

SSROC

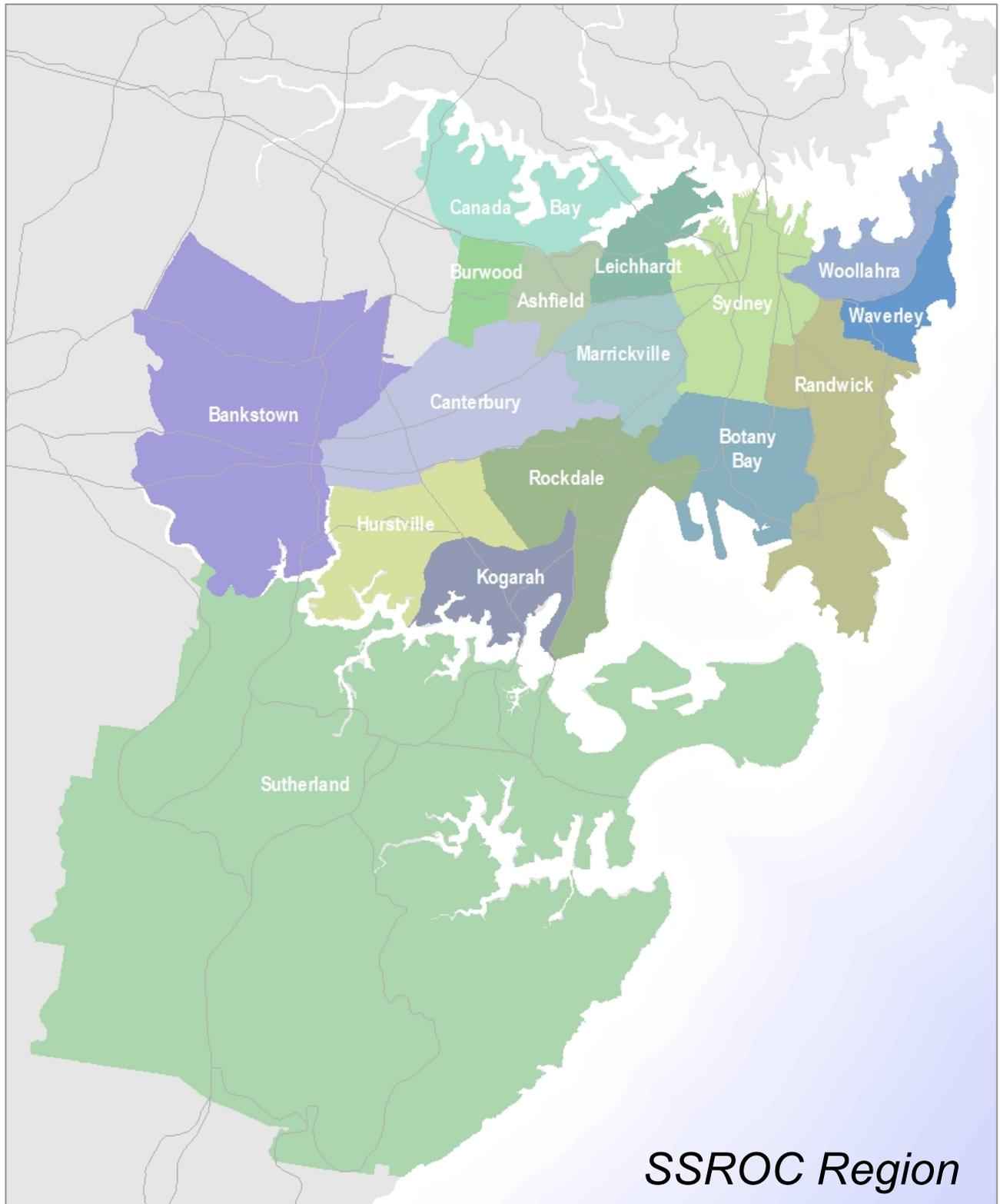
SOUTHERN SYDNEY REGIONAL  
ORGANISATION OF COUNCILS



2014 - 2021

# Regional Waste Avoidance & Resource Recovery Strategy





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# OUR VISION

SSROC Councils manage waste for the highest level of environmental and social benefit through cost effective resource recovery, by:

- ✓ Reducing the environmental impact of waste
- ✓ Using resources more efficiently.

Over 1.6 million people live, work and spend their leisure time in our region. We enjoy and value all the things that southern Sydney has to offer, from the busy shopping streets to the beautiful and peaceful parks and reserves, and all the services and infrastructure that make our lives easier.

Some of those services are almost invisible: every week our rubbish is taken and disposed of, helping to make our environment a healthy place. This essential service is delivered throughout our community in all weathers, without interruption, and with very little recognition. But our population is growing, and 1.6 million people generate a lot of rubbish.

Funding from the NSW Environment Protection Authority has given Councils the opportunity to investigate and improve how they manage waste. This document sets out our guiding principles, and our vision for the future. We will outline our plan to reduce waste, to increase recycling, and to tackle problem waste, illegal dumping and littering. Therefore I commend this strategy to you, which we will be working to deliver over the coming years.

*30 June 2014*



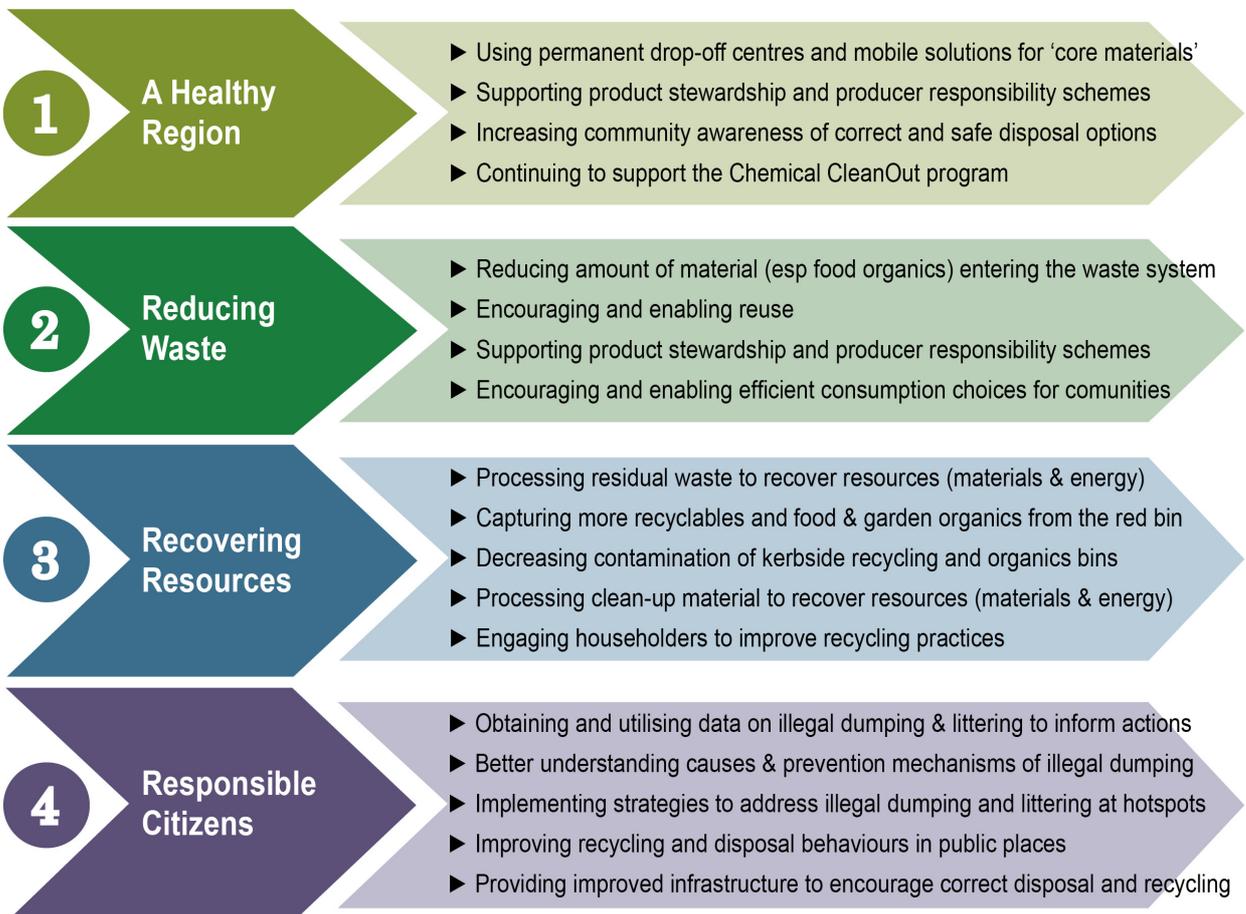
CR JOHN FAKER  
MAYOR OF BURWOOD  
SSROC PRESIDENT

# SUMMARY

It is vital for each of the 16 members of the Southern Sydney Regional Organisation of Councils (SSROC) to find cost-effective, sustainable solutions to reduce and manage the 655,000 tonnes of household waste collected from our\* region's 1.6 million residents annually. Processing and disposing of this waste currently costs over \$100 million a year. These costs are rising and, coupled with impending landfill closures within the next decade, mean that our current waste management behaviours need to be reviewed.

Our focus needs to be more towards reducing the volume of waste materials produced, strengthening our recovery systems, and to looking for innovative ways to manage our waste.

This Waste Avoidance and Resource Recovery Strategy outlines a range of actions that we plan to implement, following a robust assessment of available options. It outlines actions to deliver with the community and with businesses, which are discussed in the context of four key themes. Detailed Action Plans drive these objectives, and will be continually reviewed and updated over the life of this Strategy. The NSW Government is focusing on waste management and resource recovery for the next three years through its flagship 'Waste Less Recycle More' funding package, therefore this is a great opportunity to improve the way we manage waste and resource recovery together.



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**Residents in our region  
produce approximately  
655,000 tonnes of  
household waste a year.**

**That's 19% of all  
NSW household waste.**

**We need to reduce this,  
and manage it better.  
Together.**

# INTRODUCTION

The councils of southern Sydney have a history of working together for their region, forming the Southern Sydney Regional Organisation of Councils (SSROC) in 1986 to support their collaboration. Today there are sixteen member councils covering an area of almost 700 km<sup>2</sup> and a population in excess of 1.6 million (see table below). More than a third (39%) of all people in the Sydney Metropolitan Area, and almost a quarter (22%) of the entire State, live in the region.

SSROC supports its members in delivering projects that cross council boundaries, achieving results that contribute to the sustainability of member council services and programs on behalf of their communities. We do this by facilitating regional collaboration and cooperation. This arrangement provides a forum for the exchange of ideas between member councils, and an interface between governments, other councils and key bodies on issues of common interest.

SSROC Member Council	Estimated Resident Population (2012) <sup>1</sup>	Area (Km <sup>2</sup> )
Ashfield Council	43,661	8.3
Bankstown City	193,398	76.8
City of Botany Bay	42,317	21.7
Burwood Council	34,668	7.0
City of Canada Bay	82,201	33.6
City of Canterbury	146,729	19.9
Hurstville City	83,671	22.8
Kogarah City	59,782	15.5
Leichhardt Council	56,307	10.6
Marrickville Council	81,689	16.6
Randwick City	139,365	36.3
Rockdale City	105,227	28.2
Sutherland Shire	221,147	368.7
City of Sydney	187,561	26.7
Waverley Council	69,431	9.2
Woollahra Council	56,986	12.3
<b>TOTAL</b>	<b>1,604,140</b>	<b>714</b>

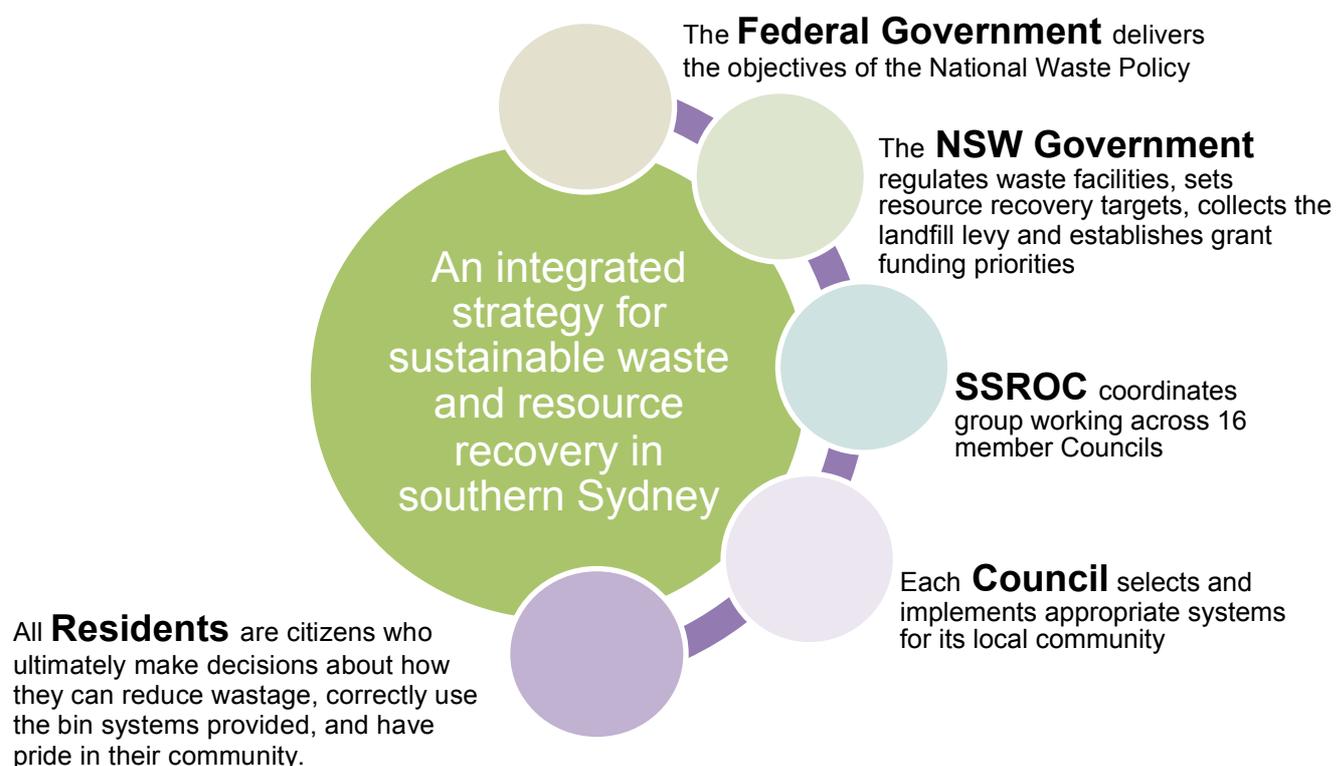
***We respond to the priorities identified and agreed by the councils, to improve the environmental social, and economic status of the southern Sydney region.***

<sup>1</sup> Australian Bureau of Statistics, Population Estimates by Local Government Area [ASGS 2012]

Resource recovery and waste management are key areas for collaboration across the region, with all member councils facing similar challenges in terms of providing sustainable, practical and cost effective solutions for their communities. This Waste Avoidance and Resource Recovery Strategy, developed through extensive consultation with the councils, outlines key focus areas and actions that can lead to more sustainable outcomes for the southern Sydney region. To do this, Councils collaborate on projects that can achieve economies of scale, reduce costs and lead to better performance outcomes.

## Stakeholder Responsibility

Implementing the strategy successfully will require input and cooperation from key stakeholder groups. Industry also plays a critical role in delivery of essential services, and we will actively seek opportunities for collaboration and leadership with the private sector. The diagram below shows key responsibilities for five stakeholder groups.



## Opportunities and Costs

This Strategy has been developed to engender and enable regional collaboration in the context of the NSW Government's Waste Less, Recycle More (WLRM) funding program (2013-17) and the draft NSW Waste Avoidance and Resource Recovery (WARR) Strategy 2013–21.

The draft NSW WARR Strategy, which was released in October 2013, sets out various quantitative targets, including a statewide requirement to divert 70% of household waste away from landfill by 2021–22. This is a slight increase on the previous target of 66% diversion by 2014–15.

The NSW Government uses a number of methods to encourage stakeholders to achieve the nominated waste diversion targets, with the key tool being a levy that is applied to all waste disposed in a regulated landfill.

The 16 councils all provide kerbside recycling services, and 15 councils provide kerbside garden organics collection services, achieving an average diversion rate of 43% in 2011–12 across the region. So there are opportunities to make a significant contribution to the statewide waste diversion challenge.

SSROC Councils currently pay the NSW Government a levy of \$107 on every tonne of waste disposed to landfill, and this will rise to at least \$155 by 2021–22.

**The 16 councils paid a collective \$30.7 million in State Levies for the waste disposed to landfill in 2011-12, so there is also a strong financial incentive to develop cost effective resource recovery systems.**

The NSW Government's WLRM initiative is a \$465.7 million funding program over four years, which is designed to provide financial assistance to improve resource recovery systems. This Strategy, developed with grant funding under the initiative, will also assist councils to identify potential areas to seek grant-funding support.

# CURRENT SITUATION

Our region contains important environmental features including Sydney Harbour foreshore areas, the coastline from South Head and Bondi Beach to the Royal National Park, and the Cooks, Georges, Hacking and Woronora Rivers. It also contains some of Sydney's most significant economic and industrial areas, including the central business district, Sydney Port, and the domestic and international airport terminals.

The region is home to one of the most densely urbanised and ethnically diverse populations of the State, which presents a need for tailored approaches to waste management. For example, there are some illegal dumping and recycling issues that are unique to multi-unit developments (MUDs), and more than 45% of people (up to 75% in smaller council areas) in the region live within MUDs.

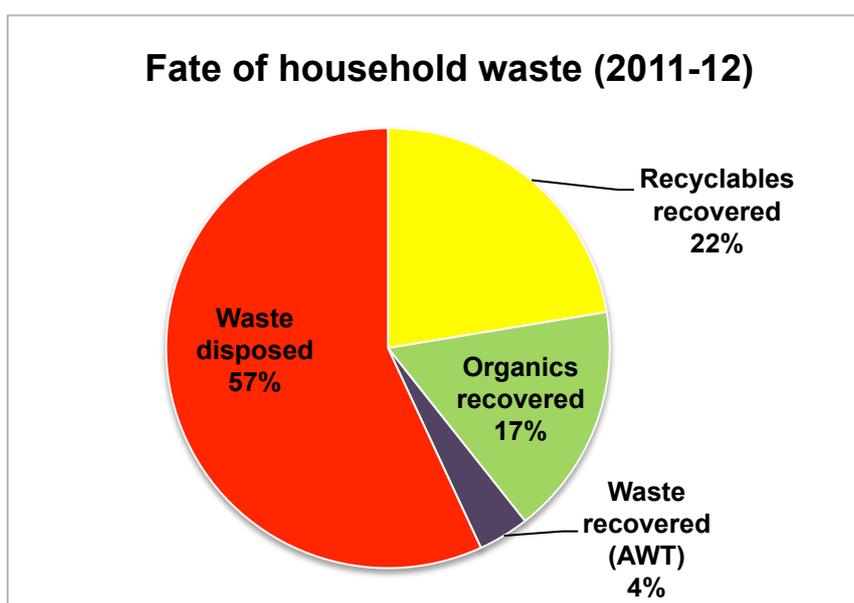
Rising housing density, increasing land values, heightened community expectations, and a lack of integrated planning at a state level, have contributed to the ongoing difficulties in securing local waste management infrastructure. As a result, the Councils increasingly rely on facilities outside the region for processing and disposal of their waste materials.

**Each council is responsible for selecting the most appropriate waste management system for its own community.** This includes configuration and size of the bins and how often they are collected. All councils currently collect residual waste (red bin) at least once per week, and encourage resource recovery through systems including kerbside recycling. Collection systems and frequencies for recyclable materials (such as paper, glass and containers, as well as organic materials) differ across the region.

This Strategy uses 2011-12 as the 'baseline' year against which it measures the effectiveness of its activities.

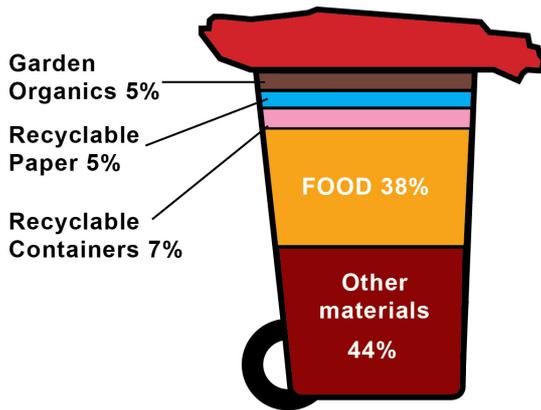
That year, approximately 43% of all household waste – some 282,400 tonnes of material – was recovered and diverted from landfill. This figure has remained relatively constant over the five years between 2007-08 and 2011-12.

The main contributor to the recovery rate in 2011-12 was the kerbside recycling service, with organics collections also playing a



major role.

In the baseline year, the processing of residual (red bin) waste through advanced waste technologies (AWT) was responsible for 4% of total resource recovery, although City of Sydney and Rockdale City were the only councils directing a portion of their red bin waste to AWT facilities that year. Since then, Randwick City and the City of Canada Bay have also started sending a portion of their residuals to AWT as well, and eight other councils have entered a contract that will result in a new AWT facility being constructed by 2016 to process their residual waste.

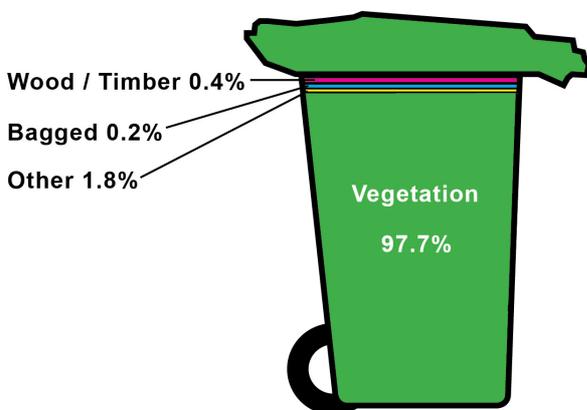
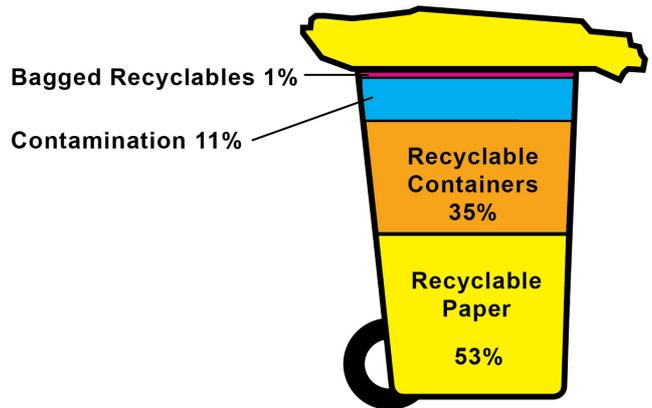


### What's in the red bin?

The typical red bin within the region contains 38% food organics, with recyclable paper, containers and garden organics comprising a further 18% of the residual waste stream. **We'll be working with residents to improve recovery from the red bin.**

### What's in the recycling?

The typical yellow bin within the region contains 53% paper and 35% recyclable containers. However, there is also about 11% contamination. **We'll be working with residents to reduce contamination in the yellow bin.**



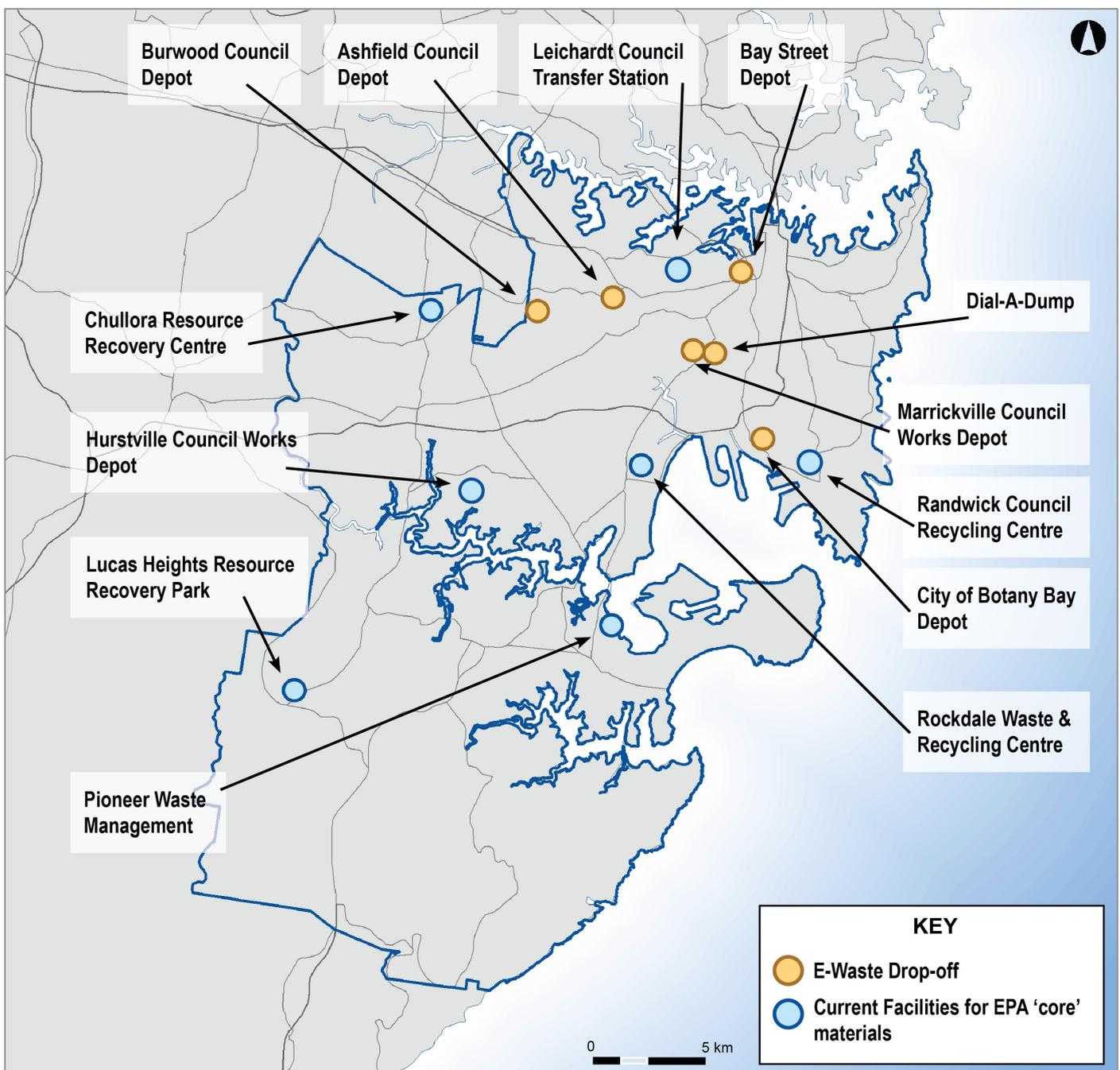
### What's in the green bin?

Analysis of the composition of a typical garden organics bin within the region shows an average contamination rate of approximately 2%, with almost 98% of the contents being vegetation appropriate for composting.

#### What is contamination?

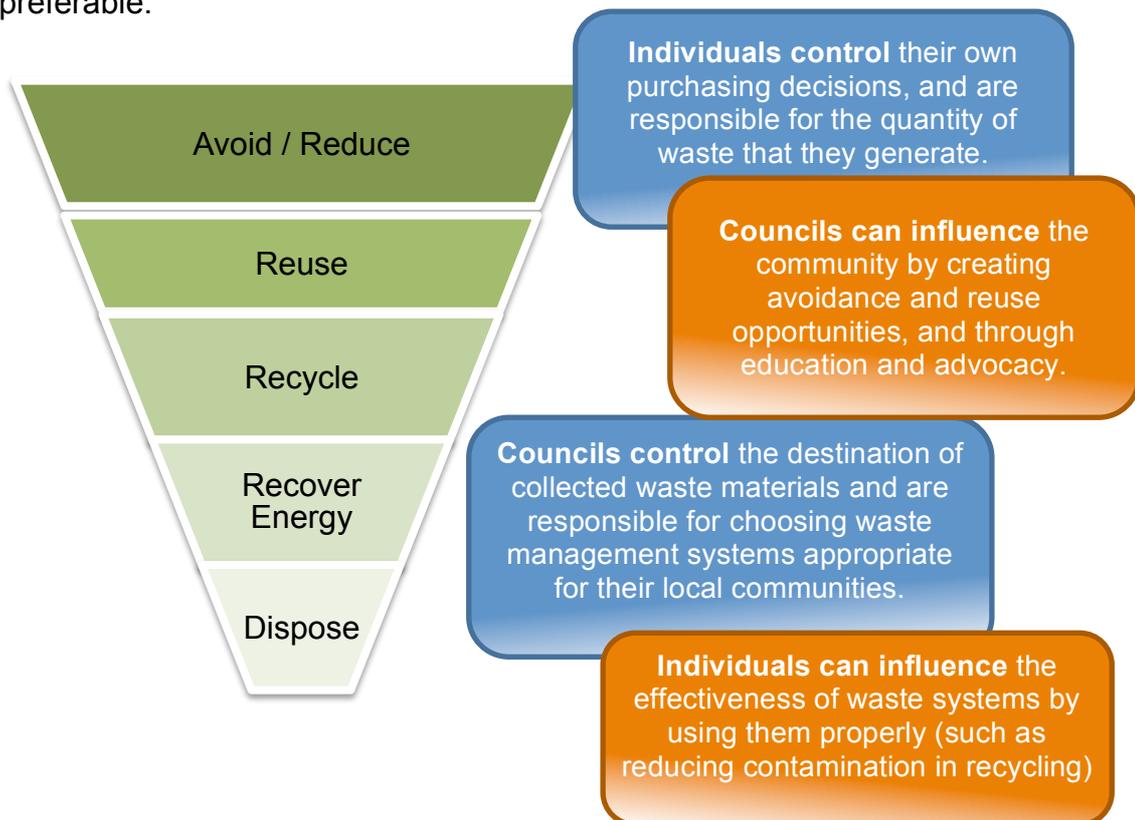
Materials that have the potential for recovering, but cannot easily be recycled or recovered because of their composition (e.g. food in containers).

# Networks of local recovery, disposal, and drop-off centres manage this waste.



# GUIDING PRINCIPLES

This Strategy supports Councils' delivery of their Community Strategic Plans and the principles of Ecologically Sustainable Development. 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 the most preferable option, and disposal the least preferable.



While waste avoidance is most preferable, it is also one of the most difficult areas for councils to control. **Significant improvements at the 'top' of the waste hierarchy require individuals and families to take action at a household-level.** These actions can be supported by councils providing avoidance and reuse opportunities, effective community education, and by advocating to other levels of government to introduce broad scale initiatives.

Councils typically have more control over the lower portion of the hierarchy, through the choice of systems used to process materials. However, individuals have a large influence on how effective those systems are. For example, councils can provide a kerbside recycling service, but this will not be effective if householders place the wrong materials into the recycling bins.

These differing levels of control and mechanisms for change are an important consideration in the development of actions within this Strategy: they inform what councils can do regionally to support responsible citizenship and to manage materials in the waste stream.

We diverted 43% of household waste materials from landfill in 2011-12, and have identified a range of new actions to contribute to the NSW 70% recovery goal

## **A HEALTHY REGION**

Councils have traditionally managed waste in order to protect the health of local communities and the environment

## **REDUCING WASTE**

For a range of environmental, economic and social reasons, it is preferential to avoid waste, rather than to focus on 'end of pipe' options

## **RECOVERING RESOURCES**

Councils must choose which systems will provide the community with the most cost effective and sustainable outcomes

## **RESPONSIBLE CITIZENS**

Councils will play a crucial role in helping achieve the region's vision, but the local community must also be proactive

Actions outlined in this Strategy will achieve the vision of managing waste for the highest level of environmental and social benefit, through cost effective resource recovery.

## THEME 1

# A HEALTHY REGION

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 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.

Accordingly, we will:

***Work with government and communities to better manage problem wastes in order to decrease risks to environmental and human health within the waste management system, and to improve the quality of recyclable material.***

**Problem Wastes** cannot be safely managed through standard kerbside collections. These include: gas bottles, medical waste and needles, electronic-waste, tyres 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.

In order to reduce the incidence of problem wastes in kerbside collections by 2021-22, our key actions include:

- Using a combination of permanent drop-off centres and mobile solutions for managing problem waste materials
- Supporting Product Stewardship and Extended Producer Responsibility schemes
- Increasing community awareness of correct and safe disposal options
- Continuing to support the Chemical CleanOut program.

## THEME 2

# REDUCING WASTE

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 waste collection and management systems, and increases costs to councils and the community.

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 problem by a wide range of stakeholders. We will investigate opportunities to reduce the weight and makeup of waste produced per capita across the region.

In accordance with the waste hierarchy, we are committed to continuing efforts to reduce per capita waste generation as a key priority in order to reduce the financial, environmental and social impacts of waste in the region.

We plan to:

***Encourage more productive and efficient use of resources, in order to decrease the quantity of material entering the waste management system.***

Reducing waste is a key priority for all levels of government. Australia's *National Waste Report* (2010) highlighted some 44 million tonnes of waste was generated across Australia during 2006-07, with this volume **projected to increase** to between 60 million and 80 million tonnes by 2021-22.

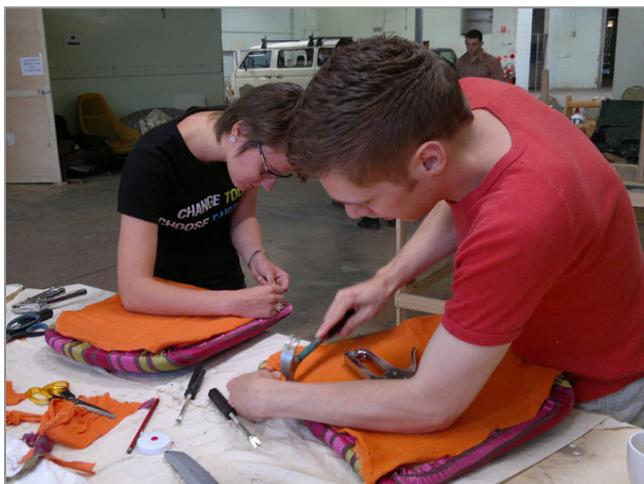


Photo courtesy: The Bower

In the region in 2011-12, the average weight of household's waste was 408kg per person, down from 2007-08 figures of 422kg per person. It is thought this result signals a trend towards lighter-weight packaging by industry, and the economic impacts of the Global Financial Crisis. Analysis of the region's household bins (see page 9) shows that 38% of the contents is food. The NSW Government 'Love Food Hate Waste' study found the average NSW household throws out approximately \$1,036 worth of food every year.

To reduce waste across the region we will focus on:

- Reducing the amount of material (especially food organics) entering the waste system
- Encouraging and enabling reuse
- Encouraging and enabling efficient consumption choices.

Councils are best placed to contribute to waste avoidance and reduction by providing behavioural change programs supporting re-use ventures, helping residents to understand and use alternatives to disposal, and encouraging Product Stewardship and Extended Producer Responsibility schemes.



*What we choose to buy, and reducing food waste makes a difference.*

## CASE STUDY: REDUCING WASTE

With funding from the NSW Environmental Trust, the Compost Revolution ([compostrevolution.com.au](http://compostrevolution.com.au)) began in 2009 as a year-long community research project with 580 households. Three SSROC member councils – Waverley, Randwick and Woollahra engaged participants to attend interactive workshops, and pick up a free compost bin or wormfarm.

Over the first year of the trial, participants kept tallies of the food waste they were diverting. Participants received monthly e-mail reminders with hints and tips and support, as well as invitations to compost parties and events to celebrate and bring everyone together.

This trial became a platform for significant financial, environmental and social benefits for both householders and councils. In 2012–13:

- Over 4000 people completed the on-line tutorial
- 2,400 households received a free compost bin or wormfarm
- 240 people attended face to face workshops
- 25 community groups, businesses, schools and public place recycling hubs composted 258 tonnes of food
- 90% of houses receiving compost bins and wormfarms in previous years continued to use them
- 1,120 tonnes of food waste was diverted from landfill.

Beginning in 2014, thirteen member councils plan to roll out the Compost Revolution with funding from NSW EPA Waste Less Recycle More. Participating councils will offer a range of resources to their community, such as:

- Free or discounted compost bins or wormfarms, or prizes for residents who complete online tutorials or workshops
- Communal compost bins in some public parks and community gardens
- Assistance for apartment blocks to home compost
- Education and assistance for schools
- Community programs that offer training and support
- Workshops on themes such as organic gardening and cooking to avoid food waste
- Events to celebrate community action, network and socialise.



## THEME 3

# RECOVERING RESOURCES

Diverting waste from landfill and recovering useful resources (materials and energy) is a critical and necessary outcome of this Strategy. The draft NSW WARR Strategy encourages diversion through two targets – to increase the recycling rate of household material to 70%, and increase the overall waste diverted from landfill to 75% across the household and commercial waste streams.

With an average recovery rate of 43% in 2011–12, there is considerable potential for us to make a significant contribution to the statewide target of 70%.

However compliance with the 70% target in itself is not the main driver for improving diversion performance. Resource recovery brings benefits including:

- ✓ Reducing landfill levy liabilities, which are steadily increasing and are now at a level which means landfill disposal is no longer the cheapest option
- ✓ 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.

Given the critical importance of recovering resources from the waste stream, we plan to:

***Increase the capture and use of valuable resources from the waste stream and promote responsible citizenship to increase resource recovery.***

We will do this by:

- Processing residual waste to recover resources (both materials and energy)
- Capturing more recyclables, food organics and garden organics from the residual waste stream
- Decreasing contamination of kerbside recycling and organics bins
- Processing clean-up material to recover resources (both materials and energy)
- Engaging householders to improve recycling practices.

## Separation & Processing

The two primary methods for collecting and recycling organic materials from the residual waste stream are:

1. **Source separation** through a separate food organics collection or combined food and garden organics collection
2. **Mixed waste processing** through an advanced waste technology facility.

**Food organics** are the largest single component of the average red bin (38%) in the region, and make up 20% of the total household waste stream.

Clearly, any strategy to achieve the 70% diversion target will need to include a strong focus on the diversion of food organics.

Source separation can provide a higher quality compost product, and it is generally cheaper to process source-separated organics than mixed waste. However, disadvantages can include relatively low participation rates in separating food scraps, as well as a need for additional bin storage space and extra collection rounds required. Mixed waste processing can achieve a higher overall diversion rate, as there is no need to rely on participation and behaviour of residents, but usually results in lower-quality organic products.

Several potential strategies exist to achieve increases in diversion and resource recovery. They include a range of source-separation options as well as mixed waste processing. Specific approaches will be determined by each individual council, based on which systems best suit their local geography and community.

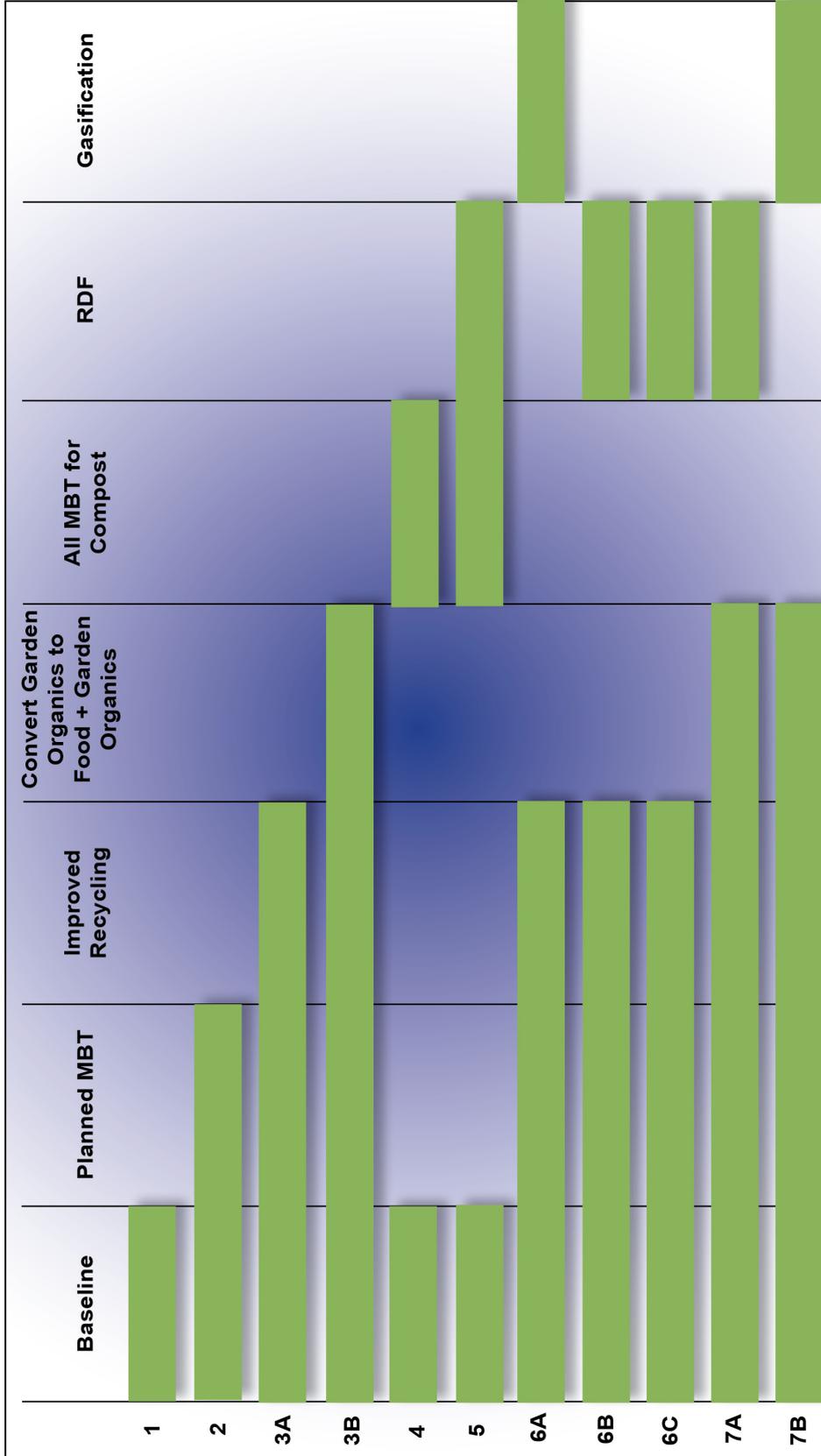
While current diversion of materials is mostly confined to the recyclables and garden organics streams, some SSROC member councils are already recovering a small amount of food organics by either working with residents to separate waste at home, or through processing residual waste in a type of advanced waste treatment facility known as Mechanical Biological Treatment (MBT).

Eight member councils have signed an agreement with Veolia for processing their residual waste through a new MBT facility that will be constructed at Woodlawn [see Case Study page 20]. Several other councils are considering different options for recovery of resources from their residual waste streams [see City of Sydney Case Study on page 21].

Additional processing capacity (infrastructure) will be required to enable the councils to achieve higher resource recovery rates. During the development of this strategy, an analysis of different scenarios identified feasible options for councils to improve recovery rates, and to assess the associated relative cost impacts. There are a variety of technologies that could be used to increase recovery rates across the SSROC region above 2011-12 levels, and not all of those examined appeared capable of achieving 70% diversion. The range of different systems that were examined is explained on the next page.

Various pathways to recover additional resources were considered across the SSROC region, with total system costs over a 10 year modelling period. The cost of alternative scenarios range from 8% below to 3% above 'business as usual' cost

# Scenarios Modeling for Processing Household Waste in the Region



- 1) Baseline 2011-12
- 2) Current & planned Mechanical Biological Treatment contracts: 3 of 16 councils who currently contract processing varying percentages of material through MBT continue their arrangements. Eight of 16 councils jointly contract for 100% MBT (in progress - new contract expected by 2016). Remainder residuals to landfill.
- 3A) Current & planned MBT contracts plus improved recycling: 50% diversion of cleanup waste via Dirty MRF and 10% increase in capture of dry recyclables for all councils by 2021-22. Residual same as Scenario 2.
- 3B) Three current MBT contracts plus improved recycling and capture of food and garden organics: As per 3A, plus the 8 Councils that are not in the new MBT contract convert their current green bin collections to food and organics (FOGO). Residual waste same as Scenario 2.
- 4) All residual waste to MBT compost only: As per 3A with all 16 councils sending residual waste to MBT configured to produce compost only.
- 5) All residual waste to MBT configured for both compost and RDF: As per Scenario 4, with the MBT configured to produce both compost and RDF in accordance with NSW Government Energy from Waste Policy.
- 6A) Current & Planned MBT contracts plus improved recycling (3A) plus gasification for other councils: Current MBT contracts as per 3A with MBT for 8 Councils producing compost only, plus remaining 8 Councils processing residual waste to capture energy through gasification process.
- 6B) Current & Planned MBT contracts plus improved recycling (3A) plus RDF (Option 1) for other 8 Councils: Current MBT contracts as per 3A with MBT for 8 Councils producing compost. Remaining 8 Councils send residual waste to a Dirty MRF to recover some recyclables and produce RDF. Option 1 refers to input material (40%) able to be processed at the MRF under the NSW Energy From Waste policy.
- 6C) Current & Planned MBT contracts plus improved recycling (3A) plus RDF (Option 2) for other 8 Councils: As per 6B, with 70% rather than 40% input material to be processed at the Dirty MRF to make RDF.
- 7A) Current & Planned MBT contracts plus improved recycling (3A) plus FOGO and RDF for other 8 Councils: 8 contracted Councils send residual waste to MBT producing compost, the other 8 Councils implement FOGO collections and send residual material to Dirty MRF to produce RDF (70% processed).
- 7B) Current & Planned MBT contracts plus improved recycling (3A) plus FOGO and gasification for the other 8 Councils: As per 7A, with remaining 8 Councils sending residual material direct to gasification for energy recover rather than a Dirty MRF.

## CASE STUDY: RECOVERING RESOURCES

### Mechanical Biological Treatment (MBT)

In 2013 eight of the SSROC member Councils entered into an agreement with Veolia Environmental Services that will see the majority of the councils' residual (red-bin) waste processed through a Mechanical Biological Treatment (MBT) facility rather than going to landfill. This new advanced waste treatment facility will be constructed at Veolia's Woodlawn Eco-Precinct and should commence operations in 2016.



*Photo courtesy: Veolia Environmental Services (Australia) Pty Ltd.*

This initiative is expected to take the average diversion rate for the whole region up from 43% to 56% by 2016 with the eight contracted Councils expecting a landfill diversion rate of 67% by 2016.

The Woodlawn MBT will be located approximately 250km south of Sydney, near Goulburn. It will process all residual waste materials, firstly recovering recyclable materials (such as metals and plastic containers). The main output will be a low-grade compost product, which will mainly be used to rehabilitate areas of the Woodlawn site that were degraded by historical mining practices.

SSROC Councils in the Woodlawn MBT contract are:

Ashfield	Leichhardt
City of Botany Bay	Rockdale City
Burwood	Waverley
Kogarah City	Woollahra

Veolia plans to develop the Banksmeadow Transfer Terminal to efficiently transport the councils' waste materials to the Woodlawn MBT for processing. Banksmeadow Transfer Terminal will be capable of handling up to 500,000 tonnes of waste material per annum, with up to 400,000 tonnes of putrescible waste being loaded into containers and transported via rail to the Woodlawn Eco-Precinct. The remainder - up to 100,000 tonnes of inert materials, will be directed to recycling facilities such as the proposed Camellia Recycling Centre.

# CASE STUDY: RECOVERING RESOURCES

## Energy from Waste (EfW)

In 2008 the City of Sydney (CoS) launched *Sustainable Sydney 2030*, a wide-ranging vision statement that committed Sydney to becoming a green, global and connected city. The CoS Interim Waste Strategy (2011) highlights the key role that responsible management of waste materials will play in achieving this vision, and in mid-2014 CoS released its *Advanced Waste Treatment Masterplan*. This document provides further detail around plans for new technology to recover energy resources from waste, which the SSROC Energy From Waste Group are also considering.

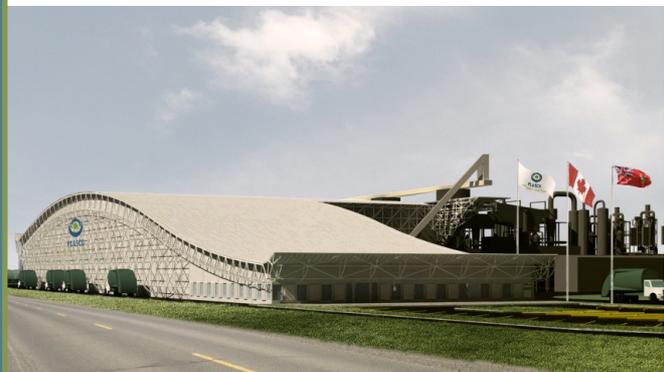
The Master Plan examines a range of technologies that are in use elsewhere in order to recover resources from the residual (red bin) waste stream, and finds the best solution for CoS is to use a high-temperature gasifier to convert solid waste into a gas. Together with recycling, gasification of non-recyclable waste can avoid up to 95% of the City's waste going to landfill, and the gas can be upgraded for injection into the existing gas grid to fuel local energy generation or transport networks.

Gasification, or thermal conversion technology, uses heat in a low-oxygen environment to convert solid waste into a gas. This gas can be used to generate electricity, converted into a range of renewable fuels, or rendered to a product similar to natural gas. Gas generated from CoS household waste will have a two-thirds renewable energy content.

Technologies that recover energy resources from waste are well established overseas, especially in Europe, but are not yet commonly used in Australia. However, in 2014 the NSW Government released a policy statement that will encourage the recovery of the embodied energy from waste while offsetting the use of non-renewable energy sources and avoiding methane emissions from landfill. The NSW Energy from Waste Policy is designed to ensure this energy recovery:

- Has minimal risk of harm to human health and the environment
- Will not undermine higher order waste management options, such as avoidance, reuse or recycling.

Any facility will need to comply with the EPA's strict guidelines in order to gain development approval.



The City of Sydney's Advanced Waste Treatment Masterplan features case studies on a number of existing and proposed international gasification facilities, which are designed to recover energy resources from residual waste materials.

Images show (from top to bottom of the page):

- Chiba gasification, Japan
- Mutsu gasification, Japan
- Plasco plasma gasification, Canada

## THEME 4

# RESPONSIBLE CITIZENS

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 and littering degrade our neighbourhoods, and pose a hazard to public health and the environment. They also cause a considerable financial burden on local governments.

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, and the challenges in identifying and prosecuting offenders. Illegal dumping incidents in southern Sydney are typically composed of unwanted household goods left on kerbsides and laneways, or dumping around bins in laneways behind commercial premises.

To address this, we plan to:

***Work with key stakeholders to reduce illegal dumping and littering in order to increase the visual amenity of neighbourhoods, to minimise the potential for human and environmental harm, and to promote responsible citizenship.***

This aim will be achieved by:

- Obtaining, collecting and using data on illegal dumping and littering incidents to inform remedial actions
- Better understanding the causes and prevention mechanisms of urban illegal dumping
- Developing and implementing appropriate remedial strategies to address illegal dumping and littering at hotspots
- Providing improved litter infrastructure to encourage correct disposal and recycling
- Improving disposal and recycling behaviours in public spaces

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

## CASE STUDY: RESPONSIBLE CITIZENS

Responding to lingering contamination rates in the recycling bins after 20 years of kerbside recycling collections, Bankstown City Council initiated a program to test the effectiveness of its waste management services and programs.

The 'Recycle Right' Contamination Reduction Strategy, which commenced in 2010, involved community consultation about effective designs, images and messages for community members.

'Recycle Right' has been very successful. Contamination rates have fallen from 40% to 18% across 'contamination hotspots' in the trial, and finally to 6% by the end of the extended contamination engagement activities. Importantly, 'Recycle Right' has demonstrated that members of the community can play a massive role in supporting councils to provide cost effective resource recovery systems, as long as councils provide clear information on how to use the available systems.

Consultation with the community highlighted the importance of effective feedback, which has shaped the way in which Bankstown Council interacts with the community.

Based on the results achieved and the comprehensive research and evaluation process that was put in place, 'Recycle Right' has been recognised with a range of awards including the 2011 LGSA Excellence in the Environment Awards (Community Education & Improvement); the 2012 Communications Australia Awards (Best Community Engagement); and 2011 Keep Australia Beautiful Sustainable Cities Award (Environmental Education).



# MAKING IT HAPPEN

Key action areas required to achieve the vision outlined in this Strategy are summarised in the table below. This summary document is supported by a series of detailed Action Plans, found on the following pages, which will be submitted to NSW Environment Protection Agency. The Action Plan outlines prioritised and detailed steps for achieving the key actions and the overall objectives of this Strategy.

<b>Theme 1 A Healthy Region</b>	<b>Theme 2 Reducing Waste</b>	<b>Theme 3 Recovering Resources</b>	<b>Theme 4 Responsible Citizens</b>
<p>Using a combination of permanent drop-off centres and mobile solutions for managing problem waste materials</p>	<p>Reducing the amount of material (especially food organics) entering the waste system</p>	<p>Processing residual waste to recover resources (both materials and energy)</p>	<p>Obtaining, collecting and utilising data on illegal dumping incidents to inform remedial actions</p>
<p>Supporting Product Stewardship and Extended Producer Responsibility Schemes</p>	<p>Encouraging and enabling reuse</p>	<p>Capturing more recyclables and organics from the residual waste stream</p>	<p>Better understanding the causes and prevention mechanisms of urban illegal dumping.</p>
<p>Increasing community awareness of correct and safe disposal options</p>	<p>Supporting Product Stewardship and Extended Producer Responsibility schemes</p>	<p>Decreasing contamination of recycling and organics bins</p>	<p>Developing and implementing appropriate remedial strategies to address illegal dumping and littering at hotspots</p>
<p>Continuing to support the Chemical CleanOut program</p>	<p>Encouraging and enabling efficient consumption choices</p>	<p>Processing clean-up material to recover resources</p> <p>Engaging householders to improve recycling practices</p>	<p>Improving disposal and recycling behavior in public spaces</p>

Progress reporting is an important tool through which the councils will share information with each other about monitoring and evaluation, communicate waste management and resource recovery achievements with key stakeholders and build on lessons learnt across the region.

A brief report relating to project WLRM funding must be submitted to the NSW EPA by 31 May each year. Following this, a progress report on implementation and a revised action plan must be submitted no later than 30 June annually. The progress reports will provide a level of analysis and interpretation in order to judge the degree of success of the actions and their contribution towards meeting the objectives of this Strategy.

A major review of this Strategy is planned for 2017. In the interim, updates may also be required in response to matters such as changes to government policy and regulatory frameworks, significant changes in the projected quantity and composition of waste in the region, and changes to member councils.





<p><b>Regional Theme</b></p> <p><b>Reducing Waste</b></p>	<p><b>Aim for 2021-22: That per capita waste generation is reduced</b></p> <p><b>Objective:</b> To encourage more productive and efficient use of resources in order to decrease the quantity of material entering the waste management system</p> <p><b>Key Strategic Actions</b></p> <ul style="list-style-type: none"> <li>• Reducing the amount of material (especially food organics) entering the waste system</li> <li>• Encouraging and enabling reuse</li> <li>• Supporting product stewardship and Extended Producer Responsibility schemes</li> <li>• Encouraging and enabling efficient consumption choices</li> </ul> <p><b>Actions</b></p> <ul style="list-style-type: none"> <li>• Develop and deliver a regional food waste avoidance program</li> <li>• Research &amp; develop business models for sub-regional reuse centres</li> <li>• Advocacy Program element - advocate for state-level programs (container deposit legislation, research &amp; media campaign for reuse)</li> <li>• Support product stewardship &amp; National Extended Producer Responsibility schemes</li> <li>• Communications Program element - Develop and deliver 'efficient consumerism choices' program</li> </ul>
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<p style="text-align: center;"><b>Regional Theme</b></p> <p style="text-align: center;"><b>Recovering Resources</b></p>	<p><b>Aim for 2021-22: To work towards meeting 70% diversion of MSW from landfill by 2021-22</b></p> <p><b>Objective:</b> To increase the capture and use of valuable resources from the municipal waste stream and promote responsible citizenship to increase resource recovery</p> <p><b>Key Strategic Actions</b></p> <ul style="list-style-type: none"> <li>• Processing residual waste to recover resources (materials and energy)</li> <li>• Capturing more recyclables, food organics and garden organics from the residual waste stream</li> <li>• Decreasing contamination of recycling &amp; organics bins</li> <li>• Processing clean-up material to recover resources (materials and energy)</li> <li>• Engaging householders to improve recycling practices</li> </ul> <p><b>Actions:</b></p> <ul style="list-style-type: none"> <li>• Implement lead council model to progress contracts for the processing of residual waste (including recovery of energy from waste) for Councils not involved in Veolia AWT service</li> <li>• Establish Veolia alternative waste treatment (AWT) service in 15-16 (8 councils)</li> <li>• Explore and address planning and development issues regarding waste and recycling infrastructure in multi-unit dwellings (MUDs) across the region</li> <li>• Design and deliver waste management and resource recovery improvement program for residents of multi-unit dwellings and property managers/agents</li> <li>• Standardise definitions for, &amp; reporting on, contamination (red &amp; yellow bins) across the region</li> <li>• Analyse kerbside (red and yellow bins) and processing facility data to gain greater understanding of types and causes of contamination &amp; to inform design of 'clean the stream' projects</li> <li>• Improve recycling of Councils public works materials</li> <li>• Assess potential for reuse of, &amp; diversion of, materials from kerbside clean up waste stream</li> <li>• Advocacy Program element - advocate for state-level recycling education programs</li> <li>• Participate in Waste Educators Network (WMAA and others)</li> <li>• Design and commence delivery of education program to improve SUD recycling practices</li> <li>• Communications program element: Develop regional education initiatives to improve recycling practices and supplement MUD and SUD focused education projects (for delivery year 2 &amp; 3)</li> <li>• Work with the NSW Environmental Protection Authority on delivery of their new infrastructure plan</li> <li>• Participate in the establishment of electronic data management processes that enable direct reporting on Municipal Solid Waste from Waste Service Providers to councils and the NSW EPA</li> </ul>
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## Regional Theme

## Responsible Citizens

### Aim for 2021-22:

1. To reduce the incidence of illegal dumping (baseline to be established)
2. To reduce incidence of littering at specific regional hot spots
3. To increase diversion of public place waste

**Objective:** To work with key stakeholders to reduce illegal dumping & littering in order to:

- Increase the visual amenity of neighbourhoods
- Minimise the potential for human and environmental harm
- Promote responsible citizenship

### Key Strategic Actions

- Obtaining, collecting and utilising data on illegal dumping & littering incidents to inform remedial actions
- Better understanding the causes and prevention mechanisms of urban illegal dumping
- Developing and implementing appropriate remedial strategies to address illegal dumping and littering at hotspots
- Providing improved litter infrastructure to encourage correct disposal and recycling.
- Improving disposal and recycling behaviours in public spaces

### Actions:

- Develop baseline dataset, and set regional target for illegal dumping
- Support creation of Regional Illegal Dumping (RID) squad/s in order to address the specific issues of illegal dumping in different SSROC sub-regions
- Initiate and develop strategic partnership program to address illegal dumping in the region
- Advocacy program element – to NSW EPA for state-wide media campaign about illegal dumping
- Communications Program element – illegal dumping enforcement & education (local and metro media)
- Identify regional littering hotspots and develop responses
- Improve litter infrastructure and work with community to improve behaviours
- Communications Program element - address incorrectly placed materials & link to clean up services
- When released review EPA's final Illegal Dumping Strategy & develop regional response
- Develop body of knowledge (library of best practice) on practices and responses for addressing illegal dumping
- When released, review EPA's final Littering Strategy & develop regional response
- Work with EPA to develop a localised litter measure & identify baselines. Identify hotspots and set targets.
- Advocacy program element – Culturally appropriate media campaign
- Develop & share guidelines for public place bin placement
- Assess consistency of signage and infrastructure used at Council run events & identify potential for shared resources

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