Bayside Council
Serving Our Community

Waste Avoidance and Resource Recovery Strategy 2030

11 July 2018

The Journey to a Circular Economy

Waste Avoidance and Resource Recovery Strategy 2030
File: F15/301 Document: 18/120158
Enquiries: Manager Waste & Cleansing Services

PHOTO: The bridge by Wolli Creek.

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1 Mayor's Message

The Bayside community is about to embark upon an exciting challenge, which will improve our environment for present and future generations.

This challenge is to reduce our waste and in the process, build business opportunities for recycling, composting and the recovery of resources, which would otherwise be sent to landfill. The result will be a more sustainable system of resource management.

Every item that we no longer have a use for needs to go somewhere. Where these items go and how we handle this process, makes us either responsible or irresponsible leaders and/or citizens.

Bayside Council's Waste Avoidance and Resource Recovery (WARR) Strategy 2030 has set high aspirational targets - placing a greater significance on waste materials being optimised as a resource, as opposed to landfilled.

Bayside Council is committed to playing its role as an environmental leader. This includes working with residents and commercial businesses in the region to avoid waste and maximise recovery of resources through the actions outlined in this WARR Strategy 2030 and associated Action Plans to promote responsible citizenship.

This strategy plays a vital role in maintaining our natural and urban environment and preserving our valuable resources. It provides the targets and guiding principles to assist our community to live sustainably, whilst supporting Bayside's growth as a vibrant centre for residential living and the wider community.

Council is determined to provide leading economic, environmental, innovative, and sustainable solutions on the journey towards Council's 2030 circular economy vision.

This journey has already begun, with Bayside receiving a Keep NSW Beautiful Blue Star Sustainability award in 2017 for our "Clean City Project" in reducing illegally dumped waste material in community open space areas.

Cr Bill Saravinovski
Mayor

Council 2030 Vision

To provide a city that is: vibrant; green, leafy and sustainable; smart and connected; and prosperous, using a circular economy approach. This WARR Strategy assists in delivering this vision.

2 Executive Summary

Over the past decade, advances in technology have created new ways for Bayside Council (Council) to improve recovery and waste systems. This has resulted in more than doubling Council's kerbside bin resource recovery rate from 26% in 2006 to 53% in 2016/17. From 1 July 2017, Council material collected in the kerbside red-lidded bin has been sent to a mechanical biological treatment facility which should deliver a significant increase in Council's landfill diversion rates.

Many challenges still face the community. These include increasing recycling to assist the NSW Government to meet their landfill diversion target of 75% by 2021/22.

To achieve this target, Council may need to use more advanced processing solutions, including but not limited to, an energy from waste solution. It will also involve implementing innovative strategies to improve recycling, such as assisting in the creation of new markets (such as using recycled aggregate in construction), investigations into the potential recovery of clean-up material and/or embracing emerging technologies.

As more advanced processing solutions become available, Council will optimally work toward an 85% domestic Municipal Solid Waste (MSW) diversion target by 2030. Council has also set aspirational targets for other non-domestic streams.

Council faces significant challenges to reduce littering and illegal dumping within the Bayside area. Council is working with the NSW Environment Protection Authority (EPA), the Regional Illegal Dumping (RID) squad and the community to reduce illegal dumping and littering within the City.

This strategy establishes the current waste and resource recovery situation in the Bayside local government area and outlines strategies to achieve Council's 2030 vision. These strategies are grouped under five Key Strategic Actions, being:

- Action 1: Avoiding and Reducing Waste.
- Action 2: Recovering Resources.
- Action 3: A Healthy Region.
- Action 4: Reducing Illegal Dumping.
- Action 5: Litter Prevention.

Council's 2030 vision moves completely away from a traditional linear economy model to a ***circular economy model*** whereby waste is diverted from landfill and optimised as a resource that returns to nature or the economy through numerous waste avoidance and resource recovery solutions. The concept of linear and circular economies is illustrated in the images below and discussed further on Page 22.

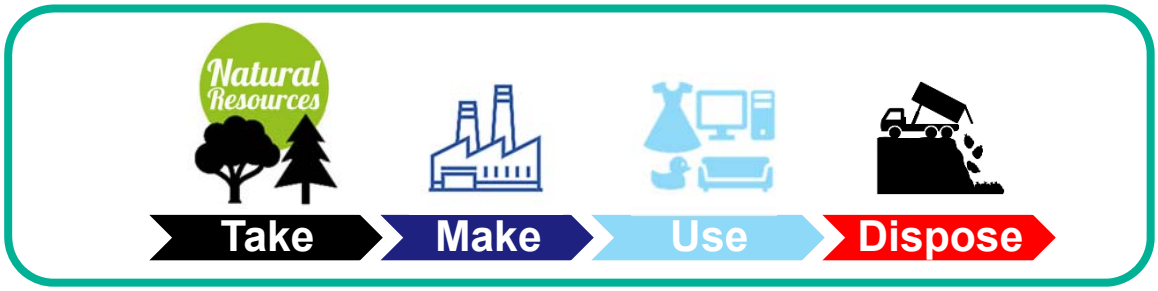


IMAGE: An example of a Linear Economy Model.

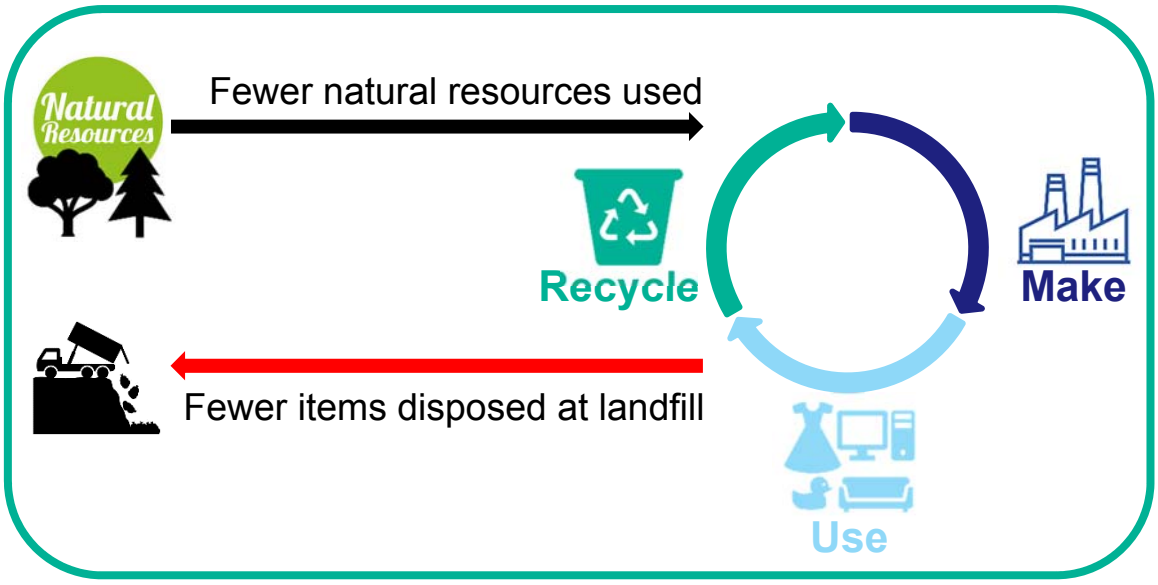


IMAGE: An example of a Circular Economy Model.

3 Glossary

Circular Economy – is a model that anticipates and designs for resources to be either safely returned to nature or back into systems where they can be reused or renewed.

Commercial waste **–** Waste produced during the course of a commercial activity.

Domestic waste **–** Waste produced during the course of a residential activity.

Illegally dumped waste – The NSW EPA's *Waste Avoidance and Resource Recovery Strategy 2014-21* defines illegally dumped materials as waste materials that are disposed of on private or public land where no planning approval or environment protection licence has been granted for the activity. Illegally dumped materials can range from small bags of rubbish or household waste dumped in an urban environment to larger materials, such as construction and demolition waste. This waste may also include dangerous materials like asbestos.

In this strategy, illegally dumped waste is limited to materials that are disposed of on public land as Council's Waste & Cleansing Services do not manage illegally dumped waste on private land.

Litter – The NSW EPA's *Waste Avoidance and Resource Recovery Strategy 2014-21* refers to litter as material that ranges in size from very small to very large items, a characterisation which allows a broad application of littering offences to be applied if required. Common types of litter include cigarette butts, small pieces of paper, chip and confectionery wrappers, fast-food packaging, bottle caps, plastic straws, broken glass, drink containers and plastic bags.

Domestic Municipal Solid Waste (MSW) – In this strategy (WARRS 2030), domestic MSW includes materials collected by Council from residential dwellings and dropped off by residents at drop off events. It excludes waste collected from parks, reserves, litter bins and street sweeping.

Recycling – is a set of processes (including biological) for converting materials that would otherwise be disposed of as wastes, into useful materials or products. In this Policy, 'recycling' also refers to the material placed in the yellow-lidded kerbside bins.

4 Waste Journey to Date

Bayside covers an area of approximately **55 square kilometres**.

The city includes **29 suburbs** and an estimated population of over **170,000 people**.

The cultural diversity of the City continues to grow with an increase in the proportion of people who speak a language other than English at home.

Council is committed to providing a waste service that is both effective and innovative to adapt to opportunities and environmental changes. The collection and processing of waste material generated in the local government area is managed in accordance with relevant legislation, and Council values and strategies.

Council is committed to working with residents and commercial businesses in the Bayside area to avoid waste and maximise recycling and recovery of resources through the actions outlined in this WARR Strategy 2030.

This strategy covers the period from July 2018 to June 2030 and has considered the NSW Environment Protection Authority (NSW EPA) Waste Avoidance and Resource Recovery Strategy (2014-2021) and the Southern Sydney Region of Councils (SSROC) Regional Waste Avoidance and Resource Recovery Strategy (2017-2021), as well as specific local applications.

Council's WARR Strategy and vision of a clean and sustainable city is supported by Council's WARRS Action Plan, Waste Avoidance and Resource Recovery Policy and associated procedures.

PHOTO: Botany Bay.

4.1 Current Landfill Diversion Rate

In 2016/17, some of Council's material in the red-lidded bin was processed through an Alternate Waste Treatment (AWT) facility, recovering materials including organics. At the time, the low availability of such technologies meant that some of the material in the red-lidded bin was sent directly to landfill.

Bayside Council offer residents and participating local business a co-mingled recycling bin and utilises material recycling facilities (MRF) to sort and recycle materials into different streams.

In 2016/17, the Council offered different solutions to the community to recover organic waste via the kerbside bin system. Both systems currently remain in Bayside Council.

4.1.1 Domestic Waste Streams

In 2016/17, Bayside Council managed the collection, recycling, recovery and disposal of approximately 56,000 tonnes of garbage, organics and recyclables in domestic kerbside bins from 56,142 households.

The Bayside domestic landfill diversion rate in 16/17 inclusive of the kerbside bins, kerbside clean up service and Council drop off services was 48%.

Table 1. Baseline Domestic Kerbside Waste Bin Data (2016/17)

Domestic Kerbside Bins			
Bin Type	Co-mingled Garbage and Organics	Co-mingled Recycling	All Kerbside Bins
Tonnes (~)	44,000	12,000	56,000
Ave. Weight / Household / Week (kg)	15.0	4.0	19.0
Ave. Annual Weight per Resident (kg)	5.2	1.4	6.6
Landfill Diversion Rate	**46%**	**79%**	**53%**

Only part of Council's material was processed at an alternative waste technology (AWT) facility in 2016/17.
Landfill diversion rate is based on 2015 kerbside bin audit conducted by an independent source. A new audit will be conducted in 2018/19.
Based on the cumulative tonnage divided by an estimate of 56,142 households in 2016/17.
Based on the cumulative tonnage divided by an estimate of 160,944 resident in 2016/17.

Table 2. Baseline 'Other' Domestic Waste Streams Data (2016/17)

Other Domestic Waste Streams			
Type	Kerbside Domestic Clean Up & Illegals (excluding mattresses)	Mattresses (Clean Up and Drop Off Events)	Other Drop Off Materials (Green Waste, E-Waste and Metals)
Tonnes (~)	8,000	230	66
Ave. Annual Weight per Household (kg)	144.1	4.1	1.2
Ave. Annual Weight per Resident (kg)	50.2	1.4	0.4
Landfill Diversion Rate	**13%**	**95%**	**96%**

Landfill diversion rate is based on the facility recovery rate reported to Council in 2016/17.
Based on the cumulative tonnage divided by an estimate of 56,142 households in 2016/17.
Based on the cumulative tonnage divided by an estimate of 160,944 resident in 2016/17.

Table 3. Average Annual Domestic Waste Generated Per Capita (2016/17)

AVE. HOUSEHOLD PER WEEK	AVE. RESIDENT PER WEEK	AVE. HOUSEHOLD PER YEAR	AVE. RESIDENT PER YEAR
21.9 kg	**7.6 kg**	**1,144 kg**	**399 kg**

Based on the cumulative tonnage divided by an estimate of 56,142 households in 2016/17.
Based on the cumulative tonnage divided by an estimate of 160,944 resident in 2016/17.

4.1.2 Council Managed Commercial Waste Streams

Council also managed approximately 2,100 tonnes of commercial waste and recyclables for local businesses.

Table 4. Baseline Commercial Waste Bin Data (2016/17)

Commercial Bins			
Bin Type	Garbage and Organics Recovery	Co-mingled Recycling	All Commercial Bins
Tonnes (~)	1,700	440	2,100
Landfill Diversion Rate	**59%**	**76%**	**62%**

In 2016/17, Council offered various service options. Council will now provide an extensive commercial business service to local businesses and process these resources at appropriate recovery and recycling facilities. This service will be extended to the entire amalgamated area.
Based on 2015 kerbside bin audit conducted by an independent source. A new audit will be conducted in 2018/19.

4.1.3 Other Council Managed Non-Domestic Waste Streams

Table 5. Baseline Other Non-Domestic Waste Streams Data (2016/17)

Non-Domestic Waste Streams		
Type	Public Place Community Litter Bins	Council wide Street Sweeping
Tonnes (~)	1,400	1,800
Landfill Diversion Rate	N/A	N/A

There were no options available to Council during this period to divert this material from landfill. Potential solutions are under review and will form part of Council's increased recovery and recycling initiatives.

4.1.4 Illegally Dumped Waste

In the 2017 calendar year, the illegally dumped waste requests reported through the Regional Illegal Dumping (RID) Squad and Council's Customer Service was 3,255. This equates to, on average, approximately 62 requests per week or 2.2 requests per week per suburb.

The graph below illustrates the breakdown by suburbs and will provide the roadmap for this strategy to prioritise known 'hotspots' or areas that seem to attract a high incidence of repeat offending.

Further data mining was conducted to identify the streets that registered the highest incidence of illegally dumped waste. This level of micro analysis will provide the necessary data to target areas with tailored and specific programs to significantly minimise this practice by 2030.

IMAGE: A breakdown of illegally dumped waste requests by suburb in 2017.

4.1.5 Construction and Demolition Waste

Council's Development Control Plan (DCP) is programmed to be reviewed and improved in 2018/19 to provide developers in the local government area with updated guidelines on waste minimisation and resource recovery.

4.2 Waste & Cleansing Services Optimisation

In 2016/17 Bayside Council undertook extensive data gathering and research to best understand community needs, policies, procedures, available resources, condition of assets, guarantees of service and levels of service.

In 2017, Council began a formal restructure and service harmonisation program that will be staged through to 2023. Implementation will be on a rolling program based on restrictions pertaining to pre-existing and differing services, and contract / agreement expiry dates.

It was identified early that to deliver this WARR Strategy 2030 successfully, new fit for purpose plant, fleet and equipment is required. This required an initial capital injection of approximately $3 million from Waste & Cleansing Services, with delivery of all new assets expected by August 2018. These assets were identified and procured to assist in improving and optimising service delivery.

PHOTO: The first of Council's new fleet has arrived, with the rest due by August 2018.

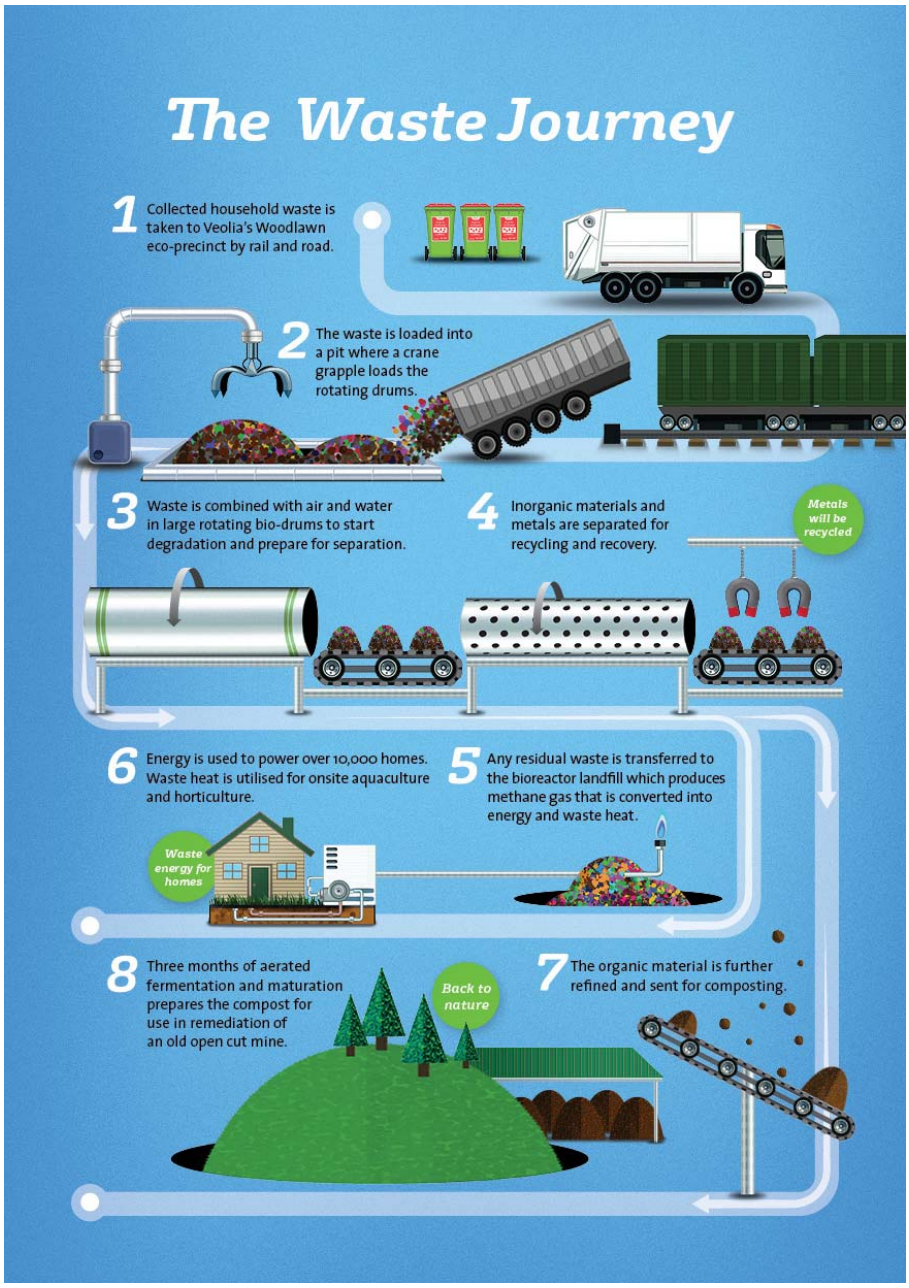
5 The Journey to 2030

5.1 Garbage and Organics Recovery

Whilst many councils continue to landfill similar material, Bayside formed a group of councils that tendered to enable the market to create a facility which offered the capability to divert a substantial amount of organic waste from landfill.

From 1 July 2017, six regional councils including Bayside began a ten plus five-year contract sending all waste collected in the kerbside garbage and organics recovery bin (red-lid) to a mechanical biological treatment (MBT) facility for processing.

This technology can potentially divert up to 60% of the material in these bins from landfill, with the remainder of non-resource recoverable material currently sent to a bioreactor landfill with gas capture for energy production. This will provide a significant increase to Council's co-mingled garbage & organics landfill diversion rate of 46% in 2016/17.



Council has also begun evaluating the cost and value of utilising a three-bin system compared to a two-bin system across the entire Council area. Many factors will play a role in determining the best outcome and strategy to employ, which includes but is not limited to assessing legal restrictions of current contracts, cost of new infrastructure, cost of new fleet, cost of additional staff, cost of service, cost to the community, and resource recovery comparisons.

Potential changes in legislation, policy, markets, and community perception regarding other technologies in Australia may allow for opportunities to divert more of the residual or remaining material from landfill. Council has created a working group to vigorously pursue these opportunities. If these opportunities become available within the next decade, Council will strive to achieve an ***aspirational domestic diversion from landfill target of 85% by 2030***.

5.2 Co-mingled Recycling

Contamination in recycling bins represents a wider community issue with contamination reduction a current priority for all Australian councils. Many barriers exist, including language, and lower likelihood of detection of contamination in environments such as multi-unit or apartment style living where bins are shared.

A contamination management plan has been designed with a strong emphasis on regular auditing, tagging of non-compliant bins, providing multi-lingual or graphical education material where required, utilising fit for purpose resources, creating significant behavioural change and implementing specific education prior to implementing bin removal strategies for non-compliance.

PHOTO: Council recycling promotion in 2017.

The stability and performance of the recycling industry can be improved by creating a more diverse range of end market solutions. Recent recycling market instability has highlighted the importance of continually seeking new and innovative uses for recycled materials.

As part of this WARR Strategy 2030, Council will proactively investigate the viability of Council increasing its use of recycled product, including the investigation of engineering applications. This will involve extensive research and consultation with industry specialists, as well as the investigation of regional and shared solutions.

Council anticipates that by 2030, a fundamental change in behaviours, business strategy, government policy and technological best practice will occur. New markets will exist, assisting commodity price values. ***Council has set a minimum recycling target of 90% by 2030.***

5.3 Bulky Material Recycling

In 2016/17 approximately 8,000 tonnes of mixed ‘hard or bulky’ waste material predominantly from scheduled and on-call kerbside clean-up with a small proportion of illegally dumped waste was collected. At present, this material has limited options to increase recovery of materials.

In September 2017, Bayside Council implemented a new flatbed vehicle funded by the NSW EPA that collects items such as mattresses, metals, and white goods from kerbside clean-up. These items are collected separately and taken to processing facilities to recycle.

Council is continually investigating viable solutions that can significantly increase reuse, recycling and recovery of these materials through innovative initiatives. There may be future solutions available that result in a ***landfill diversion rate of up to 85% of this material by 2030.***

PHOTO: Council's new flatbed bed truck service

5.4 Commercial Waste Recovery & Recycling

Participating commercial businesses can access the same red-lidded and yellow-lidded bin service as residential premises for a commercially competitive rate. To make this service more accessible to commercial businesses a flexible range of bin configurations and collection frequencies are available.

A typical commercial waste service may not include recovery of organics from the garbage. By increasing the proportion of local businesses participating in Council's commercial waste service, Council is increasing the overall landfill diversion from this waste stream.

5.5 Non-domestic Waste Recovery

Council will focus on improving recovery rates from non-domestic streams such as Council's public place litter bins and street sweeping material.

In 2016/17, Council had no available options to recover any of this material. Council has begun investigating future options and anticipates that there may be solutions that result is a ***landfill diversion rate of up to 85% of this material by 2030.***

PHOTO: Council solar self- compacting public place bin.

5.6 Reducing Illegally Dumped Waste

By 2030, Council has set a goal to minimise the reported illegally dumped waste requests in the Council area ***by 50% per capita***. On 2017 figures, on a per capita basis, this would translate to reducing the requests by the year 2030 (on average):

- from 3,255 per annum to 1,627 per annum; or
- from 62 requests per week to 31 requests per week; or
- from 2.2 requests per suburb/week to 1.1 requests per suburb/week.

PHOTO: Festivities at Brighton Le Sands.

6 Community Goals

The Community Strategic Plan - *Bayside* 2030 has currently identified four community themes that Council will strive to achieve by 2030.

- Theme One – Bayside we will be a vibrant place;
- Theme Two – Our people will be connected in a smart city;
- Theme Three – Bayside will be green, leafy and sustainable;
- Theme Four – Bayside will be a prosperous community.

6.1 Vibrant City

A vibrant City is a place where people of all ages want to live and a city that people want to visit. This will involve designing, shaping and continuously improving open space areas, landscaping, public amenities, city infrastructure and assets, and public accessibility.

Bayside's vision is to create a vibrant City that is culturally rich, environmentally responsible, socially diverse, economically sound and fundamentally sustainable.

To help achieve this vision, this WARR Strategy 2030 will contribute to the aesthetic beauty, streetscape and visual impact of the City by providing leading innovative programs that assists in:

- Reducing illegal dumping;
- Reducing litter;
- Reducing on-street domestic bin collections for multi-unit dwellings and large complexes.

PHOTO: Where old meets new, Wolli Creek.

6.2 Smart and Connected City

A smart and connected city incorporates innovative technology into infrastructure to make urban centres more efficient, affordable, sustainable and liveable.

The 2030 vision is to pursue projects and implement improvements in work practices in order to achieve digital inclusion, where digitalisation and new technologies are deployed to bridge social divides, create a community, and work together to reduce exclusion.

In December 2017, Council introduced a dynamic Waste Services App (smart device application) and web widget to inform residents of service dates, collection types, rules and regulations, education and other valuable information that can be updated in real time, as well as provide real-time smart device push notifications.

This new level of digital interaction with residents provides more transparency and offers the community a platform to report waste issues at any time and any location, improving Council's customer service experience.

Moving away from static communications, such as print material, towards digital or dynamic communication also provides financial and environmental benefits. Digital media is fast becoming a cost effective and environmentally friendly solution for community engagement.

Future waste collection vehicles are expected to be predominately autonomous, electric, equipped with on board smart cameras, sensors and other technologies that can provide valuable data on waste generation, assist with route optimisation, better manage communication, as well as provide rich data that may assist with other Council strategies, such as future city planning.

To help achieve this vision, this WARR Strategy 2030 embraces the use of innovative or smart technologies that can significantly improve social interaction and inclusion and keeps everyone informed of services, improvements and/or changes that affect the way they live, work or play within the City.

Where possible, Council may increase the implementation of public place smart technology that will:

- Reduce waste bin collections, using 'smart bins';
- Provide data via barcode, sensor or radio frequency identification technology;
- Assist with deterring and/or prosecuting dumpers and litterers via advanced CCTV technology; and
- Provide community safety through surveillance.

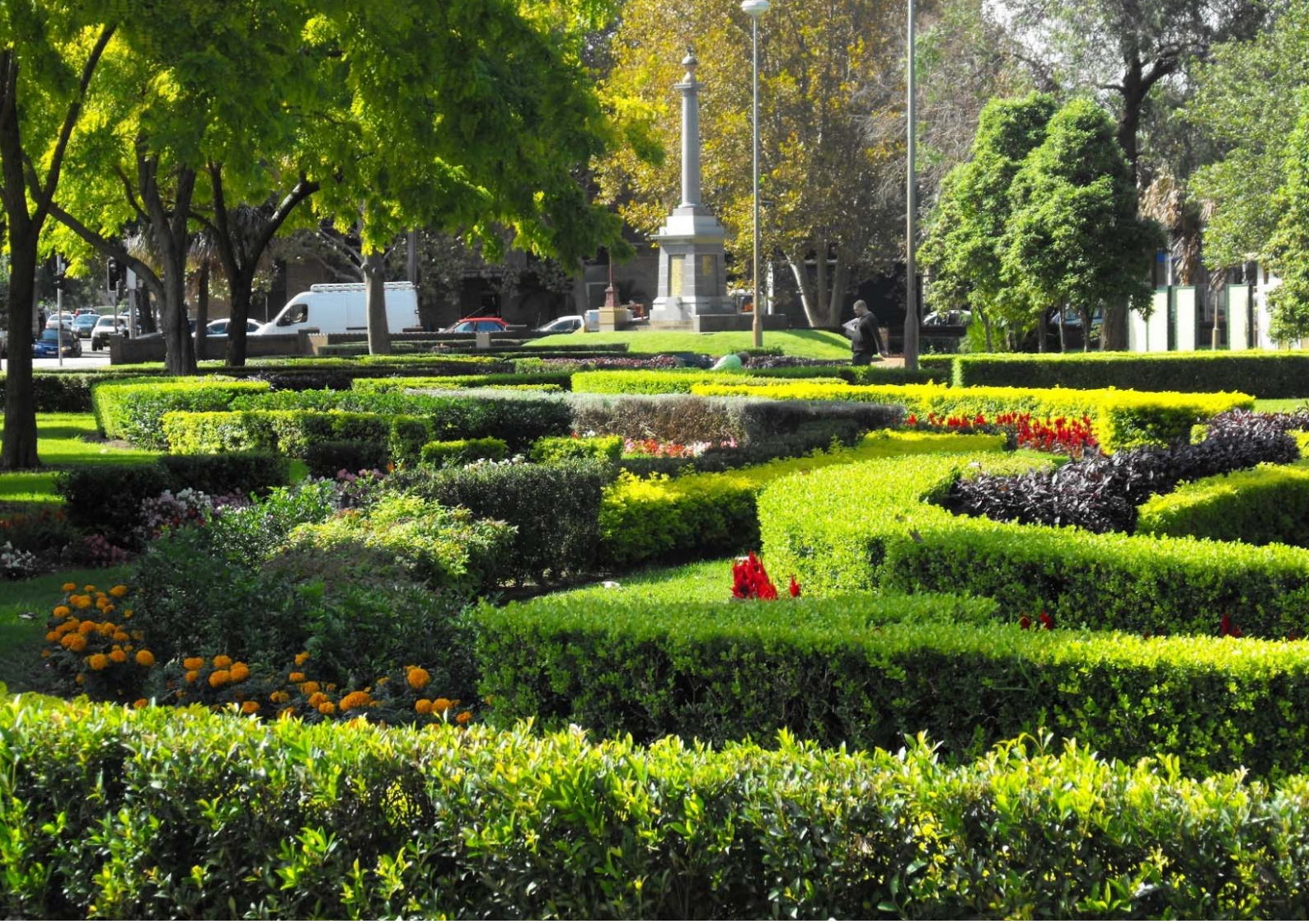


PHOTO: Memorial Park, Mascot

6.3 Green, Leafy and Sustainable City

A green, leafy and sustainable City focuses on preserving and protecting our environment whilst managing current community needs without affecting the ability of future generations to meet their requirements.

The vision includes making sure our waterways and green corridors are regenerated, preserved and free from litter.

In 2018/19, Bayside Council will embark on an extensive beach litter campaign with additional bin infrastructure, signage and waste education/awareness programs to promote healthy waterways.

Regional councils are coming together to investigate sustainable and circular solutions to waste and recyclable materials. As an example, since glass recycling is currently returning negative financial returns for Material Recovery Facilities (MRFs), Bayside Council intends to work with other councils to investigate the cost and benefit of utilising glass presented in our kerbside bins for engineering applications, such as recycled aggregates in construction.

Council recently upgraded its interactive waste and environment sustainability trailer that is utilised at fairs, community events, and schools educating our community. The Waste Education and Regulation Officers engage with the community on all matters related to waste avoidance, resource recovery and sustainability solutions. This includes providing workshops on topics such as composting and worm farming.

PHOTO: Proposed future upgrade to Banksmeadow Town Centre

6.4 Prosperous City

A prosperous City is one that attracts innovative and diverse business, skilled employees, as well as providing flourishing urban spaces and efficient transport. Growth in services to the local community will generate employment and support a thriving community.

Council will continue to support local businesses by providing cost effective waste management solutions that meet their needs. Council delivers an effective commercial waste service that has the capacity to expand in line with local business growth. Statistics on current Council managed commercial waste tonnages and landfill diversion is presented in Table 4 (Page 10).

In 2018, within the Bayside local government area, there are currently four (4) leading waste and/or recycling facilities that provide convenient solutions to our community, as well as skilled local employment opportunities.

Council will continue to work with councils in metropolitan areas to investigate waste and resource recovery solutions to service the local economy.

7 WARR Themes

The Southern Sydney Regional Organisation of Councils' Regional Waste Avoidance & Resource Recovery Strategy 2014-2021 (SSROC Regional WARRS) was modified and re-published in 2018.

The SSROC Regional WARRS comprises six Key Strategic Actions that correspond with the NSW WARRS Key Result Areas as shown in Table 6.

Table 6. SSROC Key Strategic Actions (KSA) and NSW EPA Key Result Areas

KSA No.	SSROC Key Actions	SSROC Focus Areas	Corresponding NSW Key Result Areas
KSA 1	Avoiding and Reducing Waste	Reducing material in the waste streams. Avoiding waste generation and encouraging reuse. Supporting responsible consumption.	Avoid and reduce waste generation.
KSA 2	Recovering Resources	Processing red-lidded bin waste to recover resources. Decreasing contamination in the recycling bin and green waste bins (where available). Recovering materials from the clean up stream. Engaging residents to improve bin and kerbside clean up behaviour.	Increase recycling. Divert more waste from landfill.
KSA 3	A Healthy Region	Drop off centres for problem wastes. Support Product Stewardship schemes to manage problem waste. Increasing community awareness of correct and safe disposal options.	Manage problem wastes better.
KSA 4	Reducing Illegal Dumping	Data collection. Regional collaboration on illegal dumping. Implementing strategies at regional hot spots. Promoting the correct use of council clean up services.	Reduce illegal dumping.
KSA 5	Litter Prevention	Data collection. Help councils improve approaches to manage litter. Address litter in regional hotspots.	Reduce litter.

7.1 NSW EPA Guiding Principles

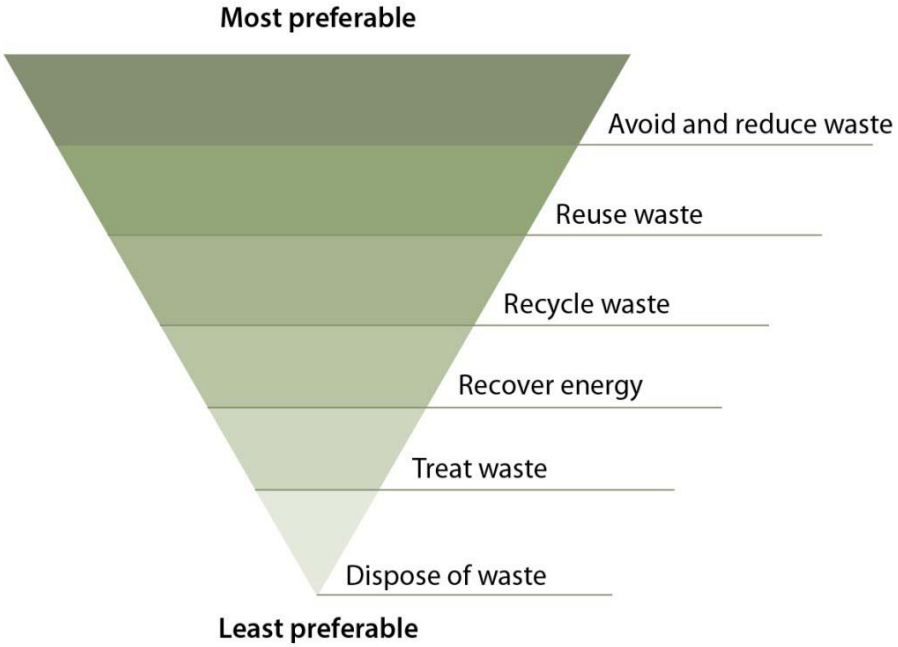
The concept of a 'waste hierarchy' is enshrined in most modern waste management policies and strategies.

The hierarchy identifies the preferred approach to waste management, with avoidance and reduction of waste being the most preferable option, and disposal the least preferable.

Whilst waste avoidance is most preferable, it is also one of the most difficult areas for Council to control. Significant improvements at the 'top' of the waste hierarchy require individuals and families to act as community waste management champions at a household-level. These actions will be supported by Council providing avoidance and re-use opportunities, and effective community education.

Council has more control over the lower portion of the hierarchy, through the choice of bin systems and technologies used to process materials. However, individuals have a large influence on how effective those systems are, especially in terms of using the bin systems correctly. Council will provide education to ensure that residents have the required information and knowledge to use the systems correctly.

Waste Hierarchy*



**Source: NSW Waste Avoidance and Resource Recovery Strategy 2014-21*

7.2 Council's Circular Economy Model

Council has modified and extended the 'waste hierarchy', positioning the community at the centre. Through responsible citizenship and Council leadership waste materials are returned back to the community through initiatives and innovation, striving for a circular economy.

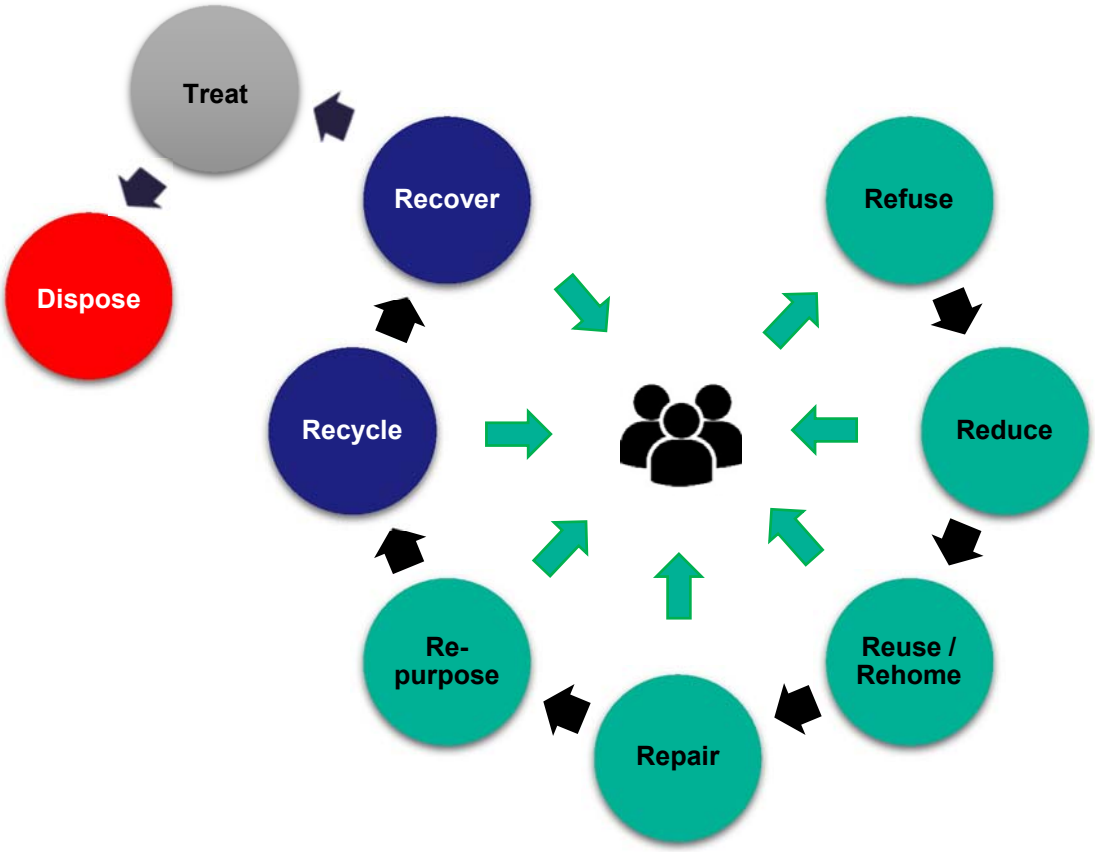


IMAGE: Council's circular economy model.

The above mentioned circular model is easily identified as a 7R Strategy, discussed below:

Table 7. Council's 7R's Strategy for Landfill Diversion

7 R Strategy	Examples
Refuse to create waste to begin with	Avoid using single-use plastics.
Reduce waste	Choose products with longer life cycle and reduce food wastage.
Re-use items	Donate, instead of throwing out usable items.
Repair items	If broken, attempt to fix item.
Re-purpose items	Use unwanted plastic takeaway containers to make a worm farm.
Recycle items	Process used office paper to make recycled office paper and process the organics in garbage to make a compost.
Recover items	Thermally treat materials (processed engineered fuels) that cannot be reused or recycled to generate heat and electricity.

If all options above are vigorously tested, the amount that will be disposed (landfilled) will be significantly reduced. When the 7R circular economy model has been applied, any materials not suitable for recovery can be treated to reduce its environmental impact (e.g. medical waste) and/or disposed to landfill.

8 Bayside Council's Key Strategic Actions

To maintain consistency at a regional/state level, this Strategy uses the same Key Strategic Actions used in SSROC Regional WARRS:

- **Action 1: Avoiding and Reducing Waste**
- **Action 2: Recovering Resources**
- **Action 3: A Healthy Region**
- **Action 4: Reducing Illegal Dumping**
- **Action 5: Litter Prevention**

8.1 Action 1: Avoiding and Reducing Waste

Link to NSW WARR Strategy: Avoid and reduce waste generation.

Aim: To reduce per capita waste generation.

Objectives:

1. To encourage more productive and efficient use of household goods to decrease the quantity of material entering the waste management system.
2. To promote responsible citizenship to avoid waste and/or reduce waste generation.

Avoidance of waste is the top priority in the waste management hierarchy. In recent decades, changes to household purchasing and consumption patterns have dramatically increased the quantity of waste that an average person generates.

Combined with population growth, this places additional pressure on the current waste collection and management systems, and increases costs to the community in general.

Despite the critical importance of reducing waste, there are no easy solutions. This is a highly complex and difficult issue, which requires a series of solutions, and ownership of the issues by a wide range of stakeholders.

In accordance with the waste hierarchy, Council is committed to continuing efforts to reduce per capita waste generation as a key priority reducing the financial, environmental and social impacts of waste within the local government area.

Council plans to encourage more productive and efficient use of resources, to decrease the quantity of material entering the waste management system.

Initiatives to assist Bayside residents to avoid and reduce waste include:

- Behavioural change programs that help residents understand and choose products that last longer, consume less energy, produce less waste and can be repaired instead of replaced. Refer to Case Study 1 on Page 24 (Small Electronics Repair Café). This includes promotion of programs currently run externally by organisations such as Responsible Cafes.
- Education and workshops to encourage repurposing of materials to avoid waste. Refer to Case Study 2 on Page 25 (Kids Recycled Art Workshop).
- Council will establish relationships on behalf of the community with reuse organisations, resellers, retailers and/or event organisers to facilitate reuse opportunities within Bayside.
- Programs that encourage residents to think about and reduce food waste, including the NSW EPA Love Food Hate Waste program and programs that promote better acceptance of "imperfect food".
- Compost and worm farm workshops for schools.

- A-Z guide on Waste App to include reuse options. Refer to Case Study 3 on Page 26 (Council's Mobile Waste App).
- Investigation of initiatives and events to encourage clothing reuse and repair.

Case Study 1: Small Electronics Repair Café – 24 February 2018

Repair Cafés are community spaces where people share knowledge and skills in repairing all kinds of items. Bayside Council employs specialist trainers to explain the repair process to every participant, helping participants to learn new skills and understand the benefits in repairing and reusing.

Council's first Repair Café was held on 24 February 2018.

Items brought by residents to the workshop to repair were lamps, DVD player, amplifier, cake mixer, toys and a portable CD player.

The residents learnt skills to help them repair household items. For items that could not be repaired on the day, the participants chose to take them home and continue to work on them rather than disposing of them in the e-waste recycling bin.

The overall aim of the Repair Café was not to have staff repairing the items but rather educating and empowering participants to repair their own items in the workshop and at home. This is designed to support avoiding and reducing waste.

PHOTOS: Electronics Repair Café at Council's depot.

Case Study 2: Kids Recycled Art Workshop – 23 January 2018

On 23 January 2018, Waste & Cleansing Services provided Bayside residents with the opportunity to participate in a Kids Recycled Art workshop. The kids recycled art workshop was an extremely popular and fun summer holiday activity. At this workshop, children learnt how to create their own works of art using recycled materials.

PHOTOS: Kids Recycled Art Workshop, Redfern

Case Study 3: Council's Mobile Waste Services App

Council provides waste avoidance, reuse and recycling information to residents through a variety of mediums including Council's Waste & Cleansing Services Guide, Recycling Calendar, Council's website, and signage on bins and in bin storage areas.

Whilst these mediums have proven effective in delivering information and education, their reach and convenience is limited by their static nature and/or accessibility. Guides and calendars may not always be accessible by residents, as residents may move into a premises after the material has been delivered or may misplace the material.

Whilst some residents will always prefer hardcopy information, the preference for electronic information is likely to increase in the future and may result in less need for costly printed materials.

Council is looking at improving and harmonising services across the local government area. Financial and operational constraints mean that printed material can only be updated at limited time intervals. The new Waste Services App allows for the provision of dynamic information on collection services, reuse options, recycling options, and problem waste management to residents on an as-needed basis. Using the App, information will be changed as required to reflect service alignment and improvements.

The Waste Services App information provided to each household is determined by their home address when they initially sign in. This populates their waste calendar, scheduled clean up collections and provides waste drop off dates. It will also provide waste educational information, workshop dates, drop off event dates, etc.). The App also allows residents to activate regular updates and alerts regarding their waste services.

Council worked with the App service provider to develop new and innovative features, such as inclusion of clean up dates in the waste calendar and electronic forms to allow residents to report on illegal dumping, kerbside bin issues and general enquiries.

IMAGE: Promotion of the Bayside Waste Service App, 2018.

8.2 Action 2: Recovering Resources

Link to NSW WARR Strategy: Divert more waste from landfill (EPA target 75% for all waste streams combined) and Increase Recycling (EPA target 70% for Municipal Solid Waste - MSW).

Aim: To work towards meeting a 75% landfill diversion target for domestic MSW (kerbside bins, clean up and Council drop off events) without use of more advanced processing solutions, including but not limited to, an energy from waste solution. If more advanced processing solutions become viable and available, Council will optimally work towards 85% domestic MSW diversion target by 2030.

Objective:

1. To increase the capture and use of valuable resources from the municipal waste stream.
2. To promote responsible citizenship to increase resource recovery.

Diverting waste from landfill and recovering useful resources (materials and/or energy) is a critical and necessary outcome of this Strategy.

Contributing to the landfill diversion targets in itself is only one driver for improving recovery performance. Resource recovery brings other benefits including:

- Offsetting the need to extract virgin materials and fossil fuel resources.
- Reducing environmental impacts associated with making new products.
- Reducing environmental and community impacts associated with landfills.
- In the case of compost, improving soil quality and enabling the rehabilitation of degraded land.
- Reducing landfill levy liabilities.

Given the critical importance of reducing waste to landfill, Council plans to increase the capture and use of valuable resources from the waste stream and promote responsible citizenship to increase resource recovery.

Initiatives to assist Bayside residents to divert more waste from landfill include:

- Processing residual waste to recover resources (both materials and/or energy). Please refer to the discussion of the *Garbage and Organics* Recovery under the Section *"The Journey to 2030" on Page 13.*
- Decreasing contamination in kerbside bins.
- Investigating options for processing clean-up material to recover resources (both materials and energy).
- Engaging householders to improve recycling practices.
- Providing regular drop offs for residents wishing to recycle materials such as mattresses, metals, green waste, printer cartridges and x-ray film. Refer to Case Study 4 on Page 28 (*Council Drop Off Events*).
- Encouraging Extended Producer Responsibility schemes.
- Separately collecting recyclable material from Council clean ups for recycling (for example, mattresses, and metals). Refer to Case Study 5 on Page 29 (*Flat Bed Truck for Increased Recovery of Resources*).
- Lobbying through waste forums, government meetings Southern Sydney Regional Organisation of Councils (SSROC), and Waste Management Association of Australia (WMAA) to increase funding for improved resource recovery options, through means such as greater return of waste levy revenue to local government and the waste

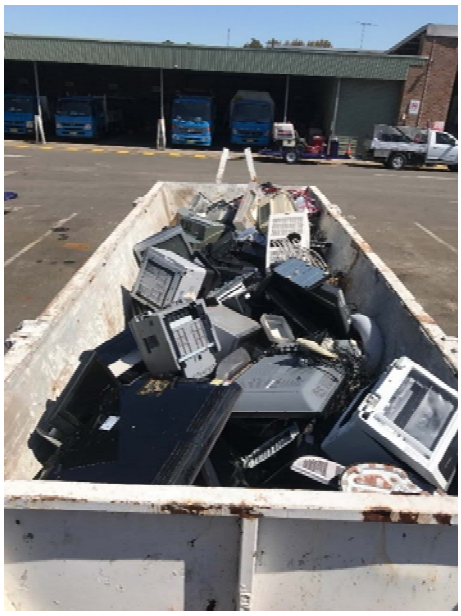
industry. Greater return of levy revenue to local government has recently been recommended by NSW Portfolio Committee No.6 – Planning and Environment (March 2018).

- Investigating options for increasing recovery of food waste in commercial premises.
- Investigating options for increasing Council buy back or use of recycled products or recycled-content products.
- Education programs for residents and schools intended to increase and improve the use of recycling services provided by Council and other organisations. Refer to Case Study 6 on Page 29 (*Reducing Plastic Bag Contamination in Residential Unit Blocks*).
- Investigating Council's options with respect to supporting and championing innovative projects to increase resource recovery.
- Working with stakeholders to improve and expand recovery options; including the WMAA NSW Resource and Energy Recovery Working Group, Waste Contractors & Recyclers Association of NSW (WCRA) and the Australian Packaging Covenant Organisation (APCO).
- Schools education to assist school children to learn more about recycling and resource recovery.
- Working with developers to ensure best practice waste management and resource recovery in new building through Development control Plans (DCP).

Case Study 4: Council Drop Off Events

All residents can currently take electronic waste, metal and mattresses, green waste, printer cartridges and x-ray film to the Bayside Council Depots each month, where Council separate the material and have appropriate recyclers process the material.

In 2016/17, Council drop offs resulted in the receival of approximately 6,600 kg of electronic waste, metals and green waste for recycling.



PHOTOS: Council drop off event, Botany depot.

Case Study 5: Flat Bed Truck for Increased Recovery of Resources

Local governments around Australia are currently working on strategies for the repurposing or reprocessing of clean up materials. Bayside Council is paving the way as environment stewards and leaders by optimising the resource recovery of some of these items. Council was successful in applying for and receiving a NSW EPA grant to purchase a flatbed truck that conducts a separate pass on clean up week to collect items such as refrigerators, freezers, washing machines, stoves, dryers, air conditioners, televisions, metals and mattresses. These items are returned to Council depot storage areas temporarily until recyclers collect then recover the material.

From September 2017, this flatbed truck recovered approximately 70 tonnes of material in a four month period. This includes collecting over 1,800 mattresses which were stripped to recover materials such as metal and foam.

PHOTO: Council's new flatbed truck

Case Study 6: Reducing Plastic Bag Contamination in Residential Unit Blocks

Millions of tonnes of plastic end up in the ocean or landfill every year. We must act now to make a difference to our environment. We can start by avoiding using plastic bags. The best option is to use reusable cloth or canvas bags and avoid plastic bags all together.

PHOTO: Council delivering bags to residents

PROBLEM

In recent audits, Bayside Council identified a startling number of recycling bins contaminated with plastic bags, particularly in multi-unit dwellings.

SOLUTION

To combat this, Bayside Council utilised NSW EPA Waste Less, Recycle More funds to provide residents that reside in a multi-unit dwelling with a FREE CANVAS BAG to store, carry and empty their recyclables into the recycling bin without the use of plastic bags.

In late 2017, Bayside Council's Waste & Cleansing Services began distributing canvas bags to residents living in units and apartments as part of an initiative in partnership with NSW EPA to improve recycling and reduce recycling contamination. These bags are designed for the storage of recyclables and to assist in carrying these recyclables to the recycling bins. All bags will be distributed in 2018.

PHOTO: Council canvas bag

8.3 Action 3: A Healthy Region

Link to NSW WARR Strategy: Manage problem wastes better

Aim: To reduce the incidence of problem wastes in kerbside collections

Objectives:

1. To work with government and communities to better manage problem wastes to:
   - Decrease risks to environmental and human health within the waste management system,
   - Improve the quality of materials presented for processing ('clean the stream').

2. To promote responsible citizenship to better manage problem wastes.

Some materials in the waste stream can pose serious risks to the health and wellbeing of people and the environment. Implementing the principles of Ecologically Sustainable Development and practicing good governance are key considerations for councils, requiring environmental, social, civil leadership and economic impacts and opportunities to be factors in decision-making.

Waste management systems have evolved to ensure sanitation goals are achieved and human health is protected. With an increasing focus on the importance of simultaneously recovering resources and reducing reliance on landfills, plus changes to the types of materials modern households are disposing of, there are now a number of 'problem wastes' that present particular risks to the safety of waste operators and the environment.

'Problem wastes' cannot be safely and/or efficiently managed through standard kerbside collections. These include gas bottles, medical waste and needles, electronic waste, tyres, smoke alarms, textiles and household chemicals.

For some materials, schemes involving producers, retailers and consumers can deliver more sustainable outcomes than traditional 'end-of-pipe' waste management approaches.

Accordingly, Council will work with government, SSROC, neighbouring councils and the wider community to better manage problem wastes to decrease risks to environmental and human health within the waste management system, and to improve the quality of recyclable material.

To reduce the incidence of problem wastes in kerbside collections by 2030, our key actions include:

- Using a combination of drop-off centres (refer to Case Study 4 (Council Drop Off Events) and other solutions for managing problem waste materials.
- Supporting Product Stewardship and Extended Producer Responsibility (EPR) schemes.
- Increasing community awareness of correct and safe disposal options. Refer to Case Study 7 on Page 31 (*Medical Sharps Drop Off Services*).
- A-Z guide on Waste App to include options for disposal or recycling of problem wastes. Refer to Case Study 3 (Council's Mobile Waste App).
- Work with external stakeholders to determine and promote drop off locations for materials not collected by Council.
- Investigate options for collection of problem wastes, such as textiles, in multi-unit dwellings.
- Work with government, developers and planners to provide updated waste management requirements for multi-unit dwellings as part of development control plans.

PHOTO: Council supplied sharps container, at a participating pharmacy.

Case Study 7: Medical Sharps Drop Off Services

To enable residents to safely manage their medical sharps, Bayside Council has a free disposal program.

Council encourages pharmacies in the local government area to participate in a program funded by Council and the NSW EPA, whereby residents can bring in their medical sharps to pharmacies to be disposed correctly. Council engages a contractor that collects the sharps regularly and disposes of them in an environmentally friendly and safe manner. In 2016/17, 106 x 55L sharps bins were collected from 10 participating pharmacies. By 2030, Council would like to have the majority of all pharmacies in the local government area participating.

8.4 Action 4: Reducing Illegal Dumping

Link to NSW WARR Strategy: Reducing illegal dumping.

Aim: To reduce the incidence of illegal dumped waste.

Objectives:

1. To work with the community, regional organisations and other stakeholders to:
   - Increase the visual amenity of Bayside.
   - Minimise the potential for human and environmental harm.
   - Promote responsible citizenship to dispose of unwanted items correctly.
   - To provide more data to measure the effectiveness of illegal dumped waste reduction programs.

At home, at work and out and about, each one of us is responsible for avoiding, reducing and managing waste. This focus area is about individual and collective decisions, and roles in putting solutions into practice. Illegal dumping degrades our neighbourhoods, and poses a hazard to public health and the environment. Waste management and enforcement is also a considerable financial burden on Council.

Illegal dumping is a complex social issue, which can be compounded by a lack of infrastructure in some multi-unit developments and commercial areas to correctly store waste and recyclables. There are also challenges in identifying and prosecuting offenders. Illegal dumping incidents in Bayside are typically composed of unwanted household goods left on kerbsides and laneways, or dumping around bins in laneways behind commercial premises. Dumping of building material and soil is also an issue.

To reduce the incidence of illegal dumping and monitor the effectiveness of our programs, our key actions include:

- Obtaining, collecting and utilising data on illegal dumped waste incidents to inform remedial actions.
- Better understanding the causes and the prevention mechanisms of urban illegally dumped waste.
- Developing and implementing appropriate remedial strategies to address illegal dumped waste at hotspots.
- Improving resident utilisation of Council clean up collection services.
- Targeting illegal dumped waste hotspots with surveillance equipment, signage and face-to-face education. Refer to Case Study 8 on Page 32 (*Bayside Council's Clean City Project*).
- Working with regional organisations to target illegal dumped waste activities across borders.
- Providing easy to access information to residents on their scheduled clean up days, including fridge magnets, and resident specific collection calendars via the Waste App and Council's website.

Critically, community members must be engaged in the process, and become active in their roles as responsible citizens. Council has trialled numerous approaches aimed at helping the community understand how to 'do the right thing' in relation to waste management and recovering resources. The lessons learned through successful programs will be adapted when developing new approaches to reduce illegal dumped waste material and littering.

Case Study 8: Bayside Council's Clean City Project

Bayside's Clean City Project used education and innovative infrastructure to reduce illegal dumping in identified dumping 'hotspots' including extensive traffic islands and public place nature strips in Ramsgate and Sans Souci. The worst time periods for dumping in these areas (supported by data), coincided with Council scheduled clean up periods.

The Project included the installation of 8 solar powered surveillance cameras in the target areas and the implementation of a waste education campaign that included mail drops (of letters, waste guides, flyers), face to face communication (door knocking and increased patrols by educators leading into scheduled clean up collections), media releases and community outreach using a solar powered interactive waste education and sustainability trailer (iWest).

The program was launched in March 2017 which resulted in an approximate reduction of 65 tonnes of waste from the previous corresponding period, equating to savings of approximately $20,500 and two days of gained productivity. In June 2017, Council repeated the same program at the next scheduled clean up collection week for this zone which resulted in a further reduction in waste collected, from the corresponding period twelve months prior, by 17 tonnes (equating to savings of $8,000).

The project resulted in a significant reduction in illegal dumped material and an increase in compliant presentation of scheduled clean up material. The increase in reporting of dumpers indicated that the community engagement was successful in developing a sense of ownership and shared responsibility for monitoring waste behaviour. Although intended as a trial, it is expected that the program will continue based on the measurable improvements in community behaviour, improved visual amenity and anticipated future cost savings.

PHOTOS: Council's Clean City Program on community islands, Sans Souci and Ramsgate.

8.5 Action 5: Litter Prevention

Link to NSW WARR Strategy: Reduce litter.

Aim: To reduce the incidence of littering.

Objectives:

1. To work with the community, regional organisations and other stakeholders to:
   - Increase the visual amenity of Bayside.
   - Minimise the potential for human and environmental harm.
   - Promote responsible citizenship to dispose of unwanted items correctly.
   - To provide more data to measure the effectiveness of litter prevention programs.

Whilst out and about, each one of us is responsible for avoiding, reducing and managing waste. This focus area is about individual and collective decisions, and roles in putting solutions into practice.

Littering can impact on human health and the environment by harming wildlife that ingest or become tangled in littered material, leaching of chemicals into the environment, injuring people that come in contact with littered materials including broken glass and syringes, and by impacting on the enjoyment and image of Bayside.

Littering has the potential to damage Bayside's image as a desirable place to live and visit. Bayside beaches and parks are used by a large number of residents and visitors (including interstate and international visitors). This high visibility increases the need to keep these areas clean, safe and free of litter.

To reduce the incidence of littering and monitor the effectiveness of our programs, our key actions include:

- Obtaining, collecting and utilising data on littering incidents to inform remedial actions.
- Better understanding the causes and prevention mechanisms of litter.
- Developing and implementing appropriate remedial strategies to address littering at hotspots.
- Improving resident utilisation of Council litter bin infrastructure with signage and education.
- Providing innovative beach litter bin infrastructure and collection services to reduce the incidence of beach littering.
- Investigating (including potential funding) innovative and integrated projects potentially utilising smart litter bin technology, solar powered cameras and lighting systems, and Wi-Fi infrastructure.
- Partnering with other sections of Council to provide more comprehensive litter programs.
- Continuing our engagement of proactive community groups in litter reduction events such as Clean Up Australia Day. Refer to Case Study 9 on Page 35 (*Clean Up Australia Day*).
- Initiating new projects to encourage and incentivise residents to keep their streets clean (for example, clean street challenges).
- Providing garbage and recycling bin infrastructure at Council events.

Case Study 9: Clean Up Australia Day

Clean Up Australia activities 2-4 March 2018 were a major success, with many volunteers identifying and cleaning 13 parks, 10 schools, 4 beach areas, 2 rivers/creeks and 2 roadways within the Bayside area.

Council coordinated with site managers to provide assistance as required, including provisions of additional bags, litter picking tools, gloves, educational information, and waste collection and disposal. Council utilised their solar powered education trailer that is equipped with a BBQ to provide a sausage sizzle to thank volunteers for their great effort. Water and fruit, sourced from local retailers, was also provided to volunteers throughout the day.

Council collected over 2,400 kg of litter presented by Clean Up Australia volunteers on the Sunday alone, which is a fantastic contribution to keeping Bayside clean and litter free.

Clean Up Australia Day was a fantastic opportunity for Council to engage with pro-active community members and the goodwill that was generated through all involved will have positive benefits beyond the actual litter collected on the day.

PHOTOS: Clean up Australia Day event

9 Strategy Implementation

9.1 Strategy Responsibilities

General Manager / Director
The Executive Committee evaluates the provisions of the Strategy and make decisions to ensure the effective provision of the Strategy are in accordance with the enabling legislation and Council's values and policies.

Manager Waste and Cleansing Services
The Manager Waste and Cleansing Services' four major functions are to plan, organise, lead and control in accordance with the enabling legislation and Council's values and policies, as well as arrange appropriate resourcing, within budgetary constraints, for the effective implementation of this Strategy.

Coordinator Waste Avoidance and Resource Recovery
The Coordinator Waste Avoidance and Resource Recovery interprets the legislation and Council policies and coordinates the implementation of this Strategy and associated Action Plan in accordance with the enabling legislation and Council values and policies.

Coordinator Operations Waste and Cleansing Services
Ensure the effective implementation of the procedures in accordance with the enabling legislation and Council values and policies that deal with issues arising from the day to day operational provision of the services in relation to the Strategy.

10 Document Control

10.1 Monitoring, Evaluation and Review

The success of this Strategy will be measured by the achievements and targets, in line with the WARR Action Plan covering each Action area. Progress will be reported to the Council and the community via Council's Community Strategic Plan (Delivery and Operational Plans). A revised Action Plan is submitted to the Manager on an annual basis.

This Strategy will be reviewed as required to respond to changes in regional, NSW or Federal strategies and in responses to significant changes affecting waste management, waste avoidance and resource recovery.

10.2 Version History

Version	Release Date	Author	Reason for Change
1.0	June 2018	Manager Waste & Cleansing Services	New Strategy