through Netwaste and as an individual Council.

Local government participation in the scheme is voluntary with Councils possibly choosing to partner with industry in the implementation of the scheme.

The scheme provides for industry-funded arrangements for the transport, reprocessing and recycling of televisions and computers, including disposal of residual waste.

Local councils may choose to negotiate a partnership with television and computer industry arrangement administrators to provide designated collection services. These arrangement administrators will be responsible for overseeing the management of access points and the manner in which they accept products.

Local councils' partnerships with arrangement administrators could be structured in a number of ways, for example:

- co-locate collection sites at existing facilities
- service contracts with local councils to operate collection site or
- short term site arrangements for focused take back events as opposed to permanent collection sites.

The scheme aims to ensure that the community has reasonable access to collection services in metropolitan, regional and remote areas, within five years of scheme commencement.

It is therefore recommended that Council continue to provide the community a service for the collection and disposal of ewaste as is currently in place while the arrangements for the national scheme are determined.

9.8.2 Paper/cardboard

Council already collect and recycle cardboard and paper through the kerbside collection program with larger generators of these materials having their own systems for compaction and collection in place.

In line with best practice, collection points should be made available at transfer stations and in the design for Blackman's Flat.

9.8.3 Greenwaste

There are a range of opportunities for the management of greenwaste.

Lithgow City Council are currently part of a Netwaste contract whereby greenwaste is collected and processed to produce a usable and saleable mulch.

It is recommended that Council continues with this contract for its agreed term.

However it is also recommended that Council considers the long term management of greenwaste if all organic material is to be collected in the future. Discussions should be held with Netwaste and service providers as to alternative treatments either at a regional or local Council level.

9.8.4 Mattresses

Council currently landfills mattresses as the number for disposal is small. It is recommended that Council continue to explore any potential opportunities for collection and recycling in the future as they become available.

9.8.5 Plastic bags

The NSW Waste Strategy contains an objective for

> *"phasing out the use of non-compostable bags (other than reusable carry bags) in food and grocery outlets"*

to assist in the collection and reuse of organics and to assist with the breakdown of these bags in landfill.

Council have a number of options to reduce the use of plastic bags in the waste stream:

1. encourage the use of biodegradable bags in support of the DECCW objective
2. work with business to remove plastic bags and promote alternatives
3. go plastic bag free.

Such a strategy for Lithgow City Council would be as follows:

1. Make sure a town or suburb is capable of going Plastic Check-out Bag Free. A town or suburb that is capable of going Plastic Check-out Bag Free has all locally owned supermarkets and retail outlets. This makes it easier as the decision to ban plastic bags can be community driven at the very local level.
2. Designate a local champion to coordinate Lithgow's Plastic Bag Free campaign.
3. Talk to your local community groups e.g. Tidy Towns, Lions or Rotary clubs that may be able to help.
4. Compile a list of retailers in Lithgow that use plastic check out bags. It may be useful to identify those stores in your area that are already plastic check-out bag free. You can use the names of these retailers when you are persuading other retailers to stop using plastic check-out bags.

5. Order paper, calico, polypropylene or other reusable bags for every retailer to sell. There are many options of size, style and material for reusable bags on the market today. Find local suppliers on the internet or via the phone book.
6. Write to all retailers in town to invite them to join your Plastic Bag Free Town campaign.
7. Run an information night for retailers and the local community to attend.
8. Get retailers to sign off on their commitment to go Plastic Bag Free.
9. Decide on a design to go on Lithgow bags. By having one design for the whole town it can save money as there will only be one set up cost. This also ties the whole community effort together.
10. Set a launch date for when Lithgow will be Plastic Check-Out Bag Free. This will be when the reusable bag orders arrive and can be distributed throughout the town.
11. Make local launch date announcements so all residents are aware of their town going Plastic Check-Out Bag Free. Contact all local media to cover this.
12. Arrange Plastic Bag Free Town launch day. Invite the Mayor to attend and speak. Notify all local media to cover launch.

It is recommended that Council in the short term progress Option 2 and work with the retailers and food suppliers to reduce the use of plastic bags. A number of larger retailers will already have these initiatives in place which Council can assist in promoting more broadly in the community.

Long term Council should consider Option 1 in accepting only biodegradable bags. This would be in line with the strategy proposed by DECCW.

However, there may be smaller sections of the community who would be keen to pursue being plastic bag free. It would be recommended that such a strategy is undertaken within a smaller community and trialled before becoming wider spread. Communities to date who are plastic bag free are smaller close knit communities with incomes including tourism. They do not have larger retails and grocery stores serving the community.

9.8.6 Other

a) Pressure Vessels (gas bottles), batteries, paints and oils

Refer section 9.7 Hazardous Household waste

b) Tyres

It is recommended that the number of tyres disposed to Lithgow SWF be assessed and the disposal method for commercial tyres in the area be determined.

There is a likelihood that commercial tyres are being removed from the region for disposal or recycling and the potential may exist for Council to partner with this activity. This service could then be offered to the community for a fee and a ban could be made on accepting tyres to any landfills in the area.

c) Steel

Council should continue with the arrangements already in place for the collection and recycling of Steel waste. Facilities should be provided for collection at transfer stations and Blackmans Flat.

d) Event management

It is recommended that Council establish a policy and protocol around waste-wise events. In some councils, all council events must be waste wise and sustainable utilizing biodegradable utensils, washable glasses, no plastic bags etc.

Other councils also support community run events in being waste wise and provide two collection bins for waste and recycling. This is undertaken at a reduced rate to encourage and promote sustainable events.

9.9 EDUCATION

Council have a sustainability officer role which is responsible for community education on waste minimisation. This role is only for two years.

It is recommended that Council develop a long term community engagement and education plan based on this strategy, waste minimisation and recycling and the need to inform the community of the closure of landfills, the development of transfer stations and new landfill sites.

This should in turn advise Council on the resources required to undertake such a plan and hence the need for a sustainability officer role beyond the two years.

Council staff involved in economic development should also be involved in the communication engagement plan.

In the short term, the planned education program should be continued.

Education opportunities with Netwaste should also be supported.

9.10 CARBON MANAGEMENT

Council currently does not have any formalised carbon management plans in place in regards to landfilling and waste activities.

It is recommended that at a minimum, the landfill design for Blackman's Flat be reviewed and assessed for the possibility of the inclusion of methane gas collection, extraction and reuse system. Costs should be gained from experienced service providers as to the capital requirements and potential pay backs.

A similar review should be undertaken on the Lithgow SWF extension and current landfill operation.

10 STRATEGY 2011-2016

10.1 SUMMARY STATEMENT

The Lithgow Waste and Recycling Strategy 2011 - 2016 is based on the sustainability principle of continuous improvement. The improvements in the delivery of waste services in Lithgow, as recommended by the strategy, will directly support all key elements and goals adopted by the Council's Sustainability Initiative.

Initiatives aimed at recovering additional resources from the waste stream, improving access to waste transfer facilities and making provisions to neutralise the social and environmental impacts from delivering waste services will have positive long term sustainability outcomes.

The strategy applies the principles of the waste hierarchy in support of Council's objective

"to provide waste and recycling collection services that encourage a reduction in land filling".

10.2 ECOLOGY

Generally waste services have a positive ecological impact as they minimise inappropriate waste disposal practices and recover valuable resources. Delivering waste services however need to be efficient otherwise the financial, environmental and social cost can outweigh the benefits. The issue of expanding collection services to remote rural areas therefore requires careful consideration.

The Strategy contains a number of actions aimed at minimising waste and achieving greater resource recovery which will save non-renewable resources, save water and energy, reduce greenhouse gas generation and reduce the impacts from extractive industries.

The most positive ecological outcome of the Strategy comes from the proposed costing of externalities and the establishment of a sustainability reserve which will be used to neutralise the environmental and social impacts generated by delivering waste management services. The annual reserve will be able to fund a number of important sustainability projects and will enable Council to seek grant funding which will generate even greater benefit.

10.3 ECONOMIC

Kerbside waste collection services and waste transfer stations are an efficient and cost effective way of transporting waste for processing and disposal. The proposal to develop new waste transfer facilities in the Capertee, Blackmans Flat and Glen Davis areas will create a network of transfer facilities that reduce inappropriate waste dumping and provide positive social and economic benefits to the areas they service.

The Strategy recommends that best practice pricing be adopted. The real cost of waste management needs to be established and made visible to add incentive to minimise wastes to landfill.

10.4 SOCIAL AND CULTURAL

Waste services are a core function of Local Government. They have an important public health role, assisting with the control of disease, vermin, odour and litter. The proposal to develop waste transfer facilities after the closure of the rural landfills will have positive social benefits.

Community engagement is critical however to successful waste management and minimisation strategies. This drafted strategy therefore requires community consultation and will also be placed on public exhibition prior to final adoption by Council.

10.5 HUMAN HABITAT AND INFRASTRUCTURE

Waste management infrastructure such as landfills, transfer stations and bins can have an adverse impact on the human habitat by being unsightly and generating local traffic, noise, odour and litter. The Strategy acknowledges these issues and they will be important considerations when identifying sites for the proposed new transfer stations.

The construction and demolition industry in Lithgow is a user of non-renewable resources and generates a significant quantity of waste, much of which can be reused or recycled. The Strategy proposes that planning controls be developed specifically for the construction and demolition sectors to ensure that waste management issues are appropriately addressed at the design stage. This approach may also achieve cost savings for the industry.

10.6 GOVERNANCE

The goal of good governance plays a major role in the delivery of waste management services. Service contracts such as the kerbside collection contract are subject to open tendering and the tendering regulations under the Local Government Act. Financial matters, including charges, are subject to legislative rules such as the reasonable costs provisions and are subject to independent auditing.

Table 9: Recommendations and Actions

Recommendation		Action	Priority	Timeframe
1	Management (9.1)	Establish tracking system to identify disposal of waste from Regulated areas and payment of the Levy to State Government and to ensure waste from outside the Local Government Area is not accepted at the Lithgow Solid Waste Facility.	1	2011 - 2012
2	Management (9.1)	Undertake a review of current contracts in line with the strategies to be implemented	1	2011 - 2012
3	Management (9.1)	Review of resources to be undertaken to manage new or modified waste management systems.	2	2012-2013
4	Landfills (9.2.1)	Blackmans Flat to be viewed as a best practice facility and to incorporate a range of waste technologies for a facility in 2021.	3	2011 (concept deign) 2015-2016 (review waste and landfilling best practice)
5	Landfills (9.2.1)	Activate development consent for Blackman's Flat prior to December 2011.	1	2011
6	Landfills (9.2.2)	Extend the life of Lithgow SWF for at least Stage 1 and 2. Consider including the required infrastructure for improved reuse / recycling opportunities.	1	2011 - 2012
7	Landfills (9.2.3)	Undertake community engagement and education on the closure of the landfills and progress with Landfill closures according to closure plans	1	2011-2012
8	Transfer Stations (9.3)	Residents of Capertee be consulted on the closure of the landfill in 2018 and their potential use of a transfer station if constructed	3	2015 - 2016

9		Develop transfer station at Glen Davis/Glen Alice to coincide with the closure of Glen Davis landfill in 2013	2	2012 - 2013
10		A transfer station is included in the development of Blackman's Flat and this be developed as a first stage of the facility with infrastructure constructed to be easily transferrable to the new facility when it is fully commissioned	1	To be determined following community consultation
11		Design the new transfer stations with recycling of a range of materials in mind	2	2011 - 2016
12		Consideration be given to the upgrade of the existing three transfer stations to provide the opportunity for recycling and materials separation	2	2011 - 2016
13	Kerbside Collection Services (9.4)	Include requirements within the planning for the Blackmans Flat facility measures for the management of organic materials through composting.	3	2014 - 2015
14		Prepare proposal to consolidate the current kerbside collection scheme in the short term by replacing the recycling crate with a bin. Seek costs for the provision of the service and any upgrade requirements of the MRF.	1	2011 - 2012
15		Prepare proposal for an ultimate upgrade to a 3 bin kerbside collection scheme in the long term. Seek costs for the provision of the service and upgrade requirements of the MRF, greenwaste operations etc.	3	2016 +
16		Undertake community engagement on the kerbside collection services and preferred options and commitment for implementation	1	2011 - 2012
17		Continue the biannual Clean up Collection service	1	2011 - 2016
18		Review the opportunities for the collection of organics within the kerbside collection service and new transfer stations.	3	2016+

19	C&D (9.5)	Undertake a review of the C&D received to landfill sites and determine whether Council itself, can sort, crush and either sell or reuse the materials in road base or drainage materials.	3	2016+
20		Identify the opportunities to partner with C&I organisations in educating the community on waste management and minimisation. This can particularly be the case regarding plastic bag usage or in the case of larger grocery organisations the minimisation of food wastes.	3	2011 - 2016
21	HHW (9.7)	Continue to support and utilise the annual Netwaste organised program for the collection and disposal of household hazardous waste.	2	2011 - 2016
22		Install a hazardous waste store at the Lithgow SWF to allow for the safe collection of chemicals and other items such as batteries, gas bottles, paints and mercury fluorescent tubes over the year. A similar store should also be included in the future development for Blackmans Flat.	2	2013 - 2014
	Resource Recovery (9.8)			
23	ewaste	Continue to support the Netwaste organised annual program for the collection and recycling of ewaste.	3	2011 - 2016
24	Paper/ cardboard	Continue the current collection of paper and cardboard and recycling services. Allow for paper and cardboard collection at the Waste transfer stations	1	2011 - 2016
25	greenwaste	Continue with this contract for its agreed term	2	2011 - 2016

26	mattresses	Explore any potential opportunities for collection and recycling in the future as they become available.	3	2012 - 2016
27	Plastic bags	Council to work with retailers and food suppliers to reduce the use of plastic bags through community education	3	2012 - 2016
28	Tyres	Confirm the number of tyres disposed to Lithgow SWF. Investigate the disposal method for commercial tyres in the area and seek possible alliances for the disposal / reuse of all tyres.	2	2011 - 2012
29	Steel	Continue with the arrangements already in place for the collection and recycling of Steel waste. Facilities should be provided for collection at transfer stations and Blackmans Flat.	2	2011 - 2016
30	Event management	Establish a policy and protocol for waste-wise events for both Council and community run events.	3	2012 - 2013
31	Education (9.9)	Develop a long term community (residential, schools, commercial and Industrial) engagement and education plan covering waste minimisation, recycling / reuse and the future services of Council regarding closure of landfills, the development of transfer stations and new landfill sites.	2	2012 - 2013
32		Identify and utilise where possible education opportunities and programs offered through Netwaste, OEH and other government departments	3	2011 - 2016
33	Carbon management(9.10)	Investigate the possibility of the inclusion of methane gas collection, extraction and reuse system, including costs to understand the capital requirements and potential pay backs for the Blackmans Flat Facility..	3	2016+

11 GLOSSARY

Avoidance

Eliminating the generation of waste at its source. Avoidance encourages the community to reduce the amount of waste it generates and to be more efficient in its use of raw materials. Synonyms: Waste Prevention and Waste Reduction

Biosolids

Residual sludge from wastewater treatment plant operations.

Commercial and Industrial (C&I)

Inert, solid or industrial waste generated by industries (including shopping centres, restaurants, offices, manufacturing, repair workshops, all retail outlets, hotels, clubs etc) and institutions (including schools, hospitals, universities, nursing homes and government offices), excluding construction and demolition, municipal waste, clinical and related waste and hazardous waste.

Composting

The process of controlled biological decomposition of organic wastes that are separated from the waste stream either at the source or in the initial stages of a recovery process. This includes backyard, neighbourhood and regional facilities.

Construction and Demolition (C&D)

Materials in the waste stream that arise from construction, demolition, refurbishment, excavation activities.

Contamination

Any introduction into the environment or a product (water, air, soil, or recyclable materials) of micro-organisms, chemicals, wastes, or wastewater in a concentration that makes the environment or the product unfit for its intended use. Contaminants can have a detrimental impact on the quality of recycled materials and can spoil the potential for resource recovery.

Disposable

Any product or material that is designed to be thrown away after one use.

Disposal Fee

The fee charged at designated disposal and recovery facilities for the disposal of waste. These are usually applied as ‘dollars per tonne’ of waste disposed. Synonym: Gate Fee

Diversion

The recycling or reprocessing of materials that would have otherwise been disposed of in landfill.

Generators

Sources of waste generation typically used to refer to the domestic, commercial and industrial, or construction and demolition sectors.

Greenwaste

Waste comprising vegetative organic materials including garden waste and wood waste.

Household Hazardous Waste

A substance which is explosive, corrosive, flammable, reactive, contagious, and/or toxic, as well as the products used to contain the substance. This waste originates from domestic sources (households). Such materials include paints, cleaning liquids, oils and varnishes, as well as syringes and home-generated medical waste.

Materials Recovery Facility

A facility at which recyclable materials are separated into individual commodities using varying degrees of mechanised and hand-sorting.

Organic Waste

The part of the waste stream that is comprised solely of animal or vegetable matter and typically from which compost can be created.

Recyclable Material

Able to be processed and used as a raw material for the manufacture through a commercial process of either the same product or another product.

Recycle

The process of source-separating from the solid waste stream products that are no longer useable in their present form and that can be used in the manufacture of new products. This includes composting.

Residual Waste

The material left after all resources have been recovered for reuse or recycling which is generally disposed of to landfill.

Reuse

The repeated use of a product in the same form but not necessarily for the same purpose, without further manufacture.

Solid Waste Stream

The aggregate of all solid waste components, and also the process through which they move from point of generation to ultimate disposal.

Source Reduction

An activity that eliminates or decreases the generation of waste at the source.

Source Separation

The separation of recyclables from the solid waste stream at the source of generation (typically in the home or workplace) so that recyclable material is kept clean and marketability is improved.

Sustainability

Activities that meet the needs of the present without compromising the ability of future generations to meet their own needs. It is a triple bottom line approach that examines social, economic and environmental factors

Transfer Station

An intermediate facility in the waste system where local waste collection vehicles deliver their loads for further trans-shipment in larger waste-hauling vehicles to final disposal.

User-pay Principle

The concept whereby the more waste a generator produces, the more it will cost that generator.

Waste Minimisation

Reducing the quantity of waste requiring disposal through waste reduction, reuse, or recycling. Also referred to in this strategy as the sum total of reduction, reuse and recycling as a percentage of potential generation.

ACRONYMS

AWT: Alternate Waste Technologies

C&D: Construction and Demolition

C&I: Commercial and Industrial

CENTROC: Central Regional Organisation of Councils

CPRS: Carbon Pollution Reduction Scheme

DCP: Development Control Plan

DECCW: Department of Environment, Climate Change & Water

DWM: Domestic Waste Management

EIS: Environment Impact Study (or statement)

ESD: Ecologically Sustainable Development

EOI: Expression of Interest

GHG: Greenhouse Gas

LGA: Local Government Association

MGB: Mobile Garbage Bin

MRF: Materials Recovery Facility

MSW: Municipal Solid Waste

NIRW: Northern Inland Regional Waste (Group)

MUD: Multi Unit Dwelling

NGER: National Greenhouse & Energy Reporting

ORRF: Organic Resource Recovery Facility

SWF: Solid Waste Facility

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APPENDIX A – ACTIONS FOR FOCUS AREAS

Focus Area 1 – Making it easier for households to separate and recover their waste

Strategy: To better waste separation practices with the technology that recovers and treats waste by:

Best practice household collection

1.1 encouraging councils to adopt best practice systems for household collections through:

(a) urban and large regional centres adopting as a minimum –

(i) three-bin collection systems with separate bins for dry recyclables, food/garden and residual waste, or

(ii) where the residual waste stream is processed at an alternative waste treatment plant, separate bin systems for dry recyclables, residual waste and, where collection is viable, garden waste, or

(iii) a combination of these systems to service free-standing and multi-unit housing types within a local government area with the target for a best practice system achieving at least a 75% recovery rate of dry recyclables through kerbside collections

(b) the Department of Environment, Climate Change and Water (DECCW) developing best practice collection and drop-off depot guidelines for small regional centres with less than 5000 people and remote council areas in consultation with RENEW NSW, individual local councils and the Local Government and Shires Associations (LGSA) by 1 December 2011

(c) DECCW working with local councils to ensure that bin capacities and collection frequencies are sufficient for householders to recycle (recognising that inadequate collection capacity is an impediment to maximising recycling) and that effective education is provided

1.2 increasing the recovery of organic material from household bins by:

(a) accelerating the introduction of compostable bin bags for food waste to enable streaming with garden waste collection

(b) supporting home composting of food and garden waste

1.3 establishing a steering committee of appropriate state and local government representatives and relevant experts to assist local councils and regional organisations of councils in the formulation and execution of their waste contracts

Expand local waste collection centres

1.4 expanding the number of local waste collection centres (drop-off points) across NSW and:

(a) developing, by 30 September 2011, best practice design standards and a locational strategy for a network of permanent local waste collection centres in consultation with local councils, RENEW NSW, industry and LGSA, with the aim of achieving at least one such centre for every 50,000 residents across NSW

(b) developing, by 30 September 2011, an operational policy outlining the role of the permanent local waste collection centres, including a proposed list of problem wastes that can be received

(c) developing, by 30 September 2011, and in consultation with local councils, RENEW NSW, industry and LGSA, a financial management plan for the operation of the local waste collection centres that provides for overall cost recovery while allowing residents to dispose of small quantities of problematic residential waste within their local government area free of charge

Making bags compostable and dealing with nappies

1.5 phasing out the use of non-compostable bags (other than reusable carry bags) in food and grocery outlets in NSW by:

(a) convening a working group with retailers, consumer groups, industry and local councils to determine the appropriate standards for compostable bags used within the food and grocery retail sector (including all fast food outlets) and develop an agreed implementation plan by 30 September 2011 (including assessing the appropriateness of using Australian Standard AS4736 or EN1342 for compostable bags for this purpose)

(b) if necessary, conducting appropriate trials of compostable bags with the food and grocery retail sector by 1 July 2012

(c) examining the feasibility of a prohibition of non-compostable bags in the food and grocery retail sector by 1 July 2014

(d) identifying, by 30 June 2014, those other sectors in which it is feasible to eliminate the use of non-compostable bags and targeting prohibition by 1 July 2016

1.6 supporting the objective of removing organics from household residual waste bins so they can be collected fortnightly by eliminating soiled nappies and similar care products from this waste stream at collection by:

(a) establishing a working group, to be convened by DECCW, of nappy manufacturers, consumer groups, the waste industry and local councils to examine the feasibility of options of achieving this objective without compromising the organic waste stream

(b) conducting an assessment of alternative treatment options for the disposal of used nappies

(c) funding trials, if appropriate with a report to be submitted by 31 December 2011 with the aim of resolving this problem by 1 July 2014

Refocusing waste funding

1.7 directing the future Waste and Sustainability Improvement Payments to be used to facilitate councils moving to best practice systems, and for capital investment to establish permanent local waste collection and resource recovery centres

1.8 using targeted education, communication and partnerships to improve resource recovery by households, such as conducting a series of targeted media and education campaigns to help householders reduce waste generation, recycle their waste and decide ‘what to put in what bin’

Focus Area 2 – Making it easier for businesses to separate and recover their waste

Strategy: To remove the unique barriers that stand in the way of small and large businesses improving recycling performance by:

Best practice business waste collection

2.1 encouraging large businesses to move to best practice systems of source-separated materials and/or alternative waste treatment by 31 December 2012

2.2 facilitating councils to provide isolated C&I businesses, such as corner or individual shops, with kerbside waste collection services similar to their residential customers, in order to increase recycling rates, including consideration of appropriate regulatory changes to be effective by 31 July 2012

2.3 encouraging other small to medium businesses to move to the best practice model of a two-bin system and/or alternative waste treatment

2.4 investigating the development of place-based or precinct solutions for small to medium C&I businesses, and potentially also for larger businesses – a possible approach would be for industry

groups, such as local chambers of commerce, and local councils to contract waste services on behalf of local businesses in the same way that regional organisations of councils do for councils.

2.5 examining regulatory amendments which may be required to enable the changes in item 2.4 above to be effective, including continuing discussions with the Australian Competition and Consumer Commission, by 1 July 2013

2.6 developing and implementing planning guidelines requiring best practice waste infrastructure to increase resource recovery from new or renovated large commercial facilities, such as shopping centres and office buildings, by 31 December 2011

2.7 introducing statutory changes to empower local councils to require commercial and industrial premises to have satisfactory collection arrangements for their waste, including appropriate verification of such arrangements, in accordance with DECCW guidelines

Refocusing waste funding

2.8 using targeted education, communication and partnerships to improve waste avoidance and resource recovery by businesses, for example, by conducting a series of targeted education campaigns to promote waste reduction and recycling at work as well as at home

2.9 allocating some future state waste program funding by 1 March 2012 to facilitate businesses moving to best practice waste management with a priority to establish resource recovery infrastructure

2.10 supporting the development of new facilities to maximise recovery of materials from mixed C&I wastes.

Focus Area 3: Reducing or removing problem wastes to improve resource recovery and produce environmentally safe recyclable materials

Strategy: To extract 'problem' wastes from waste streams so they do not impair mainstream recycling by:

Accelerating product stewardship schemes

3.1 continuing to drive national action to introduce product stewardship schemes that tackle the priority wastes identified in the National Waste Policy – at the November 2010 meeting of environment ministers, the NSW Minister for the Environment and Climate Change proposed product stewardship schemes to tackle new priority wastes, including paints, batteries and timber, in addition to the existing priority packaging, television and computer schemes

3.2 ensuring that, in the absence of substantive progress nationally, NSW will implement producer responsibility arrangements and action at the state level by 1 July 2013

3.3 subsidising the recovery of particular problem wastes from households, in conjunction with identifiable major producers, such as the paint industry, with three-yearly reviews to ensure the subsidies are reliable and sufficient to support resource recovery, and that the economic needs remain valid.

Reducing problem wastes

3.4 aligning future waste and sustainability infrastructure grants to subsidise the capital costs of progressively providing permanent local collection centres for problem wastes to supplement the existing mobile collection events

3.5 once product stewardship schemes and more local waste collection centres are in operation, implementing prohibitions on problem wastes, such as e-waste, batteries and paints, including prohibitions on the disposal to landfill of recyclables that have been aggregated or source-separated for resource recovery (paper, plastics, glass, garden waste, and cardboard) by 1 July 2015

Focus Area 4: Facilitating investment in waste infrastructure

Strategy: To increase support to expand waste and resource recovery infrastructure and systems by:

Facilitating new waste infrastructure

4.1 developing a resource recovery infrastructure needs assessment by 31 December 2011 to outline NSW resource recovery requirements and projections and the necessary lead times for the building of infrastructure

4.2 developing clearer land-use planning guidelines for waste and resource recovery facilities by 31 December 2011

4.3 actively promoting and assisting waste and resource recovery infrastructure operators, as is done for other major developments – taking a 'case management' approach should help industry to understand and negotiate government regulations and planning processes and promote innovative infrastructure solutions

4.4 reviewing the existing waste funding priorities to stimulate investment in waste and resource recovery systems and infrastructure as identified in items 1.7, 2.9, 2.10, 3.4 and 4.1 above by 1 March 2012

Improving the regulatory framework

4.5 removing the 2013 review date for the use of compost derived from alternative waste treatment (AWT) on agricultural land

4.6 developing and commencing by 1 July 2011 an independent trial program over a three-year period to assess the impacts of contaminants in AWT compost

4.7 using the powers of the Protection of the Environment Operations (Waste) Regulation 2005 to require all waste recyclers and reprocessors to provide annual waste and recycling data to DECCW via simple on-line reporting by 31 December 2011

Engaging with stakeholders

4.8 establishing expert panels to provide DECCW with independent advice on complex resource recovery issues and the environmental, technical, commercial and regulatory issues relating to increased resource recovery by 1 July 2011

4.9 preparing a new waste-to-energy policy for stakeholder consultation by 31 December 2011, which reflects the importance of striking a balance to encourage recycling where life cycle assessment demonstrates a benefit, but allows for the thermal processing of waste for energy where a better overall environmental outcome can be achieved

4.10 establishing, by 30 June 2011, a regular high-level forum of government, environment groups and industry to review waste policy and program settings to optimise actions to achieve the waste strategy targets

Focus Area 5: Reducing litter and combating illegal dumping

Strategy: To focus on reducing litter and combating illegal dumping by:

Increasing education

5.1 implementing a renewed public education campaign about littering, such as the *Don't be a tosser* campaign

5.2 conducting training programs and support for enforcement officers for littering and illegal dumping offences (councils, regional illegal dumping squads, Sydney Catchment Authority, NSW Police)

Aligning funding

5.3 implementing a series of litter reduction grants to councils, other land managers and non-government organisations to target litter hot spots, such as major roads and shopping centres

5.4 funding greater public place collection infrastructure and clean-up of hot spots to discourage further littering and illegal dumping

Enhanced enforcement campaigns

5.5 re-establishing the litter and illegal dumping reduction taskforce by 30 June 2011

5.6 conducting at least 15 high-profile waste compliance and enforcement campaigns targeting illegal waste activities each year

5.7 conducting at least four major targeted litter enforcement campaigns each year, in partnership with local councils and other land managers, such as the Roads and Traffic Authority, around major roads (such as the F3 and M4) and fast food outlets.