

NSW Litter Report 2016–2020

March 2021



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Introduction

This NSW Litter Report provides an overview of the state of litter in NSW from 2016 to 2020. It highlights key trends in the quantities and locations of litter in NSW.

This is the sixth NSW Litter Report in the series. It is the first to provide an overview of the state of litter following the introduction of the NSW Government's Container Deposit Scheme (CDS). It is also the first to report that the Premier's Priority Target of a 40% reduction in litter on the 2013-14 baseline figures has been achieved.

A key part of addressing the litter issue is having a good understanding of the amount of litter in the environment and the types of places it is found. This information is reported by the NSW EPA in the *NSW Litter Report*, as required under section 146D of the Protection of the Environment Operations Act 1997. The Act requires the EPA to report estimates of the composition and quantity of litter types across NSW. Of note, this issue of the report is the first to provide an overview of NSW litter since the NSW Government introduced its Container Deposit Scheme (CDS), *Return and Earn*, in 2017.

This report will detail:

- overall litter in NSW
- litter composition
- profile of litter across sites types
- a closer look at key littered items
 - beverage containers
 - take-away containers
 - cigarette butts
 - plastics.

Scope of Report

The report presents litter data using annual results reported by Keep Australia Beautiful (KAB) in its annual National Litter Index (NLI) reports for 2016-17 to 2019-20 (referred to as 2016-20) and outcomes that fall under the NSW Litter Prevention Strategy. The timeframe for this report incorporates the introduction of the NSW Container Deposit Scheme (CDS) in December 2017: the 2016-17 results provide a baseline that can be used to gauge the scheme's impact on beverage container litter – the largest single component of litter volume in NSW.

Premier's Priority Target achievement

Since 2015, the *Litter Prevention Program* (LPP), delivered jointly by the NSW EPA Litter Prevention Unit and the Container Deposit Scheme Branch, has been working towards achieving the Premier's Priority Target for 2020 of a 40% reduction of litter on the 2013-14 baseline.

To achieve this target, the NSW Litter Prevention Strategy 2018-22 was developed, supported by the implementation of an integrated program. This included the Container Deposit Scheme, the *Tosser!* campaign, and a range of supporting grant and enforcement programs. After many years of stubbornly high litter rates in NSW, in 2020 the LPP successfully reduced litter volume by 43% (on the 2013-14 baseline), achieving the Premier's Target.

Along the way the LPP has established new community waste-disposal norms, embedded new community-led litter-prevention programs into government, including *Return and Earn* and the *Report to EPA* program, and improved stakeholder capacity to prevent litter, leaving a lasting legacy for the NSW community by creating clean and healthy community spaces.

Report background

There have been five previous NSW litter reports (2004¹, 2006², 2008³, 2010⁴ and one covering 2012-17⁵). The first two were based on litter surveys commissioned by the NSW Department of Environment and Climate Change (DECC). Since then reports have been based on the Keep Australia Beautiful National Litter Index. Details of the National Litter Index methodology are provided from page 7 and in Appendix 1.

¹ *NSW Litter Report 2004*, Department of Environment and Conservation NSW (DEC) 2004

² *NSW Litter Report 2006*, Department of Environment and Conservation NSW (DEC) 2006

³ *NSW Litter Report 2008*, NSW Department of Environment, Climate Change and Water (DECCW) 2008

⁴ *NSW Litter Report 2010*, NSW Department of Environment, Climate Change and Water (DECCW) 2010

⁵ *NSW Litter Report 2012-2017*, NSW Environment Protection Authority (EPA) 2020

New Australian Litter Measure

In 2017 litter program managers from all Australian states and territories identified a common need to develop an improved measure for litter. After an extensive review of the existing framework and inter-jurisdictional consultation in 2019, states and territories agreed to develop a new measure, known as the **Australian litter measure** (AusLM).

The new measure will better inform policy in litter management and related issues such as plastic pollution and marine debris. This inter-jurisdictional initiative to develop and pilot the new measure began in December 2020 and the measure will be available for use by mid-2021. AusLM will be a periodic land-based count of litter items using a consistent and rigorous methodology. Eventually, AusLM will be in place to act in a complementary way to the Key Littered Items Survey (KLIS), allowing integration of land-based litter measures with a marine measure.

Litter and its impact

What is litter?

Litter is any solid waste object (disposable item or resource) that has been thrown, blown or left in the wrong place. It is the end outcome of an environmentally undesirable disposal action.⁶

Common litter items are drink containers (plastic and metal), cigarette butts, small pieces of paper, chip and lolly wrappers, fast-food packaging, bottle caps, plastic straws, and pieces of glass bottles. Litter also includes advertising and promotional material.

Litter impact

Litter damages local communities in a range of ways, including harming flora and fauna, lessening visual amenity, affecting health and safety, and reducing community pride. The presence of litter can also lead to additional socially undesirable behaviours.

Table 1: The various impacts of litter⁷

Impact	Outcomes
Visual	Litter makes places look unsightly and uncared for and attracts more litter.
Health	Sharp objects such as broken glass and syringes can injure people. The presence of litter makes it more likely that more serious antisocial behaviour (such as graffiti and property damage) will occur.
Environmental	Litter damages natural environments and harms wildlife and sea creatures.
Economic	A 2016 survey of NSW local councils, public and private land managers and community groups found that more than \$180 million is spent each year on managing litter.
Resource	Easily recyclable resources, such as drink bottles, are lost when people litter.

⁶ Community Change 2003, *Littering Behaviour Study V: National Benchmark 2002*, Beverage Industry Environment Council, Glebe, Sydney.

⁷ NSW Litter Prevention Strategy 2019–22

NSW policy settings – waste and litter

Litter as a Priority

On 14 September 2015 former Premier Baird committed to reduce the volume of litter in NSW by 40% (on a 2013–14 baseline) by 2020. Significant funding has been invested under the Waste Less, Recycle More initiative to reduce litter in NSW and achieve this target.

Waste Less Recycle More

Waste Less, Recycle More (WLRM) is the largest waste and recycling funding program in Australia. It has transformed the waste and recycling sector, delivering economic and environmental benefits in NSW. The *NSW Waste Avoidance and Resource Recovery Strategy 2014–21* was released in 2014 and set targets to:

- reduce the rate of waste generation per capita
- increase recycling rates across all waste streams
- increase the proportion of waste diverted from landfill to 75%
- establish drop-off facilities for managing problem household wastes.

Under WLRM, \$802.7 million is being invested over 2012–21 to reach these targets. WLRM aims to:

- drive waste avoidance
- encourage more recycling, organics collections and market development
- deliver better management of problem wastes
- accelerate and stimulate investment in waste and recycling infrastructure
- provide programs to tackle illegal dumping and litter

Waste Less Recycle More 2012-2016

The first phase of WLRM provided \$465.7 million funded from the waste levy. Of this, \$10.5 million was committed to litter prevention. About half of that sum, \$5.77 million, was awarded to 152 local council and community litter prevention projects using EPA-developed tools such as local litter checks and branding from the Tossler! community education campaign.

Waste Less Recycle More 2017-2021

The NSW Government extended the WLRM initiative, guaranteeing \$337 million in funding for 2017–21. Fifty million dollars will be provided for litter prevention over 2012–21. To embed long-term anti-litter behaviour, the government will work in partnership with communities, businesses and government agencies to deliver the following programs.

20-year waste strategy and plastics plan

The NSW Government is currently developing a 20-year waste strategy to provide a long-term strategic focus to waste management in NSW. The strategy, to be released in 2021, will outline future targets and approaches to reducing waste and litter. As part of the strategy, the government will also be releasing a plan that lays the groundwork for making NSW a national and global leader in the management of plastics. This plan will set out targets to reduce the amount of plastic we generate, increase recycling rates, reduce plastic pollution and make NSW a global leader in plastic research and solutions to the problem of plastic waste.

Litter Prevention Strategy 2019–22

The *NSW Litter Prevention Strategy 2019–22* sets the framework for funding and key actions to achieve NSW's ambitious litter target. Published in 2019, this strategy was a first for NSW and clearly expresses a litter-prevention agenda that everyone can use. It sets out an integrated approach to litter prevention across five elements, as shown in Figure 1 next page.

Figure 1: The integrated NSW Litter Prevention Strategy



Rewarding responsible behaviour

Container Deposit Scheme (CDS)

The CDS is a NSW Government initiative to reward responsible behaviour, which will in turn reduce beverage-container litter and increase recycling. The NSW CDS is delivered through the *Return and Earn* program that started on 1 December 2017. The CDS works on littering behaviour in two ways: first, by encouraging the person consuming a drink to hold on to the empty container for later redemption and, second, by providing an incentive for people in the community to pick up littered eligible containers to receive the refund.

Education and awareness

Tosser! campaign

The NSW Government launched the *Tosser!* campaign in 2014 to achieve broad-spectrum behaviour change. The campaign will continue to be evaluated and delivered to raise awareness and prompt the right behaviour – that is, taking your rubbish with you or putting it in the bin.

Infrastructure and clean-up

Litter grants

Since 2016 the NSW Government has provided over \$9 million in litter grants to support 220 projects delivered by community groups and councils. These grants provide assistance to roll out integrated programs to renew and install infrastructure, clean up local areas and conduct enforcement, education and evaluation.

Cigarette butts

A multifaceted approach towards cigarette-butt litter will work closely with the community to improve the littering behaviour of smokers and to provide better infrastructure to reduce butt litter.

Regulation and enforcement

The NSW Government is committed to leading at least four targeted litter-compliance campaigns each year. It will continue to deliver capacity-building courses for all authorised officers to effectively enforce anti-littering legislation.

Report to EPA

This online system allows the public to report litter thrown or blown from cars. Enforcement of litter offences is an important strategy for changing the social norm around littering. To date, 90% of reported littering from cars has been cigarette-butt littering.

Monitoring and evaluation

The NSW Government has developed a litter prevention monitoring and evaluation framework to measure the success of activities against this Strategy. It will use multiple evaluation methods to monitor progress on delivery of our objectives.

National Litter Index (NLI)

The National Litter Index allows state and territory jurisdictions and other stakeholders to obtain a regular estimate of the amount of litter in the environment. This information is used to measure the impact of litter-reduction initiatives and to benchmark levels of litter over time and across jurisdictions⁸.

The data in this litter report is derived from the Keep Australia Beautiful (KAB) NLI, a national litter survey funded by all Australian states and territories. This survey has been conducted annually since 2005–06, allowing the performance of NSW in litter management to be tracked over time.

NLI methodology

The litter survey is conducted in November and May every year, the combined counts being reported as an annual figure. It uses a standard methodology that measures both the volume and number of items littered at 1,000 sites across Australia. Appendix 1 gives details of the NLI methodology.

The NSW results are based on a survey of 151 sites, of eight types:

- beaches
- car park
- highway
- industrial area
- recreational park
- residential area
- retail area
- shopping centre.

The NLI codes litter into six broad categories: glass, metal, miscellaneous, plastic, paper/cardboard and cigarette butts. Within those broad categories, litter is classified into 83 separate types. For policy purposes, the NSW EPA splits the data into more relevant categories such as CDS materials, non-CDS eligible beverage containers, takeaway food and cigarette-related materials (butts, packaging, lighters etc). In this report the NSW NLI results are presented in eight key litter categories defined by the EPA:

- CDS beverage container
- non-CDS beverage container
- industrial container
- domestic container
- cigarettes (including packaging)
- print and advertising
- takeaway container
- miscellaneous.

NLI methodology limitations

The NLI survey only provides a snapshot of litter at certain sites at certain times and does not provide enough information to explain year-to-year fluctuations. For example, the NLI does not measure littering behaviour or other factors that influence the presence of litter in the environment, such as population density, recent clean-up activity and weather conditions. It does, however, provide insight regarding the relative presence or absence of litter objects and material types within the regions surveyed, and result trends over time. Findings are considered to be broadly but tentatively standardised to regions of a similar type. However, the NLI cannot be used in isolation to measure the effectiveness of anti-littering policies or programs.

⁸ NLI Review Draft Discussion Paper

Exclusion of illegal dumping

The KAB NLI survey includes illegally dumped materials as part of the litter stream, with each instance of dumping counted as one item, whether it be a couch, a tyre, a brick or a full garbage bag. KAB includes illegal dumping within its figure on total litter volume and items when it reports national figures.

NSW does not include illegal dumping figures in its litter figures.

The EPA does not consider illegal dumping as a litter issue – dumping involves different items and different behaviours. The EPA runs separate and targeted programs to address illegal dumping under the *Waste Less, Recycle More initiative*.

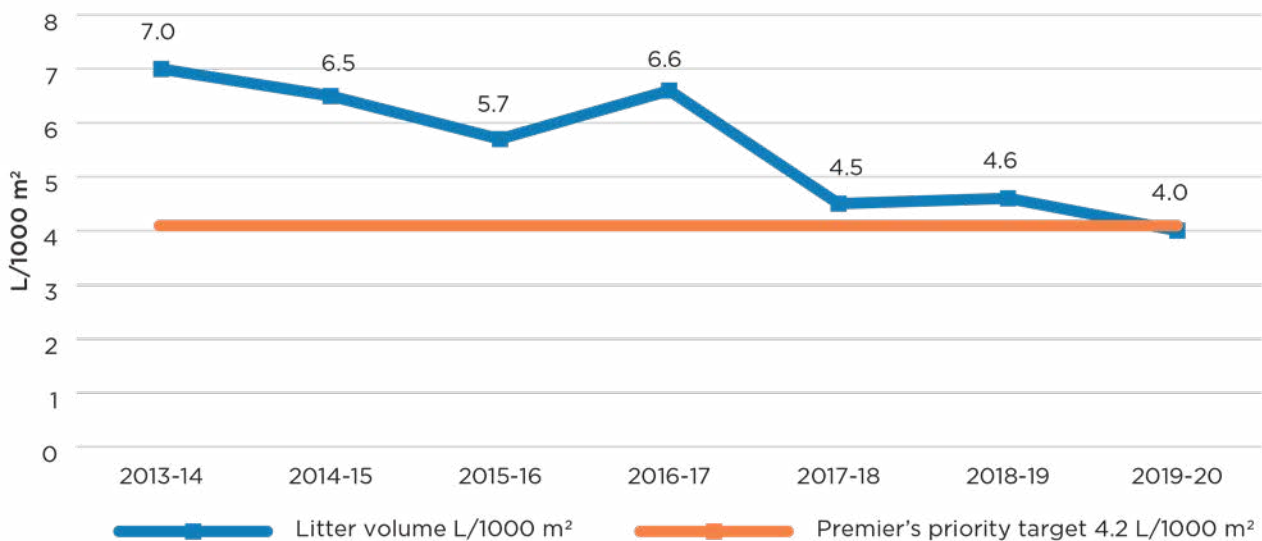
Results: Litter reduction priority achieved

While the focus of this report is from 2016–17 to 2019–20, as this is the first *NSW Litter Report* to announce the success of the target set by former Premier Baird in 2015, the results from 2013–14 are briefly reviewed below.

Since the Premier's Target Baseline Year (2013–14):

- NSW litter volume has reduced by 43% (from 7.0 litres per 1,000 m² to 4.0 litres per 1,000 m²), meaning **the target has been achieved**.
- NSW littered items have reduced by 19% from 2013–14 to 2019–20 (from 57 items per 1,000 m² to 46 items per 1,000 m²).
- There has been a 51% reduction in *Return and Earn*-eligible drink container litter since 2013–14.

Figure 1: NSW litter volume per 1,000 m² over 2013–20, showing progress to the litter reduction priority target of 40% litter reduction by 2020



Results: litter data 2020 snapshot

2020 snapshot – by volume

The 2019–20 National Litter Index report indicates:

- Total litter volume in NSW is 4 litres per 1,000 m².
- CDS beverage containers are the biggest contributor to litter volume (35% of total litter stream) followed by takeaway containers (32%).
- The other categories combined make up the 33% of the remaining litter volume.
- Plastic shopping bags contribute 1% of litter.
- Coffee cups contribute 12.5%.
- Highways (22.6%), industrial sites (35.9%) and car parks (18%) are the most-littered sites.

Figure 2: Composition of litter volume (EPA categories) per 1,000 m² in NSW in 2020



Percentage

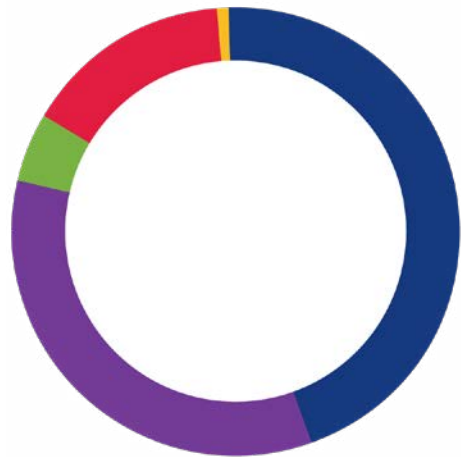
- CDS beverage container 34.9%
- Takeaway container 31.6%
- Print and Advertising 6.4%
- Non-CDS beverage container 5.6%
- Miscellaneous 6.2%
- Industrial container 5.3%
- Domestic container 6.0%
- Cigarette 3.9%

2020 snapshot – by number of items

The 2019–20 National Litter Index report indicates:

- Total litter in NSW is 46 items per 1,000 m².
- The largest category (45%) is 'miscellaneous items'.
- Cigarettes (including packaging) continue to be the highest-recorded individual littered item (34%).
- Cigarettes (including packaging) and miscellaneous items combined account for 79% of the litter stream. Takeaway containers are the other notable contributor to litter items (15%), with CDS beverage containers accounting for 5%.

Figure 3: Composition of littered items (EPA categories) per 1,000 m² in NSW in 2020



Percentage

- Miscellaneous 45%
- Cigarette 34%
- CDS beverage container 5%
- Takeaway container 15%
- Print and Advertising 1%
- Non-CDS beverage container 0%
- Industrial container 0%
- Domestic container 0%

Results: litter data 2016-17 to 2019-20

The data below comes from the 2016-17 to 2019-20 NLI results (referred to as 2016-20).

Litter volume

From 2016 to 2020

- Total litter volume in NSW fell by 41%, from 6.6 litres of litter per 1,000 m² to 4 litres per 1,000 m².
- The volume of litter from CDS beverage containers decreased by 52%, from 44.1% of the litter stream in 2016 to 34.9% in 2020.
- Industrial containers reduced by 75%, from 12% of the litter stream to 5% of the litter stream.
- Print and advertising litter volume reduced by 50%, from 0.6 litres of litter per 1,000 m² to 0.3 litres per 1,000 m².
- Takeaway litter remained steady at 1.3 litres per 1,000 m²; however, it rose from 19% to 31% of the total litter stream, as a result of significant reductions in other categories.
- Cigarettes (including packaging) continue to contribute the smallest amount to litter volume, staying steady at 0.2 litres per 1,000 m².

Figure 4: Estimated volume of litter per 1,000 m² in NSW, 2016-20

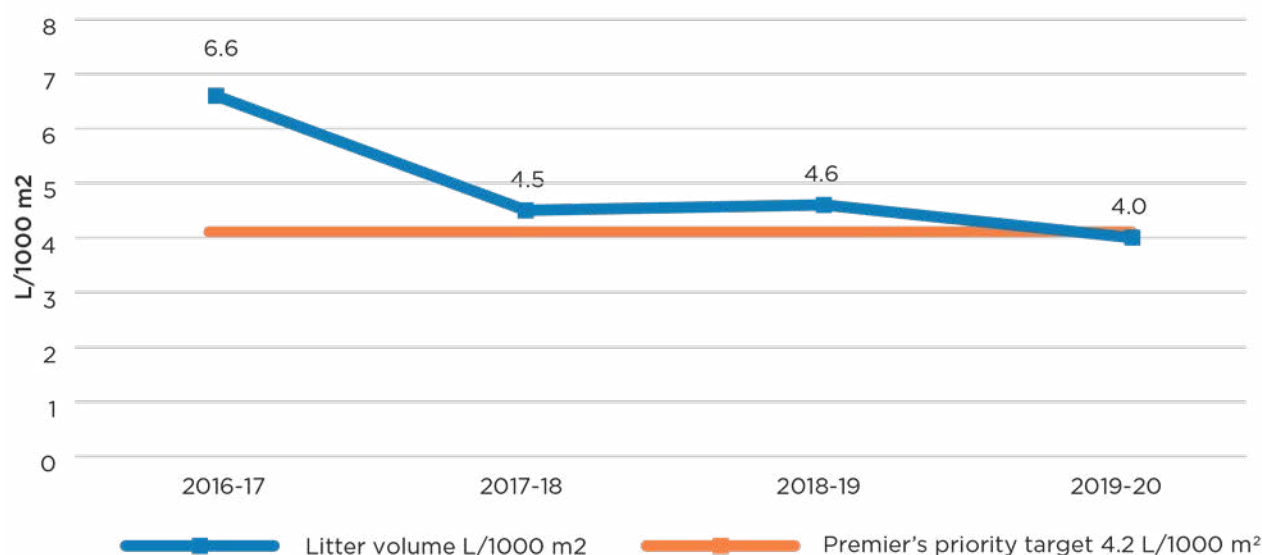
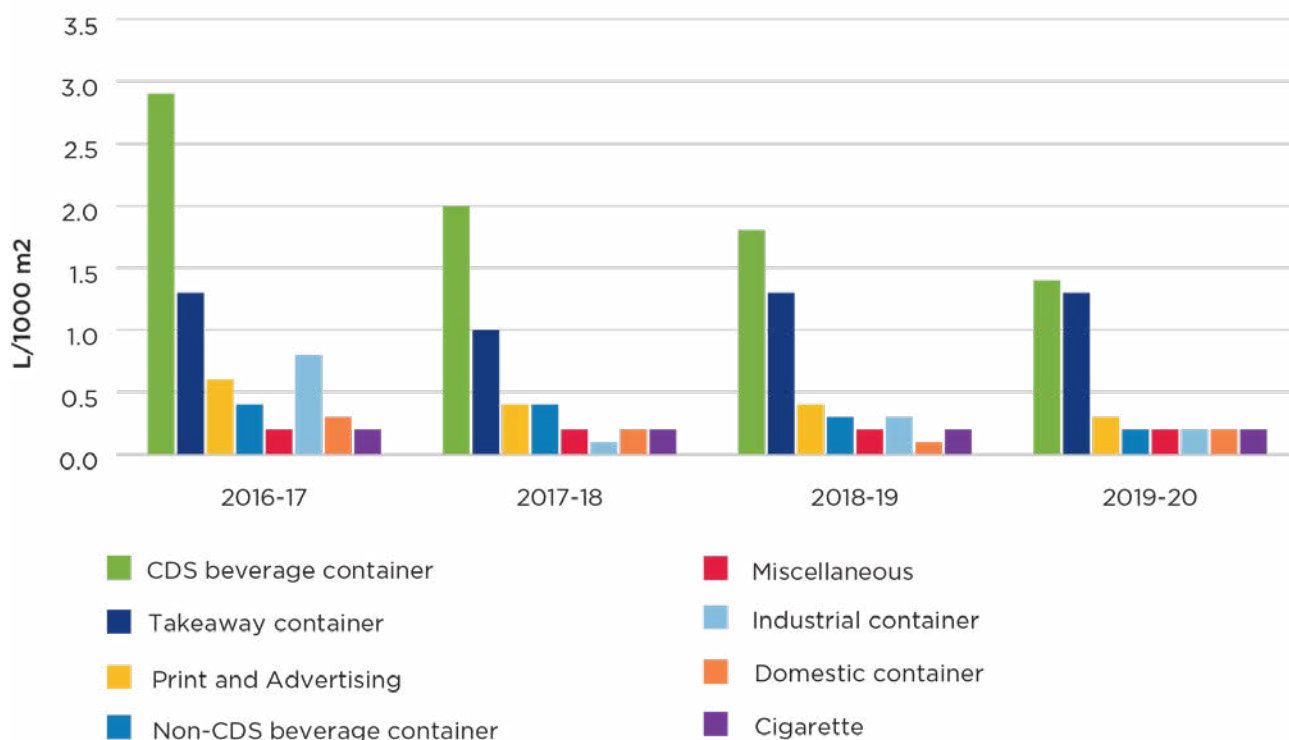


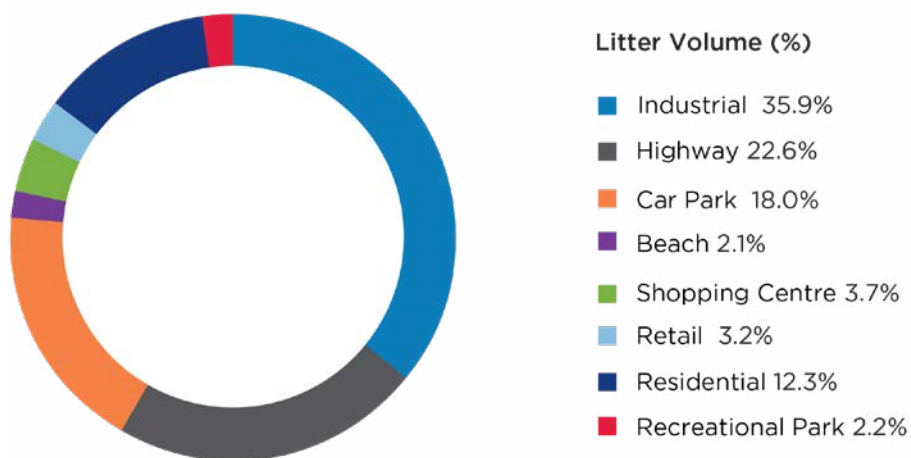
Figure 5: Comparison of litter volume (EPA categories), 2016-20



In 2019-20

- Industrial sites continued to be the most-littered site type, accounting for over a third of the litter volume in 2019-20.
- Car parks, highways and residential sites also recorded significant litter volumes.
- The remaining sites, including shopping centres, retail, recreational parks and beaches, recorded relatively low levels of litter.

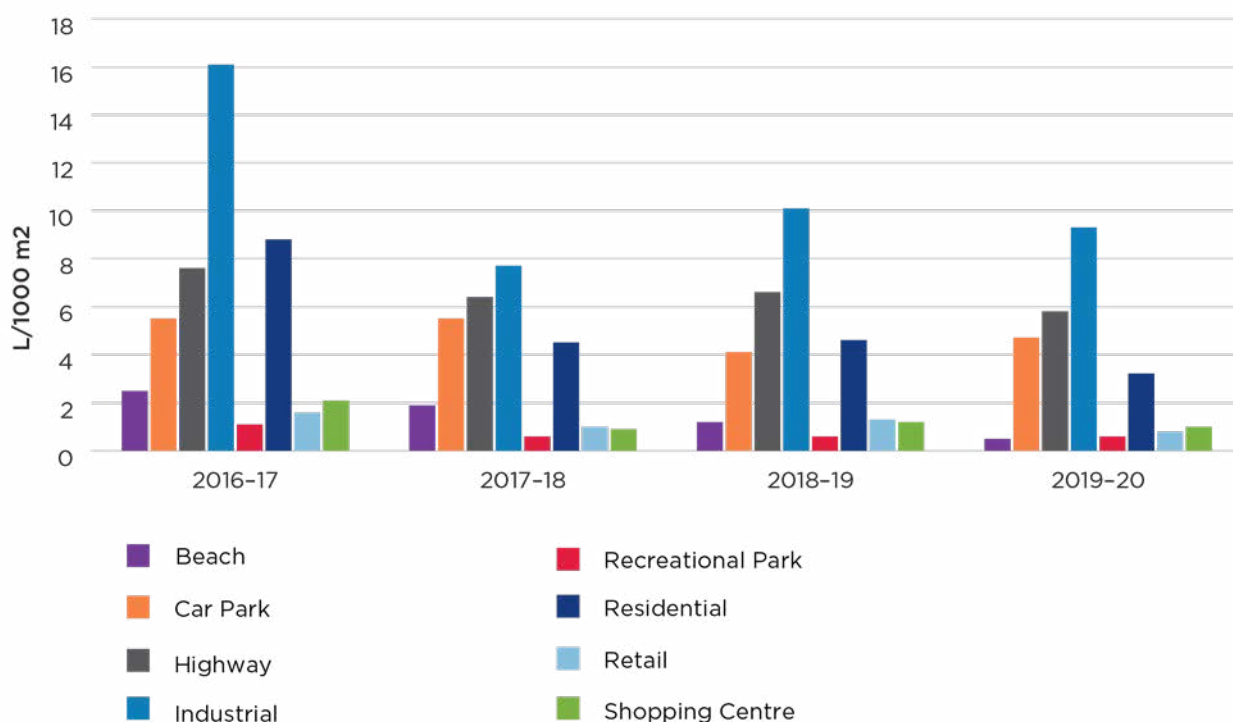
Figure 6: Composition of litter volume across site types in NSW in 2020



From 2016 to 2020

- Litter decreased across all sites.
- The most significant decrease in litter volumes was recorded at industrial sites, dropping from 16.1 litres in 2016 to 9.3 litres in 2020.
- Significant decreases in the volume of litter were also recorded at beaches and residential sites.

Figure 7: Litter volume per 1,000 m² by site type in NSW, 2016-20



Litter items

From 2016 to 2020

- Total litter items in NSW reduced by 6%, from 49 items per 1,000 m² to 46 items per 1,000 m².
- Cigarette litter remains the most commonly littered item, but it has reduced by 14%, from 18.3 items per 1,000 m² to 15.8 items per 1,000 m².
- 'Miscellaneous items' remains the largest category. It grew slightly from 19.2 items per 1,000 m² to 20.6 items per 1,000 m².
- The number of littered CDS beverage containers decreased by 47%, from 4.7 items per 1,000 m² to 2.5 items per 1,000 m².
- Littered industrial containers fell by 75%, from 12% of the litter stream to 5%.
- Print and advertising litter reduced by 38%.
- Takeaway litter items increased by 22%.

Figure 8: Estimated number of litter items per 1,000 m² in NSW, 2016-20

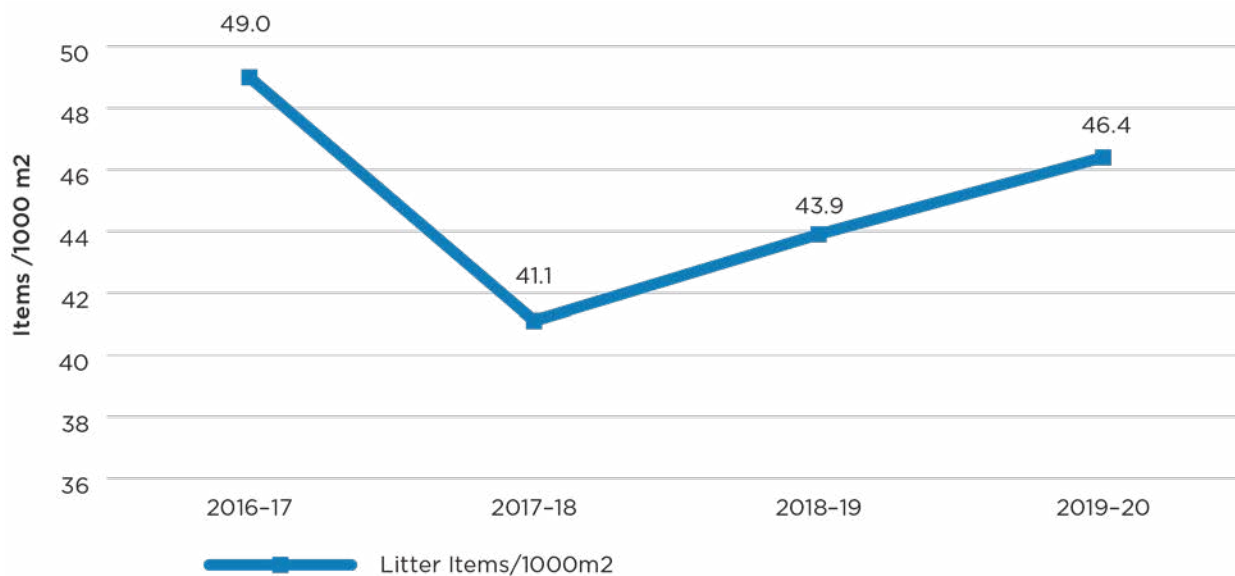
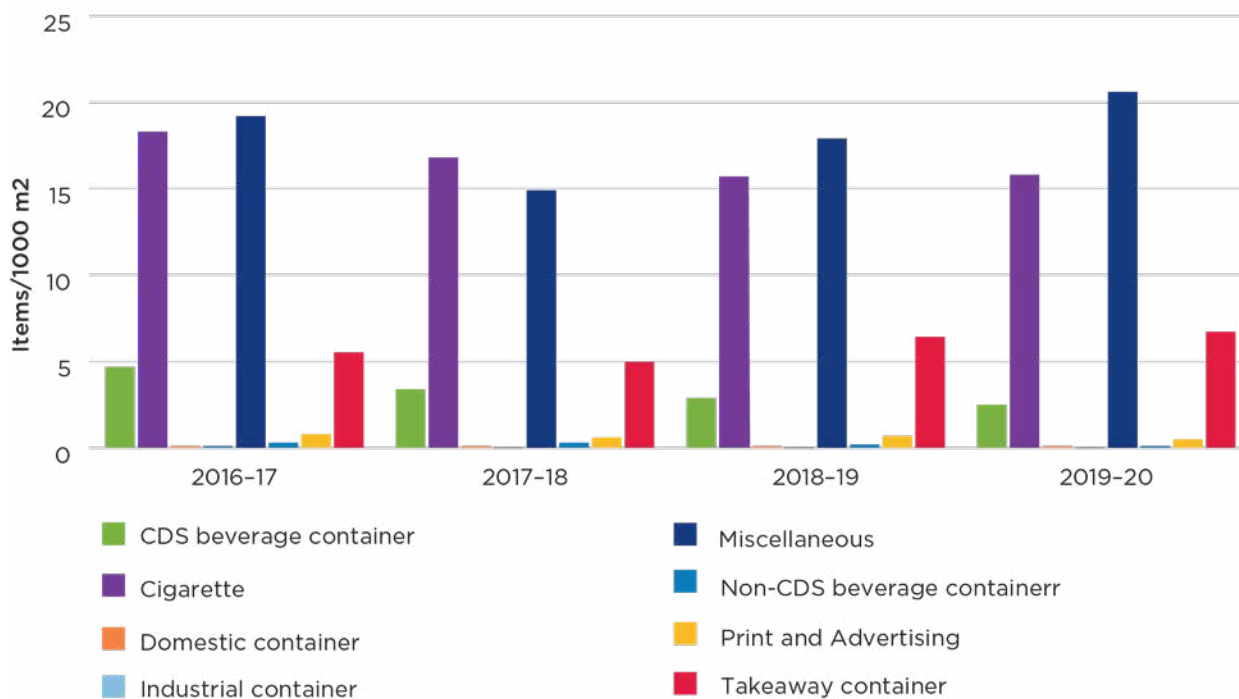


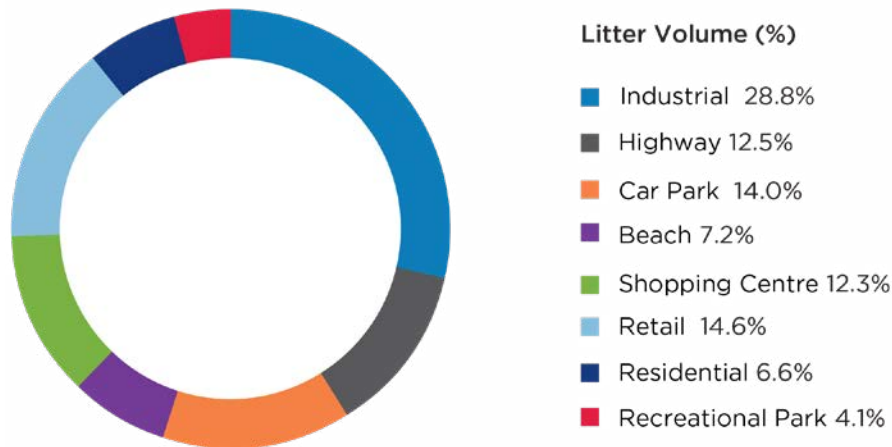
Figure 9: Number of littered items (EPA categories) per 1,000 m² in NSW, 2016-20



In 2019-2020

- Industrial sites continue to be the most-littered site type, accounting for 29% of litter.
- Retail sites, car parks, highways sites and shopping centres are the next most-littered sites.
- The remaining sites, including recreational parks, beaches and residential areas, recorded relatively low levels of litter.

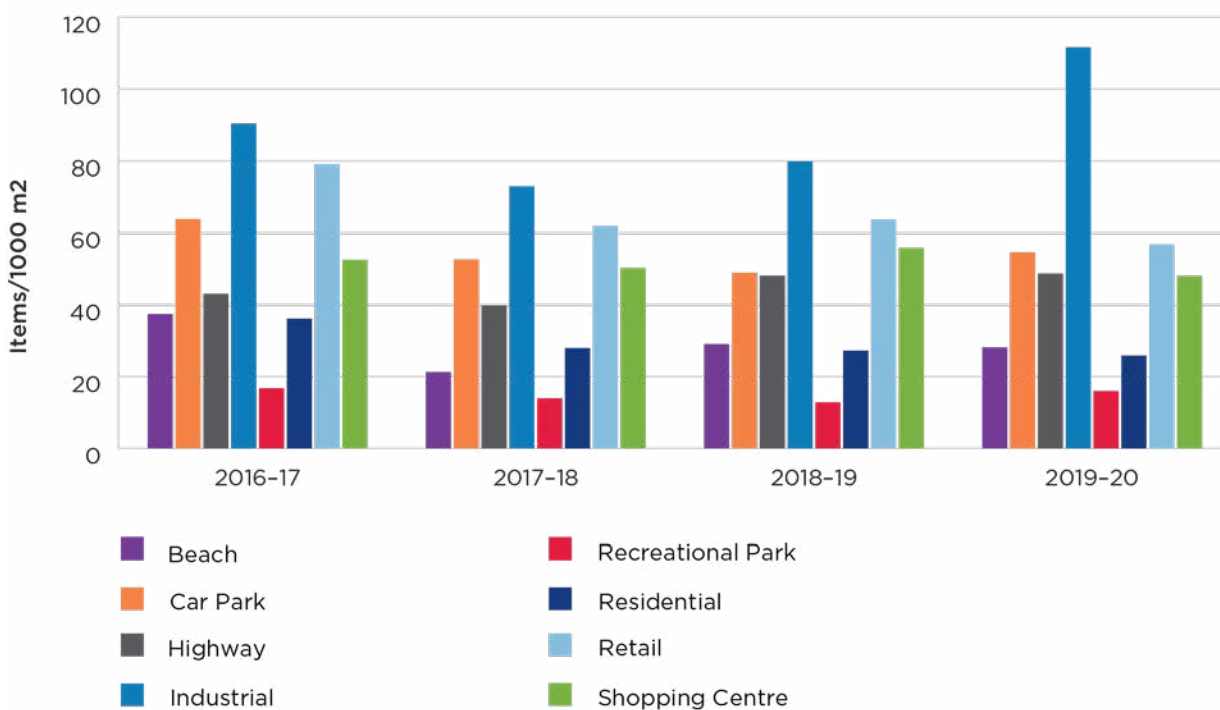
Figure 10: Composition of litter items across site types in NSW in 2020



From 2016 to 2020

- The number of litter items increased by 23% in industrial sites and by 13% on highways.
- All other site types recorded reductions in the number of litter items.

Figure 11: Litter items per 1,000 m² by site type in NSW, 2016-20

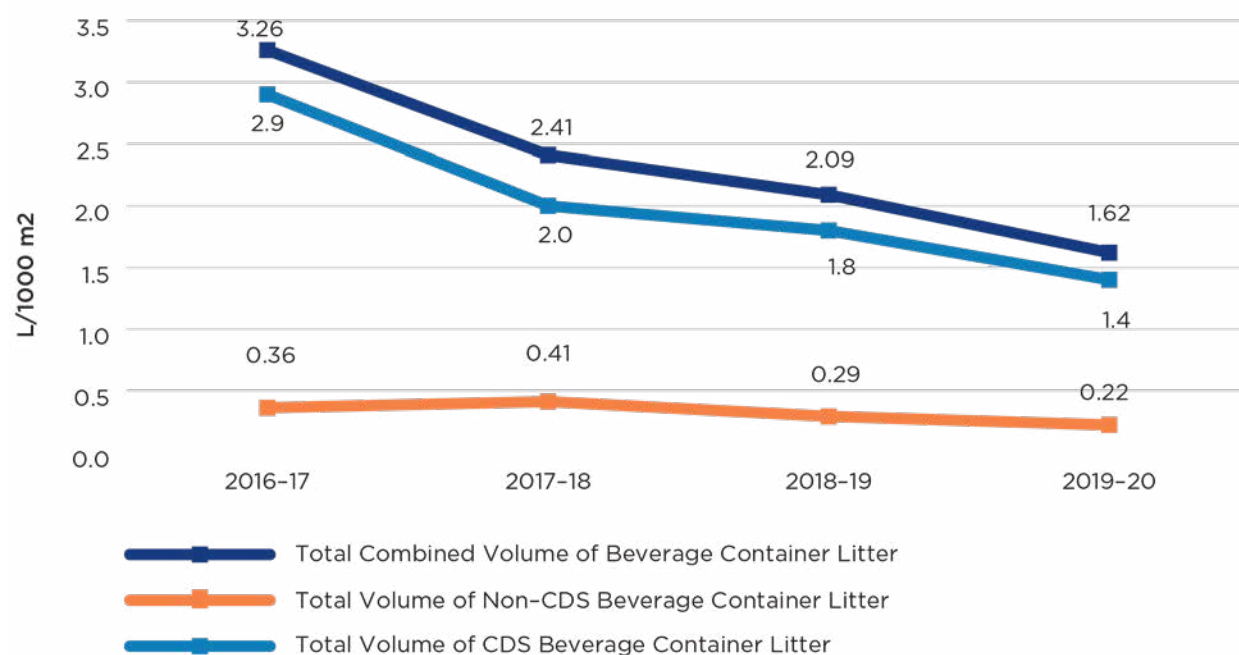


Key litter categories

Container deposit scheme (CDS) beverage containers

- Between 2016 and 2020, the volume of CDS beverage container litter fell by 52%. As a result, CDS beverage containers fell from 44% of the total litter stream (by volume) in 2016 to 35% in 2020.
- The volume of non-CDS beverage containers decreased by 38%, though from a significantly smaller proportion.
- For comparison, the volume of all non-CDS litter fell by 30% during 2016–20, from 3.7 litres of litter per 1,000 m² to 2.6 litres per 1,000 m².

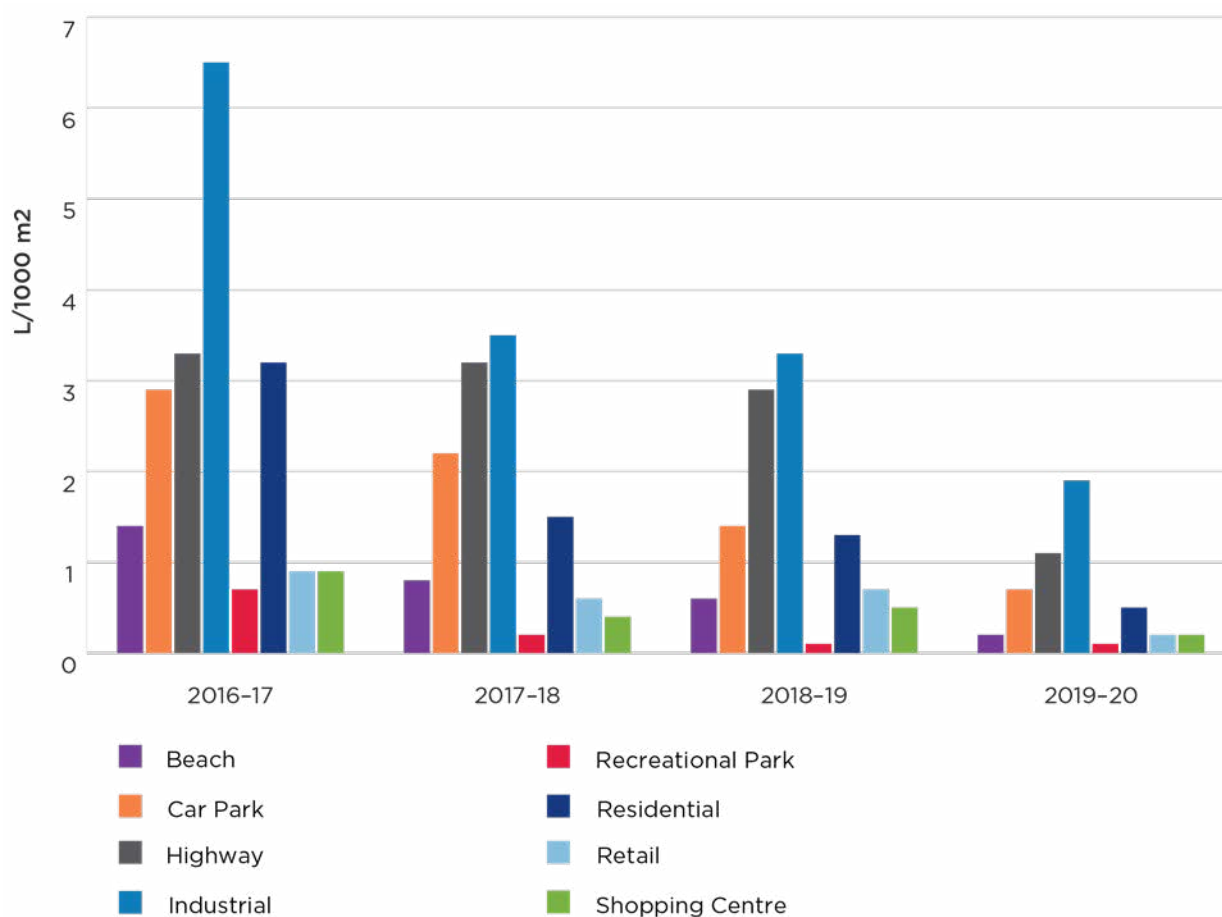
Figure 12: Comparison of CDS and non-CDS litter volume



CDS litter across site types, 2016–20

NLI results from 2016 to 2020 display an overall decrease in the volume of CDS beverage containers per 1,000 m² across all site types in NSW. Industrial sites displayed the greatest decrease, down to 1.9 litres in 2020 from 6.5 litres in 2016. Highway sites also recorded a significant decrease in the volume of CDS beverage container litter.

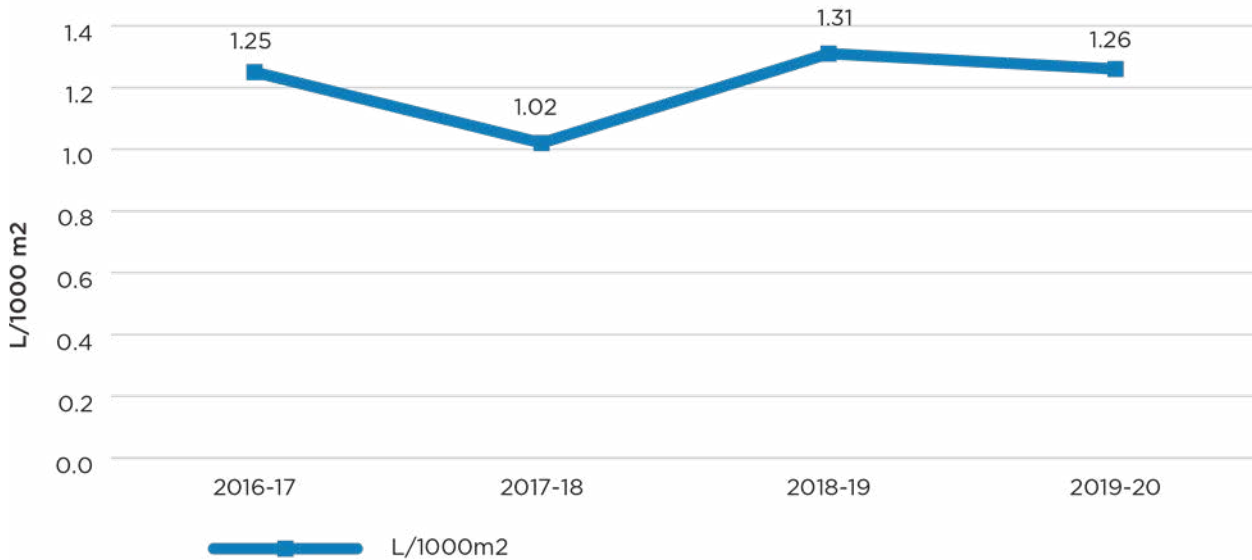
Figure 13: Estimated volume of littered CDS beverage containers per 1,000 m² across site types in NSW, 2016–20



Takeaway containers

From 2016 to 2020 the volume of littered takeaway containers remained stable throughout NSW. The proportion of littered takeaway containers has risen from 19% of the litter stream in 2016 to 31% in 2020. This proportional increase is mainly due to the reduction in CDS beverage container litter.

Figure 14: Volume trends of littered takeaway containers in NSW, 2016-20

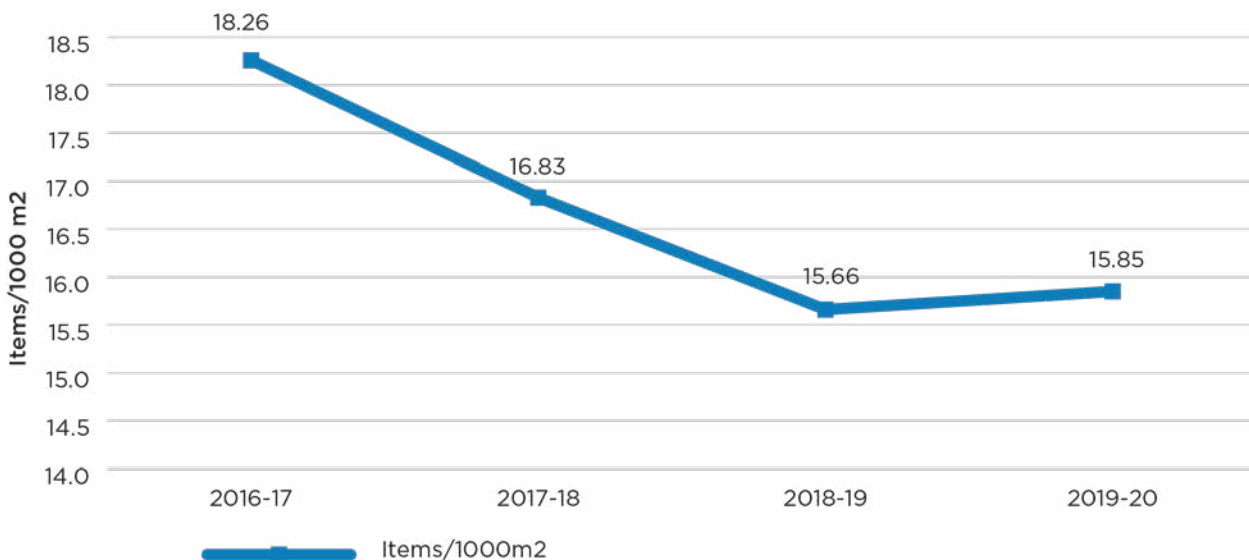


Cigarette butts

The NLI results reveal cigarettes (including packaging) accounted for over a third of total littered items during 2016-20. However, since 2016 cigarette litter has fallen by 27%, from 18.3 to 15.8 littered items found per 1,000 m².

Cigarettes account for only a very small proportion of the overall litter volume (0.2 litres per 1,000 m²).

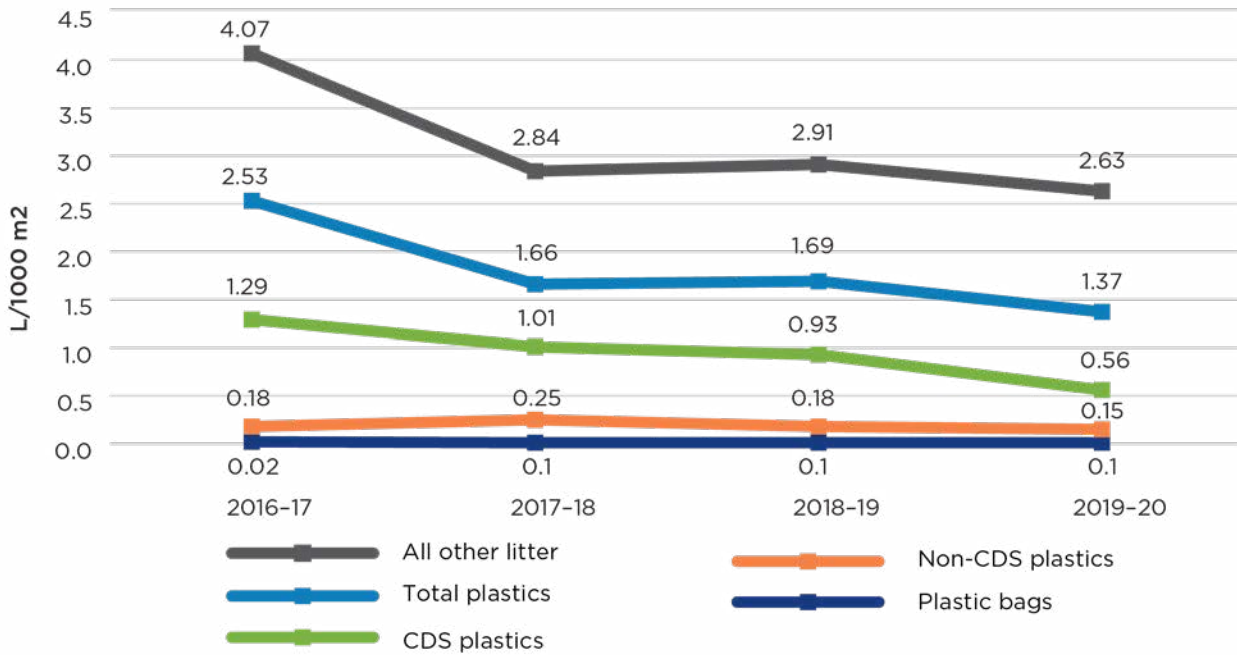
Figure 15: Estimated number of cigarette butts and packaging per 1,000 m² in NSW, 2016-20



Plastic litter and plastic bags: trends

There has been a steady decline in the volume of plastics in the litter stream. The NLI results reveal the volume of plastic litter has decreased from 2.53 litres per 1,000 m² in 2016 to 1.37 litres per 1,000 m² in 2020. Plastic-bag litter represents a very small volume overall. As the graph below shows, it has followed the same trend as all plastics.

Figure 16: Volume composition of plastics in the litter stream per 1,000 m² in NSW, 2016-20



Appendix

NLI methodology

The litter survey is conducted in November and May every year, with the combined counts reported as annual figures. The National Litter Index (NLI) provides litter data based on a standard methodology that measures both volume and number of items littered across over 1,000 sites nationally.

Every piece of litter is counted on the ground, and then a formula is applied to that category to arrive at a litter volume figure for that category. The volume figure is therefore an estimate of litter volume rather than an exact figure. The methodology has been

refined over many years of continuous surveying in South Australia, with periodic extensions to cover the whole of Australia when funding has been available⁹. The NSW results are based on a survey of 151 NSW sites, divided into eight site types (Table 2). The site locations are not released. Different total areas are surveyed for different site types. To determine the rate of litter per 1,000 square metres, the EPA divides the total amount of litter by the total NSW survey area. In NSW, the total NLI survey area is 221,499 m².

Table 2: Areas surveyed in Keep Australia Beautiful NLI surveys

Site type	Average site area (m ²)	Number of sites surveyed	Total area (m ²)
Beach	563	16	9,000
Car park	1,528	23	35,148
Highway	2,209	27	59,636
Industrial area	1,017	17	17,288
Recreational park	2,061	13	26,790
Residential area	1,509	26	39,237
Retail area	1,163	15	17,450
Shopping centre	1,211	14	16,950

Average area across all sites: 1,407 m²

Total number of sites: 151

Total area surveyed: 221,499 m²

⁹ NSW KAB NLI 2016-17

Volumes

Litter volumes were estimated from extensive historical litter data recorded in South Australia. This data was used to arrive at an average volume for each type of litter.

The volume figures were adjusted to take into account that a certain proportion of all littered items would be found crushed and weathered.

These volume figures were then used with the numbers of litter items recorded in each category to calculate overall volumes for each litter type: Table 3 gives examples of such calculations. As these calculated volumes are only estimates, they should be interpreted with caution.

Table 3: Volumes of selected litter items recorded 2006–07

Item type	Estimated volume of one item of this type in litres	Number of items recorded nationally 2006–07	Estimated volume in litres
Glass – plain water (carbonated or non-carb.), ≥ 1 litre	1.05925	33	34.96
Metal – aerosols – pressure packs	0.68424	57	39
Paper/paperboard – cigarette packets	0.21787	3,121	679.97
Plastic – flav. milk, <1 litre	0.5327	544	289.79

Litter per 1,000 m²

Numbers of litter items and volumes are quoted for an area of 1,000 m², to allow for the detailed analysis of data within an established framework. This analysis has been applied to all data collected since November 2005, and results are now tracked annually using a reliable benchmark comparison.

The current litter per area measurement methodology enables meaningful and valid comparisons of the amounts of litter in the litter stream nationally, regionally, and across material types.

Litter-counting procedures, categories and assumptions

- A standard data-collection form was used for the litter counts.
- Brand names were recorded when they were visible. Branded litter results have been reported in a separate document.
- Counters were trained to carefully analyse the litter to ensure that it was properly identified before recording it on the survey form – for example, to determine whether an item is glass and not clear plastic, or to differentiate between fruit juice and fruit drink, as these are recorded on different sections of the form.
- Broken bottles were counted as one bottle, a bag of dumped garbage was considered to be one item of ‘illegal dumping’, and scattered newspaper pages were counted as one newspaper.
- While individual cigarette butts were counted, where there are large volumes of cigarette butts an estimated count was acceptable.
- All waste located within any count site was considered litter apart from that properly disposed of in a waste receptacle.
- Organic matter (including food, chewing gum and dog faeces) was not recorded during the count.

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