



Litter Strategy Monitoring Wave 36 – February 2007 Report

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On behalf of: KESAB Environmental Solutions

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Section 1

Introduction

This document has been prepared by McGregor Tan Research to report on Wave 36 of the quarterly Litter Monitor conducted in South Australia during February 2007.

Background

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.

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 and is planned to continue.

With the exception of August 2002, counts have been conducted quarterly, carried out in February, May, August and November of each year. Throughout the Monitor, care has been taken to maintain the data in a form compatible with KESAB's requirements.

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.

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 1.

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.

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

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.

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.

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.

The auditors were an important part of the volume formulation process, and these persons 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.

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.

This document reports on Wave 36 of the longitudinal study. The litter count was conducted during February 2007. Section 2 of this report outlines the litter characteristics of the 151 sites, which include 11 revised sites (replacing 11 of the original 151).

Section 2
Wave 36 Executive Summary

The following Executive Summary covers the findings of the February 2007 (Wave 36) Litter Monitor. Where possible, results have been tracked against those derived from any previous Waves which incorporated revised sites.

3.1 *Items Counted*

A total of 14,113 litter items were counted across the 151 revised South Australian sites during Wave 36. This figure represents a substantial decrease from previous figures, such as the total of 15,429 items which were counted during the previous Monitor, as well as the results of 15,677 and 15,889 items counted during Waves 34 and 33 respectively.

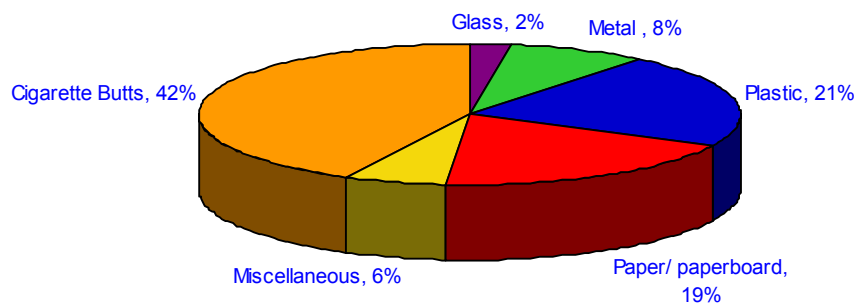
The current figure is furthermore 6% lower than that recorded at the same time last year, when a total of 15,036 litter items were identified during February 2006.

This reduction is demonstrated most strongly amongst plastic litter items: a total of 3,018 plastic items were counted during Wave 36, which is substantially reduced from 3,827 in Wave 35, and this represents a reduction of 21%. Results indicate that this reduction in plastic litter has occurred broadly across all items within that material type.

Cigarette butts accounted for the largest proportion of all litter items counted (42%, unchanged from Wave 35).

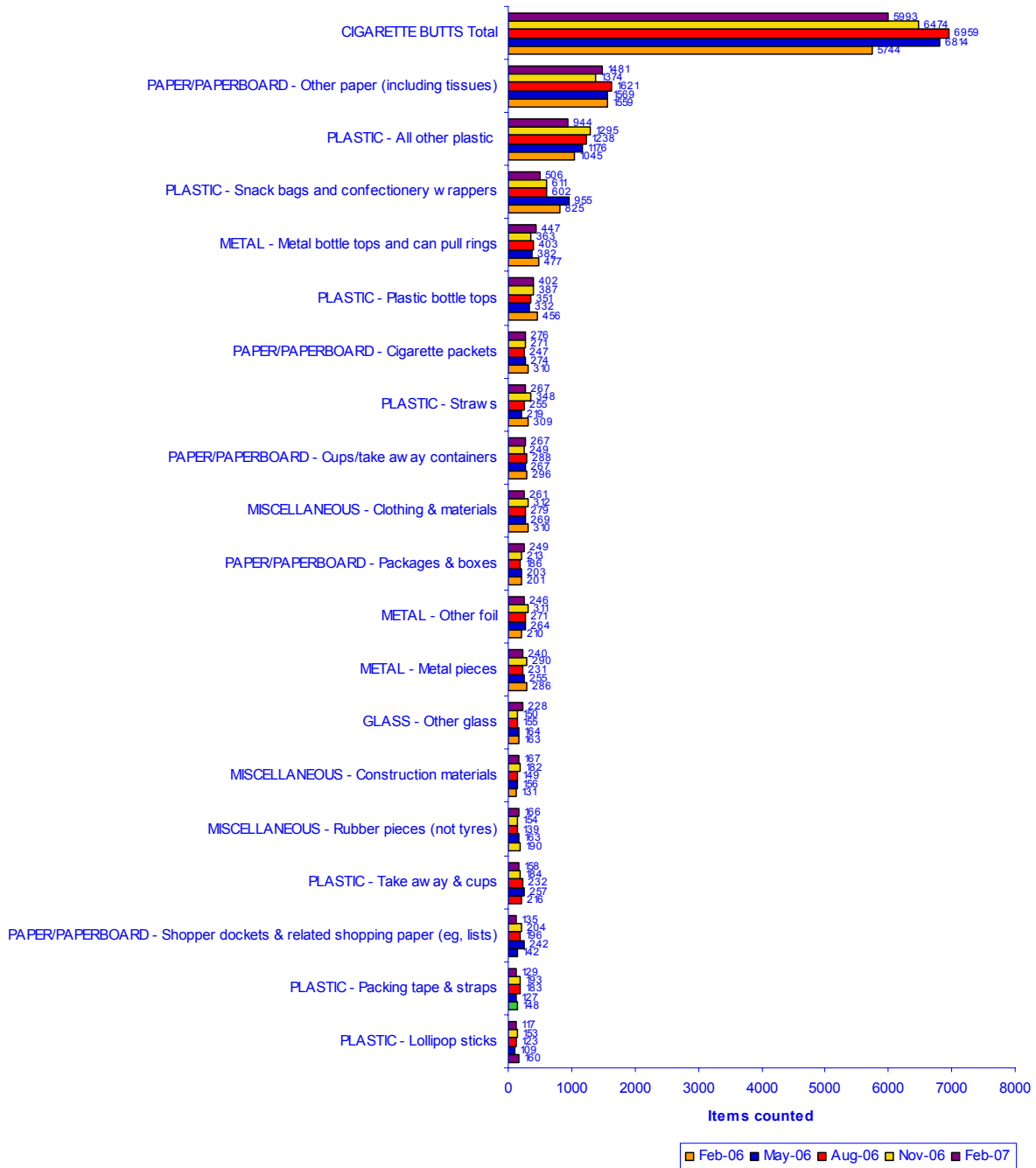
Plastic litter items (21%, down from 25% in Wave 35) as well as paper/ paperboard items (19%, up from 18% in Wave 35) also represented substantial proportions of the total items counted across South Australian sites during February 2007.

PROPORTION OF TOTAL LITTER ITEMS BY MATERIAL TYPE



The top 20 ranking of litter items found most frequently is roughly in line with results for previous Waves.

TOP 20 CATEGORIES - HIGHEST COUNTS



Litter Volume

The total volume of litter counted in February 2007 amounted to 2.007 cubic metres.

This figure represents a significant decrease from the apparently once-off spike in litter volume estimated in Wave 35 of the Monitor (3.206 m³).

Current results are marginally increased from the volumes of 1.882 and 1.891 recorded in Waves 34 and 33 of the Monitor respectively. However, the present finding is 11% lower than the figure of 2.263 cubic metres of litter volume that was recorded at the same time last year.

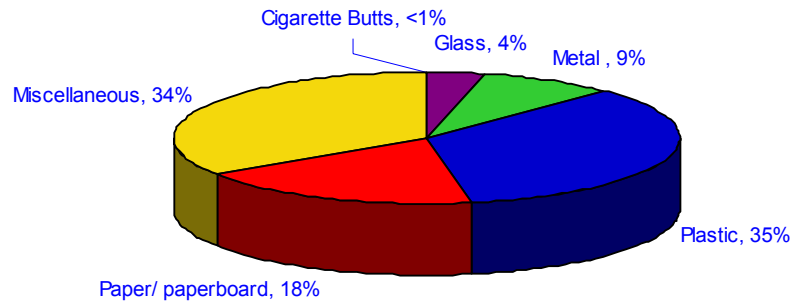
Plastic litter items accounted for the largest proportion of the total litter volume recorded during February 2007, and such items represented over a third (35%) of the total volume of identified litter. This result shows an appreciable increase from results for Wave 35, when approximately one fifth (21%) of all litter volume was associated with plastic litter items.

Miscellaneous litter items also represented approximately one third (34%) of the total litter volume, and this figure is significantly lower than in results for Wave 35, when nearly two thirds (61%) of litter volume was accounted for by miscellaneous litter items (mainly illegal dumping).

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

- Paper/ paperboard (18%, up from 11% in Wave 35)
- Metal (9%, up from 5% in Wave 35)
- Glass (4%, up from 2% in Wave 35)
- Cigarette butts (<1%, unchanged from Wave 35)

PROPORTION OF TOTAL LITTER VOLUME BY MATERIAL TYPE

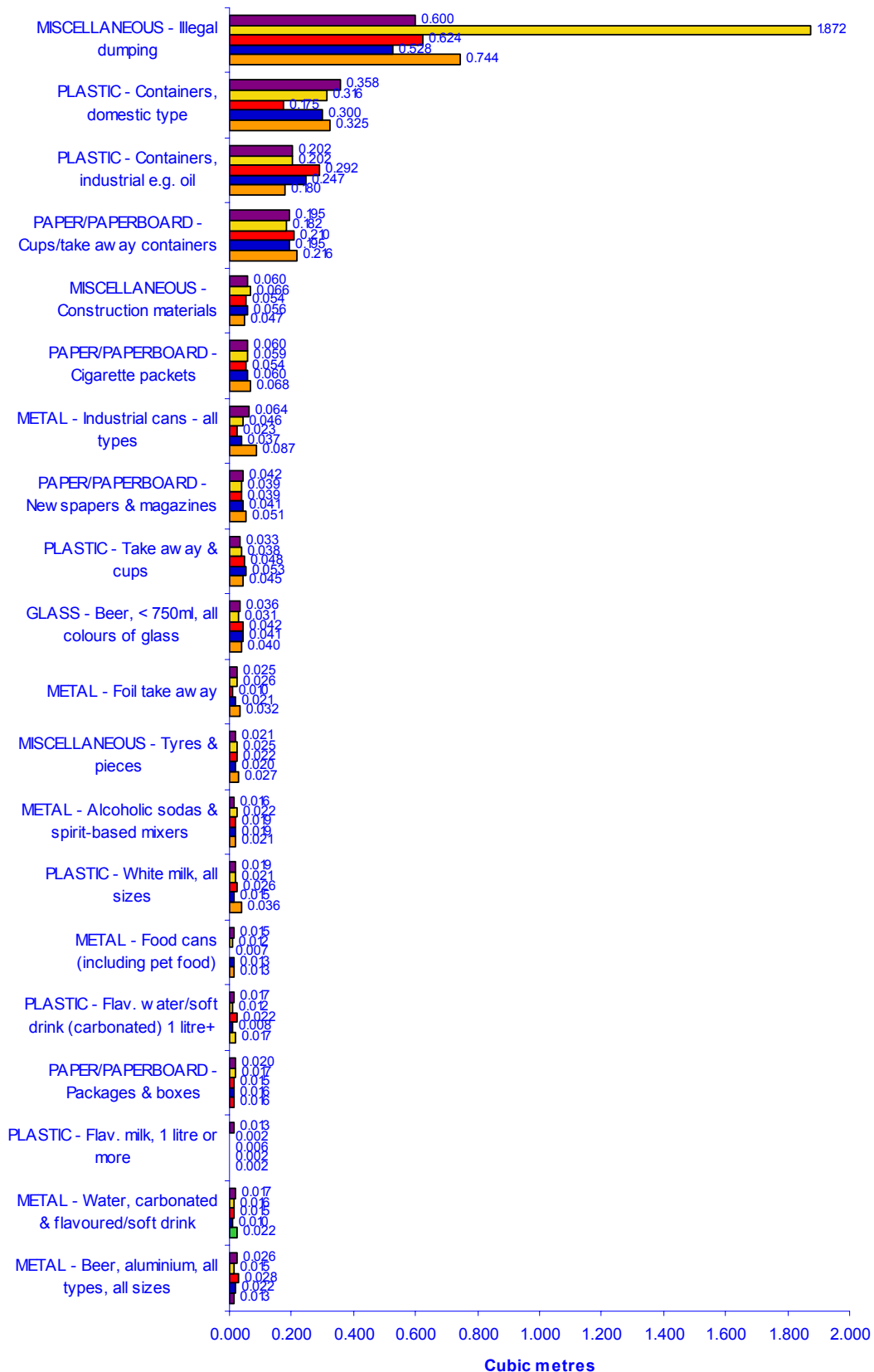


Illegal dumping was the most voluminous item category. Nevertheless, the volume of illegally dumped litter items recorded in February 2007 (0.600 m³) represented only one third of the total volume of such items estimated during the previous Wave (1.872 m³ in Wave 35). Current results for this item type are however roughly in line with the volumes of illegally dumped items recorded in all other previous Waves (0.624 m³ in Wave 34, 0.528 m³ in Wave 33 and 0.744 m³ in Wave 32).

Other items which represented the largest volumes of the litter counted included:

- Plastic - Containers, domestic type (0.358 m³, up from 0.316 m³ in Wave 35)
- Plastic - Containers, industrial e.g. oil (0.202 m³, unchanged from Wave 35)
- Paper/ paperboard - Cups/ take away containers (0.195 m³, up from 0.182 m³ in Wave 35)

TOP 20 CATEGORIES - LARGEST VOLUMES



Feb-06 May-06 Aug-06 Nov-06 Feb-07

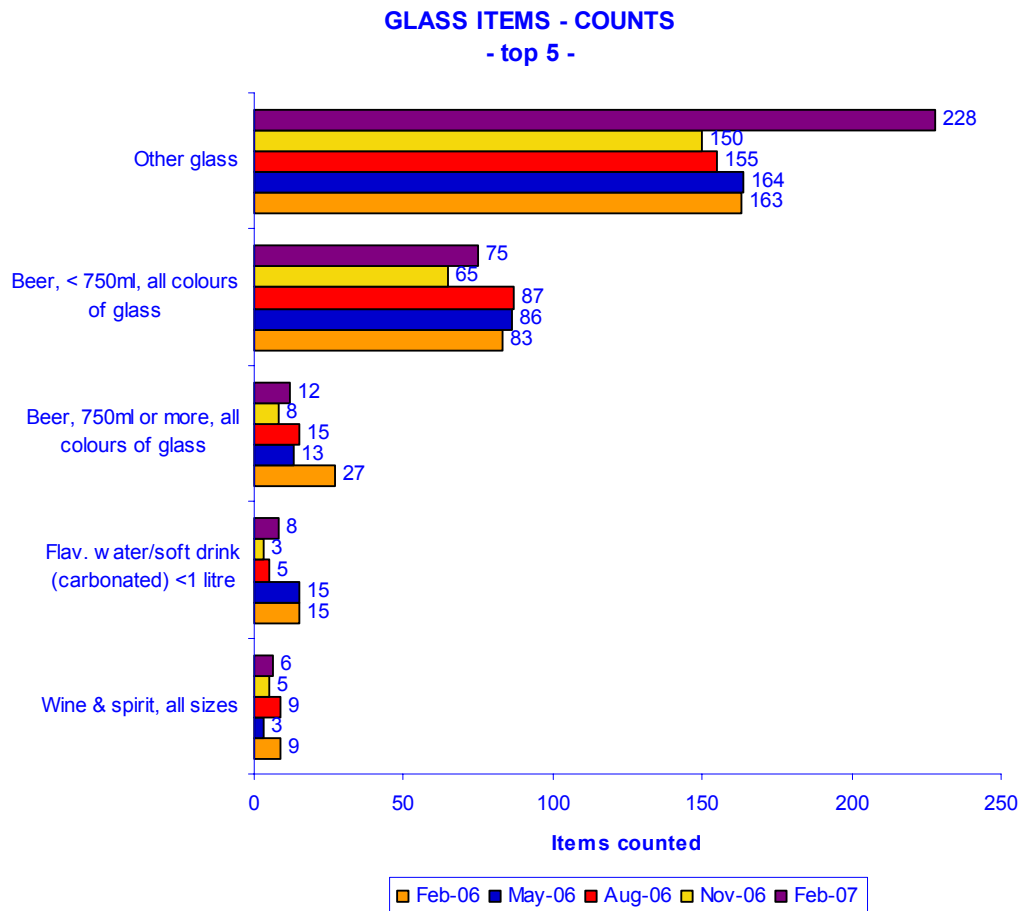
3.2 Glass

Number of Items

A total of 344 (up from 249 in Wave 35) glass litter items were counted during Wave 36, representing 2% (unchanged from Wave 35) of the total litter items counted in South Australia during February 2007.

The most frequently recorded glass items included:

- Other glass (228 items, up from 150 in Wave 35)
- Beer, <750 ml, all colours of glass (75, up from 65 in Wave 35)

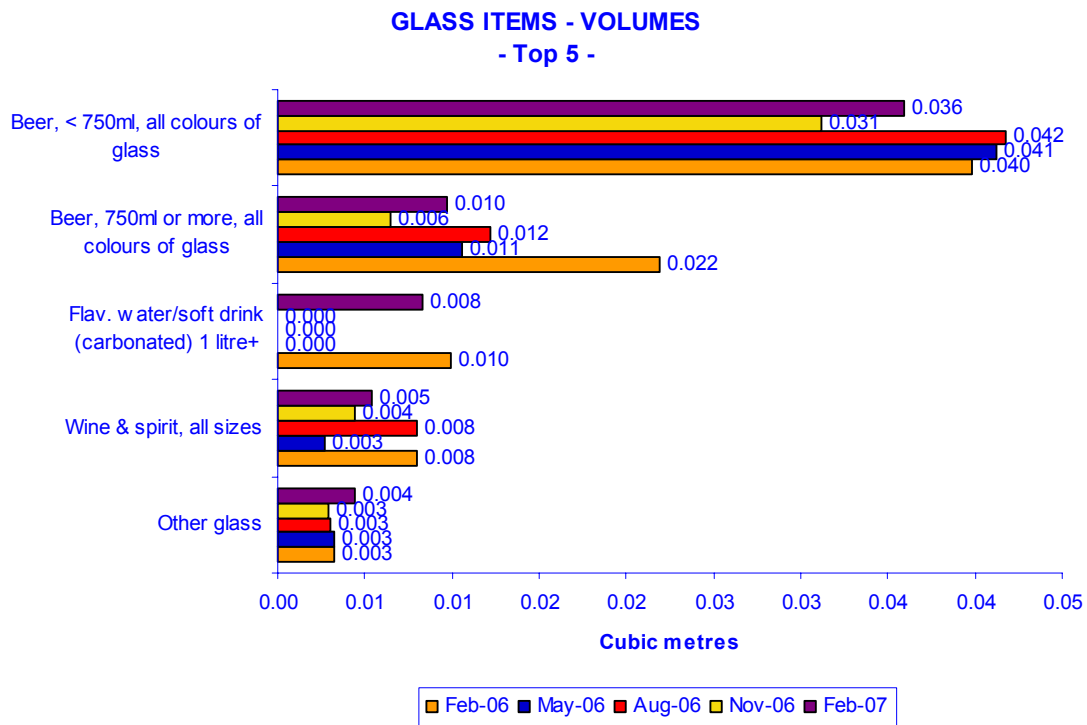


Volume

Glass litter items accounted for 0.073 m³ (up from 0.053 m³ in Wave 35) of litter volume, which represents only 3.6% (up from 2% in Wave 35) of the total litter volume recorded during Wave 36.

Glass items which contributed the largest volumes to the total included:

- Beer, < 750 ml, all colours of glass (0.036 m³, up from 0.031 m³ in Wave 35)
- Beer, 750ml or more, all colours of glass (0.010 m³, up from 0.006 m³ in Wave 35)
- Flavoured water/ soft drink (carbonated), 1 litre + (0.008 m³, up from 0.000 m³ in Wave 35)



3.3 *Metal*

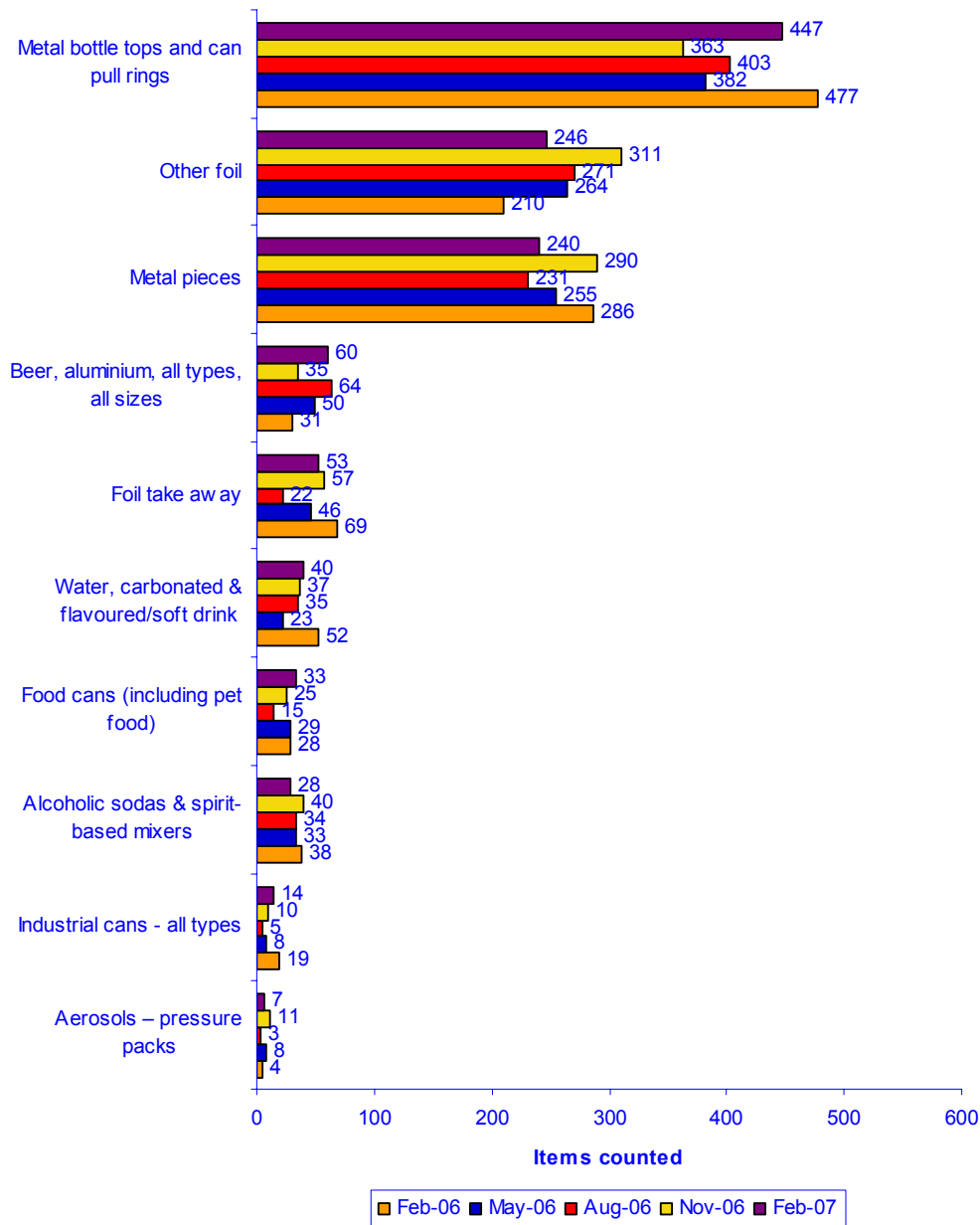
Number of Items

A total of 1,168 (down from 1,183 in Wave 35) metal litter items were counted during February 2007, and this represented 8% (unchanged from Wave 35) of the total litter items counted in South Australia.

The most frequently counted metal litter items included:

- Metal bottle tops and can pull rings (447 items, up from 363 in Wave 35)
- Other foil (246 items, down from 311 in Wave 35)
- Metal pieces (240 items, down from 290 in Wave 35)

METAL ITEMS - COUNTS - Top 10



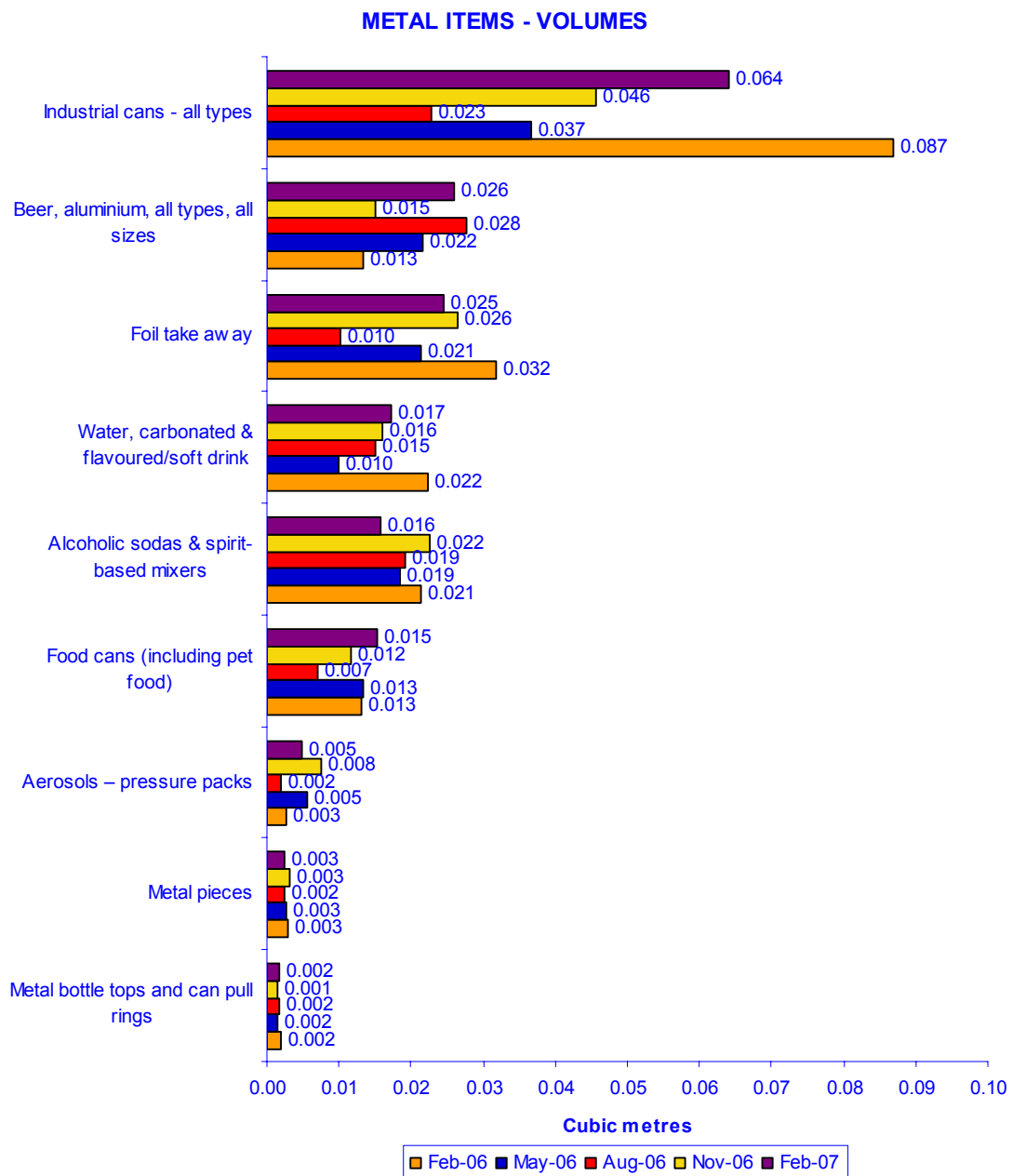
Volume

Metal litter items accounted for a total volume of 0.172 m³ (up from 0.151 m³ in Wave 35), and this represented 9% (up from 5% in Wave 35) of the total litter volume recorded during February 2007.

Metal items accounting for the largest volumes of litter during Wave 36 included:

- Industrial cans – all types (0.064 m³, up from 0.046 m³ in Wave 35)

- Beer, aluminium, all types, all sizes (0.026 m³, up from 0.015 m³ in Wave 35)
- Foil/ take away (0.025 m³, down from 0.026 m³ in Wave 35)
- Water, carbonated & flavoured/ soft drink (0.017 m³, up from 0.016 m³ in Wave 35)
- Alcoholic sodas and spirit-based mixers (0.016 m³, down from 0.022 m³ in Wave 35)
- Food cans (including pet food) (0.015 m³, up from 0.012 m³ in Wave 35)



3.4 *Plastic*

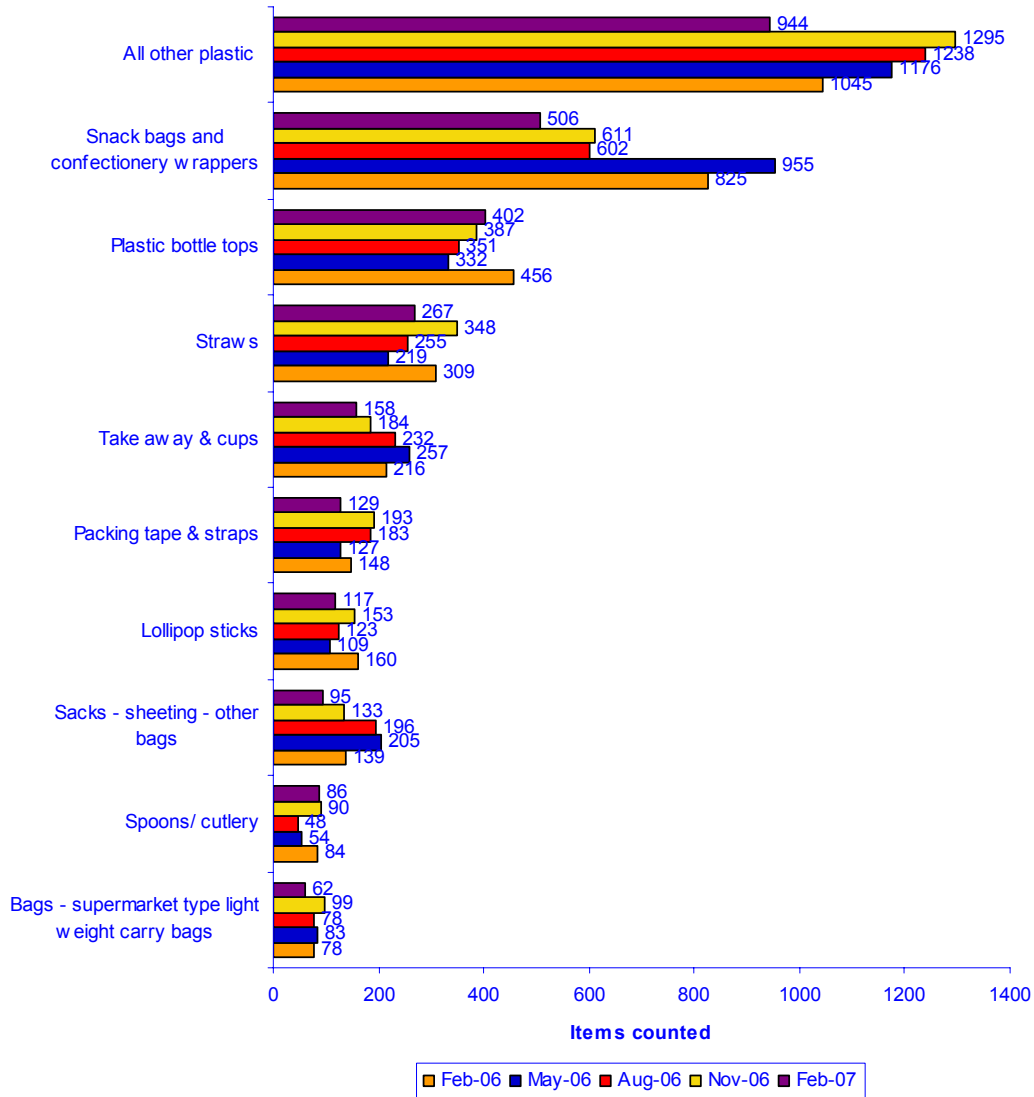
Number of Items

A total of 3,018 (down from 3,827 in Wave 35) plastic litter items were counted during Wave 36. This represented 21% (down from 25% in Wave 35) of the total number of litter items recorded across South Australian sites.

The most frequently counted plastic litter items included:

- All other plastic (944 items, down from 1,295 in Wave 35)
- Snack bags and confectionery wrappers (506 items, down from 611 in Wave 35)
- Plastic bottle tops (402 items, up from 387 in Wave 35)
- Straws (267 items, down from 348 in Wave 35)

PLASTIC ITEMS - COUNTS
- Top 10 -



Volume

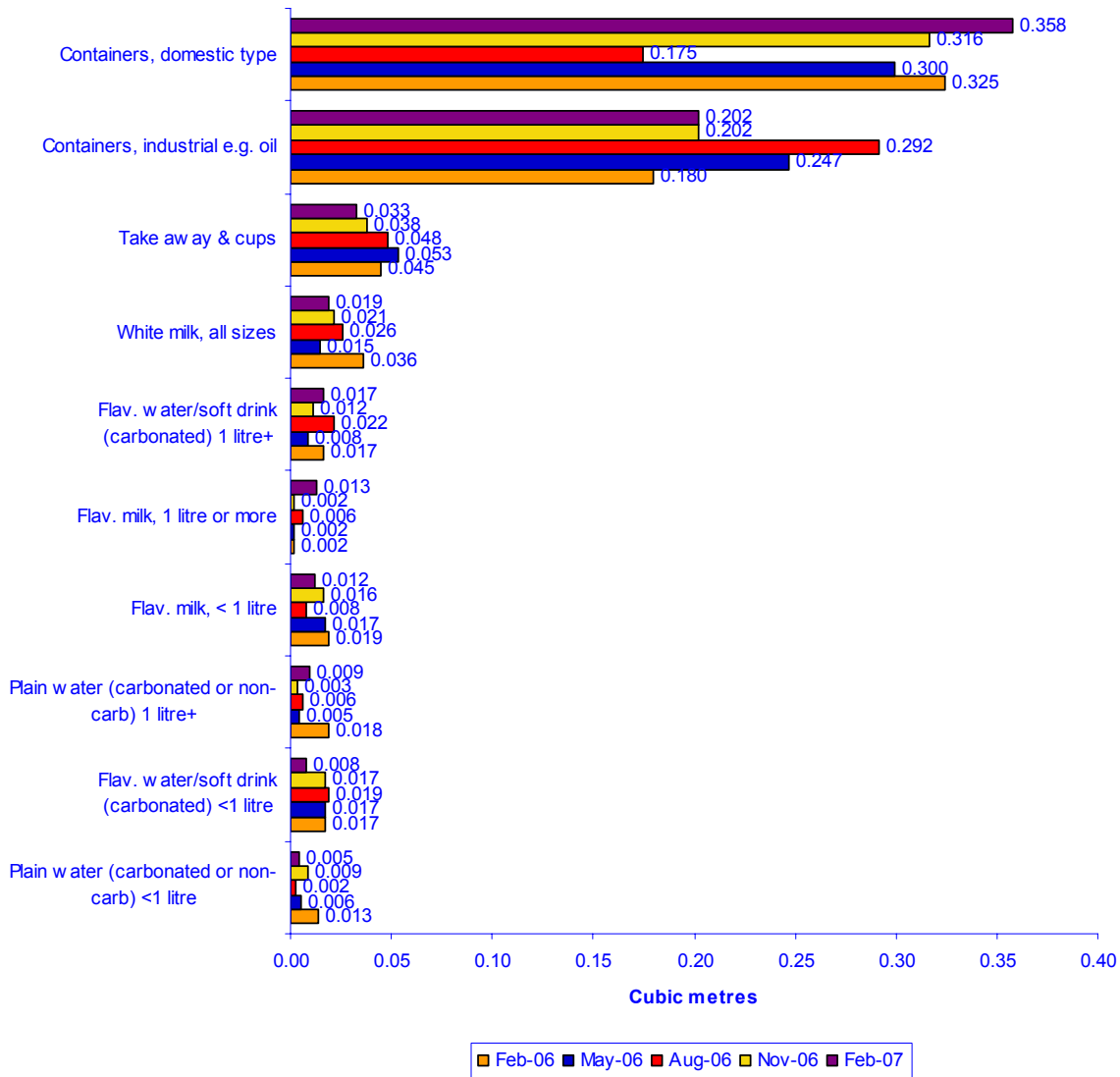
Plastic items represented over one third (35%, up from 21% in Wave 35) of the total volume of litter within the South Australian litter stream.

Plastic items which represented the largest volumes within the Wave 36 litter count included:

- Containers, domestic type (0.358 m³, up from 0.316 m³ in Wave 35)
- Containers, industrial e.g. oil (0.202 m³, unchanged from Wave 35)
- Take away & cups (0.033 m³, down from 0.038 m³ in Wave 35)

- White milk, all sizes (0.019 m³, down from 0.021 m³ in Wave 35)
- Flavoured water/ soft drink (carbonated), 1 litre+ (0.017 m³, up from 0.012 m³ in Wave 35)
- Flavoured milk, 1 litre or more (0.013 m³, up from 0.002 m³ in Wave 35)
- Flavoured milk, <1 litre (0.012 m³, down from 0.016 m³ in Wave 35)

PLASTIC ITEMS - VOLUMES
- Top 10 -



3.5 *Paper/ Paperboard*

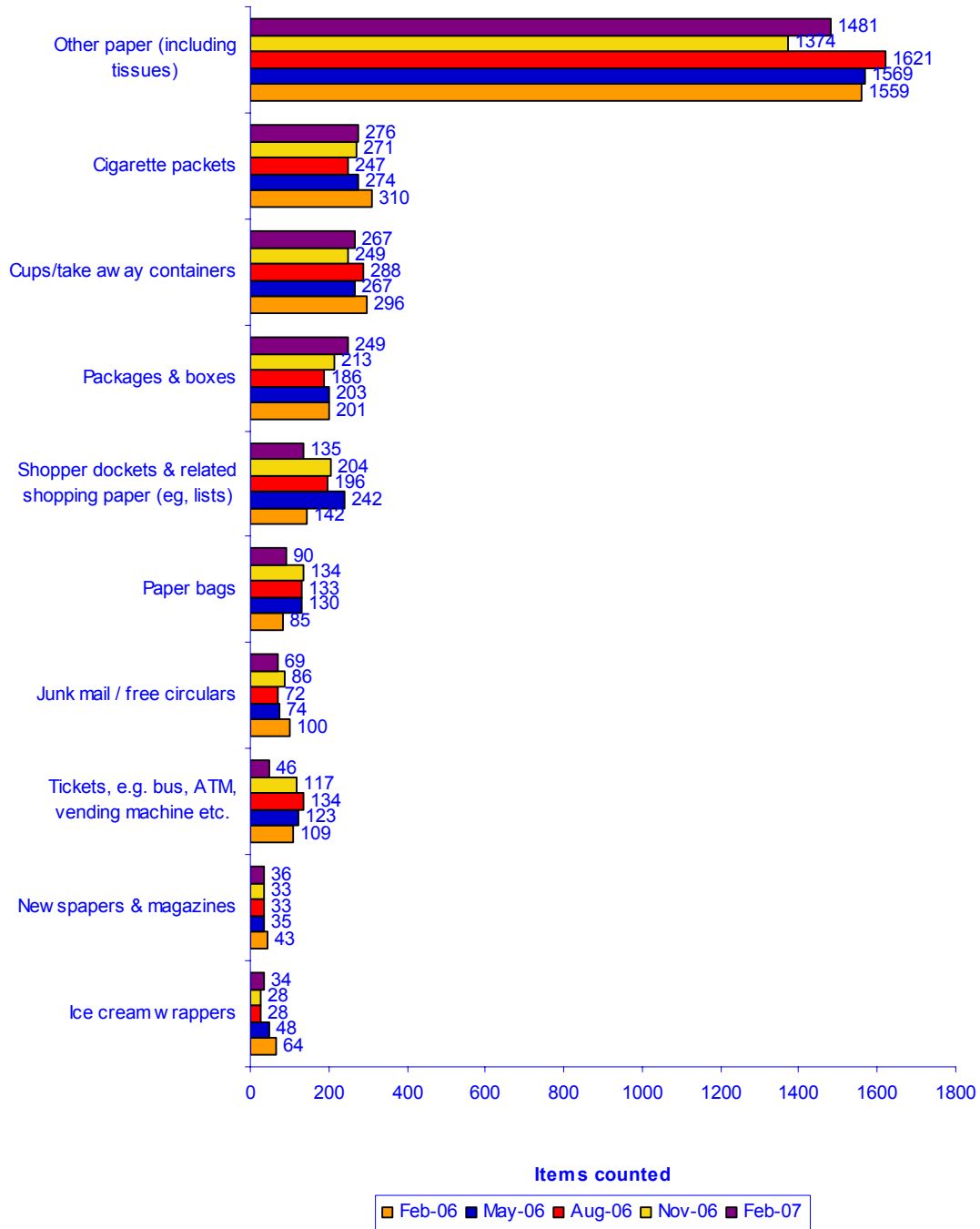
Number of Items

A total of 2,720 (down from 2,752 in Wave 35) paper/ paperboard litter items were recorded during Wave 36. This represented 19% (up from 18% in Wave 35) of the total litter items counted.

The most frequently counted items within this material type were:

- Other paper (including tissues) (1,481 items, up from 1,374 in Wave 35)
- Cigarette packets (276 items, up from 271 in Wave 35)
- Cups/ take away containers (267 items, up from 249 in Wave 35)
- Packages & boxes (249 items, up from 213 in Wave 35)
- Shopper docket & related shopping paper (e.g. lists) (135 items, down from 204 in Wave 35)

PAPER/ PAPERBOARD ITEMS - COUNTS
- Top 10 -

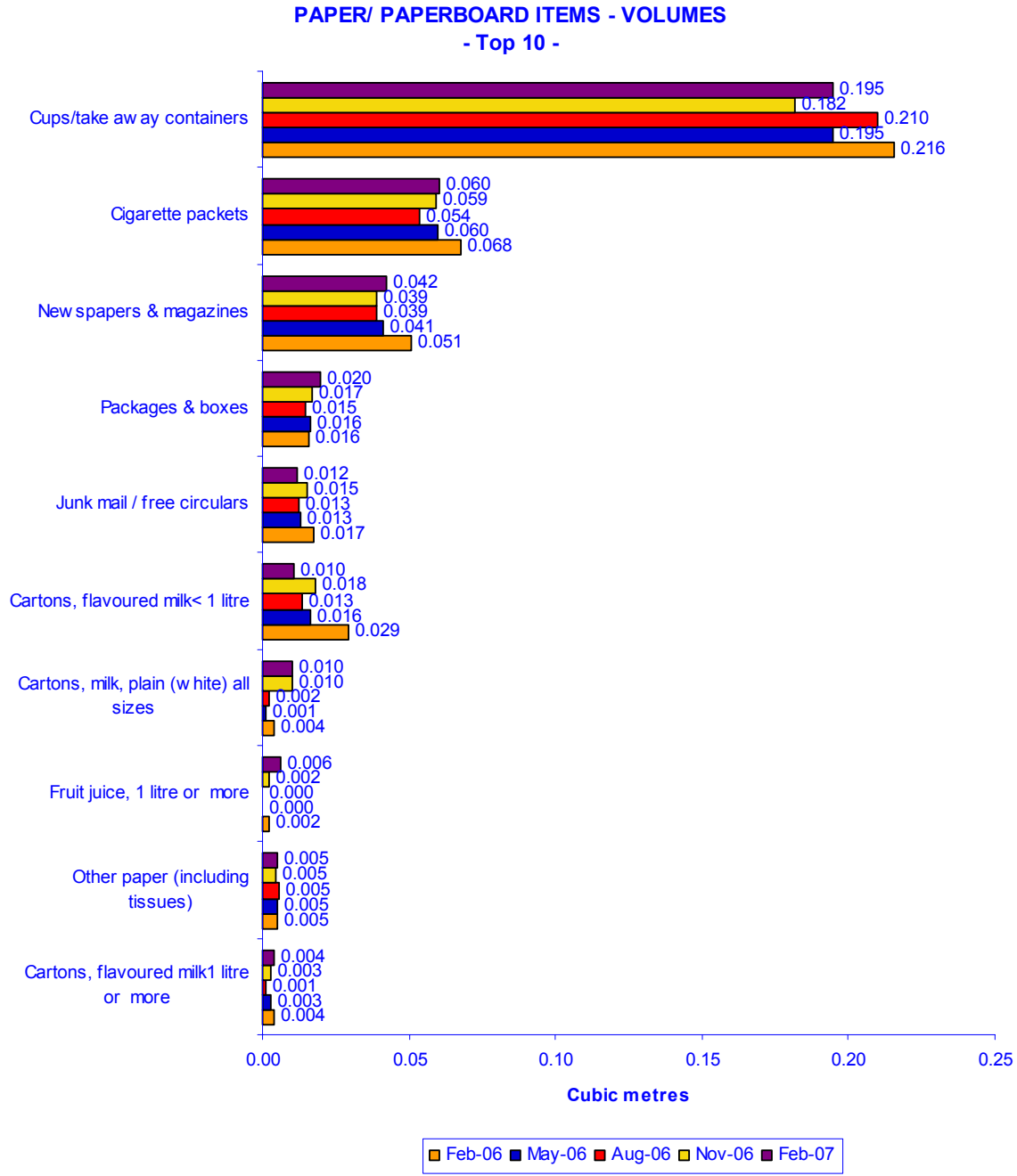


Volume

A total volume of 0.371 m³ (up from 0.354 m³ in Wave 35) was associated with paper/ paperboard litter items during Wave 36, and such items represented 19% (up from 11% in Wave 35) of the total litter volume recorded.

Paper/ paperboard items which represented the largest volumes within the Wave 36 litter count included:

- Cups/take away containers (0.195 m³, up from 0.182 m³ in Wave 35)
- Cigarette packets (0.60 m³, up from 0.059 m³ in Wave 35)
- Newspapers & magazines (0.042 m³, up from 0.039 m³ in Wave 35)



3.6 *Miscellaneous*

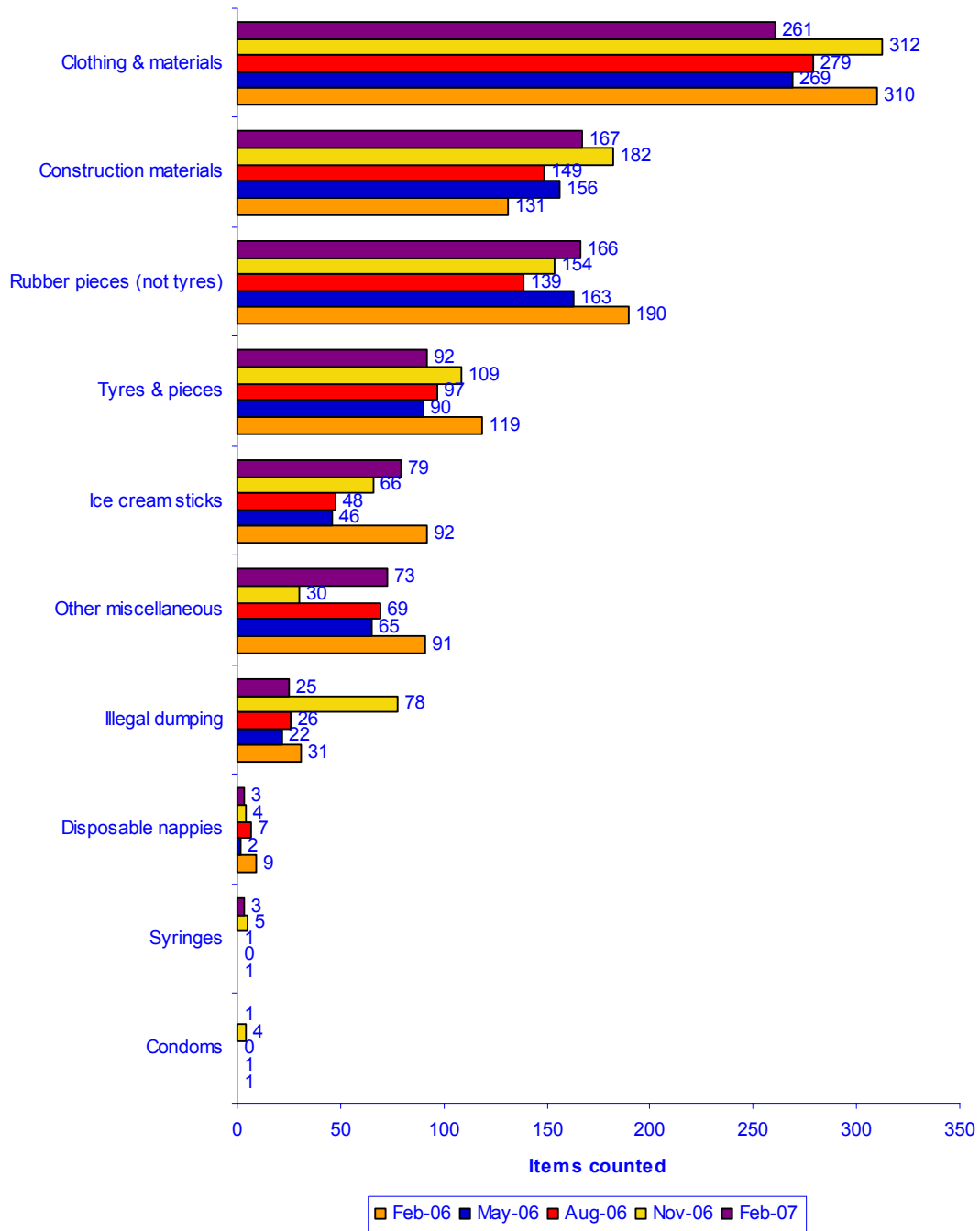
Number of Items

A total of 870 (down from 944 in Wave 35) miscellaneous litter items were counted during Wave 36, and this represents 6% (unchanged from Wave 35) of the total number of litter items counted within South Australia.

The most frequently recorded items included:

- Clothing & materials (261 items, down from 312 in Wave 35)
- Construction materials (167 items, down from 182 in Wave 35)
- Rubber pieces (not tyres) (166 items, up from 154 in Wave 35)
- Tyres & pieces (92 items, down from 109 in Wave 35)

MISCELLANEOUS ITEMS - COUNTS



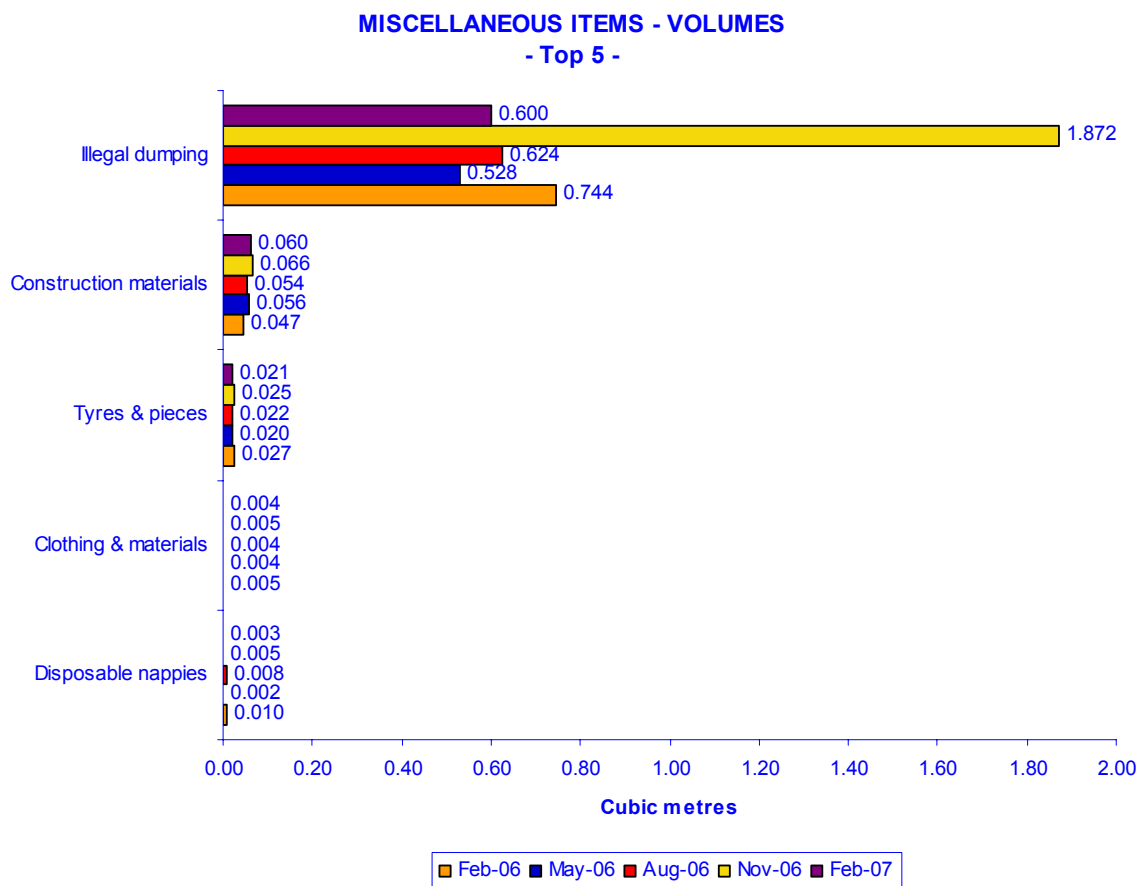
Volume

Miscellaneous litter accounted for 0.689 m³ of litter volume, which is substantially lower than the result of 1.972 m³ established during Wave 36. Miscellaneous litter items represented 34% (down from 61% in Wave 35) of the total volume of litter recorded within South Australia.

Illegal dumping was clearly the most significant contributor to the total volume of miscellaneous items. Illegally dumped items represented a total volume of 0.600 m³, but this figure is significantly lower than the result of 1.872 m³ recorded during Wave 35..

Other miscellaneous items which contributed appreciable volumes to the litter stream included:

- Construction materials (0.060 m³, down from 0.066 m³ in Wave 35)
- Tyres & pieces (0.021 m³, down from 0.025 m³ in Wave 35)



3.7 *Cigarette Butts*

Number of Items

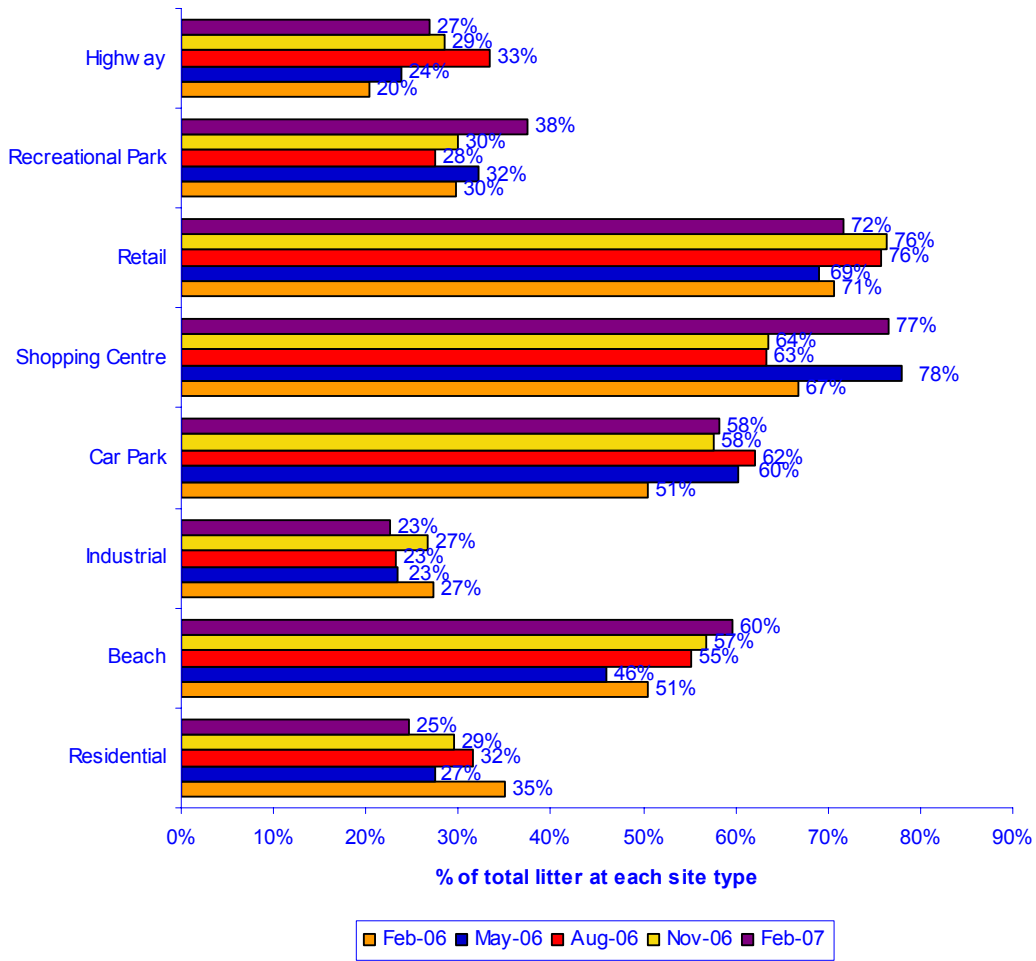
Cigarette butts represented the largest proportion (43%, up from 42% in Wave 35) of the total number of litter items counted across South Australian sites during February 2007, and the total number of cigarette butts recorded amounted to 5,993 (down from 6,474 in Wave 35).

Over three quarters (77%, up from 64% in Wave 35) of the litter items counted at shopping centre sites were cigarette butts, and cigarette butts also represented a large proportion (72%, down from 76% in Wave 35) of the litter items counted at retail sites.

Cigarette butts represented the following proportions of the total numbers of items counted at other site types:

- Beach (60%, up from 57% in Wave 35)
- Car park (58%, unchanged from Wave 35)
- Recreational park (38%, up from 30% in Wave 35)
- Highway (27%, down from 29% in Wave 35)
- Residential (25%, down from 29% in Wave 35)
- Industrial (23%, down from 27% in Wave 35)

CIGARETTE BUTT COUNTS AS PROPORTIONS OF TOTAL LITTER COUNT AT EACH SITE TYPE



Volume

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

3.8 Dispersion of Litter by Site Type

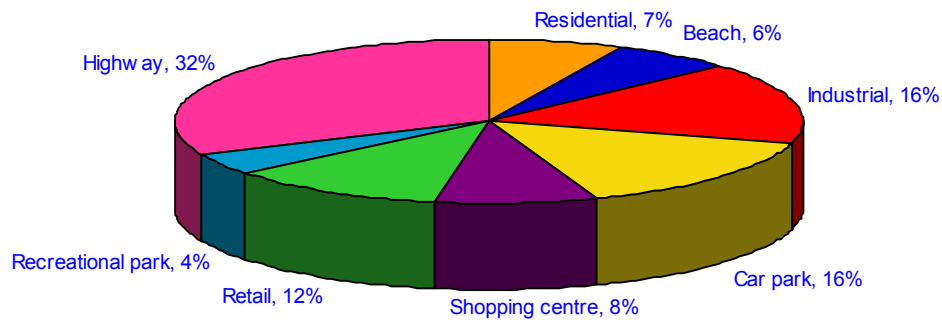
Number of items

Highways represented the most significant contributor to the total number of items counted during Wave 36. Almost one third (32%, up from 35% in Wave 35) of litter items counted were recorded at highway locations.

Other sites contributed the following proportions of the total number of litter items counted during Wave 36:

- Industrial (16%, unchanged from Wave 35)
- Car Park (16%, up from 14% in Wave 35)
- Retail (12%, unchanged from Wave 35)
- Shopping Centre (8%, up from 7% in Wave 35)
- Residential (7%, unchanged from Wave 35)
- Beach (6%, up from 5% in Wave 35)
- Recreational Park (4%, up from 5% in Wave 35)

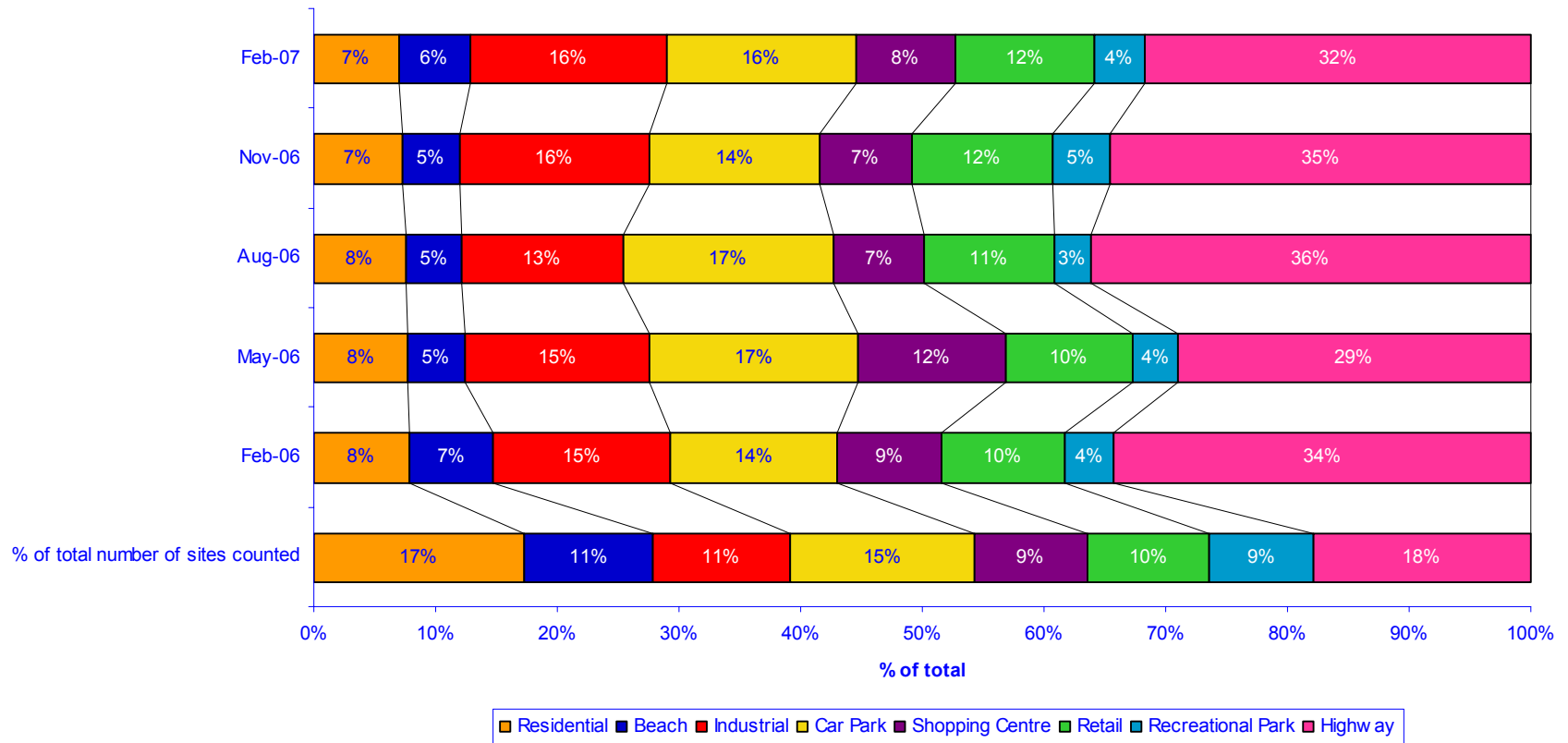
PROPORTION OF TOTAL LITTER ITEMS COUNTED WITHIN SITE TYPE



A comparison of the proportions of litter items found at each site type with the proportions of sites represented within each site type category clearly indicates that highway locations contributed disproportionately large amounts to the total number of litter items counted in the February 2007 study. Specifically, although highway sites represented only 18% of the total number of sites surveyed, such sites contributed 32% of the total litter items counted during Wave 36.

Conversely, residential locations, beaches and recreational parks contributed smaller proportions of litter items to the total litter count than would be anticipated based upon the representation of such sites within the overall sample of locations. Residential locations (which incorporated 17% of the sites surveyed) contributed only 7% of the total litter items counted in South Australia during February 2007, whilst beaches (11% of sites surveyed) only contributed 6% of the total litter counted, and recreational parks (9% of sites surveyed) contributed only 4%.

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

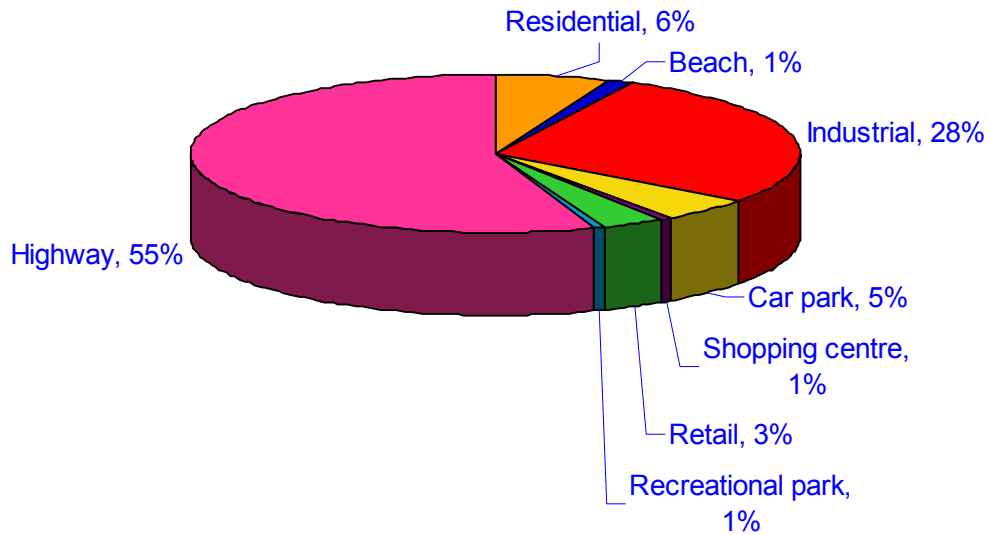


Volume

Over one half (55%, down from 68% in Wave 35) of the total volume of litter recorded during Wave 36 was found at highway locations. Industrial sites (28%, up from 18% in Wave 35) also contributed significantly to the total litter volume.

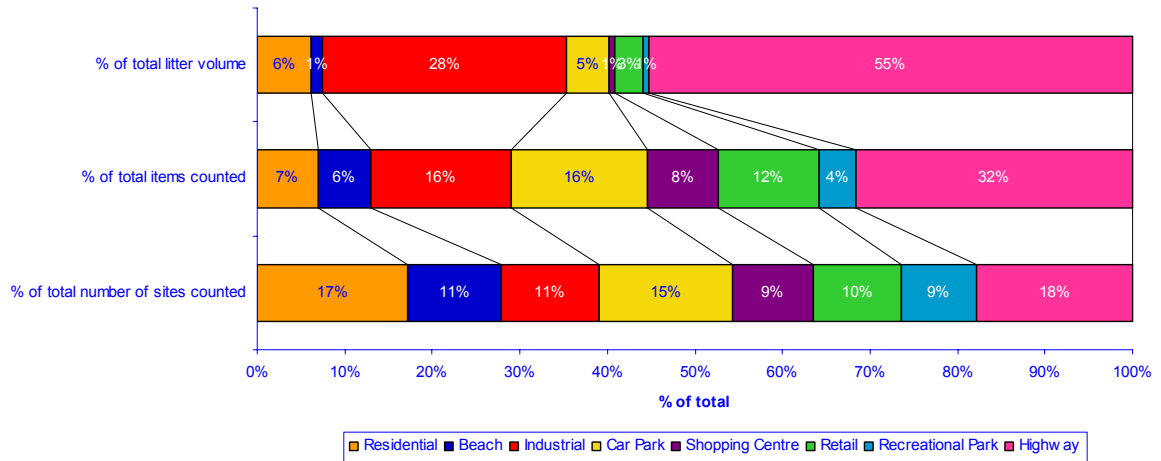
Other sites contributed only negligible amounts to the total volume of litter recorded during February 2007.

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 highways and to a lesser extent industrial locations contributed a larger number and volume of litter items than would be expected given their representations within the sample. On the other hand, all other location types contributed far less to the total volume recorded in Wave 36 than their proportions within the sample would imply.

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



3.9 *CDL Beverage Containers*

The overwhelming majority (97%, down from 98% in Wave 35) of litter items counted in February 2007 were non-beverage items.

The total number of CDL beverage containers counted decreased (328, down from 340 in Wave 35).

CDL beverage containers accounted for 89% (down from 91% in Wave 35) of all beverage containers counted during Wave 36.

Data Summary - Counts

Wave 36 - Items Counted

LITTER CATEGORY x SITE TYPE			RESIDENTIAL	BEACH	INDUSTRIAL	CAR PARK	SHOPPING CENTRE	RETAIL	RECREATIONAL PARK	HIGHWAY	METROPOLITAN	REGIONAL	GRAND TOTAL
Count date													
Wet? (Y/N)													
Windy? (Y/N)													
Temp? (°C)													
Conditions													
Conditions													
Conditions													
TYPE	CODE	Dep	LITTER TYPE										
GLASS	G21	CDL	Plain water (carbonated or non-carb.), 1 litre+	0	0	0	0	0	0	4	2	2	4
GLASS	G21	CDL	Plain water (carbonated or non-carb.), <1 litre	0	0	0	0	1	0	1	1	1	2
GLASS	G21	CDL	Flav. water/soft drink (carbonated) 1 litre+	3	0	0	0	0	0	2	2	3	5
GLASS	G21	CDL	Flav. water/soft drink (carbonated) <1 litre	1	2	0	0	0	0	5	2	6	8
GLASS	G21	CDL	Flav.wtr/fruit j. dr/sprts dr. (non-carb), 1 litre+	0	0	0	0	0	0	0	0	0	0
GLASS	G21	CDL	Flav.wtr/fruit j. dr/sprts dr. (non-carb), <1 litre	0	0	0	0	0	0	0	0	0	0
GLASS	G21	BEV	Fruit juice, 1 litre or more	0	0	0	0	0	0	0	0	0	0
GLASS	G21	CDL	Fruit juice, < 1 litre	0	0	0	0	0	0	0	0	0	0
GLASS	G31	CDL	Wine cooler, all sizes	0	0	0	0	0	0	1	0	1	1
GLASS	G31	CDL	Alcoholic sodas / spirit-based mixers, all sizes	0	0	2	0	0	0	1	2	1	3
GLASS	G31	CDL	Cider/fruit based etc.	0	0	0	0	0	0	0	0	0	0
GLASS	G31	BEV	Wine & spirit, all sizes	2	0	4	0	0	0	0	6	0	6
GLASS	G11	CDL	Beer, 750ml or more, all colours of glass	0	1	10	0	1	0	0	11	1	12
GLASS	G12	CDL	Beer, < 750ml, all colours of glass	8	0	41	3	0	0	23	63	12	75
GLASS	G41	NBEV	Other glass	28	5	86	10	3	4	91	170	58	228
GLASS Total				42	8	143	13	3	6	128	259	85	344
METAL	C22	CDL	Beer, aluminium, all types, all sizes	1	0	1	2	0	0	56	9	51	60
METAL	C32	CDL	Alcoholic sodas & spirit-based mixers	2	0	1	1	0	1	23	22	6	28
METAL	C32	CDL	Cider/fruit based etc.	0	0	0	0	0	0	0	0	0	0
METAL	C32	CDL	Water, carbonated & flavoured/soft drink	0	0	7	2	1	2	27	37	3	40
METAL	C32	CDL	Water, non-carbonated & flavoured, all sizes	0	0	0	0	0	0	0	0	0	0
METAL	C42	NBEV	Food cans (including pet food)	0	0	10	0	0	1	22	13	20	33
METAL	C52	NBEV	Industrial cans - all types	0	0	1	0	0	0	13	6	8	14
METAL	C62	NBEV	Aerosols - pressure packs	0	0	1	0	0	0	6	5	2	7
METAL	N5	NBEV	Metal bottle tops and can pull rings	52	44	84	55	15	26	145	273	174	447
METAL	X41	NBEV	Metal pieces	20	1	82	11	0	9	110	179	61	240
METAL	N6	NBEV	Foil take away	2	1	8	0	0	3	37	20	33	53
METAL	N7	NBEV	Other foil	35	15	26	47	14	7	74	152	94	246
METAL Total				112	61	221	118	30	47	66	513	452	1168

Wave 36 - Items Counted

LITTER CATEGORY x SITE TYPE			RESIDENTIAL	BEACH	INDUSTRIAL	CAR PARK	SHOPPING CENTRE	RETAIL	RECREATIONAL PARK	HIGHWAY	METROPOLITAN	REGIONAL	GRAND TOTAL	
Count date														
Wet? (Y/N)														
Windy? (Y/N)														
Temp? (°C)														
Conditions														
Conditions														
TYPE	CODE	Dep	LITTER TYPE											
PLASTIC	S13/S14	BEV	White milk, all sizes	0	0	1	1	0	0	7	5	4	9	
PLASTIC	S13/S14	BEV	Flav. milk, 1 litre or more	4	0	1	0	0	0	1	0	6	6	
PLASTIC	S13/S14	CDL	Flav. milk, < 1 litre	1	1	1	0	0	0	19	18	4	22	
PLASTIC	S13/S14	BEV	Fruit juice, 1 litre or more	0	0	0	0	0	0	0	0	0	0	
PLASTIC	S13/S14	CDL	Fruit juice< 1 litre	0	0	3	1	0	0	2	4	2	6	
PLASTIC	S13/S14	CDL	Plain water (carbonated or non-carb) 1 litre+	0	1	0	0	1	0	4	5	1	6	
PLASTIC	S13/S14	CDL	Plain water (carbonated or non-carb) <1 litre	0	3	1	1	0	0	1	6	0	6	
PLASTIC	S13/S14	CDL	Flav. water/soft drink (carbonated) 1 litre+	0	1	1	0	0	0	8	10	0	10	
PLASTIC	S13/S14	CDL	Flav. water/soft drink (carbonated) <1 litre	0	1	4	3	0	0	5	12	1	13	
PLASTIC	S13/S14	CDL	Flav. wtr/fruit j. dr, sprts dr etc.(non-carb) 1 litre+	0	0	1	0	0	0	1	2	0	2	
PLASTIC	S13/S14	CDL	Flav.wtr/fruit j. dr, sprts dr etc.(non-carb) <1 litre	0	0	1	0	0	0	4	0	5	5	
PLASTIC	S15	NBEV	Containers, industrial e.g. oil	0	0	3	0	0	1	0	5	7	9	
PLASTIC	S20	NBEV	Containers, domestic type	2	1	9	5	0	0	26	29	14	43	
PLASTIC	S21/a	NBEV	Bags - supermarket type light weight carry bags	5	2	8	6	0	0	41	48	14	62	
PLASTIC	S21/b	NBEV	Bags - heavier glossy typically branded carry bags	0	2	0	0	0	0	21	18	5	23	
PLASTIC	S21/c	NBEV	Sacks - sheeting - other bags	0	3	51	5	0	0	35	82	13	95	
PLASTIC	S25	BEV	Wine cask bladders	0	0	0	0	0	0	2	1	1	2	
PLASTIC	S51	NBEV	Straws	17	29	17	51	13	24	23	93	197	70	267
PLASTIC	S61	NBEV	6 ring can holders	0	0	0	0	2	2	1	8	5	8	13
PLASTIC	S71	NBEV	Snack bags and confectionery wrappers	59	10	90	72	25	41	38	171	410	96	506
PLASTIC	S81	NBEV	Styrene foam boxes, sheets, etc	3	0	13	0	1	1	1	24	33	10	43
PLASTIC	S85	NBEV	Packing tape & straps	6	1	35	3	1	2	2	79	107	22	129
PLASTIC	S95	NBEV	Take away & cups	9	6	29	18	8	6	6	76	97	61	158
PLASTIC	N1	NBEV	Plastic bottle tops	27	28	77	41	18	24	18	169	312	90	402
PLASTIC	N2	NBEV	Bread bag tags	6	13	3	4	0	3	4	1	17	17	34
PLASTIC	N3	NBEV	Lolly/ Chupa Chupa sticks	13	7	2	19	9	27	25	15	83	34	117
PLASTIC	N4	NBEV	Spoons/ cutlery	4	9	5	25	7	4	14	18	59	27	86
PLASTIC	N8	BEV	Drink pouches	0	0	0	0	0	0	0	0	0	0	0
PLASTIC	S91	NBEV	All other plastic	76	25	225	96	30	30	55	407	696	248	944
PLASTIC Total			232	143	581	351	115	165	192	1239	2268	750	3018	

Wave 36 - Items Counted

			LITTER CATEGORY x SITE TYPE	RESIDENTIAL	BEACH	INDUSTRIAL	CAR PARK	SHOPPING CENTRE	RETAIL	RECREATION AL PARK	HIGHWAY	METROPOLITAN	REGIONAL	GRAND TOTAL
			Count date											
			Wet? (Y/N)											
			Windy? (Y/N)											
			Temp? (°C)											
			Conditions											
			Conditions											
			Conditions											
TYPE	CODE	Dep	LITTER TYPE											
PAPER/PAPERBOARD	P11	NBEV	Packages & boxes	19	4	110	22	3	2	2	87	207	42	249
PAPER/PAPERBOARD	P12	NBEV	Cigarette packets	18	2	62	20	5	6	1	162	163	113	276
PAPER/PAPERBOARD	P21	BEV	Cartons, milk, plain (white) all sizes	0	0	1	1	0	0	0	8	8	2	10
PAPER/PAPERBOARD	P22	BEV	Cartons, flavoured milk 1 litre or more	1	0	1	1	0	0	0	1	2	2	4
PAPER/PAPERBOARD	P22	CDL	Cartons, flavoured milk < 1 litre	0	0	0	4	2	1	0	7	11	3	14
PAPER/PAPERBOARD	P23	CDL	Flav. water / fruit j. drink/ sports drink, (non-carb), 1 litre+	0	0	1	0	0	0	0	0	1	0	1
PAPER/PAPERBOARD	P23	CDL	Flav. water/fruit j. drink/sports drink, non-carb, <1 litre	0	0	0	1	0	0	0	1	1	1	2
PAPER/PAPERBOARD	P23	BEV	Fruit juice, 1 litre or more	0	0	0	0	0	0	0	3	3	0	3
PAPER/PAPERBOARD	P23	CDL	Cartons, fruit juice, < 1 litre	1	0	1	0	0	0	0	1	3	0	3
PAPER/PAPERBOARD	P31	NBEV	Newspapers & magazines	6	0	9	3	0	0	1	17	25	11	36
PAPER/PAPERBOARD	P32	NBEV	Junk mail / free circulars	22	0	9	14	3	1	0	20	54	15	69
PAPER/PAPERBOARD	P41	NBEV	Cups/take away containers	10	6	42	27	6	10	3	163	226	41	267
PAPER/PAPERBOARD	P61	NBEV	Tickets, e.g. bus, ATM, vending machine etc.	6	2	2	9	7	13	0	7	40	6	46
PAPER/PAPERBOARD	P65	NBEV	Ice cream wrappers	5	3	6	2	2	5	2	9	24	10	34
PAPER/PAPERBOARD	P91/a	NBEV	Paper bags	4	3	13	9	0	13	2	46	56	34	90
PAPER/PAPERBOARD	P91/b	NBEV	Shopper docketts & related shopping paper (eg, lists)	5	5	28	35	24	14	2	22	101	34	135
PAPER/PAPERBOARD	P91/c	NBEV	Other paper (including tissues)	201	66	304	220	53	122	74	441	1161	320	1481
PAPER/PAPERBOARD Total				298	91	589	368	105	187	87	995	2086	634	2720
MISCELLANEOUS	M21	NBEV	Tyres & pieces	2	0	17	1	0	1	0	71	69	23	92
MISCELLANEOUS	M41	NBEV	Clothing & materials	15	10	68	10	4	2	4	148	185	76	261
MISCELLANEOUS	M51	NBEV	Illegal dumping	2	0	10	0	0	1	0	12	19	6	25
MISCELLANEOUS	X11	NBEV	Syringes	0	0	3	0	0	0	0	0	3	0	3
MISCELLANEOUS	X22	NBEV	Ice cream sticks	17	7	3	20	4	13	2	13	65	14	79
MISCELLANEOUS	X31	NBEV	Rubber pieces (not tyres)	9	6	48	12	3	6	11	71	107	59	166
MISCELLANEOUS	X35	NBEV	Condoms	0	0	0	0	0	0	0	1	1	0	1
MISCELLANEOUS	X52	NBEV	Construction materials	14	8	69	12	1	1	2	60	144	23	167
MISCELLANEOUS	X60	NBEV	Disposable nappies	0	0	0	0	0	0	0	3	0	3	3
MISCELLANEOUS	N9	NBEV	Other miscellaneous	4	2	9	7	2	33	1	15	61	12	73
MISCELLANEOUS Total				63	33	227	62	14	57	20	394	654	216	870
CIGARETTE BUTTS Total				244	497	515	1276	875	1169	220	1197	4368	1625	5993
Grand Total				991	833	2276	2188	1142	1631	586	4466	10351	3762	14113

Data Summary - Volumes

Wave 36 - Volumes - Cubic Metres														
LITTER CATEGORY x SITE TYPE				RESIDENTIAL	BEACH	INDUSTRIAL	CAR PARK	SHOPPING CENTRE	RETAIL	RECREATIONAL PARK	HIGHWAY	METROPOLITAN	REGIONAL	GRAND TOTAL
Count date														
Wet? (Y/N)														
Windy? (Y/N)														
Temp? (°C)														
Conditions														
Conditions														
Conditions														
TYPE	CODE	Dep	LITTER TYPE											
GLASS	G21	CDL	Plain water (carbonated or non-carb.), 1 litre+	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.004	0.002	0.002	0.004
GLASS	G21	CDL	Plain water (carbonated or non-carb.), <1 litre	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001
GLASS	G21	CDL	Flav. water/soft drink (carbonated) 1 litre+	0.005	0.000	0.000	0.000	0.000	0.000	0.000	0.003	0.003	0.005	0.008
GLASS	G21	CDL	Flav. water/soft drink (carbonated) <1 litre	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.002	0.001	0.002	0.002
GLASS	G21	CDL	Flav.wtr/fruit j. dr/sprts dr, (non-carb), 1 litre+	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GLASS	G21	CDL	Flav.wtr/fruit j. dr/sprts dr, (non-carb), <1 litre	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GLASS	G21	BEV	Fruit juice, 1 litre or more	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GLASS	G21	CDL	Fruit juice, < 1 litre	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GLASS	G31	CDL	Wine cooler, all sizes	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GLASS	G31	CDL	Alcoholic sodas / spirit-based mixers, all sizes	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.001
GLASS	G31	CDL	Cider/fruit based etc.	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GLASS	G31	BEV	Wine & spirit, all sizes	0.002	0.000	0.004	0.000	0.000	0.000	0.000	0.000	0.005	0.000	0.005
GLASS	G11	CDL	Beer, 750ml or more, all colours of glass	0.000	0.001	0.008	0.000	0.000	0.001	0.000	0.000	0.009	0.001	0.010
GLASS	G12	CDL	Beer, < 750ml, all colours of glass	0.004	0.000	0.020	0.001	0.000	0.000	0.000	0.011	0.030	0.006	0.036
GLASS	G41	NBEV	Other bottles & jars, all types, all colours	0.001	0.000	0.002	0.000	0.000	0.000	0.000	0.002	0.003	0.001	0.004
GLASS Total				0.011	0.002	0.034	0.002	0.000	0.001	0.000	0.023	0.055	0.018	0.073
METAL	C22	CDL	Beer, aluminium, all types, all sizes	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.024	0.004	0.022	0.026
METAL	C32	CDL	Alcoholic sodas & spirit-based mixers	0.001	0.000	0.001	0.001	0.000	0.001	0.000	0.013	0.012	0.003	0.016
METAL	C32	CDL	Cider/fruit based etc.	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
METAL	C32	CDL	Water, carbonated & flavoured/soft drink	0.000	0.000	0.003	0.001	0.000	0.000	0.001	0.012	0.016	0.001	0.017
METAL	C32	CDL	Water, non-carbonated & flavoured, all sizes	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
METAL	C42	NBEV	Food cans (including pet food)	0.000	0.000	0.005	0.000	0.000	0.000	0.000	0.010	0.006	0.009	0.015
METAL	C52	NBEV	Industrial cans - all types	0.000	0.000	0.005	0.000	0.000	0.000	0.000	0.059	0.027	0.037	0.064
METAL	C62	NBEV	Aerosols - pressure packs	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.004	0.003	0.001	0.005
METAL	N5	NBEV	Metal bottle tops and can pull rings	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.001	0.002
METAL	X41	NBEV	Metal pieces	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.001	0.002	0.001	0.003
METAL	N6	NBEV	Foil take away	0.001	0.000	0.004	0.000	0.000	0.001	0.001	0.017	0.009	0.015	0.025
METAL	N7	NBEV	Other foil	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
METAL Total				0.003	0.001	0.019	0.003	0.001	0.003	0.002	0.141	0.082	0.091	0.172

Wave 36 - Volumes - Cubic Metres														
LITTER CATEGORY x SITE TYPE				RESIDENTIAL	BEACH	INDUSTRIAL	CAR PARK	SHOPPING CENTRE	RETAIL	RECREATIONAL PARK	HIGHWAY	METROPOLITAN	REGIONAL	GRAND TOTAL
Count date														
Wet? (Y/N)														
Windy? (Y/N)														
Temp? (°C)														
Conditions														
Conditions														
Conditions														
TYPE	CODE	Dep	LITTER TYPE											
PLASTIC	S13/S14	BEV	White milk, all sizes	0.000	0.000	0.002	0.002	0.000	0.000	0.000	0.015	0.011	0.009	0.019
PLASTIC	S13/S14	BEV	Flav. milk, 1 litre or more	0.009	0.000	0.002	0.000	0.000	0.000	0.000	0.002	0.000	0.013	0.013
PLASTIC	S13/S14	CDL	Flav. milk, < 1 litre	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.010	0.010	0.002	0.012
PLASTIC	S13/S14	BEV	Fruit juice, 1 litre or more	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
PLASTIC	S13/S14	CDL	Fruit juice< 1 litre	0.000	0.000	0.002	0.001	0.000	0.000	0.000	0.001	0.002	0.001	0.003
PLASTIC	S13/S14	CDL	Plain water (carbonated or non-carb) 1 litre+	0.000	0.002	0.000	0.000	0.002	0.000	0.000	0.006	0.008	0.002	0.009
PLASTIC	S13/S14	CDL	Plain water (carbonated or non-carb) <1 litre	0.000	0.002	0.001	0.001	0.000	0.000	0.000	0.001	0.005	0.000	0.005
PLASTIC	S13/S14	CDL	Flav. water/soft drink (carbonated) 1 litre+	0.000	0.002	0.002	0.000	0.000	0.000	0.000	0.013	0.017	0.000	0.017
PLASTIC	S13/S14	CDL	Flav. water/soft drink (carbonated) <1 litre	0.000	0.001	0.002	0.002	0.000	0.000	0.000	0.003	0.007	0.001	0.008
PLASTIC	S13/S14	CDL	Flav. wtr/fruit j. dr, sprts dr etc.(non-carb) 1 litre+	0.000	0.000	0.002	0.000	0.000	0.000	0.000	0.002	0.003	0.000	0.003
PLASTIC	S13/S14	CDL	Flav.wtr/fruit j. dr, sprts dr etc.(non-carb) <1 litre	0.000	0.000	0.001	0.000	0.000	0.000	0.002	0.000	0.003	0.000	0.003
PLASTIC	S15	NBEV	Containers, industrial e.g. oil	0.000	0.000	0.067	0.000	0.000	0.022	0.000	0.112	0.157	0.045	0.202
PLASTIC	S20	NBEV	Containers, domestic type	0.017	0.008	0.075	0.042	0.000	0.000	0.000	0.216	0.241	0.117	0.358
PLASTIC	S21/a	NBEV	Bags - supermarket type light weight carry bags	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.002	0.000	0.002
PLASTIC	S21/b	NBEV	Bags - heavier glossy typically branded carry bags	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.002	0.000	0.002
PLASTIC	S21/c	NBEV	Sacks - sheeting - other bags	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
PLASTIC	S25	BEV	Wine cask bladders	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.001
PLASTIC	S51	NBEV	Straws	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.001
PLASTIC	S61	NBEV	6 ring can holders	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
PLASTIC	S71	NBEV	Snack bags and confectionery wrappers	0.000	0.000	0.001	0.001	0.000	0.000	0.000	0.001	0.003	0.001	0.004
PLASTIC	S81	NBEV	Styrene foam boxes, sheets, etc	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.000	0.002
PLASTIC	S85	NBEV	Packing tape & straps	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
PLASTIC	S95	NBEV	Take away & cups	0.002	0.001	0.006	0.004	0.002	0.001	0.001	0.016	0.020	0.013	0.033
PLASTIC	N1	NBEV	Plastic bottle tops	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.001	0.002	0.001	0.003
PLASTIC	N2	NBEV	Bread bag tags	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
PLASTIC	N3	NBEV	Lolly/ Chupa Chupa sticks	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
PLASTIC	N4	NBEV	Spoons/ cutlery	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.001
PLASTIC	N8	BEV	Drink pouches	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
PLASTIC	S91	NBEV	All other plastic	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.000	0.001
PLASTIC Total				0.029	0.017	0.164	0.052	0.004	0.024	0.004	0.407	0.497	0.205	0.702

Wave 36 - Volumes - Cubic Metres

			LITTER CATEGORY x SITE TYPE	RESIDENTIAL	BEACH	INDUSTRIAL	CAR PARK	SHOPPING CENTRE	RETAIL	RECREATIONAL PARK	HIGHWAY	METROPOLITAN	REGIONAL	GRAND TOTAL	
			Count date												
			Wet? (Y/N)												
			Windy? (Y/N)												
			Temp? (°C)												
			Conditions												
			Conditions												
			Conditions												
TYPE	CODE	Dep	LITTER TYPE												
PAPER/PAPERBOARD	P11	NBEV	Packages & boxes	0.002	0.000	0.009	0.002	0.000	0.000	0.000	0.007	0.017	0.003	0.020	
PAPER/PAPERBOARD	P12	NBEV	Cigarette packets	0.004	0.000	0.014	0.004	0.001	0.001	0.000	0.035	0.036	0.025	0.060	
PAPER/PAPERBOARD	P21	BEV	Cartons, milk, plain (white) all sizes	0.000	0.000	0.001	0.001	0.000	0.000	0.000	0.008	0.008	0.002	0.010	
PAPER/PAPERBOARD	P22	BEV	Cartons, flavoured milk 1 litre or more	0.001	0.000	0.001	0.001	0.000	0.000	0.000	0.001	0.002	0.002	0.004	
PAPER/PAPERBOARD	P22	CDL	Cartons, flavoured milk < 1 litre	0.000	0.000	0.000	0.003	0.001	0.001	0.000	0.005	0.008	0.002	0.010	
PAPER/PAPERBOARD	P23	CDL	Flav. water / fruit j. drink/ sports drink, (non-carb), 1 litre+	0.000	0.000	0.002	0.000	0.000	0.000	0.000	0.000	0.002	0.000	0.002	
PAPER/PAPERBOARD	P23	CDL	Flav. water/fruit j. drink/sports drink, non-carb, <1 litre	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	
PAPER/PAPERBOARD	P23	BEV	Fruit juice, 1 litre or more	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.006	0.006	0.000	0.006	
PAPER/PAPERBOARD	P23	CDL	Cartons, fruit juice, < 1 litre	0.001	0.000	0.001	0.000	0.000	0.000	0.000	0.001	0.002	0.000	0.002	
PAPER/PAPERBOARD	P31	NBEV	Newspapers & magazines	0.007	0.000	0.011	0.004	0.000	0.000	0.001	0.020	0.030	0.013	0.042	
PAPER/PAPERBOARD	P32	NBEV	Junk mail / free circulars	0.004	0.000	0.002	0.002	0.001	0.000	0.000	0.003	0.009	0.003	0.012	
PAPER/PAPERBOARD	P41	NBEV	Cups/take away containers	0.007	0.004	0.031	0.020	0.004	0.007	0.002	0.119	0.165	0.030	0.195	
PAPER/PAPERBOARD	P61	NBEV	Tickets, e.g. bus, ATM, vending machine etc.	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
PAPER/PAPERBOARD	P65	NBEV	Ice cream wrappers	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
PAPER/PAPERBOARD	P91/a	NBEV	Paper bags	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.001	
PAPER/PAPERBOARD	P91/b	NBEV	Shopper dockets & related shopping paper (eg. lists)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
PAPER/PAPERBOARD	P91/c	NBEV	Other paper (including tissues)	0.001	0.000	0.001	0.001	0.000	0.000	0.000	0.001	0.004	0.001	0.005	
PAPER/PAPERBOARD Total				0.026	0.005	0.071	0.038	0.008	0.010	0.004	0.208	0.289	0.082	0.371	
MISCELLANEOUS	M21	NBEV	Tyres & pieces	0.000	0.000	0.004	0.000	0.000	0.000	0.000	0.016	0.016	0.005	0.021	
MISCELLANEOUS	M41	NBEV	Clothing & materials	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.002	0.003	0.001	0.004	
MISCELLANEOUS	M51	NBEV	Illegal dumping	0.048	0.000	0.240	0.000	0.000	0.024	0.000	0.288	0.456	0.144	0.600	
MISCELLANEOUS	X11	NBEV	Syringes	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
MISCELLANEOUS	X22	NBEV	Ice cream sticks	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
MISCELLANEOUS	X31	NBEV	Rubber pieces (not tyres)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
MISCELLANEOUS	X35	NBEV	Condoms	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
MISCELLANEOUS	X52	NBEV	Construction materials	0.005	0.003	0.025	0.004	0.000	0.000	0.001	0.022	0.052	0.008	0.060	
MISCELLANEOUS	X60	NBEV	Disposable nappies	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.003	0.000	0.003	0.003	
MISCELLANEOUS	N9	NBEV	Other miscellaneous	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.001	
MISCELLANEOUS Total				0.054	0.003	0.270	0.005	0.000	0.025	0.001	0.331	0.527	0.162	0.689	
CIGARETTE BUTTS Total				0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Grand Total				0.123	0.028	0.558	0.099	0.013	0.064	0.012	1.111	1.450	0.557	2.007	

Appendix 1: Tracking Graphs

Weighting of Previous Results

Since February 2006 (Wave 32), 11 revised sites have been surveyed concurrently with the 151 original sites included within the litter monitor program since its inception in February 1998. The new and old sites were surveyed simultaneously across four Waves of the monitor.

These revised sites have previously been incorporated within the 151 original sites to replace 11 of the original sites that were found to be unusual in nature, and analyses have typically focused on results for the 151 sites including the 11 *new* sites and the 151 sites including the 11 *old* sites separately.

However, in the February 2007 count only the 151 sites incorporating the 11 new were surveyed. In order to facilitate tracking comparisons, previous figures were weighted based upon the variations between results for the 151 sites including the 11 new sites and the 151 sites including the 11 old sites.

Weighting techniques were based upon comparisons of figures for items and volumes recorded during Waves 32, 33, 34 and 35 across all sites incorporating either the 11 original or 11 revised sites.

Figures which were weighted included:

- **Absolute values (counts and volumes) within material categories and site types**, since the revised sites resulted in differences in nearly all absolute values of counted litter.
- **Comparisons between proportional representation of litter across site types**, due to the fact that site revision altered the proportions of litter contributed to the total litter stream within certain site categories whilst others remained unchanged.

However, preliminary investigations demonstrated that proportional contribution to the total litter stream within material types was consistently similar between the original and revised site sets. This finding supports the assumption that whilst the quantities of litter recorded differed between old and new sites, the types of material within such litter were relatively consistent. For this reason, proportional figures within material type did not require weighting.

Items within material categories across all 151 sites including either 11 original or 11 revised sites	Wave 32				Wave 33				Wave 34				Wave 35			
	Old	New	Diff	New as % of Old	Old	New	Diff	New as % of Old	Old	New	Diff	New as % of Old	Old	New	Diff	New as % of Old
Glass	419	311	108	0.74224344	349	293	56	0.83954155	321	281	40	0.87538941	305	249	56	0.81639344
Metal	1505	1218	287	0.80930233	1450	1099	351	0.75793103	1440	1086	354	0.75416667	1517	1183	334	0.77982861
Plastic	5447	3819	1628	0.70111988	5261	3866	1395	0.73484128	5057	3575	1482	0.70694087	5332	3827	1505	0.71774194
Paper/ paperboard	4299	2969	1330	0.69062573	3820	3003	817	0.78612565	4017	2961	1056	0.73711725	3616	2752	864	0.76106195
Miscellaneous	1286	975	311	0.75816485	1057	814	243	0.77010407	1025	815	210	0.79512195	1150	944	206	0.82086957
Cigarette Butts	7600	5744	1856	0.75578947	9606	6814	2792	0.70934832	10950	6959	3991	0.63552511	10875	6474	4401	0.59531034
TOTAL	20556	15036	5520	0.73146527	21543	15889	5654	0.73754816	22810	15677	7133	0.68728628	22795	15429	7366	0.67685896
AVERAGE New as % of Old				0.74124442				0.76220572				0.74164965				0.73829497
OVERALL Mean New as % of Old	0.7458															

Items within site type across all 151 sites including either 11 original or 11 revised sites		Residential	Beach	Industrial	Car Park	Shopping Centre	Retail	Recreational Park	Highway	Metropolitan	Regional	TOTAL			
		Old	New	Diff	New as % of Old	Old	New	Diff	New as % of Old	Old	New	Diff	New as % of Old	Old	New
Wave 32	Old	1187	1016	2395	2194	1261	1517	617	10369	17020	3536	20556			
	New	1187	1016	2196	2064	1292	1517	617	5147	11500	3536	15036			
	Diff	0	0	199	130	-31	0	0	5222	5520	0	5520			
	New as % of Old	1	1	0.92	0.94	1.02	1	1	0.50	0.68	1	7.3786248			
Wave 33	Old	1227	737	2573	3142	2323	1659	590	9292	17788	3755	21543			
	New	1227	737	2428	2722	1919	1659	590	4607	12134	3755	15889			
	Diff	0	0	145	420	404	0	0	4685	5654	0	5654			
	New as % of Old	1	1	0.94	0.87	0.83	1	1	0.50	0.68	1	7.1318625			
Wave 34	Old	1185	721	2498	3365	1853	1670	479	11039	18749	4061	22810			
	New	1185	721	2077	2724	1155	1670	479	5666	11616	4061	15677			
	Diff	0	0	421	641	698	0	0	5373	7133	0	7133			
	New as % of Old	1	1	0.83	0.81	0.62	1	1	0.51	0.62	1	6.7775595			
Wave 35	Old	1134	728	2705	2601	2232	1801	729	10865	18640	4155	22795			
	New	1134	728	2399	2156	1157	1801	729	5325	11274	4155	15429			
	Diff	0	0	306	445	1075	0	0	5540	7366	0	7366			
	New as % of Old	1	1	0.89	0.83	0.52	1	1	0.49	0.60	1	6.7242631			
Average New as % of Old		1	1	0.89	0.86	0.75	1	1	0.50	0.65	1	7.0030775			

Proportions of total items within site type across all 151 sites including either 11 original or 11 revised sites		Residential	Beach	Industrial	Car Park	Shopping Centre	Retail	Recreational Park	Highway	Metropolitan	Regional	TOTAL
Wave 32	Old	1187	1016	2395	2194	1261	1517	617	10369	17020	3536	20556
	New	1187	1016	2196	2064	1292	1517	617	5147	11500	3536	15036
	Old % of total items	5.8%	4.9%	11.7%	10.7%	6.1%	7.4%	3.0%	50.4%	82.8%	17.2%	
	New % of total items	7.9%	6.8%	14.6%	13.7%	8.6%	10.1%	4.1%	34.2%	76.5%	23.5%	
	% change from Old to New	2.1%	1.8%	3.0%	3.1%	2.5%	2.7%	1.1%	-16.2%	-6.3%	6.3%	
Wave 33	Old	1227	737	2573	3142	2323	1659	590	9292	17788	3755	21543
	New	1227	737	2428	2722	1919	1659	590	4607	12134	3755	15889
	Old % of total items	5.7%	3.4%	11.9%	14.6%	10.8%	7.7%	2.7%	43.1%	82.6%	17.4%	
	New % of total items	7.7%	4.6%	15.3%	17.1%	12.1%	10.4%	3.7%	29.0%	76.4%	23.6%	
	% change from Old to New	2.0%	1.2%	3.3%	2.5%	1.3%	2.7%	1.0%	-14.1%	-6.2%	6.2%	
Wave 34	Old	1185	721	2498	3365	1853	1670	479	11039	18749	4061	22810
	New	1185	721	2077	2724	1155	1670	479	5666	11616	4061	15677
	Old % of total items	5.2%	3.2%	11.0%	14.8%	8.1%	7.3%	2.1%	48.4%	82.2%	17.8%	
	New % of total items	7.6%	4.6%	13.2%	17.4%	7.4%	10.7%	3.1%	36.1%	74.1%	25.9%	
	% change from Old to New	2.4%	1.4%	2.3%	2.6%	-0.8%	3.3%	1.0%	-12.3%	-8.1%	8.1%	
Wave 35	Old	1134	728	2705	2601	2232	1801	729	10865	18640	4155	22795
	New	1134	728	2399	2156	1157	1801	729	5325	11274	4155	15429
	Old % of total items	5.0%	3.2%	11.9%	11.4%	9.8%	7.9%	3.2%	47.7%	81.8%	18.2%	
	New % of total items	7.3%	4.7%	15.5%	14.0%	7.5%	11.7%	4.7%	34.5%	73.1%	26.9%	
	% change from Old to New	2.4%	1.5%	3.7%	2.6%	-2.3%	3.8%	1.5%	-13.2%	-8.7%	8.7%	
Average % difference from Old to New		2%	1%	3%	3%	0%	3%	1%	-14%	-7%	7%	

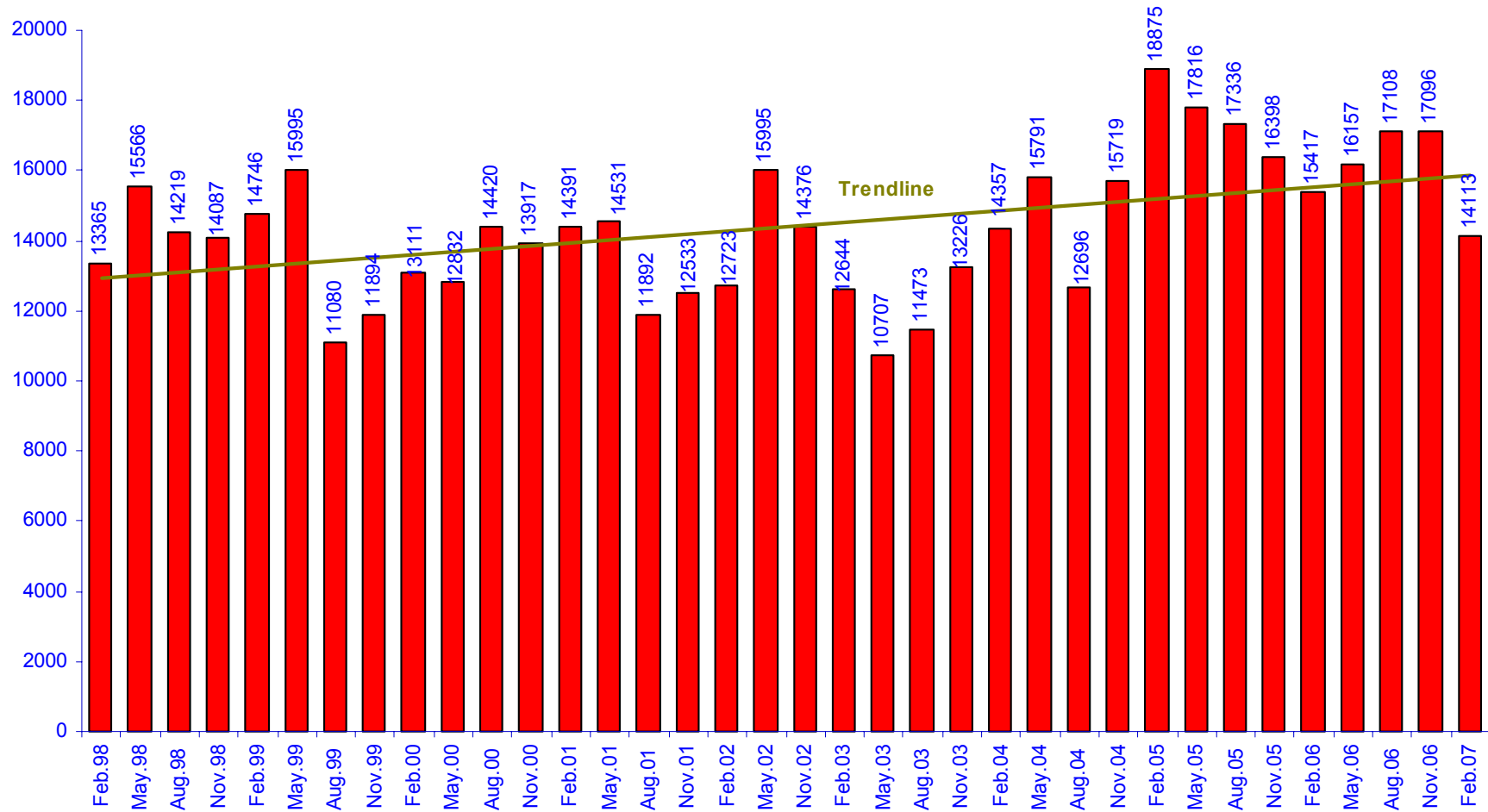
Volumes within material categories across all 151 sites including either 11 original or 11 revised sites	Wave 32				Wave 33				Wave 34				Wave 35			
	Old	New	Diff	New as % of Old	Old	New	Diff	New as % of Old	Old	New	Diff	New as % of Old	Old	New	Diff	New as % of Old
Glass	0.11965	0.09027	0.02939	0.75438	0.08663	0.06859	0.01804	0.79173	0.08559	0.07086	0.01473	0.82789	0.06907	0.05316	0.01591	0.76962
Metal	0.22261	0.19846	0.02415	0.8915	0.15196	0.13181	0.02015	0.86741	0.15085	0.10952	0.04132	0.72605	0.17499	0.15130	0.02369	0.86463
Plastic	1.16278	0.72042	0.44235	0.61957	0.90407	0.71848	0.18559	0.79472	0.93411	0.63312	0.30099	0.67778	0.88814	0.67589	0.21225	0.76102
Paper/ paperboard	0.71375	0.41932	0.29443	0.58749	0.47904	0.36017	0.11888	0.75184	0.54568	0.35535	0.19033	0.6512	0.50410	0.35413	0.14998	0.70249
Miscellaneous	1.11014	0.83415	0.27599	0.75139	0.84900	0.61172	0.23727	0.72052	0.78143	0.71261	0.06882	0.91194	2.14021	1.97182	0.16839	0.92132
Cigarette Butts	0.00009	0.00007	0.00002	0.75515	0.00011	0.00008	0.00003	0.70935	0.00013	0.00008	0.00005	0.63553	0.00013	0.00007	0.00005	0.59531
TOTAL	3.32902	2.26269	1.06633	0.67969	2.47082	1.89085	0.57996	0.76528	2.49778	1.88155	0.61624	0.75329	3.77664	3.20638	0.57026	0.849
AVERAGE New as % of Old				0.71988				0.77155				0.74052				0.78049
OVERALL MEAN DIFFERENCE	0.7531															

Volumes within site type across all 151 sites including either 11 original or 11 revised sites		Residential	Beach	Industrial	Car Park	Shopping Centre	Retail	Recreational Park	Highway	Metropolitan	Regional	TOTAL
Wave 32	Old	0.05441	0.02998	0.57970	0.13090	0.01177	0.01877	0.02922	2.47428	2.54585	0.78318	3.32902
	New	0.05441	0.02998	0.57922	0.17275	0.00965	0.01877	0.02922	1.36868	1.47951	0.78318	2.26269
	Diff			0.00048	-0.04186	0.00212			1.10559	1.06633		
	New as % of Old	1	1	0.99917	1.31979	0.82005	1	1	0.55317	0.58115	1	
Wave 33	Old	0.06600	0.03600	0.54200	0.07100	0.03000	0.02100	0.04100	1.66400	1.85500	0.61500	2.47100
	New	0.06600	0.03600	0.53900	0.07000	0.01000	0.02100	0.04100	1.10700	1.27500	0.61500	1.89000
	Diff			0.00300	0.00100	0.02000			0.55700	0.58000		
	New as % of Old	1	1	0.99446	0.98592	0.33333	1	1	0.66526	0.68733	1	
Wave 34	Old	0.07800	0.06500	0.41100	0.14100	0.05000	0.01200	0.00600	1.73400	1.87300	0.62500	2.49700
	New	0.07800	0.06500	0.40000	0.14000	0.00900	0.01200	0.00600	1.17100	1.25700	0.62500	1.88100
	Diff			0.01100	0.00100	0.04100			0.56300	0.61600		
	New as % of Old	1	1	0.97324	0.99291	0.18000	1	1	0.67532	0.67112	1	
Wave 35	Old	0.17400	0.01700	0.58800	0.13000	0.05300	0.05900	0.01700	2.73700	2.12500	1.65200	3.77500
	New	0.17400	0.01700	0.58600	0.14600	0.03700	0.05900	0.01700	2.16900	1.55500	1.65200	3.20500
	Diff			0.00200	-0.01600	0.01600			0.56800	0.57000		
	New as % of Old	1	1	1.00	1.12	0.70	1	1	0.79	0.73	1	
Average New as % of Old		1	1	0.99	1.11	0.51	1	1	0.67	0.67	1	

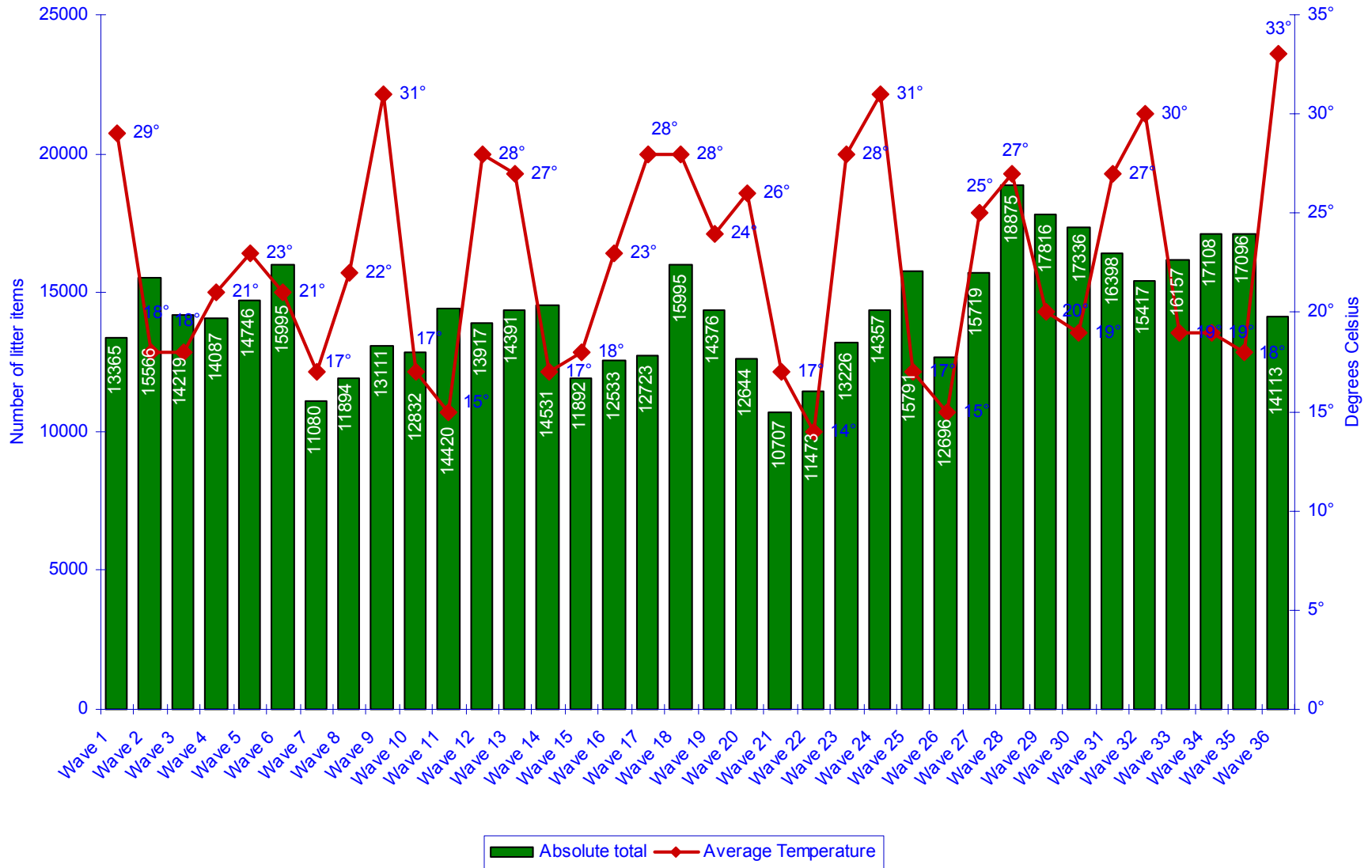
Proportions of total volume within site type across all 151 sites including either 11 original or 11 revised sites		Residential	Beach	Industrial	Car Park	Shopping Centre	Retail	Recreational Park	Highway	Metropolitan	Regional	TOTAL
Wave 32	Old	0.05441	0.02998	0.57970	0.13090	0.01177	0.01877	0.02922	2.47428	2.54585	0.78318	3.32902
	New	0.05441	0.02998	0.57922	0.17275	0.00965	0.01877	0.02922	1.36868	1.47951	0.78318	2.26269
	Old % of total volume	1.6%	0.9%	17.4%	3.9%	0.4%	0.6%	0.9%	74.3%	76.5%	23.5%	
	New % of total volume	2.4%	1.3%	25.6%	7.6%	0.4%	0.8%	1.3%	60.5%	65.4%	34.6%	
% change from Old to New		0.8%	0.4%	8.2%	3.7%	0.1%	0.3%	0.4%	-13.8%	-11.1%	11.1%	
Wave 33	Old	0.06600	0.03600	0.54200	0.07100	0.03000	0.02100	0.04100	1.66400	1.85500	0.61500	2.47100
	New	0.06600	0.03600	0.53900	0.07000	0.01000	0.02100	0.04100	1.10700	1.27500	0.61500	1.89000
	Old % of total volume	2.7%	1.5%	21.9%	2.9%	1.2%	0.8%	1.7%	67.3%	75.1%	24.9%	
	New % of total volume	3.5%	1.9%	28.5%	3.7%	0.5%	1.1%	2.2%	58.6%	67.5%	32.5%	
% change from Old to New		0.8%	0.4%	6.6%	0.8%	-0.7%	0.3%	0.5%	-8.8%	-7.6%	7.7%	
Wave 34	Old	0.07800	0.06500	0.41100	0.14100	0.05000	0.01200	0.00600	1.73400	1.87300	0.62500	2.49700
	New	0.07800	0.06500	0.40000	0.14000	0.00900	0.01200	0.00600	1.17100	1.25700	0.62500	1.88100
	Old % of total volume	3.1%	2.6%	16.5%	5.6%	2.0%	0.5%	0.2%	69.4%	75.0%	25.0%	
	New % of total volume	4.1%	3.5%	21.3%	7.4%	0.5%	0.6%	0.3%	62.3%	66.8%	33.2%	
% change from Old to New		1.0%	0.9%	4.8%	1.8%	-1.5%	0.2%	0.1%	-7.2%	-8.2%	8.2%	
Wave 35	Old	0.17400	0.01700	0.58800	0.13000	0.05300	0.05900	0.01700	2.73700	2.12500	1.65200	3.77500
	New	0.17400	0.01700	0.58600	0.14600	0.03700	0.05900	0.01700	2.16900	1.55500	1.65200	3.20500
	Old % of total volume	4.6%	0.5%	15.6%	3.4%	1.4%	1.6%	0.5%	72.5%	56.3%	43.8%	
	New % of total volume	5.4%	0.5%	18.3%	4.6%	1.2%	1.8%	0.5%	67.7%	48.5%	51.5%	
% change from Old to New		0.8%	0.1%	2.7%	1.1%	-0.2%	0.3%	0.1%	-4.8%	-7.8%	7.8%	
Average % difference from Old to New		1%	0%	6%	2%	-1%	0%	0%	-9%	-9%	9%	

Weighted Tracking Graphs

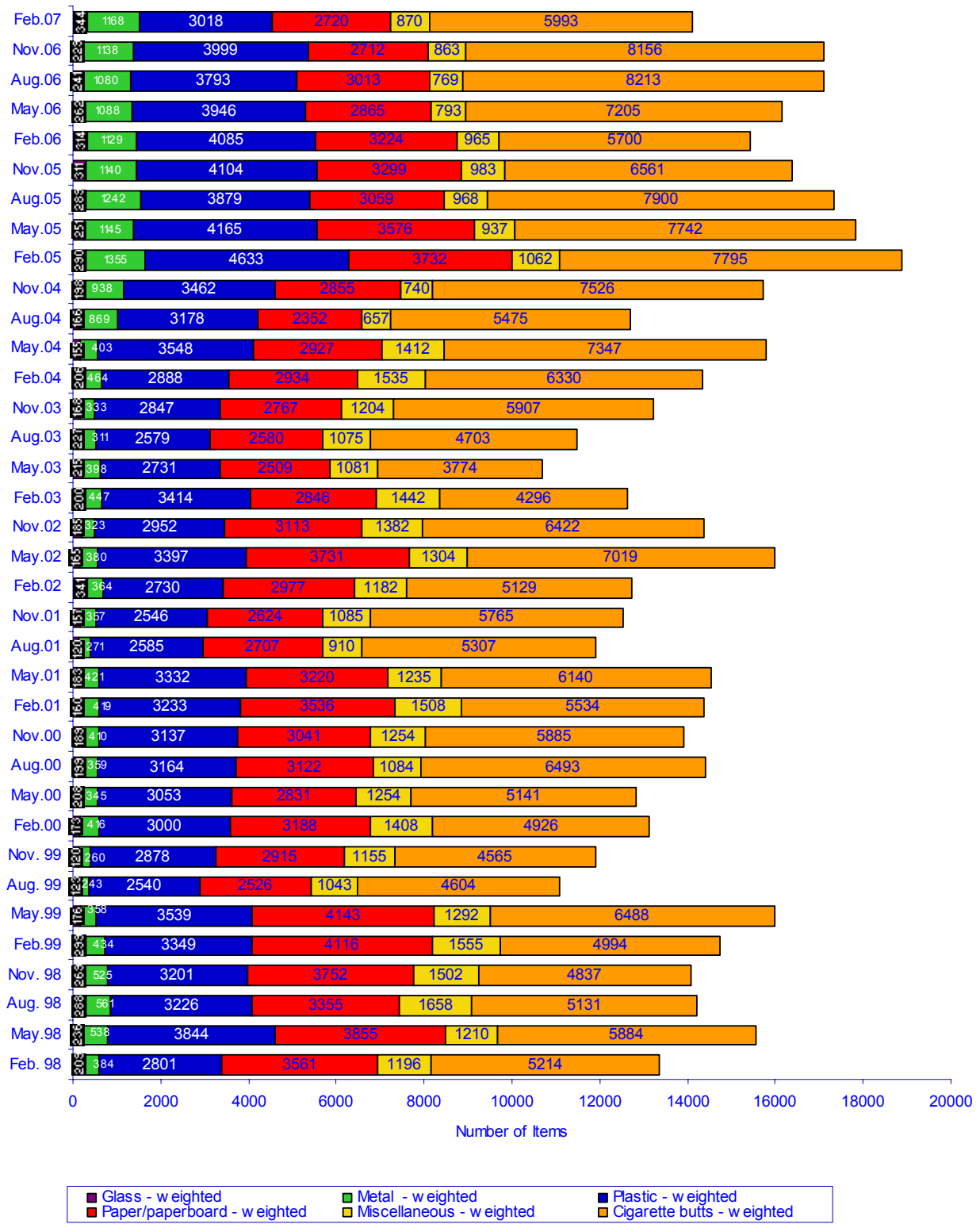
Total Litter - Number of Items - Weighted



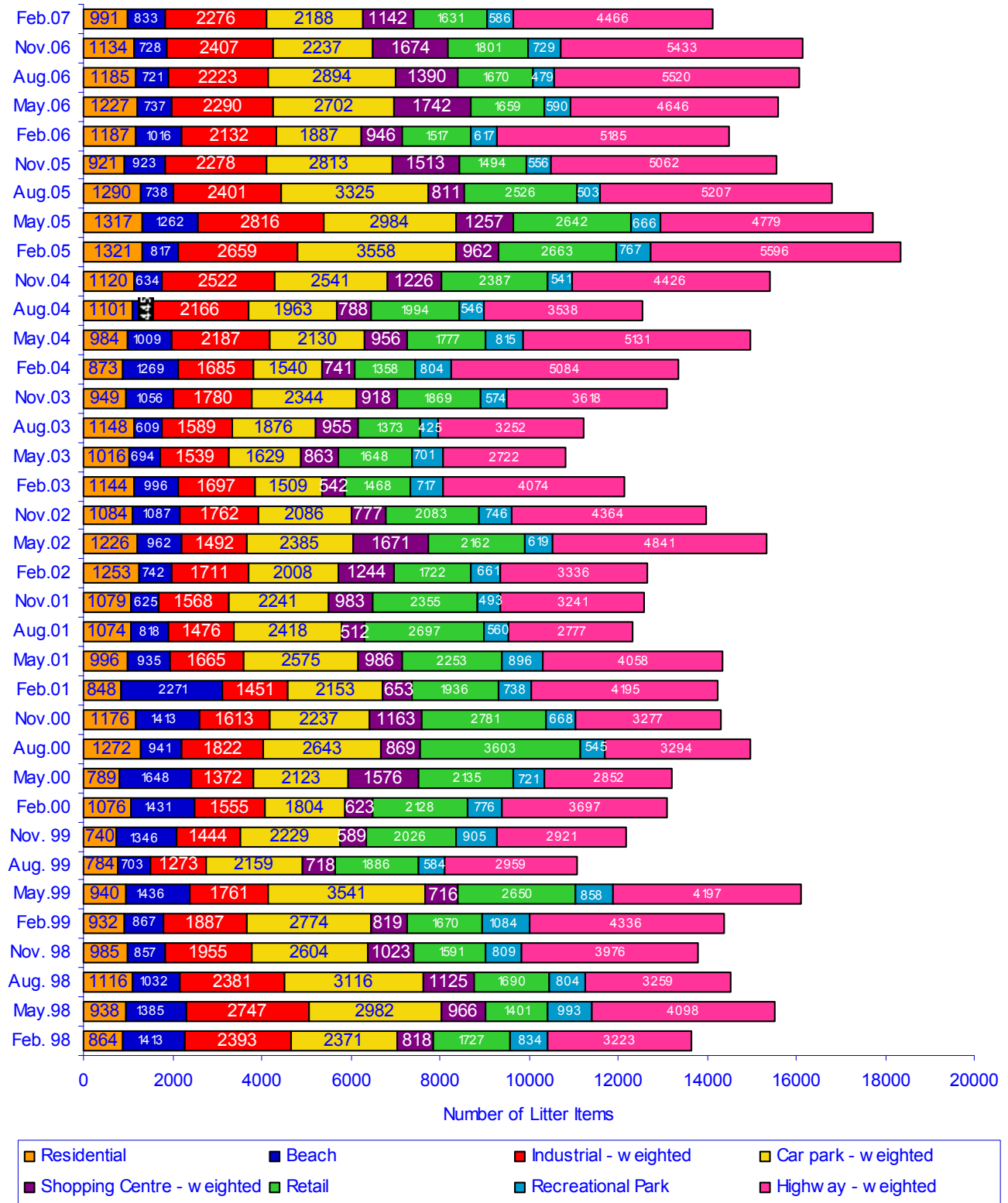
Weather Temperature and Total Number of Litter Items - Weighted



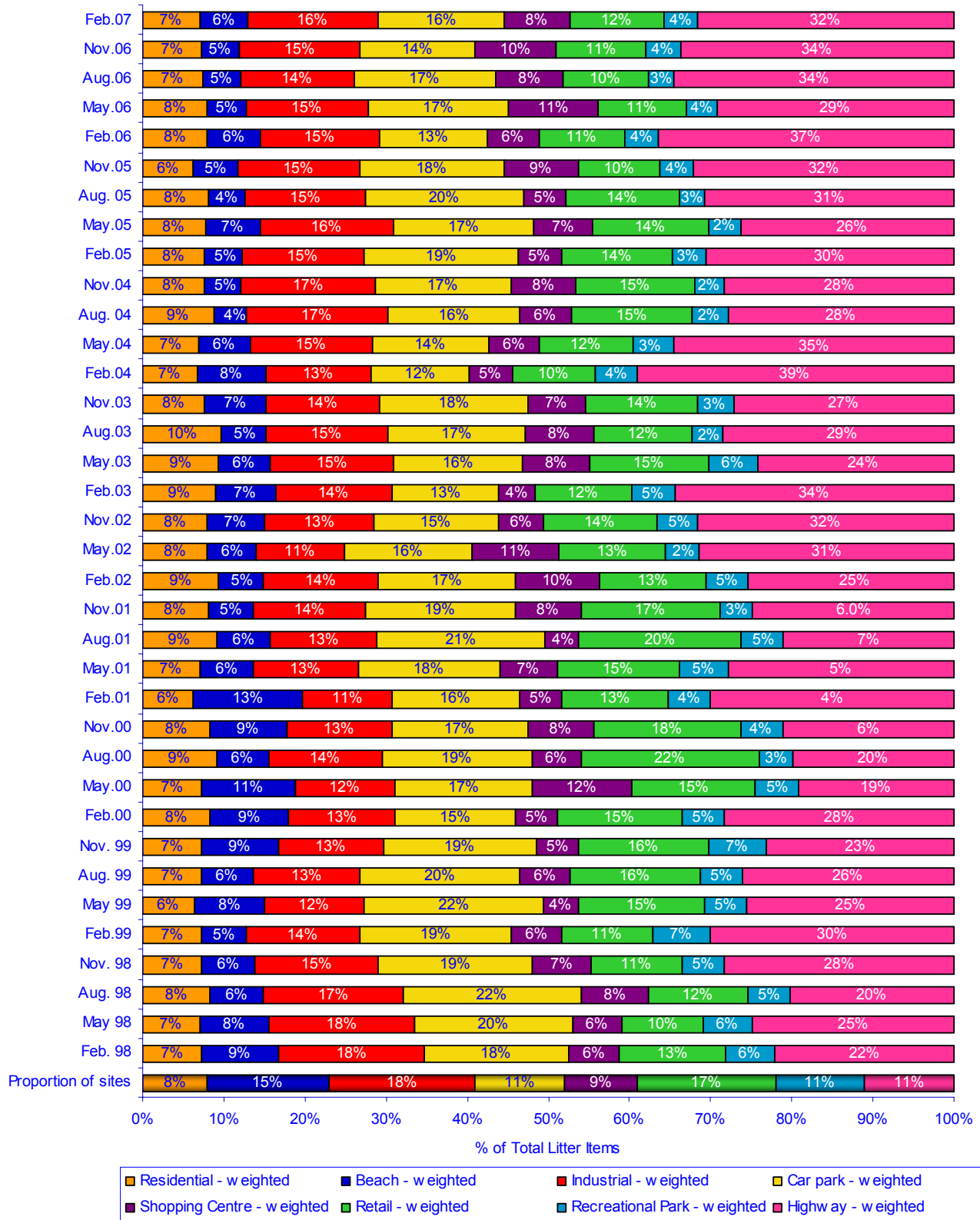
Number of Litter Items by Material Type - Weighted



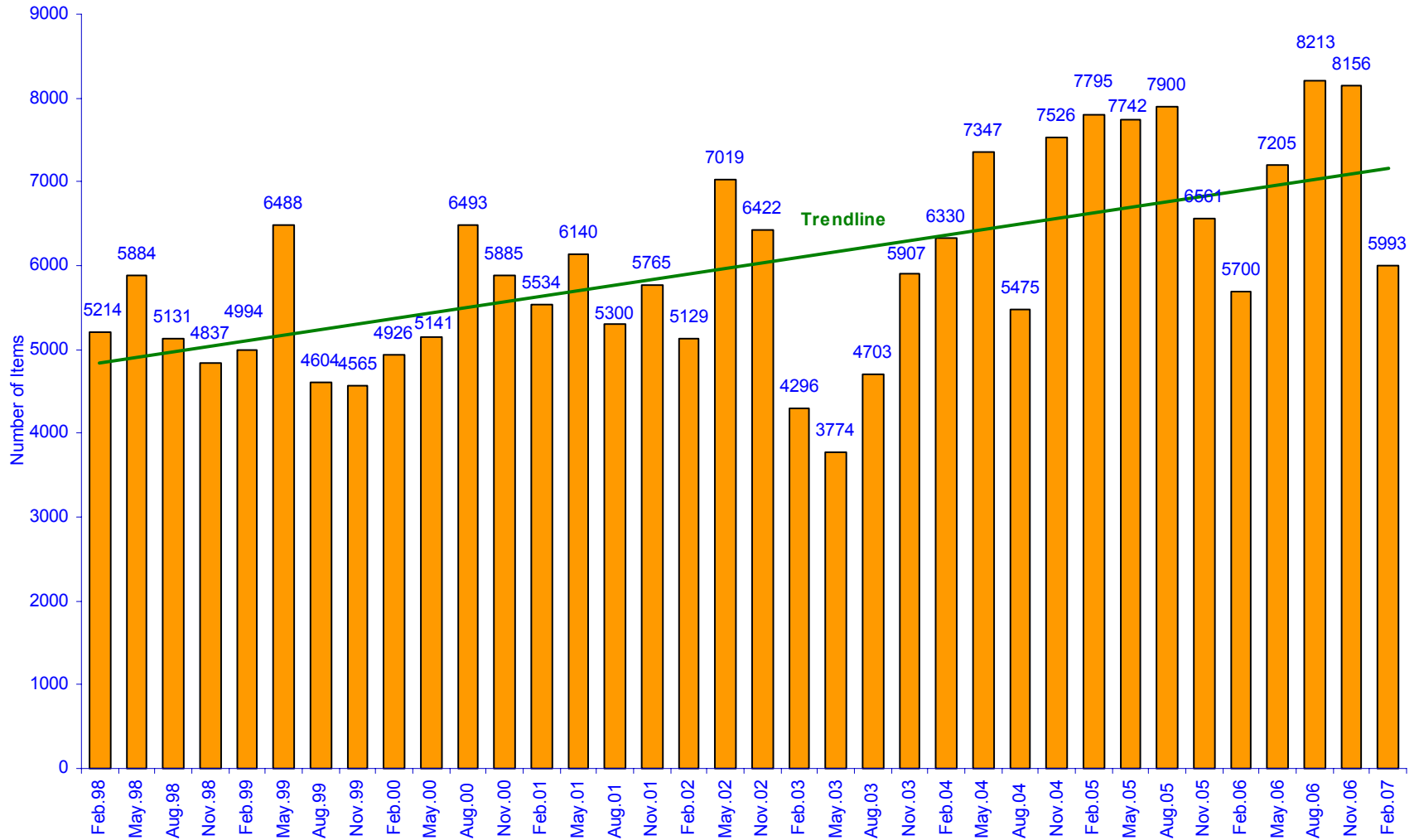
Number of Litter Items by Site Type - Weighted



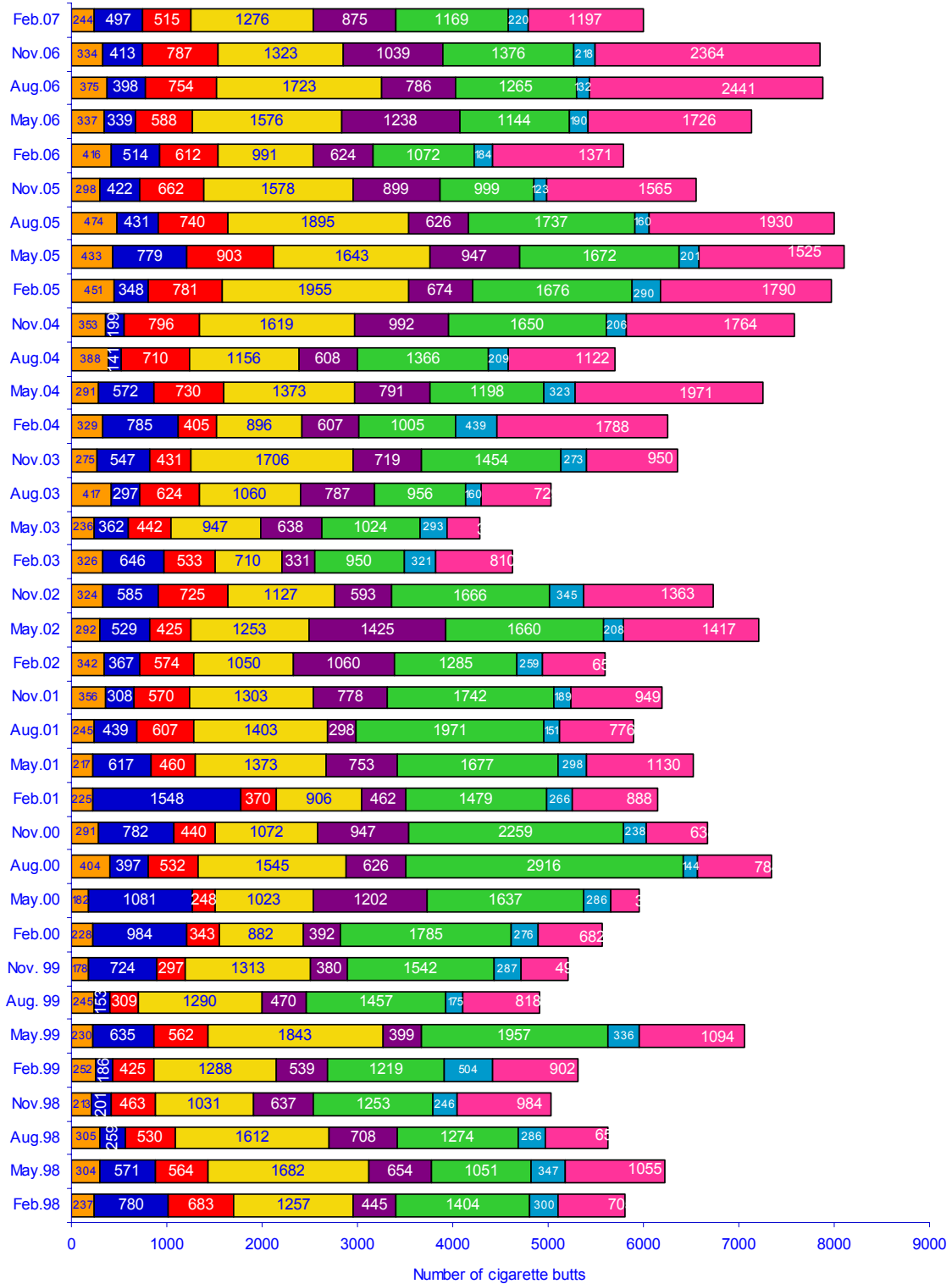
Proportion of Litter in Total Litter Stream by Site Type - Weighted



Total Number of Cigarette Butts - Weighted

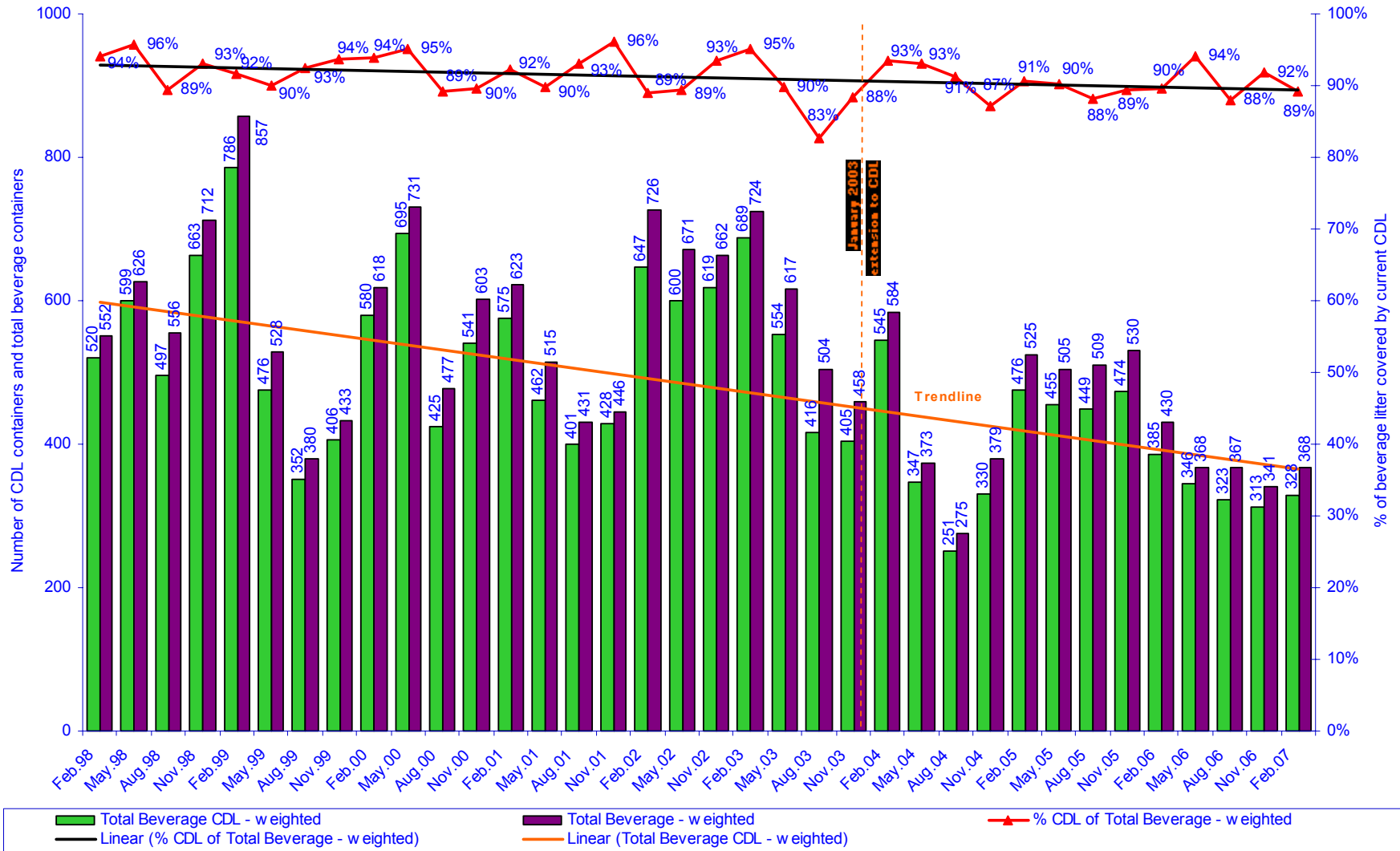


Number of Cigarette Butts by Site Type - Weighted

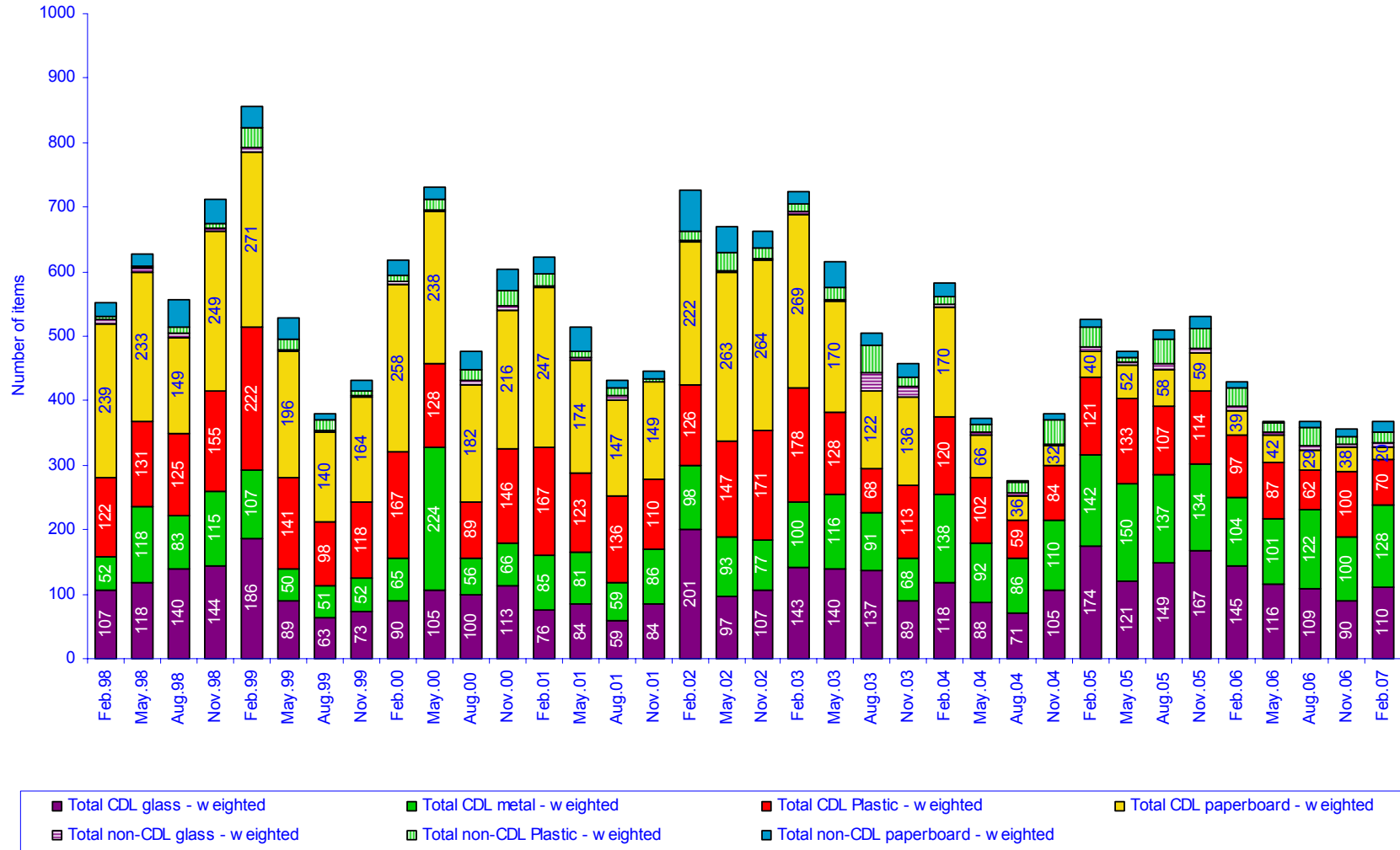


Residential Beach Industrial - w eighted Car park - w eighted Shopping Centre - w eighted Retail Recreational Park Highway - w eighted

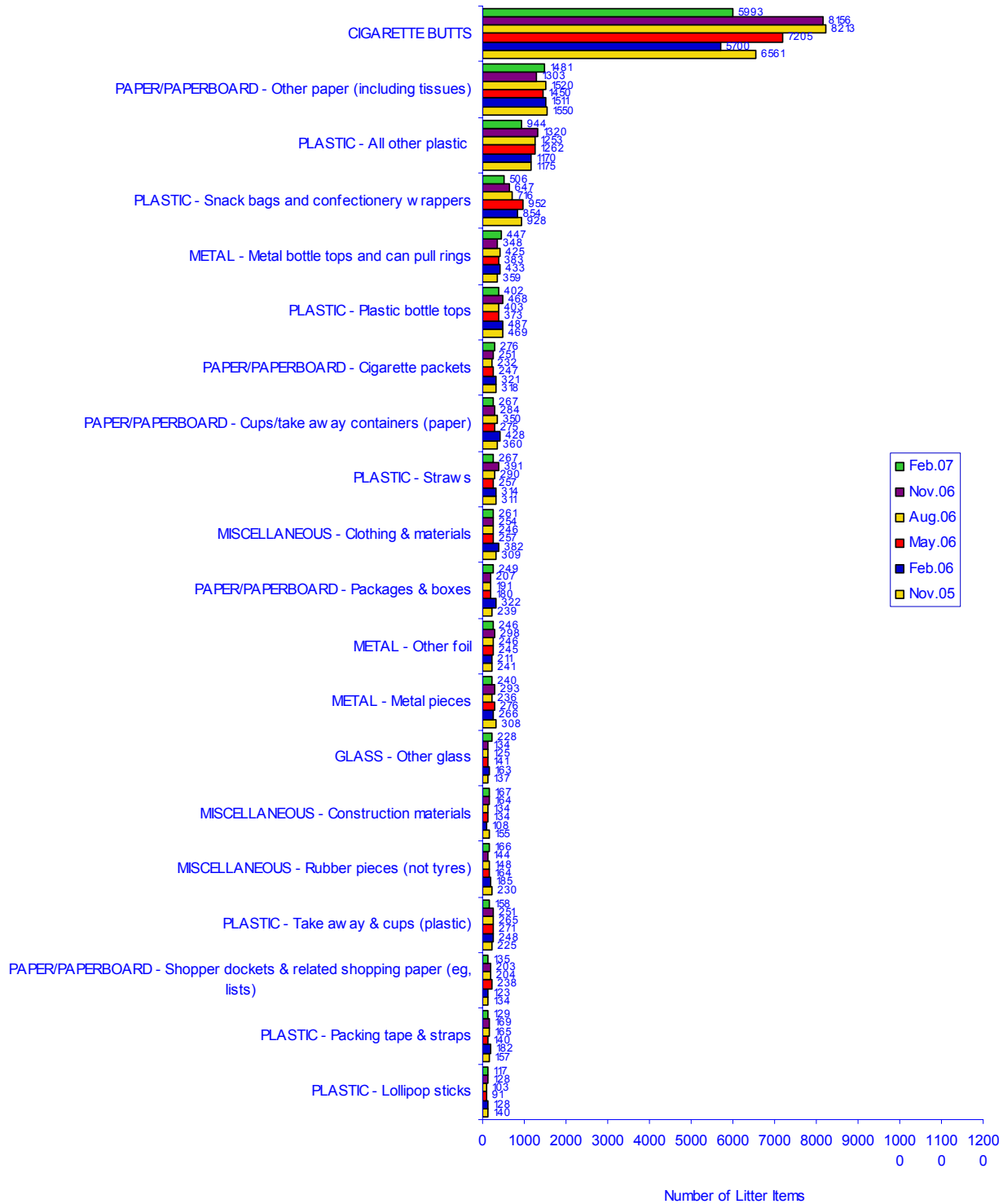
Proportion of Beverage Litter Covered By Current CDL &
Total Number of Beverage Litter Items & Containers Covered By Current CDL - Weighted



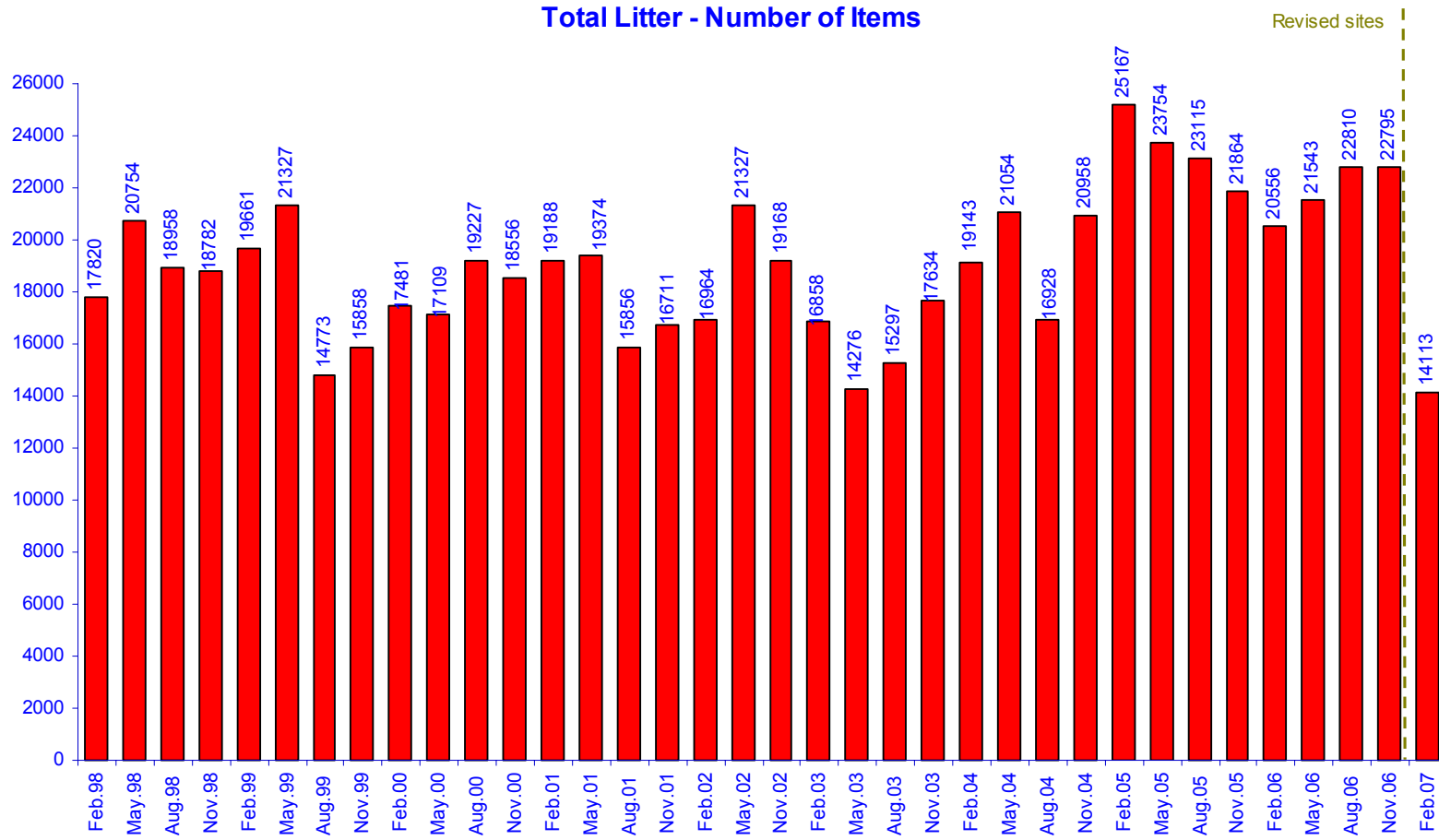
CDL and Non-CDL Beverage Items Within Material Categories - Weighted



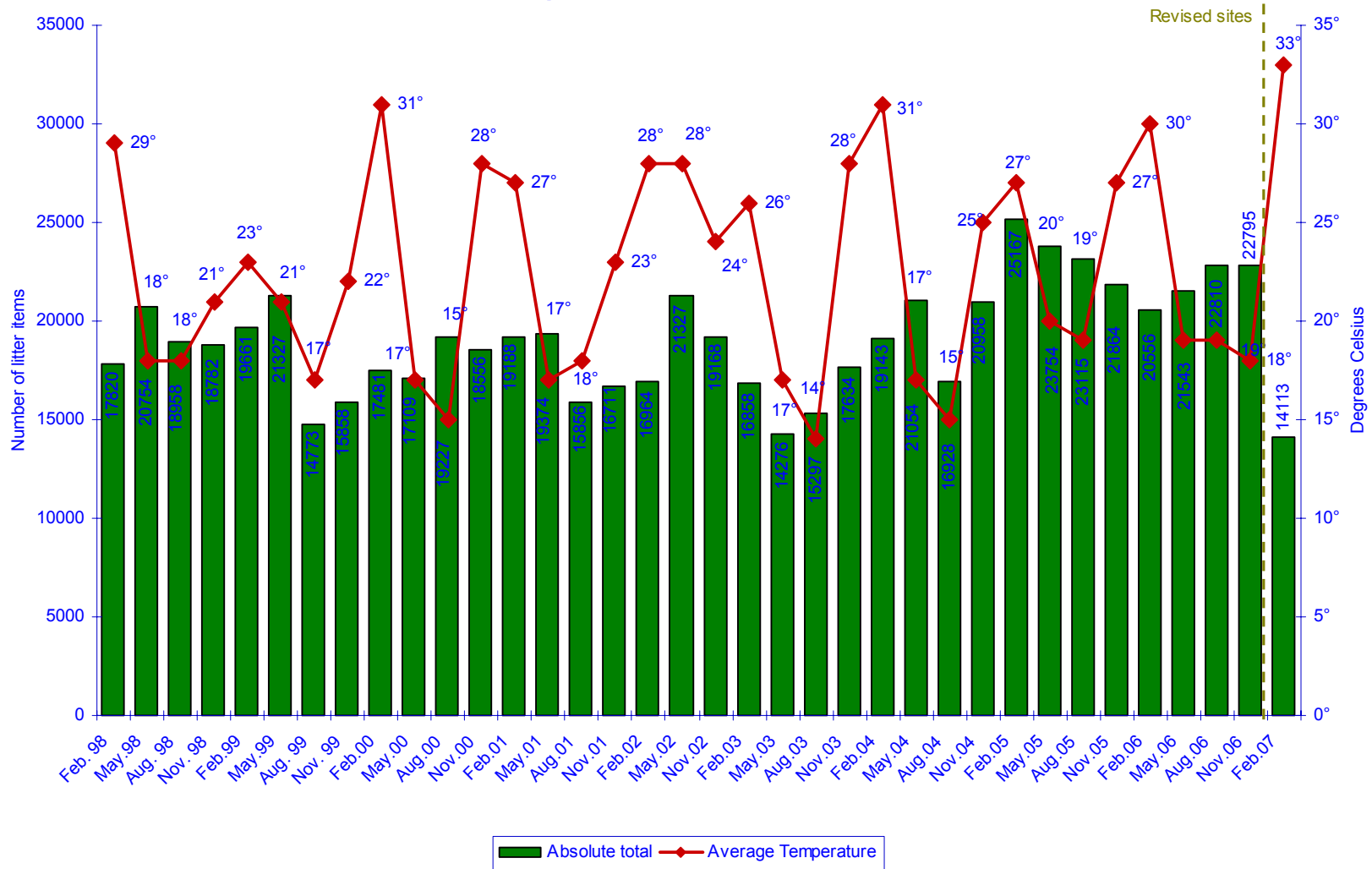
Top 20 Litter Items - Highest Counts - Weighted



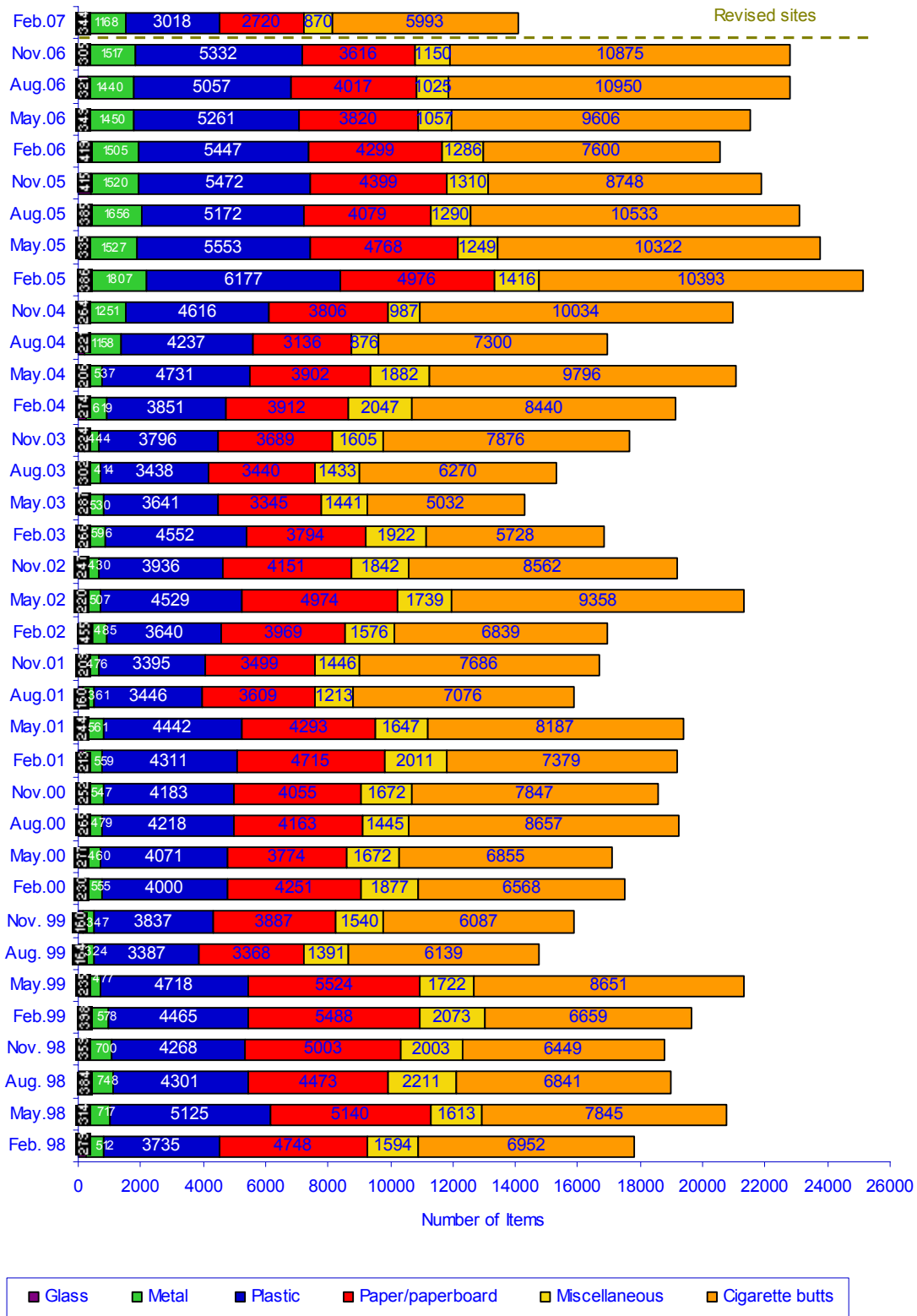
Unweighted Tracking Graphs



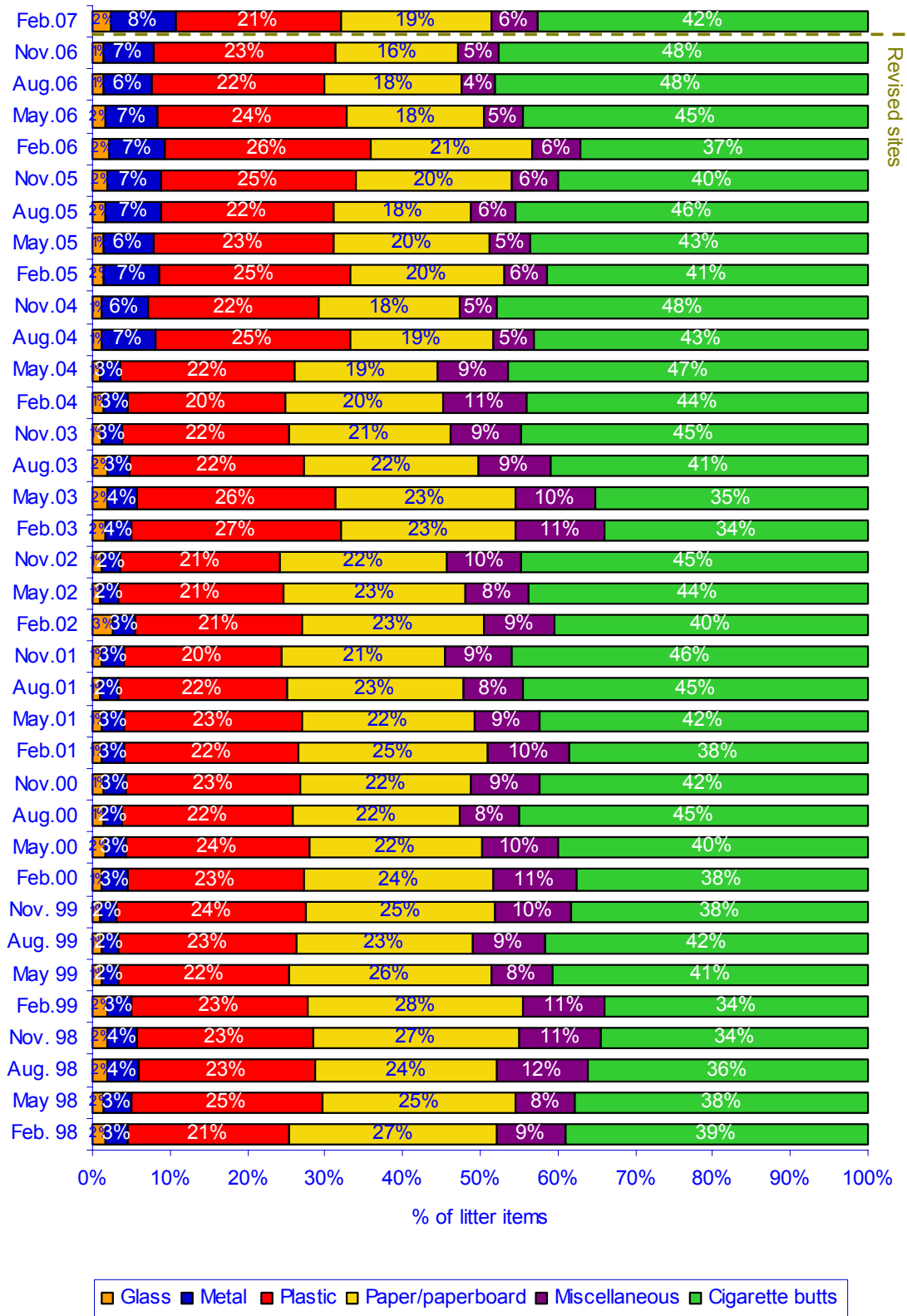
Weather Temperature and Total Number of Litter Items



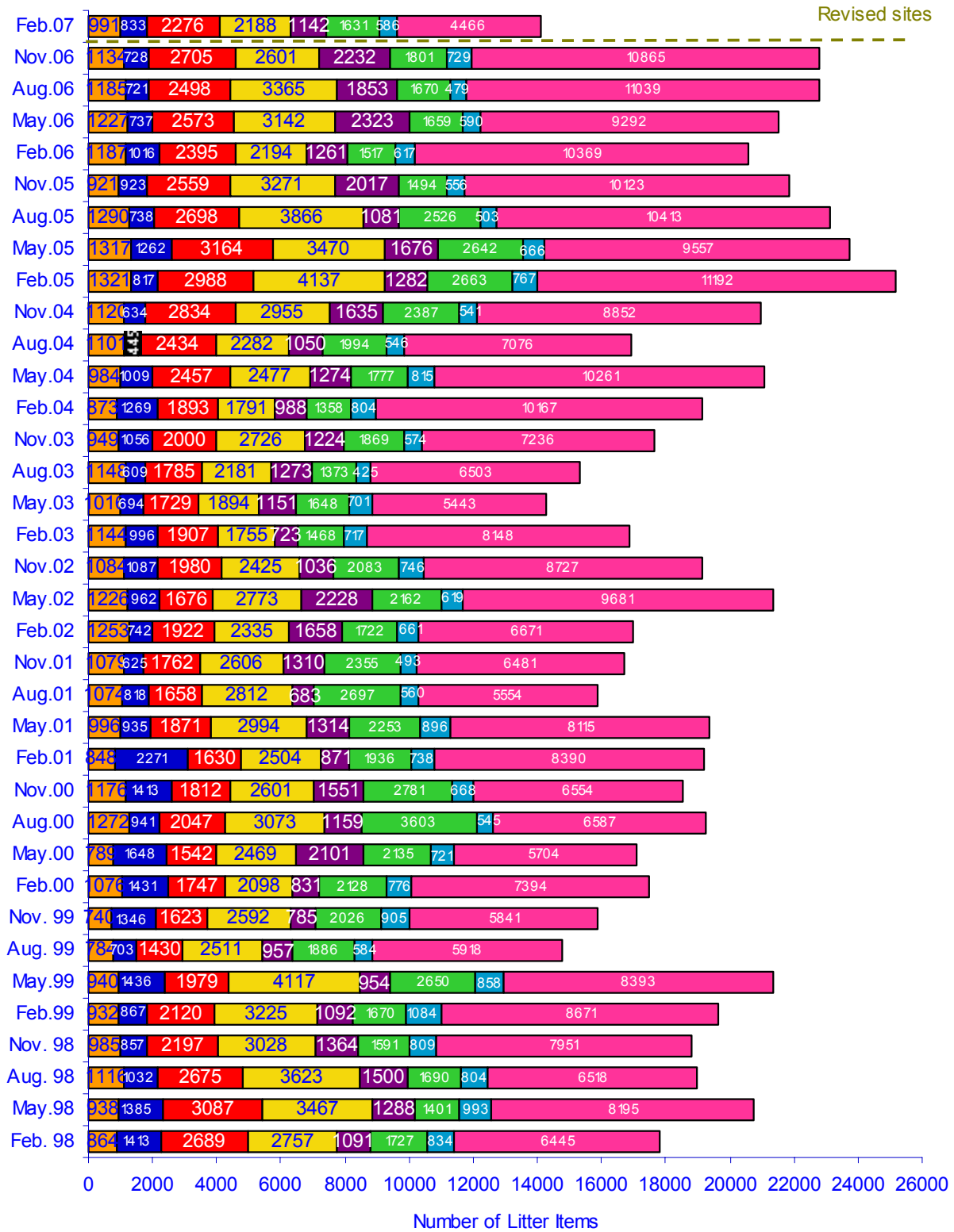
Number of Litter Items by Material Type



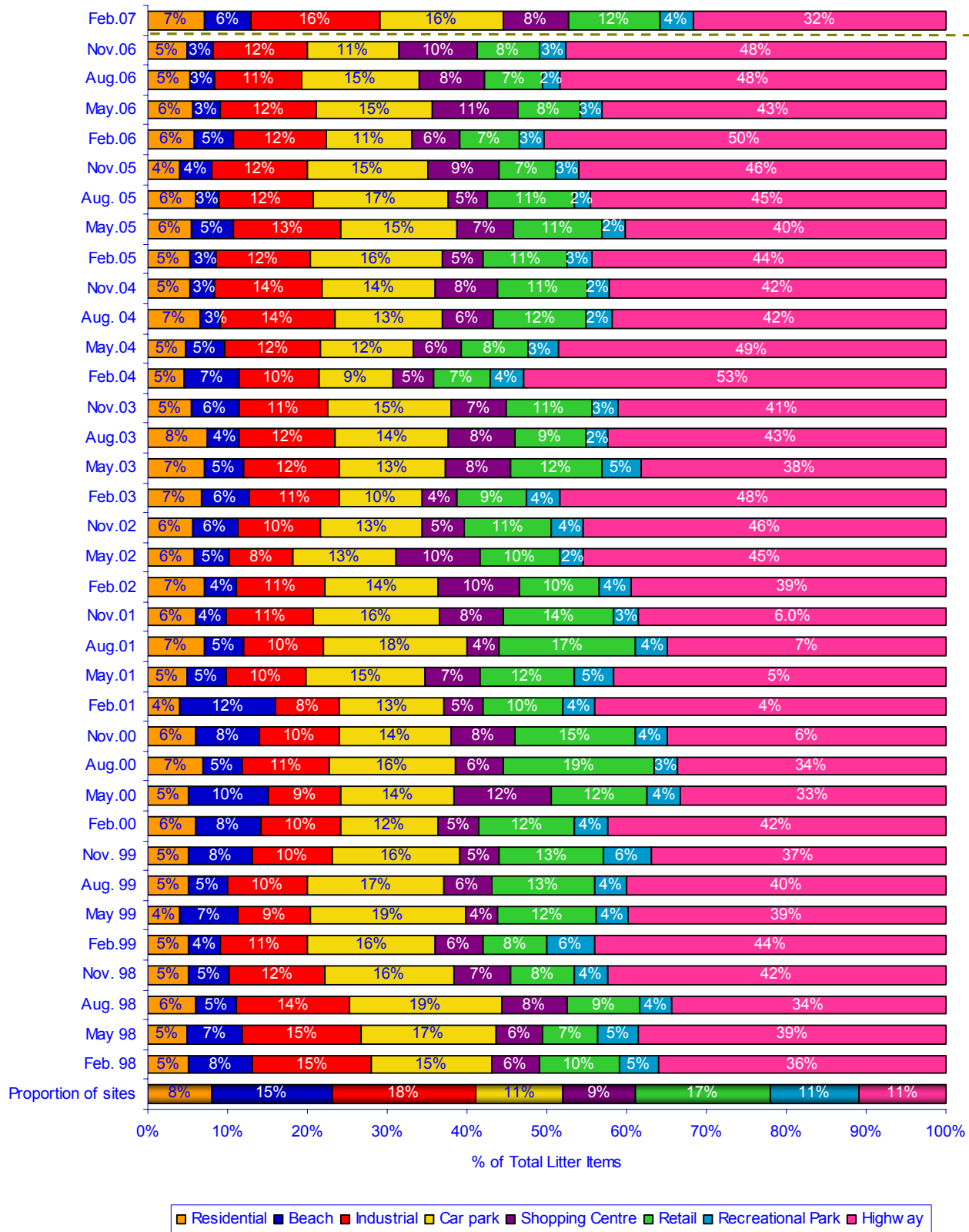
Proportion of Total Litter Stream by Material Type



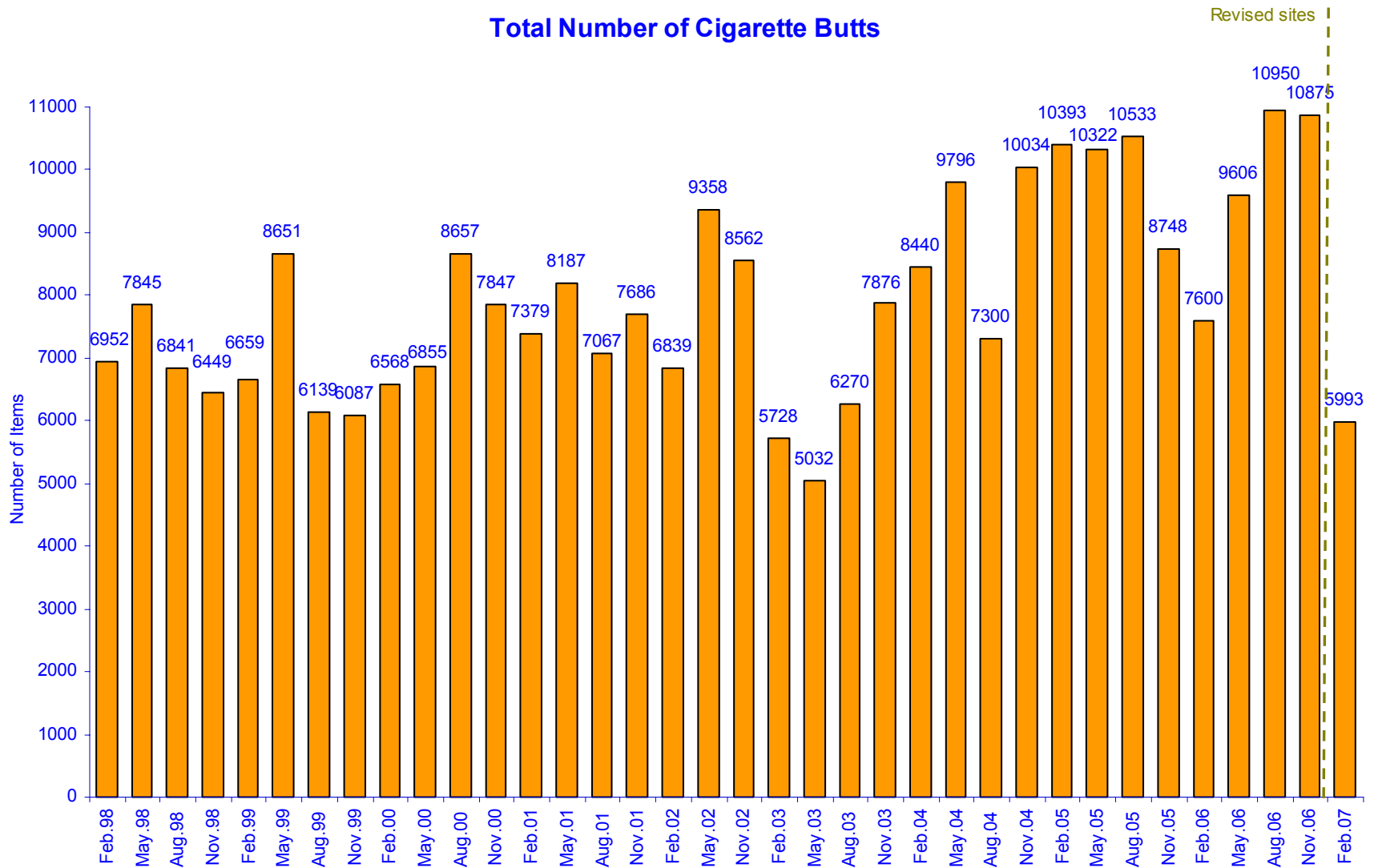
Number of Litter Items by Site Type



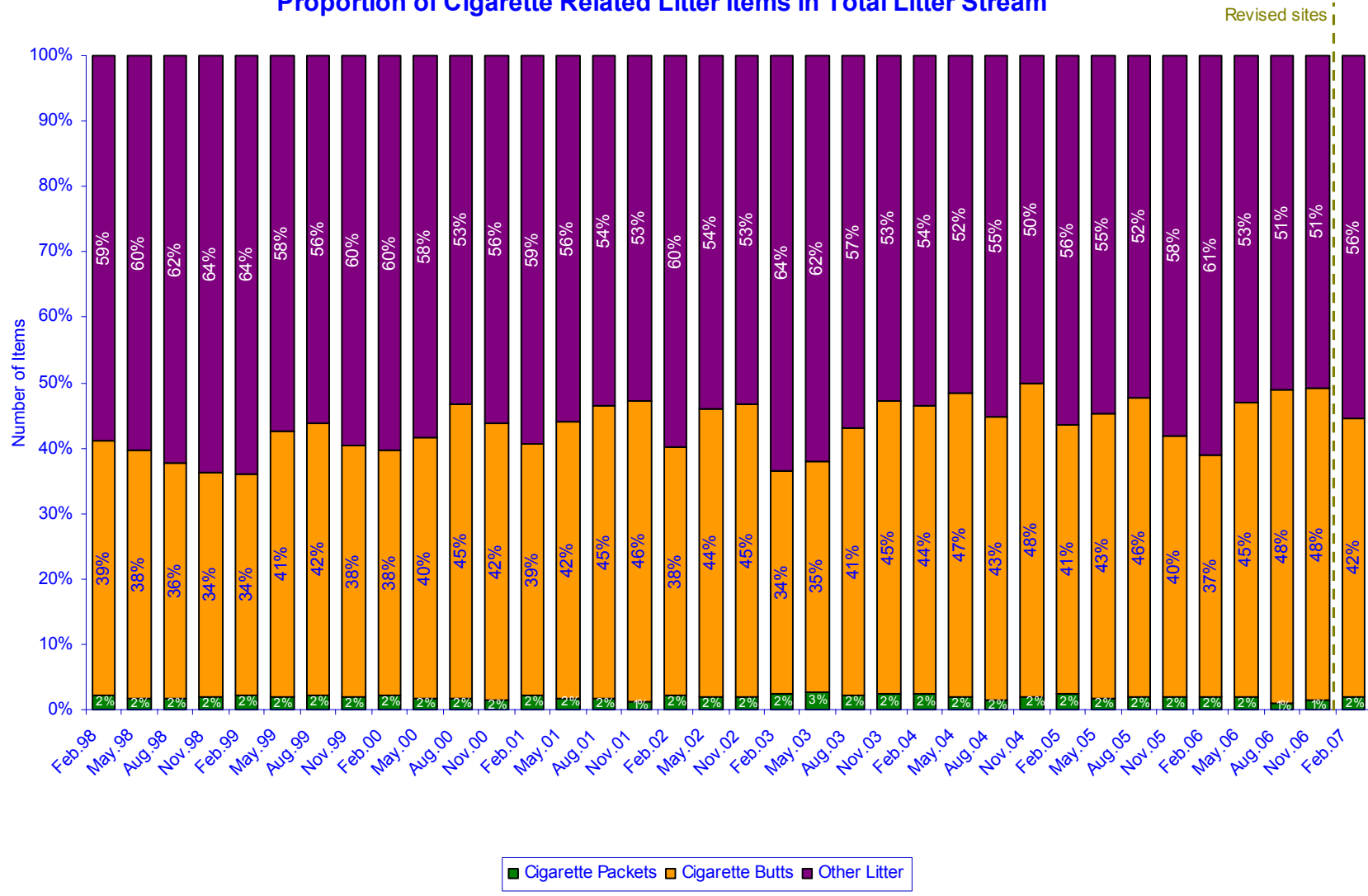
Proportion of Litter in Total Litter Stream by Site Type



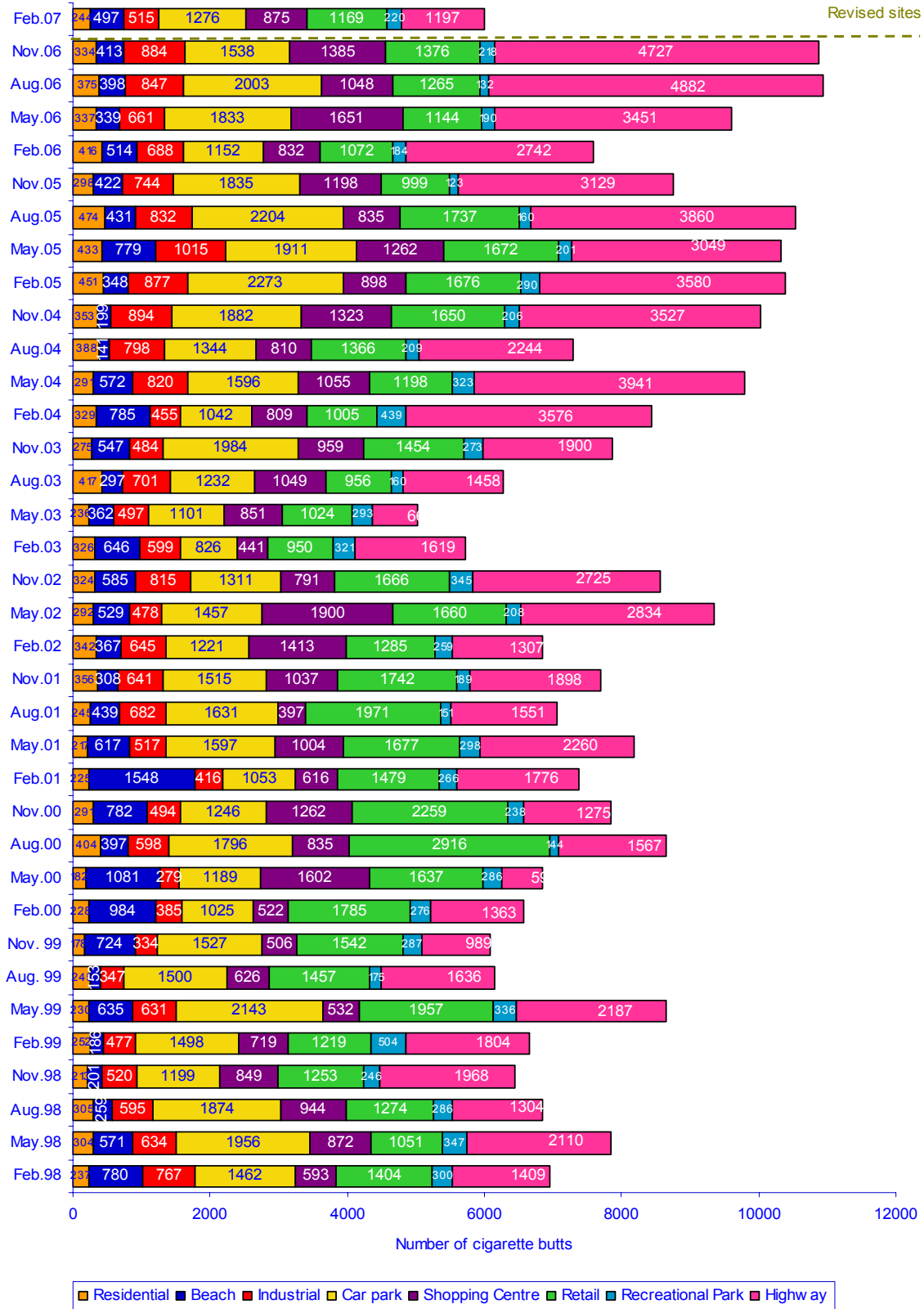
Total Number of Cigarette Butts



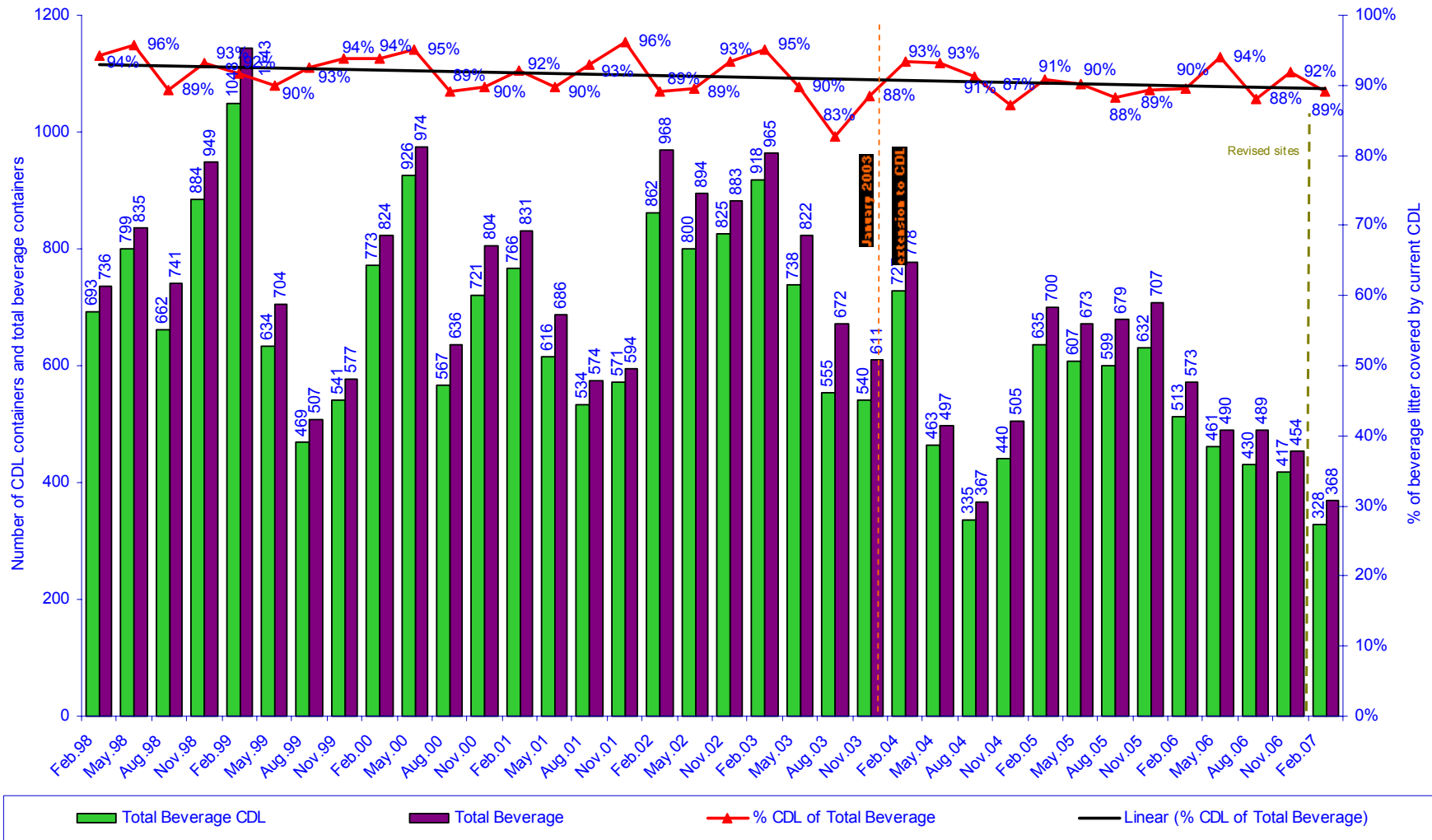
Proportion of Cigarette Related Litter Items in Total Litter Stream



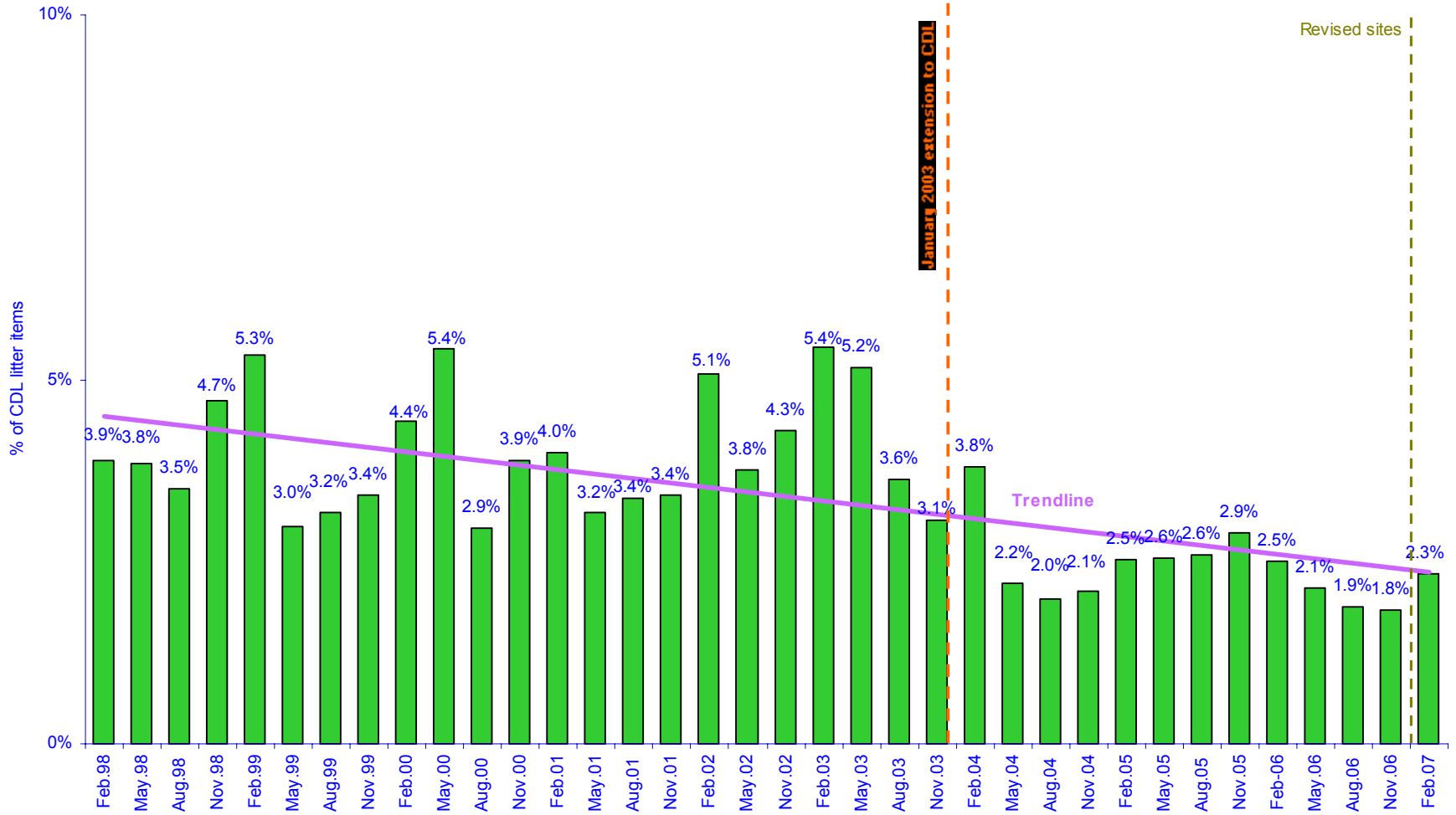
Number of Cigarette Butts by Site Type



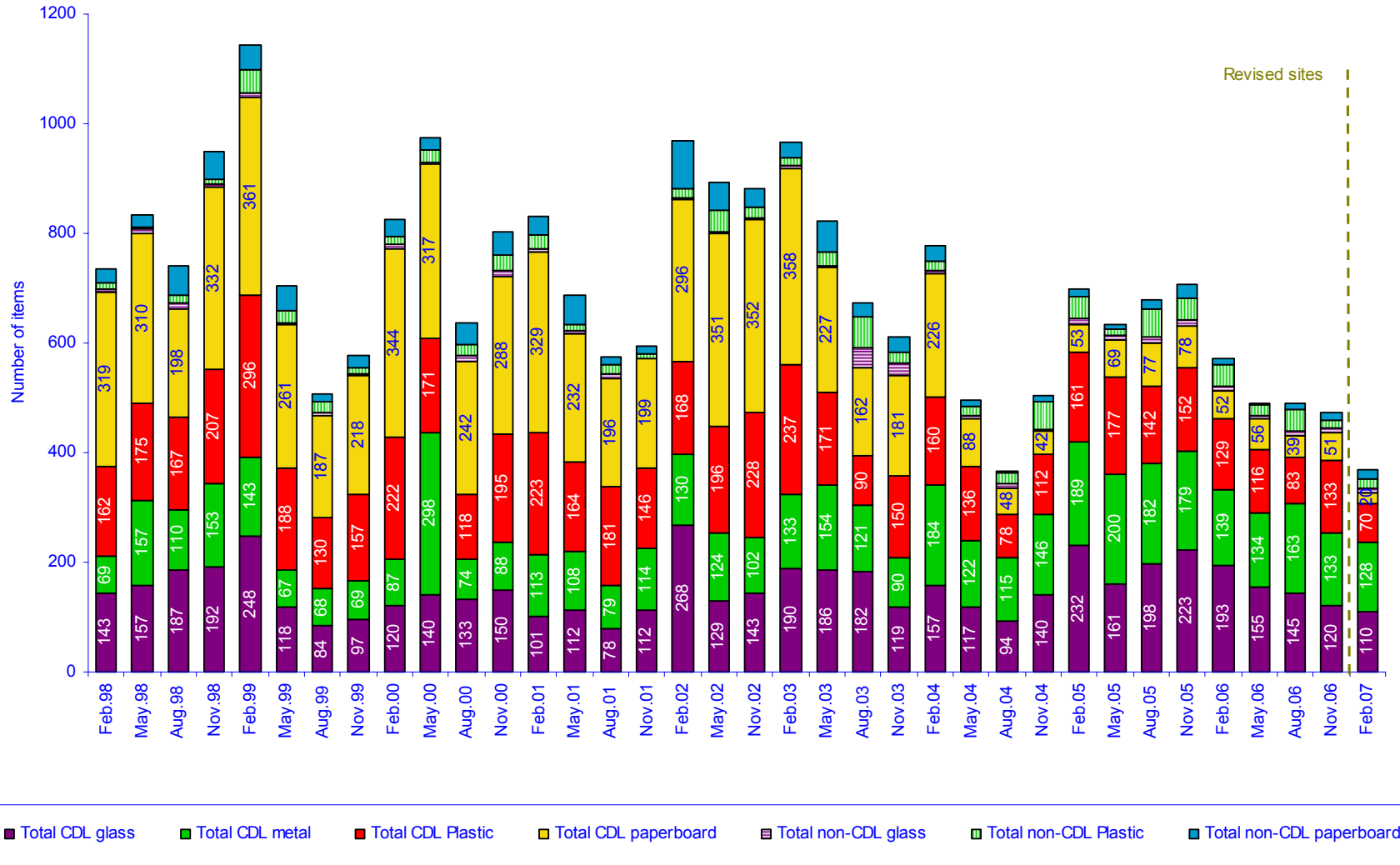
Proportion of Beverage Litter Covered By Current CDL &
Total Number of Beverage Litter Items & Containers Covered By Current CDL



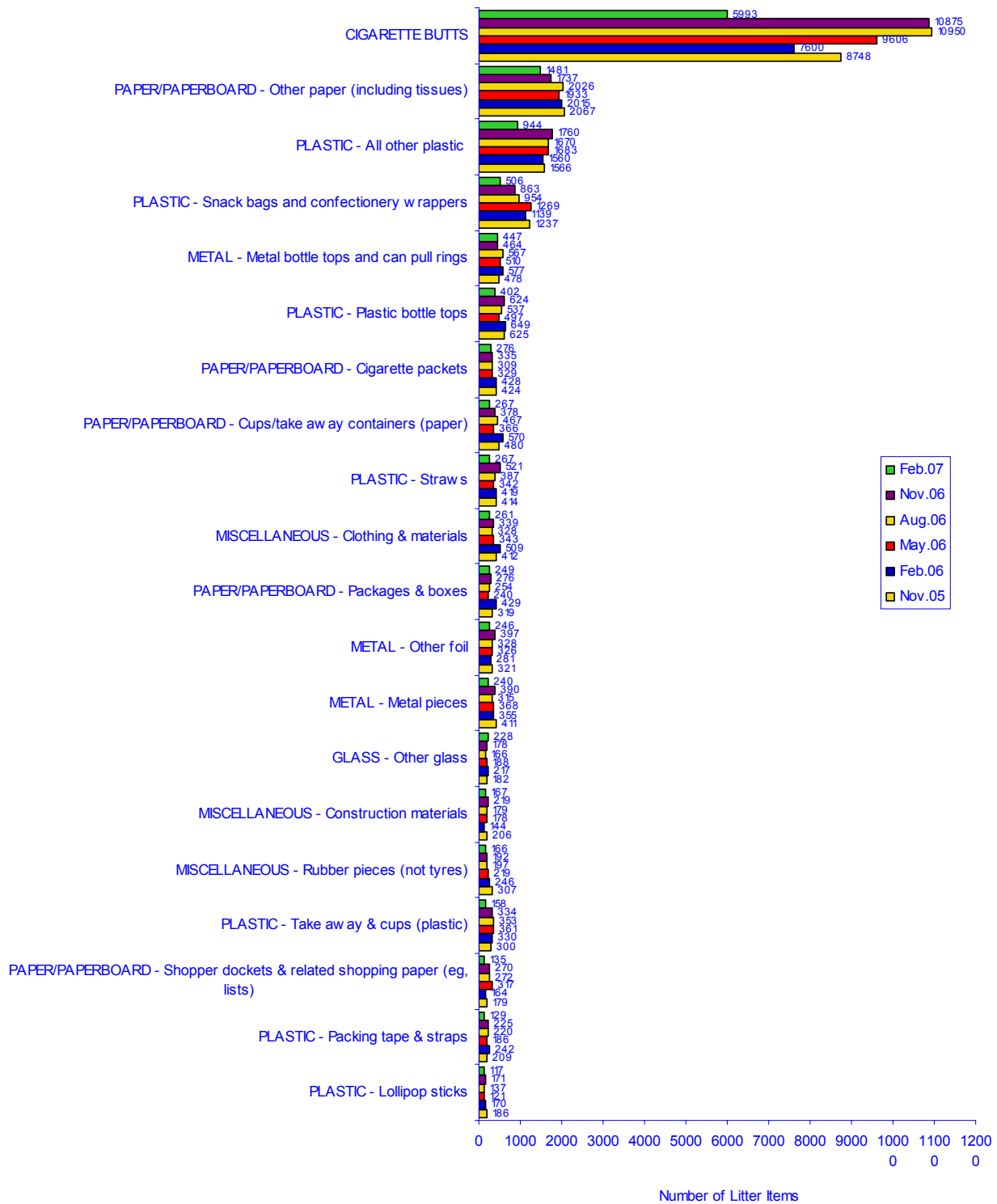
Proportion of Current CDL Litter Items in Total Litter Stream



CDL and Non-CDL Beverage Items Within Material Categories



Top 20 Litter Items - Highest Counts



***Appendix 2:
Data Collection Form***

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: _____

SITE CODE:				SITE RESPONSIBLE PERSON:				DATE:			
Item Type		Brand	Work Area	Total	Item Type		Brand	Work Area	Total		
GLASS	Ga	Plain water (carbonated or non-carb.), 1 litre+	NONE		METAL	Ma	Beer, aluminium, all types, all sizes	NONE			
	Gb	Plain water (carbonated or non-carb.), <1 litre	NONE			Mb	Alcoholic sodas & spirit-based mixers	NONE			
	Gc	Flavoured water/soft drink (carbonated) 1 litre+	NONE			Mc	Cider/fruit based etc.	NONE			
	Gd	Flavoured water/soft drink (carbonated) <1 litre	NONE			Md	Water, carbonated & flavoured/soft drink	NONE			
	Ge	Flav. water / fruit juice drink/ sports drink, (non carb), 1 litre+	NONE			Me	Water, non-carbonated & flavoured, all sizes	NONE			
	Gf	Flav. water / fruit juice drink/ sports drink, (non carb), <1 litre	NONE			Mf	Food cans (including pet food)	NONE			
	Gg	Fruit juice, 1 litre or more	NONE			Mg	Industrial cans - all types	NONE			
	Gh	Fruit juice, < 1 litre	NONE			Mh	Aerosols - pressure packs	NONE			
	Gi	Wine cooler, all sizes	NONE			Mi	Metal bottle tops and can pull rings	NONE			
	Gj	Alcoholic sodas / spirit-based mixers, all sizes	NONE			Mj	Metal pieces	NONE			
	Gk	Cider/fruit based etc.	NONE			Mk	Foil take away	NONE			
	Gl	Wine & spirit, all sizes	NONE			Ml	Other foil	NONE			
	Gm	Beer, 750ml or more, all colours of glass	NONE			MISCELLANEOUS	Xa	Tyres & pieces	NONE		
	Gn	Beer, < 750ml, all colours of glass	NONE				Xb	Clothing & materials	NONE		
	Go	Other glass	NONE				Xc	Illegal dumping	NONE		
	CIGARETTE BUTTS						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				
				OTHER MISC - (Please specify item types and brands below)							

PAPER / PAPERBOARD					PLASTIC					
	Item Type	Brand	Work Area	Total		Item Type	Brand	Work Area	Total	
PAPER / PAPERBOARD	Ka	Packages & boxes	NONE		PLASTIC	Pf	Plain water (carbonated or non-carb) 1 litre+	NONE		
	Kb	Cigarette packets	NONE			Pg	Plain water (carbonated or non-carb) <1 litre	NONE		
	Kc	Cartons, milk, plain (white), all sizes	NONE			Ph	Flavoured water/soft drink (carbonated) 1 litre+	NONE		
	Kd	Cartons, flavoured milk 1 litre or more	NONE			Pi	Flavoured water/soft drink (carbonated) <1 litre	NONE		
	Ke	Cartons, flavoured milk < 1 litre	NONE			Pj	Flavoured water/fruit juice drinks, sports drinks etc. (non-carb) 1 litre+	NONE		
	Kf	Cartons, flav. water / fruit juice drink/sports drink, (non carb), 1 litre+	NONE			Pk	Flavoured water/fruit juice drinks, sports drinks etc. (non-carb) <1 litre	NONE		
	Kg	Cartons, flav. water / fruit juice drink/sports drink, (non carb), <1 litre	NONE			Pl	Containers, industrial e.g. oil	NONE		
	Kh	Cartons, fruit juice, 1 litre or more	NONE			Pm	Containers, domestic type	NONE		
	Ki	Cartons, fruit juice, < 1 litre	NONE			Pn	Bags – light weight plastic shopping type carry bags	NONE		
	Kj	Newspapers & magazines	NONE			Po	Bags – heavier glossy typically branded carry bags	NONE		
	Kk	Junk mail / free circulars	NONE			Pp	Sacks – shooting – other bags	NONE		
	Kl	Cups/take away containers	NONE			Pq	Wine cask bladders	NONE		
	Km	Tickets, e.g. bus, ATM, vending machine etc.	NONE			Ps	Straws	NONE		
	Kn	Ice cream wrappers	NONE			Pt	6 ring can holders	NONE		
	Ko	Paper bags	NONE			Pu	Snack bags and confectionery wrappers	NONE		
	Kp	Shopper dockets & related shopping paper (eg, lists)	NONE			Pv	Styrene foam boxes, sheets, etc	NONE		
	Kq	Other paper (including tissues)	NONE			Pw	Packing tape & straps	NONE		
	PLASTIC	Pa	White milk, all sizes	NONE			Px	Take away & cups	NONE	
		Pb	Flavoured milk, 1 litre or more	NONE			Pz	Plastic bottle tops	NONE	
Pc		Flavoured milk, < 1 litre	NONE		P1	Bread bag tags	NONE			
Pd		Fruit juice, 1 litre or more	NONE		P2	Lollipop sticks	NONE			
Pe		Fruit juice < 1 litre	NONE		P3	Spoons/ cutlery	NONE			
			NONE				NONE			