



Blue Mountains City Council

Waste Avoidance & Resource Recovery Strategy

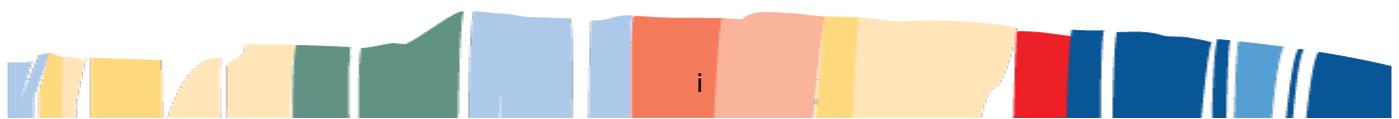
2014-2016



WASTE AVOIDANCE & RESOURCE RECOVERY STRATEGY 2014-2016

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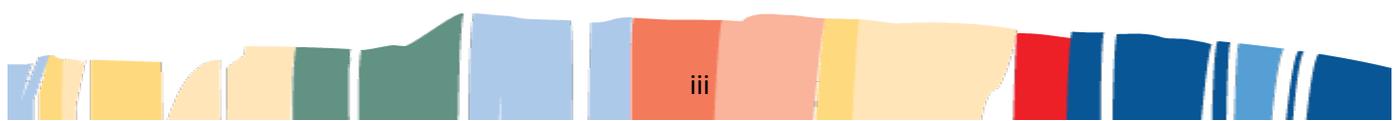


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Glossary of Terms

Municipal Solid Waste – all council related waste from Council and household sources

Alternative Waste Technology – methods of managing waste products, other than landfill

Leachate – contaminated water that is generated from liquids existing in the waste as it enters a landfill or from rainwater that passes through the waste

Abbreviations

ABS - Australian Bureau of Statistics

ACLG – Australian Classifications of Local Government

AWT – Alternative Waste Technology

BM – Blue Mountains

CENTROC – Central West Regional Organisation of Councils

CPM – Carbon Price Mechanism

DWMC – Domestic Waste Management Charge

EP&A Act – Environmental Planning and Assessment Act 1979

EPA – Environmental Protection Authority

EPL – Environmental Protection Licence

LTFP – Long Term Financial Plan

MSW – Municipal Solid Waste

NSW – New South Wales

NSW DLG – New South Wales Division of Local Government

OROC – Orana Regional Organisation of Councils

POEO Act – Protection of the Environment Operations Act 1997

SWAP – Strategic Waste Action Plan

WARR Act – Waste Avoidance & Resource Recovery Act 2001

WMF – Waste Management Facility

WSROC – Western Sydney Regional Organisation of Councils



Executive Summary

This is a short term Strategy which allows Council to respond and adapt to the dynamic state and federal legislative and policy environment surrounding waste and resource recovery, a diverse spectrum of community aspirations and expectations, and the emerging opportunities in the recycling and resource recovery industries. Central to Council's proposed approach is value for money for the community. Council's proposed approach, supported by the evidence presented in this strategy, is to, over the next 12-24 months:

- Improve the waste services that are working well now with new features to make them even better;
- Provide better waste services that are efficient, good value for money, low risk and are flexible enough to allow a fast response to emerging opportunities
- Further investigate and act on opportunities for greater efficiencies and value for money in the delivery of that service, particularly in the areas of improved waste avoidance, recycling, and cost reduction.
- Build capacity and preparedness to allow Council to respond to new opportunities in the waste and resource recovery industry which can be demonstrated to deliver even greater value for money for the community.

This Strategy is part of a long journey by Council in continually improving the performance of the waste service. Council adopted the principles of the "Options for Long-Term Waste and Resource Management Solutions" report in 2003 and the Strategic Waste Action Plan in 2005. This led to significant improvements to infrastructure and services and a 37% reduction in the amount of waste being buried in our only landfill.

Without these improvements, our landfill would have been full by 2023. Now, if we continue to throw away the amount of waste that we currently do, it is expected to last until 2030. However, with over 40,000 tonnes of mixed waste from our homes and businesses still going into our landfill each year, the Blue Mountains Community needs a long-term, sustainable and affordable waste management solution. This Strategy sets out a way for the City to further reduce waste buried at its landfill by continuing to improve how much is recycled and avoided in the first place.

To achieve this, Council believes that any action taken must aim to achieve the following objectives:

- Focus on avoid, reuse, recycle before landfill
- Comply with legislation
- Provide ongoing value for money
- Provide flexibility to respond to emerging opportunities
- Have a high level of community engagement
- Extend the landfill life beyond 2030

This Strategy will also support Council in delivering on the NSW Government’s waste targets:

Table 1 WARR Strategy Objectives and Targets and Current Blue Mountains Performance

NSW Waste Avoidance and Resource Recovery Strategy Objectives and Targets	Blue Mountains Performance 2012-13	NSW Performance 2010-11
Avoid and reduce waste generation TARGET: Reduce the rate of waste generation per capita since 2010-11 by 2021-22	Total waste generation per person is increasing	Continuing to increase
Increase recycling rates for municipal solid waste (MSW)* TARGET: 70% by 2021-22	56% for all MSW	52% for all MSW
Divert more waste from landfill TARGET: 75% by 2021-22	49%	63%

*Municipal solid waste = all Council related waste, including household collections, parks and town centre collections and Council’s operational waste.

In the last decade, there have been significant changes in the waste management industry and policy environment. These, and other drivers, will influence the City’s Waste Strategy into the future. These include:

Financial – Waste services are Council’s single biggest annual cost at approximately \$20 million, excluding infrastructure improvements in 2013-14. This includes almost \$2.7 million in payments to the NSW Government for its Waste Levy, which increases each year.

Social – These services are essential to the community and are used by everyone, every day. Business and household waste practices are critical to reducing waste to landfill.

Environmental – Resource recovery technology is constantly improving and evolving. As a community, it is essential to keep aware of and respond to emerging opportunities for more environmentally sustainable waste management.

Governance - In the same vein, government legislation and policy around waste is evolving to better respond to significant social and environmental issues. Since Council’s last strategic review of waste in 2005 there have been major changes to National and NSW policy, legal and funding arrangements with profound impacts for waste management and resource recovery.

The purpose of this Strategy is to focus on those sources of waste that contribute most to landfill. This is the waste from our homes and businesses, 60% and 25% respectively of what goes in our landfill each year. In particular, organic material (food, garden, paper and other) in our home bins needs to be addressed. There are a number of possible methods for managing this material to prevent them going in the weekly garbage collection bin and then to landfill. This Strategy considers and compares these methods.

Given the success of infrastructure and service improvements over the past decade, along with the opportunity to further increase recycling and the dynamic operating environment, it is prudent to



proceed with caution. A Strategy based on solid current practice, but with the ability to pursue emerging opportunities has therefore been developed. While it is important to move forward and respond effectively to local issues, it is essential that any direction taken represents good value for the community.

Council recognises the need to explore new opportunities for dealing with waste in the City. Over the past 18 months Council has carried out exhaustive technical research, with particular focus on household organic waste (**Appendix 3**), community consultation (**Appendix 4**) and analysis (**Appendix 5**) to identify feasible options for the City's waste management into the future. The technical research identified sixty-five possible options. Cross referencing these with the community consultation assessed three to be most feasible given all the considerations. In summary, these three options were:

- The current service
- Introduce a green bin (organic waste to Blayney)
- Divert all household waste to an Alternate Waste Technology (AWT) facility in Sydney

Each of these options has been subjected to a best value analysis. This final level of analysis also considered that major funding and legislative changes anticipated within the next 2 years that may have a profound impact on the way we manage waste in the future. This analysis determined that the current service is the best value household waste service that is currently available. It is efficient, value for money and has a high level of community acceptance compared to the other options.

It has been estimated that the introduction of a "green bin" for food and garden waste collection at this time would cost an additional \$35 million over ten years. However, the results showed this significant cost to the community would only give another 3 years of landfill life. This does not represent good value for money at this time and does not provide a long term solution for Blue Mountains residents.

The Strategy identifies five strategies to continue to improve recycling and make the waste resource services more efficient at relatively low cost. These strategies are:

- Service/infrastructure provision,
- Engagement,
- Pricing,
- Regulation, and
- Advocacy

These strategies proposes to drive:

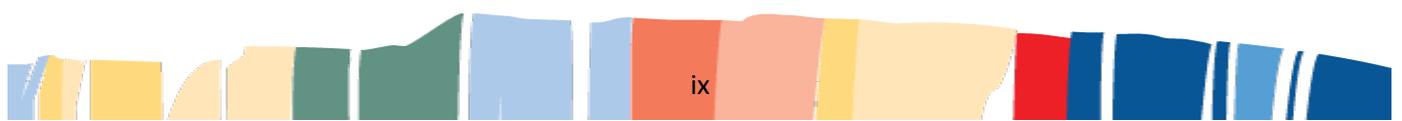
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- Community capacity to manage waste at home
- Waste items recovered from bulky waste collections
- Waste items recovered from household garbage
- Recycling facilities and services at Blaxland WMF
- Progress on regional waste management solutions

- Value for money waste services, including improved operation of waste management facilities
- Expanded hazardous waste collection

LESS

- Food waste at home going to landfill
- Construction waste to landfill
- Business waste to landfill
- Illegal dumping in the City



PART 1 STRATEGY CONTEXT

1.1 STRATEGY AIM

To reduce waste buried at our only landfill by continuing to improve how we avoid waste and how much is recycled.

1.2 KEY OBJECTIVES



Council's Waste Strategy needs to be updated to deliver evidence based waste management options for the future. It is imperative that this considers social, economic, environmental and governance impacts so that Council understands the costs involved and the community's views and values around the waste service.

1.3 STRATEGY DRIVERS AND INFLUENCES

The NSW Local Government Act (1993) states that the function of Local Government includes ‘the provision, management or operation of waste removal, treatment and disposal services & facilities’ (Notes to Chapter 6 of the Act)

In 2005, the Strategic Waste Action Plan (SWAP) was adopted by Council. There have been significant changes in the waste management industry, policy environment and local services and infrastructure since that time as highlighted below. In addition, there are many influences that need to be considered in designing the future direction of waste avoidance and resource recovery in the Blue Mountains.

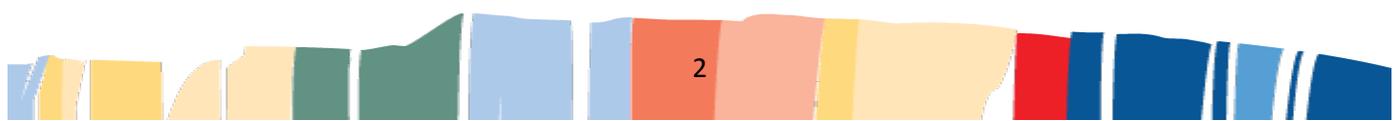
1.3.1 Financial

All waste services, infrastructure and operations are funded by either the domestic waste management charge on rates or gate fees at the Waste Management Facilities. At approximately \$20 million per year (excluding infrastructure improvements), the Waste Resource Service accounts for the highest expenditure of the Council.

The Council also has a 6 Point Plan to ensure ongoing financial sustainability, shown in **Figure 1** below. The Waste Resource Service must align with this Plan when planning for the future of waste services.



Figure 1 6 Point Plan for Ongoing Financial Sustainability



The Blue Mountains community however, do not have a waste disposal option beyond 2030. At current waste generation rates, this is when the landfill at Blaxland Waste Management Facility will be full. To date, an acceptable and cost effective alternative beyond 2030 has not been identified.

This level of waste generation exposes Council to:

- High level of NSW Waste Levy liability, increasing each year;
- Liability under the Carbon Pricing Mechanism, or other carbon management mechanism, which is difficult to predict and therefore plan for and manage;
- Potential for NSW Government to restrict future Waste Levy refund payments to Council;
- Potential need to invest in further infrastructure to manage landfill impacts (water, air, odour etc.).

A key financial challenge is the high cost of providing waste services to our low density, geographically large community compared to other more densely populated and compact local government areas.

1.3.2 Social Influences

The household waste and recycling services and the operation of two Waste Management Facilities are essential to the community and are used by everyone, every day. Given this, community ability and willingness to support the services is essential to success. The Blue Mountains community is highly engaged, interested and active in environmental issues. Success relies heavily on our community being 'on board' with Council's strategic direction for these services.

Without this, community dissatisfaction with services will lead to poorer environmental and economic results. Business and household waste practices are critical to reducing waste to landfill.

Since 2005, there have been many changes to local waste services and infrastructure provided to the community, outlined in **Section 2.1 and 2.2**.

A key social challenge is the trend of increasing consumption and waste generation being experienced in the Blue Mountains and nationally.

1.3.3 Environmental Influences

The Blue Mountains as a City within a World Heritage National Park, strives to be a Sustainable City. How we manage waste is crucial to this. Unless current waste generation rates are reduced the City's current infrastructure and services will last less than 20 years – this is not sustainable. Improvements are needed to ensure the greatest possible level of resource recovery to significantly reduce residual waste needing disposal.

Resource recovery technology is constantly improving and evolving. As a community it is essential to keep aware of and respond to emerging opportunities for more sustainable waste management.

Council must also comply with environmental legislation that relates to waste management. This is explained in detail in **Appendix 1**.

A key environmental challenge is to reduce waste generation rates so that we improve the health and longevity of our landfill.

1.3.4 Governance Influences

Council needs to plan and manage waste responsibilities with increasing diligence. The complexity of waste legislation and regulation continues to reflect the importance that the community is placing on environmental, economic and social considerations.

The NSW Government has wide-ranging responsibilities for laws and regulations that impact on waste management operations and practices. The waste laws that Council must abide by are complex and diverse, ranging from community strategic planning, procurement, finance and charges, planning and development control, landfill licencing, landfill levies, reporting requirements, pollution control, use of waste materials and waste transport. These are examples of the extent to which waste management is governed.

Current Federal and State legislation that particularly influences Council's waste management and operational services include:

- Federal Carbon Pricing Mechanism
- *The NSW Local Government Act 1993*
- *NSW Waste Avoidance and Resource Recovery Act 2001*
- *NSW Protection of the Environment Operations Act 1997*

There are many more which are spread across all levels of government, including those on a regional and local level. These are detailed in **Appendix 1 - Council's Legislative and Policy Responsibilities**.

A key governance challenge is the high number of legislative and policy reviews currently underway, creating an uncertain environment in which to plan for the future.

1.4 RISK PROFILE

This Strategy has been prepared with consideration given to the risks identified in Council's Risk Register. While many of these risks are mitigated by current management strategies, some residual risk remains and this Strategy aims to address this.

The principle risk which this Strategy seeks to address is the likelihood of the Blaxland landfill being filled to capacity within 16 years, based on current practices, and waste generation patterns within the City.

The actions within this strategy endeavour to mitigate this risk.

Table 2 Risk Profile

Risk	Mitigation Strategies
Financial Risk	
Local landfill capacity reaches zero	<ul style="list-style-type: none">• Develop and implement a waste strategy• Recycling services at WMFs• Recycling services for households• Communication and engagement of service users

Risk	Mitigation Strategies
Changes to legislation which may create a carbon liability	<ul style="list-style-type: none"> • Implement landfill gas management system • Amend fees and charges to recover any costs
Income shortfall caused by less waste disposal than budgeted for	<ul style="list-style-type: none"> • Maintain WMF and DWMC Reserves to meet any shortfall
Unforeseen damage to infrastructure by storms or other natural disasters	<ul style="list-style-type: none"> • Maintain the WMF Reserve • Maintain a Business Continuity Plan for WMFs
Council is unable to pursue emerging opportunities in waste industry due to long term contracts with suppliers	<ul style="list-style-type: none"> • Maintain flexibility and capacity to pursue emerging opportunities
Spike in waste generation caused by natural disaster or similar	<ul style="list-style-type: none"> • Development and Implementation of an Emergency Waste Management Plan
Inability to source markets for recycled materials	<ul style="list-style-type: none"> • Only expand recycling services when reliable and sustainable markets are in place
Post closure management costs at Blaxland landfill	<ul style="list-style-type: none"> • Carry out a 'True Cost of Landfill' study to ensure that all costs are accounted for in fees and charges
Social Risk	
Major plant failure leading to site closure and service disruption.	<ul style="list-style-type: none"> • Develop and implement a Business Continuity Plan for WMFs • Ensure cyclic maintenance regimes are in place and implemented to reduce incidence of failure
Customers/residents not using the services correctly	<ul style="list-style-type: none"> • Develop and implement plans to ensure waste service are used correctly
Community capacity to pay is reduced	<ul style="list-style-type: none"> • Continue to investigate and implement best value initiatives to ensure Council is delivering value for money
Workplace health and safety risks associated with providing waste services	<ul style="list-style-type: none"> • Council's WHS policies are implemented
Environmental Risk	
Environmental compliance of current and dormant landfills	<ul style="list-style-type: none"> • Maintain and monitor Environmental Management Plans for WMFs • Scheduled external and internal auditing of Environmental Management Plans and Systems
Environmental risks associated with providing waste services	<ul style="list-style-type: none"> • Develop and implement an Environmental Management Plan for kerbside services
Illegal dumping along the extensive urban/bushland interface	<ul style="list-style-type: none"> • Develop and implement an Illegal Dumping Compliance Plan

Risk	Mitigation Strategies
Governance Risk	
Changes to legislation and policy	<ul style="list-style-type: none">• Participate in consultation processes• Keep abreast of proposed changes

PART 2 WASTE MANAGEMENT IN THE BLUE MOUNTAINS – WHERE HAVE WE COME FROM?

The Waste Strategy is part of a long journey by Council in continually improving the performance of the waste service. Council adopted the principles of the “Options for Long-Term Waste and Resource Management Solutions” report in 2003 and the Strategic Waste Action Plan in 2005. This led to significant improvements to infrastructure and services and resulted in a 37% reduction in the amount of waste being buried in our only landfill, as shown in **Figure 2** below.

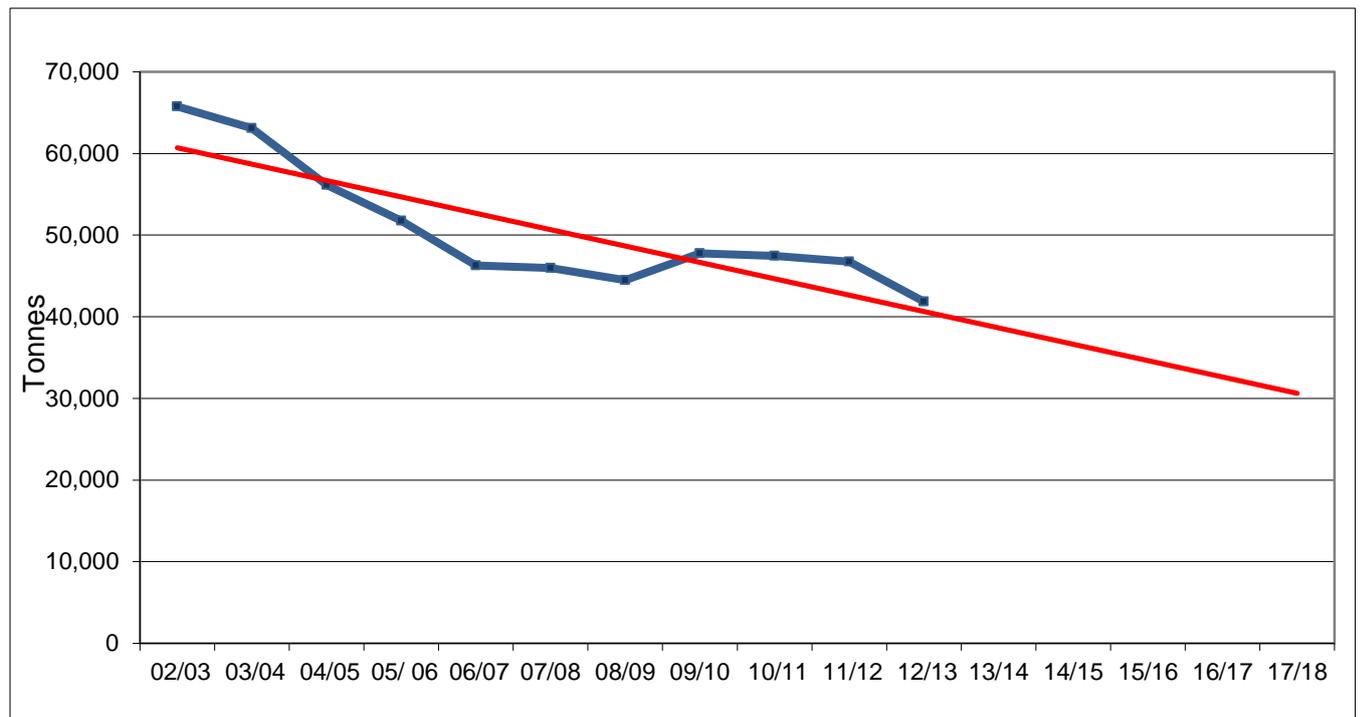


Figure 2 Waste Landfilled Over Time and 5 Year Projection

Without these improvements, our landfill would have been full by 2023. Now, having implemented these changes to waste services, the lifespan of the Blaxland landfill has been extended until 2030 (at current waste generation rates). While over 40,000 tonnes of mixed waste from our homes and businesses still goes into our landfill each year, the projection over the next several years is that the annual tonnage of waste to landfill will continue to decrease. **Figure 2** also demonstrates the five year projection of this waste reduction trend, showing a further 10,000 tonne reduction of waste to landfill in 2017-18.

The Blue Mountains community still needs a long-term, sustainable and affordable waste management solution. This Waste Strategy sets out a way for the community to further reduce waste buried at its landfill by continuing to improve waste avoidance and recycling rates in the short term. Council will continue to consider the pressing issues around the longer term, dynamic, external operating environment.

2.1 Improvements to Waste Infrastructure

Council adopted the principles of the 'Options for Long-Term Waste and Resource Management Solutions 2003' report in April 2003. This Council resolution led to the extension of the landfill at Blaxland Waste Management Facility and the construction of the Waste Transfer and Resource Recovery Centre at Katoomba Waste Management Facility. Works at both sites include upgraded resource recovery and recycling facilities as well as improved site conditions for users of the facilities.

Many Councils do not operate their own landfills and facilities so don't have these direct infrastructure costs. Instead, their waste management fees capture the cost of disposal at privately operated facilities.

Table 3 below summarises the completed and future infrastructure improvements that have taken place at the Blue Mountains' two active Waste Management Facilities and also at the former Blackheath and Lawson landfills.

Table 3 Completed and Future Infrastructure Improvements

Site	Date	Description of Improvement Works	Cost
Blaxland WMF	Completed in 2008	Clean water by-pass and leachate interception wall. OUTCOME: The clean water by-pass collects and pumps clean groundwater from above the landfill to the swamp below, ensuring its water supply. The leachate interception drain prevents leachate from entering the swamp and pumps it to the leachate collection dam. These systems protect the swamp from leachate contamination.	\$1.8M
Blaxland WMF	Completed in 2008	Diversion of Cripple Creek. Creek line now flows through a large, reinforced plastic pipe that is continuously welded and encased in water proof concrete, under the landfill. OUTCOME: Protection of Cripple Creek from possible leachate contamination while preserving natural flow to downstream areas.	\$1.8M
Blaxland WMF	Completed in 2009	Construction of landfill B stage 1 liner Construction of new lined leachate dam and stormwater drainage OUTCOME: First of 5 stages to provide additional waste disposal space of 1,000,000m ³ . Stage 1 provided approx. 3 years of landfill space. A lined landfill contains all waste so that soil and groundwater cannot be polluted. Provides additional leachate storage capacity and prevents contaminants entering the groundwater system. The stormwater drainage system ensures all storm water runoff is captured and sediment is removed prior to discharge from site.	\$3.85M

Site	Date	Description of Improvement Works	Cost
Katoomba WMF	Completed in 2010	Construction of waste sorting/baling transfer station, small vehicle drop off area, offices, education centre, re-use shed and visitor car park. OUTCOME: The facility allows customers to continue to deliver waste locally in the upper mountains since landfilling has ceased at the site. The upgrade has improved traffic flow, separation of large & small vehicles, improved recycling facilities & resource recovery, new offices/education centre, sealed roadways and reduced litter, odour & noise impacts on surrounding areas.	Building and civil works \$6.3M Plant & Equipment \$1.7M
Former Lawson Landfill	Completed in 2010	Slope stability and remediation works OUTCOME: Reduced risk of landslide, improved water quality and reduced weed growth impacts on the surrounding environment.	\$2.5M (funded by Environment Levy)
Former Blackheath Landfill	Completed in 2011	Capping and remediation works OUTCOME: Improved water quality and reduced weed growth impacts on the surrounding environment.	\$0.7M (funded by Environment Levy)
Blaxland WMF	Completed in Aug 2012	Construction of landfill B stage 2 liner and excavation works for future landfill stage 4 OUTCOME: Extension of landfill liner as per development requirements and preparation of stage 4 landfill space for future waste placement. Stage 2 provided approx. 2 years of landfill space.	\$1.9M
Blaxland WMF	To be completed in 2014-15	Construction of new gatehouse and weighbridge, small vehicle drop off area, recycling, re-use and chemical collection shed for the Resource Recovery Centre. OUTCOME: Improve traffic flow, separation of large & small vehicles, improved recycling facilities, new gatehouse and sealed roadways.	\$4.5M
Blaxland WMF	To be completed in 2014	Landfill Gas Management System OUTCOME: Improved environmental performance at the site including reduced carbon emissions and nuisance odour. Compliance with Environment Protection Licence odour requirements.	\$0 (Contractual arrangement based on emission trading schemes and the carbon pricing mechanism)
Blaxland WMF	To be completed in 2014	Construction of landfill B stage 3 liner OUTCOME: Extension of landfill liner as per development requirements, providing approximately 3-4	\$1M (est)

Site	Date	Description of Improvement Works	Cost
		years of landfill space.	
TOTAL EXPENDITURE			\$26.05 M



Installation of reinforced plastic pipeline in the excavated rock channel for Cripple Creek diversion at Blaxland Waste Management Facility



Construction of Landfill B Stage 1 liner at Blaxland Waste Management Facility



Katoomba Waste Management Facility, construction of Transfer Station, Education Centre and the small vehicle drop off area

2.2 Improvements to Waste Services

Along with improvements to waste infrastructure, Council has made improvements to waste services to improve waste reduction and recycling performance.

2.2.1 Kerbside Recycling Service

In July 2008 the recycling service crate was replaced by a 140 litre mobile recycling bin. This change achieved:

- reduction in wind-blown litter, streetscape amenity improvements
- increased participation by the elderly and those with limited mobility
- increased capacity of collection container
- greater range of recyclable materials accepted

The NSW Government's "Preferred resource recovery practices by local councils" guide specifies a minimum of 240 litres of recycling space per fortnight for recycling collections. Council's new recycling service provided a 140 litre mobile bin collected weekly, equivalent to 280 litres per fortnight, thereby exceeding the recommended minimum standard.

These benefits led to an additional 2000 tonnes collected for recycling and diverted from landfill in the first operating year.

2.2.2 Kerbside Bulky Waste Services

In July 2013 Council introduced a new booked service for kerbside chipping and clean-up services, replacing the previous scheduled kerbside services. The new booked service allows residents increased flexibility in how and when they use these services. Other benefits include:

- timely collection
- environmentally friendly (increased recycling and improved streetscape amenity)
- efficient and reliable service

While this refined service has not yet operated for a year, early data indicates that the change will lead to a 29% reduction in the material disposed of to landfill and an increase in the recycling rate from this service.

2.2.3 New Recycling Services at Katoomba WMF

In recent years, the upgraded facilities at Katoomba WMF have allowed for the introduction of additional recycling services there. These services include:

- Television and computer recycling
- Mattress recycling
- Textile recycling
- Hard and soft plastics recycling (subject to market conditions)



New Recycling Services at Katoomba Waste Management Facility: Plastics Recycling Cages and Textile Recycling Bins



Mattress Recycling Shed



Television and computer recycling facilities

2.2.4 Business Waste Reduction Program

Funding was secured for 2011-12 to 2013-14 to design and implement the Business Waste Reduction Program. The Program involves a direct engagement with small to medium enterprise businesses, providing practical, tailored measures for reducing waste to landfill and complementary efficiency measures for each business. To date the program has focussed on three cluster groups in the Lower,

Mid and Upper Mountains and a fourth tourism cluster through the parallel Low Carbon Tourism Initiative in partnership with the Cooperative Research Centre for Low Carbon Communities and the Blue Mountains World Heritage Institute.

Now that it is established, the Program engages with almost 50 businesses per year. Achievements to date include over 400 tonnes of business waste per year diverted from landfill, diversion of more than 100 tonnes of good food to the community's most disadvantaged and leveraged grant funding in excess of \$197 000 for aligned community and Council projects.

2.2.5 Waste and Resource Reference Group

In adopting the Strategic Waste Action Plan (SWAP) in 2005, Council also resolved to continue community involvement in its implementation through a formalised reference group.

The Waste & Resources Reference Group (WARRG) has representatives from the Youth Council, business, schools, an environment group, WMF customers, a resident from each Ward and Councillors.

Since 2005 the members have provided feedback on many proposed initiatives, although in recent years attendance at meetings has waned. Given this, and the fact that all actions from the SWAP have now been completed, a review of the WARRG is warranted to ensure it is the most effective method for engaging with the Blue Mountains community.

2.3 Waste Reduction Achievements to Date

These improvements to waste services and infrastructure have led to improvements in waste reduction and recycling performance. Since 2000-01 total waste generation in the Blue Mountains has increased from 1000kg per person to 1077kg per person. This is an increase of less than 8% and relates to the amount of material recycled and a reduction in the amount of waste disposed of to landfill, as shown in **Figure 3** below. An Australian Government Report Waste & Recycling in Australia 2011, confirms that increasing waste generation is a trend in NSW and Australia. Between 2002-03 and 2008-09 the national average increased by approximately 24% to 2140kg per person. As such, the Blue Mountains results can be considered very positive.

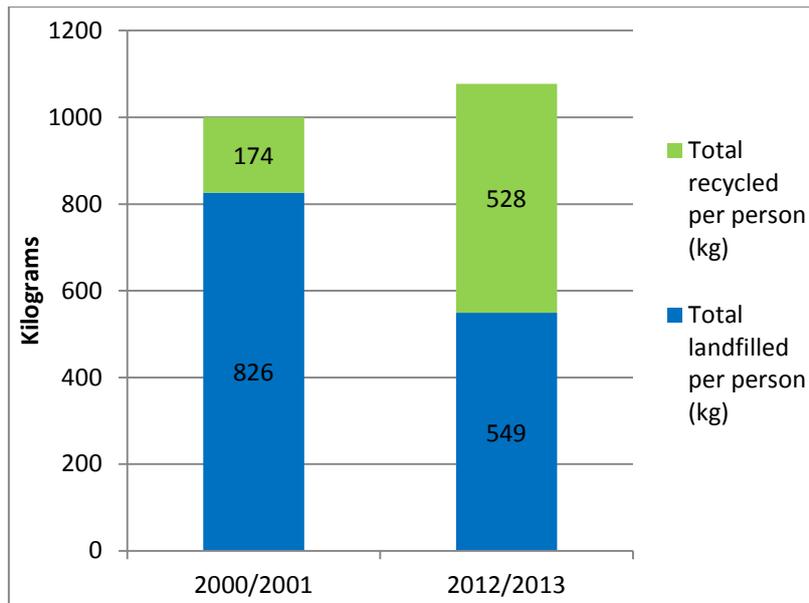


Figure 3 Snapshot of Waste Generated, Waste Landfilled and Waste Recycled (kg) per Person in 2000-01 and 2012-13

This increase in recycling has led to a significant increase in the percentage of material that is diverted from landfill in the Blue Mountains, from 17% in 2000-01 to almost half in 2012-13 as shown in **Figure 4** below.

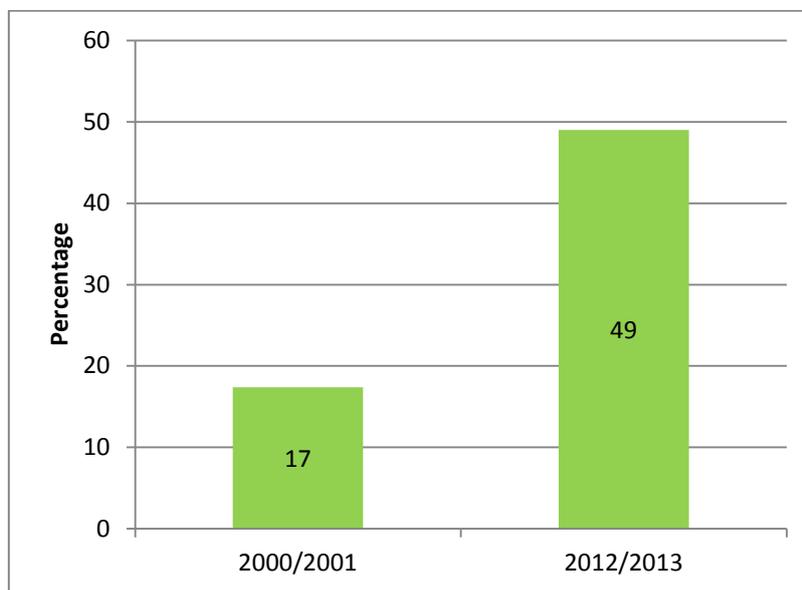
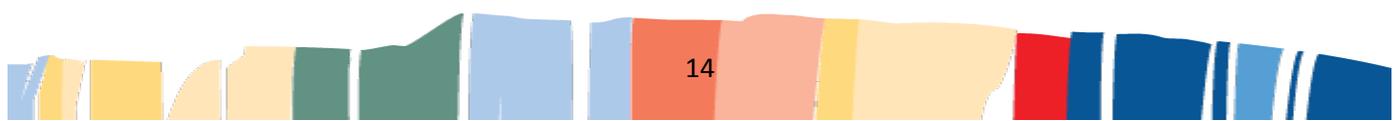


Figure 4 Total Waste % Diverted from Landfill in 2000-01 and 2012-13

The above figures show changes in the total waste generated in the Blue Mountains, including waste generated by household, commercial, industrial and demolition waste streams. **Figure 5** below illustrates that household waste alone has also had a marked improvement. Since 2000-01, household waste diverted from landfill has more than doubled in the Blue Mountains.



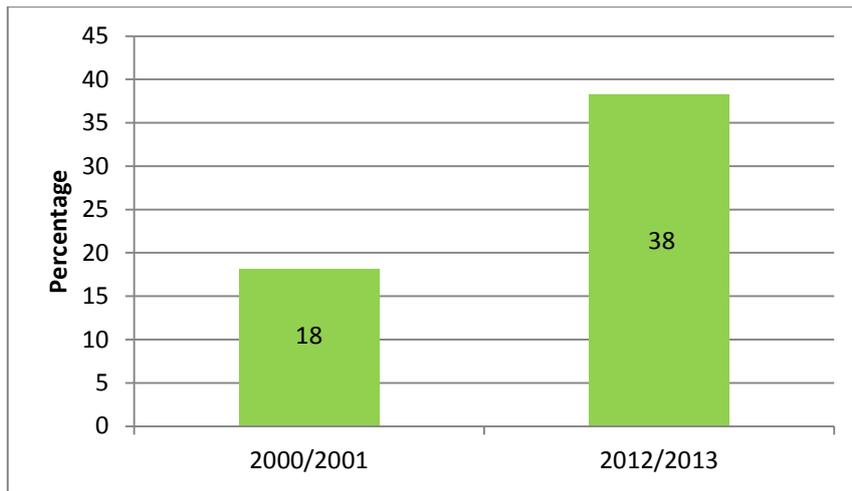


Figure 5 Household Waste % Diverted from Landfill in 2000-01 and 2012-13

The amount of household waste sent to landfill per person each year has also decreased (**Figure 6**).

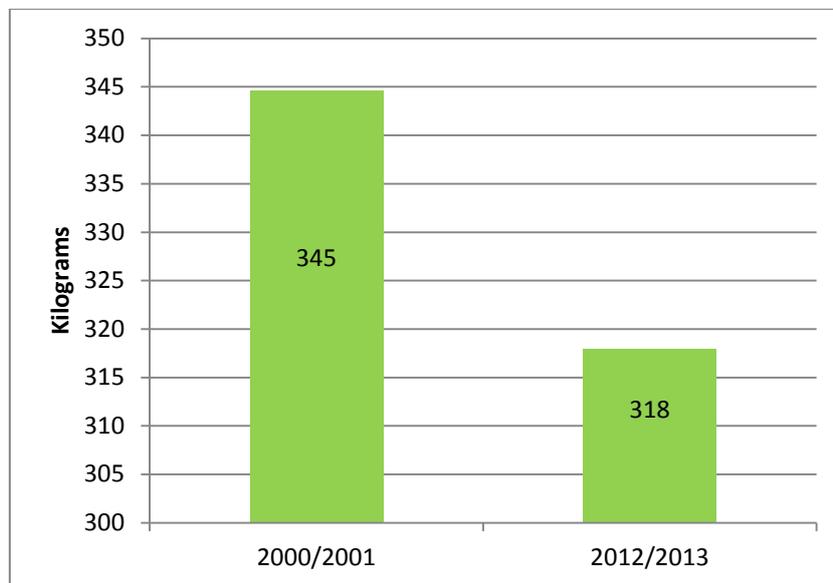
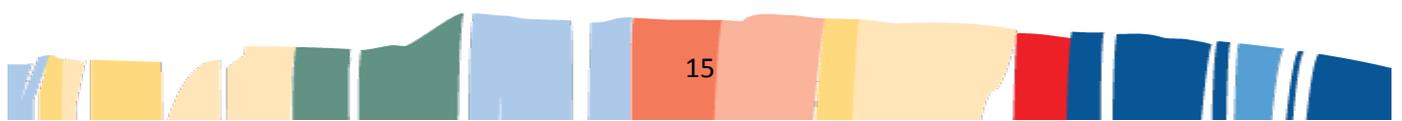


Figure 6 Household Waste to Landfill per Person (kg) in 2000-01 and 2012-13

Contributing to this reduction has been the improved kerbside recycling service performance as shown in **Figure 7** below. There was a clear increase in the amount recycled following the change to the service in 2008. Following that change the performance plateaued and then reduced slightly. This slight dip in 2012-13 is likely to be related to less communication and education about the recycling service at that time.



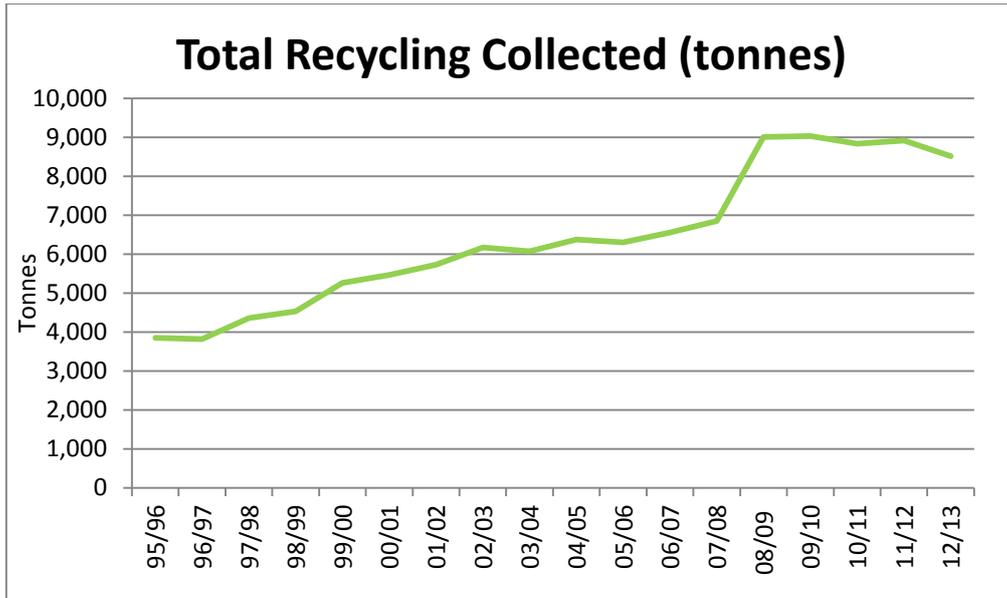


Figure 7 Total Recycling Collected (tonnes) from 1995-96 to 2012-13

Along with the improvements to the kerbside recycling service, the introduction of the kerbside chipping service and recycling from the bulky waste clean-up service has led to a significant increase in the amount of material recycled from our homes annually. This increase is shown in **Figure 8** below.

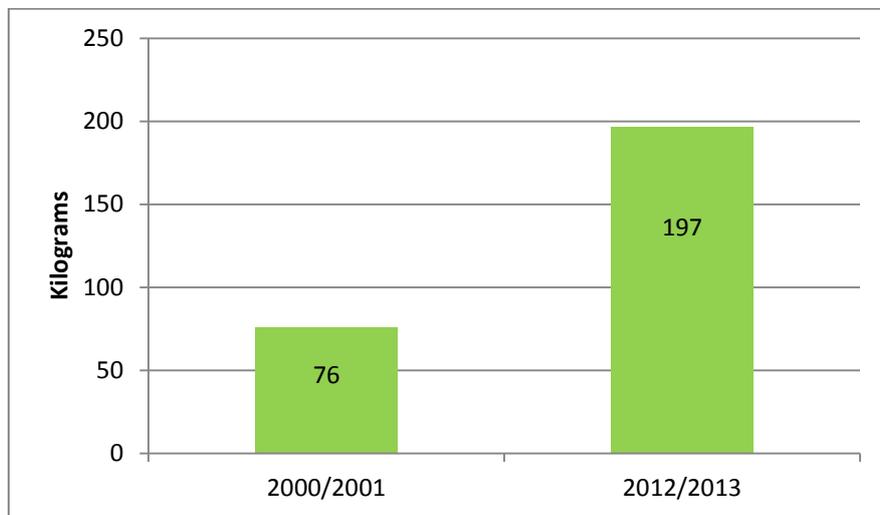
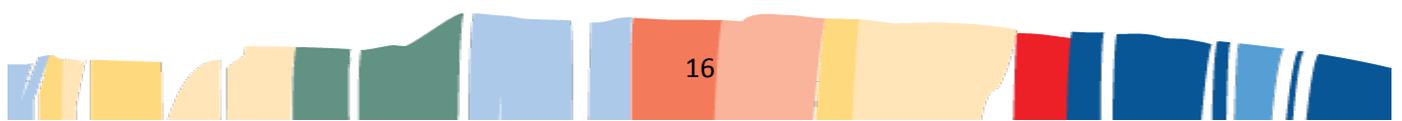


Figure 8 Household Waste Recycled per Person (kg) in 2000-01 and 2012-13



PART 3 WASTE MANAGEMENT IN THE BLUE MOUNTAINS - WHERE ARE WE NOW?

The improvements in waste reduction achieved since 2000-01 have been significant. In seeking to achieve further improvements to lengthen the life of Blaxland landfill, the geographic and demographic characteristics that make the Blue Mountains unique need to be taken into consideration. Likewise, the current services, current waste volumes and composition and current funding model must be considered.

3.1 What makes Blue Mountains LGA Different?

The City of Blue Mountains is unique as being one of only two Cities in the world located within a World Heritage listed area. Only 30% of the LGA is comprised of urban development. The development of the City is characterised as ribbon-like, following the road and rail corridor which extends through the Blue Mountains to Lithgow. The remaining 70% of the City is made up of protected bushland.

This ribbon-like development leads to higher kilometres travelled per bin collection than more compact local government areas and further transport distance to markets for recycled materials. This influences the cost of providing kerbside services and recycling at the WMFs.

3.1.1 Household profile

There are 34,428 residential properties in the Blue Mountains. Blue Mountains City Council provides household waste services to 32,555 of these. The remaining properties are either vacant land or cannot be accessed by the service vehicles.

The 2011 Australian Bureau of Statistics (ABS) Census data shows the following characteristics of households in the Blue Mountains and Greater Sydney:

Table 4 Blue Mountains LGA and Greater Sydney Dwelling Type & Household Size 2011

Dwelling Type	Blue Mountains	Greater Sydney
Separate House	92%	59%
Medium Density	7%	20%
High Density and Other	1%	21%
Household Size	Blue Mountains	Greater Sydney
Lone person household	26%	23%
2 person household	34%	31%

3 person household	15%	17%
4 person household	15%	18%
5 person household	7%	8%
6 or more person household	3%	4%

Blue Mountains residents predominantly live in single dwellings, rather than multi-unit dwellings. As such, there is limited need to make particular waste service arrangements for differing dwelling types. This low density housing also contributes to increased service costs due to limited economies of scale.

A very high proportion of households have only one or two people residing in them (60%). This has implications for the volume of waste that needs to be collected from households. Most households could be expected to generate a relatively low amount of waste and recycling each week.

3.1.2 Population Density

The 2011 ABS Census data shows the following Blue Mountains population characteristics.

As seen in **Table 4** above, there is very little high density housing in the Blue Mountains. Rather, the population is spread across a large geographic area – giving a relatively low population density of 54.4 persons/km². This is not forecast to change significantly in the future.

Population growth is expected to be minimal over the next 20 years (**Table 5**). There is also a dwindling supply of land available for housing developments, which may lead to a pattern of slower population growth.

Table 5 Blue Mountains LGA Summary Population Growth Data 2006 to 2031.

	Forecast Year					
	2006	2011	2016	2021	2026	2031
Population	76,064	76,530	77,170	78,168	79,480	81,102
Change in Population (5yrs)		466	640	998	1,312	1,622
Average Annual Change (%)		0.12	0.17	0.26	0.33	0.4
Average Household Size (persons)	2.52	2.47	2.43	2.41	2.4	2.39

3.1.3 Economic profile

The 2011 ABS Census data shows the following economic characteristics for the Blue Mountains.

Residents of the Blue Mountains fall into the lower earning brackets for New South Wales. Specifically, 20% of the Blue Mountains residents are within the 'very low' income bracket, earning less than \$600 per week, and 44% are at or below the median weekly income for NSW (\$1,233 per week).

Historically, there have been significant differences in incomes, family circumstances and welfare support across the Mountains, with some evidence of a growing disparity between the Upper and Lower Mountains. The former has higher levels of disadvantage, as shown by a number of key indicators (income, employment and education levels, and car ownership).

The Blue Mountains City has a lower percentage of households renting and in social housing than Councils in western Sydney (WSROC). However, data for the Blue Mountains indicates a moderate to high need for affordable housing. Furthermore, of those residents that currently own a home; the median monthly mortgage repayment for the Blue Mountains is \$1,842. This is approximately 26% of the median total family income of \$6,983 per month.

Table 6 Blue Mountains LGA Housing Tenure Type Data 2011

Blue Mountains City	2011	
	%	% WSROC
Tenure type		
Fully owned	36.1	26.9
Mortgage	38.9	36.6
Renting	18.5	29.6
Other tenure type	1.0	0.7
Not stated	5.5	6.2
Total households	100.0	100.0

Another factor to be considered when looking at the economic profile is the age of the population. The median age of persons in the Blue Mountains is 42 and 30% of the population is 55yrs and over in age. This suggests a high proportion of the residents are pensioners and retirees, who have a limited earning potential and associated ability to afford increased costs of services provided by Council.

The ability of residents to pay for Council services needs to be seriously considered when looking at affordability of waste services.

3.1.4 Comparison to Other Councils & Regions

The Australian Classification of Local Governments (ACLG) classifies councils into 22 groupings according to their socioeconomic characteristics and their capacity to deliver a range of services to the community. Interestingly, Blue Mountains City Council is the only council in NSW in this Australian group 12 UFL (urban fringe/large). Comparing Blue Mountains City Council to Councils in this group from other states is not appropriate due to differing state legislation, in particular the

NSW Government's Waste Levy. Therefore, finding a Council with similar circumstances with which to compare waste services and costs is difficult.

The NSW Division of Local Government (DLG) Classifications provides comparative information for all Councils in NSW. Blue Mountains Council is classified into Group 7, with a population just over the 70,000 minimum for this group. This classification has resulted in the Blue Mountains being grouped with Councils such as Penrith, Campbelltown and Gosford, all of which have much greater population densities, as shown in **Table 7** below. Cost comparisons are therefore not considered appropriate.

Byron Bay and Coffs Harbour Councils have the most similar population density to Blue Mountains and are therefore considered most comparable. With reference to population, Blue Mountains is comparable to Hawkesbury Council, which also has a very large geographical area. Some of the Councils in the Netwaste Region such as Lithgow Council have very low population densities and are not yet impacted by the NSW Government's Waste Levy, so cost comparisons are not considered appropriate.

Blue Mountains LGA is unique in that it encompasses a large geographical area of often difficult terrain with areas of unsealed roads. The low density population is spread in low density housing along a narrow ridgeline of small villages. This means there are long distances between waste management 'Hubs' and this fact influences the cost and options of providing waste facilities and services to the community. The majority of costs of operating the two waste management facilities are fixed regardless of incoming waste volumes. The fact that Blue Mountains has a low density population using these facilities means it will inadvertently have higher fees and charges for waste than higher density population Councils. All of these factors play a part in influencing the price of the Domestic Waste Management Charge and WMF gate fees that the community currently pays and will pay in the future for waste services.

Table 7 Comparison of Councils

	NSW DLG	National ACLG/ Alpha Code	Pop'n (30 June 2010)	Area (km2)	Pop'n Density (pop'n/area)	Domestic Waste Levy Charge \$	Gate fee for mixed waste 2013-14 \$ per tonne	EPA levy charge 2013-14
Blue Mountains	7	12/UFL	77 943	1 431.7	54.4	362	247	53.70
Campbelltown	7	13/UFV	153 222	312.3	490.6	n/c	n/c	107.80
Penrith	7	13/UFV	186 221	404.8	460	n/c	n/c	107.80
Wyong	7	13/UFV	151 527	740.1	204.7	n/c	n/c	107.80
Gosford	7	13/UFV	168 188	940.3	178.9	n/c	n/c	107.80
Hornsby	7	13/UFV	164 034	462.3	354.8	n/c	n/c	107.80
Liverpool	7	13/UFV	185 481	305.5	607.1	n/c	n/c	107.80
Hawkesbury	6	11/UFM	64 030	2 775.8	23.1	265 (2 bin)	216	107.80

	NSW DLG	National ACLG/ Alpha Code	Pop'n (30 June 2010)	Area (km ²)	Pop'n Density (pop'n/ area)	Domestic Waste Levy Charge \$	Gate fee for mixed waste 2013-14 \$ per tonne	EPA levy charge 2013-14
						310 (3 bin)		
Lithgow	4	6/URS	21 094	4 513.8	4.7	387	0 household waste 75 for commercial	Nil
Byron FOGO bin starting in mid 2014	4	7/URM	32 378	566.6	57.10	275 (3 bin service with 140L waste bin. 385 (3 bin service with 240L waste bin)	220	53.70
Coffs Harbour	5	8/URL	72 827	1 175.1	62.00	534 (3 bin)	380	53.70
Tweed	5	8/URL	90 090	1 309.4	68.8	324.95 or 378.95 with 3 bin	115(est)	53.70
Shoalhaven	5	8/URL	96,967	4530.60	21.4	489 for 240L waste	265 at West Nowra	107.80

n/c – not comparable due to population size, density and associated economies of scale

Key to National ACLG Codes in Table 7:

U – Urban

R - Regional Town City

F – Fringe LGA

S – Small (population up to 30,000)

M – Medium (population 30,001-70,000)

L – Large (population 70,001-120,000)

V – Very large (population >120,000)

3.2 Current Waste Management System

The Waste Resource Management Service provides a diverse range of waste services for the whole City including our homes, businesses, schools, Council services, community services and visitor services.

Each year Council conducts a Community Survey to gauge community perceptions of the delivery of all Council services and facilities.

The 2013 results indicate that the garbage collection and recycling collection were rated second and third most important services that Council provides to residents. Residents were most satisfied with the garbage collection service followed by the recycling collection service.

The table below summarises all of the services provided by Council and the achievements in 2012-13.

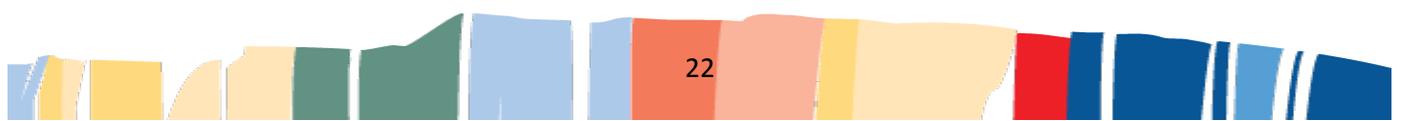


Table 8 Services Provided by Council and Service Outcomes in 2012-13

Service	Waste Source	Current Service Level	Service Delivery	Funding Source	Key Service Outcome (12/13)
Household Waste Collection	Household	140 litre or 240 litre residual waste bin collected weekly Additional bin on a fee for service basis	Council staff	Fully funded by Domestic Waste Management Charge	32 555 mobile garbage bins (MGB) in service at the end of June 2013 (5 218 x 140L bins). 23 006 tonnes (303 kg per capita) of waste collected in 2012/13
Household Recycling Collection	Household	140 litre co-mingled recycle bin collected weekly Additional bin on a fee for service basis	JJ Richards Contract	Fully funded by Domestic Waste Management Charge	33 014 MGB in service at the end of June 2013 8 716 tonnes (115 kg per capita) of recyclable material collected in 2012/13
Booked Kerbside Chipping and Bulky Waste Collection	Household	Kerbside chipping and bulky waste collection (up to 4m ³) 2 services a year Additional service on a fee for service basis	Council staff	Fully funded by Domestic Waste Management Charge	39 985m ³ of vegetation chipped (approx 6664 tonnes) 1369 tonnes bulky waste material collected, of which 132 tonnes was recycled. (NB – these results are for the scheduled services prior to the change to Booked Services in 2013/14)
Chemical Clean Out Service (drop off service)	Household	2 x 4 day drop off at Katoomba WMF 2 x 4 day drop off at Blaxland WMF	Contract	Domestic Waste Management Charge; Offset by \$50k NSW grant in 2013	55.34 tonnes of household liquid and hazardous wastes over the 4 services. 1947 customers used this service
Other Waste Collection	Non-rateable properties	Scheduled collection of waste from non-rateable bins	Council	Waste Service Charges	74 x 240L bins and 161 x 140L bins serviced weekly

Service	Waste Source	Current Service Level	Service Delivery	Funding Source	Key Service Outcome (12/13)
Springwood Depot Recycling	Other Council Waste	Recycling of operational waste materials at Council's Springwood Depot	Council	Rates Revenue	Council's Springwood depot recycled 16 392 tonnes of green waste/metal/bricks/asphalt and concrete in 2012/13
Business Recycling Service	Commercial	240 litre co-mingled recycle bin/s collected weekly	JJ Richards Contract	Direct charge for users	17 commercial customers
Provision of Waste Management Facilities (Further details below)	Household Municipal Business Construction & Demolition Limited special wastes (asbestos and animal carcasses at BWMF only)	Two Waste Management Facilities (located at Katoomba and Blaxland) open 7 days a week from 8.30am - 4.45pm. The sites are licenced to receive general solid wastes (putrescibles and non-putrescible) and limited special wastes (asbestos and carcasses at BWMF only)	Council is responsible for the operation of both gatehouses and weighbridges Council is responsible for operation of the Waste Transfer and Resource Recovery Centre at Katoomba WMF Remondis (contractor) is currently responsible for landfill, recycling and resource recovery operations at Blaxland WMF	WMF user fees	79 328 vehicles visited the two WMFs during 2012/13 60 375 (approx) tonnes of material was delivered to the WMFs during 2012/13
SUPPORT SERVICES					
Community Engagement and Education	All waste streams	Education to the community is delivered in several forms:	Council Staff	Fully funded by Domestic Waste Management Charge	182 individuals attended one or more Eco Choices Workshops in 2012/2013 More than 33 000 copies of the Annual Resource Recovery Guide were delivered to

Service	Waste Source	Current Service Level	Service Delivery	Funding Source	Key Service Outcome (12/13)
		<ul style="list-style-type: none"> • Council's web sites* • Weekly Gazette advertisement • Newsletters • Annual Resource Recovery Guide • Eco Choices Workshops • Business Waste Reduction Program 		NSW government funding (Business Waste)	all residents and post office boxes in the LGA Strategic partnerships established to further enhance the Business Waste Reduction Program.
Strategic Planning and Advocacy	All waste streams	Council strategically plans for waste services and assets and actively participates in relevant consultation process to advocate for improved waste outcomes in the Blue Mountains	Council Staff	Fully funded by Domestic Waste Management Charge and WMF user fees	Consultation with EPA and regional waste groups NetWaste and WSROC Completed Waste Options Study and Community Consultation stages of Waste Strategy development
Major Upgrade of Facilities	All waste streams	Council project manages the major capital works projects relating to waste assets and infrastructure	Council Staff	WMF user fees	Finalised contract for Landfill Gas Management system at Blaxland WMF Finalise design of Front Entrance at Blaxland WMF

*www.bmcc.nsw.gov.au/yourcommunity/wastemanagement is updated regularly and provides a range of documents including forms for services, strategies, factsheets, waste audit reports, Resource Recovery Guide etc.

3.3 Waste Management Facilities

3.3.1 Blaxland Waste Management Facility

The Blaxland Waste Management Facility (WMF) has been used as a waste disposal facility for over 60 years. The Blaxland WMF site covers an area of approximately 31 hectares including 9.9 hectares of operational area which includes an inactive quarry. The current landfill area (Landfill B) occupies approximately 2.2 hectares. The site is operated in accordance with the Blaxland WMF Landfill Environmental Management Plan and the Environmental Protection Licence issued by the NSW EPA.

The main access road and entrance to the site are sealed. Roads within the landfill area are not sealed.

The main features of the WMF site include the following:

- A gatehouse and weighbridge
- Contractor amenities and office building (portable structures located near the site entrance)
- Parking area (for employee and maintenance vehicles only located near the site entrance)
- Machinery shed and compound
- Wash bay
- Basic recyclable materials storage
- Stormwater management ponds
- Leachate collection ponds
- Cut off wall to protect the Melaleuca swamp community

The site is currently used for landfilling non-hazardous solid wastes and for recovery and processing of other materials, such as construction and demolition wastes and reusable tree wastes. Placement of waste in landfill B, within a fully lined cell, commenced on 29th April 2009.

Blaxland WMF receives waste generated from within the Blue Mountains City Council LGA only, including waste transferred from the Katoomba WMF

Since landfilling operations ceased at Katoomba WMF in 2010, Blaxland WMF represents the only approved landfill space in the Blue Mountains LGA.

Blaxland WMF is currently operated under contract by Remondis on behalf of Council.

In 2010 consent was granted for a major upgrade of the Front Entrance and Recycling Facilities at Blaxland WMF. The works approved include road construction, stormwater drainage, buildings, a new weighbridge and an automated wheel wash. The upgrade to undercover recycling facilities will allow an extended range of materials to be source separated for recycling, including plastics, mattresses, clothing and reusable items.

3.3.2 Katoomba Waste Management Facility

The Katoomba Waste Management Facility (WMF) has a total area of approximately 20 hectares and is located in the valley of Yosemite Creek, which drains to the northeast from the Katoomba area. The site is operated in accordance with Katoomba WMF Pollution Incident Response Management Plan and the Environmental Protection Licence issued by the NSW EPA.

The Katoomba WMF has been used as a waste storage, treatment and disposal facility for over 100 years.

In June 2010, landfilling operations at the Katoomba WMF ceased and the site became a Transfer Station and Resource Recovery Centre. The Katoomba WMF now removes recoverable items from the waste stream with residual waste (either baled or loose) transported by truck to Blaxland.

The platform at the top of the capped landfill is used for resource recovery activities and stockpiling.

The main features of the Katoomba site include the following:

- A gatehouse and weighbridge
- Employee amenities and office building
- Parking area (for employees and visitors)
- Wash bay
- Transfer Station including receiving platform, conveyor and baler, bale storage area
- Education centre
- Small Vehicle drop off area
- Recycling and reuse sheds
- Resource Recovery Platform
- Stormwater and leachate collection dams

Katoomba WMF is currently recycling the following materials:

- Co-mingled recyclables (glass bottles & jars, paper & cardboard, rigid plastic containers, aluminium & steel cans, milk & juice cartons)
- E-waste (TV's, computers and computer parts, printers and scanners)
- Scrap metal (including whitegoods & car bodies)
- Mattresses
- Hard and soft plastics (subject to market conditions)
- Car batteries, gas bottles and engine oil
- Untreated timber and green waste that is weed free and able to be chipped
- Concrete, roof tiles & terracotta pipes
- Furniture & other re-usable items in good condition
- Textiles & clothing items

3.4 Waste Volumes and Composition

Council currently manages wastes from the following sources:

- Household Kerbside waste
- Household Kerbside recycling
- Kerbside Chipping material
- Household clean-up (bulky waste) material
- Waste & recycling delivered to Blaxland & Katoomba WMF's from various sources
- Bricks, asphalt, concrete and organics that are processed at Springwood Depot

Other waste materials produced in the City may be processed or disposed of outside of the City and are therefore not included in the figures being discussed.

In 2012/2013 the Total Waste and Recycling Generated in the Blue Mountains was 83 657 tonnes of material, summarised in **Figure 9** below. Red/pink/orange segments represent material that is disposed of to landfill at Blaxland and green/blue segments represent material that is recovered for recycling or reuse. **Refer to Appendix 2 for full tonnage details**

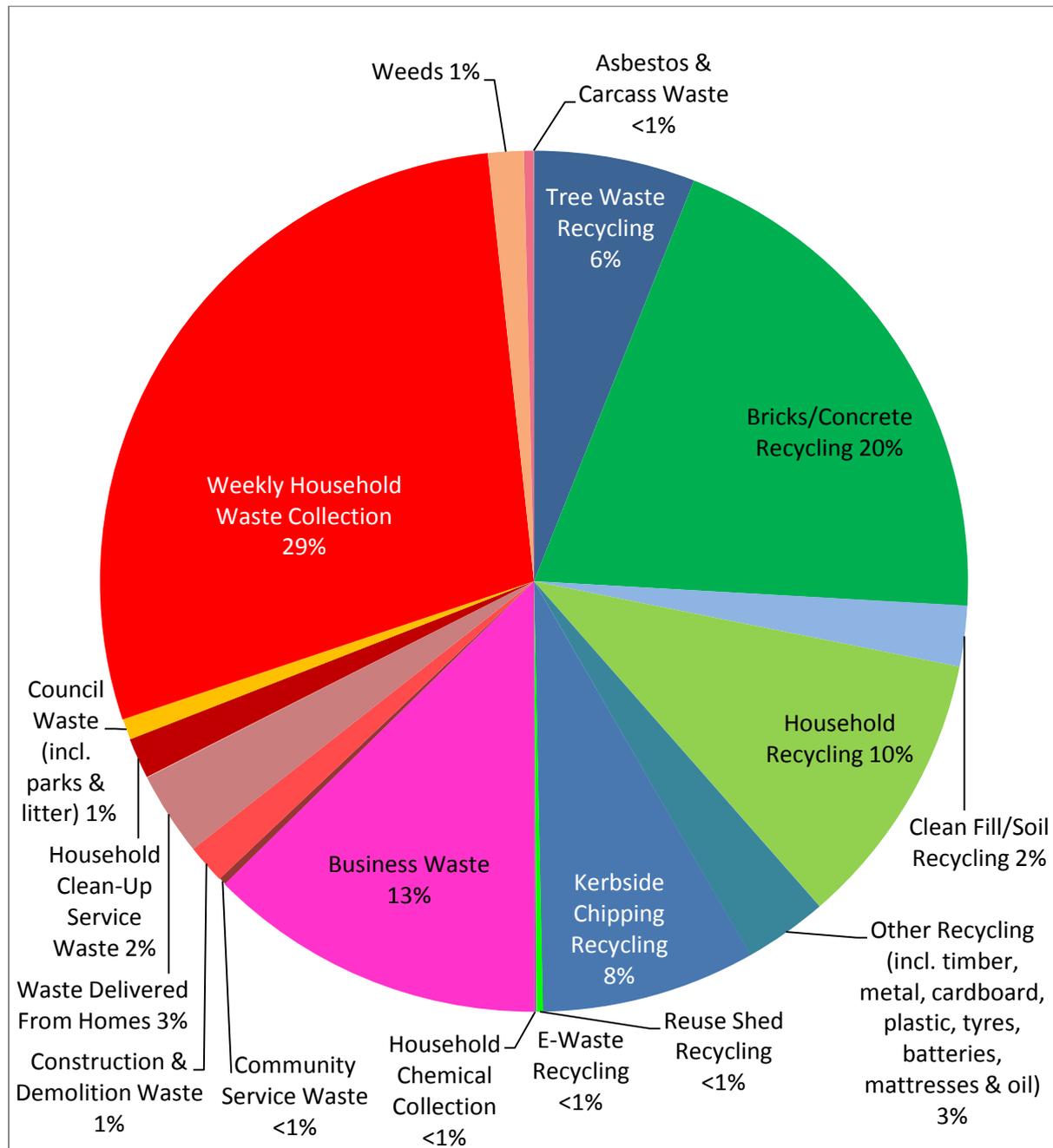


Figure 9 Total Waste and Recycling Generated in the Blue Mountains 2012-13

The waste strategy actions need to focus on the sections of the waste stream that contribute most to landfill and that provide the greatest opportunity for diversion from landfill. Specific wastes such as plastic bags that contribute to <0.1% of the household kerbside waste will not be specifically targeted. The largest source of waste to landfill (accounting for 57% of all material landfilled) is the weekly garbage collection from households.

Figure 10 below shows what goes in our household garbage bins from an audit conducted in 2011. This shows that 72% is organic (food, garden, paper and other). There are a number of possible methods for managing this material to prevent them going in the weekly garbage collection bin and then to landfill. This Strategy considers and compares these methods.

There is also a potential for more material from the weekly garbage collection to go in the yellow lidded recycling bin. This equates to approximately 3200 tonnes per year that could have been recycled but was instead put in the household garbage bin.

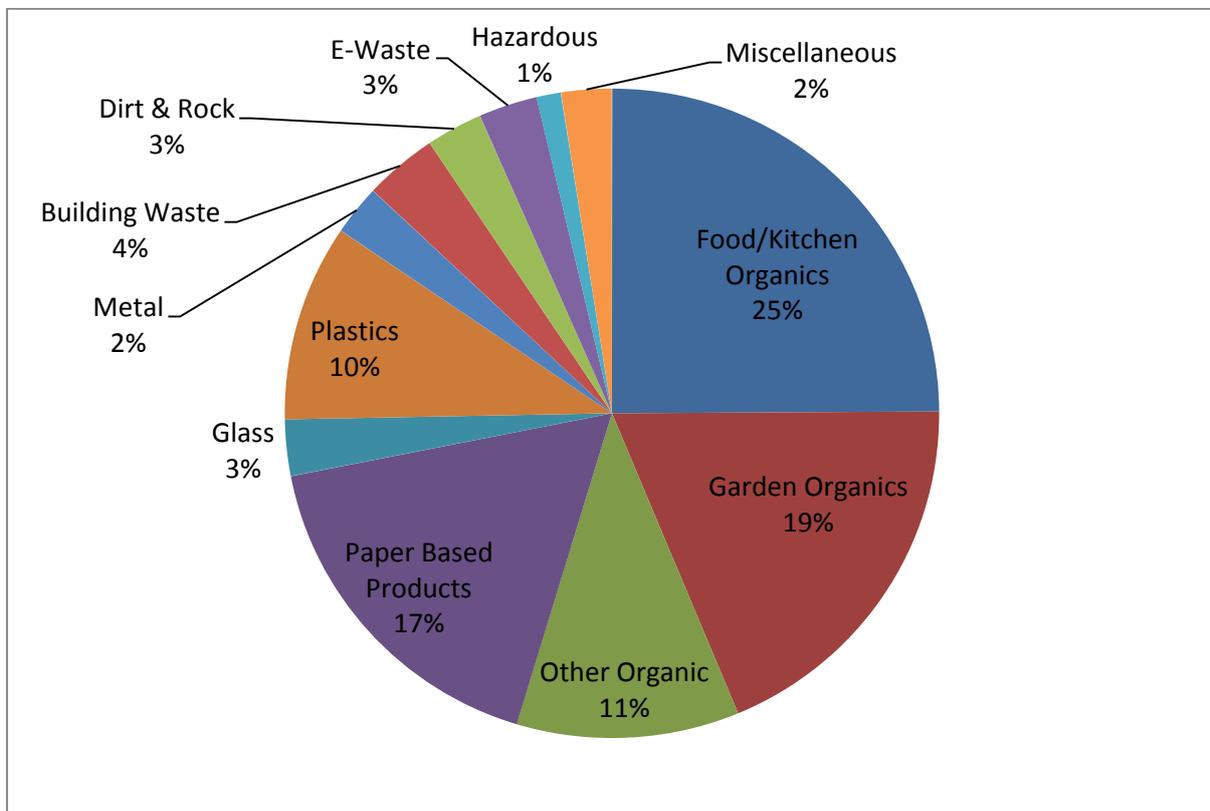


Figure 10 **Composition of Household Residual Waste Stream in 2011**

The other major source of waste to landfill is business waste. **Figure 11** below shows what is in the waste from Commercial and Industrial sources in the City from an audit conducted in 2006. Although the audit data is dated, it is still considered relevant as the composition of commercial and industrial waste has shown to be relatively consistent. Dust/dirt/rock/inert material forms the largest part of this stream (22.6%) with food (21.7%), contaminated paper (9.3%) and wood (9%) also found in significant proportions. This Strategy proposes a number of methods to address reducing the amount of material from this source going to landfill.

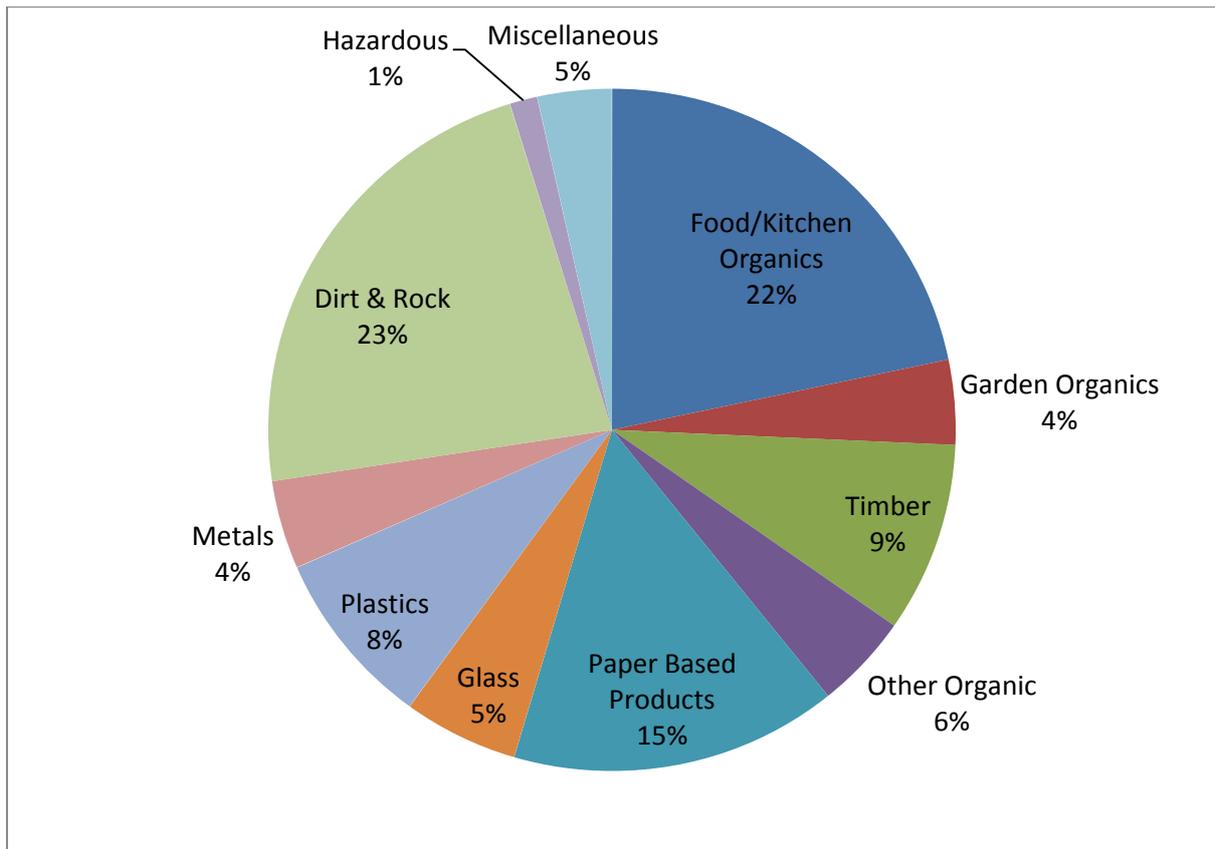


Figure 11 Composition of the Mixed Commercial and Industrial Stream in 2006

3.5 Current Funding Model

Other than Council’s Springwood Depot Recycling, which is essentially a stand-alone operation which recycles waste generated from Council activities, the Waste Resource Service is a self-funding model, based on a “user pays” approach. This allows for true costing, to allow for transparency and minimises the draw on general rating revenue that is needed for other services across the City. Various fees and charges are set at a rate that will generate income equal to total expenditure needed to operate the service. In 2013-14, this expenditure was approximately \$20 million, excluding major infrastructure improvements. **Figure 12** below summarises this expenditure.

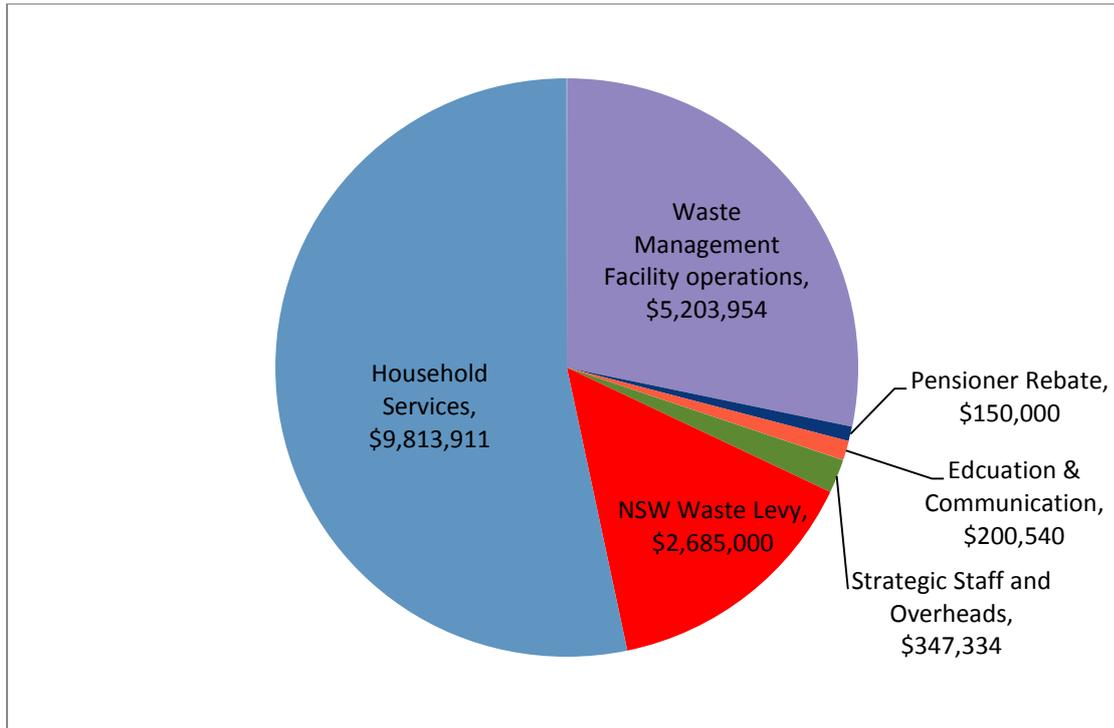


Figure 12 Components of Waste Services Expenditure 2013-14

3.5.1 Income

Each financial year, WMF gate fees are formally adopted in Council's Fees and Charges.

Gate fees are set to ensure full cost recovery of operating the WMFs – that is, a “user pays” system. These costs include:

- Contracts
- Staff (operational, management, strategic planning, supervision of major projects)
- Utilities such as electricity, water and sewerage
- Leachate disposal to sewer
- Licence fees
- Fleet/equipment and fuel
- Environmental monitoring
- Site and equipment maintenance
- NSW Government Waste Levy
- Carbon pricing mechanism
- Loan repayments for previous infrastructure projects
- Communications

Increasing regulation has led to increased operating costs compared with previous decades. Almost 80% of these costs are fixed, regardless of how much waste is received.

Gate fees are then set according to the type of waste material. Mixed residual waste is the most costly to manage and is therefore priced higher than other materials that can be recycled. This

pricing structure provides a financial incentive to sort waste materials prior to delivery to the WMF, thereby increasing recycling.

As intended, this has helped drive less waste going to landfill each year. Paradoxically, this success (less waste) has led to less income (from decreased custom) and a need to recover similar, or growing operating costs (mainly fixed) from fewer customers – thereby increasing the per tonne gate fee. Thus, as better recycling or waste diversion is achieved, the higher the costs to customers will become. This is illustrated in the example below (not actual figures).

Table 9 Illustrating the Paradox of Success

Total Operating Cost (\$)	Gate fee for mixed waste	Incoming tonnes budgeted for	Actual tonnes received	Income deficit	Impact on WMF financial reserve balance (\$)	Following Year's fee for mixed waste – based on less tonnes
10,350,000	\$230/tonne	45,000	40,000	1,150,000	1,150,000	\$259/tonne

The other main source of income to offset operating costs is the Domestic Waste Management Charge (DWMC), also formally adopted each year in Councils Fees and Charges. The NSW *Local Government Act 1993* requires that the DWMC be applied to all rated properties to which the service is available. It also requires that the value of the DWMC is based on a “reasonable cost calculation”. Therefore, the DWMC is calculated to cover the cost of providing the household services indicated in **Section 3.2** above.

Council is also able to seek grant funding for certain initiatives, particularly from the NSW Government’s current “Waste Less, Recycle More” funding package. This includes the Better Waste and Recycling Fund, worth approximately \$200, 000 per year to Council until 2016-17.

Finally, Council earns some income from the sale of material recovered from the WMFs and Springwood Depot for recycling such as metals, cardboard and recycled civil products.

3.5.2 Expenditure

The expenditure for the Waste Resource Service relates to the provision of the services outlined in **Section 3.2**. In summary, these are:

- Household kerbside services
 - Garbage collection
 - Recycling collection
 - Kerbside chipping and clean up services
- Blaxland and Katoomba Waste Management Facilities
- Springwood Depot Recycling

3.5.3 Loan Repayments

In addition, Council currently has a number of loan repayments associated with the improvements to waste infrastructure outlined in **Section 2.1**. Council's waste fees and charges also generate income to meet this expense.

Loan repayment costs relate to the following infrastructure projects:

- Construction of the Katoomba Resource Recovery Centre and Transfer Station
- Construction of Blaxland Landfill Cell B, Stages 1 and 2
- Construction of the Blaxland WMF gatehouse and Resource Recovery Centre

At the time of raising these loans, Council endorsed the business case for these improvements as providing good value for money.

3.5.4 Reserves

Council needs to maintain financial reserves for risks associated with providing the Waste Resource Service.

The operation of Waste Management Facilities is a high cost function of the Council. It also relies upon high cost infrastructure. Therefore there is a need to maintain a Waste Facility Reserve that will enable continued operation in situations that could otherwise require the temporary closure of the sites and therefore cessation of this essential service. For example, severe storm events have damaged infrastructure requiring emergency repairs that annual maintenance budgets could not fund. This Reserve was used to fund these repairs.

Council also maintains a Domestic Waste Reserve, to ensure that any unforeseen expenses can be funded from DWMC income, and not general rating revenue. For example, if more waste were collected than budgeted for, this Reserve could be used to fund the unbudgeted disposal costs. This Reserve is also used for any cost savings in providing the household waste services as DWMC revenue is restricted and must only be used to fund household waste services. These are consistent with the requirements of the NSW *Local Government Act 1993*.

Finally, Council maintains a Carbon Reserve. All revenue raised from the carbon pricing component of Council's waste fees and charges is protected here. These funds will be used to fund any future carbon pricing liability Council incurs through operating the WMFs or to fund waste service greenhouse gas abatement initiatives.

PART 4 STRATEGY DEVELOPMENT

4.1 Council's "Sphere of Influence"

Council can achieve a reduction in the amount of waste buried in landfill in a number of ways. Some enable Council to directly control the outcomes while others enable Council to influence the outcomes. This can be considered Council's "sphere of influence" regarding waste & resource management. Using a combination of these will achieve the best results.

- **Service & Infrastructure Provision** – The traditional way in which local government has sought to manage waste; providing services and infrastructure in a strategic way can influence improved waste avoidance and resource recovery.
- **Engagement** – Council is able to engage with strategic partners, community and service users, seeking to work cooperatively to achieve greater waste avoidance and resource recovery in the Blue Mountains.
- **Pricing Policy** – Council sets fees and charges and this can be done to create a financial incentive for waste avoidance and resource recovery, influencing how service users manage their own waste.
- **Regulation** – Council is granted some limited powers to directly regulate how waste is managed and through enforcement of these powers can directly control what type of materials are disposed of to landfill or recycled.
- **Advocacy** – Council is able to advocate to other levels of government and industry on behalf of its community to make changes that will improve waste avoidance and resource recovery in the Blue Mountains.

4.2 Short Term Strategy

This Strategy is being prepared at a time when waste policy, guidelines, laws and funding are undergoing major change. These changes are listed below:

- *Local Government Act 1993* – released 3 January 2014
- NSW Litter Prevention Strategy 2013 (pending)
- NSW Energy from Waste Policy Statement - released – March 2014
- Review of Clause 51 & 51A Waste Exemptions – Food Organics
- NSW Illegal Dumping Strategy 2013 (pending)
- *POEO (Waste) Regulation 2005* – reviewed version released 1 March 2014
- NSW Independent Local Government Review (pending)
- Draft NSW Waste Avoidance and Resource Recovery Strategy 2013-21 – released October 2013
- *NSW Waste Avoidance & Resource Recovery Act 2001* (under review)
- NSW Regional Strategy Guidelines 2013 (released late 2013)
- NSW Waste Less Recycle More funding packages 2013. This is the largest waste & recycling funding program in Australia, offering \$465M over a five year period.
- Federal Carbon Pricing Mechanism – Emissions Reduction Fund Green Paper released for public consultation on 20 December 2013 - 21 February 2014

In addition, the community's willingness and capacity to pay for waste services needs to be considered in the context of other council services.

The resolution of the uncertainties listed above will most certainly impact on the path forward for the Blue Mountains community and Council.

Large scale service level changes, particularly those requiring new infrastructure, are difficult to adjust in response to a change in circumstances. Therefore, any decisions made in the short term regarding waste services must provide flexibility to respond to this changing environment. Any action taken needs to create a service that is versatile, supporting progress toward our objectives while not committing to a situation in which Council could not make the most of opportunities as they arise.

As such, an adaptive Strategy is required, allowing continued action towards our improved performance while pursuing opportunities presented by the above changes as they unfold.

4.3 True Cost of Landfill

A number of background research studies have been completed to support this Strategy.

Calculating 'True Cost of Landfill' is an important tool to support decision making in relation to waste management for the City and to determine whether current and future waste fees and charges adequately cover 'true' costs. True costs include landfill planning, development, operation, closure, post closure management and maintenance. Planned future infrastructure such as transfer stations and potential new waste technology should also be contemplated.

Understanding the full cost of every tonne of waste going in the landfill can be equated to a calculation of the avoided costs or savings achieved by recycling that waste instead of sending it to landfill. This can then be used to determine whether future recycling proposals represent better value for money than landfill.

Some preliminary work on the 'The True Cost of Landfill' have been undertaken during 2013, however this exercise needs to be more thoroughly completed in 2014.

4.4 Waste Options Study

In late 2012 Council engaged waste specialists to undertake an extensive Waste Management Options Study to provide critical information for the strategy development. The resulting Waste Options Report can be found at **Appendix 3**.

The primary purpose of the study was to research and identify the full suite of options available to the Blue Mountains for managing its waste. The study included four components:

- Discussion of Alternative Waste Technology
- Discussion of other initiatives
- Quantitative assessment of household waste service option
- Qualitative assessment of household waste service options

4.4.1 Discussion - Other Initiatives

Consideration was given to initiatives not relating to bin services, including waste streams other than the household waste stream and suggestions offered by the community:

- Neighbourhood and community composting facilities
- Retrofitting mobile garbage bins into worm farms
- Industrial ecology opportunities for businesses
- Regional partnerships and solutions
- Re-use centres
- Commercial and industrial waste
- Construction and demolition waste

4.4.2 Discussion - Alternative Waste Technology

Consideration was given to various forms of Alternative Waste Technology (AWT), including:

- Aerobic windrow composting
- Aerated static pile composting
- Enclosed tunnel composting
- Vertical composting
- Vermi-composting
- Mechanical biological treatment
- Traditional anaerobic digestion
- In-ground anaerobic digestion
- Incineration
- Pyrolysis (energy from waste technology).
- Gasification (energy from waste technology)

Analysis of the strengths, weaknesses, opportunities and threats for the Blue Mountains of each of these options was carried out.

4.4.3 Quantitative Assessment

A particular issue which this strategy has sought to address, and which has been prominent in the community's commentary on waste, is how we reduce the amount of household waste to landfill (**Figure 9**). In particular, how we divert the high organic content of this waste stream away from landfill (**Figure 10**).

On the basis that future household waste management options will involve some use of a bin or bins, the three most common service scenarios, two of which include a Green Bin, were used to model the feasibility of the various options available.

The three common service scenarios modelled were:



Scenario 1: Current services – weekly garbage and recycling bins and booked kerbside chipping and bulky waste.



Scenario 2: New fortnightly garden organics bin, with no kerbside chipping service – weekly garbage bin, weekly or fortnightly recycling bin and booked bulky waste collections. In this scenario the kerbside chipping service would be discontinued as branches would be managed through the additional fortnightly garden organics bin. Continuing the chipping service would lead to under-utilisation of the organics bin and additional expense.



Scenario 3: New weekly food and garden organics bin, with no kerbside chipping service – fortnightly garbage bin collection, with weekly recycling bin and booked bulky waste collections. In this scenario the kerbside chipping service would be discontinued as branches would be managed through the additional weekly food and garden organics bin. Continuing the chipping service would lead to under-utilisation of the organics bin and additional expense.

Within each of the three scenarios, there were multiple destinations for materials from each waste stream. This resulted in a total of 65 options being quantitatively modelled, providing data for the following criteria:

- Greenhouse gas emissions
- Waste diversion (tonnes)
- Financial costs

- Collection
- Transfer
- Processing/disposal
- Equipment
- Vehicle kilometres travelled

4.4.4 Qualitative Assessment

A qualitative social and risk assessment for these 65 options was then carried out, giving each option a “raw” qualitative score that could be weighted according to the relative importance of the criteria. Criteria used for the qualitative assessment were:

- Technical risk, does the technology have a successful track record?
- Market risk, is there a viable end market for products produced?
- Planning risk, is there a suitable site and lead times for approvals?
- Integration with current waste systems
- Community convenience
- Local jobs
- Long term solution
- Landfill space saved

4.5 Community Consultation

Following the Waste Management Options Study, Council appointed a community engagement specialist to engage the Blue Mountains community on their priorities for waste management. The engagement program was named ‘Weigh in on Waste’. The full Community Engagement Report can be found in **Appendix 4**.

The engagement program included:

- Three face to face community workshops in March and April 2013 (93 participants)
- A survey, hardcopy and online (216 responses)
- Online discussion forum (45 comments)
- Consultation at Springwood Foundation Day Festival on 23 March 2013 (116 participants)
- A 12 page booklet explaining the project and key issues on waste management that was broadly distributed.
- Schools awareness activity
- Direct notification to the Waste & Resource Reference Group members

The engagement program directly engaged with almost 500 community members with a good representation of age groups and locations across the LGA and an emphasis on the “unengaged”.

The community consultation focused on the qualitative criteria listed in **Section 4.4.4** above. Participants were asked to identify which of these criteria they considered important and to rank their relative level of importance. The results were used to apply the relative importance weightings to these criteria (details below).

The community were also asked how much they were willing to pay for the annual household waste charge to achieve less landfill and more recycling. The results are shown in **Figure 13** below.

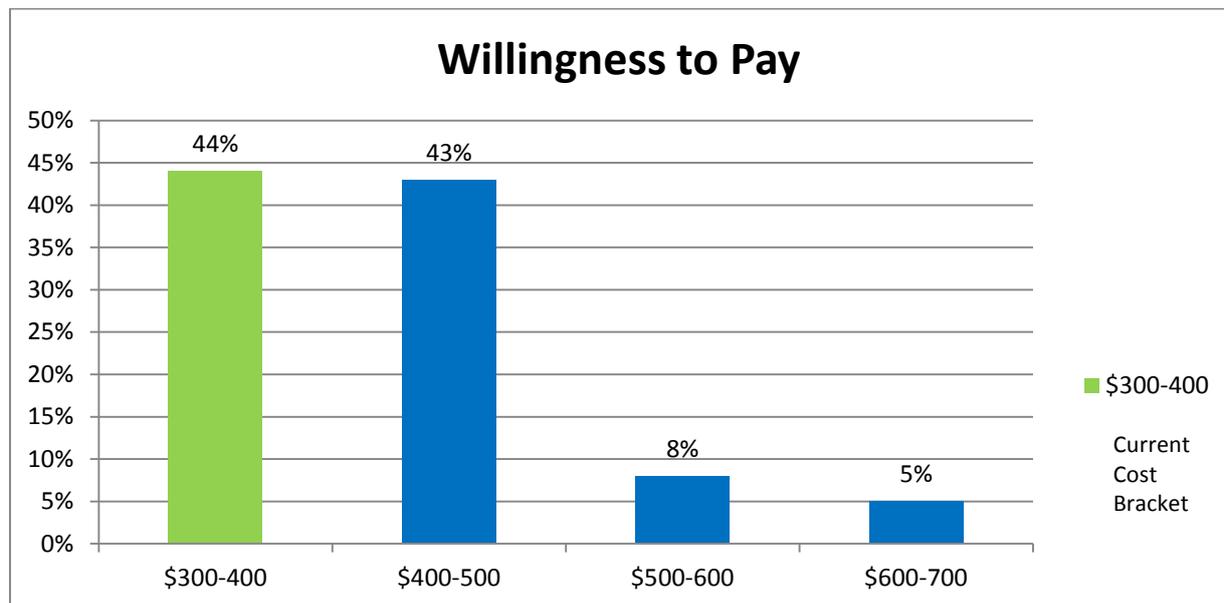


Figure 13 Community Willingness to Pay for Annual Household Waste Charge

The highest percentage of respondents (44%) were only willing to pay the current cost bracket (\$362 in 2013-14). A similar number (43%) were willing to pay an additional \$100. There were very few respondents willing to pay \$200 or \$300 more than the current charge.

4.6 Analysis of Household Waste Options

Using the Waste Options Study and the Community Engagement Report, an analysis of household waste service options was carried out.

4.6.1 Weighting Qualitative Criteria

Each qualitative criterion was allocated a percentage weighting using the results of the community consultation and professional assessment by staff. These weightings are shown in **Table 10** below.

Table 10 Professional and Community Weightings for Qualitative Criteria

Qualitative Criteria	Professional Assessment (%)	Relative Community weightings (%)	Notes where variation between community and staff weightings occur
Technical risk	15	8.5	Compared to the other criteria, the community were more willing to accept unproven waste technologies, however professional assessment considers that a proven, reliable technology is very important
Market risk for end products	15	11	Community and professional assessment considered this important, though community had it as a 2nd level importance
Planning risk - suitable sites	10	11	
Planning risk - lead times	10	11	
Systems fit	7.5	9	
Social risk - convenience	10	9	
Social risk - employment	7.5	8.5	
Long term viability	10	16	Long term viability was the equal most important factor for the community. Professional assessment considers it to be of mid-range importance due to the technology, policy, funding and operating environment being highly dynamic – a staged approach may provide greater opportunities.
Landfill space / resource recovery	15	16	

These weightings were applied to the qualitative score, giving a final “option score” for each of the 65 household waste service options.



The higher the option score, the greater the risk mitigation, and the more positive the social, environmental and financial outcomes will be.

4.7 Quadrant Analysis

The option scores were then analysed against the financial cost for each of the 65 household waste options. Despite some differences between the community and professional weightings, as identified in the table above, this analysis revealed the same overall results using either set of weightings.

Options with a high option score and low cost will provide services with the best value for money (best outcomes for least cost). These were identified using a quadrant analysis presenting in the top left quadrant. Any options with an option score lower than the current service model were excluded from any further consideration as they would produce reduced outcomes compared to the current service. The full analysis can be found in **Appendix 5**.

The top left quadrant in **Figure 14** below identifies those options that warrant further consideration.

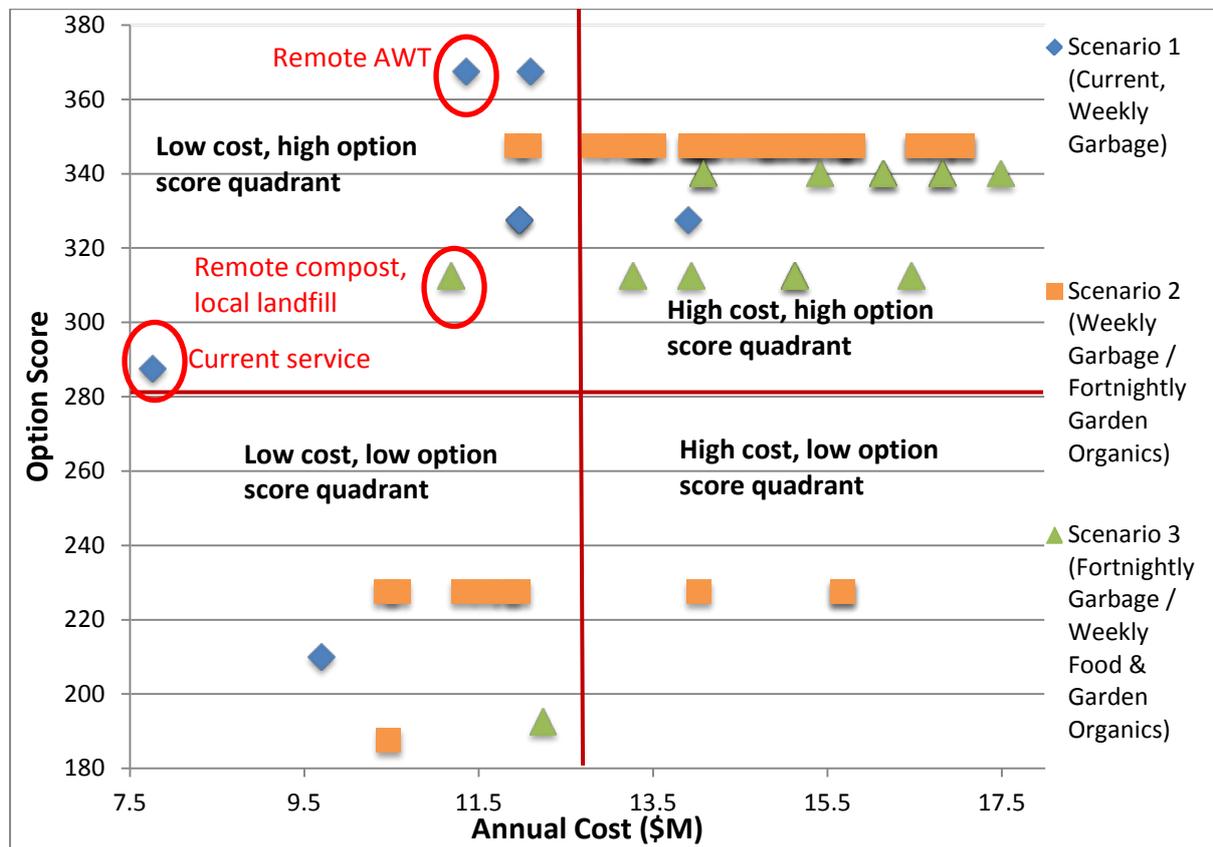


Figure 14 Results of Quadrant Analysis, Identifying Three Household Waste Options for Further Consideration

4.8 Best Value Analysis - Three Household Waste Options

Following the identification of the three household waste service options warranting further consideration, a further study was undertaken in November 2013. This study refined the modelling for these options using more detailed and site specific data. This provided greater confidence in the results of current and future cost modelling and diversion from landfill calculations.

Of the 65 options considered, the process identified three which had the greatest feasibility. These three were then further compared and assessed to identify which offered the best value.

The results are summarised in **Figure 15** and then each discussed in greater detail below.

		Total Annual Cost in 2020-21	Indicative Annual Cost per H'hold in 2013-14	WMF Gate fee impact (per tonne)	Landfill life	\$ per extra year of landfill life						
Current Service		\$11M	\$362p/a	\$247	2030 (approx 40,000 tonnes p/a)	-						
	WEEKLY						✓	✓	✗	✗	✓	✓
	FORTNIGHTLY						-	-	✗	✗		
New Green Bin		\$14.5M	Extra \$103 (\$465p/a)	\$320	14,000 tonnes p/a diverted = 2033	\$22M						
	WEEKLY						-	✓	✗	✓	✗	✓
	FORTNIGHTLY						✓	-	✗	-		
Garbage to ext. AWT		\$14.1M	Extra \$94 (\$456p/a)	\$398	23,600 tonnes p/a diverted = 2038	\$10M						
	WEEKLY						✓	✓	✗	✗	✓	✓
	FORTNIGHTLY						-	-	✗	✗		

Figure 15 Summary of Top Three Household Waste Options

4.8.1 Current Service

		Total Annual Cost in 2020-21	Indicative Annual Cost / H'hold in 2013-14	WMF Gate fee impact (per tonne)	Landfill life	\$ per extra year of landfill life						
Current Service		\$11M	\$362p/a	\$247	2030	-						
	WEEKLY						✓	✓	✗	✗	✓	✓
	FORTNIGHTLY						-	-	✗	✗		

The Current Service option includes the weekly garbage and recycling collections with booked kerbside chipping and bulky waste collection services. All material in the red lidded garbage bin is

disposed of at Blaxland WMF and material in the yellow lidded recycling bin is taken to a privately operated recycling facility.

This option is the lowest cost option to the community in regards to Domestic Waste Charge per household and WMF gate fee impact.

Table 11 Benefits and Challenges presented by the Current Service Option

Benefit	Challenge
<p>The total annual cost in 2020-21 is lowest of all options at \$11M</p> <p>The annual household cost will remain largely unchanged</p> <p>The WMF gate fee will remain largely unchanged</p> <p>The kerbside chipping service ensures a quality end use for this organic material (as mulch on individual gardens)</p> <p>Cost of \$45 per tonne of organic material recycled</p> <p>No long term contracts that lock Council out of pursuing other opportunities to achieve further value for money</p>	<p>Blaxland landfill will be full by 2030</p>

4.8.2 Weekly Food & Garden Organics Bin (Green Bin)

							Total Annual Cost in 2020-21	Indicative Annual Cost / H'hold in 2013-14	WMF Gate fee impact (per tonne)	Landfill life	\$ per extra year of landfill life
							\$14.5M	Extra \$103 (\$465p/a)	\$320	2033	\$22M

The New Green Bin option includes the introduction of a weekly food & garden organics bin (green bin). The material collected in this bin would be delivered to a processor in Blayney for composting. Recycling would continue to be collected weekly and booked bulky waste collection would remain unchanged. Garbage would be collected fortnightly and disposed of at Blaxland landfill. The booked kerbside chipping service would be discontinued.

Table 12 Benefits and Challenges Presented by the New Green Bin Option

Benefit	Challenge
Additional 7573 tonnes of organic waste diverted per year	<p>Blaxland landfill will be full by 2033</p> <p>The total annual cost in 2020-21 is \$14.5M - \$3.5M per year more than the current services</p> <p>Households will pay an additional \$103 per year</p> <p>Customers will pay an additional \$73/tonne for waste they bring to the WMFs</p> <p>Processed material may only be suitable for mine site rehabilitation.</p> <p>Cost of \$462 per tonne for additional material recycled</p> <p>Long term contracts required, locking Council out of other opportunities for at least 10 years</p>

These costs may be adjusted in the future as Council is currently involved in a Regional tender process through NetWaste for this type of service. NetWaste is a voluntary group of Councils stretching from Blue Mountains in the east to Broken Hill in the west. These Councils work collaboratively to improve waste management outcomes in the region.

4.8.3 All Household Garbage to External Alternate Waste Technology (AWT) Facility

	Total Annual Cost in 2020-21	Indicative Annual Cost / H'hold in 2013-14	WMF Gate fee impact (per tonne)	Landfill life	\$ per extra year of landfill life
	\$14.1M	Extra \$94 (\$456p/a)	\$398	2038	\$10M

The Household Waste to External AWT option involves no change to the current service except that waste collected from household garbage bins would be sent to an AWT facility in western Sydney for processing rather than to Blaxland landfill. The rest of the City's waste would continue to go to Blaxland landfill.

Table 13 Benefits and Challenges Presented by the External AWT Option

Benefit	Challenge
<p>Additional 23,082 tonnes of waste diverted from Blaxland landfill per year</p> <p>Blaxland landfill will be full by 2038</p>	<p>Blaxland landfill will be full by 2038</p> <p>The total annual cost in 2020-21 is \$14.1M - \$3.1M per year more than current service</p> <p>Households will pay an additional \$94 per year</p> <p>Customers will pay an additional \$151/tonne for waste they bring to the WMFs</p> <p>Processed material may only be suitable for mine site rehabilitation.</p> <p>Cost of \$134 per tonne for additional material diverted from Blaxland landfill</p> <p>Long term contracts required, locking Council out of other opportunities for at least 10 years</p>

In summary, the second and third options are not considered good value at this time due to:

- The high financial cost for limited benefit (additional landfill life) beyond what the current service provides
- The need to enter long term contracts which would lock Council out of emerging opportunities in the current changing industry and funding environment

PART 5 MOVING FORWARD

5.1 WHERE DO WE WANT TO BE?

The evidence-based process to date has established that the current household service is efficient, value for money and has a high level of community acceptance compared to other options. Given this, the dynamic operating environment, and numerous external drivers, it is prudent to proceed with caution. This Strategy and its actions have therefore been developed with strong evidence to enable the Blue Mountains to pursue opportunities that will be available in the short term.

The NSW Government recently released its Draft Waste Avoidance and Resource Recovery (WARR) Strategy 2013-21, which updates various objectives and targets for waste reduction. While Council isn't legislatively obliged to meet these targets, it will need to demonstrate it is actively pursuing them to qualify for grant funding in the future. This funding includes the Better Waste and Recycling Fund, valued at approximately \$200,000 per year until 2016-17.

The WARR Strategy objectives and targets and Blue Mountains' current performance against them are outlined in **Table 14** below:

Table 14 WARR Strategy Objectives and Targets and Current Blue Mountains Performance

NSW Waste Avoidance and Resource Recovery Strategy Objectives and Targets	Blue Mountains Performance 2012-13	NSW Performance 2010-11
Avoid and reduce waste generation TARGET: Reduce the rate of waste generation per capita since 2010-11 by 2021-22	Total waste generation per person is increasing	Continuing to increase
Increase recycling rates for municipal solid waste (MSW)* TARGET: 70% by 2021-22	56% for all MSW	52% for all MSW
Divert more waste from landfill TARGET: 75% by 2021-22	49%	63%

*Municipal solid waste = all Council related waste, including household collections, parks and town centre collections and Council's operational waste.

The greatest improvement will come when actions satisfy all of the key objectives described in **Section 1.2**:

- Focus on avoid, reuse, recycle before landfill
- Comply with legislation
- Provide ongoing value for money
- Provide flexibility to respond to emerging opportunities
- Have a high level of community engagement
- Extend the landfill life beyond 2030

The actions proposed in this Strategy will achieve significant progress (67%) towards the waste diversion target in five years from now - allowing a further four years to continue progressing towards the 75% 2020-21 NSW Government target.

Given this, and the cost per tonne recycled outlined in section 4.8 above, the strategy is considered to represent services that achieve waste reduction and best value for money.

5.2 KEY STRATEGIES

As discussed in section 4.1, Local Government has the following strategies available to it to influence improved waste avoidance and resource recovery:

- Service & Infrastructure Provision
- Engagement
- Pricing Policy
- Regulation
- Advocacy

The outcomes Council aims to achieve through these strategies are explained in more detail in **Table 15** below.

Table 15 Key Strategies Discussion

STRATEGY	WHY (What we are trying to achieve)
<p>Service /Infrastructure Provision</p> <p>The traditional way in which all local government has sought to manage waste; providing services and infrastructure in a strategic manner can influence improved waste avoidance and resource recovery.</p>	<p>Services and infrastructure can make it easier and more convenient for residents to sort and dispose of their waste materials in a better way than if those services and infrastructure were not available. Council strives to provide affordable, value for money services and infrastructure that support waste avoidance and resource recovery.</p> <p>Actions within this strategy focus on:</p> <p>Further improvements to the Blaxland WMF</p> <ul style="list-style-type: none"> • resource recovery facilities, • stage 3 landfill liner, • landfill gas management system and • alternative models of operating the site <p>Household Services</p> <ul style="list-style-type: none"> • review NetWaste tender outcomes for a potential green bin • increasing recycling from the clean-up service • increasing recycling from the garbage after collection <p>Further improvements to the Katoomba WMF</p> <ul style="list-style-type: none"> • year round hazardous waste collection • increased recycling from garbage after collection

STRATEGY	WHY (What we are trying to achieve)
	<ul style="list-style-type: none"> expanding electronic waste recycling
<p>Engagement</p> <p>Council is able to engage with strategic partners, community and service users, to work cooperatively to achieve waste avoidance and resource recovery in the Blue Mountains.</p>	<p>Council cannot directly regulate consumption patterns, however can influence the community and waste service users to improve voluntary compliance with service requirements and waste reduction practices. The success of the Waste Strategy relies on community actively adopting low waste practices. Engaging the community to this level is not currently resourced, however it is proposed to direct NSW Government grants towards this.</p> <ul style="list-style-type: none"> Engaging households to improve low waste practices like ‘at home’ organics management, recycling, food waste avoidance and re-use will ultimately reduce the waste generation per person. Engaging with industry and Local/State/Federal Government partners for service provision can reduce the cost burden on the local community. Engaging with the business community through the Business Waste Reduction program aims to continue strategic partnerships and support for the businesses in reducing waste.
<p>Pricing</p> <p>Setting fees and charges to provide incentives that encourage waste avoidance and resource recovery and influence how service users manage their own waste.</p>	<p>Different prices for different materials have proven an effective way to increase recycling. Council needs to ensure the financial viability of the Waste Service into the future and set prices that favour avoid, reuse, and recycle before disposal. Council aims to:</p> <ul style="list-style-type: none"> Provide free or reduced cost disposal of certain recyclables to encourage users to separate waste and reduce waste destined for landfill. Ensure that future waste service costs (such as landfill closure and rehabilitation) are considered and accounted for. Ensure the service business model is thorough and up to date with service changes.
<p>Regulation</p> <p>Council has some limited powers to directly regulate how waste is managed and therefore the opportunity to directly control what type of materials are disposed of to landfill or recycled. This includes land use planning and development controls as well as giving fines for those found to have dumped waste illegally.</p>	<p>New developments can generate significant waste during their construction and also in their ongoing operation.</p> <ul style="list-style-type: none"> Improvement of Development Control Plans will increase resource recovery from waste that is created as a result of any developments. <p>Anecdotally, illegal dumping continues to increase with increasing NSW Waste Levy charges and WMF gate fees.</p> <ul style="list-style-type: none"> Council will monitor illegal dumping impacts and develop a compliance plan to respond accordingly
<p>Advocacy</p>	

STRATEGY	WHY (What we are trying to achieve)
Council is able to lobby State and Federal government and industry on behalf of its community to make changes that will improve waste avoidance and resource recovery in the Blue Mountains.	<p>Federal, State and Local Government policies and legislation impact and influence Council's waste related activities, funding, programs and targets. Complementary policies at State and Federal levels could reduce the cost burden on local communities and acknowledge Council's unique operating environment.</p> <p>By advocating to relevant stakeholders, Council will have better opportunity to access grant funding and other opportunities for services to be provided or funded by other organisations.</p> <ul style="list-style-type: none"> • Council is currently contributing to the review of various waste legislation and policies. (Section 1.4)

Specific actions have been identified through the waste stream and strategies in **Table 16** below. These actions provide flexibility to pursue opportunities that are expected to emerge in the coming two years that may present better value for money than the current services, while continuing to reduce waste through further improvements to the current services.

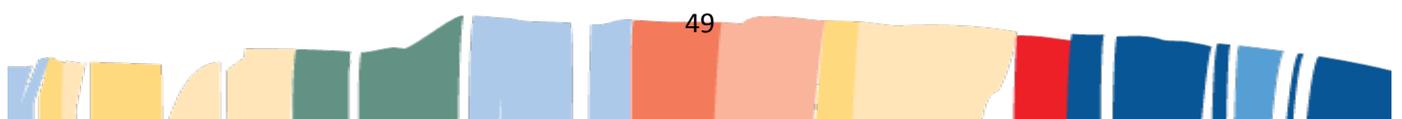


Table 16 Strategy Action Table

Strategies Support delivery of the Waste Strategy Objectives by:	Actions	Objectives Addressed <ol style="list-style-type: none"> 1. Focus on avoid, reuse, recycle before landfill 2. Comply with legislation 3. Provide ongoing value for money 4. Provide flexibility to respond to emerging opportunities 5. Have a high level of community engagement 6. Extend the landfill life beyond 2030 	Type of Waste that Strategy Action Applies to: MSW=Municipal Solid Waste C&I=Commercial & Industrial C&D=Construction & Demolition ID=Illegal Dumping	Timeline
1.Service Provision Providing best value waste and recycling services and infrastructure	1. Maintain best value through further reviews and improvements to service delivery	All	MSW, C&I, C&D	Ongoing
	2. Upgrade resource recovery facilities at Blaxland WMF and develop Communication Strategy	All	MSW, C&I, C&D	2014-15
	3. Construct Stage 3 of Landfill B at Blaxland WMF	2,3,4	MSW, C&I, C&D	2014-15
	4. Review outcomes of NetWaste Regional Waste Services Tender	3,4,5,6	MSW, C&I	2014
	5. Investigate alternative models for operating Blaxland WMF	All	MSW, C&I, C&D	2014-15
	6. Further explore opportunities for increased recycling from the kerbside clean up service	All	MSW	2014-15
	7. Further explore opportunities for increased recycling from garbage after collection	1,2,3,4,6	MSW, C&I	2014-15
	8. Implement year round collection of hazardous wastes such as paints, fluorescent light tubes, batteries etc, subject to State Government funding program	All	MSW	2015

Strategies Support delivery of the Waste Strategy Objectives by:	Actions	Objectives Addressed <ol style="list-style-type: none"> 1. Focus on avoid, reuse, recycle before landfill 2. Comply with legislation 3. Provide ongoing value for money 4. Provide flexibility to respond to emerging opportunities 5. Have a high level of community engagement 6. Extend the landfill life beyond 2030 	Type of Waste that Strategy Action Applies to: MSW=Municipal Solid Waste C&I=Commercial & Industrial C&D=Construction & Demolition ID=Illegal Dumping	Timeline
	9. Implement a landfill gas management system at Blaxland Waste Management Facility	2, 3	MSW, C&I, C&D	2014
	10. Provide the current household waste services	1,2,3,4,5	MSW	On going
	11. Provide regular Chemical CleanOut services	All	MSW	On going
	12. Operate resource recovery services for Council generated wastes	1,3,4,5,6	MSW, C&I, C&D	Ongoing
	13. Provide Waste Management Facilities at Blaxland and Katoomba	All	MSW, C&I, C&D, ID	Ongoing
	14. Provide and seek to expand the television and computer recycling service	1,3,4,5,6	MSW, C&I	On going
	15. Direct the NSW Government's Better Waste & Recycling Fund contribution of approximately \$200k per year until 2016-17 for resourcing Waste Strategy Actions	All	MSW, C&I, C&D, ID	2014-15
2.Engagement Engaging with and influencing community,	1. Implement and explore opportunities to expand the Business Waste Reduction Program	1,3,4,5,6	C&I, C&D	On going
	2. Carry out research to identify attitudes & barriers to low waste practices	1,3,4,5,6	MSW, C&I, C&D	2014

<u>Strategies</u> Support delivery of the Waste Strategy Objectives by:	Actions	<u>Objectives Addressed</u> 1. Focus on avoid, reuse, recycle before landfill 2. Comply with legislation 3. Provide ongoing value for money 4. Provide flexibility to respond to emerging opportunities 5. Have a high level of community engagement 6. Extend the landfill life beyond 2030	<u>Type of Waste that Strategy Action Applies to:</u> MSW=Municipal Solid Waste C&I=Commercial & Industrial C&D=Construction & Demolition ID=Illegal Dumping	Timeline	
industry and government to build partnerships and practices	3. Increase support for "at home" organics management	1,3,4,5,6	MSW	2014	
	4. Reduce food waste through education and other tools	1,3,4,5,6	MSW, C&I	2014	
	5. Increase compliance with & participation in recycling programs	1,3,4,5,6	MSW, C&I	2014	
	6. Increase re-use through existing programs and explore new partnerships	1,3,4,5,6	MSW, C&I, C&D	2014	
	7. Pursue Regional Waste Partnerships and funding that help Council's long term needs, including actively engaging with adjacent Councils in our region	1,3,6	MSW, C&I, C&D	On going	
	8. Review the operation and success of the Waste & Resource Recovery Reference Group as a community engagement method	3,5	MSW, C&I, C&D, ID	2014-15	
	9. Develop a Compliance Plan to address illegal dumping	All	ID (MSW,C&I,C&D)	2014-15	
	10.Direct Better Waste & Recycling Fund contributions towards increasing staffing resources to better engage with the community	All	MSW, C&I, C&D	2014-15	
	3. Pricing Developing and	1. Update the Waste Service business model, (income and expenditure for all waste activities)	2,3,6	MSW, C&I, C&D	2014

<u>Strategies</u> Support delivery of the Waste Strategy Objectives by:	Actions	<u>Objectives Addressed</u> 1. Focus on avoid, reuse, recycle before landfill 2. Comply with legislation 3. Provide ongoing value for money 4. Provide flexibility to respond to emerging opportunities 5. Have a high level of community engagement 6. Extend the landfill life beyond 2030	<u>Type of Waste that Strategy Action Applies to:</u> MSW=Municipal Solid Waste C&I=Commercial & Industrial C&D=Construction & Demolition ID=Illegal Dumping	Timeline
Implementing Pricing Policy and Economic Instruments	2. Complete the Avoided Cost of Landfill (True Cost of Landfill) model, using results to assess waste avoidance and resource recovery initiatives	1,3,6	MSW, C&I, C&D	2014
	3. Set fees & charges to encourage waste avoidance and recycling	All	MSW, C&I, C&D	Ongoing
4. Regulation Using regulatory and compliance tools	1. Improve the use of development controls to reduce waste to landfill from the construction and ongoing life of developments	1,2,3,5,6	MSW, C&I, C&D	On going
	2. Monitor illegal dumping impacts and respond accordingly	1,2,3	ID (MSW,C&I,C&D)	2015
5. Advocacy Influencing decision and policy makers and regulators	1. Contribute to consultation processes, including making submissions, relating to the review of:			
	a) Waste Less Recycle More funding programs	1,3,4,5,6	MSW, C&I, C&D, ID	As required
	b) WARR Strategy	1,4, 6	MSW, C&I, C&D	As required
	c) WARR Act	1, 2, 3, 6	MSW, C&I, C&D	AS required
	d) Regional Waste Strategy Guidelines	1,3,4,6	MSW,C&I, C&D	As required
	e) Federal Carbon Pricing Mechanism	2, 3, 4	MSW, C&I, C&D	As required
f) POEO Waste Regulation	1, 2, 3	C&I, C&D	As required	

<u>Strategies</u> Support delivery of the Waste Strategy Objectives by:	<u>Actions</u>	<u>Objectives Addressed</u> <ol style="list-style-type: none"> 1. Focus on avoid, reuse, recycle before landfill 2. Comply with legislation 3. Provide ongoing value for money 4. Provide flexibility to respond to emerging opportunities 5. Have a high level of community engagement 6. Extend the landfill life beyond 2030 	<u>Type of Waste that Strategy Action Applies to:</u> MSW=Municipal Solid Waste C&I=Commercial & Industrial C&D=Construction & Demolition ID=Illegal Dumping	<u>Timeline</u>
	g) Waste Exemption - Food Organics	1, 2, 3, 6	C&I	As required
	h) NSW Illegal Dumping Strategy	1, 2, 3, 6	C&D, ID	As required
	i) NSW Litter Strategy	1, 2, 3, 6	ID	As required
	2. Actively participate in Regional Waste Forums	1, 2, 3, 6	MSW, C&I, C&D, ID	As required

PART 6 CONCLUSION

Over the past decade, improvements to the Waste Resource Service have led to a significant increase in the amount recycled, with much less going to landfill. Without these improvements, the City's only landfill at Blaxland would have been full in 2023, but now the City will have a local disposal option until 2030.

Given the dynamic external operating environment, it is prudent to proceed with caution. A Strategy based on the success of infrastructure and service improvements over the past decade, along with the opportunity to further increase recycling to build on current solid practice, but with the ability to pursue emerging opportunities has therefore been developed. While it is important to move forward and respond effectively to local issues, it is essential that any direction taken represents good value for the community.

In that respect, this short term Strategy has been developed to allow strategic long term decisions to be made once the current dynamic environment settles.

This Strategy will guide Council in providing better waste services that are efficient, good value for money, low risk and are flexible so we make the most of opportunities that arise. It will do this by improving the waste services that are working well now with new features to make them even better – continuing to reduce waste to landfill and providing:

MORE

- Community capacity to manage waste at home
- Waste items recovered from bulky waste collections
- Waste items recovered from household garbage
- Recycling facilities and services at Blaxland WMF
- Progress on regional waste management solutions
- Value for money waste services, including improved operation of waste management facilities
- Expanded hazardous waste collection

LESS

- Food waste at home going to landfill
- Construction waste to landfill
- Business waste to landfill
- Illegal dumping in the City

PART 7 APPENDICES

7.1 Appendix 1: Council's Legislative and Policy Responsibilities

Legislation/Policy	Description	Local Implications	Status
FEDERAL			
National Waste Policy	The Policy sets out the aims, principles to guide actions, key directions and priority strategies. The Policy targets outcomes for national waste management and resource recovery policy for the next decade.	The framework will aim to support efficient industry based schemes for collecting and recycling end of life products.	Current
Australian Packaging Covenant	The Australian Packaging Covenant is an agreement between companies in the supply chain and all levels of Government to reduce the environmental impacts of consumer packaging. The focus of the covenant is on sustainable packaging design, recycling of used packaging and reduction of litter from packaging.	The APC sees the food & beverage industry seeking to maintain the cost of recycling on communities, not producers of the packaging.	Current
Carbon Pricing Mechanism	The Carbon Price Mechanism (CPM) was introduced to establish a price on carbon with wide coverage across the Australian economy including stationary energy, manufacturing and landfills.	Council has a potential carbon liability from landfill gas emissions at Blaxland.	Currently under review by new Federal Govt.
STATE			
<i>The NSW Local Government Act 1993</i>	This Act establishes the third tier of government (local) in NSW and prescribes how local government is to operate.	Defines Council responsibilities regarding waste removal, treatment and disposal; the preparation of local policies; the powers to charge residents for waste services; the requirements for tendering services; how councils are to be accountable for their decisions.	Currently under review
Integrated Planning and Reporting Framework	The <i>NSW Local Government Act 1993</i> currently sets out an Integrated Planning and Reporting framework	Development of a Community Strategic Plan	Current

Legislation/Policy	Description	Local Implications	Status
	which aims to strengthen Councils' strategic focus for a minimum timeframe of ten years	(Sustainable Blue Mountains 2025), which includes objectives relating to waste & resource management for the Blue Mountains.	
<i>NSW Waste Avoidance and Resource recovery Act 2001</i>	The <i>NSW Waste Avoidance and Resource Recovery (WARR) Act</i> is the framework legislation that provides for the development of a NSW waste strategy, which includes targets for waste reduction, resource recovery and the diversion of waste from landfill disposal.	WARR Strategy sets targets for diversion from landfill for different waste streams, including municipal.	Currently under review: Draft 2013-2021 released
<i>NSW Protection of the Environment Operations Act 1997</i>	The <i>Protection of the Environment Operations (POEO) Act</i> is the central environmental protection legislation for NSW and sets out broad responsibilities for local councils acting in a regulatory capacity. The objects of the Act include measures for the protection of the environment through various regulatory frameworks and enforcement powers. Two particular provisions currently in force in NSW influencing waste management decision making include: <ul style="list-style-type: none"> • Section 144AA: offences relating to the imposing of penalties for misleading or inaccurate information regarding waste reporting. • Section 88 imposes a levy on each tonne of material deposited in a landfill. The amount of the levy is set by regulation until 2016, for LGAs in certain areas. 	Council is in a regulated area and is therefore required to pay the S88 Levy to the State Government. In 2013-14 this is \$53.70 per tonne of waste landfilled. This levy increases by \$10, plus CPI, each year. Council must hold Environmental Protection Licences (EPL), issued by the EPA to operate its two Waste Management Facilities. Conditions of the licence protect the surrounding environment and Council can face enforcement action if conditions are not met.	Currently under review. Associated POEO Regulations also currently under Review
<i>Environmental Planning and Assessment Act 1979</i>	Expansion, modification and establishment of new waste facilities will trigger the provisions of the <i>Environmental Planning and Assessment (EP&A) Act</i> and	As well as operating under an EPL, Councils WMFs have development approval conditions	Current

Legislation/Policy	Description	Local Implications	Status
	Regulations. Schedule 3 under the <i>Environmental Planning and Assessment Regulation 2000</i> lists waste operations, including storage, composting, disposal and recycling which fall under the definition of “Designated Development”. A Designated Development is subject to more rigorous assessment via an Environmental Impact Assessment.	that must be complied with. Changes to facilities within the site can trigger further assessment.	
REGIONAL			
NetWaste Strategic Plan	NetWaste is a voluntary alliance of Councils, the Central West (CENTROC) and Orana Regional Organisation of Councils (OROC). NetWaste delivers on collaborative waste projects and education strategies with the opportunity to share resources and knowledge, and coordinate planning at regional and sub-regional levels.	Council is an active participant in this Regional Waste Strategy.	Regional options currently being pursued.
Western Sydney Waste Managers Group	The Western Sydney Waste Managers Group is also an alliance of Councils in the region that meet on a regular basis to network and share ideas, resources and strategies. Blue Mountains City Council is also part of the Western Sydney Region for the NSW State Government 2021 Plan. NSW 2021 is the NSW Government’s 10 year strategic business plan.	Council is actively participating in the development of a Western Sydney Regional Waste Strategy.	Regional options currently being pursued.
LOCAL			
Sustainable Blue Mountains 2025	Sustainable Blue Mountains 2025 is the Community Strategic Plan for the Blue Mountains. The Community Strategic Plan is the over-arching plan, identifying the community's priorities and aspirations for the future and presents a range of strategies for achieving these. Each newly elected Council is responsible for reviewing and updating their Community Strategic Plan within the first twelve months of their term.	1.1.e – Protect the natural environment from pollution 1.3.a – Implement initiatives that contribute to a healthy atmosphere including reduction in greenhouse emissions across the City 1.4.a – Minimise waste – avoid,	Current

Legislation/Policy	Description	Local Implications	Status
		<p>reduce and reuse</p> <p>1.4.b – Develop a comprehensive waste management strategy for the City in close consultation with community</p> <p>1.4.c Implement community engagement and education on responsible resource use and encourage low consumption environmentally aware lifestyles</p>	
Blue Mountains Council Long Term Financial Plan	The Long Term Financial Plan presents the financial objectives, performance targets and strategies that the Council is proposing to meet the significant financial challenges it faces over the next 10 years.	<p>Implementation of the following six key strategies over the next four years:</p> <ol style="list-style-type: none"> 1. Avoid shocks 2. Balancing the budget 3. Managing borrowings responsibly 4. Increasing income 5. Adjust service levels 6. Increase advocacy and partnerships 	Current
Service Business Plan	Each Council service is required to have a Service Plan that clearly articulates affordable levels of service, which is regularly reviewed to ensure “best value” service provision to the community. This provides a platform for planning and prioritising resource allocation across all services in an informed and transparent manner.	The most recent Waste Resource Service Plan for 2013-2023 was completed in 2013.	Currently under review
Asset Plans and Strategy	The Asset Management Strategy, Policy and Plans identify all built assets under Councils ownership and outline key areas of current funding gaps and	The Landfill and Waste Asset Plan identifies a number of high risks that	Current

Legislation/Policy	Description	Local Implications	Status
	associated risks.	have now been placed on Council's Risk Register	
Long Term Waste Strategy 2003	Adopted by Council in April 2003, following the ' <i>Options for Long-Term Waste and Resource Management Solutions 2003</i> ' study. This strategy outlines the infrastructure requirements to enable waste services to continue locally.	<p>Strategy actions were to:</p> <ul style="list-style-type: none"> • Develop a new landfill cell at Blaxland WMF • Establish a waste processing facility at Blaxland • Build a transfer station at Katoomba WMF • Direct haulage of waste from upper Mountains to Katoomba for transfer to Blaxland WMF • Direct haulage of waste from lower Mountains to new facility at Blaxland 	Current
Strategic Waste Action Plan 2005	The SWAP 2005 built upon the research, surveys, consultations, strategies and policies undertaken/developed over a twelve year period (1993 to 2005). This SWAP identified the priority actions for Council over the short to medium term.	<p>The primary outcome of the SWAP was to introduce a targeted waste action program in four key areas:</p> <ul style="list-style-type: none"> • Infrastructure • Treatment & Disposal • Research • Education 	Completed
Strategic Waste Action Plan 2012	In order to be eligible for State Government funding payment, Council needed to use a specific online tool to establish a SWAP for the household waste stream and have it adopted by Council.	Council committed to completing a local Waste Strategy which would consider options including a kerbside organics collection from homes.	Current

7.2 Appendix 2: Total Waste & Recycling Generated in the Blue Mountains 2012-13

	WASTE STREAM	TONNAGE 2012/2013
RECYCLED / RECOVERED MATERIAL	Green Waste	126
	Tree Waste	4558
	Firewood	345
	Metal	817
	Bricks/Concrete	16639
	Clean Fill/Soil	1902
	Household Recycling	8716
	Cardboard	547
	Plastic	26
	Timber	1116
	Tyres	26
	Batteries	12
	Mattresses	19
	Oil	35
	Kerbside Chipping	6664
	Reuse Shed	192
	E-Waste Recycling	24
	HHCC	55
	LANDFILLED MATERIAL	Business Waste
Community Service		232
C&D Waste		1220
Delivered Household Waste		2424
Household Bulky Waste		1281
Council Waste		225
Mattress/Waste		212
Parks/Litter		429
Weekly Household Waste Collection		23849
Weeds		1106
Asbestos		303
Carcass		7

7.3 Appendix 3: Waste Management Options Study

Waste Management Options Study, February 2013. www.bmcc.nsw.gov.au/wastestrategy

7.4 Appendix 4: Weigh in on Waste Community Consultation

Weigh in on Waste, Communications and community engagement outcomes for Blue Mountains City Council, June 2013. www.bmcc.nsw.gov.au/wastestrategy

7.5 Appendix 5: Full Quadrant Analysis Report

The Waste Options Report identified 65 possible household waste management options available to the Blue Mountains community. The options were assessed based on quantitative criteria such as cost, greenhouse gas emissions and tonnes of material diverted from landfill. Each option was also assessed against qualitative social and risk criteria through a raw score.

These qualitative criteria are:

Qualitative Criteria	Explanation/meaning
Technical risk	Evidence of successful track record for chosen technology or system
Market risk for end products	Existence of viable end-markets for products from system
Planning risk – Suitable sites	Availability of suitable sites for new infrastructure
Planning risk – lead times	Lead times for planning approval and commissioning
Systems fit	Ability to integrate with current waste systems
Social risk – convenience	Level of change needed in community behaviour
Social risk - employment	Level of local employment opportunities generated
Long term viability	Ensures long term solution for managing waste
Landfill space / resource recovery	Assists in extending the life of Blaxland landfill

This raw score did not distinguish between the relative importance of one criteria against another. All criteria were treated equally.

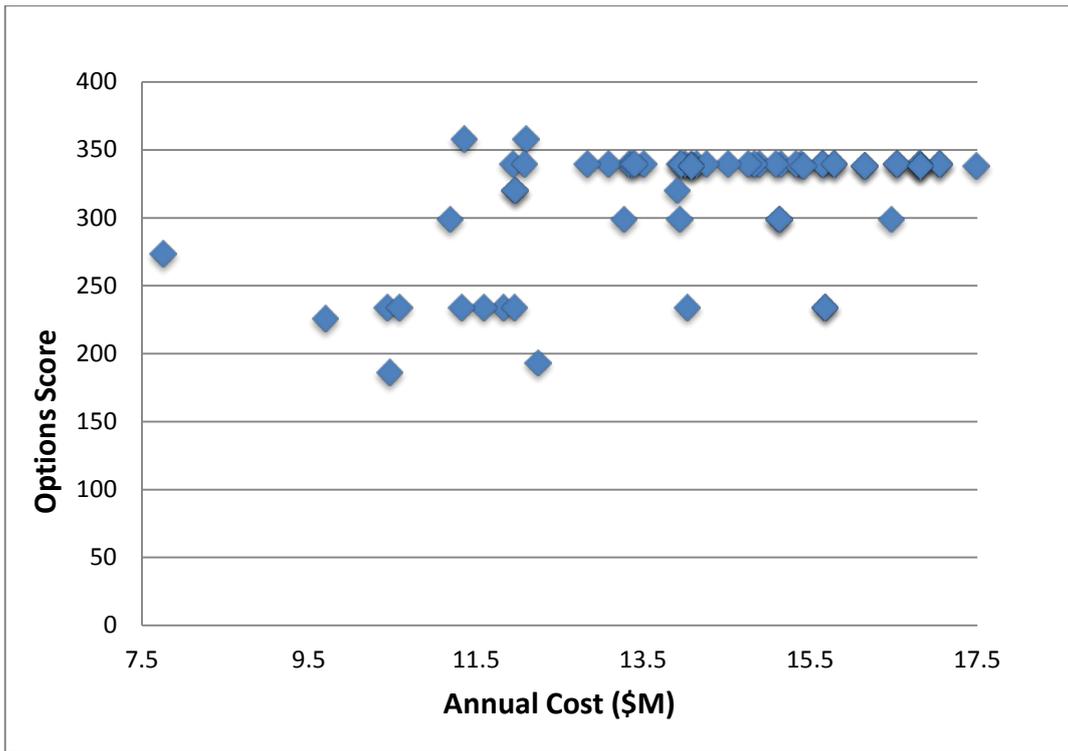
Using the results from the community consultation process and input from relevant staff, weightings were applied to each criteria. Those criteria that the community and staff identified as most important were given a higher percentage than those criteria that were identified as being of lesser importance.

Qualitative Criteria	Professional Assessment (%)	Relative Community weightings (%)	Notes where variation between community and staff weightings occur
Technical risk	15	8.5	Compared to the other criteria, the community were more willing to accept unproven waste technologies, however professional assessment considers that a proven, reliable technology is very important
Market risk for end products	15	11	Community and professional assessment considered this important, though community had it as a 2nd level importance
Planning risk - suitable sites	10	11	
Planning risk - lead times	10	11	
Systems fit	7.5	9	
Social risk - convenience	10	9	
Social risk - employment	7.5	8.5	
Long term viability	10	16	Long term viability was the equal most important factor for the community. Professional assessment considers it to be of mid-range importance due to the technology, policy, funding and operating environment being highly dynamic – a staged approach may provide greater opportunities.
Landfill space / resource recovery	15	16	

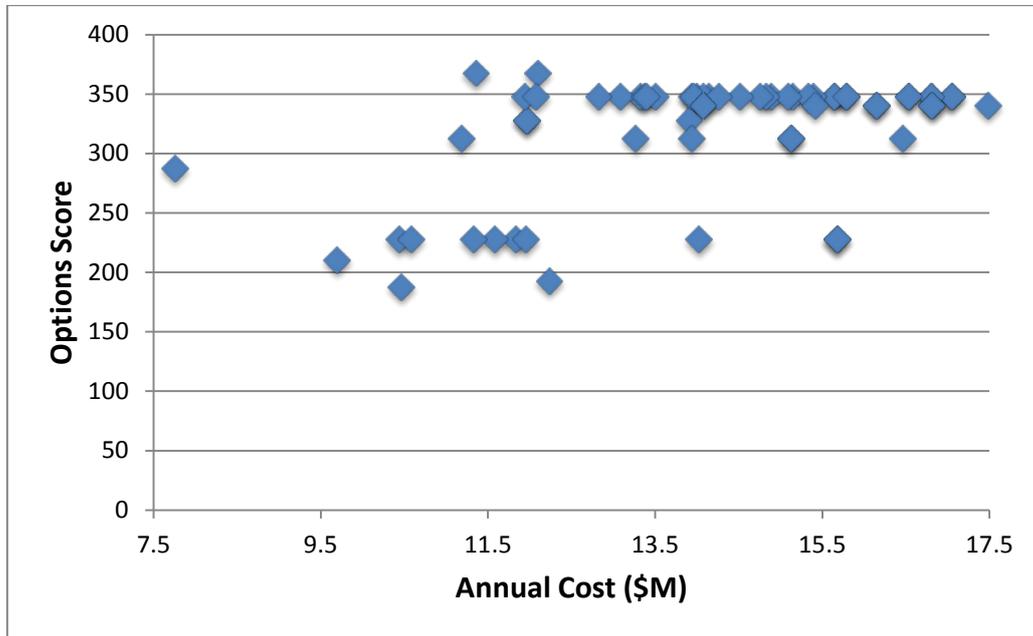
These weightings were then applied to the raw option score providing an overall “outcome score” for each option.

Despite some differences between the Community and Professional weightings, the same scatter graph was achieved when the outcome score was plotted against the annual cost for each option (see graphs below).

Results – Community Weighting

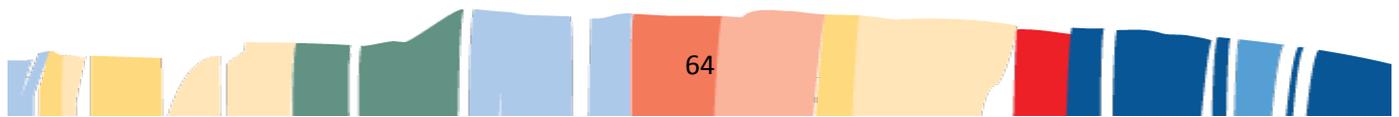


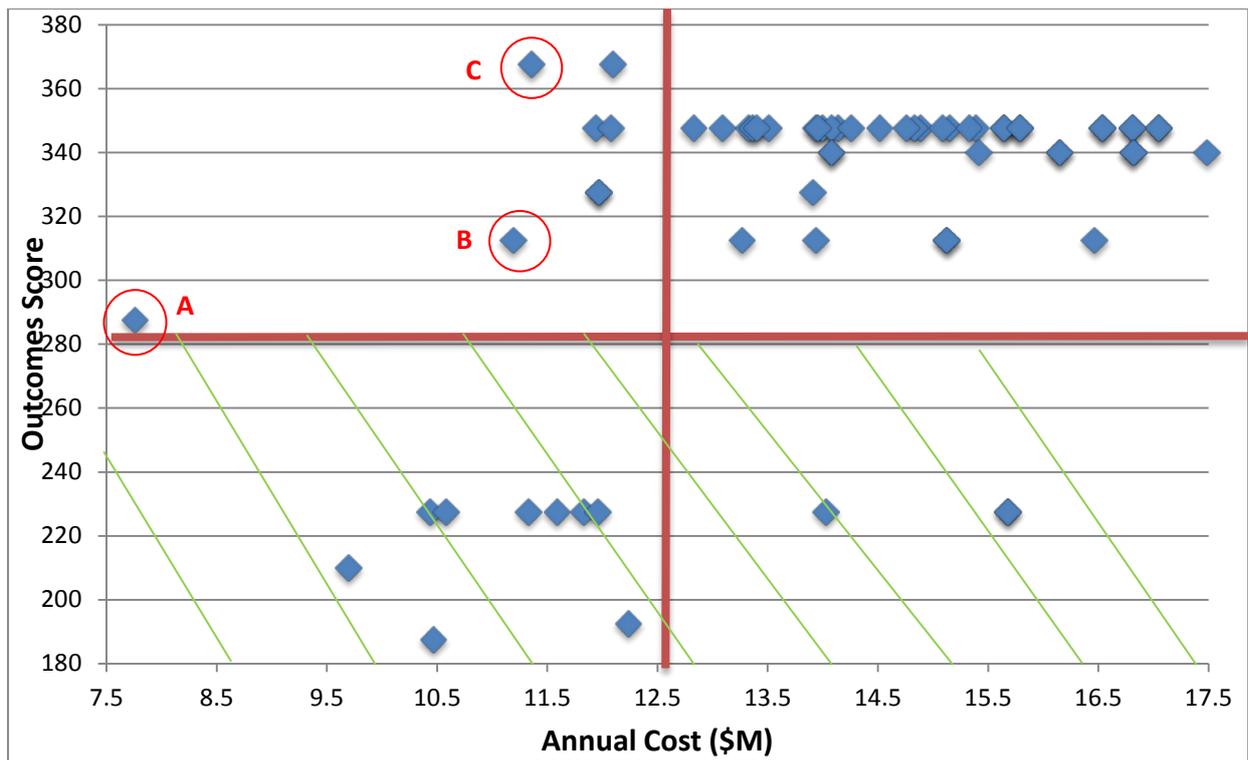
Results – Professional Weighting



Each blue diamond represents one of the 65 options.

A quadrant analysis was then used to determine the preferred options which would present in the top left quadrant – highest outcome score and lowest cost.





A: Current Service – 2 bin system

B: Weekly Food and Garden Organics bin, processed at ANL, Blayney with residual waste taken to Blaxland WMF.

C: 2 bin system with residual waste taken to SITA’s SAWT facility in Kemps Creek

Any options with a outcomes score lower than the Current Service were excluded as they achieve less and cost more than the current service, so Council did not consider those further.

The three options that achieve highest outcomes for least cost were identified for further consideration and analysis (A, B and C).

