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Litter Strategy Monitoring Wave 77 – May 2019 Report

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Project No: 10705

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Section 1

Introduction

- 1.1 This document has been prepared by McGregor Tan Research to report on Wave 77 of the quarterly KESAB Litter Monitor. Surveys for the current wave were conducted in South Australia during May 2019.

Background

- 1.2 Regular monitoring of the litter stream is necessary in order to maintain a clear picture of its components, such as the various material types that contribute to the litter stream as well as the distribution of litter across different area types. Keep South Australia Beautiful (KESAB) had been monitoring the State's litter stream for many years, but the level of detail required during the South Australian Government's moratorium on changes to Container Deposit Legislation was considerably greater than previously recorded.
- 1.3 An expanded monitoring program commenced in February 1998, and McGregor Tan Research was commissioned at that time to undertake the actual count and to report regularly on the outcomes. This expanded program was continued throughout 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017 and is planned to continue.
- 1.4 The count was completed quarterly, with the exception of August 2002, carried out in February, May, August and November of each year until 2015. Since then, the data has been counted twice a year, in May and November.
- 1.5 During each Wave of the survey, litter counts are undertaken at 151 sites across South Australia. In conjunction with the national litter count, a review of all South Australian sites showed that 11 of the sites surveyed were disproportionately represented in the data. These original sites were found to be unusual in nature, and were replaced with 11 revised sites.
- 1.6 The data collection form utilised for the count was jointly developed by McGregor Tan Research and KESAB. A copy of this form is provided in Appendix 2.
- 1.7 In January 2003, Container Deposit Legislation (CDL) was extended to cover most beverages under 1 litre, such as juice cartons, fruit boxes, flavoured milk cartons, etc. As a result, a new method of analysing the data had to be adopted so that the changes to the CDL, and the effect on the total litter stream could be evaluated.

- 1.8 Prior to the August 2004 Litter Count, the data collection form was re-evaluated and re-designed to take into account the changes to the CDL and also to incorporate new categories for litter items that were previously coded as 'other' or in an inappropriate category. The changes that were made to the data collection form include:
- Plastic bags were separated into 3 types of litter:
 - Supermarket type lightweight shopping bags
 - Heavier glossy, typically branded carry bags
 - Sacks, sheeting and other bags
 - Bottle and can tops were moved and separated from the Miscellaneous Category into both 'plastic bottle top' and 'metal bottle and can tops'.
 - The following four litter types were also added to the Plastic Category:
 - Bread bag tags
 - Lollipop sticks
 - Spoons/ cutlery
 - Drink pouches
 - The Metal Cans category name was changed to Metal.
 - Foil take away was moved from Miscellaneous to Metal.
 - Cigarette butts were separated from the Miscellaneous Category.
 - Two extra items were added to the Paper/paperboard Category:
 - Paper bags
 - Shopper docket & related shopping paper
- 1.9 In previous waves, the data collection form separated each litter type into CDL and non-CDL categories. However, extended Container Deposit Legislation (CDL) has now meant that the litter categories alone (e.g. Flavoured milk, < 1 litre) can be used to establish whether or not beverage containers are covered under CDL or not.
- 1.10 In order to determine the effectiveness of the current CDL (as of January 2003,) and for comparative purposes, it was necessary to re-calculate the number of current CDL items from the waves prior to the extension. References to CDL items in Waves prior to Wave 17 (waves 1-16) therefore denote beverage containers that are currently covered by CDL – not the items that were covered by the legislation prior to this time.
- 1.11 During the Wave 29 Monitor estimates of the volumes for each litter item category were defined. The assignments of volume estimates to each litter item category were based on actual measurements of containers/ items, the condition that these items were most commonly found (which was based on the audits of at least three Waves), and the most common or average size of the items that were found within each

category.

- 1.12 The auditors were an important part of the volume formulation process, and they were able to record the number, size and type of different items within each category over a number of waves. Volumes ascribed to each item represented the average size for that category across all site types.
- 1.13 The final volume attributed to each litter item category furthermore took into account the fact that some items were often found crushed and weathered. For example, some drink cans and cartons are often crushed and/ or weathered when they are identified by the auditors and counted. The same volume measurements have been used for all subsequent Waves.
- 1.14 Two noteworthy events that have taken place since the beginning of this longitudinal study include:
- The deposit on drink containers was increased from 5 cents to 10 cents in September 2008.
 - The ban on thin plastic shopping bags came into effect in May 2009.
- 1.15 This document reports on Wave 77 of the longitudinal study. The litter count was conducted during May 2019. Section 2 of this report outlines the litter characteristics of the 151 sites, which include 11 revised sites (replacing 11 of the original 151). Appendix 1 contains charts tracking results back across all prior Monitors, and includes weighted results to facilitate meaningful comparison of results established at the 151 original sites with results derived from the 151 revised sites.

Section 2

Wave 77

Executive Summary

The following Executive Summary covers the findings of the May 2019 KESAB Litter Monitor (Wave 77). Where possible, results have been tracked against those derived from any previous Waves which incorporated revised sites. All 151 sites were counted during the May 2019 count.

Items Counted

A total of 6,918 litter items were counted across the 151 South Australian sites during Wave 77. This figure is lower than the previous monitor in November 2018 (7,270) and also below monitor conducted in May 2018 (7,504) at the same time last year.

Cigarette butts remained the main contributor (32%) to the litter count with 2,209 butts counted in Wave 77, down from (2,527) in November 2018 and down from Wave 75 (2,768) in May 2018 conducted at the same time in the previous year.

The overall decrease in number of items counted was most strongly demonstrated by several litter types in Wave 77, including:

- CIGARETTE BUTTS - Cigarette butts - 2,209 items, down from 2,527 items in Wave 76 (13 % decrease)
- PAPER/PAPERBOARD - Other paper (including tissues) – 1,005 items, down from 1,172 items in Wave 76 (14% decrease)
- PAPER/PAPERBOARD – Packages & boxes – 82 items, down from 151 items in Wave 76 (46% decrease)
- MISCELLANEOUS – clothing and materials – 68 items, down from 111 items in Wave 76 (39% decrease)
- PAPER/PAPERBOARD – Junk mail / free circulars – 45 items, down from 86 items in Wave 76 (48% decrease)
- PLASTIC – packaging & straps – 49 items, down from 83 items in wave 76 (41% decrease)
- MISCELLANEOUS – rubber pieces (not tyres) – 46 items, down from 75 items in Wave 76 (39% decrease)

Litter types that experienced larger increases in the number of items in Wave 77 included:

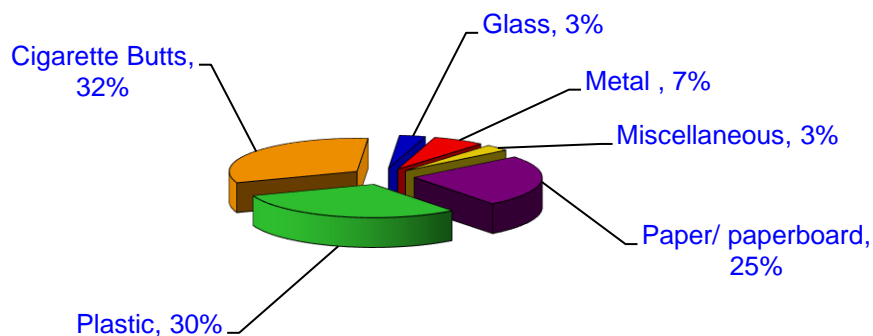
- PLASTIC – Take away & cups – 192 items, up from 104 items in wave 76 (85% increase)
- PLASTIC – Straws – 199 items, up from 142 items in Wave 76 (40% increase)
- METAL - Other foil – 125 items, up from 75 items in Wave 76 (67% increase)
- PLASTIC - Lollipop sticks – 89 items, up from 49 items in Wave 76 (82% increase)

- GLASS - Other glass – 156 items, up from 123 items in Wave 76 (27% increase)
- PAPER/PAPERBOARD - Cigarette packets – 85 items, up from 59 items in Wave 76 (44% increase)
- GLASS - Beer, all colours of glass, 750ml+ - 27 items, up from 2 items in Wave 76 (1250% increase)
- PAPER/PAPERBOARD - Cups/take away containers – 144 items, up from 119 items in Wave 76 (21% increase)
- PAPER/PAPERBOARD – Coffee cups – 114 items, up from 89 items in Wave 76 (28% increase)

Cigarette butts accounted for the largest proportion of all litter items counted (32%), down from 35% in Wave 76 and 37% in Wave 75 counted at the same time in the previous year. Other material types represented the following proportions of the litter items counted:

- Plastic items (30%, up from 27% in Wave 76)
- Paper/ paperboard (25%, down from 26% in Wave 76)
- Metal items (7%, up from 6% in Wave 76)
- Miscellaneous items (3%, down from 4% in Wave 76)
- Glass items (3%, up 2% in Wave 76)

Items as Proportions of Total by Material Type



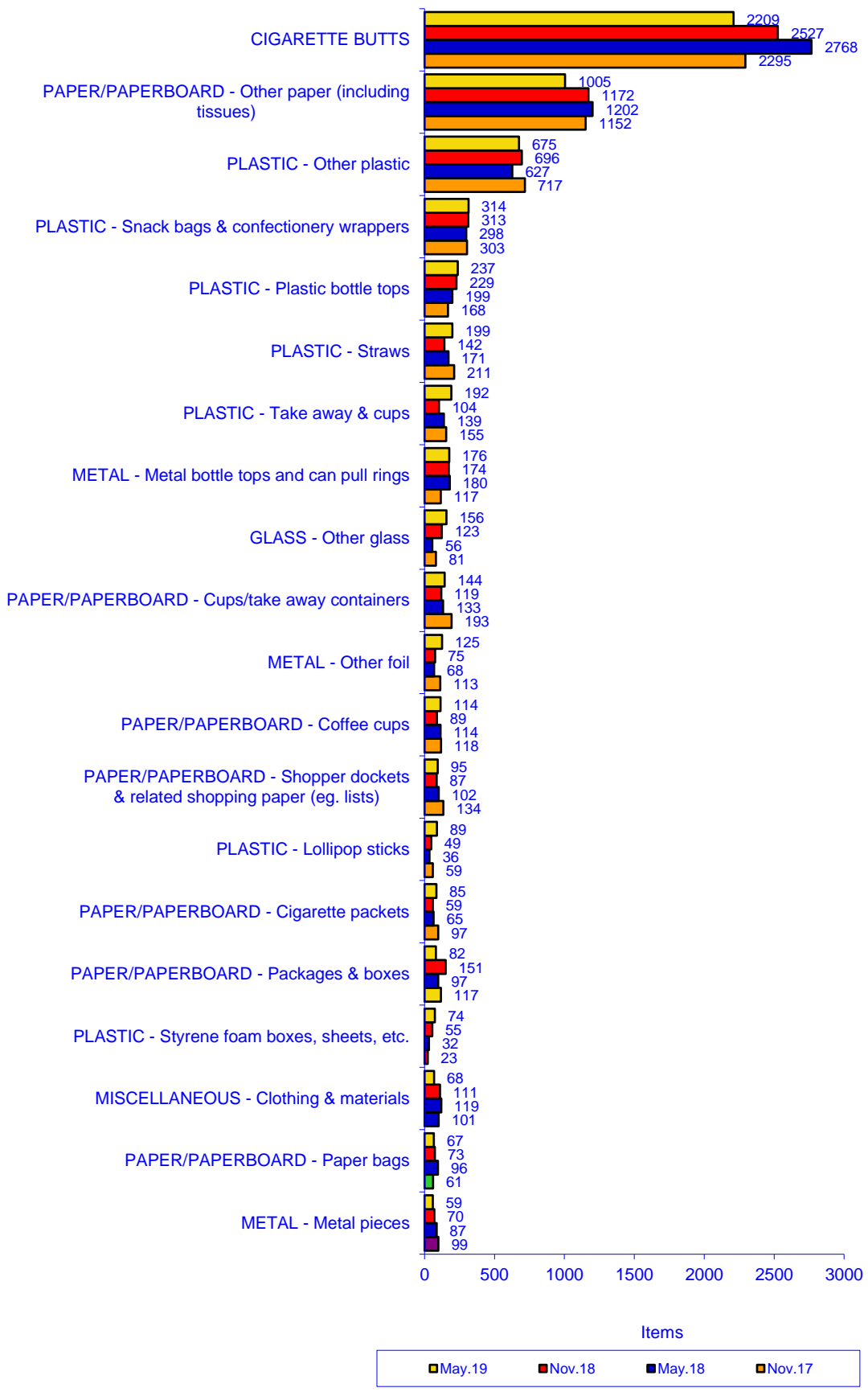
The top 20 ranking of litter type by number of items in Wave 77 was similar to the results for Wave 76, with new items entering the Top 20:

- PLASTIC – Lollipop sticks
- PAPER/PAPERBOARD – Cigarette packs
- PLASTIC – Styrene foam boxes, sheets etc.

With new entrants, there are always those items that exit from the top 20 item list, in Wave 77 these items were:

- PAPER/PAPERBOARD – Junk mail / free circulars
- PLASTIC – Packaging tape & straps
- MISCELLANEOUS - Rubber pieces (not tyres)

TOP 20 CATEGORIES - HIGHEST COUNTS



Litter Volume

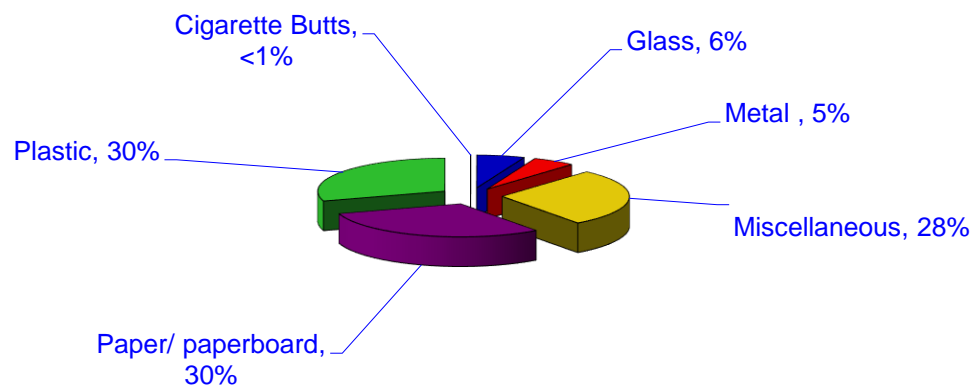
The total volume of litter recorded in May 2019 amounted to 0.810 cubic metres, lower than the estimated litter volume of November 2018 (0.930m³) and lower than May 2018 (1.120m³) conducted at the same time in the previous year.

The largest proportion of litter volume for Wave 77 was contributed by plastic items with 30% of the total estimated volume (up from 27% in Wave 76) and paper Items also with 30% of the total estimated volume (up from 25% in Wave 76)

Other material types represented the following proportions of the total volume of litter items counted:

- Miscellaneous items (30%, down from 39% in Wave 76).
- Metal (5%, unchanged from 5% in Wave 76)
- Glass (6%, up from 3% in Wave 76)
- Cigarette butts (<1%, unchanged from Wave 76)

Litter Volume as a Proportion of Total Volume



MISCELLANEOUS - Illegal dumping accounted for the highest volume of litter in Wave 77, with an estimated volume of 0.216m³ (down from 0.336m³ in Wave 76). Other items associated with large estimated litter volumes in Wave 77 included:

- PLASTIC - Containers, domestic type - 0.125m³ (down from 0.158m³ in Wave 76)
- PAPER/PAPERBOARD - Cups/take away containers - 0.105m³ (up from 0.087m³ in Wave 76)
- PAPER/PAPERBOARD – Coffee cups - 0.056m³ (up from 0.044m³ in Wave 74)
- PLASTIC – Take away & cups - 0.040m³ (up from 0.022m³ in Wave 76)
- PAPER/PAPERBOARD – Newspapers & magazines - 0.030m³ (down from 0.045m³ in Wave 76)
- GLASS - Beer, all colours of glass, 750ml+ - 0.024m³ (up from 0.002m³ in Wave 746)
- PAPER/PAPERBOARD – Cigarette packets - 0.019m³ (up from 0.013m³ in Wave 76)
- PLASTIC – Plain water (carbonated or non- carbonated) < 1 litre - 0.016m³ (up from 0.014m³ in Wave 76)
- METAL – Flavoured water / soft drink (carbonated), all sizes - 0.014m³ (unchanged from 0.014m³ in Wave 76)

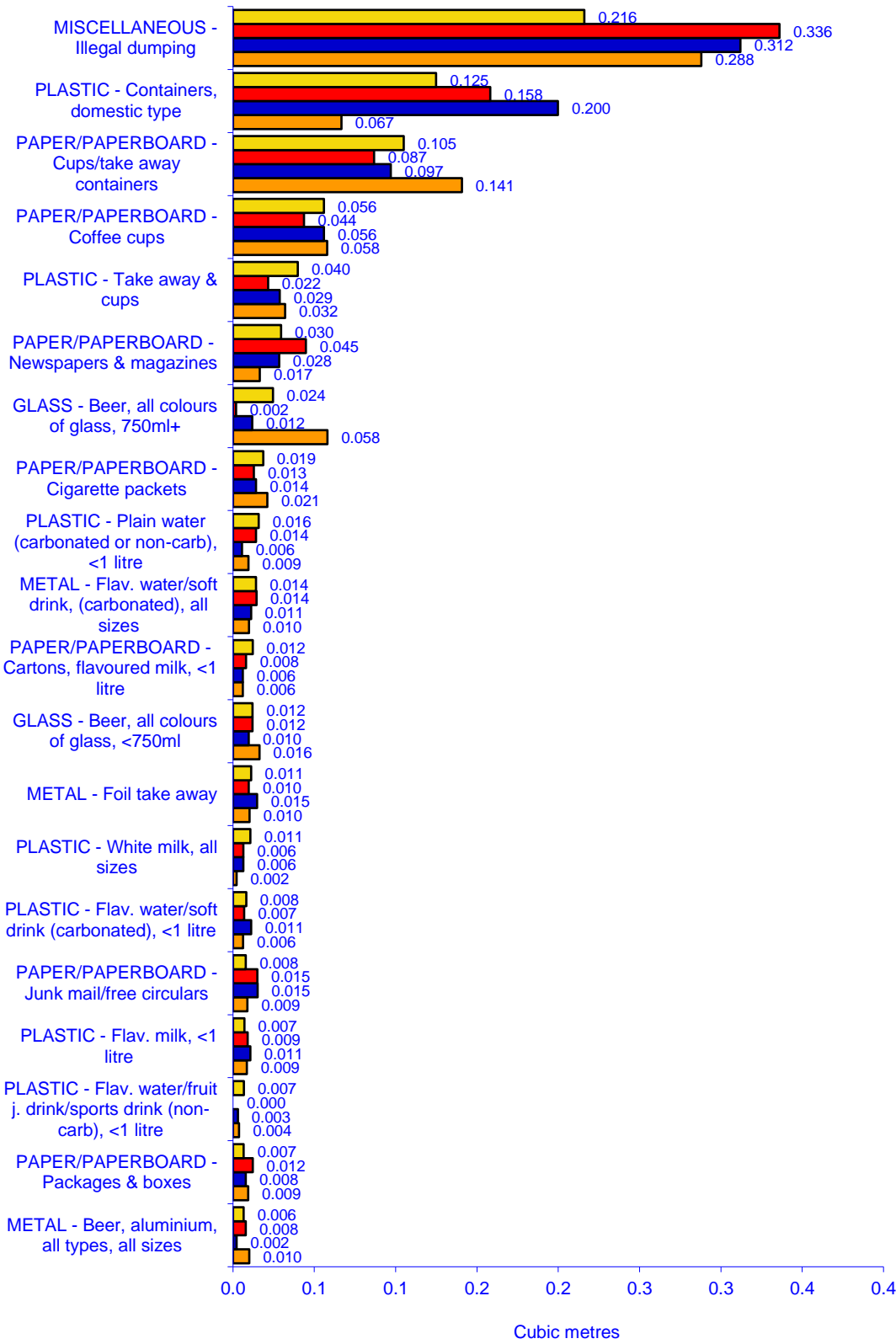
The top 20 ranking of litter items by volume in Wave 77 was similar to the results for Wave 76, with 4 new items entering the Top 20. These items were:

- GLASS - Beer, all colours of glass, 750ml+
- PLASTIC – Flav. water/soft drink (non-carbonated), <1 litre
- PLASTIC – White milk, all sizes
- PAPER/PAPERBOARD – Packages & boxes

With new entrants, there are always those items that exit from the top 20 volume list, in Wave 77 the following items were removed:

- PLASTIC – Flav. water/soft drink (non-carbonated), 1 litre +
- PLASTIC – Fruit juice, 1 litre +
- Metal – Alcoholic sodas & spirit based mixers
- Metal – Industrial cans – all types

TOP 20 CATEGORIES - LARGEST VOLUMES

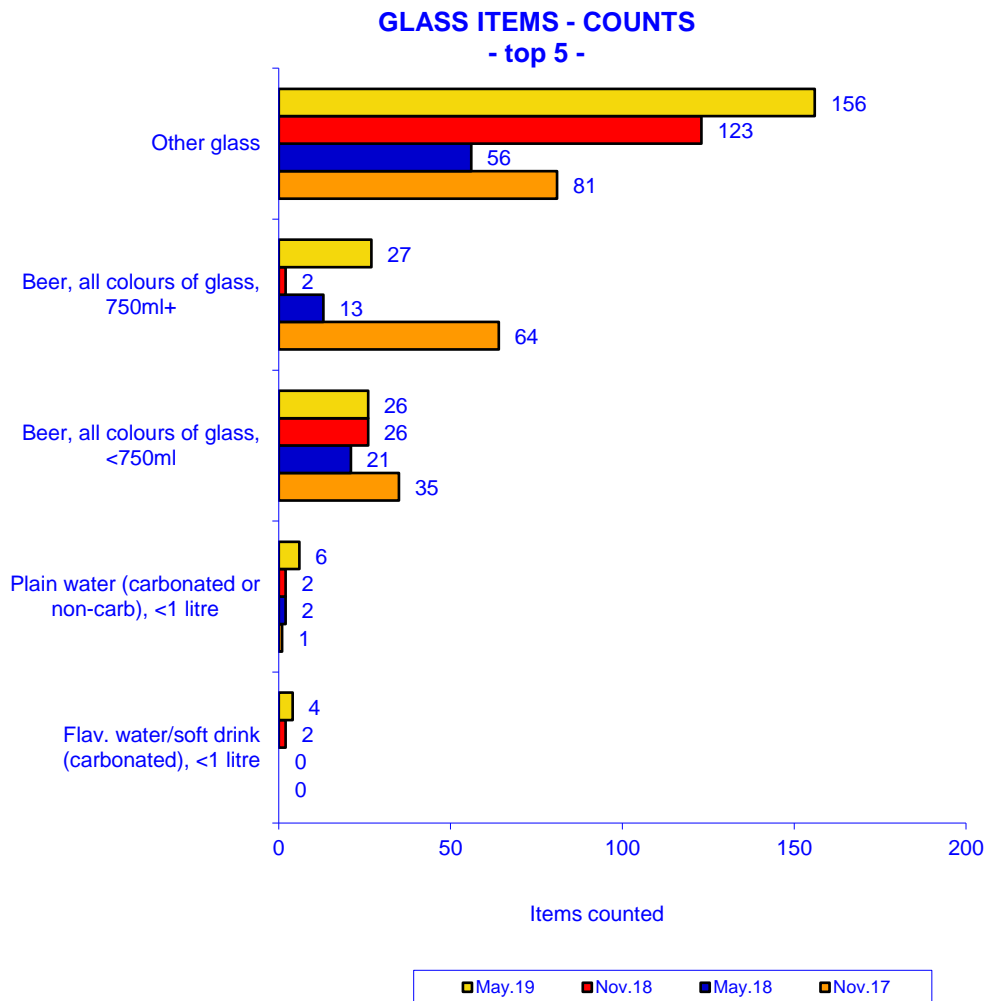


3.1 Glass

Items

A total of 227 glass litter items (up from 172 items in Wave 76) were counted during Wave 77. The most frequently recorded glass items included:

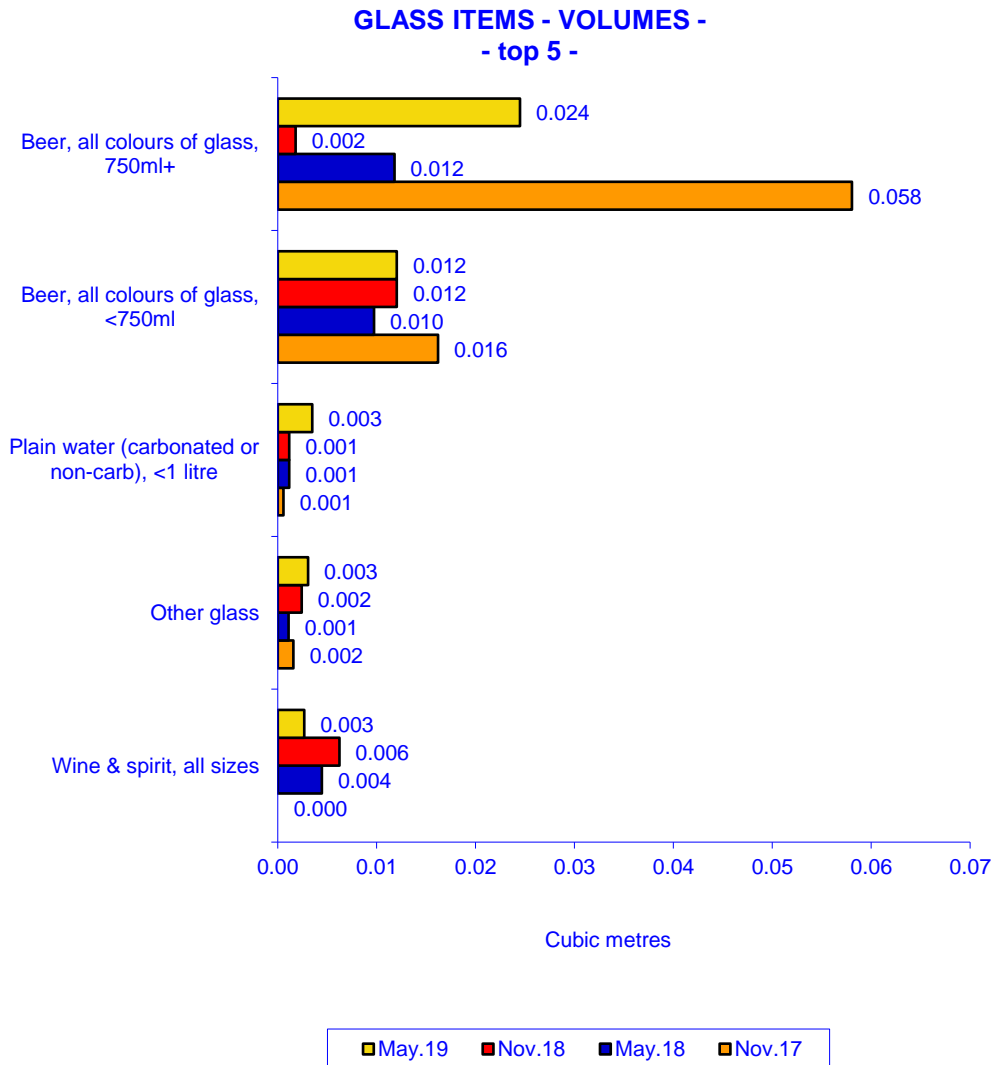
- Other glass (156 items, up from 123 items in Wave 76)
- Beer, all colours of glass 750ml+ (27 items, up from 2 items in Wave 76)
- Beer, all colours of glass <750ml (26 items, unchanged from 26 items in Wave 76)
- Plain water (carbonated or non-carbonated) (6 items, up from 2 items in Wave 76)
- Flavoured water/ soft drink (carbonated), < 1 litre (4 items, up from 2 item in Wave 76)



Volume

Glass litter items accounted for 0.049m³ (from 0.031m³ in Wave 76) in estimated litter volume during Wave 77. Glass items which contributed the largest volumes to the total included:

- Beer, all colours of glass 750ml+ (0.024m³, down from 0.002m³ in Wave 76)
- Beer, all colours of glass <750ml (0.012m³, unchanged from 0.012m³ in Wave 76)
- Plain water (carb or non-carb), <1 litre (0.003m³, up from 0.001m³ in Wave 76)
- Other glass (0.003m³, down from 0.002m³ in Wave 76)
- Wine & spirit, all sizes (0.003m³, down from 0.006m³ in Wave 76)

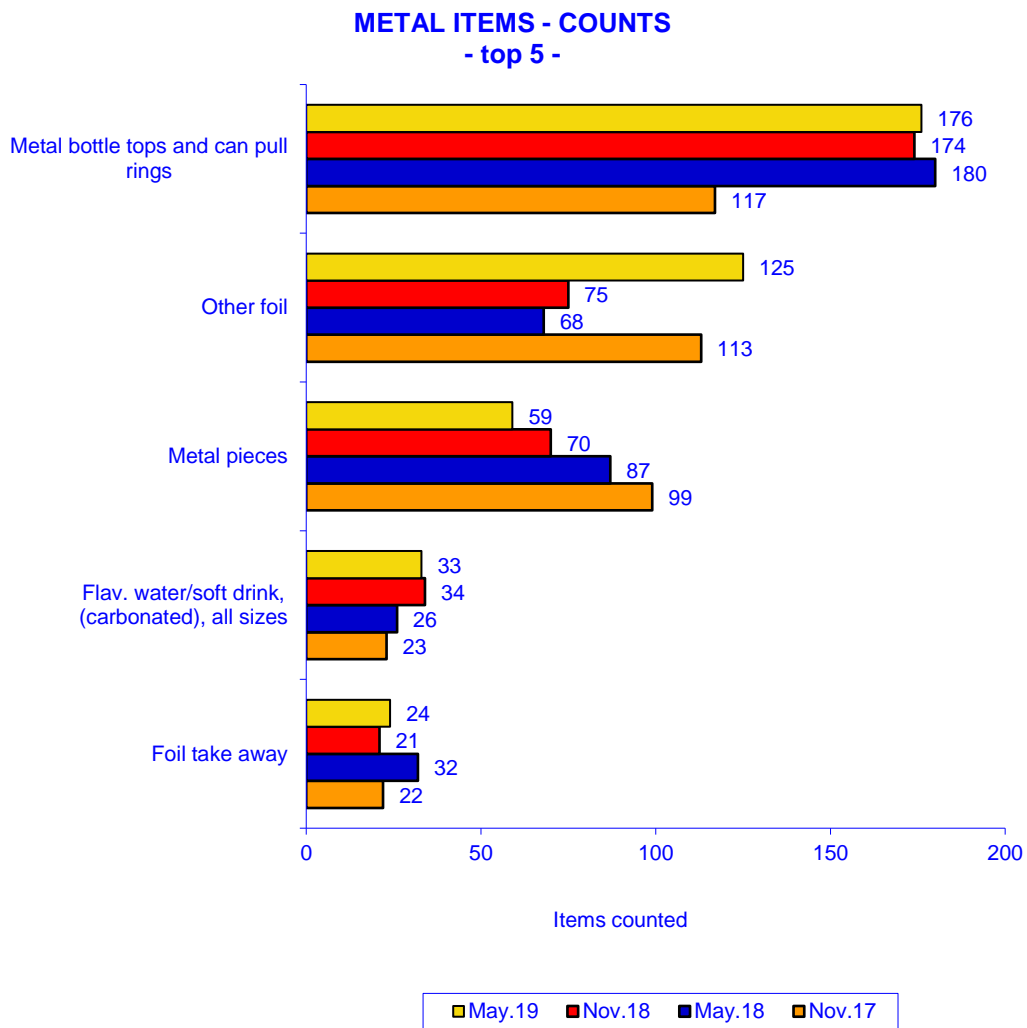


3.2 Metal

Items

A total of 455 metal litter items (up from 419 items in Wave 76) were counted during Wave 77. The most frequently counted metal litter items included:

- Metal bottle tops and can pull rings (176 items, up from 174 items in Wave 76)
- Other foil (125 items, up from 75 items in Wave 76)
- Metal pieces (59 items, down from 70 items in Wave 76)
- Flavoured water/soft drink (carbonated), all sizes (33 items, down from 34 items in Wave 76)
- Foil take away (24 items, up from 21 items in Wave 76)

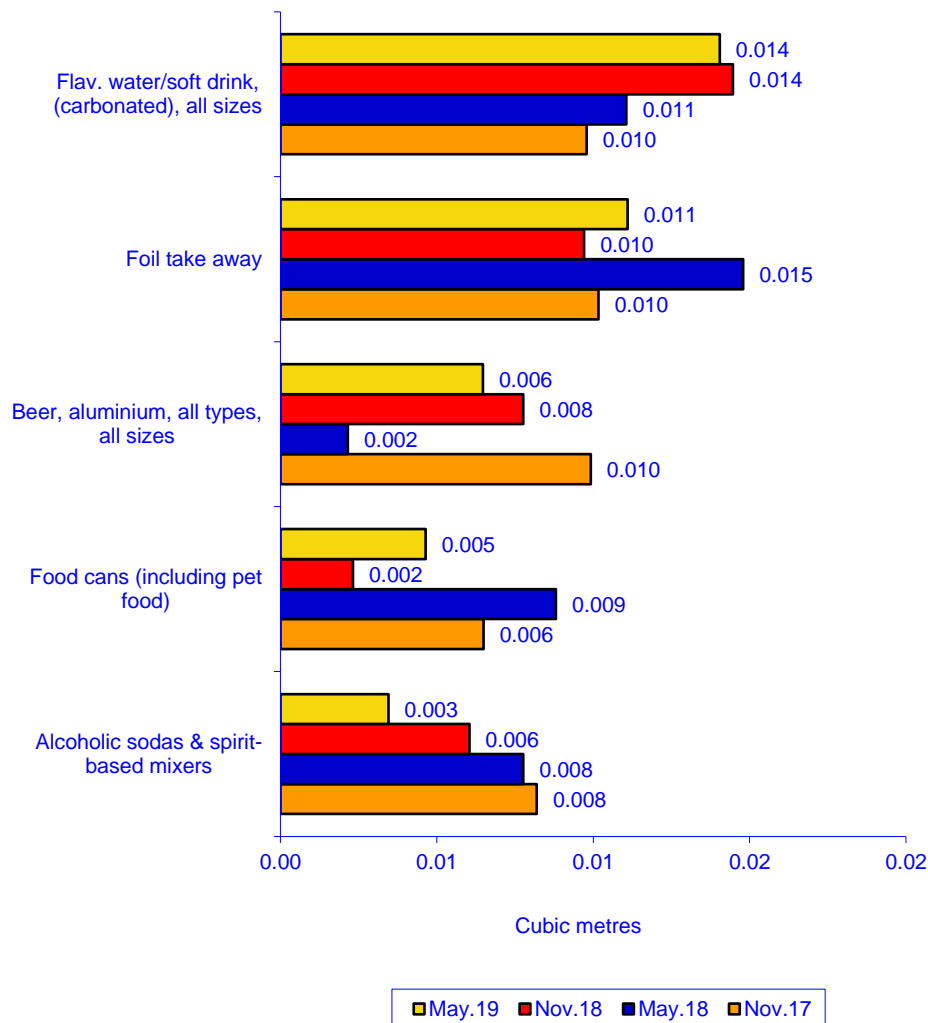


Volume

Metal litter items accounted for a total estimated litter volume of 0.044m³ (down from 0.050m³ in Wave 75). The metal items associated with the largest estimated volumes of litter during Wave 77 included:

- Flavoured water/soft drink (carbonated), all sizes (0.014m³, unchanged from 0.014m³ in Wave 76)
- Foil take away (0.011m³, up from 0.010m³ in Wave 76)
- Beer, aluminium, all types, all sizes (0.006m³, down from 0.008m³ in Wave 76)
- Food cans (including pet food) (0.005m³, up from 0.002m³ in Wave 76)
- Alcoholic sodas & spirit-based mixers (0.003m³, down from 0.006m³ in Wave 76)

**METAL ITEMS - VOLUMES
- top 5**

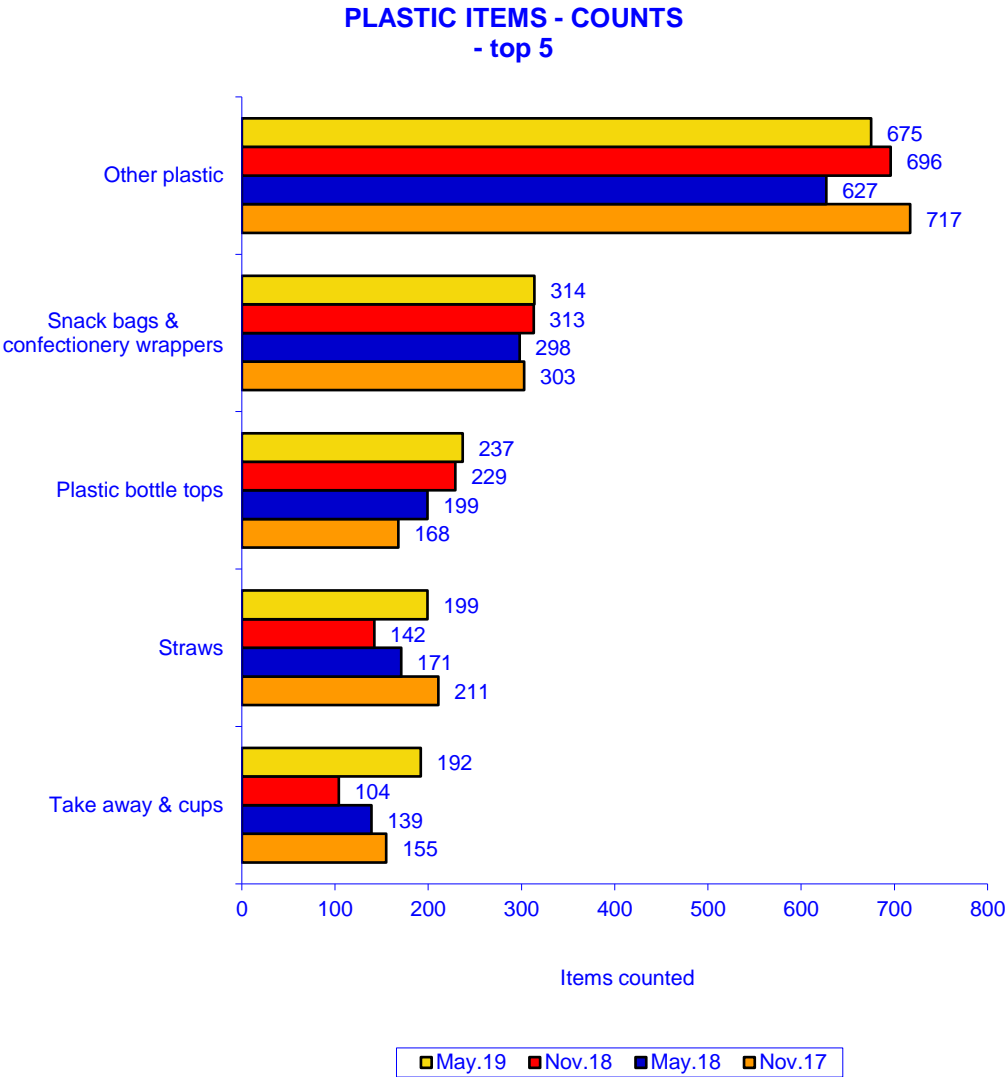


3.3 Plastic

Items

A total of 1,655 plastic litter items (down from 1,936 items in Wave 76) were counted during Wave 77. The most frequently counted plastic litter items included:

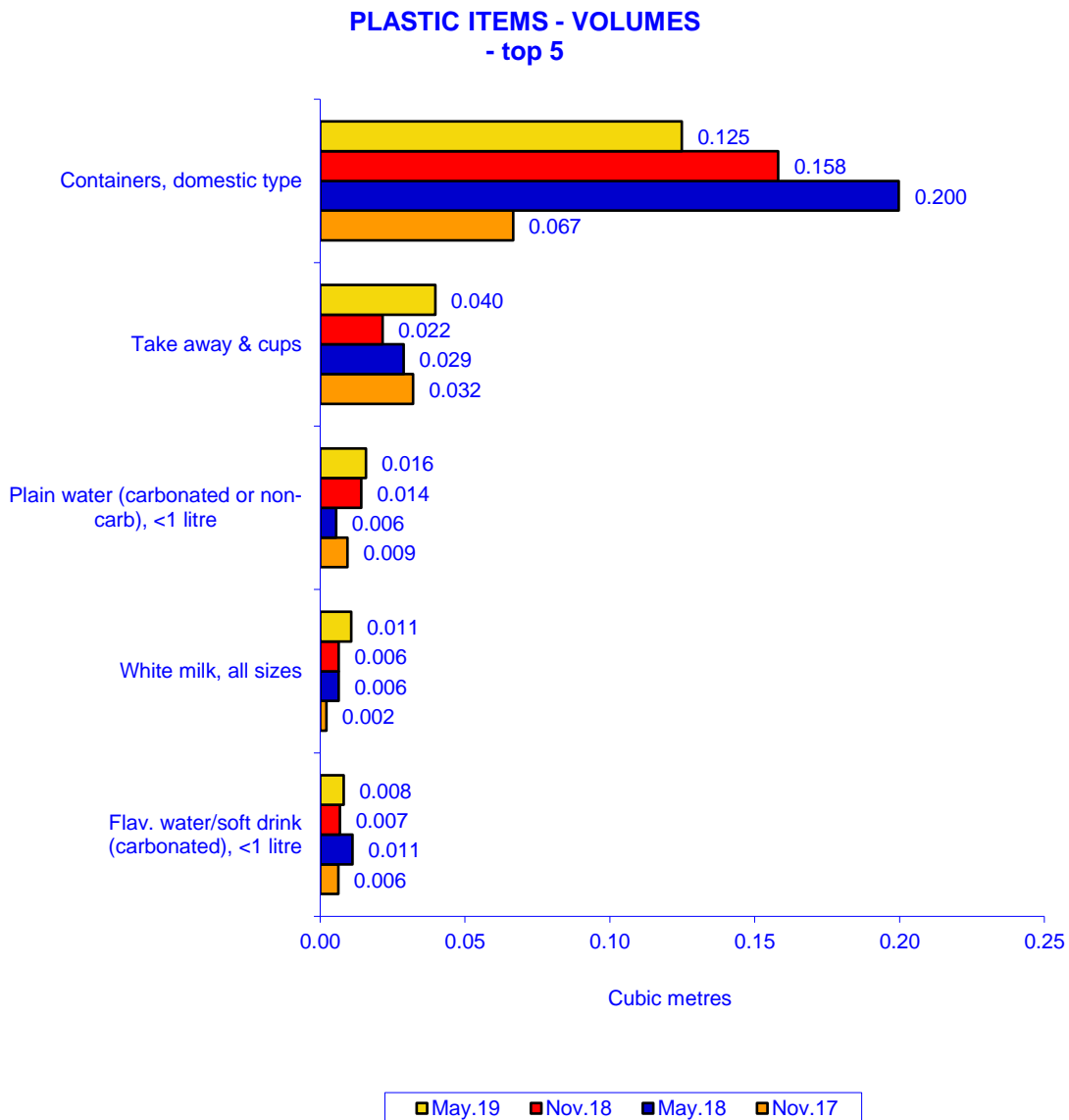
- Other plastic (675 items, down from 696 items in Wave 76)
- Snack bags & confectionery wrappers (314 items, up from 313 items in Wave 76)
- Plastic bottle tops (237 items, up from 229 items in Wave 76)
- Straws (199 items, up from 142 items in Wave 76)
- Take away & cups (192 items, up from 104 items in Wave 76)



Volume

Plastic items were associated with an estimated litter volume of 0.242m³ (down from 0.256m³ in Wave 76). Items which represented the largest volumes within the Wave 77 litter count included:

- Containers, domestic type (0.125m³, down from 0.158m³ in Wave 76)
- Take away & cups (0.040m³, up from 0.022m³ in Wave 76)
- Plain water carbonated or non-carbonated, < 1 litre (0.016m³, up from 0.014m³ in Wave 76)
- White milk, all sizes (0.011m³, up from 0.006m³ in Wave 76)
- Flav. water/soft drink (carbonated), <1 litre (0.008m³, up from 0.007m³ in Wave 76)



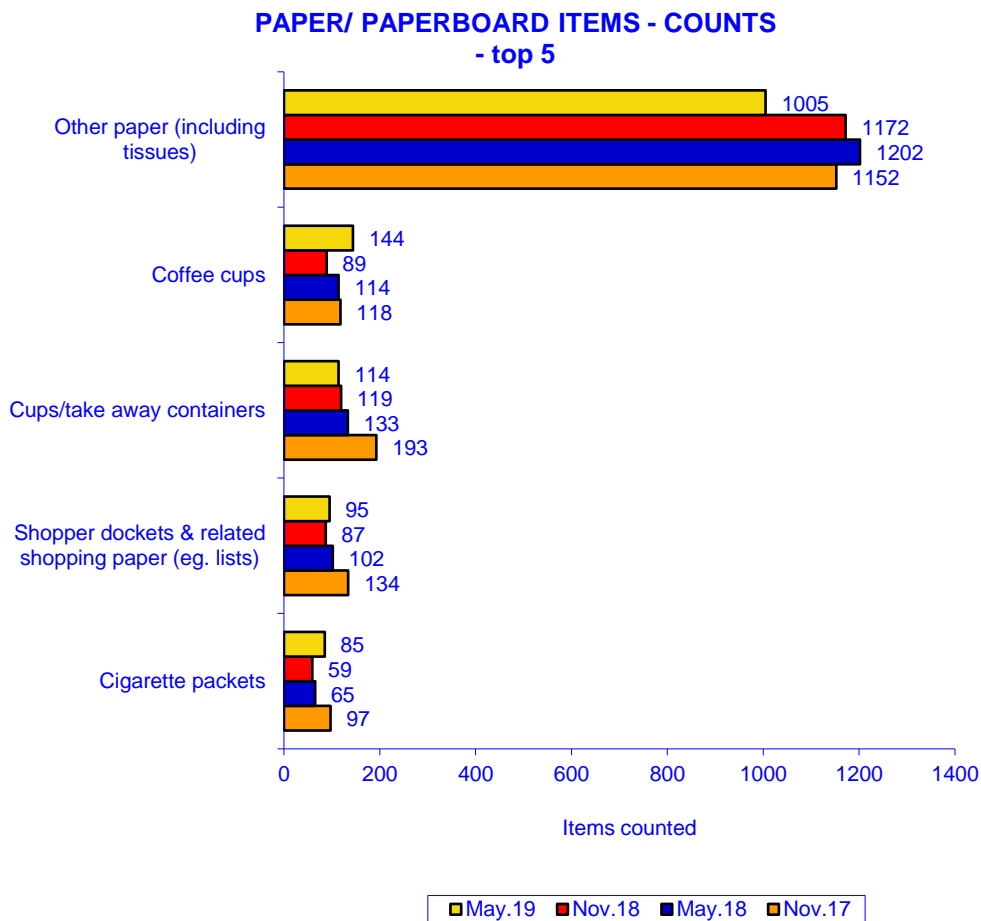
3.4 Paper/ Paperboard

Items

A total of 1,743 paper/paperboard litter items (down from 1,925 items in Wave 77) were recorded during Wave 76.

The most frequently identified items within this material type were:

- Other paper – including tissues (1,005 items, down from 1,172 items in Wave 76)
- Coffee cups (144 items, up from 89 items in Wave 76)
- Cups/ take away containers (114 items, up from 89 items in Wave 76)
- Shopper docket & related shopping paper (e.g. lists) (98 items, up from 87 items in Wave 76)
- Cigarette packets (85 items, up from 59 items in Wave 76)



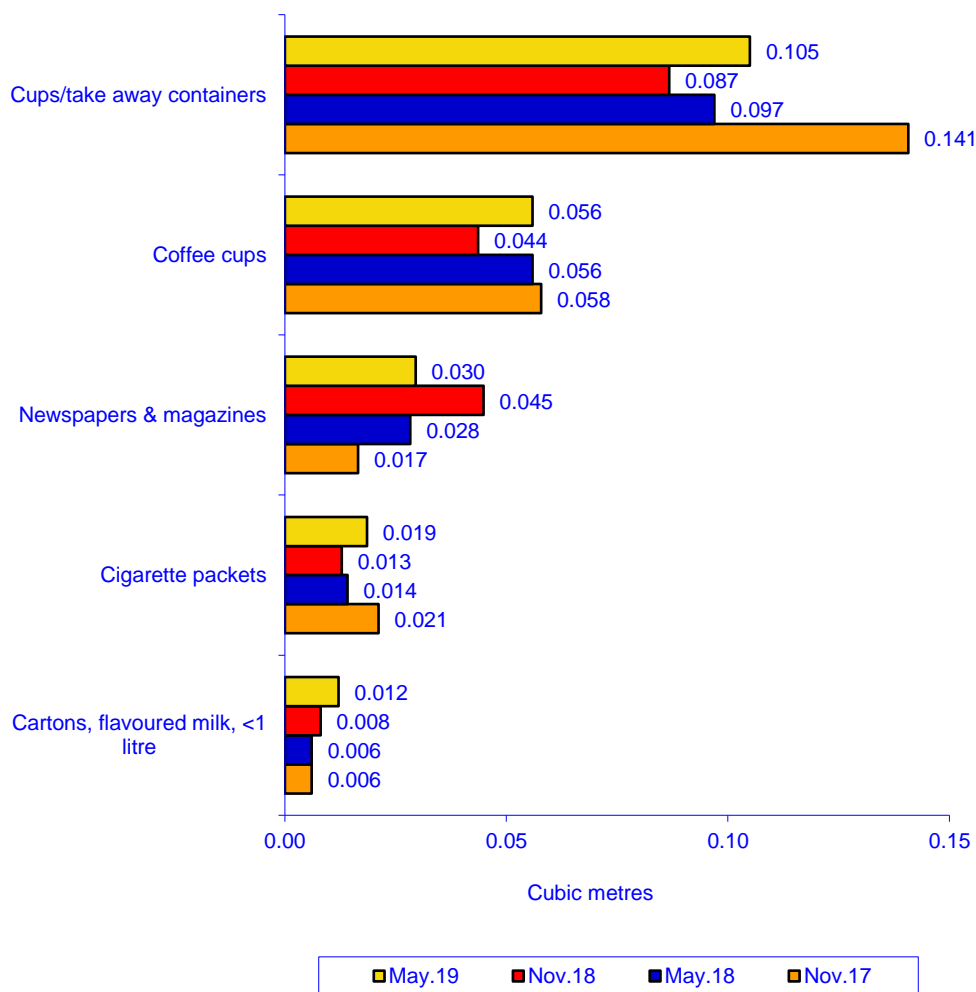
Volume

Paper/ Paperboard items accounted for 0.245m³ in estimated litter volume (up from 0.235m³ in Wave 77) in May 2019.

Paper/ paperboard items which contributed the largest volumes to the total included:

- Cups/take away containers (0.105m³, down from 0.087m³ in Wave 76)
- Coffee cups (0.056m³, up from 0.044m³ in Wave 76)
- Newspapers & magazines (0.030m³, down from 0.045m³ in Wave 76)
- Cigarette packets (0.019m³, up from 0.013m³ in Wave 76)
- Cartons, flavoured milk, < 1 litre (0.012m³, up from 0.008m³ in Wave 76)

PAPER/ PAPERBOARD ITEMS - VOLUMES - top 5



3.5 Miscellaneous

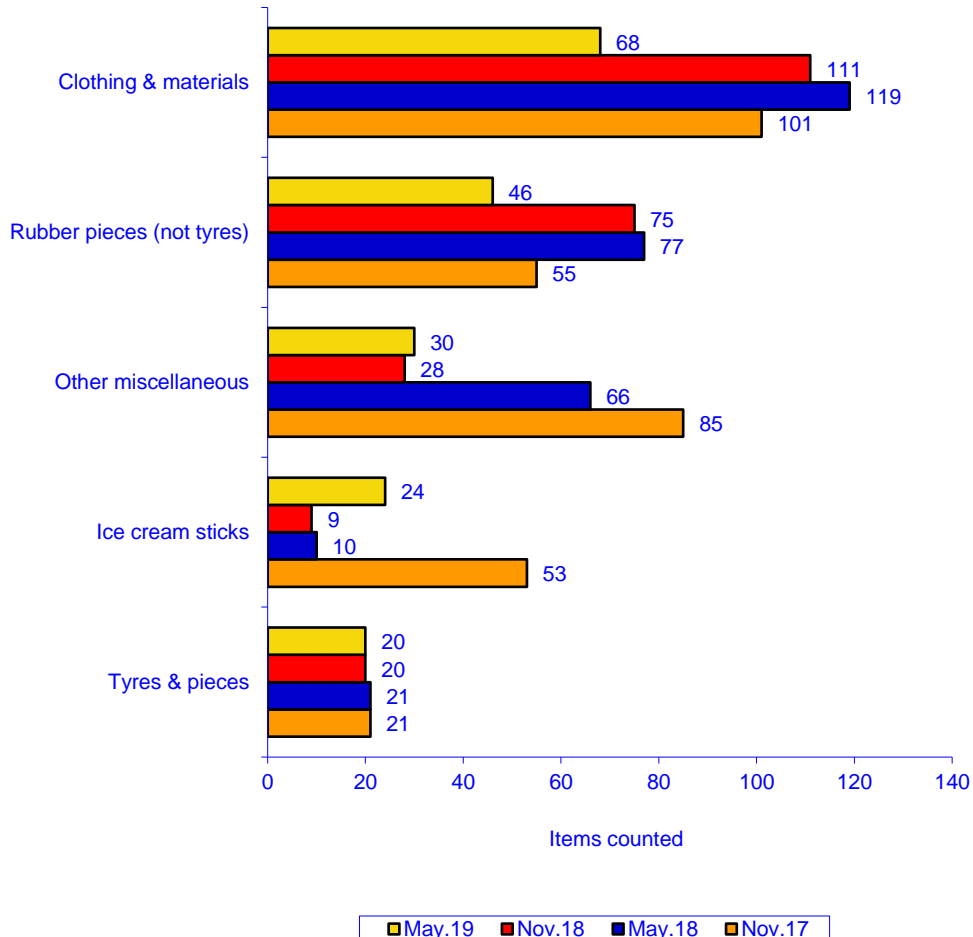
Items

A total of 215 miscellaneous items (down from 291 items in Wave 76) were counted during Wave 77.

The most frequently recorded items included:

- Clothing & materials (68 items, down from 111 items in Wave 76)
- Rubber pieces – not tyres (46 items, down from 75 items in Wave 76)
Rubber pieces in this category include vehicle rubber mouldings, hose pipes and tubing, bicycle handle bar grips and casings, pram mouldings and strips.
- Other miscellaneous (30 items, up from 28 items in Wave 76)
- Ice cream sticks (24 items, up from 9 items in Wave 76)
- Tyres & pieces (20 items, unchanged from 20 items in Wave 76)

MISCELLANEOUS ITEMS - COUNTS
- top 5



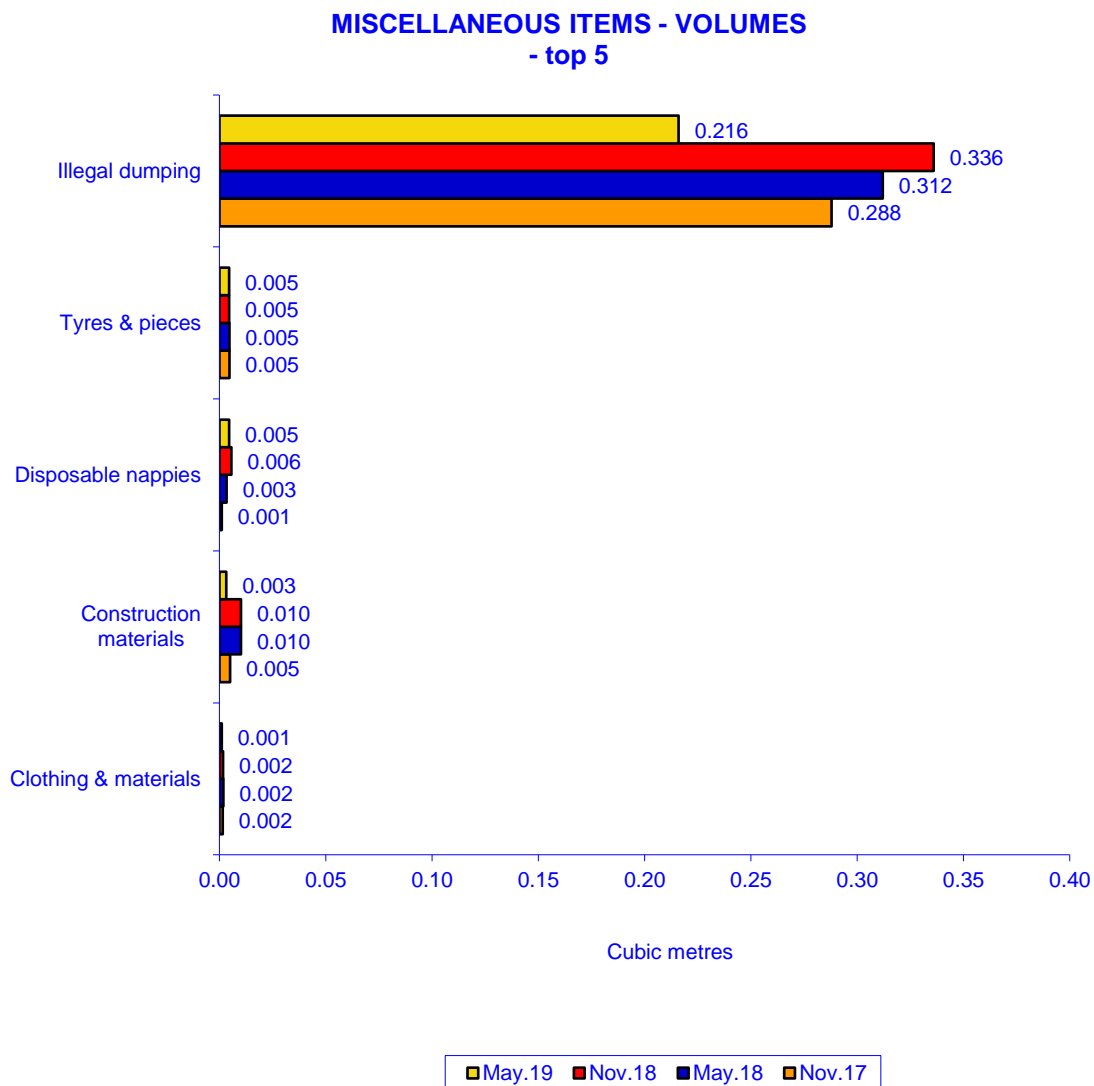
Volume

Miscellaneous litter was associated with an estimated litter volume of 0.230m³ (down from 0.358m³ in Wave 76) during Wave 77.

Illegal dumping remained the major contributor to the total volume of miscellaneous items, with an estimated total volume of 0.216m³ (up from 0.336m³ in Wave 76).

Other miscellaneous items which contributed to the litter stream volume included:

- Tyres & pieces (0.005m³, unchanged from 0.005m³ in Wave 76)
- Disposable nappies (0.005m³, down from 0.006m³ in Wave 76)
- Construction materials (0.013m³, up from 0.010m³ in Wave 76)
- Clothing and materials (0.001m³, down from 0.002m³ in Wave 74)



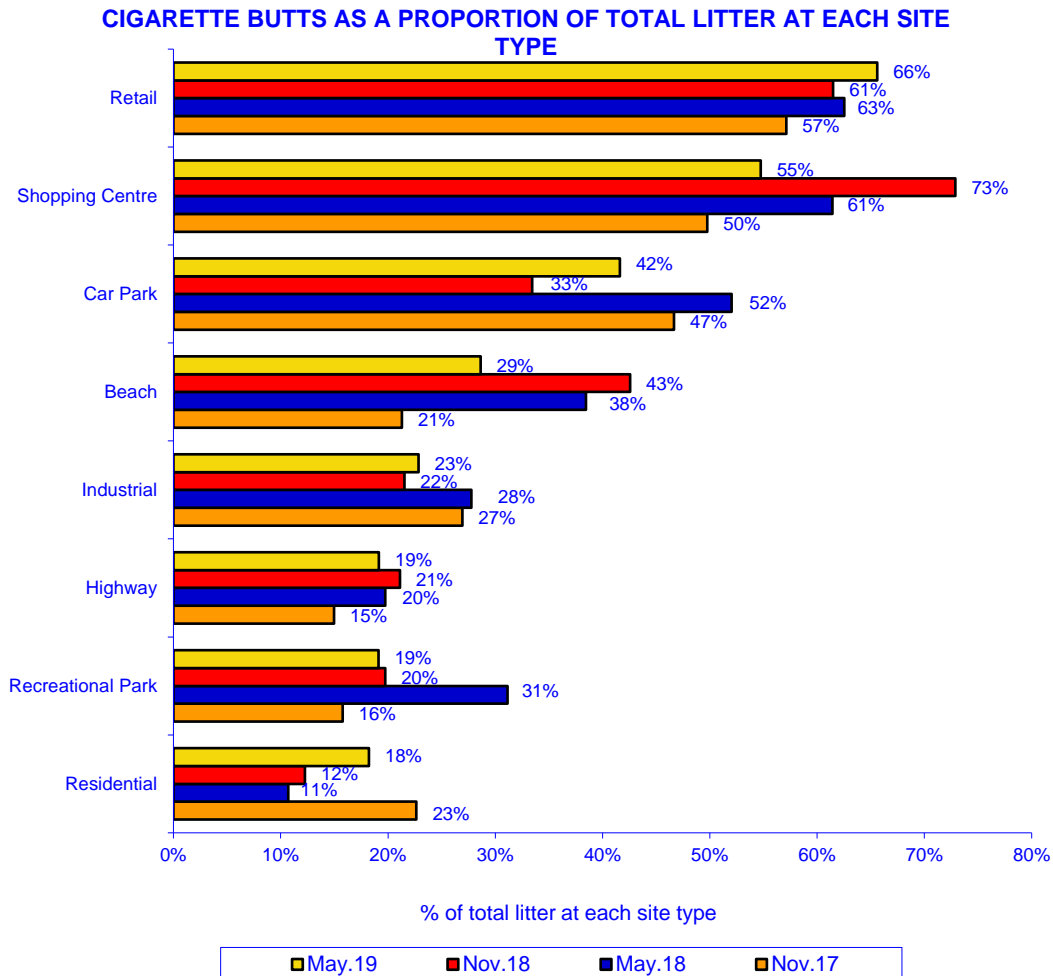
3.6 Cigarette Butts

Items

The total number of cigarette butts recorded during Wave 77 was 2,209, down from 2,527 in Wave 76 and also 2,768 in Wave 75 at the same time the previous year.

The proportion of cigarette butts against the total number of litter items was highest at retail sites (66%, up from 61% in Wave 76), and shopping centres (55%, down from 73% in Wave 76). Cigarette butts also contributed the following proportions of total litter at the following site types:

- Car parks (42%, up from 33% in Wave 76)
- Beaches (29%, down from 43% in Wave 76)
- Industrial sites (23%, up from 22% in Wave 76)
- Highway sites (19%, down from 21% in Wave 76)
- Recreational parks (19%, down from 20% in Wave 76)
- Residential sites (18%, up from 12% in Wave 76)



Volume

Despite cigarette butts being the most numerous type of litter item, they accounted for less than 1% of the total volume of litter recorded during the current Wave.

3.7 Dispersion of Litter by Site Type

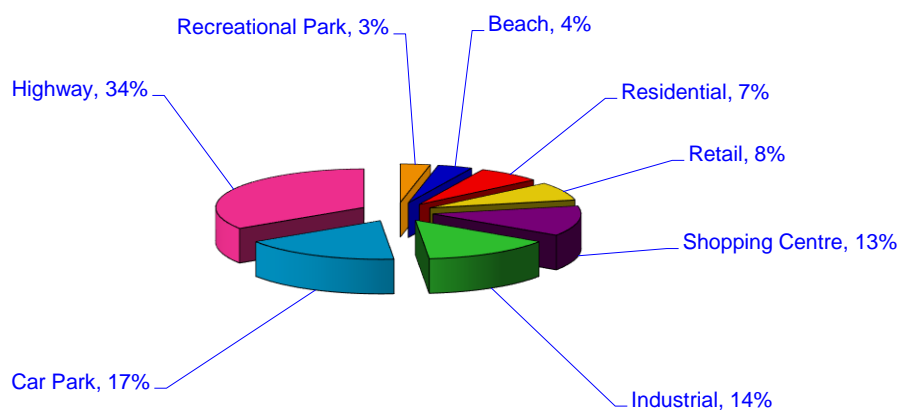
Items

Highways remained the most significant contributor to the total number of litter items counted in May 2019 with 34% (up from 33% in Wave 76) of the total litter items counted at highway locations.

Other sites contributed the following proportions of the total number of litter items counted during Wave 75:

- Shopping Centre (13%, down from 15% in Wave 76)
- Car Park (17%, up from 14% in Wave 76)
- Industrial (14%, unchanged from 14% in Wave 76)
- Retail (8%, up from 10% in from Wave 76)
- Residential (7%, unchanged from 7% in Wave 76)
- Beach (4%, up from 3% from Wave 76)
- Recreational Park (3%, down from 4% in Wave 76)

PROPORTION OF TOTAL LITTER ITEMS COUNTED WITHIN SITE TYPE



A comparison of the proportions of litter items found at each site type revealed that highway locations and shopping centres contributed large amounts to the total number of litter items in the May Monitor, based on the proportion of the number of these sites as outlined below:

- Highway sites represented only 18% of the total number of sites surveyed and contributed 34% (up from 33% in Wave 76) of the total litter items counted in Wave 77.
- Shopping centres - incorporated 9% of the sites surveyed and contributed 13% (down from 15% in Wave 76) of the litter items counted in Wave 77.

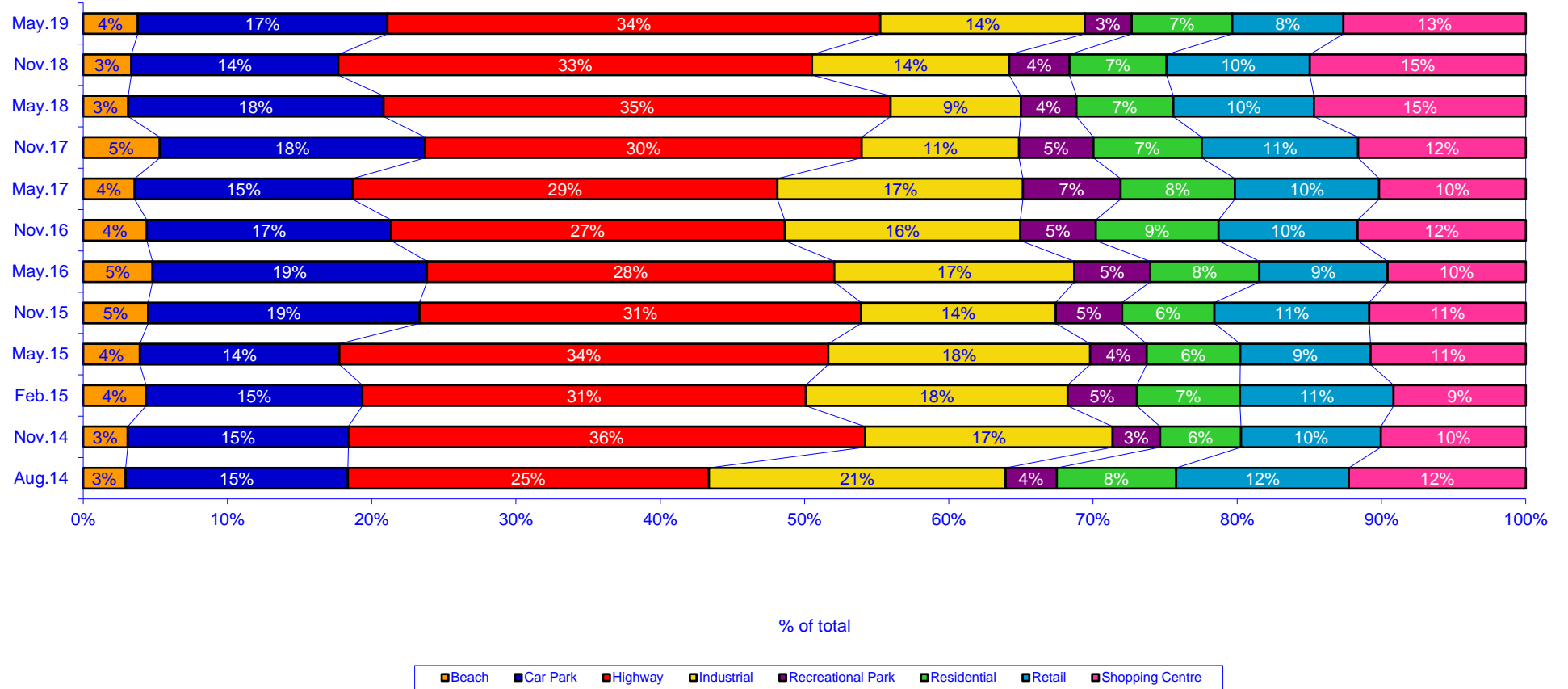
Conversely, residential locations and beaches contributed smaller proportions of litter items to the total litter count than anticipated based upon the proportion of these sites within the overall sample of locations as detailed below:

- Residential areas incorporated 17% of the sites surveyed but contributed only 7% (unchanged from 7% in Wave 76) of the litter items counted in Wave 77.
- Beaches represented 11% of the sites surveyed but contributed only 4% (up from 3% in Wave 76) of the litter counted in Wave 77.

The remaining sites contributed around the expected proportions of litter based on the proportion of these sites among the overall number of sites counted during May 2018, the proportions were:

- Car parks incorporated 15% of the sites surveyed and contributed 17% (up from 14% in Wave 76) of the litter items counted in Wave 77.
- Industrial sites incorporated 11% of the sites surveyed and contributed 14% (unchanged from 14% in Wave 76) of the total litter items counted in Wave 77.
- Retail areas - incorporated 10% of the sites surveyed and contributed 8% (down from 10% in Wave 76) of the litter items counted in Wave 77.
- Recreational Parks represented 9% of sites surveyed and contributed 3% (down from 4% in Wave 76) of the litter counted in Wave 77.

PROPORTION OF TOTAL LITTER ITEMS COUNTED WITHIN SITE TYPE
- tracking -

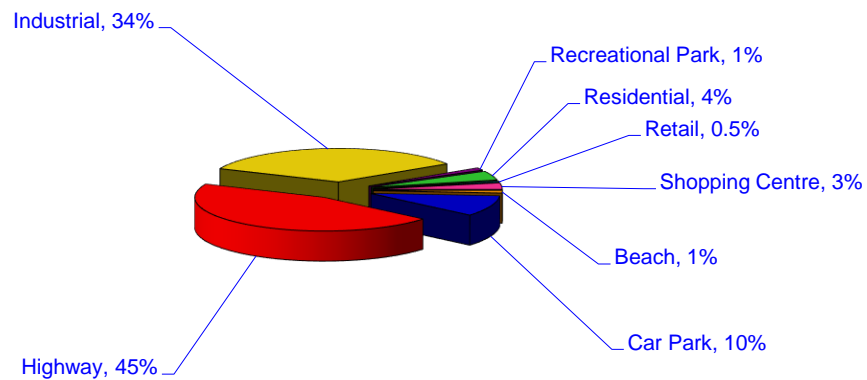


Volume

Just under half (45%, up from 43% in Wave 76) of the total volume of litter estimated during Wave 77 was associated with litter items in highway locations, while one third (34%, unchanged from 34% in Wave 76) was associated with litter items in industrial sites.

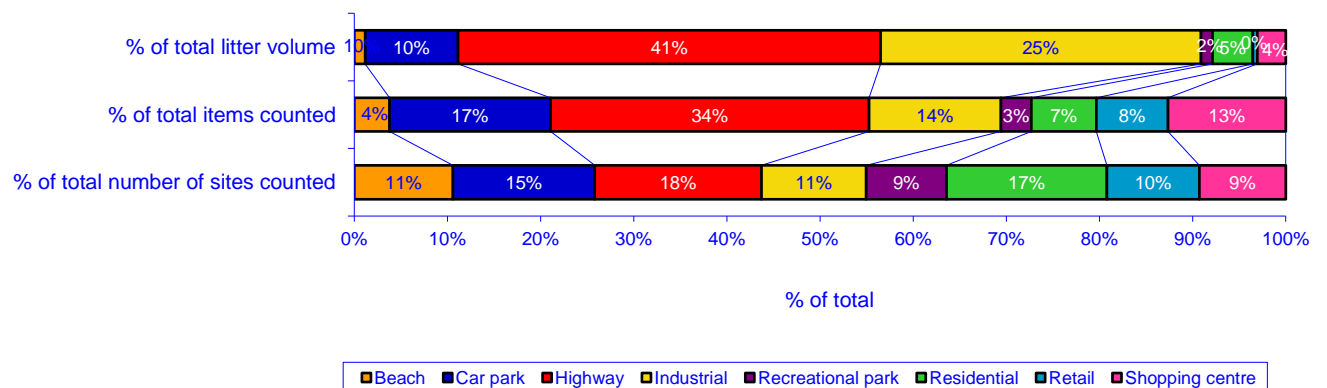
Lower volumes of litter were contributed to the total litter volume by car park sites (10%, up from 5% in Wave 76), residential sites (4%, down from 11% in Wave 76), retail sites (0.5%, down from 2% in Wave 76), recreational park sites (1%, unchanged from 1% in Wave 76), shopping centres (3%, up from 2% in Wave 76) and beaches (1%, down from 2% in Wave 76) during Wave 77.

PROPORTION OF TOTAL LITTER VOLUME BY SITE TYPE



A comparison of the litter volume, number of litter items and proportion of sites represented within location types shows that highway locations contributed a larger number and volume of litter items than would be expected given their representations within the sample.

NUMBER AND VOLUME OF LITTER BY SITE TYPE AS PROPORTIONS OF TOTALS



3.8 CDL Beverage Containers

The majority (97%, unchanged from 97% in Wave 76) of litter items counted in May 2019 were non-beverage items.

The total number of CDL beverage containers counted was 218 items, up from 197 items in Wave 76.

CDL beverage containers accounted for 94% (up from 90% in Wave 76) of all beverage containers counted during Wave 77.

Data Summary - Items

KESAB - Litter Strategy Monitoring Wave 77 - May 2019			Items										
			BEACH	CAR PARK	HIGHWAY	INDUSTRIAL	RECREATIONAL PARK	RESIDENTIAL	RETAIL	SHOPPING CENTRE	METROPOLITAN	REGIONAL	TOTAL ITEMS
CIGARETTE BUTTS		NBEV	75	498	453	224	43	88	349	479	1745	464	2209
GLASS	Alcoholic sodas/spirit-based mixers, all sizes	CDL	0	0	4	0	0	0	0	0	0	4	4
	Beer, all colours of glass, <750ml	CDL	2	3	13	4	0	2	0	2	14	12	26
	Beer, all colours of glass, 750ml+	CDL	0	0	10	15	0	2	0	0	0	27	27
	Cider/fruit based etc.	CDL											0
	Flav. water/fruit j. drink/sports drink (non-carb), <1 litre	CDL											0
	Flav. water/fruit j. drink/sports drink (non-carb), 1 litre+	CDL											0
	Flav. water/soft drink (carbonated), <1 litre	CDL	0	0	3	0	0	1	0	0	2	2	4
	Flav. water/soft drink (carbonated), 1 litre+	CDL											0
	Fruit juice, <1 litre	CDL	0	1	0	0	0	0	0	0	1	0	1
	Fruit juice, 1 litre+	BEV											0
	Other glass	NBEV	1	25	79	30	1	15	4	1	128	28	156
	Plain water (carbonated or non-carb), <1 litre	CDL	0	0	0	0	0	0	0	6	0	6	6
	Plain water (carbonated or non-carb), 1 litre+	CDL											0
	Wine & spirit, all sizes	BEV	0	0	1	2	0	0	0	0	3	0	3
Wine cooler, all sizes	CDL											0	
TOTAL			3	29	110	51	1	20	4	9	148	79	227
METAL	Aerosols - pressure packs	NBEV	0	0	2	0	0	0	0	1	3	0	3
	Alcoholic sodas & spirit-based mixers	CDL	1	0	6	1	0	0	0	0	6	2	8
	Beer, aluminium, all types, all sizes	CDL	0	0	9	3	2	0	0	1	3	12	15
	Cider/fruit based etc.	CDL	0	0	2	0	0	0	0	0	1	1	2
	Flav. water/soft drink, (carbonated), all sizes	CDL	0	2	27	3	1	0	0	0	28	5	33
	Flav. water/soft drink, (non-carb), all sizes	CDL											0
	Foil take away	NBEV	0	1	8	8	0	2	0	5	12	12	24
	Food cans (including pet food)	NBEV	0	2	6	2	0	0	0	0	8	2	10
	Industrial cans - all types	NBEV											0
	Metal bottle tops and can pull rings	NBEV	0	30	71	26	3	16	6	24	148	28	176
	Metal pieces	NBEV	0	4	19	27	1	5	1	2	41	18	59
	Other foil	NBEV	7	28	28	13	10	12	20	7	108	17	125
TOTAL			8	67	178	83	17	35	27	40	358	97	455

KESAB - Litter Strategy Monitoring Wave 77 - May 2019			Items											
			BEACH	CAR PARK	HIGHWAY	INDUSTRIAL	RECREATIONAL PARK	RESIDENTIAL	RETAIL	SHOPPING CENTRE	METROPOLITAN	REGIONAL	TOTAL ITEMS	
MISCELLANEOUS	Clothing & materials	NBEV	2	8	36	16	0	2	2	2	44	24	68	
	Condoms	NBEV	0	0	1	0	0	0	0	0	1	0	1	
	Construction materials	NBEV	0	2	5	1	0	0	1	0	2	7	9	
	Disposable nappies	NBEV	0	2	0	2	0	0	0	0	4	0	4	
	Ice cream sticks	NBEV	6	3	5	0	0	2	0	8	15	9	24	
	Illegal dumping	NBEV	0	0	2	7	0	0	0	0	8	1	9	
	Other miscellaneous	NBEV	0	4	17	5	2	1	1	0	25	5	30	
	Rubber pieces (not tyres)	NBEV	0	4	26	10	1	3	1	1	42	4	46	
	Syringes	NBEV	0	0	0	4	0	0	0	0	4	0	4	
	Tyres & pieces	NBEV	0	0	16	3	0	1	0	0	14	6	20	
TOTAL			8	23	108	48	3	9	5	11	159	56	215	
PAPER/PAPERBOARD	Cartons, flavoured milk, <1 litre	CDL	0	1	6	9	0	2	0	0	12	6	18	
	Cartons, flavoured milk, 1 litre+	BEV	0	1	0	0	0	0	0	0	1	0	1	
	Cartons, fruit juice, <1 litre	CDL	0	1	3	0	0	0	0	0	0	4	4	
	Cartons, fruit juice, 1 litre+	BEV											0	
	Cartons, milk, plain (white), all sizes	BEV											0	
	Cigarette packets	NBEV	1	8	44	15	2	9	5	1	57	28	85	
	Cups/take away containers	NBEV	4	14	95	12	2	10	0	7	91	53	144	
	Coffee cups	NBEV	2	12	73	11	7	3	0	6	81	33	114	
	Flav. water/fruit j. drink/sports drink (non-carb), <1 litre	CDL												0
	Flav. water/fruit j. drink/sports drink (non-carb), 1 litre+	CDL	0	1	0	0	0	0	0	0	0	1	1	
	Ice cream wrappers	NBEV	4	2	2	1	0	4	1	0	11	3	14	
	Junk mail/free circulars	NBEV	1	0	10	10	0	18	2	4	33	12	45	
	Newspapers & magazines	NBEV	0	0	18	5	0	1	0	1	13	12	25	
	Other paper (including tissues)	NBEV	33	195	377	130	42	89	60	79	856	149	1005	
	Packages & boxes	NBEV	0	8	47	22	0	4	0	1	48	34	82	
	Paper bags	NBEV	1	9	38	9	0	8	0	2	55	12	67	
Shopper docketts & related shopping paper (eg. lists)	NBEV	1	31	7	11	0	5	6	34	75	20	95		
Tickets, e.g. bus, ATM, vending machine etc.	NBEV	1	8	5	5	0	2	4	18	43	0	43		
TOTAL			48	291	725	240	53	155	78	153	1376	367	1743	

KESAB - Litter Strategy Monitoring Wave 77 - May 2019			Items										
			BEACH	CAR PARK	HIGHWAY	INDUSTRIAL	RECREATIONAL PARK	RESIDENTIAL	RETAIL	SHOPPING CENTRE	METROPOLITAN	REGIONAL	TOTAL ITEMS
PLASTIC	6 ring can holders	NBEV	0	0	4	2	0	5	0	1	4	8	12
	Bags - heavier glossy typically branded carry bags	NBEV	0	1	9	7	0	1	0	5	17	6	23
	Bags - supermarket type light weight carry bags	NBEV	0	0	11	12	1	1	3	2	17	13	30
	Bread bag tags	NBEV	4	0	2	0	2	4	0	3	12	3	15
	Containers, domestic type	NBEV	0	4	6	4	0	1	0	0	14	1	15
	Containers, industrial e.g. oil	NBEV											0
	Drink pouches	CDL	0	0	2	2	0	1	0	0	5	0	5
	Flav. water/fruit j. drink/sports drink (non-carb), <1 litre	CDL	0	0	8	0	1	0	0	0	4	5	9
	Flav. water/fruit j. drink/sports drink (non-carb), 1 litre+	CDL	0	1	2	0	0	1	0	0	3	1	4
	Flav. water/soft drink (carbonated), <1 litre	CDL	1	0	9	2	0	0	0	1	9	4	13
	Flav. water/soft drink (carbonated), 1 litre+	CDL											0
	Flavoured milk, <1 litre	CDL	0	3	9	1	0	0	0	0	9	4	13
	Flavoured milk, 1 litre+	BEV	0	1	2	0	0	0	0	0	3	0	3
	Fruit juice, <1 litre	CDL	0	0	1	1	0	0	0	3	5	0	5
	Fruit juice, 1 litre+	BEV	0	0	1	0	0	0	0	0	1	0	1
	Lollipop sticks	NBEV	11	16	3	4	17	12	4	22	81	8	89
	Other plastic	NBEV	32	90	263	99	21	65	37	68	572	103	675
	Packing tape & straps	NBEV	2	4	27	13	0	2	0	1	35	14	49
	Plain water (carbonated or non-carb), <1 litre	CDL	3	0	12	3	0	0	1	1	19	1	20
	Plain water (carbonated or non-carb), 1 litre+	CDL											0
	Plastic bottle tops	NBEV	21	39	68	57	13	21	9	9	216	21	237
	Sacks - sheeting - other bags	NBEV	0	0	12	4	0	0	0	5	13	8	21
	Snack bags & confectionery wrappers	NBEV	36	58	95	44	20	30	8	23	255	59	314
	Spoons/cutlery	NBEV	0	2	23	3	6	4	1	5	29	15	44
	Straws	NBEV	9	27	79	32	17	12	2	21	129	70	199
	Styrene foam boxes, sheets, etc.	NBEV	1	5	52	10	0	3	2	1	55	19	74
	Take away & cups	NBEV	0	37	85	33	10	13	2	12	142	50	192
	White milk, all sizes	BEV	0	1	4	0	0	0	0	0	4	1	5
Wine cask bladders	BEV	0	0	1	1	0	0	0	0	2	0	2	
TOTAL		120	289	790	334	108	176	69	183	1655	414	2069	
GRAND TOTAL		262	1197	2364	980	225	483	532	875	5441	1477	6918	

Data Summary - Volumes

KESAB - Litter Strategy Monitoring Wave 77 - May 2019		Volume - Cubic Metres											
		BEACH	CAR PARK	HIGHWAY	INDUSTRIAL	RECREATIONAL PARK	RESIDENTIAL	RETAIL	SHOPPING CENTRE	METROPOLITAN	REGIONAL	TOTAL ITEMS	
CIGARETTE BUTTS		NBEV	0.000009	0.000057	0.000052	0.000026	0.000005	0.000010	0.000040	0.000055	0.000020	0.000053	0.000254
GLASS	Alcoholic sodas/spirit-based mixers, all sizes	CDL	0.000000	0.000000	0.001497	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.001497	0.001497
	Beer, all colours of glass, <750ml	CDL	0.000926	0.001389	0.006018	0.001852	0.000000	0.000926	0.000000	0.000926	0.006481	0.005555	0.012036
	Beer, all colours of glass, 750ml+	CDL	0.000000	0.000000	0.009073	0.013609	0.000000	0.001815	0.000000	0.000000	0.000000	0.024497	0.024497
	Cider/fruit based etc.	CDL											0.000000
	Flav. water/fruit j. drink/sports drink (non-carb), <1 litre	CDL											0.000000
	Flav. water/fruit j. drink/sports drink (non-carb), 1 litre+	CDL											0.000000
	Flav. water/soft drink (carbonated), <1 litre	CDL	0.000000	0.000000	0.001188	0.000000	0.000000	0.000396	0.000000	0.000000	0.000792	0.000792	0.001583
	Flav. water/soft drink (carbonated), 1 litre+	CDL											0.000000
	Fruit juice, <1 litre	CDL	0.000000	0.000424	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000424	0.000000	0.000424
	Fruit juice, 1 litre+	BEV											0.000000
	Other glass	NBEV	0.000020	0.000491	0.001552	0.000589	0.000020	0.000295	0.000079	0.000020	0.002514	0.000550	0.003064
	Plain water (carbonated or non-carb), <1 litre	CDL	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.003486	0.000000	0.003486	0.003486
	Plain water (carbonated or non-carb), 1 litre+	CDL											0.000000
	Wine & spirit, all sizes	BEV	0.000000	0.000000	0.000891	0.001783	0.000000	0.000000	0.000000	0.000000	0.002674	0.000000	0.002674
Wine cooler, all sizes	CDL											0.000000	
TOTAL			0.000945	0.002304	0.020219	0.017833	0.000020	0.003431	0.000079	0.004432	0.012885	0.036377	0.049262
METAL	Aerosols - pressure packs	NBEV	0.000000	0.000000	0.001368	0.000000	0.000000	0.000000	0.000000	0.000684	0.002053	0.000000	0.002053
	Alcoholic sodas & spirit-based mixers	CDL	0.000431	0.000000	0.002588	0.000431	0.000000	0.000000	0.000000	0.000000	0.002588	0.000863	0.003451
	Beer, aluminium, all types, all sizes	CDL	0.000000	0.000000	0.003883	0.001294	0.000863	0.000000	0.000000	0.000431	0.001294	0.005177	0.006471
	Cider/fruit based etc.	CDL	0.000000	0.000000	0.000863	0.000000	0.000000	0.000000	0.000000	0.000431	0.000431	0.000863	0.000863
	Flav. water/soft drink, (carbonated), all sizes	CDL	0.000000	0.000851	0.011489	0.001277	0.000426	0.000000	0.000000	0.000000	0.011915	0.002128	0.014043
	Flav. water/soft drink, (non-carb), all sizes	CDL											0.000000
	Foil take away	NBEV	0.000000	0.000462	0.003699	0.003699	0.000000	0.000925	0.000000	0.002312	0.005549	0.005549	0.011097
	Food cans (including pet food)	NBEV	0.000000	0.000928	0.002783	0.000928	0.000000	0.000000	0.000000	0.000000	0.003710	0.000928	0.004638
	Industrial cans - all types	NBEV											0.000000
	Metal bottle tops and can pull rings	NBEV	0.000000	0.000120	0.000284	0.000104	0.000012	0.000064	0.000024	0.000096	0.000592	0.000112	0.000704
	Metal pieces	NBEV	0.000000	0.000042	0.000201	0.000286	0.000011	0.000053	0.000011	0.000021	0.000435	0.000191	0.000625
	Other foil	NBEV	0.000011	0.000044	0.000044	0.000020	0.000016	0.000019	0.000031	0.000011	0.000168	0.000027	0.000195
	TOTAL			0.000442	0.002447	0.027203	0.008039	0.001327	0.001060	0.000066	0.003556	0.028736	0.015404

KESAB - Litter Strategy Monitoring Wave 77 - May 2019			Volume - Cubic Metres											
			BEACH	CAR PARK	HIGHWAY	INDUSTRIAL	RECREATIONAL PARK	RESIDENTIAL	RETAIL	SHOPPING CENTRE	METROPOLITAN	REGIONAL	TOTAL ITEMS	
MISCELLANEOUS	Clothing & materials	NBEV	0.000031	0.000122	0.000551	0.000245	0.000000	0.000031	0.000031	0.000031	0.000031	0.000673	0.000367	0.001040
	Condoms	NBEV	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
	Construction materials	NBEV	0.000000	0.000720	0.001800	0.000360	0.000000	0.000000	0.000360	0.000000	0.000720	0.002520	0.003240	0.003240
	Disposable nappies	NBEV	0.000000	0.002250	0.000000	0.002250	0.000000	0.000000	0.000000	0.000000	0.004500	0.000000	0.004500	0.004500
	Ice cream sticks	NBEV	0.000006	0.000003	0.000005	0.000000	0.000000	0.000002	0.000000	0.000007	0.000014	0.000008	0.000022	0.000022
	Illegal dumping	NBEV	0.000000	0.000000	0.048000	0.168000	0.000000	0.000000	0.000000	0.000000	0.192000	0.024000	0.216000	0.216000
	Other miscellaneous	NBEV	0.000000	0.000054	0.000230	0.000068	0.000027	0.000014	0.000014	0.000000	0.000338	0.000068	0.000405	0.000405
	Rubber pieces (not tyres)	NBEV	0.000000	0.000001	0.000004	0.000002	0.000000	0.000000	0.000000	0.000000	0.000007	0.000001	0.000008	0.000008
	Syringes	NBEV	0.000000	0.000000	0.000000	0.000009	0.000000	0.000000	0.000000	0.000000	0.000009	0.000000	0.000009	0.000009
	Tyres & pieces	NBEV	0.000000	0.000000	0.003600	0.000675	0.000000	0.000225	0.000000	0.000000	0.003150	0.001350	0.004500	0.004500
TOTAL			0.000036	0.003150	0.054189	0.171608	0.000027	0.000271	0.000404	0.000038	0.201411	0.028314	0.229724	
PAPER/PAPERBOARD	Cartons, flavoured milk, <1 litre	CDL	0.000000	0.000672	0.004035	0.006052	0.000000	0.001345	0.000000	0.000000	0.008070	0.004035	0.012105	0.012105
	Cartons, flavoured milk, 1 litre+	BEV	0.000000	0.001013	0.000000	0.000000	0.000000	0.000000	0.000000	0.001013	0.000000	0.001013	0.001013	
	Cartons, fruit juice, <1 litre	CDL	0.000000	0.000625	0.001874	0.000000	0.000000	0.000000	0.000000	0.000000	0.002499	0.002499	0.002499	
	Cartons, fruit juice, 1 litre+	BEV											0.000000	
	Cartons, milk, plain (white), all sizes	BEV											0.000000	
	Cigarette packets	NBEV	0.000218	0.001743	0.009586	0.003268	0.000436	0.001961	0.001089	0.000218	0.012419	0.006100	0.018519	0.018519
	Cups/take away containers	NBEV	0.002916	0.010205	0.069250	0.008747	0.001458	0.007290	0.000000	0.005103	0.066334	0.038634	0.104969	0.104969
	Coffee cups	NBEV	0.000980	0.005880	0.035772	0.005390	0.003430	0.001470	0.000000	0.002940	0.039692	0.016171	0.055863	0.055863
	Flav. water/fruit j. drink/sports drink (non-carb), <1 litre	CDL												0.000000
	Flav. water/fruit j. drink/sports drink (non-carb), 1 litre+	CDL	0.000000	0.002070	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.002070	0.002070	0.002070
	Ice cream wrappers	NBEV	0.000010	0.000005	0.000005	0.000002	0.000000	0.000010	0.000002	0.000000	0.000026	0.000007	0.000034	0.000034
	Junk mail/free circulars	NBEV	0.000174	0.000000	0.001740	0.001740	0.000000	0.003132	0.000348	0.000696	0.005742	0.002088	0.007830	0.007830
	Newspapers & magazines	NBEV	0.000000	0.000000	0.021240	0.005900	0.000000	0.001180	0.000000	0.001180	0.015340	0.014160	0.029500	0.029500
	Other paper (including tissues)	NBEV	0.000112	0.000659	0.001274	0.000439	0.000142	0.000301	0.000203	0.000267	0.002893	0.000504	0.003397	0.003397
	Packages & boxes	NBEV	0.000000	0.000640	0.003760	0.001760	0.000000	0.000320	0.000000	0.000080	0.003840	0.002720	0.006560	0.006560
	Paper bags	NBEV	0.000011	0.000095	0.000402	0.000095	0.000000	0.000085	0.000000	0.000021	0.000582	0.000127	0.000709	0.000709
	Shopper docketts & related shopping paper (eg. lists)	NBEV	0.000002	0.000063	0.000014	0.000022	0.000000	0.000010	0.000012	0.000069	0.000152	0.000041	0.000193	0.000193
Tickets, e.g. bus, ATM, vending machine etc.	NBEV	0.000001	0.000007	0.000004	0.000004	0.000000	0.000002	0.000004	0.000016	0.000038	0.000000	0.000038	0.000038	
TOTAL			0.004422	0.023678	0.148957	0.033422	0.005466	0.017104	0.001658	0.010590	0.156141	0.089156	0.245297	

KESAB - Litter Strategy Monitoring Wave 77 - May 2019			Volume - Cubic Metres										
			BEACH	CAR PARK	HIGHWAY	INDUSTRIAL	RECREATIONAL PARK	RESIDENTIAL	RETAIL	SHOPPING CENTRE	METROPOLITAN	REGIONAL	TOTAL ITEMS
PLASTIC	6 ring can holders	NBEV	0.000000	0.000000	0.000006	0.000003	0.000000	0.000008	0.000000	0.000002	0.000006	0.000012	0.000018
	Bags - heavier glossy typically branded carry bags	NBEV	0.000000	0.000088	0.000788	0.000613	0.000000	0.000088	0.000000	0.000438	0.001489	0.000526	0.002015
	Bags - supermarket type light weight carry bags	NBEV	0.000000	0.000000	0.000373	0.000407	0.000034	0.000034	0.000102	0.000068	0.000577	0.000441	0.001018
	Bread bag tags	NBEV	0.000001	0.000000	0.000000	0.000000	0.000000	0.000001	0.000000	0.000001	0.000003	0.000001	0.000003
	Containers, domestic type	NBEV	0.000000	0.033296	0.049944	0.033296	0.000000	0.008324	0.000000	0.000000	0.116536	0.008324	0.124860
	Containers, industrial e.g. oil	NBEV											0.000000
	Drink pouches	CDL	0.000000	0.000000	0.000173	0.000173	0.000000	0.000086	0.000000	0.000000	0.000431	0.000000	0.000431
	Flav. water/fruit j. drink/sports drink (non-carb), <1 litre	CDL	0.000000	0.000000	0.005901	0.000000	0.000738	0.000000	0.000000	0.000000	0.002950	0.003688	0.006639
	Flav. water/fruit j. drink/sports drink (non-carb), 1 litre+	CDL	0.000000	0.001201	0.002402	0.000000	0.000000	0.001201	0.000000	0.000000	0.003603	0.001201	0.004804
	Flav. water/soft drink (carbonated), <1 litre	CDL	0.000622	0.000000	0.005599	0.001244	0.000000	0.000000	0.000000	0.000622	0.005599	0.002488	0.008087
	Flav. water/soft drink (carbonated), 1 litre+	CDL											0.000000
	Flavoured milk, <1 litre	CDL	0.000000	0.001598	0.004794	0.000533	0.000000	0.000000	0.000000	0.000000	0.004794	0.002131	0.006925
	Flavoured milk, 1 litre+	BEV	0.000000	0.002137	0.004273	0.000000	0.000000	0.000000	0.000000	0.000000	0.006410	0.000000	0.006410
	Fruit juice, <1 litre	CDL	0.000000	0.000000	0.000400	0.000400	0.000000	0.000000	0.000000	0.001200	0.002000	0.000000	0.002000
	Fruit juice, 1 litre+	BEV	0.000000	0.000000	0.002137	0.000000	0.000000	0.000000	0.000000	0.000000	0.002137	0.000000	0.002137
	Lollipop sticks	NBEV	0.000006	0.000008	0.000002	0.000002	0.000009	0.000006	0.000002	0.000012	0.000043	0.000004	0.000047
	Other plastic	NBEV	0.000040	0.000113	0.000329	0.000124	0.000026	0.000081	0.000046	0.000085	0.000715	0.000129	0.000844
	Packing tape & straps	NBEV	0.000001	0.000001	0.000007	0.000004	0.000000	0.000001	0.000000	0.000000	0.000009	0.000004	0.000013
	Plain water (carbonated or non-carb), <1 litre	CDL	0.002364	0.000000	0.009455	0.002364	0.000000	0.000000	0.000788	0.000788	0.014970	0.000788	0.015758
	Plain water (carbonated or non-carb), 1 litre+	CDL											0.000000
	Plastic bottle tops	NBEV	0.000168	0.000312	0.000544	0.000456	0.000104	0.000168	0.000072	0.000072	0.001729	0.000168	0.001897
	Sacks - sheeting - other bags	NBEV	0.000000	0.000000	0.000004	0.000001	0.000000	0.000000	0.000000	0.000002	0.000004	0.000003	0.000007
	Snack bags & confectionery wrappers	NBEV	0.000282	0.000454	0.000744	0.000345	0.000157	0.000235	0.000063	0.000180	0.001997	0.000462	0.002459
	Spoons/cutlery	NBEV	0.000000	0.000019	0.000221	0.000029	0.000058	0.000038	0.000010	0.000048	0.000278	0.000144	0.000422
	Straws	NBEV	0.000037	0.000111	0.000326	0.000132	0.000070	0.000050	0.000008	0.000087	0.000532	0.000289	0.000821
	Styrene foam boxes, sheets, etc.	NBEV	0.000038	0.000188	0.001950	0.000375	0.000000	0.000113	0.000075	0.000038	0.002063	0.000713	0.002775
	Take away & cups	NBEV	0.000000	0.007660	0.017597	0.006832	0.002070	0.002691	0.000414	0.002484	0.029397	0.010351	0.039748
	White milk, all sizes	BEV	0.000000	0.002137	0.008547	0.000000	0.000000	0.000000	0.000000	0.000000	0.008547	0.002137	0.010683
	Wine cask bladders	BEV	0.000000	0.000000	0.000460	0.000460	0.000000	0.000000	0.000000	0.000000	0.000920	0.000000	0.000920
	TOTAL		0.003558	0.049322	0.116976	0.047792	0.003266	0.013124	0.001580	0.006125	0.207740	0.034002	0.241742
GRAND TOTAL		0.009413	0.080958	0.367596	0.278720	0.010110	0.035001	0.003827	0.024796	0.607113	0.203306	0.810420	