McGregor Tan Research
Strategies, Marketing and Social Research
Head Office: 259 Glen Osmond Rd, Frewville SA 5063
Tel: 08 8433 0200 Fax: 08 8338 2360
research@mcgregor.com.au www.mcgregor.com.au

ANNUAL REPORT

2006/ 2007

Principal Supporter: Australian Government
Supporters: Governments of NT, QLD, SA, TAS, VIC, WA

Prepared for: Keep Australia Beautiful National Association
Based on field surveys conducted in Nov 2005, May 2006, Nov 2006 and May 2007
Project No: 6584
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For enquiries on this report please contact:

- Ben Selby or Zing Hai Tan at McGregor Tan Research on 08 8433 0200.

Or

- Max Spedding on 0400 880 677 or Scott Lyall on 0419 016 401 at Keep Australia Beautiful National Association or your local KAB office.

Section 1
Overview

Executive Summary

The Keep Australia Beautiful Network (KAB), consisting of independent State and Territory offices coordinated by a national secretariat, is a national organisation that encourages people around Australia to care for their local environment. It does this through its awards programs and by focusing on litter and pollution reduction activities across Australia.

In 2005/2006, KAB, through the support of the Australian Government recommenced its bi-annual litter count and the annual National Litter Index (NLI) report. The report builds on research that has taken place in SA for many years. In 2005/2006 the Tasmanian count was supported by Cadbury Schweppes. In 2006/2007 a majority of States and Territories joined the Australian Government as financial supporters of the research: NT, QLD, SA, TAS, VIC, WA. In 2006/2007 NT and ACT were included in the fieldwork for the first time

In its new reporting format, commencing with this report, it is expected that the NLI will, by providing reliable base line data on litter across Australia, assist governments, businesses and community organisations in the development of policies and programs that will reduce litter and provide increased pride in communities across Australia.

NLI counts are conducted in November and May each year, and following expansion to the ACT and Northern Territory now cover 983 sites. These sites are divided into eight site types:

- Beaches
- Car Parks
- Highways
- Industrial
- Recreational Parks
- Residential
- Retail

- Shopping Centres

Each count records all items of litter present. From the number of items volumes of litter are estimated using well established conversion factors.

This base data is then collated to provide trend comparisons between items and volumes within material types and litter sources.

Currently all NLI sites are in urban and near-urban areas. All sites have been selected to be 'typical' for that site category, and are not varied from count to count. Each site has been measured to determine its area.

This NLI report varies from previous publications as:

- All results are quoted against a 1,000 square metre site area
- Illegal dumping has been split out of 'miscellaneous' litter and quoted separately
- Gutters have been included in all sites

As a result of these changes, benchmarking between individual states and the national data is more reliable.

In overall terms littering increased across Australia from 2005/6 to 2006/7:

	Items per 1,000 m^2		Volume (litres) per 1,000 m^2	
	05/ 06	**06/ 07**	**05/ 06**	**06/ 07**
NATIONAL	70	74	8.86	9.68
ACT	-	68	-	7.04
NSW	80	71	14.95	14.69
NT	-	64	-	5.32
QLD	89	86	7.66	7.59
SA	60	61	7.23	11.08
TAS	59	70	5.15	6.68
VIC	71	80	7.87	7.74
WA	60	83	8.57	12.19

The causes of this increase are varied and a state-by-state analysis is needed to determine what area should be addressed in each state.

(A guide to how to analyse the data in the NLI follows).

Suggested User Guide

To obtain the best results from your review of this new National Litter Index reporting format it is suggested that the reader use the following five steps:

Step 1: Methodology - Review the new reporting methodology noting that the count results are now all quoted against a base area of 1,000 square metres.

Step 2: National Baseline - Review the national year-to-year results from the 983 sites across Australia and note the changes across the site categories, e.g. (Column chart - page 21) the number of items increased in Retail and Shopping Centres leading to an overall increase from 70 to 74 items per 1,000 m^2 whilst (Column chart - page 22) litter volume increased along Highways and in Residential areas but reduced in Industrial sites leading to an overall increase of 0.82 litres per 1,000 m^2.

Step 3: Benchmarking - Compare your state's results with the national baseline to determine where improvement can be made.

Step 4: Trend Analysis - Review your state's year-to-year results and compare category variances to the national trend across the four counts recorded in the report. Highlight negative trends and use the accompanying tabulations to determine which items are increasing.

Step 5: Setting Priorities - Review your state's year-to-year composition charts to highlight changes in litter behaviour.

Step 6: The Dirty Dozen - Check your state's 'Dirty Dozen' to ensure that you are targeting the main litters.

Max Spedding
NLI Project Manager
06/ 07 Report

Section 2
Background and Content

Keep Australia Beautiful and the National Litter Index

Keep Australia Beautiful (KAB) National Association was formed in 1971 as a federation of the autonomous state KAB Councils which have been in existence since 1966 and continue their work today. A major focus of Keep Australia Beautiful's work is the reduction of litter and pollution. KAB encourages people all around Australia to care for their local environment through its awards programs such as the Australian Tidy Towns - Sustainable Communities Awards, the Australian Sustainable Cities Awards and the Australian Clean Beach Challenge.

The National Litter Index was initially developed by the KAB Network member in South Australia, KESAB. 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 available.

A bi-annual National Litter Index was reinstated in 2005 with funding provided by the Commonwealth and several state governments. This support for a national litter count was prompted by the ratification of a second five-year term for the National Packaging Covenant. The revised Covenant is expected to be more results-driven than the first version and has a particular focus on improving the recovery of packaging on products consumed away from home.

Purpose

The purpose of the National Litter Index is to provide insight regarding:

- The presence of litter items at sites within broadly comparable regions.
- Estimated volumes of litter objects within the litter stream, based upon a volume-per-item model.
- The contribution of objects recognized within established main material types to the overall litter stream.

- The most significant contributors to the litter stream - the 'Dirty Dozen'.

It is expected that the information derived from this research will be used by governments and community organisations to develop policies/ programs that will reduce litter and create increased prided in communities across Australia.

Limitations

The National Litter Index is not a study of littering behaviour. It is exclusively intended as an assessment of the presence of litter objects within surveyed regions. As such, no corrections for population densities are carried out. The information derived from the Index provides no indication of whether residents of a particular region litter more or less frequently than those in a different region. It does, however, provide insight regarding the relative presence or absence of litter objects and particular material types within the regions surveyed. Such findings are considered to be broadly but tentatively generalisable to regions of a similar type.

Section 2
National Litter Index Methodology

2.1 Scope

Sites surveyed within the research program were sampled primarily from urban and near-urban areas (i.e. generally within 50km of the urban areas surrounding each state capital). Generalisation of findings to regional locations must therefore be made with caution.

The total area surveyed across all sites nationally was 1,499,791 m^2. This area spanned a total of 983 sites, and the average site size was 1,526 m^2. A complete table of site area information is provided in the Appendices.

2.2 *Material Categorisation*

All litter items counted were incorporated within 7 main material type categories. These main material types were further broken down into object sub-categories, as follows:

MAIN MATERIAL TYPE	Object Sub-Category
CIGARETTE BUTTS	Total
GLASS	Alcoholic beverage container Non-alcoholic beverage container Plain water container Other
ILLEGAL DUMPING	Total
METAL	Alcoholic beverage container Food container or utensil Non-alcoholic beverage container Plain water container Other
MISCELLANEOUS	Total
PAPER/ PAPERBOARD	Cigarette packets Food container or utensil Non-alcoholic beverage container Publication Other
PLASTIC	Alcoholic beverage container Food container or utensil Non-alcoholic beverage container Plain water container Shopping bag Other

These object sub-categories were further broken down into a total of 84 separate item-type distinctions (a full list of these is available in the Appendices). Litter counters were required to record the numbers of items within each of these item types that were present at any given site surveyed.

2.3 Sites

All sites incorporated within the survey were categorised according to 8 different site types. Uniform guidelines were conformed to during site selection. Site specifications vary from 500 square metres (beaches) to 3,000 square metres (highways).

Residential

A street area approximately 150 metres in length, along both sides of the road from the front of the properties on each side of that road extending to the gutter including litter in the gutter.

Beach

An area of approximately 50 metres long and 10 metres wide, positioned on one or across both sides of a jetty, boat ramp or main entry access point to beach.

Industrial

A street area approximately 150 metres long within an industrial area, the count area to be from the fence line or immediate front of the properties to the gutter including litter in the gutter

Car Park

An area of approximately 30 by 50 metres in an open space public car park at a point distant from the entrance to the car park.

Shopping Centre

An area approximately 50 metres long and 25 metres wide, directly outside of the main shopping centre building and including one or across both sides of a major entrance.

Retail Strip/ Shops - Street Precinct

An area approximately 150 metres long in front of a strip of shops, extending from the front of the shops to the street gutter and including litter in the gutter.

Recreational Park

An area of approximately 40 by 50 metres in a park area which includes a playground but which is not in the immediate vicinity of a shop or kiosk. The areas should be within a frequently used park.

Highway

Highways include open major roadways bounded by a vegetated area that may include an open drain.

The count area commences from the are beginning at the edge of the road, and extending out from the road to the nearest fence/ boundary or up to a distance of 10 meters out from the road side if no such fence/ boundary exists. Two such areas should be collected from, one on each side of the road. Each region should extend for a length of approximately 200 meters along the road.

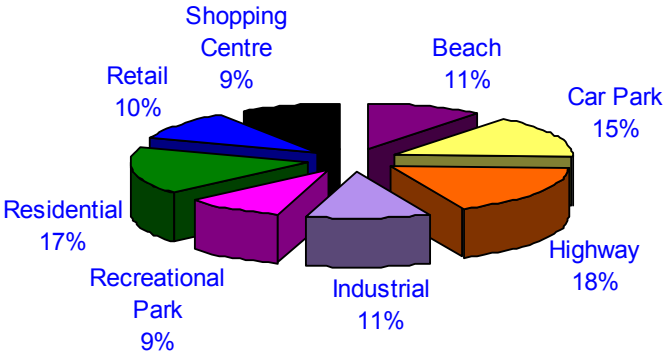
Site Type Representation

The following table outlines the number of sites within each of the 8 distinct site types that were sampled within each of the states participating in the Index.

Please note that the numbers of sites sampled from ACT/ NT/ TAS were all designated to represent half the numbers of sites sampled from all other states.

	ACT/ NT/ TAS	All Other States	Total Sites Surveyed Nationally
Beach	8	16	**104**
Car Park	11	23	**148**
Highway	13	27	**174**
Industrial	9	17	**112**
Recreational Park	7	13	**86**
Residential	13	26	**169**
Retail	8	15	**99**
Shopping Centre	7	14	**91**
Total	**76**	**151**	**983**

Proportion of Total Sites by Site Type



2.4 Volumes

Litter volumes were estimated from extensive historical litter data recorded within South Australia.

Each litter type incorporated within the study was associated with an individual figure which represented an average volume for each litter item of that type.

In order to reflect a more realistic scenario the final volumes for each litter category item take into account that a certain proportion of all items found would be crushed and weathered.

These volumetric profiles were then extrapolated to calculate estimated volumes of the national data based on the numbers of litter items recorded per category. It should be noted that these volumes represent estimates only, and as such they should be interpreted with caution.

For example, the volume estimates based upon the numbers of items found in the following categories were calculated as follows:

Item Type	*Estimated volume of one item of this type in litres*	Number of items recorded nationally 06/ 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	39.00
PAPER/ PAPERBOARD - Cigarette packets	*0.21787*	3,121	679.97
PLASTIC - Flav. milk, <1 litre	*0.5327*	544	289.79

2.5 Timing

The National Litter count was initiated in NSW, QLD, SA, TAS, VIC & WA during November 2005, with a second count conducted in May 2006. These counts were conducted at 76 sites within TAS and across 151 sites within each of the other states. Calculations of average litter figures within areas

have taken into account the reduced overall areas corresponding to the litter counts for these regions.

The 2006/ 2007 National litter counts were conducted during November 2006 and May 2007. These counts included ACT and NT at 76 sites within each of these states.

2.6 *Litter Counter Training*

The litter categorisations and assumptions used during the counts of designated sites were broadly as follows:

- A standard data collection form, was used when conducting the litter counts. A copy of this form is provided in the Appendices.
- Brand names were recorded when such 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 are counted, where there are large volumes of cigarette butts an estimated count is acceptable.
- For the purpose of the Litter Count, all waste located within any count site is 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.

2.7 Reporting

Annual Results

Litter counts have been conducted bi-annually in November and May across the years of 2005/ 2006 and 2006/ 2007 respectively. Unless stated otherwise, results are thus reported on an annual basis incorporating average figures corresponding to the combined November and May counts across these years.

Litter per 1,000 m^2

Previous reporting of National Litter Index findings focused exclusively on numbers of items counted and estimated volumes of litter. Such results were compared across site types, material categories etc.

However, as a more broadly comparable method of data quantification is required, numbers of litter items and volume are now quoted against an average 1,000 square metre area.

Whereas previously the differing areas at each site type rendered comparisons of litter by site type imprecise, 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.

Illegal Dumping and Miscellaneous Litter

Illegally dumped items have previously been incorporated within the miscellaneous material category. However, the large volumes of these items necessitate the separation of such items into a specific material category.

Furthermore, comparisons between main material types do not incorporate illegal dumping or miscellaneous litter on the basis that the material type of such litter items is not identified.

Section 4
Results

3.1 National

At a Glance

The overall average number of items per 1,000 m^2 across all of the 983 sites surveyed nationally during the counts in the year of 2006/ 2007 was 74, whilst the overall average estimated volume per 1,000 m^2 was 9.68 litres. These figures represent marginal increases from findings for the year of 2005/ 2006, when 70 items and 8.86 litres per 1,000 m^2 were identified nationally.

The most littered sites were generally industrial locations, and such areas were associated with large numbers of items and litter volume per 1,000 m^2. Retail sites and to a lesser extent shopping centres displayed large numbers of litter items per 1,000 m^2, but both areas were associated with only small volumes of litter per 1,000 m^2.

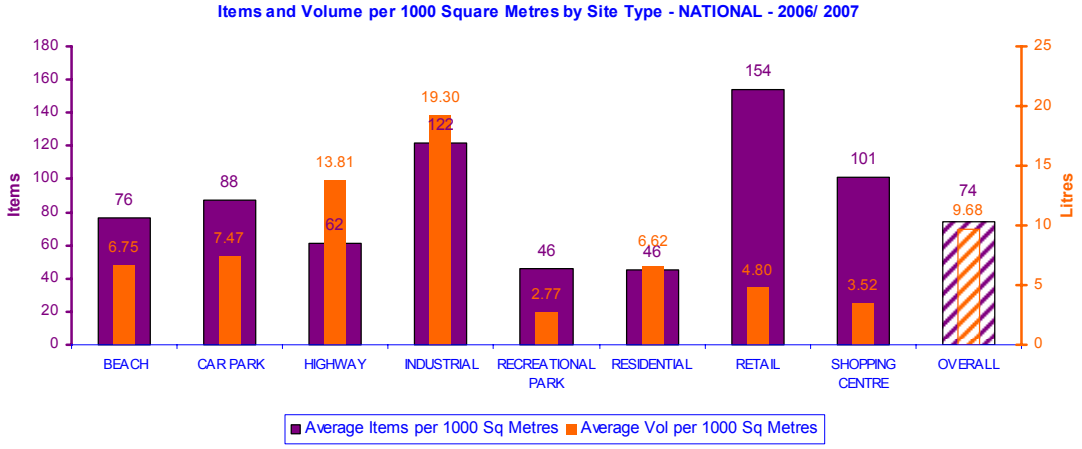
Cigarette butts were the most frequently identified item, and 35 such objects per 1,000 m^2 were recorded in annual figures for 2006/ 2007.

Plastic litter objects contributed the largest amount of volume to the litter stream, and such objects were associated with 2.99 litres of volume per 1,000 m^2 across all national sites.

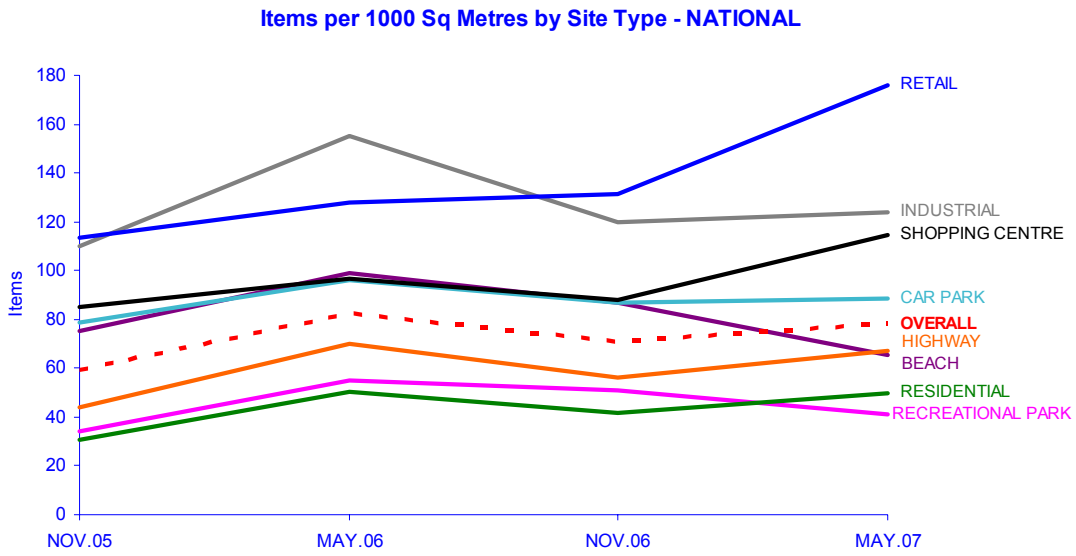
Comparisons by Site Types

The largest numbers of items per 1,000 m^2 were located within retail sites (154 items per 1,000 m^2), industrial sites (122 items per 1,000 m^2) and shopping Centres (101 items per 1,000 m^2).

The estimated volumes per 1,000 m^2 of the litter objects at industrial sites (19.30 litres per 1,000 m^2) and highway sites (13.81 litres per 1,000 m^2) were higher than within any other site types.



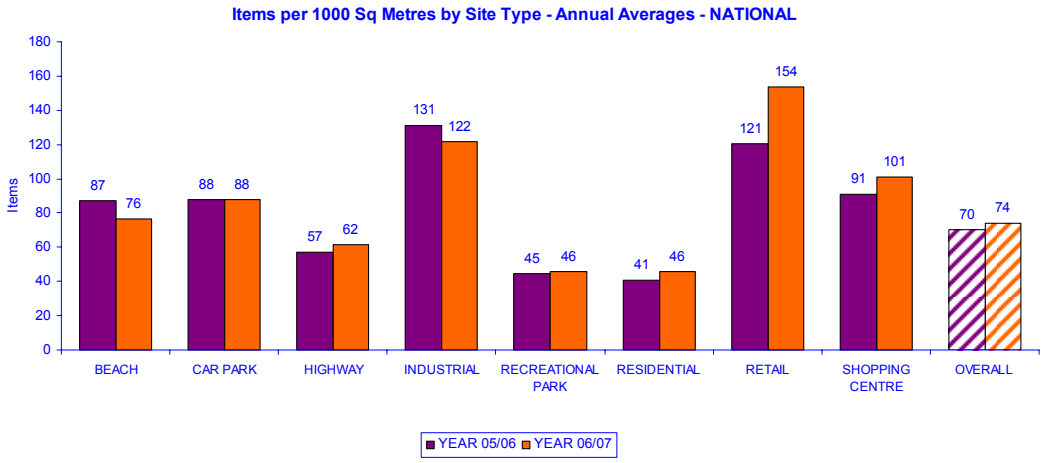
Tracked results demonstrate some seasonal fluctuations in the numbers of items per 1,000 m^2. This is particularly true within overall figures encompassing all sites surveyed when tracked back to November 2005. Peaks are described in the numbers of items per 1,000 m^2 recorded in the May Counts in 2006 and 2007, whilst troughs are apparent in figures for November 2005 and 2006.



The annual average of items per 1,000 m^2 for the year of 2006/ 2007 (74 items per 1,000 m^2) is marginally higher than the figure for the year of 2005/ 2006 (70 items per 1,000 m^2).

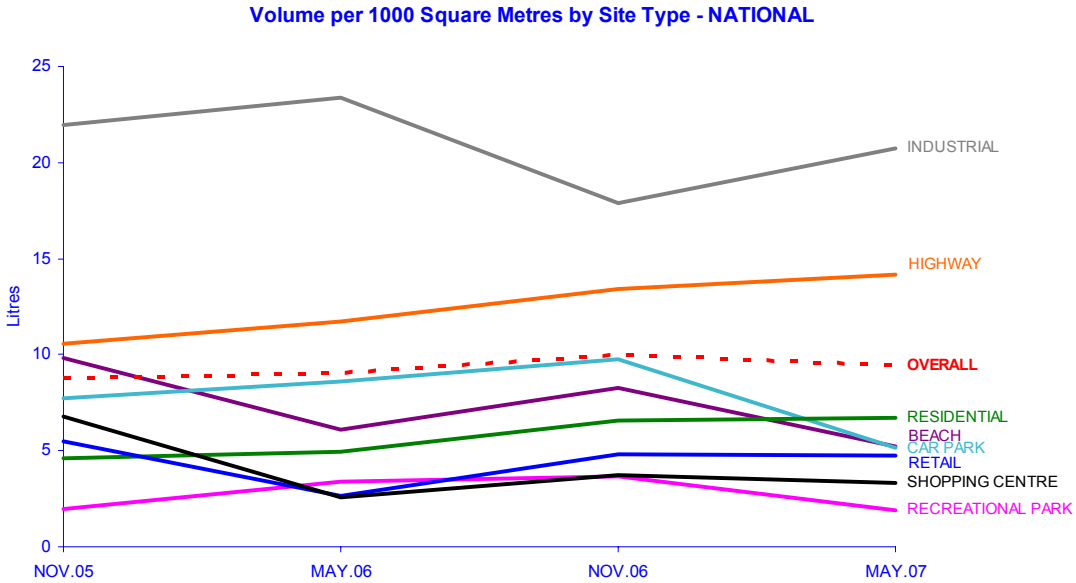
This increment is represented most strongly within retail sites, which demonstrate substantial increase in annual figures for items per 1,000 m^2 in results for the year of 2006/ 2007 (154 items per 1,000 m^2) when compared to findings the year of 2005/ 2006 (121 items per 1,000 m^2).

A lesser increase is also evident in figures for shopping centre sites, where 91 items per 1,000 m^2 were identified in Counts during the year of 2005/ 2006, but 101 items per 1,000 m^2 were identified during the year of 2006/ 2007.



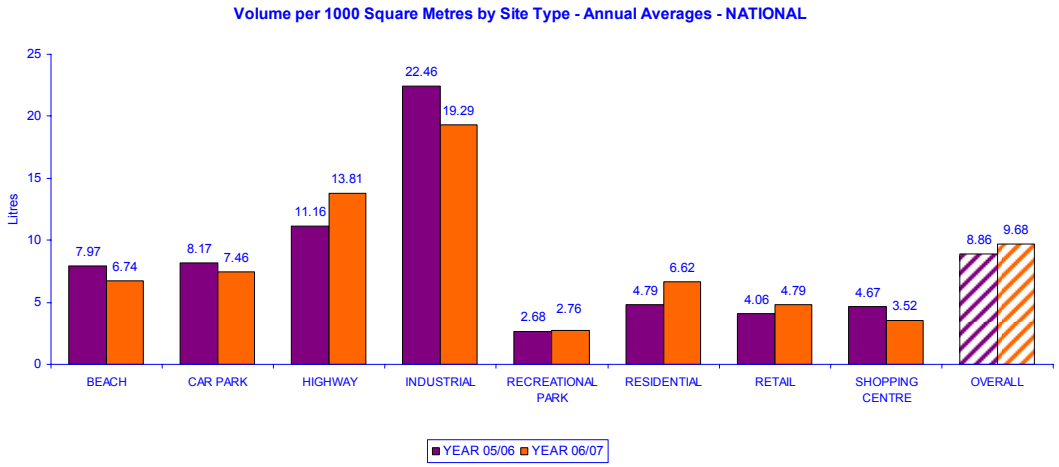
The estimated volumes per 1000 m^2 of litter items at all national sites overall does not demonstrate substantial seasonal fluctuation. However, within specific site types seasonal fluctuations are evident. This is particularly apparent in findings for industrial sites, where peaks are identifiable in results for May 2006 and 2007 and troughs are evident in November 2005 and 2006 figures.

Results for estimated volumes per 1000 m^2 at highway sites imply a steady upward trend in litter volume at such locations, and seasonal fluctuations are not apparent.



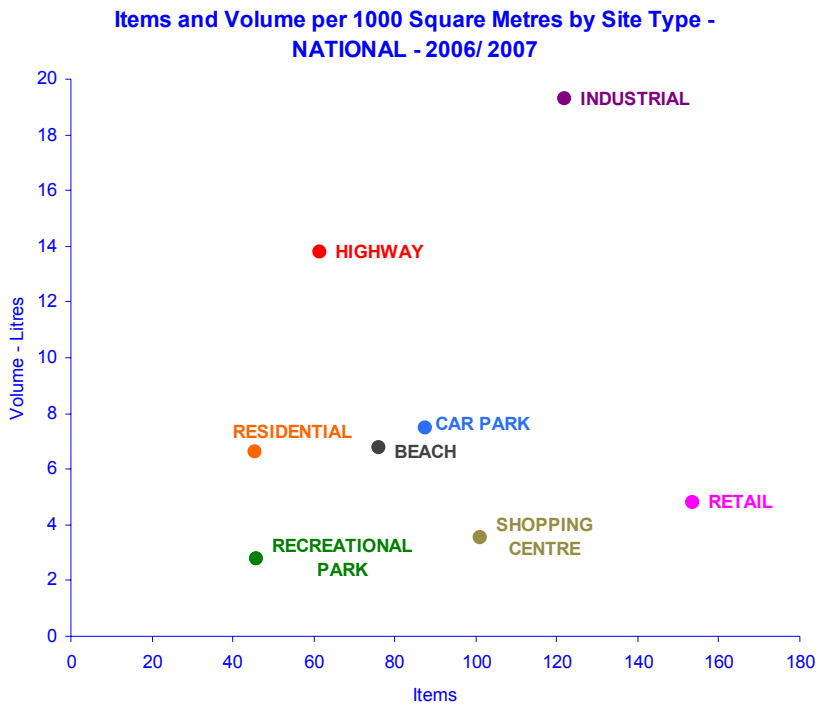
The overall annual average estimated litter volume per 1,000 m^2 across all national sites for the year of 2006/ 2007 (9.68 litres per 1,000 m^2) is marginally higher than the result for the year of 2005/ 2006 (8.86 litres per 1,000 m^2). This increment is most apparent within highway sites, where the estimated litter volume per 1,000 m^2 for the year of 2006/ 2007 (13.81 litres per 1,000 m^2) is significantly higher than in 2005/ 2006 figures (11.16 litres per 1,000 m^2).

However, the annual average estimated litter volume per 1,000 m^2 for industrial sites for the year of 2006/ 2007 (19.29 litres per 1,000 m^2) demonstrates an appreciable decrease when compared to the figure for 2005/ 2006 (22.46 litres per 1,000 m^2).



Items and volume estimates per 1,000 m^2 nationally identify differential patterns across site types. Site characteristics which are evident are as follows:

- **Industrial** sites are associated with both large numbers of items as well as large estimated litter volume.
- **Highway** sites are associated with large volumes of litter but only moderate numbers of items.
- **Retail** sites are associated with large numbers of items but only small volumes of litter.
- **Shopping centres** are associated with moderate numbers of items but only small volumes of litter.

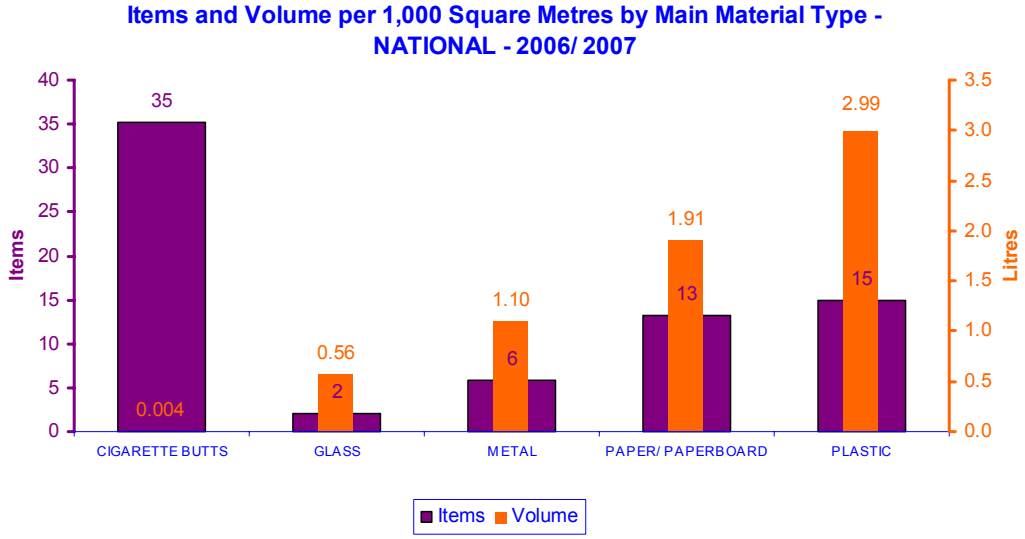

Items and Volume per 1000 Square Metres by Site Type - NATIONAL - 2006/ 2007
Volume - Litres
Items
0
2
4
6
8
10
12
14
16
18
20
0
20
40
60
80
100
120
140
160
180
INDUSTRIAL
HIGHWAY
RESIDENTIAL
CAR PARK
BEACH
RETAIL
SHOPPING CENTRE
RECREATIONAL PARK

Comparison by Main Material Types

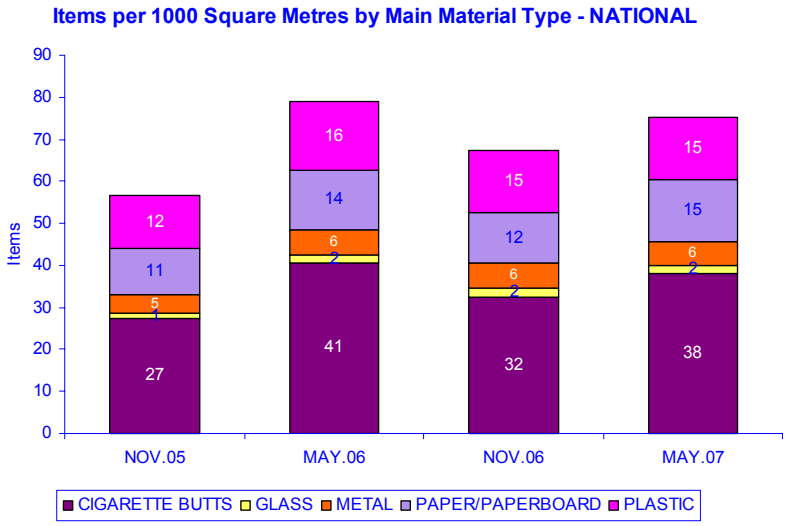
Cigarette butts are undeniably the most pervasive litter item nationally, and an average of 35 cigarette butts per 1,000 m^2 were identified across all national sites during the year of 2006/ 2007. However, such items only contributed 0.004 litres per 1,000 m^2 in volume to the national litter stream.

Items which contributed the greatest volumes to the litter stream were constructed of plastic materials, and such objects contributed an overall national average of 2.99 litres of litter volume per 1,000 m^2.

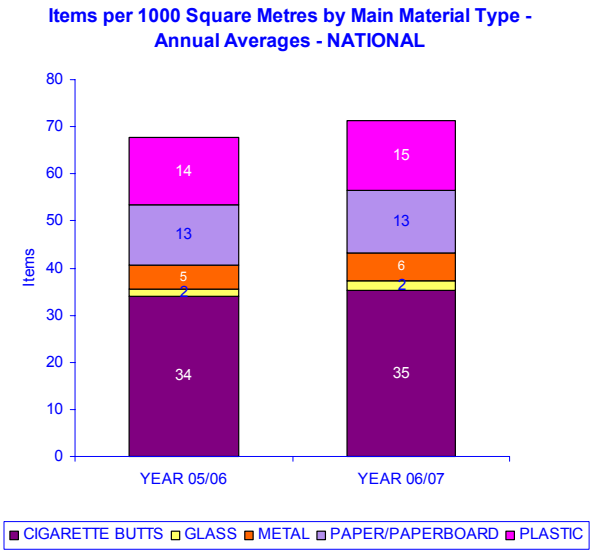
Paper/ paperboard objects also contributed strongly to the total volume within the litter stream, and such items were associated with an average of 1.91 litres of litter per 1,000 m^2 across all sites nationally during the year of 2006/ 2007.



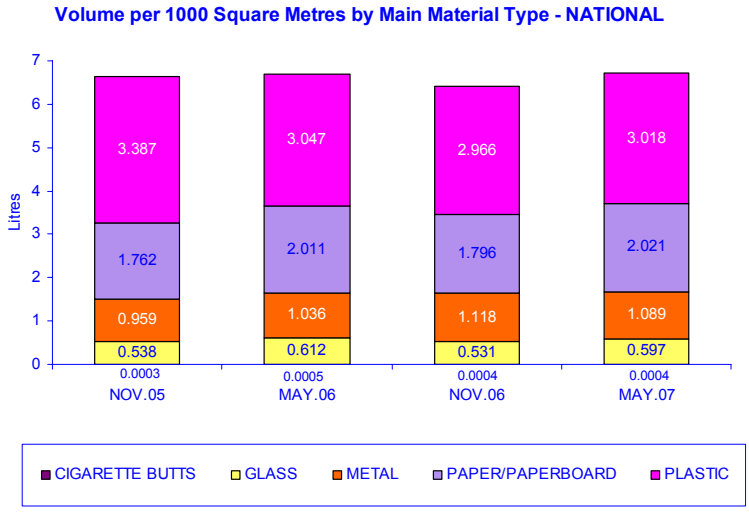
Despite seasonal fluctuations in the absolute numbers of items per 1,000 m^2 identified within main material type categories, results across bi-annual counts from November 2005 through to current do not show significant fluctuations in the proportional contributions of items within main material types to the overall litter present in the litter stream.



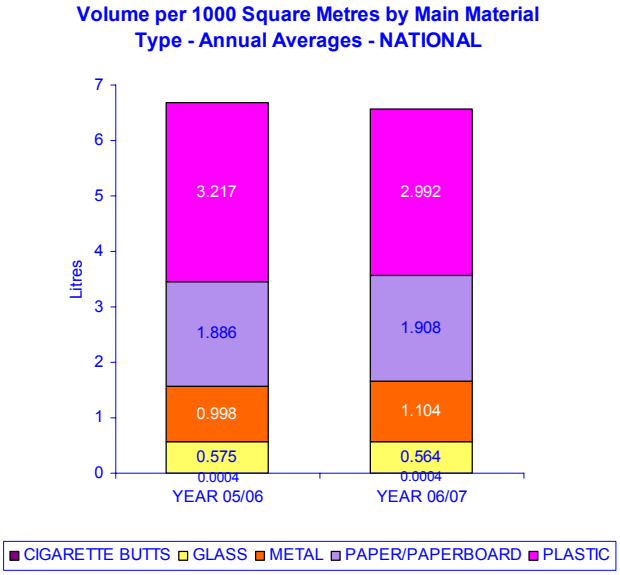
Similarly, the representations of specific main material categories within the litter stream show no significant fluctuations across annual averages for the years of 2005/ 2006 and 2006/ 2007 respectively.



Results for litter volume per 1,000 m^2 across material categories also displays consistency across Counts from November 2005 through to present results.



This consistency is also echoed in the figures for annual averages across the years of 2005/ 2006 and 2006/ 2007.

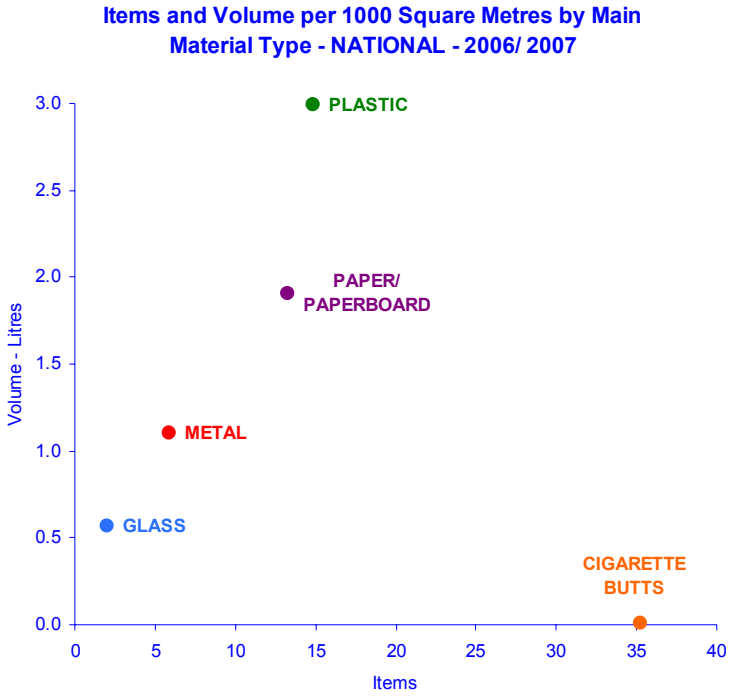


Figures for items and volumes per 1,000 m^2 across main material types identify the following characteristics of litter objects:

- **Plastic** litter items contribute large volumes to the litter stream but are associated with only moderate numbers of items. This implies the presence of many medium-volume items.

- **Cigarette butts** contribute only a negligible volume to the litter stream although they are frequently identified at the sites surveyed, and a

large number of such objects per 1,000m^2 were identified across national sites.

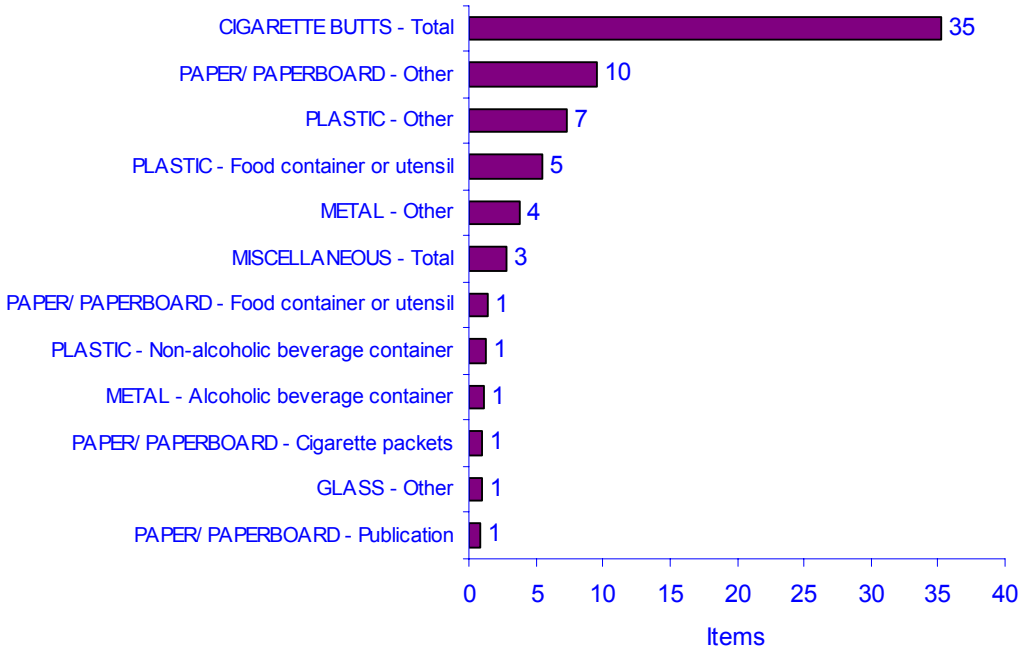


The Dirty Dozen

When partitioned according to object sub-type distinctions, cigarette butts clearly emerge as the most frequently identified litter item, and 35 butts were recorded per 1,000 m^2 during the November 2006/ May 2007 Counts.

Other objects frequently identified included uncategorised paper/ paperboard objects (10 items per 1,000 m^2), uncategorised plastic objects (7 items per 1,000 m^2), plastic food containers and utensils (5 items per 1,000 m^2) and uncategorised metal objects (4 items per 1,000 m^2).

Dirty Dozen - Items per 1000 Square Metres - Object Sub-Categories - NATIONAL - 2006/ 2007



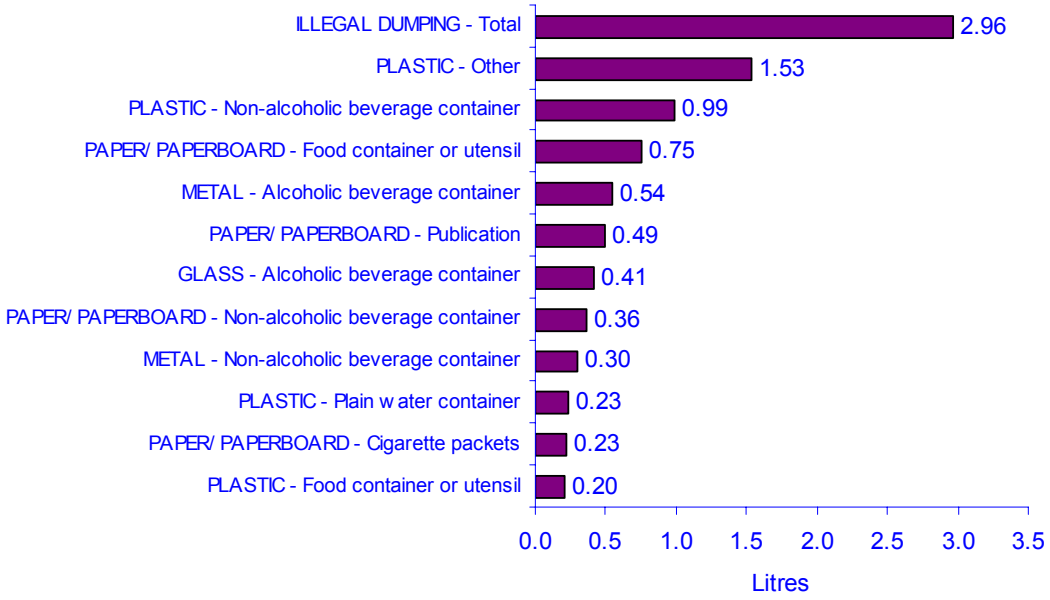
Illegal dumping represented the largest contribution to estimated litter volume (2.96 litres per 1,000 m^2). Uncategorised plastic objects were also strong contributors to volume in the litter stream (1.53 litres per 1,000 m^2).

Other object sub-categories which were associated with substantial estimated volume measurements included:

- Plastic - non-alcoholic beverage containers (0.99 litres per 1,000 m^2)

- Paper/ paperboard - food containers or utensils (0.75 litres per 1,000 m^2)
- Metal - alcoholic beverage containers (0.54 litres per 1,000 m^2)
- Paper/ paperboard - publications (0.49 litres per 1,000 m^2)

Dirty Dozen - Volume per 1000 Square Metres - Object Sub-Categories - NATIONAL - 2006/ 2007



3.2 Australian Capital Territory

At a Glance

The overall average number of items per 1,000 m^2 across all of the 76 sites surveyed in the ACT during the counts in the year of 2006/ 2007 was 68, whilst the overall average estimated volume per 1,000 m^2 was 7.04 litres.

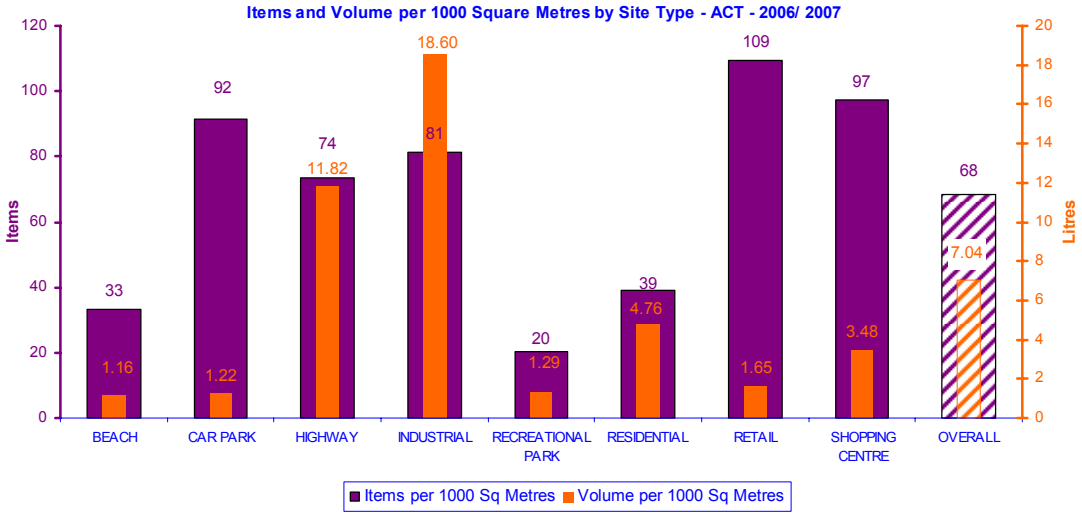
The most littered sites surveyed within the ACT were generally industrial locations, and highway sites were also relatively highly littered. Such regions were associated with large numbers of items and litter volume per 1,000 m^2. Retail sites, shopping centres and car parks displayed large numbers of litter items per 1,000 m^2, but these areas were associated with only small volumes of litter per 1,000 m^2.

Cigarette butts were the most frequently identified item, and 36 such objects per 1,000 m^2 were recorded within the ACT in annual figures for 2006/ 2007. Plastic litter objects contributed the largest amount of volume to the litter stream, and such objects were associated with 2.86 litres of volume per 1,000 m^2.

Comparisons by Site Types

The largest numbers of items per 1,000 m^2 at the sites surveyed within the ACT during the year of 2006/ 2007 were located within retail sites (109 items per 1,000 m^2), shopping centres (97 items per 1,000 m^2) and car parks (92 items per 1,000 m^2). However, such locations only contained relatively small volumes of litter (1.65, 3.48 and 1.22 litres of litter per 1,000 m^2 respectively).

The estimated volumes per 1,000 m^2 of the litter objects at industrial sites (18.60 litres per 1,000 m^2) and highway sites (11.82 litres per 1,000 m^2) were higher than within any other site types.

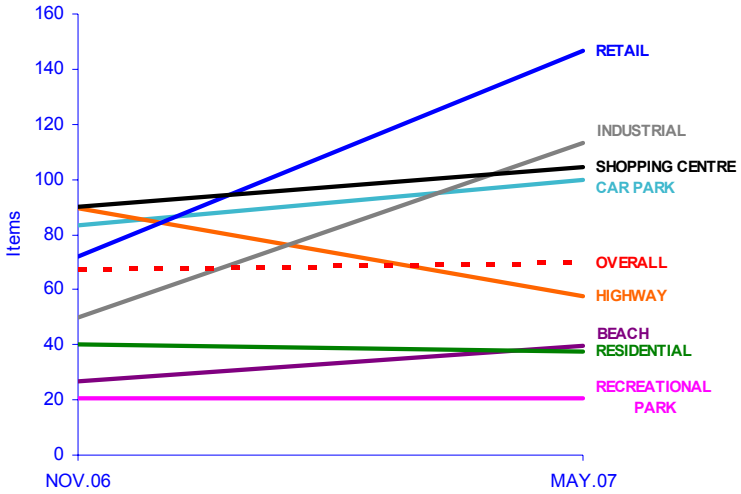


Tracked results indicate increases in the number of litter items per 1,000 m^2 at retail sites and industrial sites in findings for May 2007 when compared to figures for November 2006.

Conversely, highway sites demonstrate a downward trend in terms of the number of litter items per 1,000 m^2 in current figures when compared to those for the previous Count.

No substantial upward trend is apparent in the overall numbers of items per 1,000 m^2 from the results for November 2006 to May 2007.

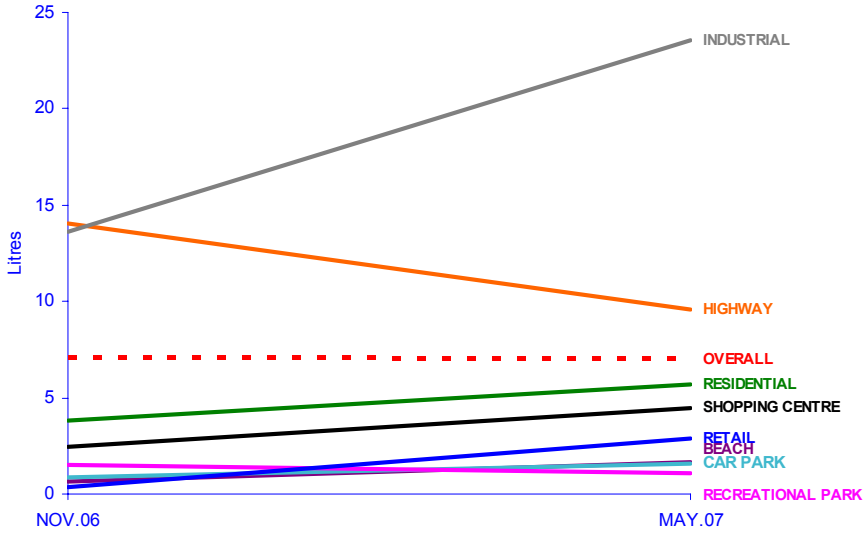
Items per 1000 Square Metres by Site Type - ACT



The apparent increase in the number of litter items per 1,000 m^2 identified at retail sites is not strongly echoed in figures for litter volume per 1,000 m^2 at such sites. However, industrial sites also demonstrate a substantial increase in litter volume in figures tracked from November 2006 through to present.

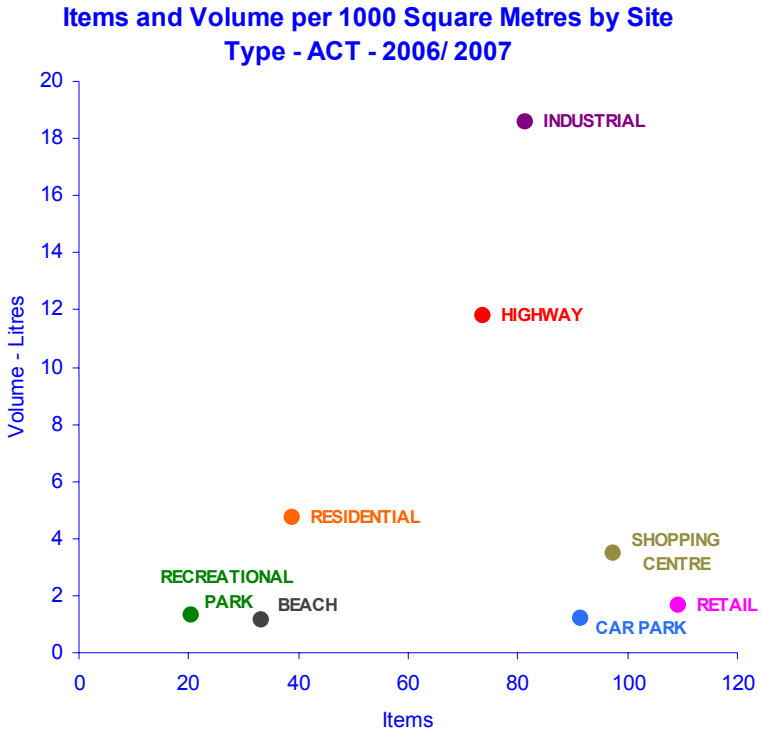
Highway sites display a significant decrease in the litter volume estimated at such sites in current figures compared to those for the previous Count.

Volume per 1000 Square Metres by Site Type - ACT



Items and volume estimates per 1,000 m^2 within the ACT identify differential patterns across site types. Site characteristics which are evident are as follows:

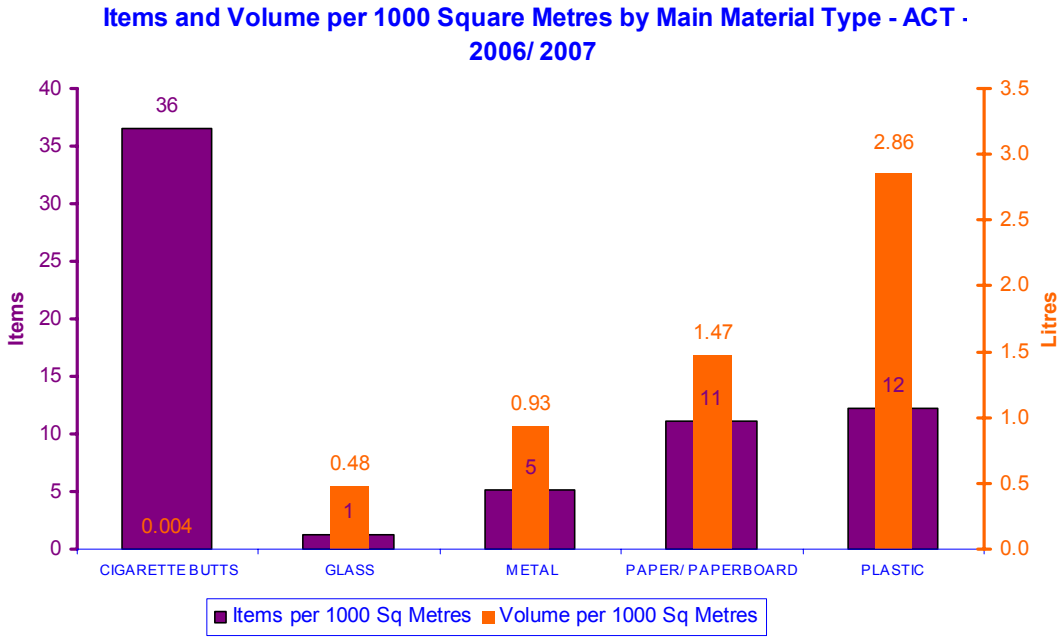
- **Industrial** sites are associated with both large numbers of items as well as large estimated litter volume.
- **Highway** sites were associated with moderately high levels of volume and moderately large numbers of items.
- **Retail sites**, **shopping centres**, and **car parks** sites are associated with large numbers of items but only small volumes of litter.



Comparison by Main Material Types

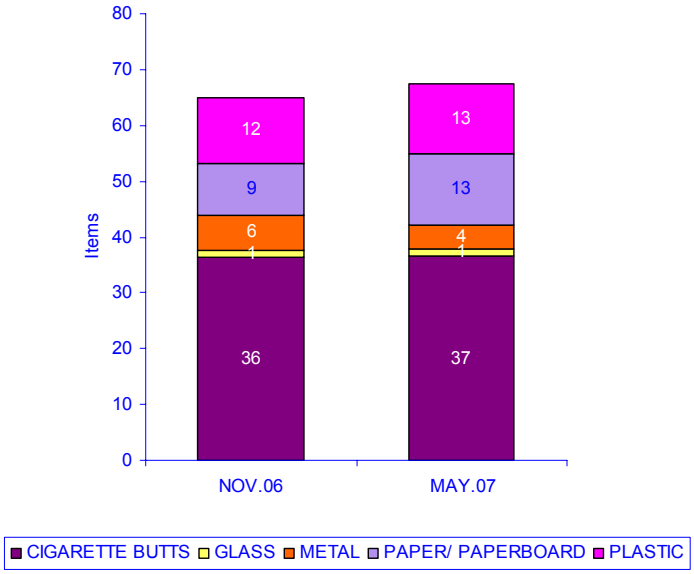
An average of 36 cigarette butts per 1,000 m^2 were identified across all sites within the ACT during the year of 2006/ 2007. However, such items only contributed 0.004 litres per 1,000 m^2 in volume to the litter stream in that state.

Items which contributed the greatest volumes to the litter stream in the ACT were constructed of plastic materials, and such objects contributed an overall average of 2.86 litres of litter volume per 1,000 m^2.



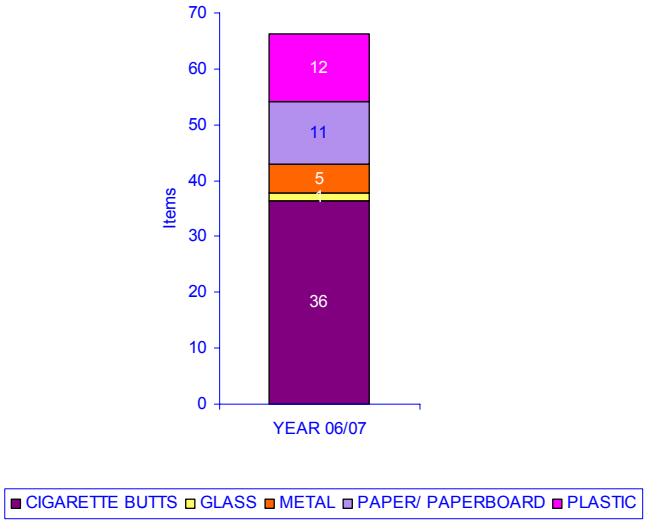
Results from November 2006 through to current findings do not show significant fluctuations in the proportional contributions of items within main material types to the overall litter present in the litter stream in the ACT.

Items per 1000 Square Metres by Main Material Type - ACT



Annual average figures for the year of 2006/ 2007 in the ACT confirm the consistently strong contribution of cigarette butts (36 butts per 1,000 m^2) to the litter stream within the main material type categories.

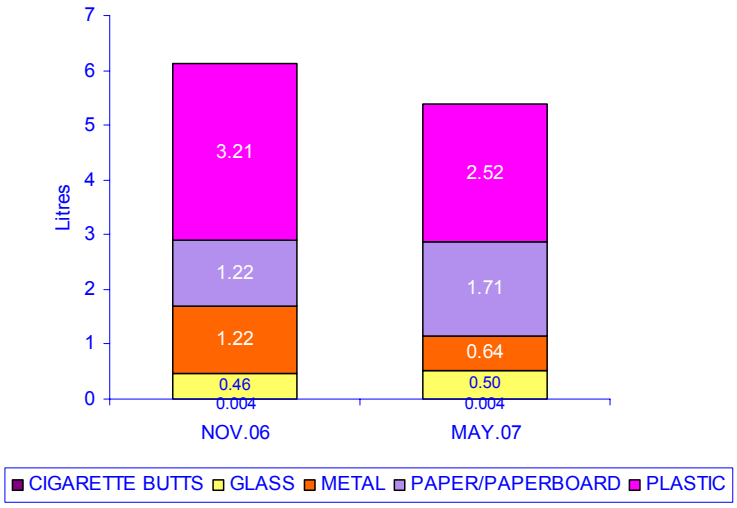
Items per 1000 Square Metres by Main Material Type - Annual Averages - ACT - 2006/ 2007



Results for May 2007 indicate a slightly smaller contribution of plastic litter objects to the volume of litter identified in the ACT (2.52 litres per 1,000 m^2) than in November 2006 (3.21 litres per 1,000 m^2). This decrease is reflected

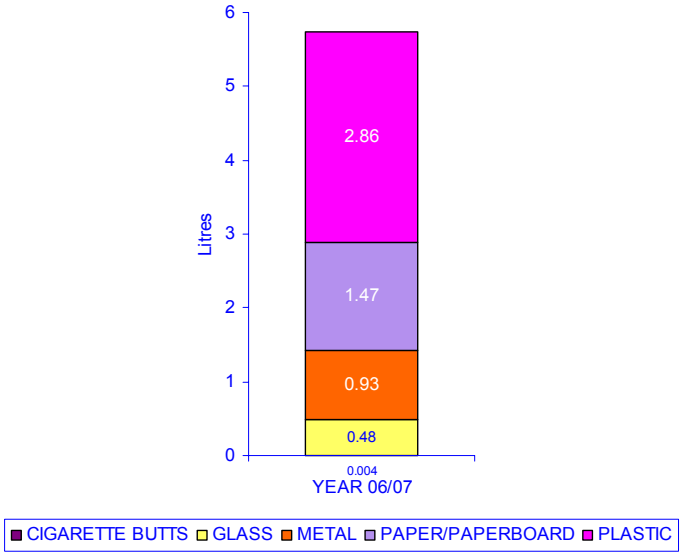
by an according increase in the contribution of paper/ paperboard litter items in current results (1.71 litres per 1,000 m^2) when compared to November 2006 results (1.22 litres per 1,000 m^2).

Volume per 1000 Square Metres by Main Material Type - ACT



Annual averages for 2006/ 2007 show the major contribution of plastic litter items (2.86 litres per 1,000 m^2) to the estimated volume present in the litter stream within the main material types identified.

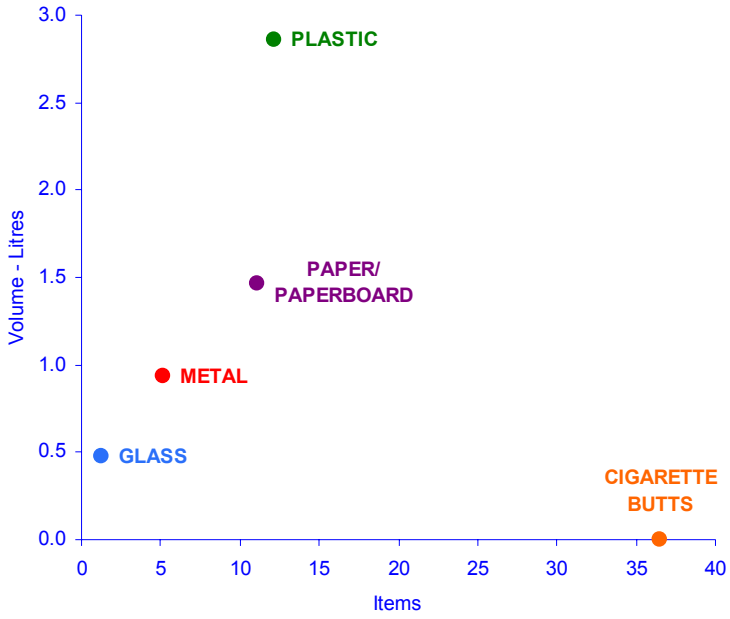
Volume per 1000 Square Metres by Main Material Type - Annual Averages - ACT - 2006/ 2007



Figures for items and volumes per 1,000 m^2 across main material types identify the following characteristics of litter objects within the ACT:

- **Plastic** litter items contribute large volumes to the litter stream but are associated with only small numbers of items. This implies the presence of many high-volume items.
- **Cigarette butts** - although a large number of such items were identified, they contribute only a negligible volume to the litter stream.

Items and Volume per 1000 Square Metres by Main Material Type - ACT - 2006/ 2007

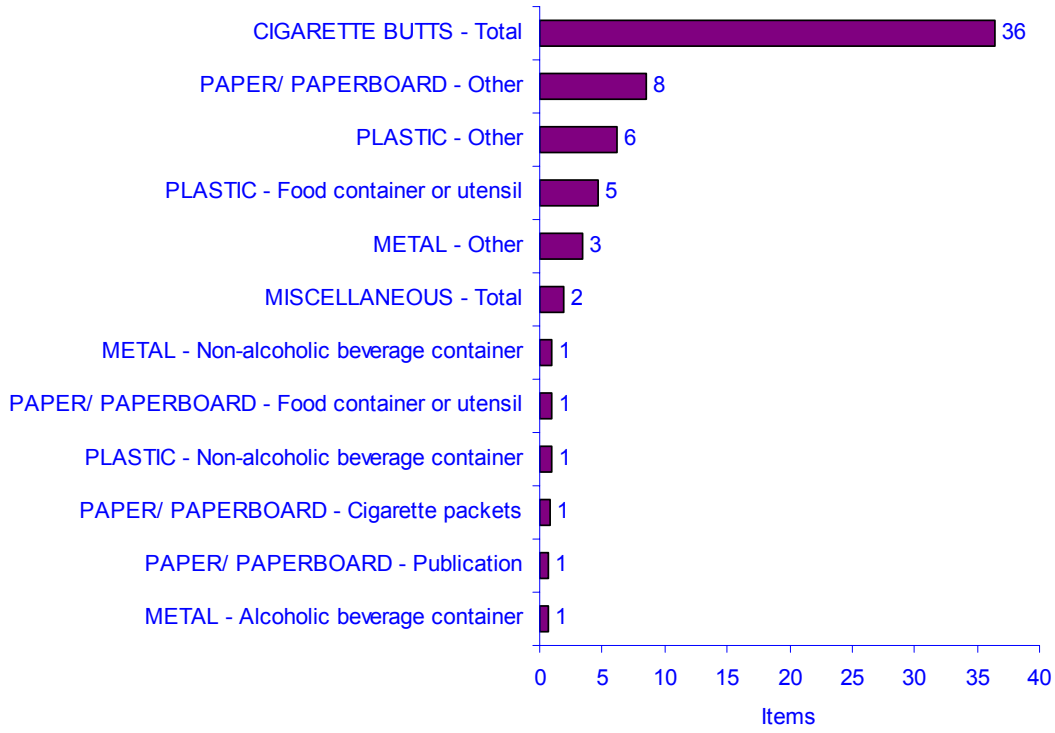


The Dirty Dozen

When partitioned according to object sub-type distinctions, cigarette butts clearly emerge as the most frequently identified litter item, and 36 butts were recorded per 1,000 m^2 within the ACT during the November 2006/ May 2007 Counts.

Other objects frequently identified included uncategorised paper/ paperboard objects (8 items per 1,000 m^2), uncategorised plastic objects (6 items per 1,000 m^2), plastic food containers and utensils (5 items per 1,000 m^2) and uncategorised metal objects (3 items per 1,000 m^2).

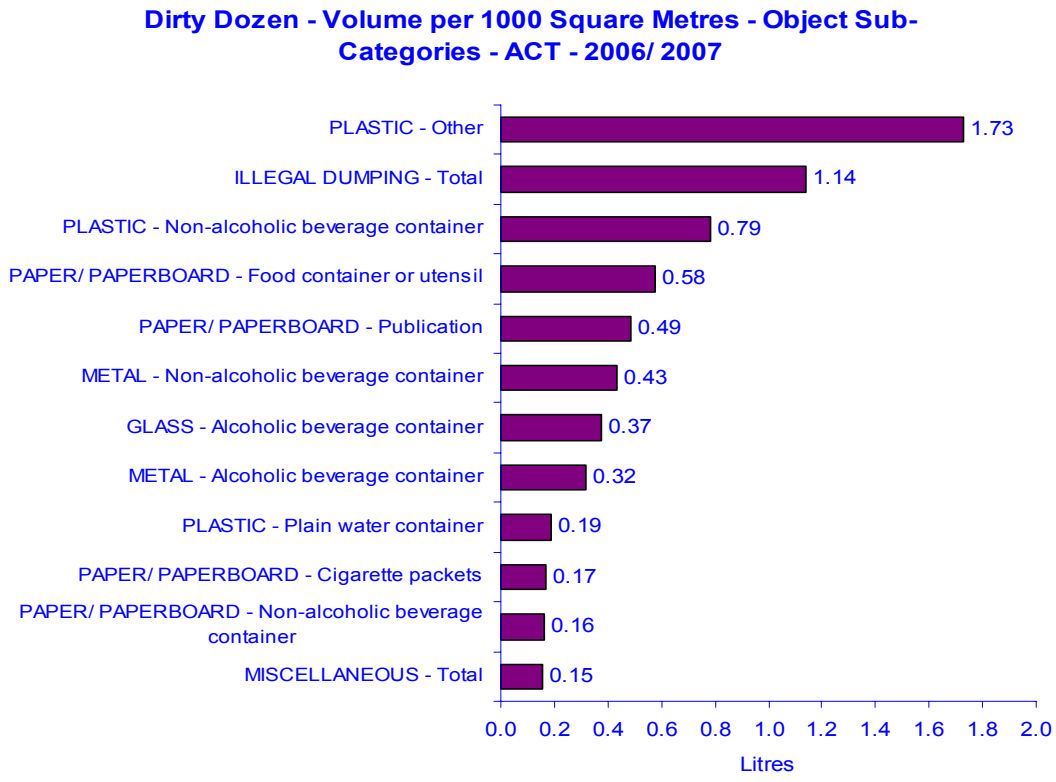
Dirty Dozen - Items per 1000 Square Metres - Object Sub-Categories - ACT - 2006/ 2007



Uncategorised plastic objects represented the largest contributors to estimated litter volume in ACT (1.73 litres per 1,000 m^2). Illegal dumping was also a strong contributor to volume in the litter stream in that state (1.14 litres per 1,000 m^2).

Other object sub-categories which were associated with substantial volume estimates included:

- Plastic - non-alcoholic beverage containers (0.79 litres per 1,000 m^2)
- Paper/ paperboard - food containers or utensils (0.58 litres per 1,000 m^2)
- Paper/ paperboard - publications (0.49 litres per 1,000 m^2)
- Metal - non-alcoholic beverage containers (0.43 litres per 1,000 m^2)



3.3 New South Wales

At a Glance

The overall average number of items per 1,000 m^2 across all of the 151 sites surveyed within NSW during the counts in the year of 2006/ 2007 was 71, whilst the overall average estimated volume per 1,000 m^2 was 14.69 litres. The number of litter items per 1,000 m^2 identified represents an appreciable decrease from findings for the year of 2005/ 2006, when 80 items per 1,000 m^2 were identified within the state. This reduction is most strongly indicated at industrial locations and beaches. However, the current year's volume per 1,000 m^2 estimate is only marginally reduced from the figure for the year of 2005/ 2006 (14.95 litres per 1,000 m^2).

The most littered sites surveyed within NSW were generally industrial locations, highway sites and car parks. Such regions were associated with large numbers of items and litter volume per 1,000 m^2. Beaches were also associated with moderately high levels of litter items and volume per 1,000 m^2.

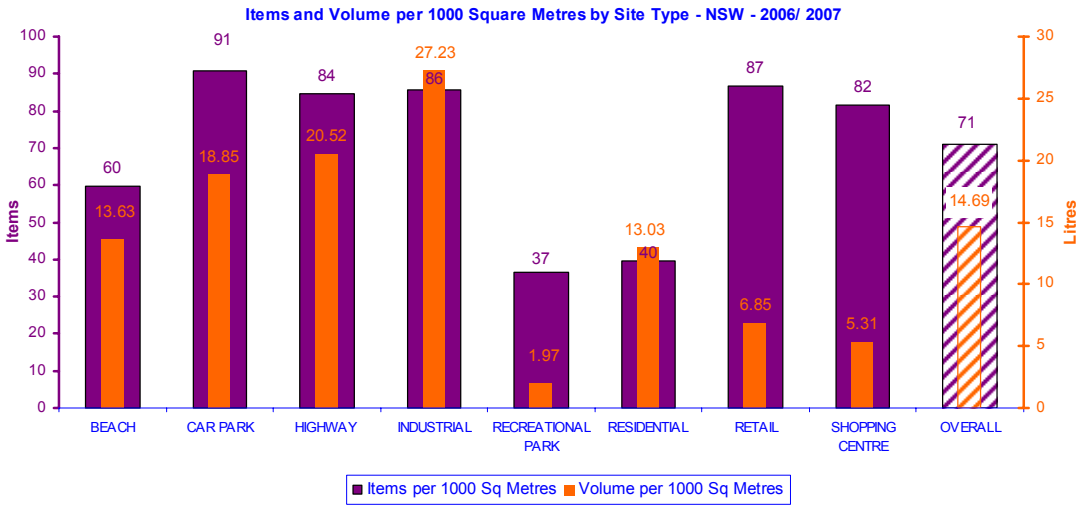
Retail sites and shopping centres displayed large numbers of litter items per 1,000 m^2, but these areas were associated with only small volumes of litter per 1,000 m^2.

Cigarette butts were the most frequently identified item, and 36 such objects per 1,000 m^2 were recorded within NSW in annual figures for 2006/ 2007. Plastic litter objects contributed the largest amount of volume to the litter stream, and such objects were associated with 2.86 litres of volume per 1,000 m^2.

Comparisons by Site Types

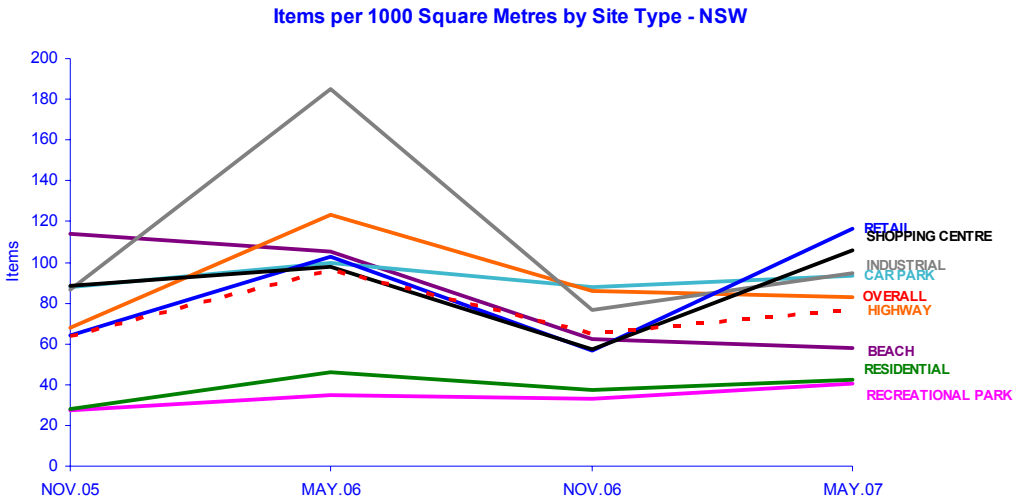
The largest numbers of items per 1,000 m^2 were located within car parks, retail sites, industrial sites, highways, and shopping centres (91, 87, 86, 84 and 82 items per 1,000 m^2 respectively).

The estimated volumes per 1,000 m^2 of the litter objects at industrial sites (27.23 litres per 1,000 m^2), highway sites (20.52 litres per 1,000 m^2) and car parks (18.85 litres per 1,000 m^2) were all higher than within any other site types.



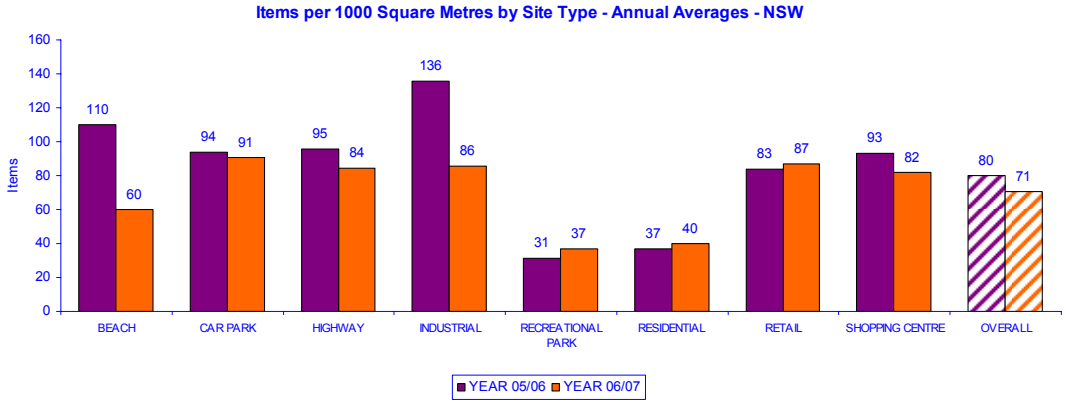
Tracked results demonstrate some seasonal fluctuations in the numbers of items per 1,000 m^2, particularly within overall figures encompassing all sites surveyed in NSW tracked back to November 2005.

Peaks are identifiable in the overall numbers of items per 1,000 m^2 recorded in the May Counts in 2006 and 2007, whilst low results are apparent in figures for November 2005 and 2006. These seasonal fluctuations are reflected across nearly all site types surveyed.

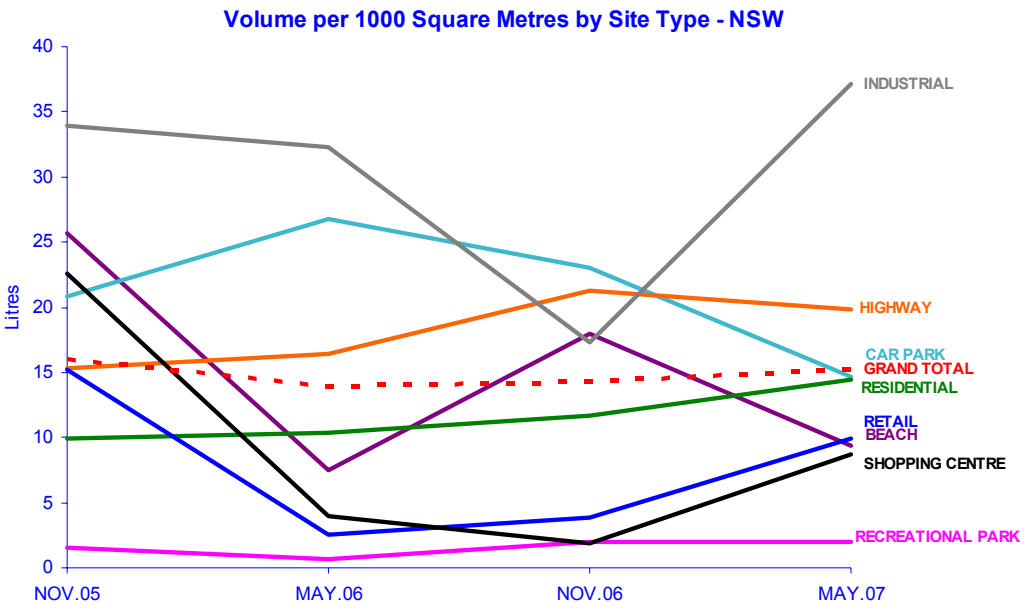


The annual average of items per 1,000 m^2 within NSW for the year of 2006/ 2007 (71 items per 1,000 m^2) is substantially lower than the figure corresponding to the year of 2005/ 2006 (80 items per 1,000 m^2).

This decrease in litter is most strongly apparent at industrial sites (86 litter items per 1,000 m^2, down from 136 in 2005/ 2006) and beaches (60 items per 1,000 m^2, down from 110 in 2005/ 2006) in that state.



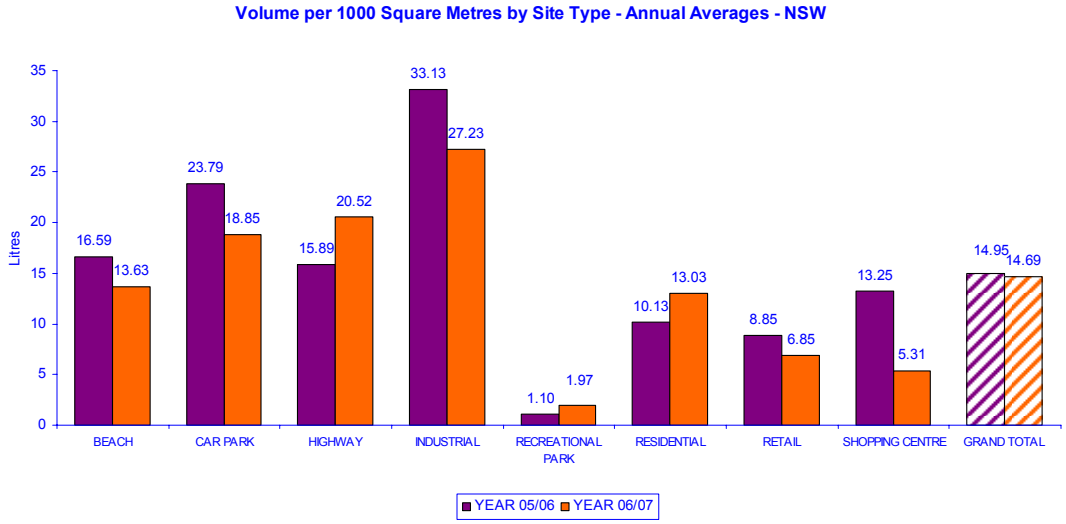
The estimated volumes per 1000 m^2 of litter items at all sites within NSW overall do not demonstrate consistent seasonal fluctuation. Instead, volume estimates within site types show significant fluctuations across Count results without evidence of predictable seasonal activity.



The overall annual average estimated litter volume per 1,000 m^2 across all sites within NSW for the year of 2006/ 2007 (14.69 litres per 1,000 m^2) is marginally lower than the result for the year of 2005/ 2006 (14.95 litres per 1,000 m^2).

This decrease is strongly reflected within industrial sites (27.23 litres per 1,000 m^2, down from 33.13 in 2005/ 2006), car parks (18.85 litres per 1,000 m^2, down from 23.79 in 2005/ 2006) and shopping centres (5.31 litres per 1,000 m^2, down from 13.25 in 2005/ 2006).

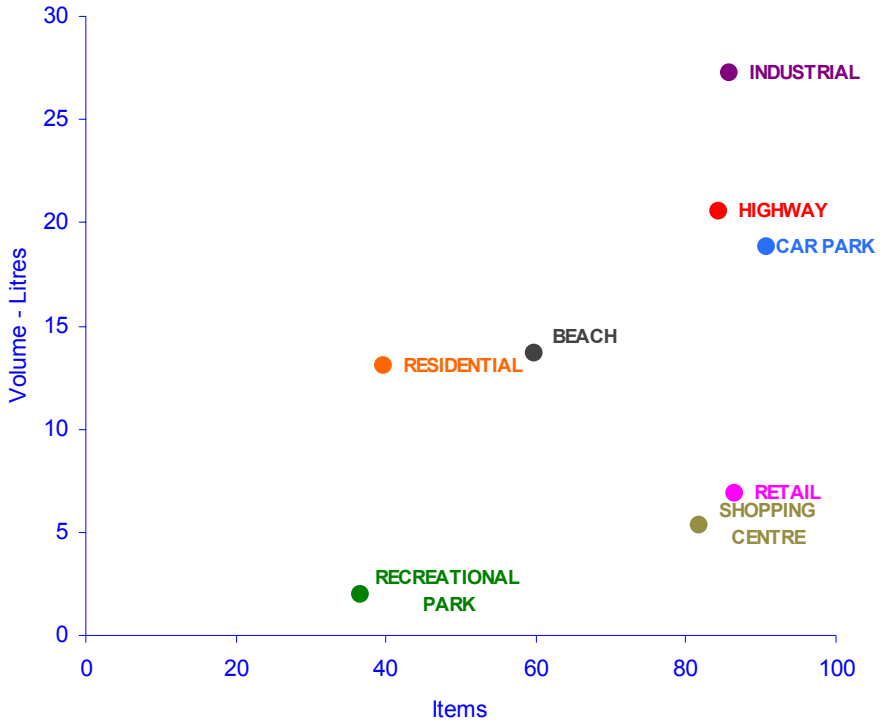
However, the annual average estimated litter volume per 1,000 m^2 for highway sites for the year of 2006/ 2007 (20.52 litres per 1,000 m^2) demonstrates an appreciable increase when compared to the figure for 2005/ 2006 (15.89 litres per 1,000 m^2).



Items and volume estimates per 1,000 m^2 within NSW identify the following site characteristics across the respective site types surveyed in 2006/ 2007:

- **Industrial sites**, **highway sites** and **car parks** are associated with both large numbers of items as well as large estimated litter volumes.
- **Retail sites** and **shopping centres** are associated with large numbers of items but only small volumes of litter.

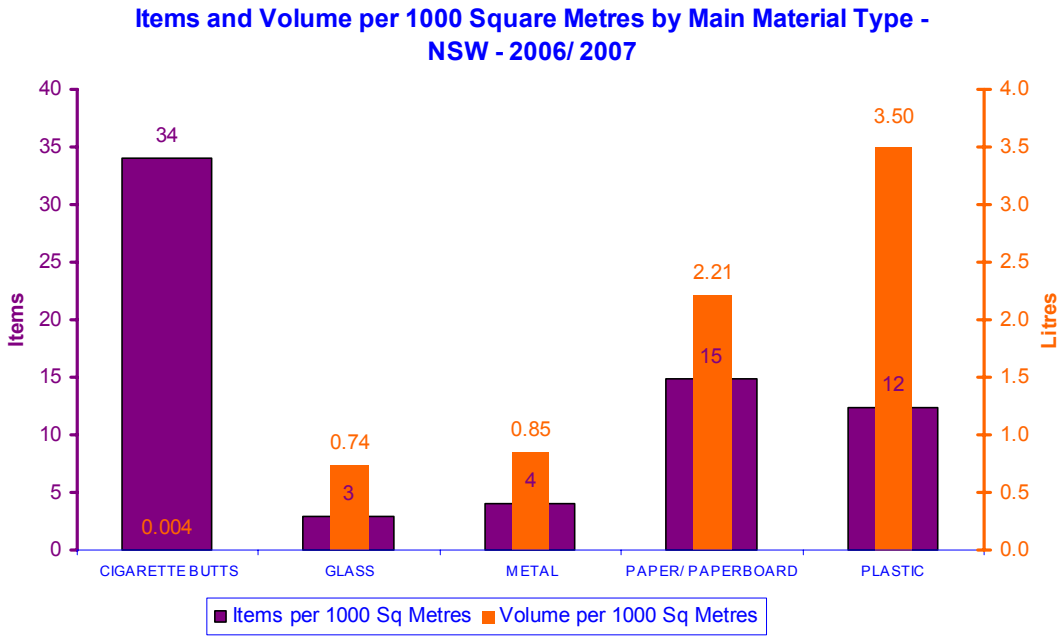
Items and Volume per 1000 Square Metres by Site Type - NSW - 2006/ 2007



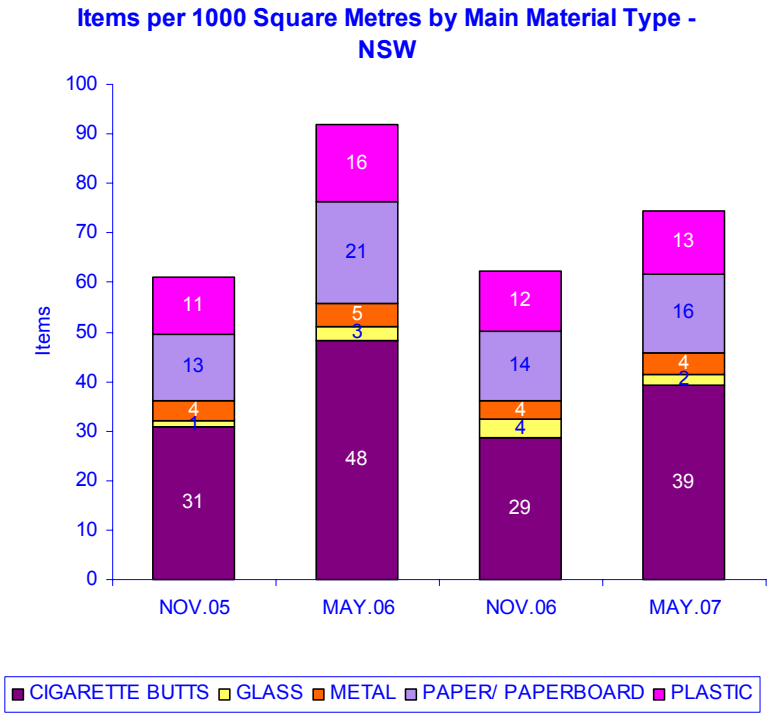
Comparison by Main Material Types

An average of 34 cigarette butts per 1,000 m^2 were identified across all sites surveyed within NSW during the year of 2006/ 2007. However, such items only contributed 0.004 litres per 1,000 m^2 in volume to the litter stream in that state.

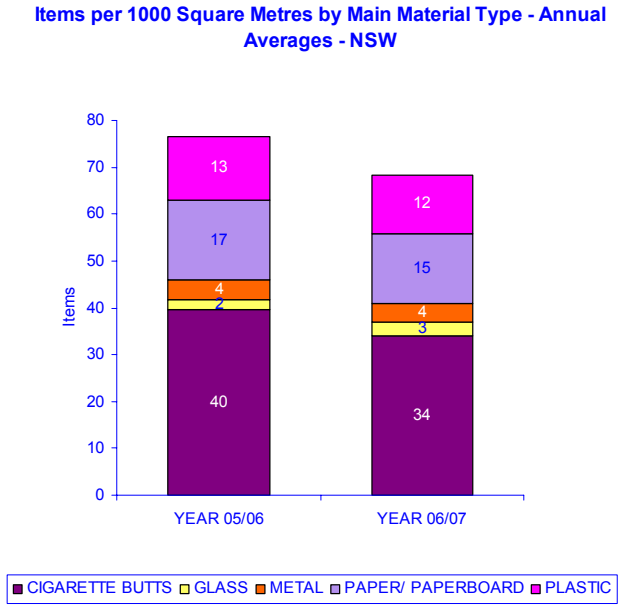
Items which contributed the greatest volumes to the litter stream in NSW were constructed of plastic materials, and such objects contributed an overall average of 3.50 litres of litter volume per 1,000 m^2. Paper/ paperboard objects also contributed significant volume to the litter stream in NSW (2.21 litres per 1,000 m^2).



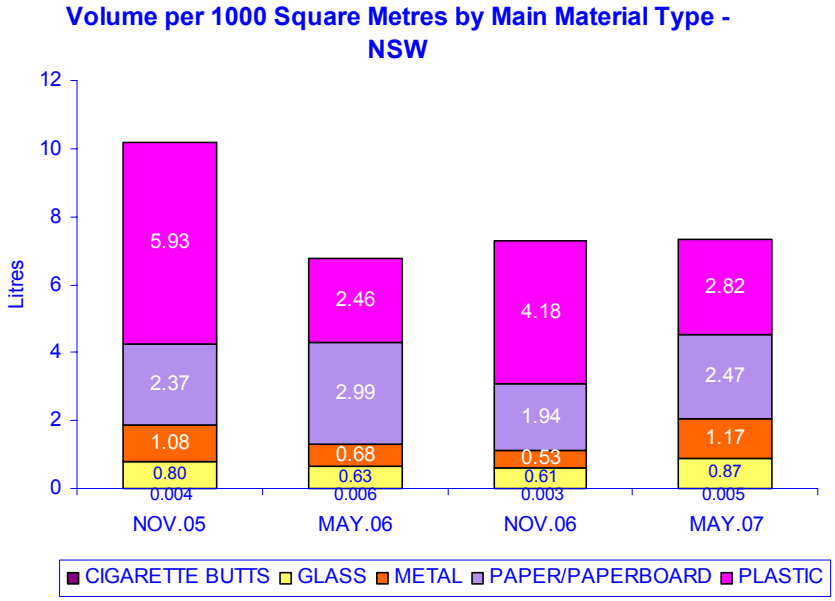
Seasonal fluctuations in the numbers of items per 1,000 m^2 identified within main material type categories appear to most strongly reflect fluctuations particularly in the presence of cigarette butts. Such items demonstrate peaks in May 2006 (41 items per 1,000 m^2) and May 2007 (39 items per 1,000 m^2) and lows in results for November 2005 (31 items per 1,000 m^2) and November 2006 (29 items per 1,000 m^2).



Annual averages for NSW for the years of 2005/ 2006 and 2006/ 2007 imply an overall reduction in the presence of litter within many of the main material types, predominantly in the numbers of cigarette butts in the litter stream: 34 butts per 1,000 m^2 were recorded for the year of 2006/ 2007, which represents a reduction from 40 butts per 1,000 m^2 recorded during the 2005/ 2006 Counts.

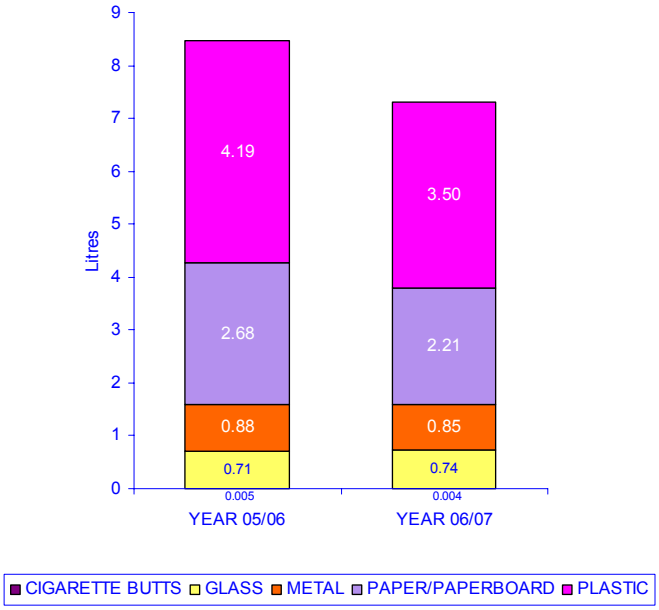


The contribution of plastic litter items to the volume of litter in NSW demonstrates relatively consistent seasonal fluctuation. Peak figures for average plastic litter items per 1,000 m^2 are identifiable in results for November 2005 (5.93 litres per 1,000 m^2) and November 2006 (4.18 litres per 1,000 m^2), whilst the results for May 2006 (2.46 litres per 1,000 m^2) and May 2007 (2.82 litres per 1,000 m^2) are substantially reduced.



Annual results for the year of 2006/ 2007 indicate a substantially smaller proportion of plastic litter objects to the volume of litter identified in NSW (3.50 litres per 1,000 m^2) than during the year of 2005/ 2006 (4.19 litres per 1,000 m^2).

Volume per 1000 Square Metres by Main Material Type - Annual Averages - NSW

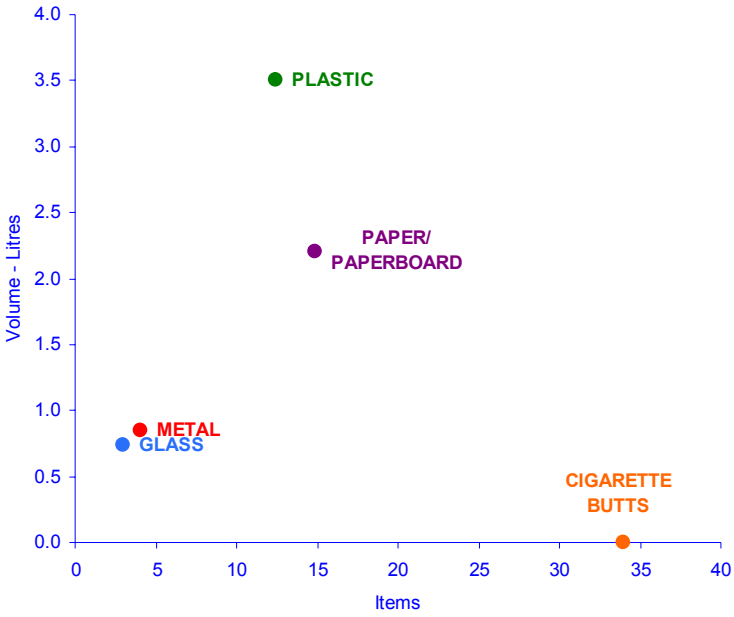


Figures for items and volumes per 1,000 m^2 across main material types identify the following characteristics of litter objects recorded within NSW during the year of 2006/2007:

- **Plastic** litter items contribute large volumes to the litter stream but are associated with only small numbers of items. This implies the presence of many high-volume items.

- **Cigarette butts** - although a large number of such items were identified, they contribute only a negligible volume to the overall litter stream in the state.

Items and Volume per 1000 Square Metres by Main Material Type - NSW - 2006/ 2007

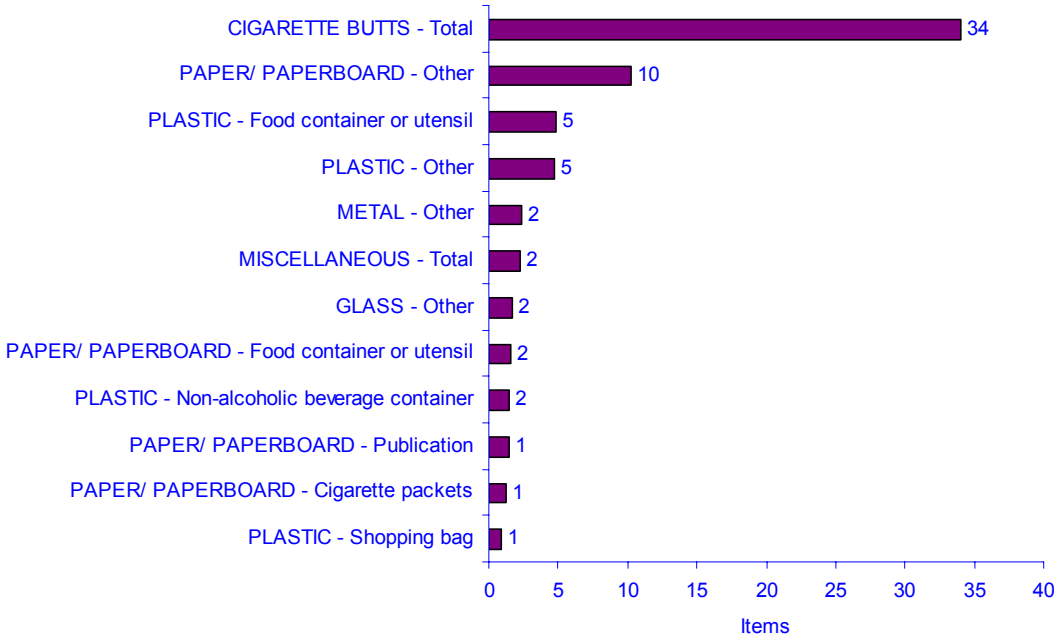


The Dirty Dozen

Within object type sub-categories, cigarette butts were undeniably the strongest contributors to the presence of litter objects at sites within NSW: 34 butts per 1,000 m^2 were identified on average across the November 2006/ May 2007 counts.

Uncategorised paper/ paperboard objects (10 items per 1,000 m^2) were also frequently identified, as were plastic food containers or utensils (5 items per 1,000 m^2) and uncategorised plastic objects (5 items per 1,000 m^2).

Dirty Dozen - Items per 1000 Square Metres - Object Sub-Categories - NSW - 2006/ 2007



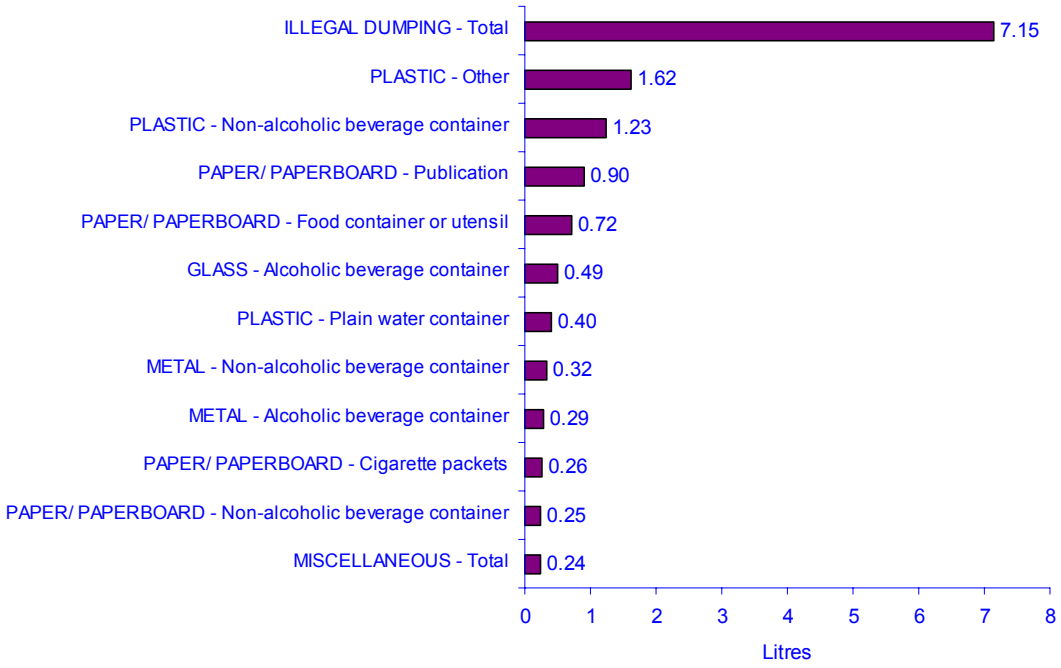
Illegal dumping represented an overwhelmingly strong contributor to the estimated litter volume present at sites within NSW, and illegally dumped objects were associated with an estimated 7.15 litres of litter volume per 1,000 m^2.

Other object sub-categories associated with large litter volume estimates included:

- Uncategorised plastic objects (1.62 litres per 1,000 m^2)

- Plastic - non-alcoholic beverage containers (1.23 litres per 1,000 m^2)
- Paper/ paperboard - publications (0.90 litres per 1,000 m^2)
- Paper/ paperboard - food containers or utensils (0.72 litres per 1,000 m^2)

Dirty Dozen - Volume per 1000 Square Metres - Object Sub-Categories - NSW - 2006/ 2007



3.4 Northern Territory

At a Glance

The overall average number of items per 1,000 m^2 across all of the 76 sites surveyed in the NT during the counts in the year of 2006/ 2007 was 64, whilst the overall average estimated volume per 1,000 m^2 was 5.32 litres.

The most littered sites surveyed within the NT included the following:

- **Retail sites** were associated with high numbers of litter items (165 items per 1,000 m^2) and moderately large volumes of litter (6.28 litres per 1,000 m^2)
- **Shopping centres** were associated with high numbers of litter items (129 items per 1,000 m^2) but low volumes of litter (6.28 litres per 1,000 m^2)
- **Beaches** were associated with moderate numbers of litter items (77 items per 1,000 m^2) but large volumes of litter (11.01 litres per 1,000 m^2)
- **Car parks** were associated with moderate numbers of litter items (82 items per 1,000 m^2) but large volumes of litter (8.74 litres per 1,000 m^2)

Cigarette butts were the most frequently identified item, and an average of 30 such objects per 1,000 m^2 was recorded over all sites within the NT in annual figures for 2006/ 2007.

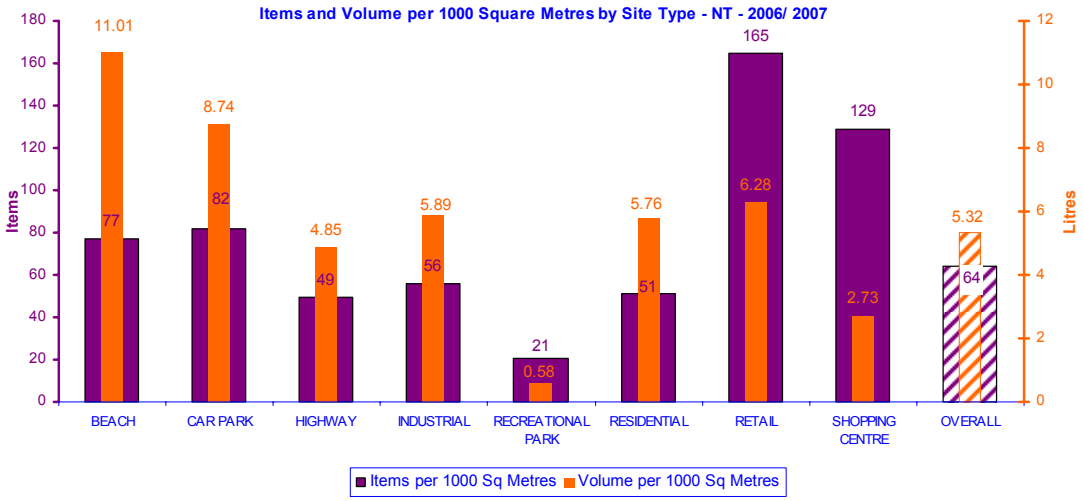
Plastic (1.42 litres per 1,000 m^2), metal (1.23 litres per 1,000 m^2) and paper/ paperboard (1.14 litres per 1,000 m^2) objects all contributed large proportions towards the total volume of litter recorded within the NT.

Comparisons by Site Types

The largest numbers of items per 1,000 m^2 at the sites surveyed within the NT during the year of 2006/ 2007 were located within retail sites (165 items per 1,000 m^2). Such locations also contained moderate volumes of litter (6.28 litres of litter per 1,000 m^2).

Shopping centres also contained large numbers of items (129 items per 1,000 m^2), but such sites were associated with only a small proportion of the overall volume in the litter stream (2.73 litres per 1,000 m^2).

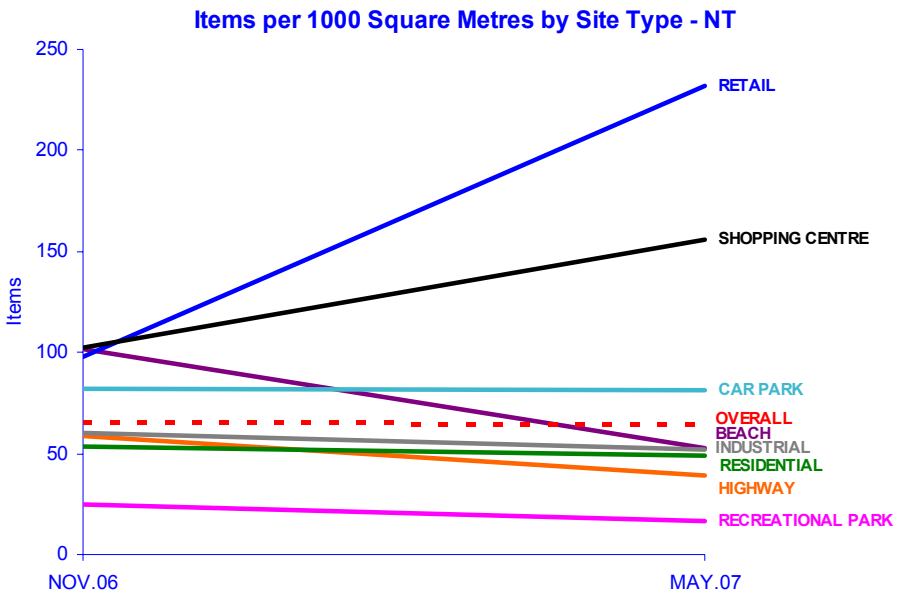
The estimated volumes per 1,000 m^2 of the litter objects at beaches (11.01 litres per 1,000 m^2) and car parks (8.74 litres per 1,000 m^2) were higher than within any other site types. Such sites also contained moderate numbers of litter items (77 and 82 items per 1,000 m^2 respectively).



Tracked results indicate increases in the number of litter items per 1,000 m^2 at retail sites and shopping centres in findings for May 2007 when compared to figures for November 2006.

Conversely, beaches demonstrate a downward trend in terms of the number of litter items per 1,000 m^2 in current figures when compared to those for the previous Count.

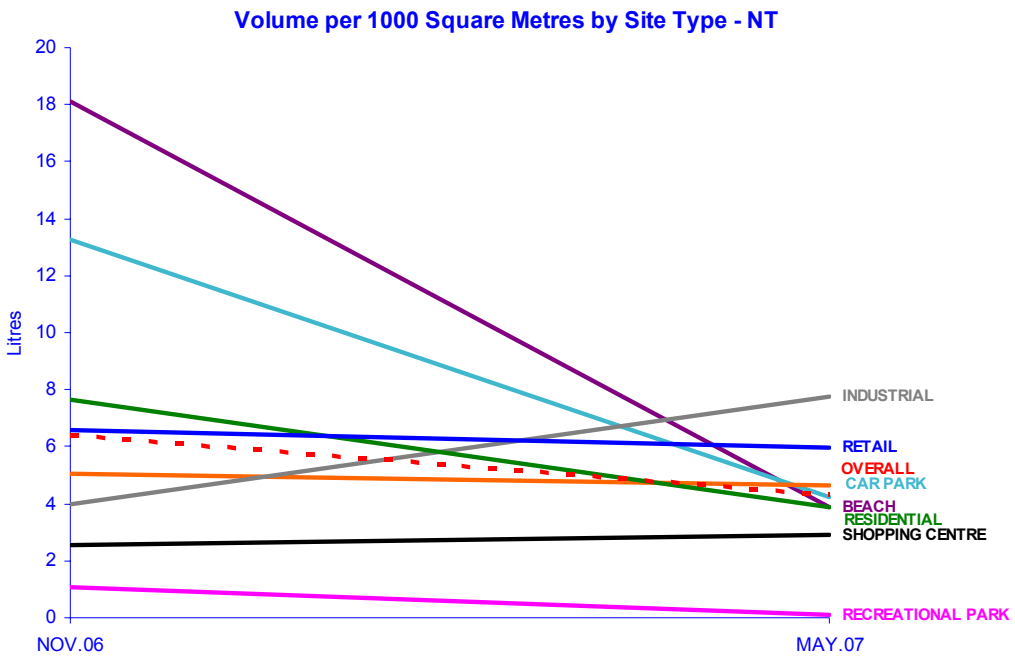
No substantial upward trend is apparent in the overall numbers of items per 1,000 m^2 from the results for November 2006 to May 2007.



There is an apparent slight downward trend in the overall volume of litter objects identified across all sites surveyed within the NT in current results when compared to those for the previous Count. This downward trend is most noticeably reflected within the beaches, car parks, and to a lesser extent residential sites surveyed in that state: such sites all demonstrate dramatic reductions in the estimated volumes of litter per 1,000 m^2 associated with each respective type.

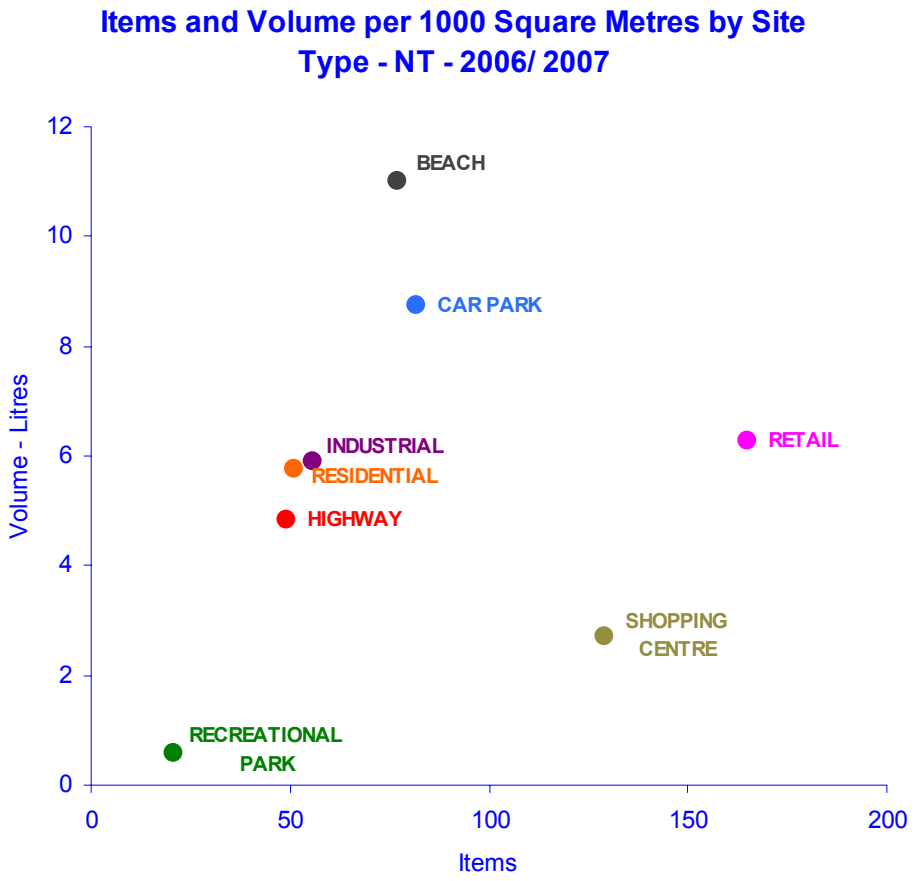
The apparent increasing trends in the numbers of litter items per 1,000 m^2 identified at retail sites and shopping centres are not reflected in figures for litter volume per 1,000 m^2 at such sites, and results for such sites are broadly in line with previous findings.

Although there is no emergent upward trend in the numbers of items located at industrial sites within the NT, there appears to be an increase in the volume of litter items at such sites.



Items and volume estimates per 1,000 m^2 within the NT identify differential patterns across site types. Particular site characteristics which are evident are as follows:

- **Beaches** and **car parks** are associated with moderate numbers of items and large volumes of litter.
- **Retail** sites are associated with large numbers of litter items and moderate levels of litter volume.
- **Shopping centres** are associated with large numbers of items but only small volumes of litter.

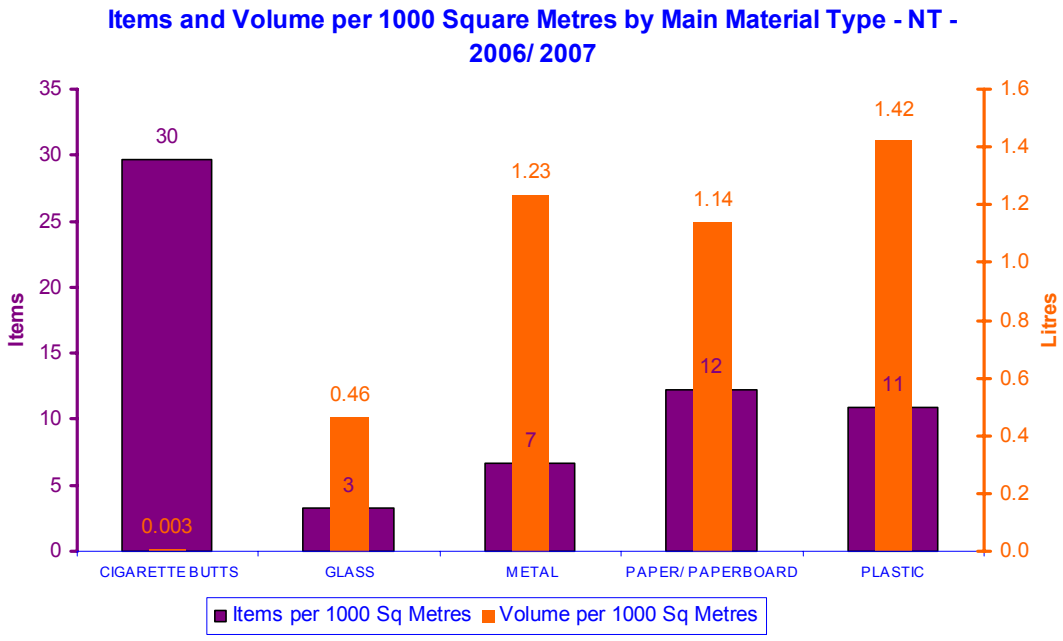

Items and Volume per 1000 Square Metres by Site Type - NT - 2006/ 2007
Volume - Litres
Items
0
2
4
6
8
10
12
0
50
100
150
200
BEACH
CAR PARK
INDUSTRIAL
RESIDENTIAL
HIGHWAY
RETAIL
SHOPPING CENTRE
RECREATIONAL PARK

Comparison by Main Material Types

An average of 30 cigarette butts per 1,000 m^2 were identified across all sites within the NT during the year of 2006/ 2007. However, such items only contributed 0.003 litres per 1,000 m^2 in volume to the litter stream in that state.

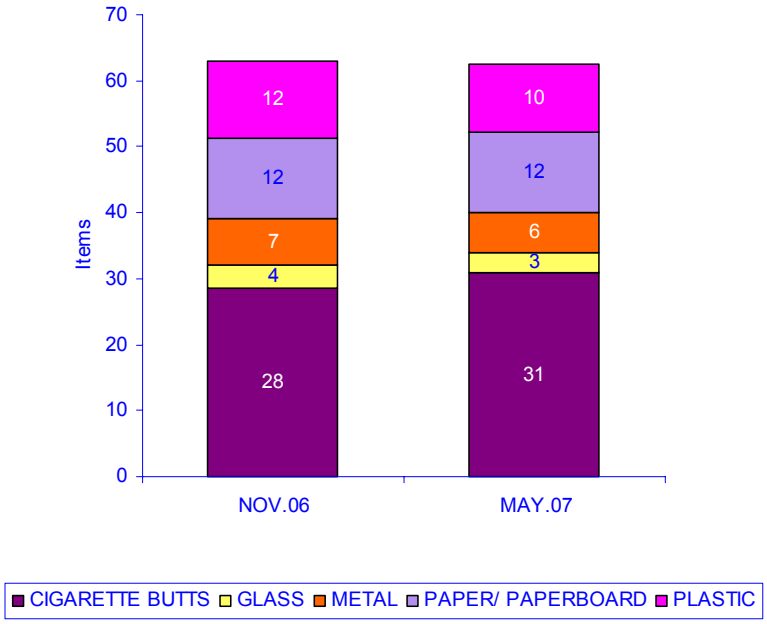
Items which contributed the greatest volumes to the overall litter stream in the NT were constructed of the following materials:

- **Plastic** - 1.42 litres per 1,000 m^2
- **Metal** - 1.23 litres per 1,000 m^2
- **Paper/ paperboard** - 1.14 litres per 1,000 m^2



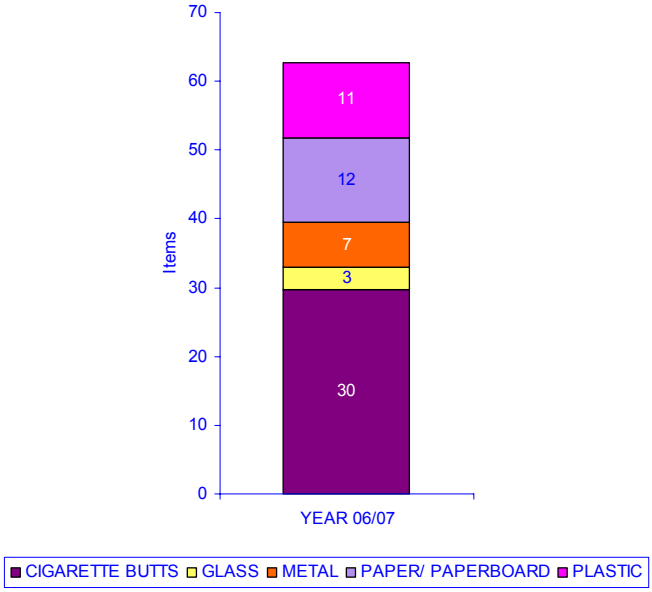
Results from November 2006 through to current findings do not show significant fluctuations in the proportional contributions of items within main material types to the overall litter present in the litter stream in the NT.

Items per 1000 Square Metres by Main Material Type - NT

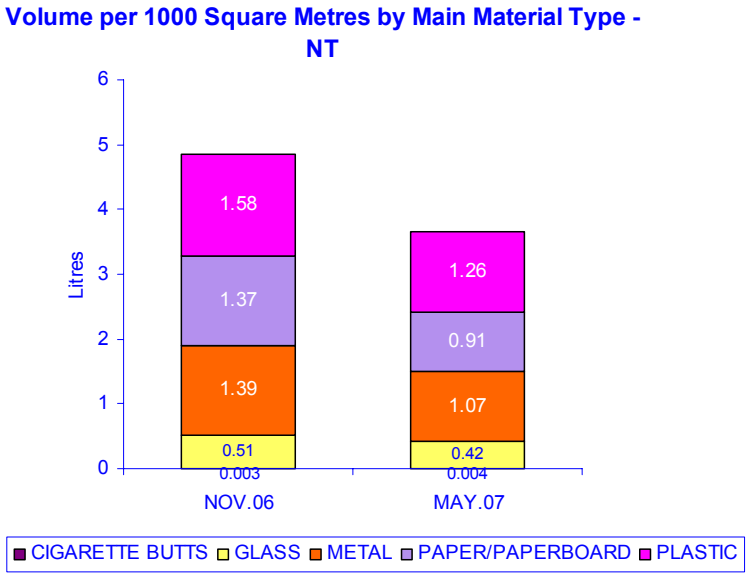


Figures averaged across counts within the year of 2006/ 2007 demonstrate the significant contribution of cigarette butts (30 butts per 1,000 m^2) to the number of litter items present in the litter stream in the NT within the main material types identified.

Items per 1000 Square Metres by Main Material Type - Annual Averages - NT

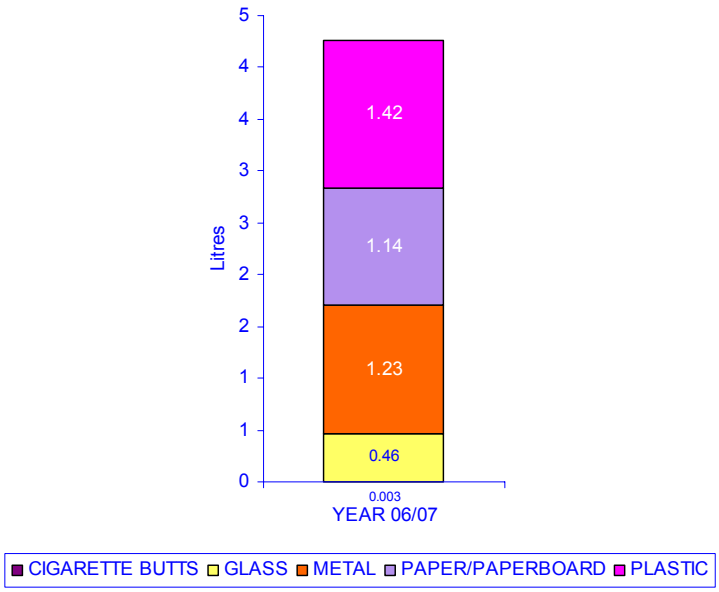


Results for May 2007 demonstrate slightly smaller contributions of plastic (1.26 litres per 1,000 m^2), metal (1.07 litres per 1,000 m^2) and paper/ paperboard (0.91 litres per 1,000 m^2) litter objects to the volume of litter identified than such items did in results for the November 2006 Count (down from 1.58, 1.39 and 1.37 litres per 1,000 m^2 respectively).



Annual average figures for the year of 2006/ 2007 demonstrate strong contributions of plastic (1.42 litres per 1,000 m^2), metal (1.23 litres per 1,000 m^2) and paper/ paperboard litter objects (1.14 litres per 1,000 m^2) to the estimated volume present in the litter stream.

Volume per 1000 Square Metres by Main Material Type - Annual Averages - NT

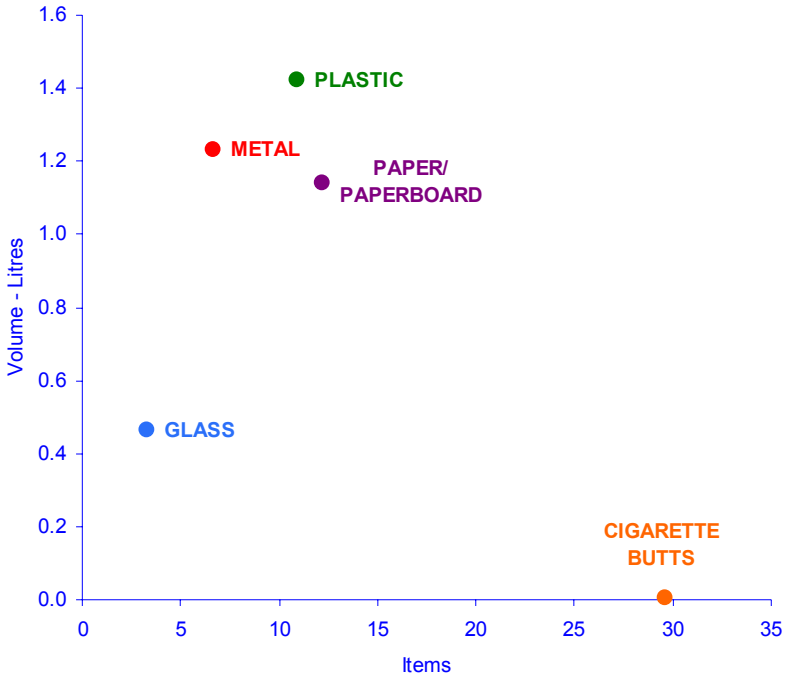


Figures for items and volumes per 1,000 m^2 across main material types identify the following characteristics of litter objects within the NT:

- **Plastic, metal** and **paper/ paperboard** litter items contribute large volumes to the litter stream but are associated with only small numbers of items. This implies the presence of many high-volume items.

- **Cigarette butts** - although a large number of such items were identified, they contribute only a negligible volume to the overall litter stream in that state.

Items and Volume per 1000 Square Metres by Main Material Type - NT - 2006/ 2007

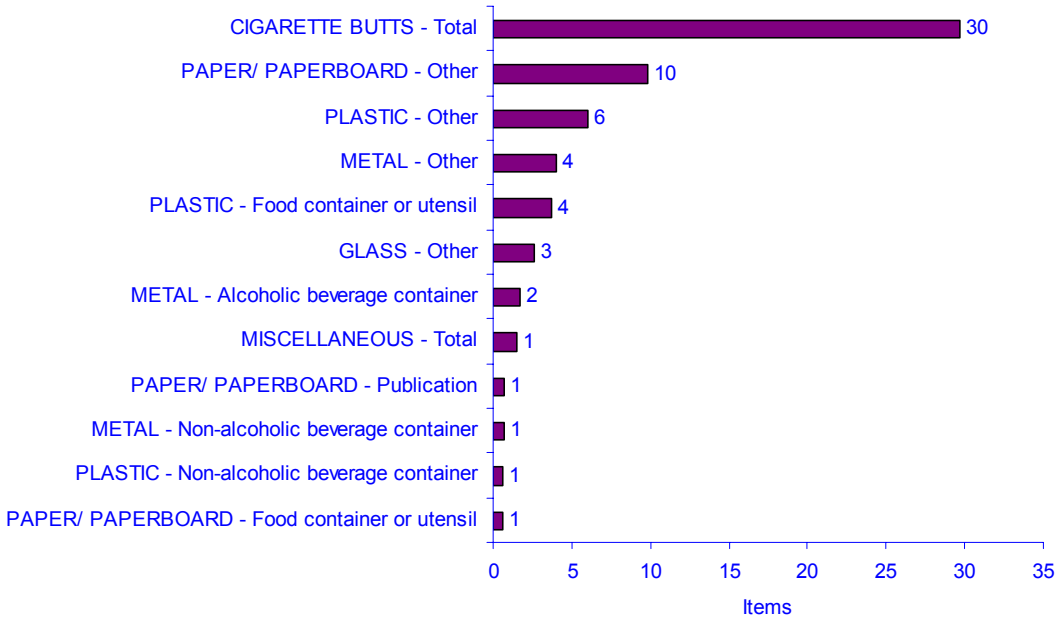


The Dirty Dozen

When partitioned according to object sub-type distinctions, cigarette butts are as the most frequently identified litter item, and 30 butts were recorded per 1,000 m^2 on average across the November 2006/ May 2007 counts in the NT.

Other objects frequently identified in that state included uncategorised paper/ paperboard objects (10 items per 1,000 m^2), uncategorised plastic objects (6 items per 1,000 m^2), uncategorised metal objects (4 items per 1,000 m^2), and plastic food containers and utensils (4 items per 1,000 m^2).

Dirty Dozen - Items per 1000 Square Metres - Object Sub-Categories - NT - 2006/ 2007



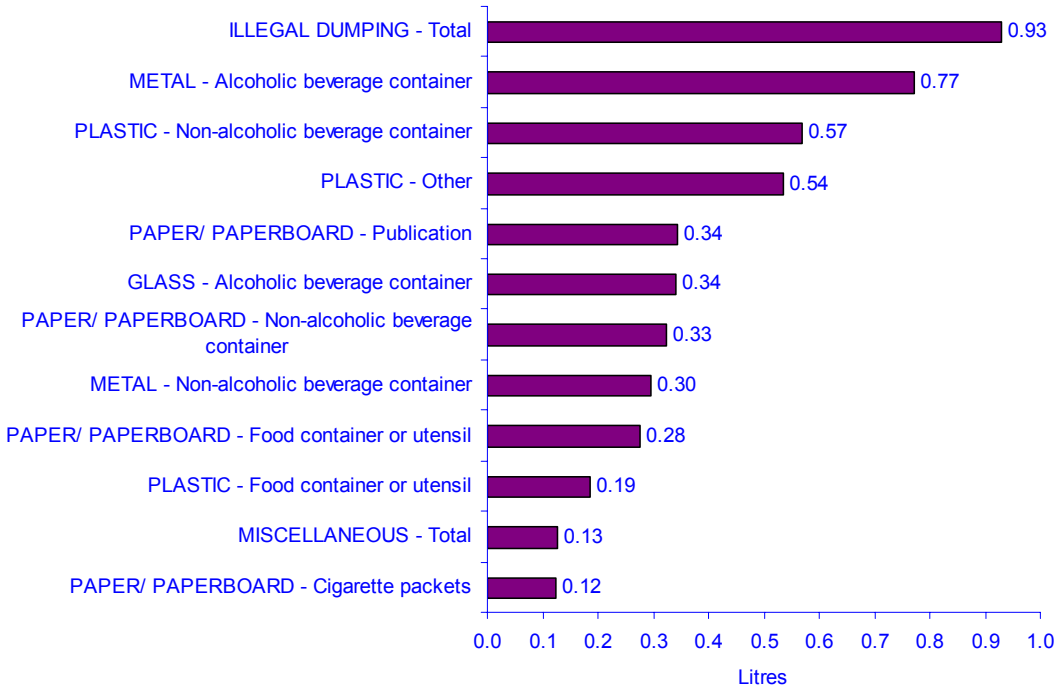
Illegal dumping represented the largest contribution to estimated litter volume (0.93 litres per 1,000 m^2). Metal alcoholic beverage containers were also significant contributors to volume in the litter stream in the NT (0.77 litres per 1,000 m^2).

Other object sub-categories which were associated with substantial estimated volume measurements included:

- Plastic - non-alcoholic beverage containers (0.57 litres per 1,000 m^2)

- Uncategorised plastic objects (0.54 litres per 1,000 m^2)
- Paper/ paperboard - publications (0.34 litres per 1,000 m^2)
- Glass - alcoholic beverage containers (0.34 litres per 1,000 m^2)
- Paper/ paperboard - non-alcoholic beverage containers (0.33 litres per 1,000 m^2)
- Metal - non-alcoholic beverage containers (0.30 litres per 1,000 m^2)

Dirty Dozen - Volume per 1000 Square Metres - Object Sub-Categories - NT - 2006/ 2007



3.5 Queensland

At a Glance

The overall average number of items per 1,000 m^2 across all of the 151 sites surveyed within QLD during the counts in the year of 2006/ 2007 was 86, whilst the overall average estimated volume per 1,000 m^2 was 7.59 litres.

The number of litter items per 1,000 m^2 identified is broadly in line with findings for the year of 2005/ 2006, when 89 items per 1,000 m^2 were identified within the state. The current year's volume per 1,000 m^2 estimate is also similar the figure for the year of 2005/ 2006 (7.66 litres per 1,000 m^2).

The most heavily littered sites surveyed within QLD were generally as follows:

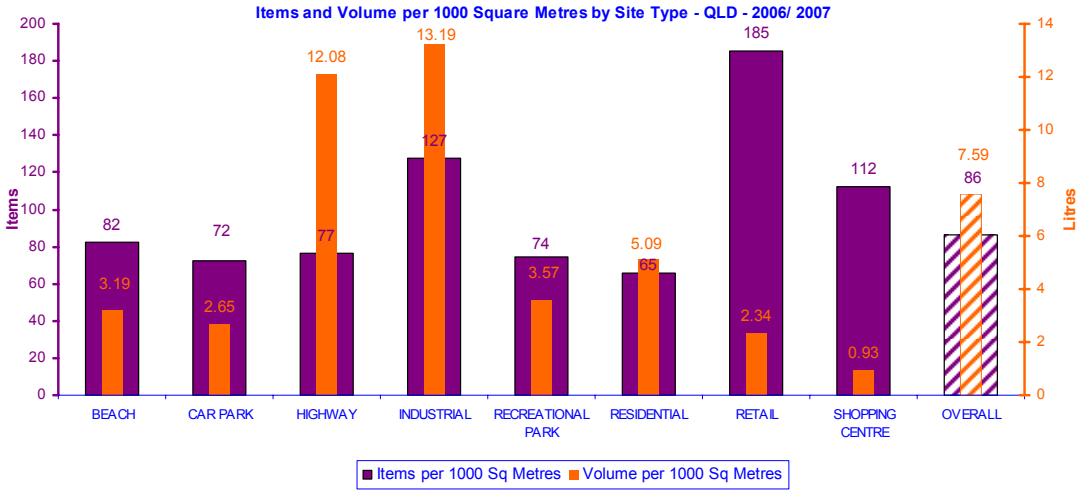
- **Industrial** sites, which were associated with large volumes of litter and moderately large numbers of litter items.
- **Highway** sites, which were associated with a large estimated volume of items but only small numbers of items.
- **Retail** sites, which were associated with large numbers of items but only small estimated litter volume per 1,000 m^2

Cigarette butts were the most frequently identified item across all sites in QLD, and 43 butts per 1,000 m^2 were recorded in annual figures for 2006/ 2007. Plastic litter objects contributed the largest amount of volume to the litter stream, and such objects were associated with 3.31 litres of volume per 1,000 m^2 in the state.

Comparisons by Site Types

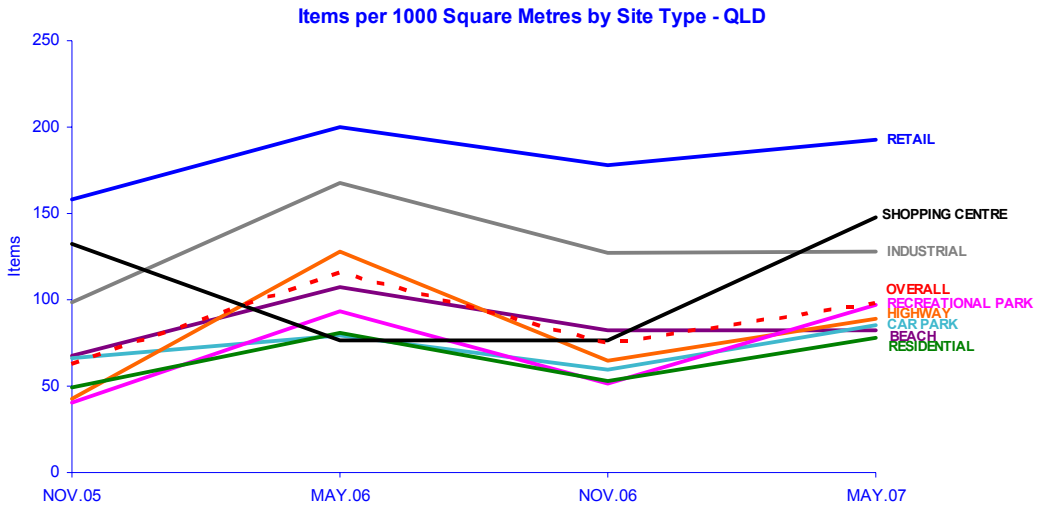
The largest numbers of items per 1,000 m^2 were located within retail sites (185 items per 1,000 m^2) an d to a lesser extent industrial sites (127 items per 1,000 m^2).

The estimated volumes per 1,000 m^2 of the litter objects at industrial sites (13.19 litres per 1,000 m^2) and highway sites (12.08 litres per 1,000 m^2) were higher than within any other site types.



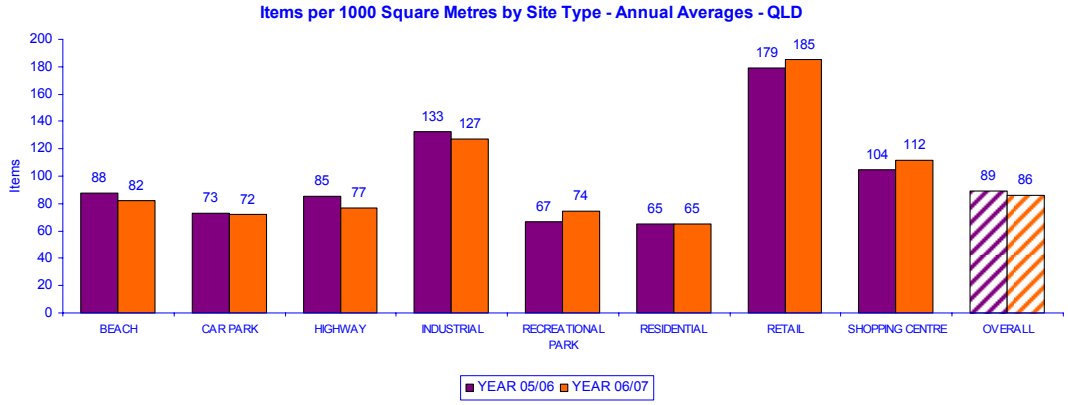
Tracked results demonstrate consistent seasonal fluctuations in the numbers of items per 1,000 m^2 identified within QLD, particularly within overall figures encompassing all sites surveyed in QLD tracked back to November 2005.

Peaks are identifiable in the overall numbers of items per 1,000 m^2 recorded in the May Counts in 2006 and 2007, whilst low results are apparent in figures for November 2005 and 2006. These seasonal fluctuations are reflected across nearly all site types surveyed.



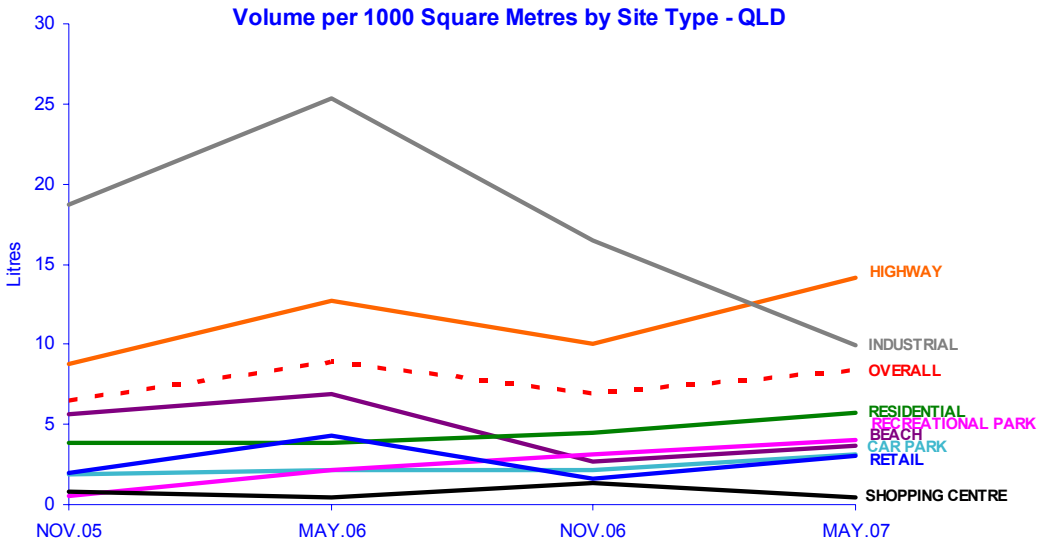
The annual average of items per 1,000 m^2 within QLD for the year of 2006/ 2007 (86 items per 1,000 m^2) is very marginally lower than the figure corresponding to the year of 2005/ 2006 (89 items per 1,000 m^2).

This relative consistency is evident across results corresponding to all site types surveyed within the state.



The estimated volumes per 1000 m^2 of litter items at all sites within QLD overall demonstrates slight seasonal fluctuation, and peaks in overall volume per 1,000 m^2 figures are evident in May 2006 and 2007, whilst troughs are identifiable in results for November 2005 and 2006.

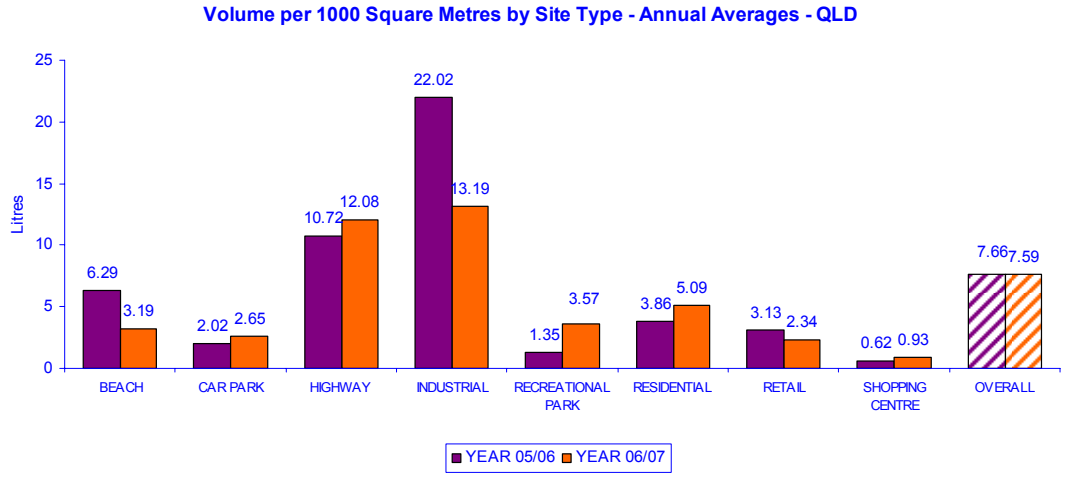
This fluctuation is most strongly evidenced within highway sites. Industrial sites, however, describe a consistent downward trend in figures for the current and previous Count down from a peak recorded during the May 2006 survey.



The overall annual average estimated litter volume per 1,000 m^2 across all sites within QLD for the year of 2006/ 2007 (7.59 litres per 1,000 m^2) is marginally lower than the result for the year of 2005/ 2006 (7.66 litres per 1,000 m^2).

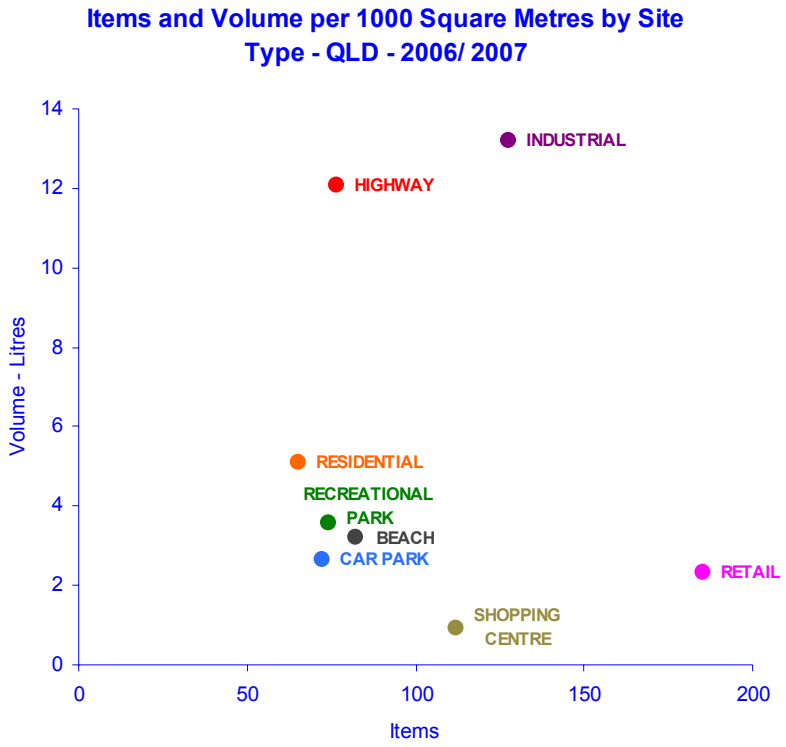
This decrease is strongly reflected within industrial sites (13.19 litres per 1,000 m^2, down from 22.02 in 2005/ 2006). Beaches also demonstrate a decrease in the volume of litter identified at such sites compared to the previous year (3.19 litres per 1,000 m^2, down from 6.29 in 2005/ 2006).

However, the volumes of litter identified at highways (12.08 litres per 1,000 m^2), recreational parks (3.57 litres per 1,000 m^2) and residential areas (5.09 litres per 1,000 m^2) were all higher in the current year's findings than in previous annual results (up from 10.72, 1.35 and 3.86 litres per 1,000 m^2 respectively).



Items and volume estimates per 1,000 m^2 within QLD identify the following site characteristics across the respective site types surveyed in 2006/ 2007:

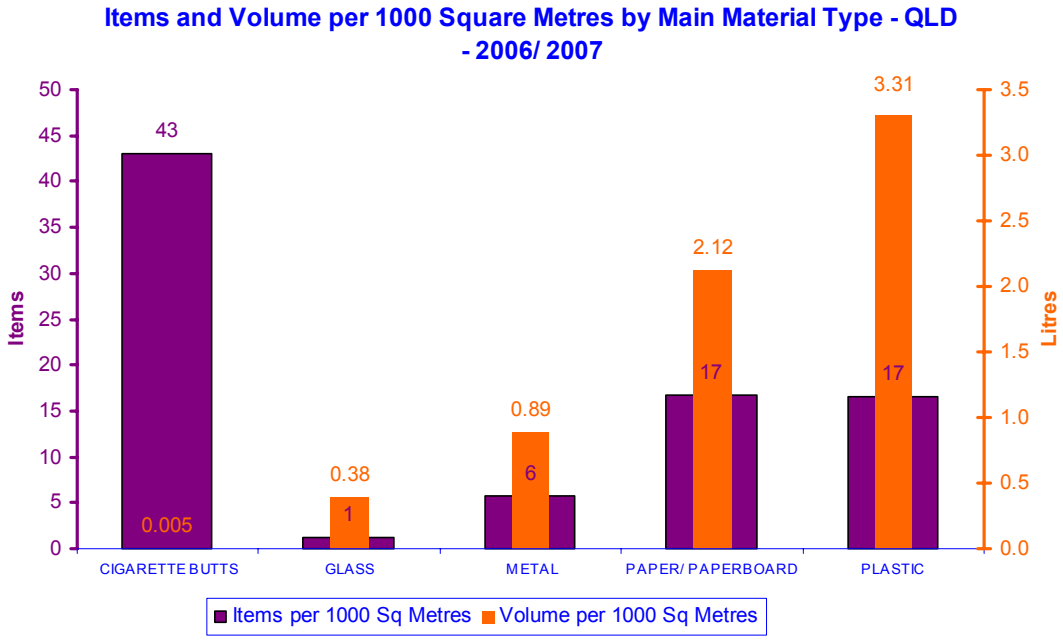
- **Industrial sites** are associated with both a large number of items as well as a large estimated litter volume per 1,000 m^2.
- **Highway sites** are associated with a large volume of litter but only moderate numbers of litter items.
- **Retail** sites are associated with large numbers of items but only a small volume of litter.


Items and Volume per 1000 Square Metres by Site Type - QLD - 2006/ 2007
Volume - Litres
Items
0
2
4
6
8
10
12
14
0
50
100
150
200
INDUSTRIAL
HIGHWAY
RESIDENTIAL
RECREATIONAL
PARK
BEACH
CAR PARK
RETAIL
SHOPPING CENTRE

Comparison by Main Material Types

An average of 43 cigarette butts per 1,000 m^2 were identified across all sites surveyed within QLD during the year of 2006/ 2007. However, such items only contributed 0.005 litres of volume per 1,000 m^2 to the litter stream.

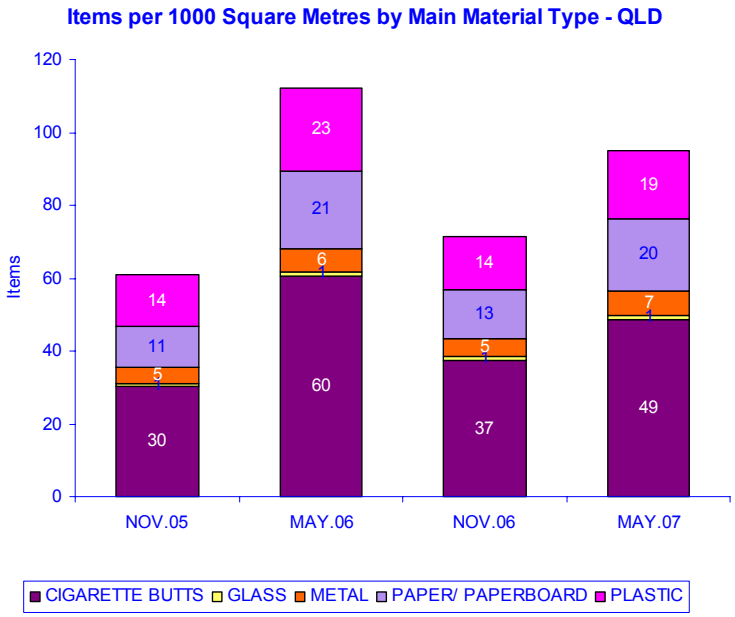
Items which contributed the greatest volumes to the litter stream in QLD were constructed of plastic materials (3.31 litres per 1,000 m^2) and to a lesser extent paper/ paperboard (2.12 litres per 1,000 m^2).



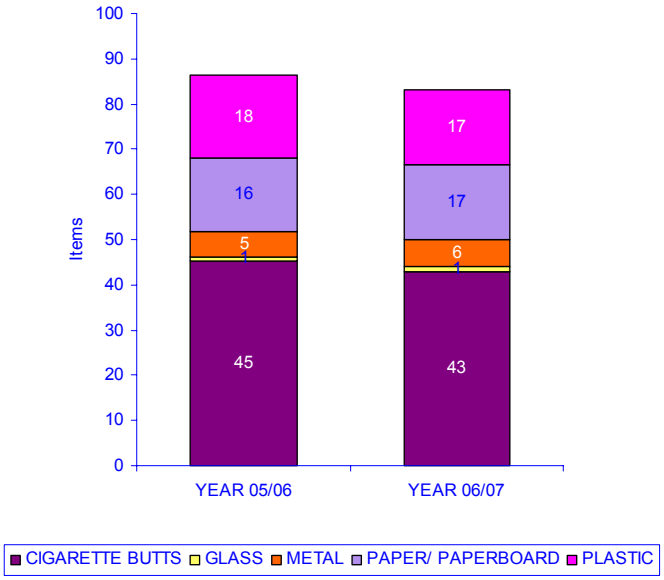
Most main material type categories demonstrate relatively consistent seasonal fluctuations in the numbers of items per 1,000 m^2 identified within each category.

Such items demonstrate peaks in May 2006 and 2007 and lows in results for November 2005 and 2006.

Seasonal variation is most strongly emergent in the numbers of cigarette butts identified, where peaks of 60 items per 1,000 m^2 in May 2006 and 49 items per 1,000 m^2 in May 2007 are differentiated from troughs of 30 items per 1,000 m^2 in November 2005 and 37 items per 1,000 m^2 during November 2006.

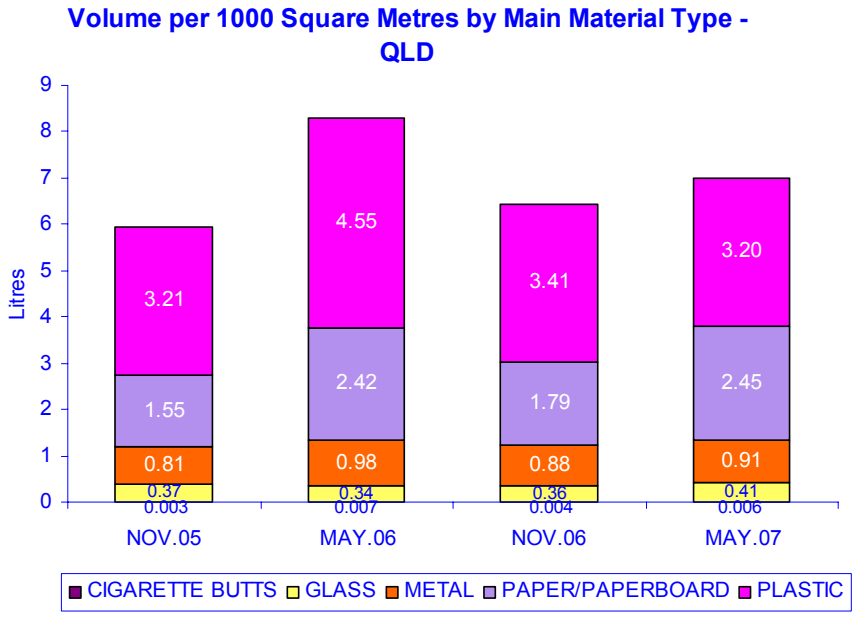


Annual averages for QLD for the years of 2005/ 2006 and 2006/ 2007 demonstrate relatively consistent proportions of litter objects within the main material types.



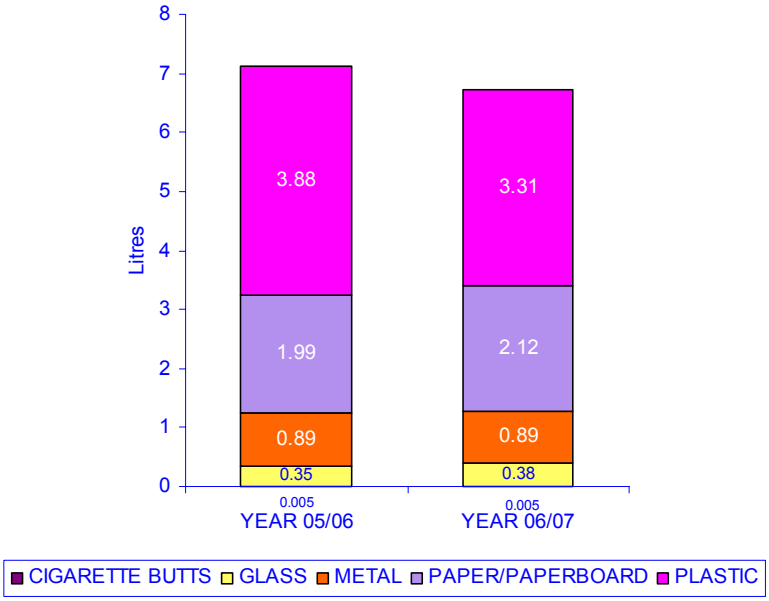
The proportions of total litter volume contributed by objects within the main material types demonstrate some seasonal variations from peaks in May 2006 and 2007 down to troughs in November 2005 and 2006.

This seasonal fluctuation is most strongly evidenced in the estimated contributions of paper/ paperboard litter objects to the volume of the litter stream in QLD. Peak figures for average plastic litter items per 1,000 m^2 are identifiable in results for May 2006 (2.42 litres per 1,000 m^2) and May 2007 (2.45 litres per 1,000 m^2), whilst the results for November 2005 (1.55 litres per 1,000 m^2) and November 2006 (1.79 litres per 1,000 m^2) are comparatively substantially lower.



Annual results for the contribution of objects within the main material types to volume in the litter stream during the year of 2006/ 2007 do not demonstrate substantial variation from results for the year of 2005/ 2006. The contribution of plastic litter item volume is marginally reduced (3.31 litres per 1,000 m^2) when compared to the figure for 2005/2006 (3.88 litres per 1,000 m^2).

Volume per 1000 Square Metres by Main Material Type - Annual Averages - QLD

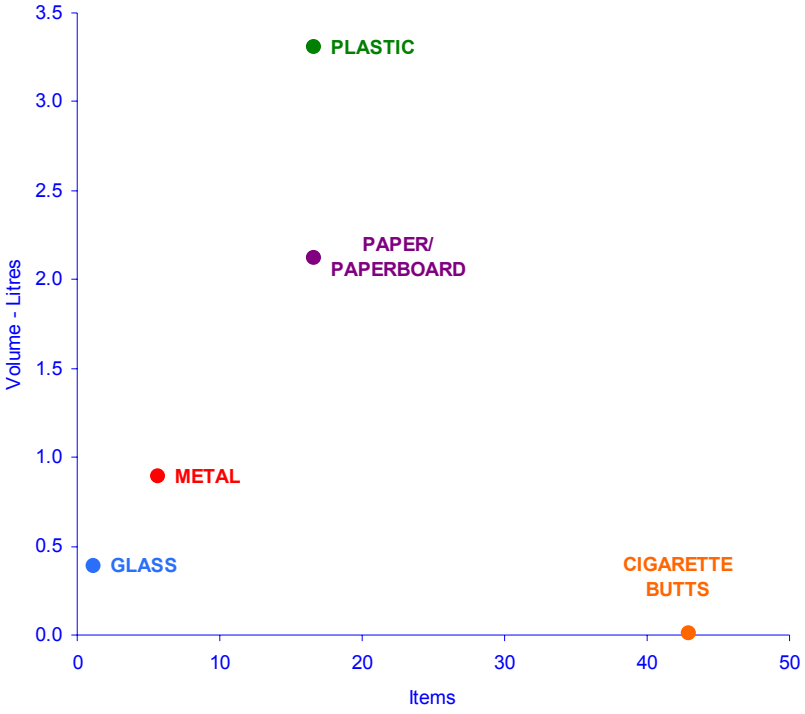


Figures for items and volumes per 1,000 m^2 across main material types identify the following characteristics of litter objects recorded within QLD during the year of 2006/ 2007:

- **Plastic** litter items contribute large volumes to the litter stream but are associated with only small numbers of items. This implies the presence of many high-volume items.

- **Cigarette butts** - although a large number of such items were identified, they contribute only a negligible volume to the overall litter stream in the state.

Items and Volume per 1000 Square Metres by Main Material Type - QLD - 2006/ 2007

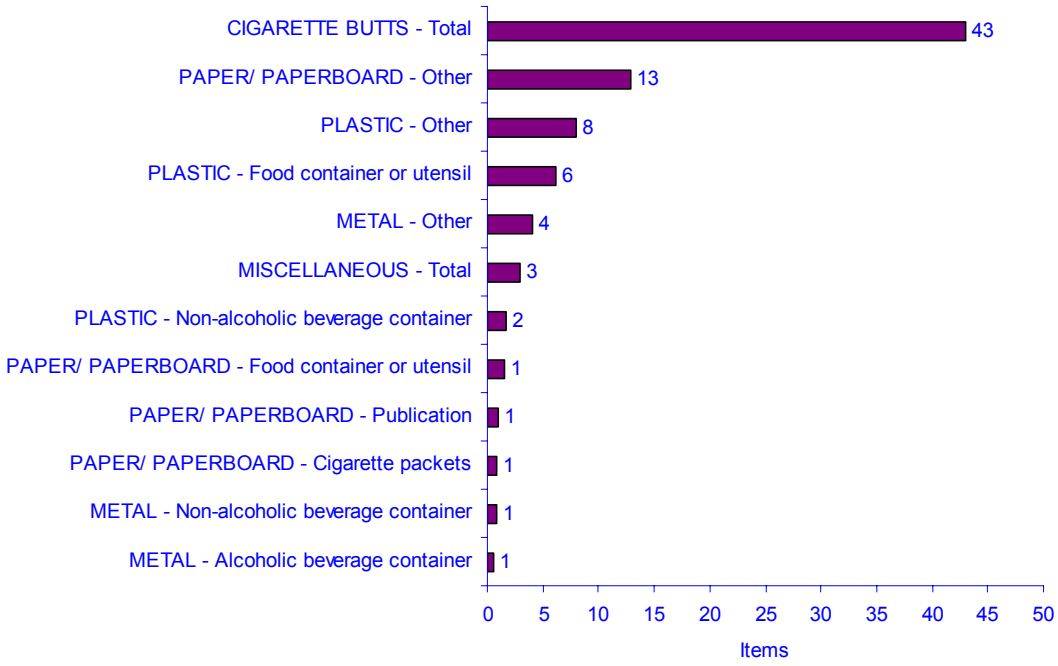


The Dirty Dozen

Cigarette butts were the most frequently identified litter item in QLD, and 43 butts on average were recorded per 1,000 m^2 during the November 2006/ May 2007 counts in that state.

Other objects frequently identified in QLD included uncategorised paper/ paperboard objects (13 items per 1,000 m^2), uncategorised plastic objects (8 items per 1,000 m^2), plastic food containers and utensils (6 items per 1,000 m^2) and uncategorised metal objects (4 items per 1,000 m^2).

Dirty Dozen - Items per 1000 Square Metres - Object Sub-Categories - QLD - 2006/ 2007

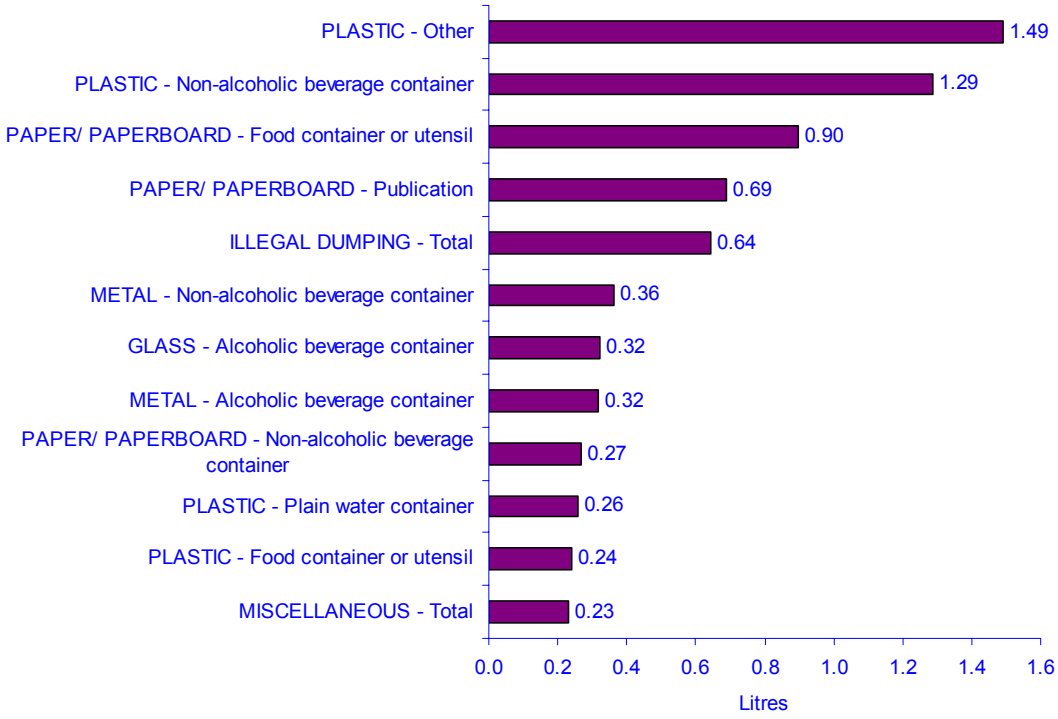


Uncategorised plastic objects represented the largest contribution to estimated litter volume in QLD within results for 2006/ 2007 (1.49 litres per 1,000 m^2). Plastic non-alcoholic beverage containers were also strong contributors to volume in the litter stream in that state (1.29 litres per 1,000 m^2).

Other object sub-categories which were associated with substantial estimated volume measurements included:

- Paper/ paperboard - food containers or utensils (0.90 litres per 1,000 m^2)
- Paper/ paperboard - publications (0.69 litres per 1,000 m^2)
- Illegal dumping (0.64 litres per 1,000 m^2)
- Metal - non-alcoholic beverage containers (0.36 litres per 1,000 m^2)

Dirty Dozen - Volume per 1000 Square Metres - Object Sub-Categories - QLD - 2006/ 2007



3.6 South Australia

At a Glance

The overall average number of items per 1,000 m^2 across all of the 151 sites surveyed within SA during the counts in the year of 2006/ 2007 was 61, whilst the overall average estimated volume per 1,000 m^2 was 11.08 litres.

The number of litter items per 1,000 m^2 identified is broadly in line with findings for the year of 2005/ 2006, when 60 items per 1,000 m^2 were identified within the state. The current year's volume per 1,000 m^2 estimate is however higher than the figure for the year of 2005/ 2006 (7.23 litres per 1,000 m^2).

The most littered sites surveyed within SA were generally as follows:

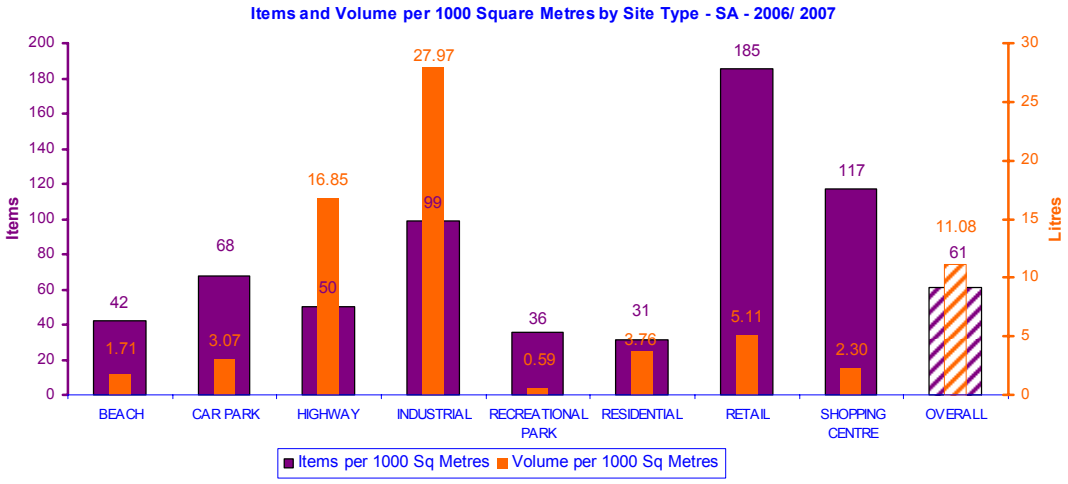
- **Industrial** sites, which were associated with large volumes of litter and moderately large numbers of litter items.
- **Retail** sites, which were associated with large numbers of items but only small estimated litter volume per 1,000 m^2.
- **Shopping centres**, which were associated with large numbers of items but only a small volume of litter per 1,000 m^2.

Cigarette butts were the most frequently identified item across all sites in SA, and 25 butts per 1,000 m^2 were recorded in annual figures for 2006/ 2007. Plastic litter objects contributed the largest amount of volume to the litter stream, and such objects were associated with 2.94 litres of volume per 1,000 m^2 in the state.

Comparisons by Site Types

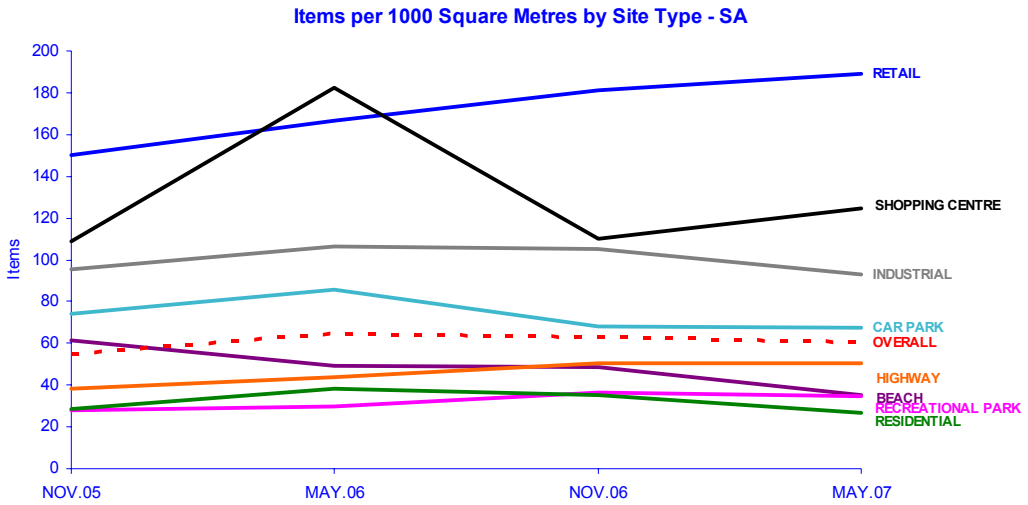
The largest numbers of items per 1,000 m^2 were located within retail sites (185 items per 1,000 m^2) and to a lesser extent shopping centres (117 items per 1,000 m^2).

The estimated volumes per 1,000 m^2 of the litter objects at industrial sites (27.97 litres per 1,000 m^2) and highway sites (16.85 litres per 1,000 m^2) were higher than within any other site types.



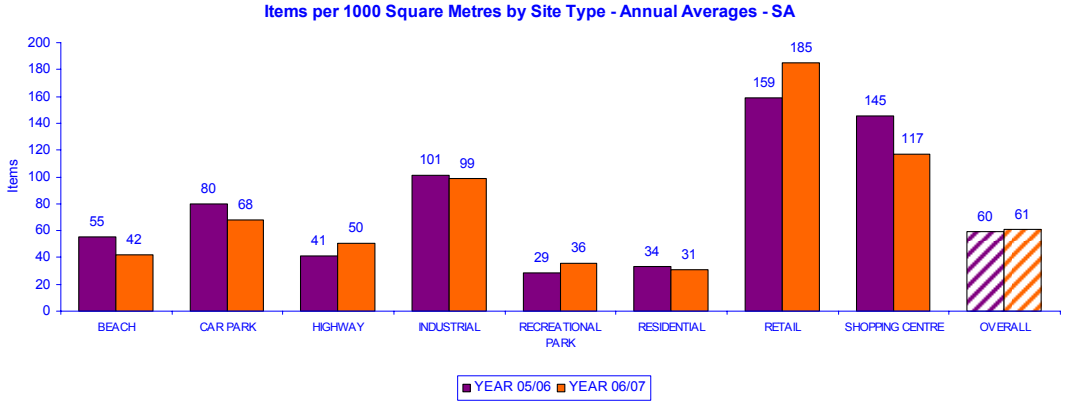
Tracked results demonstrate relative consistency in the numbers of items per 1,000 m^2 identified within SA across nearly all sites types.

A slight but steady upward trend in the numbers of litter items at retail sites is evident in results tracked back to November 2005. Litter items at shopping centre sites show significant variance across past figures, and highs are identifiable in results for May 2006 and 2007, whilst lows are distinct in results for November 2005 and 2006.



The annual average of items per 1,000 m^2 within SA for the year of 2006/ 2007 (61 items per 1,000 m^2) is very marginally higher than the figure corresponding to the year of 2005/ 2006 (60 items per 1,000 m^2).

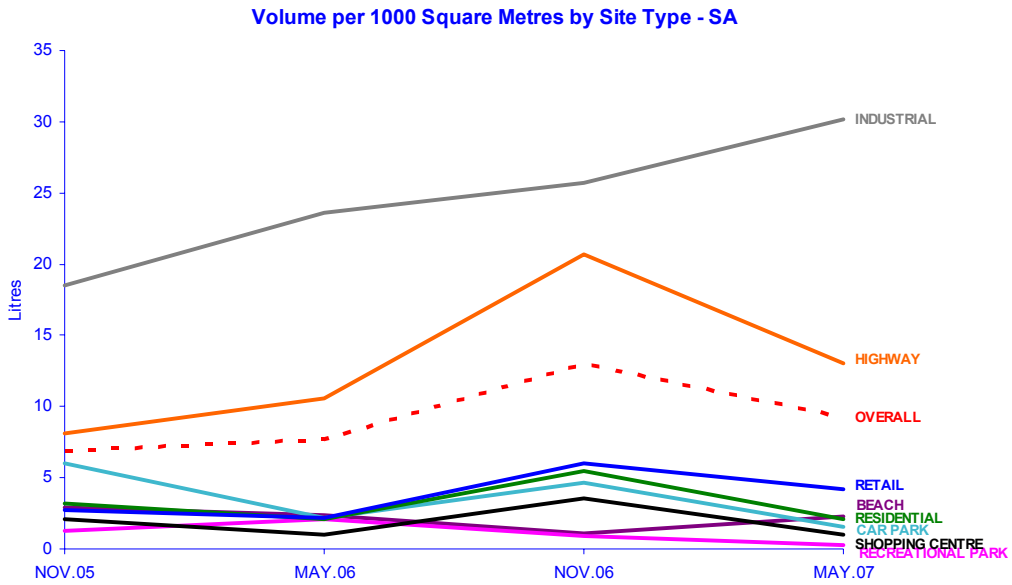
Although the number of items per 1,000 m^2 at shopping centres has dropped to 117 in current annual figures (down from 145 in the year of 2005/ 2006), this decrease is matched by an increment in the number of items per 1,000 m^2 identified at retail sites in the current year (185, up from 159 in the year of 2005/ 2006).



The estimated volumes per 1000 m^2 of litter items at all sites within SA overall does not demonstrate consistent seasonal fluctuation: a peak result for November 2006 is not echoed in the figure for November 2005.

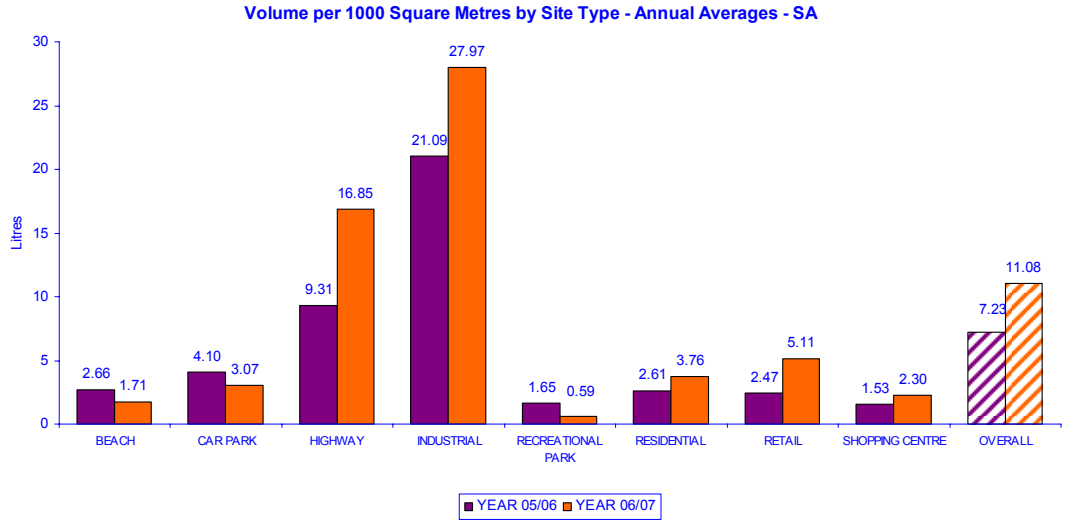
This November 2006 peak is most strongly evidenced in the volume of litter items at highway sites, which has subsequently reduced in current findings.

However, estimated litter volume at industrial sites demonstrates an unmitigated upward trend from a low in November 2005 up to a current high.



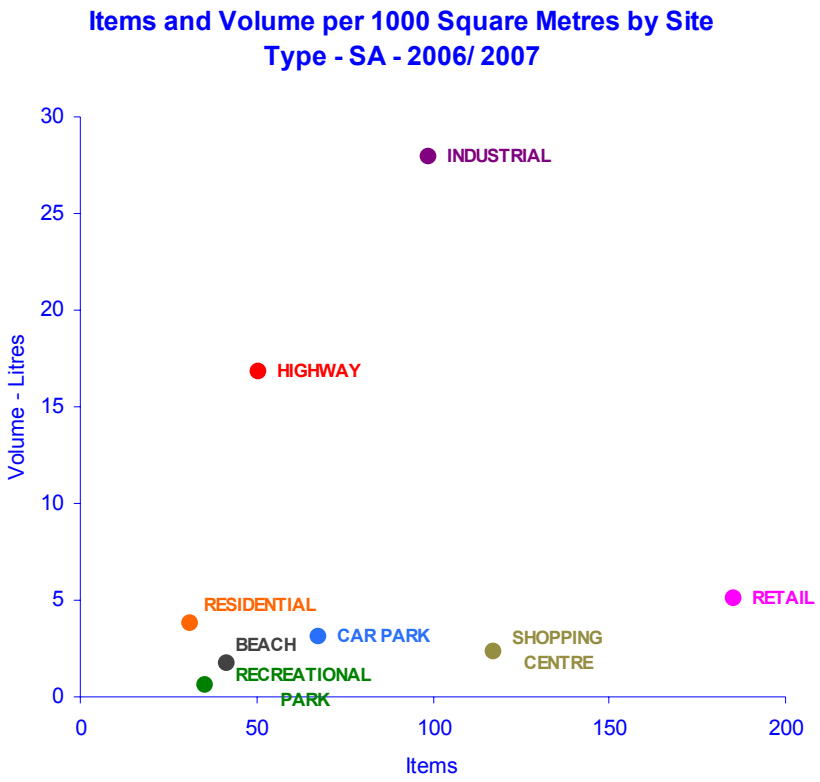
The overall annual average estimated litter volume per 1,000 m^2 across all sites within SA for the year of 2006/ 2007 (11.08 litres per 1,000 m^2) is significantly higher than the result for the year of 2005/ 2006 (7.23 litres per 1,000 m^2).

This increment is most strongly reflected within industrial sites (27.97 litres per 1,000 m^2, up from 21.09 in 2005/ 2006) and highways (16.85 litres per 1,000 m^2, up from 9.31 in 2005/ 2006).



Items and volume estimates per 1,000 m^2 within SA identify the following site characteristics across the respective site types surveyed in 2006/ 2007:

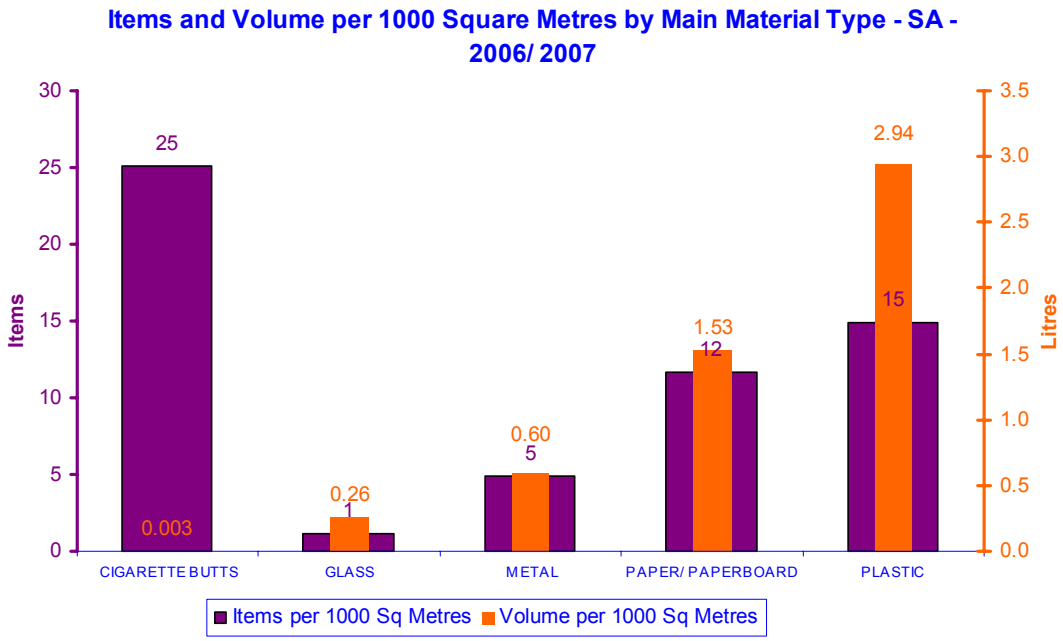
- **Industrial sites** are associated with a moderate number of items and a large estimated litter volume per 1,000 m^2.
- **Highway sites** are associated with a moderate volume of litter but only a small number of litter items.
- **Retail** sites are associated with large numbers of items but only a small volume of litter.


Items and Volume per 1000 Square Metres by Site Type - SA - 2006/ 2007
Volume - Litres
Items
0
5
10
15
20
25
30
0
50
100
150
200
INDUSTRIAL
HIGHWAY
RETAIL
RESIDENTIAL
CAR PARK
BEACH
SHOPPING CENTRE
RECREATIONAL PARK

Comparison by Main Material Types

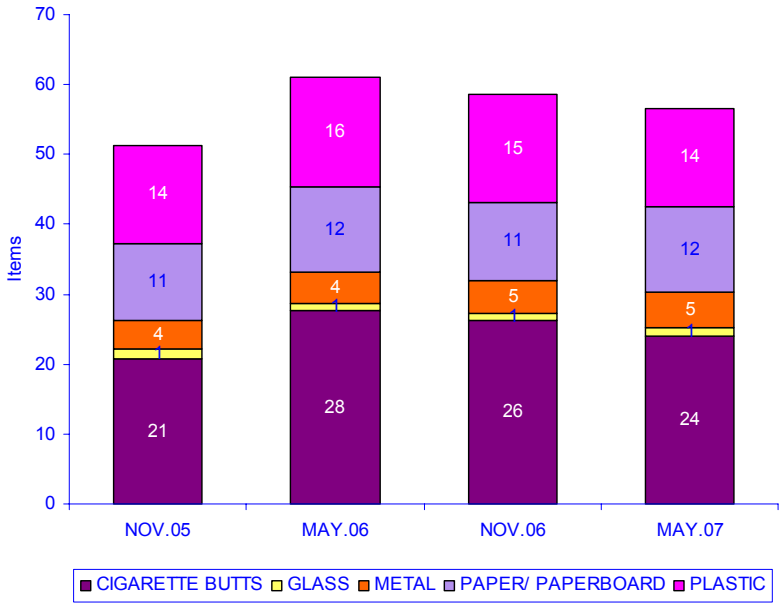
An average of 25 cigarette butts per 1,000 m^2 were identified across all sites surveyed within SA during the year of 2006/ 2007. However, such items only contributed 0.003 litres of volume per 1,000 m^2 to the litter stream.

Items which contributed the greatest volumes to the litter stream in SA were constructed of plastic materials (2.94 litres per 1,000 $m^{2)}$.



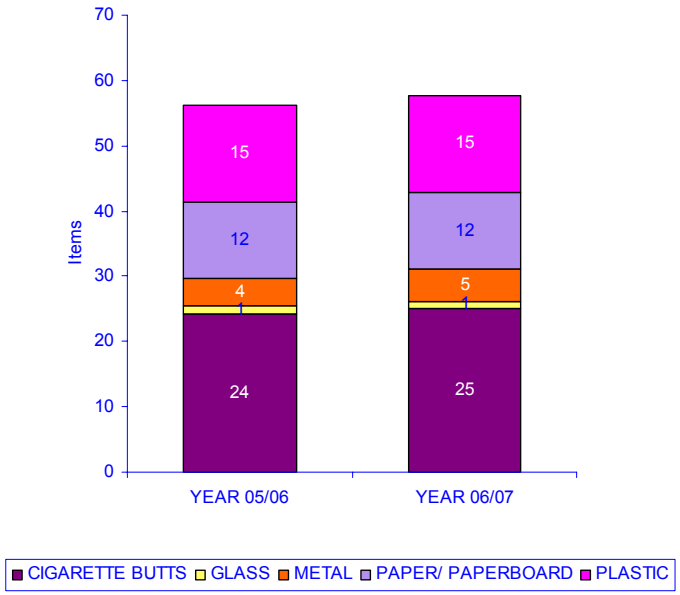
Consistent seasonal fluctuations in the numbers of items per 1,000 m^2 identified within the main material type categories are not evident across results for previous counts in SA.

Items per 1000 Square Metres by Main Material Type - SA



Annual averages for SA for the years of 2005/ 2006 and 2006/ 2007 demonstrate strongly consistent proportions of litter objects within the main material types.

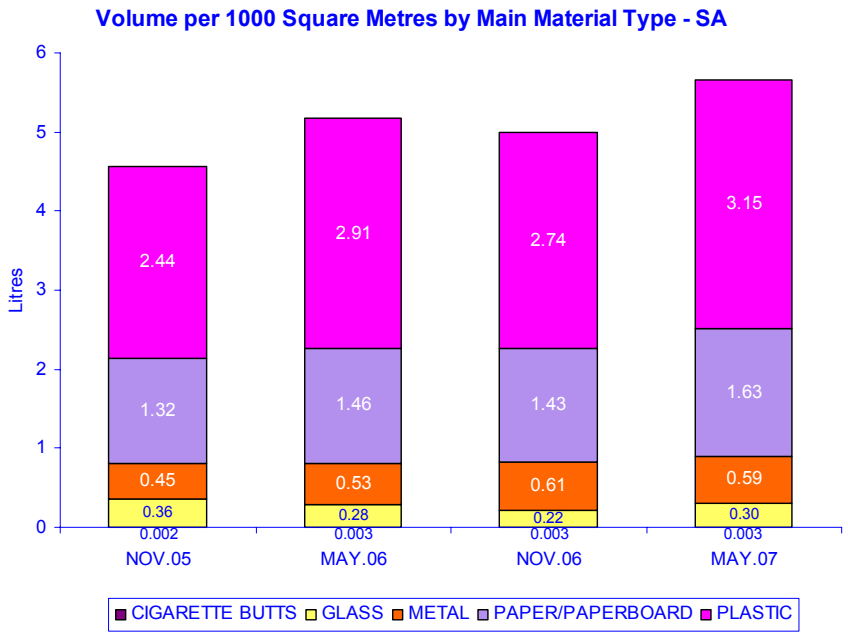
Items per 1000 Square Metres by Main Material Type - Annual Averages - SA



The proportions of total litter volume contributed by objects within the main material types demonstrate some seasonal variations from peaks in May 2006 and 2007 down to troughs in November 2005 and 2006.

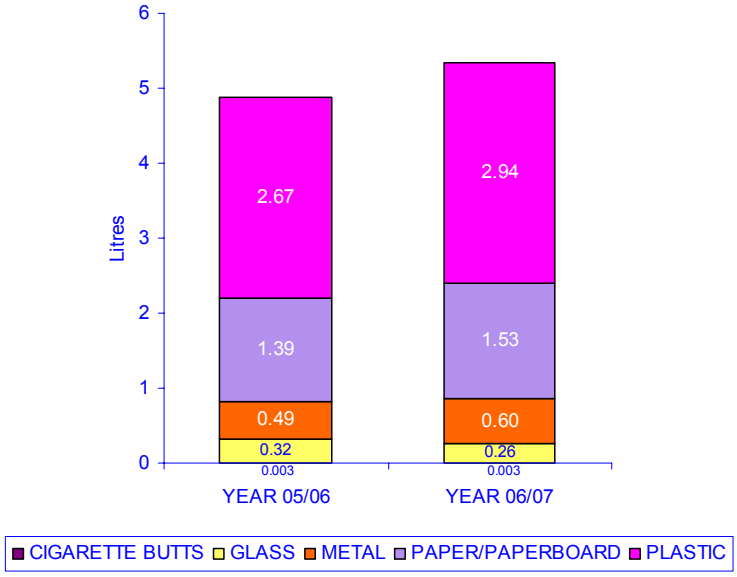
This seasonal fluctuation is most strongly evidenced in the estimated contributions of plastic litter objects to the volume of the litter stream in SA. Peak figures for average plastic litter items per 1,000 m^2 are identifiable in results for May 2006 (2.91 litres per 1,000 m^2) and May 2007 (3.15 litres per 1,000 m^2), whilst the results for November 2005 (2.44 litres per 1,000 m^2) and November 2006 (2.74 litres per 1,000 m^2) are marginally lower.

This seasonal fluctuation is also evident to a lesser extent amongst the paper/ paperboard items per 1,000 m^2 identified in SA, and the volume contributions of such items demonstrate relative peaks in May 2006 (1.46 litres per 1,000 m^2) and May 2007 (1.63 litres per 1,000 m^2) compared to low results for November 2005 (1.32 litres per 1,000 m^2) and November 2006 (1.43 litres per 1,000 m^2).



Annual results for the contribution of objects within the main material types to volume in the litter stream during the year of 2006/ 2007 demonstrate an increase in the contributions of plastic litter objects (2.94 litres per 1,000 m^2, up from 2.67 in the year of 2005/ 2006) and to a lesser extent paper/ paperboard litter (1.53 litres per 1,000 m^2, up from 1.39 in 2005/ 2006).

Volume per 1000 Square Metres by Main Material Type - Annual Averages - SA

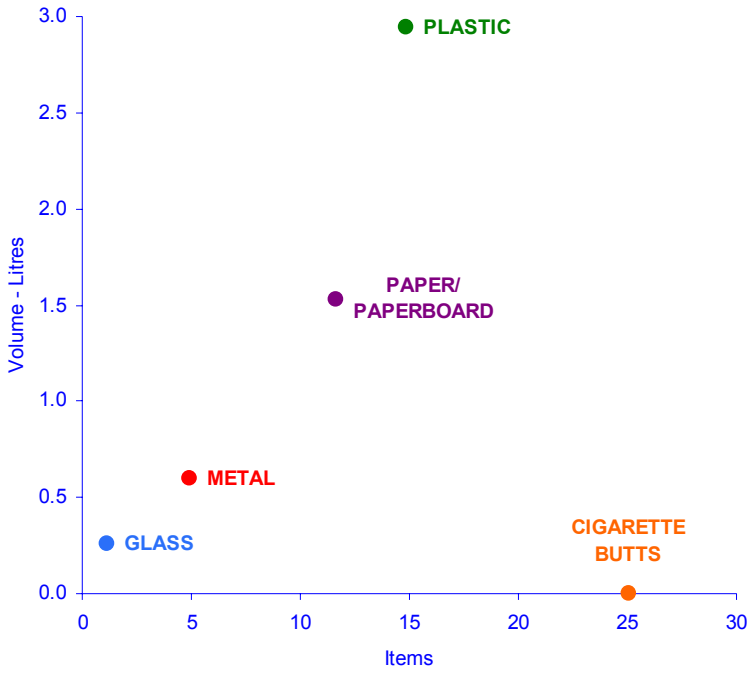


Figures for items and volumes per 1,000 m^2 across main material types identify the following characteristics of litter objects recorded within SA during the year of 2006/ 2007:

- **Plastic** litter items contribute large volumes to the litter stream but are associated with only small numbers of items. This implies the presence of many high-volume items.

- **Cigarette butts** - although a large number of such items were identified, they contribute only a negligible volume to the overall litter stream in the state.

Items and Volume per 1000 Square Metres by Main Material Type - SA - 2006/ 2007

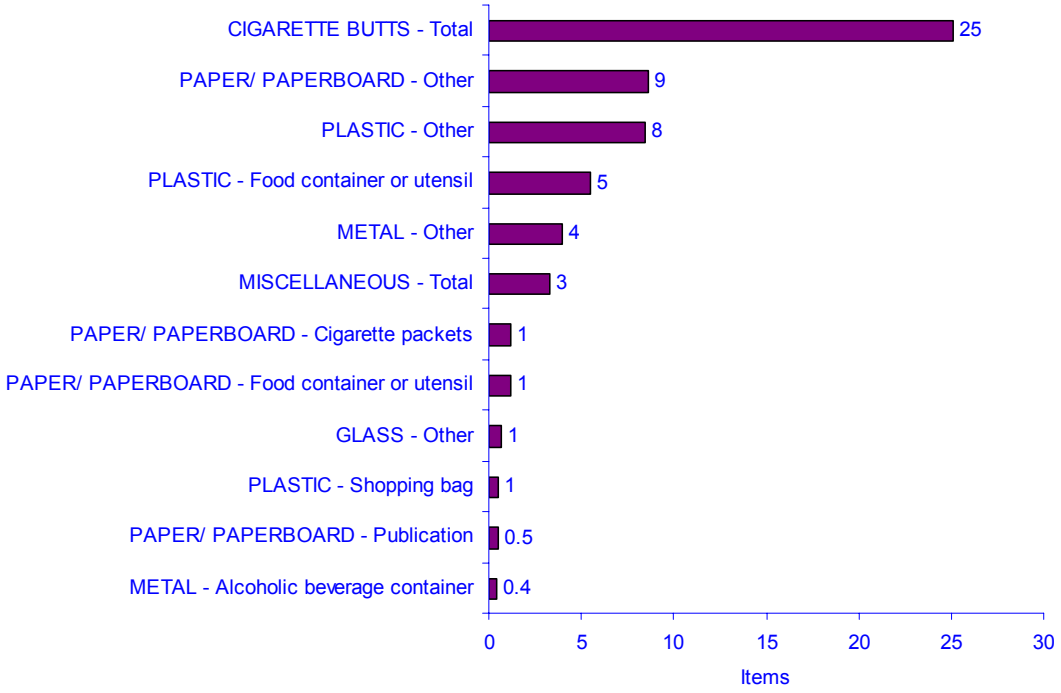


The Dirty Dozen

Within SA, cigarette butts clearly emerge as the most frequently identified litter item, and 25 butts were recorded per 1,000 m^2 on average during the November 2006/ May 2007 Counts.

Other objects frequently recorded included uncategorised paper/ paperboard objects (9 items per 1,000 m^2), uncategorised plastic objects (8 items per 1,000 m^2), plastic food containers and utensils (5 items per 1,000 m^2) and uncategorised metal objects (4 items per 1,000 m^2).

Dirty Dozen - Items per 1000 Square Metres - Object Sub-Categories - SA - 2006/ 2007

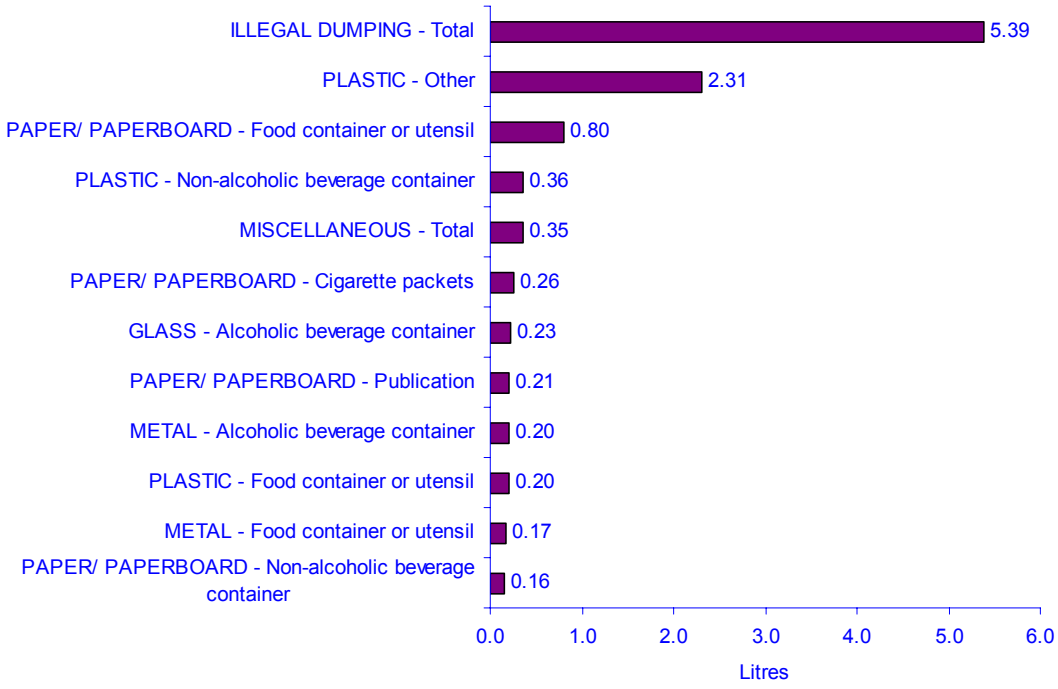


Illegal dumping represented the largest contribution to estimated litter volume in SA during 2006/ 2007 (5.39 litres per 1,000 m^2). Uncategorised plastic objects were also strong contributors to volume in the litter stream (2.31 litres per 1,000 m^2).

Other object sub-categories which were associated with substantial estimated volume measurements included:

- Paper/ paperboard - food containers or utensils (0.80 litres per 1,000 m^2)
- Plastic - non-alcoholic beverage containers (0.36 litres per 1,000 m^2)
- Miscellaneous litter objects (0.35 litres per 1,000 m^2)
- Paper/ paperboard - cigarette packets (0.26 litres per 1,000 m^2)

Dirty Dozen - Volume per 1000 Square Metres - Object Sub-Categories - SA - 2006/ 2007



3.7 Tasmania

At a Glance

The overall average number of items per 1,000 m^2 across all of the 76 sites surveyed within TAS during the counts in the year of 2006/ 2007 was 70, whilst the overall average estimated litter volume per 1,000 m^2 was 6.68 litres.

The number of litter items per 1,000 m^2 identified is appreciably higher than in findings for the year of 2005/ 2006, when 59 items per 1,000 m^2 were identified within the state. The current year's volume per 1,000 m^2 estimate is also higher than the figure for the year of 2005/ 2006 (5.15 litres per 1,000 m^2).

The most littered sites surveyed within TAS were generally as follows:

- **Industrial** sites and **beaches**, which were associated with large volumes of litter and large numbers of litter items.
- **Retail** sites and **shopping centres**, which were associated with large numbers of items but only small estimated litter volume per 1,000 m^2.
- **Highways**, which were associated with large estimated volumes of items but only a small volume of litter per 1,000 m^2.

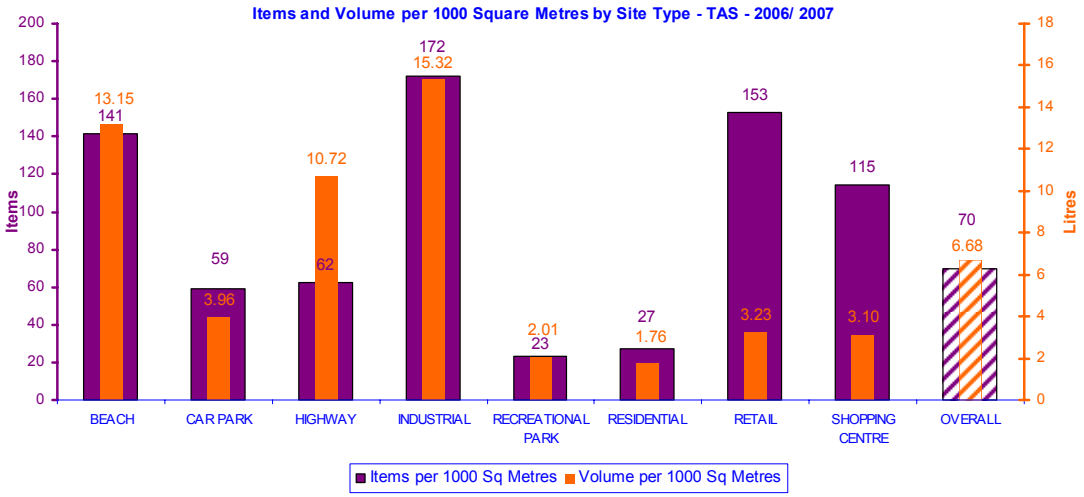
Cigarette butts were the most frequently identified item across all sites in TAS, and 37 butts per 1,000 m^2 were recorded in annual figures for 2006/ 2007. Plastic litter objects contributed the largest amount of volume to the litter stream, and such objects were associated with 2.45 litres of volume per 1,000 m^2 in the state.

Comparisons by Site Types

The largest numbers of items per 1,000 m^2 were located within industrial sites (172 items per 1,000 m^2). Such locations were also associated with the largest estimated litter volume across site types (15.32 litres per 1,000 m^2). Beaches also demonstrated large values for average items (141) and estimated litter volume (13.15 litres) per 1,000 m^2.

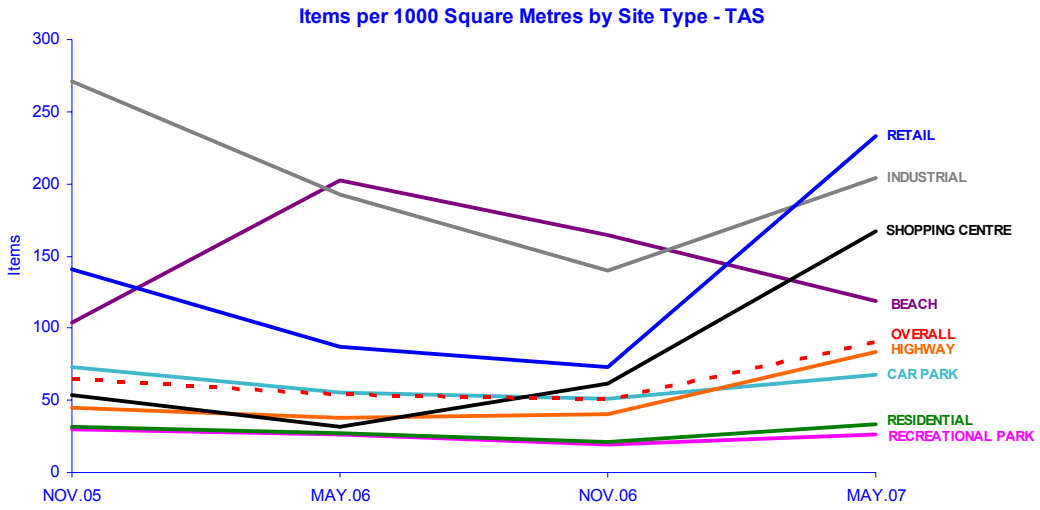
Retail sites (153 items per 1,000 m^2) and shopping centres (115 items per 1,000 m^2) were both associated with large numbers of litter items but minimal volumes (3.23 and 3.10 litres per 1,000 m^2 respectively).

Highway sites were associated with a moderately large volume of litter per 1,000 m^2 (10.72 litres) but only a small number of items (62 items per 1,000 m^2).



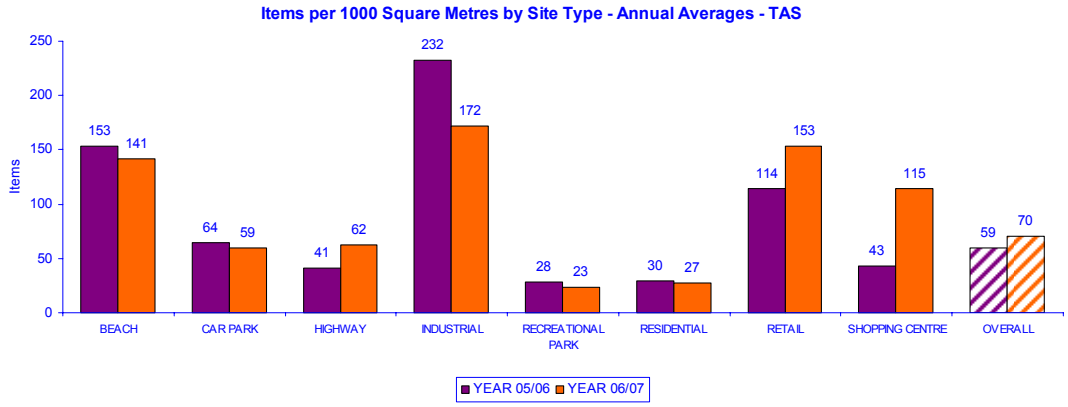
Tracked results demonstrate fluctuations in the numbers of items per 1,000 m^2 identified within TAS across many sites types, but distinct seasonal patterns are not emergent. The overall figure for items per 1,000 m^2 across all site types is marginally higher in present findings than in any previous Count.

The number of items per 1,000 m^2 at retail sites and shopping centres particularly demonstrate high results compared to all previous figures.



The annual average of items per 1,000 m^2 within TAS for the year of 2006/ 2007 (70 items per 1,000 m^2) is noticeably higher than the figure corresponding to the year of 2005/ 2006 (59 items per 1,000 m^2).

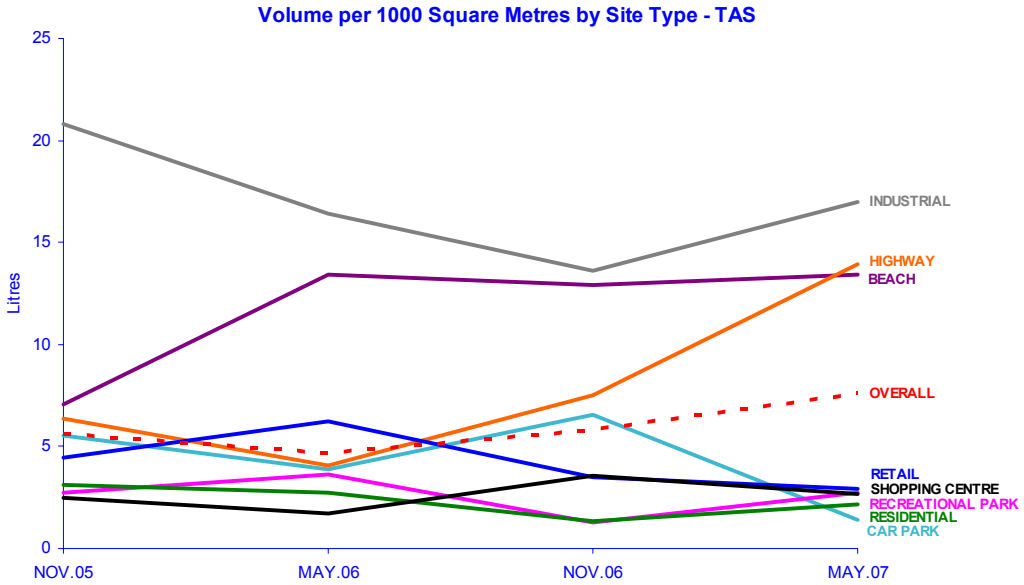
Although the number of items per 1,000 m^2 at industrial sites has dropped to 172 in current figures (down from 232 for the year of 2005/ 2006), this decrease is matched by corresponding increases in the number of items per 1,000 m^2 identified at retail sites (153 items per 1,000 m^2, up from 114 in 2005/ 2006) and shopping centres (115 items per 1,000 m^2, up from 43 in 2005/ 2006).



The estimated volumes per 1000 m^2 of litter items at all sites within TAS overall does not demonstrate consistent seasonal fluctuation, but current findings are again slightly higher than for any previous survey.

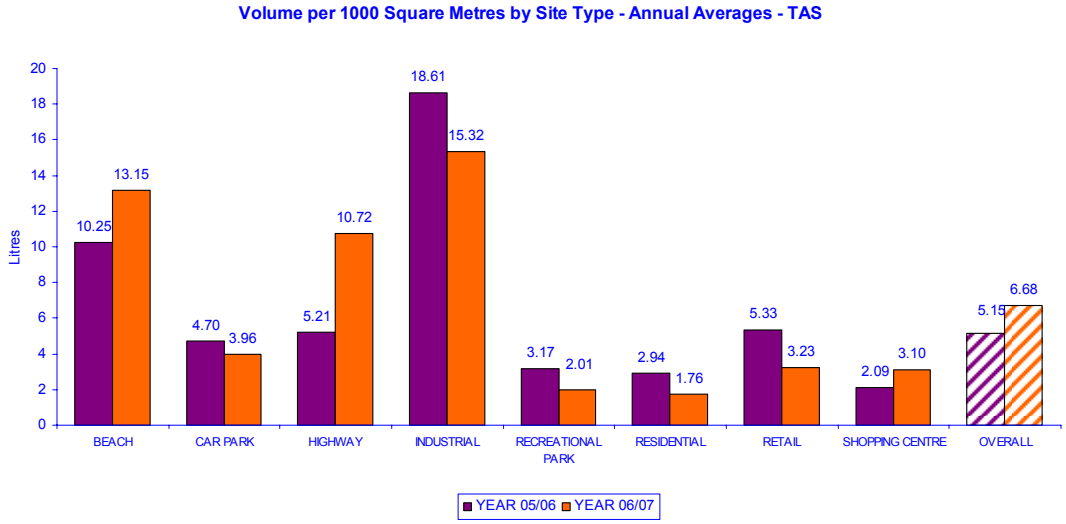
This November 2006 peak is most strongly evidenced in the volume of litter items at highway sites, which has subsequently reduced in current findings.

Although the estimated volume per 1,000 m^2 at industrial sites has been consistently higher than at any other site type across all waves of the Count, the volume of litter at highway sites in current findings is sharply increased from all previous figures, and appears to be increasing relatively consistently from a low in May 2006.



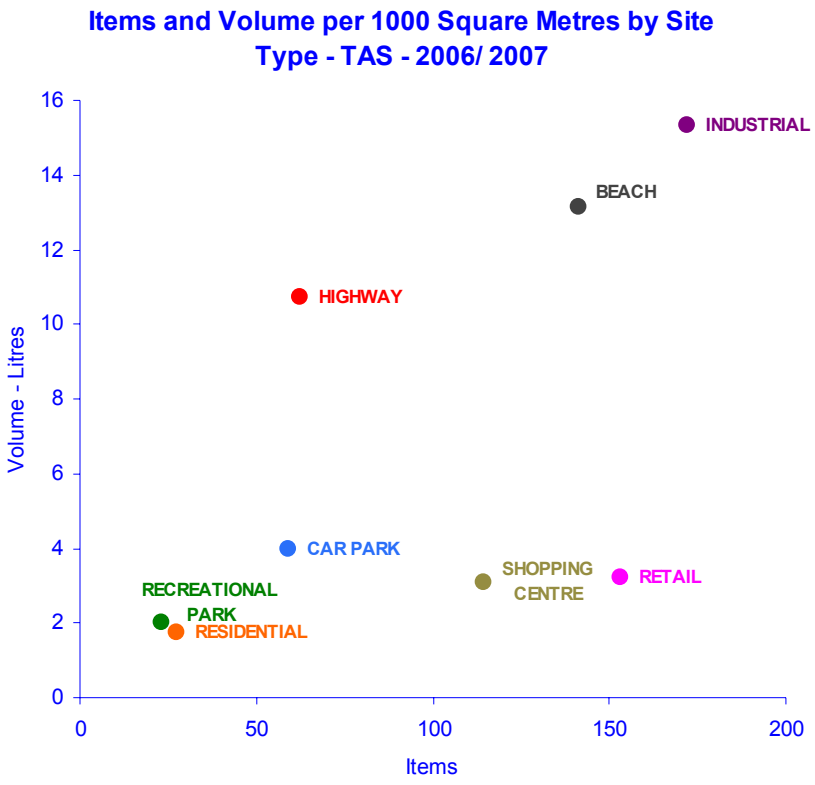
The overall annual average estimated litter volume per 1,000 m^2 across all sites within TAS for the year of 2006/ 2007 (6.68 litres per 1,000 m^2) is higher than the result for the year of 2005/ 2006 (5.15 litres per 1,000 m^2).

This increment is most strongly reflected at beaches (13.15 litres per 1,000 m^2, up from 10.25 in 2005/ 2006) and highways (10.72 litres per 1,000 m^2, up from 5.21 in 2005/ 2006). However, the volume per 1,000 m^2 at industrial sites is substantially lower in current findings than for the previous year (15.32 litres per 1,000 m^2, down from 18.61 in 2005/ 2006).



Items and volume estimates per 1,000 m^2 within TAS identify the following site characteristics across the respective site types surveyed in 2006/ 2007:

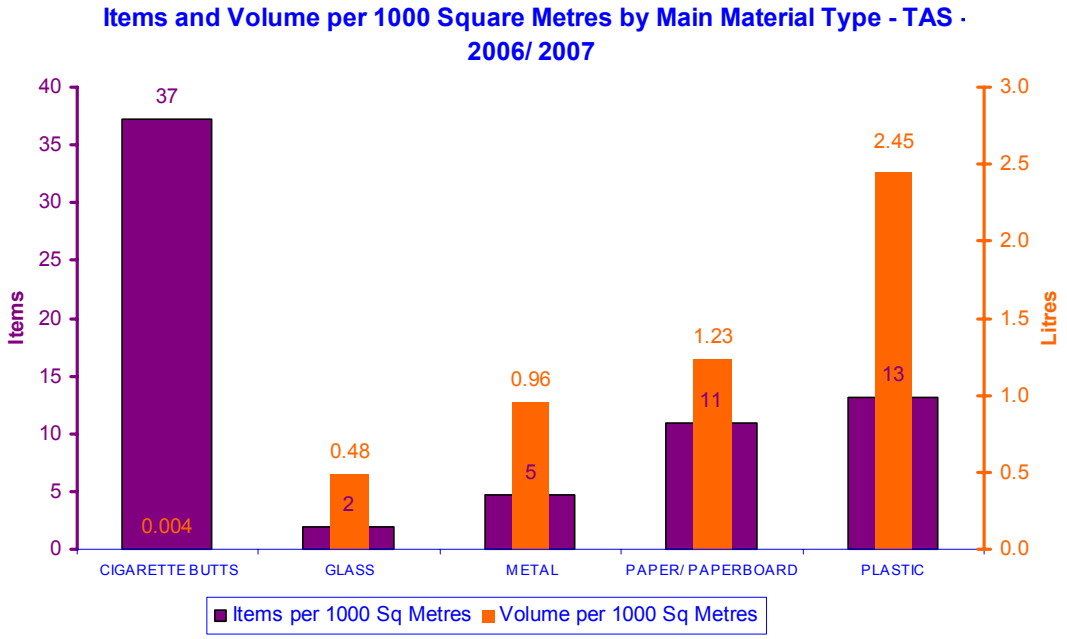
- **Industrial** sites and **beaches** are associated with large numbers of items and large estimated litter volumes.
- **Highway** sites are associated with a moderately high estimated volume of litter but only a small number of litter items.
- **Retail** sites are associated with large numbers of items but only a small volume of litter.


Items and Volume per 1000 Square Metres by Site Type - TAS - 2006/ 2007
Volume - Litres
Items
0
2
4
6
8
10
12
14
16
0
50
100
150
200
INDUSTRIAL
BEACH
HIGHWAY
CAR PARK
SHOPPING CENTRE
RETAIL
RECREATIONAL
PARK
RESIDENTIAL

Comparison by Main Material Types

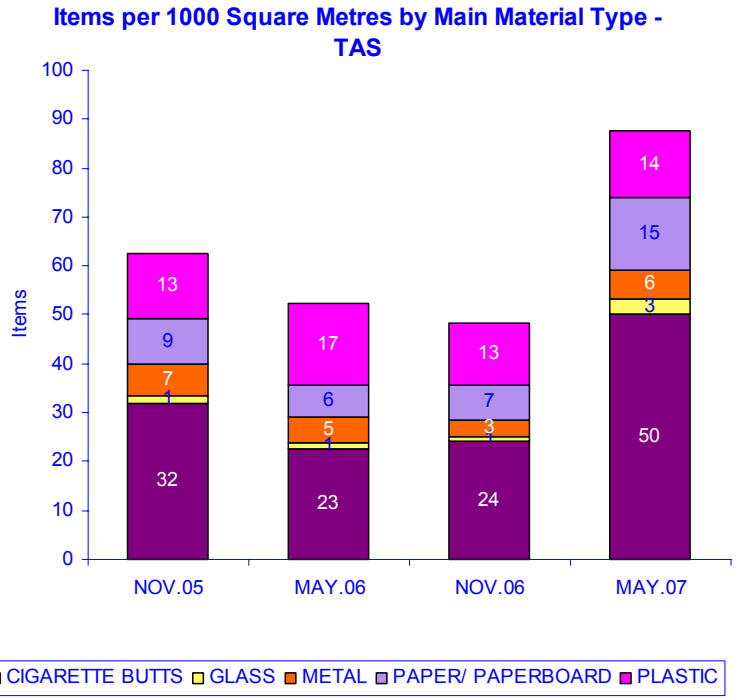
An average of 37 cigarette butts per 1,000 m^2 were identified across all sites surveyed within TAS during the year of 2006/ 2007. However, such items only contributed 0.004 litres of volume per 1,000 m^2 to the litter stream.

Items which contributed the greatest volumes to the litter stream in TAS were constructed of plastic materials (2.45 litres per 1,000 m^2).

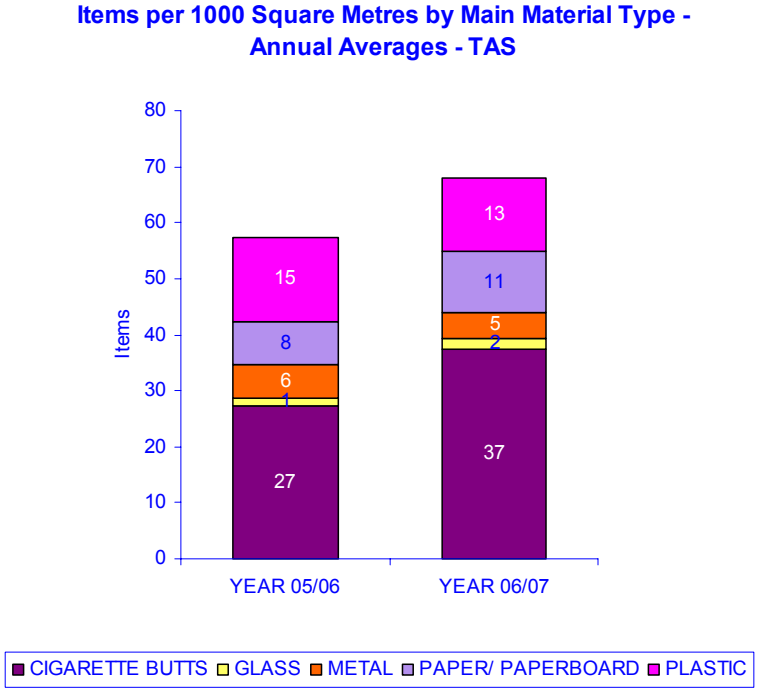


Consistent seasonal fluctuations in the numbers of items per 1,000 m^2 identified within the main material type categories are not evident across results for previous counts in TAS.

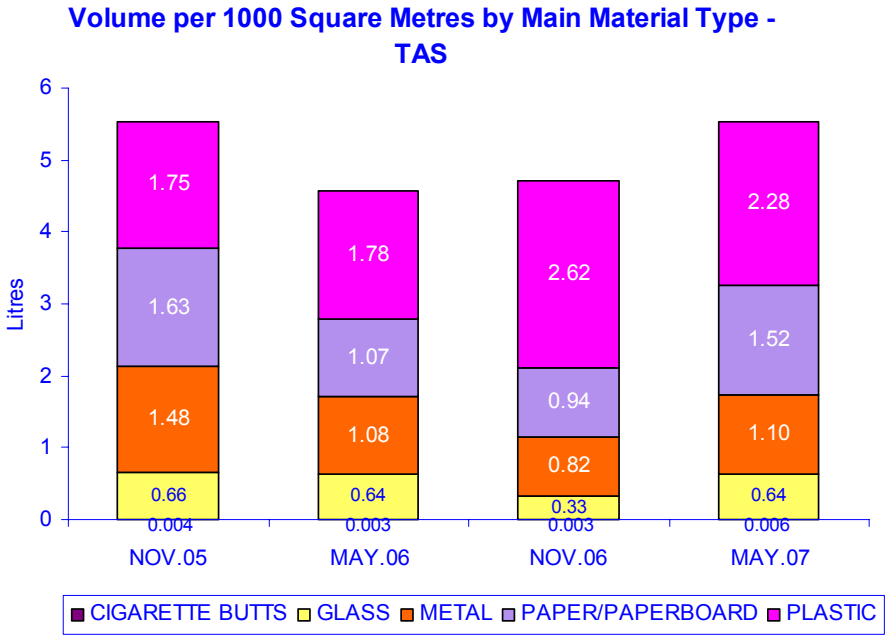
However, the current presence of cigarette butts (50 butts per 1,000 m^2) within the recorded litter in TAS is significantly higher than for any previous count. Litter constructed of paper/ paperboard is also recorded at it's highest level ever (15 items per 1,000 m^2).



Annual averages for TAS for the years of 2005/ 2006 and 2006/ 2007 strongly reflect the increment in the presence of cigarette butts in the litter stream in TAS (37 items per 1,000 m^2, up from 27 for 2005/ 2006).



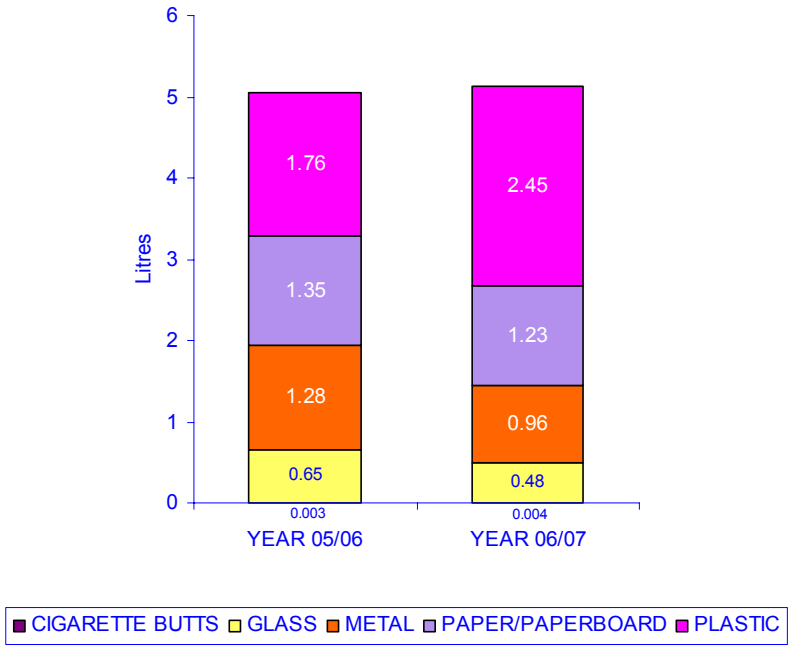
The proportions of total litter volume contributed by objects within the main material types do not demonstrate consistent seasonal variations.



Annual results for the contribution of objects within the main material types to volume in the litter stream during the year of 2006/ 2007 demonstrate an increase in the contributions of plastic litter objects (2.45 litres per 1,000 m^2, up from 1.76 in the year of 2005/ 2006).

This increase is matched by corresponding decreases in the contribution of paper/ paperboard litter (1.23 litres per 1,000 m^2, down from 1.35 in 2005/ 2006) and metal litter objects (0.96 litres per 1,000 m^2, down from 1.28 in 2005/ 2006) to the estimated volume of litter in TAS.

Volume per 1000 Square Metres by Main Material Type - Annual Averages - TAS

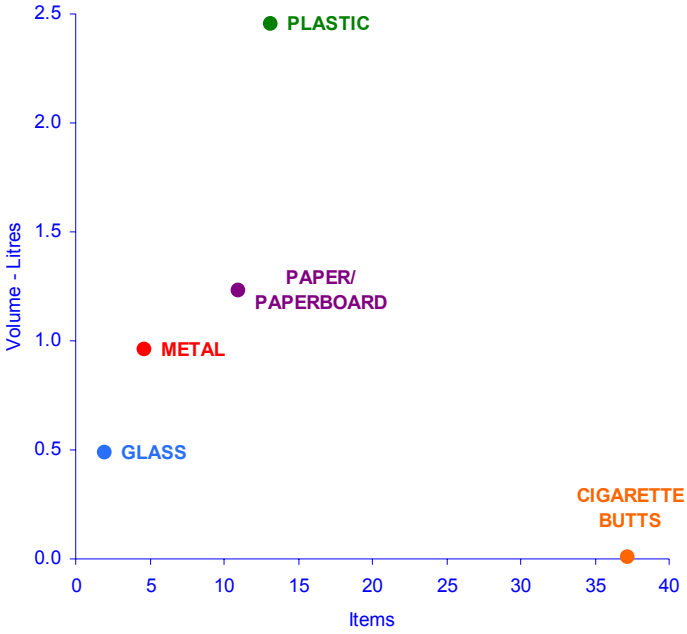


Figures for items and volumes per 1,000 m^2 across main material types identify the following characteristics of litter objects recorded within TAS during the year of 2006/ 2007:

- **Plastic** litter items contribute large volumes to the litter stream but are associated with only small numbers of items. This implies the presence of many high-volume items.

- **Cigarette butts** - although a large number of such items were identified, they contribute only a negligible volume to the overall litter stream in the state.

Items and Volume per 1000 Square Metres by Main Material Type - TAS - 2006/ 2007

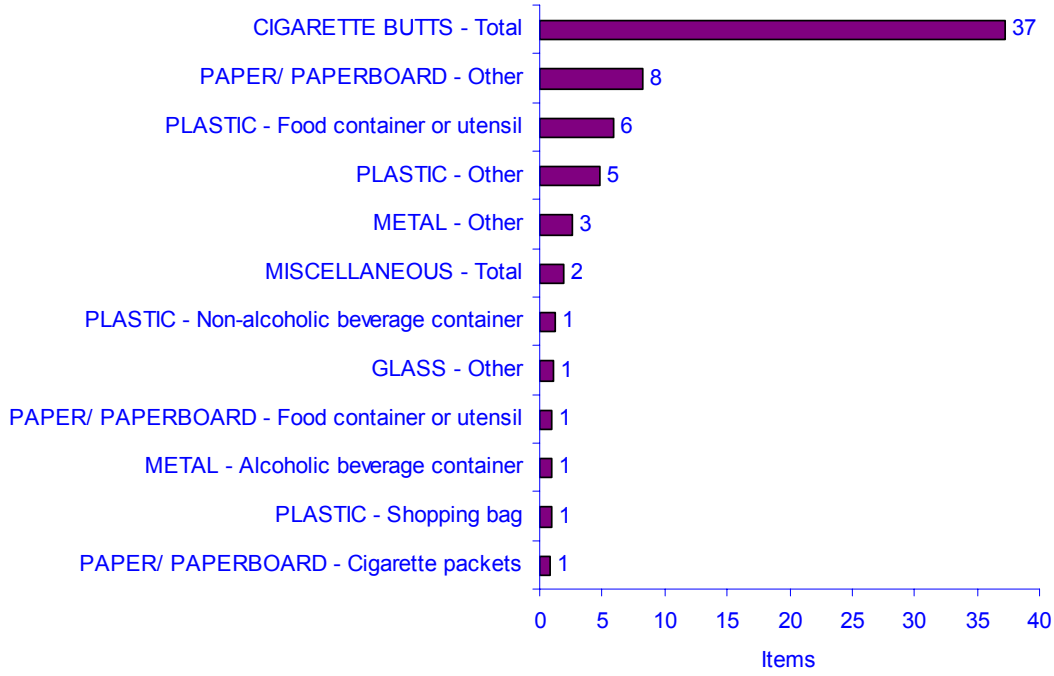


The Dirty Dozen

When partitioned according to object sub-type distinctions, the most frequently identified litter item in TAS was cigarette butts: 37 butts were identified on average per 1,000 m^2 during the November 2006/ May 2007 counts.

Other objects frequently identified included uncategorised paper/ paperboard objects (8 items per 1,000 m^2), plastic food containers and utensils (6 items per 1,000 m^2), and uncategorised plastic objects (5 items per 1,000 m^2).

Dirty Dozen - Items per 1000 Square Metres - Object Sub-Categories - TAS - 2006/ 2007

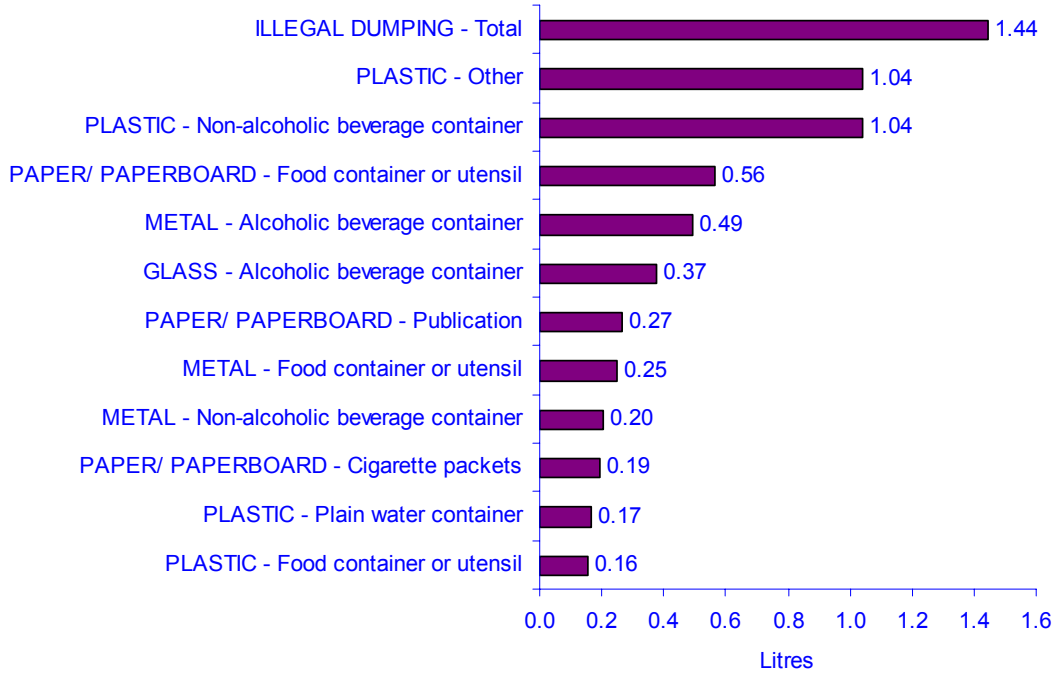


Illegal dumping represented the largest contribution to estimated litter volume in TAS (1.44 litres per 1,000 m^2). Other strong contributors to the estimated volume in the litter stream in that state included uncategorised plastic objects (1.04 litres per 1,000 m^2) and plastic non-alcoholic beverage containers (1.04 litres per 1,000 m^2).

Other object sub-categories which were associated with substantial estimated volume measurements included:

- Paper/ paperboard - food containers or utensils (0.56 litres per 1,000 m^2)
- Metal - alcoholic beverage containers (0.49 litres per 1,000 m^2)
- Glass - alcoholic beverage containers (0.37 litres per 1,000 m^2)
- Paper/ paperboard - publications (0.27 litres per 1,000 m^2)
- Metal - food containers or utensils (0.25 litres per 1,000 m^2)

Dirty Dozen - Volume per 1000 Square Metres - Object Sub-Categories - TAS - 2006/ 2007



3.8 Victoria

At a Glance

The overall average number of items per 1,000 m^2 across all of the 151 sites surveyed within VIC during the counts in the year of 2006/ 2007 was 80, whilst the overall average estimated volume per 1,000 m^2 was 7.74 litres.

The number of litter items per 1,000 m^2 identified is slightly higher than for the year of 2005/ 2006, when 71 items per 1,000 m^2 were recorded within the state. The current year's volume per 1,000 m^2 estimate is nevertheless slightly lower in figures for the year of 2005/ 2006 (7.87 litres per 1,000 m^2).

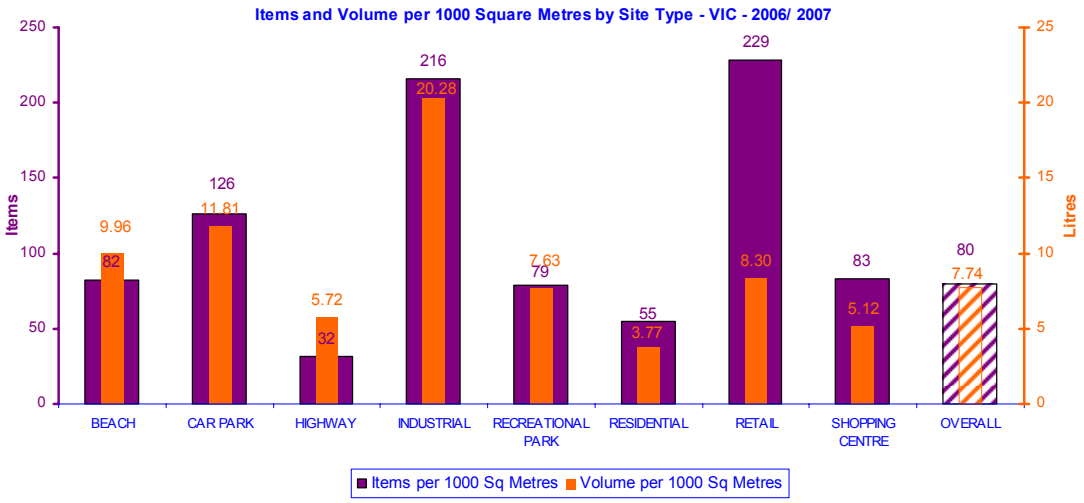
The most littered sites surveyed within VIC were generally as follows:

- **Industrial** sites, which were associated with large volumes of litter and large numbers of litter items.
- **Retail** sites, which were associated with large numbers of items but only small estimated litter volume per 1,000 m^2.

Cigarette butts were the most frequently identified item across all sites in VIC, and 39 butts per 1,000 m^2 were recorded in annual figures for 2006/ 2007. Paper/ paperboard litter objects contributed the largest amount of volume to the litter stream, and such objects were associated with 1.82 litres of volume per 1,000 m^2 in the state. Plastic (1.73 litres per 1,000 m^2) and metal (1.41 litres per 1,000 m^2) litter objects also contributed significant proportions of volume to the recorded litter stream.

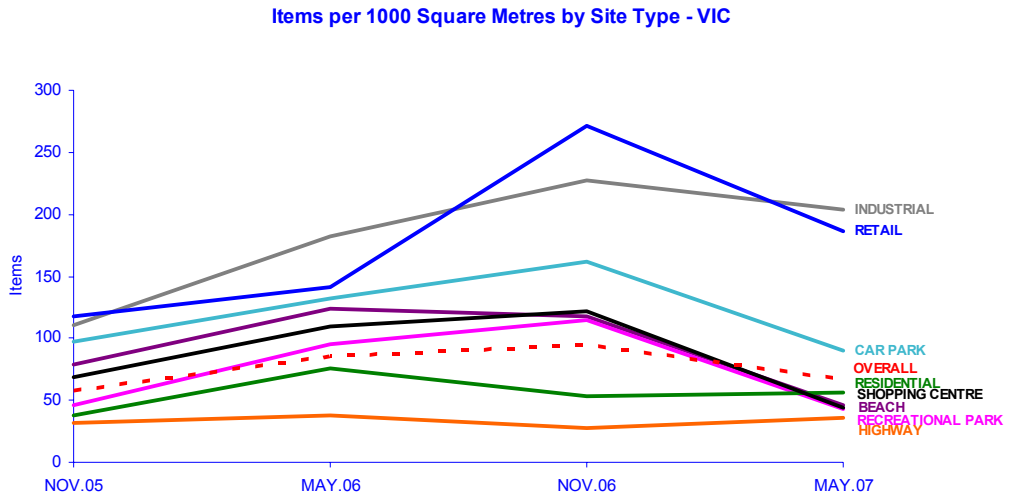
Comparisons by Site Types

The largest numbers of items per 1,000 m^2 were located within retail sites (229 items per 1,000 m^2) and to a lesser extent industrial areas (216 items per 1,000 m^2). However, whilst the volume of litter per 1,000 m^2 at industrial sites was higher than at any other site type (20.28 litres per 1,000 m^2), retail sites were only associated with small volumes of litter (8.30 litres per 1,000 m^2).



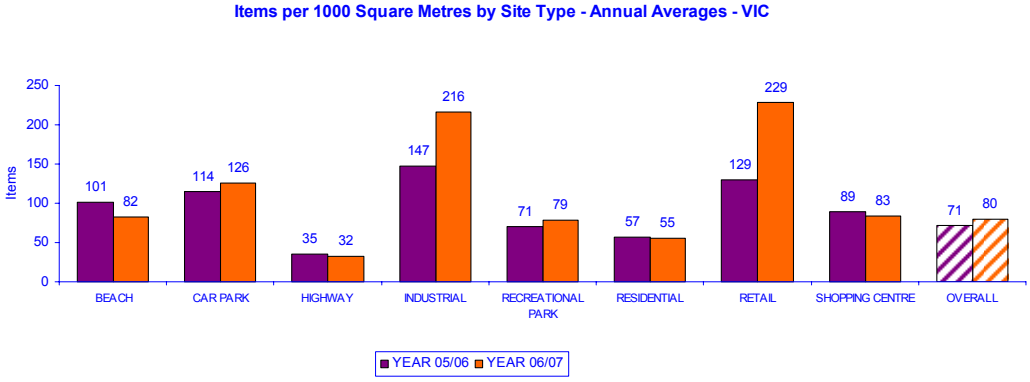
Tracked results demonstrate relative consistency in the numbers of items per 1,000 m^2 identified within VIC across nearly all sites types.

A peak result in the number of litter items per 1,000 m^2 recorded at retail sites during November 2006 has not been replicated in current results. This decrease is echoed to a lesser extent at many other site types surveyed.



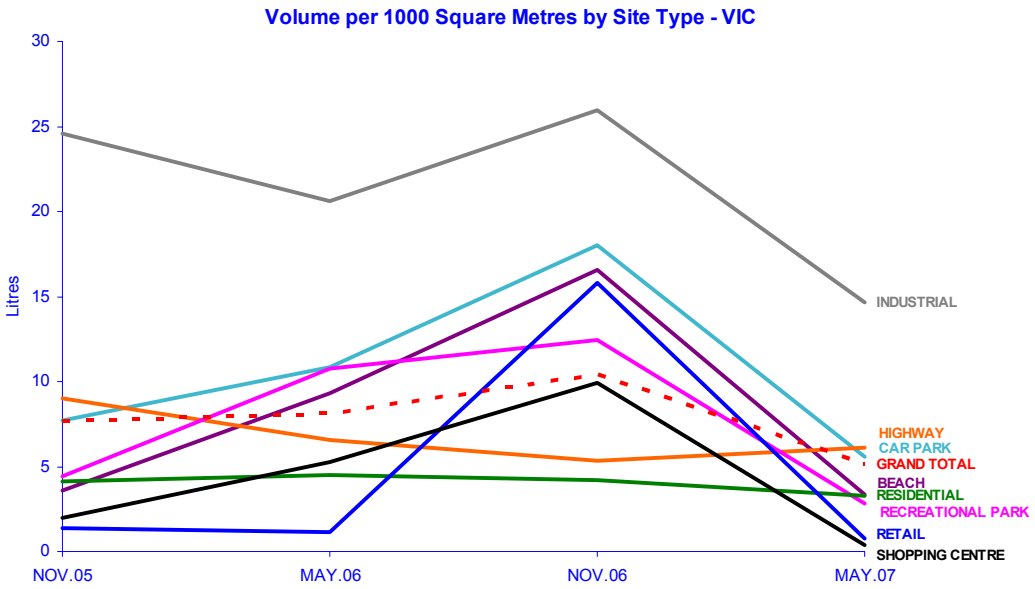
The annual average of items per 1,000 m^2 within VIC for the year of 2006/ 2007 (80 items per 1,000 m^2) is higher than the figure corresponding to the year of 2005/ 2006 (71 items per 1,000 m^2).

This increment is most strongly demonstrated within retail sites (229 items per 1,000 m^2, up from 129 in the year of 2005/ 2006) and industrial locations (216 items per 1,000 m^2, up from 147 in 2005/ 2006).



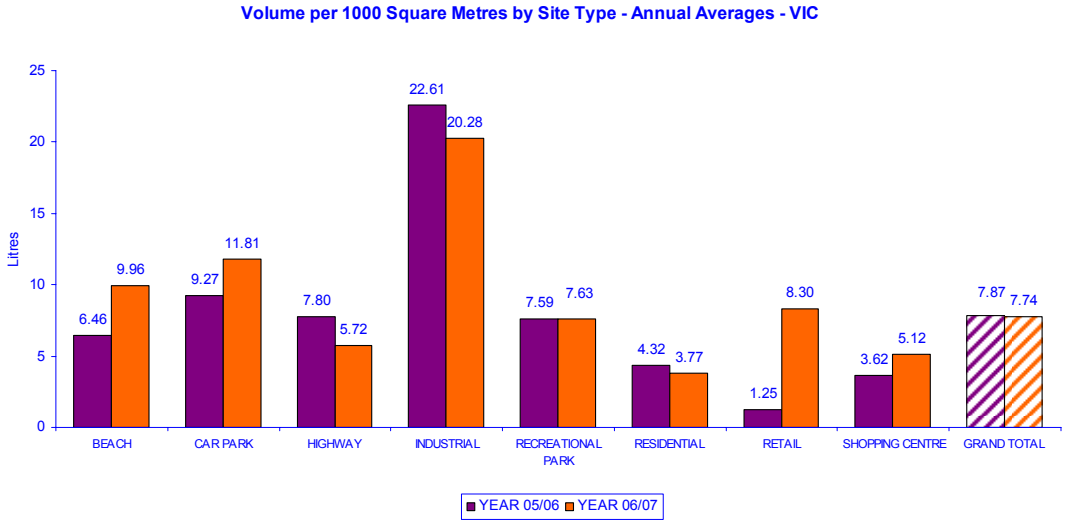
The estimated volumes per 1000 m^2 of litter items at all sites within VIC overall does not demonstrate consistent seasonal fluctuation. However, the estimated volume at industrial sites does demonstrate seasonally consistent variability from peaks in November 2005 and 2006 down to troughs for May 2006 and 2007.

Results for estimated litter volume per 1,000 m^2 at industrial sites, car parks, beaches and retail areas demonstrate significant decrease in current findings compared to results for the previous Count.



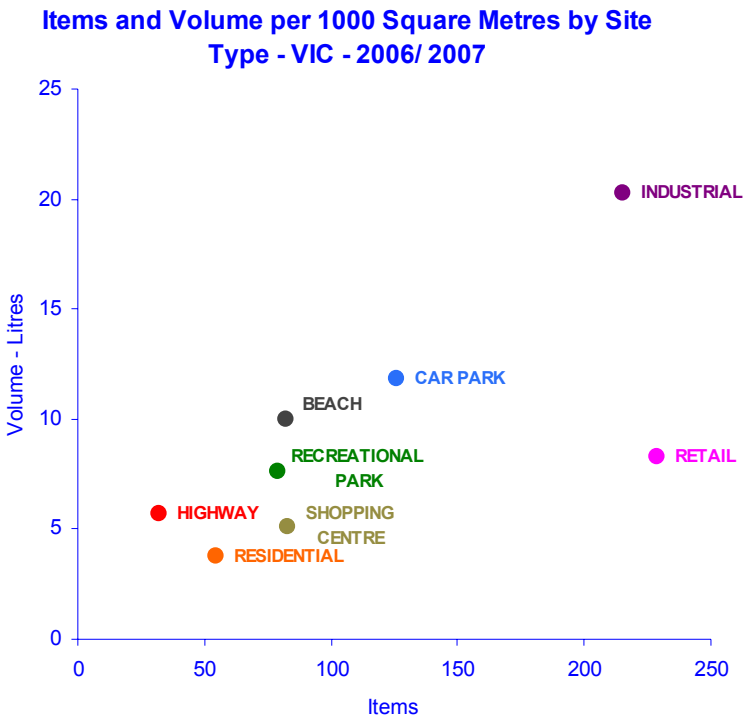
The overall annual average estimated litter volume per 1,000 m^2 across all sites within VIC for the year of 2006/ 2007 (7.74 litres per 1,000 m^2) is marginally reduced from the result for the year of 2005/ 2006 (7.87 litres per 1,000 m^2).

Nevertheless, the total estimated volume of litter at retail sites shows significant increase in current findings when compared to those for the previous year (8.30 litres per 1,000 m^2, up from 1.25 in the year of 2005/ 2006).



Items and volume estimates per 1,000 m^2 within VIC identify the following site characteristics across the respective site types surveyed in 2006/ 2007:

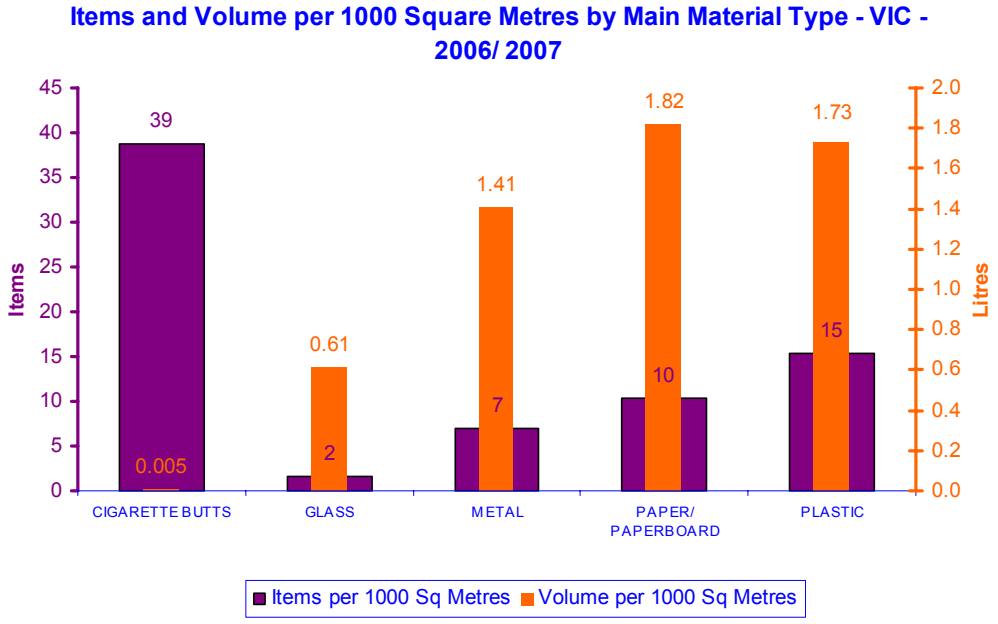
- **Industrial sites** are associated with a large number of items and a large estimated litter volume per 1,000 m^2.
- **Retail** sites are associated with large numbers of items but only a small volume of litter.


Items and Volume per 1000 Square Metres by Site Type - VIC - 2006/ 2007
Volume - Litres
Items
0
5
10
15
20
25
0
50
100
150
200
250
INDUSTRIAL
CAR PARK
BEACH
RECREATIONAL PARK
RETAIL
HIGHWAY
SHOPPING CENTRE
RESIDENTIAL

Comparison by Main Material Types

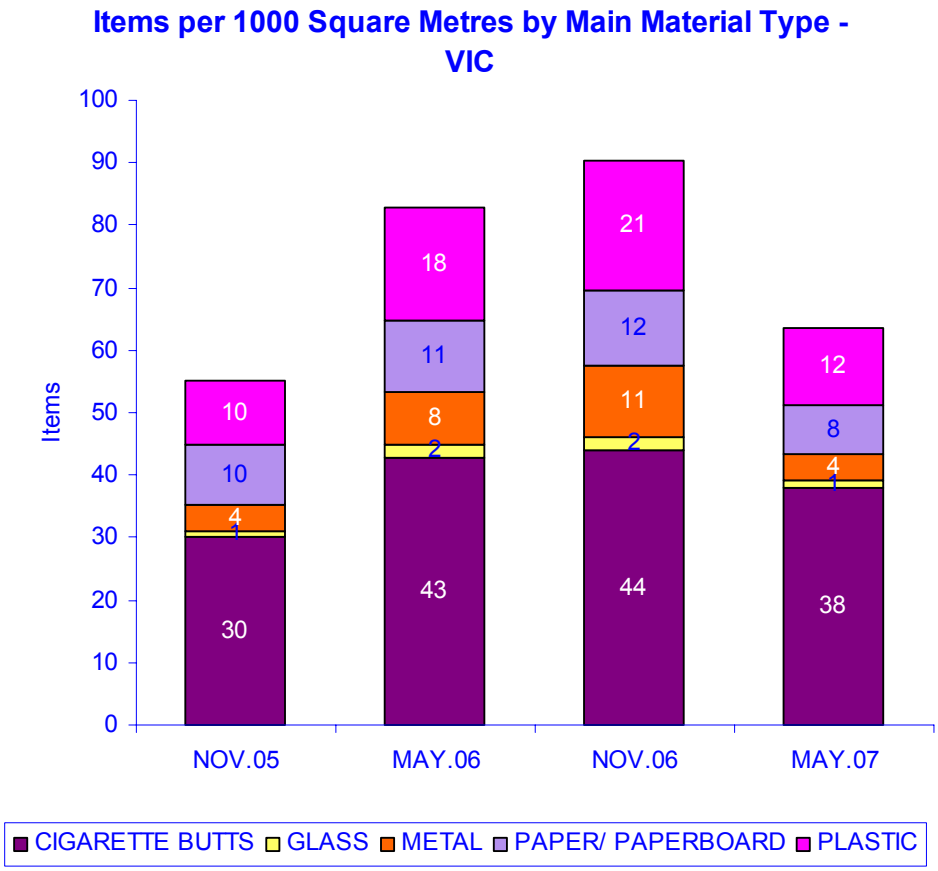
An average of 39 cigarette butts per 1,000 m^2 were identified across all sites surveyed within VIC during the year of 2006/ 2007. However, such items only contributed 0.005 litres of volume per 1,000 m^2 to the litter stream.

Items which contributed the greatest volumes to the litter stream in VIC were constructed of paper/ paperboard materials (1.82 litres per 1,000 m^2). Plastic (1.73 litres per 1,000 m^2) and metal (1.41 litres per 1,000 m^2) litter items also contributed significant proportions of volume to the overall litter stream.

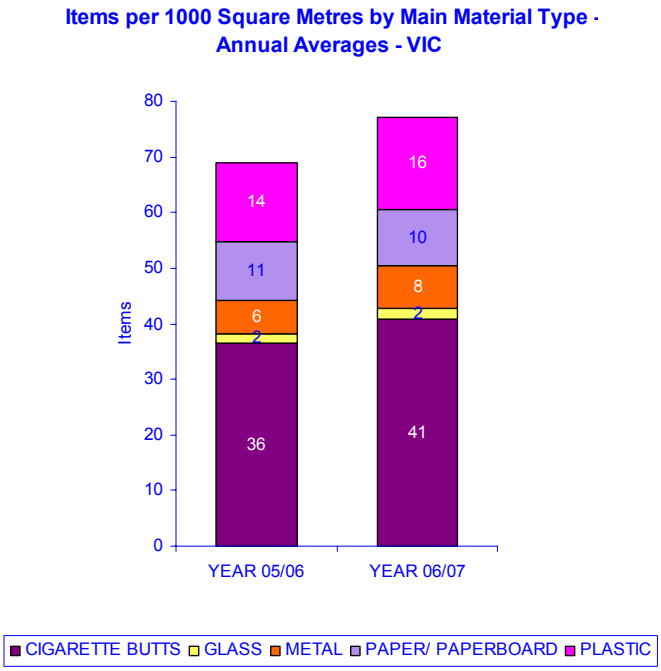


Consistent seasonal fluctuations in the numbers of items per 1,000 m^2 identified within the main material type categories are not evident across results for previous counts in VIC.

Current figures show dramatic reductions in the numbers of litter items within particular material categories when compared to findings for the previous count, particularly for cigarette butts (38 butts per 1,000 m^2) and plastic litter items (12 items per 1,000 m^2).

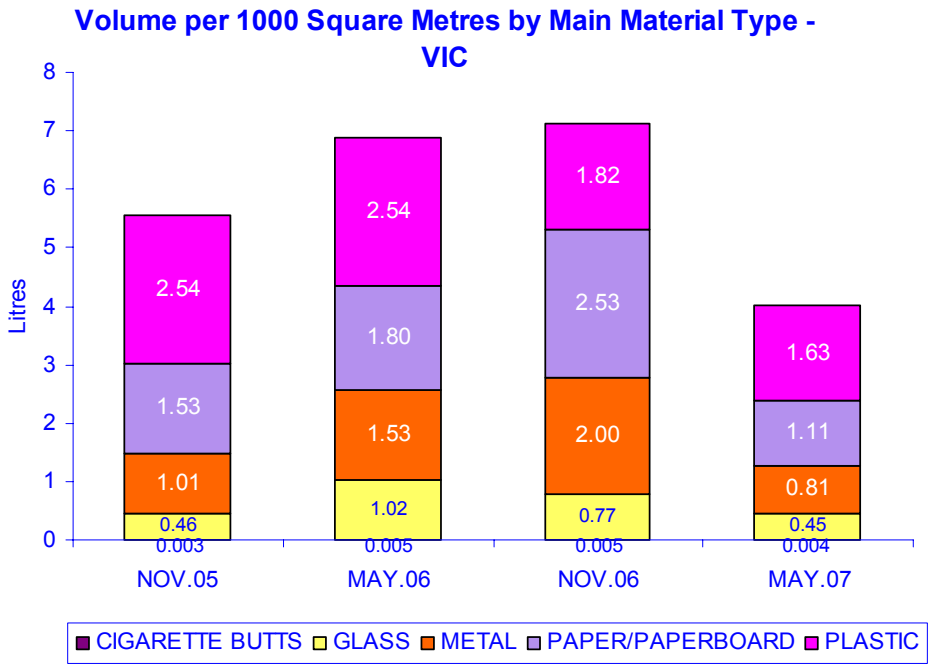


Annual averages for VIC for the years of 2005/ 2006 and 2006/ 2007 demonstrate a substantial increase in the estimated number of cigarette butts present in the litter stream (41 butts per 1,000 m^2, up from 36 for the year of 2005/ 2006).



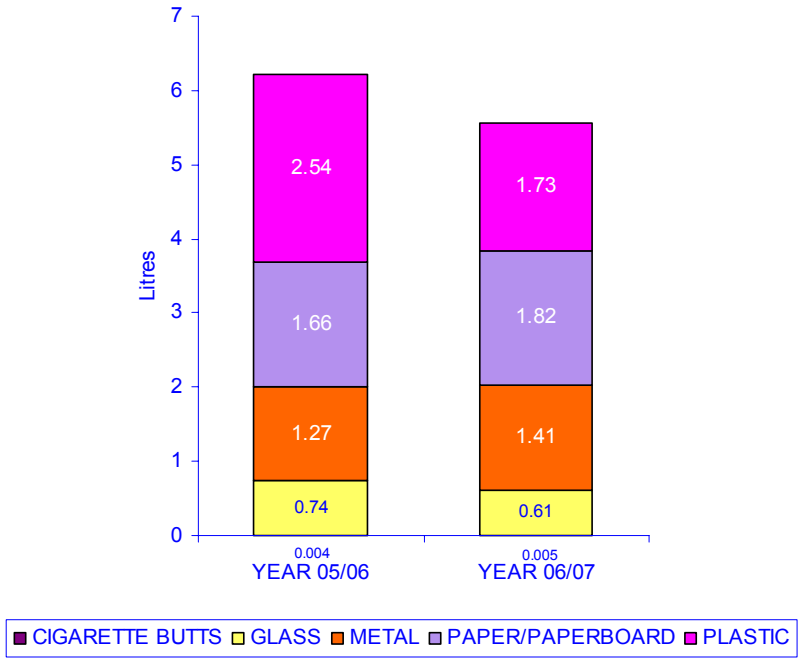
The proportions of total litter volume contributed by objects within the main material types do not demonstrate consistent seasonal variations, but the current results demonstrate marked reductions in the volume contributions of most main material types, particularly when compared to findings for November 2006.

This reduction is most strongly evidenced within the paper/ paperboard (1.11 litres per 1,000 m^2) and metal (0.81 litres per 1,000 m^2) material type categories. Plastic litter items (1.63 litres per 1,000 m^2) were also recorded at the lowest level ever.



Annual results for the contribution of objects within the main material types to volume in the litter stream during the year of 2006/ 2007 demonstrate significant decrease in the estimated volume of plastic litter objects (1.73 litres per 1,000 m^2) when compared to results for the 2005/ 2006 year (down from 2.54 litres per 1,000 m^2 in the year of 2005/ 2006).

Volume per 1000 Square Metres by Main Material Type - Annual Averages - VIC

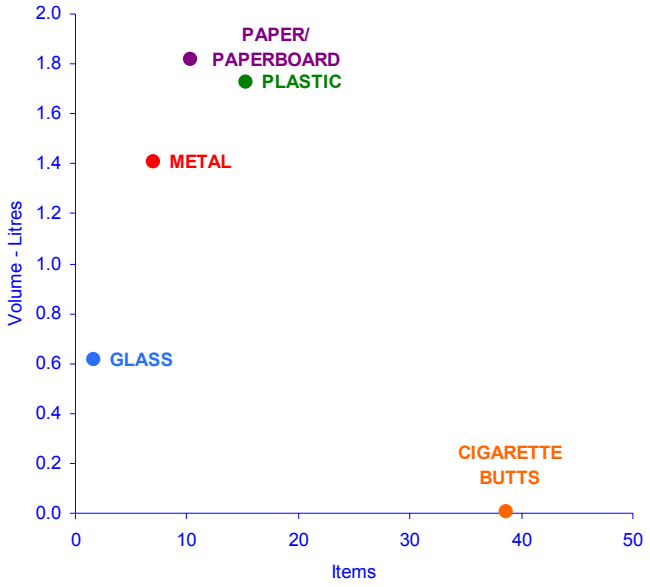


Figures for items and volumes per 1,000 m^2 across main material types identify the following characteristics of litter objects recorded within VIC during the year of 2006/ 2007:

- **Paper/ paperboard, plastic** and to a lesser extent **metal** litter items contribute large volumes to the litter stream but are associated with only small numbers of items. This implies the presence of many high-volume items.

- **Cigarette butts** were recorded in large numbers, but such items contribute only a negligible estimated volume to the overall litter stream in the state.

Items and Volume per 1000 Square Metres by Main Material Type - VIC - 2006/ 2007



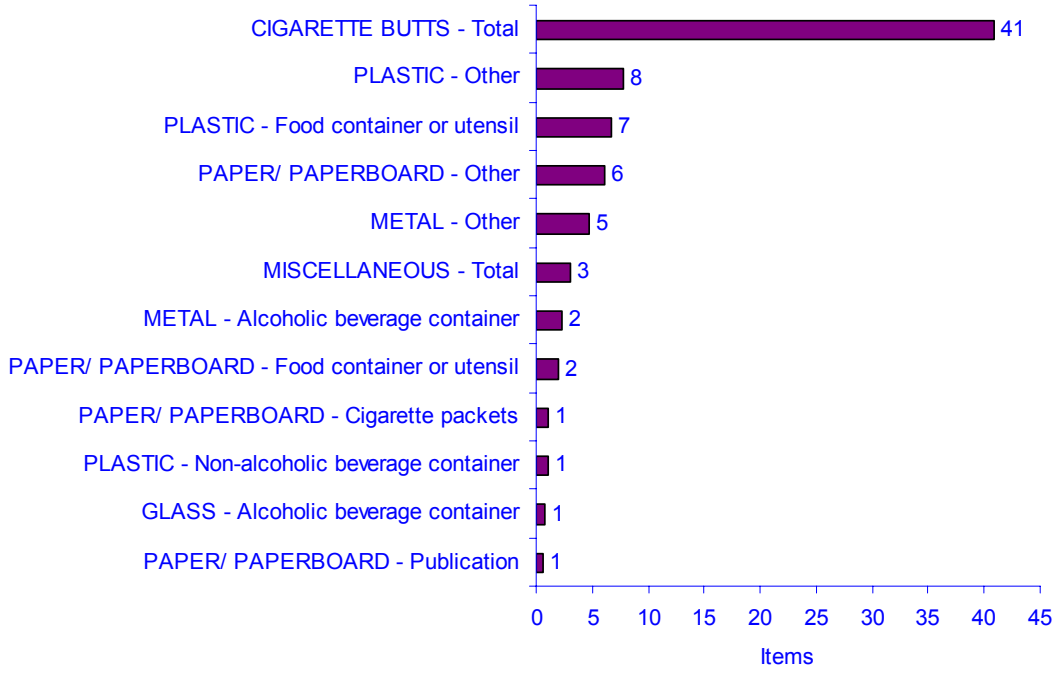
The Dirty Dozen

When the litter items identified were partitioned according to object sub-type distinctions, cigarette butts emerged as the most frequently identified litter item in VIC: 41 butts were recorded on average per 1,000 m^2 during the November 2006/ May 2007 counts.

Other objects frequently identified included:

- Uncategorised plastic objects (8 items per 1,000 m^2)
- Plastic - food containers and utensils (7 items per 1,000 m^2)
- Uncategorised paper/ paperboard objects (6 items per 1,000 m^2)
- Uncategorised metal objects (5 items per 1,000 m^2)

Dirty Dozen - Items per 1000 Square Metres - Object Sub-Categories - VIC - 2006/ 2007

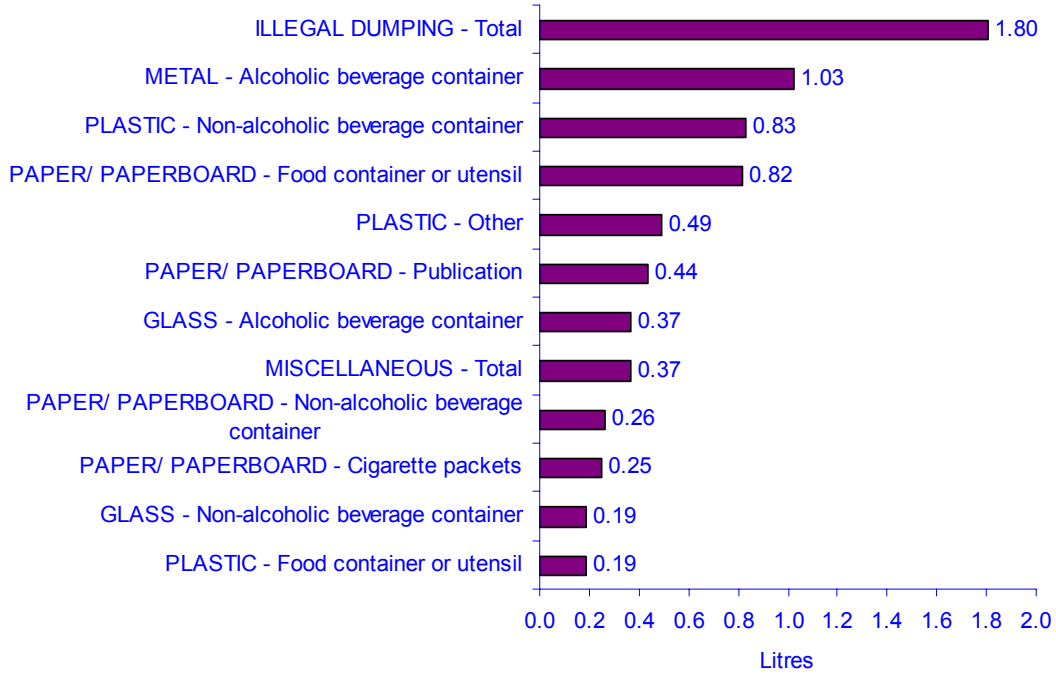


Illegal dumping represented the largest contribution to estimated litter volume in VIC during 2006/ 2007 (1.80 litres per 1,000 m^2).

Other object sub-categories which were associated with substantial estimated volume measurements included:

- Metal - alcoholic beverage containers (1.03 litres per 1,000 m^2)
- Plastic - non- alcoholic beverage containers (0.83 litres per 1,000 m^2)
- Paper/ paperboard - food containers or utensils (0.82 litres per 1,000 m^2)
- Uncategorised plastic objects (0.49 litres per 1,000 m^2)
- Paper/ paperboard - publications (0.44 litres per 1,000 m^2)

Dirty Dozen - Volume per 1000 Square Metres - Object Sub-Categories - VIC - 2006/ 2007



3.9 Western Australia

At a Glance

The overall average number of items per 1,000 m^2 across all of the 151 sites surveyed within WA during the counts in the year of 2006/ 2007 was 83, whilst the overall average estimated volume per 1,000 m^2 was 12.19 litres.

The number of litter items per 1,000 m^2 identified is significantly higher than for the year of 2005/ 2006, when 60 items per 1,000 m^2 were recorded within the state. The current year's volume per 1,000 m^2 estimate is also higher than for the year of 2005/ 2006 (8.57 litres per 1,000 m^2).

The most littered sites surveyed within WA were generally as follows:

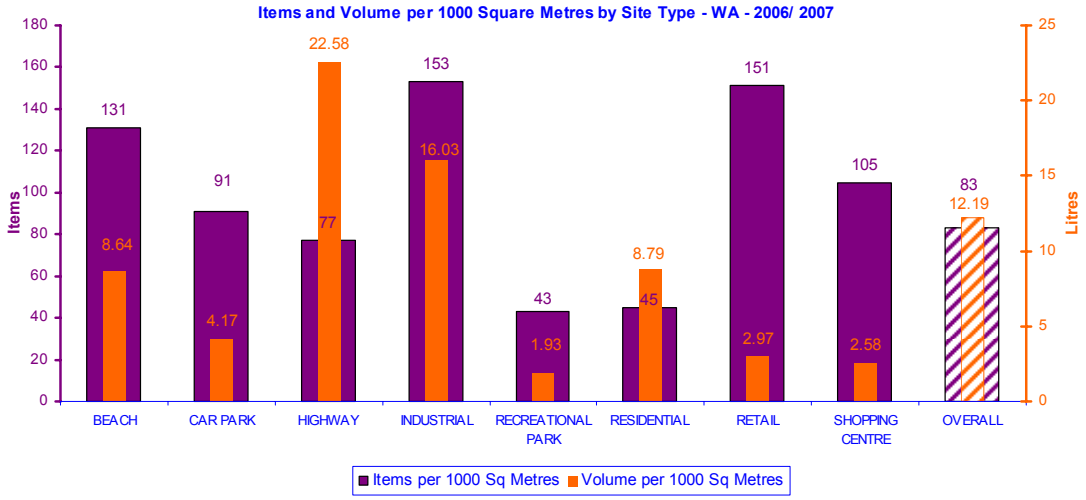
- **Industrial** sites, which were associated with large volumes of litter and large numbers of litter items.
- **Highway** sites, which were associated with large volumes of litter but relatively small numbers of litter items.
- **Retail** sites and **beaches**, which were associated with large numbers of items but only small estimated litter volumes.

Cigarette butts were the most frequently identified item across all sites in WA, and 35 butts per 1,000 m^2 were recorded in annual figures for 2006/ 2007. Plastic litter objects contributed the largest amount of volume to the litter stream, and such items were associated with 4.62 litres of volume per 1,000 m^2 in the state.

Comparisons by Site Types

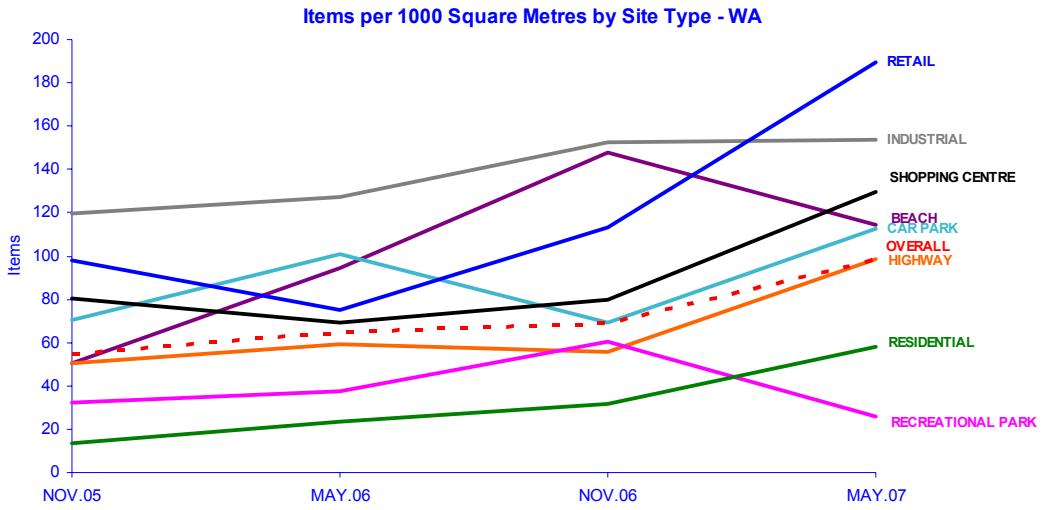
The largest numbers of items per 1,000 m^2 were located within industrial areas (153 items per 1,000 m^2), retail sites (151 items per 1,000 m^2) and to a lesser extent beaches (131 items per 1,000 m^2).

However, the largest estimated volumes of litter per 1,000 m^2 were associated with highways (22.58 litres per 1,000 m^2) and industrial sites (16.03 litres per 1,000 m^2).



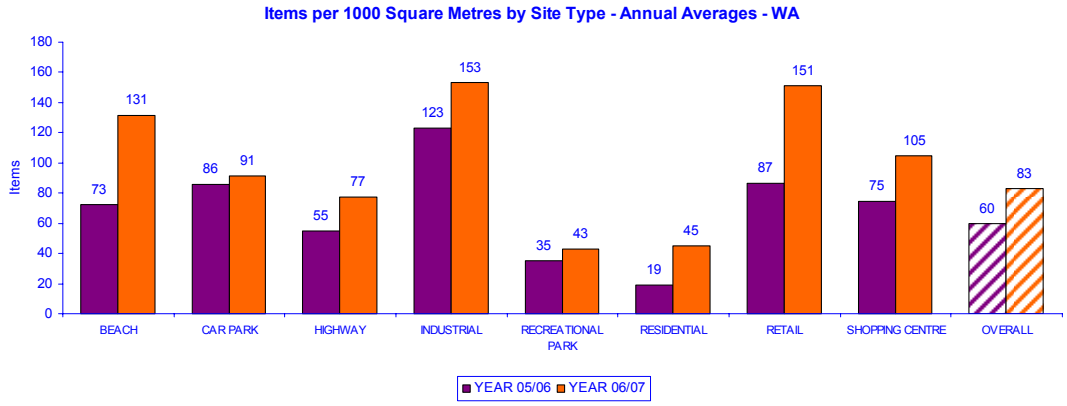
Tracked results demonstrate some fluctuations in the numbers of items per 1,000 m^2 identified within WA across nearly all sites types, but seasonal patterns are not emergent.

The overall number of items per 1,000 m^2 across all site types describes a slight but steady upward trend across results tracked back to November 2005, and the current figure is the highest ever recorded. This consistent increase is echoed specifically within industrial areas and also residential locations.



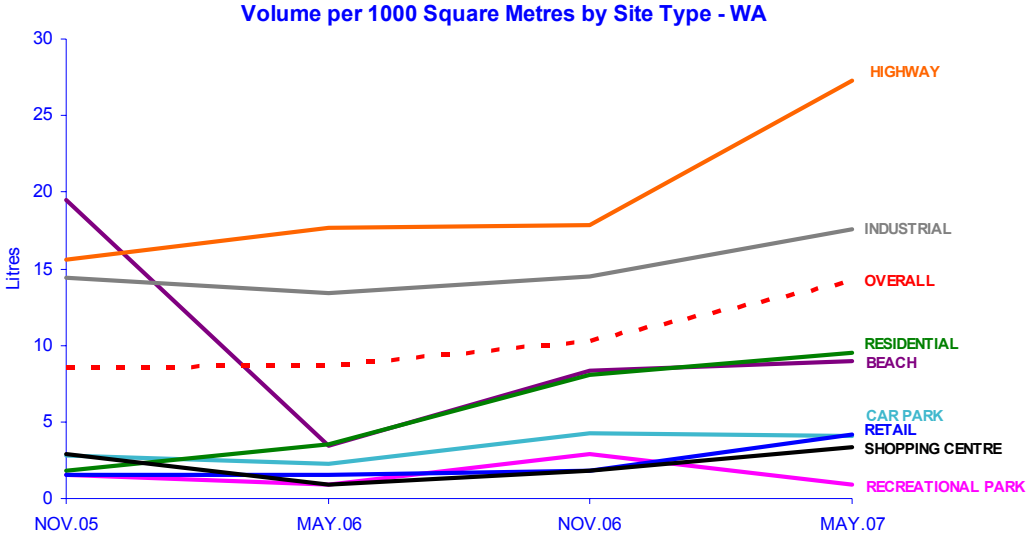
The annual average of items per 1,000 m^2 within WA for the year of 2006/ 2007 (83 items per 1,000 m^2) is higher than the figure corresponding to the year of 2005/ 2006 (60 items per 1,000 m^2).

This increment is most strongly demonstrated within retail sites (151 items per 1,000 m^2, up from 87in the year of 2005/ 2006) and beaches (131 items per 1,000 m^2, up from 73 in 2005/ 2006). Increments are also evident in the number of items recorded at industrial sites (153 items per 1,000 m^2, up from 123 in 2005/ 2006) and shopping centres (105 items per 1,000 m^2, up from 75 in 2005/ 2006).



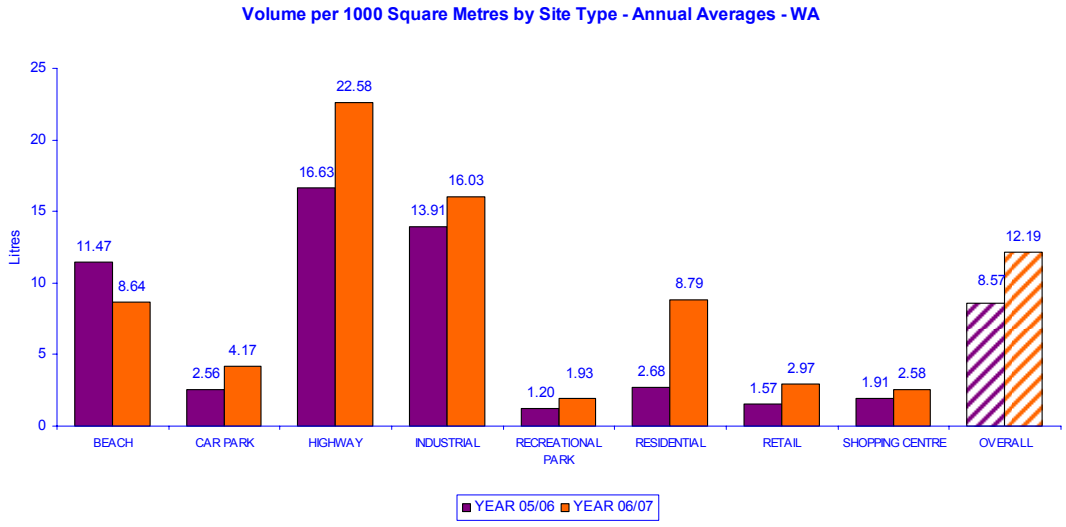
The estimated volumes per 1000 m^2 of litter items at all sites within WA overall also demonstrates a slow but consistent growth trend in tracked figures.

This growth trend is most strongly represented within highway sites and to a lesser extent residential locations.



The overall annual average estimated litter volume per 1,000 m^2 across all sites within WA for the year of 2006/ 2007 (12.19 litres per 1,000 m^2) is significantly higher than the result for the year of 2005/ 2006 (8.57 litres per 1,000 m^2).

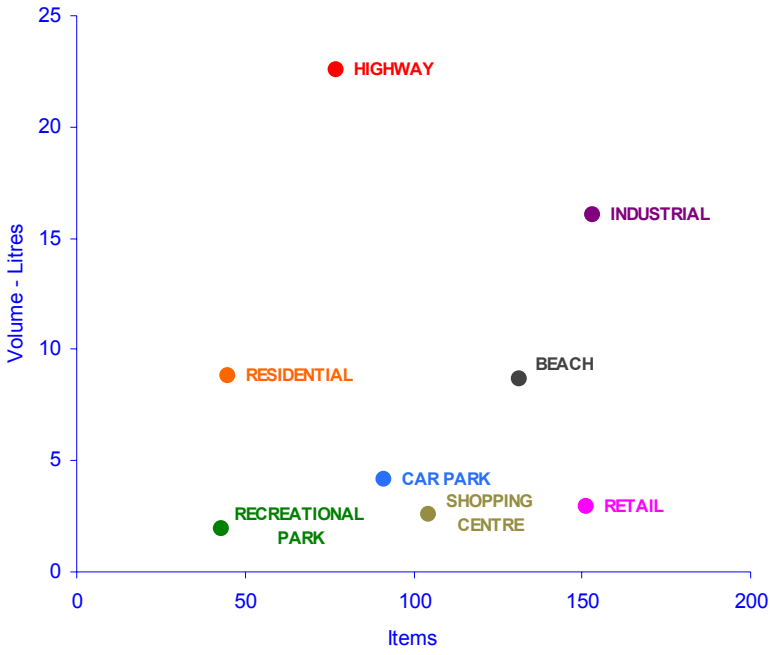
This increment is most strongly demonstrated at highway sites (22.58 litres per 1,000 m^2, up from 16.63 in 2005/ 2006) and residential areas (8.79 litres per 1,000 m^2, up from 2.68 in 2005/ 2006).



Items and volume estimates per 1,000 m^2 within WA identify the following site characteristics across the respective site types surveyed in 2006/ 2007:

- **Industrial** sites are associated with large numbers of litter items and large estimated volume figures.
- **Highway** sites are associated with a moderate number of items and a large estimated litter volume.
- **Retail** sites are associated with large numbers of items but only a small volume of litter.

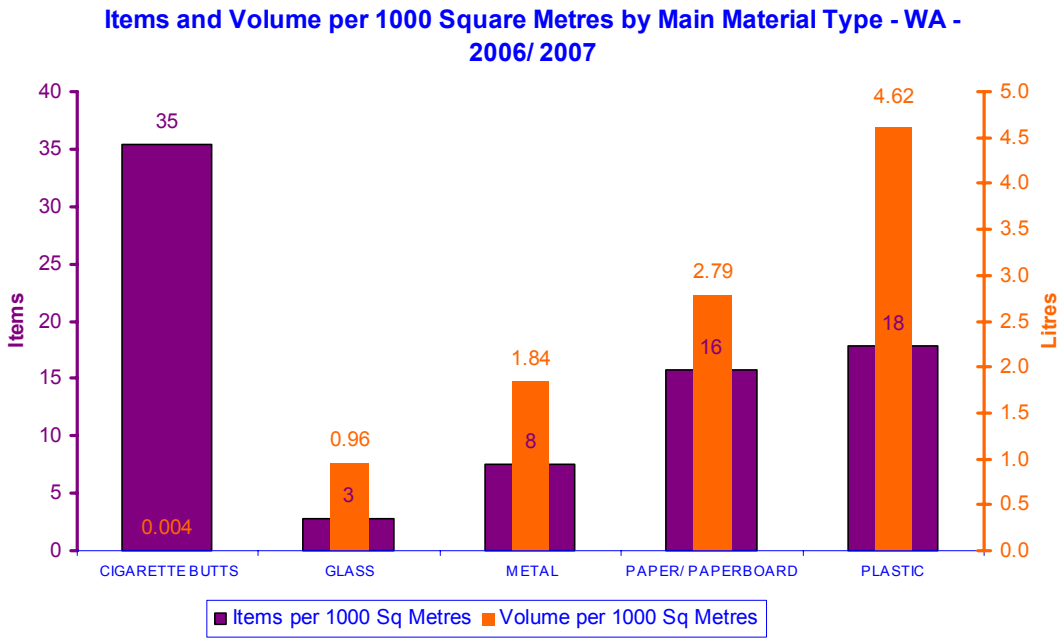
Items and Volume per 1000 Square Metres by Site Type - WA - 2006/ 2007



Comparison by Main Material Types

An average of 35 cigarette butts per 1,000 m^2 were identified across all sites surveyed within WA during the year of 2006/ 2007. However, such items only contributed 0.004 litres of volume per 1,000 m^2 to the litter stream.

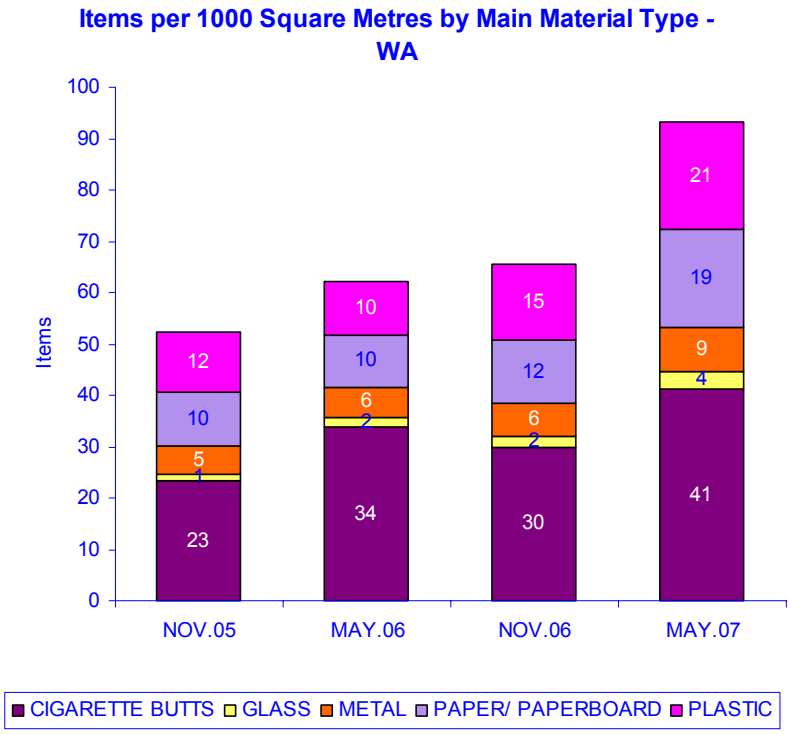
Items which contributed the greatest volumes to the litter stream in WA were constructed of plastic materials, and such objects contributed 4.62 litres per 1,000 m^2 to the overall litter stream in WA.



Consistent seasonal fluctuations in the numbers of items per 1,000 m^2 identified within the main material type categories are not evident across results for previous counts in WA.

Instead, a consistent upward trend is apparent, particularly in the presence of cigarette butts (41 butts per 1,000 m^2 in May 2007), plastic litter (21 items per 1,000 m^2 in May 2007) and paper/ paperboard objects (19 items per 1,000 m^2).

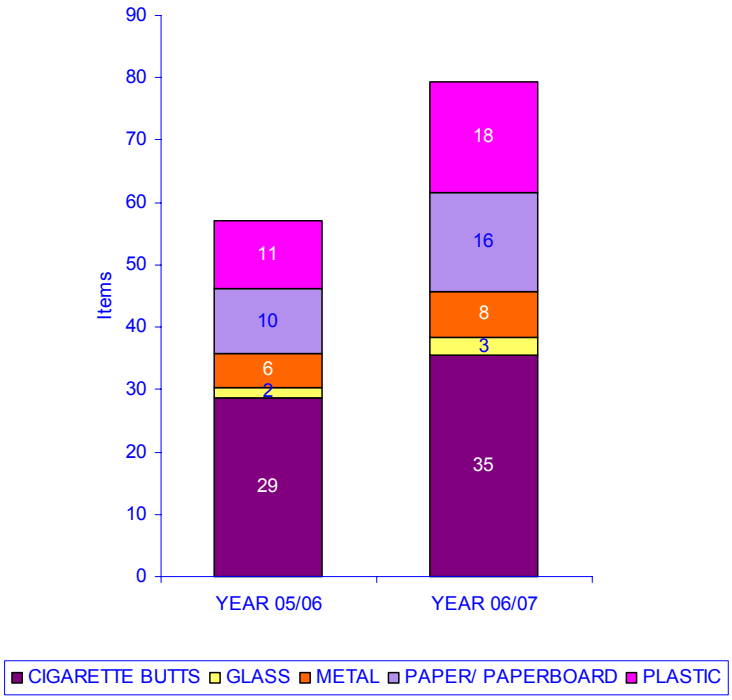
All objects within each of the main material types were represented in current findings at the highest levels ever recorded.



Annual averages for WA for the years of 2005/ 2006 and 2006/ 2007 demonstrate a substantial increase in the estimated numbers of litter items within all main material type categories.

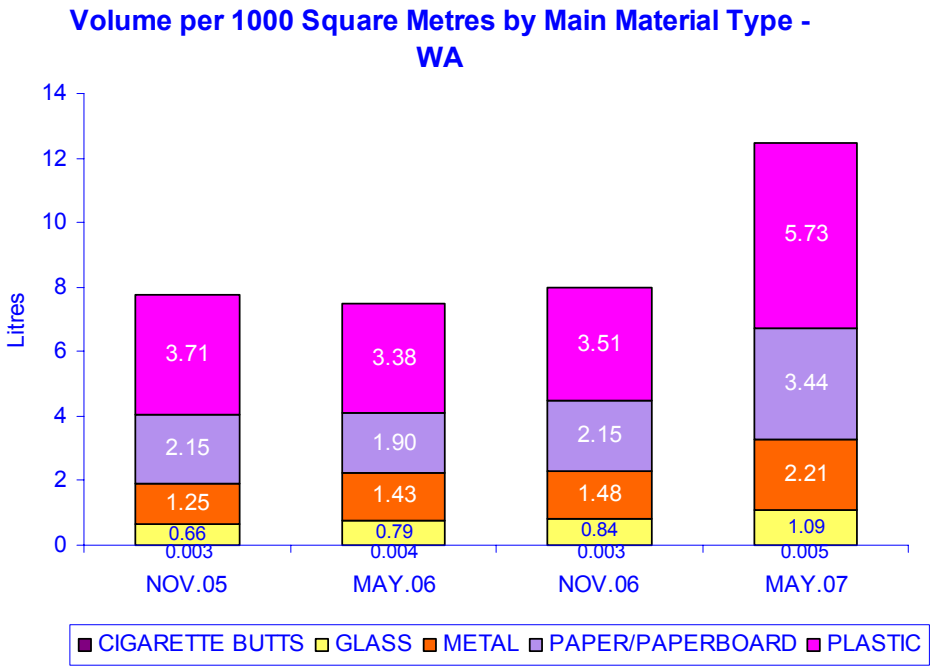
This increment is particularly evident in the figures for cigarette butts (35 items per 1,000 m^2, up from 29 for the year of 2005/ 2006), plastic litter objects (18 items per 1,000 m^2, up from 11 in 2005/ 2006) and paper/ paperboard objects (16 items per 1,000 m^2, up from 10 in 2005/ 2006).

Items per 1000 Square Metres by Main Material Type - Annual Averages - WA



The proportions of estimated volume contributed by objects within the main material types also reflect an overall increase in the presence of such litter objects.

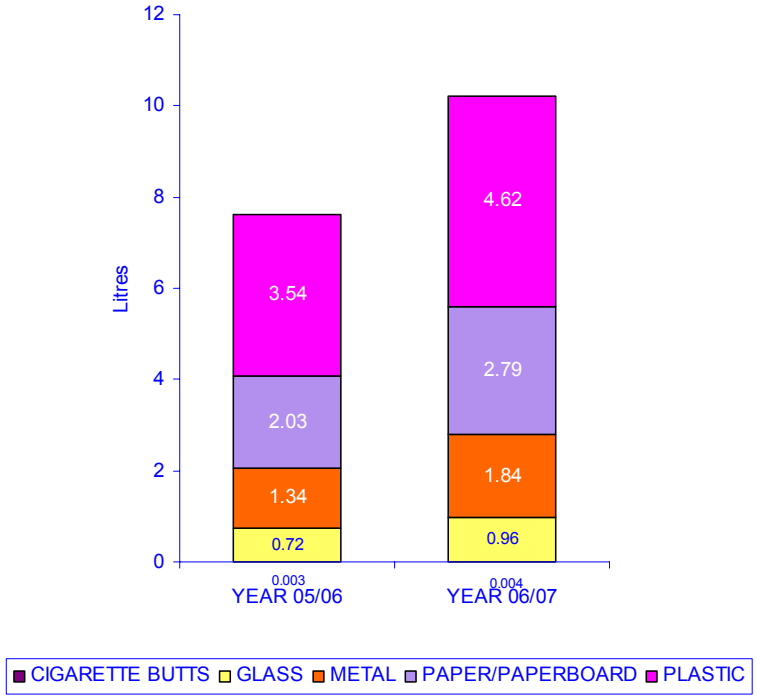
This increase is most strongly demonstrated within the plastic material category, and such items contributed 5.73 litres of litter volume per 1,000 m^2. Paper/ paperboard items also contributed substantial volume to the litter stream (3.44 litres per 1,000 m^2).



Annual results for the contribution of objects within the main material types to volume in the litter stream during the year of 2006/ 2007 demonstrate significant increases in the estimated volumes of litter within all main material types.

This increase is particularly true for litter objects within the plastic material category: such objects were associated with 4.62 litres of litter volume per 1,000 m^2, and this represents a substantial increase from results for 2005/ 2006 (3.54 litres per 1,000 m^2).

Volume per 1000 Square Metres by Main Material Type - Annual Averages - WA

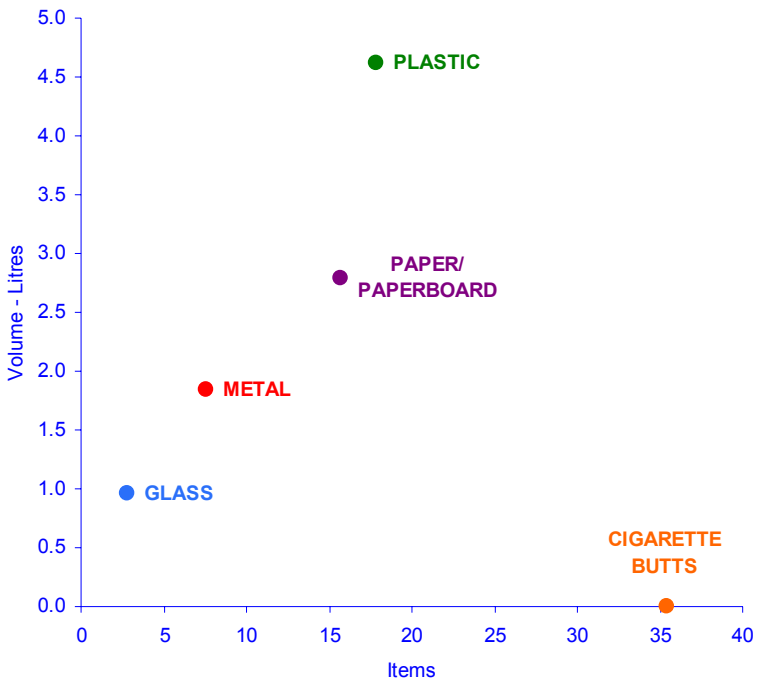


Figures for items and volumes per 1,000 m^2 across main material types identify the following characteristics of litter objects recorded within WA during the year of 2006/ 2007:

- **Plastic** litter items contribute large volumes to the litter stream but are associated with only moderate numbers of items. This implies the presence of many mid to high-volume items.

- **Cigarette butts** were recorded in large numbers, but such items contribute only a negligible estimated volume to the overall litter stream in the state.

Items and Volume per 1000 Square Metres by Main Material Type - WA - 2006/ 2007

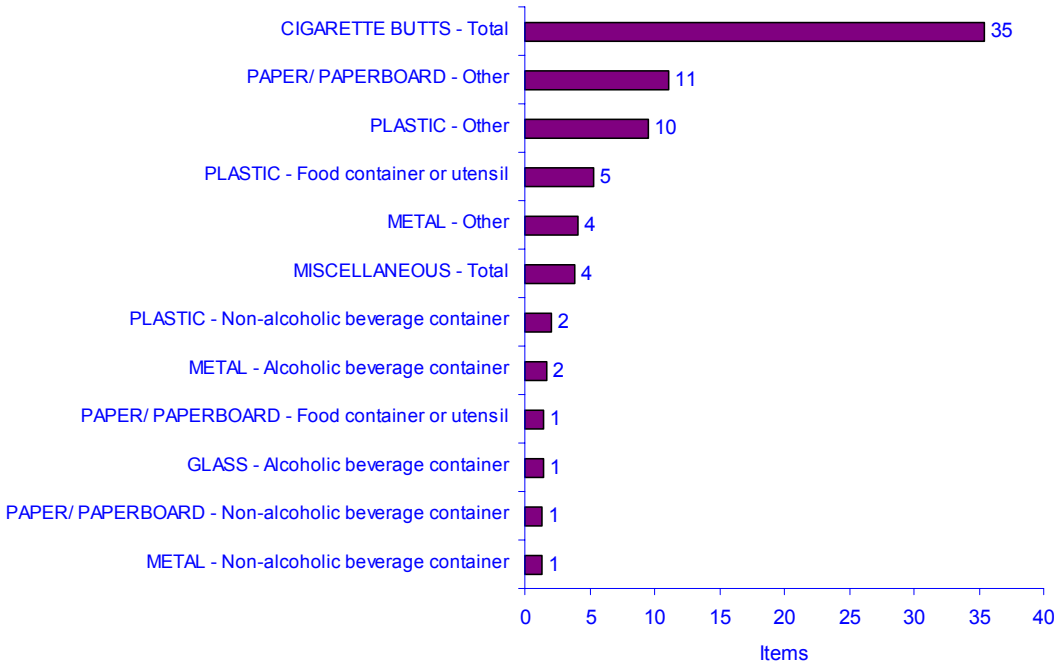


The Dirty Dozen

Cigarette butts represent the most frequently identified litter item in WA during the November 2006/ May 2007 counts, and 35 butts were recorded on average per 1,000 m^2.

Other objects frequently identified included uncategorised paper/ paperboard objects (11 items per 1,000 m^2), uncategorised plastic objects (10 items per 1,000 m^2), and plastic food containers and utensils (5 items per 1,000 m^2).

Dirty Dozen - Items per 1000 Square Metres - Object Sub-Categories - WA - 2006/ 2007



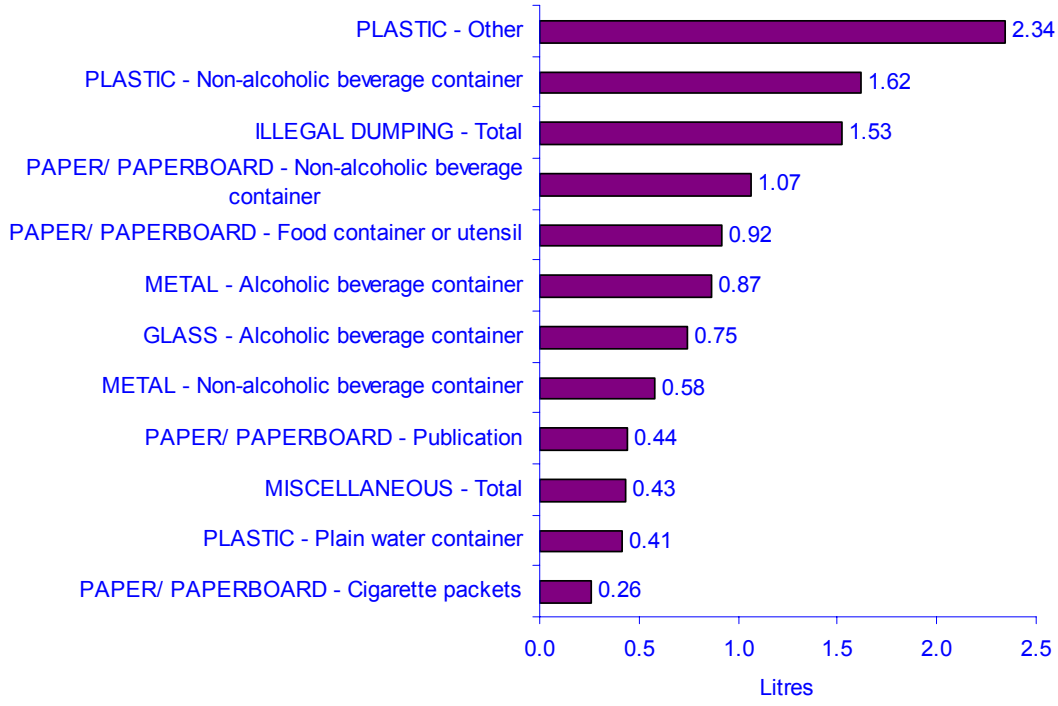
Uncategorised plastic litter objects represented the strongest contributors to estimated litter volume in WA during 2006/ 2007 (2.34 litres per 1,000 m^2).

Other object sub-categories which were associated with substantial estimated volume measurements included:

- Plastic - non-alcoholic beverage containers (1.62 litres per 1,000 m^2)
- Illegal dumping (1.53 litres per 1,000 m^2)

- Paper/ paperboard - non-alcoholic beverage containers (1.07 litres per 1,000 m^2)
- Paper/ paperboard - food containers or utensils (0.92 litres per 1,000 m^2)
- Metal - alcoholic beverage containers (0.87 litres per 1,000 m^2)
- Glass - alcoholic beverage containers (0.75 litres per 1,000 m^2)
- Metal - non-alcoholic beverage containers (0.58 litres per 1,000 m^2)

Dirty Dozen - Volume per 1000 Square Metres - Object Sub-Categories - WA - 2006/ 2007



Appendix 1: Supplementary Information

2005/ 2006 - Areas Surveyed - Square Metres

		ACT	NSW	NT	QLD	SA	TAS	VIC	WA	NATIONAL
BEACH	Average site area		563		842	939	506	500	500	654
	Number of sites surveyed		*16*		*16*	*16*	*8*	*16*	*16*	*88*
	Total area		**9000**		**13464**	**15017**	**4050**	**8000**	**8000**	**57531**
CAR PARK	Average site area		1528		1490	1379	1489	1594	1494	1496
	Number of sites surveyed		*23*		*23*	*23*	*11*	*23*	*23*	*126*
	Total area		**35148**		**34271**	**31717**	**16378**	**36657**	**34365**	**188536**
HIGHWAY	Average site area		2209		3114	3889	2785	3480	3243	3152
	Number of sites surveyed		*27*		*27*	*27*	*13*	*27*	*27*	*148*
	Total area		**59636**		**84076**	**105002**	**36200**	**93950**	**87565**	**466429**
INDUSTRIAL	Average site area		1017		1266	1340	504	914	881	1028
	Number of sites surveyed		*17*		*17*	*17*	*9*	*17*	*17*	*94*
	Total area		**17288**		**21520**	**22786**	**4540**	**15545**	**14985**	**96664**
RECREATIONAL PARK	Average site area		2061		1690	1539	2000	1951	2000	1863
	Number of sites surveyed		*13*		*13*	*13*	*7*	*13*	*13*	*72*
	Total area		**26790**		**21972**	**20003**	**14000**	**25360**	**26000**	**134125**
RESIDENTIAL	Average site area		1509		1161	1233	819	1272	1380	1266
	Number of sites surveyed		*26*		*26*	*26*	*13*	*26*	*26*	*143*
	Total area		**39237**		**30191**	**32047**	**10650**	**33075**	**35870**	**181070**
RETAIL	Average site area		1163		767	663	647	687	904	819
	Number of sites surveyed		*15*		*15*	*15*	*8*	*15*	*15*	*83*
	Total area		**17450**		**11502**	**9946**	**5172**	**10311**	**13556**	**67937**
SHOPPING CENTRE	Average site area		1211		501	752	1250	1179	1116	979
	Number of sites surveyed		*14*		*14*	*14*	*7*	*14*	*14*	*77*
	Total area		**16950**		**7008**	**10534**	**8750**	**16505**	**15625**	**75372**
Average area across all sites			1467		1483	1636	1312	1585	1563	1525
Total number of sites			*151*		*151*	*151*	*76*	*151*	*151*	*831*
Total area surveyed			**221499**		**224004**	**247052**	**99740**	**239403**	**235966**	**1267664**

Please note that ACT and NT were not incorporated within litter counts prior to November 2006, and litter within area computations for November 2005/ May 2006 in the report have been based upon reduced area measurements accordingly.

2006/ 2007 - Areas Surveyed - Square Metres

		ACT	NSW	NT	QLD	SA	TAS	VIC	WA	NATIONAL
BEACH	Average site area	500	563	500	842	939	506	500	500	630
	Number of sites surveyed	*8*	*16*	*8*	*16*	*16*	*8*	*16*	*16*	*104*
	Total area	**4000**	**9000**	**4000**	**13464**	**15017**	**4050**	**8000**	**8000**	**65531**
CAR PARK	Average site area	1500	1528	1335	1490	1379	1489	1594	1494	1485
	Number of sites surveyed	*11*	*23*	*11*	*23*	*23*	*11*	*23*	*23*	*148*
	Total area	**16500**	**35148**	**14680**	**34271**	**31717**	**16378**	**36657**	**34365**	**219716**
HIGHWAY	Average site area	3046	2209	3358	3114	3889	2785	3480	3243	3159
	Number of sites surveyed	*13*	*27*	*13*	*27*	*27*	*13*	*27*	*27*	*174*
	Total area	**39600**	**59636**	**43660**	**84076**	**105002**	**36200**	**93950**	**87565**	**549689**
INDUSTRIAL	Average site area	1117	1017	1200	1266	1340	504	914	881	1049
	Number of sites surveyed	*9*	*17*	*9*	*17*	*17*	*9*	*17*	*17*	*112*
	Total area	**10050**	**17288**	**10800**	**21520**	**22786**	**4540**	**15545**	**14985**	**117514**
RECREATIONAL PARK	Average site area	2000	2061	1507	1690	1539	2000	1951	2000	1845
	Number of sites surveyed	*7*	*13*	*7*	*13*	*13*	*7*	*13*	*13*	*86*
	Total area	**14000**	**26790**	**10550**	**21972**	**20003**	**14000**	**25360**	**26000**	**158675**
RESIDENTIAL	Average site area	1235	1509	1395	1161	1233	819	1272	1380	1274
	Number of sites surveyed	*13*	*26*	*13*	*26*	*26*	*13*	*26*	*26*	*169*
	Total area	**16050**	**39237**	**18141**	**30191**	**32047**	**10650**	**33075**	**35870**	**215261**
RETAIL	Average site area	876	1163	724	767	663	647	687	904	815
	Number of sites surveyed	*8*	*15*	*8*	*15*	*15*	*8*	*15*	*15*	*99*
	Total area	**7005**	**17450**	**5791**	**11502**	**9946**	**5172**	**10311**	**13556**	**80733**
SHOPPING CENTRE	Average site area	1250	1211	1221	501	752	1250	1179	1116	1018
	Number of sites surveyed	*7*	*14*	*7*	*14*	*14*	*7*	*14*	*14*	*91*
	Total area	**8750**	**16950**	**8550**	**7008**	**10534**	**8750**	**16505**	**15625**	**92672**
Average area across all sites		1526	1467	1529	1483	1636	1312	1585	1563	1526
Total number of sites		*76*	*151*	*76*	*151*	*151*	*76*	*151*	*151*	*983*
Total area surveyed		**115955**	**221499**	**116172**	**224004**	**247052**	**99740**	**239403**	**235966**	**1499791**

Litter Sub-Categories

		Sub-category	2006/ 2007 Average - Items	2006/ 2007 Average - Volume - Litres	2006/ 2007 Items per 1,000 Sq. Metres	2006/ 2007 Vol. per 1,000 Sq. Metres - Litres
CIGARETTE BUTTS			**52905**	**6.0841**	**35.27**	**0.0041**
GLASS	Alcoholic sodas / spirit-based mixers, all sizes	Alcoholic beverage container	**145**	54.2735	0.10	0.0362
	Beer, < 750ml, all colours of glass	Alcoholic beverage container	**746**	357.7070	0.50	0.2385
	Beer, 750ml or more, all colours of glass	Alcoholic beverage container	**185**	149.9055	0.12	0.1000
	Cider/fruit based etc.	Alcoholic beverage container	**15**	6.5874	0.01	0.0044
	Flav. water/soft drink (carbonated) <1 litre	Non-alcoholic beverage container	**103**	30.8628	0.07	0.0206
	Flav. water/soft drink (carbonated) 1 litre+	Non-alcoholic beverage container	**17**	28.1180	0.01	0.0187
	Flav.wtr/fruit j. dr/sprts dr, (non-carb), <1 litre	Non-alcoholic beverage container	**48**	38.4893	0.03	0.0257
	Flav.wtr/fruit j. dr/sprts dr, (non-carb), 1 litre+	Non-alcoholic beverage container	**27**	43.8310	0.02	0.0292
	Fruit juice, < 1 litre	Non-alcoholic beverage container	**41**	11.6276	0.03	0.0078
	Fruit juice, 1 litre or more	Non-alcoholic beverage container	**4**	6.2800	0.00	0.0042
	Other glass	Other	**1557**	30.5697	1.04	0.0204
	Plain water (carbonated or non-carb.), <1 litre	Plain water container	**40**	16.5920	0.03	0.0111
	Plain water (carbonated or non-carb.), 1 litre+	Plain water container	**17**	17.4776	0.01	0.0117
	Wine & spirit, all sizes	Alcoholic beverage container	**55**	48.5813	0.04	0.0324
	Wine cooler, all sizes	Alcoholic beverage container	**13**	4.8659	0.01	0.0032
	GLASS - Total		**3010**	**845.7684**	**2.01**	**0.5639**
ILLEGAL DUMPING			**177**	**4444.7334**	**0.12**	**2.9636**
METAL	Aerosols - pressure packs	Other	**29**	19.5008	0.02	0.0130
	Alcoholic sodas & spirit-based mixers	Alcoholic beverage container	**654**	367.2017	0.44	0.2448
	Beer, aluminium, all types, all sizes	Alcoholic beverage container	**1014**	437.2239	0.68	0.2915
	Cider/fruit based etc.	Alcoholic beverage container	**18**	7.7652	0.01	0.0052
	Foil take away	Food container or utensil	**369**	170.3870	0.25	0.1136
	Food cans (including pet food)	Food container or utensil	**67**	30.8427	0.04	0.0206
	Industrial cans - all types	Other	**30**	137.1012	0.02	0.0914
	Metal bottle tops and can pull rings	Other	**2752**	11.0060	1.83	0.0073
	Metal pieces	Other	**1021**	10.8173	0.68	0.0072
	Other foil	Other	**1822**	2.8423	1.21	0.0019
	Water, carbonated & flavoured/soft drink	Non-alcoholic beverage container	**1045**	450.8130	0.70	0.3006
	Water, non-carbonated & flavoured, all sizes	Plain water container	**25**	9.5400	0.02	0.0064
	METAL - Total		**8843**	**1655.0411**	**5.90**	**1.1035**

		Sub-category	2006/ 2007 Average - Items	2006/ 2007 Average - Volume - Litres	2006/ 2007 Items per 1,000 Sq. Metres	2006/ 2007 Vol. per 1,000 Sq. Metres - Litres
MISCELLANEOUS	Clothing & materials	Other	**1230**	18.8190	0.82	0.0125
	Condoms	Other	**25**	0.0640	0.02	0.0000
	Construction materials	Other	**663**	133.3835	0.44	0.0889
	Disposable nappies	Other	**53**	124.4250	0.04	0.0830
	Ice cream sticks	Other	**496**	0.2017	0.33	0.0001
	Other miscellaneous	Other	**519**	43.0920	0.35	0.0287
	Rubber pieces (not tyres)	Other	**751**	0.3588	0.50	0.0002
	Syringes	Other	**27**	2436.0203	0.02	1.6242
	Tyres & pieces	Other	**448**	100.8000	0.30	0.0672
	MISCELLANEOUS - Total		**4211**	**221.2464**	**2.81**	**0.1475**
PAPER/PAPERBOARD	Cartons, flavoured milk< 1 litre	Non-alcoholic beverage container	**480**	359.4812	0.32	0.2397
	Cartons, flavoured milk1 litre or more	Non-alcoholic beverage container	**25**	25.3165	0.02	0.0169
	Cartons, fruit juice, < 1 litre	Non-alcoholic beverage container	**59**	36.5479	0.04	0.0244
	Cartons, milk, plain (white)all sizes	Non-alcoholic beverage container	**55**	55.1900	0.04	0.0368
	Cigarette packets	Cigarette packets	**1561**	339.9861	1.04	0.2267
	Cups/take away containers	Food container or utensil	**1543**	1124.4054	1.03	0.7497
	Flav. water / fruit j. drink/ sports drink, (non-carb), 1 litre+	Non-alcoholic beverage container	**17**	34.1550	0.01	0.0228
	Flav. water/fruit j. drink/sports drink, non-carb, <1 litre	Non-alcoholic beverage container	**71**	18.6091	0.05	0.0124
	Fruit juice, 1 litre or more	Non-alcoholic beverage container	**6**	11.3850	0.00	0.0076
	Ice cream wrappers	Food container or utensil	**520**	1.2468	0.35	0.0008
	Junk mail / free circulars	Publication	**686**	119.2770	0.46	0.0795
	Newspapers & magazines	Publication	**524**	618.3200	0.35	0.4123
	Other paper	Other	**10542**	35.6303	7.03	0.0238
	Packages & boxes	Other	**874**	69.9200	0.58	0.0466
	Paper bags	Other	**898**	9.5008	0.60	0.0063
	Shopper dockets & related shopping paper (eg, lists)	Other	**1128**	2.2888	0.75	0.0015
	Tickets, e.g. bus, ATM, vending machine etc.	Other	**870**	0.7656	0.58	0.0005
	PAPER/ PAPERBOARD - Total		**19854**	**2862.0254**	**13.24**	**1.9083**

		Sub-category	2006/ 2007 Average - Items	2006/ 2007 Average - Volume - Litres	2006/ 2007 Items per 1,000 Sq. Metres	2006/ 2007 Vol. per 1,000 Sq. Metres - Litres
PLASTIC	6 ring can holders	Other	**151**	0.2265	0.10	0.0002
	Bags - heavier glossy typically branded carry bags	Shopping bag	**130**	11.3880	0.09	0.0076
	Bags - supermarket type light weight carry bags	Shopping bag	**760**	25.7774	0.51	0.0172
	Bread bag tags	Other	**257**	0.0591	0.17	0.0000
	Confectionery wrappers (incl. chip packets)	Food container or utensil	**3579**	28.0236	2.39	0.0187
	Containers, domestic type	Other	**133**	1107.0920	0.09	0.7382
	Containers, industrial e.g. oil	Other	**51**	1145.3580	0.03	0.7637
	Drink pouches	Non-alcoholic beverage container	**85**	7.3313	0.06	0.0049
	Flav. milk, <1 litre	Non-alcoholic beverage container	**272**	144.8944	0.18	0.0966
	Flav. milk, 1 litre or more	Non-alcoholic beverage container	**19**	40.5971	0.01	0.0271
	Flav. water/soft drink (carbonated) <1 litre	Non-alcoholic beverage container	**833**	517.9066	0.56	0.3453
	Flav. water/soft drink (carbonated) 1 litre+	Non-alcoholic beverage container	**197**	325.0110	0.13	0.2167
	Flav. wtr/fruit j. dr, sprts dr etc.(non-carb) 1 litre+	Non-alcoholic beverage container	**83**	137.2820	0.06	0.0915
	Flav.wtr/fruit j. dr, sprts dr etc.(non-carb) <1 litre	Non-alcoholic beverage container	**214**	119.0075	0.14	0.0793
	Fruit juice <1 litre	Non-alcoholic beverage container	**90**	47.9430	0.06	0.0320
	Fruit juice, 1 litre or more	Non-alcoholic beverage container	**21**	43.8021	0.01	0.0292
	Lollipop sticks	Food container or utensil	**846**	0.4481	0.56	0.0003
	Other plastic	Other	**5681**	7.1013	3.79	0.0047
	Packing tape & straps	Other	**1490**	0.4022	0.99	0.0003
	Plain water (carbonated or non-carb) <1 litre	Plain water container	**302**	237.5519	0.20	0.1584
	Plain water (carbonated or non-carb) 1 litre+	Plain water container	**72**	110.9930	0.05	0.0740
	Plastic bottle tops	Other	**2076**	16.6184	1.38	0.0111
	Sacks - sheeting - other bags	Other	**444**	0.1399	0.30	0.0001
	Spoons/ cutlery	Food container or utensil	**449**	4.3104	0.30	0.0029
	Straws	Food container or utensil	**2090**	8.6192	1.39	0.0057
	Styrene foam boxes, sheets, etc	Other	**637**	23.8688	0.42	0.0159
	Take away & cups	Food container or utensil	**1264**	261.5698	0.84	0.1744
	White milk, all sizes	Non-alcoholic beverage container	**50**	105.7662	0.03	0.0705
	Wine cask bladders	Alcoholic beverage container	**19**	8.7400	0.01	0.0058
	PLASTIC - Total		**22290**	**4487.8286**	**14.86**	**2.9923**
		GRAND TOTAL	**111287**	**14518.3197**	**74.20**	**9.6802**

Appendix 2: Data Collection Form

McGregor Tan Research

KAB - LITTER COUNT COVER SHEET

(REF: 6584)

SITE CODE: ☐☐☐☐☐☐☐

PLEASE ENSURE THAT A COPY OF THIS COVER SHEET IS FILLED OUT AND ATTACHED TO THE COMPLETED LITTER COUNT FORM FOR EVERY SITE.

Date of count:____/____/____

Site description: _____

Site responsible person: _____

Wet? (Y/N) ☐ Windy? (Y/N) ☐ Temp?☐☐°C

Conditions: (Circle appropriate numbers)

1. Area appeared to be cleaned before count
2. Deliberate dumping of rubbish
3. Area was mowed before count causing proliferation
4. Very recent storm/flood damage litter build-up
5. Very recent or current high winds causing build-up
6. Recent public event held in area – **specify:**
7. Uncovered load spilled in area causing litter

Please record number and type of bins in site area

No. of litter bins:

No. of butt bins:

No. and type of other bins: _____

Document2 1 of 1
Created: 7/02/2007 11:31:00 AM Saved on: 0/00/0000 0:00:00 AM

SITE CODE:			SITE RESPONSIBLE PERSON:		DATE:	

GLASS

	Item Type	Brand	Work Area	Total
Ga	Plain water (carbonated or non-carb.), 1 litre+	NONE		
Gb	Plain water (carbonated or non-carb.), <1 litre	NONE		
Gc	Flavoured water/soft drink (carbonated) 1 litre+	NONE		
Gd	Flavoured water/soft drink (carbonated) <1 litre	NONE		
Ge	Flav. water / fruit juice drink/ sports drink, (non-carb), 1 litre+	NONE		
Gf	Flav. water / fruit juice drink/ sports drink, (non-carb), <1 litre	NONE		
Gg	Fruit juice, 1 litre or more	NONE		
Gh	Fruit juice, < 1 litre	NONE		
Gi	Wine cooler, all sizes	NONE		
Gj	Alcoholic sodas / spirit-based mixers, all sizes	NONE		
Gk	Cider/fruit based etc.	NONE		
Gl	Wine & spirit, all sizes	NONE		
Gm	Beer, 750ml or more, all colours of glass	NONE		
Gn	Beer, < 750ml, all colours of glass	NONE		
Go	Other glass	NONE		

CIGARETTE BUTTS

METAL

	Item Type	Brand	Work Area	Total
Ma	Beer, aluminium, all types, all sizes	NONE		
Mb	Alcoholic sodas & spirit-based mixers	NONE		
Mc	Cider/fruit based etc.	NONE		
Md	Water, carbonated & flavoured/soft drink	NONE		
Me	Water, non-carbonated & flavoured, all sizes	NONE		
Mf	Food cans (including pet food)	NONE		
Mg	Industrial cans - all types	NONE		
Mh	Aerosols – pressure packs	NONE		
Mi	Metal bottle tops and can pull rings	NONE		
Mj	Metal pieces	NONE		
Mk	Foil take away	NONE		
Ml	Other foil	NONE		

MISCELLANEOUS

	Item Type	Brand	Work Area	Total
Xa	Tyres & pieces	NONE		
Xb	Clothing & materials	NONE		
Xc	Illegal dumping	NONE		
Xd	Syringes - Do Not Touch	NONE		
Xe	Ice cream sticks	NONE		
Xf	Rubber pieces (not tyres)	NONE		
Xg	Condoms	NONE		
Xh	Construction materials	NONE		
Xi	Disposable nappies	NONE		
Xj	OTHER MISC -(Please specify item types and brands below)			

		Item Type	Brand	Work Area	Total
PAPER / PAPERBOARD	Ka	Packages & boxes	NONE		
	Kb	Cigarette packets	NONE		
	Kc	Cartons, milk, plain (white), all sizes	NONE		
	Kd	Cartons, flavoured milk 1 litre or more	NONE		
	Ke	Cartons, flavoured milk < 1 litre	NONE		
	Kf	Cartons, flav. water / fruit juice drink/ sports drink, (non carb), 1 litre+	NONE		
	Kg	Cartons, flav. water / fruit juice drink/ sports drink, (non carb), <1 litre	NONE		
	Kh	Cartons, fruit juice, 1 litre or more	NONE		
	Ki	Cartons, fruit juice, < 1 litre	NONE		
	Kj	Newspapers & magazines	NONE		
	Kk	Junk mail / free circulars	NONE		
	Kl	Cups/take away containers	NONE		
	Km	Tickets, e.g. bus, ATM, vending machine etc.	NONE		
	Kn	Ice cream wrappers	NONE		
	Ko	Paper bags	NONE		
	Kp	Shopper dockets & related shopping paper (eg, lists)	NONE		
	Kq	Other paper (including tissues)	NONE		
PLASTIC	Pa	White milk, all sizes	NONE		
	Pb	Flavoured milk, 1 litre or more	NONE		
	Pc	Flavoured milk, < 1 litre	NONE		
	Pd	Fruit juice, 1 litre or more	NONE		
	Pe	Fruit juice < 1 litre	NONE		

		Item Type	Brand	Work Area	Total
PLASTIC	Pf	Plain water (carbonated or non-carb) 1 litre+	NONE		
	Pg	Plain water (carbonated or non-carb) <1 litre	NONE		
	Ph	Flavoured water/soft drink (carbonated) 1 litre+	NONE		
	Pi	Flavoured water/soft drink (carbonated) <1 litre	NONE		
	Pj	Flavoured water/fruit juice drinks, sports drinks etc. (non-carb) 1 litre+	NONE		
	Pk	Flavoured water/fruit juice drinks, sports drinks etc. (non-carb) <1 litre	NONE		
	Pl	Containers, industrial e.g. oil	NONE		
	Pm	Containers, domestic type	NONE		
	Pn	Bags – light weight plastic shopping type carry bags	NONE		
	Po	Bags – heavier glossy typically branded carry bags	NONE		
	Pp	Sacks – shooting – other bags	NONE		
	Pq	Wine cask bladders	NONE		
	Pr	Straws	NONE		
	Ps	6 ring can holders	NONE		
	Pt	Snack bags and confectionery wrappers	NONE		
	Pu	Styrene foam boxes, sheets, etc	NONE		
	Pv	Packing tape & straps	NONE		
	Pw	Take away & cups	NONE		
	Px	Plastic bottle tops	NONE		
	Py	Bread bag tags	NONE		
	Pz	Lollipop sticks	NONE		
	P1	Spoons/ cutlery	NONE		
	P2	Drink pouches	NONE		
	P3	All other plastic	NONE		

Appendix 3:
McGregor Tan Research - Profile

McGregor Tan Research has been successful in recruiting some of the most highly qualified, experienced and competent professionals from across a wide range of disciplines in order to build the consultancy team.

Zing Hai Tan - Managing Director - is a Qualified Practising Market Researcher (QPMR) and has over 25 years of market research experience at a senior level in a wide range of industries including transport, local government, banking and management. Zing Hai's skills are in assisting clients to use market research to its full capacity tactically and strategically. He has a Masters Degree in Planning from the University of Adelaide and is a former Tennyson Medallist. He is a member of the Australian Market and Social Research Society.

Peter Hine - General Manager - Peter has considerable experience in statistically complex quantitative and innovative qualitative research methodologies. He has a degree in Mathematics, from the University of Adelaide, and has over 12 years of research experience both as supplier and a client. Peter was Divisional Marketing Manager at Mitsubishi before McGregor Tan Research. His interests include emerging markets, new technology and Internet research.

Vincent Burke - Senior Consultant - is a specialist in qualitative and diagnostic research and a highly qualified and experienced executive interviewer. Prior to joining the consultancy in 1993, Vincent worked in arts, education and tourism. He was previously Marketing Manager of the Adelaide Festival Centre.

Tatiana Anisimova - Senior Consultant - graduated with first class honours in sociology from Moscow University and completed her PhD in Marketing from Monash University, during which she researched corporate branding strategies. She has tutored in marketing at both Monash and Melbourne Universities, and before undertaking her PhD studies, worked as a product manager for the German household goods company Elebracht, and also in market analysis and site support in Europe.

Benjamin Selby - Project Manager - has a Bachelor of Behavioural Science from Flinders University. Ben has a familiarity with a broad range of assessment and testing procedures, psychometrics, statistical analysis and

research design. His areas of particular expertise include multiple regression, cluster analysis, conjoint analysis and correspondence analysis. He is currently researching database implementation, management and reporting within the Microsoft framework.

Pablo Rengifo - Research Associate - has worked in the market research industry for 6 years, and prior to joining McGregor Tan Research was a market research account service manager with companies such as Proctor and Gamble, Toyota, and Visa. Pablo has a Bachelor's degree in Communications from San Marcos University, which is considered to be South America's foremost tertiary institution.

David O'Dea - Project Consultant - David has a background in marketing and strategic planning as well as operational management within the Government and non-Government business sectors in Australia and South East Asia. David's knowledge and experience includes industrial marketing, product and organisational branding, website development and computer software engineering. He has a Bachelor of Computer Science and a Bachelor of Commerce (Accounting) from the University of Adelaide and he is a recipient of the Rational Prize for Software Engineering from the University.

Susan Mattner **-** Systems Administration Manager - is responsible for computer programming, statistical analysis, data management, development of data analysis and file system processes, preparation of reports, graphing and computer tabulations. Susan has been with the firm since 1985.

Jodie Egan **-** Systems Administration Manager - is responsible for computer programming, statistical analysis, data management, development of data analysis and file system processes, preparation of reports, graphing and computer tabulations. Jodie has been with the firm since 2003.

Deborah Amee **-** is the field executive and ***Jacki Wilson*** and ***Tom Nagy*** are the field supervisors responsible for coordinating face-to-face and telephone fieldwork.

Sue Hannon - Director provides high level direction and management of strategic company activities, and has overseen the company's consistent

growth over the last 10 years. Sue has an Arts degree from the University of Adelaide, and has a strong interest in social research including studies of the education sector and the needs of culturally and linguistically diverse groups.

Quality Management and Privacy Policy

Service Standards

In 2006 McGregor Tan became the first Australian owned company (in Australia) to achieve the double accreditation to the ISO9001:2000 and AS4752:2004 standard for the full scope of research and strategy services including customized research for consumer, social and commercial studies, as recognised by the Australian Market and Social Research Society.

Fieldwork Quality Management

In conducting quantitative surveys, McGregor Tan Research prides itself on its national professional field force. Our interviewers are fully trained in-house and we have specialist teams of telephone, door-to-door, central location and executive interviewers.

Qualitative Research Management

McGregor Tan Research is fully accredited for all forms of qualitative research. Qualitative research data collection includes the use of focus groups, depth interviews with executives and telephone based semi structured interviewing. The firm has a national database of up to 20,000 people across all walks of life who have expressed an interest in being part of a qualitative research project. The company has a success rate of participant attendance at focus groups of about 90%.

Quantitative Research Management

Our executive team of quantitative consultants is a multi-disciplinary team highly qualified and experienced in all facets of quantitative research - questionnaire and sampling design, survey methodology development, data analysis and report writing.

Under the guidance and direction of the quantitative consultants, and the fieldwork management team - Debbie Amee, Jackie Wilson and Adele Eliseo - you can be assured of a high standard of data collection by a survey team who have completed over a million interviews.

Sampling procedures

Whether the sample required is truly random or stratified (i.e. quotas of different types of respondent are set), sampling procedures are devised and rigorously enforced to ensure that the most representative sample is obtained. Interviewers keep records of every telephone call made.

These records are used in our validation (quality control) procedures and they are also used to ensure systematic call backs are made. In general public surveys, interviewing times are restricted to evenings and weekends so that working people are properly represented.

Questionnaire development and pilot testing

The questionnaire will be developed based on the program you have provided. However, we feel it is important to check the questionnaire amongst a small sample to ensure language and comprehension, flow and logic. We believe it is essential that the questionnaire is user friendly to respondents, interviewers and data analysis personnel.

Interviewer briefing

Prior to the commencement of each survey, interviewers meet with the principal consultant and are personally briefed and instructed in the methodology and questionnaire content of the forthcoming study. This can take 2-3 hours and includes a role playing exercise to ensure full understanding of the questionnaire and sampling procedure. We also find this an invaluable part of the questionnaire refining process. Interviewers are also provided with written instructions. Each interviewer's progress is monitored while the job is in the field to ensure that work is completed on time and to a consistent standard.

Auditing and validation

Each research interviewer knows that his/her work will be personally validated and checked by the training manager. A minimum of 10% of each interviewer's work on each survey is checked either by a personal call or by telephone. The name, address and the telephone number of each respondent is recorded for this purpose.

Interviewer debriefing

On completion of each interviewing assignment, the training manager assesses the quality of the work completed.

The quality evaluation of each interviewer assignment provides for continuous upgrading of interviewer skills and efficiency. Procedural correctness, probing on free response questions, correctness in following skip patterns area few things on which interviewers are evaluated.

Method of interviewer payment

We pay interviewers on a time and materials basis and not on a cost per completed interview. The system removes the pressure from the interviewer to complete questionnaires regardless of quality, and ensures that the interviewer who strikes a difficult area or respondent is not penalised.

Privacy Policy

The McGregor Tan Research collection, use and disclosure of personal information is outlined in this privacy policy.

Personal information is collected by McGregor Tan Research in the process of conducting a survey and the data is used for statistical purposes. Surveys are conducted by telephone, face to face, self completion and online. The data is combined to draw conclusions as to the habits, opinions and lifestyle of segments of the population and is not connected to individuals.

The collection of personal information about an individual is not collected from anybody but that individual. McGregor Tan Research use the personal information only for the purpose for which the information is provided.

When personal information as part of a survey is collected it is must pass through a validation process to ensure a high standard quality of data. Telephone numbers are used to call back a percentage of respondents. Once the data is validated, it is separated from the personal details such as name and telephone number and used in an aggregated form.

Personal information collected is confidential and never passed on to any organisation or individual outside McGregor Tan Research without the prior consent of the individual concerned.

McGregor Tan Research also collects and maintains a database. Individuals are asked to join the database where personal details are held upon receiving the individual's permission. This database is used for further research in a wide range of subjects including focus group discussions and email surveys. This database is treated as confidential and is not passed on to any organisation or individual outside of McGregor Tan Research.

If at any stage an individual wishes to be removed from McGregor Tan Research database all personal information is permanently deleted.

At McGregor Tan Research all interviewers sign confidentiality agreements each time individual personal information is collected in accord with Interview Quality Control Australia (IQCA) and AS4752 Australian Standards for Market and Social Research requirements. All McGregor Tan Research staff sign a confidentiality agreement upon commencing employment and all personal information received is considered under this agreement.

McGregor Tan Research does not identify the internet address of any computer engaged in an internet survey or viewing the McGregor Tan Research website. McGregor Tan Research does not use cookies for any reason. McGregor Tan Research does tally the number of visitors to the website but does not attach information of any sort to the record.

For further details please contact McGregor Tan Research at research@mcgregor.com.au or call (08) 8433 0200.

Analysis

All our quantitative survey data are processed and analysed on our in-house computer system utilising the industry-approved Survey System software package.

The data are subject to quality control verification, both at the input and pre-analysis stages. Our data is entered directly into the computer by the use of a CATI (computer aided telephone interviewing) system. Field data is entered by means of a questionnaire system designed to eliminate keying errors. Prior to analysis, the data are subject to a thorough check for logic errors and other discrepancies.

Some of our Clients

ABB Grain Ltd, Australian Hotels Association, **Australian Red Cross,** Active Australia, **Active Radio Network,** Adelaide Art Directors Club, **Adelaide Bank, Adelaide City Council,** Adelaide City Marketing, **Adelaide Entertainment Centre,** Adelaide Festival Centre Trust, **Adelaide Produce Markets Ltd,** Adelaide University, **Advantage SA,** Advertiser Newspaper Ltd, **Andrew Robertson,** Angas Park, **Anglicare,** Annesley College, **Applecorn Research,** Art Gallery of SA, **Asthma Foundation,** Attorney General's Department, **Australian Central Credit Union,** Australia Post, **Ball Public Relations,** Banrock Station, **Beech Environmental Services,** Betts and Betts, **Blue Moon,** Booze Brothers, **Bottomline,** Boylen Publishing, **Bread and Butter Research and Planning,** Burnside City Council, **Business Centre,** Business SA, **Capital City Committee Adelaide,** Castle Plaza Shopping Centre, **Cement and Concrete Association,** Central Field Market Research, **Centre for Innovation, Business & Manufacturing,** Chariot Stokes, **Charles Darwin University,** Charterhouse Advertising, **Child & Youth Health Services,** Children's Health Development Fund, **City of Campbelltown,** City of Charles Sturt, **City of Darwin,** City of Marion, **City of Mitcham,** City of Onkaparinga, **City of Prospect**, City of Salisbury, **City of Unley,** City of West Torrens, **Clelands Lawyers,** Clemenger BDDO, **Clipsal 500,** Coastal and Marine Branch, **Colmar Brunton,** Construction Industry Training Board, **Continuity Group,** Coopers Brewery, **CPS Credit Union,** Cranio-Facial Foundation, **Credit Union Pageant Company,** Crompton Corporation, **CSIRO,** Curtin Business School, **CUSCAL,** Delfin Ltd, **Deloitte Touche Tohmatsu,** Department of Education Training and Employment, **Department for Education and Children's Services,** Department for Environment and Heritage, **Department of Administration and Information Services,** Department of Human Services, **Department of Trade and Economic Development,** Department for Transport Urban Planning and the Arts, **Department for Premier and Cabinet,** Elliott & Shanahan Research, **Emphasis,** Energy SA, **Environmental Protection Authority,** Essential Services Commission of SA, **ETSA Telecoms,** ETSA Utilities, **Eye Corp,** Festival Centre, **Finlaysons,** First National Real Estate, **Flinders University,** Franklins Supermarkets, **G Tech,** Geoffrey Reed Communications, **Gillespie Economics,** Government Communications Office, **Great Southern Railways,** Green Phone Inc, **Grundfos Pumps,** Guerilla Advertising, **Hamilton Heading Advertising,** Harris Scarfe, **Health Promotion SA,** Home Australia, **HomeStart Finance,** Homestead, **Horticulture Australia,** Icewerx, **Imparja TV,** Independent Gaming Authority, **Interaction,** Ipsos Australia, **Jarvis Marketing,** Jebb Holland Demasi, **Jetty Road Glenelg Mainstreet Board,** John Edwards Advertising, **Judi White Research,** Keep Australia Beautiful, **Kambitsis Group,** Kemalex Plastics, **KESAB,** Killey Withy Punshon, **Klein Craig and Associates,** Korvest Ltd, **Leisure Co,** Lendlease, **Leo Burnett Robinson (Institute of Engineers),** Lifeplan, **Living with Alcohol Program,** Local Government Association of South Australia, **Local Government and Shires Association of NSW,** Macquarie University – NSW, **Mark Makrid and Associates,** Masonic Homes Inc, **Maunsell,** Mawson Lakes, **McIntyre Robertson,** Mercer Cullen Egan Dell, **Michels Warren,** Millward Brown, **mNet,** Mt

Lofty Ranges Catchment Program, **MTU Detroit,** Multiplex, **Munno Para Shopping Centre,** Museum and Art Gallery of the Northern Territory, **Music Society,** National Centre for Vocational Education Research, **National Parks & Wildlife,** National Pharmacies, **New Start Homes,** New Tel, **NFS Marketing,** North Western Adelaide Health Service, **Northern Adelaide & Barossa Catchment Water Management Board,** Northern Territory Government, **Northern Territory Tourist Commission,** NT Department of Community Development, **Office for Recreation and Sport,** One to One, **Optima Energy,** Orima Research, **Partnerships 21,** Passenger Transport Board, **Paul Centenera,** Peregrine Corporation, **Phillips Group,** Phyllis Mitchell & Associates, **Piper Alderman,** Planning SA, **Playford Centre,** Police Credit Union, **Porter Novelli,** Power & Water Authority – NT, **Power Advertising,** Prescott Consultants, **Preston Motors, Prices' Bakery,** Primary Industries and Resources SA, **Public Trustee,** Q&A Market Research, **Q2 Strategic Marketing Research,** Quantum Research, **Queensland Association of Secondary School Principals,** RAA, **RAA Insurance,** Radio Rentals, **Repromed,** Right Marketing, **River Murray Catchment Water Management Board,** Robern Menz, **Rossdale Homes,** Rundle Mall Management, **SA Community Housing Authority,** SA Cricket Association, **SA Government Radio Network,** SA Housing Trust, **SA Lotteries,** SA Tourism Commission, **SA Water,** SA Waste Management Committee, **Sandvik Tamrock Pty Ltd,** Savings & Loans Credit Union, **School Principal's Association,** Seeley International, **Serco,** Sexton Marketing Group, **Shahin Group of Companies,** Silver Chef, **Sims Metal,** Sky City Adelaide, **Smithers Oasis,** Smoke Free Project, **South Australian Primary Principals Association,** South East Catchment Water Management Board, **Southern Equity Holdings,** Speakman & Associates, **Special Broadcasting Services (SBS),** Spintus, **SSABSA,** Starcom, **State Electoral Office,** State Theatre Company, **Statewide Superannuation Trust,** Stokes Advertising, **Style Catering,** Survey Talk, **Sustainable Energy Development Authority,** Sydney Harbour Foreshore Authority, **TAB,** Taylor Nelson Sofres, **Tea Tree Gully Council,** Territory Insurance Organisation, **The Advertiser,** The Business Centre, **The Research Forum,** THEM Advertising, **Thomson Playford,** Thoroughbred Racing SA, **Tivoli Gardenstone,** TNR Meat, **Toro Australia,** Toshiba Australia, **Trafalgar Corporate,** Transitions Optical, **Transport SA,** Transworld Enterprises, **Tregloans,** UMR, **University of Adelaide,** University of SA, **United Water,** Unley Shopping Centre Management, **Urbis Keys Young,** Watermark Patent Attorneys (Victoria), **Watershed Protection Office,** Western Australian Primary Principals Association, **West Lakes Mall,** Westfield Shopping Centre Management, **Wilkins Research,** Wilson Everard, **Wirthlin Worldwide,** Women's and Children's Hospital, **Woodlands School,** Woods Bagot, **WorkCover Corporation,** WorkCover Employee Advocate Unit, **Worthington Dimarzio**