WOLLONGONG
WASTE AND RESOURCE
RECOVERY STRATEGY 2022

From the mountains to the sea

MANAGING WOLLONGONG’S RESOURCES FOR A
SUSTAINABLE FUTURE
WOLLONGONG WASTE AND RESOURCE RECOVERY STRATEGY 2022

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Acknowledgement

This document draws heavily on and in part incorporates earlier work undertaken by several consultancies in the preparation of the Waste & Resource Recovery Strategy, and in particular that undertaken by Wright Corporate Strategy in 2010 and 2014 and Phil Hawley and Associates in 2012. Wright Corporate Strategy has also provided a valuable contribution to the Wollongong Waste and Resource Recovery Strategy 2022.
“Regardless of the context, managing solid waste is one of biggest challenges of the urban areas of all sizes, from mega-cities to the small towns and large villages, which are home to the majority of humankind. It is almost always in the top five of the most challenging problems for city managers. The quality of waste management services is a good indicator of a city’s governance”.

Anna Tibaijuka (2010),
Under Secretary General,
United Nations Executive Director,
UN-Habitat
INTRODUCTION

The United Nations defines sustainability as the ability to meet the needs of current generations, without compromising the ability of future generations to meet their own needs (Brundtland, 1987). Waste represents the ultimate obstacle to a sustainable society. As people create waste, pressure is placed on natural resources to replace the materials discarded and on the environment to receive and accommodate the waste materials.

Consequently, this inefficiency places increased pressure on the ability of future generations to meet their own needs. Sustainability for Wollongong City Council in the context of the Waste and Resource Recovery Strategy 2022, means balancing the tradeoffs between the environment, the economy and social equity, as shown in Figure 1 above.

Sustainable waste management is supported by the NSW waste hierarchy (see Figure 2 above) which sets the order of preference for actions in managing waste. The hierarchy suggests that the preferred action is to avoid or reduce the creation of waste materials, thus limiting the amount of material that must be handled. The next level is reuse, where products or materials are given a second life, often by a new owner, without the need for re-manufacture. Recycling occupies the third rung in the hierarchy and is based on gaining value from discarded materials by transforming them to manufacture new products. Energy recovery can be appropriate where further recycling is uneconomic or technically not feasible, and where the environment can be protected during thermal processing.

The least preferable actions in the waste hierarchy, are waste treatment, to stabilise waste prior to disposal, and direct disposal to landfill.
Under the Local Government Act 1993, Council is responsible for the city’s waste removal, treatment and disposal services. Accordingly, managing waste is the single biggest budget item for Council on a year-in year-out basis. It involves capital expenditure on major infrastructure and recurrent expenditure on services that touch the lives of every member of our community.

Council currently manages over 150,000 tonnes of waste at a cost of over $40 million dollars each year. Additionally, when it becomes necessary to invest in new infrastructure Council must commit to capital expenditures measured in tens of millions of dollars. These capital expenditures result in significant long term recurrent expenses that will further commit Council and the community to many hundreds of millions of dollars over subsequent years.

The waste management environment is rapidly changing as it is impacted by many environmental influences including:

- Increasingly stringent Federal, State and local legislation
- Increased community expectation with regard to sustainable practices
- Diminishing availability of landfill space in urban environments
- Increased awareness and responsibility to manage climate change
- Rapidly increasing costs for waste management and disposal
- Rapidly advancing technology, driven by environmental forces.

This Waste Strategy represents a pathway for Council and the community to work towards sustainable waste management.
The Waste and Resource Recovery Strategy 2022 will contribute to the delivery of Wollongong 2022 Our Community Strategic Plan (Wollongong 2022). In order to help understand how the waste strategy and action plan fit into Council’s strategic policy environment, Figure 3 identifies four key strategic feed documents namely Wollongong 2022, NSW 2021: A plan to make NSW number one, the Illawarra Regional Strategy 2006-13 and the Waste Avoidance and Resource Recovery (WARR) Strategy 2013-21. The relationship of the reviewed Waste Strategy and Action Plan to Council’s other strategic plans is shown below.

HOW THE PLAN FITS IN WITH OTHER STRATEGIC PLANS

To ensure the Waste and Resource Recovery Strategy 2022 delivers the intentions of the higher level plans that inform it, four Focus Areas have been identified as shown in Figure 4.
WHAT WILL COUNCIL DO?

The four Focus Areas will guide the development of actions set out in the Waste and Resource Recovery Strategy 2022 Action Plan. The Action Plan will be reviewed annually and amended as necessary to remain relevant to current circumstances for delivery of strategic programs, projects and services, as shown at Figure 5.

Indicators have been developed to track the results of each strategic Focus Area. These indicators can be taken from various sources including Council’s biennial Community Survey, Australian Bureau of Statistics census data and Council’s internal reporting data. Where data is not currently available, a baseline will be established to help track future progress.

Figure 5: Waste & Resource Recovery Strategy 2022 Workflow Cycle
FOCUS 1

Wollongong Waste and Resource Recovery Park (Whytes Gully) aims to become an example of waste and sustainability industry best practice

OBJECTIVES

1.1 Resource recovery and landfill activities are organised to minimise the impact on amenity, public health and the local and global environment including litter, odour, dust, noise, water and gas.

1.2 Landfill capacity is conserved by progressively increasing recycling at source and taking opportunities to recover beneficial resources from waste presenting for disposal at Whytes Gully.

1.3 The Whytes Gully facility is operated efficiently and safely.

1.4 Monitor and benchmark waste and sustainability industry standards.
FOCUS 1 CONTINUED

Council has prioritised the development of a new landfill cell at the Wollongong Waste and Resource Recovery Park (Whytes Gully). By securing the baseline ability of the region to place waste into landfill, many strategic opportunities can be considered that will continue to divert more waste from the landfill and reduce the environmental impact of waste that is not reused or recycled.

To measure the progress of Focus Area 1, the following indicators have been developed:

<table>
<thead>
<tr>
<th>INDICATOR</th>
<th>RELATED OBJECTIVE</th>
</tr>
</thead>
<tbody>
<tr>
<td>quantity of landfill gas captured and beneficially treated</td>
<td>1.1</td>
</tr>
<tr>
<td>percent of household materials diverted from landfill</td>
<td>1.2</td>
</tr>
<tr>
<td>quantity of environment related complaints and incidents</td>
<td>1.1, 1.3</td>
</tr>
<tr>
<td>number of environment and WH&amp;S incidents</td>
<td>1.3</td>
</tr>
</tbody>
</table>

Images: Whytes Gully 2013/2014
FOCUS 2
THE COMMUNITY ACTIVELY AVOIDS, REDUCES, REUSES AND RECYCLES - IN THAT ORDER

OBJECTIVES

2.1 Our community is provided with opportunities, education and advice on how best to contribute to sustainable waste management by avoiding or reducing waste, reusing products and materials where possible, and recycling rather than landfilling materials.

2.2 Move toward reducing the amount of waste generated per capita in partnership with the NSW EPA through its waste avoidance programs.

2.3 Encourage and guide the community, businesses, and households to progressively increase the recycling rate of municipal and business solid waste toward 70%.

AVOID REDUCE REUSE RECYCLE
YOUR WASTE
The natural environment is a closed loop system where nothing is wasted. The Waste and Resource Recovery Strategy 2022 will help the community progress towards a ‘closed loop’ system by employing the goals of the waste hierarchy, illustrated in Figure 6.

Wollongong City Council has prioritised the moral imperative of valuing and protecting our environment by implementing the waste hierarchy goals of avoiding and reducing waste creation, reusing or recycling materials that could be discarded, with disposal as a last preference.

Encouraging waste avoidance or prevention is the priority goal of the Waste Hierarchy model and Wollongong City Council is working to ensure the community employs waste management techniques that sit as high as possible in the waste hierarchy.

Under Focus Area 2, Council will also work towards achieving the Waste Avoidance and Resource Recovery (WARR) Strategy 2013-21 targets of reducing the amount of waste generated per capita and increasing the recycling rate of municipal solid waste to 70%.

To measure the progress of the Focus Area 2, the following indicators have been developed:

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Related Objectives</th>
</tr>
</thead>
<tbody>
<tr>
<td>↓ quantity of all waste streams generated by households (on a per household basis)</td>
<td>2.1, 2.2</td>
</tr>
<tr>
<td>↑ percent of municipal materials reprocessed or recycled</td>
<td>2.1, 2.3</td>
</tr>
</tbody>
</table>
Litter and illegal dumping continues to be a primary focus of the community (EPA, 2013). In fact, Wollongong 2022’s vision is that “From the mountains to the sea, we value and protect our natural environment” (Wollongong City Council, 2012). Illegal dumping and litter is unsightly and has the potential to harm the environment, including Wollongong’s picturesque escarpment and aquatic foreshores. Cleaning up litter and illegally dumped materials also costs the Wollongong community hundreds of thousands of dollars each year.

To measure the progress of Focus Area 3 the following indicators have been developed:

<table>
<thead>
<tr>
<th>Indicator</th>
<th>RELATED OBJECTIVES</th>
</tr>
</thead>
<tbody>
<tr>
<td>percent satisfaction with appearance of public space</td>
<td>3.1, 3.2, 3.3, 3.4</td>
</tr>
<tr>
<td>quantity of illegally dumped waste (on a per household basis)</td>
<td>3.1, 3.2, 3.3</td>
</tr>
</tbody>
</table>
FOCUS 4

WOLLONGONG CITY COUNCIL PROVIDES WASTE MANAGEMENT AND RESOURCE RECOVERY LEADERSHIP

OBJECTIVES

4.1 Minimise the long term cost to the community from sustainable waste management.

4.2 Support efficient, sustainable waste management that provides local business opportunities, conserves resources and protects the environment.

4.3 Seek opportunities for regional waste collaboration where appropriate and consistent with sustainability principles.

4.4 Support the development of local resource management infrastructure and local reuse of recovered resources.

TOWARD ZERO WASTE
The challenge of building an innovative yet sustainable economy creates the opportunity for Wollongong City Council to take a leadership role in waste management. The economic risks from delayed action and non-sustainable practices and decisions are too high for Council, the community and local businesses to ignore.

In accordance with this strategy, Council will develop business cases for more sustainable waste management practices. These will require triple bottom line consideration and be cognisant of cradle to grave principles and methodologies. This strategy recognises that landfill space is a community resource and all efforts must be made to attempt to conserve this increasingly unaffordable resource for future generations.

To measure the progress of the Focus Area 4, the following indicators have been developed:

<table>
<thead>
<tr>
<th>INDICATOR</th>
<th>RELATED OBJECTIVES</th>
</tr>
</thead>
<tbody>
<tr>
<td>↑ percent satisfaction with appearance of public space</td>
<td>4.2</td>
</tr>
<tr>
<td>↓ relative cost of waste services (on a per household basis), excluding levies and taxes</td>
<td>4.1, 4.2, 4.3, 4.4</td>
</tr>
</tbody>
</table>
WOLLONGONG WASTE & RESOURCE RECOVERY STRATEGY 2022

APPENDIX 1 : WASTE & RESOURCE RECOVERY STRATEGY 2022 & OTHER STRATEGIC LINKS

During the development of the Waste and Resource Recovery Strategy 2022, Wollongong City Council has considered the goals, objectives and strategies of other key plans for our region and the waste industry. These include the Wollongong 2022 Our Community Strategic Plan, NSW State Plan ‘NSW 2021’ and the NSW Waste Avoidance and Resource Recovery (WARR) Strategy 2013-21.

<table>
<thead>
<tr>
<th>Waste and Resource Recovery Strategy 2022</th>
<th>Strategic Links</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1 Wollongong Waste and Resource Recovery Park (Whytes Gully) aims to become an example of Waste and Sustainability Industry Best Practice</strong></td>
<td></td>
</tr>
</tbody>
</table>
| Resource recovery and landfill activities are organised to minimise the impact on amenity, public health and the local and global environment including litter, odour, dust, noise, water and gas. | Wollongong 2022 links:  
- 1.1 The natural environment is protected and enhanced.  
- 1.3 Wollongong’s ecological footprint is reduced.  
- 1.6 The sustainability of our urban environment is improved.  
NSW WARR Strategy links:  
- 1 Avoid and reduce waste generation.  
- 2 Increase recycling.  
- 3 Divert more waste from landfill.  
|  | 4 Manage problem wastes better.  
| Landfill capacity is conserved by progressively increasing recycling at source and taking opportunities to recover beneficial resources from waste presenting for disposal at Whytes Gully. | Wollongong 2022 links:  
- 1.3 Wollongong’s ecological footprint is reduced.  
- 1.6 The sustainability of our urban environment is improved.  
NSW WARR Strategy links:  
- 1 Avoid and reduce waste generation.  
|  | 2 Increase recycling.  
- 3 Divert more waste from landfill.  
|  | 4 Manage problem wastes better.  
| The Whytes Gully facility is operated efficiently and safely. | Wollongong 2022 links:  
- 1.1 The natural environment is protected and enhanced.  
NSW 2021 Strategy links:  
- 22 Protect our natural environment.  
| Monitor and benchmark waste and sustainability industry standards. | Wollongong 2022 links:  
- 1.6 The sustainability of our urban environment is improved.  
NSW 2021 Strategy links:  
- 22 Protect our natural environment.  

2 The Community actively avoids, reduces, reuses and recycles - in that order

Our community is provided with opportunities, education and advice on how best to contribute to sustainable waste management by avoiding or reducing waste, reusing products and materials where possible, and recycling rather than landfilling materials.  

Wollongong 2022 links:  
- 1.1 The natural environment is protected and enhanced.  
- 1.3 Wollongong’s ecological footprint is reduced.  
- 1.6 The sustainability of our urban environment is improved.  
- 4.2 Our residents feel an increased sense of community.  
- 5.3 The public domain is maintained to a high standard.  
NSW WARR Strategy links:  
- 1 Avoid and reduce waste generation.  
- 2 Increase recycling.  
- 3 Divert more waste from landfill.  
- 4 Manage problem wastes better.  
- 5 Reduce litter.  
- 6 Reduce illegal dumping.  
NSW 2021 Strategy links:  
- 22 Protect our natural environment.  
- 23 Increase opportunities for people to look after their own neighbourhoods and environments.
## Wollongong Waste & Resource Recovery Strategy 2022

### Waste and Resource Recovery Strategy 2022

<table>
<thead>
<tr>
<th>Move toward reducing the amount of waste generated per capita in partnership with the NSW EPA through its waste avoidance programs.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Wollongong 2022 links:</strong></td>
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<td>• 1.6 The sustainability of our urban environment is improved.</td>
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<tr>
<td>• 5.3 The public domain is maintained to a high standard.</td>
</tr>
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</tr>
<tr>
<td>• 5 Reduce litter.</td>
</tr>
<tr>
<td>• 6 Reduce illegal dumping.</td>
</tr>
<tr>
<td><strong>NSW 2021 Strategy links:</strong></td>
</tr>
<tr>
<td>• 22 Protect our natural environment.</td>
</tr>
</tbody>
</table>

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<table>
<thead>
<tr>
<th>Encourage and guide the community, businesses, and households to progressively increase the recycling rate of municipal and business solid waste toward 70%.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Wollongong 2022 links:</strong></td>
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<td>• 3 Divert more waste from landfill.</td>
</tr>
<tr>
<td>• 4 Manage problem wastes better.</td>
</tr>
<tr>
<td><strong>NSW 2021 Strategy links:</strong></td>
</tr>
<tr>
<td>• 22 Protect our natural environment.</td>
</tr>
</tbody>
</table>

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### 3 Litter and Illegal Dumping is Reduced

<table>
<thead>
<tr>
<th>Create an informed and engaged community which plays its part in reducing illegal dumping and littering.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Wollongong 2022 linkages:</strong></td>
</tr>
<tr>
<td>• 1.1 The natural environment is protected and enhanced.</td>
</tr>
<tr>
<td>• 1.2 Our coastal areas and waterways are protected and enhanced.</td>
</tr>
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<td>• 1.6 The sustainability of our urban environment is improved.</td>
</tr>
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<tr>
<td><strong>NSW WARR Strategy links:</strong></td>
</tr>
<tr>
<td>• 4 Manage problem wastes better.</td>
</tr>
<tr>
<td>• 5 Reduce litter.</td>
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<tr>
<td>• 6 Reduce illegal dumping.</td>
</tr>
<tr>
<td><strong>NSW 2021 Strategy links:</strong></td>
</tr>
<tr>
<td>• 22 Protect our natural environment.</td>
</tr>
<tr>
<td>• 23 Increase opportunities for people to look after their own neighbourhoods and environments.</td>
</tr>
</tbody>
</table>
### Wollongong Waste & Resource Recovery Strategy 2022

#### Better manage problem wastes with purpose-designed capture and disposal practices.

**Wollongong 2022 links:**
- 1.1 The natural environment is protected and enhanced.
- 1.2 Our coastal areas and waterways are protected and enhanced.
- 1.6 The sustainability of our urban environment is improved.
- 5.3 The public domain is maintained to a high standard.
- 5.4 Community safety is improved.

**NSW WARR Strategy links:**
- 4 Manage problem wastes better.
- 6 Reduce illegal dumping.

**NSW 2021 Strategy links:**
- 22 Protect our natural environment.
- 23 Increase opportunities for people to look after their own neighbourhoods and environments.

#### Deliver Council programs to minimise the impact of litter and illegal dumping on amenity, public health and the environment.

**Wollongong 2022 linkages:**
- 1.1 The natural environment is protected and enhanced.
- 1.2 Our coastal areas and waterways are protected and enhanced.
- 1.6 The sustainability of our urban environment is improved.
- 5.3 The public domain is maintained to a high standard.

**NSW WARR Strategy Linkages:**
- 5 Reduce litter.
- 6 Reduce illegal dumping.

**NSW 2021 Strategy linkages:**
- 22 Protect our natural environment.
- 23 Increase opportunities for people to look after their own neighbourhoods and environments.

#### Educate and work with the community and local businesses on how best to reduce the use of plastic bags.

**Wollongong 2022 links:**
- 1.1 The natural environment is protected and enhanced.
- 1.2 Our coastal areas and waterways are protected and enhanced.
- 1.6 The sustainability of our urban environment is improved.
- 5.3 The public domain is maintained to a high standard.

**NSW WARR Strategy links:**
- 1 Avoid and reduce waste generation.
- 4 Manage problem wastes better.
- 5 Reduce litter.

**NSW 2021 Strategy links:**
- 22 Protect our natural environment.
- 23 Increase opportunities for people to look after their own neighbourhoods and environments.
### Wollongong Waste & Resource Recovery Strategy 2022

#### 4 Wollongong City Council Provides Waste Management and Resource Recovery Leadership

| Minimise the long term cost to the community from waste management. | Wollongong 2022 links:  
|---|---|
| • 1.6 The sustainability of our urban environment is improved.  
| • 2.4 New industries and green technologies are established and flourish.  
| • 5.3 The public domain is maintained to a high standard.  |
| NSW WARR Strategy links:  
| • 3 Divert more waste from landfill.  
| • 4 Manage problem wastes better.  
| • 5 Reduce litter.  
| • 6 Reduce illegal dumping.  |
| NSW 2021 Strategy links:  
| • 23 Increase opportunities for people to look after their own neighbourhoods and environments.  |

| Support efficient, sustainable waste management that provides local business opportunities, conserves resources and protects the environment. | Wollongong 2022 links:  
|---|---|
| • 1.1 The natural environment is protected and enhanced.  
| • 1.6 The sustainability of our urban environment is improved.  
| • 2.4 New industries and green technologies are established and flourish.  
| • 5.3 The public domain is maintained to a high standard.  |
| NSW WARR Strategy links:  
| • 1 Avoid and reduce waste generation.  
| • 2 Increase recycling.  
| • 3 Divert more waste from landfill.  
| • 4 Manage problem wastes better.  
| • 5 Reduce litter.  
| • 6 Reduce illegal dumping.  |
| NSW 2021 Strategy links:  
| • 22 Protect our natural environment.  |

| Seek opportunities for regional waste collaboration where appropriate and consistent with sustainability principles. | Wollongong 2022 links:  
|---|---|
| • 1.1 The natural environment is protected and enhanced.  
| • 1.3 Wollongong’s ecological footprint is reduced.  
| • 2.1 Local employment opportunities are increased with a strong local economy.  
| • 2.4 New industries and green technologies are established and flourish.  |
| NSW WARR Strategy links:  
| • 1 Avoid and reduce waste generation.  
| • 2 Increase recycling.  
| • 3 Divert more waste from landfill.  
| • 4 Manage problem wastes better.  
| • 5 Reduce litter.  
| • 6 Reduce illegal dumping.  |
| NSW 2021 Strategy links:  
| • 23 Increase opportunities for people to look after their own neighbourhoods and environments.  |

| Support the development of local resource management infrastructure and local reuse of recovered resources. | Wollongong 2022 links:  
|---|---|
| • 1.3 Wollongong’s ecological footprint is reduced.  
| • 2.1 Local employment opportunities are increased with a strong local economy.  
| • 2.4 New industries and green technologies are established and flourish.  |
| NSW WARR Strategy links:  
| • 2 Increase recycling.  
| • 3 Divert more waste from landfill.  
| • 4 Manage problem wastes better.  
| • 5 Reduce litter.  
| • 6 Reduce illegal dumping.  |
| NSW 2021 Strategy links:  
| • 23 Increase opportunities for people to look after their own neighbourhoods and environments.  |
1.1 External Drivers

1.1.1 Ecological Sustainable Developments

Ecological Sustainable Developments within Waste Services refers to using, conserving and enhancing the community’s resources so that ecological processes, on which life depends, are maintained, and the total quality of life, now and in the future, can be increased.

This can be achieved by ensuring appropriate measures are taken to avoid, reduce, reuse, recycle and recover all waste materials within Council Operations, as well as taking all possible steps to allow residents and companies operating in the Wollongong local government area (LGA) to do the same.

1.1.2 Climate Change

The NSW Office of Environment and Heritage recognises that the climate of New South Wales is changing. The average temperatures in New South Wales have been steadily rising since the 1960s. Climate change is not just about the environment; it is a diverse issue which has economic, social and environmental implications. The natural, social, and economic systems of Wollongong are all likely to be affected by the impacts of climate change.

1.1.3 Legislation & Policy

1.1.3.1 Federal Legislation and Policy

National Waste Policy

The Australian Government established its National Waste Policy (NWP) which sets Australia’s waste management and resource recovery direction to 2020.

The NWP has as its aims to:

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

It is expected that measures will be introduced aimed at improving landfill practices and more stringent regulations, source separating wastes, reducing the toxicity of wastes to landfill, managing organics and stabilising wastes before disposal.

Companion legislation has been enacted in the area of Product Stewardship and is beginning to impact products such as e-waste (television and computers) and tyres.

Clean Energy Future

Clean Energy Future is the title given to the Australian Government’s Climate Change Plan, commonly referred to as the Carbon Tax. Under the legislation, landfills that emit landfill gas volumes above the 25,000 tonne threshold are liable to pay a carbon liability.

The liability can be mitigated through the use of gas capture as well as reduction of organic waste to landfill.
1.1.3.2 State Legislation & Policy

Waste Avoidance and Resource Recovery Strategy (WARR Strategy)

Towards the end of 2013 the NSW Government released its draft Waste Reduction and Resource Recovery Strategy 2013-21 which sets targets in a number of key result areas.

<table>
<thead>
<tr>
<th>NSW GOVERNMENT WARR STRATEGY OBJECTIVES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Avoid and reduce waste generation</td>
</tr>
<tr>
<td>By 2021-22 reduce the rate of waste generation per capita</td>
</tr>
<tr>
<td>Increase recycling</td>
</tr>
<tr>
<td>By 2021-22, increase recycling rates for:</td>
</tr>
<tr>
<td>• Municipal solid waste from 52% (in 2010-11) to 70%</td>
</tr>
<tr>
<td>• Commercial and industrial waste from 57% (in 2010-11) to 70%</td>
</tr>
<tr>
<td>• Construction and demolition waste from 75% (in 2010-11) to 80%</td>
</tr>
<tr>
<td>Divert more waste from landfill</td>
</tr>
<tr>
<td>By 2021-22, increase the waste diverted from landfill from 63% (in 2010-11) to 75%</td>
</tr>
<tr>
<td>Manage problem wastes better</td>
</tr>
<tr>
<td>By 2021-22, establish or upgrade 86 drop-off facilities or services for managing household problem wastes state wide</td>
</tr>
<tr>
<td>Reduce litter</td>
</tr>
<tr>
<td>By 2016-17, reduce the number of litter items by 40% compared with 2011-12 levels and then continue to reduce litter items to 2021-22</td>
</tr>
<tr>
<td>Reduce illegal dumping</td>
</tr>
<tr>
<td>From 2013-14, implement the NSW Strategy to Combat Illegal Dumping to reduce incidences of illegal dumping state wide</td>
</tr>
</tbody>
</table>

To encourage relevant parties to work towards these targets, the State Government has determined to use the waste levy (see next section) as the primary financial instrument to drive change.

In developing the Waste Strategy, Council has paid special attention to the WARR Strategy, the targets and the levy.
Section 88 Waste & Environmental Levy
The NSW Government imposes a levy on all waste received for disposal at licensed landfills within what is known as the Regulated Area of NSW. It has the power to do this under the provisions of Section 88 of the Protection of the Environment Operations Act 1997 and the levy is regulated via the Protection of the Environment Operations [Waste] Regulation 2005.

For 2013/14, Wollongong City Council pays a levy of $107.80 per tonne of waste. By 2015/16 this is projected to be approximately $130 plus any intervening CPI increases. It is evident that the levy is now a substantial component of the cost of waste disposal and a significant incentive for landfill owners to recover and export materials from their landfill sites or to find alternative means of treating wastes that do not primarily rely on landfiling.

The increasing Section 88 Waste Levy has the following financial implications for Council and its waste strategy:
- landfill disposal of waste will commit the community to a future of escalating costs
- as the cost of landfill disposal of wastes increases alternative technologies that rely less on landfill disposal become more attractive
- the cost to recover an increased amount and type of materials from the waste stream becomes increasingly viable.

Local Government Act
The Local Government Act 1993 (LGA) imposes on councils the responsibility to collect and dispose of waste from domestic premises (where the service is available) within the local government area. A council must levy a separate charge called the Domestic Waste Management Charge (DWMC) for the collection and management of waste and must not fund these from the general rates revenue (see S.504 of the LGA).

This has implications for councils in establishing a Waste Strategy in which costs and income attributable to the collection and disposal of domestic wastes are identified and isolated from other costs, including those associated with the receipt and disposal of commercial and industrial waste.

1.1.4 Technology: Present and Future
Within the waste cycle there are several avenues to utilise technology to reduce the impact on the environment, as well as reducing waste to landfill. Prior to entering landfill, financially viable recyclable and reusable materials are removed. This can be achieved through materials recycling facilities and alternative waste treatment options.

The materials recycling facilities have improved the sorting of recyclables through mechanical, optical, and technological advances. These improvements increase the amount of material recovered, thus reducing waste to landfill. Efficiencies have also been gained in the manufacture of the end products.

Another form of treatment of waste prior to landfill is to utilise Alternative Waste Technology (AWT). An AWT is primarily aimed at treating as much as possible of the waste stream, removing any recoverable materials and landfilling only a small residual. Outputs from an AWT plant may include recovered materials such as composts or energy.

AWTs are a relatively new development and there is much research taking place on a number of fronts. Although there are now approximately 15 full production AWT plants that have been built in Australia, almost all of them have suffered technological or process challenges.

Recovering landfill gas can generate electricity that can be used internally or sent back to the electricity grid. Landfill gas can also be treated through flaring off the excess gas which will reduce emissions into the environment.

1.1.5 Regional Initiatives
Wollongong City Council, as part of the Southern Councils Group, is collaborating with other group members on strategic regional waste management opportunities.

Wollongong City Council potentially has the size and waste generation rates to operate independently, as well as having sufficient available landfill space for the foreseeable future; but Council is cognisant of the needs of its neighbours and will endeavour to pursue regional opportunities where appropriate.
WOLLONGONG WASTE & RESOURCE RECOVERY STRATEGY 2022

1.1.6 Community Expectation

Wollongong is a growing City that places a high value on its environment, as well as waste collection and disposal. In the 2010 Wollongong Community Survey, the community identified street cleaning and domestic, recycling and organics collection as having high community importance. Waste collection was also identified as having a high satisfaction rating. Council will continue to widely consult with its community and other key stakeholders regarding waste management.

1.1.7 Population and Waste Projections

The NSW Department of Planning has estimated that the population of the Wollongong local government area (LGA) is 201,200 as at 30 June 2011. This is forecast to increase to 229,700 by 30 June 2031, an increase of 14.17%.

<table>
<thead>
<tr>
<th>Year</th>
<th>Total population a</th>
<th>Growth rateb (%)</th>
<th>Growth Index (2006=100)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1996</td>
<td>185,300</td>
<td>n/a</td>
<td>94</td>
</tr>
<tr>
<td>2001</td>
<td>189,500</td>
<td>0.67</td>
<td>98</td>
</tr>
<tr>
<td>2006</td>
<td>194,500</td>
<td>0.50</td>
<td>100</td>
</tr>
<tr>
<td>2011</td>
<td>201,200</td>
<td>0.67</td>
<td>103</td>
</tr>
<tr>
<td>2016</td>
<td>208,300</td>
<td>0.70</td>
<td>107</td>
</tr>
<tr>
<td>2021</td>
<td>215,700</td>
<td>0.70</td>
<td>111</td>
</tr>
<tr>
<td>2026</td>
<td>223,000</td>
<td>0.67</td>
<td>115</td>
</tr>
<tr>
<td>2031</td>
<td>229,700</td>
<td>0.59</td>
<td>118</td>
</tr>
<tr>
<td>2036</td>
<td>235,800</td>
<td>0.52</td>
<td>121</td>
</tr>
</tbody>
</table>

Source: past data – Australian Bureau of Statistics; projections – Department of Planning.

a Population numbers are for 30th June of the year shown

b Annual average growth rate over the five year period ending 30th June of the year shown.

Table 2: Past and Projected Population of Wollongong LGA, 1996-2036

Council will need to plan and cater for this population increase. There will be a commensurate increase in the quantities of waste to be collected and managed.

In order to estimate the amount of household waste generated into the future, the amount of waste generated today needs to be divided by the population. On this basis, the per capita tonnage is assumed to remain constant throughout the planning horizon. This per capita figure can be used to estimate the amount of waste in each stream over the next 25 years. Table 3 shows the projected increase for waste for 2034/35. General waste is expected to reduce with a corresponding increase in recycled materials. This assumption is based on existing trends as well as anticipated changes to facilities and services.

<table>
<thead>
<tr>
<th></th>
<th>2008/9</th>
<th>2010/11</th>
<th>2034/35</th>
</tr>
</thead>
<tbody>
<tr>
<td>Garbage and Council Waste</td>
<td>53,929</td>
<td>43,797</td>
<td>27,600</td>
</tr>
<tr>
<td>Recyclable Materials</td>
<td>19,559</td>
<td>25,903</td>
<td>58,271</td>
</tr>
<tr>
<td>Garden Organics</td>
<td>21,426</td>
<td>27,878</td>
<td>32,114</td>
</tr>
<tr>
<td>On-Call Clean-up Waste</td>
<td>2,037</td>
<td>2,637</td>
<td>3,038</td>
</tr>
<tr>
<td>Total Generated</td>
<td>96,951</td>
<td>100,215</td>
<td>121,023</td>
</tr>
<tr>
<td>Percent Resource Recovery</td>
<td>43%</td>
<td>54%</td>
<td>75%</td>
</tr>
</tbody>
</table>

Table 3: Data and Forecasts for Household Waste
1.2 Internal Drivers

Internal Drivers include internal policies as well as existing infrastructure and contractual arrangements.

1.2.1 Relevant Council Contractual Arrangements

Council has contracts in place for the collection and processing of domestic waste, recycling and organics. The major existing domestic waste contracts that will impact on the Strategy are listed below:

<table>
<thead>
<tr>
<th>CONTRACT</th>
<th>MAIN FUNCTIONS</th>
<th>EXPIRY DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>COLLECTION SERVICES</td>
<td>• Kerbside collection of waste, recycling and organics&lt;br&gt;• Collection services customer support&lt;br&gt;• Collection services education&lt;br&gt;• Weekly collection of waste (80L, 120L or 240L bin)&lt;br&gt;• Fortnightly collection of recycling and organics (240L bin)&lt;br&gt;• On-call clean-up</td>
<td>30 June 2021</td>
</tr>
<tr>
<td>RECYCLABLES PROCESSING</td>
<td>• Acceptance, transfer and sorting of recyclables sourced through the Collection Services contract and self-haul product&lt;br&gt;• Transfer station located at the Wollongong Waste and Resource Recovery Park</td>
<td>30 June 2026</td>
</tr>
<tr>
<td>ORGANICS PROCESSING</td>
<td>• Acceptance, transfer and processing of organics sourced through the Collection Services contract and self-haul product</td>
<td>30 June 2021</td>
</tr>
</tbody>
</table>

Table 4: Existing Major Domestic Waste Contracts

1.2.2 Landfill Capacity

Council operates the Wollongong Waste and Resource Recovery Park, located at Whytes Gully (Kembla Grange), that receives the bulk of the city’s putrescible waste, including all residual waste from the domestic collection service. Whytes Gully also receives mixed solid waste from the commercial sector.

Commercial quantities of Construction and Demolition (C&D) waste are not accepted at Whytes Gully. These materials are accepted at and processed by several privately operated facilities throughout the City. However, Council must be cognisant of the fact that some of these facilities are reaching the end of their life very soon.

The current operating landfill cell at Whytes Gully is projected to be full by the end of 2014. The new landfill cell under construction at Whytes Gully is expected to secure Wollongong’s ability to landfill waste for at least the next 40 years, based on current technology and systems.

Even with the increased landfill capacity that the new cell will provide, Council will be required to implement systems and methods to minimise waste to landfill so that the remaining landfill space is preserved for as long as possible, and to achieve state government diversion targets.

1.2.3 Resourcing & Financial Capacity

Wollongong City Council manages over 150,000 tonnes of waste per year. Managing waste is a significant service within Council’s budget with an annual cost in excess of $40 million. This involves capital and recurrent expenditure on services that touch the lives of every member of the community.
1.2.3.1 Operational Services

Operational Services, including the management and operation of landfills, reprocessing and other waste management costs, are managed on a quasi-commercial basis as a Business 1 Activity in accordance with the National Competition Policy. The capital, operational and rehabilitation resourcing requirements of waste facilities is included within Council’s long term financial model based on the current ‘whole of life’ model for each facility. Council will consider through its long term model any future financial changes including new and enhanced infrastructure, services, legislative obligations and their impact on the whole of life cost of the facilities.

1.2.3.2 Carbon Price

The impacts of the carbon price will need to be annually reviewed. The application of carbon price will continue beyond the life of the waste facility. A facility will be required to pay the carbon price whilst it is emitting above the legislated threshold. It is intended that additional service costs will continue to be recovered at the estimated future market price.

1.2.3.3 Capital Investment

Council will need to consider on a merit basis any additional requirements for capital investment that arise out of future decisions taken in implementing this strategy. Such decisions will be evaluated through Council’s business proposal process to ensure financial sustainability. Consideration may be given to all sources of funding required, including grants, loans, public private partnerships, and outsourcing.

Whytes Gully New Landfill Cell Construction, 2014
2 WHERE ARE WE NOW?

2.1 Domestic Services

2.1.1 Domestic Waste & Recyclables

The current domestic collection services are offered to approximately 77,900 residential properties within the LGA, and consist of a conventional three-bin system (weekly garbage, fortnightly garden organics and fortnightly recycling).

For the general waste service, residents can choose the size of their mobile garbage bins, with a price incentive to utilise smaller bins. The default service is a 120L garbage bin with 69% of residents using this option, 25% of services use the 80L garbage bin and only 6% use the 240L garbage bin option.

Residents can also pay for additional services to assist with managing their waste; 0.05% of residents utilise an additional general waste collection service, 0.23% an additional recycling service and 0.77% of residents have an additional organic collection service.

The fortnightly garden organics is processed by a contractor, with only self-haul organics processed at the Wollongong Waste and Resource Recovery Park. Residents are able to take small quantities of recovered mulch from Whytes Gully without charge. The recycling from the collection service is transferred from the Wollongong Waste and Resource Recovery Park (Whytes Gully) to large specially designed Materials Recovery Facilities, where the product is sorted into separate material streams and distributed for reprocessing.

For the year ended 30 June 2011, the following mass of waste and recyclables were collected and recovered from the domestic waste stream:

**Figure 1: Domestic Waste Recovery 2011**

Waste generation has been trending down for the past eight years and the quantities of recovered material have been trending up. By comparison, in 2002/03 the diversion rate was less than 20%.
From 2009 to 2011, Council’s recovery rate increased from 30% to 54%. During this time Council made some major changes to items accepted for landfilling including the diversion of e-waste (TVs & computers), and mattresses. Council also increased its education and awareness to ensure recyclable materials are not being sent to landfill. It is proposed through other major initiatives that Council will continue this trend. Council’s household clean-up now recovers e-waste (TVs & computers) as well as tyres and mattresses, for recycling.

It is anticipated that the materials recovery rate will increase at a reduced rate until a possible Alternative Waste Treatment is implemented. Investigations will occur to ensure the best possible choice for Wollongong City Council in the long term.

Figure 2: Domestic Waste Landfill vs Recovered Material 2003-2011

Figure 3: Domestic Waste Recovery Rates 2008-2013
2.2 Waste Disposal Facilities

Council operates its major landfill, the Wollongong Waste and Resource Recovery Park, Whytes Gully. The landfill accepts the majority of municipal solid wastes produced within the City, including putrescible, inert and commercial and industrial wastes permitted under the operating license. Being a large licensed landfill, this facility is operated to ensure compliance with its Environment Protection licence, including lined cells, leachate control, and a robust environmental monitoring regime.

Other facilities located at the Wollongong Waste and Resource Recovery Park include inbound and outbound weighbridges, a revolve/reuse facility, a small vehicle transfer station (to separate small vehicles from the active tipping face), recycling centre and garden organics drop-off areas.

The recyclables transfer facility is also located on land at the Wollongong Waste and Resource Recovery Park.

The Wollongong Waste and Resource Recovery Park does not accept Construction and Demolition (C&D) waste in significant quantities. The bulk of those materials are processed by private operators for reuse with landfill of the residual in privately operated landfills.

Council has extensive data available on the generation and diversion of domestic waste and recyclables. Only limited data is available on Commercial and Industrial (C&I) waste generation and recovery, which is undertaken by private contractors.
2.3 Resource Recovery

There are a range of initiatives contained in the Waste and Resource Recovery Action Plan to reduce waste to landfill and return valuable resources into the productive economic cycle. The actions and facilities will follow the waste hierarchy.

**AVOID - REDUCE - REUSE - RECYCLE - RECOVERY - LANDFILL**

These include:

- Targeted education and waste avoidance campaigns to increase waste diversion.
- Revolve facility to recover reusable articles from the incoming waste stream and offer them for sale back to the general public.
- Garden Organics are shredded and removed for composting / soil improvement. A small portion of first pass processed material is retained on-site for residents to use free of charge.
- Recyclable materials are collected through the kerbside recyclables collections and processed for recycling.
- Resource recovery facilities are provided for self-hauled materials suitable for recycling, e.g. used oil, metals, paper/cardboard, e-waste etc.
- On-call Clean-up recovers recyclable materials for sorting including e-waste, mattresses, and tyres.
- Continued implementation of landfill gas recovery at the Wollongong Waste and Resource Recovery Park.
- Participation in a fridge buy-back scheme for second fridges greater than 10 years old.
- Chemical clean-out days in which residents are able to dispose of domestic quantities of a range of household chemicals, fluorescent lights, paints, gas bottles, car batteries etc. free of charge.

<table>
<thead>
<tr>
<th>RECYCLABLES CAPTURED</th>
<th>26%</th>
</tr>
</thead>
<tbody>
<tr>
<td>ORGANICS CAPTURED</td>
<td>28%</td>
</tr>
<tr>
<td>WASTE DISPOSED TO LANDFILL</td>
<td>46%</td>
</tr>
</tbody>
</table>

Table 5: Resource Recovery Rate Wollongong Local Government Area

3 OTHER STRATEGIC DOCUMENTS

A number of background documents provide additional and supporting information to that provided in this Strategy document. These include:

- Wollongong City Council Waste Strategy - Assessing High-Level Options Wright Corporate Strategy Pty Ltd, January 2011
- Assessment of Regional Waste Processing Solutions for Wollongong City Council, Shellharbour City Council and Kiama Municipal Council, Aurecon Australia Pty Ltd, August 2010
- Waste Composition and Analysis Study - Wollongong City Council Waste Audit and Consultancy Services, 2009
REFERENCES


CONTACT DETAILS

This plan has been led and facilitated by Wollongong City Council with support from Wright Corporate Strategy.

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Phone: 02 4227 7111
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The Wollongong Waste and Resource Recovery Strategy 2022 and supporting documents are available from Wollongong City Council’s website: www.wollongong.nsw.gov.au

Supporting Documents

• Wollongong 2022 Our Community Strategic Plan
• NSW Waste Avoidance and Resource Recovery Strategy 2013-2021
• NSW 2021 A Plan to Make NSW Number 1