

Waste Avoidance and Resource Recovery Strategy Progress Report 2017-18

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ISBN 978 1 922260 72 7
EPA 2019P1690
June 2019

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Acronyms and Abbreviations

Acronym/abbreviation	Description
BWRF	Better Waste and Recycling Fund
C&D	Construction and demolition
C&I	Commercial and industrial
CRC	Community Recycling Centre
EPA	NSW Environment Protection Authority
HCC	Household Chemical CleanOut
KRA	Key result area
LFHW	Love Food Hate Waste
MLA	Metropolitan Levy Area
MSW	Municipal solid waste
MUD	Multi-unit dwelling
MWOO	Mixed waste organics output
NLA	Non-levied Area
Progress Report	<i>NSW Waste Avoidance and Resource Recovery Strategy Progress Report 2017-18</i>
RID	Regional illegal dumping
RLA	Regional Levy Area
RMS	Roads and Maritime Services
WARR Strategy	<i>NSW Waste Avoidance and Resource Recovery Strategy 2014-21</i>
WARRP	Waste Avoidance and Resource Reporting Portal
WLRM	Waste Less, Recycle More

Executive Summary

The *Waste Avoidance and Resource Recovery Strategy 2014-21* (WARR Strategy) was released in 2014. This report outlines NSW's progress against the WARR Strategy's goals to June 2018. It details progress, key achievements and challenges in program delivery, as well as new initiatives - adopted and planned - that will improve NSW performance against the WARR Strategy and, in turn, deliver positive environmental and economic outcomes for the state.

Key result areas and targets

The WARR Strategy's six key result areas (KRAs) and targets are:

1. **Avoid and reduce waste generation:** By 2021-22, reduce the rate of waste generation per capita (compared to 2012-13).
2. **Increase recycling:** By 2021-22, increase recycling rates to 70% for municipal solid waste (MSW), 70% for commercial and industrial (C&I) waste and 80% for construction and demolition (C&D) waste.
3. **Divert more waste from landfill:** By 2021-22, increase waste diverted from landfill to 75%.
4. **Manage problem wastes better:** By 2021-22, establish or upgrade 86 drop-off facilities or services for managing household problem wastes across NSW.
5. **Reduce litter:** By 2016-17, reduce the number of litter items by 40% (compared to 2011-12) and then continue to reduce litter items to 2021-22.
6. **Reduce illegal dumping:** By 2016-17, reduce the incidence of illegal dumping in Sydney and the Illawarra, Hunter and Central Coast regions by 30% (compared to 2010-11) and establish baseline data to allow target-setting in other parts of the state.

Change in data collection methodology

One of the key responsibilities of the NSW Environment Protection Authority (EPA) under the WARR Strategy is to ensure a robust evidence base is available for decision-making.

Since the release of the WARR Strategy, significant advances have been made in the EPA's ability to measure performance against the WARR Strategy targets, particularly for illegal dumping, waste generation, recycling and diversion.

For the first time in NSW, data collected under legislation from resource recovery facilities was used to calculate waste generation, recycling and diversion rates. The introduction of online reporting through the Waste and Resource Reporting Portal (WARRP) in 2015, in addition to new regulations that mandated the majority of resource recovery facilities to report waste flows into the WARRP, replaced the use of voluntary surveys to estimate waste generation and recycling performance.

As a result, this Progress Report contains the most accurate, robust and informed waste generation and recycling data ever collected and analysed in NSW.

Given the quality and reliability of the new dataset, it will now be used as the benchmark for measuring future progress against waste generation, recycling and diversion targets. Importantly, it provides NSW with a robust foundation to guide future policy and program decisions to meet the significant challenges facing the sector today.

The differences in the two methodologies mean that the data in this report cannot be compared with previous reported data.

Further details are outlined in the dataset’s Method and Data Quality Statement, available on the EPA’s website.

Progress towards the targets

Table 1 outlines the performance against the WARR Strategy targets for each KRA.

With the new data collection framework, the original baselines for KRAs 1, 2 and 3 are no longer applicable and comparisons with data reported prior to 2015-16 cannot be made.¹ Changes have not been made to the measurement of progress against KRA 4 (Manage problem wastes better) and KRA 5 (Reduce litter).

Table 1 Summary of progress towards the WARR Strategy targets

KRA	Target (by 2021-22)	Progress
1. Avoid and reduce waste generation	Reduce waste generation per capita (from a 2012-13 baseline of 2.34 tonnes per person)	<p>Total waste generated per capita (comprising MSW, C&I and C&D waste) rose from 2.42 tonnes to 2.69 tonnes per capita over the three years to 2017-18. This was primarily driven by increased construction activity over this period, leading to higher C&D waste in particular.</p> <p>However, there has been a steady reduction in MSW generated on a per capita basis (from 0.57 tonnes to 0.53 tonnes per capita over the three years to 2017-18), as well as on a total tonnage basis (from 4.38 million tonnes to 4.25 million tonnes).</p> <p>Key achievements by the end of 2017-18 include:</p> <ul style="list-style-type: none"> ✓ 52 projects supported with \$1.6 million to reduce food waste ✓ Household food waste reduced by 8% between 2015 and 2017.
2. Increase recycling	<p>Increase recycling rates for:</p> <ul style="list-style-type: none"> • MSW from 52% (in 2010-11) to 70% • C&I from 57% (in 2010-11) to 70% • C&D from 75% (in 2010-11) to 80% 	<p>The new data shows that recycling rates in 2017-18 were 42% for MSW, 53% for C&I and 77% for C&D.</p> <p>The MSW recycling rate was steady over the three years to 2017-18, while the C&I recycling rate increased by six percentage points from 47% in 2015-16. The C&D recycling rate fluctuated over the three periods (78% in 2015-16 and 81% in 2016-17). An increase in the quantity of masonry materials recycled between 2015-16 and 2016-17 pushed up the C&D recycling rate for 2016-17. Although masonry materials recycled continued to increase in 2017-18, a spike in contaminated soil disposed lowered the recycling rate for 2017-18.</p> <p>In accordance with the WARR Strategy priorities for this KRA, the EPA has focused on investing in recycling infrastructure, behaviour change, developing markets for recycled materials and building capacity for regional planning.</p>

¹ Note that data for the 2015-16 period was the first year the data was collected, and hence is not as robust as the following years.

KRA	Target (by 2021-22)	Progress
		<p>As a result, NSW now has a pipeline of resource recovery facilities that will transform the recycling sector. This includes:</p> <ul style="list-style-type: none"> ✓ 57 grants, totalling \$77 million, will increase NSW recycling capacity by 1.8 million tonnes. These grants will leverage \$167 million in co-investment from industry and local government. ✓ 49 grants, totalling \$19.5 million, will divert an additional 154,000 tonnes of organics waste from landfill each year and help provide approximately 70% of NSW households with access to an organics collections service, up from 55% in 2013. ✓ \$34.5 million has been committed to 73 organics infrastructure projects, which will increase the processing capacity for organics waste in NSW by 400,000 tonnes per year. The funding has leveraged an additional \$55.7 million investment from industry.
3. Divert more waste from landfill	Increase the diversion rate from 63% (in 2010-11) to 75%	<p>The new data shows that the diversion rate in 2017-18 was 65%. This is an increase of two percentage points from 63% in 2015-16 and is primarily driven by the increase in construction activity, which accounts for a larger proportion of total diverted waste compared to the MSW and C&I waste streams.</p> <p>As new resource recovery facilities described above become operational over time, the effect of these projects will contribute to improving the diversion rate.</p>
4. Manage problem wastes better	86 drop-off facilities or services	<p>The target was met in 2017-18 with 87 Community Recycling Centres (CRCs) operational (60 in 2016-17). Key achievements by the end of 2017-18 include:</p> <ul style="list-style-type: none"> ✓ 62% of NSW residents had access to a CRC service ✓ A record 2,022 tonnes of problem waste was collected through the CRCs in 2017-18 ✓ \$12.4 million in funding was awarded to establish 87 CRCs.
5. Reduce litter	Reduce litter items by 40% (from a 2011-12 baseline) by 2016-17 and then continue to reduce litter items to 2021-22	<p>Litter items had reduced by almost a third between 2011-12 and 2017-18. While the 2016-17 target was not met within the original timeframe, significant progress has been made towards achieving the 40% reduction target.</p> <p>To achieve this result, the EPA focused on the WARR Strategy priorities of education, increasing regulation and enforcement, improving litter infrastructure, clean-up of litter hotspots, and improving measurement and evaluation for litter programs. The introduction of the <i>Return and Earn</i> container deposit scheme has had a significant impact on NSW litter and this is expected to increase over time. Key achievements by the end of 2017-18 include:</p> <ul style="list-style-type: none"> ✓ release of the first NSW litter strategy ✓ roll-out of the <i>Return and Earn</i> container deposit scheme ✓ 30% reduction in litter of eligible <i>Return and Earn</i> containers

KRA	Target (by 2021-22)	Progress
6. Reduce illegal dumping	Reduce incidence of illegal dumping by 30% in metropolitan areas (from a 2010-11 baseline) and establish baseline data for the rest of the state	<p>✓ the number of people who know how to report litter from vehicles has increased by over 240% (compared to 2013).</p> <p>The EPA's focus on improving illegal dumping data has allowed for the establishment of a 2016-17 statewide baseline (71,441 illegal dumping incidents), and consequently a new statewide target was established to achieve a 30% reduction in incidents by 2020. The statewide target replaced the original metropolitan area target.</p> <p>Before the new target was established, 151 large-scale illegal dumping incidents were investigated in 2015-16 across metropolitan areas, an increase of 119% on the 2010-11 baseline.</p> <p>The increase in incidents was likely a reflection of increased detection and reporting rates rather than increased rates of illegal dumping.</p> <p>In accordance with the WARR Strategy priorities, the EPA has been building partnerships and local capacity, increasing compliance activities, education and improving data collection and analysis. Key achievements by the end of 2017-18 include:</p> <ul style="list-style-type: none"> ✓ development of statewide baseline data for illegal dumping incidents ✓ revision of the <i>Illegal Dumping Strategy 2014-16</i> and setting of a new statewide target ✓ an \$18.8 million investment in strategies and programs to address illegal dumping ✓ development of the RIDonline database, which allows councils and government agencies to record and manage illegal dumping incidents ✓ creation of a new Waste Crime Taskforce.

Looking forward

The EPA is leading the development of a 20-year Waste Strategy for NSW. The strategy will set a 20-year vision for reducing waste, driving sustainable recycling markets and improving the state's waste infrastructure network.

A forward-thinking waste strategy is needed to provide long-term solutions to ensure NSW is prepared for the future.

The strategy is expected to supersede the WARR Strategy and will set new targets for key result areas that are identified as priorities within the development of the strategy.

The long-term waste strategy will be co-designed with industry, local government, experts and the broader community to ensure the strategy has a robust evidence base and addresses the key priorities for waste and recycling for the state.

Other key initiatives the EPA will focus on during the next reporting period include:

- increasing opportunities for food waste avoidance and supporting food waste collections in multi-unit dwellings
- developing implementation plans and measurement tools to support the updated National Waste Policy

- responding to National Sword through simplifying the planning process for recycling infrastructure, increasing demand for recycled material and improving outcomes from local government recycling contracts
- increasing participation in *Return and Earn*
- implementing the *NSW Illegal Dumping Strategy 2017-21*
- developing a cigarette butt litter reduction program and a marine litter campaign
- expanding the CRC network so that more residents can safely dispose of problem wastes
- leading a national conversation about the quality of waste data.

1. Introduction

The NSW Environment Protection Authority (EPA) is required under legislation to prepare and deliver a Waste Avoidance and Resource Recovery Strategy Progress Report (Progress Report) to the Minister for the Environment every two years, reporting performance against the current Waste Avoidance and Resource Recovery Strategy.

The *NSW Waste Avoidance and Resource Recovery Strategy 2014-21* (WARR Strategy) was released in 2014. Its primary goal is to enable everyone in NSW to improve the environment and community wellbeing by reducing the environmental impact of waste and using resources more efficiently.

The WARR Strategy contains six key result areas (KRAs) and corresponding targets and approaches to achieve the targets. The aim of this report is to outline progress towards the WARR Strategy targets and describe the strategies and programs being implemented by the EPA and their associated achievements.

This is the first Progress Report for the WARR Strategy. This report includes three years of data from 2015-16 through to 2017-18.

1.1 Improving measurement of progress

For the first time in NSW, data collected under legislation from resource recovery facilities was used to calculate waste generation, recycling and diversion rates. The introduction of online reporting through the Waste and Resource Reporting Portal (WARRP) in 2015, in addition to new regulations that mandated the majority of resource recovery facilities to report waste flows into the WARRP, replaced the use of voluntary surveys to estimate waste generation and recycling performance.

The following measures and controls are in place to ensure the ongoing quality of the dataset:

1. The WARRP data is subject to auditing by the EPA's audit team which checks facility reports against the facility's weighbridge records. Facilities are identified for auditing based on periodic risk assessments.
2. The NSW waste regulatory framework actively supports collection of quality and reliable waste data by mandating reporting requirements, limiting stockpiles to ensure the material is moved through the waste flow productively and mandating the use of weighbridges to accurately measure waste flows.
3. There are penalties in the legislation to ensure facilities do not provide false and misleading information.
4. Comprehensive internal quality reviews of the dataset.

For independence, the following three consultants were engaged to peer review the method for calculating waste generation and recycling performance to ensure that it was fit for purpose:

- Analytecon
- Arcadis
- Blue Environment.

As a result, this report contains the most accurate, robust and informed waste generation and recycling data ever collected and analysed in NSW. Given the quality and reliability of the new dataset, it will be used as the benchmark for measuring future progress against waste generation, recycling and diversion targets. Importantly,

it provides NSW with a robust foundation to guide future policy and program decisions to meet the significant challenges facing the sector today.

Historical recycling and generation data that had been previously published in the *NSW Waste Avoidance and Resource Recovery Strategy Progress Report 2014-15* and prior WARR Strategy progress reports had been derived using voluntary annual industry surveys and relied on extrapolation and estimation. While this was the best method available at the time (having been independently peer reviewed), the WARRP reporting has now significantly improved the accuracy and reliability of the data.

The differences in the two methodologies mean that the data in this report cannot be compared with previous data.

Additionally, RIDonline was introduced in September 2015 to provide a portal for government agencies and councils to record and manage illegal dumping incidents. A combination of RIDonline and data collected through other sources generated the first statewide count of illegal dumping incidents. This benchmark formed the basis for development of the first statewide target to reduce the incidence of illegal dumping.

Further details on the new method for calculating waste generation and recycling and diversion rates, and a Data Quality Statement for the dataset, are available on the EPA's website.

1.2 Challenges

Some of the challenges NSW is facing to deliver on the WARR Strategy targets are outlined below.

1.2.1 China's National Sword policy

China's decision in January 2018 under its National Sword policy to enforce stringent restrictions on the global importation of recycled materials has impacted the availability of markets for some recyclable materials, including for NSW. China was a large importer of recyclable materials, accepting more than 30 million tonnes of waste from all over the world every year, including 1.25 million tonnes from Australia alone in 2016-17. The NSW government responded quickly to support local councils and the industry in NSW, immediately making available a \$47 million package of support and bringing key stakeholders together under the National Sword Taskforce to plan for the future.

1.2.2 Interstate transport of waste

The economics of waste remains a serious challenge for best practice recycling performance, with many in the industry in NSW choosing to transport large quantities of waste from NSW interstate for disposal rather than pay the higher costs of recycling or disposal closer to where the waste was generated.

The Queensland Government's decision to re-introduce a waste levy in July 2019 to promote recycling in Queensland is welcomed by the NSW Government and is expected to act as a deterrent to long-distance transport of waste across the northern border.

However, the interstate transportation of waste is a national issue. NSW is seeking to build consensus with other states and the Federal government to develop a robust and coordinated regulatory response to the long-distance transport of waste and promote consistent waste management standards at facilities across Australia. The aim is to minimise the risk of harm to human health and the environment and promote waste management practices in accordance with the waste hierarchy.

1.2.3 Mixed waste organic outputs

The EPA has changed the regulatory framework - resource recovery orders and resource recovery exemptions - for mixed waste organic outputs (MWOO). From 26 October 2018 MWOO cannot be applied to agricultural land, and its application on mine sites and forestry plantations is suspended until further consideration is made. MWOO is a soil amendment made predominantly from organics in household general waste (i.e. waste from the red lid bin).

The EPA is working with affected stakeholders to manage the impacts of this regulation change. It is expected that this change will have a negative effect on the MSW recycling rate for the 2018-19 financial year.

1.3 What does the future hold?

Key upcoming initiatives are outlined below:

- develop a 20-Year Waste Strategy for NSW that will set a clear vision and direction to reduce waste to landfill, drive sustainable recycling markets and achieve an integrated waste infrastructure network
- increase opportunities for food waste avoidance and donation by tackling food waste on a community level, including support of food waste collections in multi-unit dwellings (MUDs) and businesses
- develop implementation plans and refine data and targets to support the updated National Waste Policy
- respond to National Sword through targeted actions that will increase demand for recycled materials (such as glass) in government construction, simplify the planning process for recycling infrastructure, and improve outcomes from local government recycling contracts
- expand community engagement to encourage participation in the *Return and Earn* scheme in rural areas, including enhancement of the *Return and Earn* website to provide more information about opportunities for community participation
- implement the new *NSW Illegal Dumping Strategy 2017-21*
- develop a cigarette butt litter reduction program, following two years of research, and develop a marine litter campaign
- expand the Community Recycling Centre (CRC) network so that more residents can safely dispose of problem wastes
- lead a national conversation about the quality of waste data and sharing the NSW revised data quality and calculation framework.

2. Avoid and reduce waste generation

Target: By 2021-22, reduce the rate of waste generation per capita (against a 2012-13 baseline of 2.34 tonnes per capita)

The new method for measuring waste generation showed that it was 2.69 tonnes of waste per person in 2017-18

'Waste generation' refers to the total amount of material that enters the solid waste management system.² This includes all materials disposed to landfill as well as those that are recovered from the waste stream for recycling or energy recovery.

Waste generation can result from inefficient resource use, which in turn leads to increased demand for raw materials, as well as further resources, to process. It increases pressure on the environment to absorb these materials and emissions when they enter the waste stream.

2.1 Strategy approaches

The WARR Strategy approaches for avoiding and reducing waste generation are:

- economic incentives – increase pressure on generators to avoid waste through the waste levy (3.3.1)
- behaviour change – encourage and facilitate behaviour changes, particularly through the Love Food Hate Waste program (3.3.2)
- product stewardship – continue to work with the Australian Government to introduce product stewardship initiatives at the national level (3.3.3)
- industrial ecology – expand industrial ecology projects to facilitate the direct re-use/recycling of production by-products between companies (3.3.4).

2.2 Progress against the target

In 2017-18, waste generation per capita was 2.69 tonnes of waste per person, increasing by 11% from 2.42 tonnes per person in 2015-16. This jump in waste generation was primarily due to a rise in construction and demolition (C&D) waste resulting from increased construction activity.

For 2017-18, 59.6% of the per capita figure was from the C&D waste stream, 20.6% originated from the commercial and industrial (C&I) waste stream and 19.8% was from the municipal solid waste (MSW) stream.

² The solid waste management system is defined as NSW facilities which are licensed under the *Protection of the Environment Operations Act 1997* to dispose, store, process and recover solid waste. Further details are available in the dataset's Method on the EPA's website.

Table 2 shows waste generation per capita, in total and across the three waste streams, for the 2015-16 to 2017-18 financial years.³ Between 2015-16 and 2017-18, the waste generation per capita rate for MSW declined, while the rates for C&I and C&D waste increased.

As the majority of waste is generated by the C&D sector, activity in this sector influences total waste generation per capita more than the municipal and C&I sectors combined. Therefore, ongoing investment by the NSW government into infrastructure projects, and activity in the privately-funded building sector, will continue to impact the waste generation per capita rate over time.

Table 2 Tonnes of waste generated per capita, by waste stream, 2015-16 to 2017-18

Period	MSW	C&I	C&D	Total
2015-16	0.57	0.54	1.32	2.42
2016-17	0.56	0.57	1.35	2.48
2017-18	0.53	0.55	1.60	2.69

In 2017-18, more than 21.4 million tonnes of waste was generated. The majority of this waste originated from construction and demolition activities, followed by similar quantities of MSW and C&I waste.

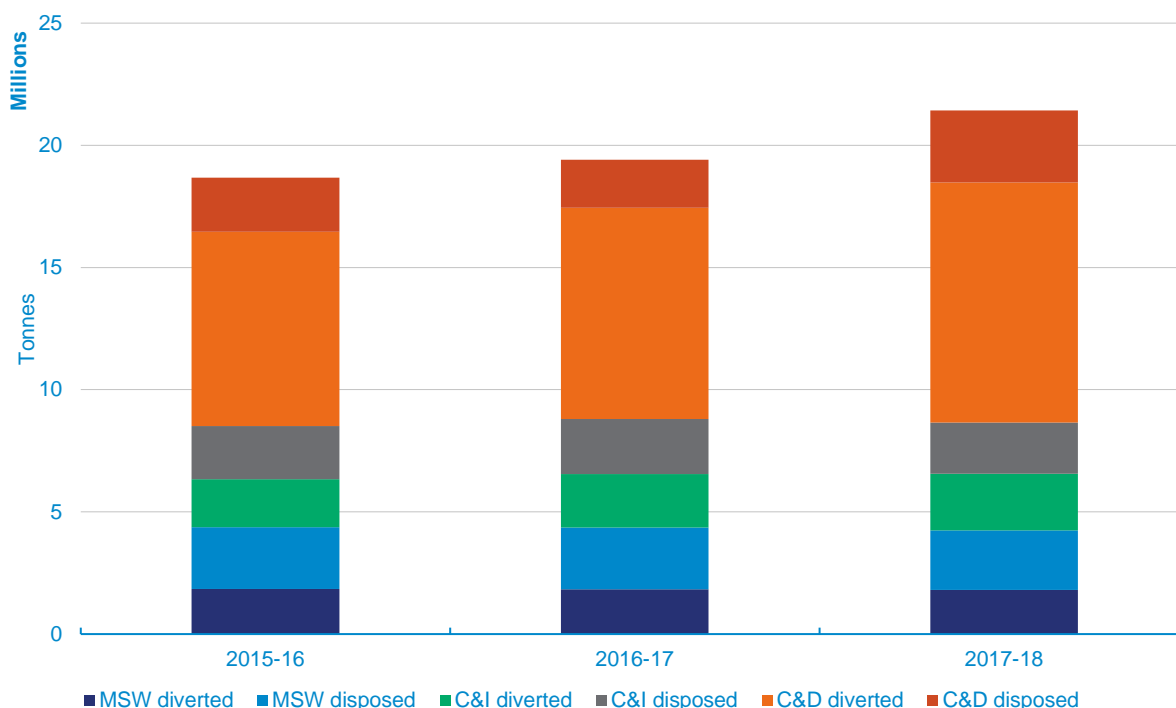
Table 3 shows the tonnes of waste generated for the 2015-16 to 2017-18 financial years.³

Table 3 Waste generated, by waste stream, 2015-16 to 2017-18 (tonnes)

Period	MSW	C&I	C&D	Total
2015-16	4,375,000	4,139,000	10,164,000	18,678,000
2016-17	4,362,000	4,442,000	10,608,000	19,412,000
2017-18	4,248,000	4,406,000	12,768,000	21,422,000

Figure 1 breaks down the components of waste generation (waste diverted plus waste disposed) and the effect of the increase in the C&D waste stream on waste generation across 2015-16 to 2017-18.

³ Note that data for the 2015-16 period was the first year the data was collected and is not as robust as the following years. Refer to the Data Quality Statement on the EPA's website for more detail.

Figure 1 Components of waste generation (waste diverted plus waste disposed), 2015-16 to 2017-18

2.3 Implementation of Strategy approaches

In accordance with the WARR Strategy priorities for this KRA, the EPA has focused effort on behaviour change campaigns, product stewardship initiatives and industrial ecology projects. Key achievements by the end of 2017-18 include:

- ✓ 52 projects supported with \$1.6 million to reduce food waste
- ✓ household food waste reduced by 8% between 2015 and 2017.

2.3.1 Economic incentives

The waste levy is the NSW Government's key economic instrument to drive waste avoidance and resource recovery. Its effects are twofold, discouraging disposal of waste to landfill and re-investment of the waste levy into funding of waste avoidance initiatives through the NSW Government's \$802 million WLRM program.

2.3.2 Behaviour change

The EPA's key program for encouraging and facilitating behaviour change in relation to waste generation is the *Love Food Hate Waste* (LFHW) program. LFHW was established in NSW to increase household and business awareness of food waste and support community education, and includes grant funding, partner support and the provision of education resources.

Since WLRM began to June 2018, \$1.6 million has been allocated to 52 projects for a range of food waste avoidance activities, including funding to councils and charities.

The grants program was redesigned in 2017 and now focuses on *Food Smart*, a six-step action plan to enable households to reduce food waste, and *Your Business is Food*, an education program targeted at cafes and restaurants to reduce food waste.

The total estimated average amount of food waste has reduced from 5.94 litres per person per week in 2015 to 5.46 litres in 2017.⁴

2.3.3 Product stewardship

Most of a product's environmental impact is set at its design stage. Downstream waste generation can be reduced if products are designed with waste avoidance in mind, such as through light-weighting products and minimising packaging. Product stewardship is a key approach for improving product and packaging design. See Section 5.3.4 for an outline of the key product stewardship initiatives in which the EPA participates.

2.3.4 Industrial ecology

Industrial ecology involves the by-products from one process being used as a resource in another process. While not strictly waste avoidance according to the waste hierarchy, industrial ecology keeps material out of the solid waste management system and is therefore not included in the calculation for waste generation.

Circulate is the EPA's \$5.5 million program designed to fund innovative, commercially-oriented industrial ecology projects. In 2016-17, 10 projects were funded by the *Circulate* program, diverting more than 35,800 tonnes of waste from landfill, including 11,000 tonnes of timber waste and 15,000 tonnes of construction and demolition waste.

The *Civil Construction Market Pilot Program* trialled the reduction of C&D waste by transferring it from one civil construction project as a resource for another project. The pilot program proved successful, resulting in the implementation of the \$2.5 million *Civil Construction Market Program*, the first round of which opened in January 2018.

2.3.5 Other initiatives

Food Donation Infrastructure Grants

Food donation infrastructure grants are available under the WLRM *Organics Infrastructure (Large and Small) Program* for infrastructure such as refrigerated vans, fridges and freezers that increase the capacity of food relief organisations to collect, store and redistribute more surplus food from businesses to people in need.

By June 2018, five grant rounds had been delivered, awarding \$3.6 million to 22 projects to collect and distribute an estimated 14.8 million meals per year.

A new \$2 million grant program targeting Food Donation education is being delivered from 2017 to 2021.

Better Waste and Recycling Fund

The *Better Waste and Recycling Fund* (BWRF) provides funding to local councils and regional groups of councils for a broad range of projects to deliver improved waste and recycling outcomes for their communities.

By June 2018, the BWRF had supported 165 projects, totalling \$4.6 million in funding, for waste avoidance and reduction initiatives. Projects have included household composting trials and programs, repair and re-use centres and water refill stations.

⁴ Every two years, the EPA conducts an online survey of 1,200 households to review their knowledge, attitudes and behaviours towards food waste. The full report for 2017 is available on the LFHW website <https://www.lovefoodhatewaste.nsw.gov.au/about-us/research>.

3. Increase recycling

Target: By 2021-22, increase recycling rates for:

- MSW to 70% (from 52% in 2010-11)
- C&I waste to 70% (from 57% in 2010-11)
- C&D waste to 80% (from 75% in 2010-11)

The new method showed that recycling rates in 2017-18 were 42% for MSW, 53% for C&I waste, and 77% for C&D waste

The WARR Strategy defines 'recycling' as a set of processes (including biological) for converting materials, that would otherwise be disposed of as wastes, into useful materials or products.

For this report, recycling was calculated using tonnage data from NSW waste facilities on waste transported from site for lawful recovery.⁵

3.1 Strategy approaches

The WARR Strategy approaches for increasing recycling are:

- increase the effectiveness of kerbside recycling (4.3.1)
- target food and garden organics waste in the C&I and MSW sectors (4.3.2)
- invest in infrastructure for C&I recycling (4.3.1)
- remove problem wastes (4.3.3)
- develop markets and encourage innovation (4.3.4)
- build capacity for developing regional recycling plans (4.3.5).

3.2 Progress toward the targets

The overall recycling rate for 2017-18 was 65%. An 81% recycling rate for C&D in 2016-17 exceeded the 2021-22 target, although it fell back slightly to 77% in 2017-18. In 2017-18, the recycling rates for MSW and C&I were at 42% and 53% respectively.⁶

Table 4 shows the waste stream and total recycling rates for 2015-16 to 2017-18. The MSW recycling rate remained steady between 2015-16 and 2017-18, while the C&I recycling rate increased by six percentage points. This increase was primarily due to an increase in

⁵ The calculation method and notes on the quality of the data are outlined in the dataset's Method and Data Quality Statement, available on the EPA's website. Waste reported to the EPA as transported interstate or overseas for recycling is included in waste recycled in this report. Waste originating from interstate and overseas sources, and received in NSW, is also included in waste recycled/disposed. Future improvements made to data capture on interstate and overseas sources may lead to exclusion of this data from future datasets.

⁶ The recycling rate equals waste recycled divided by waste generated.

metals, organics and paper/cardboard recycling between these periods and a reduction in waste disposed.

Between 2015-16 and 2017-18, the C&D recycling rate fell by one percentage point. The rate increased from 78% in 2015-16 to 81% in 2016-17 due to additional amounts of masonry materials being recycled. However, the recycling rate dropped back to 77% in 2017-18 due to the disposal of large quantities of contaminated soil originating from major construction projects in Sydney.

Table 4 NSW recycling rates, by waste stream, 2015-16 to 2017-18

Period	MSW	C&I	C&D	Total
2015-16	42%	47%	78%	63%
2016-17	42%	49%	81%	65%
2017-18	42%	53%	77%	65%

Table 5 shows the tonnes of waste recycled, in total and across the three waste streams, for 2015-16 to 2017-18. While the tonnes of waste recycled dropped slightly (3%) between 2015-16 and 2017-18 for the MSW stream, tonnes of waste recycled increased for the C&I and C&D waste streams, at 18% and 24% respectively. The total tonnes of waste recycled increased by 19% between 2015-16 and 2017-18.

Table 5 Waste recycled, by waste stream, 2015-16 to 2017-18 (tonnes)

Period	MSW	C&I	C&D	Total
2015-16	1,852,000	1,964,000	7,953,000	11,769,000
2016-17	1,836,000	2,189,000	8,644,000	12,669,000
2017-18	1,802,000	2,314,000	9,825,000	13,941,000

Table 6 shows the tonnes of waste recycled in 2017-18, broken down into waste type and waste stream. The data shows that masonry materials were the largest waste type, accounting for 58% of all waste recycled in 2016-17. Organics (12%), metals (12%), other recyclables (8%) and paper/cardboard (8%) were the next highest waste types.

Table 6 Waste recycled, by waste type and waste stream, 2017-18 (tonnes)

Waste type	MSW	C&I	C&D	Total
Glass	166,000	53,000	-	219,000
Masonry materials	-	-	8,018,000	8,018,000
Metals	344,000	687,000	687,000	1,718,000
Organics	878,000	632,000	121,000	1,631,000
Other	61,000	115,000	998,000	1,174,000
Paper/cardboard	305,000	795,000	-	1,100,000
Plastics	48,000	32,000	1,000	81,000
Total recycling	1,802,000	2,314,000	9,825,000	13,941,000

Table 7 shows the tonnes of waste disposed, in total and across the three waste streams, for 2015-16 to 2017-18. MSW disposal dropped by 3% between 2015-16 and 2017-18, and C&I disposal dropped by 4%. Overall, the total tonnes disposed increased by 8% between 2015-16 and 2017-18, driven by a 33% increase in C&D disposal due to the disposal in 2017-18 of large quantities of contaminated soil originating from major construction projects in Sydney.

Table 7 Waste disposed, by waste stream, 2015-16 to 2017-18 (tonnes)

Period	MSW	C&I	C&D	Total
2015-16	2,523,000	2,175,000	2,211,000	6,909,000
2016-17	2,526,000	2,253,000	1,964,000	6,743,000
2017-18	2,446,000	2,092,000	2,943,000	7,481,000

3.3 Implementation of Strategy approaches

In accordance with the WARR Strategy priorities for this KRA, the EPA has focused on investing in recycling infrastructure (to improve household kerbside recycling, C&I recycling and recovery of organics), behaviour change, developing markets for recycled materials and building capacity for regional planning.

As a result of a significant amount of work by the EPA, local governments and industry, NSW now has a pipeline of resource recovery facilities that will transform the recycling sector. This includes:

- ✓ 57 grants, totalling \$77 million, will increase NSW recycling capacity by 1.8 million tonnes. These grants will leverage \$167 million in co-investment from industry and local government.
- ✓ 49 grants, totalling \$19.5 million, will divert an additional 154,000 tonnes of organics waste from landfill each year and help provide approximately 70% of NSW households with access to an organics collections service, up from 55% in 2013.
- ✓ \$34.5 million has been committed to 73 organics infrastructure projects, which will increase the processing capacity for organics waste in NSW by 400,000 tonnes per year. The funding has leveraged an additional \$55.7 million investment from industry.

Over time, as the facilities become operational, the effect of these projects will become evident, particularly in the recycling rates for MSW and C&I sectors.

3.3.1 Increasing the effectiveness of kerbside recycling and investing in infrastructure for C&I recycling

Waste and Recycling Infrastructure Fund

The NSW Government is making significant investments in infrastructure to increase recycling across the state. The WLRM *Waste and Recycling Infrastructure Fund* was designed to accelerate and stimulate investment in infrastructure to increase industry capacity to process and recycle waste produced in NSW.

The *Major Resource Recovery Infrastructure Program* funds the construction of major new resource recovery facilities that can increase industry capacity to recycle more household and business waste. By June 2018, 20 grants totalling \$58.7 million had been awarded. Once complete, the facilities will provide an additional 1.5 million tonnes of recycling capacity in NSW. These grants will leverage \$35.5 million in co-investment from industry and local government.

The *Resource Recovery Facility Expansion and Enhancement Program* funds the upgrade of recycling infrastructure at existing licensed recycling facilities. As of June 2018, 37 grants totalling \$18.3 million had been awarded. Once completed, these upgrades will provide nearly 350,000 tonnes of additional recycling capacity in NSW. These grants will leverage \$132 million in co-investment from industry and local government.

ResourceCo PEF Facility

The EPA provided a \$5 million grant to ResourceCo towards its \$18.8 million new recycling facility in Sydney. The facility opened in July 2018 and turns waste into fuel that can replace traditional fossil fuels commonly used by industry to generate energy.

At full capacity, the project proposes to source 110,000 tonnes per year of dry commercial and industrial waste from the Sydney market to produce 57,750 tonnes per year of PEF.

ResourceCo is also expecting to recover an additional 3,300 tonnes of metals, 24,750 tonnes of timber, and 18,700 tonnes of other material every year.

Response to China's National Sword policy

China's enforcement of its National Sword policy in early 2018, which saw stringent restrictions on its importation of waste materials, placed further pressure on the kerbside recycling system. The Minister for the Environment announced the repurposing of up to \$47 million of funding to be used to mitigate the impact of the National Sword policy.

The NSW Government also established an Intergovernmental Taskforce to urgently progress long-term solutions and strengthen local recycling in partnership with industry and councils. This Taskforce was led and chaired by the EPA and comprised of five working groups. Recommendations and implementation plans have been developed and endorsed by each working group.

The EPA is now working with other partner agencies to progress the following priority projects identified during the process:

- establishment of a Key Agency Liaison Group with the Department of Planning and Industry to ensure a more streamlined and efficient process for establishing future recycling and waste facilities
- Recycled Crushed Glass Market Development Project with Roads and Maritime Services (RMS) to increase demand for recycled glass in NSW government road construction

- Contracting and Contestability Review of the kerbside recycling system to help improve outcomes from local government recycling contracts
- Circular Economy Policy finalisation and implementation.

Better Waste and Recycling Fund

By June 2018, the BWRF had supported 527 projects, totalling \$34.1 million in funding, for initiatives to increase recycling and diversion from landfill. Projects have included community education campaigns on correct recycling and public place bins.

Bin Trim

The EPA supports increased recycling by businesses through the *Bin Trim* program, which is part of the WLRM *Business Recycling Program*. *Bin Trim*, which started in June 2014, provides free recycling and waste reduction assessments for small and medium sized businesses, as well as rebates covering up to 50% of the capital cost of installing recycling equipment, up to a maximum of \$50,000.

Bin Trim is making a measurable difference. By June 2018, two funding rounds had supported businesses to reduce their waste to landfill by more than 69,000 tonnes, of which 53,000 tonnes were recycled and 16,000 tonnes were avoided. Results for each funding round are outlined in Table 8.

Table 8 Results of Bin Trim program, Round 1 and Round 2

Statistic	Round 1	Round 2
Date of round	June 2014 to June 2015	Aug 2015 to Mar 2017
Number of participating businesses	8,338	13,790
Waste to landfill reduced by participating businesses (tonnes)	17,946	51,169
Waste recycled by participating businesses (tonnes)	15,664	37,466

3.3.2 Targeting recycling of organics waste

The EPA has two key programs for increasing the recycling of food and garden wastes. One is the \$27 million *Organics Collections* program to provide funding for new or enhanced kerbside collections. The other is the \$57 million *Organics Infrastructure (Large and Small) Program*, which funds the construction or upgrade of organics processing facilities.

By June 2018, the *Organics Collections* fund had awarded \$19.5 million to 49 projects to divert an additional 154,000 tonnes of organics waste from landfill each year. When

completed, the grants will have helped provide approximately 70% of NSW households with access to an organics collections service, up from 55% in 2013.

As of June 2018, the *Organics Infrastructure (Large and Small) Program* had awarded \$34.5 million to 73 infrastructure projects, including \$26.5 million to support the construction or upgrade of 26 organics processing facilities across NSW. The funding has leveraged an additional \$55.7 million investment from industry to increase the processing capacity for organics waste in NSW by 400,000 tonnes per year.

Shellharbour City Council Organics Recycling

The EPA is funding three projects with Shellharbour City Council that will divert 72,000 tonnes of waste from landfill each year.

With a \$4.2 million grant from the EPA and a council investment of \$9.3 million, Shellharbour City Council will introduce a kerbside food and garden waste collection service and undertake a major redevelopment of its Dunmore Resource Recovery Facility.

A new state-of-the-art organics processing facility at the site will allow it to recover and recycle 75% of the waste currently received at the site that now ends up in landfill.

3.3.3 Removing problem wastes

Problem wastes can contaminate recycling streams and make recycling of other materials more difficult or uneconomic. Refer to Section 5 for specific targets and actions relating to improving the management of problem wastes.

3.3.4 Developing markets and encouraging innovation

Markets for recycled glass

The EPA is working with other government departments responsible for construction projects, such as RMS, to reinvigorate the use of recycled crushed glass in large-scale construction projects.

Organics Market Development Grants

The *Organics Market Development Grants* complement collection and infrastructure funding to support projects that will increase uptake of recycled products in new markets. As of June 2018, 32 grants totalling \$4.8 million were awarded to support the uptake of recycled organics in new or existing markets, including agriculture, horticulture, sporting fields and roadside revegetation.

Recycling Innovation Fund

The \$16.5 million *Recycling Innovation Fund* supports innovative projects that:

- provide new recycling infrastructure solutions
- establish or expand recycled material markets through research and development
- introduce new, and improve existing, approaches and technologies to increase the efficiency of recycling facilities for priority problem wastes.

By June 2018, the *Recycling Innovation Fund* had awarded \$12.1 million to 28 projects.

3.3.5 Building capacity for regional planning

WLRM supports regional coordination, waste strategy development and implementation. The Regional Coordination Support Package was designed to ensure regional groups of councils are resourced to develop and implement waste strategies, identify waste and recycling infrastructure needs, undertake regional waste and recycling priority projects and maximise WLRM funding opportunities.

By June 2018, \$22.6 million in funding had been provided to regional groups of councils to develop strategies and employ coordinators to implement priority projects from these strategies. Regional waste strategies and action plans were updated in 2017.

3.3.6 Other

WLRM education strategy

Changing Behaviour Together: NSW Waste Less, Recycle More education strategy 2016–21 was developed and adopted by the EPA in 2017. Outcomes achieved include:

- The *Aboriginal Communities Waste Management Program* has engaged a wide range of stakeholders and is working in 16 discrete communities across NSW. In November 2018, the pilot program in Muli Muli won the Premiers Award.
- Social research was commissioned to explore the NSW community's knowledge, skills, attitudes and behaviours about waste and recycling.⁷

⁷ The report is available here: <https://www.epa.nsw.gov.au/publications/waste/ipsos-waste-and-recycling>

4. Divert more waste from landfill

Target: By 2021-22, increase the waste diverted from landfill from 63% (in 2010-11) to 75%

The new method showed that the waste diversion rate in 2017-18 was 65%

As outlined in the WARR Strategy, waste diversion refers to the alternative pathways for materials entering the waste system that avoid disposal to landfill, such as recycling and energy recovery. The diversion rate is defined as the proportion of materials either recycled or otherwise recovered (such as through an energy-from-waste facility) divided by total waste generation. Diverting waste decreases the impact of landfills on the environment and reduces the need to construct new sites.

4.1 Strategy approaches

The WARR Strategy approaches for diverting more waste from landfill are:

- increase recycling through the actions detailed under the *Increase recycling* KRA
- investigate Greater Metropolitan Sydney's landfill needs with the Department of Planning and Infrastructure to ensure there is appropriate, approved landfill capacity.

In the future, recovery of energy from waste may make a contribution to diversion.

4.2 Progress toward the target

In 2017-18, the total waste diverted from landfill was 65% or 13.9 million tonnes. Table 9 shows the diversion rates and total tonnes diverted from landfill for 2015-16 to 2017-18. The diversion rate did not change between 2016-17 and 2017-18, however, tonnes diverted from landfill increased by 10%.

As no significant energy-from-waste facilities were operational across these three reporting periods, the diversion rate is the same as the recycling rates outlined in Section 3.

Table 9 NSW diversion rates, 2015-16 to 2017-18

Period	Diversion rate	Tonnes diverted from landfill
2015-16	63%	11,769,000
2016-17	65%	12,669,000
2017-18	65%	13,941,000

4.3 Implementation of Strategy actions

The amount of waste diverted from landfill is inherently linked to the amount of waste that can be avoided, re-used or recycled. Therefore, the strategies and programs that were described in Sections 2 and 3 to increase waste avoidance and increase recycling also contribute to increasing waste diversion.

The NSW Government encourages the recovery of energy from waste if this can deliver positive outcomes for people and the environment. The *NSW Energy from Waste Policy Statement* was released in 2015 to set out the policy framework and overarching criteria for energy from waste facilities and provide regulatory clarity to industry and the community.

The *Eligible Waste Fuels Guidelines* was published in 2016. It specifies the fuels allowed under the *NSW Energy from Waste Policy Statement* and associated criteria for use of the fuels.

Despite increased recycling and diversion of waste, some future capacity for landfill will still be needed. Also, land is needed to accommodate the increasing requirement for recycling infrastructure.

5. Manage problem wastes better

Target: By 2021-22, establish or upgrade 86 drop off facilities or services for managing household problem wastes statewide

In 2017-18, 87 CRCs were operational

Some household products and materials cause problems in the waste and recycling streams because of their potential to harm human health and the environment. If improperly disposed, they can also contaminate recycled waste streams and cause damage to waste processing infrastructure. The aim of this KRA is to reduce the impact of these household materials by separating them from household waste and recycling streams and ensuring they are disposed or recycled appropriately.

Problem wastes can include paint, batteries, smoke detectors, fluorescent lamps, gas bottles, motor oils and fluids and other toxic and hazardous household products.

5.1 Strategy approaches

The WARR Strategy approaches for improving the management of problem wastes are:

- fund the roll-out and servicing of permanent drop-off facilities to collect high-volume, low-toxicity materials (6.3.1)
- continue event-based collections for low-volume, high-toxicity materials (6.3.2)
- trial alternative collection methods for areas in which a permanent drop-off facility is not suitable (6.3.3)
- continue to work closely with the Commonwealth, other state and territory governments and key stakeholders to help implement additional product stewardship initiatives at the national level (6.3.4).

5.2 Progress toward the target

CRCs are permanent drop-off centres for common household problem wastes. The target was achieved in 2017-18, with 87 CRCs operational (60 of which were operational by the end of 2016-17). The number of CRCs will continue to increase. A total of 105 WLRM grants have been awarded for development of CRCs.

5.3 Implementation of Strategy approaches

Key achievements by the end of 2017-18:

- ✓ 62% of NSW residents had access to a CRC service.
- ✓ A record 2,022 tonnes of problem wastes was collected through the CRCs in 2017-18.
- ✓ \$12.4 million in funding was awarded for establishment of CRCs.

5.3.1 Funding the roll-out and servicing of permanent drop-off facilities

CRCs make it easier and more convenient for NSW residents to safely dispose of their household problem waste such as paints, gas bottles, motor oils, fluorescent globes and tubes, smoke detectors and household and car batteries.

By June 2018, \$12.4 million had been awarded to build CRCs. Approximately \$2 million is available to complete the CRC infrastructure network between 2018-19 and 2020-21.

As of June 2018, 62% of residents in NSW had access to a CRC service.⁸ The coverage in rural and regional NSW is particularly good, with 85% of residents in those areas having access.

City of Canada Bay CRC

After successfully participating in the *Household Chemical CleanOut* program for more than 10 years, the City of Canada Bay established a CRC at their operating waste depot. It is an efficient and effective design highlighting that big changes can happen in small spaces. There are staff on site to welcome residents and direct them on how to dispose of their problem waste.

Since the CRC opened in 2016, more than 90 tonnes of household problem waste have been collected. The top material collected is paint.

The City of Canada Bay is also supporting the national paint product stewardship scheme. The CRC was selected as a trial site for the *Paintback* network to test the collection of commercial paint.

5.3.2 Continuing event-based collections

The *Household Chemical CleanOut* (HCC) program gives householders a place to take their potentially hazardous household chemicals for safe disposal. First established in 2003, the HCC program has developed and grown, with continued increases in community awareness and support. The HCC program continues to operate across NSW as CRCs are being established.

Table 10 highlights the results of the HCC program across NSW for 2015-16 to 2017-18. The decline in the amount of problem wastes collected across these three years is likely due to the increasing number of CRCs being established and the community's increased access to this new service.

Table 10 Results of the HCC program, 2015-16 to 2017-18

	2015-16		2016-17		2017-18	
	Metro	Regional	Metro	Regional	Metro	Regional
Number of collection days	68	61	72	50	75	44
Attendees	50,564	3,318	48,593	3,160	46,558	2,454
Tonnes of potentially hazardous household waste collected	2,012	170	1,688	160	1,749	118

Note: 'Metro' includes the Sydney, Illawarra, Hunter and Central Coast regions. 'Regional' is the rest of NSW.

⁸ Defined here as the percentage of householders within 10 kilometres of a CRC in metropolitan areas and 50 kilometres in regional and remote NSW.

5.3.3 Trialling alternative collection methods

Several alternatives to a permanent CRC facility have been funded and proved successful. These projects include:

- Shoalhaven City Council's satellite drop-off facilities and milk run service – as Shoalhaven City Council has a number of recycling facilities across its local government area, it has set up drop-off areas at each of these facilities and has a milk run service which collects the waste and aggregates it at the Council's CRC at the West Nowra Waste and Recycling Depot.
- Kempsey Shire Council's mobile Community Recycling Centre – Kempsey Shire Council developed a specialised trailer to collect problem wastes. The mobile service travels around the local government area to visit specified locations on a scheduled basis.

5.3.4 Continuing to work on additional product stewardship initiatives

NSW supports a national approach to product stewardship action on the environmental impacts of products. The EPA is committed to working with other state and federal government representatives to deal with matters of product stewardship and ensure that any requirements under the *Commonwealth Product Stewardship Act 2011* are met. The EPA is an active participant in the following initiatives:

- The design of product stewardship schemes for photovoltaic systems and batteries.
- Cross-industry working groups chaired by the Australian Packaging Covenant Organisation to deliver a target of 100% of Australian packaging being recyclable, compostable or reusable by 2025 or earlier.
- The *National Market Development Strategy for Used Tyres* (published in March 2018), which provides a framework for a national approach to market development of tyre-derived products.
- The Review of the *Product Stewardship Act 2011* (including the National Television and Computer Recycling Scheme).
- The *Paintback* program, which allows commercial quantities of paint to be taken to a Community Recycling Centre (CRC). *Paintback* funds the collection of paint from three CRC sites in NSW: Liverpool, Port Stephens and Albury. The EPA is working with Paintback Ltd to bring more CRCs into the *Paintback* network.
- A voluntary phase-out by industry of plastic microbeads from cosmetic and personal care products.

5.3.5 Other

NSW Asbestos Waste Strategy

In addition to the Householders Asbestos Disposal Scheme (see Section 7.3.7), the *NSW Asbestos Waste Strategy 2018-22* was released for consultation. The draft Strategy is a result of social research, ongoing feedback from stakeholders, pilot programs and evaluation of existing processes. The draft Strategy is focused on better managing asbestos waste, including illegal dumping and improper disposal. Public consultation on the draft Strategy is now closed and stakeholder feedback is being reviewed and considered for the final version.

6. Reduce litter

Target: By 2016–17, reduce the number of litter items by 40% compared with 2011–12 levels and then continue to reduce litter items to 2021–22

Litter items in NSW reduced by 30% between 2011-12 and 2017-18

Litter damages pride in the local environment, is linked to other anti-social behaviours and affects land, fresh water and marine environments.

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.

6.1 Strategy approaches

The WARR Strategy called for coordinated action by all stakeholders with an interest in, and responsibilities for, litter. The coordinated action would be led by WLRM funding and a targeted Litter Prevention Strategy to act as an implementation plan. Elements of the coordinated approach include:

- education and awareness – changing social norms around litter behaviour through education and anti-litter campaigns (including a statewide litter campaign) (7.3.2).
- regulation and enforcement – increasing the numbers of officers with powers to enforce litter regulations and encouraging the community to report litterers (7.3.3).
- infrastructure and clean-up of litter hot spots – identifying and cleaning up litter hot spots, providing litter bins and appropriate signage and working on litter issues at the national level (7.3.4).
- measuring and evaluation – measuring litter, understanding behaviour, evaluating programs to design more effective approaches and sharing knowledge and information (7.3.5).

The draft *NSW Litter Prevention Strategy 2017-20*, released in 2017, builds on these approaches and includes an additional approach for reducing litter:

- rewarding responsible behaviour – establishing a container deposit scheme (7.3.1).

6.2 Progress towards the target

NSW continues to experience a steady decline in litter items and volume. From 2011-12 to 2017-18, litter items reduced by 30% and litter volume reduced by 34%.⁹ While the 2016-17

⁹ Litter data is measured using the Keep Australia Beautiful National Litter Index, which is a national litter survey funded by all states and territories. In 2015-16 it was also funded by the Australian Packaging Covenant Association, made up of packaging industry and packaged goods businesses. More information on NSW National

target was not met, the 2017-18 data shows that 75% progress has been made towards achieving the 40% reduction target.

The 2016-17 data shows that litter items had reduced by 16% and litter volume had reduced by 4% since 2011-12. Litter data is inherently variable and therefore trend data over time is more reliable. Given the longer-term trend and the 2017-18 litter data, the increase in 2016-17 is considered irregular.

In addition to the WARR Strategy target, in September 2015 the NSW Government announced a ‘Premier’s Priority’ to reduce the volume of litter in NSW by 40%, by 2020 (against a 2013-14 baseline). Results for 2017-18 show a 37% reduction in litter volume since 2013-14. The EPA is the lead agency responsible for delivering this Premier’s Priority.

Figure 2 Historical trend of litter items (count per 1,000m²)

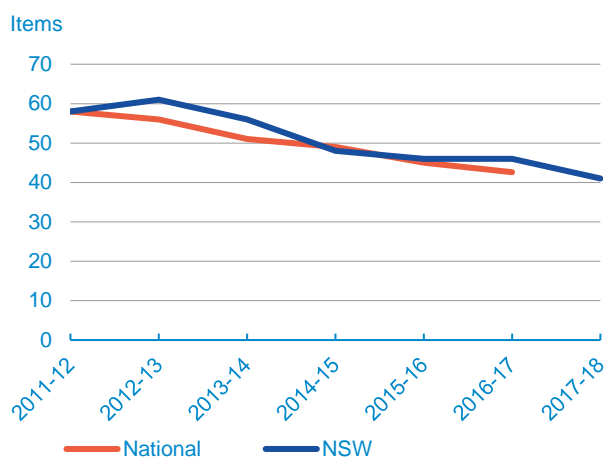
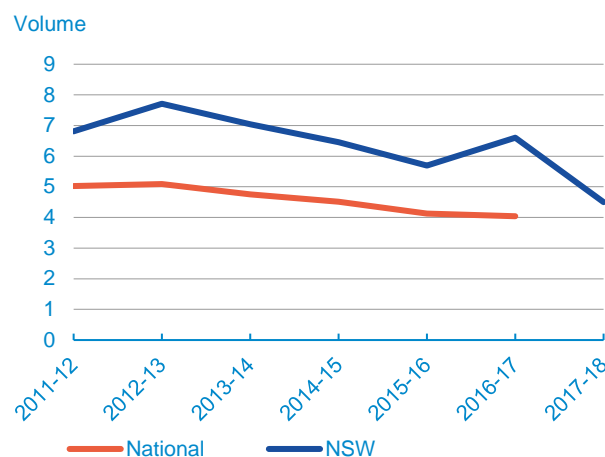


Figure 3 Historical trend of litter volume (litres per 1,000m²)



6.3 Implementation of Strategy approaches

The EPA has focused on the WARR Strategy priorities of education, increasing regulation and enforcement, improving litter infrastructure, clean-up of litter hotspots and improving measurement and evaluation for litter programs.

In May 2017, the draft *NSW Litter Prevention Strategy 2017-21* was released for consultation to guide the priorities of the \$30 million *Litter Prevention* fund for 2017-21.

Key achievements by the end of 2017-18 included:

- ✓ release of the first NSW litter strategy
- ✓ roll-out of the *Return and Earn* container deposit scheme
- ✓ 30% reduction in litter of eligible *Return and Earn* containers
- ✓ compared to 2013, the number of people who know how to report litter from vehicles has increased by over 240%.

6.3.1 Rewarding responsible behaviour

In May 2016, the NSW Government announced that it would introduce a container deposit scheme. *Return and Earn* began in NSW on 1 December 2017. It is a simple and effective

Litter Index data for 2015-16 is available at <https://www.environment.nsw.gov.au/resources/litter/nsw-national-litter-index-results-160513.pdf>

way to reduce drink container litter and increase recycling by rewarding responsible behaviour.

Return and Earn provides a financial refund when drink containers are returned. This encourages people to return containers and pick up any that have been littered. While the scheme's impact does not affect the 2016-17 litter figures, it has had a significant impact on 2017-18 litter data – showing a 30% reduction in eligible drink containers littered since 2016-17. One billion containers were returned through 682 collection points by December 2018.

6.3.2 Education and awareness

Community education is critical for changing behaviour, by raising awareness and building the norm that littering is not the right thing to do.

The NSW Government launched the *Tosser!* campaign in 2014, which continues to be rolled out across the state, and is available for councils and others to use. Litter prevention resources have also been developed to provide research results and advice on designing effective programs.

By June 2018, \$10.6 million had been spent in NSW on advertising to promote the *Tosser!* campaign and raise awareness of littering in the community.

Key results achieved by the program to 2017-18 (since 2012-13) include:

- ✓ an increase from 62% to 75% in awareness about litter fines
- ✓ an increase from 17% to 27% in the number of people who feel it is likely they will be caught and fined for littering
- ✓ 92% of people support the *Tosser!* message
- ✓ an increase from 14% to 48% in the number of people who know how to report litter from vehicles.

6.3.3 Regulation and enforcement

Enforcing litter offences is important for changing the social norm around littering – it lets people know that it is not ok to litter and that others notice. In early 2015, the EPA launched an online system *Report to EPA* that allows the public to report litter thrown or blown from cars (www.epa.nsw.gov.au/reporttoepa). This data then allows the EPA to issue a fine based on the online report. Since the start of the online system to 30 June 2018 there have been:

- more than 34,000 registrations
- more than 45,000 reports received
- over 30,000 fines issued.

The EPA also provides training and support to local litter enforcement officers to boost on-the-ground litter enforcement. From 2015-16 to 2017-18, the EPA trained 125 council officers across the state.

6.3.4 Infrastructure and clean-up

The right bin makes it easier for people to dispose of their rubbish correctly and sites that are clean send the message that litter doesn't belong. The EPA is supporting renewed bin infrastructure and clean-up through *Community Litter Prevention Grants* and *Council Litter Prevention Grants*. From the start of WLRM to June 2018, \$8.4 million has been provided to councils and communities through the EPA litter grants program to run local litter prevention projects in litter hotspots.

Average litter reductions of 60% have been achieved across these projects, and more grant funding is available to continue this work up to 2021.

6.3.5 Evaluation and monitoring

The EPA developed the *Local Litter Check*, a free, easy-to use online tool to help people in the community, councils and other land managers to understand and design solutions for litter problems at specific sites such as parks, beaches and public transport stops.

The EPA is also using litter count data and other research to monitor litter and littering behaviour more broadly across NSW.

Cigarette Butt Litter Reduction Trial

At 40%, cigarette butts consistently make up the highest proportion of littered items in NSW. Made of plastic, cigarette butts do not break down and contain toxic chemicals that leach into the environment.

In 2016, the EPA began significant research to observe the behaviour of smokers disposing of their cigarette butts. Almost 3,000 observations were made across NSW. This was followed in 2017 with in-depth discussions with smokers to understand the reasons for littering.

This research was used to implement an innovative behaviour change trial to reduce cigarette litter in 2018. The EPA partnered with 16 councils across 40 sites to deliver the trial which involved over 5,000 observations and over 400 surveys.

Following the trial, the cigarette binning rate across all 40 sites increased from 35% to 59%. Further evaluation of these results will be completed before a broader program is developed for roll-out across NSW.

7. Reduce illegal dumping

Target: From 2013-14, implement the *NSW Illegal Dumping Strategy 2014-16* to reduce the incidence of illegal dumping state-wide.

As part of this strategy, by 2016-17:

- reduce the incidence of illegal dumping in Sydney and the Illawarra, Hunter and Central Coast regions by 30% compared with 2010-11
- establish baseline data to allow target-setting in other parts of the state.

The *NSW Illegal Dumping Strategy* has been updated and a new target has been set to reduce illegal dumping incidents across NSW by 30%, by 2020, from the baseline established in 2016-17

'Illegal dumping' is the disposal of waste materials on private or public land where no planning approval or environment protection licence has been granted for the activity.

Illegal dumping can seriously pollute the environment, potentially endanger human health, harm wildlife, affect local amenity and reduce a community's pride of place. It can be expensive for local councils, landowners, land managers and the community to clean up dumped material. Illegal dumping also distorts the market by undercutting legitimate waste operators and creating an uneven playing field for business.

7.1 Strategy approaches

The WARR Strategy approaches for reducing illegal dumping are:

- establish strong and collaborative partnerships between the State Government, local councils, Aboriginal communities, regional illegal dumping (RID) Squads, industry and the community to increase opportunities for people to look after their own environments (8.3.1)
- build capacity at the local level (8.3.2)
- ramp up compliance and enforcement activities (8.3.3)
- conduct education campaigns to inform the community about the impacts of illegal dumping and correct disposal options (8.3.4)
- recognise and promote cooperative efforts and regional successes (8.3.5)
- build a robust evidence base through data collection and analysis (8.3.6)

- trial a program to make it easier for home renovators to dispose of small amounts of asbestos waste (8.3.7).

7.2 Progress towards the target

7.2.1 Reduce the incidence of illegal dumping

Before the new target was established in 2017, 151 large-scale illegal dumping incidents were investigated in 2015-16 across the Sydney, Illawarra and Hunter regions, an increase of 119% from the baseline set in 2010-11.

The increase in illegal dumping incidents was likely a reflection of increased detection and reporting rates rather than increased rates of dumping. For example, from 2015-16 to 2016-17 public reporting in project areas that have received grant funding to target illegal dumping increased by 39%. This is likely attributable to the *NSW Illegal Dumping Strategy 2014-16*, which had a strong focus on raising awareness and reporting of illegal dumping in the community.

7.2.2 Establish baseline data

The baseline for the new target is 71,441 illegal dumping incidents across NSW in 2016-17. This data was collected as a result of the work done under the *NSW Illegal Dumping Strategy 2014-16*. Establishing baseline data for the whole of NSW allowed the EPA to set the new target under the *NSW Illegal Dumping Strategy 2017-21*.

7.3 Implementation of Strategy approaches

The *NSW Illegal Dumping Strategy 2014-16* was the first strategy of this kind established under this target. To continue the success of the 2014-16 strategy, the EPA released an updated strategy in February 2018. The *NSW Illegal Dumping Strategy 2017-21* targets key illegal dumping issues including illegal dumping of household waste on the kerbside and large-scale illegal landfilling.

Key achievements by the end of 2017-18:

- ✓ Development of statewide baseline data for illegal dumping incidents.
- ✓ Revision of the *Illegal Dumping Strategy 2014-16* and setting of a new statewide target.
- ✓ \$18.8 million awarded to councils, public land managers, charitable recyclers and local Aboriginal land councils to develop strategies and programs to address local illegal dumping issues.
- ✓ Development of the RIDonline database, which allows councils and government agencies to record and manage illegal dumping incidents.
- ✓ Creation of a new Waste Crime Taskforce.

7.3.1 Establishing strong and collaborative partnerships

Establishing strong and collaborative partnerships with stakeholders, including landowners and managers, industry and local community, increases the opportunities for people to look after their own environments. The majority of illegal dumping programs under the *NSW Illegal Dumping Strategy 2017-21* are based on partnerships, including:

- local councils

- land managers including local Aboriginal land councils, RMS, Department of Primary Industries, Forestry NSW and National Parks and Wildlife Services
- charities
- RID squads and programs
- industry and businesses
- planning authorities
- SafeWork NSW
- the community, including residents.

7.3.2 Building capacity at the local level

Building capacity at the local level provides councils, landowners, land managers and the community with the knowledge and expertise to implement practical regional solutions to illegal dumping issues.

Under the *Combatting Illegal Dumping Clean-up and Prevention Program*, \$6.3 million has been awarded to 101 projects, to June 2018. Run by councils and public land managers, the Program aims to clean up illegally dumped waste, install prevention measures and establish illegal dumping baseline data.

The *Aboriginal Land Clean-up and Prevention Program* has awarded over \$750,000 to 21 projects, to June 2018, to clean-up illegally dumped waste and install prevention measures on Aboriginal owned land.

At June 2018, the *Charitable Recyclers Program* had awarded over \$150,000 to 20 projects to install measures to prevent illegal dumping around charity bins and stores.

Clean up and prevention programs administered under the *NSW Illegal Dumping Strategy 2014-16* resulted in 4,640 tonnes of dumped waste being cleaned up and the following preventative infrastructure installed:

- 554 signs
- 217 surveillance cameras
- 317 gates, earth mounds and bollards
- 4.1 kilometres of fencing.

7.3.3 Ramping up compliance and enforcement activities

Research shows that fewer people will dump waste illegally if they think they will get caught. The primary legislation regulating illegal dumping is the *Protection of the Environment Operations Act 1997*, which was amended in 2014 to increase penalties for illegal dumping.

For the first time in 2018, the Land and Environment Court jailed a “repeat waste offender” under the tough new anti-dumping legislation.¹⁰ The sentencing of a convicted repeat waste transporter sends a strong message that illegal dumping of waste will not be tolerated.

¹⁰ *NSW Environment Protection Authority v Hanna* [2018]

RID squads

RID Squads are regionally based teams that specialise in combatting and preventing illegal dumping. The RID Officers work for local councils, working across council boundaries to coordinate dumping regionally. The squads and programs are co-funded by the EPA and member councils.

Five RID squads and programs have been established with \$10.8 million:

- the Sydney RID squad (formerly the Inner Western RID squad)
- the Western Sydney RID Squad
- the Hunter-Central Coast RID Squad
- the Southern Councils RID Program
- the ACT/NSW Cross Border Program.

The RID squads and programs now cover 31 local government areas. In 2017-18, the RID squads and programs investigated 8,599 illegal dumping incidents.

Waste Crime Taskforce

In early 2018, the Waste Crime Taskforce was established to target the criminal element of the waste industry. Since its inception the Waste Crime Taskforce has investigated 11 alleged waste crime matters and conducted proactive compliance campaigns of waste crime suspects working closely with other government agencies, including NSW Police.

7.3.4 Conducting education campaigns

Educating the community and the waste industry is the first step towards changing behaviour. It raises awareness of the problem and its consequences and builds the social norm that illegal dumping is wrong.

The EPA helps councils, public land managers, local Aboriginal land councils and charitable recyclers to engage with the community about illegal dumping. Most of these stakeholders have already adopted consistent messaging and signs.

7.3.5 Recognising and promoting cooperative efforts and regional successes

Recognising and promoting cooperative efforts and regional successes is important as it allows other communities to learn from these achievements and alerts illegal dumpers that illegal dumping is being targeted.

Illegal dumpers operate across multiple boundaries, so it is important that programs targeting illegal dumping operate within a regional framework. The RID squads and programs operate across multiple council areas, enabling intelligence sharing and targeted operations such as unlawful waste transport and disposal through joint truck pullover operations with NSW Police and RMS.

The EPA's grant programs also support projects that involve multiple stakeholders working in partnership with each other to ensure that illegal dumpers do not just move to neighbouring areas.

7.3.6 Building a robust evidence base

Building a robust evidence base through data collection and analysis of illegal dumping incidents, attitudes and behaviour allows targeting of funding and programs, and subsequent monitoring and evaluation.

In September 2015, the EPA launched an online database called RIDonline. The database is used by councils and government agencies across NSW to record and manage illegal dumping incidents. Members of the public can also use RIDonline to report illegal dumping to their local council. Since the database launched, 977 public land managers have registered to use RIDonline, and more than 47,000 incidents have been reported.

7.3.7 Trialling an asbestos disposal program for home renovators

The *Householders Asbestos Disposal Scheme* awarded \$781,000 to six projects to trial cheaper and easier disposal options for small amounts of wrapped bonded asbestos from home renovations.

See Section 5.3.5 for further information about what the EPA is doing to improve management of asbestos waste.

Glossary

Term	Description
Commercial and industrial waste (C&I waste)	Solid waste generated by businesses, industries (including shopping centres, restaurants and offices) and institutions (such as schools, hospitals and government offices), but not C&D waste or MSW
Construction and demolition waste (C&D waste)	Solid waste sourced from construction and demolition works, including building and demolition waste, asphalt waste and excavated natural material
Diversion rate	The proportion of all recycled materials or those otherwise recovered (i.e. through an energy-from-waste facility) compared to the total amount of waste generated
Energy from waste	The process of recovering energy from waste materials: the energy is used to produce useable heat, steam, electricity or a combination of the above
Industrial ecology	Using the by-products from the production process in one company as a resource in another
KRA (key result area)	Refers to the key outcomes the strategy seeks to achieve
Municipal solid waste (MSW)	Solid waste from households and local government operations, including waste placed at the kerbside for local council collection and waste collected by councils from municipal parks and gardens, street sweepings and public council bins
Organics waste	Food only (FO), garden only (GO) or food organics and garden organics (FOGO) waste from households and business.
Problem wastes	Household products and materials in the waste and recycling stream that pose potential harm to the environment and human health and/or make the recovery and recycling of other materials more difficult or uneconomic
Recycling	Set of processes (including biological) for converting materials, that would otherwise be disposed of as wastes, into useful materials or products
Recycling rate	Proportion of all recycled materials compared to the total amount of waste generated – does not include energy from waste
Reducing waste	Reducing waste generation by avoiding or preventing the creation of waste where possible along the various parts of the supply chain. The aim is to use less material to achieve the same or equivalent outcome.
Resource recovery	In NSW this currently refers to the recycling of waste material. Recovery may also include extracting embodied energy from waste through thermal processes.
Solid waste	Refers to unwanted solid materials and does not include liquid waste

Term	Description
Solid waste management system	NSW facilities which are licensed under the <i>Protection of the Environment Operations Act 1997</i> to dispose, store, process and recover solid waste. ¹¹
Waste avoidance	Waste that does not enter the solid waste management system
Waste generation	Total amount of waste that enters the solid waste management system ⁹
Waste levy	The <i>Protection of the Environment Operations Act 1997</i> requires certain licensed waste facilities in NSW to pay a contribution for each tonne of waste received at the facility. Referred to as the 'waste levy', the contribution aims to reduce the amount of waste being landfilled and promote recycling and resource recovery.

¹¹ Further details are available in the dataset's Method on the EPA's website.

Appendix 1: Additional waste generation and recycling data

Table 11 and Table 12 contain waste generated, by levy area and waste stream, for the 2016-17 and 2017-18 financial years. The levy areas are as follows:

- Metropolitan Levy Area (MLA) – this area comprises the Sydney metropolitan area, the Illawarra region, the Central Coast and the southern Hunter region.¹²
- Regional Levy Area (RLA) – this area comprises the northern Hunter region, the mid and north coast region, Blue Mountains and the Wollondilly local government areas.¹⁰
- Non-levied Area (NLA) – the remainder of NSW; this data may also include waste received from interstate or overseas and recovered or disposed in NSW.

Table 11 Waste generated, by levy area and waste stream, 2016-17 (tonnes)

Levy Area	MSW	C&I	C&D	Total
MLA	3,041,000	3,158,000	9,663,000	15,862,000
RLA	464,000	293,000	261,000	1,018,000
NLA	857,000	991,000	684,000	2,532,000
All NSW	4,362,000	4,442,000	10,608,000	19,412,000

Table 12 Waste generated, by levy area and waste stream, 2017-18 (tonnes)

Levy Area	MSW	C&I	C&D	Total
MLA	2,959,000	3,007,000	11,524,000	17,490,000
RLA	461,000	259,000	350,000	1,070,000
NLA	828,000	1,140,000	894,000	2,862,000
All NSW	4,248,000	4,406,000	12,768,000	21,422,000

Table 13 and Table 14 contain waste recycled, by levy area and waste stream, for the 2016-17 and 2017-18 financial years.

Table 13 Waste recycled, by levy area and waste stream, 2016-17 (tonnes)

Levy Area	MSW	C&I	C&D	Total
MLA	1,330,000	1,427,000	8,244,000	11,001,000
RLA	222,000	150,000	164,000	536,000
NLA	284,000	612,000	236,000	1,132,000
All NSW	1,836,000	2,189,000	8,644,000	12,669,000

¹² A list of councils in the MLA and RLA is available here: <https://www.epa.nsw.gov.au/your-environment/waste/waste-levy/scheduled-waste>

Table 14 Waste recycled, by levy area and waste stream, 2017-18 (tonnes)

Levy Area	MSW	C&I	C&D	Total
MLA	1,218,000	1,469,000	9,299,000	11,986,000
RLA	261,000	118,000	224,000	603,000
NLA	323,000	727,000	302,000	1,352,000
All NSW	1,802,000	2,314,000	9,825,000	13,941,000

Table 15 contains waste recycled, by waste type and waste stream, for the 2016-17 financial year.

Table 15 Waste recycled, by waste type and waste stream, 2016-17 (tonnes)

Waste type	MSW	C&I	C&D	Total
Glass	235,000	35,000	-	270,000
Masonry materials	-	-	7,208,000	7,208,000
Metals	289,000	577,000	577,000	1,443,000
Organics	885,000	642,000	101,000	1,628,000
Other	59,000	106,000	757,000	922,000
Paper/cardboard	322,000	792,000	-	1,114,000
Plastics	46,000	37,000	1,000	84,000
Total recycling	1,836,000	2,189,000	8,644,000	12,669,000

Table 16 and Table 17 contain waste disposed, by levy area and waste stream, for the 2016-17 and 2017-18 financial years.

Table 16 Waste disposed, by levy area and waste stream, 2016-17 (tonnes)

Levy Area	MSW	C&I	C&D	Total
MLA	1,711,000	1,731,000	1,419,000	4,861,000
RLA	242,000	143,000	97,000	482,000
NLA	573,000	379,000	448,000	1,400,000
All NSW	2,526,000	2,253,000	1,964,000	6,743,000

Table 17 Waste disposed, by levy area and waste stream, 2017-18 (tonnes)

Levy Area	MSW	C&I	C&D	Total
MLA	1,741,000	1,538,000	2,225,000	5,504,000
RLA	200,000	141,000	126,000	467,000
NLA	505,000	413,000	592,000	1,510,000
All NSW	2,446,000	2,092,000	2,943,000	7,481,000