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KEEP NEW ZEALAND BEAUTIFUL

NATIONAL Litter Audit

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Keep New Zealand Beautiful
PO Box 58932, Botany, Auckland
info@knzb.org.nz
09 264 1434

www.knzb.org.nz

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DISCLAIMER:

The Ministry for the Environment does not necessarily endorse or support the content of this publication in any way.

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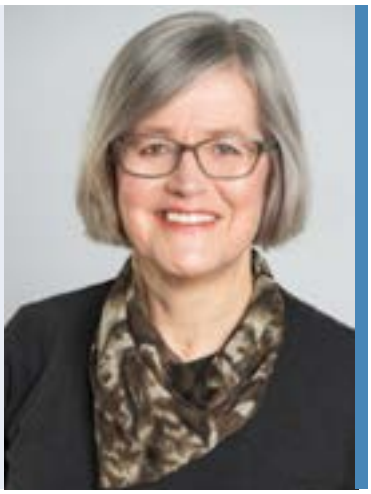
MESSAGE FROM THE ASSOCIATE MINISTER FOR THE ENVIRONMENT



New Zealand prides itself on its reputation as being "clean and green". Ensuring that reality matches the image we need major shifts in the way we care for the land and waters of Aotearoa, and the climate, to reduce the impacts of human activities. We need nature to sustain us and we need to connect with and restore nature.

Research for Keep New Zealand Beautiful has found that 99% of New Zealanders believe it is crucial for our country to maintain its clean, green image, with 93% believing it is very important not to litter.

We need to do much more to reduce waste and work is happening here. It is heartening to learn that 84% of waste that could become litter is dealt with appropriately, by being put in the bin (preferably a recycling bin if it can be recycled). That still leaves 16% that isn't. In tonnage terms, this is significant. And it represents an unacceptable amount of litter pollution that ends up in nature, including in rivers and streams and the ocean. We can and must do much better.

Shifting to more sustainable practices requires changes in behaviour. Central and local government need to make this easy but individual actions around what products to use and consume, and what happens to our stuff at the end of its life, make a big difference.

Funded through the Government's Waste Minimisation Fund, this report is one of various initiatives underway to better manage litter in New Zealand. These projects are providing better data, helping to raise awareness about the impacts of litter, and encouraging people to refrain from littering.

Better data helps identify the policy changes that will be the most effective and where investment is required. This report also gives us a baseline dataset to monitor litter into the future. It helps us shift to a circular economy, where we focus on designing out waste and pollution, keeping products and materials in use longer, and restoring and being restored by nature.

This **Keep New Zealand Beautiful** report helps fill an important gap in our knowledge around litter to ensure our "clean green" image is a reality.

E M Sage

Hon Eugenie Sage
Associate Minister for the Environment

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> ***Keep New Zealand Beautiful educates, inspires and empowers New Zealanders to do their bit for the environment.***

OVERVIEW

Keep New Zealand Beautiful (KNZB) is a national not-for-profit committed to leadership in sustainability and serves as the mandated body primarily responsible for the promotion of litter control in New Zealand (Litter Act 1979). With 39 branches nation-wide, KNZB educates, inspires and empowers New Zealanders to participate and do their bit for the restoration, care and protection of their local and national environment. For 52 years the organisation has been at the forefront of the litter abatement movement in New Zealand.

In 2016, over 190,000 tonnes of litter was collected from the streets of New Zealand by approximately 86,000 KNZB volunteers. Motivated by this and with the support of the New Zealand Government, KNZB carried a National Litter Audit (NLA) in 2019 which compiled data through the physical inspection and visual counting of litter in a number of specific, fixed sites. The information collected provides empirical data on regions, the quantities, types, locations, and brands of litter deposited across the country. The methodology and monitoring plan for the NLA was developed by KNZB in consultation with Statistics New Zealand (Stats NZ), the Department of Conservation (DoC) and the Ministry for the Environment (MfE). The NLA will help to address the litter problem by providing Tier 1 statistics and baseline data on litter across New Zealand to help inform policy development and will form a basis for ongoing environmental reporting on litter.

As over 80% of the litter found in our waterways comes from land, the NLA is focused on land based litter and the methodology includes similarities to the Beach Litter methodology currently under development by MfE, DoC and Stats NZ to allow for comparability and standardised monitoring across domains.

Each record captured count and weight. For the numbers of items volumes of litter were estimated using well established conversion factors.

Site specifications varied from 500 m² to 3,000 m², with a mix of both urban and rural. These sites divided into 7 site types:

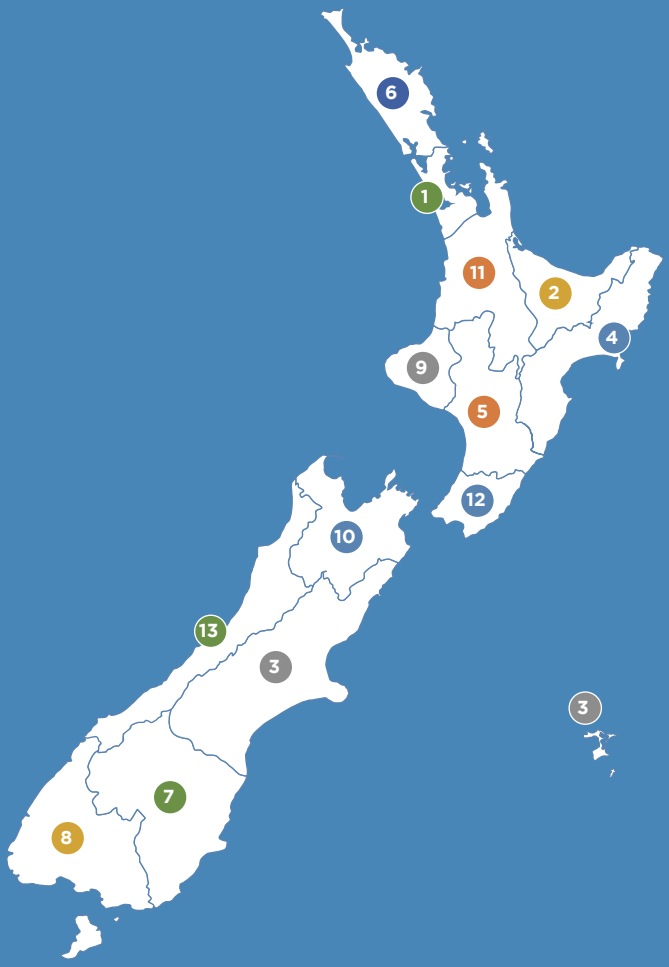
- Public Recreational Spaces
- Car Parks
- Industrial
- Residential
- Retail
- Highways
- Railways

All results were quoted against a 1,000 m² site area.

To allow for the future calculation of litter flux rates, an initial clearance to remove all accumulated litter was undertaken. This provides a clean slate against which future samples can be assessed. Although data from this initial clearance will not form a component of the general flux analysis, it can be used to calculate the initial standing stock of litter. Standing stock is measured as the amount of material in the transect (i.e. unit quantity or weight of litter per unit length), and can be calculated for each type of litter, or as an overall value across all litter types. When standing stock is calculated at multiple sites, averages should be reported with associated error (e.g. standard error or standard deviation).

In order to understand the litter flux trends across New Zealand, KNZB needs to undertake follow up audits every 2-3 years.

RESEARCH REGIONS



1. Auckland
2. Bay of Plenty
3. Canterbury and Chatham Islands
4. Gisborne and Hawke's Bay
5. Manawatu-Whanganui
6. Northland
7. Otago
8. Southland
9. Taranaki
10. Tasman, Nelson and Marlborough
11. Waikato
12. Wellington
13. West Coast

CLICK ON THE REGIONS WITHIN THE MAP TO NAVIGATE TO THE RESULTS

BACKGROUND AND CONTENT

PURPOSE

KEY OBJECTIVES

Collection

- Collect high quality data using international standards
- Collect a national data set as a baseline
- Collect raw data to meet environment reporting requirements of MfE and Stats NZ

Conduct

- Conduct an independent and transparent litter audit using a clear and robust methodology
- Conduct litter collection using a comparable methodology with the marine litter data project

Inform

- The information received will inform government policy decision making
- The information will be used in environment reporting
- The information received will be easily accessible for the public

Monitoring

- Assessment of the national state of the quantity, type, location and brand of litter
- Baseline to track behaviour change
- Baseline to look at litter flux
- Evidence for policy options to manage land based issues
- Target mitigation measures and assess their effectiveness
- Contribute to international and regional databases and dialogue
- Assess the pressure placed on land by solid litter and waste

KEY OUTCOMES

Immediate outcomes from MfE's Outcomes Framework relevant to this work are:

- By 2020: land and marine based waste discharge to the marine environment is monitored and understood
- By 2020: good information and guidance is available for decision-making
- By 2020: we have robust data sets for all environment domains
- By 2025: Local Authorities act on cross-domain approaches that respond to trends in land and marine based waste entering the marine environment

LIMITATIONS

*The National Litter Audit is not a study on littering behaviour. Keep New Zealand Beautiful undertook an extensive study on littering behaviour in 2018. The results of which can be found **here**.*

This report provides data and insight regarding the presence of litter within material types regionally and nationally. Follow up reports will look at resulting trends over time.

NATIONAL LITTER AUDIT METHODOLOGY

SCOPE

The total area surveyed across all sites nationally was 477,349 m². This area spanned a total of 413 sites, the average site size was 1,156 m². A complete table of site area information can be found in the Appendices.

MATERIAL CATEGORISATION

All litter items were incorporated within 8 main material type categories.

The litter classification system, comprised a 2 level hierarchy that identified litter by material class (e.g. Plastic vs. Glass vs. Metal, etc.) and then by the discrete type of litter form (e.g. Food waste vs. Plastic bottle tops vs. Cigarette butts, etc.), distinguished by litter codes, as per the below:

Table 1 - Material Categorisation Index

Class	Material Class	Litter Code	Litter Form (and examples)
1	Cigarette Butts/Vaping	CB01	Cigarette butts
2	Cigarette Butts/Vaping	CB02	Vaping canisters
3	Illegal Dumping	ID01	Total/itemised description
4	Organic Waste	OW01	Food waste
5	Organic Waste	OW02	Lawn clippings
6	Organic Waste	OW03	Human faeces
7	Organic Waste	OW04	Dog faeces
8	Organic Waste	OW05	Other faeces
9	Organic Waste	OW06	Other organic waste
10	Glass	GL01	Alcoholic sodas/spirit based mixers, all sizes
11	Glass	GL02	Beer, < 750 ml, all colours of glass
12	Glass	GL03	Beer, 750 ml or more, all colours of glass
13	Glass	GL04	Cider/fruit based, etc.
14	Glass	GL05	Flav. water/soft drink (carbonated), <1 litre
15	Glass	GL06	Flav. water/soft drink (carbonated), 1 litre +
16	Glass	GL07	Flav. water/fruit/sports drink (non-carb), <1 litre
17	Glass	GL08	Flav. water/fruit/sports drink (non-carb), 1 litre +
18	Glass	GL09	Fruit juice, <1 litre
19	Glass	GL10	Fruit juice, 1 litre +
20	Glass	GL11	Plain water (carbonated or non-carb.), <1 litre
21	Glass	GL12	Plain water (carbonated or non-carb.), 1 litre +
22	Glass	GL13	Wine & spirit, all sizes

Class	Material Class	Litter Code	Litter Form (and examples)
23	Glass	GL14	Wine cooler, all sizes
24	Glass	GL15	Glass, other (specify)
25	Metal	ME01	Aerosols – pressure packs
26	Metal	ME02	Bottle caps, lids & pull tabs
27	Metal	ME03	Beer, aluminium drink cans, all types, all sizes
28	Metal	ME04	Alcoholic sodas & spirit based mixers
29	Metal	ME05	Food cans, including pet food
30	Metal	ME06	Foil wrappers
31	Metal	ME07	Industrial cans, all types
32	Metal	ME08	Metal pieces/fragments
33	Metal	ME09	Cider/fruit based, etc.
34	Metal	ME10	Flav. water/soft drink, (carbonated), all sizes
35	Metal	ME11	Flav. water/soft drink, (non-carbonated), all sizes
36	Metal	ME12	Metal, other (specify)
37	Misc	MI01	Cloth & materials
38	Misc	MI02	Condoms
39	Misc	MI03	Construction materials
40	Misc	MI04	Disposable nappies
41	Misc	MI05	Sanitary products
42	Misc	MI06	Ice cream sticks
43	Misc	MI07	Syringes
44	Misc	MI08	Tyres & pieces
45	Misc	MI09	Rubber pieces (not tyres)
46	Misc	MI10	Miscellaneous, other (specify)
47	Paper & Cardboard	PC01	Cartons, flavoured milk, <1 litre
48	Paper & Cardboard	PC02	Cartons, flavoured milk, 1litre +
49	Paper & Cardboard	PC03	Cartons, fruit juice, <1 litre
50	Paper & Cardboard	PC04	Cartons, fruit juice, 1 litre +
51	Paper & Cardboard	PC05	Cartons, milk, plain (white), all sizes
52	Paper & Cardboard	PC06	Cigarette packets
53	Paper & Cardboard	PC07	Cups, takeaway containers
54	Paper & Cardboard	PC08	Flav. water/fruit/sports drinks (non-carb), <1 litre
55	Paper & Cardboard	PC09	Flav. water/fruit/sports drinks (non-carb), 1 litre +
56	Paper & Cardboard	PC10	Ice cream wrappers
57	Paper & Cardboard	PC11	Newspapers & magazines
58	Paper & Cardboard	PC12	Junk mail/free circulars
59	Paper & Cardboard	PC13	Packages & boxes
60	Paper & Cardboard	PC14	Paper bags
61	Paper & Cardboard	PC15	Shopper dockets & related shopping paper (eg. lists)
62	Paper & Cardboard	PC16	Tickets, eg. bus, ATM, vending machine, etc.
63	Paper & Cardboard	PC17	Paper/paperboard, other (specify)
64	Paper & Cardboard	PC18	Paper (including newspapers & magazines)

Class	Material Class	Litter Code	Litter Form (and examples)
65	Paper & Cardboard	PC19	Cardboard boxes & fragments
66	Paper & cardboard	PC20	Cups, food trays, food wrappers, cigarette packs, drink containers
67	Paper & cardboard	PC21	Tubes for fireworks
68	Paper & cardboard	PC22	Other (specify)
69	Plastic	PL01	Bags, heavier glossy typically branded carry bags
70	Plastic	PL02	Bread bag tags
71	Plastic	PL03	Containers, industrial eg. oil
72	Plastic	PL04	Drink pouches
73	Plastic	PL05	Drink package rings, six-pack rings, ring carriers
74	Plastic	PL06	Containers, domestic type
75	Plastic	PL07	Plastic bags, supermarket type light weight carry bags
76	Plastic	PL08	Flav. milk, <1 litre
77	Plastic	PL09	Flav. milk, 1 litre +
78	Plastic	PL10	Flav. water/fruit/sports drinks (non-carb), <1 litre
79	Plastic	PL11	Flav. water/fruit/sports drinks (non-carb), 1 litre +
80	Plastic	PL12	Flav. water/soft drink (carbonated), <1 litre
81	Plastic	PL13	Flav. water/soft drink (carbonated), 1 litre +
82	Plastic	PL14	Fruit juice, <1 litre
83	Plastic	PL15	Fruit juice, 1 litre +
84	Plastic	PL16	Lollipop sticks
85	Plastic	PL17	Sacks, sheeting – other bags
86	Plastic	PL18	Plain water (carbonated or non-carb), <1 litre
87	Plastic	PL19	Plain water (carbonated or non-carb), 1 litre +
88	Plastic	PL20	Plastic bottle tops
89	Plastic	PL21	Snack bags & confectionary wrappers
90	Plastic	PL22	Spoons/cutlery
91	Plastic	PL23	Straws
92	Plastic	PL24	Styrene foam boxes, sheets, etc.
93	Plastic	PL25	Takeaway & cups
94	Plastic	PL26	White milk, all sizes
95	Plastic	PL27	Wine cask, bladders
96	Plastic	PL28	Plastic, other (specify)

SITES

Site specifications varied from 500 m² to 3,000 m², and with a mix of both urban and rural.

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

Each site identified below was surveyed under each Local Territorial Authority (LTA):

- Public Recreational Space – An area of approximately 40 by 50 m in a public recreational space which could include conservation areas, i.e. walking track, has benches, picnic areas, etc. but which is not in the immediate vicinity of a shop or kiosk. The areas should be within a frequently visited recreational area.
- Car Park – An area of approximately 30 by 50 m in an open space public car park at a point distant from the entrance to the car park.
- Industrial - A street area approximately 150 m long within an industrial area, the count area to be from the fence line or immediate front of the properties to the gutter including litter in the gutter.
- Residential - A street area approximately 150 m in length, along both sides of the road from the front of the properties on one side of that road extending to the gutter including litter in the gutter.
- Retail - An area approximately 150 m long in front of a strip of shops, extending from the front of the shops to the street gutter and including litter in the gutter.

In addition, at least 20 samples each for both railway and highway sites were included:

- Railways – Include railway tracks at least a kilometre away from railway stations. The count area commences from the area beginning at the edge of the track, and extending out from the track to the nearest adjacent property, or up to a distance of 10 m out from the track side if no such property exists. Two such areas should be collected from, one on each side of the track, approximated 150 m long in length and 1 m wide.
- Highways – include open major roadways bounded by a vegetated area that may include an open drain. The count area commences from the area beginning at the edge of the road, and extending out from the road to the nearest fence/boundary or up to a distance of 10 m out from the road side if no such fence/boundary exists. Two such areas should be collected from, one on each side of the road.

RESEARCH REGIONS

New Zealand is divided into 16 regions and a further 67 territorial authorities. Eleven regions are administered by regional councils and 5 by unitary authorities (Auckland, Gisborne, Nelson, Tasman and Marlborough) which are also regarded as territorial authorities.

Each territorial authority was audited at a minimum of 5 site types.

For the purposes of this Audit, and to maximise accuracy of the data interpretation, changes to the regional reporting format were made for the unitary authorities as follows:

- Auckland Region was divided into 7 distinct areas (Rodney, North Shore, Auckland City, Waitakere, Manukau, Papakura, Franklin) for the purposes of robust data collection, due the size and population of the region. The areas were chosen in line with the structure of the region before the merge to the Auckland Super City in 2010.
- Gisborne Region was included with the Hawke's Bay Region.
- Nelson, Tasman and Marlborough Regions were included in 1 section.

VOLUMES

Litter volumes were provided to KNZB from Keep South Australia Beautiful (KESAB). Keep South Australia Beautiful estimated litter volumes from extensive historical litter data recorded within South Australia.

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

TIMING

The National Litter Audit commenced in February 2019 and concluded in July 2019. A minimum of 5 transects per Local Territorial Authority were audited, with a sample mix of 20 highway sites and 20 railway sites across New Zealand. In total 413 sites were surveyed.

LITTER AUDIT TRAINING

All surveys were carried out professionally and efficiently. Planning entailed ensuring that the survey timings and logistics were confirmed in advance. Surveyors were trained to carefully analyse the litter to ensure that it was properly identified before recording it on the survey form. For quality control, the data was checked for unlikely abundances or weights of litter, and errors in data entry.

METHODOLOGY

The methodology presented here is based on a global review undertaken by KNZB, from the following organisations:

- Clean European Network
- Keep America Beautiful
- Keep Australia Beautiful
- Keep Britain Tidy
- Keep Florida Beautiful
- Keep Hawaii Beautiful
- Keep Scotland Beautiful
- Keep South Australia Beautiful
- UNEP

Sites were selected by stratified random sampling to capture key characteristics of land based litter across different environment types.

Typically, there are 4 approaches to surveying land litter: small litter counts, large litter counts, visual ratings and full scale surveys, the latter encompasses the former 3. Keep New Zealand Beautiful employed a Full Scale Survey. The research consisted of one comprehensive litter survey methodology as the main contemporary approach to measuring the extent of litter in New Zealand.

Full Scale Surveys provide the most reliable measurement. The litter on site is measured and provides a range of information including:

- weight
- type
- volume
- ground coverage of litter
- visual rating

A visual rating was applied to the sites for their cleanliness, aesthetic appeal and notes on plantings, graffiti, murals, etc.

Visual ratings directly tap into assessment made by users of the site and provide information about personal evaluation of litter on the site. This survey is commonly used by the Clean European Network to assess the aesthetic quality of a site as perceived by the local community, and the data will be feed into KNZB programming areas.

The rating appraisal provides a measure of community responses to the litter on the site rather than the physical measure of the amount of litter as assessed by other techniques.

Although other survey methodologies offer some insight into the cleanliness of a site, they do so on the assumption that all litter equivalently despoils a site which, at a gross level, may be the case. However, some kinds of litter will be more aesthetically unappealing than others and the rating survey provides information that is primarily useful in determining the impact of litter upon users of the site. Rating assessments are not resource intensive. Photographs were taken during the same time as the full scale survey. To minimise observer error, all photographs were moderated by a team of 3 researchers to assess site ratings. This allowed for consistency and ensured quality assurance.

Surveyors were instructed to assign a visual rating according to the site's overall appearance before conducting the visual survey. This enabled data collection that will permit a comparison of the visual rating of a site to the number and type of litter items found in the actual count. Element grades were used to assess the various elements range from A to D (a 4 point scale):

Grade A *None present*

Grade B *Predominantly free with some minor instances*

Grade C *Widespread with some accumulations*

Grade D *Heavily affected*

The 4 point scale rates the site through a modular process then circulates through the relevant local environmental elements as per the survey design. E.g.

- Litter
- Detritus
- Graffiti
- Pavement condition
- Road markings
- Bin condition (if applicable)

The purpose of the Branded Litter Audit was to provide information regarding the extent and distribution of branded litter across New Zealand. It is expected that this report will be used by brand owners in order to measure the contribution of their own brands towards the overall litter stream.

The Branded Litter Audit analysed litter by assigning branded items to the different material categories. It displays the most prevalent brands overall and within each material type nationally.

LITTER PER 1,000 m²

Numbers of litter items and volumes are quoted against an average 1,000 m² area. This allows for credible and robust comparisons of litter in the litter stream regionally, nationally and across material types.

To calculate the overall average number of litter items per 1,000 m² the average result was calculated using the overall number of litter items and the total m² of all sites. The following example outlines the calculation to find the overall average:

Table 2 - Site Types

Site Types	Total area (m²)	Total number of litter items	Number of litter items per 1,000 m²
Type 1	*1,000*	*40*	*40*
Type 2	*2,000*	*80*	*40*
Type 3	*7,000*	*70*	*10*
All Site Types	**10,000**	**190**	**19**

ILLEGAL DUMPING

Illegally dumped items were incorporated within an Illegal Dumping material category. However, due to Health & Safety regulations these items were not weighed.

By definition, illegal dumping is the dumping of waste illegally instead of using an authorised method such as kerbside collection or using an authorised rubbish dump. It is the illegal deposit of any waste onto land, including waste dumped or tipped on a site with no licence to accept waste.

Illegal dumping can be:

- Large items (e.g. a fridge or couch)
- Bagged rubbish

NATIONAL

AT A GLANCE

The overall average number of items per 1,000 m² across the 413 sites surveyed in the 2019 National Litter Audit was 118, the overall average litter weight per 1,000 m² was 0.62 kg, and the overall average estimated volume per 1,000 m² was 7.35 ltr.

Industrial sites were the most littered sites recorded nationally, contributing to the highest numbers of litter items per 1,000 m² and the third largest weights and volumes per 1,000 m². Retail sites contributed the second highest numbers of litter items to the overall litter stream but were associated with small to moderate weights and volumes of litter per 1,000 m².

The largest volumes per 1,000 m² were associated with Highways, which also recorded the second largest weights and third highest numbers of litter items. Railways contributed the largest weights and second largest volumes per 1,000 m² but were associated with more moderate numbers of litter items.

Moderate numbers of litter items were associated with Residential and Car Park sites, which also recorded small to moderate weights and volumes. Public Recreational sites contributed the lowest numbers of litter items and the smallest litter weights and volumes per 1,000 m² to the overall national litter stream.

Cigarette Butts/Vaping were the most frequently identified items per 1,000 m² nationally, however they contributed the smallest weights and volumes to the litter stream. Paper/Cardboard were associated with the largest volumes per 1,000 m², while Miscellaneous items (which included Disposable nappies and Cloth/materials) were the second largest contributors to the overall national litter volumes.

Glass objects contributed to the largest litter weights per 1,000 m² but were associated with lower numbers of litter items and smaller volumes, while Plastic items contributed both the second largest litter weights and numbers of litter items to the overall national litter stream.

Very low instances of Illegal Dumping were recorded; however, this category was associated with the third largest litter volumes. Weights were not recorded for illegally dumped objects.

Figure 1 - National 2019 % of Items per 1,000 m² by Site Type

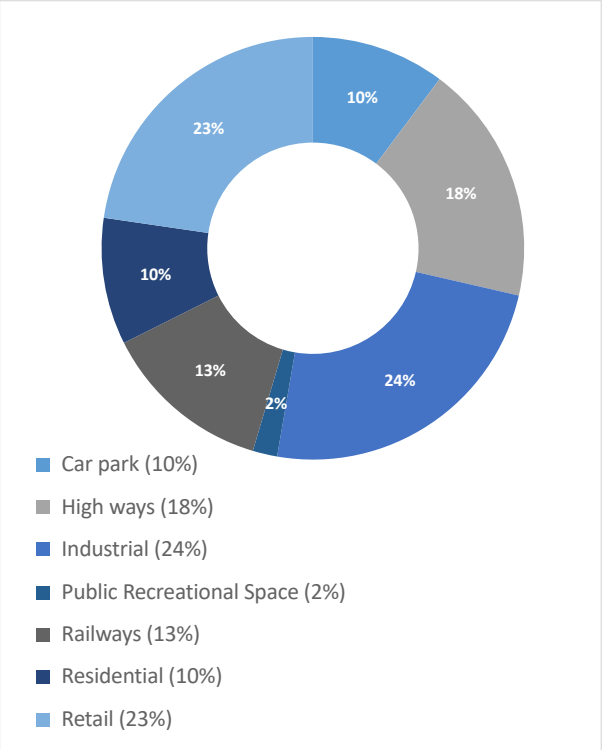


Figure 2 - National 2019 % of Volume per 1,000 m² by Site Type

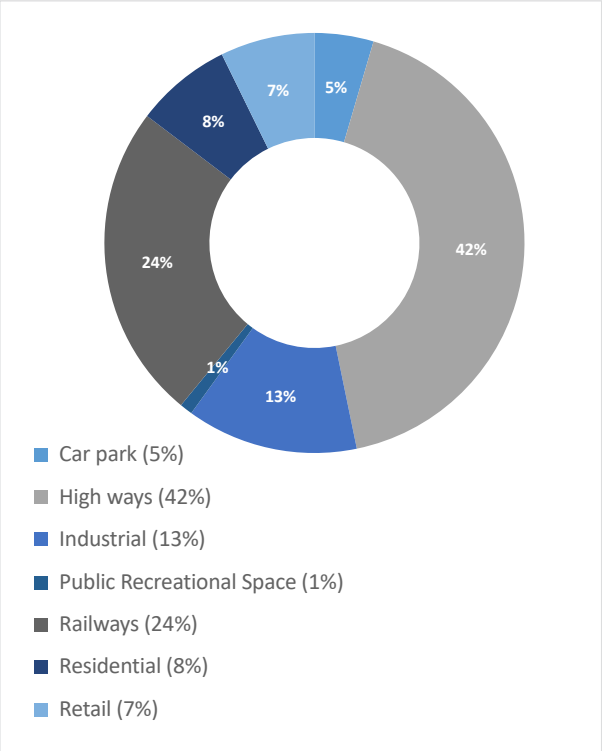
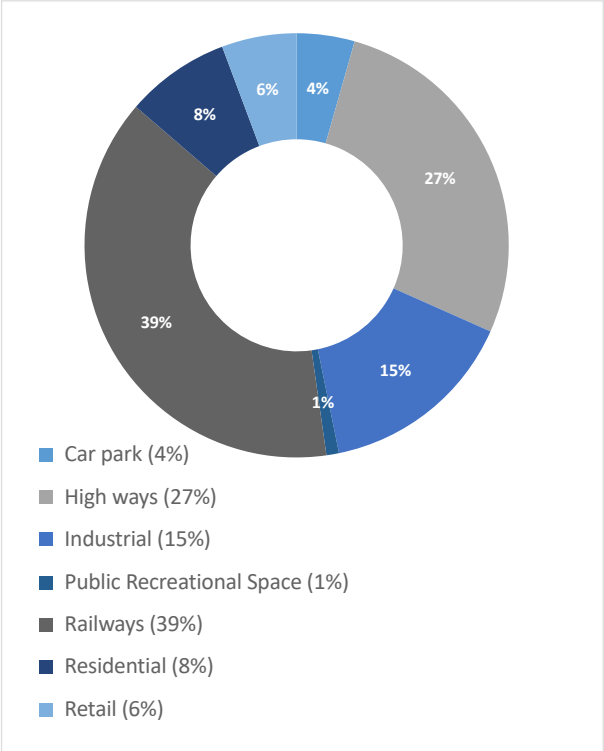


Figure 3 - National 2019 % of Weight per 1,000 m² by Site Type



COMPARISONS BY SITE TYPES

The highest numbers of items per 1,000 m² were located within Industrial sites (256 items), Retail sites (241 items) and Highway sites (195 items). Moderate to high levels of litter were recorded at Railway sites (138 items) while more moderate numbers of litter items were recorded at Car Park sites (108 items) and Residential sites (103 items). Public Recreational Spaces were associated with the lowest level of litter per 1,000 m² (20 items).

The highest volumes of the litter objects per 1,000 m² were recorded at Highway sites (43.67 ltr), Railway sites (25.21 ltr) and Industrial sites (13.66 ltr). Low to moderate volumes of litter per 1,000 m² were observed at Residential sites (7.66 ltr) and Retail sites (7.51 ltr). Smaller volumes of litter per 1,000 m² were found at Car Park sites (4.70 ltr) and Public Recreational sites (1.02 ltr).

Nationally, the highest weights per 1,000 m² were recorded at Railway sites (3.24 kg), Highway sites (2.29 kg) and Industrial sites (1.27 kg). Small to moderate litter weights were associated with Residential sites (0.67 kg) and Retail sites (0.48 kg), while the lowest weights per 1,000 m² were associated with Car Park sites (0.37 kg) and Public Recreational sites (0.08 kg).

Figure 4 - National 2019 Items and Volume per 1,000 m² by Site Type

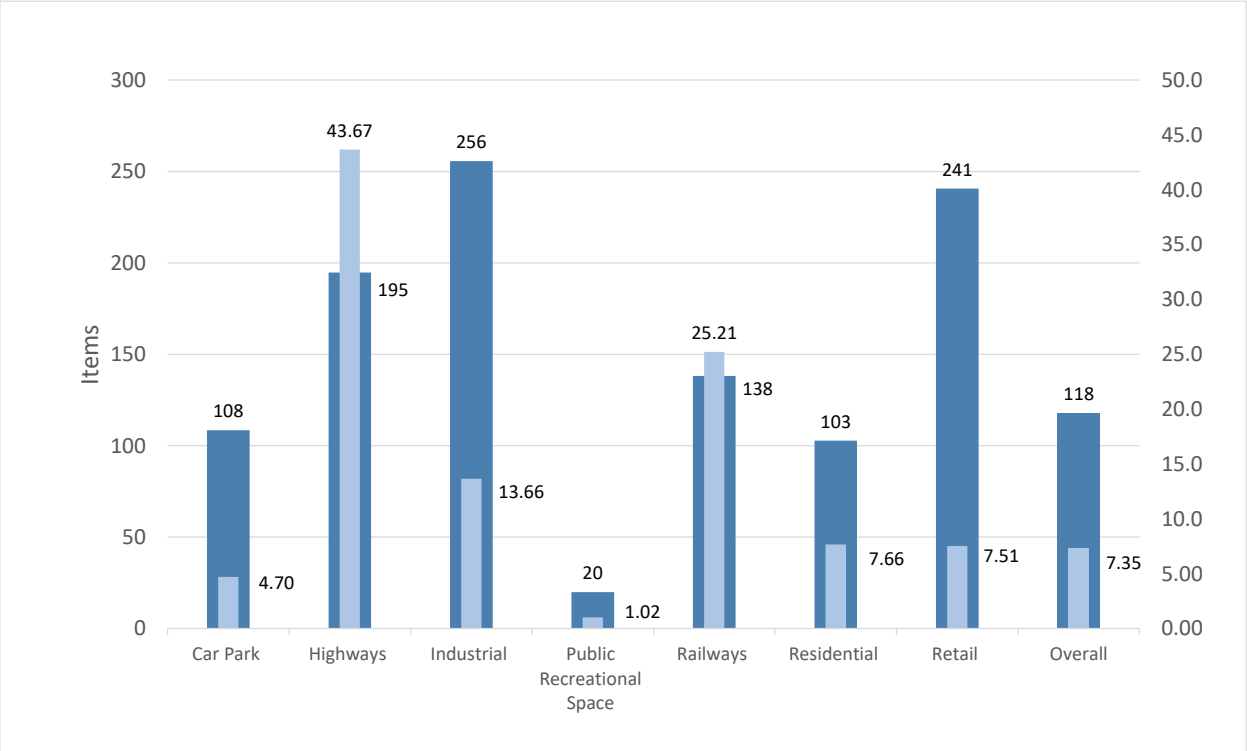
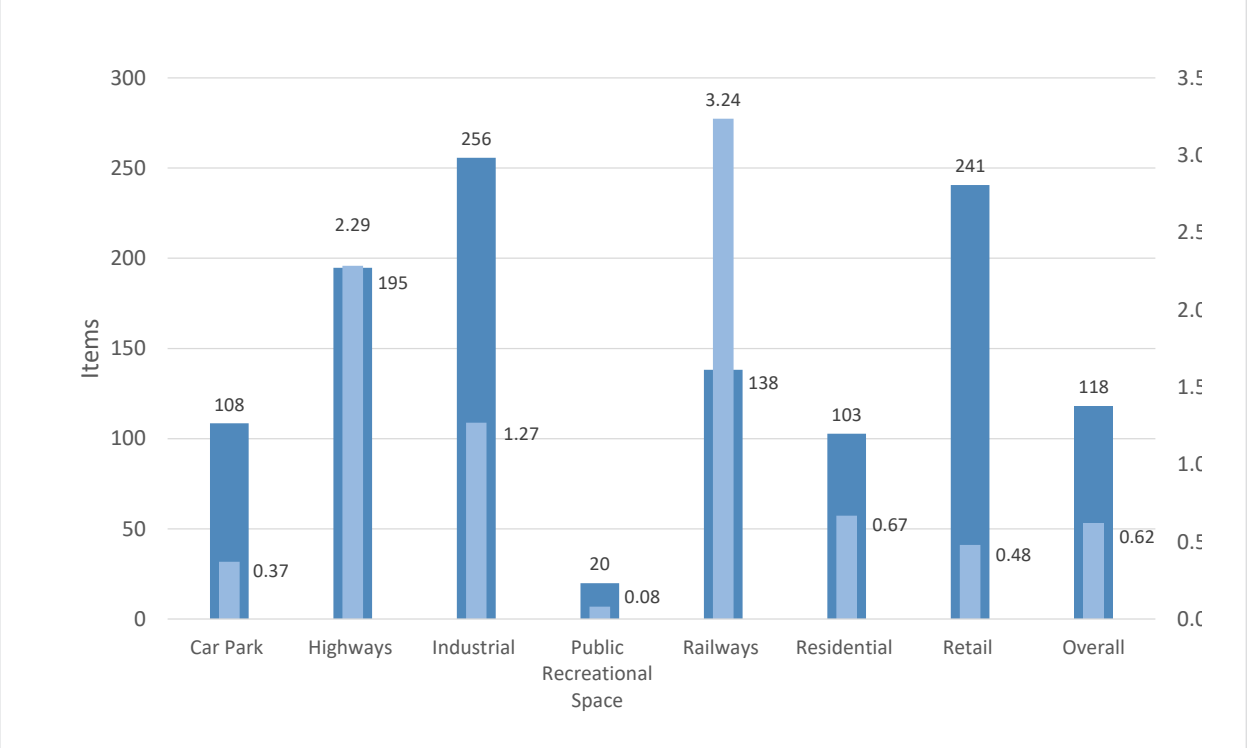


Figure 5 - National 2019 Items and Weight per 1,000 m² by Site Type

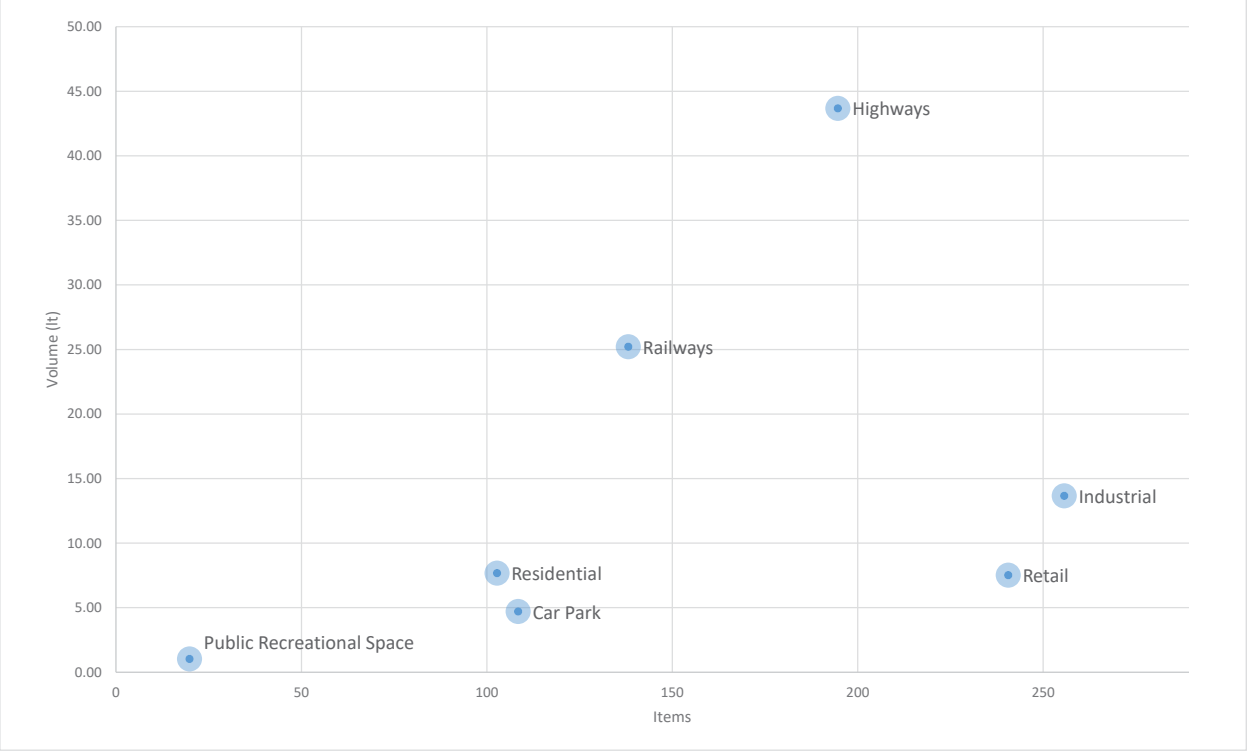


SITE CHARACTERISTICS

The following site characteristics across all site types were identified for items and volume estimates per 1,000 m²:

- Highway sites contributed very large volumes of litter and moderate to high numbers of litter items per 1,000 m²
- Industrial sites were associated with a high number of litter items and moderate litter volumes
- Railway sites contributed large volumes of litter and moderate numbers of litter items
- Retail sites contributed high numbers of litter items and small to moderate litter volumes
- Residential and Car Park sites contributed both a moderate number of litter items and small to moderate litter volumes
- Public Recreational sites were associated with both a low number of litter items and small litter volumes

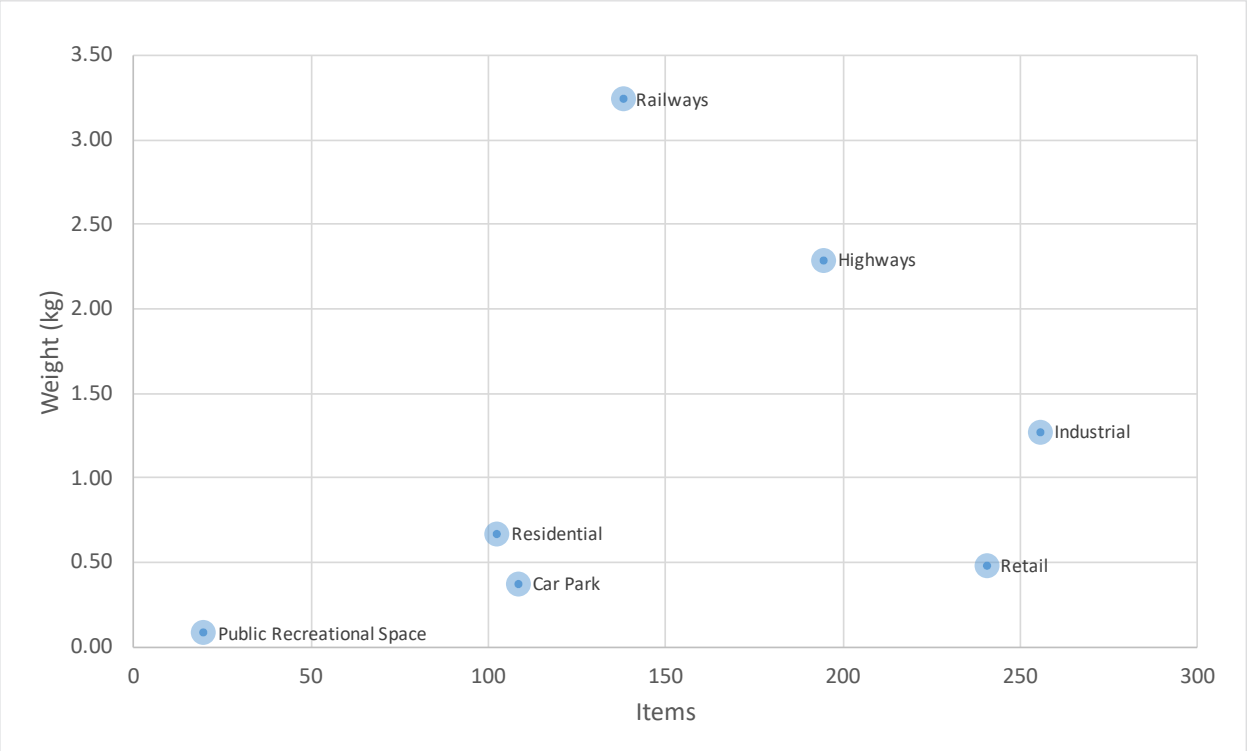
Figure 6 - National 2019 Items and Volume per 1,000 m² by Site Type



The following site characteristics across all site types were identified for items and weights per 1,000 m²:

- Railway sites contributed very large litter weights, but were associated with more moderate numbers of litter items
- Highway sites were associated with moderate to large litter weights and moderate to high numbers of litter items
- Industrial sites contributed moderate litter weights and high numbers of litter items
- Retail sites were associated with small to moderate litter weights, but contributed high numbers of litter items
- Residential and Car Park sites contributed small to moderate litter weights and moderate numbers of litter items
- Public Recreational sites were associated with both small litter weights and low numbers of litter items

Figure 7 - National 2019 Items and Weight per 1,000 m² by Site Type



COMPARISON BY MAIN MATERIAL TYPES

Cigarette Butts/Vaping were the most prevalent litter item nationally in 2019 with 39 butts collected per 1,000 m². Although they were the most commonly collected litter item, they were associated with the smallest litter volumes per 1,000 m² (0.003 ltr).

Plastic items (29 items) were also large contributors to the number of items per 1,000 m² nationally while Paper/Cardboard (15 items), Metal (14 items) and Glass (12 items) also added to the overall litter stream per 1,000 m². Smaller numbers of litter items per 1,000 m² for Miscellaneous (7 items), Organic Waste (1 item) and Illegal Dumping (less than 1 item per 1,000 m²) were collected.

Paper/Cardboard were associated with the largest proportion of volume per 1,000 m², contributing 1.66 ltr while Miscellaneous items (which included Disposable nappies and Cloth/materials) contributed the second highest volume at 1.59 ltr per 1,000 m². Illegal Dumping (1.31 ltr) and Plastic (1.16 ltr) were also associated with larger litter volumes. Smaller litter volumes were recorded for Metal (0.93 ltr), Glass (0.64 ltr) and Organic Waste (0.04 ltr).

The largest litter weights per 1,000 m² recorded nationally were associated with Glass objects (0.23 kg). Plastic (0.11 kg) and Metal (0.10 kg) contributed more moderate weights to the overall national litter weights, while low to moderate weights were associated with Miscellaneous items (0.07 kg) and Paper/Cardboard (0.06 kg). Organic Waste (0.03 kg) and Cigarette Butts/Vaping (0.012 kg) contributed the smallest litter weights to the overall litter stream. A weight measure was not recorded for any Illegal Dumping objects identified during the Audit.

Figure 8 - National 2019 Items and Volume per 1,000 m² by Main Material Type

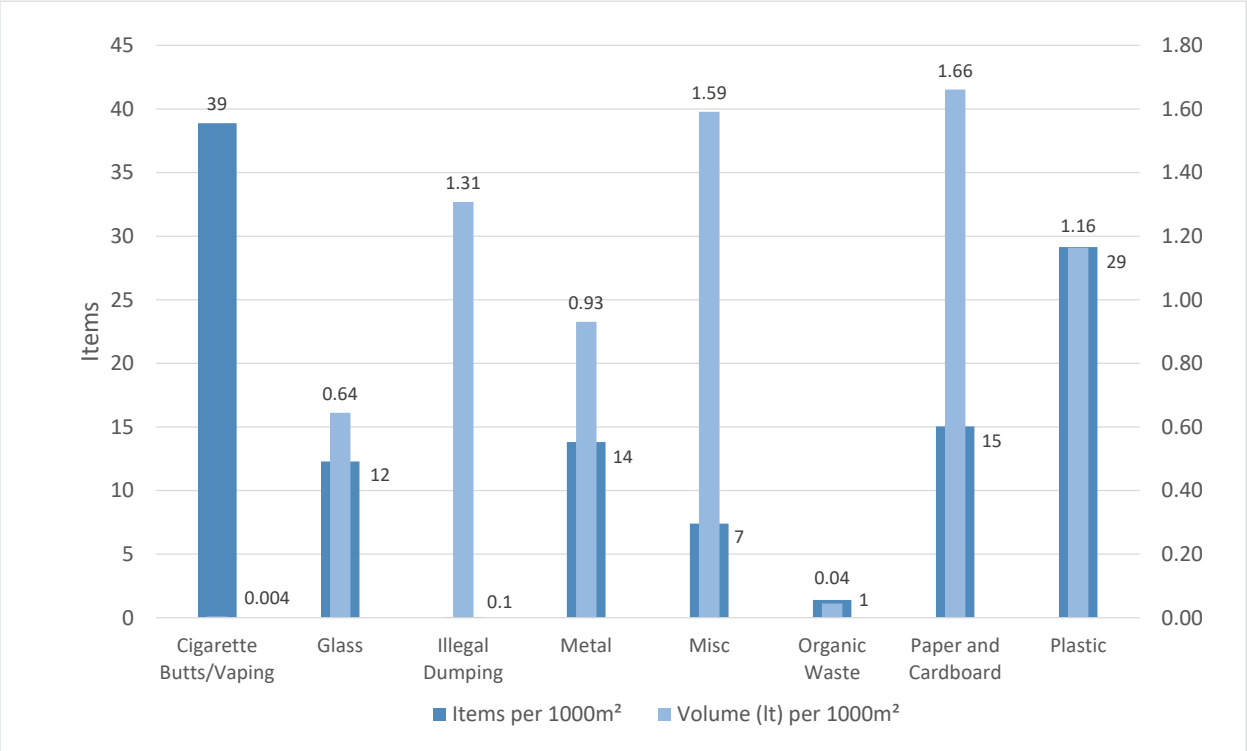
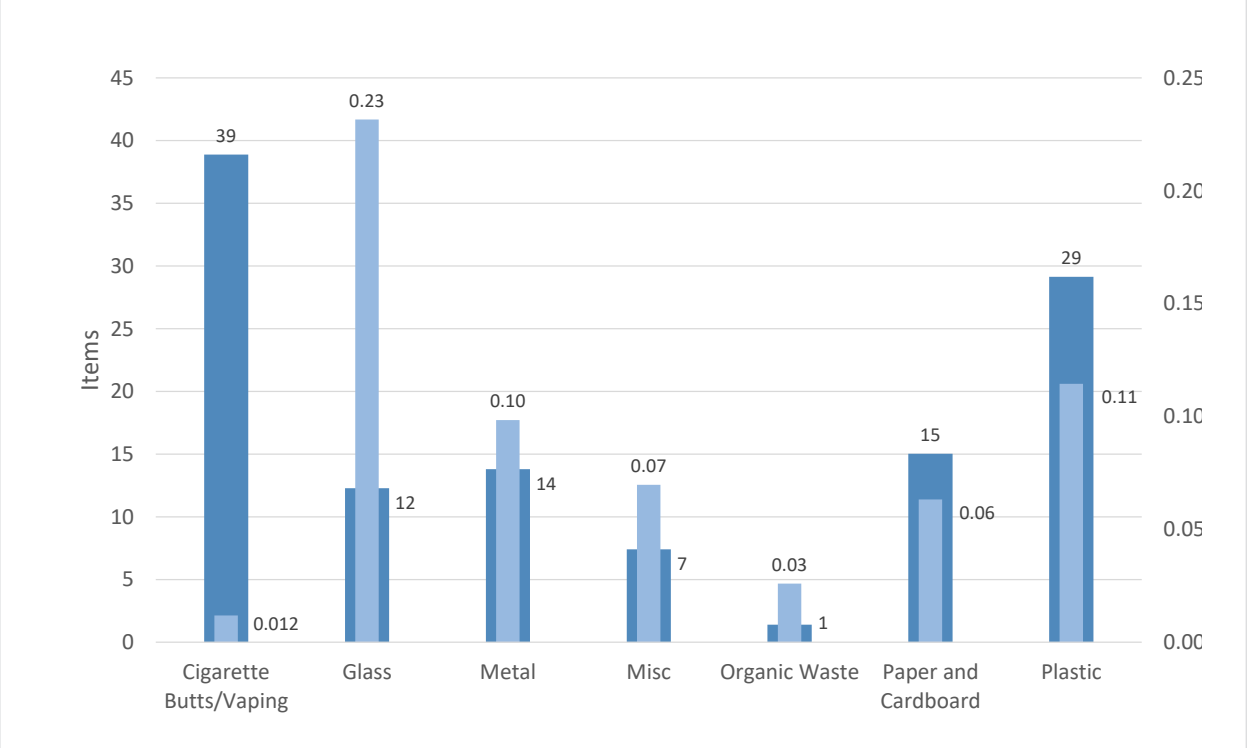


Figure 9 - National 2019 Items by Weight per 1,000 m² by Main Material Type

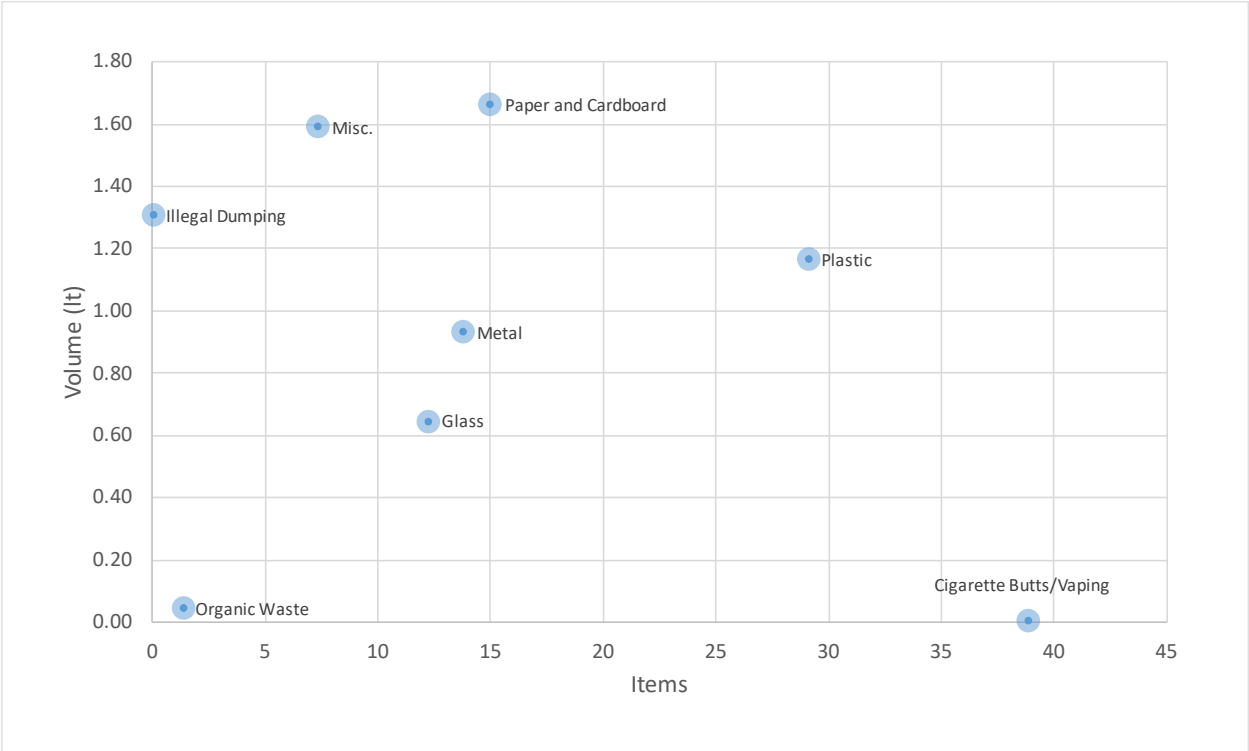


MAIN MATERIAL CHARACTERISTICS

The following characteristics for items and volumes per 1,000 m^2 nationally, across the main material types were identified:

- Cigarette Butts/Vaping contributed high numbers of litter items to the national litter stream but negligible volumes
- Plastic was associated with moderate to high numbers of litter items and moderate to high litter volumes
- Paper/Cardboard contributed large volumes the litter stream and were associated with moderate numbers of litter items
- Miscellaneous items were associated with large litter volumes but small numbers of litter items
- Illegal Dumping contributed large litter volumes to the litter stream but only negligible numbers of litter items
- Metal was associated with moderate volumes of litter and low to moderate numbers of litter items
- Glass contributed small to moderate litter volumes and low to moderate numbers of litter items
- Organic Waste items were associated with both low numbers of litter items and small litter volumes

Figure 10 - National 2019 Items and Volume per 1,000 m² by Main Material Type

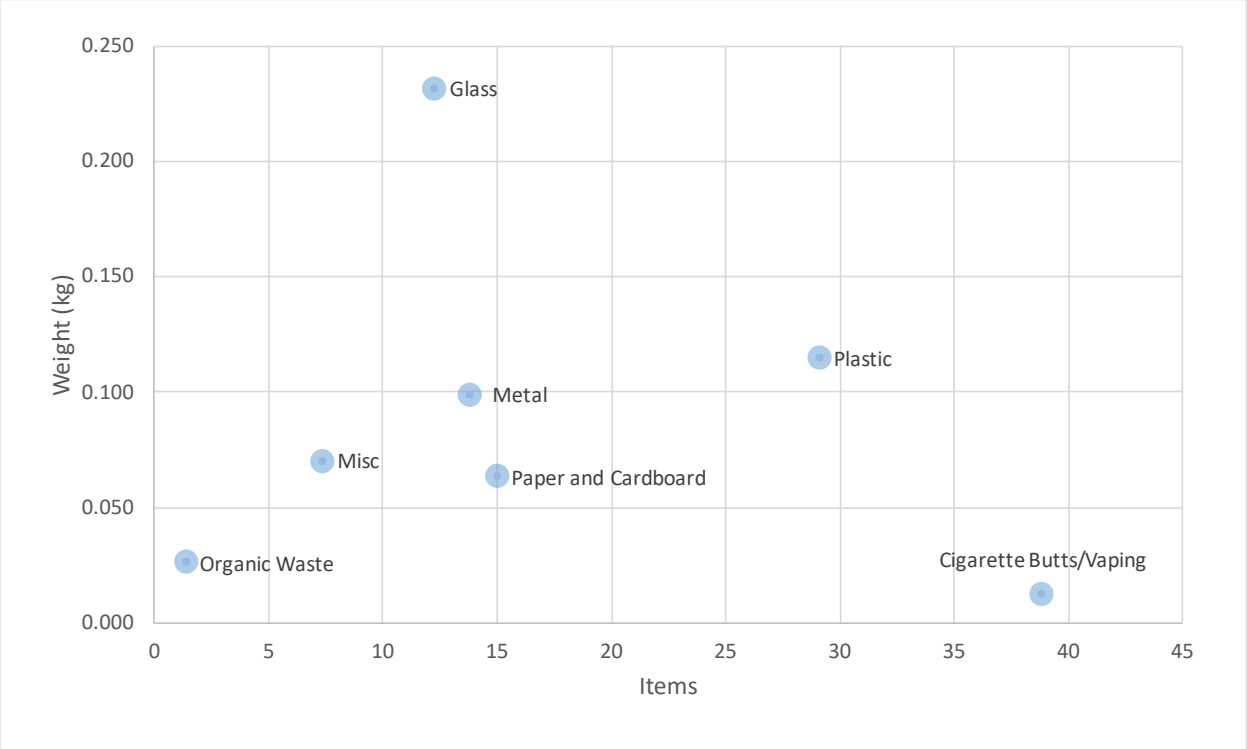


The following characteristics for items and weights per 1,000 m² nationally, across the main material types were identified:

- Glass items were associated with very large litter weights, but contributed low to moderate numbers of litter items to the overall litter stream
- Plastic items were associated with moderate litter weights and moderate to high litter volumes
- Metal items contributed moderate litter weights and low to moderate numbers of litter items
- Paper/Cardboard items were associated with low to moderate litter weights and moderate numbers of litter items
- Miscellaneous items contributed low to moderate litter weights and low numbers of litter items to the overall litter stream
- Organic Waste was associated with both small litter weights and low numbers of litter items
- Cigarette Butts/Vaping items were associated with small litter weights, but contributed high numbers of litter items to the national litter stream

Note: Illegal Dumping items were not weighed during the Audit

Figure 11 - National 2019 Items and Weight per 1,000 m² by Main Material Type

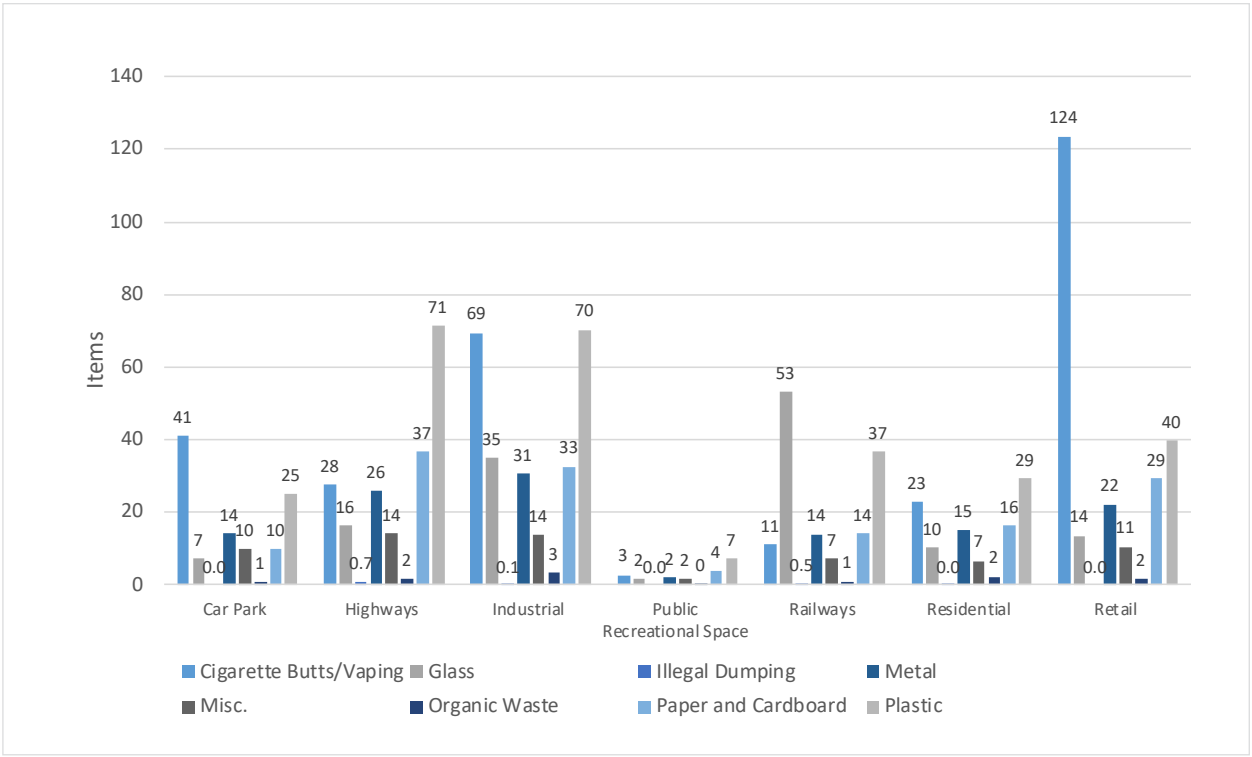


SITE TYPES BY MATERIAL TYPES

Nationally, the number of different material type litter items per 1,000 m² by the different site types included:

- Car Park sites: Cigarette Butts/Vaping (41 items), Plastic (25 items), Metal (14 items), Miscellaneous (10 items), Paper/Cardboard (10 items), Glass (7 items), Organic Waste (1 item) and Illegal Dumping (0 items)
- Highway sites: Plastic (71 items), Paper/Cardboard (37 items), Cigarette Butts/Vaping (28 items), Metal (26 items), Glass (16 items), Miscellaneous (14 items), Organic Waste (2 items) and Illegal Dumping (0.7 items per 1,000 m²)
- Industrial sites: Plastic (70 items), Cigarette Butts/Vaping (69 items), Glass (35 items), Paper/Cardboard (33 items), Metal (31 items), Miscellaneous (14 items), Organic Waste (3 items) and Illegal Dumping (0.1 item per 1,000 m²)
- Public Recreational sites: Plastic (7 items), Paper/Cardboard (4 items), Cigarette Butts/Vaping (3 items), Glass (2 items), Metal (2 items), Miscellaneous (2 items), Organic Waste (0.4 items) and Illegal Dumping (0 items)
- Railway sites: Glass (53 items), Plastic (37 items), Metal (14 items), Paper/Cardboard (14 items), Cigarette Butts/Vaping (11 items), Miscellaneous (7 items), Organic Waste (1 item) and Illegal Dumping (0.5 items per 1,000 m²)
- Residential sites: Plastic (29 items), Cigarette Butts/Vaping (23 items), Paper/Cardboard (16 items), Metal (15 items), Glass (10 items), Miscellaneous (7 items), Organic Waste (2 items) and Illegal Dumping (0 items)
- Retail sites: Cigarette butts (124 items), Plastic (40 items), Paper/Cardboard (29 items), Metal (22 items), Glass (14 items), Miscellaneous (11 items), Organic Waste (2 items) and Illegal Dumping (0 items)

Figure 12 - National 2019 Sites by Material Types - Items per 1,000 m²



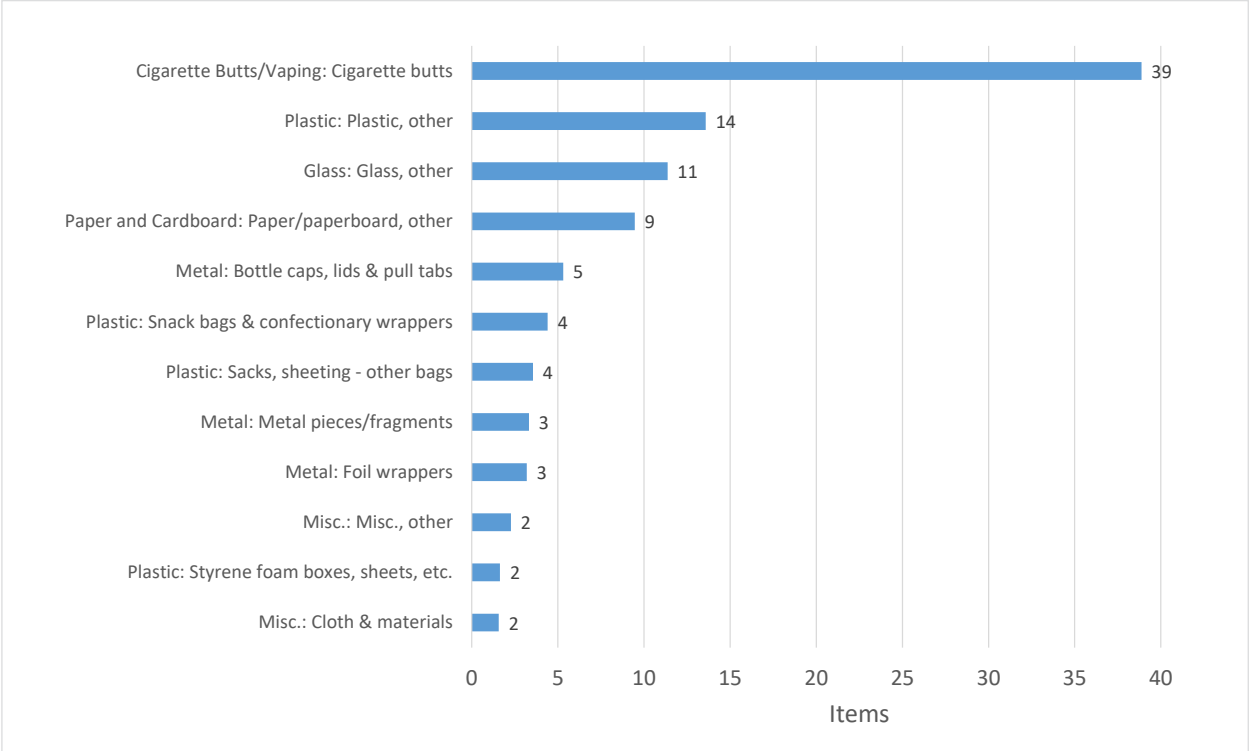
THE DIRTY DOZEN

Analysis according to object sub-type categories showed that on average, Cigarette butts were the most frequently identified item nationally, with 39 butts recorded per 1,000 m².

Other objects frequently identified included:

- Uncategorised Plastic objects (14 items per 1,000 m²)
- Uncategorised Glass objects (11 items per 1,000 m²)
- Uncategorised Paper/paperboard objects (9 items per 1,000 m²)
- Metal: Bottle caps, lids & pull tabs (5 items per 1,000 m²)

Figure 13 - National 2019 Dirty Dozen - Items per 1,000 m² - Object Sub Categories



Disposable nappies represented the largest contribution to the estimated national litter volumes, recording 1.50 ltr of volume per 1,000 m².

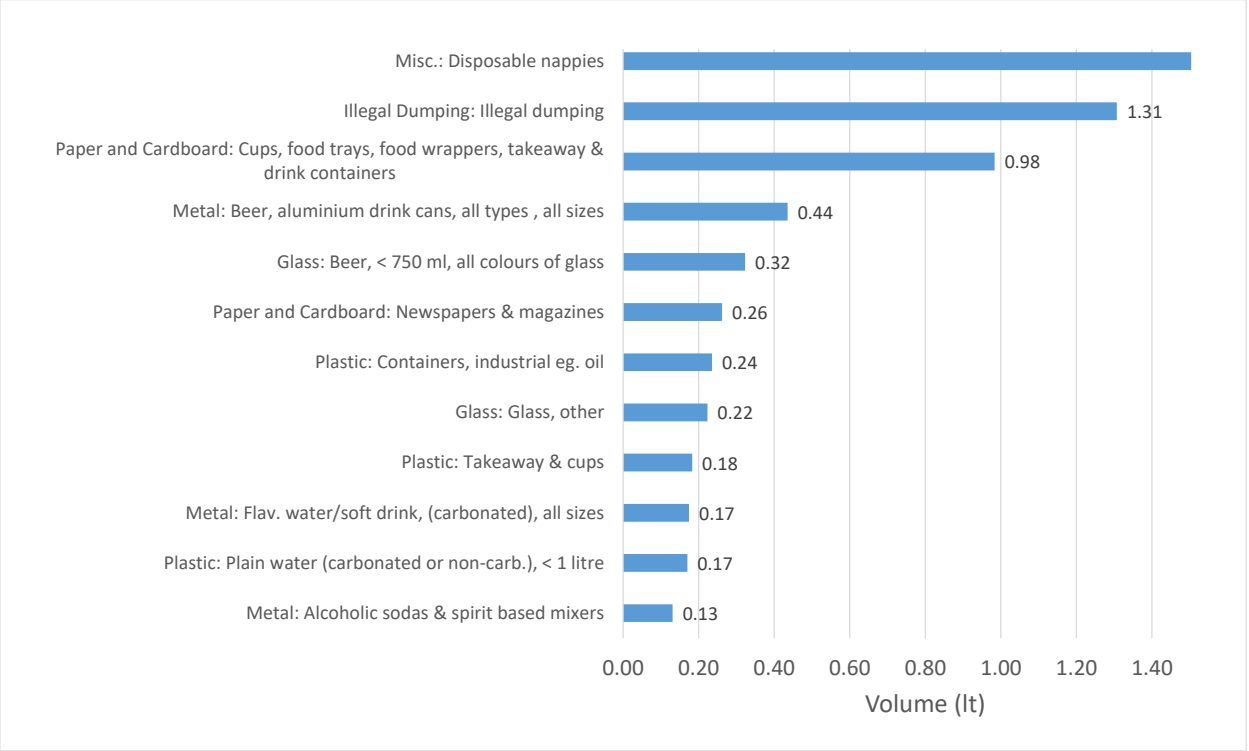
Other object sub-categories which were associated with large estimated volumes included:

- Illegal dumping (1.31 ltr per 1,000 m²)
- Paper/Cardboard: Cups, food trays, food wrappers, takeaway & drink containers (0.98 ltr per 1,000 m²)
- Metal: Beer, aluminium drink cans, all types, all sizes (0.44 ltr per 1,000 m²)
- Glass: Beer, less than 750 ml, all colours of glass (0.32 ltr per 1,000 m²)

CIGARETTE BUTTS

Cigarette butts were the most frequently identified item nationally, with 39 butts recorded per 1000m^2

Figure 14 - National 2019 Dirty Dozen - Volume per 1,000 m² - Object Sub Categories



Glass: Beer bottles (less than 750 ml, all colours) represented the largest contribution to the national litter weights, recording 0.12 kg of weight per 1,000 m². Weights were not measured for Illegal Dumping materials and therefore are not included in the weight analysis.

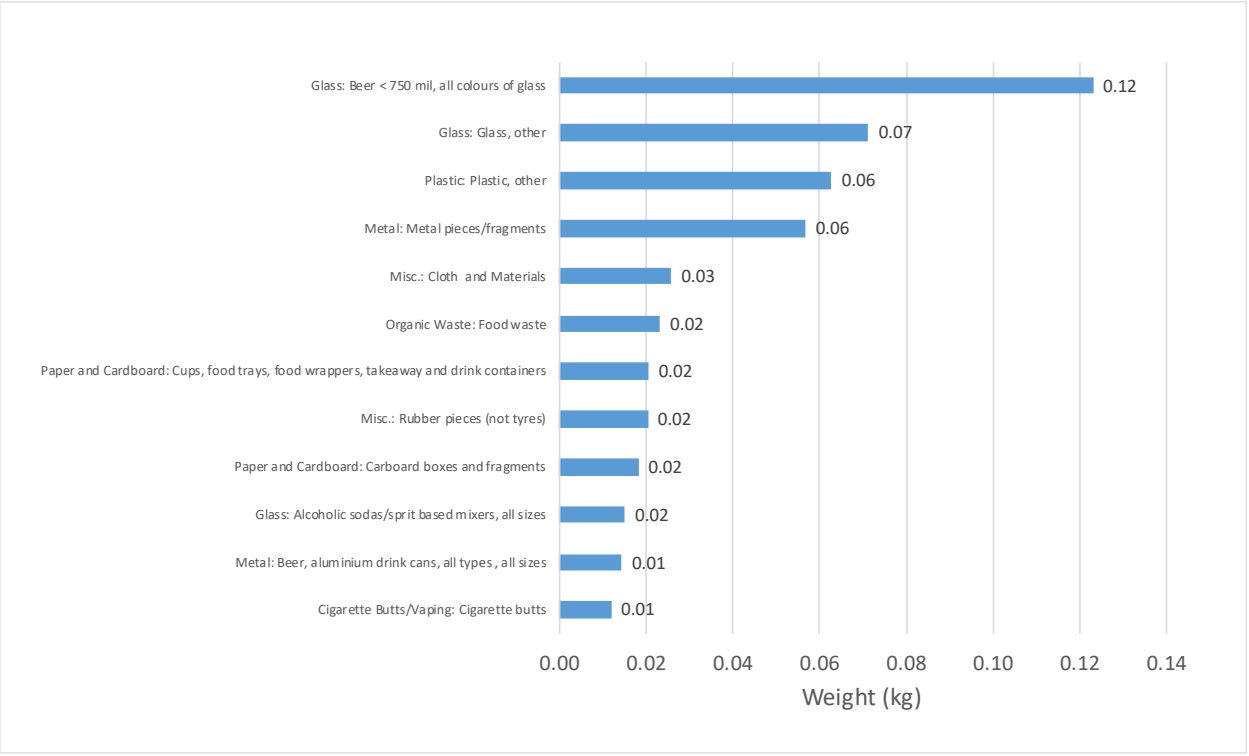
Other object sub-categories which were associated with large litter weights per 1,000 m² included:

- Uncategorised Glass objects (0.07 kg per 1,000 m²)
- Uncategorised Plastic objects (0.06 kg per 1,000 m²)
- Metal pieces/fragments (0.06 kg per 1,000 m²)
- Cloth & materials (0.03 kg per 1,000 m²)

DISPOSABLE NAPPIES

Disposable nappies represented the largest contribution to the estimated national litter volumes, recording 1.50 ltr of volume per 1,000 m^2

Figure 15 - National 2019 Dirty Dozen - Weight per 1,000 m² - Object Sub Categories



SITE GRADINGS

All sites were assigned gradings in 4 categories: Visual rating, Litter hotshots rating, Risk present and Litter distribution. These were analysed to determine rating percentages and averages from the total sites audited nationally.

Extract from Table 2 - Site Types: National

	Risk Present		Litter Distribution	
National	*Moderate hazard or risk*	*Significant hazard or risk*	*Widespread*	*Clustered*
	91%	*73%*	*97%*	*3%*

GLASS BEER BOTTLES

Glass beer bottles (less than 750 ml, all colours) represented the largest contribution to the national litter weights, recording 0.12 kg of weight per 1,000 m^2

Figure 16 - National 2019 Grading - Visual Site Ranking

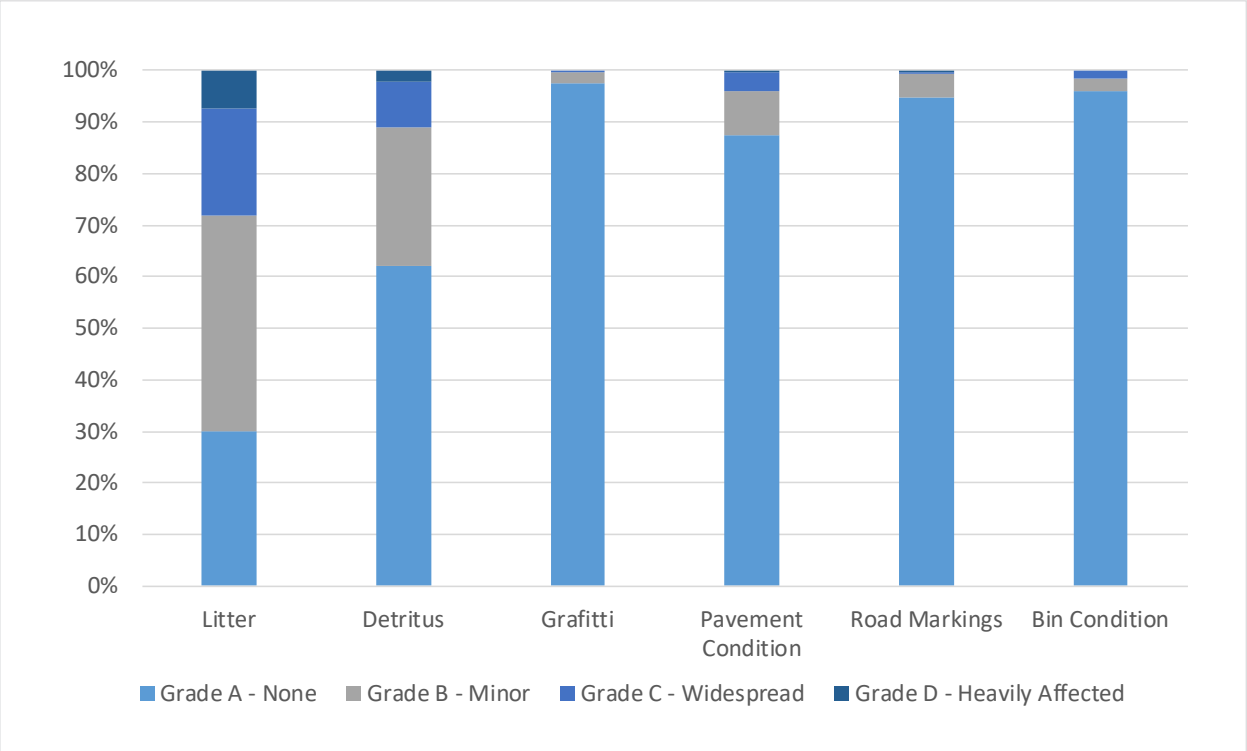
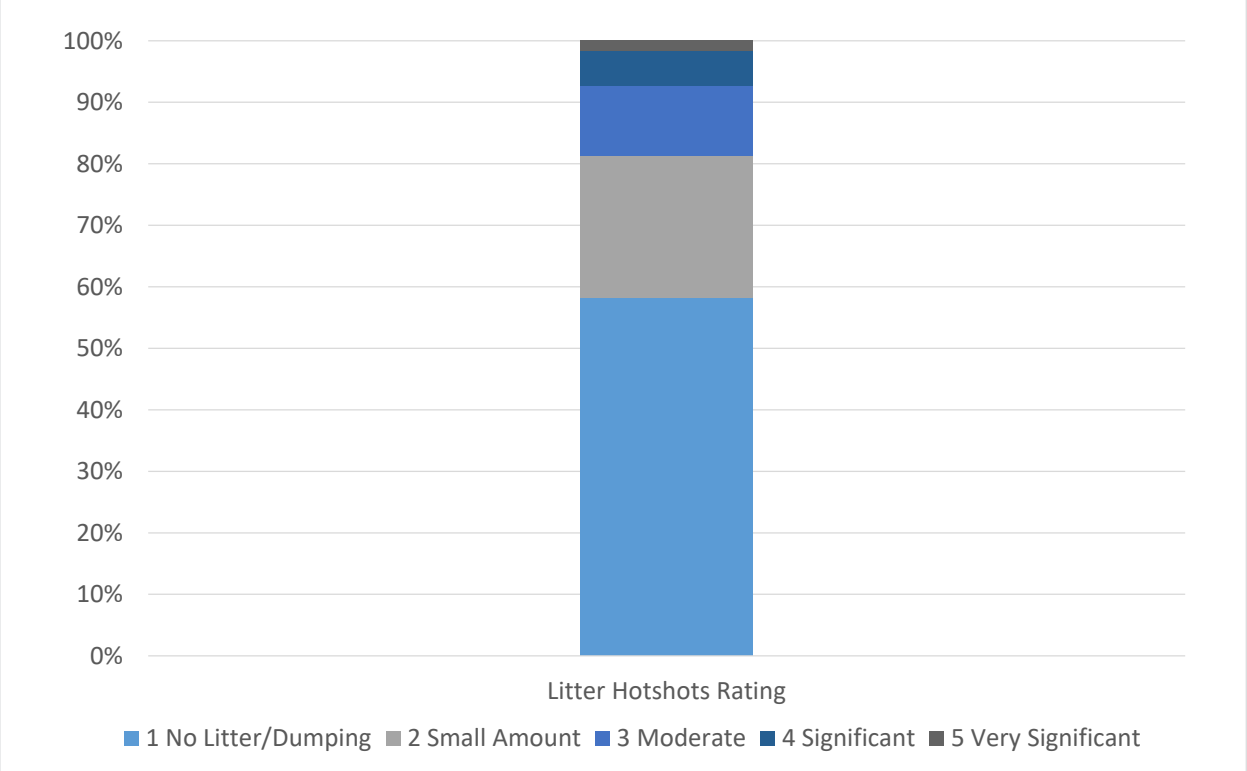


Figure 17 - National 2019 Grading - Site Litter Hotshots Ratings



HIGHWAYS AND RAILWAYS

AT A GLANCE

A sample of 21 Highway sites and 22 Railway sites were audited nationally in 2019. Not all regions were represented in the Audit, therefore the reporting for Highways and Railways is included separately.

The overall average number of items per 1,000 m² across all Highway sites surveyed nationally was 195 items, the overall average weight of the items per 1,000 m² was 2.29 kg, while the overall average estimated volume per 1,000 m² was 43.67 ltr.

Railway sites contributed an overall average of 138 litter items per 1,000 m², and overall average weight of 3.24 kg, and an overall estimated volume per 1,000 m² of 25.21 ltr.

Plastic items were the most frequently identified at Highway sites and contributed to the second largest litter weights per 1,000 m².

Glass items contributed to the highest numbers and largest litter weights at Railway sites, while Plastic items contributed the second highest numbers of litter items.

Illegal Dumping was associated with the largest volumes but low numbers of items at both Highway and Railway sites nationally.

COMPARISONS BY SITE TYPES

Figure 18 - Highways 2019 Items and Volume per 1,000 m²

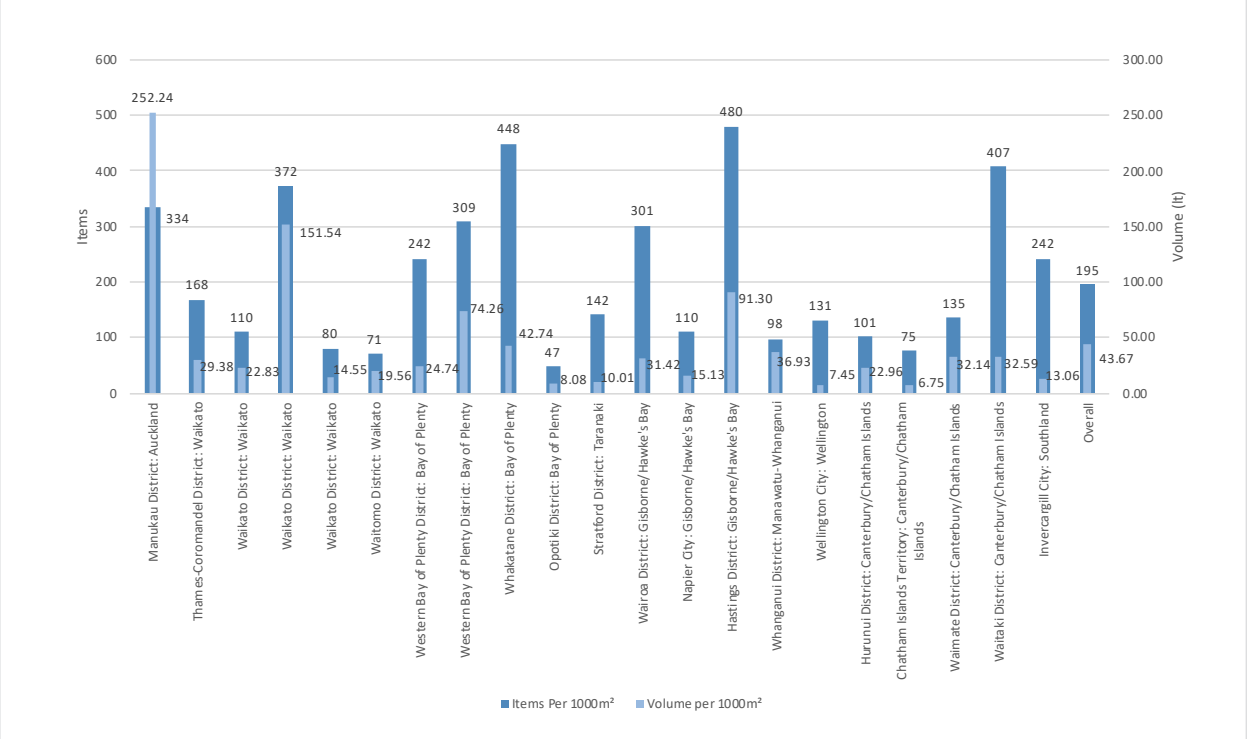


Figure 19 - Highways 2019 Items and Weight per 1,000 m²

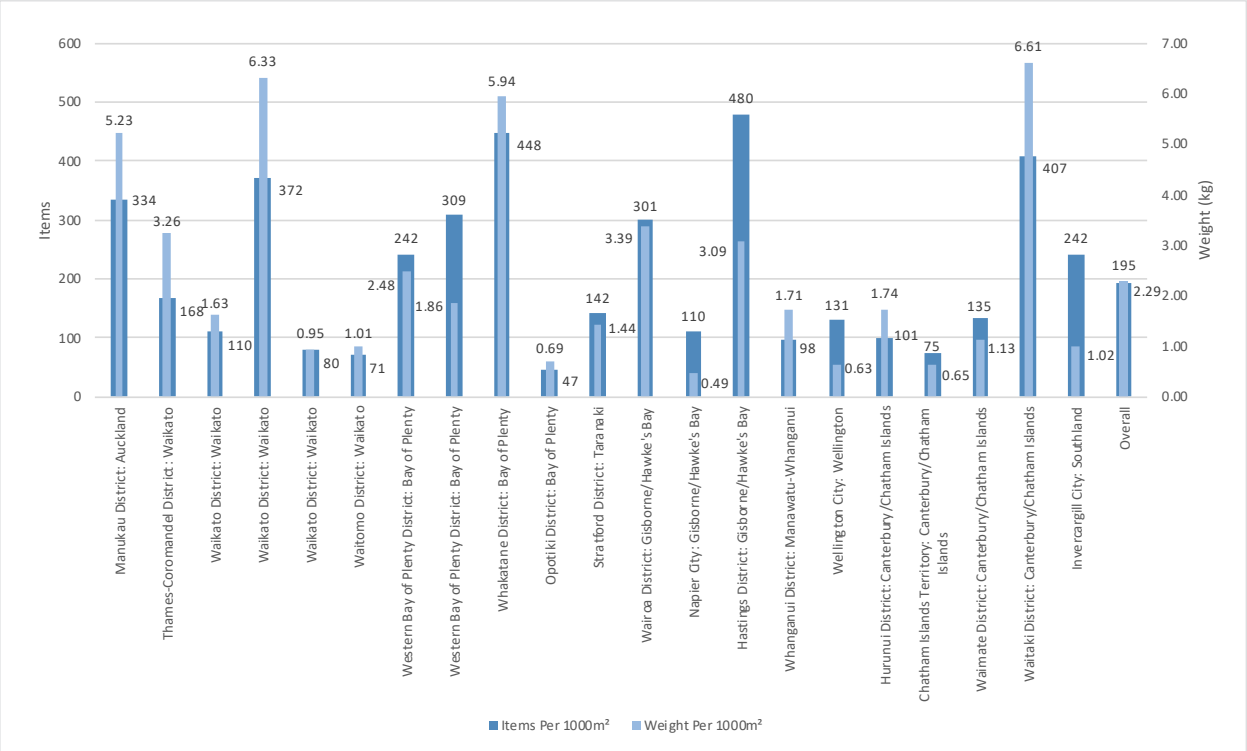


Figure 20 - Railways 2019 Items and Volume per 1,000 m²

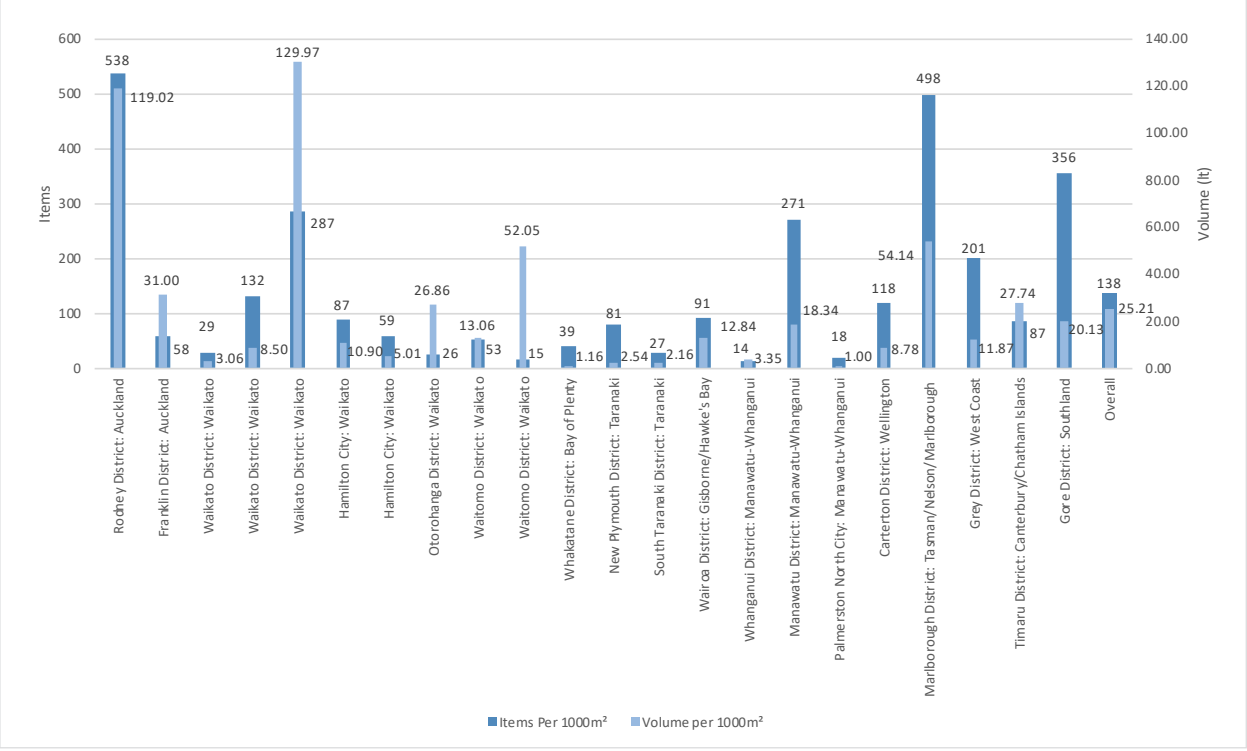
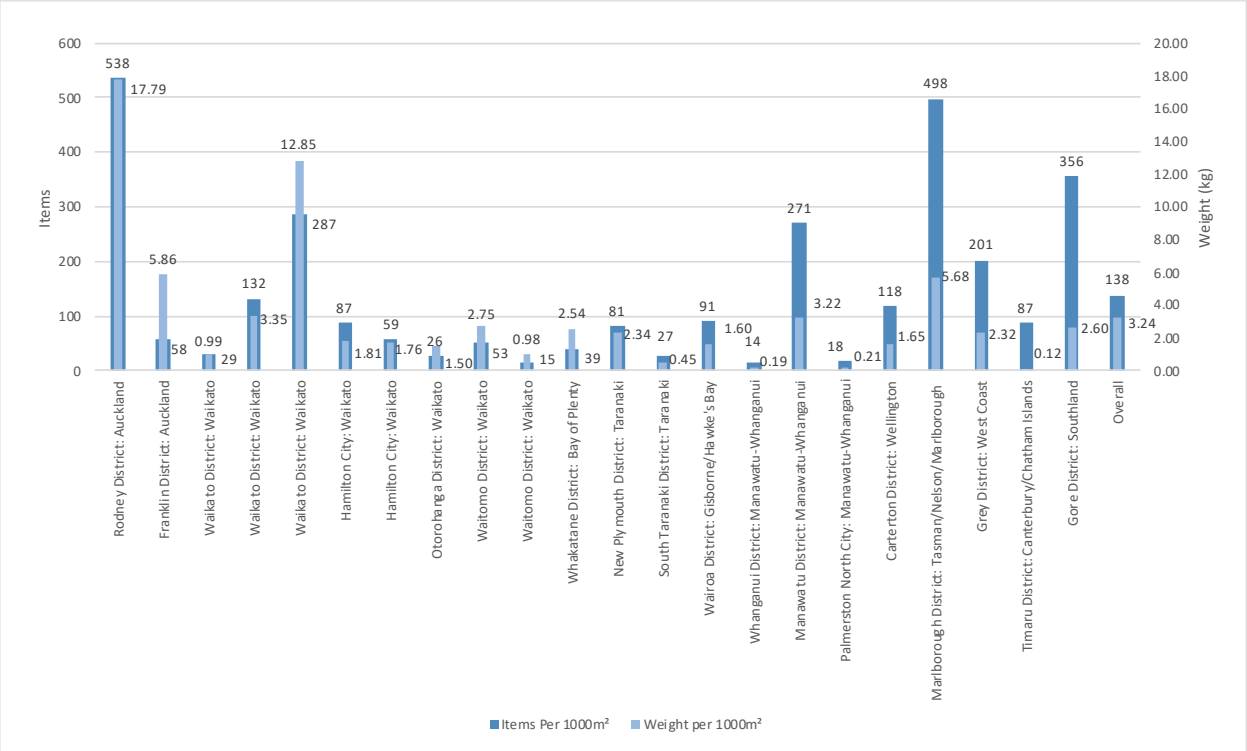


Figure 21 - Railways 2019 Items and Weight per 1,000 m²



COMPARISON BY MAIN MATERIAL TYPES

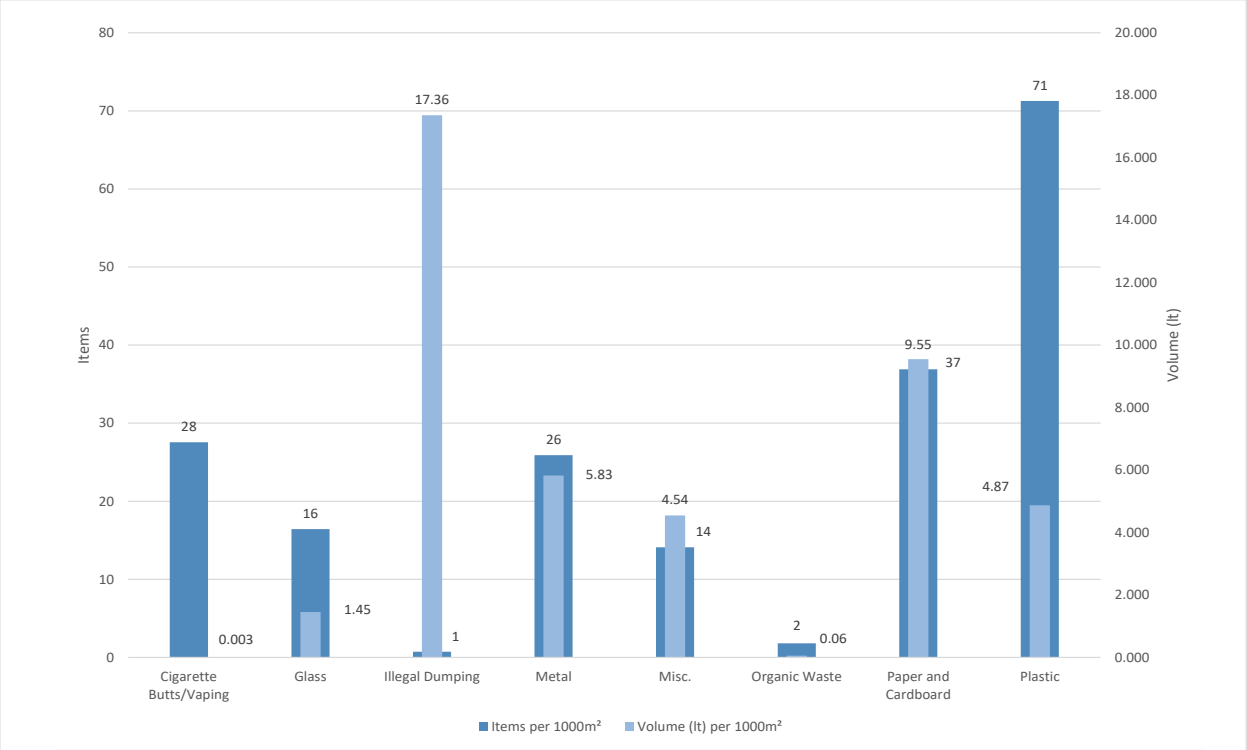
HIGHWAY SITES

Plastic was the most frequently collected litter item at Highway sites nationally (71 items), while Paper/ Cardboard (37 items), Cigarette Butts/Vaping (28 items) and Metal (26 items) also added significantly to the litter stream. Lower numbers of items were recorded for Glass (16 items), Miscellaneous items (14 items), Organic Waste (2 items) and Illegal Dumping (1 item).

Items which contributed the greatest volumes per 1,000 m² to the litter stream at Highway sites throughout New Zealand were Illegal Dumping (17.36 ltr) and Paper/ Cardboard (9.55 ltr), while Metal (5.83 ltr), Plastic (4.87 ltr) and Miscellaneous items (4.54 ltr) were associated with low to moderate volumes.

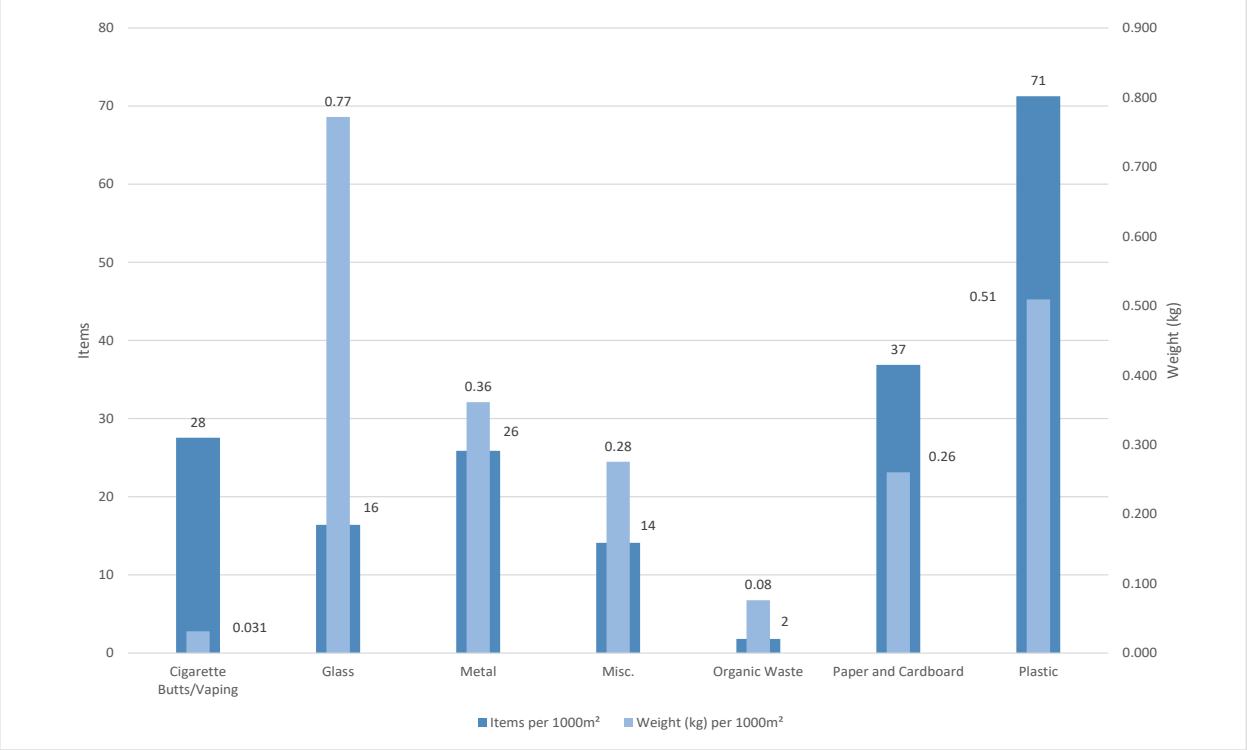
Smaller estimated volumes of litter were associated with Glass (1.45 ltr) and Organic Waste (0.06 ltr). Cigarette Butts/Vaping contributed the smallest proportion of the overall litter volume (0.003 ltr per 1,000 m²).

Figure 22 - Highways 2019 Items and Volume per 1,000 m² by Main Material Type



Larger litter weights per 1,000 m² contributing to the overall Highway litter stream were associated with Glass (0.77 kg) and Plastic (0.51 kg), while more moderate litter weights were recorded for Metal (0.36 kg), Miscellaneous items (0.28 kg) and Paper/Cardboard (0.26 kg). Smaller litter weights per 1,000 m² were associated with Organic Waste (0.08 kg) and Cigarette Butts/Vaping (0.03 kg). A weight measure was not recorded for any Illegal Dumping objects identified during the Audit.

Figure 23 - Highways 2019 Items and Volume per 1,000 m² by Main Material Type

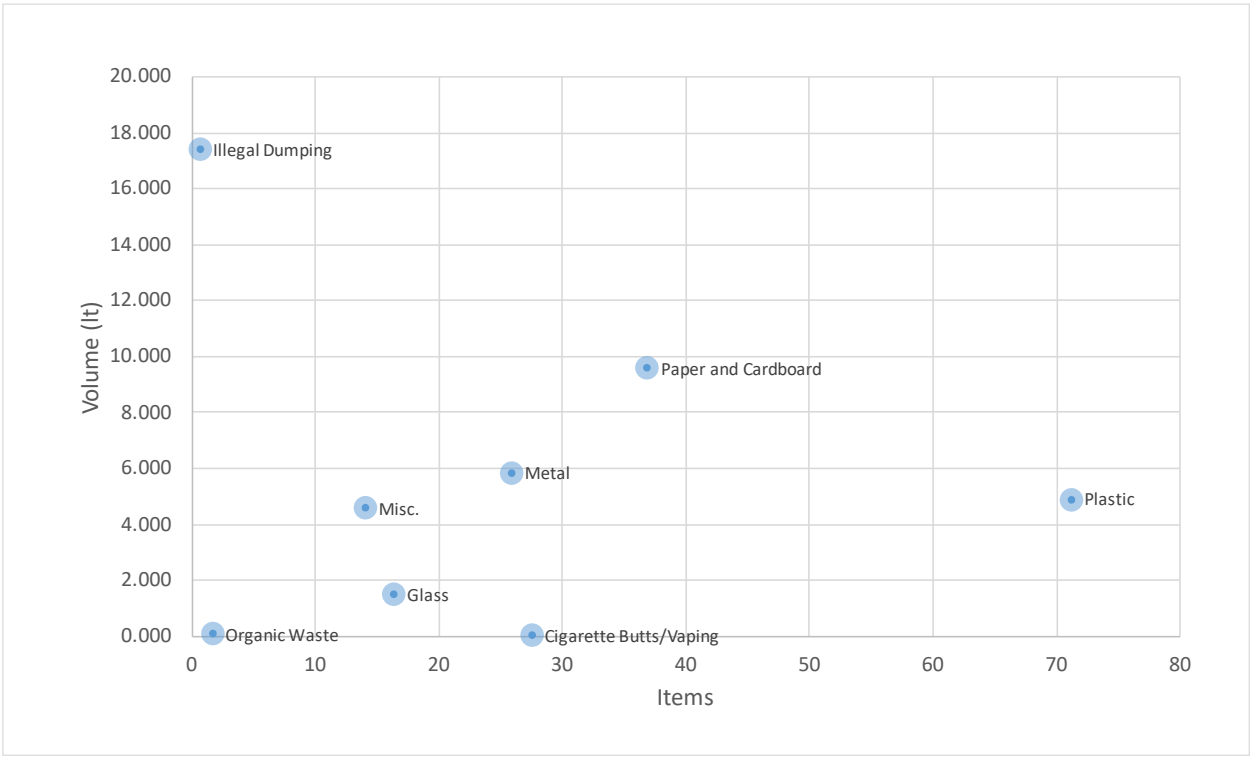


MAIN MATERIAL CHARACTERISTICS

Figures for items and volumes per 1,000 m² across main material types identified the following characteristics of litter objects within the Highway sites nationally:

- Plastic was associated with high numbers of litter items, but contributed low to moderate volumes of litter
- Illegal Dumping was associated with high litter volumes, but contributed a small number of litter items
- Paper/Cardboard contributed both moderate numbers of items and volumes
- Metal was associated with moderate numbers of litter items and low to moderate litter volumes
- Miscellaneous items contributed low numbers of litter items and low to moderate litter volumes
- Cigarette Butts/Vaping items were associated with moderate numbers of litter items, but contributed negligible litter volumes
- Organic Waste and Glass items were associated with both low numbers of litter items and small litter volumes

Figure 24 - Highways 2019 Items and Volume per 1,000 m² by Main Material Type



Figures for items and weights per 1,000 m² across main material types identified the following characteristics of litter objects within the Highway sites nationally:

- Glass items were associated with large litter weights, but contributed low to moderate numbers of litter items
- Plastic items contributed moderate to large litter weights and high numbers of litter items
- Metal and Paper/Cardboard were associated with moderate litter weights and moderate numbers of litter items
- Miscellaneous items contributed moderate litter weights and low numbers of litter items
- Organic Waste was associated with both small litter weights and low numbers of litter items
- Cigarette butts contributed small litter weights and moderate numbers of litter items

Note: Illegal Dumping items were not weighed during the Audit

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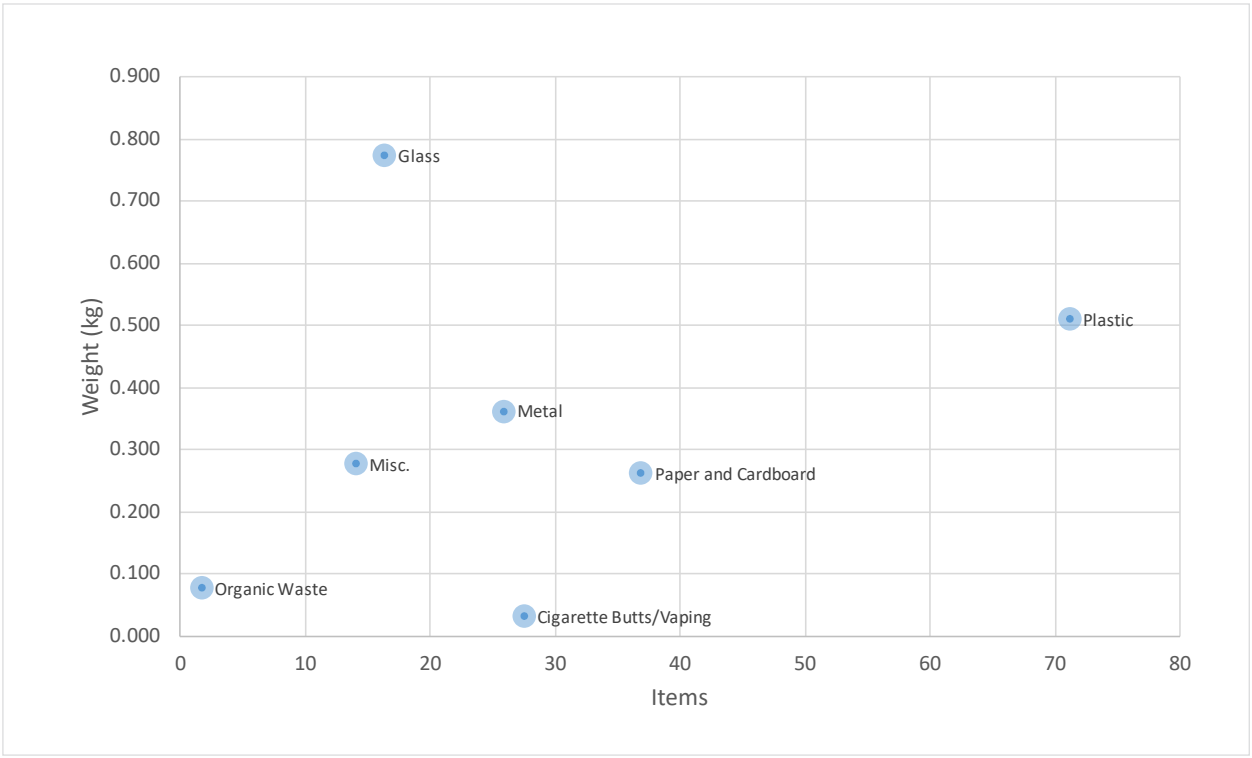
Figure 25 - Highways 2019 Items and Weight per 1,000 m² by Main Material Type



ILLEGAL DUMPING

Illegal dumping contributed the largest proportion to the total estimated litter volume at highway sites nationally, recording 17.36 ltr per 1,000 m^2

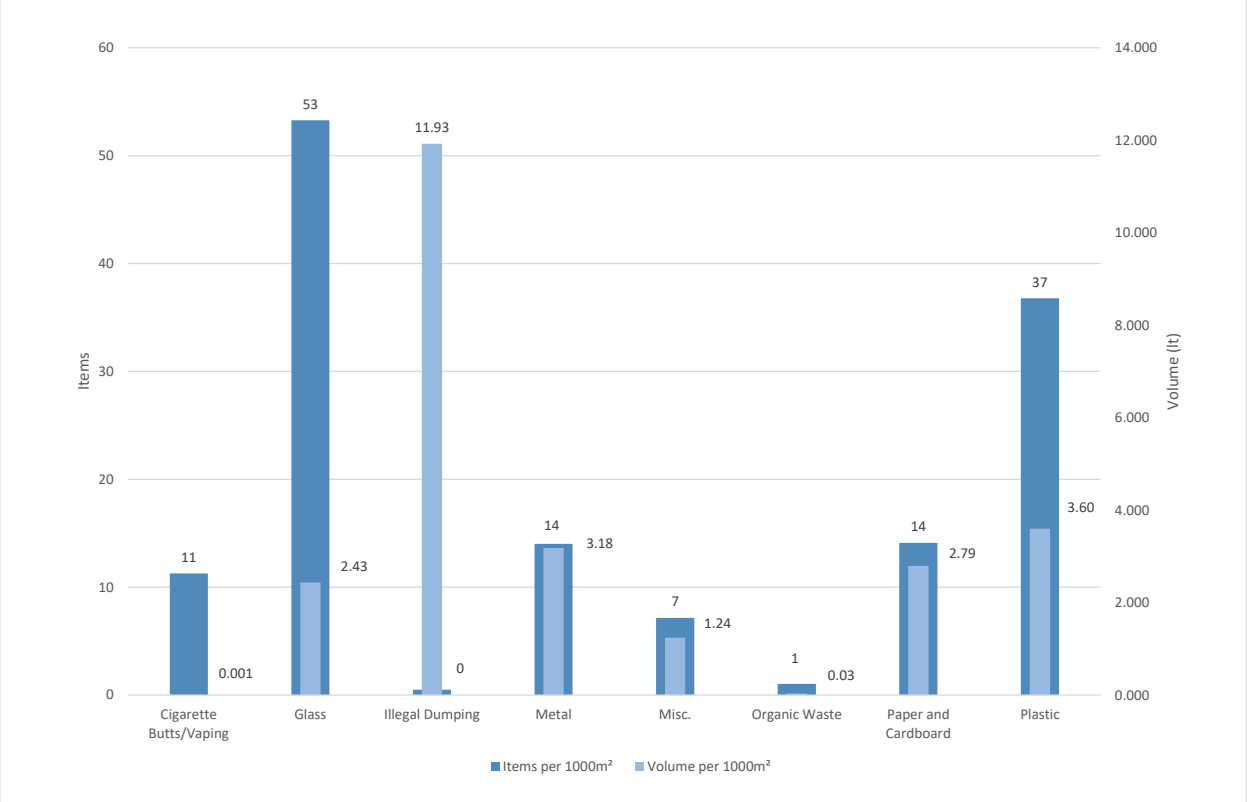
Likewise, illegal dumping represented the largest contribution to the estimated national railway site litter volumes, recording 11.93 ltr of volume per 1,000 m^2

RAILWAY SITES

Glass was the most frequently identified object per 1,000 m² at Railway sites (53 items) while Plastic (37 items) was also a significant contributor to the overall number of litter items collected. Low to moderate numbers of items per 1,000 m² were recorded for Metal (14 items) and Paper/Cardboard (14 items) while smaller numbers of items were associated with Cigarette Butts/Vaping (11 items), Miscellaneous (7 items), Organic Waste (1 item) and Illegal Dumping (less than 1 item per 1,000 m²).

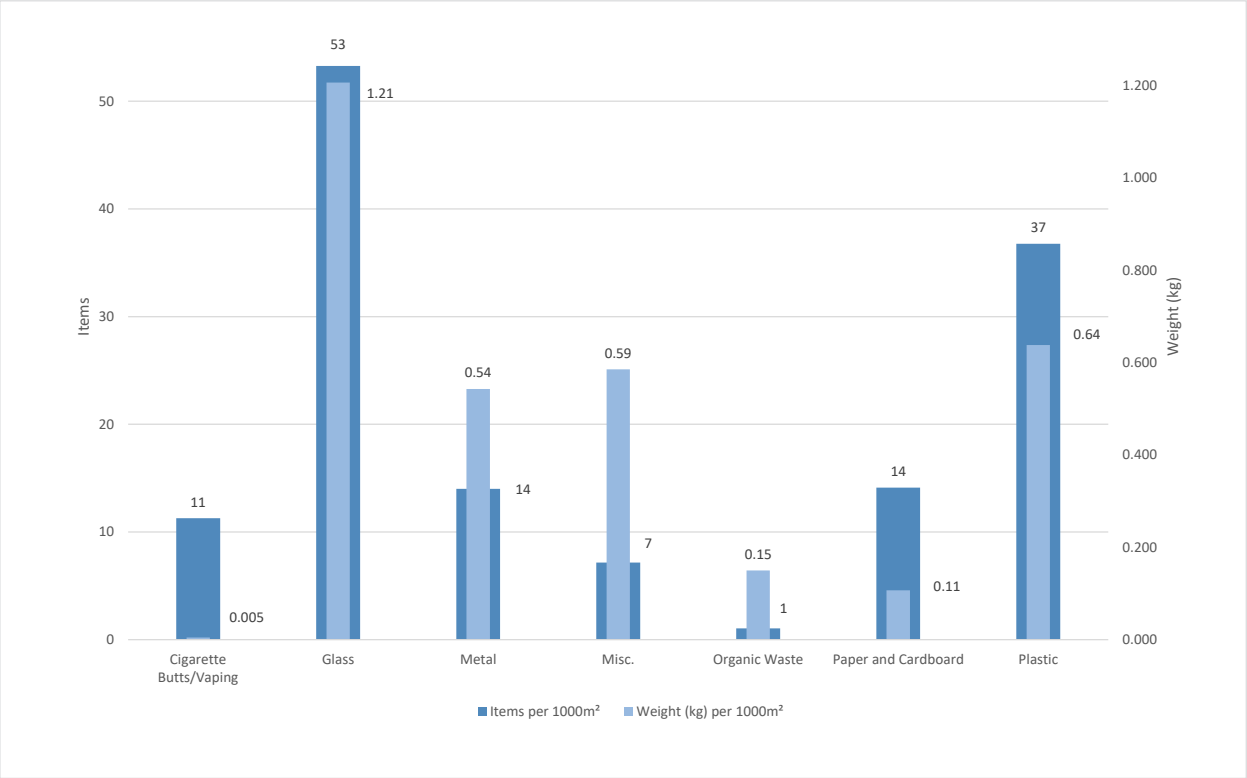
Illegal Dumping (11.93 ltr) contributed significantly more volume per 1,000 m² to the litter stream than any other material type. Plastic (3.60 ltr) Metal (3.18 ltr) and Paper/Cardboard (2.79 ltr) were associated with low to moderate litter volumes, while smaller litter volumes were recorded for Miscellaneous (1.24 ltr), Organic Waste (0.03 ltr) and Cigarette Butts/Vaping (0.001 ltr).

Figure 26 - Railways 2019 Items and Volume per 1,000 m² by Main Material Type



Glass (1.21 kg) was associated with the largest litter weights per 1,000 m² collected at Railway sites, while more moderate contributors to the overall litter weight per 1,000 m² were Plastic (0.64 kg), Miscellaneous items (0.59 kg) and Metal (0.54 kg). Smaller litter weights were associated with Organic Waste (0.03 kg) and Cigarette Butts/Vaping (0.005 kg). A weight measure was not recorded for any Illegal Dumping objects identified during the Audit.

Figure 27 - Railways 2019 Items and Weight per 1,000 m² by Main Material Type

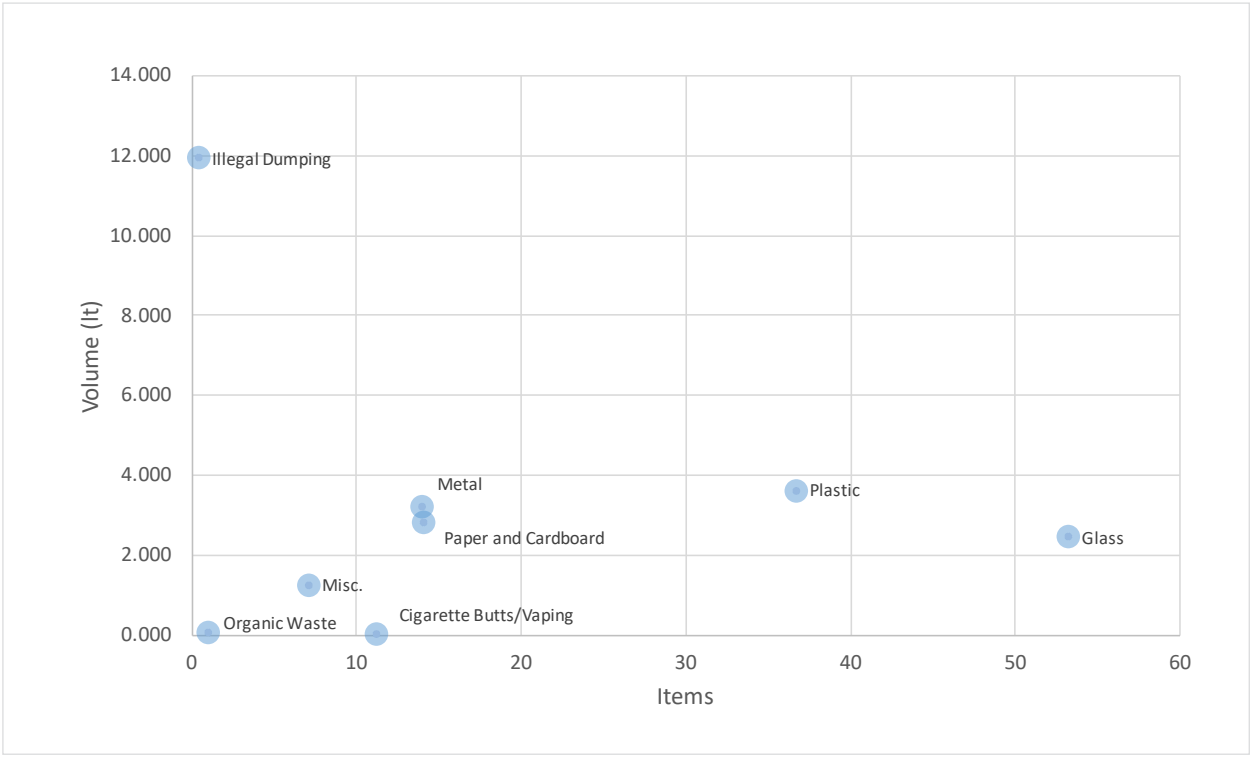


MAIN MATERIAL CHARACTERISTICS

Figures for items and volumes per 1,000 m² across main material types identified the following characteristics of litter objects within the Railway sites nationally:

- Illegal Dumping contributed large litter volumes, but contributed very small numbers to the overall litter stream
- Glass items were associated with high numbers of litter items and small to moderate litter volumes
- Plastic items were associated with moderate to high numbers of litter items and low to moderate litter volumes
- Metal and Paper/Cardboard items contributed low to moderate numbers of litter items and low to moderate litter volumes
- Organic Waste and Miscellaneous, and Cigarette Butts/Vaping items were all associated with low numbers of litter items and small litter volumes

Figure 28 - Railways 2019 Items and Volume per 1,000 m² by Main Material Type

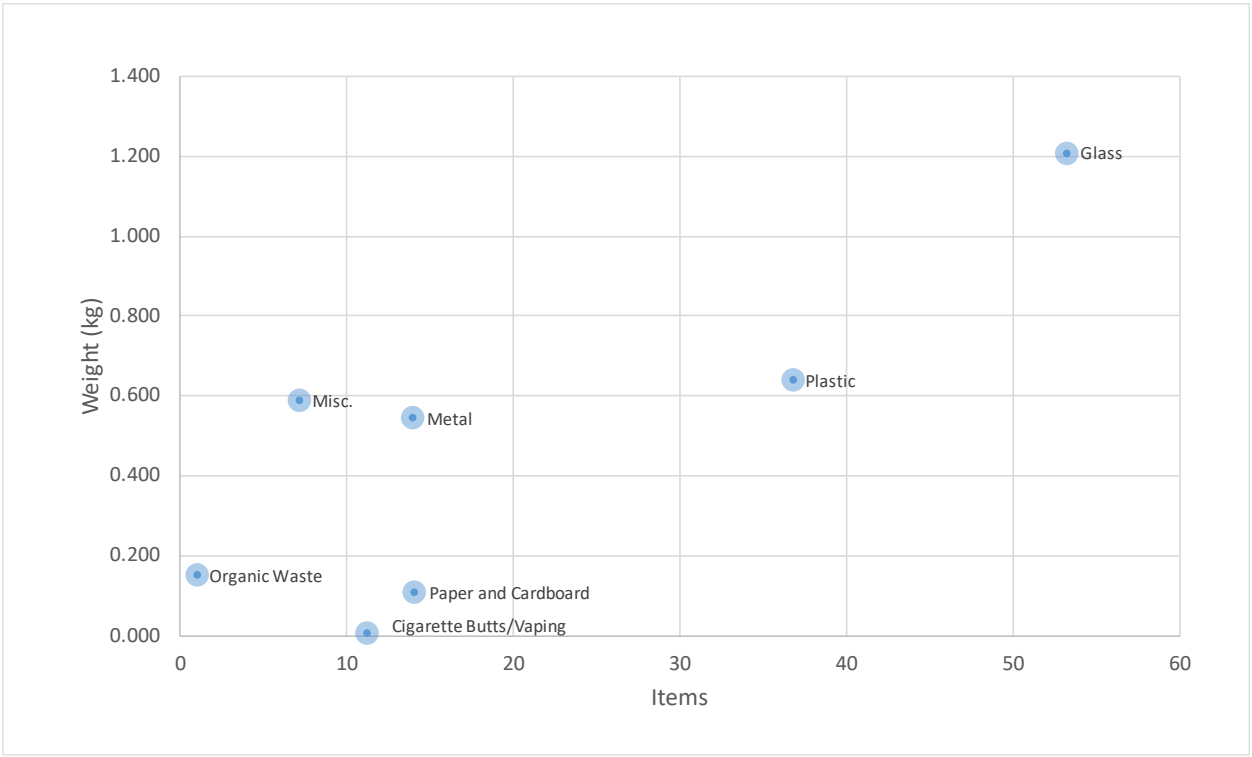


Figures for items and weights per 1,000 m² across main material types identified the following characteristics of litter objects within the Railway sites nationally:

- Glass items were associated with both large litter weights and high numbers of litter items
- Plastic items contributed moderate litter weights and moderate to high numbers of litter items
- Miscellaneous items were associated with moderate litter weights and low numbers of litter items
- Metal items contributed moderate litter weights and low to moderate numbers of litter items
- Paper/Cardboard and Cigarette Butts/Vaping items contributed small litter weights and low to moderate numbers of litter items
- Organic Waste was associated with both small litter weights and low numbers of litter items

Note: Illegal Dumping items were not weighed during the Audit

Figure 29 - Railways 2019 Items and Weight per 1,000 m² by Main Material Type

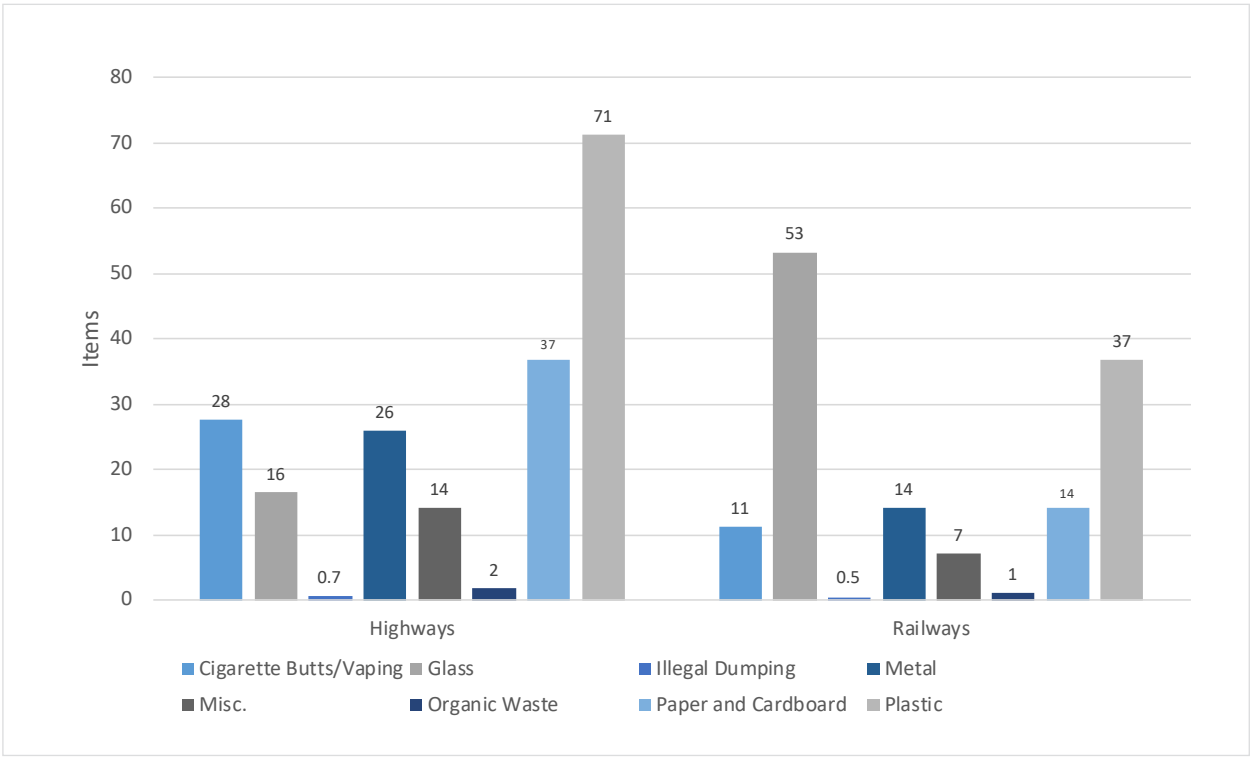


SITE TYPES BY MATERIAL TYPES

Over the Highway and Railway sites audited nationally, the number of different material type litter items per 1,000 m² by the different site types included:

- Highway sites: Plastic (71 items), Paper/Cardboard (37 items), Cigarette Butts/Vaping (28 items), Metal (26 items), Glass (16 items), Miscellaneous (14 items), Organic Waste (2 items) and Illegal Dumping (0.7 items per 1,000 m²)
- Railway sites: Glass (53 items), Plastic (37 items), Metal (14 items), Paper/Cardboard (14 items), Cigarette Butts/Vaping (11 items), Miscellaneous (7 items), Organic Waste (1 item) and Illegal Dumping (0.5 items per 1,000 m²)

Figure 30 - Highways and Railways 2019 Sites by Main Material Type - Items per 1,000 m²



THE DIRTY DOZEN

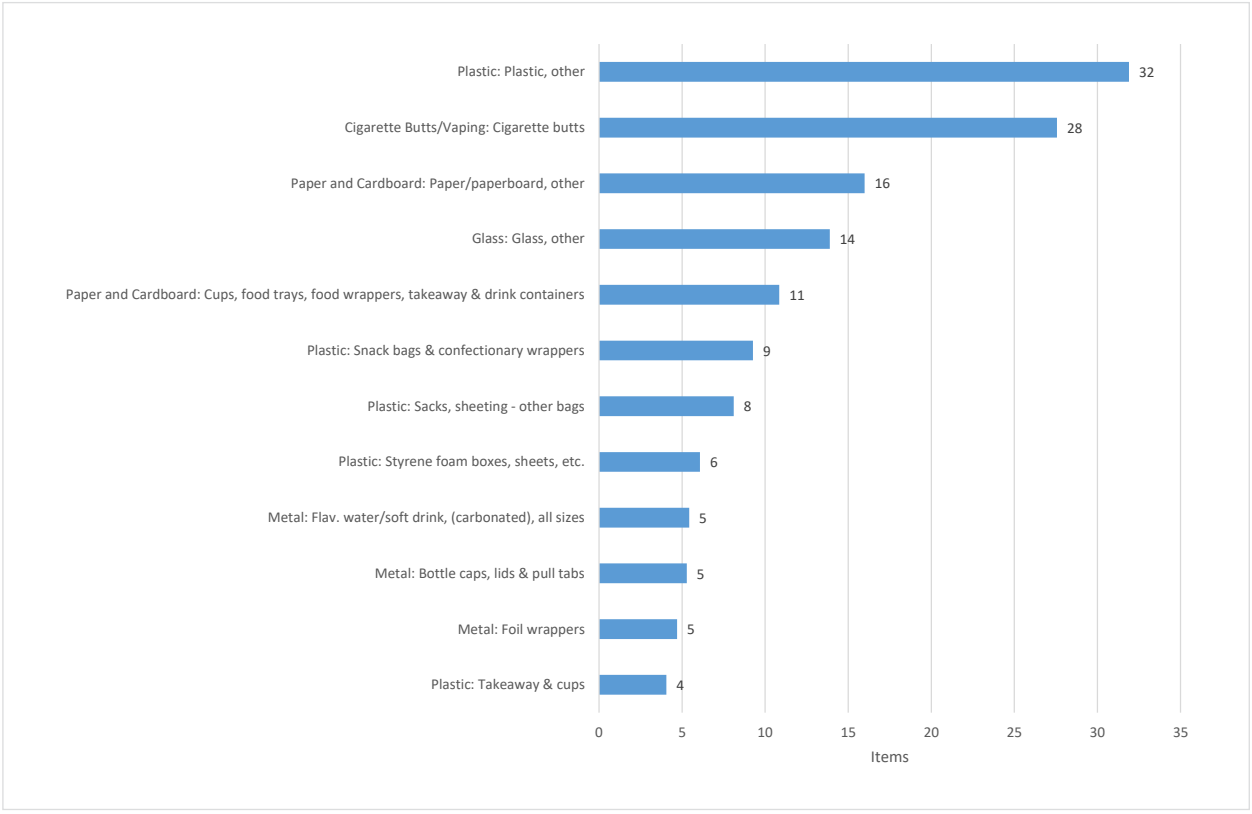
HIGHWAY SITES

Within the litter object type sub-categories, uncategorised Plastic objects were the largest contributors to the litter objects collected at Highways nationally, with 32 items per 1,000 m² identified on average across the sites.

Other object sub-categories which were associated with large litter counts included:

- Cigarette butts (28 items per 1,000 m²)
- Uncategorised Paper/paperboard (16 items per 1,000 m²)
- Uncategorised Glass objects (14 items per 1,000 m²)

Figure 31 - Highways 2019 Dirty Dozen - Items per 1,000 m² - Object Sub Categories

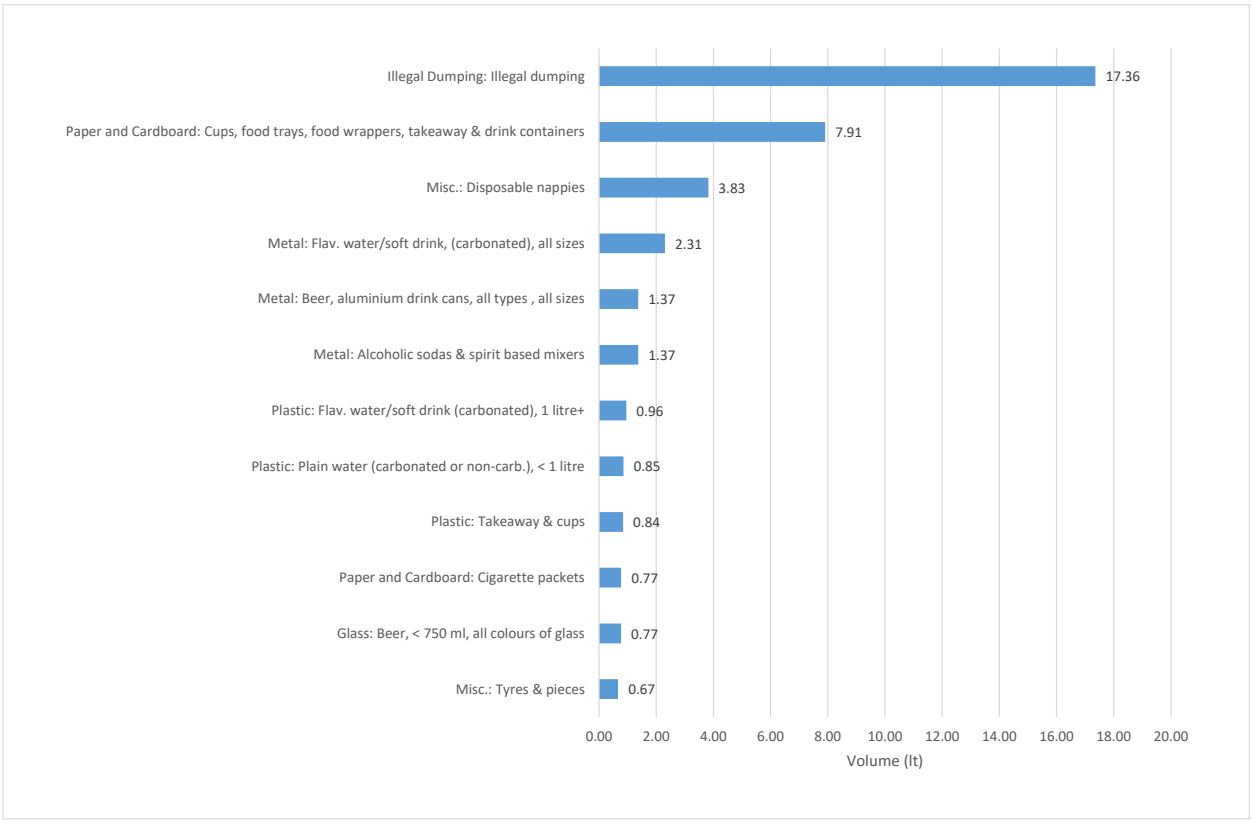


From an analysis of all the material type sub-categories, Illegal dumping contributed the largest proportion to the total estimated litter volume at Highway sites nationally, recording 17.36 ltr per 1,000 m².

Other object sub-categories with significant volume estimates included:

- Paper/Cardboard: Cups, food trays, food wrappers, takeaway & drink containers (7.91 ltr per 1,000 m²)
- Disposable nappies (3.83 ltr per 1,000 m²)
- Metal: Flavoured water/soft drink, (carbonated), all sizes (2.31 ltr per 1,000 m²)
- Metal: Beer, aluminium drink cans, all types, all sizes (1.37 ltr per 1,000 m²)
- Metal: Alcoholic sodas & spirit-based mixers (1.37 ltr per 1,000 m²)

Figure 32 - Highways 2019 Dirty Dozen - Volume per 1,000 m² - Object Sub Categories

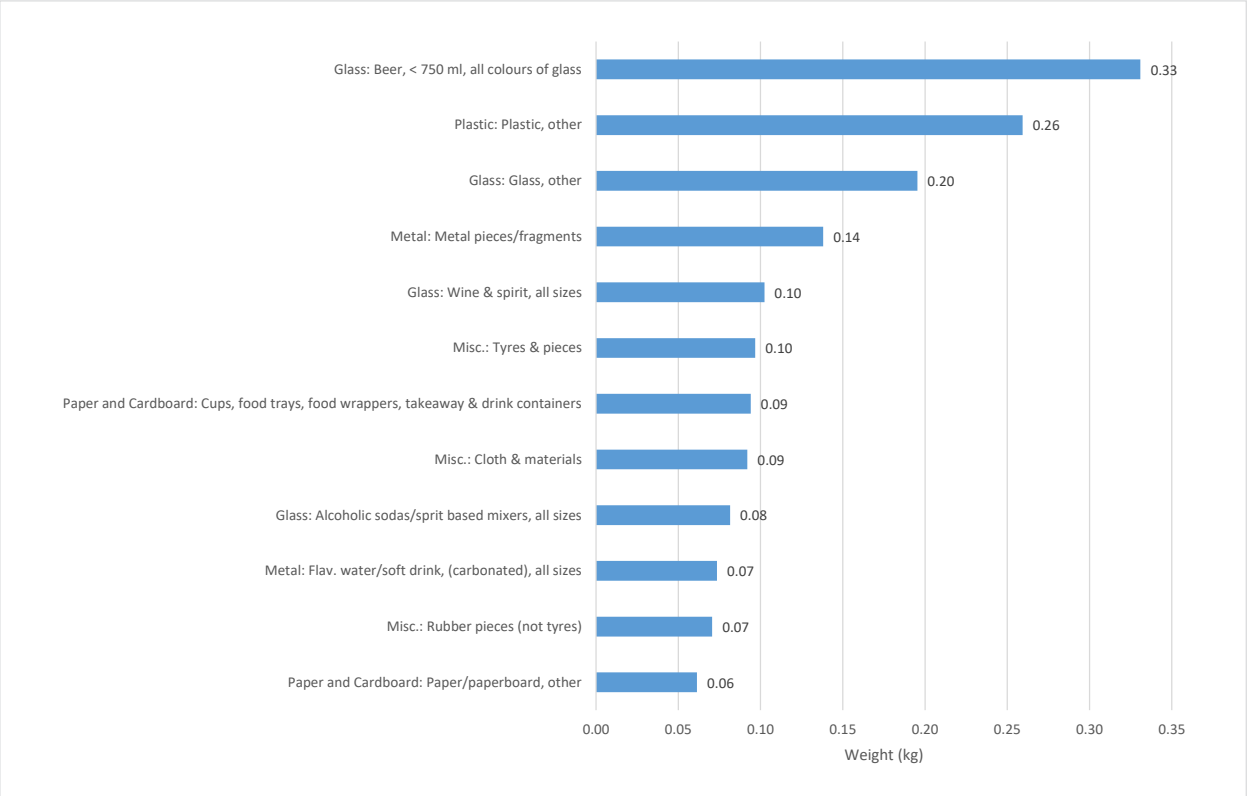


Within the material type sub-categories, an analysis of the average litter weights per 1,000 m2 identified Glass: Beer bottles (less than 750 ml, all colours) as the largest contributor to the overall litter weights across highways nationally, with an average weight of 0.33 kg per 1,000 m2. Weights were not measured for Illegal Dumping materials and therefore are not included in the weight analysis.

Object sub-categories which contributed proportionally higher litter weights included:

- Uncategorised Plastic objects (0.26 kg per 1,000 m^2)
- Uncategorised Glass objects (0.20 kg per 1,000 m^2)
- Metal pieces/fragments (0.14 kg per 1,000 m^2)

Figure 33 - Highways 2019 Dirty Dozen - Weight per 1,000 m^2 - Object Sub Categories



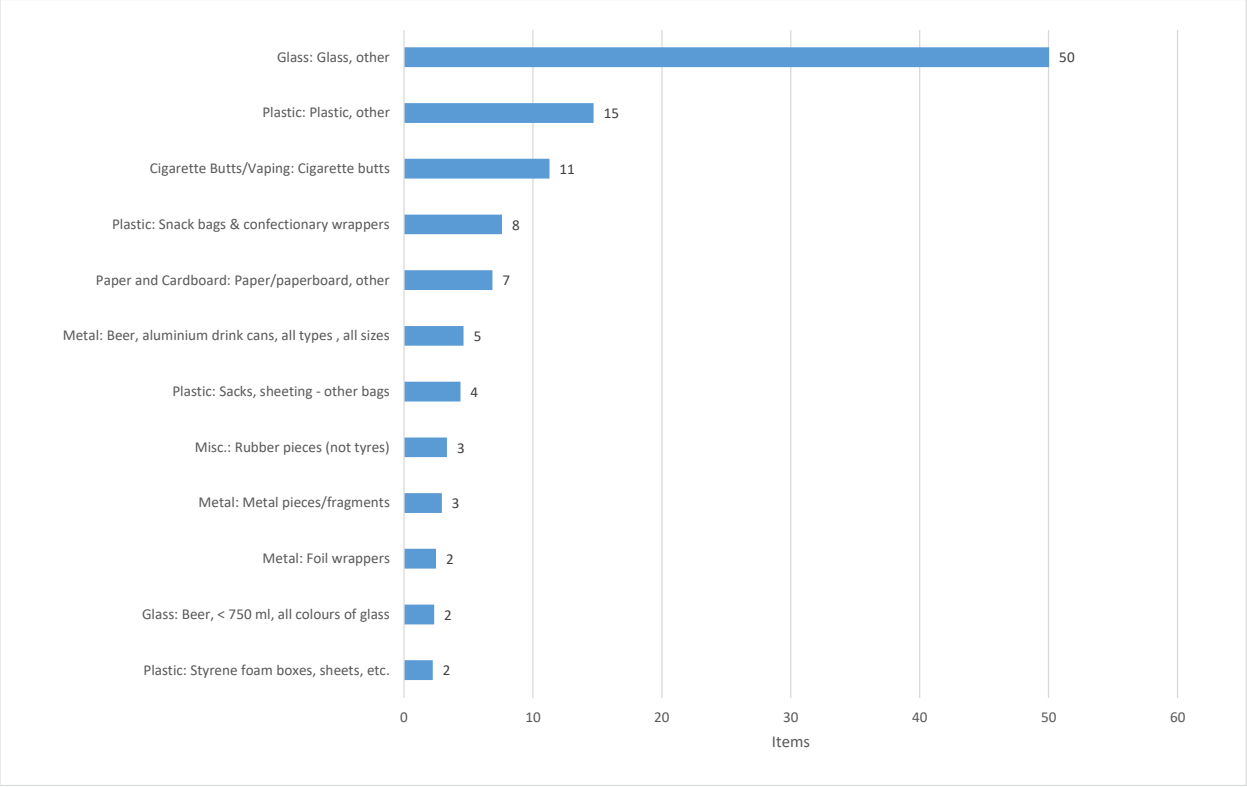
RAILWAY SITES

Uncategorised Glass objects were the largest contributors to the litter objects collected at Railway sites nationally, with 50 items per 1,000 m² on average across the sites.

Other object sub-categories which were associated with large litter counts included:

- Uncategorised Plastic objects (15 items per 1,000 m²)
- Cigarette butts (11 items per 1,000 m²)
- Plastic: Snack bags & confectionery wrappers (8 items per 1,000 m²)
- Uncategorised Paper/paperboard objects (7 items per 1,000 m²)

Figure 34 - Railways 2019 Dirty Dozen - Items per 1,000 m² - Object Sub Categories

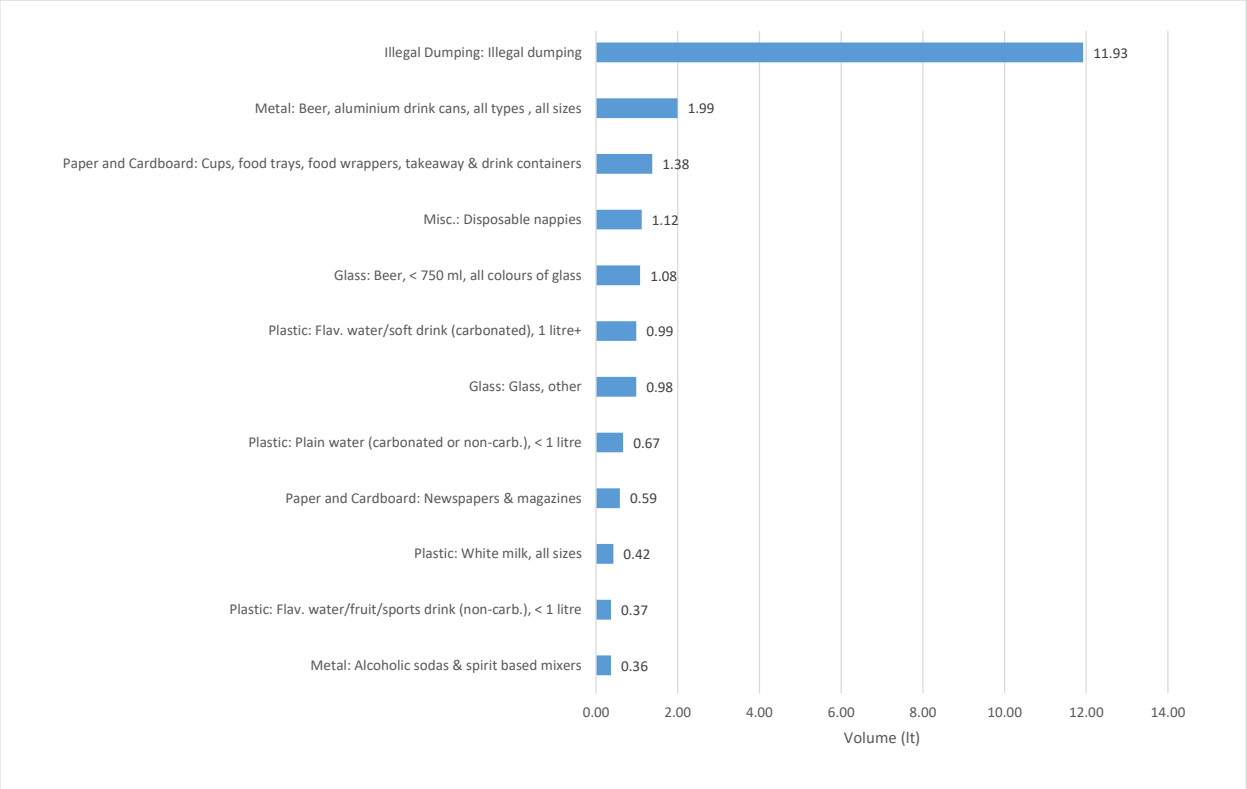


Illegal dumping represented the largest contribution to the estimated national Railway site litter volumes, recording 11.93 ltr of volume per 1,000 m².

Other object sub-categories which were associated with large estimated volumes included:

- Metal: Beer, aluminium drink cans, all types, all sizes (1.99 ltr per 1,000 m²)
- Paper/Cardboard: Cups, food trays, food wrappers, takeaway & drink containers (1.38 ltr per 1,000 m²)
- Disposable nappies (1.12 ltr per 1,000 m²)
- Glass: Beer, less than 750 ml, all colours of glass (1.08 ltr per 1,000 m²)

Figure 35 - Railways 2019 Dirty Dozen - Volume per 1,000 m² - Object Sub Categories

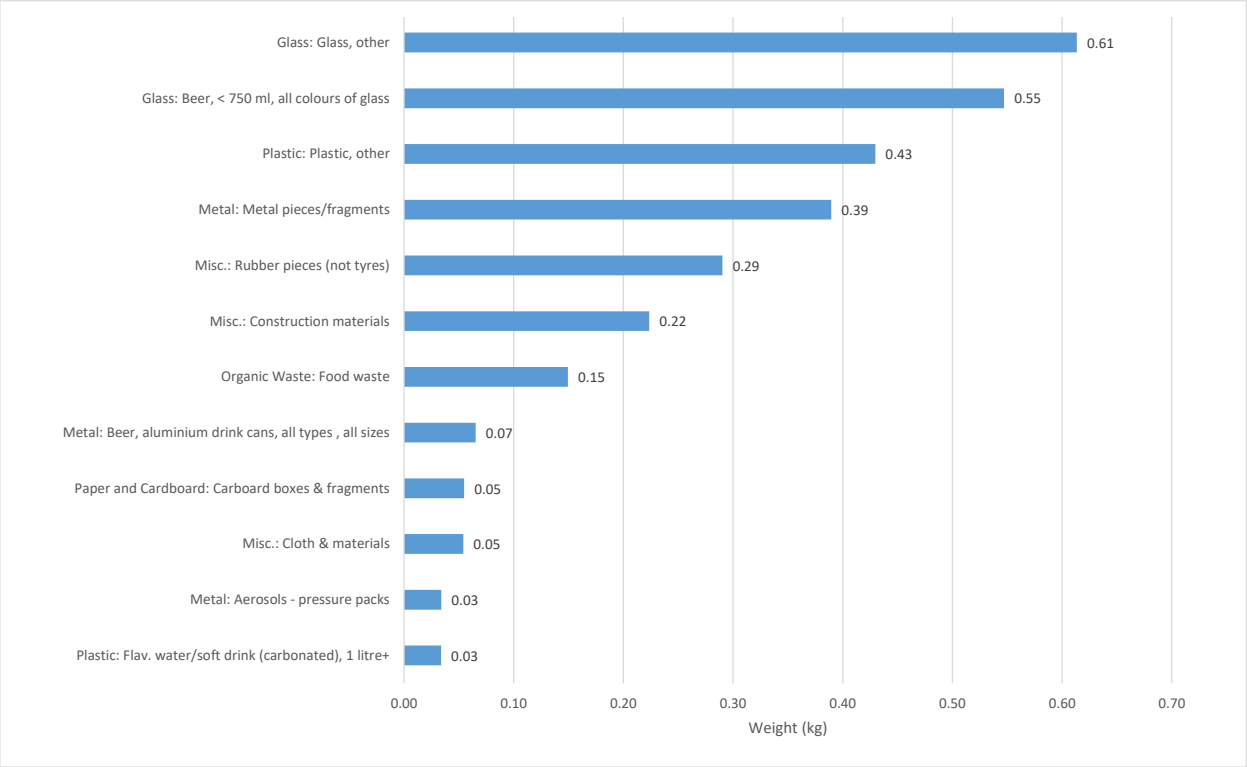


Within material sub-categories, uncategorised Glass was the highest contributor to litter weight across Railway sites nationally, with 0.61 kg per 1,000 m² recorded. Weights were not measured for Illegal Dumping materials and therefore are not included in the weight analysis.

Other material sub-categories which contributed larger weights per 1,000 m² included:

- Glass: Beer, less than 750 ml, all colours (0.55 kg per 1,000 m²)
- Uncategorised Plastic objects (0.43 kg per 1,000 m²)
- Metal pieces/fragments (0.39 kg per 1,000 m²)
- Rubber pieces – not tyres (0.29 kg per 1,000 m²)

Figure 36 - Railways 2019 Dirty Dozen - Weight per 1,000 m² - Object Sub Categories



SITE GRADINGS

All sites were assigned gradings in 4 categories: Visual rating, Litter hotshots rating, Risk present and Litter distribution. These were analysed to determine rating percentages and averages from the total Highway and Railway sites audited nationally.

Extract from Table 2 - Site Types: Highways

	Risk Present		Litter Distribution	
Highways	*Moderate hazard or risk*	*Significant hazard or risk*	*Widespread*	*Clustered*
	24%	*76%*	*95%*	*5%*

Figure 37 - Highways 2019 Grading - Visual Site Ratings

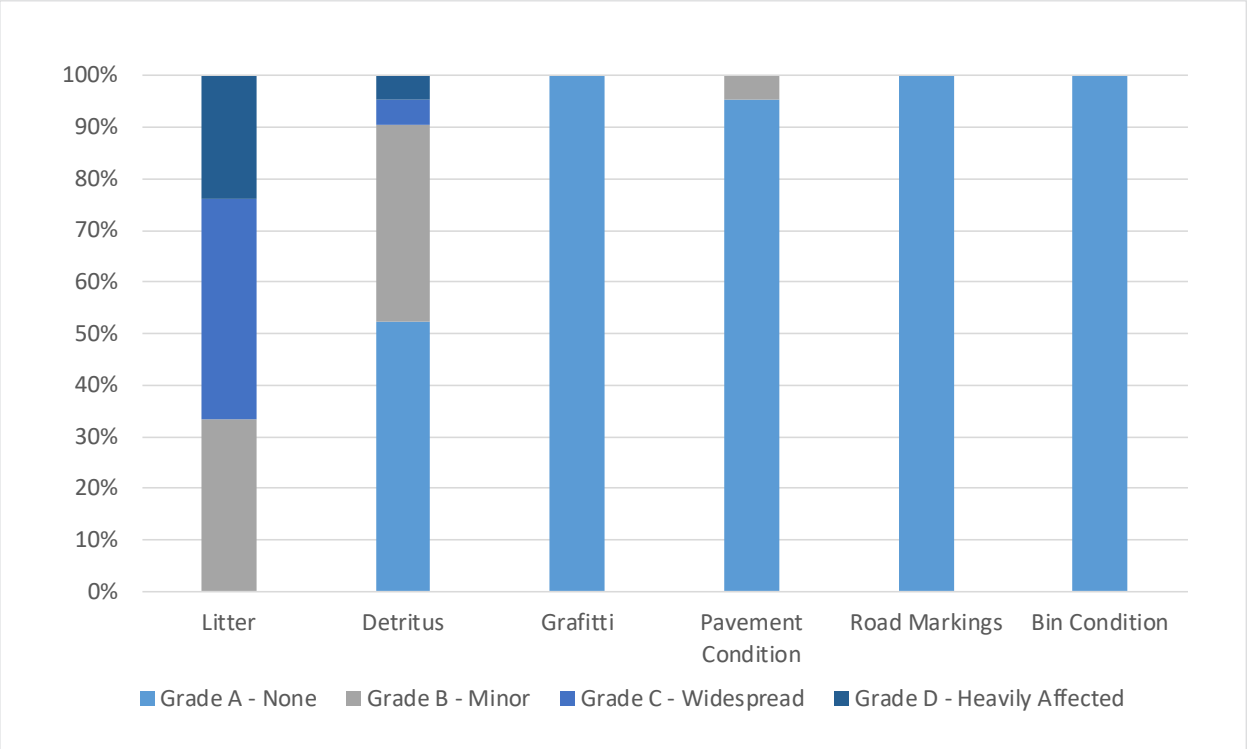
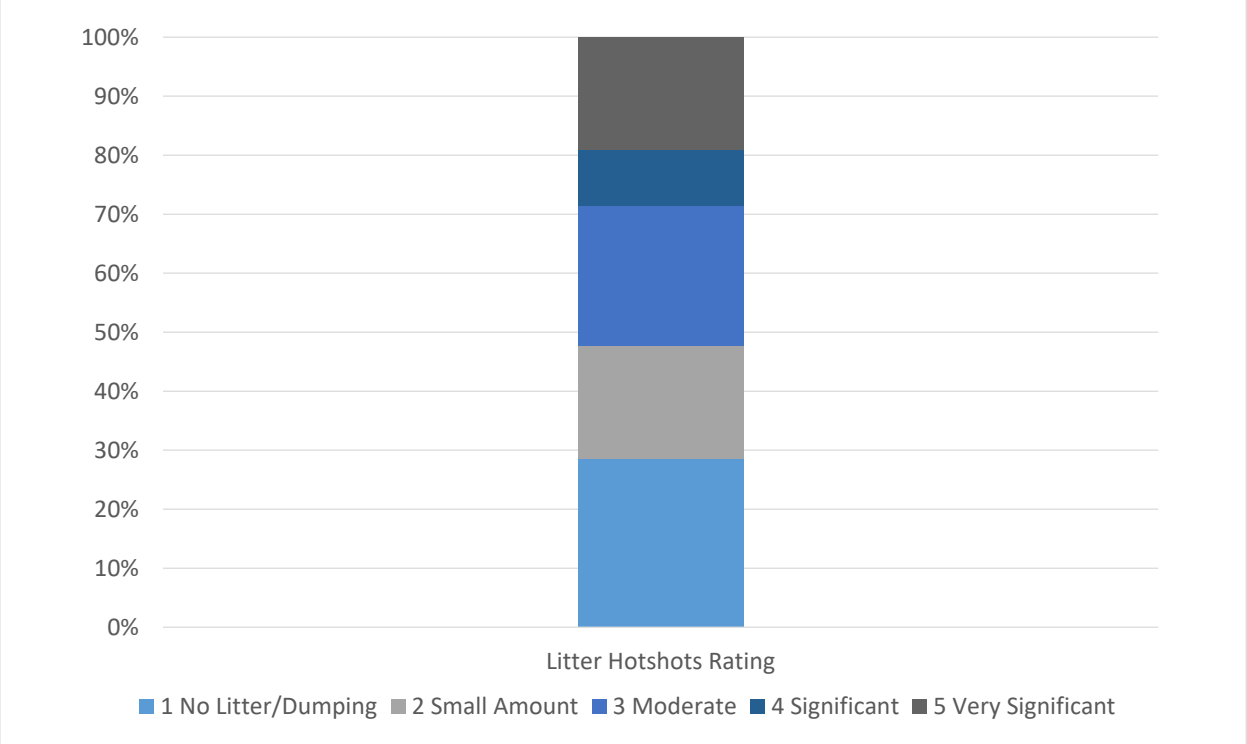


Figure 38 - Highways 2019 Grading - Site Litter Hotshots Ratings



Extract from Table 2 - Site Types: Railways

	Risk Present		Litter Distribution	
Railways	*Moderate hazard or risk*	*Significant hazard or risk*	*Widespread*	*Clustered*
	32%	*68%*	*100%*	*0%*

Figure 39 - Railways 2019 Grading - Visual Site Ratings

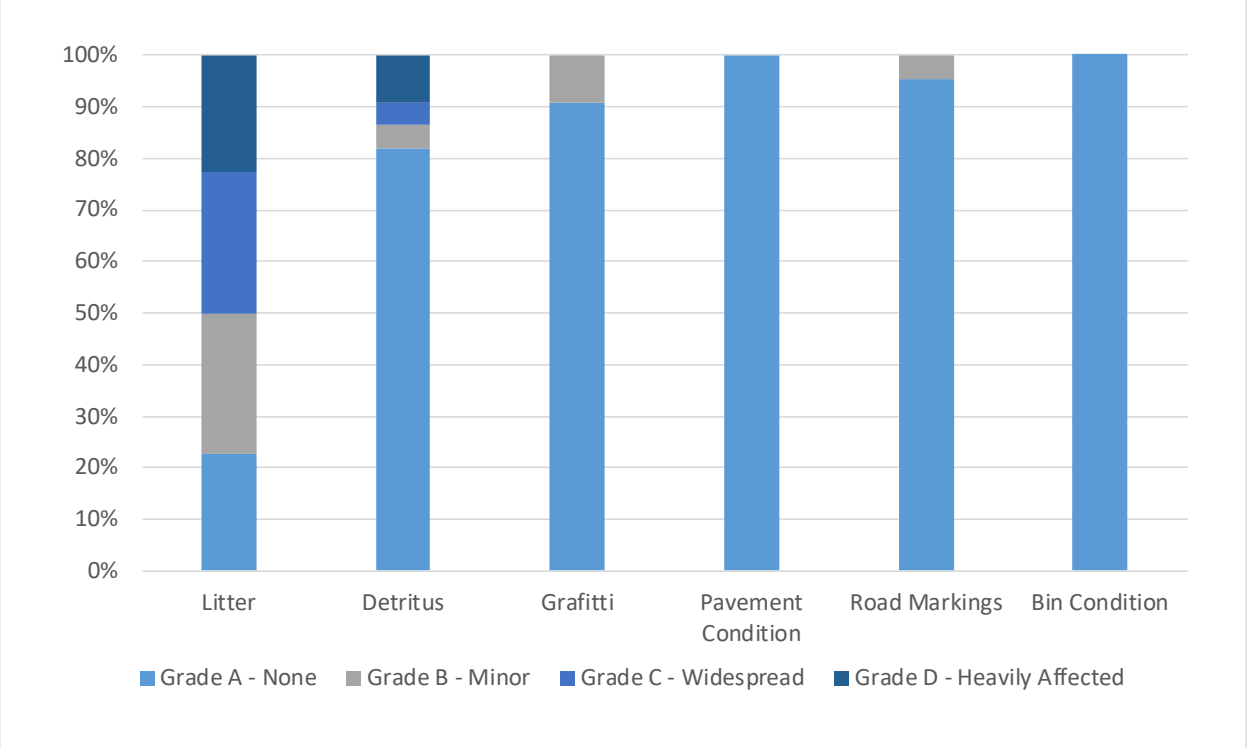
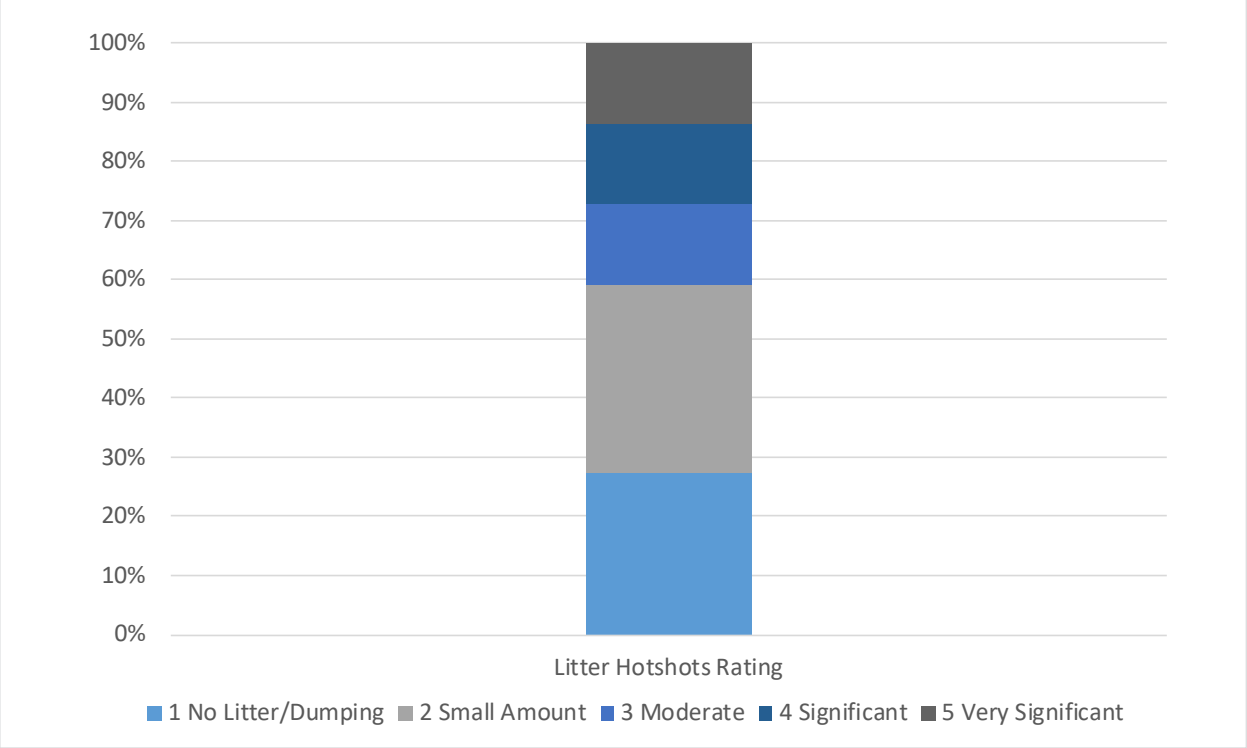
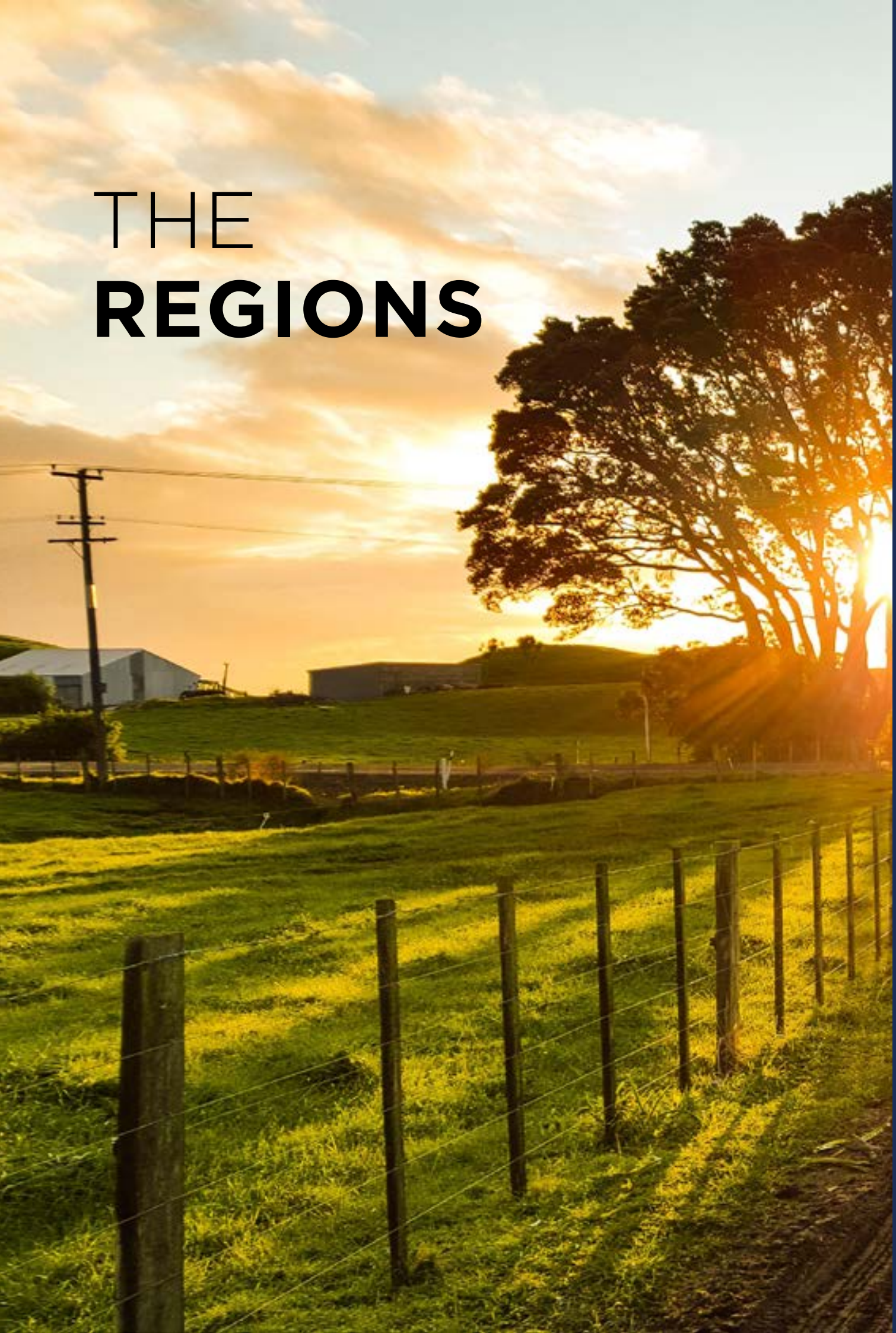


Figure 40 - Railways 2019 Grading - Site Litter Hotshots Ratings



THE REGIONS



AUCKLAND REGION

AT A GLANCE

The overall average number of items per 1,000 m² across the 37 sites surveyed in the Auckland Region was 202 items, the overall average weight of the items per 1,000 m² was 1.16 kg, while the overall average estimated volume per 1,000 m² was 8.95 ltr.

Retail sites were associated with high numbers of litter items, large litter volumes but more moderate litter weights while Industrial sites contributed to high numbers of litter items and both large litter volumes and litter weights. Residential sites also contributed to high litter volumes and litter weights but were associated with more moderate numbers of litter items.

Car Park sites recorded moderate numbers of litter items and litter volumes, with moderate to high litter weights, while Public Recreational sites were associated with low numbers of litter items, small litter volumes and small litter weights.

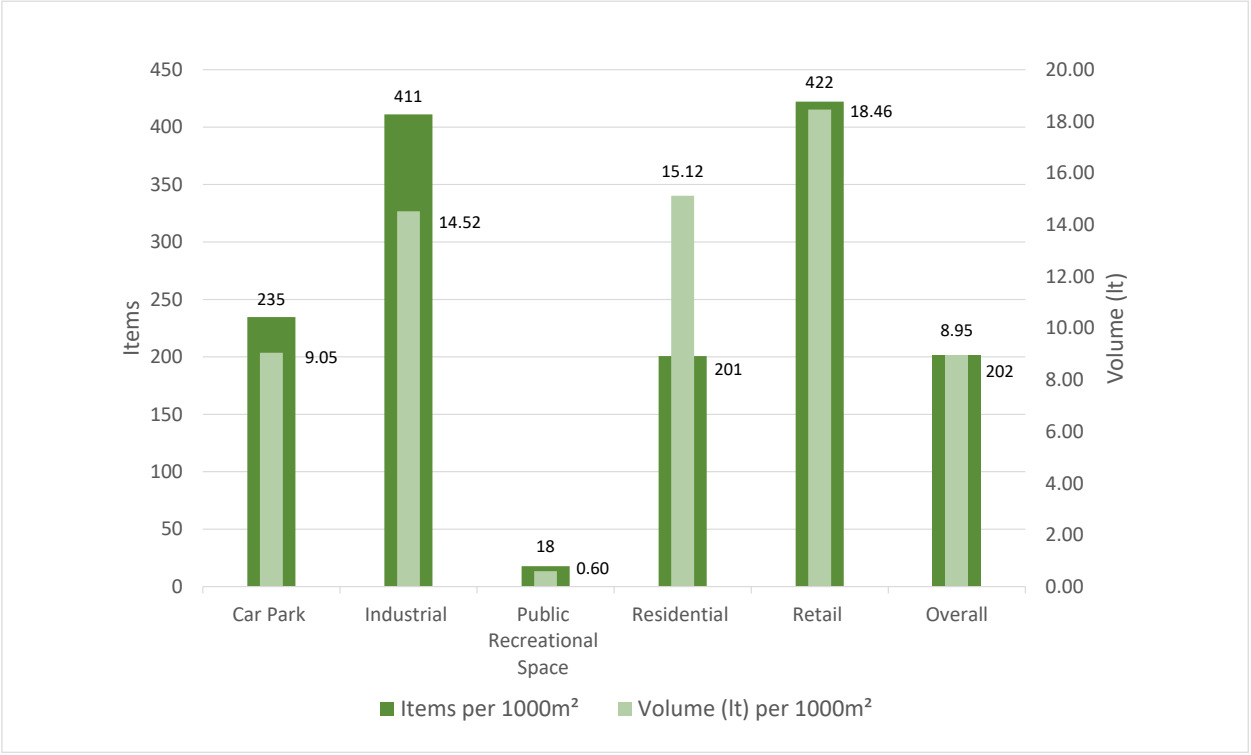
Cigarette Butts/Vaping were the most frequently identified item per 1,000 m² in the Auckland Region but contributed the smallest weights and volumes of litter. Paper/Cardboard contributed the largest volumes of litter and second largest litter weights but were associated with lower numbers of litter items. Glass was identified as the largest contributor to litter weight, second largest contributor to volume and the third most frequently identified item per 1,000 m². Plastic contributed the second highest number of litter items and third highest volumes to the Auckland litter stream but was associated with lower litter weights.

COMPARISONS BY SITE TYPES

The 2 highest numbers of items per 1,000 m² collected were at Retail sites (422 items) and Industrial sites (411 items). Moderate levels of litter items per 1,000 m² were associated with Car Park sites (235 items), and Residential sites (201 items). The smallest number of litter items per 1,000 m² were located at Public Recreational sites (18 items).

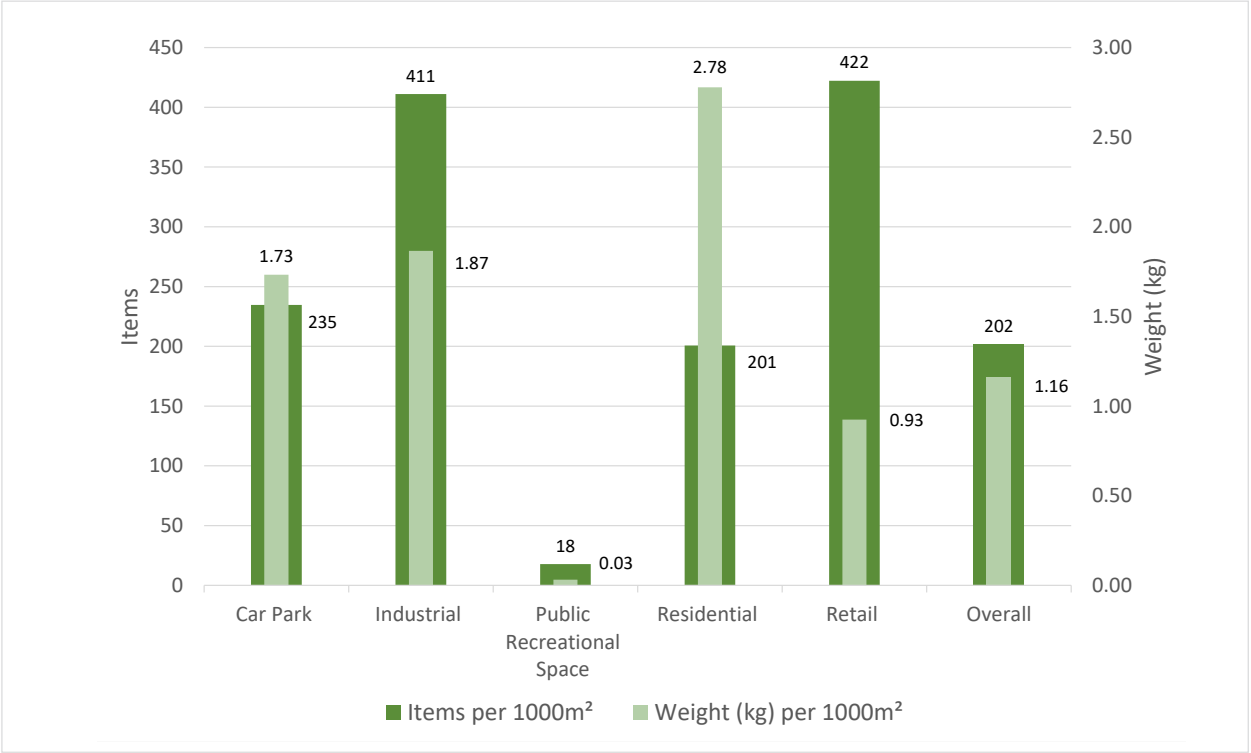
The estimated volumes per 1,000 m² at Retail sites (18.46 ltr), Residential sites (15.12 ltr) and Industrial sites (14.52 ltr) were all higher than the regional average. Car Park sites (9.05 ltr) were associated with moderate volumes per 1,000 m² while Public Recreational sites contributed to very small volumes per 1,000 m² (0.60 ltr).

Figure 41 - Auckland 2019 Items and Volume per 1,000 m² by Site Type



The highest weights per 1,000 m² in the Auckland Region were recorded at Residential sites (2.78 kg), Industrial sites (1.87 kg) and Car Park sites (1.73 kg). More moderate weights were associated with Retail sites (0.93 kg) while Public Recreational sites contributed very small weights per 1,000 m² to the overall litter stream (0.03 kg).

Figure 42 - Auckland 2019 Items and Weight per 1,000 m² by Site Type

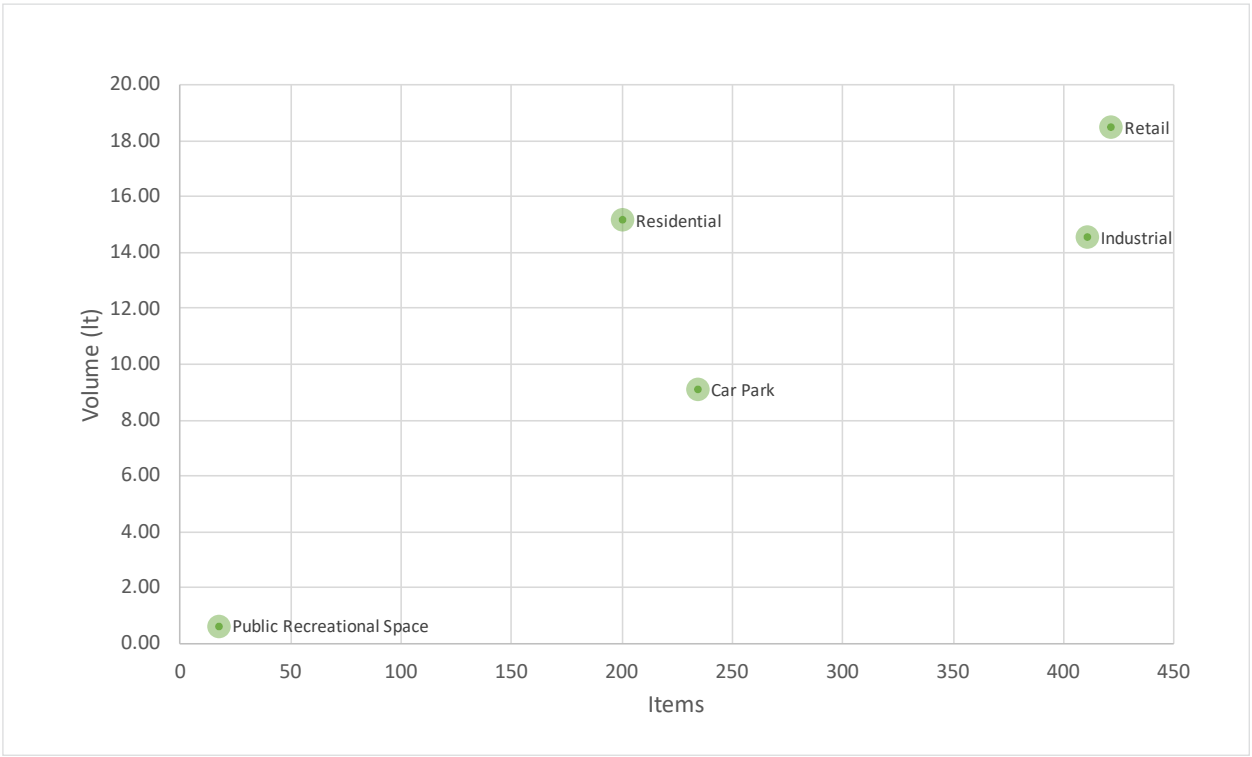


SITE CHARACTERISTICS

The following site characteristics across all site types within the Auckland Region were identified for items and volume estimates per 1,000 m²:

- Retail and Industrial sites contributed to high numbers of litter items and large volumes of litter
- Residential sites contributed to moderate numbers of litter items, but high volumes of litter
- Car Park sites were associated with both moderate numbers of litter items and moderate volumes of litter
- Public Recreational sites contributed to both low numbers of litter items and small volumes of litter

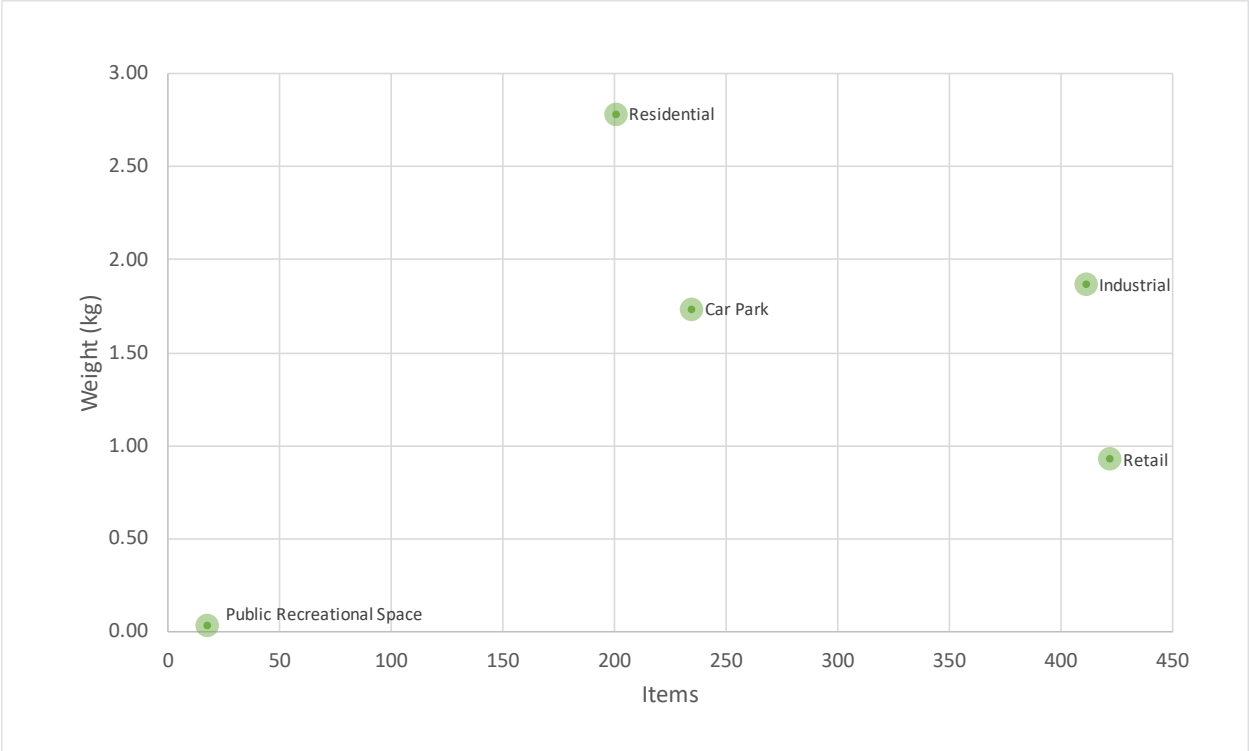
Figure 43 - Auckland 2019 Items and Volume per 1,000 m² by Site Type



Site characteristics across the Auckland Region sites were identified for items and litter weights per 1,000 m² as follows:

- Residential sites were associated with large litter weights and moderate numbers of litter items
- Industrial sites recorded moderate to large litter weights and high numbers of litter items
- Car Park sites contributed moderate to high litter weights to the overall regional litter weights and moderate numbers of litter items
- Retail sites were associated with moderate litter weights and high numbers of litter items
- Public Recreational sites contributed both small litter weights and low numbers of litter items
- Weights were not recorded for Illegal Dumping items

Figure 44 - Auckland 2019 Items and Weight per 1,000 m² by Site Type



COMPARISON BY MAIN MATERIAL TYPES

Cigarette Butts/Vaping were the most frequently recorded item in the Auckland Region (82 items) while Plastic (33 items), Glass (28 items) and Metal (27 items) also added significantly to the litter stream. Smaller numbers of litter items per 1,000 m² were recorded for Paper/Cardboard (18 items), Miscellaneous (9 items), Organic Waste (3 items) and Illegal Dumping (less than 1 item).

Items which contributed the greatest volumes per 1,000 m² to the litter stream in the Auckland Region were Paper/Cardboard (3.12 ltr), Glass (1.83 ltr) and Plastic (1.59 ltr). Smaller estimated volumes of litter were associated with Metal (1.14 ltr), Illegal Dumping (0.58 ltr), Miscellaneous (0.57 ltr), and Organic Waste (0.11 ltr). Cigarette Butts/Vaping contributed the smallest proportion of the overall litter volume (0.009 ltr per 1,000 m²).

The largest litter weight per 1,000 m² in the region was associated with Glass (0.55 kg), while more moderate litter weights were recorded for Paper/Cardboard (0.20 kg). Smaller litter weights were associated with Metal (0.12 kg), Organic Waste (0.10 kg), Plastic (0.09 kg) and Miscellaneous (0.06 kg). Cigarette Butts/Vaping (0.05 kg) contributed the smallest proportion of weight to the overall litter stream. A weight measure was not recorded for any Illegal Dumping objects identified during the Audit.

Figure 45 - Auckland 2019 Items and Volume per 1,000 m² by Main Material Type

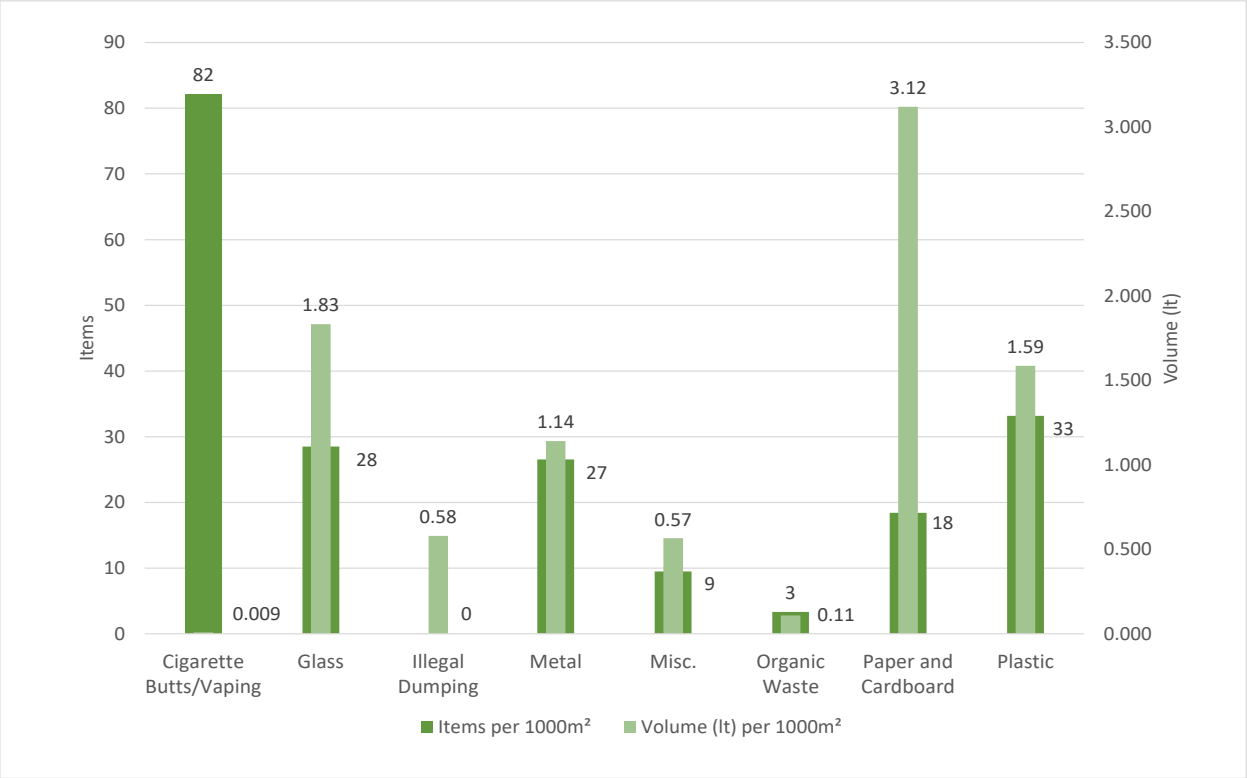
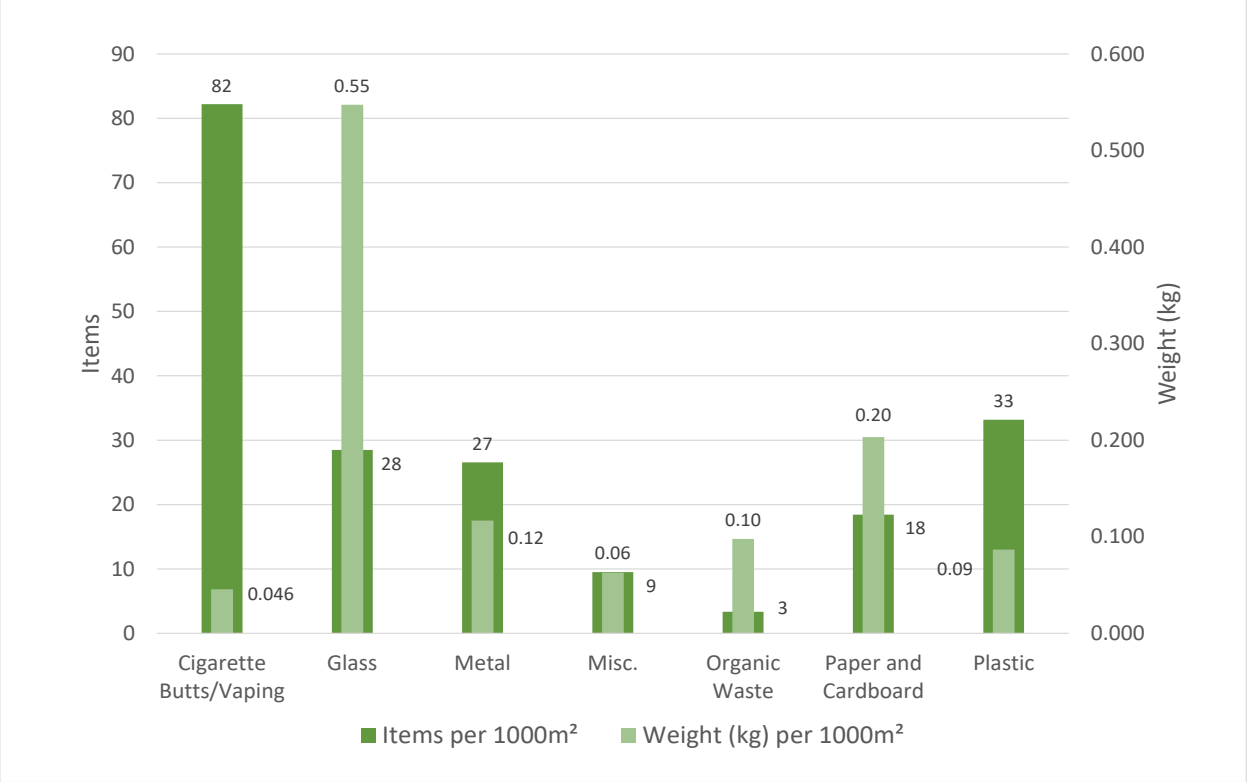


Figure 46 - Auckland 2019 Items and Weight per 1,000 m² by Main Material Type

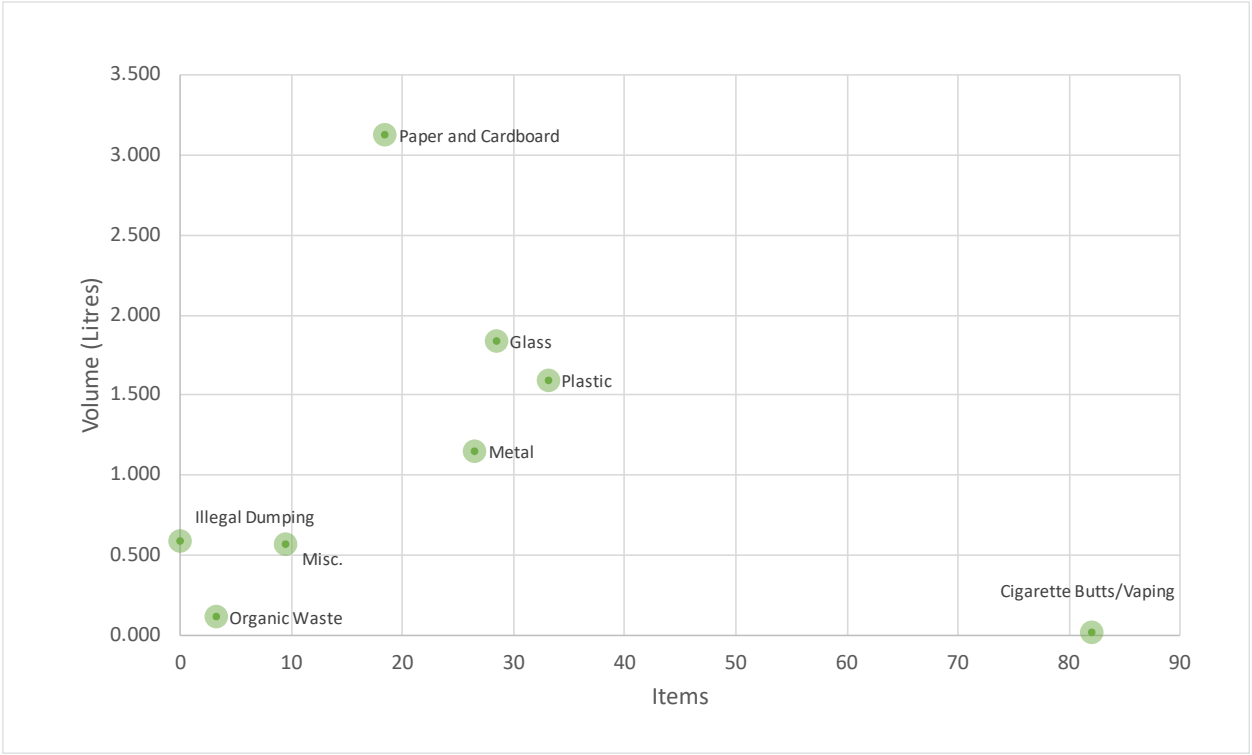


MAIN MATERIAL CHARACTERISTICS

Figures for items and volumes per 1,000 m² across main material types identified the following characteristics of litter objects within the Auckland Region:

- Paper/Cardboard contributed large volumes to the litter stream but were associated with only low to moderate numbers of litter items
- Cigarette Butts/Vaping were associated with very large number of litter items but contributed only a negligible volume to the litter stream
- Plastic and Glass items contributed moderate numbers of litter items and moderate volumes to the litter stream
- Metal was associated with moderate numbers of litter items and low to moderate volumes of litter
- Illegal Dumping, Organic Waste and Miscellaneous items were associated with smaller numbers of litter items and contributed only low volumes of litter

Figure 47 - Auckland 2019 Items and Volume per 1,000 m² by Main Material Type

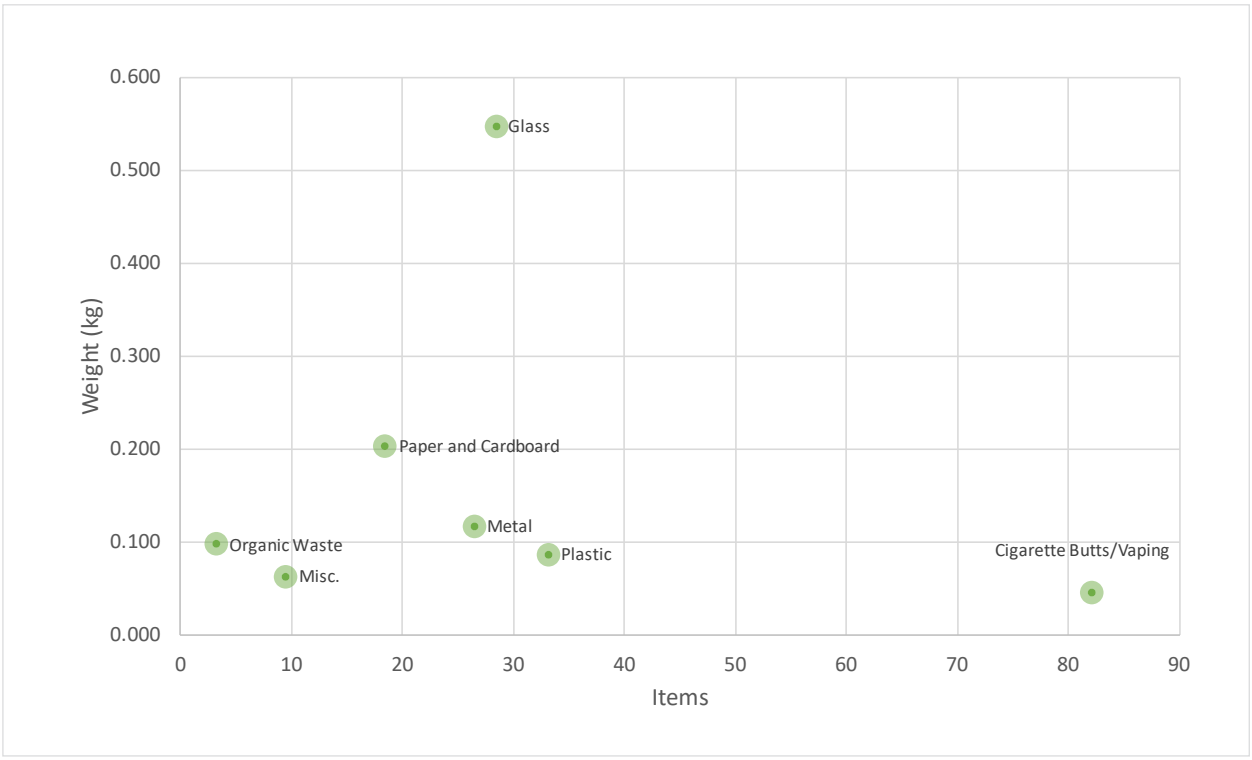


Characteristics for items and main material types per 1,000 m² identified across the Auckland Region sites included:

- Glass contributed large litter weights and moderate litter items to the Auckland Region litter stream
- Paper/Cardboard was associated with small to moderate litter weights and low to moderate numbers of litter items
- Metal and Plastic contributed small to moderate litter weights and moderate numbers of litter items
- Organic Waste was associated with small to moderate litter weights and low numbers of litter items
- Miscellaneous items contributed small litter weights and low numbers of litter items
- Cigarette Butts/Vaping were associated with small litter weights, however this category contributed very high numbers of litter items to the Auckland Region litter stream

Note: Illegal Dumping items were not weighed during the Audit

Figure 48 - Auckland 2019 Items and Weight per 1,000 m² by Main Material Type

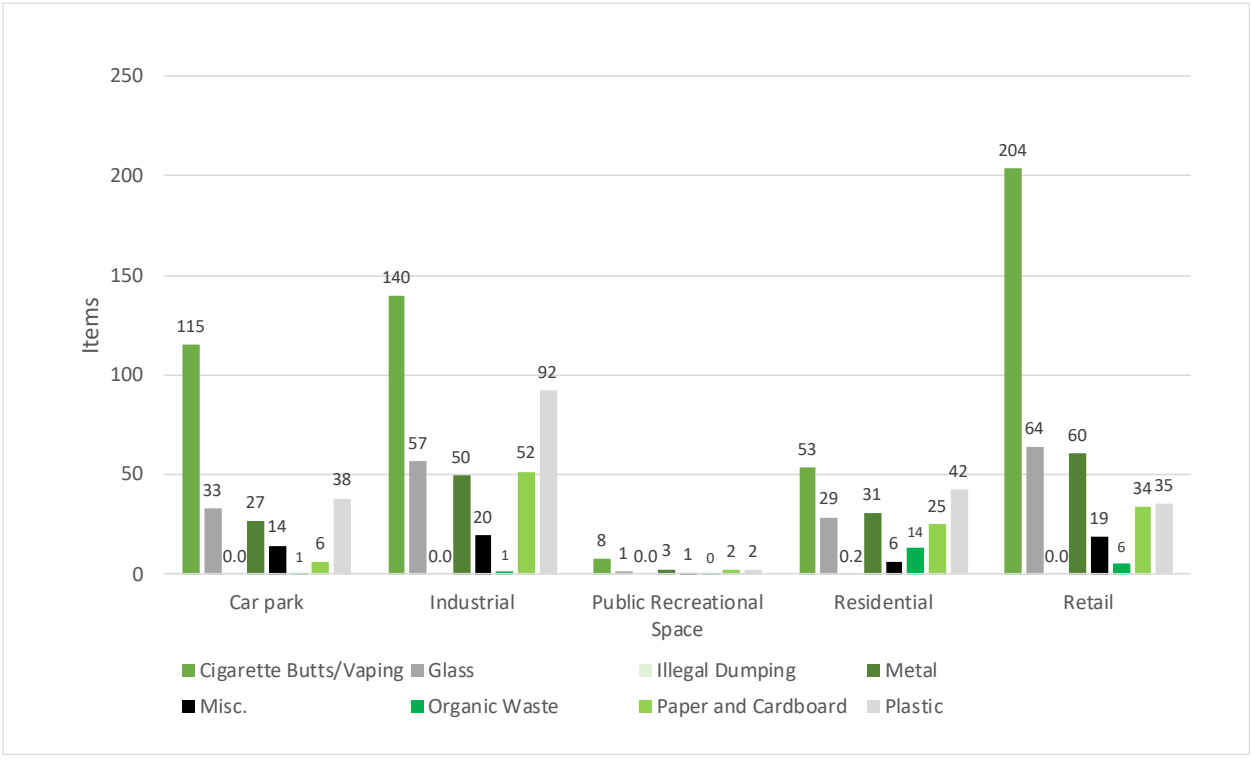


SITE TYPES BY MATERIAL TYPES

In the Auckland Region, the number of different material type litter items per 1,000 m² by the different site types included:

- Car Park sites: Cigarette Butts/Vaping (115 items), Plastic (38 items), Glass (33 items), Metal (27 items), Miscellaneous (14 items), Paper/Cardboard (6 items), Organic Waste (1 item) and Illegal Dumping (0 items)
- Industrial sites: Cigarette Butts/Vaping (140 items), Plastic (92 items), Glass (57 items), Paper/Cardboard (52 items), Metal (50 items), Miscellaneous (20 items), Organic Waste (1 item), Illegal Dumping (0 items)
- Public Recreational sites: Cigarette Butts/Vaping (8 items), Metal (3 items), Paper/Cardboard (2 items), Plastic (2 items), Glass (1 item), Miscellaneous (1 item), Organic Waste (0 items) and Illegal Dumping (0 items)
- Residential sites: Cigarette Butts/Vaping (53 items), Plastic (42 items), Metal (31 items), Glass (29 items), Paper/Cardboard (25 items), Organic Waste (14 items), Miscellaneous (6 items), Illegal Dumping (less than 1 item per 1,000 m²)
- Retail sites: Cigarette Butts/Vaping (204 items), Glass (64 items), Metal (60 items), Plastic (35 items), Paper/Cardboard (34 items), Miscellaneous (19 items), Organic Waste (6 items), Illegal Dumping (0 items)

Figure 49 - Auckland 2019 Sites by Main Material Types - Items per 1,000 m²



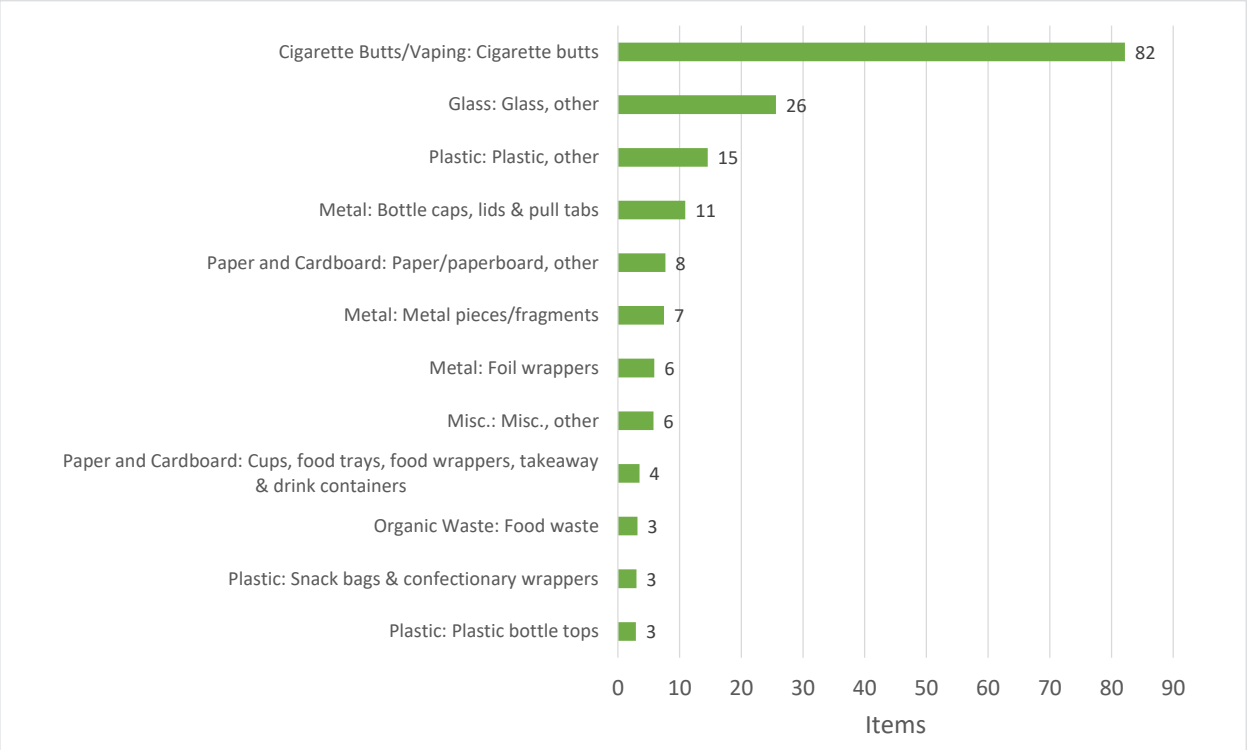
THE DIRTY DOZEN

Within the litter object type sub-categories, Cigarette butts were the largest contributors to the litter objects within the Auckland Region, with 82 butts per 1,000 m² identified on average across the sites.

Other object sub-categories which were associated with large litter counts included:

- Uncategorised Glass objects (26 items per 1,000 m²)
- Uncategorised Plastic objects (15 items per 1,000 m²)
- Metal: Bottle caps, lids & pull tabs (11 items per 1,000 m²)
- Uncategorised Paper/paperboard objects (8 items per 1,000 m²)

Figure 50 - Auckland 2019 Dirty Dozen - Items per 1,000 m² - Object Sub Categories

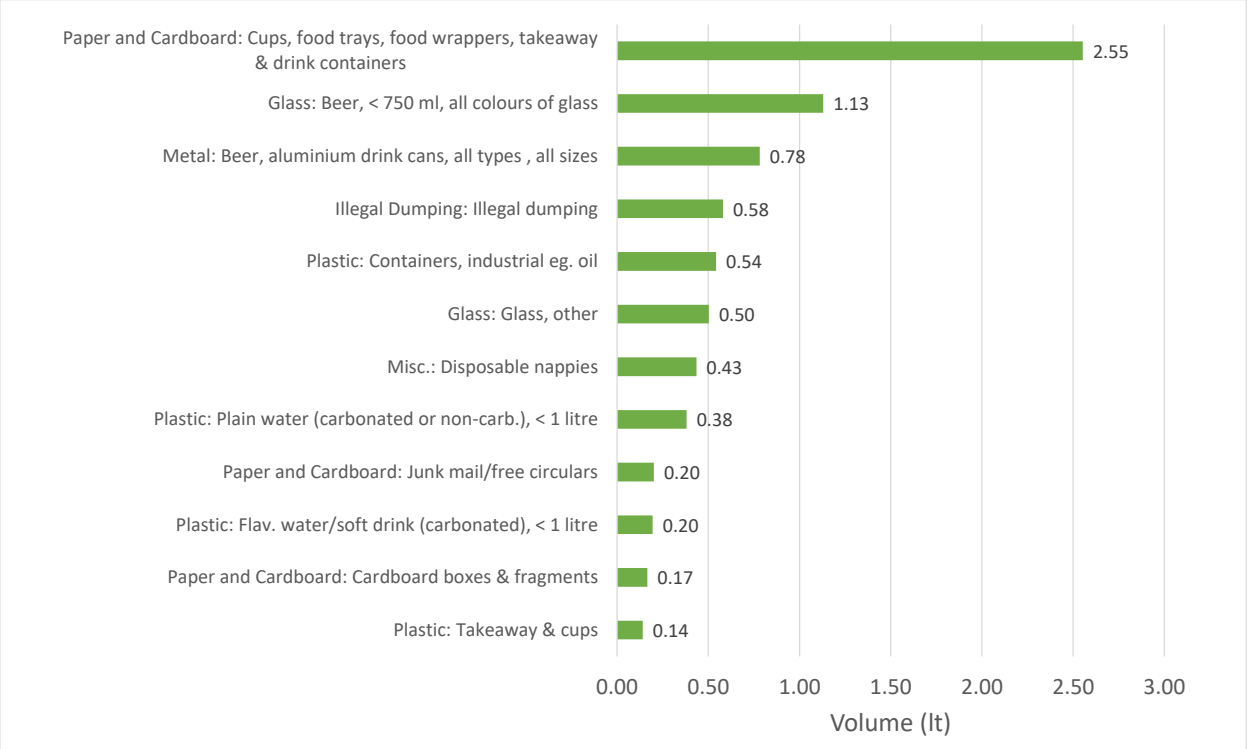


From an analysis of all the material type sub-categories, Paper/Cardboard: Cups, food trays, food wrappers, takeaway & drink containers contributed the largest proportion to the total estimated litter volume in the Auckland Region, recording 2.55 ltr per 1,000 m².

Other object sub-categories with significant volume estimates included:

- Glass: Beer, less than 750 ml, all colours of glass (1.13 ltr per 1000m²)
- Metal: Beer, aluminium drink cans, all types, all sizes (0.78 ltr per 1000m²)
- Illegal dumping (0.58 ltr per 1000m²)
- Plastic: Containers, industrial e.g. oil (0.54 ltr per 1000m²)

Figure 51 - Auckland 2019 Dirty Dozen - Volume per 1,000 m² - Object Sub Categories

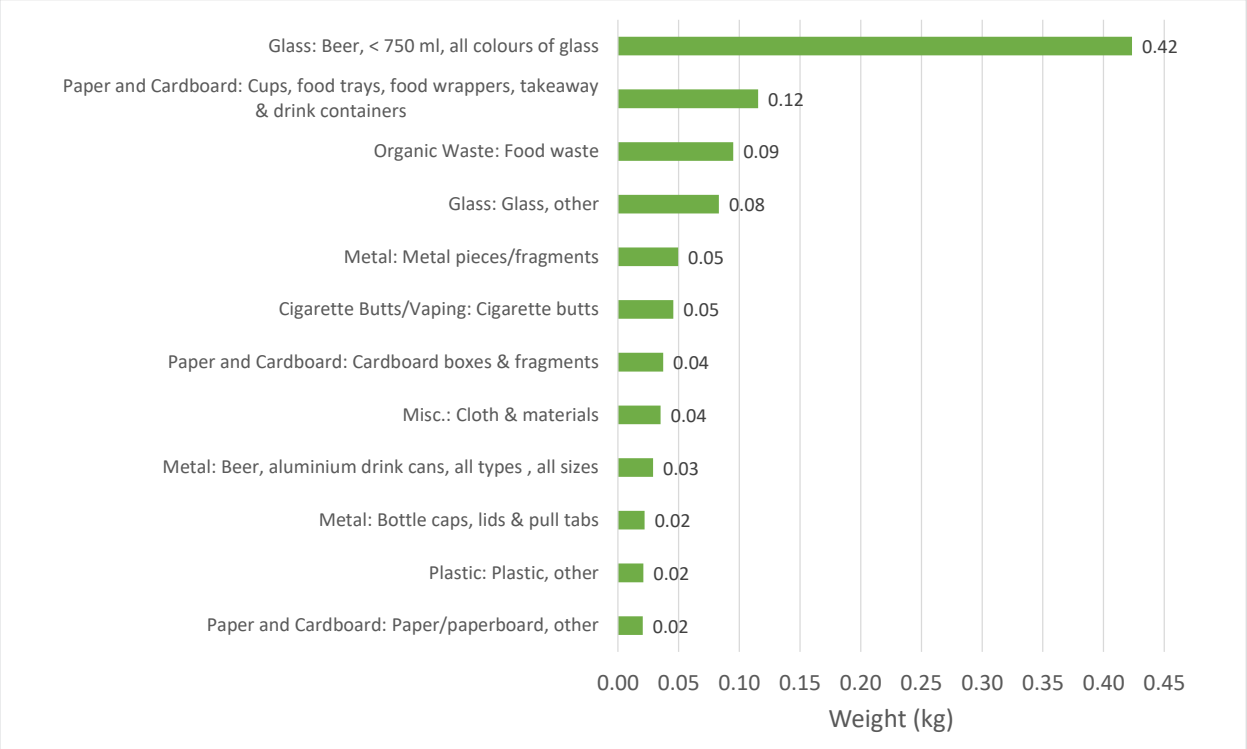


Within the material type sub-categories, an analysis of the average litter weights per 1,000 m2 identified Glass: Beer bottles (less than 750 ml, all colours) as the largest contributor to the overall regional litter weights in the Auckland Region, with an average weight of 0.42 kg per 1,000 m2. Weights were not measured for Illegal Dumping materials and therefore are not included in the weight analysis.

Object sub-categories which contributed proportionally higher litter weights included:

- Paper/Cardboard: Cups, food trays, food wrappers, takeaway & drink containers (0.12 kg per 1,000 m²)
- Food Waste (0.09 kg per 1,000 m²)
- Uncategorised Glass objects (0.08 kg per 1,000 m²)

Figure 52 - Auckland 2019 Dirty Dozen - Weight per 1,000 m² - Object Sub Categories



TERRITORY SUMMARIES

Auckland Region is a Unitary Authority (A territorial authority which also performs the functions of a regional council). Due to the size and population of the region and for the purposes of robust data collection, Auckland Region was divided into 7 distinct areas (in line with the structure of the region before the merge to the Auckland Super City in 2010) as follows:

- Rodney District
- North Shore District
- Waitakere District
- Auckland City
- Manukau District
- Papakura District
- Franklin District

A total of 37 sites (from Industrial, Retail, Residential, Car Park and Public Recreational sites) were audited in the Auckland Region with a minimum of 5 sites audited from each of the 7 districts.

The results are summarised in the following table:

Extract from Table 3 – Territory Data: Auckland Region

Territory	Total Area Surveyed (m²)	Items per 1,000 m²	Weight (kg) per 1,000 m²	Volume (lt) per 1,000 m²
AUCKLAND REGION				
Auckland City	*6314*	*159*	*0.56*	*5.95*
Franklin District	*5833*	*187*	*0.96*	*9.51*
Manukau District	*6088*	*90*	*0.23*	*3.08*
North Shore District	*6309*	*368*	*4.24*	*14.36*
Papakura District	*4854*	*260*	*0.74*	*6.18*
Rodney District	*6282*	*172*	*0.69*	*14.50*
Waitakere District	*5691*	*181*	*0.50*	*8.18*
Auckland Region Overall	**41369**	**202**	**1.16**	**8.95**

SITE GRADINGS

All sites were assigned gradings in 4 categories: Visual rating, Litter hotshots rating, Risk present and Litter distribution. These were analysed to determine rating percentages and averages from the total sites audited within the region.

Extract from Table 2 - Site Types: National

	Risk Present		Litter Distribution	
Auckland	*Moderate hazard or risk*	*Significant hazard or risk*	*Widespread*	*Clustered*
	100%	*0%*	*100%*	*0%*

Figure 53 - Auckland 2019 Grading - Visual Site Ratings

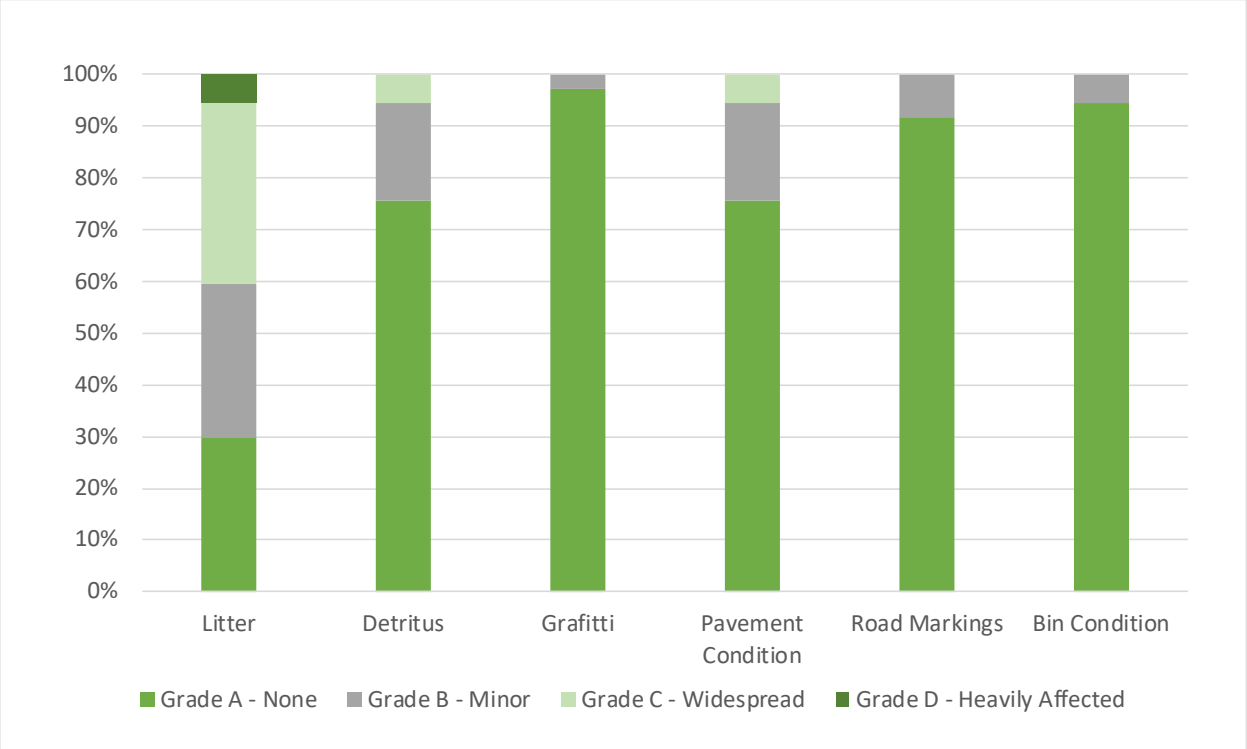
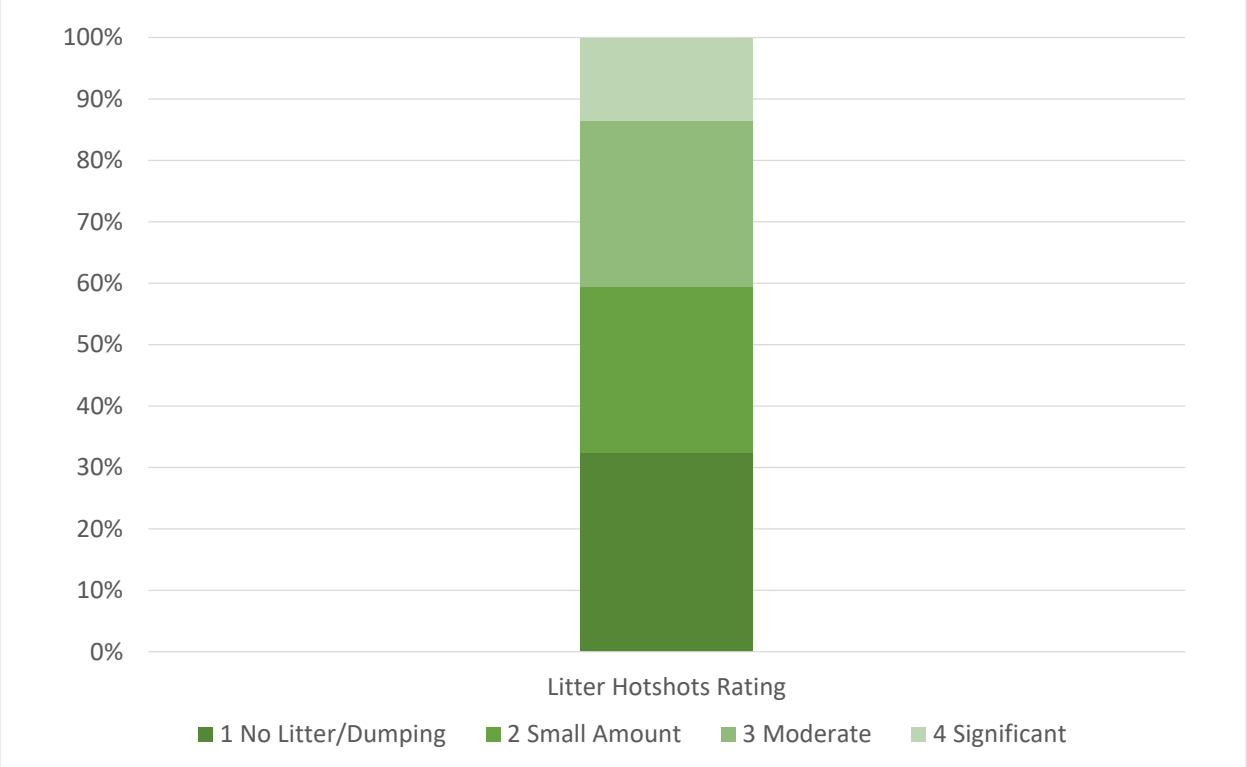


Figure 54 - Auckland 2019 Grading - Site Litter Hotshots Ratings



BAY OF PLENTY REGION

AT A GLANCE

The overall average number of items per 1,000 m² across the 30 sites surveyed in the Bay of Plenty Region was 118 items, the overall average litter weight per 1,000 m² was 0.39 kg, while the overall average estimated volume per 1,000 m² was 3.83 ltr.

Retail sites were associated with the highest numbers of litter items per 1,000 m² but more moderate litter weights and volumes. Residential sites were recorded as having moderate levels of litter items and large litter weights and volumes. Industrial sites contributed to large volumes of litter and moderate to high numbers of litter items and litter weights.

Car Park sites were associated with moderate numbers of litter items, small litter weights and small litter volumes while Public Recreational sites were associated with low numbers of litter items, small volumes of litter and moderate litter weights per 1,000 m².

Cigarette butts were the most frequently identified items within the Bay of Plenty Region however they were associated with the smallest proportion of the overall litter weight and volume. Plastic was the second most commonly littered item within the region and was also associated with lower weights and volumes per 1,000 m².

Miscellaneous items contributed the largest amount of volume to the litter stream (Disposable nappies represented a high percentage of the volume in this category) but were associated with lower number of items and smaller litter weights. Glass contributed the largest litter weight per 1,000 m² to the regional litter stream but was associated with lower litter volumes and number of items.

COMPARISONS BY SITE TYPES

The highest numbers of items per 1,000 m² in the Bay of Plenty Region were associated with Retail sites (279 items). Moderate to high levels of litter items per 1,000 m² were collected at Industrial sites (161 items) while more moderate numbers of litter items per 1,000 m² were found at Residential sites (134 items) and Car Park sites (111 items). The lowest number of litter items per 1,000 m² were collected at Public Recreational sites (30 items).

The estimated volumes per 1,000 m² at Industrial sites (8.97 ltr) and Residential sites (7.40 ltr) was significantly higher than the other sites within the region.

More moderate volumes were recorded at Retail sites (4.47 ltr) while lower volumes of litter per 1,000 m² were associated with Car Park sites (1.88 ltr) and Public Recreational sites (1.29 ltr).

The largest weights per 1,000 m² were associated with Residential sites (0.76 kg) and Industrial sites (0.59 kg). More moderate weights were associated with Retail sites (0.49 kg) and Public Recreational sites (0.28 kg) while the smallest weights per 1,000 m² were recorded at Car Park sites (0.17 kg).

Figure 55 - Bay of Plenty 2019 Items and Volume per 1,000 m² by Site Type

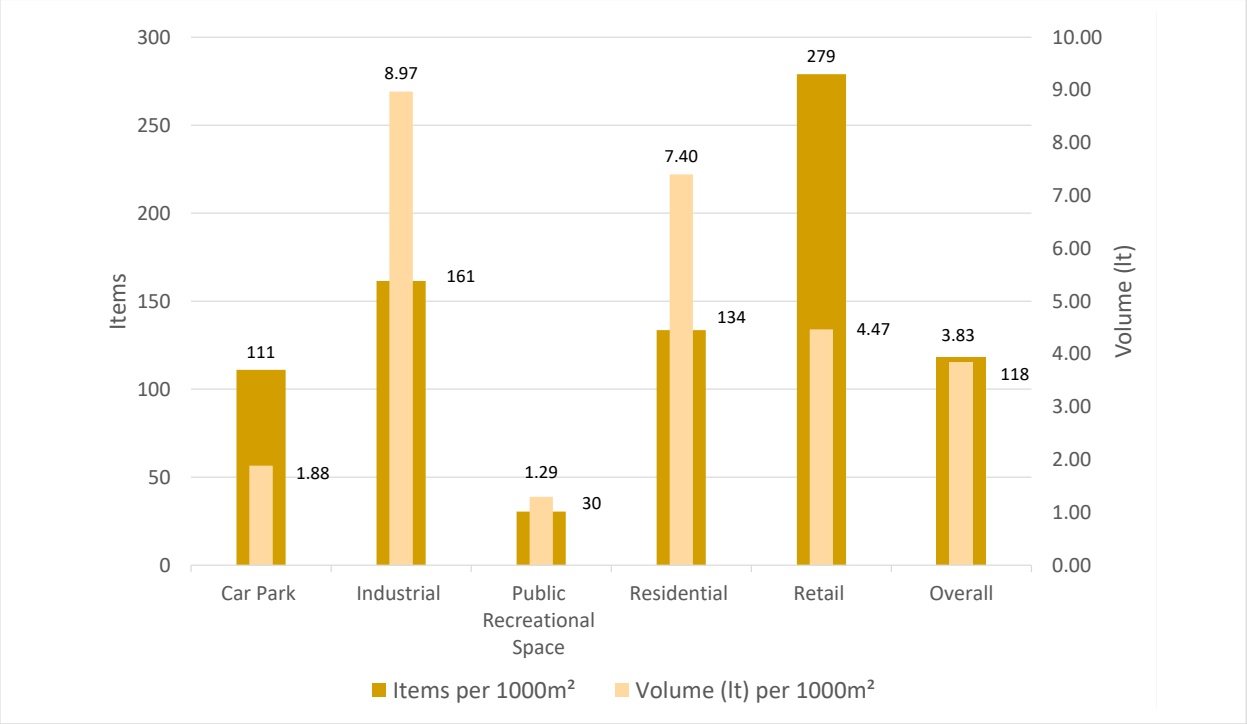
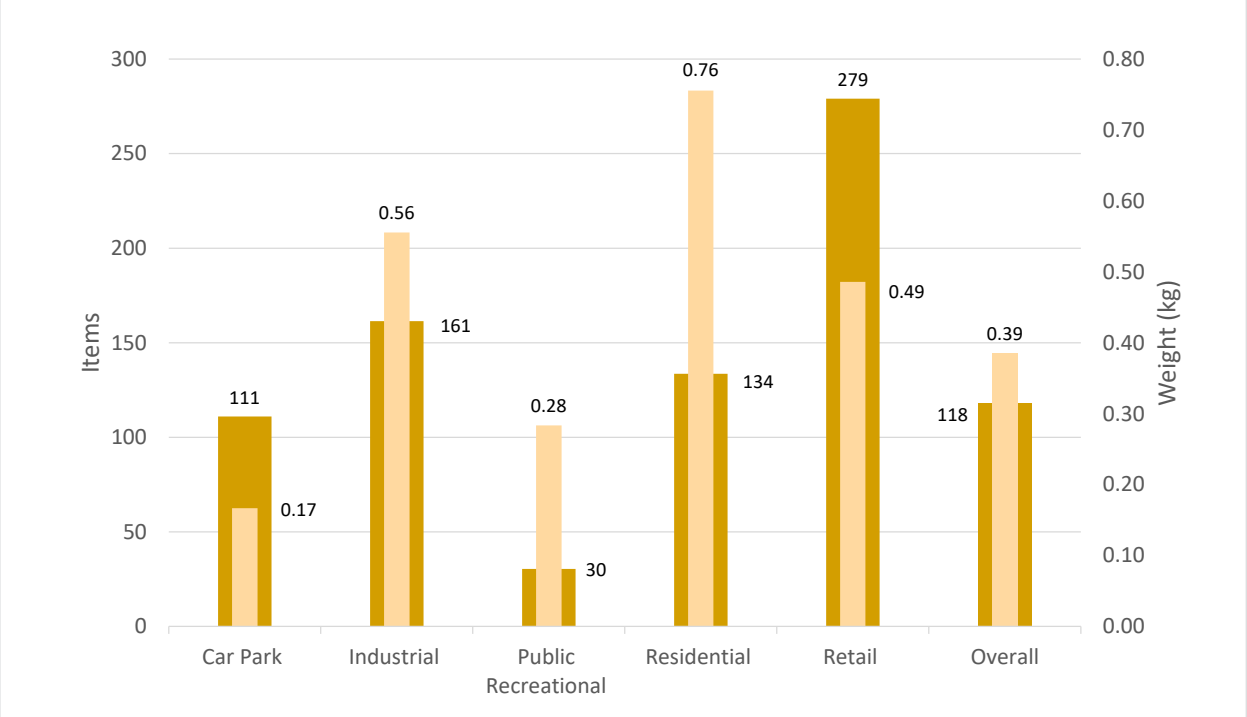


Figure 56 - Bay of Plenty 2019 Items and Weight per 1,000 m² by Site Type

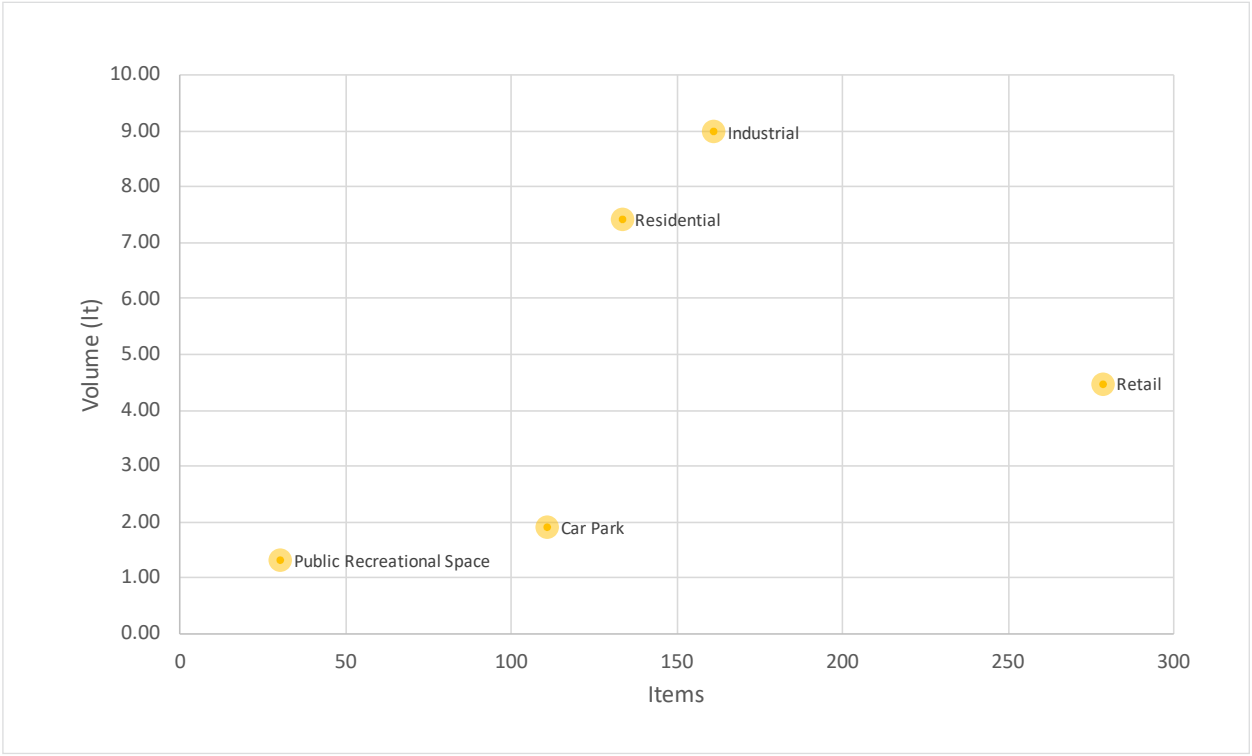


SITE CHARACTERISTICS

The following site characteristics across all site types within the Bay of Plenty Region were identified for items and volume estimates per 1,000 m²:

- Retail sites contributed to high numbers of litter items and moderate litter volumes
- Industrial sites were recorded as having moderate to high levels of litter items and large volumes of litter
- Residential sites contributed moderate numbers of litter items and large volumes of litter
- Car Park sites contributed to moderate numbers of litter items and small litter volumes
- Public Recreational sites were associated with both low numbers of litter and small litter volumes

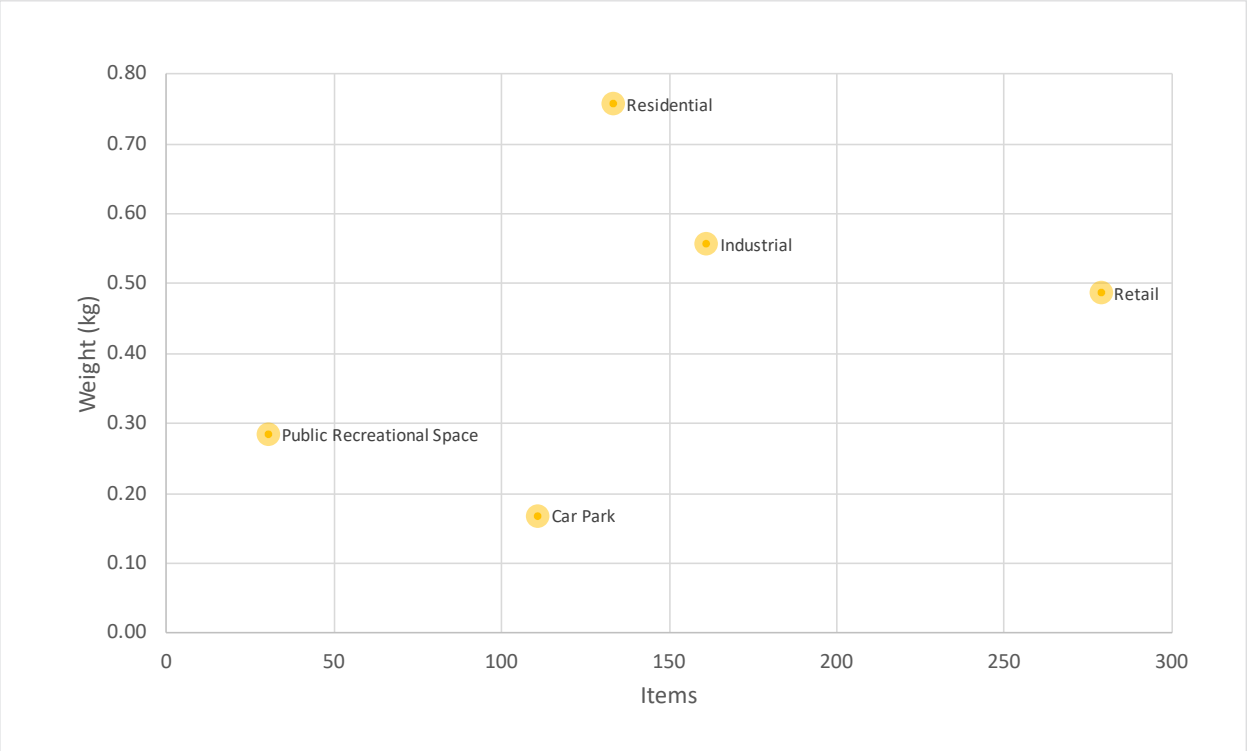
Figure 57 - Bay of Plenty 2019 Items and Volume per 1,000 m² by Site Type



Items and weight characteristics across the site types within the Bay of Plenty Region were identified as follows:

- Residential sites were associated with large litter weights and moderate numbers of litter items
- Industrial sites were associated with moderate to large litter weights and moderate to high numbers of litter items
- Retail sites contributed moderate litter weights and high numbers of litter items to the regional litter stream
- Car Park sites were associated with small litter weights and moderate numbers of litter items
- Public Recreational sites contributed small to moderate litter weights and were associated with low numbers of litter items

Figure 58 - Bay of Plenty 2019 Items and Weight per 1,000 m² by Site Type



COMPARISON BY MAIN MATERIAL TYPES

Cigarette Butts/Vaping (39 items) were the most frequently identified item recorded in the Bay of Plenty Region, while Plastic items also contributed significantly to the litter stream (30 items). Smaller numbers of items per 1,000 m² were recorded for Paper/Cardboard (15 items), Metal (14 items), Glass (10 items), Miscellaneous (10 items) and Organic Waste (1 item). There were no instances of Illegal Dumping recorded at the sites audited.

Miscellaneous items contributed the largest amount of volume to the litter stream (1.55 ltr per 1,000 m²) and Paper/Cardboard were the second largest contributors of volume (1.0 ltr). Smaller volumes per 1,000 m² were recorded for Metal (0.5 ltr), Glass (0.41 ltr), Plastic (0.35 ltr) and Organic Waste (0.02 ltr). The smallest proportion of the overall litter volume was associated with Cigarette Butts/Vaping (0.004 ltr). The largest contributor of litter weight per 1,000 m² to the overall litter stream in the Bay of Plenty was Glass (0.18 kg). More moderate litter weights were recorded for Metal (0.08 kg) and lower litter weights were associated with Plastic (0.06 kg), Miscellaneous (0.03 kg), Paper/Cardboard (0.03 kg) and Organic Waste (0.01 kg). Cigarette Butts/Vaping (0.006 kg) were associated with the smallest litter weights per 1,000 m² in the region. A weight measure was not recorded for any Illegal Dumping objects identified during the Audit.

Figure 59 - Bay of Plenty 2019 Items and Volume per 1,000 m² by Main Material Type

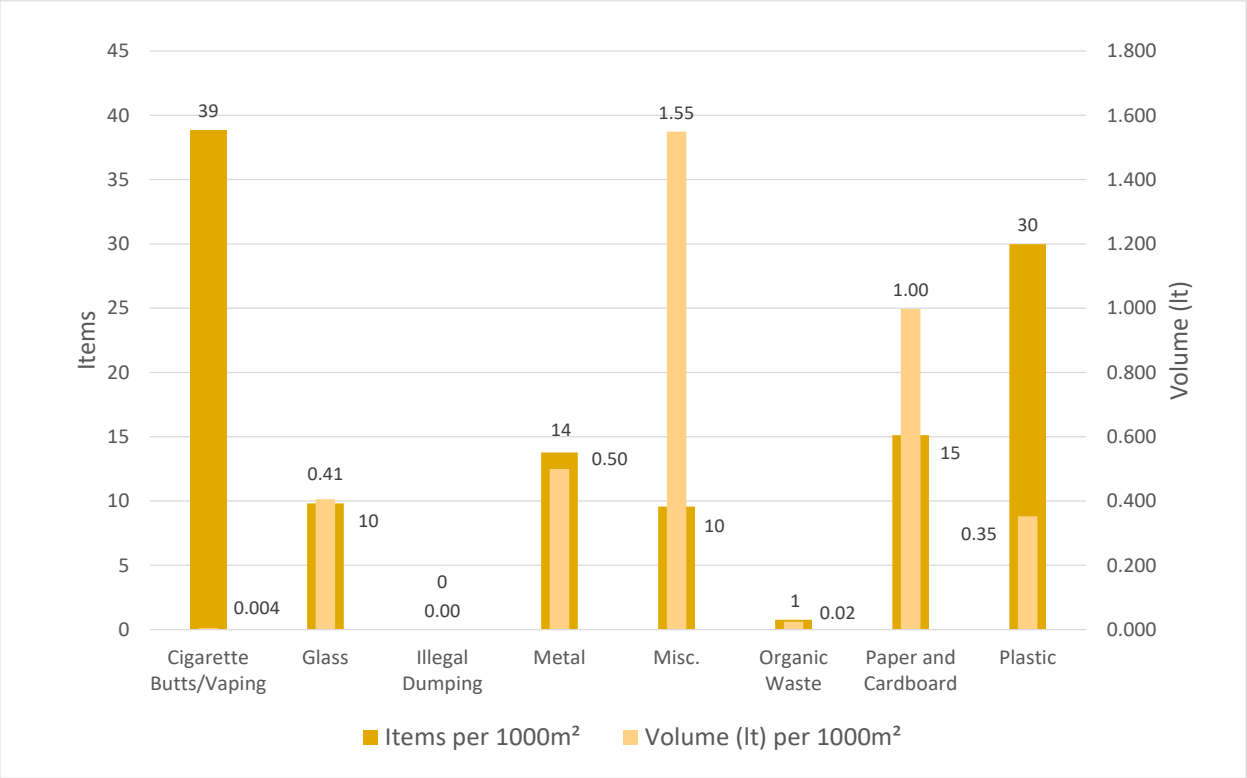
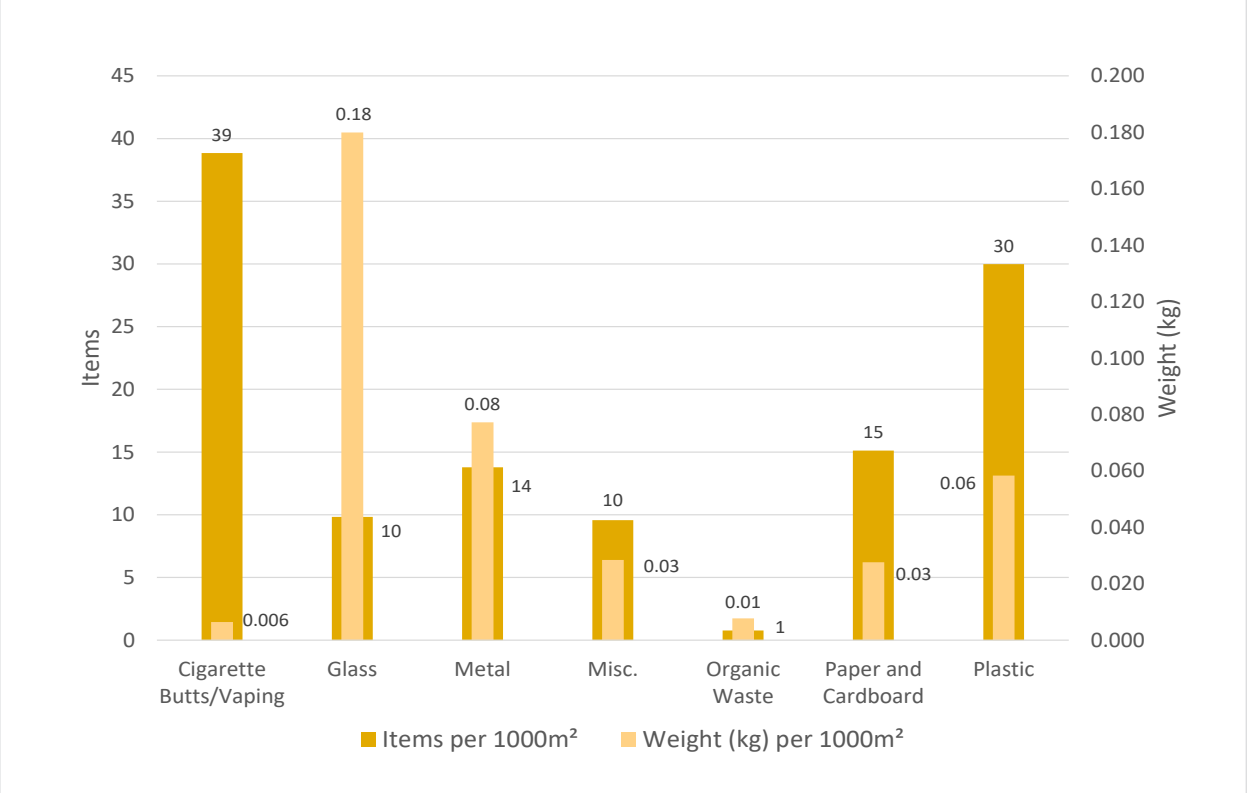


Figure 60 - Bay of Plenty 2019 Items and Weight per 1,000 m² by Main Material Type

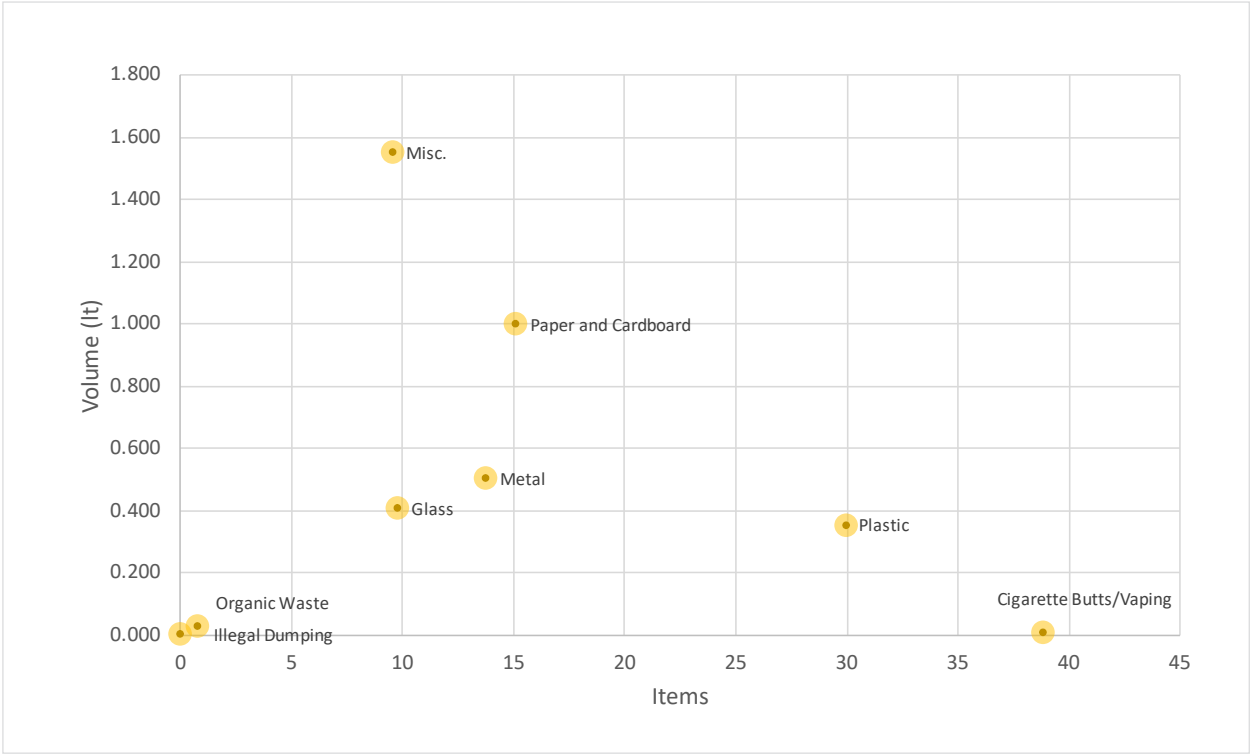


MAIN MATERIAL CHARACTERISTICS

Figures for items and volumes per 1,000 m² across main material types identified the following characteristics of litter objects within the Bay of Plenty Region:

- Miscellaneous items contributed large volumes to the litter stream but were associated with only small numbers of litter items
- Cigarette Butts/Vaping were associated with a high number of litter items but contributed only a negligible volume to the litter stream
- Plastic contributed a high number of items and small volumes to the litter stream
- Paper/Cardboard contributed to a moderate number of litter items and moderate litter volumes
- Metal and Glass items were associated with small to moderate numbers of litter items and small to moderate litter volumes
- Organic Waste was associated with very small numbers of litter items and contributed only very low volumes of litter
- There were no instances of Illegal Dumping recorded at the audited sites

Figure 61 - Bay of Plenty 2019 Items and Volume per 1,000 m² by Main Material Type

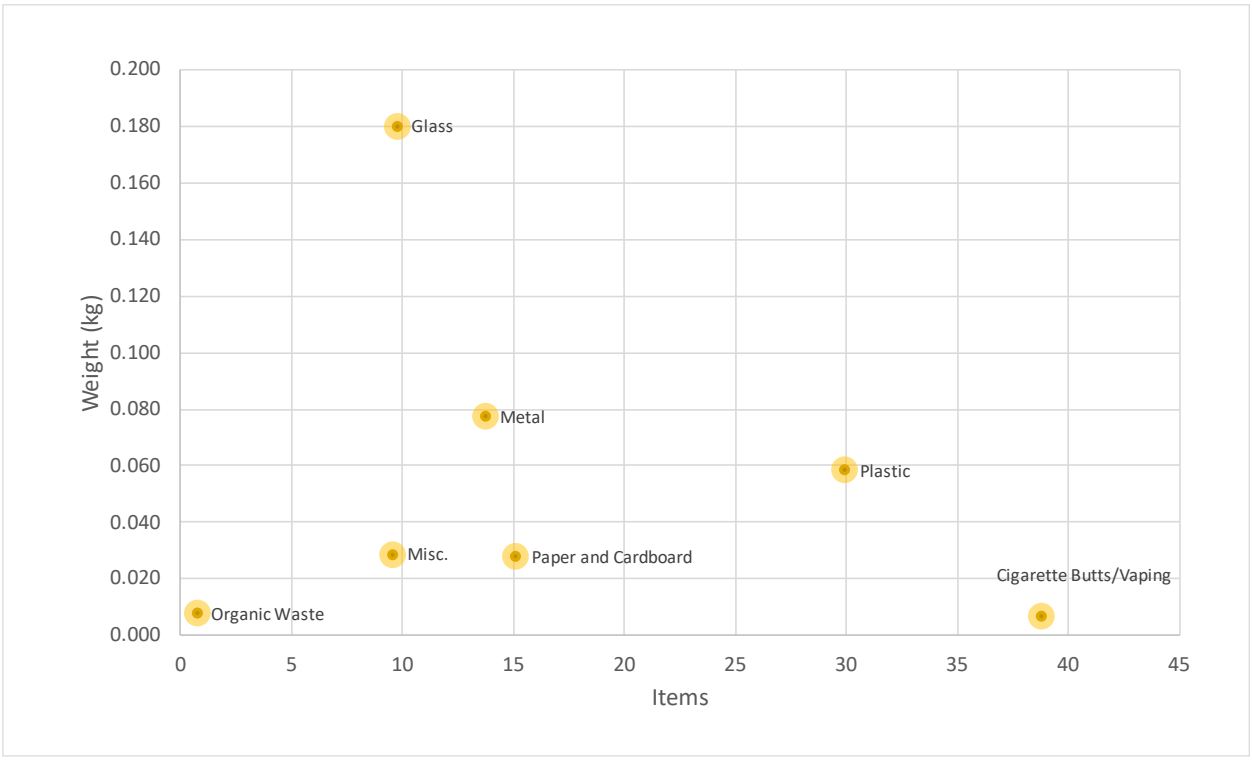


Items and weights per 1,000 m² by main material type highlighted the following characteristics within the Bay of Plenty Region:

- Glass items were associated with large litter weights, but contributed low to moderate numbers of litter items to the overall litter stream
- Metal contributed moderate litter weights and low to moderate numbers of litter items to the litter stream
- Plastic items were associated with low to moderate litter weights, but contributed high numbers of litter items
- Paper/Cardboard contributed small litter weights and moderate numbers of litter items per 1,000 m²
- Organic Waste and Miscellaneous items were associated with small litter weights and low numbers of litter items
- Cigarette Butts/Vaping items were associated with small litter weights, but contributed high numbers of litter items to the litter stream

Note: Illegal Dumping items were not weighed during the Audit

Figure 62 - Bay of Plenty 2019 Items and Weight per 1,000 m² by Main Material Type

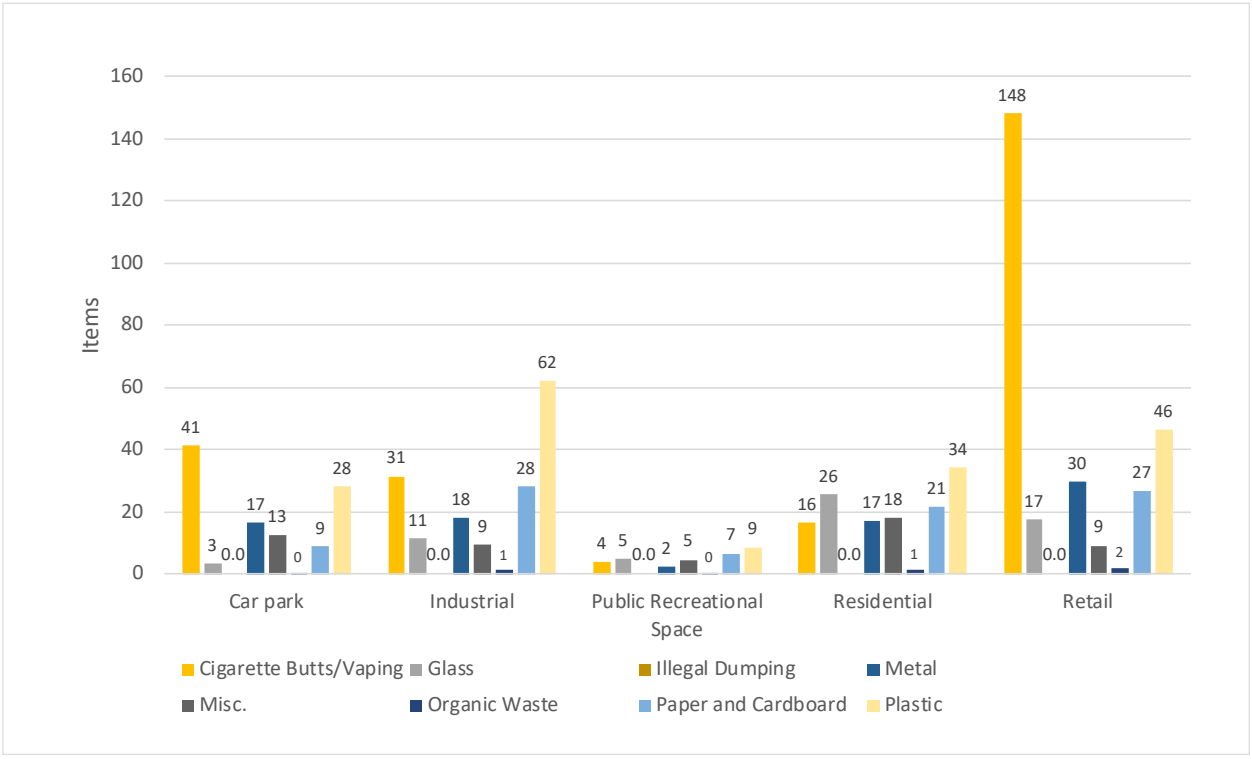


SITE TYPES BY MATERIAL TYPES

In the Bay of Plenty Region, the number of different material type litter items per 1,000 m² by the different site types included:

- Car Park sites: Cigarette Butts/Vaping (41 items), Plastic (28 items), Metal (17 items), Miscellaneous (13 items), Paper/Cardboard (9 items), Glass (3 items), Organic Waste (0 items) and Illegal Dumping (0 items)
- Industrial sites: Plastic (62 items), Cigarette Butts/Vaping (31 items), Paper/Cardboard (28 items), Metal (18 items), Glass (11 items), Miscellaneous (9 items), Organic Waste (1 item), Illegal Dumping (0 items)
- Public Recreational sites: Plastic (9 items), Paper/Cardboard (7 items), Glass (5 items), Miscellaneous (5 items), Cigarette Butts/Vaping (4 items), Metal (2 items), Organic Waste (0 items) and Illegal Dumping (0 items)
- Residential sites: Plastic (34 items), Glass (26 items), Paper/Cardboard (21 items), Miscellaneous (18 items), Metal (17 items), Cigarette Butts/Vaping (16 items), Organic Waste (1 item) and Illegal Dumping (0 items)
- Retail sites: Cigarette Butts/Vaping (148 items), Plastic (46 items), Metal (30 items), Paper/Cardboard (27 items), Glass (17 items), Miscellaneous (9 items), Organic Waste (2 items) and Illegal Dumping (0 items)

Figure 63 - Bay of Plenty 2019 Sites by Main Material Types - Items per 1,000 m²



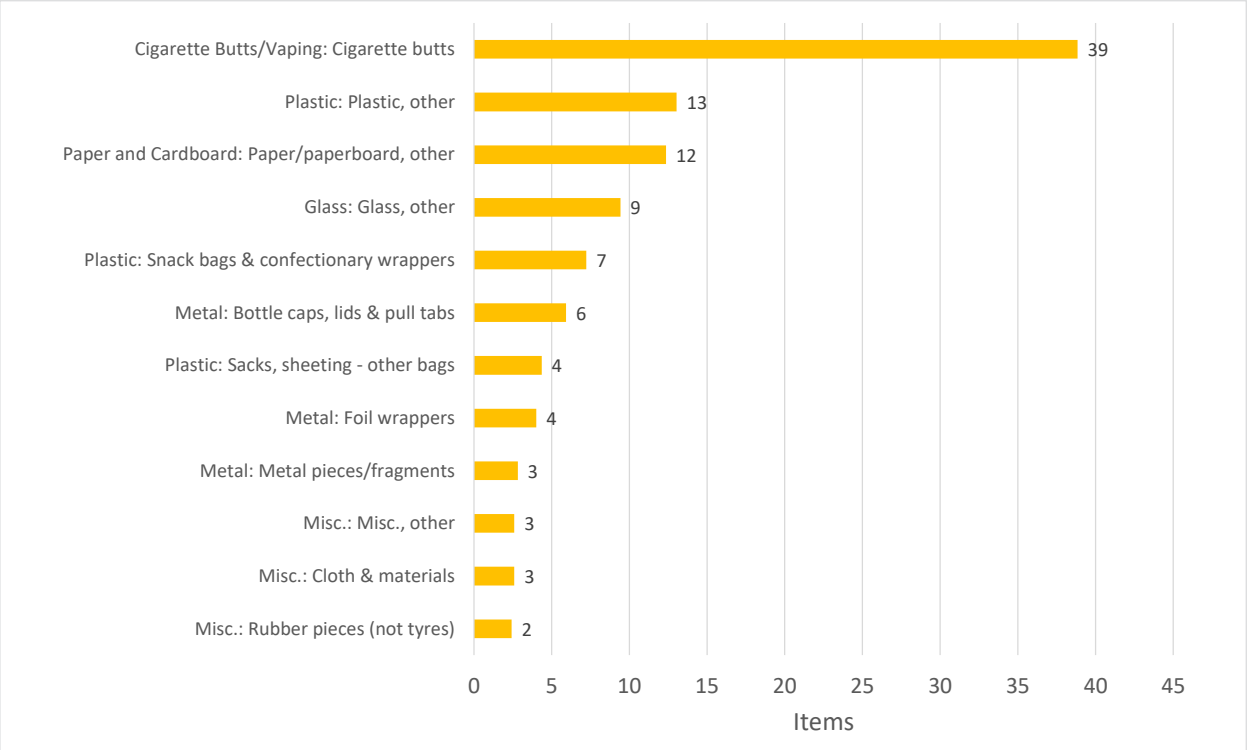
THE DIRTY DOZEN

On average across the Bay of Plenty Region litter counts, Cigarette butts were the largest contributors to the litter objects, with 39 butts per 1,000 m² identified across the sites.

Other object sub-categories frequently identified during the litter counts included:

- Uncategorised Plastic objects (13 items per 1,000 m²)
- Uncategorised Paper/paperboard objects (12 items per 1,000 m²)
- Uncategorised Glass objects (9 items per 1,000 m²)
- Plastic: Snack bags & confectionary wrappers (7 items per 1,000 m²)

Figure 64 - Bay of Plenty 2019 Dirty Dozen - Items per 1,000 m² - Object Sub Categories

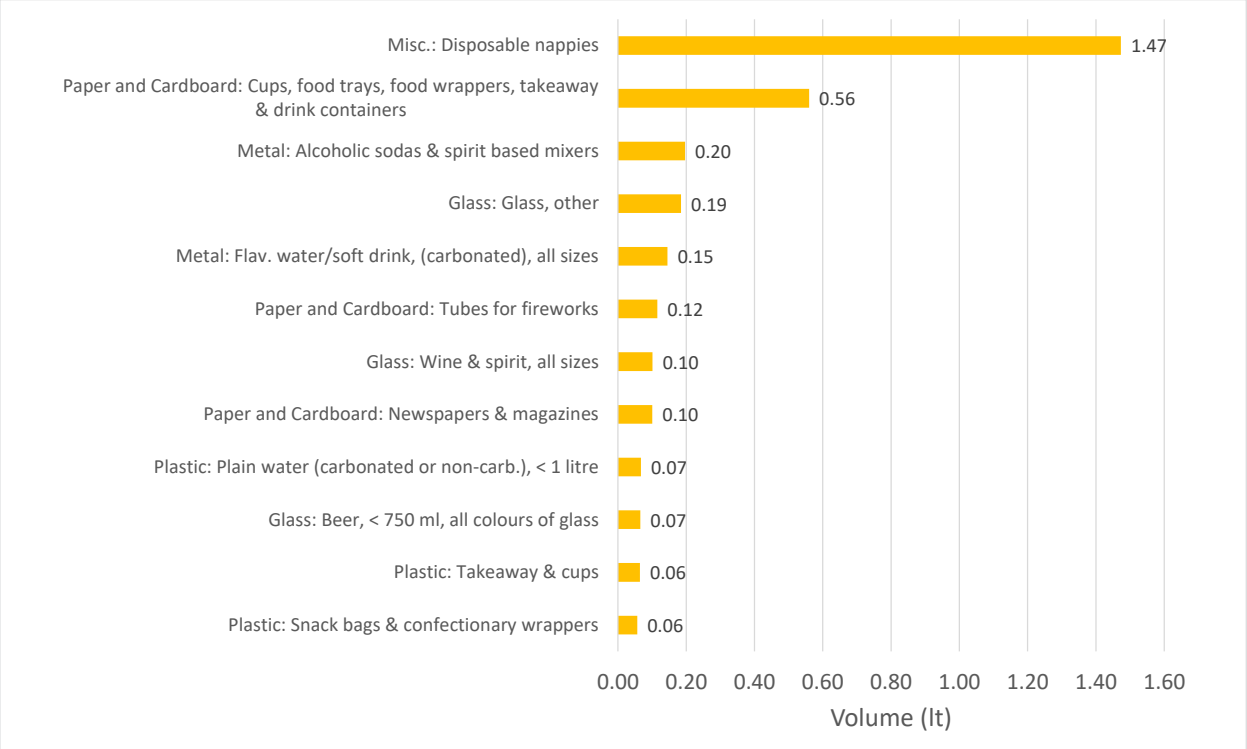


Disposable nappies were strongly associated with estimated litter volumes at the audited sites in the Bay of Plenty Region, contributing 1.47 ltr of volume per 1,000 m².

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

- Paper/Cardboard: Cups, food trays, food wrappers, takeaway & drink containers (0.56 ltr per 1,000 m²)
- Metal: Alcoholic sodas & spirit-based mixers (0.20 ltr per 1,000 m²)
- Uncategorised Glass objects (0.19 ltr per 1,000 m²)
- Metal: Flavoured water/soft drink, (carbonated), all sizes (0.15 ltr per 1,000 m²)

Figure 65 - Bay of Plenty 2019 Dirty Dozen - Volume per 1,000 m² - Object Sub Categories

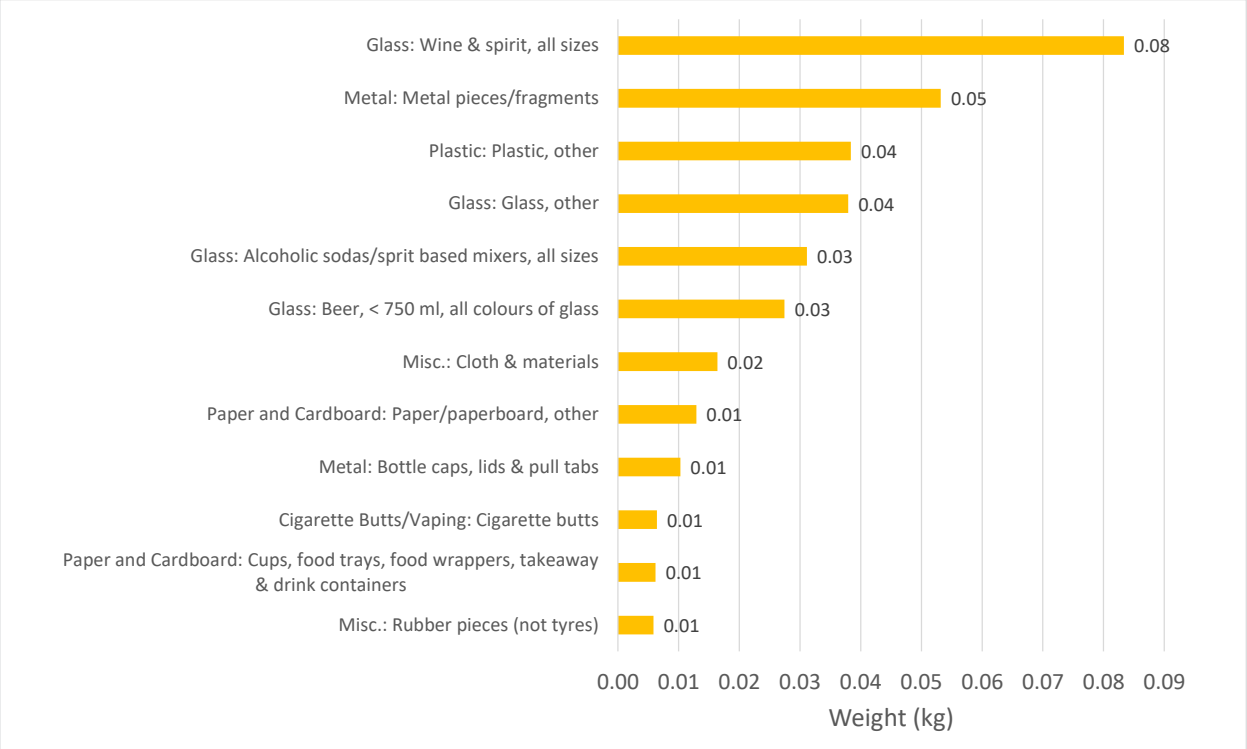


Within the object sub-categories, Glass: Wine & spirit bottles (all sizes) were the largest contributors to the regional litter weights with an average of 0.08 kg per 1,000 m² recorded. Weights were not measured for Illegal Dumping materials and therefore are not included in the weight analysis.

Other object sub-categories associated with proportionally higher average litter weights included:

- Metal pieces/fragments (0.05 kg per 1,000 m²)
- Uncategorised Plastic objects (0.04 kg per 1,000 m²)
- Uncategorised Glass objects (0.04 per 1,000 m²)

Figure 66 - Bay of Plenty 2019 Dirty Dozen - Weight per 1,000 m² - Object Sub Categories



TERRITORY SUMMARIES

There are 6 territorial authorities within the Bay of Plenty Region:

- Kawerau District
- Opotiki District
- Rotorua District
- Tauranga City
- Western Bay of Plenty District
- Whakatane District

A total of 30 sites (from Industrial, Retail, Residential, Car Park and Public Recreational sites) were audited in the Bay of Plenty Region with a minimum of 5 sites audited from each territory.

The results are summarised in the following table:

Extract from Table 3 – Territory Data: Bay of Plenty Region

Territory	Total Area Surveyed (m^2)	Items per 1,000 m^2	Weight (kg) per 1,000 m^2	Volume (lt) per 1,000 m^2
BAY OF PLENTY REGION				
Kawerau District	*5565*	*126*	*0.22*	*3.60*
Opotiki District	*5970*	*169*	*0.88*	*4.31*
Rotorua District	*5939*	*97*	*0.41*	*4.63*
Tauranga City	*5964*	*122*	*0.29*	*6.22*
Western Bay of Plenty District	*6003*	*88*	*0.35*	*2.69*
Whakatane District	*5680*	*105*	*0.15*	*1.44*
Bay of Plenty Region Overall	**35120**	**118**	**0.39**	**3.83**

SITE GRADINGS

All sites were assigned gradings in 4 categories: Visual rating, Litter hotshots rating, Risk present and Litter distribution. These were analysed to determine rating percentages and averages from the total sites audited within the region.

Extract from Table 2 - Site Types: Bay of Plenty

	Risk Present		Litter Distribution	
Bay of Plenty	*Moderate hazard or risk*	*Significant hazard or risk*	*Widespread*	*Clustered*
	100%	*0%*	*100%*	*0%*

Figure 67 - Bay of Plenty 2019 Grading - Visual Site Ratings

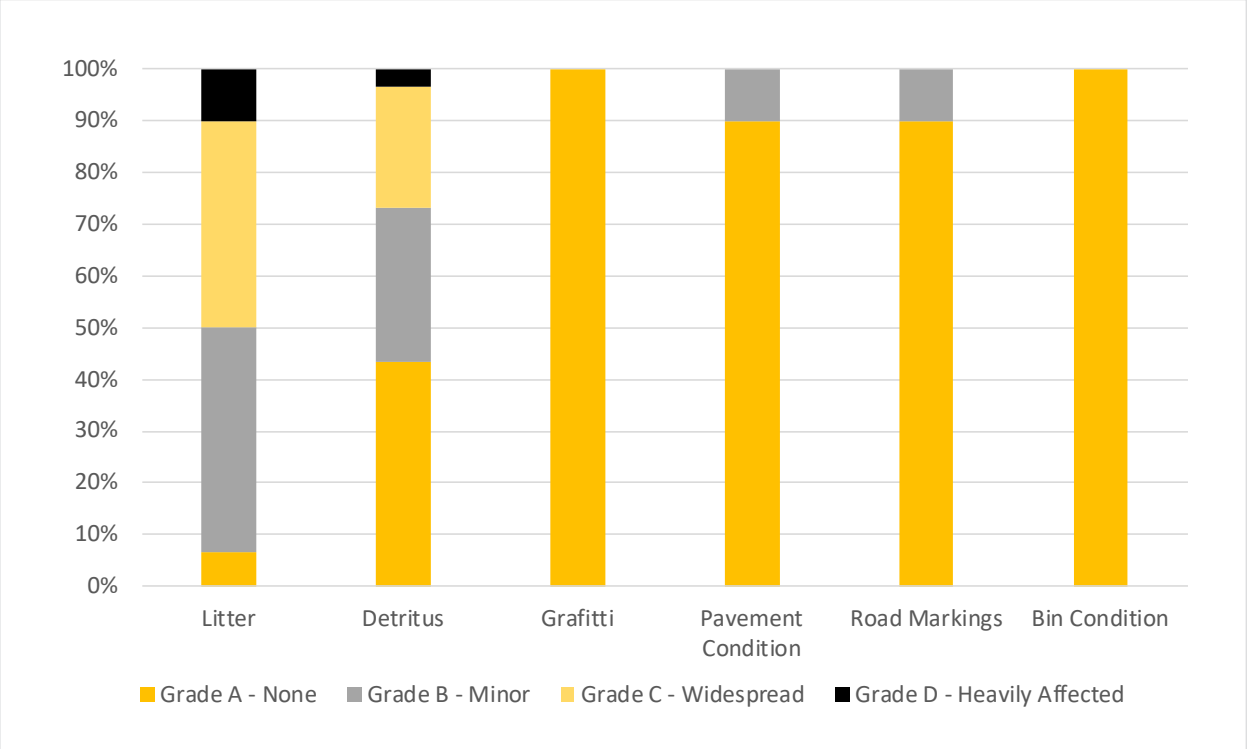
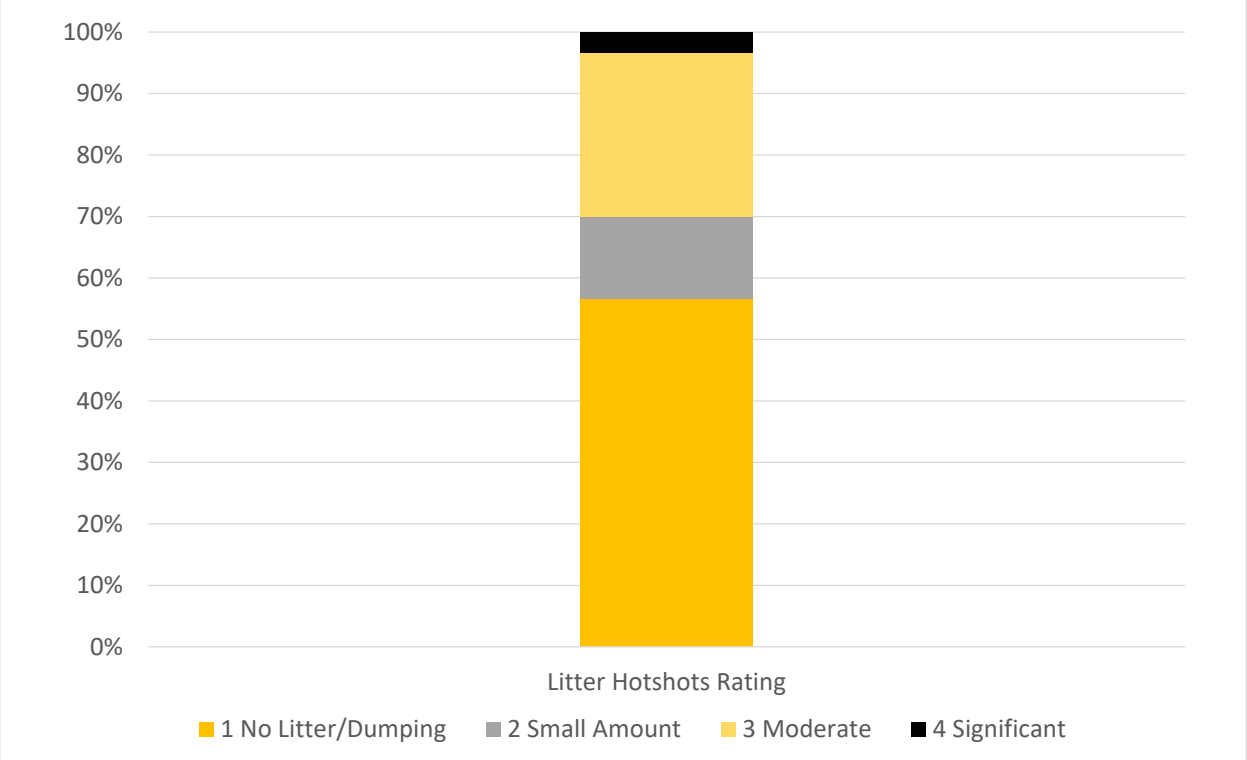


Figure 68 - Bay of Plenty 2019 Grading - Site Litter Hotshots Ratings



CANTERBURY AND CHATHAM ISLANDS REGIONS

AT A GLANCE

The overall average number of items per 1,000 m² across the 55 sites surveyed in the Canterbury and Chatham Islands Regions was 99 items, the overall average weight of litter items per 1,000 m² was 0.35 kg, while the overall average estimated volume per 1,000 m² was 5.36 ltr.

Industrial sites were associated with the highest numbers of litter items, largest litter weights and highest litter volumes per 1,000 m². Retail sites contributed to the second highest numbers of litter items, litter weights and litter volumes in the region. Residential sites were associated with low to moderate numbers of litter items and volumes, and moderate litter weights. Car Park sites contributed low to moderate numbers of litter items and associated with small to moderate litter weights and volumes. Public Recreational sites contributed to low numbers of litter items, small litter weights and small litter volumes per 1,000 m².

Cigarette Butts/Vaping were the most frequently identified items per 1,000 m² within the Canterbury and Chatham Islands Regions, however they were associated with the smallest litter weights and volumes recorded in the region. Plastic was the second highest contributor to both the number of items collected and the litter weight, while contributing the third largest volume of litter per 1,000 m².

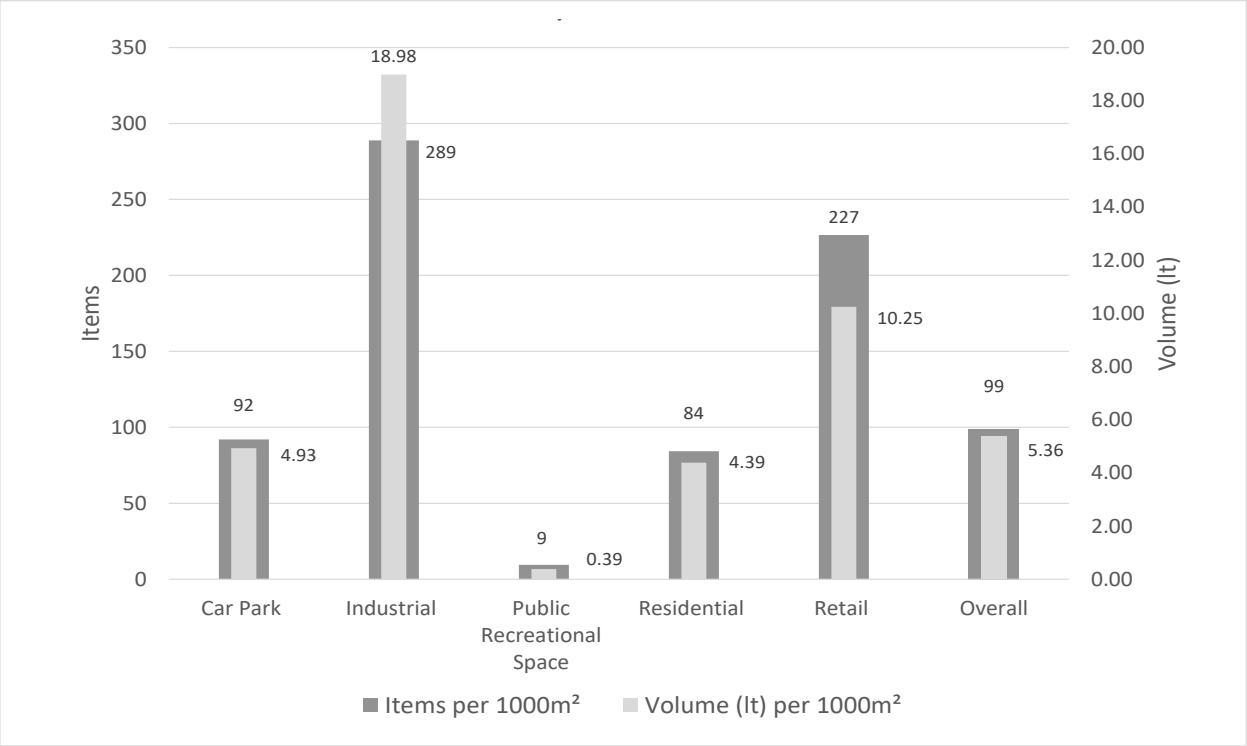
Miscellaneous items contributed the largest amount of volume to the litter stream (Disposable nappies represented a high percentage of the volume in this category), however were associated with smaller numbers of litter items and litter weights per 1,000 m².

COMPARISONS BY SITE TYPES

The highest numbers of litter items per 1,000 m² at the sites surveyed in the Canterbury and Chatham Islands Regions were recorded at Industrial sites (289 items) and Retail sites (227 items). Moderate numbers of litter items were found at Car Park sites (92 items) and Residential sites (84 items). The lowest number of litter items per 1,000 m² were counted at Public Recreational sites (9 items).

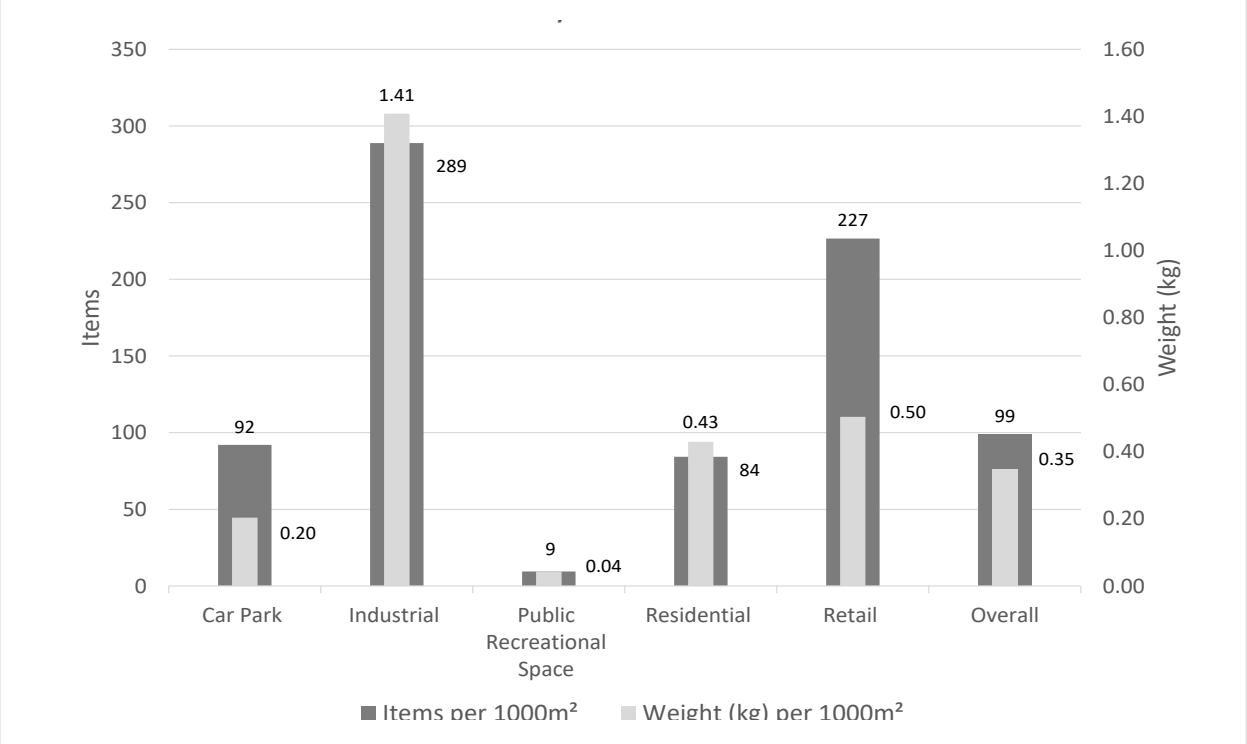
The largest volumes of litter per 1,000 m² were collected at Industrial sites (18.98 ltr) and Retail sites (10.25 ltr) while small to moderate volumes were recorded at Car Park sites (4.93 ltr) and Residential sites (4.39 ltr). The smallest volumes of litter per 1,000 m² within the region were associated with Public Recreational sites (0.39 ltr).

Figure 69 - Canterbury/Chatham Islands 2019 Items and Volume per 1,000 m² by Site Type



Industrial sites (1.41 kg) were associated with the highest litter weights per 1,000 m² in the region. More moderate litter weights were recorded for Retail sites (0.50 kg) and Residential sites (0.43 kg) while smaller litter weights were associated with Car Park sites (0.20 kg) and Public Recreational sites (0.04 kg).

Figure 70 - Canterbury/Chatham Islands 2019 Items and Weight per 1,000 m² by Site Type

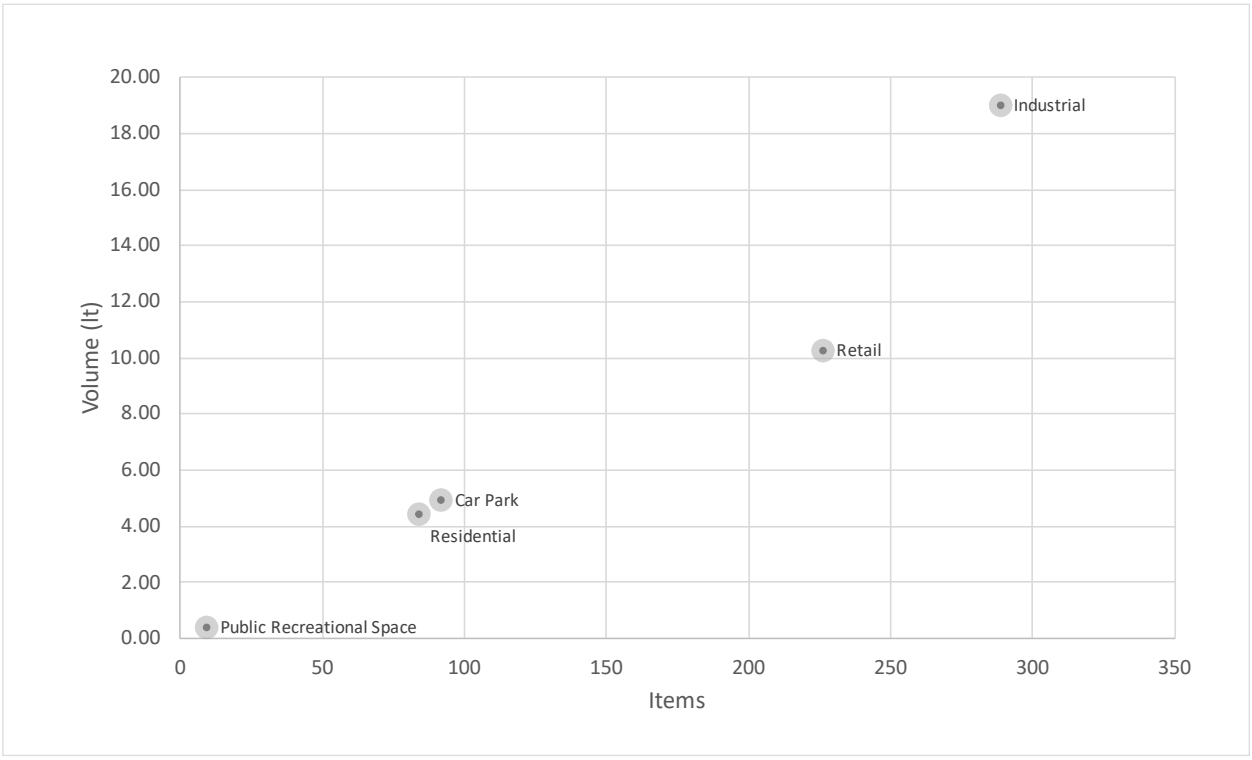


SITE CHARACTERISTICS

The following site characteristics across all site types within the Canterbury and Chatham Islands Regions were identified for items and volume estimates per 1,000 m²:

- Industrial sites contributed both high numbers of litter items and large litter volumes
- Retail sites contributed high numbers of litter items and moderate to large litter volumes to the overall regional litter stream
- Car Park and Residential sites were associated with low to moderate numbers of litter items and small to moderate litter volumes
- Public Recreational sites contributed low numbers of litter items and small volumes of litter per 1,000 m²

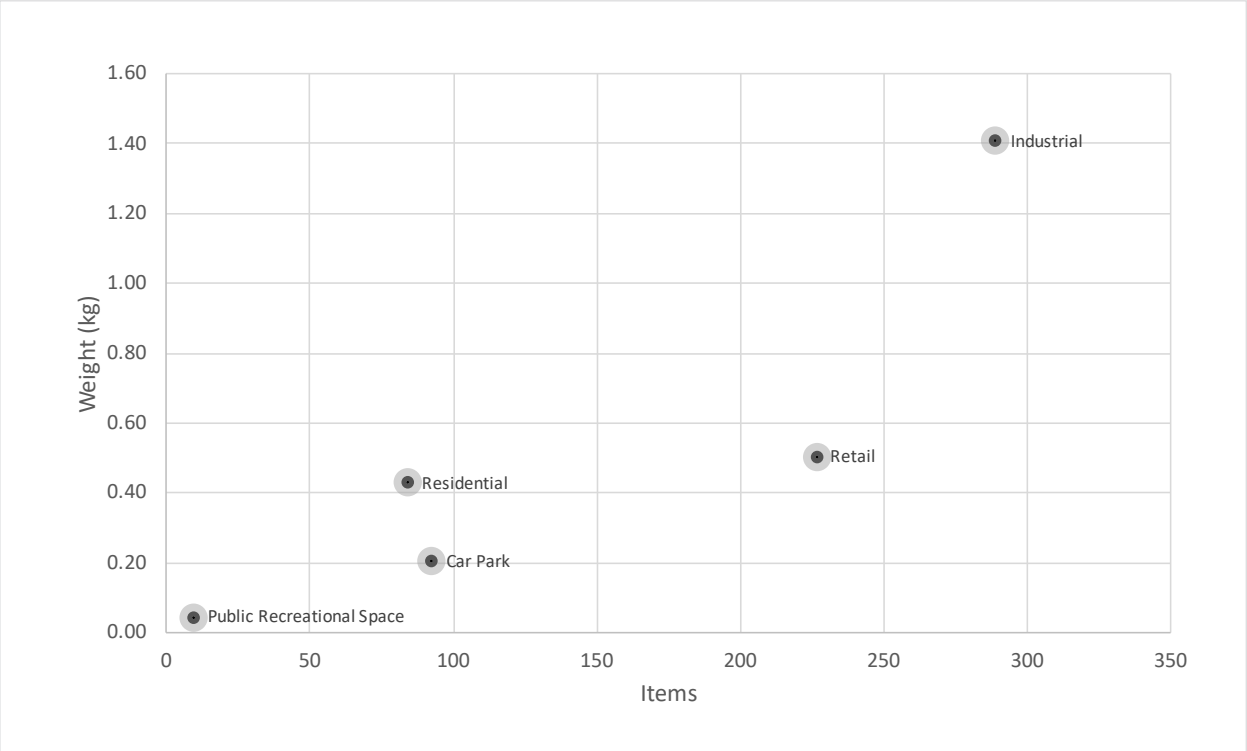
Figure 71 - Canterbury/Chatham Islands 2019 Items and Volume per 1,000 m² by Site Type



Site characteristics across the site types were identified for items and weight as follows:

- Industrial sites were associated with large litter weights and high numbers of litter items
- Retail sites contributed moderate litter weights and high numbers of litter items to the regional litter stream
- Residential sites were associated with moderate litter weights and low to moderate numbers of litter items
- Car Park sites contributed small to moderate litter weights and low to moderate numbers of litter items to the litter stream
- Public Recreational sites were associated with both small litter weights and low numbers of litter items

Figure 72 - Canterbury/Chatham Islands 2019 Items and Weight per 1,000 m² by Site Type



COMPARISON BY MAIN MATERIAL TYPES

Cigarette Butts/Vaping items were the most frequently identified objects per 1,000 m² within the Canterbury and Chatham Islands Regions (34 items) while the second highest number of litter items recorded was Plastics (25 items).

Smaller numbers of items were recorded for Paper/Cardboard (13 items), Metal (10 items), Glass (10 items), Miscellaneous (5 items), Organic Waste (1 item) and Illegal Dumping (less than 1 item per 1,000 m²).

Miscellaneous items contributed the largest amount of volume per 1,000 m² to the litter stream (1.57 ltr) while the second and third largest volumes per 1,000 m² were recorded for Paper/Cardboard (1.26 ltr) and Plastic (0.93 ltr). Smaller volumes were recorded for Illegal Dumping (0.69 ltr), Metal (0.56 ltr), Glass (0.33 ltr) and Organic Waste (0.03 ltr). Cigarette Butts/Vaping items were associated with the smallest proportion of the overall litter volume per 1,000 m² (0.004 ltr).

Glass (0.09 kg), Plastic (0.08 kg) and Metal (0.07 kg) contributed the largest litter weights per 1,000 m² to the overall regional litter stream. Smaller litter weights were recorded for Paper/Cardboard (0.05 kg), Miscellaneous items (0.03 kg) and Organic Waste (0.01 kg). The smallest litter weight per 1,000 m² was associated with Cigarette Butts/Vaping (0.009 kg). A weight measure was not recorded for any Illegal Dumping objects identified during the Audit.

Figure 73 - Canterbury/Chatham Islands 2019 Items and Volume per 1,000 m² by Main Material Type

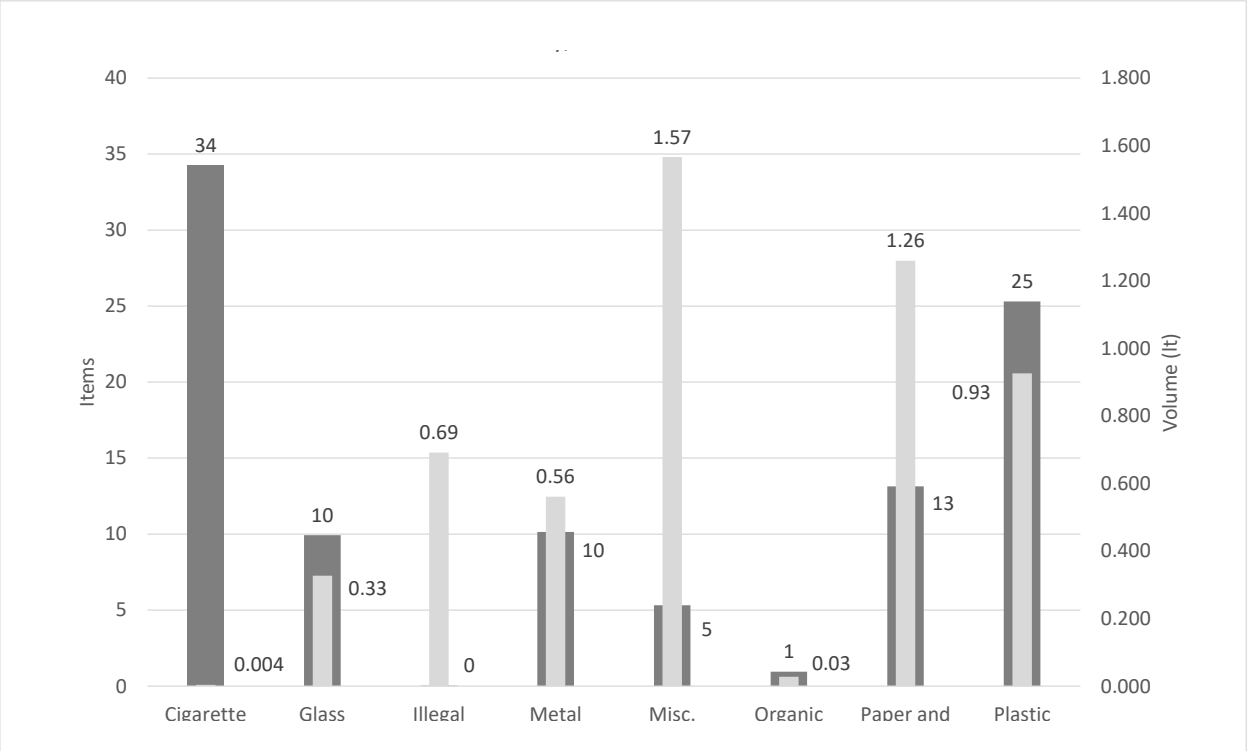
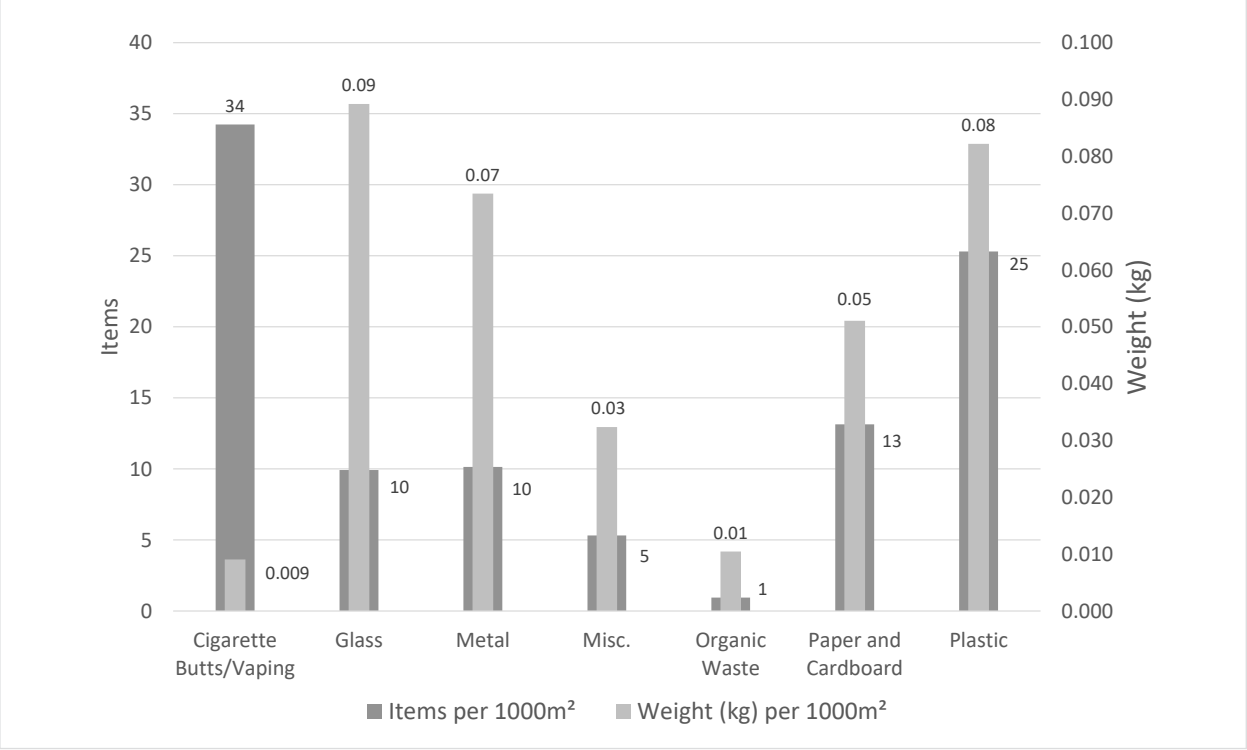


Figure 74 - Canterbury/Chatham Islands 2019 Items and Weight per 1,000 m² by Main Material Type

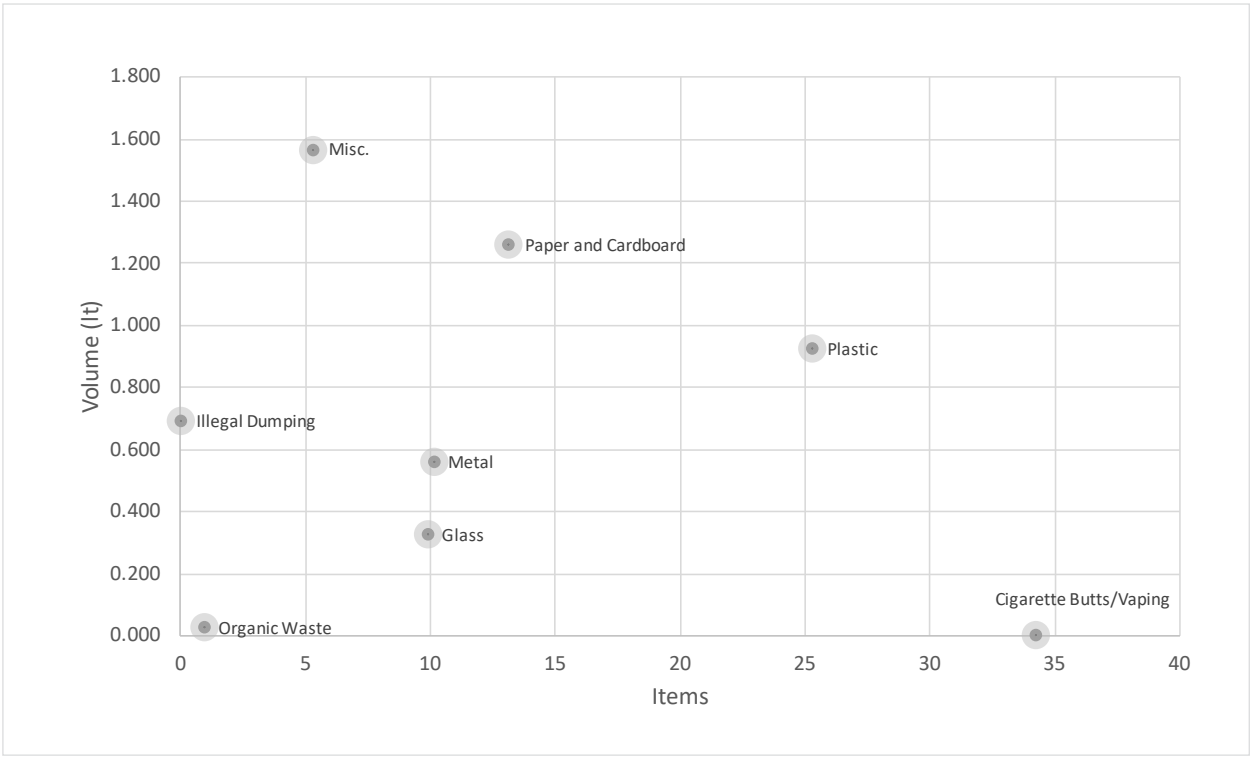


MAIN MATERIAL CHARACTERISTICS

Figures for items and volumes per 1,000 m² across main material types identified the following characteristics of litter objects within the Canterbury and Chatham Islands Regions:

- Miscellaneous items contributed large volumes to the litter stream but were associated with small numbers of litter items
- Cigarette Butts/Vaping were associated with a high number of litter items but contributed only a negligible volume to the litter stream
- Paper/Cardboard was associated with large volumes of litter and moderate numbers of litter items
- Plastic was associated with high numbers of litter items and moderate litter volumes
- Metal and Glass contributed low to moderate numbers of litter items and small volumes of litter
- Organic Waste was associated with small numbers of litter items and contributed only low volumes of litter
- Illegal Dumping contributed to moderate litter volumes but negligible numbers of litter items

Figure 75 - Canterbury/Chatham Islands 2019 Items and Volume per 1,000 m² by Main Material Type

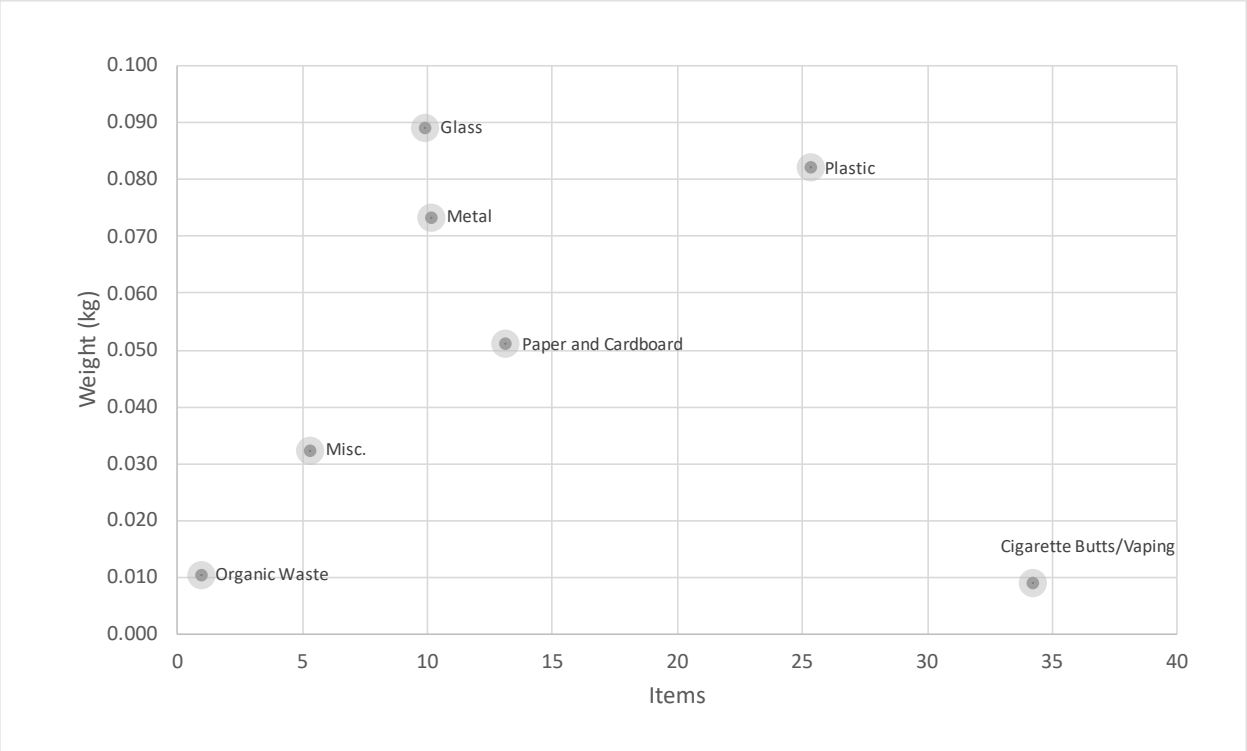


The following characteristics of litter objects per 1,000 m² across main material types were identified for items and weights:

- Plastic items were associated with large litter weights and high numbers of litter items
- Metal and Glass contributed large litter weights and low to moderate numbers of litter items
- Paper/Cardboard items were associated with both moderate litter weights and moderate numbers of items
- Cigarette Butts/Vaping contributed small litter weights, but were associated with high numbers of litter items
- Miscellaneous items were associated with small to moderate litter weights and low numbers of litter items
- Organic Waste contributed both small litter weights and low numbers of litter items to the overall litter stream

Note: Illegal Dumping items were not weighed during the Audit

Figure 76 - Canterbury/Chatham Islands 2019 Items and Weight per 1,000 m² by Main Material Type

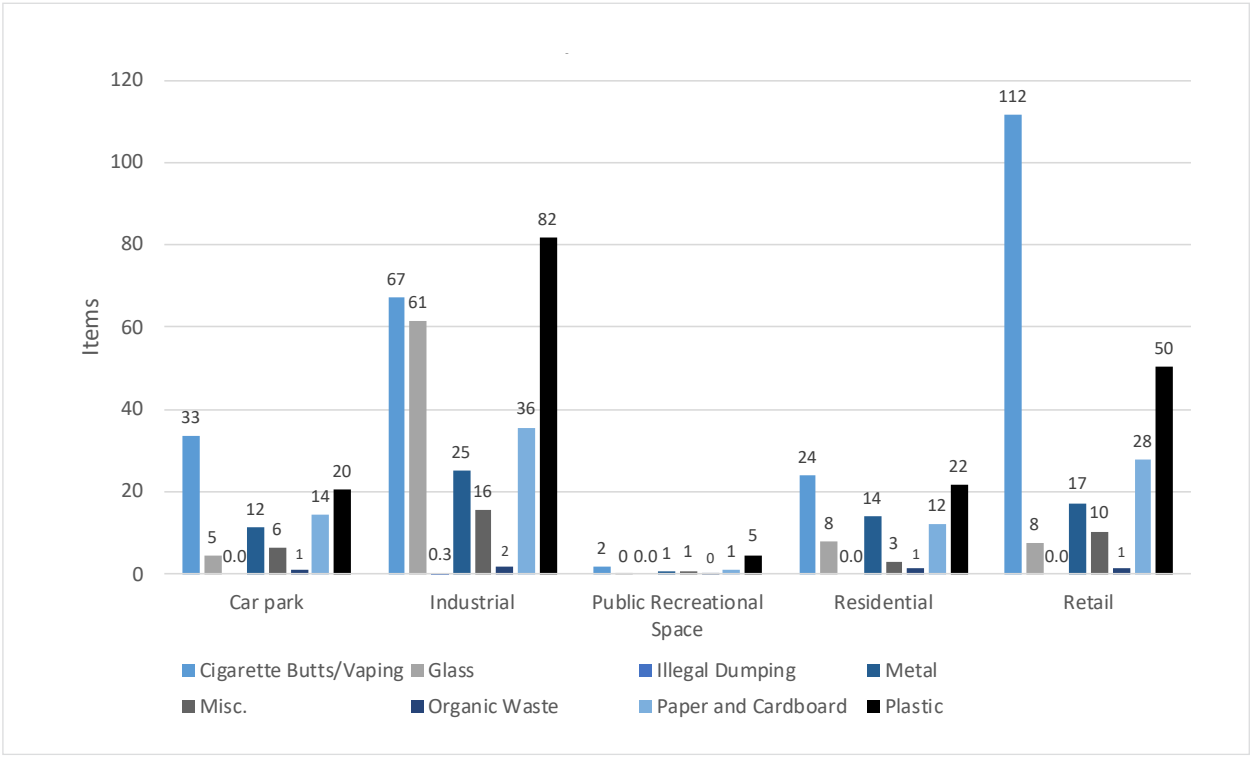


SITE TYPES BY MATERIAL TYPES

Within the Canterbury and Chatham Islands Regions, the number of different material type litter items per 1,000 m² by the different site types included:

- Car Park sites: Cigarette Butts/Vaping (33 items), Plastic (20 items), Paper/Cardboard (14 items), Metal (12 items), Miscellaneous (6 items), Glass (5 items), Organic Waste (1 item) and Illegal Dumping (0 items)
- Industrial sites: Plastic (82 items), Cigarette Butts/Vaping (67 items), Glass (61 items), Paper/Cardboard (36 items), Metal (25 items), Miscellaneous (16 items), Organic Waste (2 items) and Illegal Dumping (less than 1 item per 1,000 m²)
- Public Recreational sites: Plastic (5 items), Cigarette Butts/Vaping (2 items), Metal (1 item), Miscellaneous (1 item), Paper/Cardboard (1 item), Glass (0 items), Organic Waste (0 items) and Illegal Dumping (0 items)
- Residential sites: Cigarette Butts/Vaping (24 items), Plastic (22 items), Metal (14 items), Paper/Cardboard (12 items), Glass (8 items), Miscellaneous (3 items), Organic Waste (1 item) and Illegal Dumping (0 items)
- Retail sites: Cigarette Butts/Vaping (112 items), Plastic (50 items), Paper/Cardboard (28 items), Metal (17 items), Miscellaneous (10 items), Glass (8 items), Organic Waste (1 item) and Illegal Dumping (0 items)

Figure 77 - Canterbury/Chatham Islands 2019 Sites by Main Material Types - Items per 1,000 m²



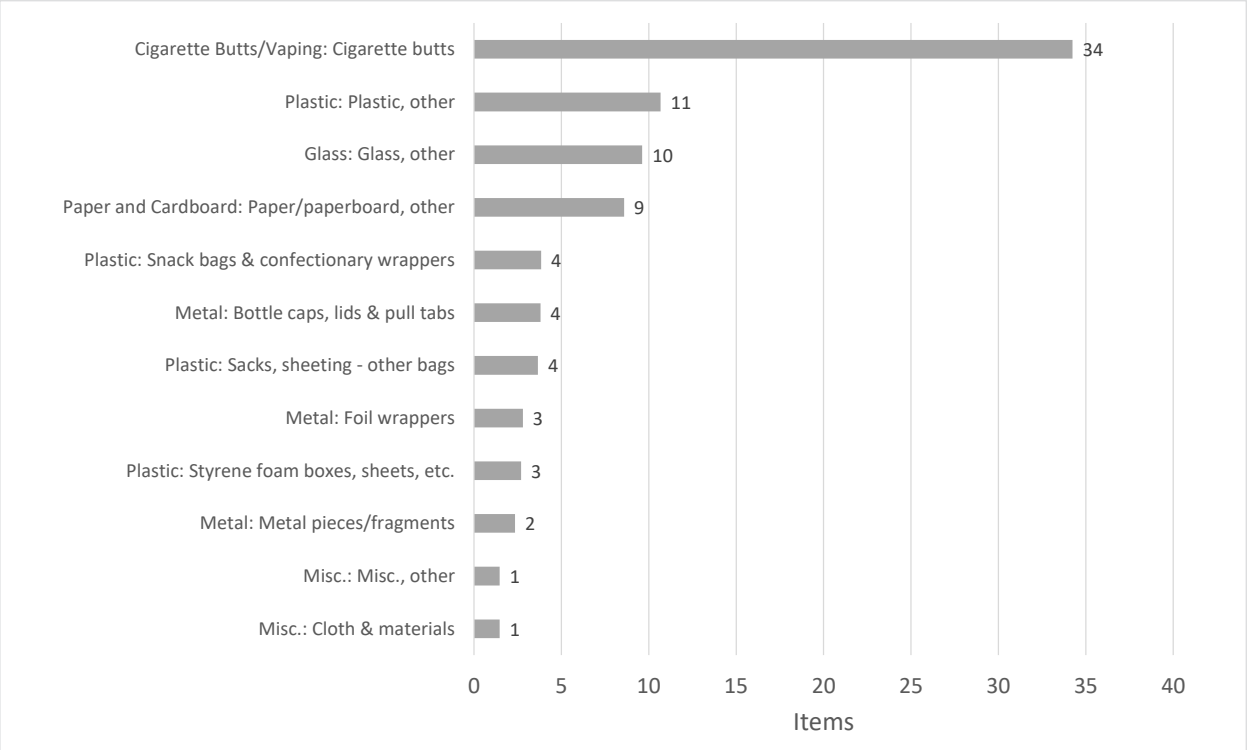
THE DIRTY DOZEN

On average across the Canterbury and Chatham Islands Regions litter counts, Cigarette butts were the largest contributors to the litter objects, with 34 butts per 1,000 m² identified at the audited sites.

Other object sub-categories frequently identified during the litter counts included:

- Uncategorised Plastic objects (11 items per 1,000 m²)
- Uncategorised Glass objects (10 items per 1,000 m²)
- Uncategorised Paper/paperboard objects (9 items per 1,000 m²)

Figure 78 - Canterbury/Chatham Islands 2019 Dirty Dozen - Items per 1,000 m² - Object Sub Categories

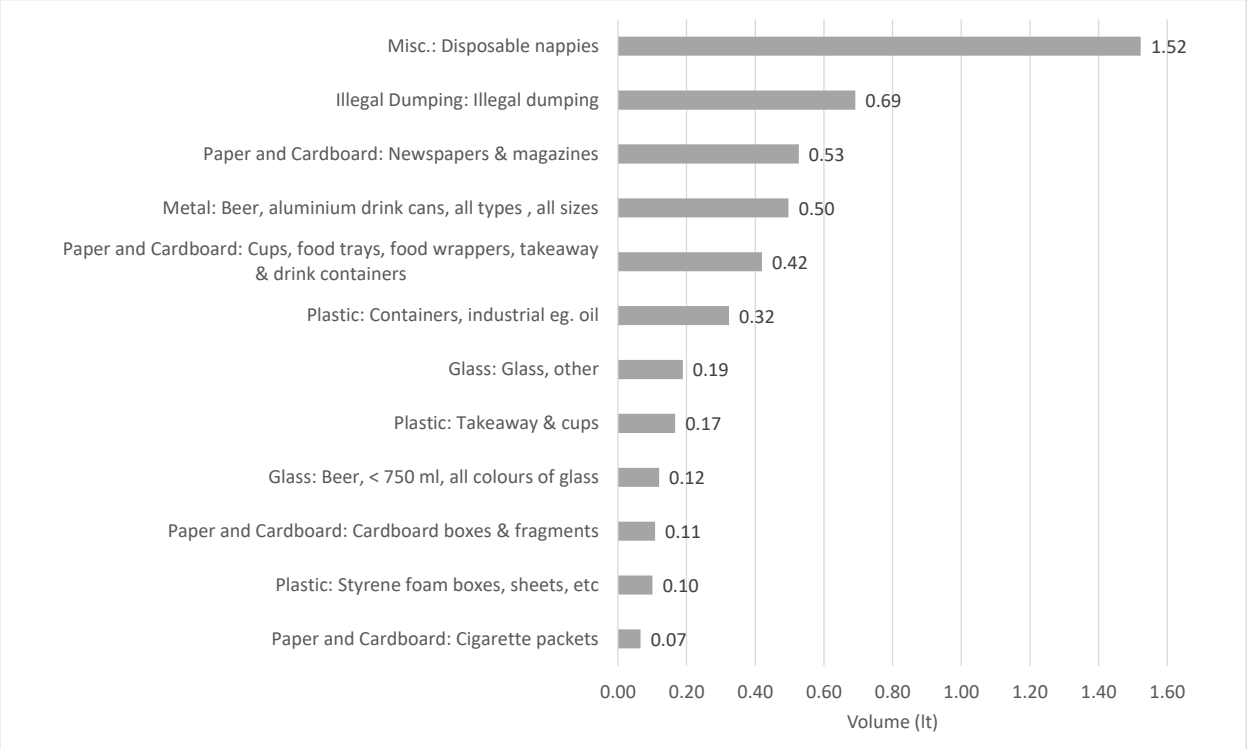


The largest contributor to the estimated litter volume per 1,000 m² in the Canterbury and Chatham Islands Regions was Disposable nappies, recording a volume of 1.52 ltr per 1,000 m².

Other object sub-categories which were associated with large estimated litter volumes per 1,000 m² included:

- Illegal dumping (0.69 ltr per 1,000 m²)
- Paper/Cardboard: Newspapers & magazines (0.53 ltr per 1,000 m²)
- Metal: Beer, aluminium drink cans, all types, all sizes (0.50 ltr per 1,000 m²)
- Paper/Cardboard: Cups, food trays, food wrappers, takeaway & drink containers (0.42 ltr per 1,000 m²)

Figure 79 - Canterbury/Chatham Islands 2019 Dirty Dozen - Volume per 1,000 m² - Object Sub Categories

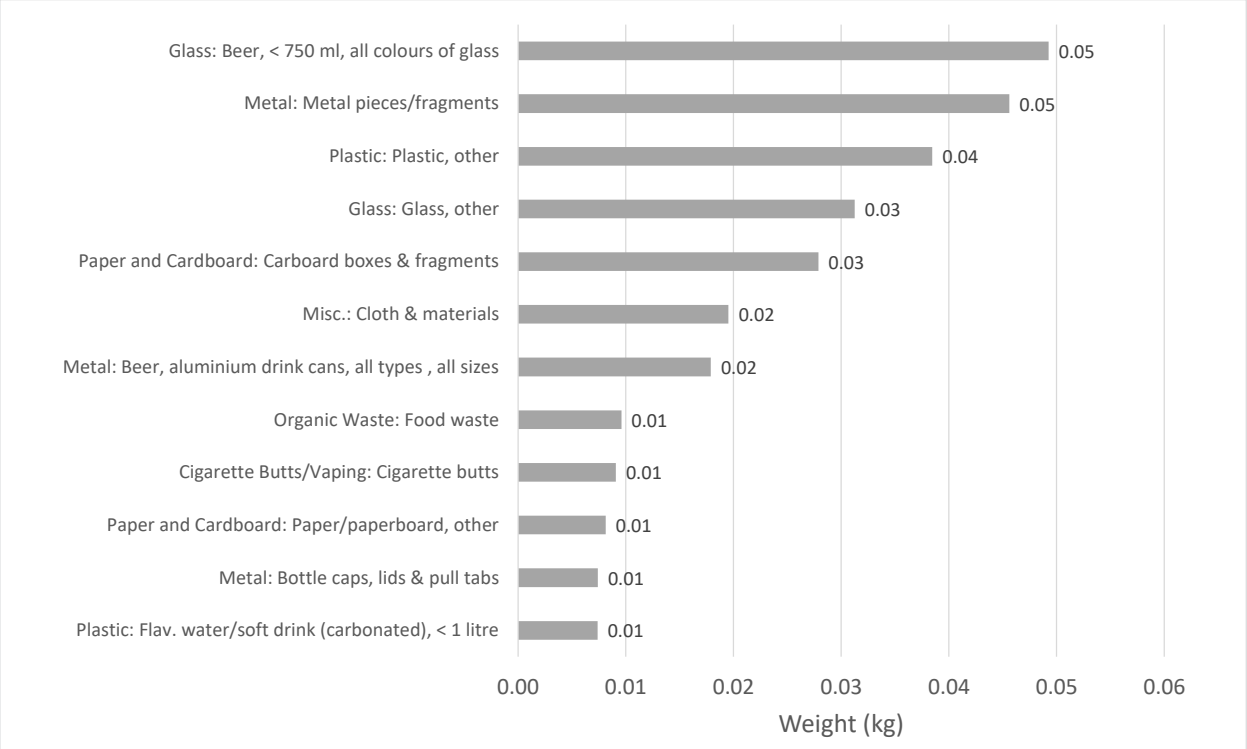


Within the object sub-categories, the largest litter weights per 1,000 m² were associated with Glass: Beer bottles (less than 750 ml, all colours) and Metal pieces/ fragments, both recording an average weight of 0.05 kg per 1,000 m² across the sites. Weights were not measured for Illegal Dumping objects and therefore are not included in the weight analysis.

Other object sub-categories which were associated with higher litter weights per 1,000 m² included:

- Uncategorised Plastic items (0.04 kg per 1,000 m²)
- Uncateogirsed Glass items (0.03 kg per 1,000 m²)
- Paper/cardboard: Cardboard boxes & fragments (0.03 kg per 1,000 m²)

Figure 80 - Canterbury/Chatham Islands 2019 Dirty Dozen - Weight per 1,000 m² - Object Sub Categories



TERRITORY SUMMARIES

Due to its size and population, Chatham Islands was included with the Canterbury Region for the purposes of the Audit.

There are 11 territorial authorities within the Canterbury and Chatham Island Regions:

- Chatham Islands Territory
  (A territorial authority which also performs the functions of a regional council)
- Ashburton District
- Christchurch City
- Hurunui District
- Kaikoura District
- Mackenzie District
- Selwyn District
- Timaru District
- Waimakariri District
- Waimate District
- Waitaki District

A total of 55 sites (from Industrial, Retail, Residential, Car Park and Public Recreational sites) were audited in the Canterbury and Chatham Islands Regions with a minimum of 5 sites audited from each territory.

The results are summarised in the following table:

Extract from Table 3 – Territory Data: Canterbury and Chatham Islands Regions

Territory	Total Area Surveyed (m²)	Items per 1,000 m²	Weight (kg) per 1,000 m²	Volume (lt) per 1,000 m²
CANTERBURY AND CHATHAM ISLANDS REGIONS				
Chatham Islands Territory	*6135*	*26*	*0.14*	*1.10*
Ashburton District	*6453*	*98*	*0.18*	*7.13*
Christchurch City	*6079*	*116*	*0.60*	*7.84*
Hurunui District	*5444*	*61*	*0.22*	*2.59*
Kaikoura District	*7126*	*155*	*0.34*	*4.16*
Mackenzie District	*5113*	*87*	*0.34*	*3.67*
Selwyn District	*5982*	*65*	*0.15*	*1.31*
Timaru District	*6373*	*102*	*0.41*	*4.89*
Waimakariri District	*6072*	*137*	*0.61*	*12.18*
Waimate District	*8560*	*59*	*0.31*	*6.04*
Waitaki District	*6084*	*185*	*0.55*	*7.34*
Canterbury and Chatham Islands Overall	**69418**	**99**	**0.35**	**5.36**

SITE GRADINGS

All sites were assigned gradings in 4 categories: Visual rating, Litter hotshots rating, Risk present and Litter distribution. These were analysed to determine rating percentages and averages from the total sites audited within the region.

Extract from Table 2 - Site Types: Canterbury and Chatham Islands

	Risk Present		Litter Distribution	
Canterbury and Chatham Islands	*Moderate hazard or risk*	*Significant hazard or risk*	*Widespread*	*Clustered*
	96%	*4%*	*98%*	*2%*

Figure 81 - Canterbury/Chatham Islands 2019 Grading - Visual Site Ratings

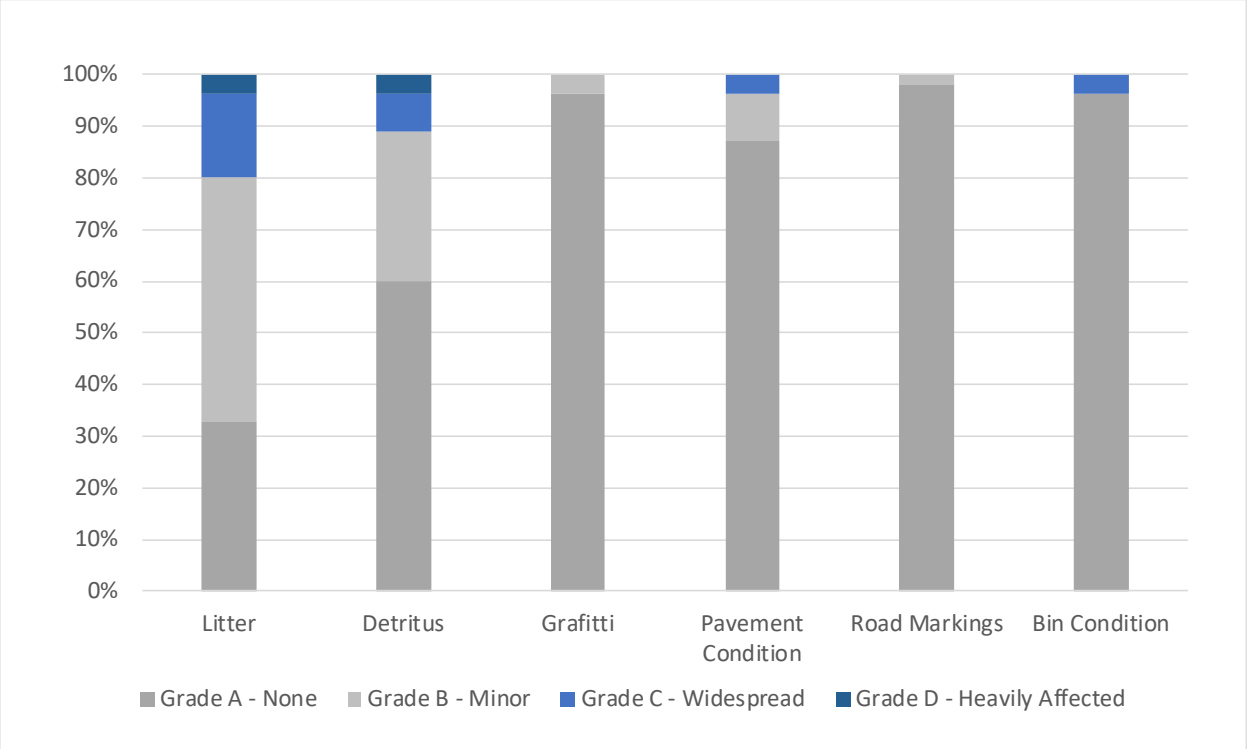
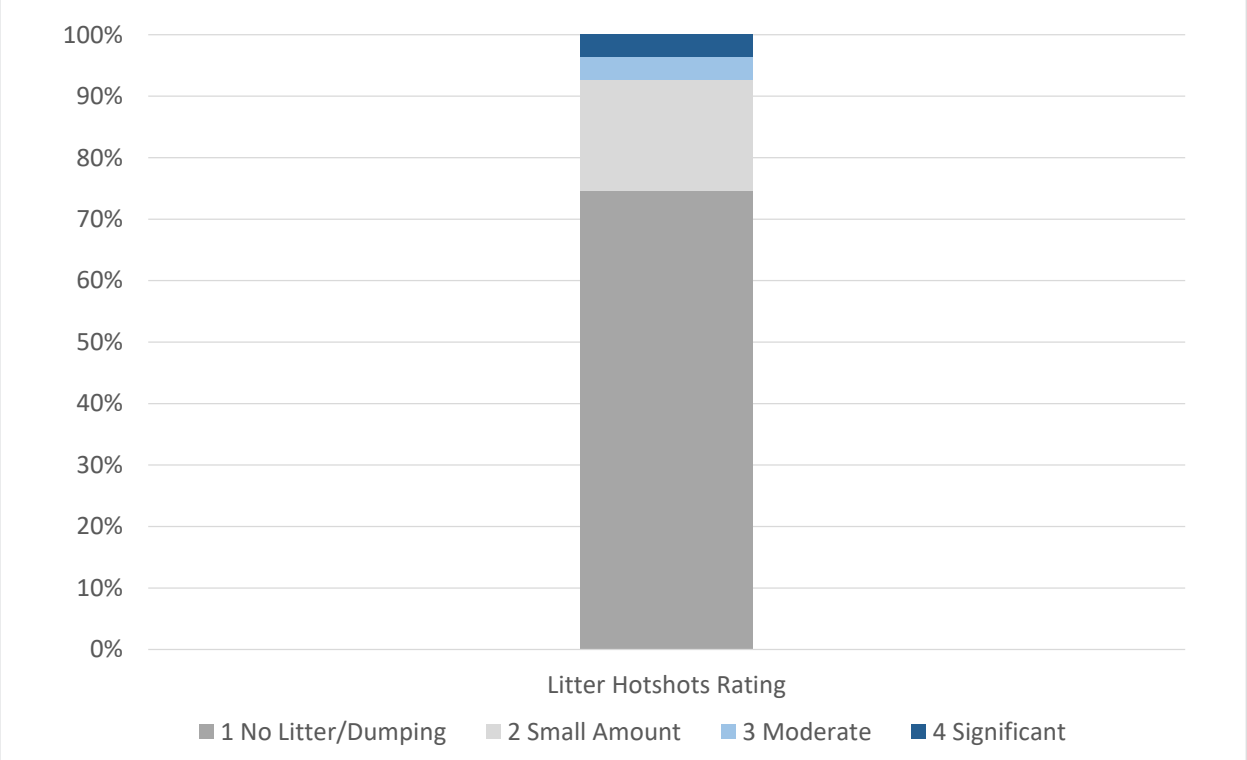


Figure 82 - Canterbury/Chatham Islands 2019 Grading - Site Litter Hotshots Ratings



GISBORNE AND HAWKE'S BAY REGIONS

AT A GLANCE

The overall average number of items per 1,000 m² across the 25 sites surveyed in the Gisborne/Hawke's Bay Region was 85 items, the overall average weight of litter items per 1,000 m² was 0.33 kg, while the overall average estimated volume per 1,000 m² was 3.81 ltr.

Industrial sites were associated with high numbers of litter items and the largest litter volumes and weights per 1,000 m². Retail sites contributed to the highest number of litter items, moderate to large litter volumes and smaller litter weights.

Residential sites were recorded as having moderate to large litter volumes, but low to moderate litter weights and numbers of litter items. Car Park sites were associated with moderate numbers of litter items, litter weights and litter volumes. Public Recreational sites contributed low litter items, small litter weights and small volumes per 1,000 m² to the overall litter stream.

Plastic and Cigarette Butts/Vaping were the most frequently identified items per 1,000 m² within the Gisborne/Hawke's Bay Region. Cigarette Butts/Vaping however were associated with very small litter weights and litter volumes.

The highest litter weights in the region were recorded for Glass items, although this category contributed low to moderate numbers of litter items and small volumes of litter.

Organic Waste contributed the lowest number of items and litter weight per 1,000 m² and were associated with the second lowest litter volume in the region.

Miscellaneous items contributed the largest amount of volume to the litter stream (Disposable nappies represented a high percentage of the volume in this category), however they accounted for a smaller proportion of the number of litter items and litter weight per 1,000 m².

COMPARISONS BY SITE TYPES

The highest numbers of litter items per 1,000 m² at the sites surveyed in the Gisborne/Hawke's Bay Region were recorded at Retail sites (214 items) and Industrial sites (188 items). More moderate numbers of litter items were collected at Car Park sites (72 items), while the lowest numbers of litter items per 1,000 m² were associated with Residential sites (53 items) and Public Recreational sites (8 items).

The estimated volumes per 1,000 m² at Industrial sites (10.11 ltr) was significantly larger than other site types within the region. Moderate to large volumes of litter per 1,000 m² were also recorded at Residential sites (5.89 ltr) and Retail sites (5.36 ltr) while lower volumes were observed at Car Park sites (2.78 ltr) and Public Recreational sites (0.30 ltr).

Industrial sites (1.19 kg) were associated with the largest litter weights per 1,000 m² in the region while more moderate litter weights were recorded for Car Park sites (0.35 kg). Lower weights per 1,000 m² were associated with Residential sites (0.24 kg), Retail sites (0.18 kg) and Public Recreational sites (0.04 kg).

Figure 83 - Gisborne/Hawke's Bay 2019 Items and Volume per 1,000 m² by Site Type

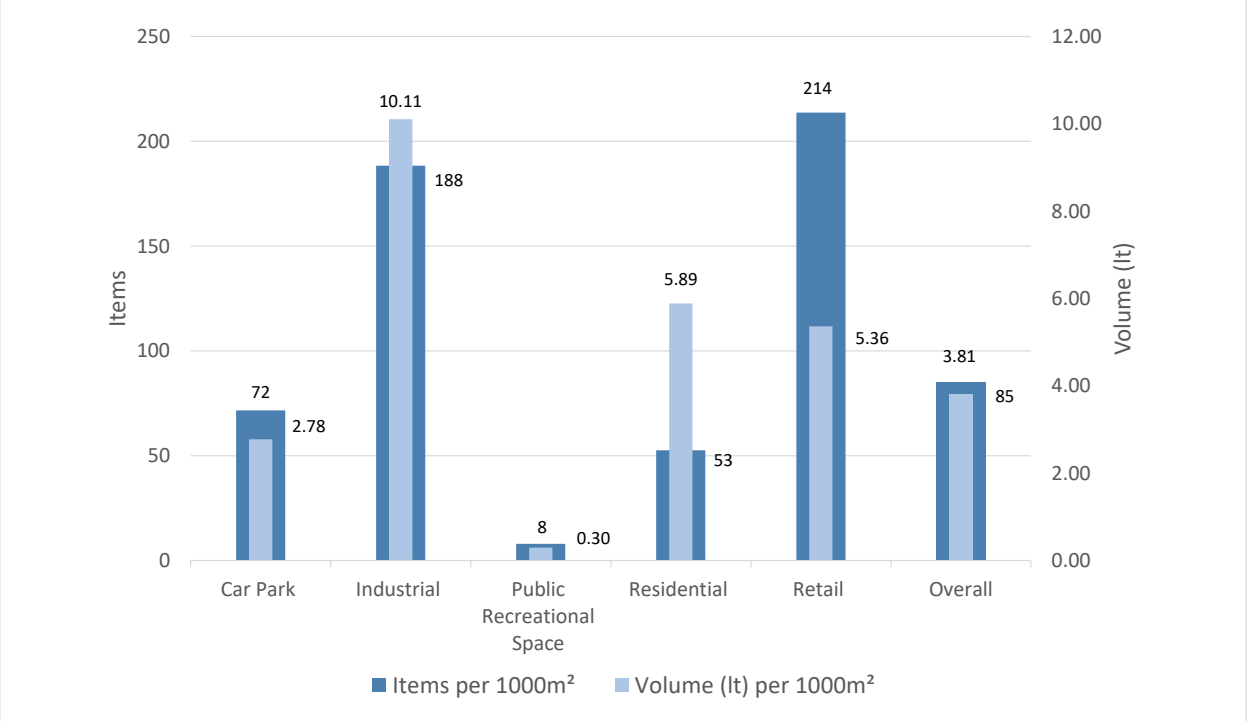
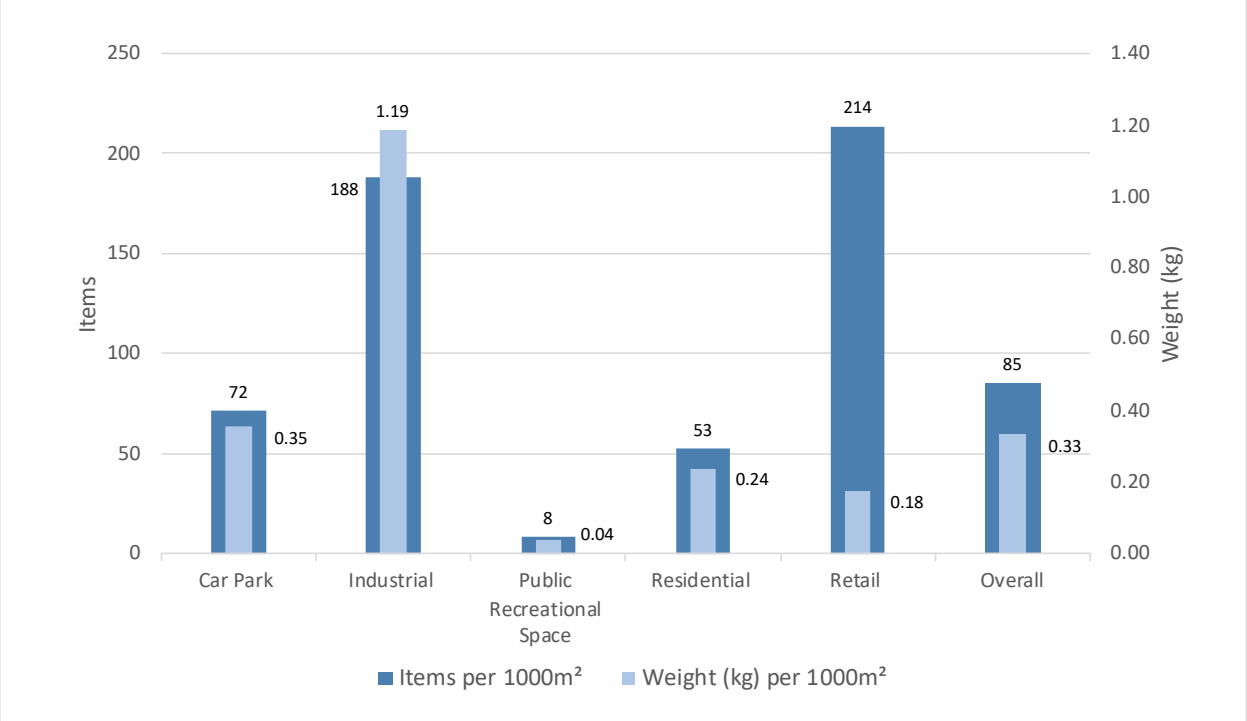


Figure 84 - Gisborne/Hawke's Bay 2019 Items and Weight per 1,000 m² by Site Type

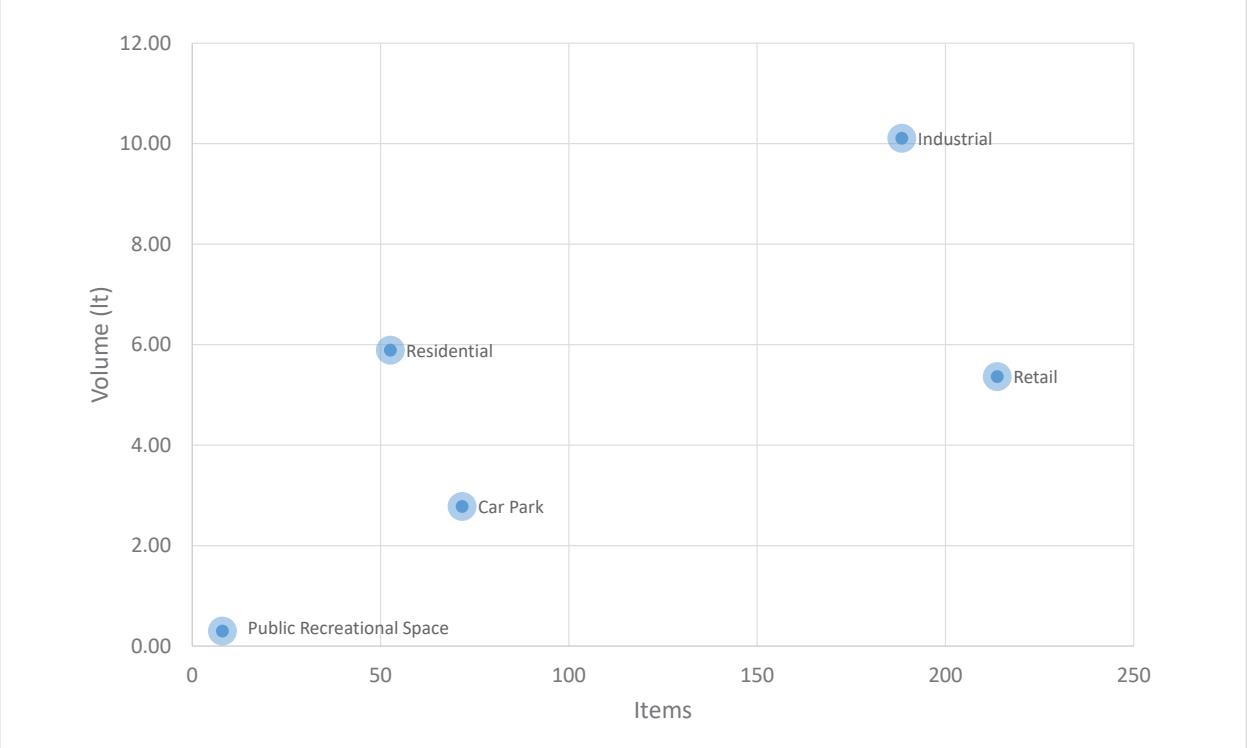


SITE CHARACTERISTICS

The following site characteristics across all site types within the Gisborne/Hawke's Bay Region were identified for items and volume estimates per 1,000 m²:

- Industrial sites contributed high numbers of litter items and large litter volumes
- Retail sites were associated with high numbers of litter items and moderate to large litter volumes
- Car Park sites contributed to moderate numbers of litter items and moderate litter volumes
- Residential sites were associated with moderate to large litter volumes but low to moderate numbers of litter items
- Public Recreational sites were associated with both low litter items and small litter volumes

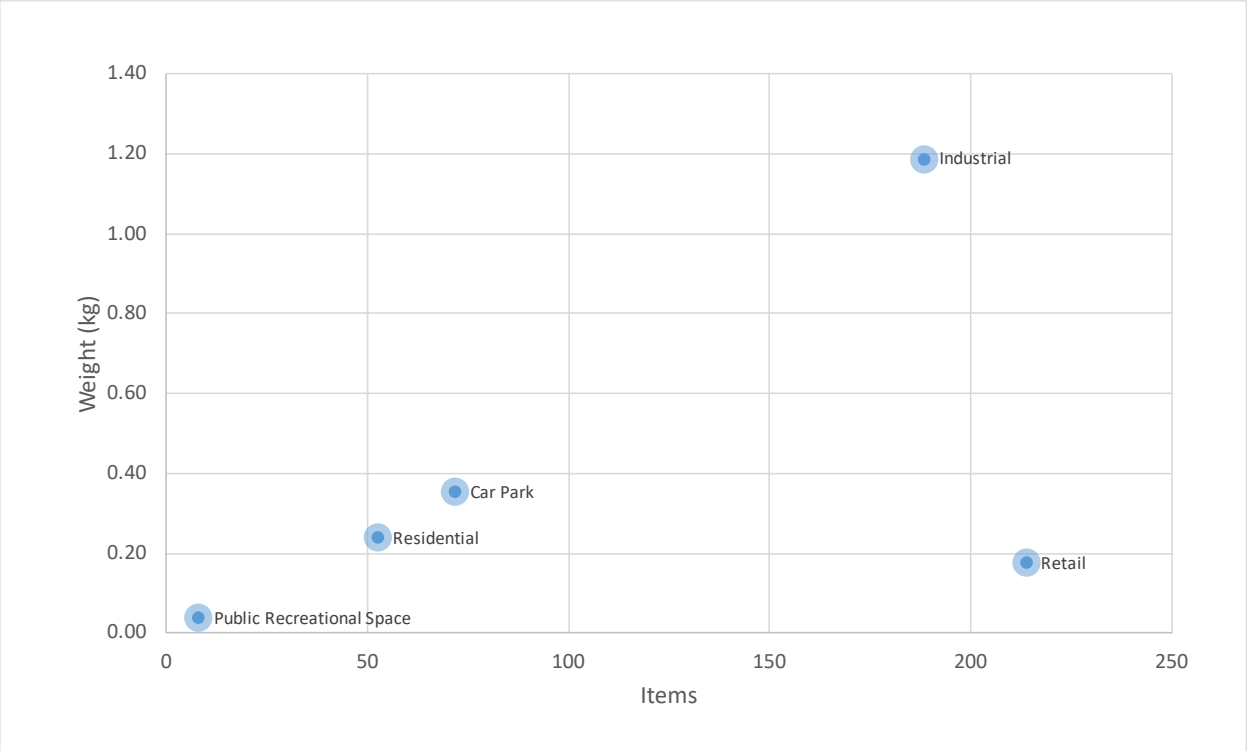
Figure 85 - Gisborne/Hawke's Bay 2019 Items and Volume per 1,000 m² by Site Type



Site characteristics across the Gisborne and Hawke's Bay sites were identified for items and litter weights per 1,000 m² as follows:

- Industrial sites were associated with large litter weights and high numbers of litter items
- Retail sites contributed small litter weights, but were associated with high numbers of litter items
- Car Park sites were associated with both moderate litter weights and moderate numbers of litter items
- Residential sites contributed small to moderate litter weights and low to moderate numbers of litter items
- Public Recreational sites were associated with both small litter weights and low litter volumes

Figure 86 - Gisborne/Hawke's Bay 2019 Items and Weight per 1,000 m² by Site Type



COMPARISON BY MAIN MATERIAL TYPES

Plastic (25 items) and Cigarette Butts/Vaping (24 items) were the most frequently identified items identified per 1,000 m² in the Gisborne/Hawke's Bay Region. Smaller numbers of items were recorded for Paper/Cardboard (12 items), Metal (11 items), Glass (7 items), Miscellaneous (7 items) and Organic Waste (1 item). There were no instances of Illegal Dumping recorded at the sites audited.

Miscellaneous items contributed the largest amount of volume to the litter stream per 1,000 m² (1.10 ltr) and Paper/Cardboard were the second largest contributors of volume (1.04 ltr). Smaller volumes were recorded for Metal (0.77 ltr), Plastic (0.61 ltr), Glass (0.29 ltr), and Organic Waste (0.02 ltr). Cigarette Butts/Vaping items were associated with the smallest proportion of the overall litter volume per 1,000 m² (0.003 ltr).

The largest litter weight per 1,000 m² for the Gisborne/Hawke's Bay Region was associated with Glass (0.12 kg). Plastic (0.08 kg) and Metal (0.07 kg) were the second and third highest contributors to litter weights, while smaller weights per 1,000 m² were recorded for Paper/Cardboard (0.03 kg) and Miscellaneous items (0.02 kg). The smallest litter weights per 1,000 m² were associated with Cigarette Butts/Vaping (0.005 kg) and Organic Waste (0.003 kg). A weight measure was not recorded for any Illegal Dumping objects identified during the Audit.

Figure 87 - Gisborne/Hawke's Bay 2019 Items and Volume per 1,000 m² by Main Material Type

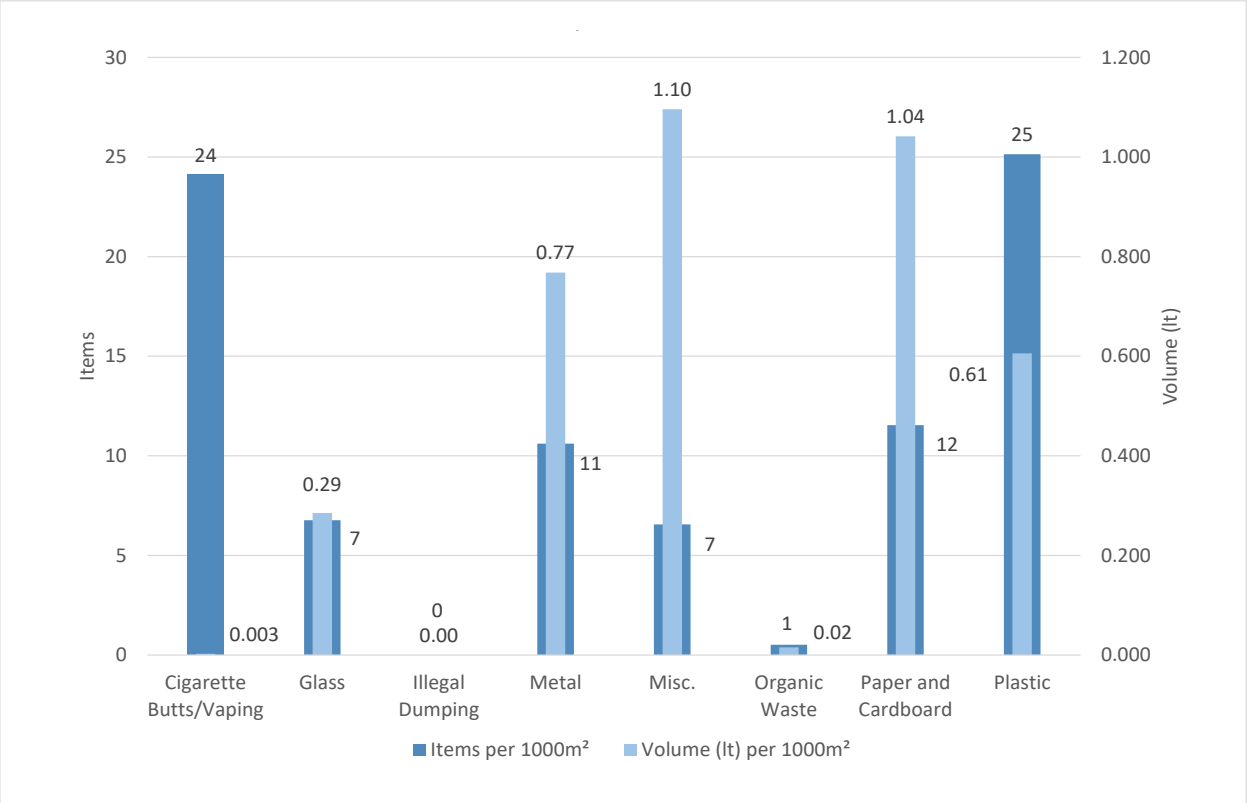
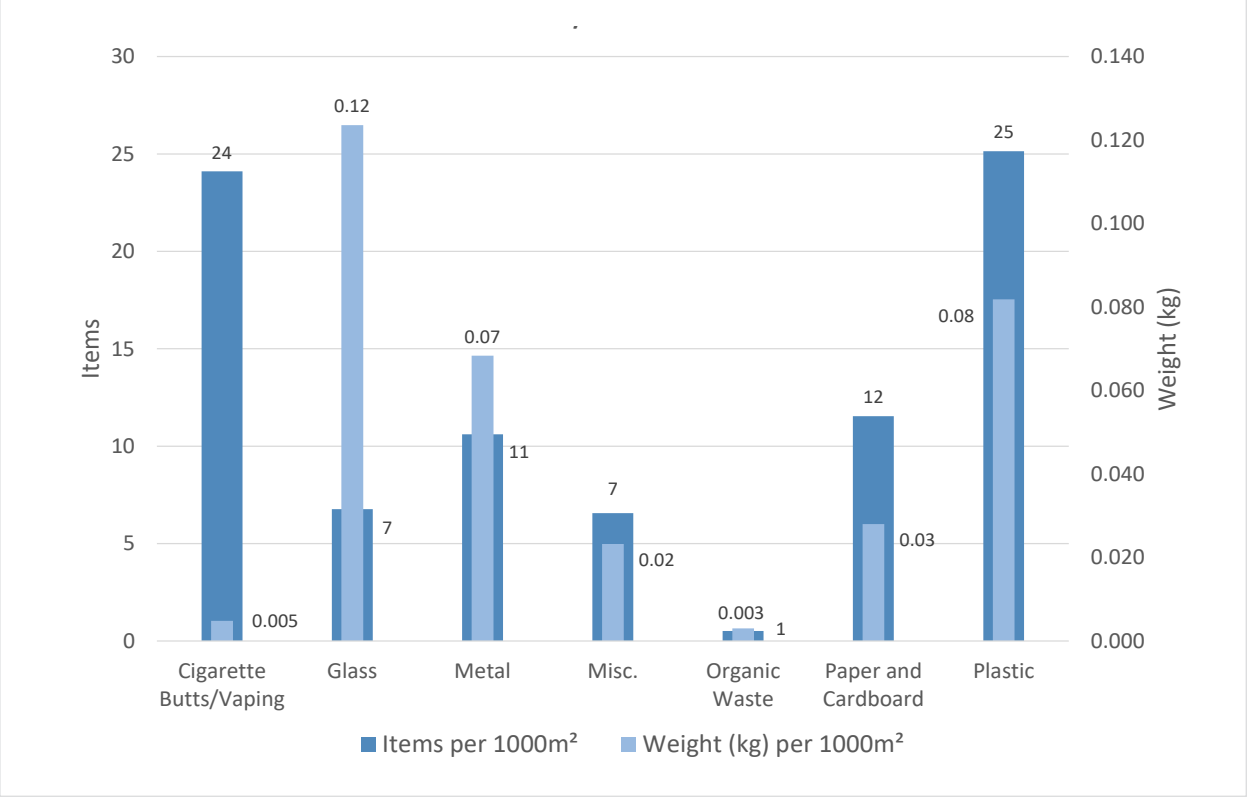


Figure 88 - Gisborne/Hawke's Bay 2019 Items and Weight per 1,000 m² by Main Material Type

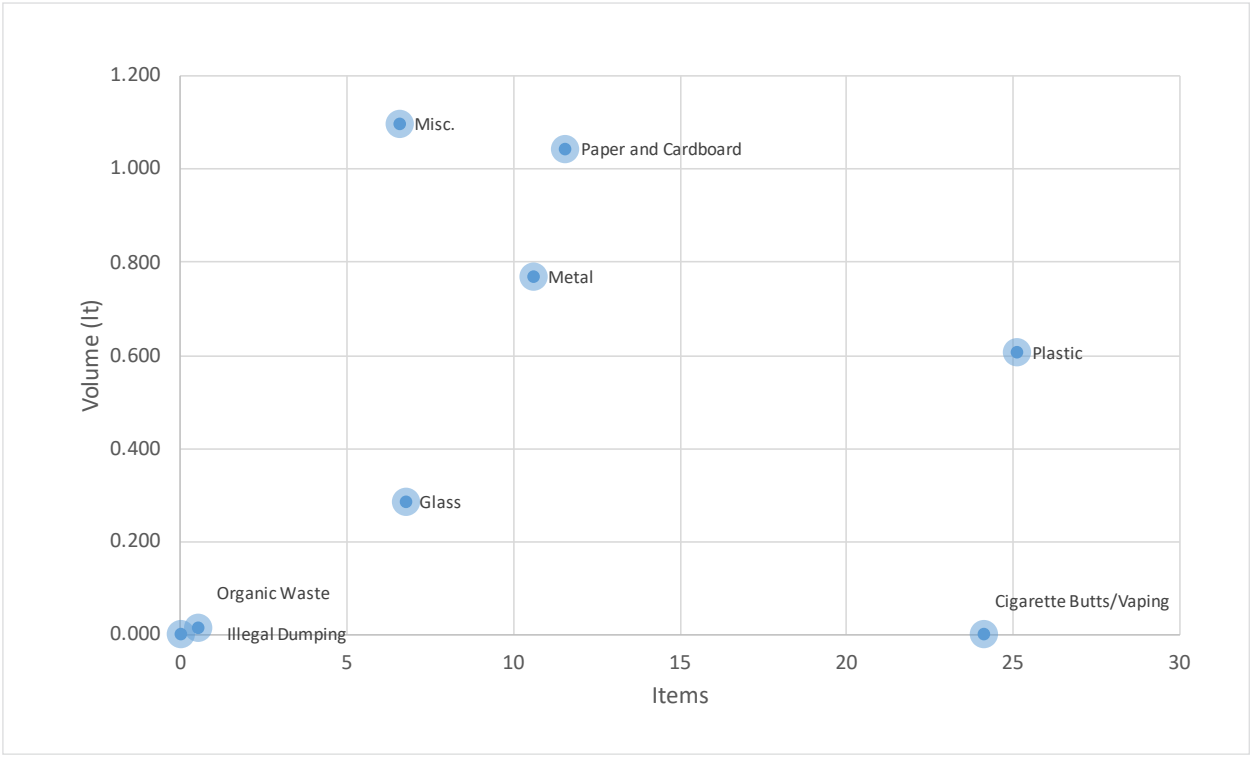


MAIN MATERIAL CHARACTERISTICS

Figures for items and volumes per 1,000 m² across main material types identified the following characteristics of litter objects within the Gisborne/Hawke's Bay Region:

- Miscellaneous items contributed large volumes to the litter stream but were associated with small to moderate numbers of litter items
- Paper/Cardboard was associated with large volumes of litter and moderate numbers of litter items
- Metal contributed moderate to large volumes and moderate numbers of items to the litter stream
- Plastic was associated with high numbers of litter items and moderate litter volumes
- Cigarette Butts/Vaping items were associated with a high number of litter items but contributed only a negligible volume to the litter stream
- Glass items contributed low to moderate numbers of litter items and small volumes of litter
- Organic Waste was associated with small numbers of litter items and contributed only low volumes of litter
- There were no instances of Illegal Dumping recorded at the audited sites

Figure 89 - Gisborne/Hawke's Bay 2019 Items and Volume per 1,000 m² by Main Material Type

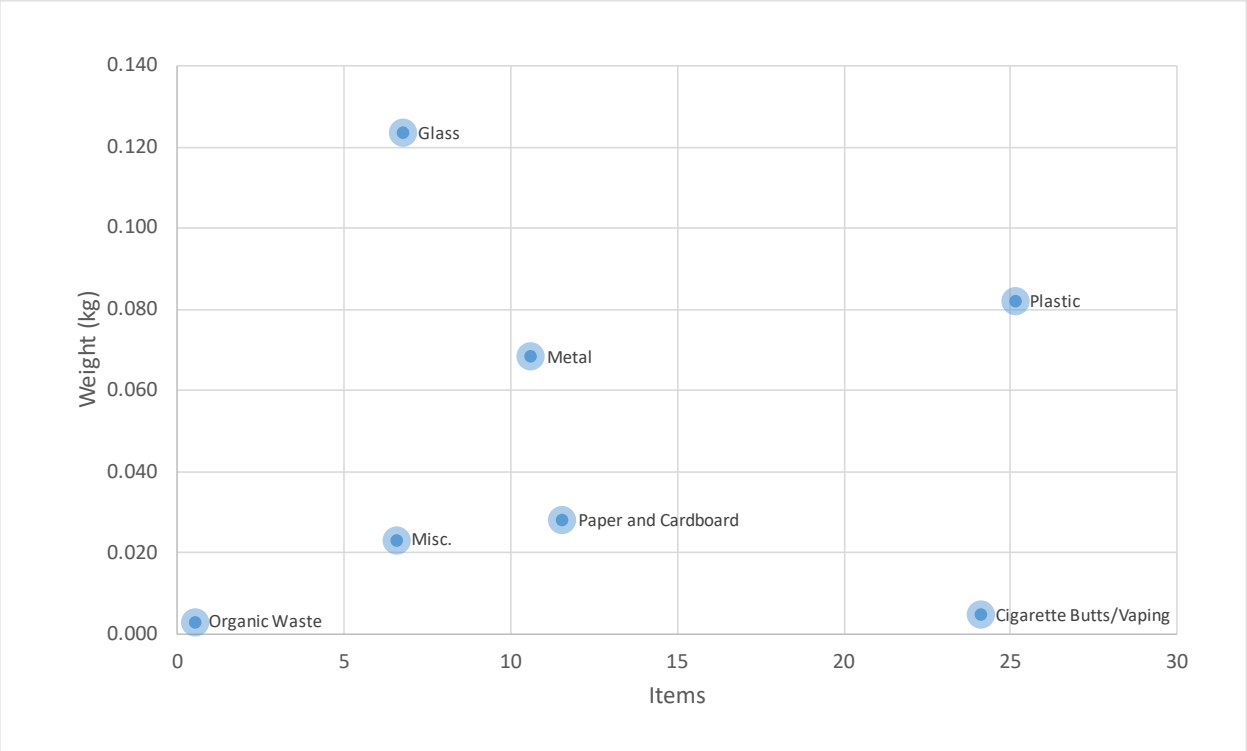


The following characteristics of litter objects per 1,000 m² across main material types were identified for items and weights as follows:

- Glass items contributed the largest litter weights, but were associated with low to moderate numbers of litter items
- Plastic items were associated with moderate to large litter weights and high numbers of litter items
- Cigarette Butts/Vaping contributed small litter weights, but high numbers of litter items to the litter stream
- Metal was associated with both moderate litter weights and moderate numbers of litter items
- Paper/Cardboard contributed small litter weights and moderate numbers of litter items
- Miscellaneous items were associated with small litter weights and low to moderate numbers of litter items
- Organic Waste contributed both small litter weights and low numbers of litter items to the overall litter stream

Note: Illegal Dumping items were not weighed during the Audit

Figure 90 - Gisborne/Hawke's Bay 2019 Items and Weight per 1,000 m² by Main Material Type

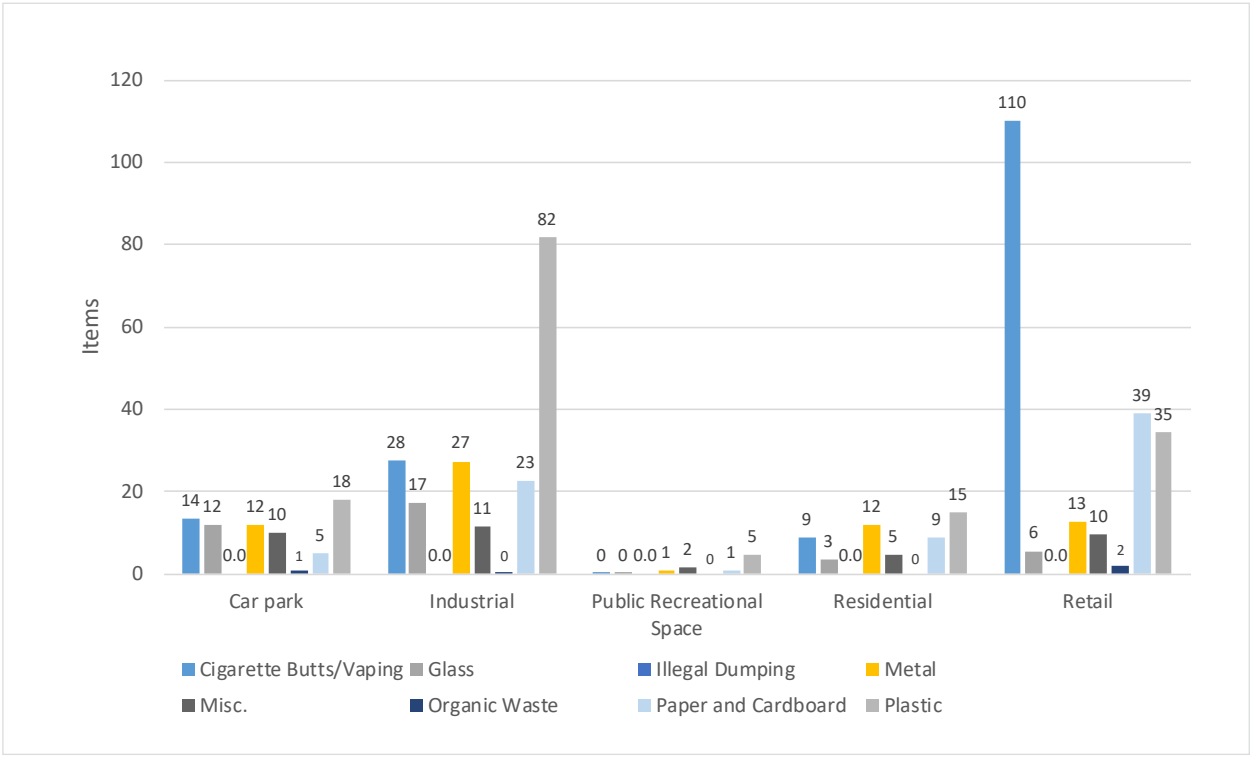


SITE TYPES BY MATERIAL TYPES

In the Gisborne/Hawke's Bay Region, the number of different material type litter items per 1,000 m² by the different site types included:

- Car Park sites: Plastic (18 items), Cigarette Butts/ Vaping (14 items), Glass (12 items), Metal (12 items), Miscellaneous (10 items), Paper/Cardboard (5 items), Organic Waste (1 item) and Illegal Dumping (0 items)
- Industrial sites: Plastic (82 items), Cigarette Butts/ Vaping (28 items), Metal (27 items), PaperCardboard (23 items), Glass (17 items), Miscellaneous (11 items), Organic Waste (0 items) and Illegal Dumping (0 items)
- Public Recreational sites: Plastic (5 items), Miscellaneous (2 items), Metal (1 item), Paper/ Cardboard (1 item), Cigarette Butts/Vaping (0 items), Glass (0 items), Organic Waste (0 items) and Illegal Dumping (0 items)
- Residential sites: Plastic (15 items), Metal (12 items), Cigarette Butts/Vaping (9 items), Paper/Cardboard (9 items), Miscellaneous (5 items), Glass (3 items), Organic Waste (0 items) and Illegal Dumping (0 items)
- Retail sites: Cigarette Butts/Vaping (110 items), Paper/Cardboard (39 items), Plastic (35 items), Metal (13 items), Miscellaneous (10 items), Glass (6 items), Organic Waste (2 items), Illegal Dumping (0 items)

Figure 91 - Gisborne/Hawke's Bay 2019 Sites by Main Material Types - Items per 1,000 m²



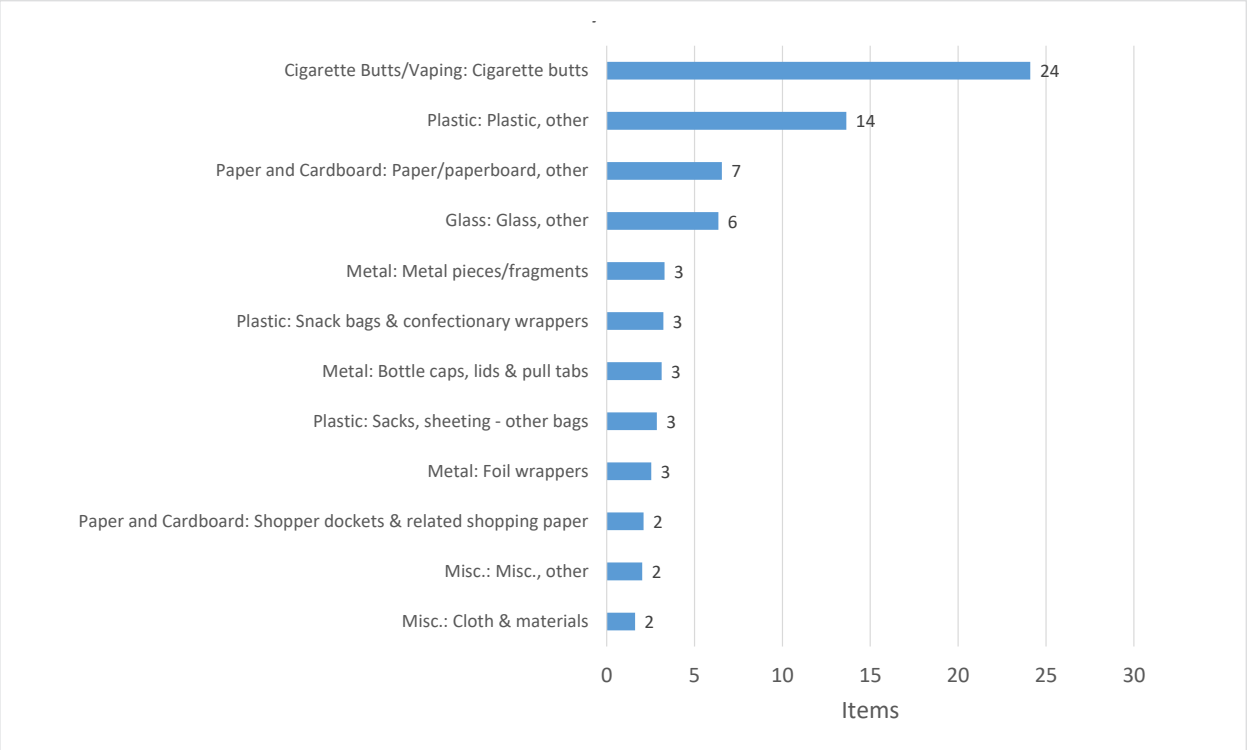
THE DIRTY DOZEN

Analysis according to object sub-type categories showed that on average, Cigarette butts were the most frequently identified litter item with 24 butts recorded per 1,000 m².

Other objects frequently identified included:

- Uncategorised Plastic objects (14 items per 1,000 m²)
- Uncategorised Paper/paperboard objects (7 items per 1,000 m²)
- Uncategorised Glass objects (6 items per 1,000 m²)

Figure 92 - Gisborne/Hawke's Bay 2019 Dirty Dozen - Items per 1,000 m² - Object Sub Categories

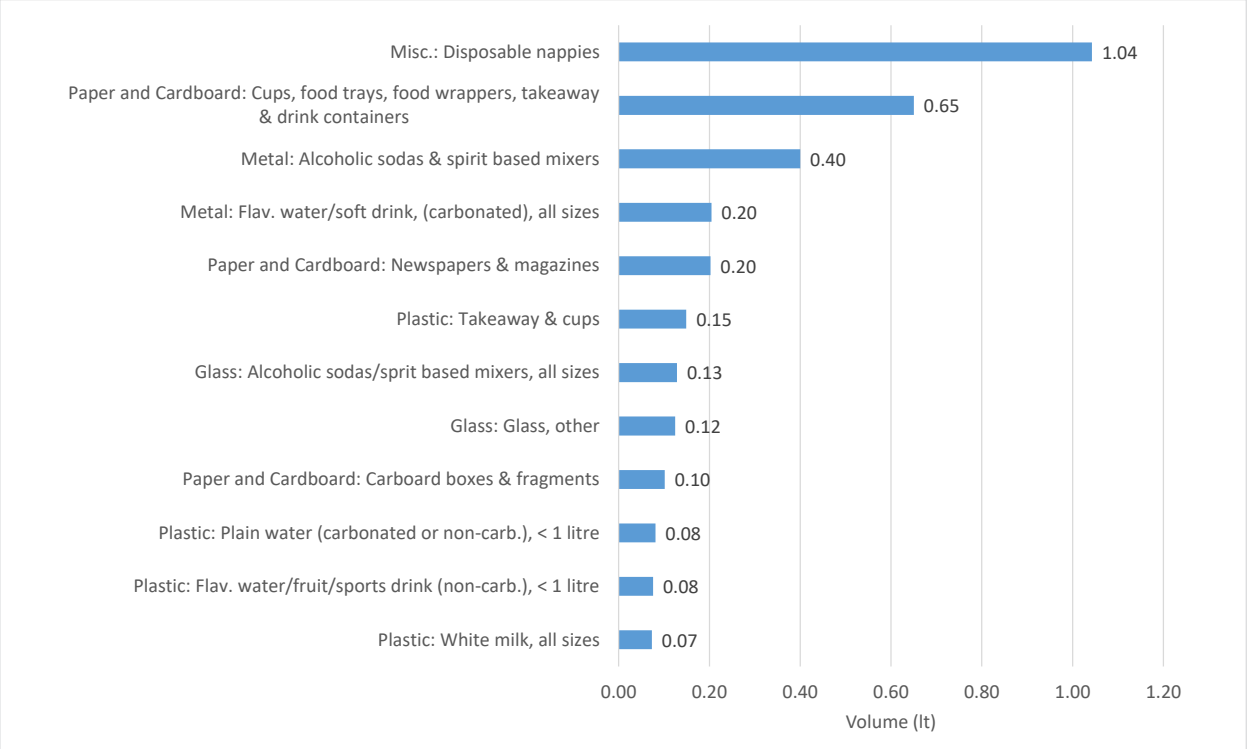


The largest contributor to the volume of the litter stream in Gisborne/Hawke's Bay was Disposable nappies, with an estimated litter volume of 1.04 ltr per 1,000 m².

Other object sub-categories which were associated with large litter volumes per 1,000 m² were:

- Paper/Cardboard: Cups, food trays, food wrappers, takeaway & drink containers (0.65 ltr per 1,000 m²)
- Metal: Alcoholic sodas & spirit-based mixers (0.40 ltr per 1,000 m²)
- Metal: Flavoured water/soft drink, (carbonated), all sizes (0.20 ltr per 1,000 m²)
- Paper/Cardboard: Newspapers & magazines (0.20 ltr per 1,000 m²)

Figure 93 - Gisborne/Hawke's Bay 2019 Dirty Dozen - Volume per 1,000 m² - Object Sub Categories

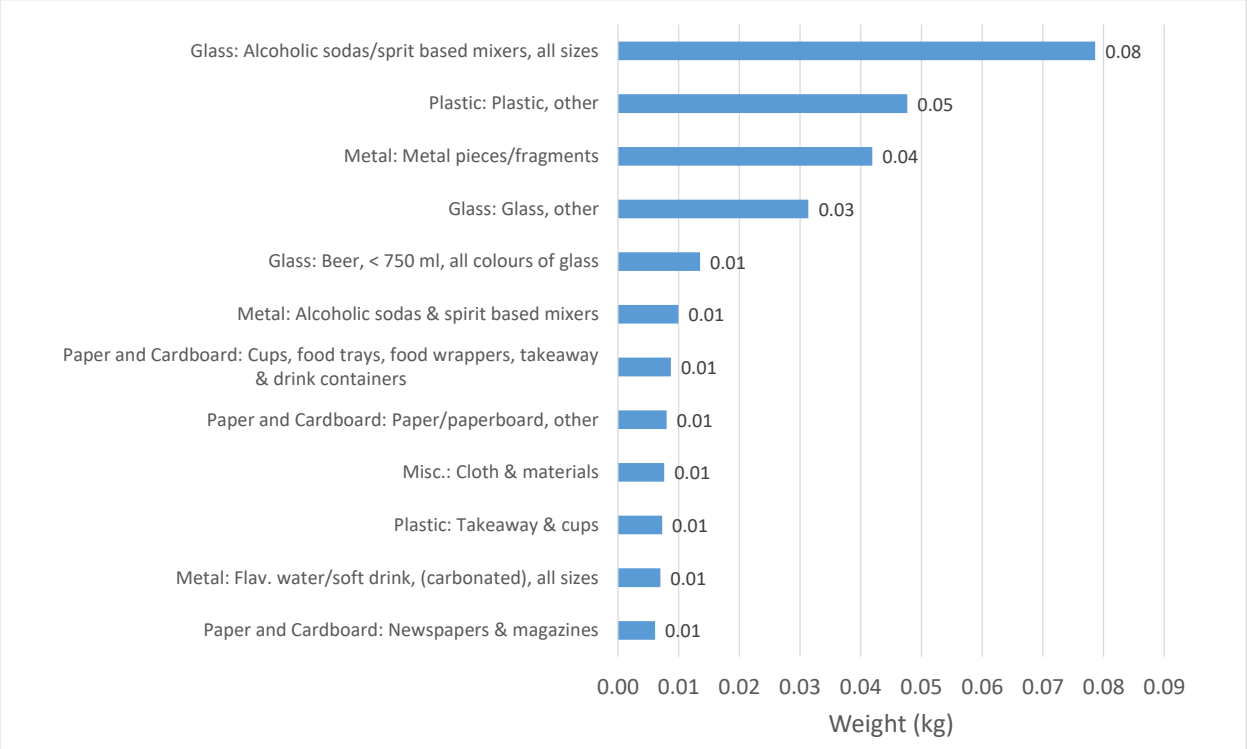


From an analysis of the object sub-categories, the largest contributor to the weight of the overall regional litter stream was associated with Glass: Alcoholic sodas/spirit based mixers (all sizes), recording an average weight of 0.08 kg per 1,000 m². Weights were not measured for Illegal Dumping objects and therefore are not included in the weight analysis.

Other object sub-categories which were associated with higher litter weights included:

- Uncategorised Plastic items (0.05 kg per 1,000 m²)
- Metal pieces/fragments (0.04 kg per 1,000 m²)
- Uncategorised Glass (0.03 kg per 1,000 m²)

Figure 94 - Gisborne/Hawke's Bay 2019 Dirty Dozen - Weight per 1,000 m² - Object Sub Categories



TERRITORY SUMMARIES

Gisborne Region is a Unitary Authority and due to its size and population, was included with Hawke's Bay for the purposes of the litter Audit. There are 5 territorial authorities within the Gisborne and Hawke's Bay Regions:

- Gisborne Region (A territorial authority which also performs the functions of a regional council)
- Central Hawke's Bay District
- Hastings District
- Napier City
- Wairoa District

A total of 25 sites (from Industrial, Retail, Residential, Car Park and Public Recreational sites) were audited in the Gisborne and Hawke's Bay Regions with a minimum of 5 sites audited from each territory.

The results are summarised in the following table:

Extract from Table 3 – Territory Data: Gisborne and Hawke's Bay Regions

Territory	Total Area Surveyed (m^2)	Items per 1,000 m^2	Weight (kg) per 1,000 m^2	Volume (lt) per 1,000 m^2
GISBORNE AND HAWKE'S BAY REGION				
Gisborne Region	5785	122	0.23	4.03
Central Hawke's Bay District	5660	135	0.66	4.86
Hastings District	6137	64	0.17	4.18
Napier City	5892	49	0.23	2.28
Wairoa District	5648	59	0.39	3.76
Gisborne and Hawke's Bay Regions Overall	**29121**	**85**	**0.33**	**3.81**

SITE GRADINGS

All sites were assigned gradings in 4 categories: Visual rating, Litter hotshots rating, Risk present and Litter distribution. These were analysed to determine rating percentages and averages from the total sites audited within the region.

Extract from Table 2 - Site Types: Gisborne and Hawke's Bay

	Risk Present		Litter Distribution	
Gisborne and Hawke's Bay	Moderate hazard or risk	Significant hazard or risk	Widespread	Clustered
	100%	0%	100%	0%

Figure 95 - Gisborne/Hawke's Bay 2019 Grading - Visual Site Ratings

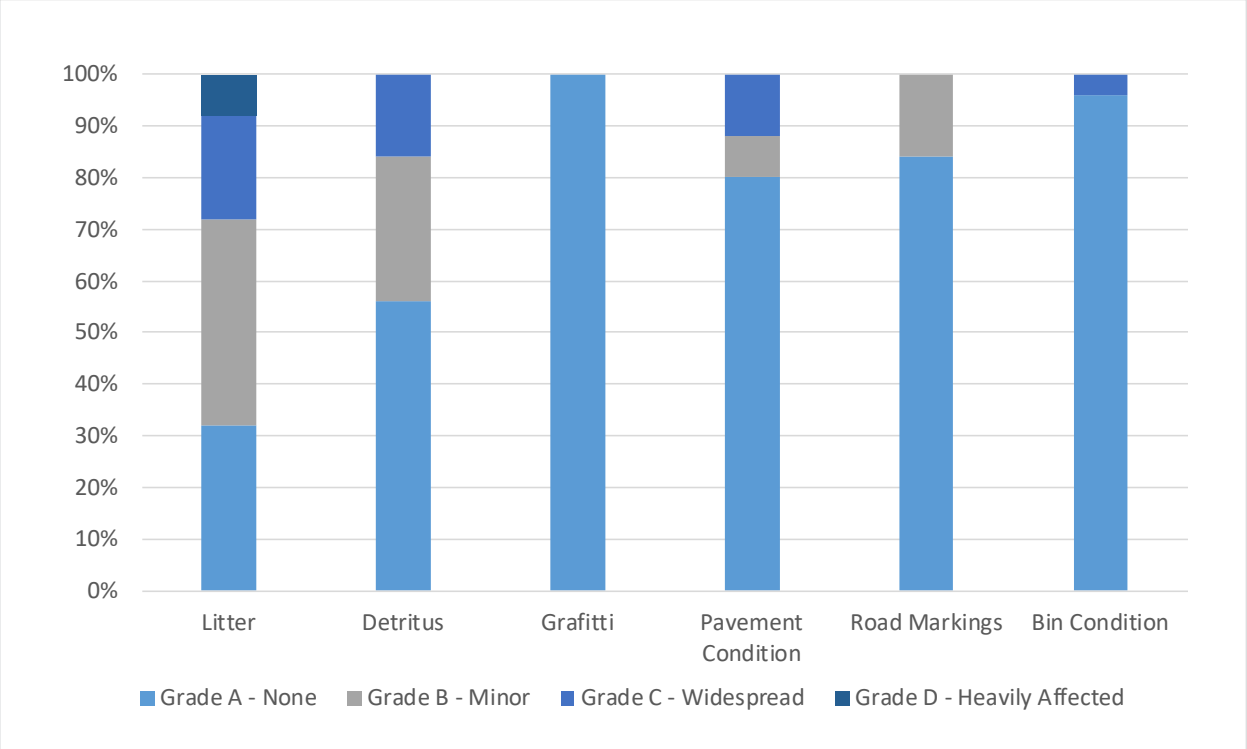
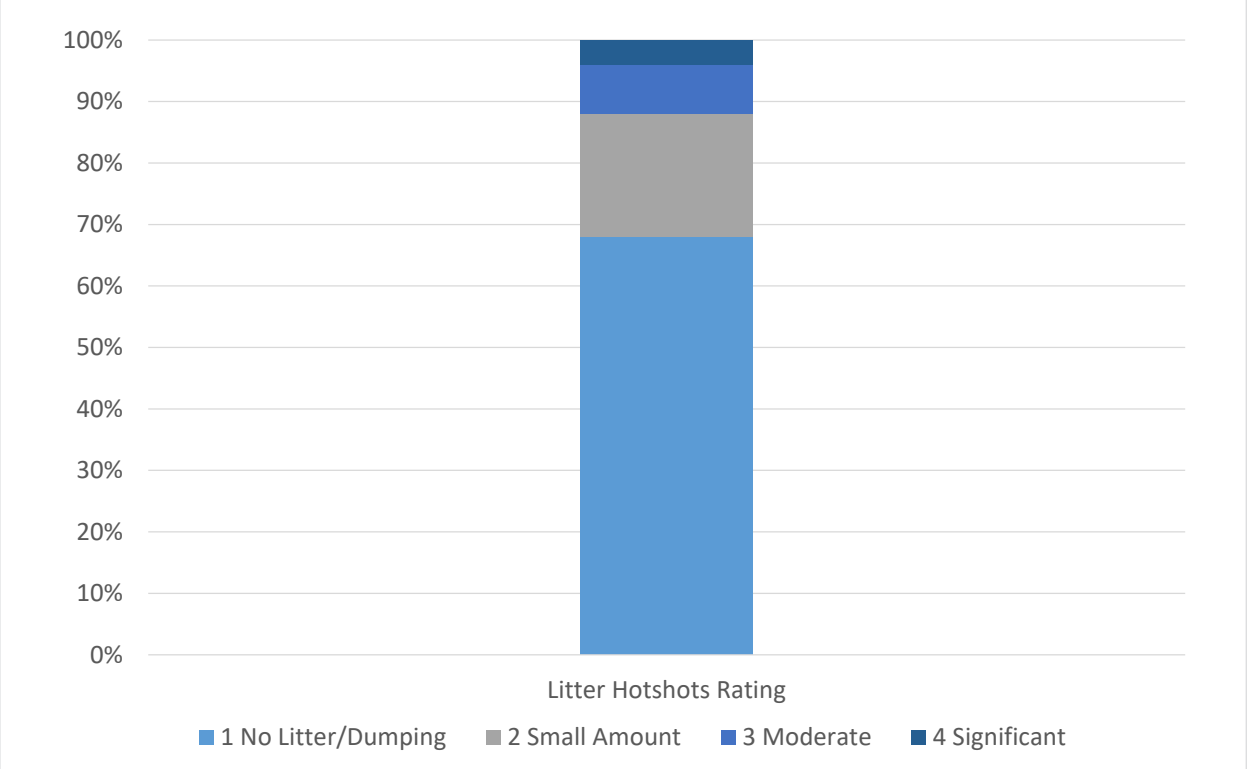
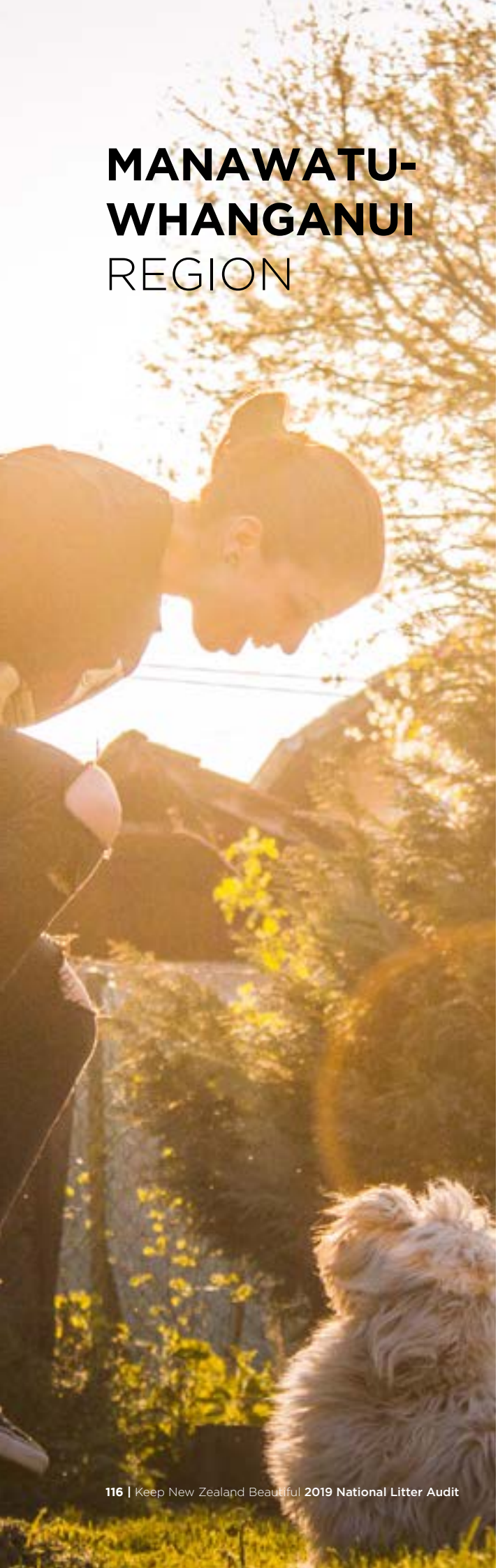


Figure 96 - Gisborne/Hawke's Bay 2019 Grading - Site Litter Hotshots Ratings





MANAWATU-WHANGANUI REGION

AT A GLANCE

The overall average number of items per 1,000 m² across the 35 sites surveyed in the Manawatu-Whanganui Region was 95 items, the overall average weight of litter items was 0.28 kg, while the overall average estimated volume per 1,000 m² was 5.83 ltr.

Within the Manawatu-Whanganui Region, Industrial sites were associated with highest numbers of litter items, litter weights and litter volumes. Retail sites were also recorded as having high numbers of litter items but more moderate litter weights and volumes. Car Parks were associated with moderate numbers of litter items, moderate litter weights and large litter volumes while Residential sites were recorded as having lower numbers of litter items and moderate litter weights and volumes. Public Recreational sites contributed to low numbers of litter items, small litter weights and low litter volumes per 1,000 m².

Cigarette Butts/Vaping were the most frequently identified item per 1,000 m² in the Manawatu-Whanganui Region but contributed the smallest weights and volumes of litter to the regional litter stream.

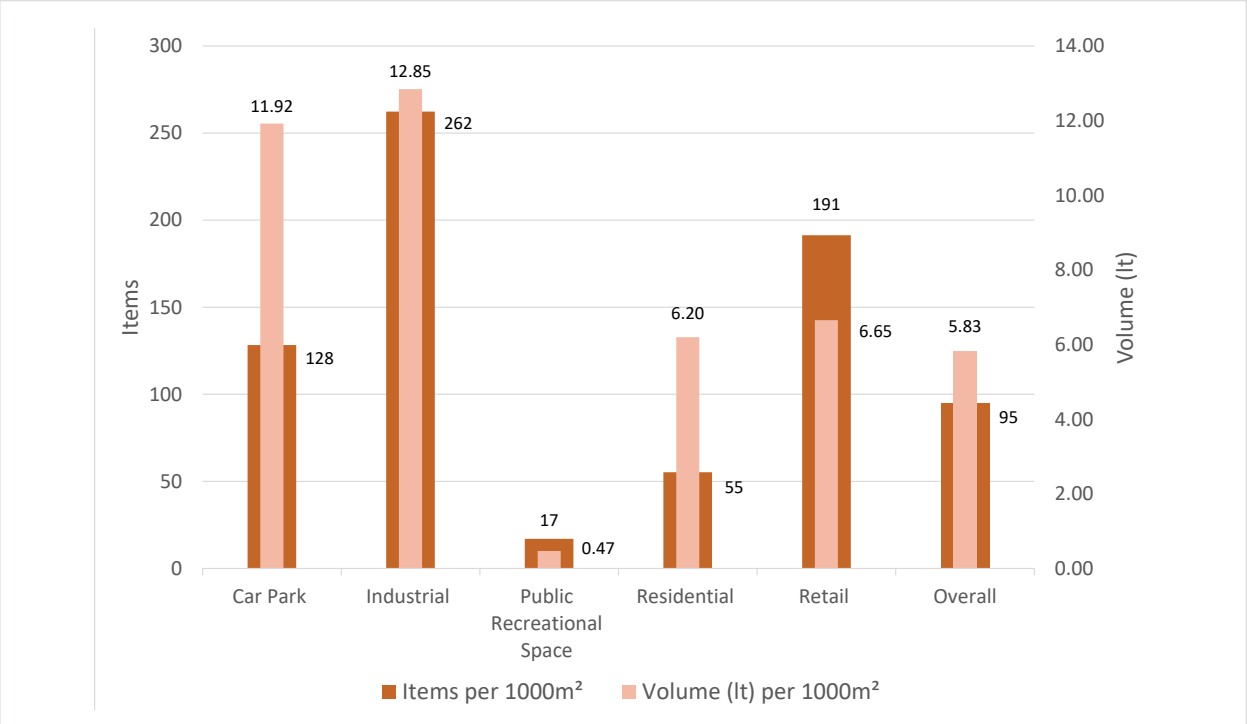
Miscellaneous items contributed the largest volumes of litter (Disposable nappies represented a high percentage of the volume in this category), and third largest litter weights in the region, however were associated with the second lowest numbers of items collected per 1,000 m². Plastics and Glass were associated with the largest litter weights in the region and were significant contributors to both the overall number of items identified and overall volume collected in the region.

COMPARISONS BY SITE TYPES

The highest numbers of litter items per 1,000 m² at the sites surveyed in the Manawatu-Whanganui Region were recorded at Industrial sites (262 items) and Retail sites (191 items). Moderate numbers of litter items were found at Car Park sites (128 items) while lower numbers of litter items per 1,000 m² were collected at Residential sites (55 items) and Public Recreational sites (17 items).

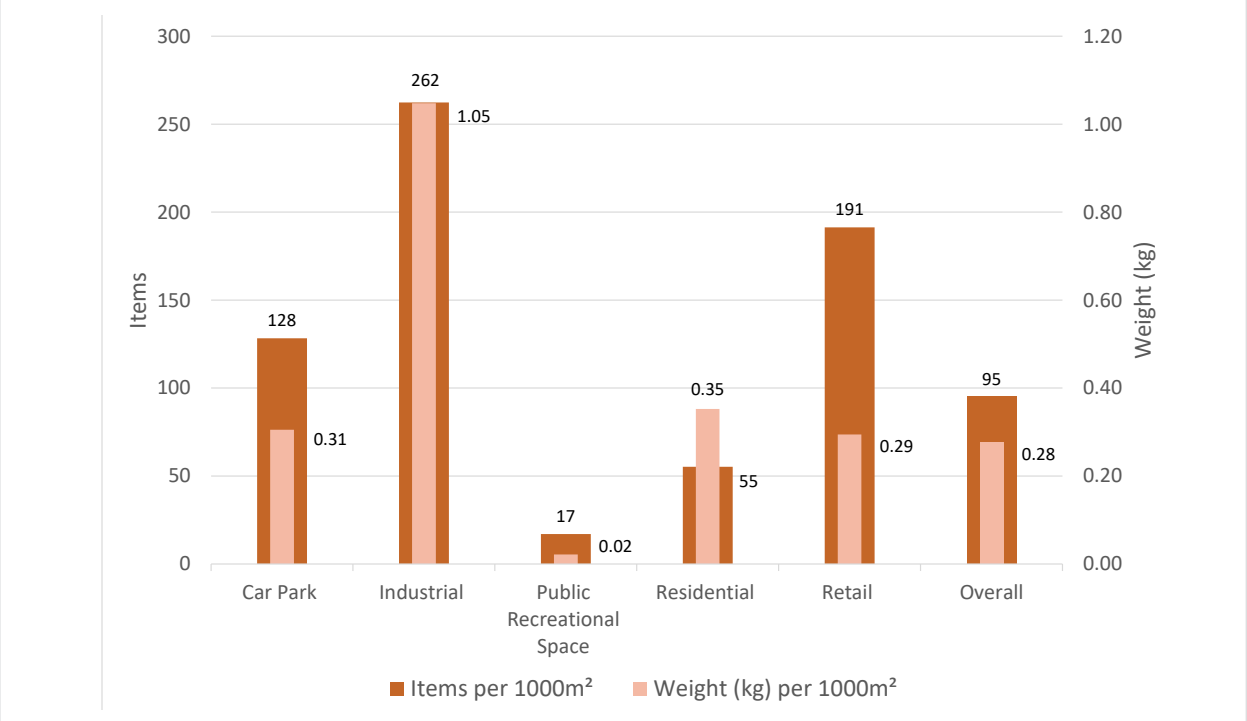
The estimated volumes per 1,000 m² of the litter objects at Industrial sites (12.85 ltr) and Car Park sites (11.92 ltr) were higher than any other site type within the region. More moderate volumes of litter were recorded at Retail sites (6.65 ltr) and Residential sites (6.20 ltr) while small volumes of litter were recorded at Public Recreational sites (0.47 ltr).

Figure 97 - Manawatu/Whanganui 2019 Items and Volume per 1,000 m² by Site Type



Large litter weights per 1,000 m² were associated with Industrial sites (1.05 kg) while more moderate litter weights were recorded at Residential sites (0.35 kg), Car Park sites (0.31 kg) and Retail sites (0.29 kg). The smallest litter weights per 1,000 m² in the region were associated with Public Recreational sites (0.02 kg).

Figure 98 - Manawatu/Whanganui 2019 Items and Weight per 1,000 m² by Site Type

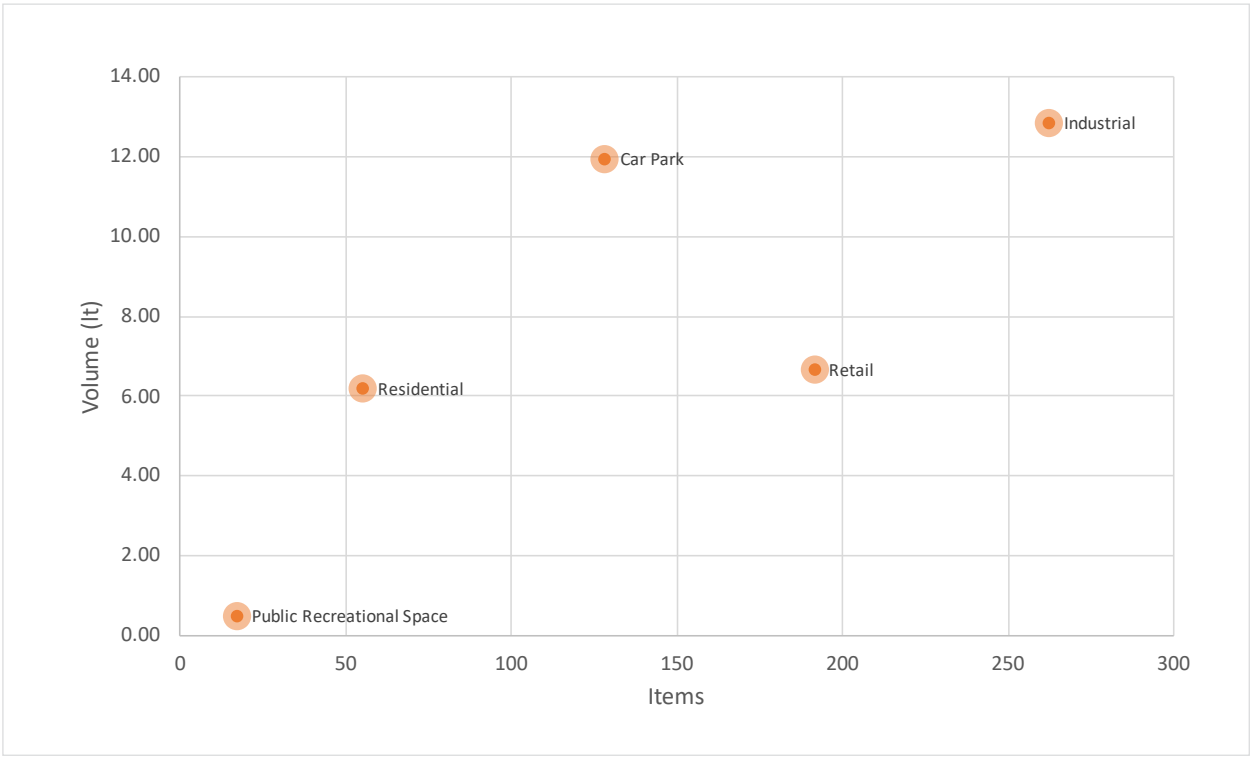


SITE CHARACTERISTICS

The following site characteristics across all site types within the Manawatu-Whanganui Region were identified for items and volume estimates per 1,000 m²:

- Industrial sites were associated with high numbers of litter items and large litter volumes
- Retail sites contributed to high numbers of litter items and moderate litter volumes
- Car Parks were associated with moderate numbers of litter items and large litter volumes
- Residential sites were recorded as having low to moderate numbers of litter items and moderate litter volumes
- Public Recreational sites were associated with both low numbers of litter items and small volumes of litter

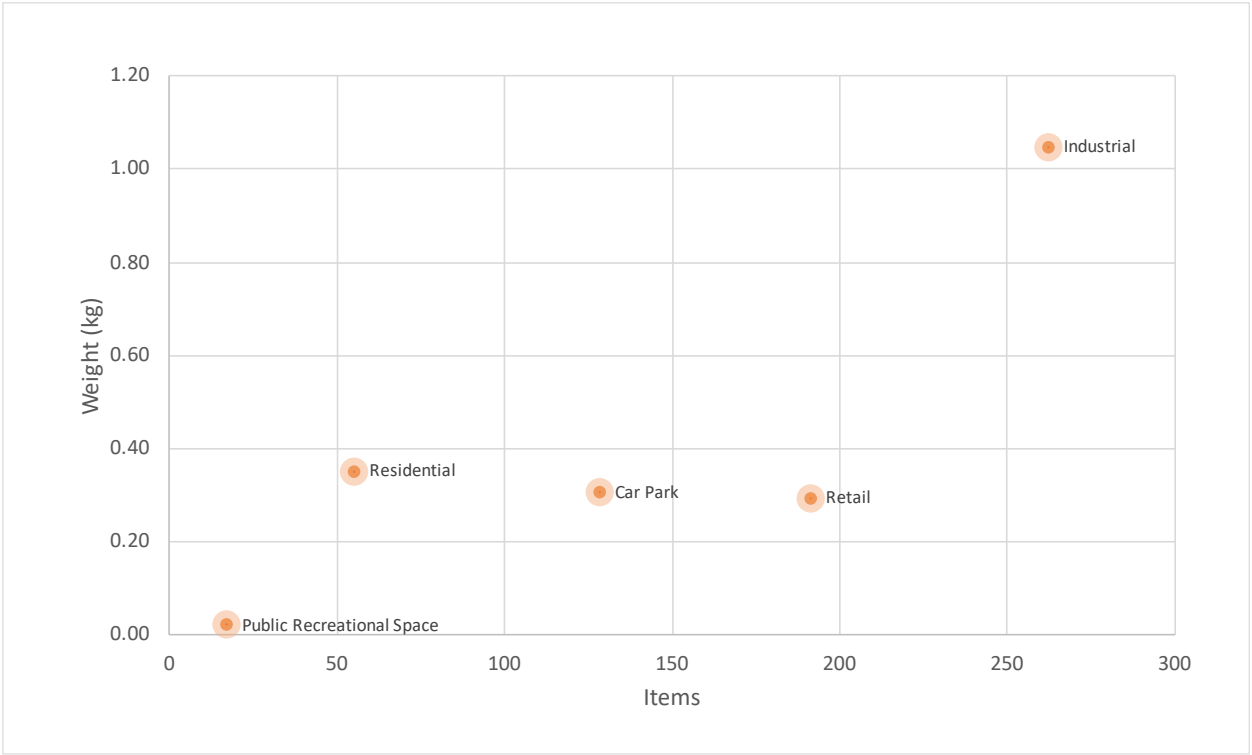
Figure 99 - Manawatu/Whanganui 2019 Items and Volume per 1,000 m² by Site Type



Items and weight characteristics per 1,000 m² across the site types within the Manawatu-Whanganui Region were identified as follows:

- Industrial sites were associated with large litter weights and high numbers of litter items
- Retail sites contributed moderate litter weights and high numbers of litter items
- Car Park sites were associated with moderate litter weights and moderate numbers of litter items
- Residential sites contributed moderate litter weights and low to moderate numbers of litter items
- Public Recreational sites were associated with both small litter weights and low numbers of litter items

Figure 100 - Manawatu/Whanganui 2019 Items and Weight per 1,000 m² by Site Type



COMPARISON BY MAIN MATERIAL TYPES

Cigarette Butts/Vaping items were the most frequently identified objects per 1,000 m² within the Manawatu-Whanganui Region (36 items) while Plastics were recorded as having the second highest number of litter items collected (25 items).

Smaller numbers of items were recorded for Paper/Cardboard (12 items), Glass (11 items), Metal (8 items), Miscellaneous (6 items) and Organic Waste (less than 1 item per 1,000 m²). There was no Illegal Dumping identified at the audited sites.

Miscellaneous items contributed the largest amount of volume per 1,000 m² to the litter stream (1.69 ltr) while Plastic (1.66 ltr) and Paper/Cardboard (1.36 ltr) were also strong contributors to the overall volume of litter collected within the region. Smaller volumes were recorded for Glass (0.65 ltr), Metal (0.45 ltr), and Organic Waste (0.01 ltr). Cigarette Butts/Vaping items were associated with the smallest proportion of the overall litter volume (0.004 ltr per 1,000 m²).

The largest litter weights per 1,000 m² in the Manawatu-Whanganui Region were associated with Glass (0.08 kg) and Plastic (0.07 kg). Moderate litter weights were recorded for Miscellaneous items (0.05 kg), Metal (0.04 kg), Paper/Cardboard (0.03 kg). Organic Waste (0.01 kg) and Cigarette Butts/Vaping (0.006 kg) contributed the smallest litter weights to the overall litter stream. A weight measure was not recorded for any Illegal Dumping objects identified during the Audit.

Figure 101 - Manawatu/Whanganui 2019 Items and Volume per 1,000 m² by Main Material Type

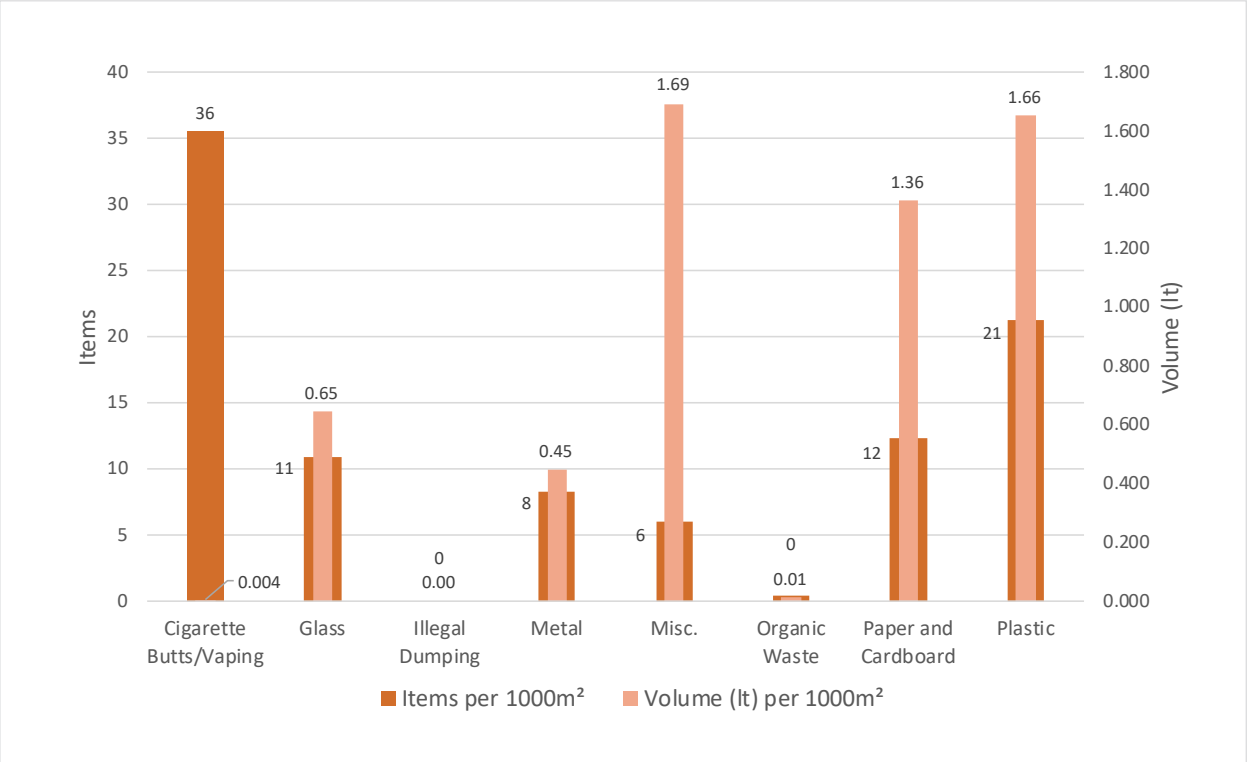
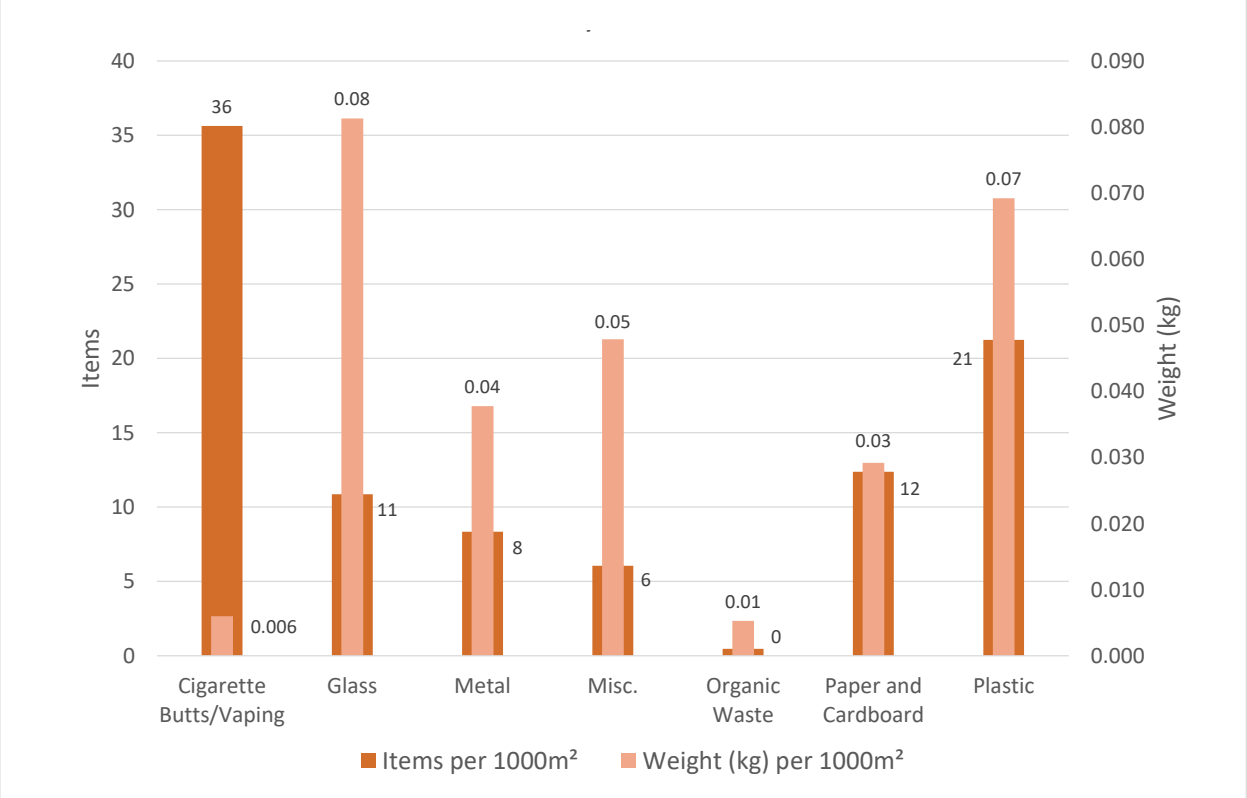


Figure 102 - Manawatu/Whanganui 2019 Items and Weight per 1,000 m² by Main Material Type

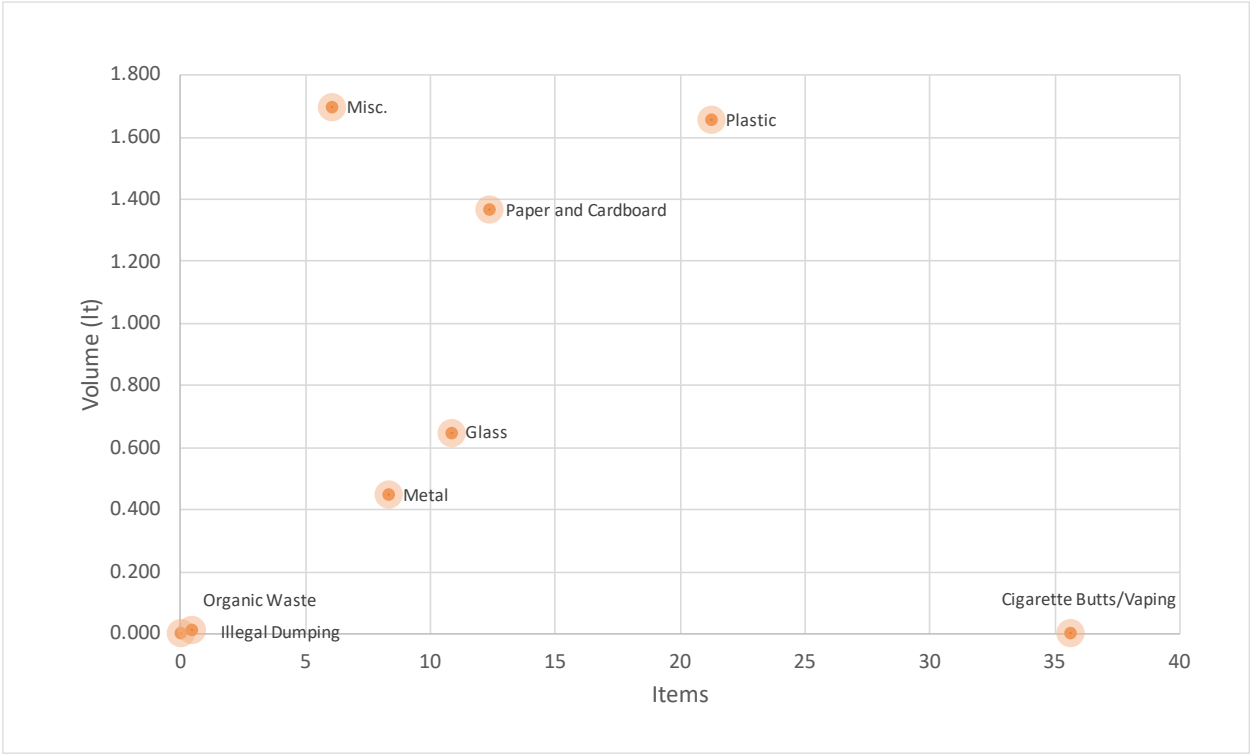


MAIN MATERIAL CHARACTERISTICS

Figures for items and volumes per 1,000 m² across main material types identified the following characteristics of litter objects within the Manawatu-Whanganui Region:

- Miscellaneous items contributed large volumes to the litter stream but were associated with small numbers of litter items
- Cigarette Butts/Vaping were associated with a high number of litter items but contributed only a negligible volume to the litter stream
- Paper/Cardboard was associated with large volumes of litter and moderate numbers of litter items
- Plastic was associated with large litter volumes and moderate to high numbers of litter items
- Metal and Glass contributed low to moderate numbers of litter items and small to moderate volumes of litter
- Organic Waste was associated with small numbers of litter items and contributed only low volumes of litter
- There were no instances of Illegal Dumping recorded at the audited sites

Figure 103 - Manawatu/Whanganui 2019 Items and Volume per 1,000 m² by Main Material Type

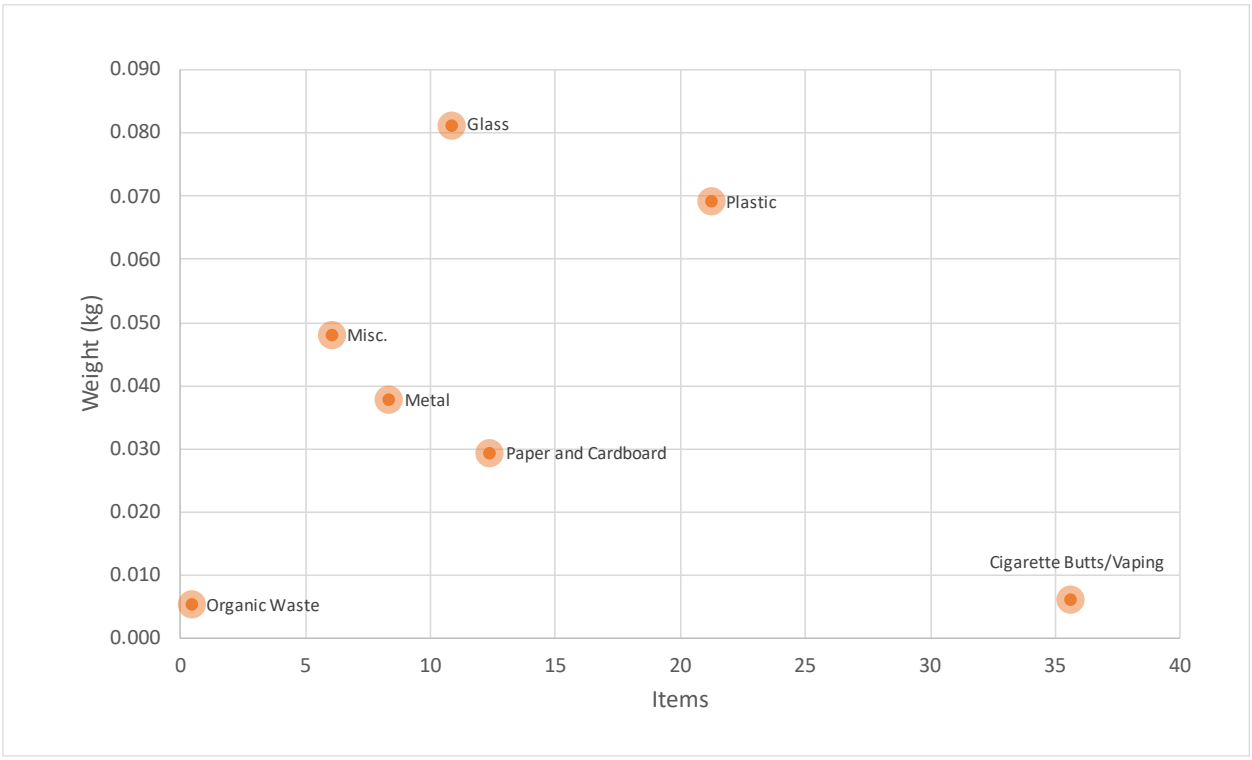


When analysing items and weights per 1,000 m² across main material types, the following characteristics of litter objects were observed:

- Glass items were associated with large litter weights, however they contributed low to moderate numbers of litter items
- Plastic contributed large litter weights and moderate to high numbers of items to the overall litter stream
- Cigarette Butts/Vaping items were associated with small litter weights, but contributed high numbers of litter items
- Paper/Cardboard, Miscellaneous and Metal items contributed moderate litter weights and low to moderate numbers of litter items
- Organic Waste contributed both small litter weights and low numbers of litter items to the overall litter

Note: Illegal Dumping items were not weighed during the Audit

Figure 104 - Manawatu/Whanganui 2019 Items and Weight per 1,000 m² by Main Material Type

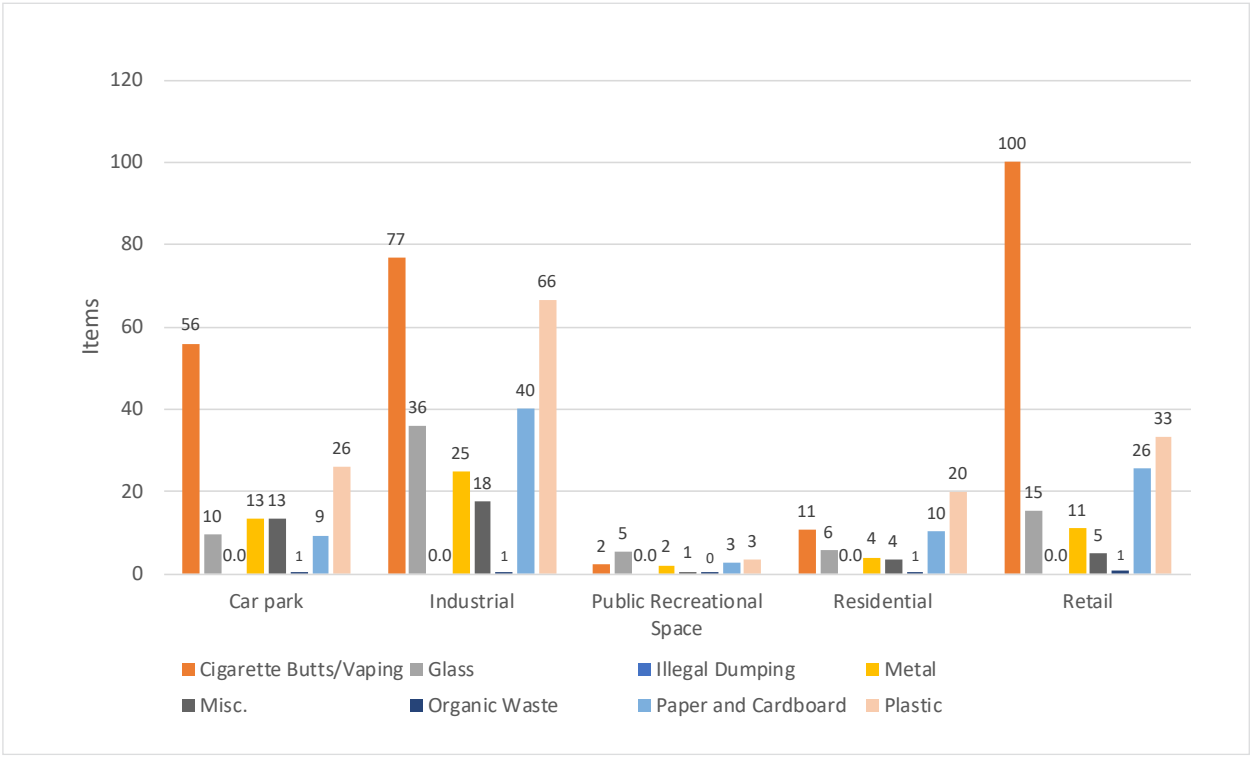


SITE TYPES BY MATERIAL TYPES

Figures for items and volumes per 1,000 m² across main material types identified the following characteristics of litter objects within the Manawatu-Whanganui Region:

- Car Park sites: Cigarette Butts/Vaping (56 items), Plastic (26 items), Metal (13 items), Miscellaneous (13 items), Glass (10 items), Paper/Cardboard (9 items), Organic Waste (1 item) and Illegal Dumping (0 items)
- Industrial sites: Cigarette Butts/Vaping (77 items), Plastic (66 items), Paper/Cardboard (40 items), Glass (36 items), Metal (25 items), Miscellaneous (18 items), Organic Waste (1 item) and Illegal Dumping (0 items)
- Public Recreational sites: Glass (5 items), Paper/Cardboard (3 items), Plastic (3 items), Cigarette Butts/Vaping (2 items), Metal (2 items), Miscellaneous (1 item), Organic Waste (0 items) and Illegal Dumping (0 items)
- Residential sites: Plastic (20 items), Cigarette Butts/Vaping (11 items), Paper/Cardboard (10 items), Glass (6 items), Metal (4 items), Miscellaneous (4 items), Organic Waste (1 item) and Illegal Dumping (0 items)
- Retail sites: Cigarette Butts/Vaping (100 items), Plastic (33 items), Paper/Cardboard (26 items), Glass (15 items), Metal (11 items), Miscellaneous (5 items), Organic Waste (1 item) and Illegal Dumping (0 items)

Figure 105 - Manawatu/Whanganui 2019 Sites by Main Material Types - Items per 1,000 m²



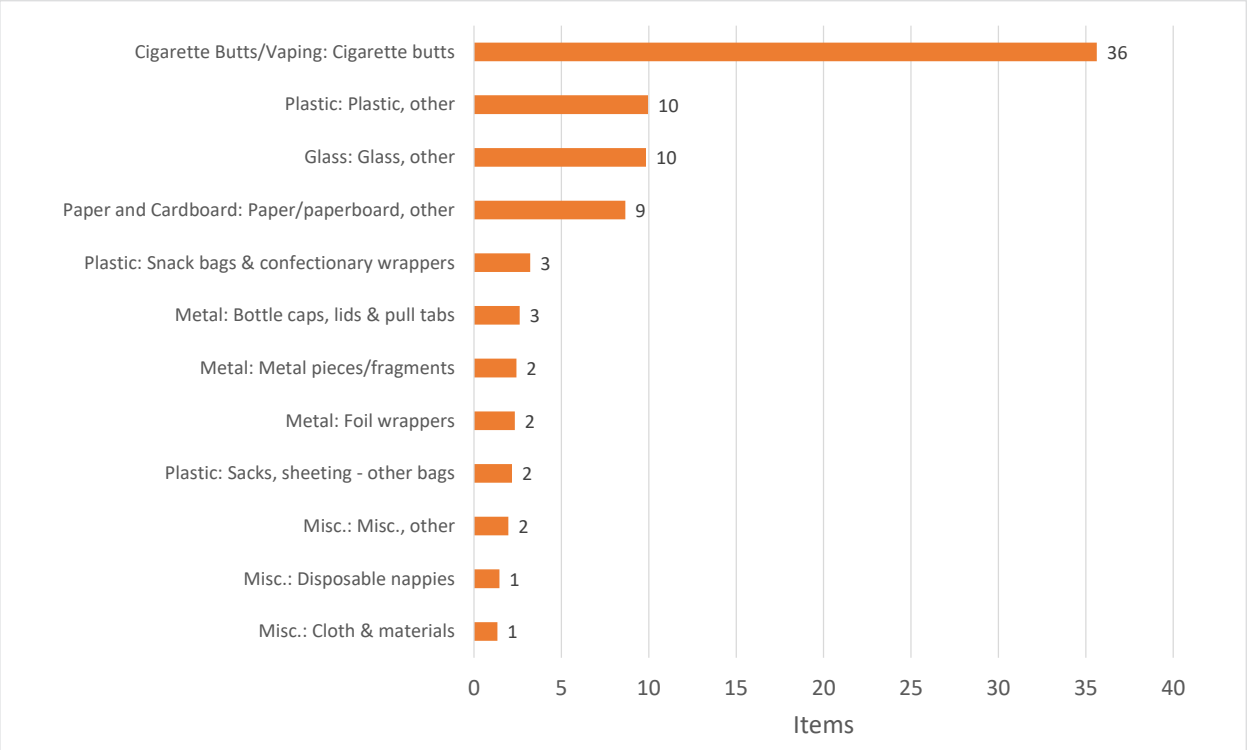
THE DIRTY DOZEN

Cigarette butts were the most frequently identified litter item in Manawatu-Whanganui with an average of 36 butts recorded per 1,000 m² across the audited sites.

Other frequently identified items in the Manawatu-Whanganui Region included:

- Uncategorised Plastic objects (10 items per 1,000 m²)
- Uncategorised Glass objects (10 items per 1,000 m²)
- Uncategorised Paper/paperboard objects (9 items per 1,000 m²)

Figure 106 - Manawatu/Whanganui 2019 Dirty Dozen - Items per 1,000 m² - Object Sub Categories

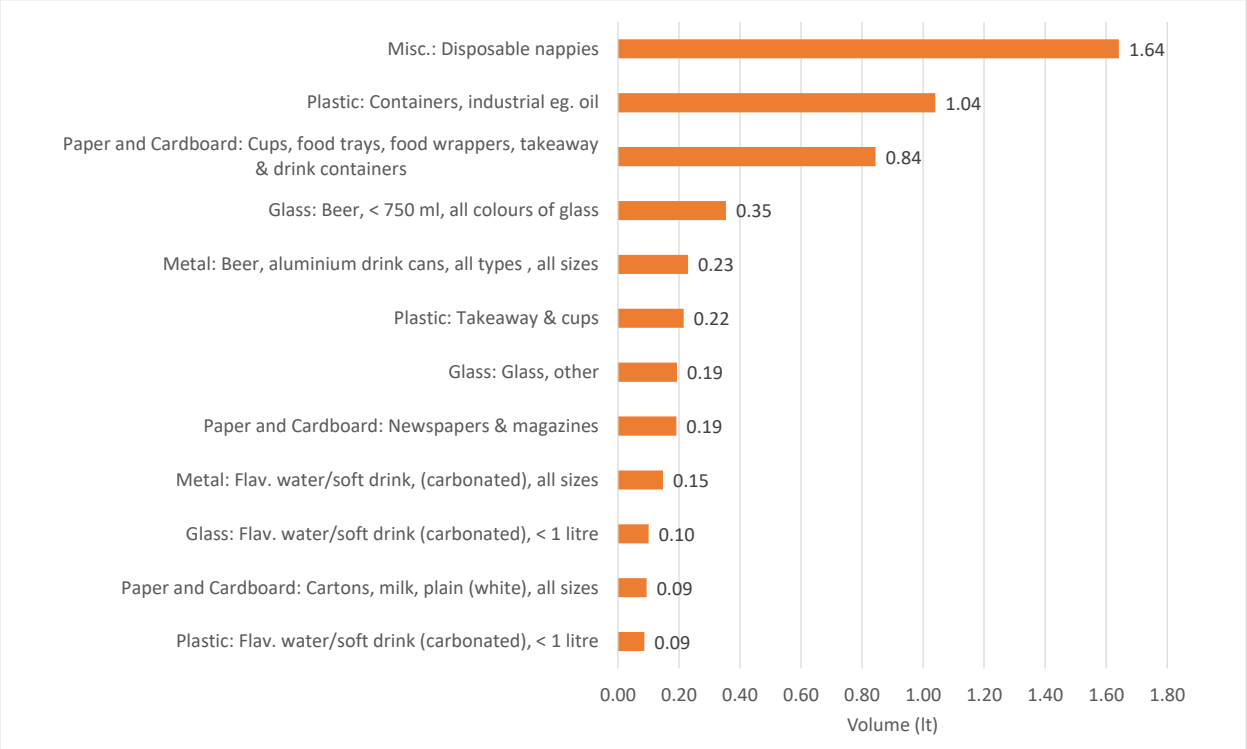


The largest contributor to the volume of the litter stream in the Manawatu-Whanganui Region was Disposable nappies, with an estimated litter volume of 1.64 ltr per 1,000 m².

Other object sub-categories which were associated with large litter volumes per 1,000 m² included:

- Plastic: Containers, industrial e.g. oil (1.04 ltr per 1,000 m²)
- Paper/Cardboard: Cups, food trays, food wrappers, takeaway & drink containers (0.84 ltr per 1,000 m²)
- Glass: Beer, less than 750 ml, all colours of glass (0.35 ltr per 1,000 m²)
- Metal: Beer, aluminium drink cans, all types, all sizes (0.23 ltr per 1,000 m²)

Figure 107 - Manawatu/Whanganui 2019 Dirty Dozen - Volume per 1,000 m² - Object Sub Categories

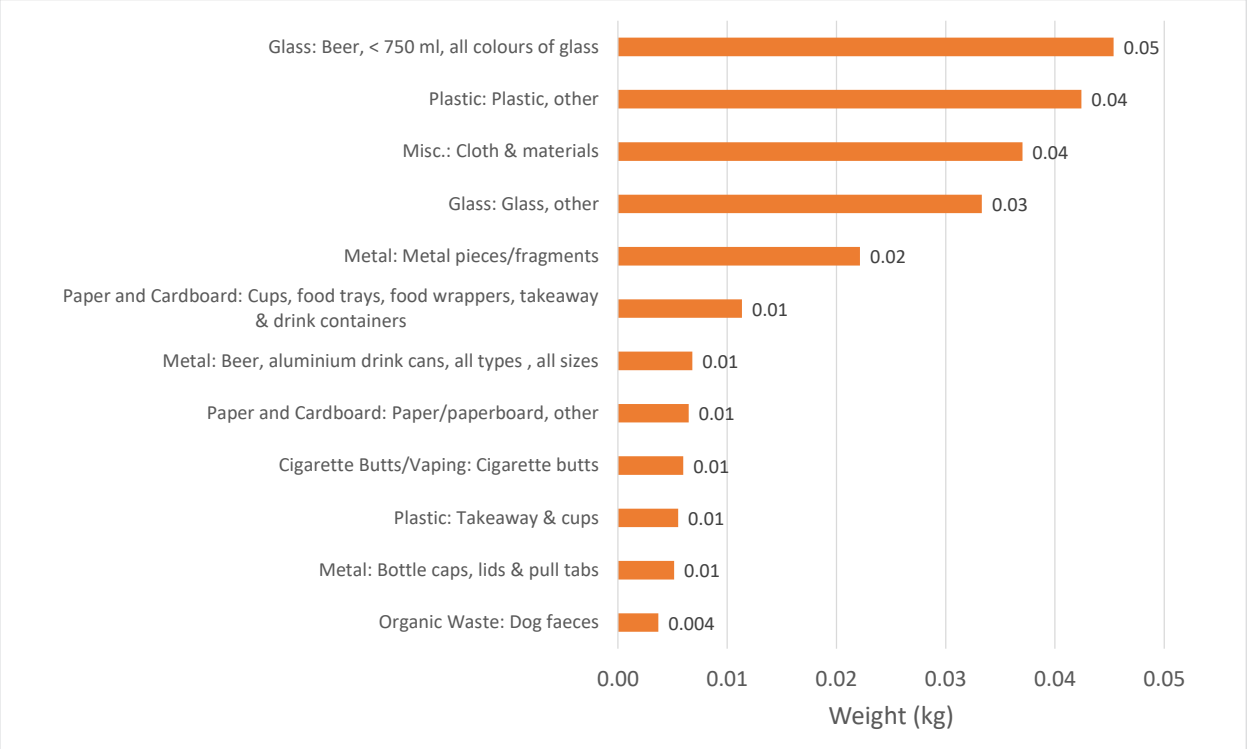


Within the object sub-categories, the largest litter weights per 1,000 m² were associated with Glass: Beer bottles (less than 750 ml, all colours), recording an average weight of 0.05 kg per 1,000 m² across the sites. Weights were not measured for Illegal Dumping objects and therefore are not included in the weight analysis.

Other object sub-categories which were associated with larger litter weights per 1,000 m² included:

- Uncategorised Plastic objects (0.04 kg per 1,000 m²)
- Cloth & materials (0.04 kg per 1,000 m²)
- Uncategorised Glass objects (0.03 kg per 1,000 m²)

Figure 108 - Manawatu/Whanganui 2019 Dirty Dozen - Weight per 1,000 m² - Object Sub Categories



TERRITORY SUMMARIES

There are 7 territorial authorities within the Manawatu-Whanganui Region:

- Horowhenua District
- Manawatu District
- Palmerston North City
- Rangitikei District
- Ruapehu District
- Tararua District
- Whanganui District

A total of 35 sites (from Industrial, Retail, Residential, Car Park and Public Recreational sites) were audited in the Manawatu-Whanganui Region with a minimum of 5 sites audited from each territory.

The results are summarised in the following table:

Extract from Table 3 – Territory Data: Manawatu-Whanganui Region

Territory	Total Area Surveyed (m²)	Items per 1,000 m²	Weight (kg) per 1,000 m²	Volume (lt) per 1,000 m²
MANAWATU-WHANGANUI REGION				
Horowhenua District	6041	177	0.57	8.45
Manawatu District	6070	91	0.12	1.47
Masterton District	6480	114	0.42	4.12
Rangitikei District	4504	144	0.21	4.56
Ruapehu District	8744	41	0.22	10.48
Tararua District	5714	41	0.11	2.47
Whanganui District	5614	89	0.28	6.89
Manawatu-Whanganui Region Overall	**43166**	**95**	**0.28**	**5.83**

SITE GRADINGS

All sites were assigned gradings in 4 categories: Visual rating, Litter hotshots rating, Risk present and Litter distribution. These were analysed to determine rating percentages and averages from the total sites audited within the region.

Extract from Table 2 - Site Types: Manawatu-Whanganui

	Risk Present		Litter Distribution	
Manawatu-Whanganui	Moderate hazard or risk	Significant hazard or risk	Widespread	Clustered
	97%	3%	94%	6%

Figure 109 - Manawatu/Whanganui 2019 Grading - Visual Site Ratings

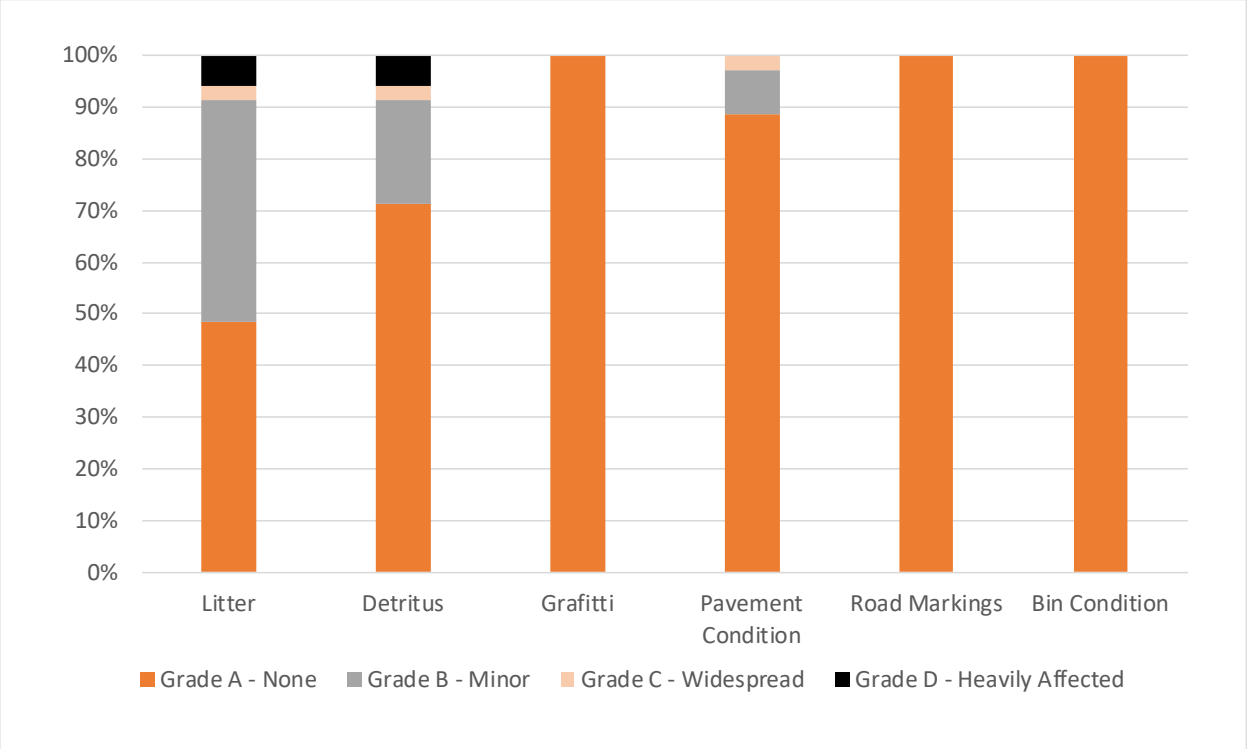
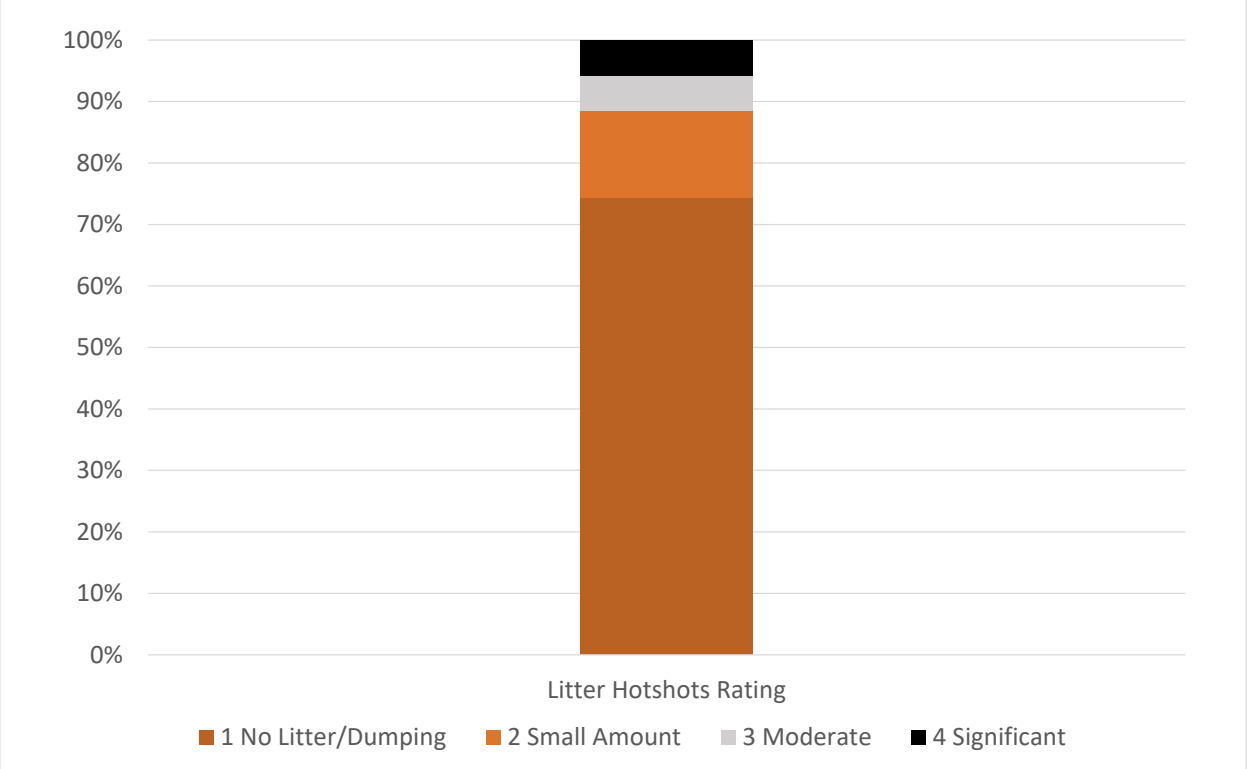


Figure 110 - Manawatu/Whanganui 2019 Grading - Site Litter Hotshots Ratings



NORTHLAND REGION

AT A GLANCE

The overall average number of items per 1,000 m^2 across the 16 sites surveyed in the Northland Region was 71 items, the overall average litter weight per 1,000 m^2 was 0.29 kg, while the overall average estimated volume per 1,000 m^2 was 3.59 ltr.

Within the Northland Region, Retail sites were associated with high numbers of litter items, litter weights and litter volumes. Industrial sites were also recorded as having large litter weights and volumes but more moderate numbers of litter items per 1,000 m^2. Large volumes of litter were also recorded at Residential sites; however, they were associated with more moderate numbers of litter items and litter weights.

Car Park sites were associated with moderate numbers of litter items, litter weights and litter volumes, while Public Recreational sites contributed to low numbers of litter items, small litter weights and low litter volumes per 1,000 m^2.

Plastic and Cigarette Butts/Vaping were equally the most frequently identified items per 1,000 m^2 within the Northland Region, however Plastic was associated with more moderate litter volumes and Cigarette Butts/ Vaping was associated with the smallest litter weights and volumes recorded in the region.

Glass recorded the largest litter weights per 1,000 m^2 but was also associated with low numbers of litter items and litter volumes.

Miscellaneous items contributed the largest amount of volume to the litter stream (Disposable nappies represented a high percentage of the volume in this category), however this category contributed smaller numbers of items and litter weights per 1,000 m^2. Similarly, Paper/Cardboard were associated with the second largest recorded volumes but contributed lower numbers of items and litter weights to the overall litter stream.

COMPARISONS BY SITE TYPES

The highest numbers of litter items per 1,000 m^2 at the sites surveyed in the Northland Region were recorded at Retail sites (171 items). Moderate numbers of litter items were found at Residential sites (76 items), Industrial sites (64 items) and Car Park sites (62 items). The lowest number of litter items were collected at Public Recreational sites (15 items).

Higher estimated volumes per 1,000 m² of the litter objects were observed at Retail sites (6.22 ltr), Residential sites (5.65 ltr) and Industrial sites (5.52 ltr). Moderate volumes of litter were found at Car Park sites (3.66 ltr) while small volumes of litter were associated with Public Recreational sites (0.63 ltr).

Large litter weights per 1,000 m² were associated with Industrial sites (0.64 kg) and Retail sites (0.63 kg). Residential sites (0.30 kg) and Car Park sites (0.26 kg) contributed moderate litter weights to the Northland litter stream, while small litter weights per 1,000 m² were recorded at Public Recreational sites (0.03 kg).

Figure 111 - Northland 2019 Items and Volume per 1,000 m² by Site Type

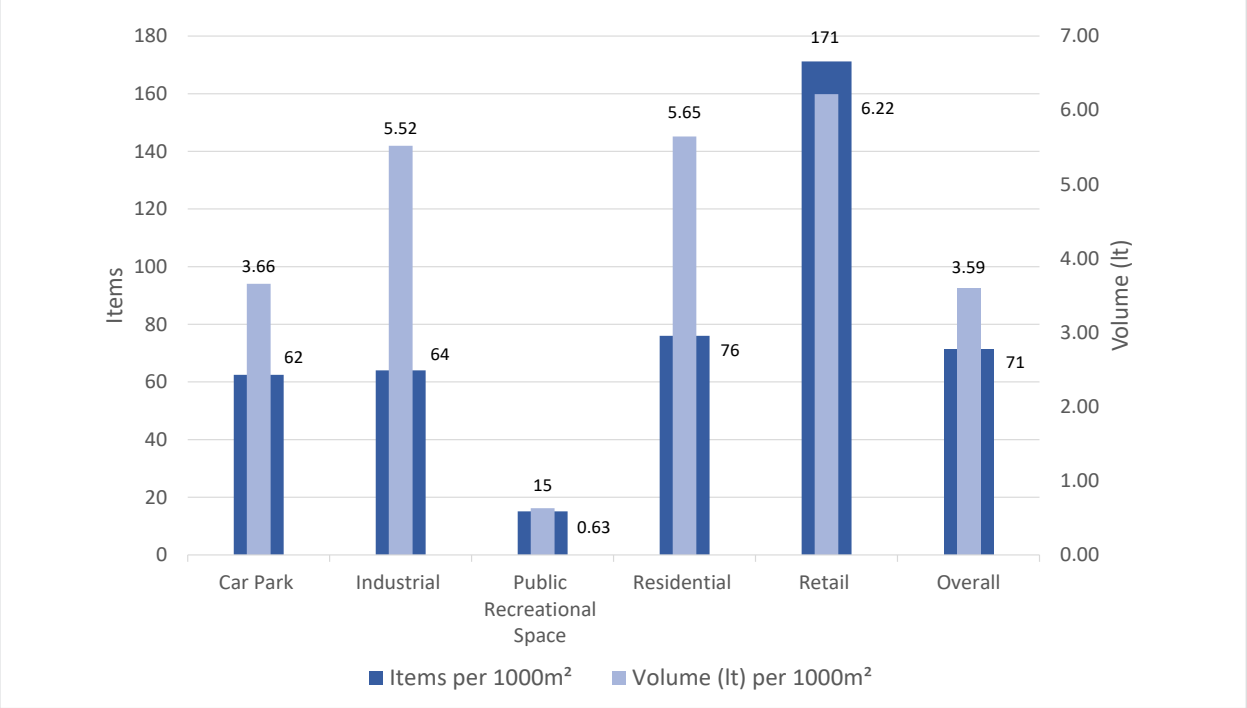
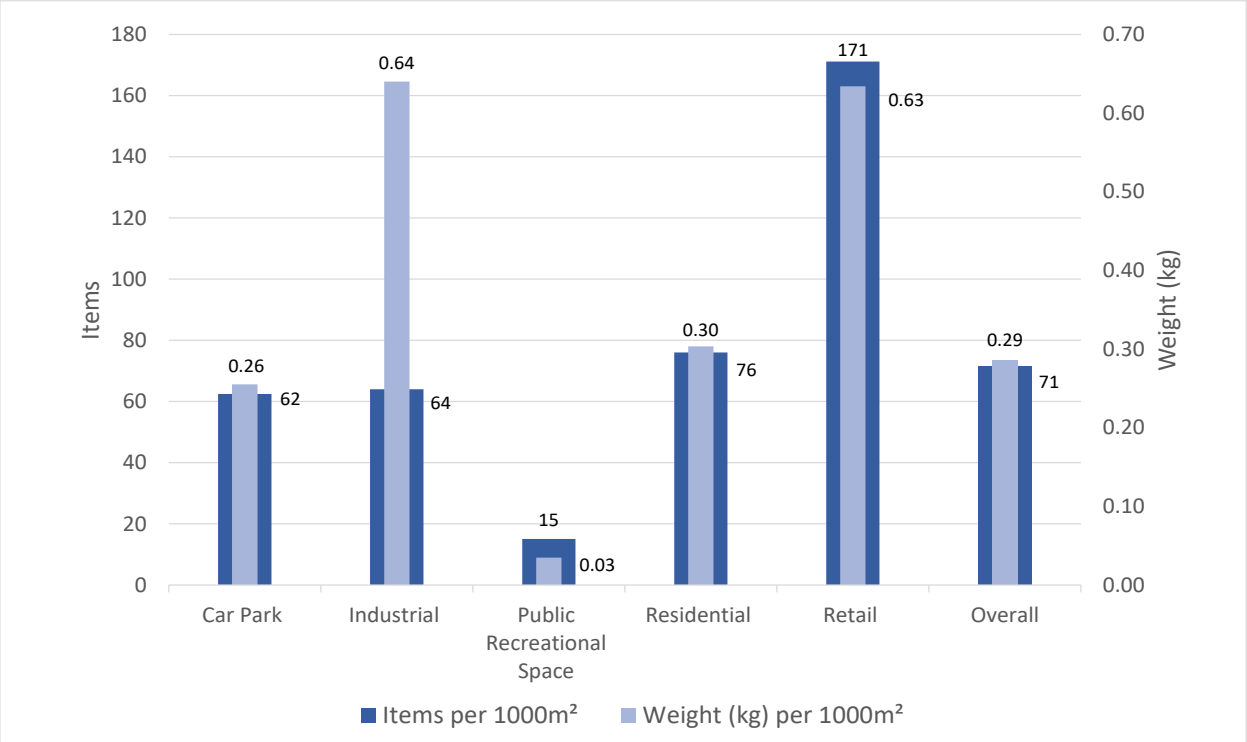


Figure 112 - Northland 2019 Items and Weight per 1,000 m² by Site Type

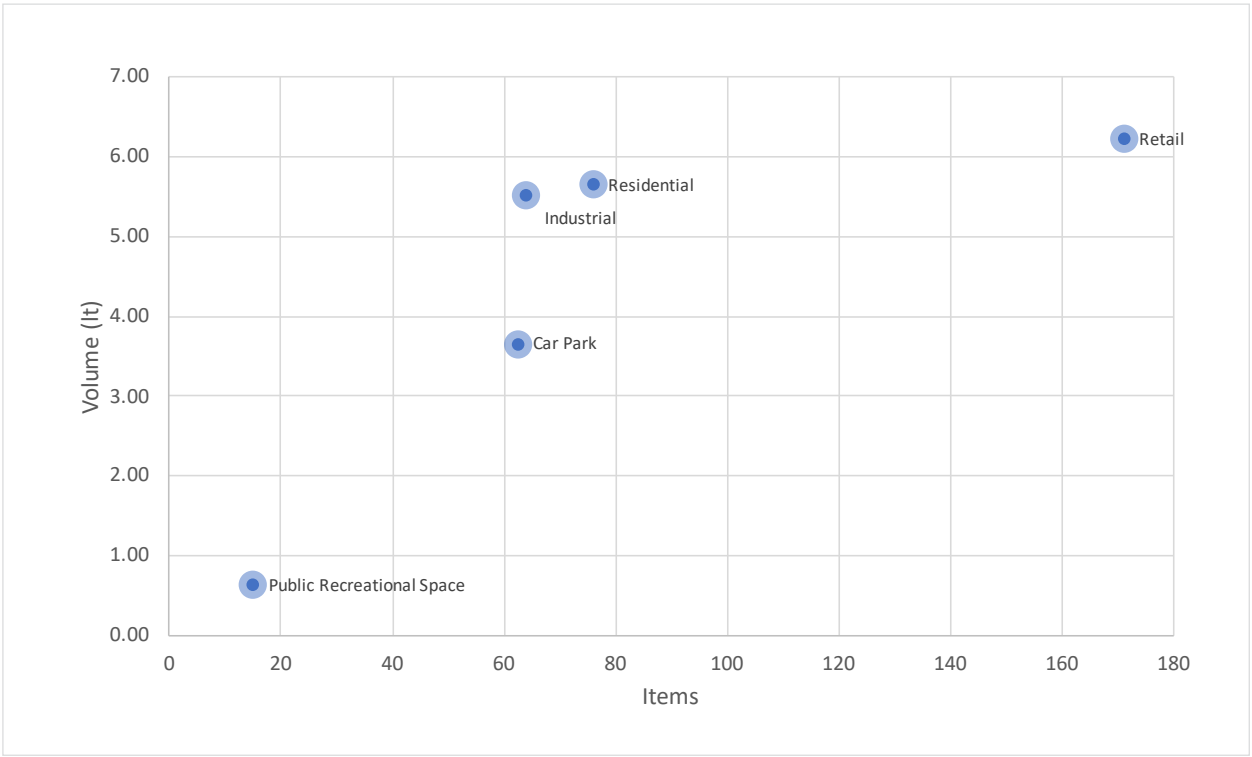


SITE CHARACTERISTICS

The following site characteristics across all site types within the Northland Region were identified for items and volume estimates per 1,000 m²:

- Retail sites contributed to both high numbers of litter items and large volumes
- Residential and Industrial sites were associated with moderate numbers of litter items and large litter volumes
- Car Park sites contributed to both moderate numbers of litter items and moderate volumes of litter
- Public Recreational sites were associated with low numbers of litter items and small volumes of litter

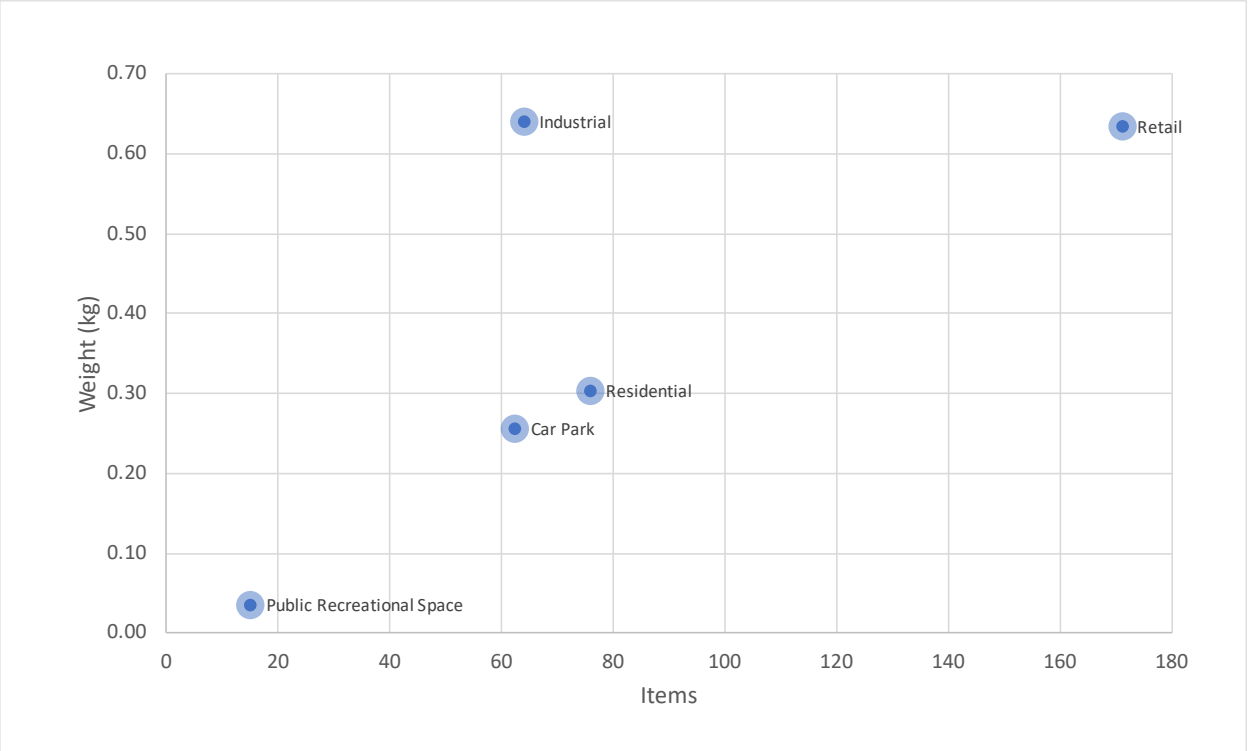
Figure 113 - Northland 2019 Items and Volume per 1,000 m² by Site Type



Site characteristics across all site types within the region for items and litter weights per 1,000 m² identified the following:

- Retail sites contributed both large litter weights and high numbers of litter items to the litter stream
- Industrial sites were associated with large litter weights and moderate numbers of litter items
- Residential and Car Park sites contributed both moderate litter weights and moderate numbers of litter items
- Public Recreational sites were associated with both small litter weights and low numbers of litter items

Figure 114 - Northland 2019 Items and Weight per 1,000 m² by Site Type



COMPARISON BY MAIN MATERIAL TYPES

Cigarette Butts/Vaping and Plastic were the most frequently identified objects per 1,000 m² within the Northland Region (both at 19 items) while Metals were recorded as having the third highest number of litter items collected (15 items).

Smaller numbers of items were recorded for Paper/Cardboard (7 items), Miscellaneous (6 items), Glass (3 items) and Organic Waste (1 item). There was no Illegal Dumping identified at the audited sites.

Miscellaneous items contributed the largest amount of volume per 1,000 m² to the litter stream (1.12 ltr) while Paper/Cardboard (0.92 ltr) and Metal (0.88 ltr) were also strong contributors to the overall volume of litter collected within the region. More moderate volumes were recorded for Plastic (0.42 ltr), while smaller volumes were associated with Glass (0.22 ltr) and Organic Waste (0.02 ltr). Cigarette Butts/Vaping items were associated with the smallest proportion of the overall litter volume (0.002 ltr per 1,000 m²).

Larger litter weights per 1,000 m² contributing to the overall regional litter stream were associated with Glass (0.09 kg), Metal (0.08 kg) and Plastic (0.06 kg), while smaller litter weights were recorded for Miscellaneous items (0.03 kg), Paper/Cardboard (0.02 kg), Organic Waste (0.01 kg) and Cigarette Butts/Vaping (0.009 kg). A weight measure was not recorded for any Illegal Dumping objects identified during the Audit.

Figure 115 - Northland 2019 Items and Volume per 1,000 m² by Main Material Type

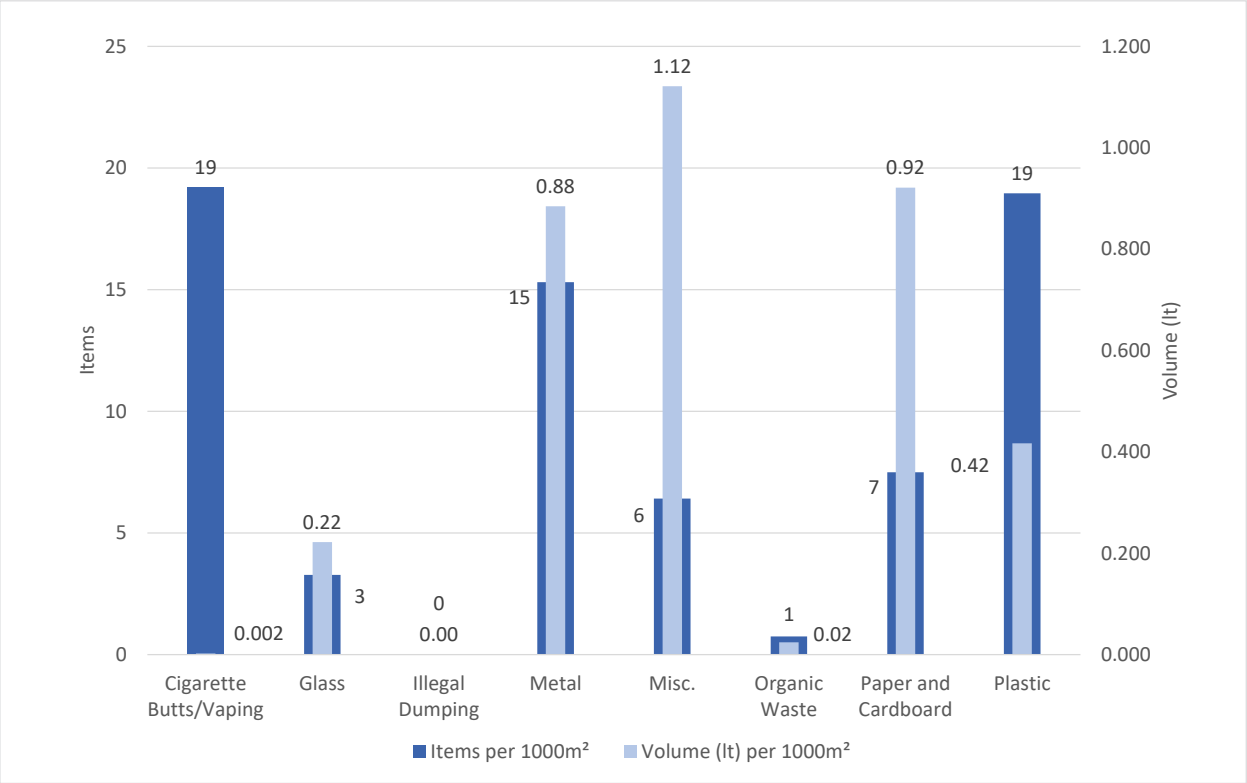
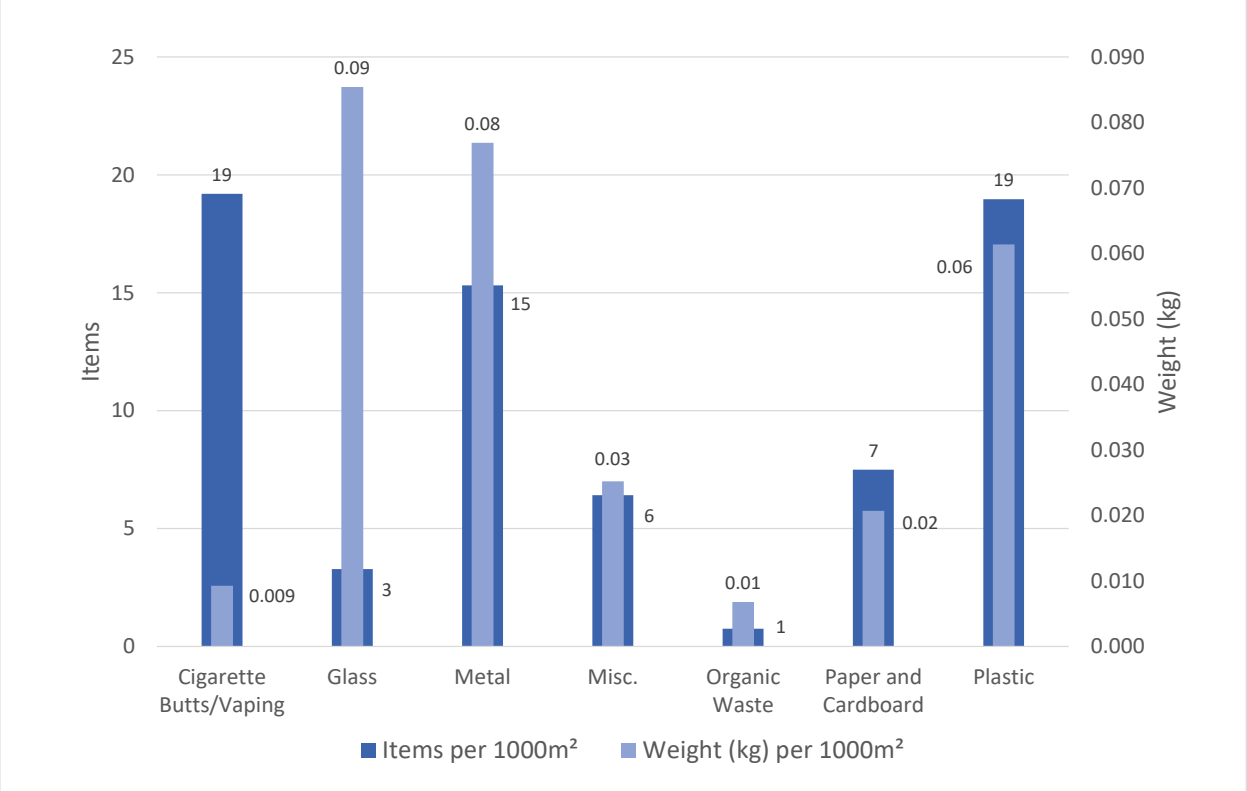


Figure 116 - Northland 2019 Items and Weight per 1,000 m² by Main Material Type

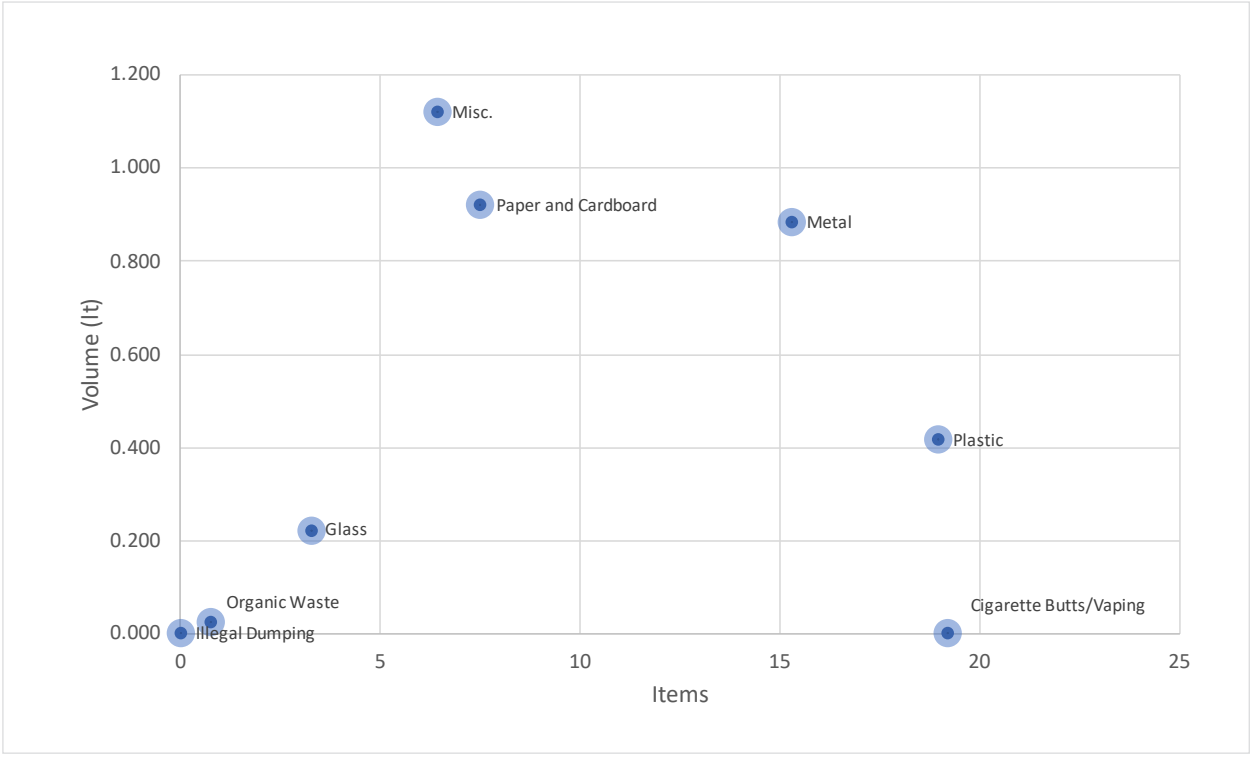


MAIN MATERIAL CHARACTERISTICS

Figures for items and volumes per 1,000 m² across main material types identified the following characteristics of litter objects within the Northland Region:

- Miscellaneous items and Paper/Cardboard contributed large volumes to the litter stream but were associated with small to moderate numbers of litter items
- Cigarette Butts/Vaping were associated with a high number of litter items but contributed only a negligible volume to the litter stream
- Metal contributed to large volumes of litter and moderate to high numbers of litter items
- Plastic was associated with high numbers of litter items and moderate litter volumes
- Glass and Organic Waste was associated with small numbers of litter items and contributed low volumes of litter
- There were no instances of Illegal Dumping recorded at the audited sites

Figure 117 - Northland 2019 Items and Volume per 1,000 m² by Main Material Type

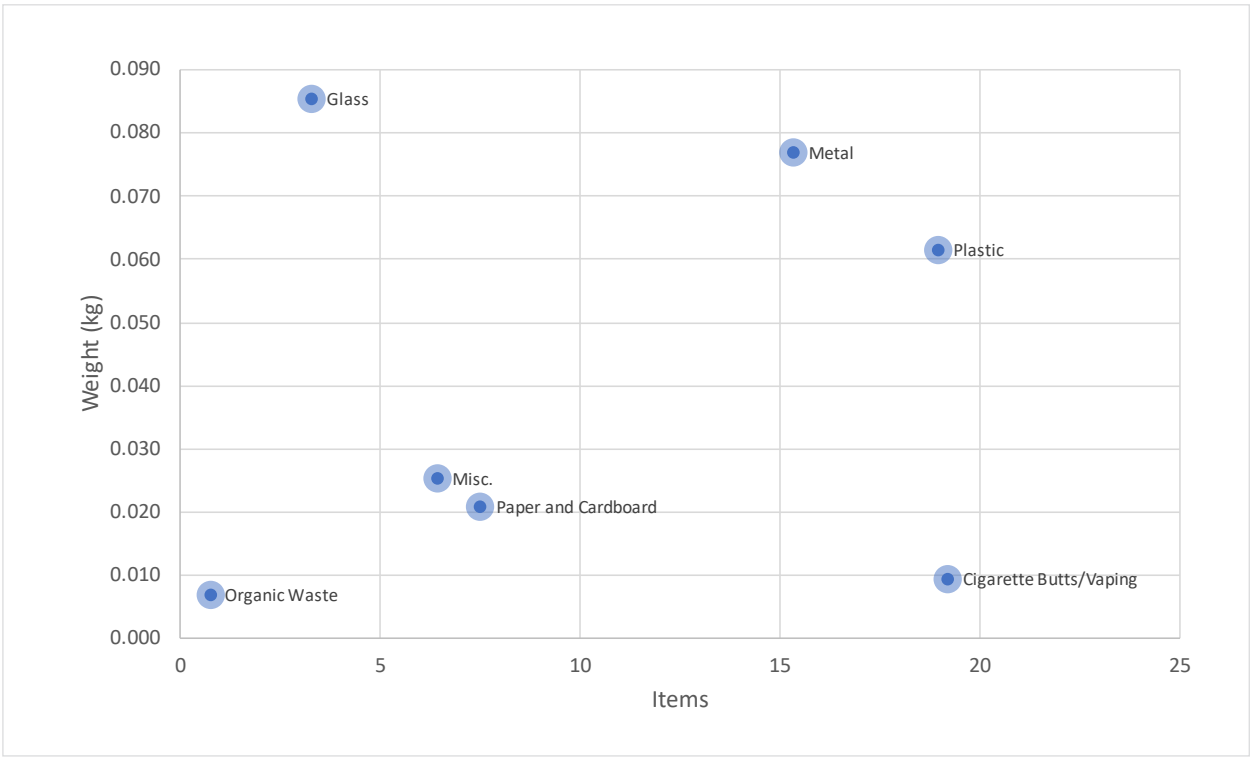


Characteristics for items and main material types per 1,000 m² identified across the Northland Region sites included:

- Glass items were associated with large litter weights, but recorded only low numbers of litter items
- Metal items contributed large litter weights and moderate to high numbers of litter items
- Plastic was associated with moderate to large litter weights and high numbers of litter items
- Cigarette Butts/Vaping items contributed small litter weights to the litter stream, but were associated with high numbers of litter items
- Miscellaneous and Paper/Cardboard were associated with small litter weights and low to moderate numbers of litter items
- Organic Waste was associated with both small litter weights and low numbers of litter items

Note: Illegal Dumping items were not weighed during the Audit

Figure 118 - Northland 2019 Items and Weight per 1,000 m² by Main Material Type

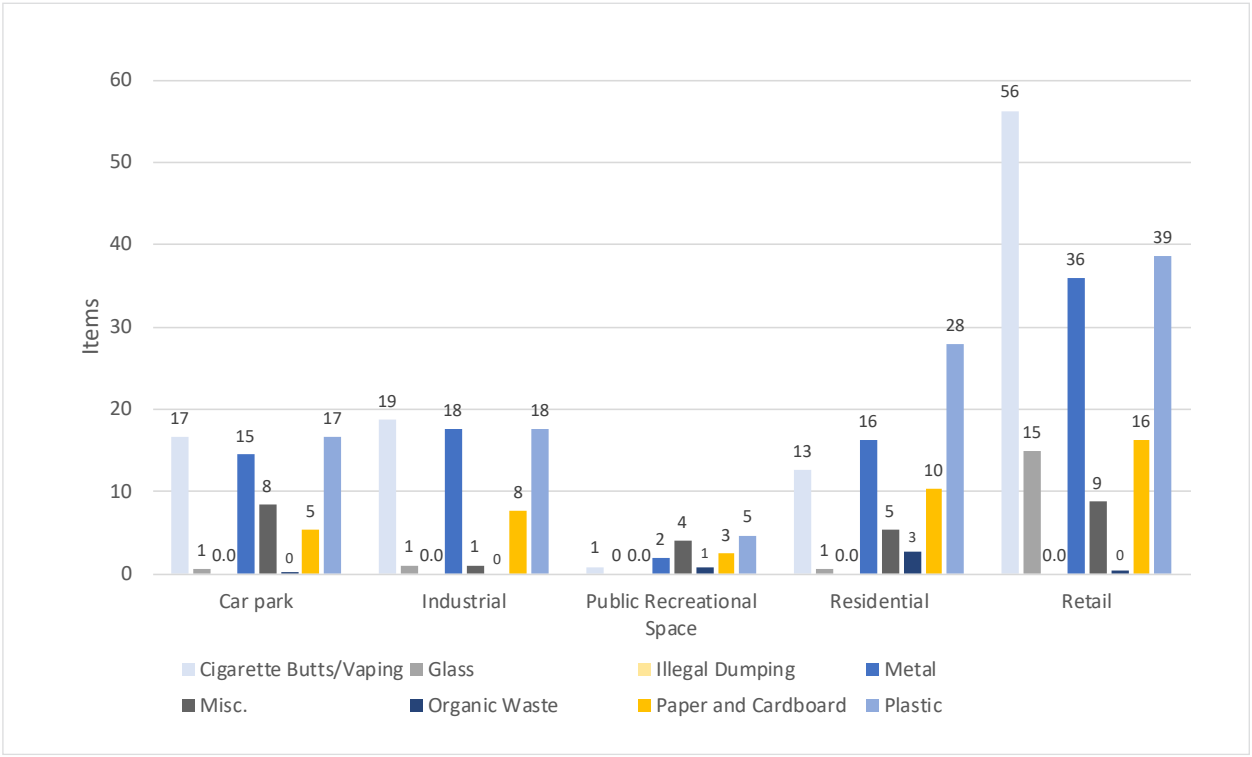


SITE TYPES BY MATERIAL TYPES

Figures for items and volumes per 1,000 m² across main material types identified the following characteristics of litter objects within the Northland Region:

- Car Park sites: Cigarette Butts/Vaping (17 items), Plastic (17 items), Metal (15 items), Miscellaneous (8 items), Paper/Cardboard (5 items), Glass (1 item), Organic Waste (0 items) and Illegal Dumping (0 items)
- Industrial sites: Cigarette Butts/Vaping (19 items), Metal (18 items), Plastic (18 items), Paper/Cardboard (8 items), Glass (1 item), Miscellaneous (1 item), Organic Waste (0 items) and Illegal Dumping (0 items)
- Public Recreational sites: Plastic (5 items), Miscellaneous (4 items), Paper/Cardboard (3 items), Metal (2 items), Cigarette Butts/Vaping (1 item), Organic Waste (1 item), Glass (0 items) and Illegal Dumping (0 items)
- Residential sites: Plastic (28 items), Metal (16 items), Cigarette Butts/Vaping (13 items), Paper/Cardboard (10 items), Miscellaneous (5 items), Organic Waste (3 items), Glass (1 item) and Illegal Dumping (0 items)
- Retail sites: Cigarette Butts/Vaping (56 items), Plastic (39 items), Metal (36 items), Paper/Cardboard (16 items), Glass (15 items), Miscellaneous (9 items), Organic Waste (0 items) and Illegal Dumping (0 items)

Figure 119 - Northland 2019 Sites by Main Material Types - Items per 1,000 m²



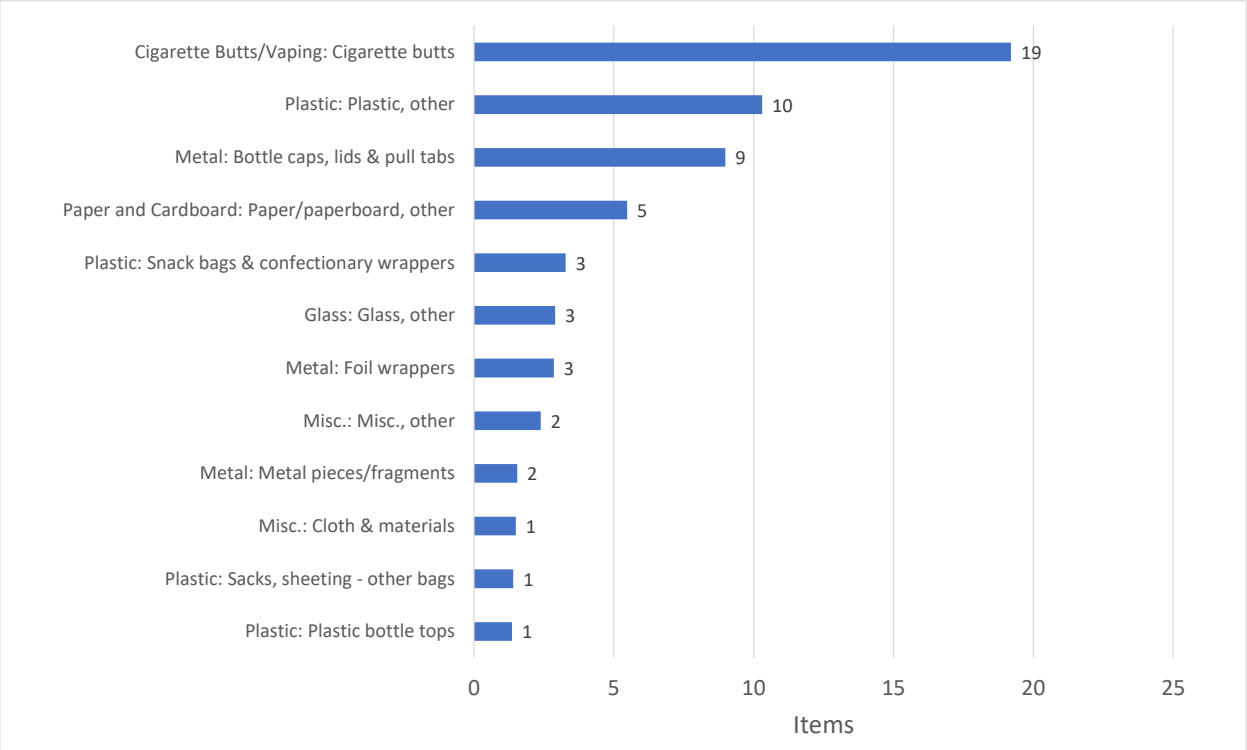
THE DIRTY DOZEN

On average across the Northland Region litter counts, Cigarette butts were the largest contributors to the litter objects, with 19 butts per 1,000 m² identified at the audited sites.

Other object sub-categories frequently identified during the litter counts included:

- Uncategorised Plastic objects (10 items per 1,000 m²)
- Metal: Bottle caps, lids and pull tabs (9 items per 1,000 m²)
- Uncategorised Paper/paperboard objects (5 items per 1,000 m²)

Figure 120 - Northland 2019 Dirty Dozen - Items per 1,000 m² - Object Sub Categories

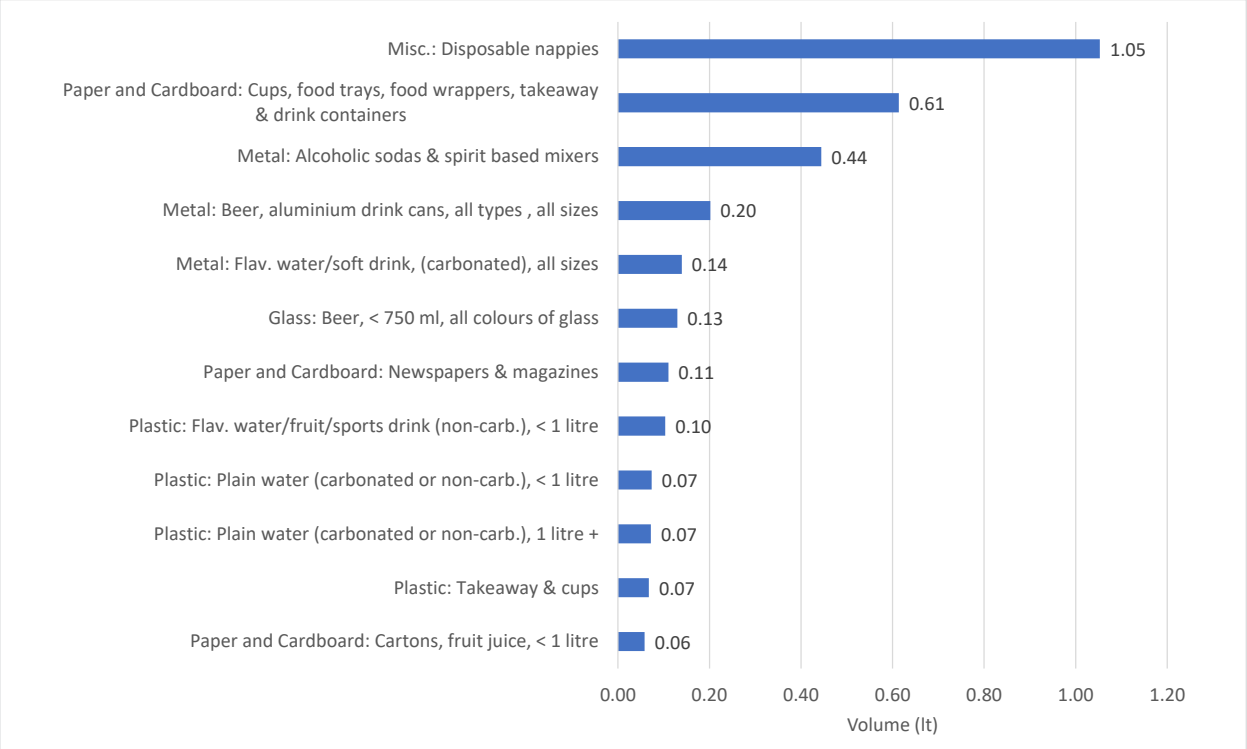


Disposable nappies represented the largest contribution to estimated litter volumes per 1,000 m² in the Northland Region, recording a volume of 1.05 ltr per 1,000 m².

Other object sub-categories which recorded large estimated volumes per 1,000 m² throughout the region included:

- Paper/Cardboard: Cups, food trays, food wrappers, takeaway & drink containers (0.61 ltr per 1,000 m²)
- Metal: Alcoholic sodas & spirit-based mixers (0.44 ltr per 1,000 m²)
- Metal: Beer, aluminium drink cans, all types, all sizes (0.20 ltr per 1,000 m²)
- Metal: Flavoured water/soft drink, (carbonated), all sizes (0.14 ltr per 1,000 m²)

Figure 121 - Northland 2019 Dirty Dozen - Volume per 1,000 m² - Object Sub Categories

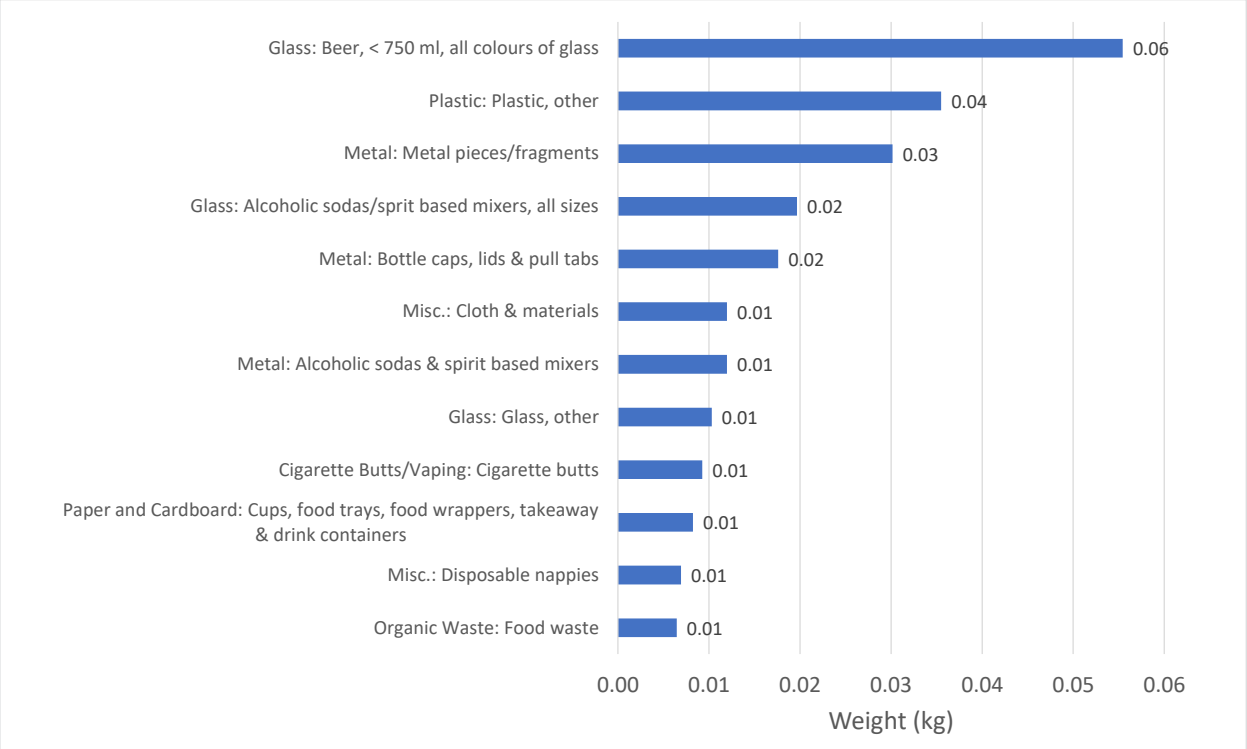


Within the object sub-categories, Glass beer bottles (less than 750 ml, all colours) were the largest contributors to the regional litter weights with an average of 0.06 kg per 1,000 m² recorded. Weights were not measured for Illegal Dumping materials and therefore are not included in the weight analysis.

Other object sub-categories associated with proportionally higher average litter weights included:

- Uncategorised Plastic objects (0.04 kg per 1,000 m²)
- Metal pieces/fragments (0.03 kg per 1,000 m²)
- Glass: Alcoholic sodas/spirit-based mixers, all sizes (0.02 kg per 1,000 m²)
- Metal: Bottle caps, lids & pull tabs (0.02 kg per 1,000 m²)

Figure 122 - Northland 2019 Dirty Dozen - Weight per 1,000 m² - Object Sub Categories



TERRITORY SUMMARIES

Northland Region is comprised of 3 territorial authorities:

- Far North District
- Kaipara District
- Whangarei District

A total of 16 sites (from Industrial, Retail, Residential, Car Park and Public Recreational sites) were audited in the Northland Region with a minimum of 5 sites audited from each territory.

The results are summarised in the following table:

Extract from Table 3 – Territory Data: Northland Region

Territory	Total Area Surveyed (m^2)	Items per 1,000 m^2	Weight (kg) per 1,000 m^2	Volume (lt) per 1,000 m^2
NORTHLAND REGION				
Far North District	*7122*	*112*	*0.35*	*4.69*
Kaipara District	*7036*	*56*	*0.25*	*2.61*
Whangarei District	*7198*	*47*	*0.26*	*3.46*
Northland Region Overall	**21356**	**71**	**0.29**	**3.59**

SITE GRADINGS

All sites were assigned gradings in 4 categories: Visual rating, Litter hotshots rating, Risk present and Litter distribution. These were analysed to determine rating percentages and averages from the total sites audited within the region.

Extract from Table 2 - Site Types: Northland

	Risk Present		Litter Distribution	
Northland	*Moderate hazard or risk*	*Significant hazard or risk*	*Widespread*	*Clustered*
	94%	*6%*	*100%*	*0%*

Figure 123 - Northland 2019 Grading - Visual Site Ratings

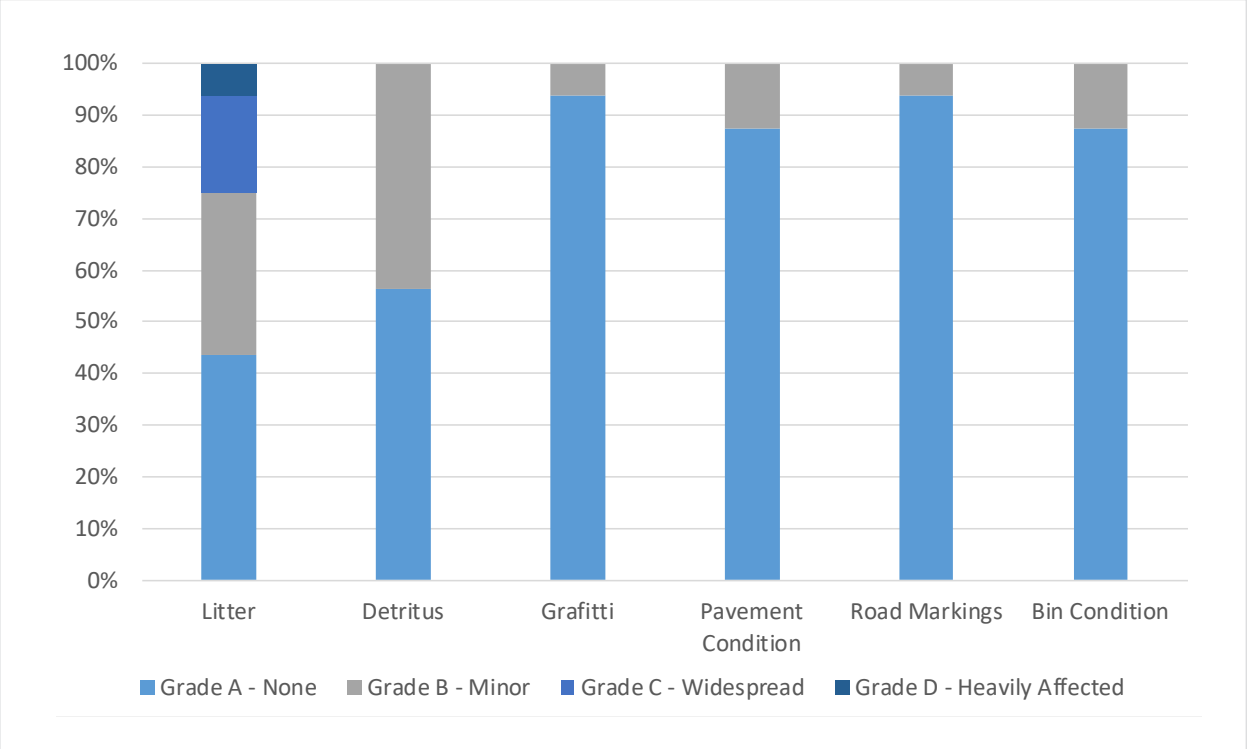
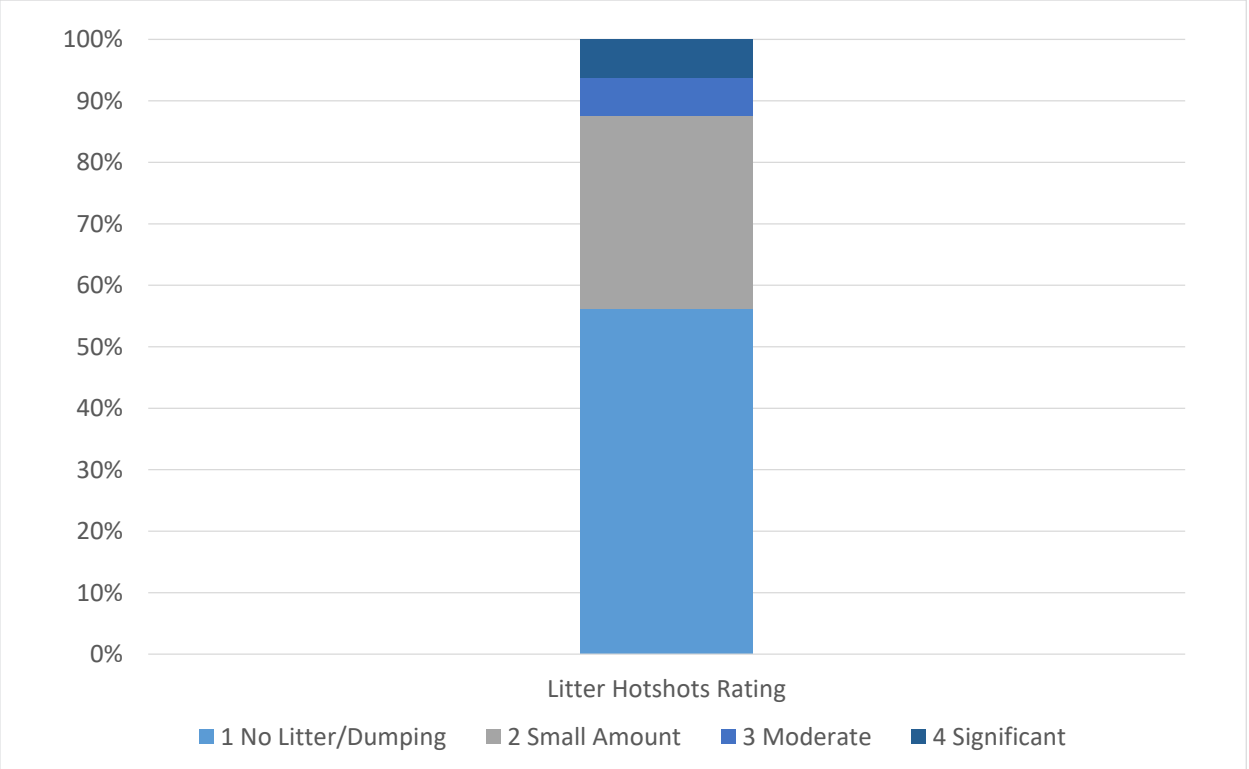


Figure 124 - Northland 2019 Grading - Site Litter Hotshots Ratings



OTAGO REGION

AT A GLANCE

The overall average number of items per 1,000 m^2 across the 20 sites surveyed in the Otago Region was 122 items, the overall average litter weight per 1,000 m^2 was 0.43 kg, while the overall average estimated volume per 1,000 m^2 was 5.69 ltr.

Industrial sites were associated with the highest number of litter items, litter weights and litter volumes within the Otago Region. Retail sites recorded the second highest numbers of litter items and litter weights, but smaller litter volumes. Car Park sites were associated with moderate numbers of litter items and litter weights, contributing smaller litter volumes to the overall litter stream.

Residential sites were associated with a low number of litter items and litter weights but contributed moderate litter volumes while Public Recreational sites were associated with low numbers of litter items, litter weights and litter volumes.

Cigarette Butts/Vaping was the most frequently identified item per 1,000 m^2, however this category was associated with the smallest litter weights and volumes recorded in the Otago Region. Plastic was the second most frequently identified item and was associated with more moderate litter weights and volumes.

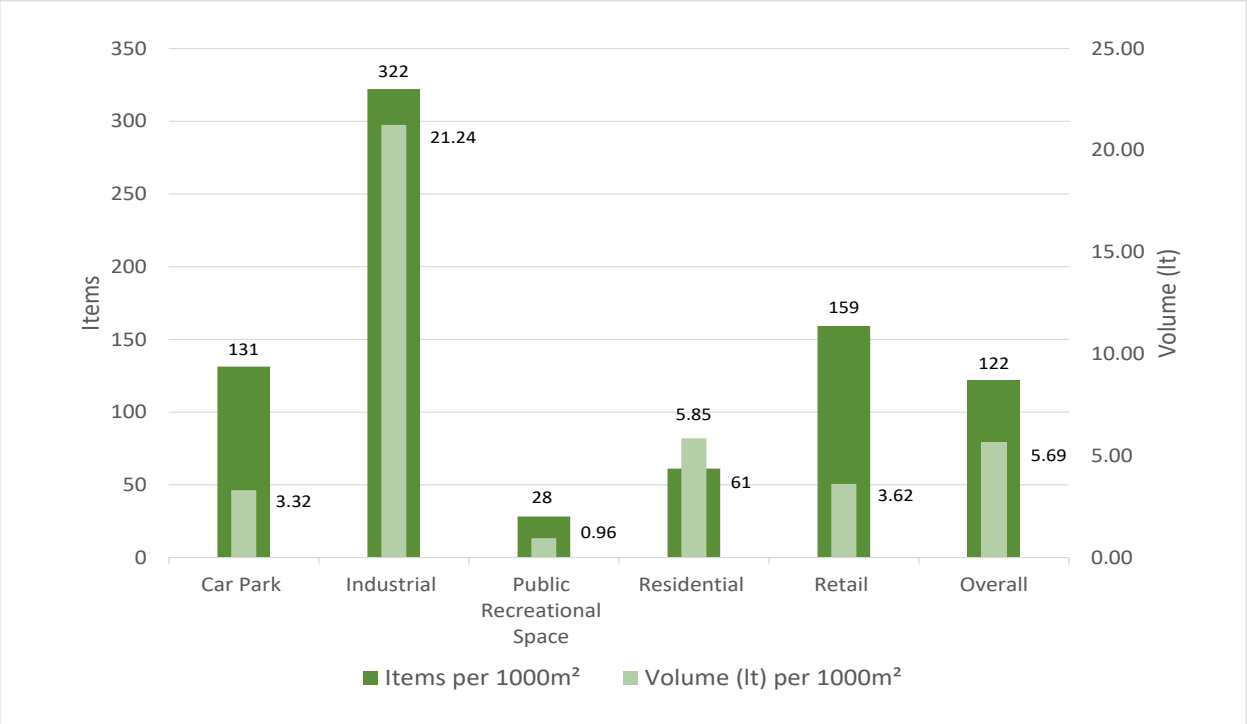
Glass was associated with the largest litter weights per 1,000 m^2 in the region but contributed only small numbers of items and litter volumes to the overall litter stream, while Illegal Dumping contributed the largest volume per 1,000 m^2 to the overall regional litter volume, but very small numbers of litter items. Weights were not recorded for illegally dumped items.

COMPARISONS BY SITE TYPES

The highest numbers of litter items per 1,000 m^2 at the sites surveyed in the Otago Region were recorded at Industrial sites (322 items) and Retail sites (159 items) while moderate numbers of litter items were recorded at Car Park sites (131 items). Lower numbers of litter items were associated with Residential sites (61 items) and Public Recreational sites (28 items).

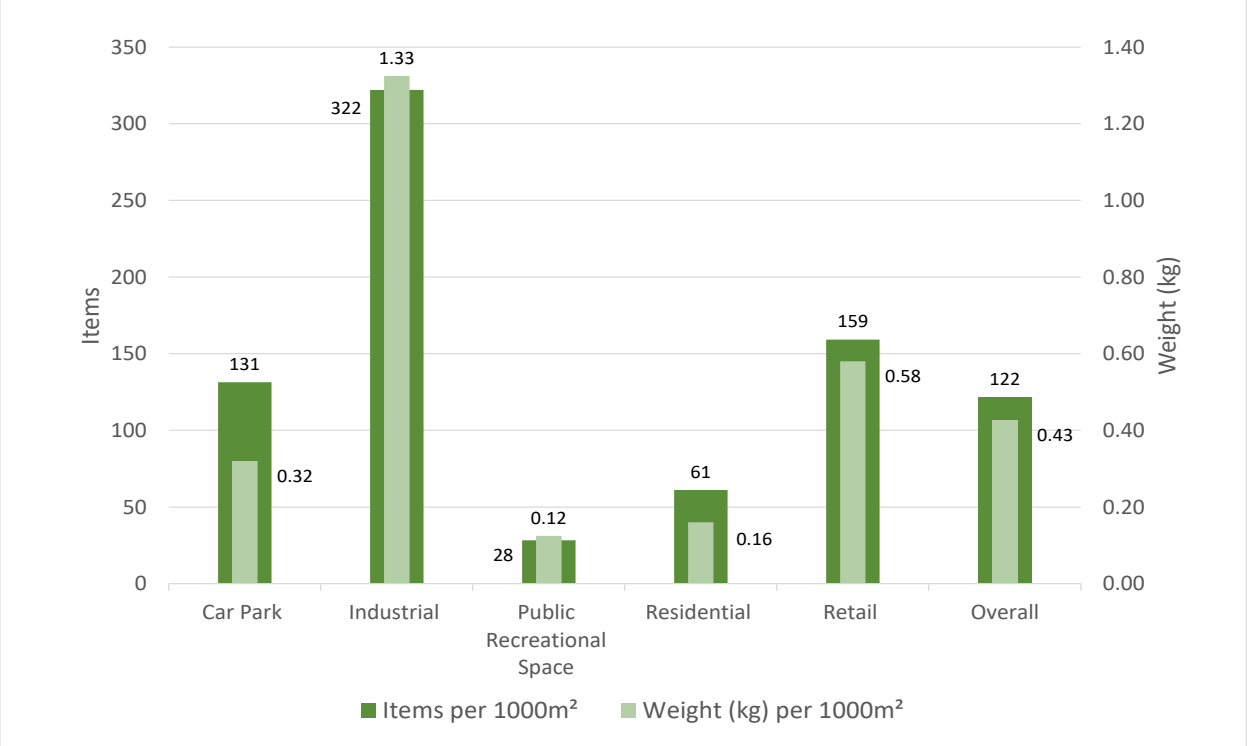
Higher estimated volumes per 1,000 m^2 of litter objects were recorded at Industrial sites (21.24 ltr), with moderate volumes found at Residential sites (5.85 ltr). Smaller volumes of litter were associated with Retail sites (3.62 ltr), Car Park sites (3.32 ltr) and Public Recreational sites (0.96 ltr).

Figure 125 - Otago 2019 Items and Volume per 1,000 m² by Site Type



Industrial sites (1.33 kg) recorded the largest litter weights per 1,000 m² in the region while moderate to high litter weights were associated with Retail sites (0.58 kg). Car Park sites (0.32 kg) contributed more moderate litter weights to the Otago litter stream while lower litter weights were associated with Residential sties (0.16 kg) and Public Recreational sites (0.12 kg).

Figure 126 - Otago 2019 Items and Weight per 1,000 m² by Site Type

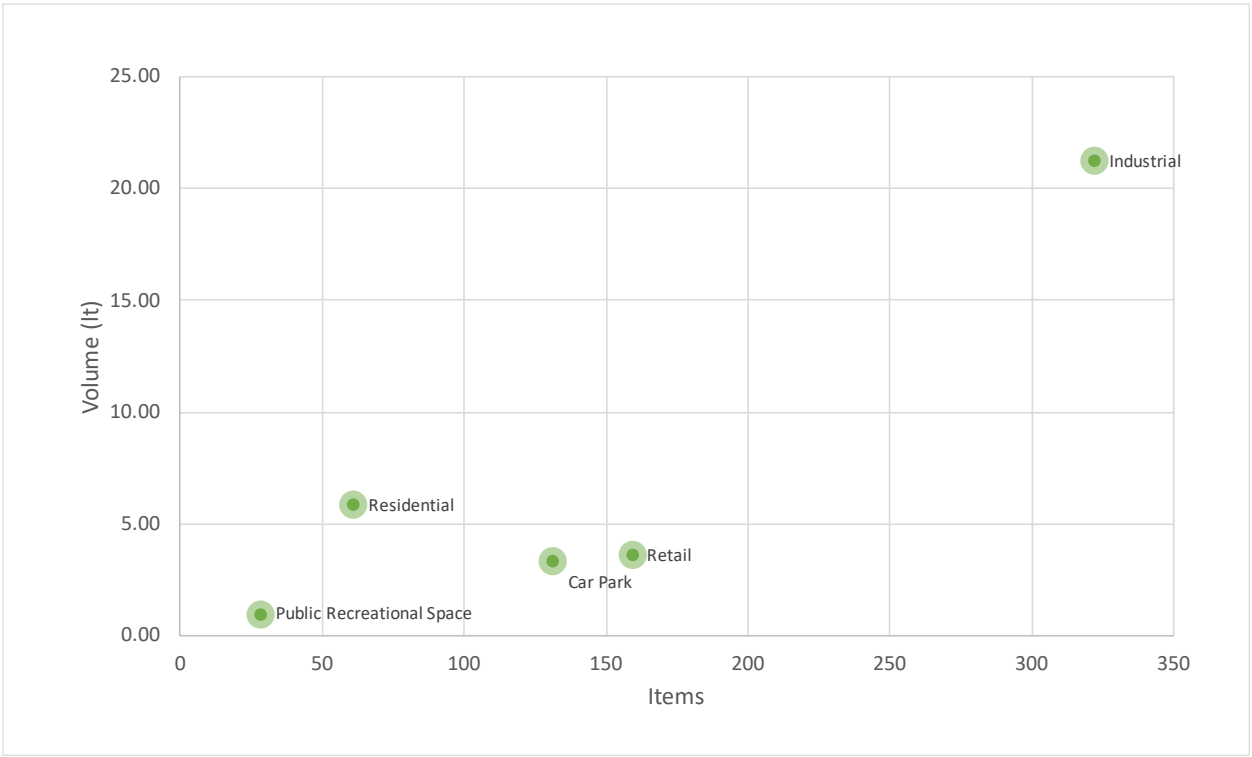


SITE CHARACTERISTICS

The following site characteristics across all site types within the Otago Region were identified for items and volume estimates per 1,000 m²:

- Industrial sites were associated with both high numbers of litter items and large litter volumes
- Retail and Car Park sites were associated with moderate numbers of litter items and small litter volumes
- Residential sites were associated with a low number of litter items and moderate litter volumes
- Public Recreational sites contributed to both low numbers of litter and small litter volumes

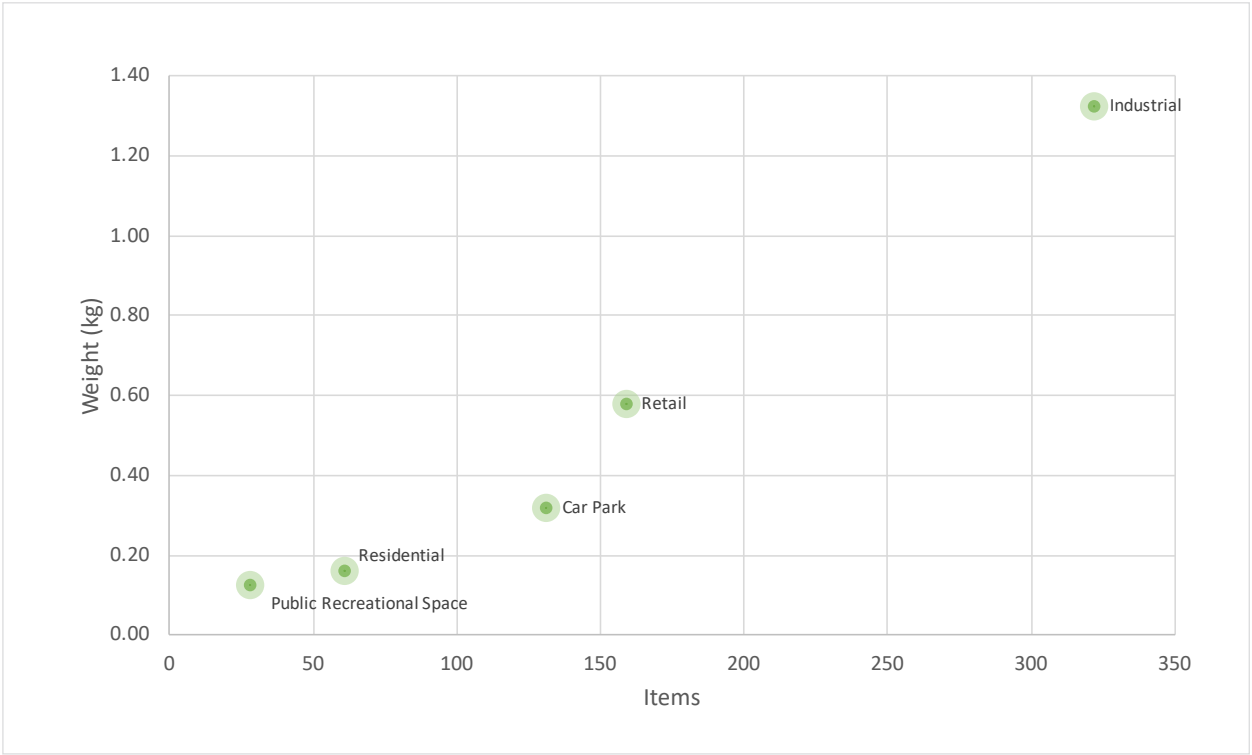
Figure 127 - Otago 2019 Items and Volume per 1,000 m² by Site Type



Site characteristics identified for items and weights per 1,000 m² within the Otago Region included:

- Industrial sites were associated with both large litter weights and high numbers of litter items
- Retail sites contributed moderate to large litter weights and moderate to high numbers of litter items
- Car Park sites were associated with both moderate litter weights and moderate numbers of litter items
- Public Recreational and Residential sites both contributed small litter weights and low numbers of litter items to the regional litter stream

Figure 128 - Otago 2019 Items and Weight per 1,000 m² by Site Type



COMPARISON BY MAIN MATERIAL TYPES

Cigarette Butts/Vaping were the most frequently identified objects per 1,000 m² within the Otago Region (41 items) while other significant contributors to the overall number of litter items collected were Plastic (26 items) and Metal (21 items).

Smaller numbers of items were recorded for Paper/Cardboard (17 items), Miscellaneous (7 items), Glass (7 items), Organic Waste (3 items) and Illegal Dumping (less than 1 item per 1,000 m²).

Illegal Dumping contributed the largest amount of volume per 1,000 m² to the litter stream (2.00 ltr) while Paper/Cardboard (0.92 ltr) and Miscellaneous (0.90 ltr) were also strong contributors to the overall volume of litter collected within the region. Smaller volumes were recorded for Plastic (0.76 ltr), Metal (0.70 ltr), Glass (0.30 ltr) and Organic Waste (0.09 ltr). Cigarette Butts/Vaping items were associated with the smallest proportion of the overall litter volume (0.005 ltr per 1,000 m²).

The largest litter weights per 1,000 m² in the Otago Region were associated with Glass (0.12 kg) and Metal (0.10 kg), while Miscellaneous items (0.08 kg) and Plastic (0.07 kg) were also significant contributors to overall litter weights. Smaller litter weights were recorded for Paper/Cardboard (0.03 kg), Organic Waste (0.02 kg) and Cigarette Butts/Vaping (0.009 kg). A weight measure was not recorded for any Illegal Dumping identified during the Audit.

Figure 129 - Otago 2019 Items and Volume per 1,000 m² by Main Material Type

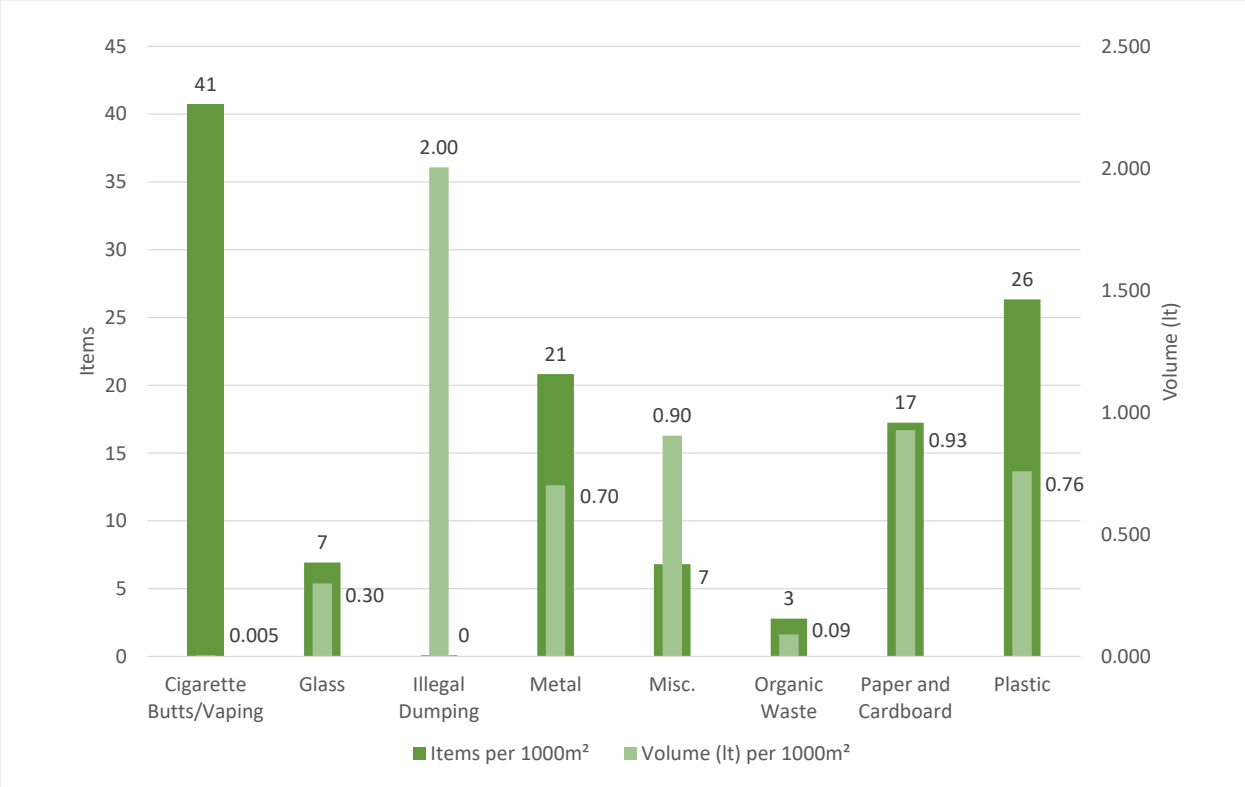
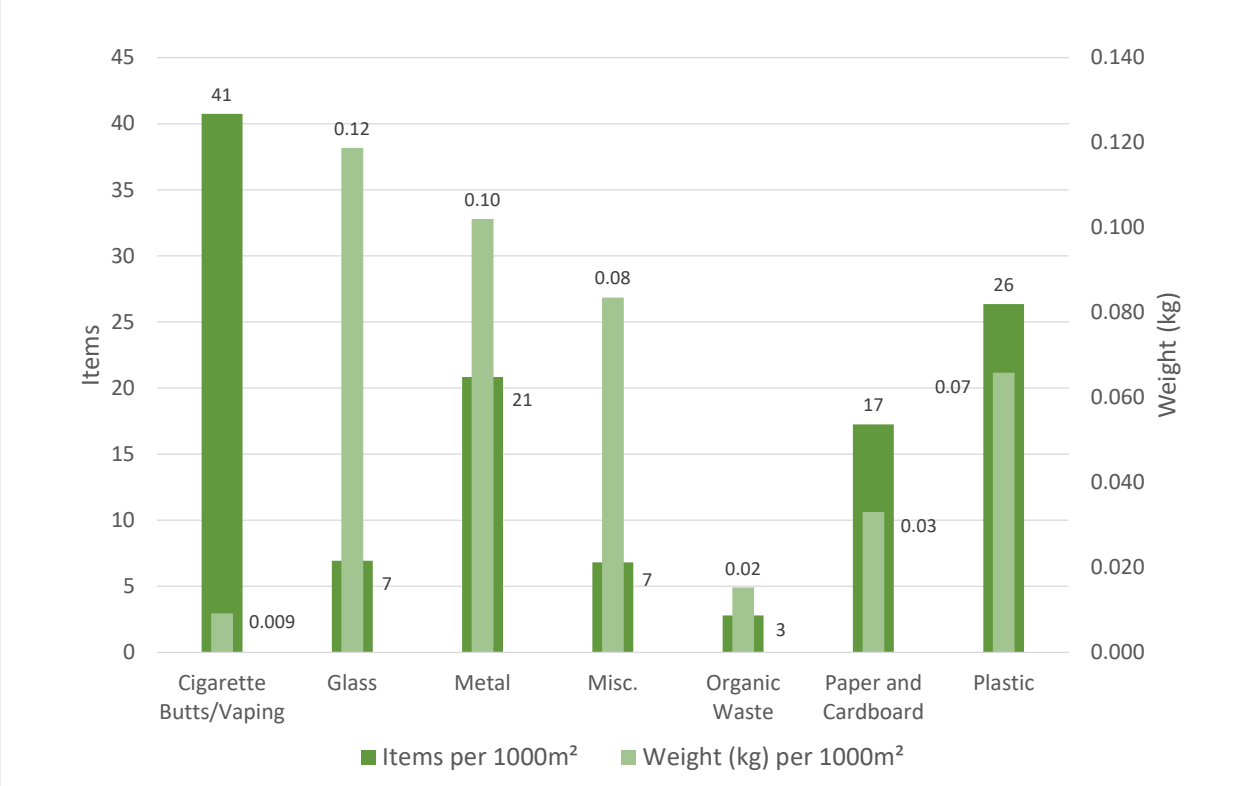


Figure 130 - Otago 2019 Items and Weight per 1,000 m² by Main Material Type

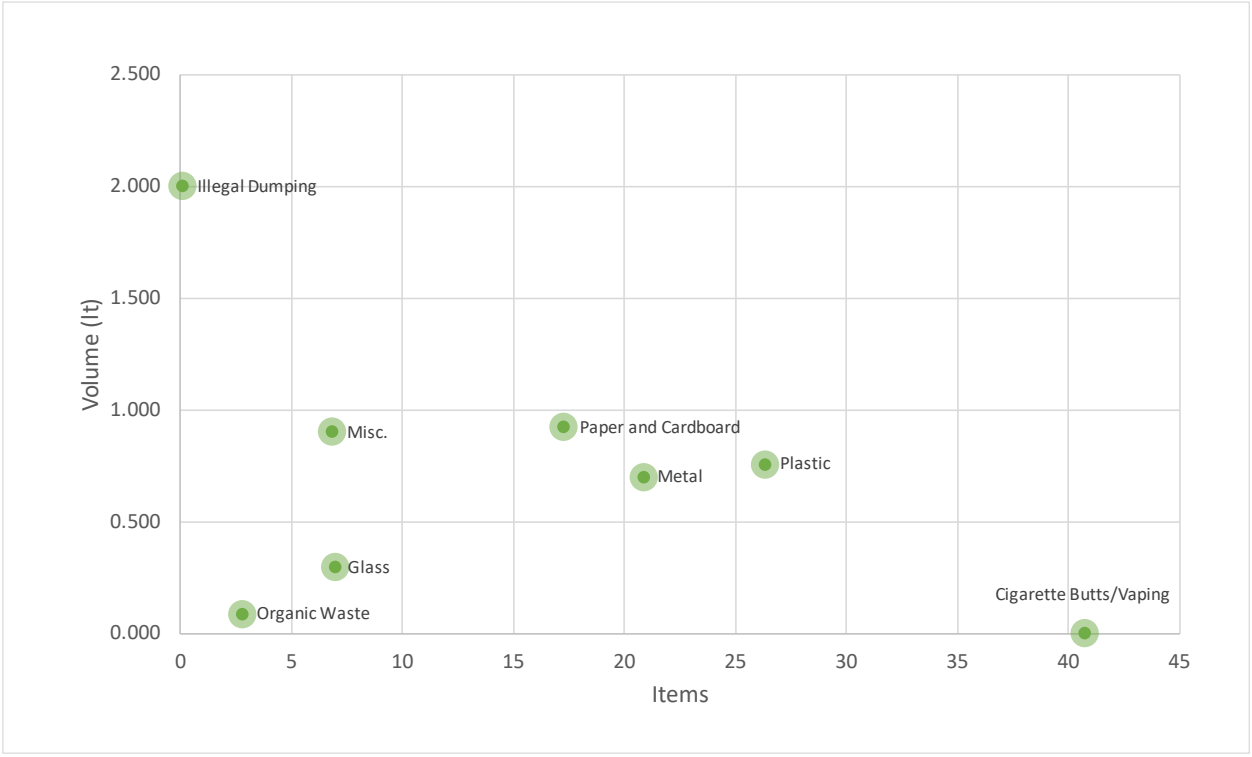


MAIN MATERIAL CHARACTERISTICS

Figures for items and volumes per 1,000 m² across main material types identified the following characteristics of litter objects within the Otago Region:

- Illegal Dumping contributed to large volumes of litter but only negligible numbers of litter items to the litter stream
- Cigarette Butts/Vaping were associated with a high number of litter items but contributed only a negligible volume
- Paper/Cardboard, Metal and Plastic contributed moderate numbers of litter items and small to moderate litter volumes
- Miscellaneous items were associated with low numbers of litter items and small to moderate litter volumes
- Glass and Organic Waste was associated with small numbers of litter items and contributed low volumes of litter

Figure 131 - Otago 2019 Items and Volume per 1,000 m² by Main Material Type

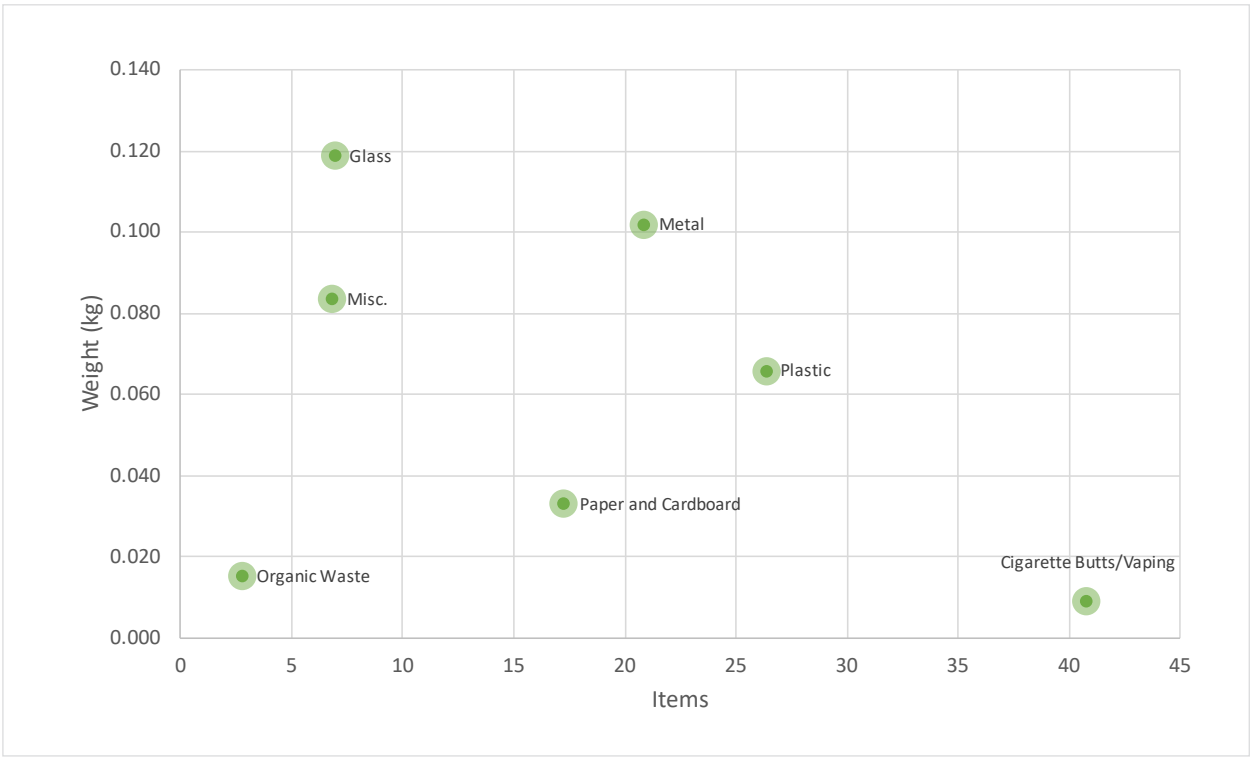


Figures for items and weights per 1,000 m² across main material types identified the following characteristics of litter objects within the Otago Region:

- Glass items were associated with large litter weights, but contributed low numbers of litter items
- Miscellaneous items contributed moderate to large litter weights and low numbers of litter items
- Metal was associated with large litter weights and moderate numbers of litter items
- Plastic contributed moderate litter weights and moderate to high numbers of litter items
- Paper/Cardboard was associated with low litter weights and moderate numbers of litter items
- Cigarette Butts/Vaping items contributed small litter weights, but recorded high numbers of litter items
- Organic Waste was associated with both small litter weights and low numbers of litter items

Note: Illegal Dumping items were not weighed during the Audit

Figure 132 - Otago 2019 Items and Weight per 1,000 m² by Main Material Type

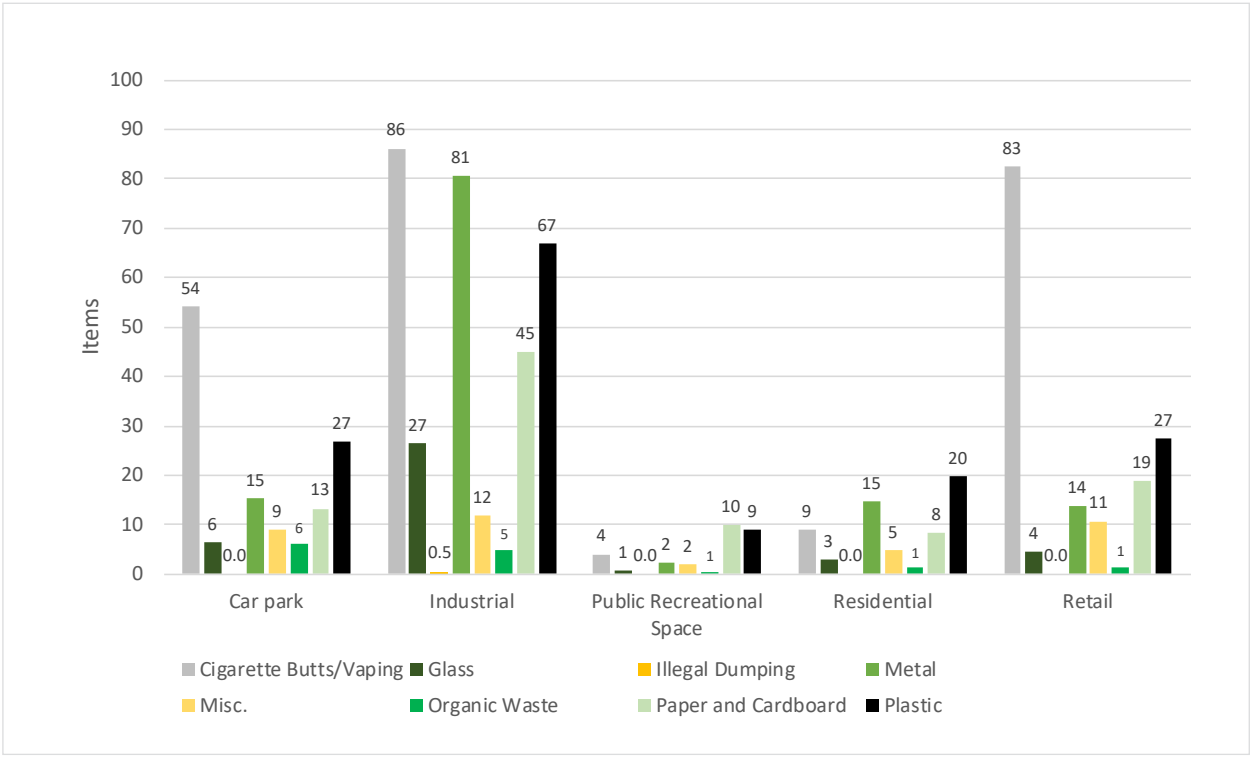


SITE TYPES BY MATERIAL TYPES

Figures for items and volumes per 1,000 m² across main material types identified the following characteristics of litter objects within the Otago Region:

- Car Park sites: Cigarette Butts/Vaping (54 items), Plastic (27 items), Metal (15 items), Paper/Cardboard (13 items), Miscellaneous (9 items), Glass (6 items), Organic Waste (6 items) and Illegal Dumping (0 items)
- Industrial sites: Cigarette Butts/Vaping (86 items), Metal (81 items), Plastic (67 items), Paper/Cardboard (45 items), Glass (27 items), Miscellaneous (12 items), Organic Waste (5 items) and Illegal Dumping (less than 1 item per 1,000 m²)
- Public Recreational sites: Paper/Cardboard (10 items), Plastic (9 items), Cigarette Butts/Vaping (4 items), Metal (2 items), Miscellaneous (2 items), Glass (1 item), Organic Waste (1 item) and Illegal Dumping (0 items)
- Residential sites: Plastic (20 items), Metal (15 items), Cigarette Butts/Vaping (9 items), Paper/Cardboard (8 items), Miscellaneous (5 items), Glass (3 items), Organic Waste (1 item) and Illegal Dumping (0 items)
- Retail sites: Cigarette Butts/Vaping (83 items), Plastic (27 items), Paper/Cardboard (19 items), Metal (14 items), Miscellaneous (11 items), Glass (4 items), Organic Waste (1 item) and Illegal Dumping (0 items)

Figure 133 - Otago 2019 Sites by Main Material Types - Items per 1,000 m²



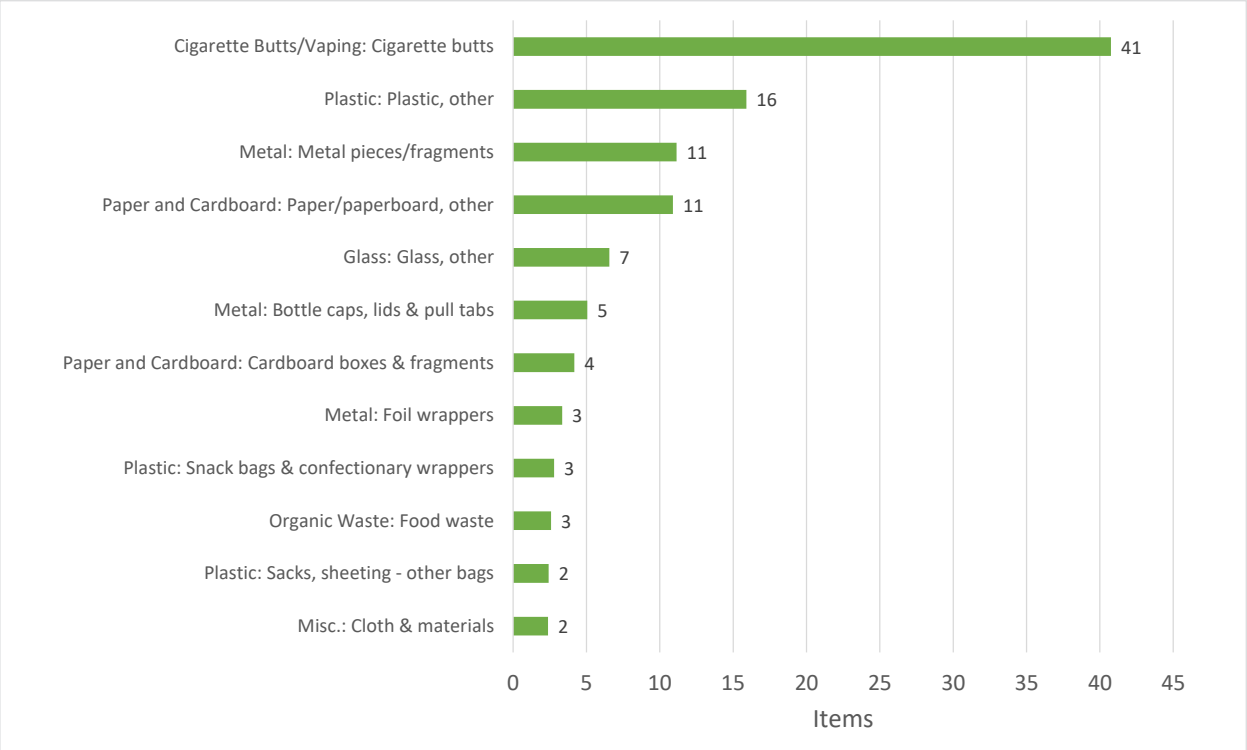
THE DIRTY DOZEN

Analysis according to object sub-type categories showed that on average, Cigarette butts were the most frequently identified litter item in Otago with 41 butts recorded per 1,000 m².

Other objects frequently identified in the Otago Region included:

- Uncategorised Plastic objects (16 items per 1,000 m²)
- Metal pieces/fragments (11 items per 1,000 m²)
- Uncategorised Paper/paperboard objects (11 items per 1,000 m²)
- Uncategorised Glass objects (7 items per 1,000 m²)

Figure 134 - Otago 2019 Dirty Dozen - Items per 1,000 m² - Object Sub Categories

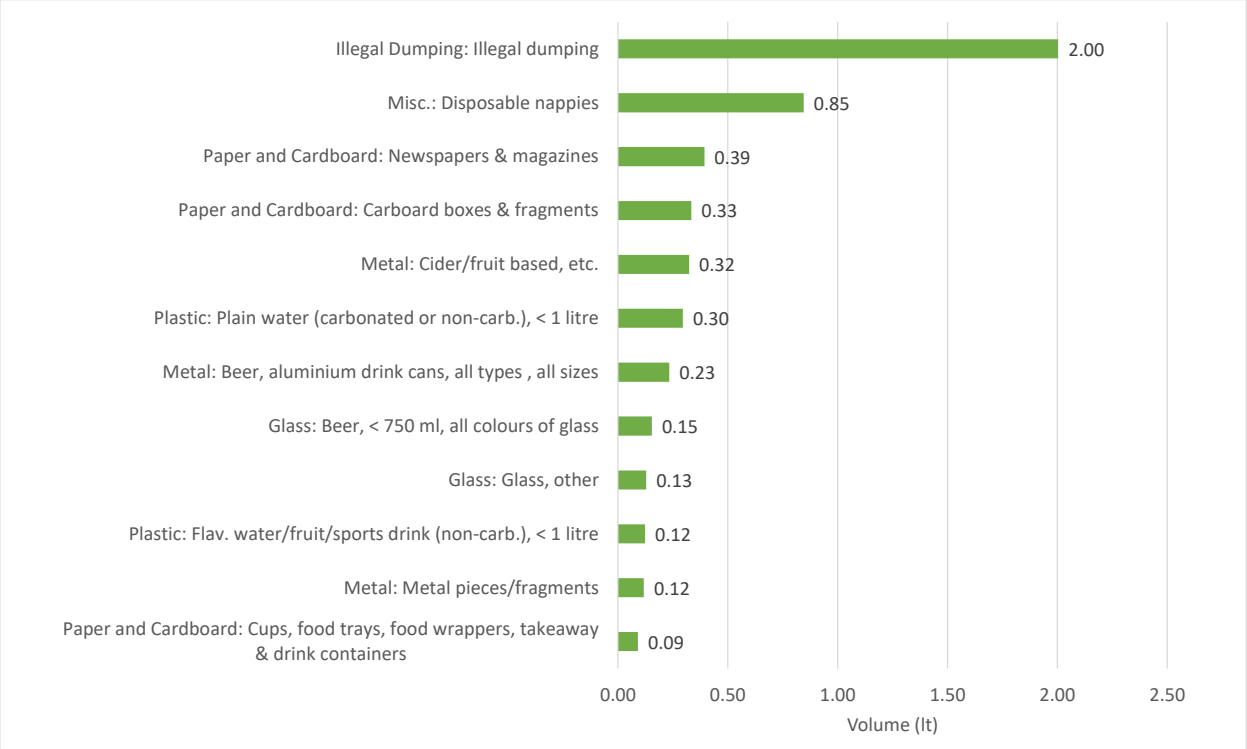


From an analysis of all the material type sub-categories, Illegal dumping contributed the largest proportion to the total estimated litter volume in the Otago Region, recording 2.00 ltr of volume per 1,000 m².

Other object sub-categories with significant volume estimates per 1,000 m² included:

- Disposable nappies (0.85 ltr per 1,000 m²)
- Paper/Cardboard: Newspapers & magazines (0.39 ltr per 1,000 m²)
- Paper/Cardboard: Carboard boxes & fragments (0.33 ltr per 1,000 m²)
- Metal: Cider/fruit based, etc. (0.32 ltr per 1,000 m²)

Figure 135 - Otago 2019 Dirty Dozen - Volume per 1,000 m² - Object Sub Categories

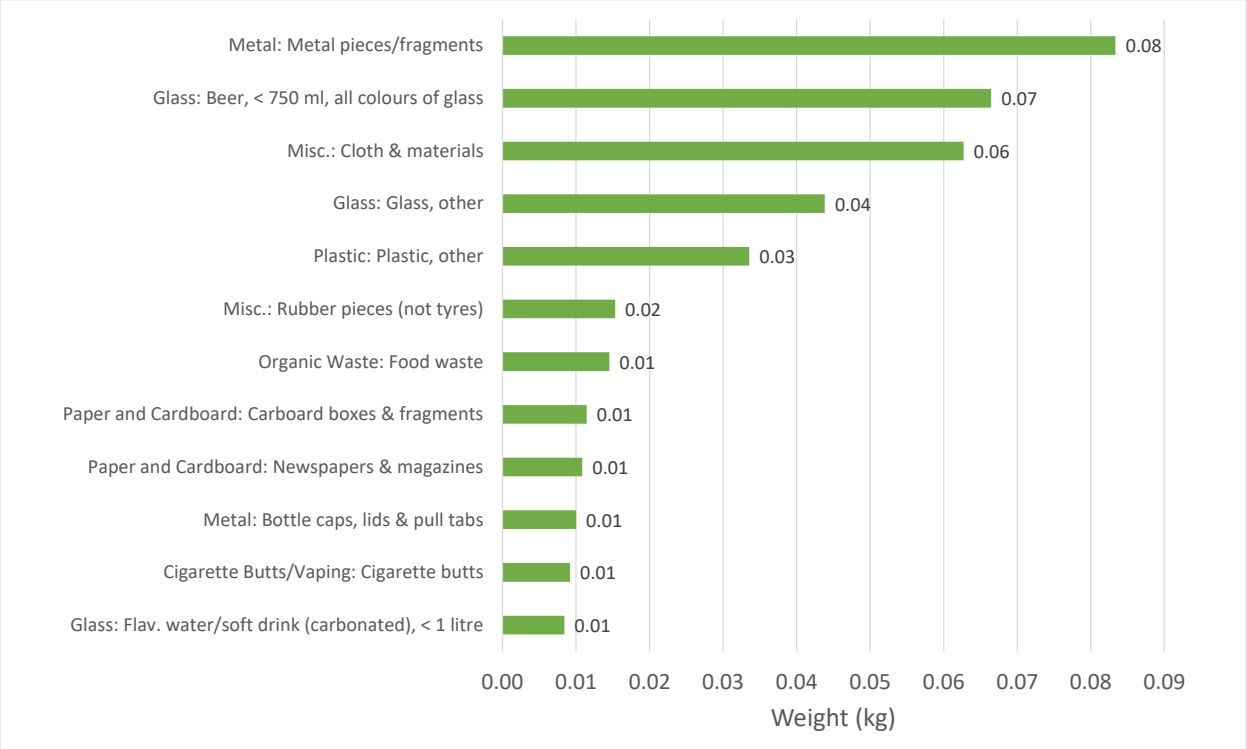


Metal pieces/fragments represented the largest contribution to the average litter weights per 1,000 m² in the Otago Region, recording a weight of 0.08 kg per 1,000 m². Weights were not measured for Illegal Dumping objects and therefore are not included in the weight analysis.

Other object sub-categories which recorded large weights per 1,000 m² throughout the region included:

- Glass: Beer, less than 750 ml, all colours (0.07 kg per 1,000 m²)
- Cloth & materials (0.06 kg per 1,000 m²)
- Uncategorised Glass objects (0.04 kg per 1,000 m²)
- Uncategorised Plastic objects (0.03 kg per 1,000 m²)

Figure 136 - Otago 2019 Dirty Dozen - Weight per 1,000 m² - Object Sub Categories



TERRITORY SUMMARIES

Otago Region is comprised of 4 territorial authorities:

- Central Otago District
- Clutha District
- Dunedin City
- Queenstown-Lakes District

A total of 20 sites (from Industrial, Retail, Residential, Car Park and Public Recreational sites) were audited in the Otago Region with a minimum of 5 sites audited from each territory.

The results are summarised in the following table:

Extract from Table 3 – Territory Data: Otago Region

Territory	Total Area Surveyed (m²)	Items per 1,000 m²	Weight (kg) per 1,000 m²	Volume (lt) per 1,000 m²
OTAGO REGION				
Central Otago District	*6253*	*91*	*0.23*	*3.49*
Clutha District	*6174*	*122*	*0.39*	*8.23*
Dunedin City	*5874*	*152*	*0.78*	*4.14*
Queenstown-Lakes District	*5651*	*124*	*0.32*	*6.97*
Otago Region Overall	**23951**	**122**	**0.43**	**5.69**

SITE GRADINGS

All sites were assigned gradings in 4 categories: Visual rating, Litter hotshots rating, Risk present and Litter distribution. These were analysed to determine rating percentages and averages from the total sites audited within the region.

Extract from Table 2 - Site Types: Otago

	Risk Present		Litter Distribution	
Otago	*Moderate hazard or risk*	*Significant hazard or risk*	*Widespread*	*Clustered*
	100%	*0%*	*95%*	*5%*

Figure 137 - Otago 2019 Grading - Visual Site Ratings

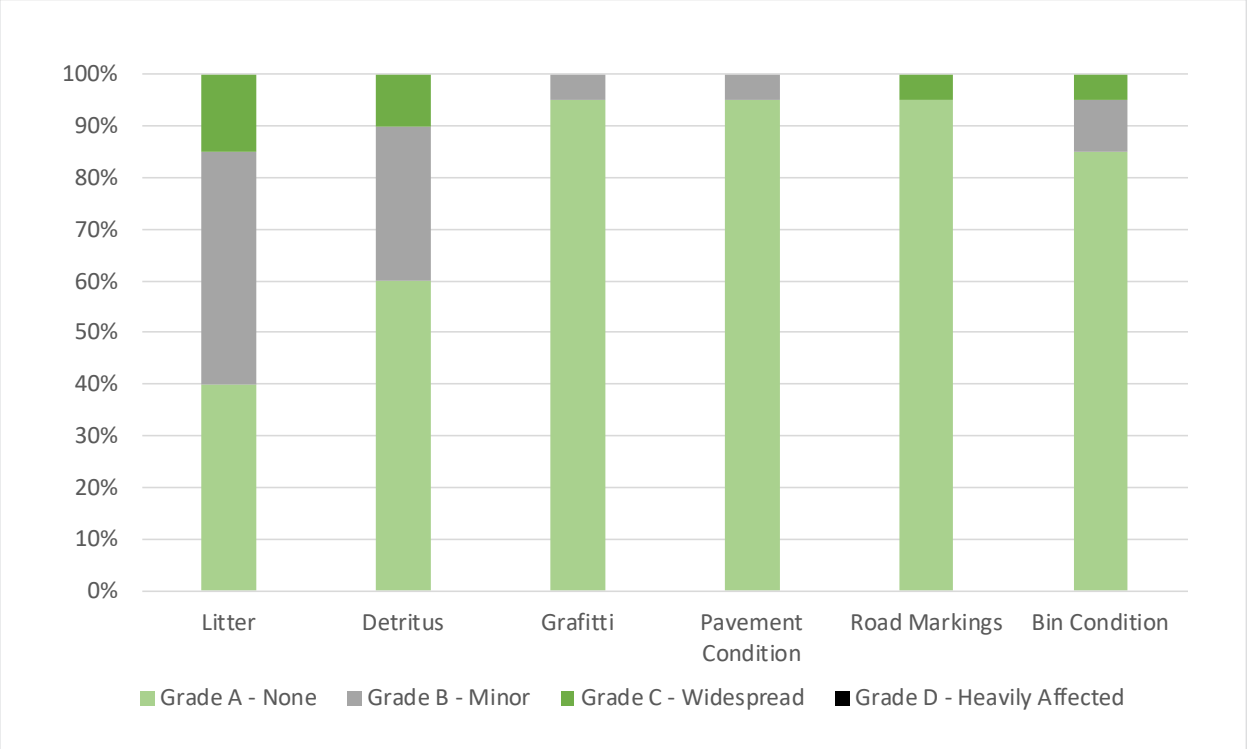
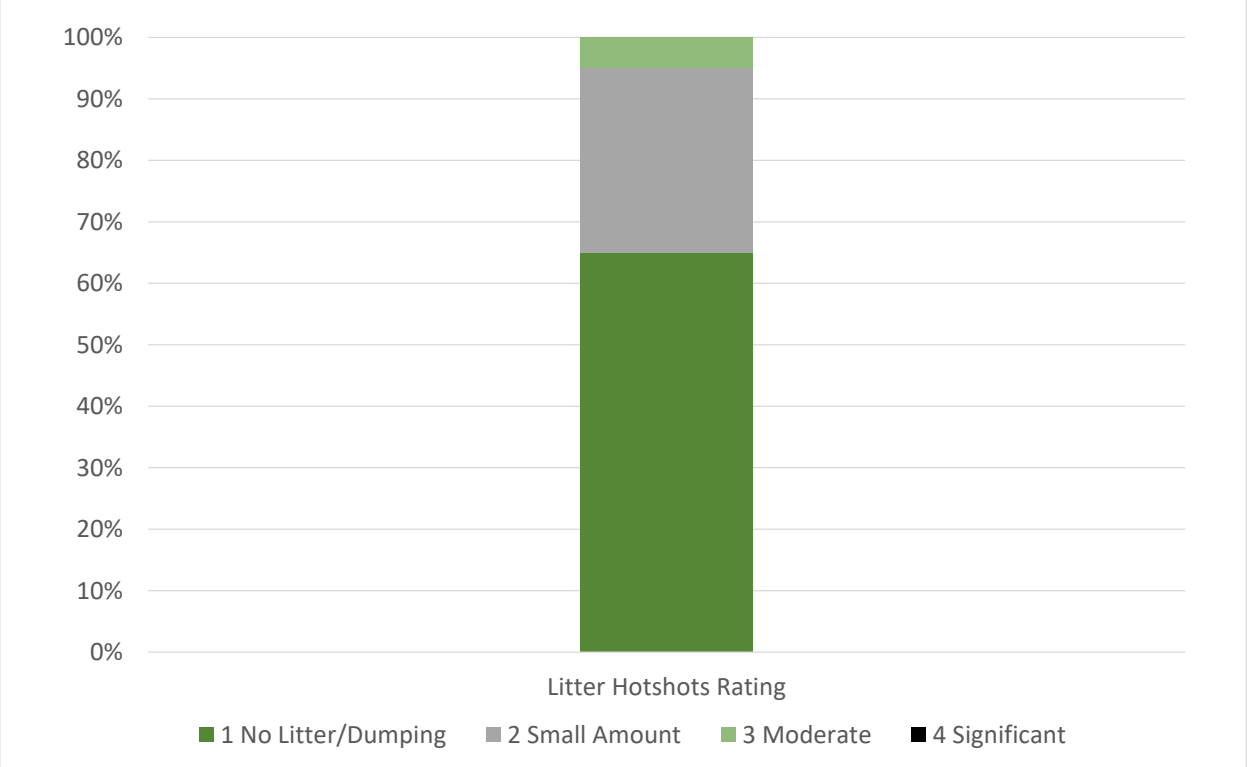


Figure 138 - Otago 2019 Grading - Site Litter Hotshots Ratings



SOUTHLAND REGION

AT A GLANCE

The overall average number of items per 1,000 m² across the 15 sites surveyed in the Southland Region was 75 items, the overall average litter weight per 1,000 m² was 0.39 kg, while the overall average estimated volume per 1,000 m² was 2.54 ltr.

Industrial sites were associated with the highest numbers of litter items, litter weights and litter volumes per 1,000 m² within the region, while Retail sites were recorded with the second highest numbers of litter items, weights and litter volumes.

Low to moderate numbers of litter items, small litter volumes and low litter weights were recorded at Residential sites while Car Park and Public Recreational sites were associated with lower numbers of litter items, litter weights and litter volumes per 1,000 m².

Cigarette Butts/Vaping were the most frequently identified item per 1,000 m², however this category was associated with the smallest litter weights and volumes recorded in the Southland Region. The second most frequently identified item was Plastic, which was associated with more moderate litter weights and volumes.

The largest contributor of litter weight per 1,000 m² was Glass, which was associated with lower numbers of litter items and litter volumes.

Miscellaneous items contributed the largest volume per 1,000 m² to the overall regional litter stream (with Disposable nappies being the main contributor of volume in this category), and contributed the second largest litter weight, however this category was associated with low numbers of litter items.

COMPARISONS BY SITE TYPES

The highest numbers of litter items per 1,000 m² at the sites surveyed in the Southland Region were recorded at Industrial sites (218 items). More moderate numbers of litter items were also associated with Retail sites (128 items) while lower numbers of litter items were collected at Residential sites (74 items). The lowest numbers of litter items were found at Car Park sites (48 items) and Public Recreational sites (24 items).

High estimated volumes per 1,000 m² of the litter objects were associated with Industrial sites (8.62 ltr) while the second highest volumes were recorded at Retail

sites (4.12 ltr). Smaller litter volumes were associated with Public Recreational sites (1.93 ltr) while Residential sites (1.51 ltr) and Car Park sites (0.84 ltr) contributed the lowest volumes of litter per 1,000 m².

Industrial sites (2.10 kg) contributed to the highest litter weights per 1,000 m² in the Southland Region. Smaller litter weights were associated with Retail sites (0.34 kg), Residential sites (0.21 kg), Public Recreational sites (0.16 kg) and Car Park sites (0.13 kg).

Figure 139 - Southland 2019 Items and Volume per 1,000 m² by Site Type

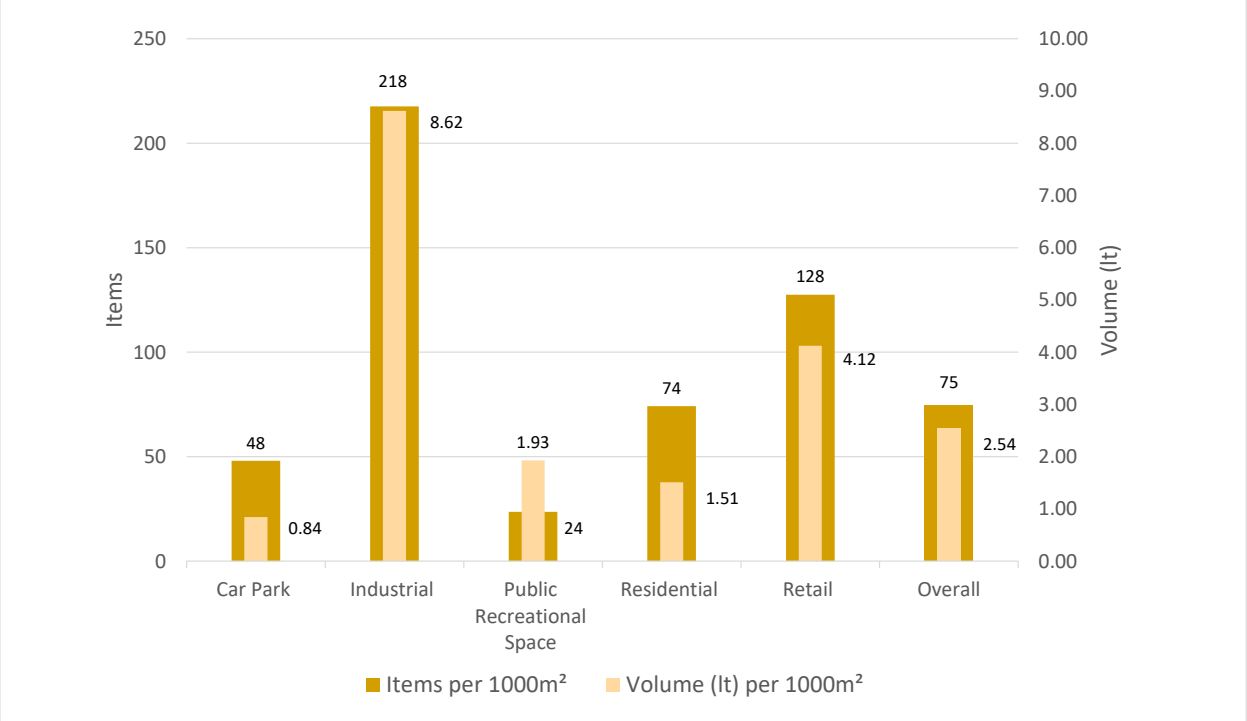
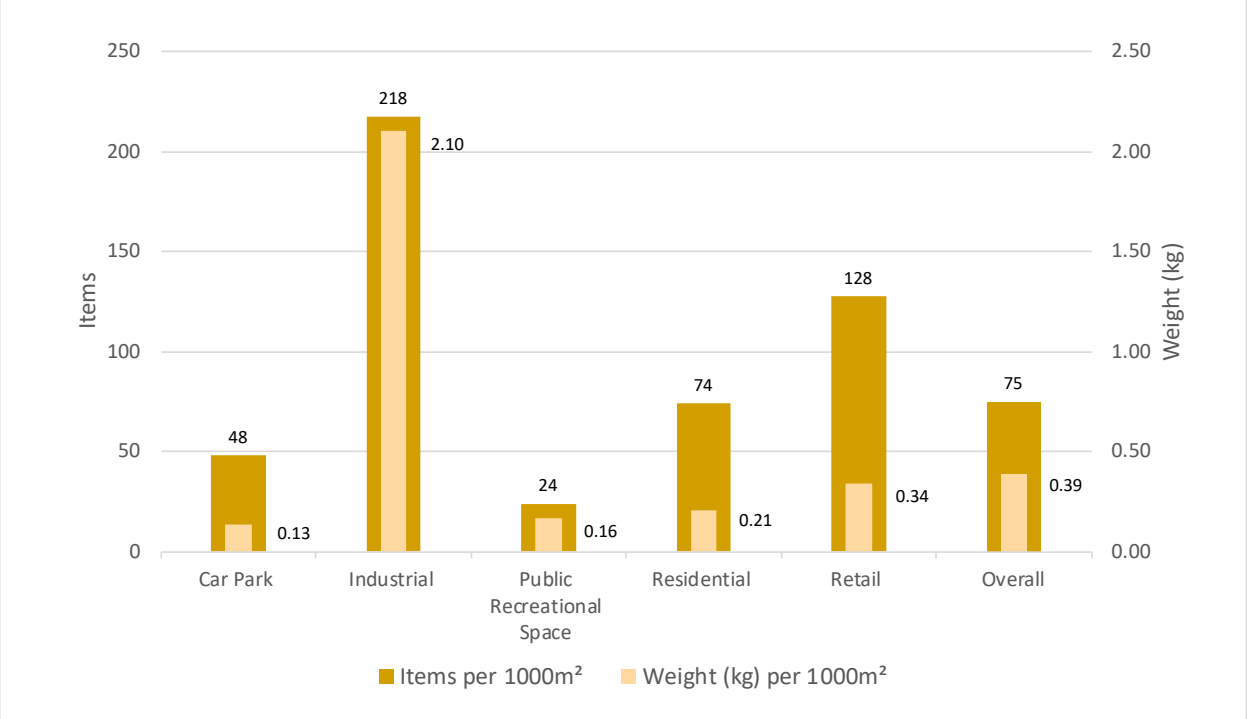


Figure 140 - Southland 2019 Items and Weight per 1,000 m² by Site Type

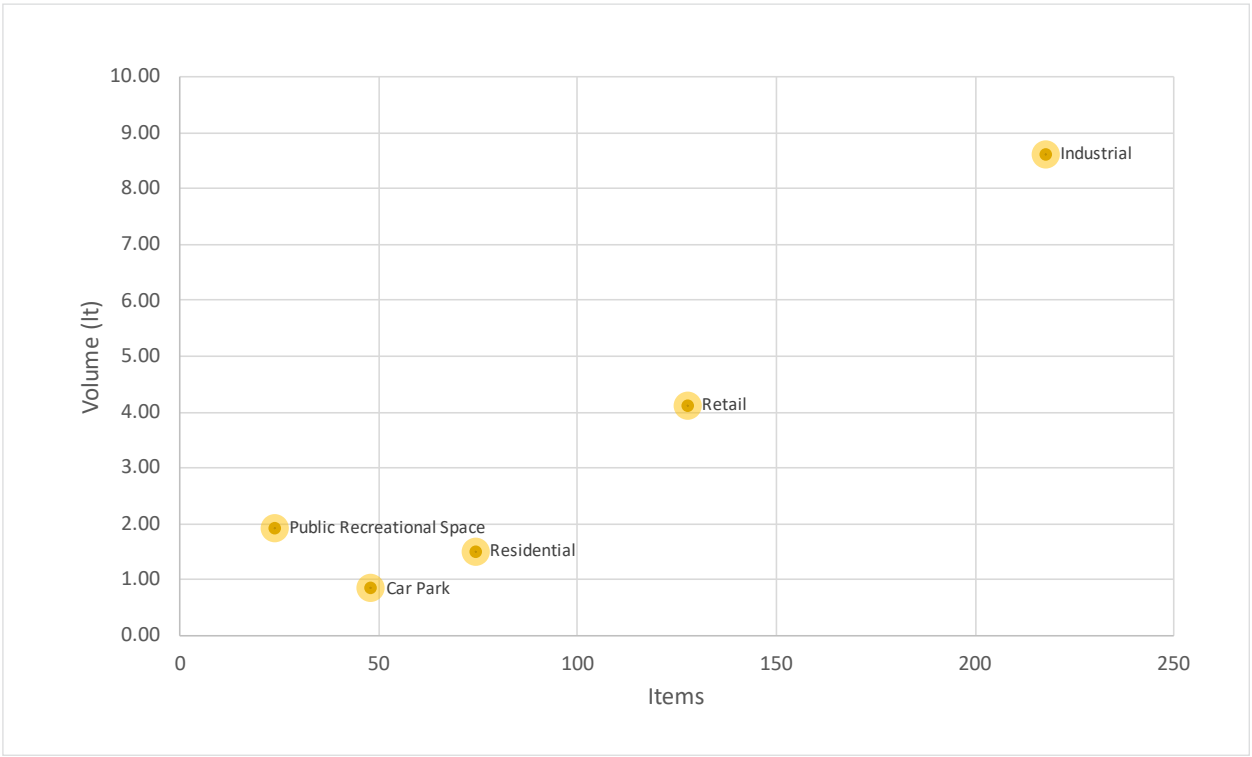


SITE CHARACTERISTICS

The following site characteristics across all site types within the Southland Region were identified for items and volume estimates per 1,000 m²:

- Industrial sites contributed to both high numbers of litter items and large litter volumes
- Retail sites were associated with moderate numbers of litter items and moderate to high litter volumes
- Residential sites contributed low to moderate numbers of litter items and small litter volumes
- Public Recreational and Car Park sites were associated with low numbers of litter items and small litter volumes

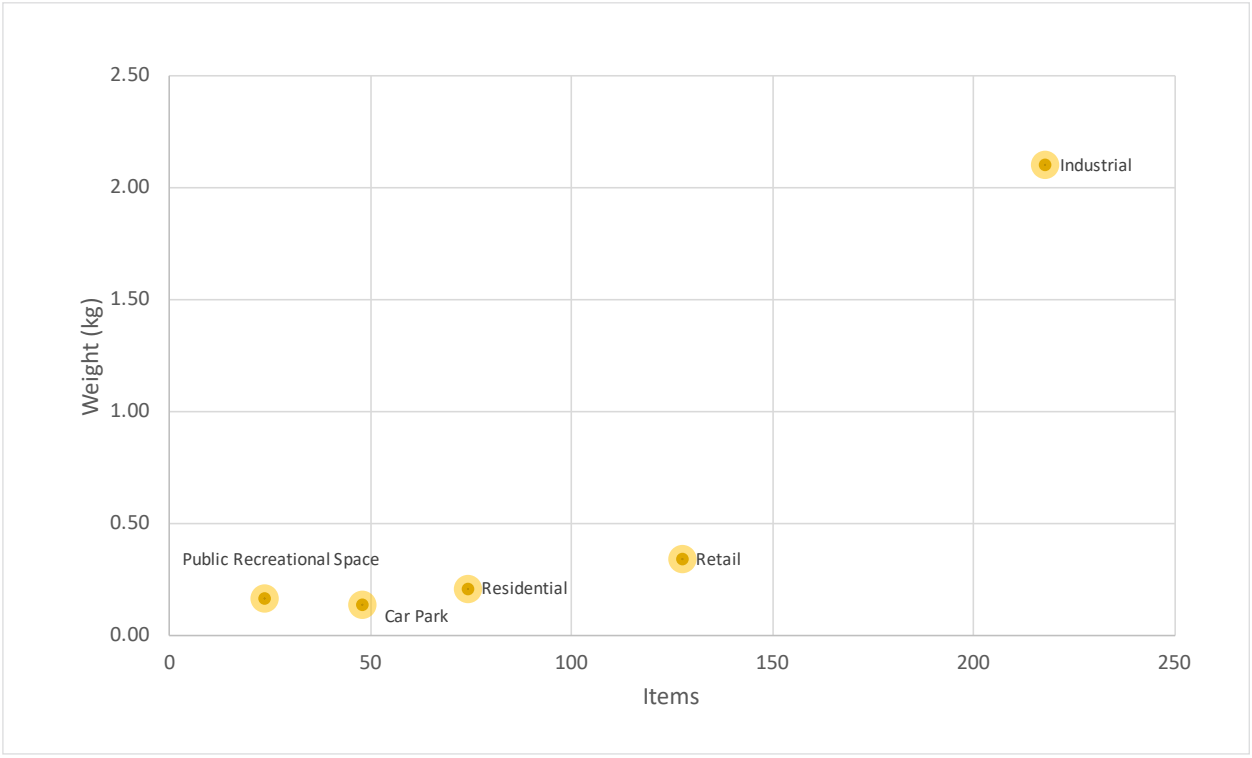
Figure 141 - Southland 2019 Items and Volume per 1,000 m² by Site Type



Site characteristics across the Southland Region sites were identified for items and litter weights per 1,000 m² as follows:

- Industrial sites were associated with both large litter weights and high numbers of litter items
- Retail sites contributed small litter weights and moderate numbers of litter items
- Residential sites were associated with small litter weights and low to moderate numbers of litter items
- Public Recreational and Car Park sites contributed small litter weights and low numbers of litter items

Figure 142 - Southland 2019 Items and Weight per 1,000 m² by Site Type



COMPARISON BY MAIN MATERIAL TYPES

Cigarette Butts/Vaping were the most frequently identified objects per 1,000 m² within the Southland Region (22 items) while Plastic (20 items) was also a significant contributor to the overall number of litter items collected.

Smaller numbers of items per 1,000 m² were recorded for Paper/Cardboard (7 items), Metal (7 items), Glass (7 items), Miscellaneous (7 items), Organic Waste (7 items) and Miscellaneous (5 items). There were no instances of Illegal Dumping recorded at the sites audited.

Miscellaneous items contributed the largest amount of volume per 1,000 m² to the litter stream (0.83 ltr). Smaller volumes were recorded for Metal (0.42 ltr), Paper/Cardboard (0.39 ltr), Plastic (0.36 ltr), Glass (0.30 ltr) and Organic Waste (0.23 ltr). Cigarette Butts/Vaping items were associated with the smallest proportion of the overall litter volume (0.003 ltr per 1,000 m²).

Glass (0.11 kg) and Miscellaneous items (0.09 kg) were associated with the largest litter weights recorded per 1,000 m², while smaller litter weights were associated with Paper/Cardboard (0.06 kg), Plastic (0.05 kg), Metal (0.04 kg) and Organic Waste (0.03 kg). The smallest litter weights recorded in the Southland Region was attributed to Cigarette Butts/Vaping (0.01 kg). A weight measure was not recorded for any Illegal Dumping identified during the Audit.

Figure 143 - Southland 2019 Items and Volume per 1,000 m² by Main Material Type

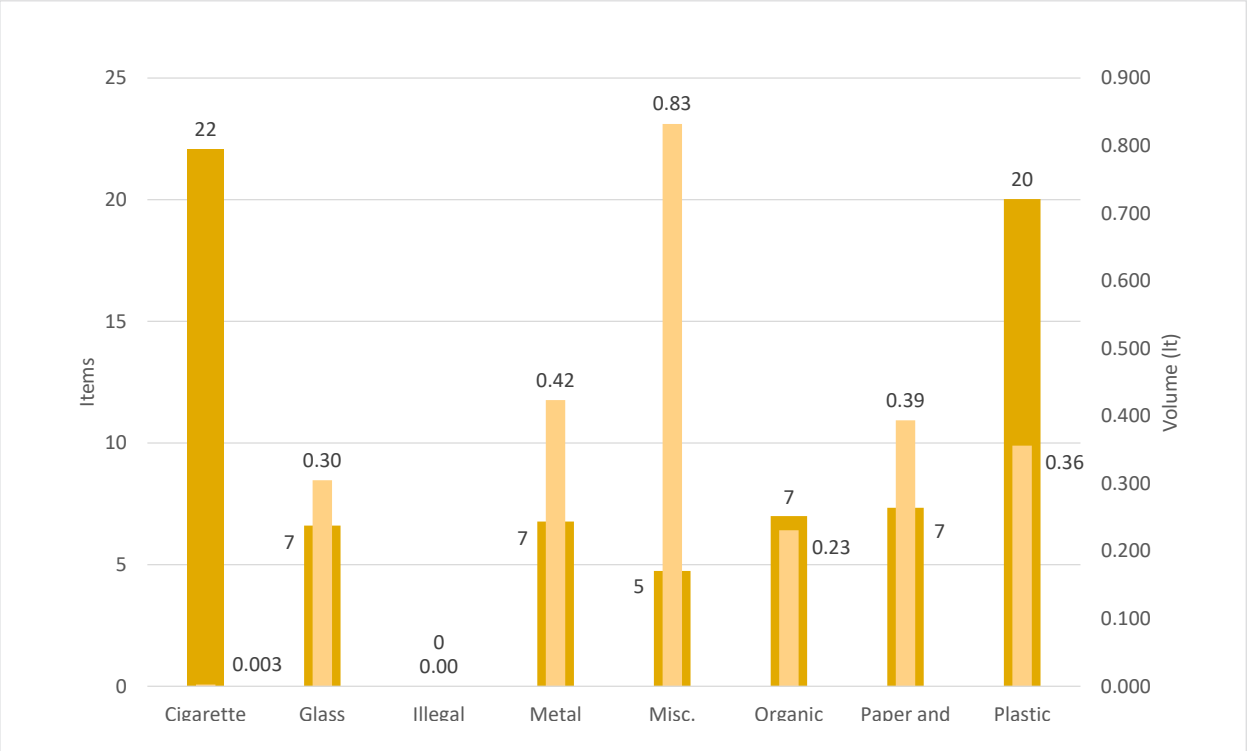
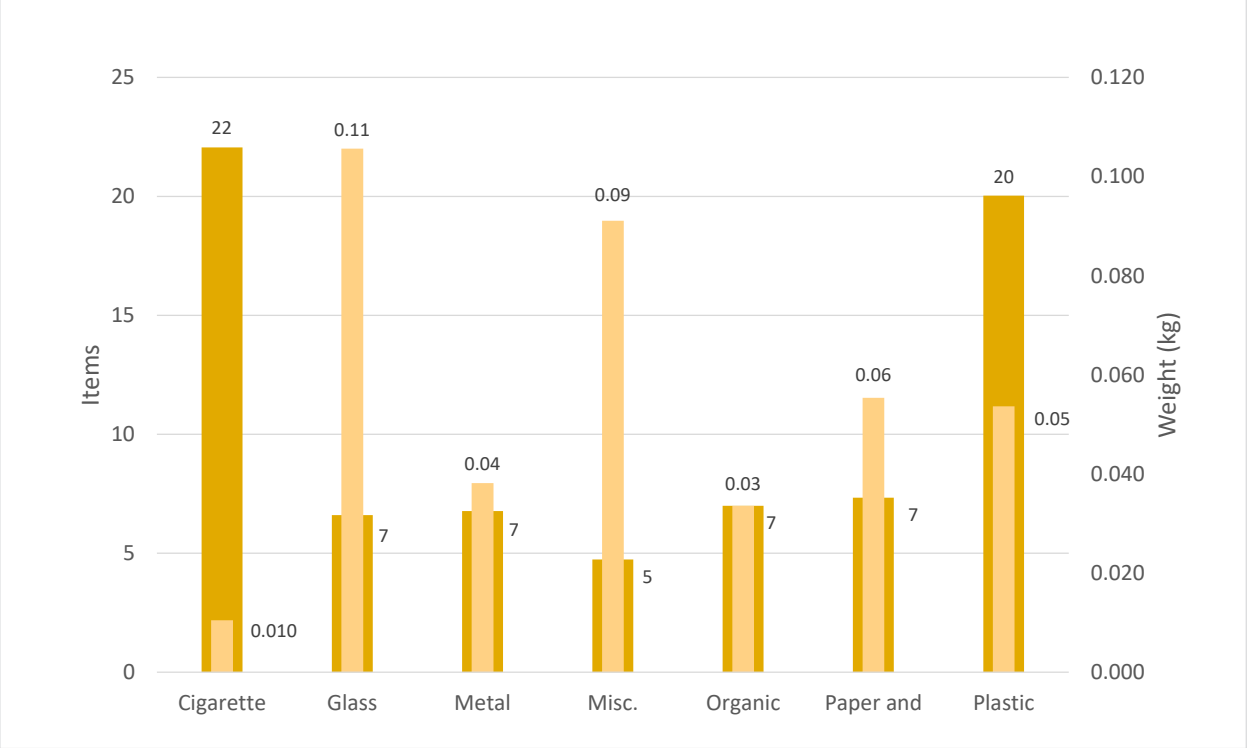


Figure 144 - Southland 2019 Items and Weight per 1,000 m² by Main Material Type

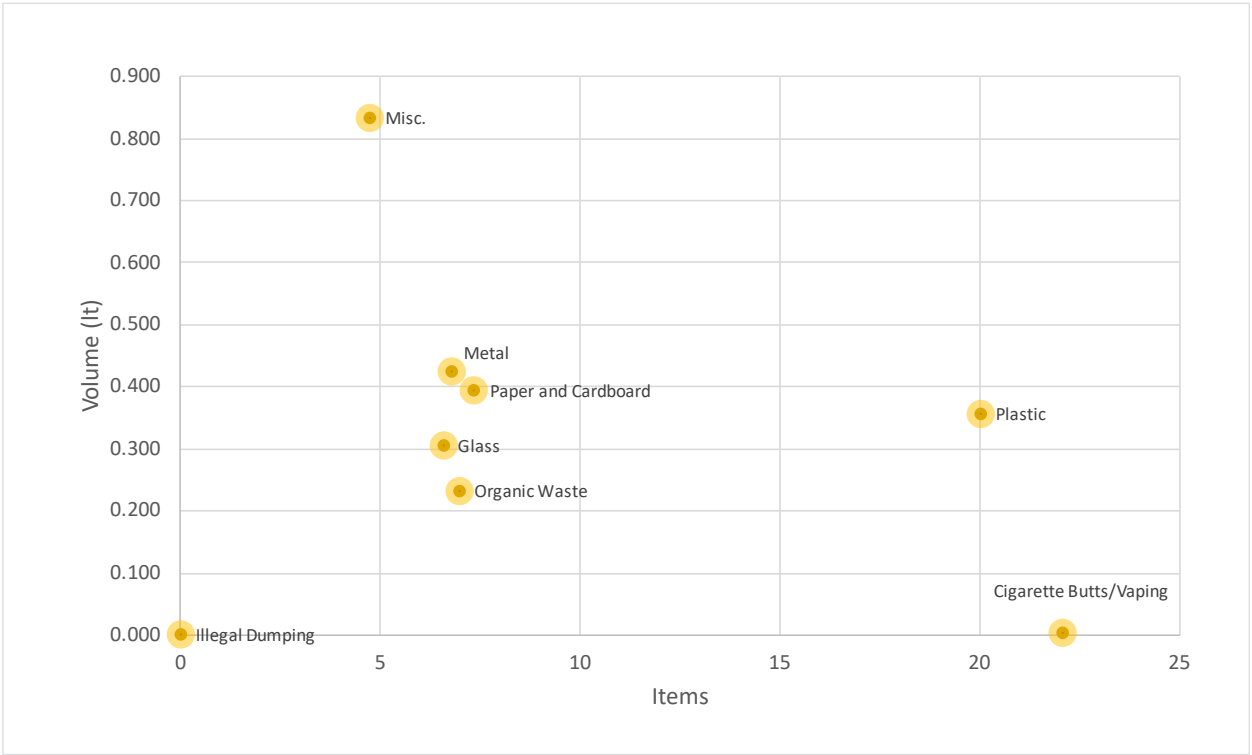


MAIN MATERIAL CHARACTERISTICS

Figures for items and volumes per 1,000 m² across main material types identified the following characteristics of litter objects within the Southland Region:

- Cigarette Butts/Vaping were associated with a high number of litter items but contributed only a negligible volume to the litter stream
- Miscellaneous items contributed large volumes of litter but were associated with low numbers of litter items
- Plastic contributed to high numbers of litter items and moderate litter volumes
- Paper/Cardboard and Metal contributed low to moderate numbers of litter items and moderate litter volumes
- Glass and Organic Waste were associated with low to moderate numbers of litter items and low to moderate litter volumes
- There were no instances of Illegal Dumping recorded at the sites audited

Figure 145 - Southland 2019 Items and Volume per 1,000 m² by Main Material Type

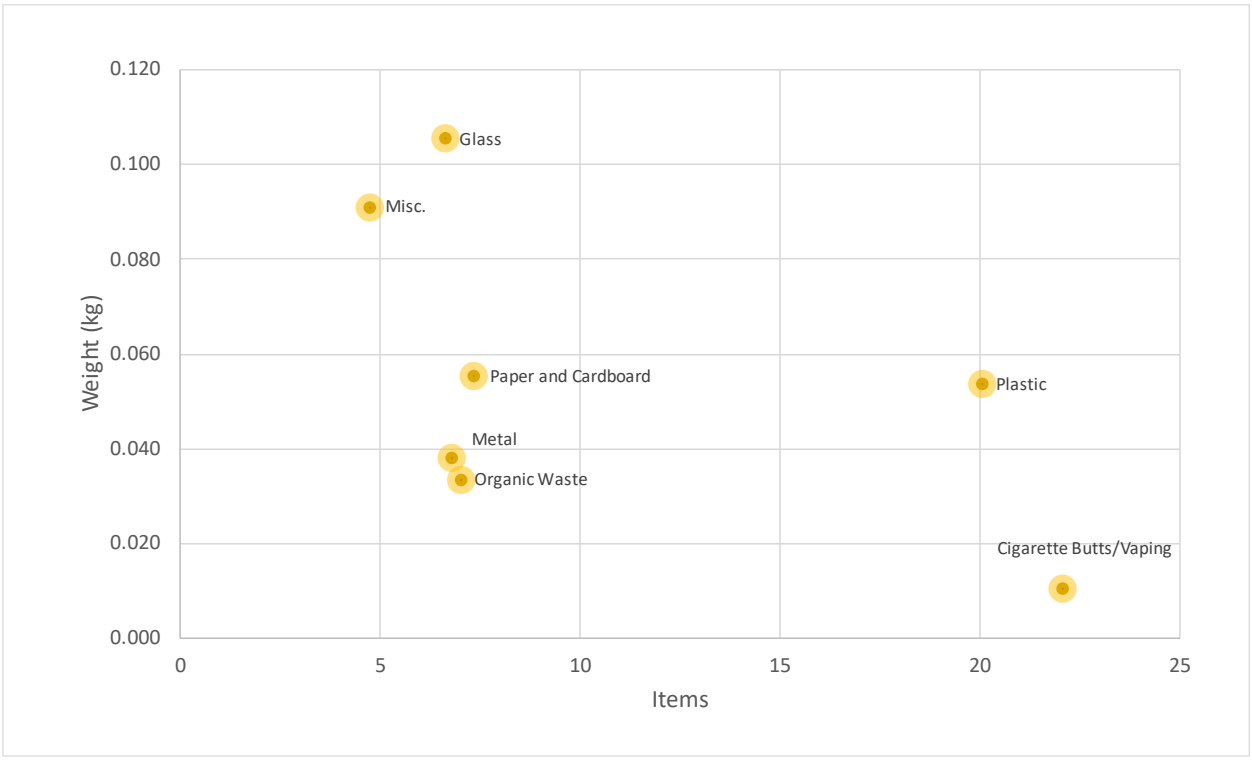


The following characteristics of litter objects were observed for items and weights per 1,000 m² across main material types:

- Glass items were associated with large litter weights and low to moderate numbers of litter items
- Miscellaneous items contributed large litter weights, but were associated with low numbers of litter items
- Paper/Cardboard were associated with moderate litter weights and low to moderate numbers of litter items
- Metal and Organic Waste were associated with small litter weights and low to moderate numbers of litter items
- Plastic items contributed moderate litter weights and high numbers of litter items
- Cigarette Butts/Vaping items were associated with small litter weights, but contributed high numbers of litter items to the regional litter stream

Note: Illegal Dumping items were not weighed during the Audit

Figure 146 - Southland 2019 Items and Weight per 1,000 m² by Main Material Type

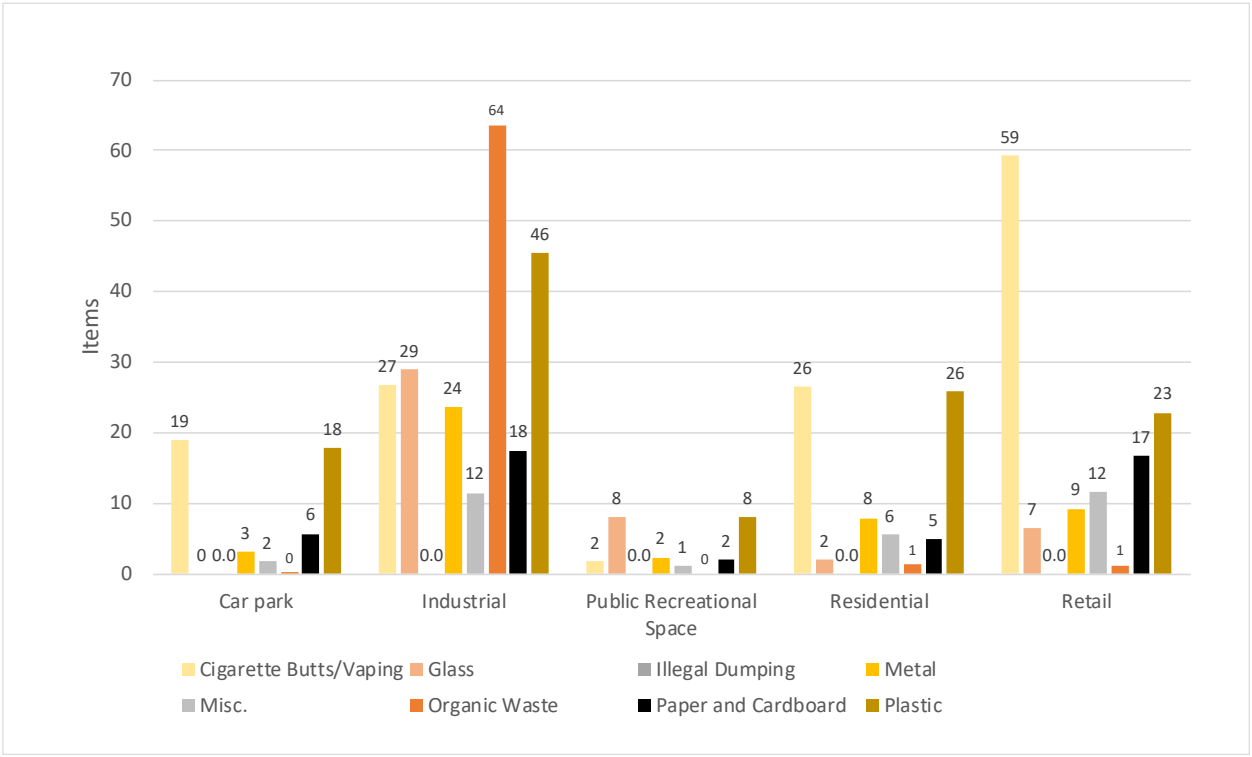


SITE TYPES BY MATERIAL TYPES

Figures for items and volumes per 1,000 m² across main material types identified the following characteristics of litter objects within the Southland Region:

- Car Park sites: Cigarette Butts/Vaping (19 items), Plastic (18 items), Paper/Cardboard (6 items), Metal (3 items), Miscellaneous (2 items), Glass (0 items), Organic Waste (0 items) and Illegal Dumping (0 items)
- Industrial sites: Organic Waste (64 items), Plastic (46 items), Glass (29 items), Cigarette Butts/Vaping (27 items), Metal (24 items), Paper/Cardboard (18 items), Miscellaneous (12 items) and Illegal Dumping (0 items)
- Public Recreational sites: Glass (8 items), Plastic (8 items), Cigarette Butts/Vaping (2 items), Metal (2 items), Paper/Cardboard (2 items), Miscellaneous (1 item), Organic Waste (0 items) and Illegal Dumping (0 items)
- Residential sites: Cigarette Butts/Vaping (26 items), Plastic (26 items), Metal (8 items), Miscellaneous (6 items), Paper/Cardboard (5 items), Glass (2 items), Organic Waste (1 items) and Illegal Dumping (0 items)
- Retail sites: Cigarette Butts/Vaping (59 items), Plastic (23 items), Paper/Cardboard (17 items), Miscellaneous (12 items), Metal (9 items), Glass (7 items), Organic Waste (1 items) and Illegal Dumping (0 items)

Figure 147 - Southland 2019 Sites by Main Material Types - Items per 1,000 m²



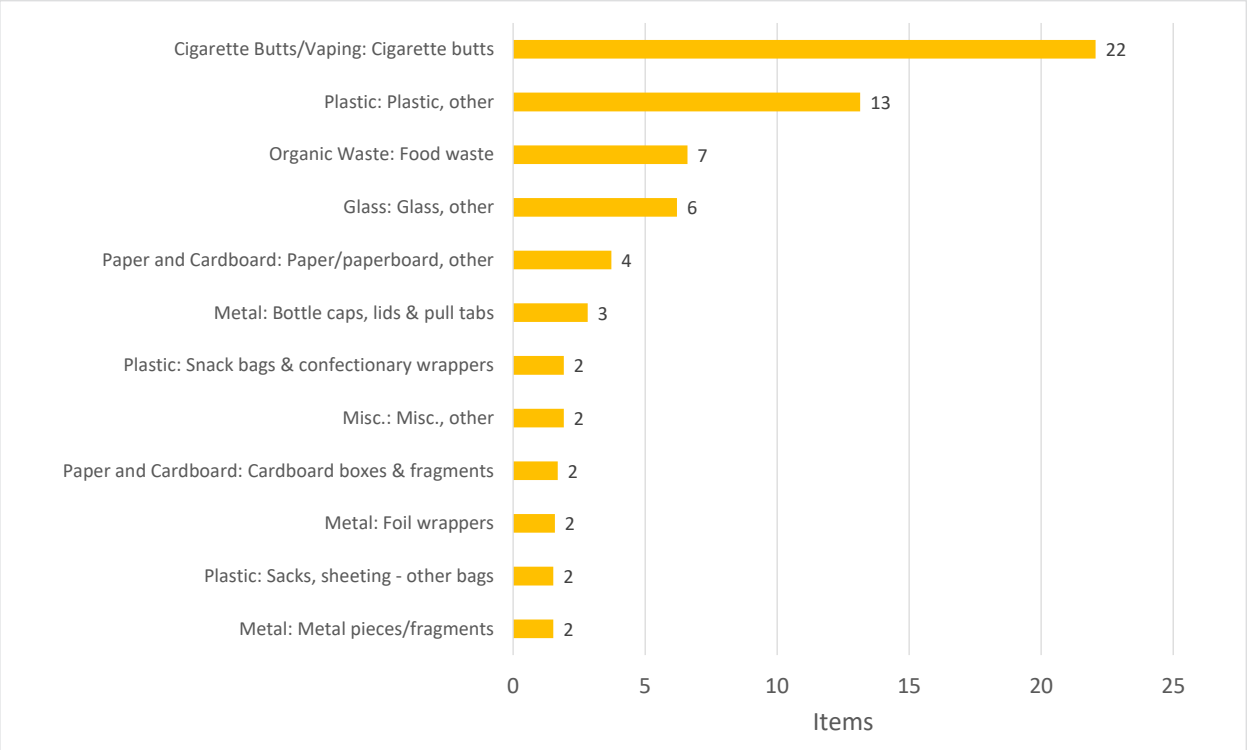
THE DIRTY DOZEN

On average across the Southland Region litter counts, Cigarette butts were the largest contributors to the litter objects, with 22 butts per 1,000 m² identified at the audited sites.

Other object sub-categories frequently identified during the litter counts included:

- Uncategorised Plastic objects (13 items per 1,000 m²)
- Food waste (7 items per 1,000 m²)
- Uncategorised Glass objects (6 items per 1,000 m²)
- Uncategorised Paper/paperboard (4 items per 1,000 m²)

Figure 148 - Southland 2019 Dirty Dozen - Items per 1,000 m² - Object Sub Categories

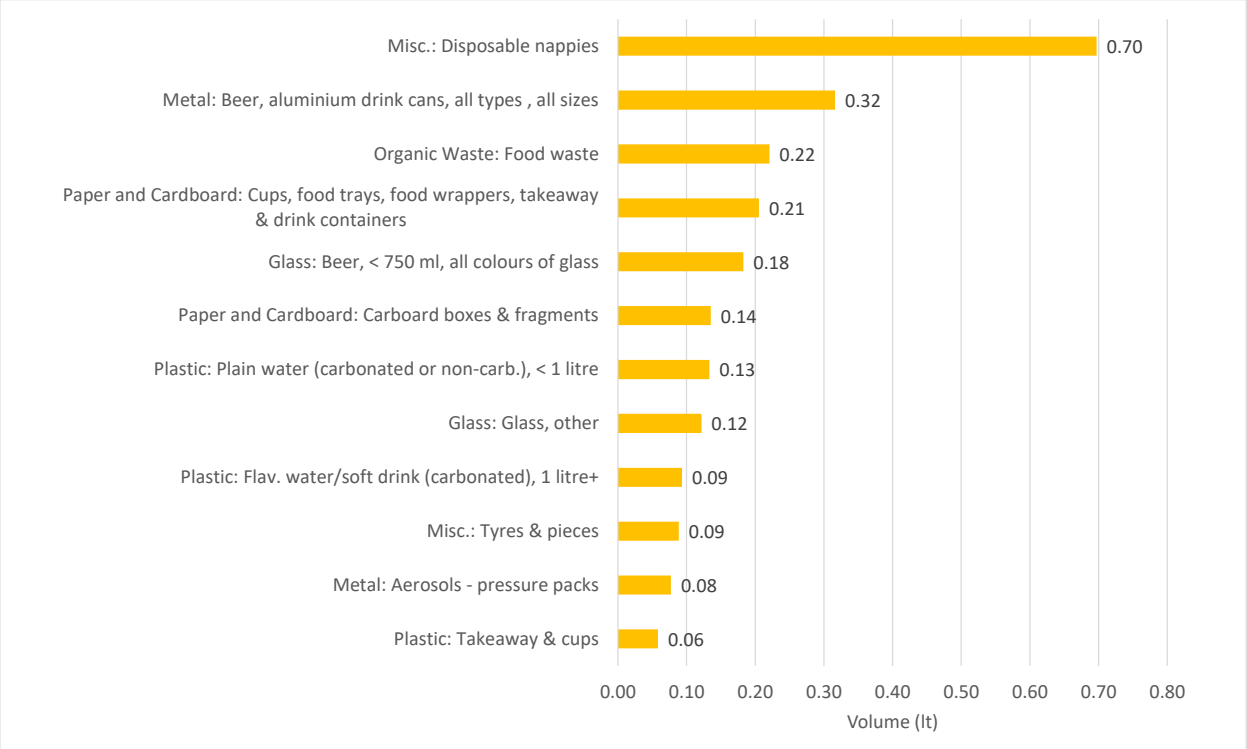


The largest contributor to the estimated litter volume per 1,000 m² in the Southland Region was Disposable nappies, recording a volume 0.70 ltr per 1,000 m².

Other object sub-categories which were associated with large estimated litter volumes per 1,000 m² included:

- Metal: Beer, aluminium drink cans, all types, all sizes (0.32 ltr per 1000m²)
- Food waste (0.22 ltr per 1000m²)
- Paper/Cardboard: Cups, food trays, food wrappers, takeaway & drink containers (0.21 ltr per 1000m²)
- Glass: Beer, less than 750 ml, all colours of glass (0.18 ltr per 1000m²)

Figure 149 - Southland 2019 Dirty Dozen - Volume per 1,000 m² - Object Sub Categories

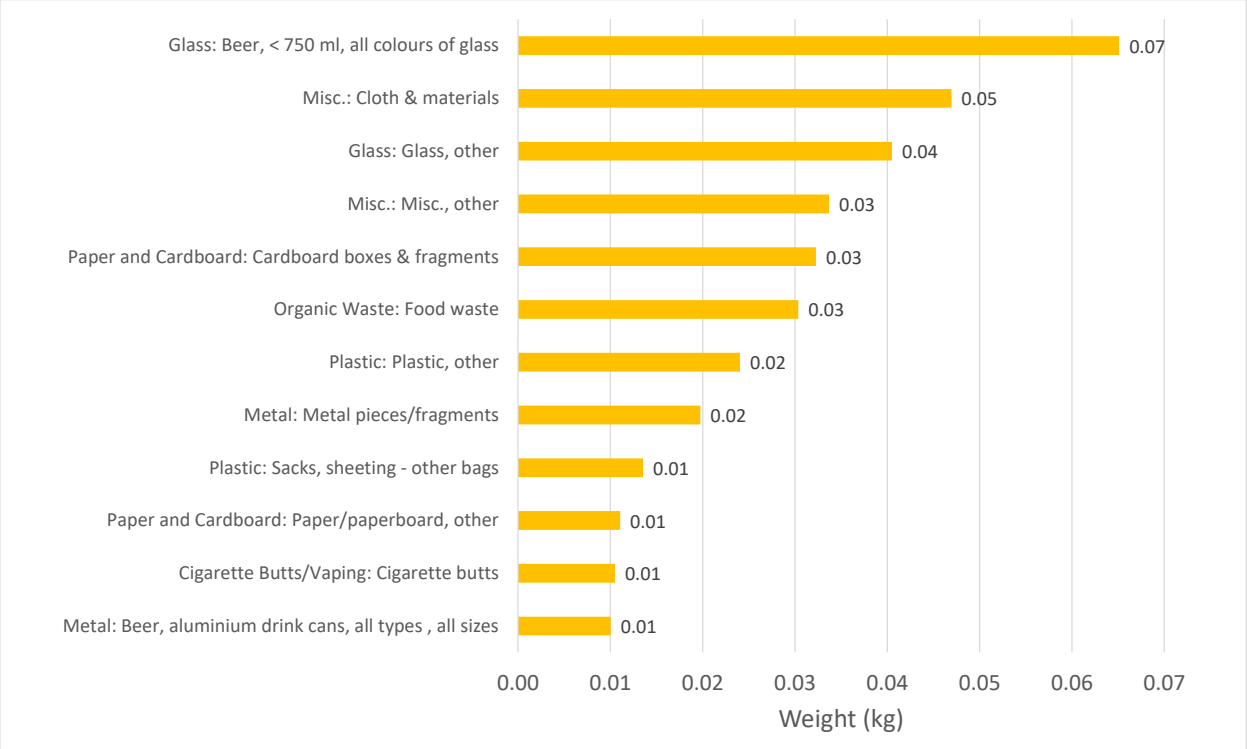


From an analysis of all the material type sub-categories, Glass: Beer bottles (less than 750 ml, all colours) contributed the largest proportion to the overall litter weight in the Southland Region, recording an average weight of 0.07 kg per 1,000 m². Weights were not measured for Illegal Dumping objects and therefore are not included in the weight analysis.

Other object sub-categories with significant weights per 1,000 m² included:

- Cloth & materials (0.05 kg per 1,000 m²)
- Uncategorised Glass objects (0.04 kg per 1,000 m²)
- Uncategorised Miscellaneous objects (0.03 kg per 1,000 m²)
- Paper/Cardboard: Carboard boxes & fragments (0.03 kg per 1,000 m²)
- Food waste (0.03 kg per 1,000 m²)

Figure 150 - Southland 2019 Dirty Dozen - Weight per 1,000 m² - Object Sub Categories



TERRITORY SUMMARIES

Southland Region is comprised of 3 territorial authorities:

- Gore District
- Invercargill City
- Southland District

A total of 15 sites (from Industrial, Retail, Residential, Car Park and Public Recreational sites) were audited in the Southland Region with a minimum of 5 sites audited from each territory.

The results are summarised in the following table:

Extract from Table 3 – Territory Data: Southland Region

Territory	Total Area Surveyed (m^2)	Items per 1,000 m^2	Weight (kg) per 1,000 m^2	Volume (lt) per 1,000 m^2
SOUTHLAND REGION				
Gore District	*5880*	*122*	*0.74*	*4.74*
Invercargill City	*5985*	*65*	*0.37*	*1.79*
Southland District	*5859*	*37*	*0.05*	*1.11*
Southland Region Overall	**17724**	**75**	**0.39**	**2.54**

SITE GRADINGS

All sites were assigned gradings in 4 categories: Visual rating, Litter hotshots rating, Risk present and Litter distribution. These were analysed to determine rating percentages and averages from the total sites audited within the region.

Extract from Table 2 - Site Types: Southland

	Risk Present		Litter Distribution	
Southland	*Moderate hazard or risk*	*Significant hazard or risk*	*Widespread*	*Clustered*
	93%	*7%*	*87%*	*13%*

Figure 151 - Southland 2019 Grading - Visual Site Ratings

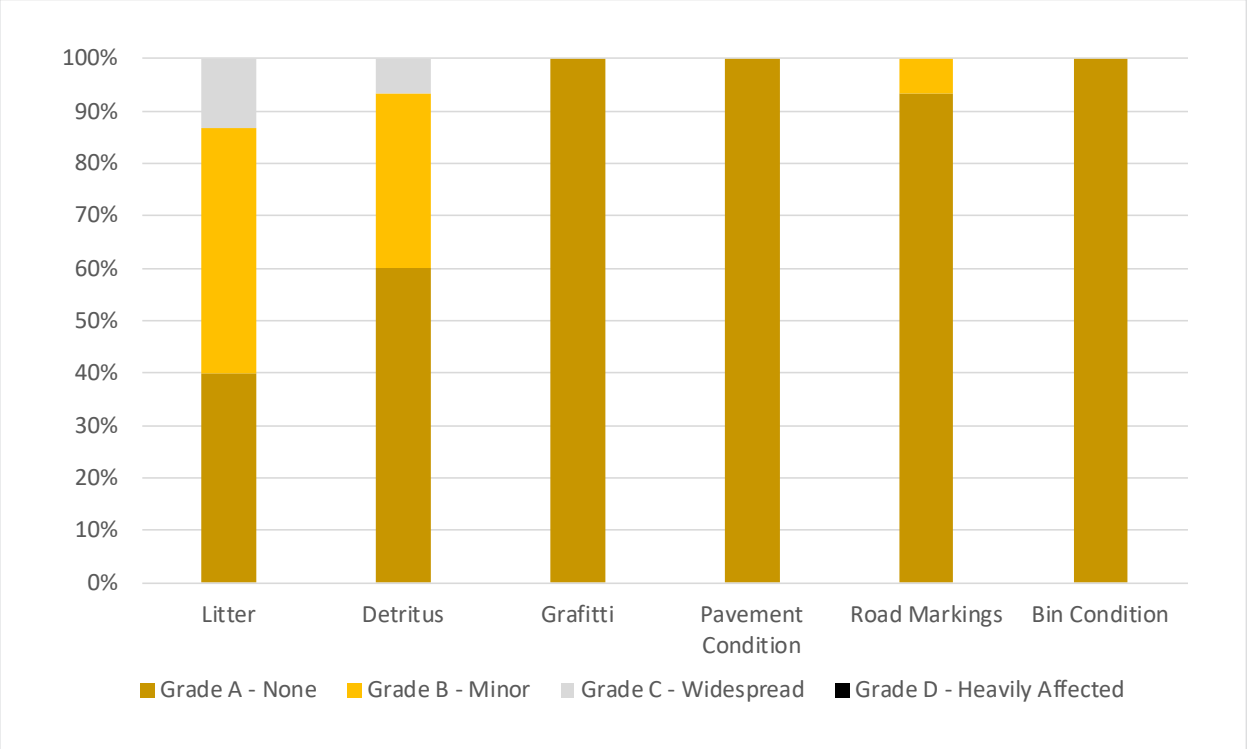
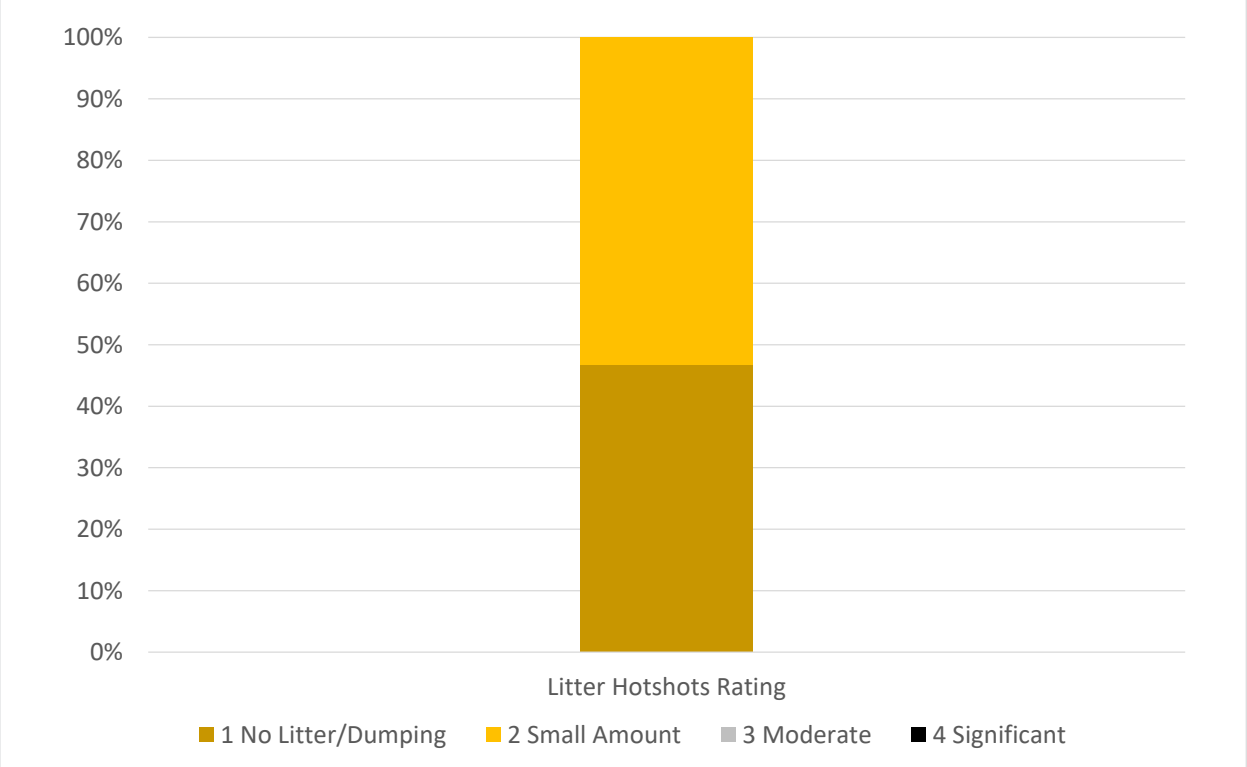


Figure 152 - Southland 2019 Grading - Site Litter Hotshots Ratings



TARANAKI REGION

AT A GLANCE

The overall average number of items per 1,000 m² across the 15 sites surveyed in the Taranaki Regionwas 84 items, the overall average litter weight per 1,000 m² was 0.29 kg, while the overall average estimated volume per 1,000 m² was 3.34 ltr.

Industrial and Retail sites both contributed to high numbers of litter items, litter weights and litter volumes, while Car Park sites were associated with moderate litter weights, moderate to high numbers of litter items and large litter volumes. Residential sites were recorded as having low to moderate numbers of litter items with moderate litter weights and volumes, while Public Recreational sites were associated with low numbers of litter items, litter weights and litter volumes per 1,000 m².

Cigarette Butts/Vaping were the most frequently identified item per 1,000 m² but contributed the second smallest weight and smallest volume to the litter stream in the Taranaki Region. Plastic contributed the second most frequently identified litter item and was associated with the third largest litter weights and volumes.

Glass was identified as the largest contributor to the regional litter weight, however this category was associated with lower numbers of litter items and litter volumes per 1,000 m².

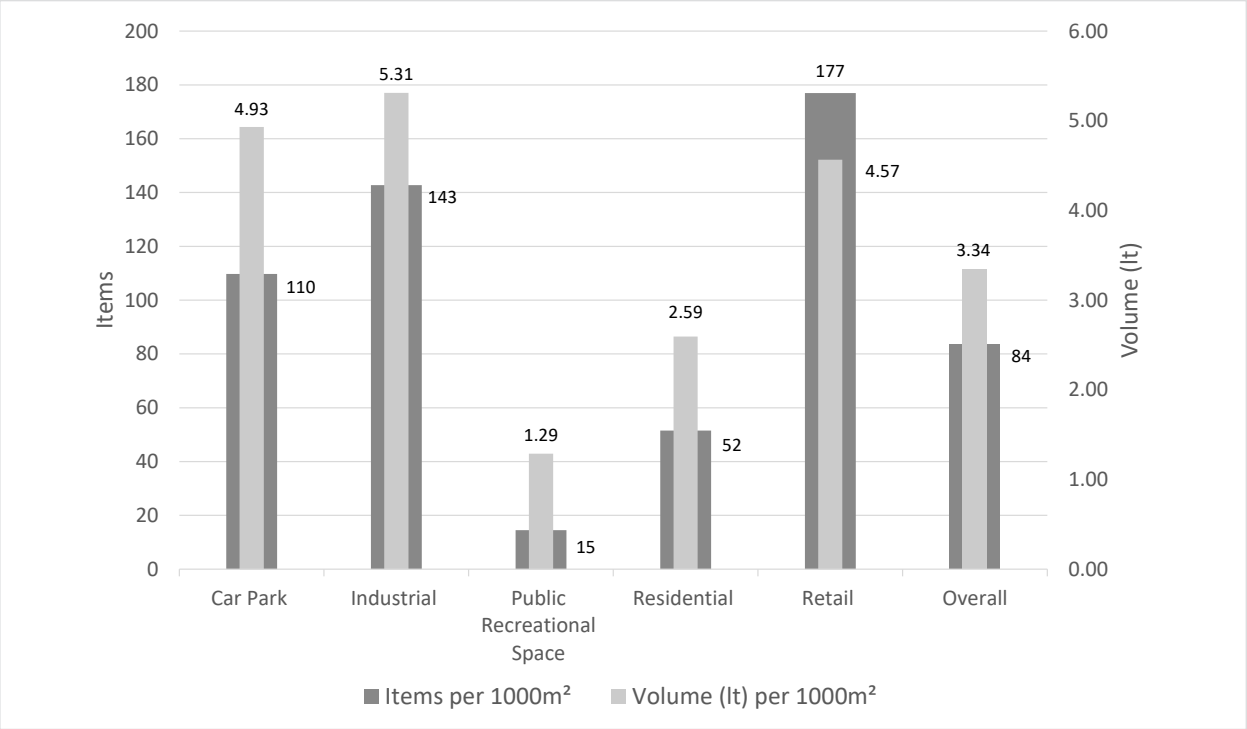
Miscellaneous items contributed the largest volume per 1,000 m² to the overall regional litter stream (with Disposable nappies being the main contributor of volume in this category) but was associated with smaller numbers of litter items and weights.

COMPARISONS BY SITE TYPES

The highest numbers of litter items per 1,000 m² at the sites surveyed in the Taranaki Region were recorded at Retail sites (177 items) and Industrial sites (143 items). Moderate to high numbers of litter items were found at Car Park sites (110 items) while Residential sites (52 items) contributed to low to moderate numbers of litter items. The lowest number of items per 1,000 m² were collected at Public Recreational sites (15 items).

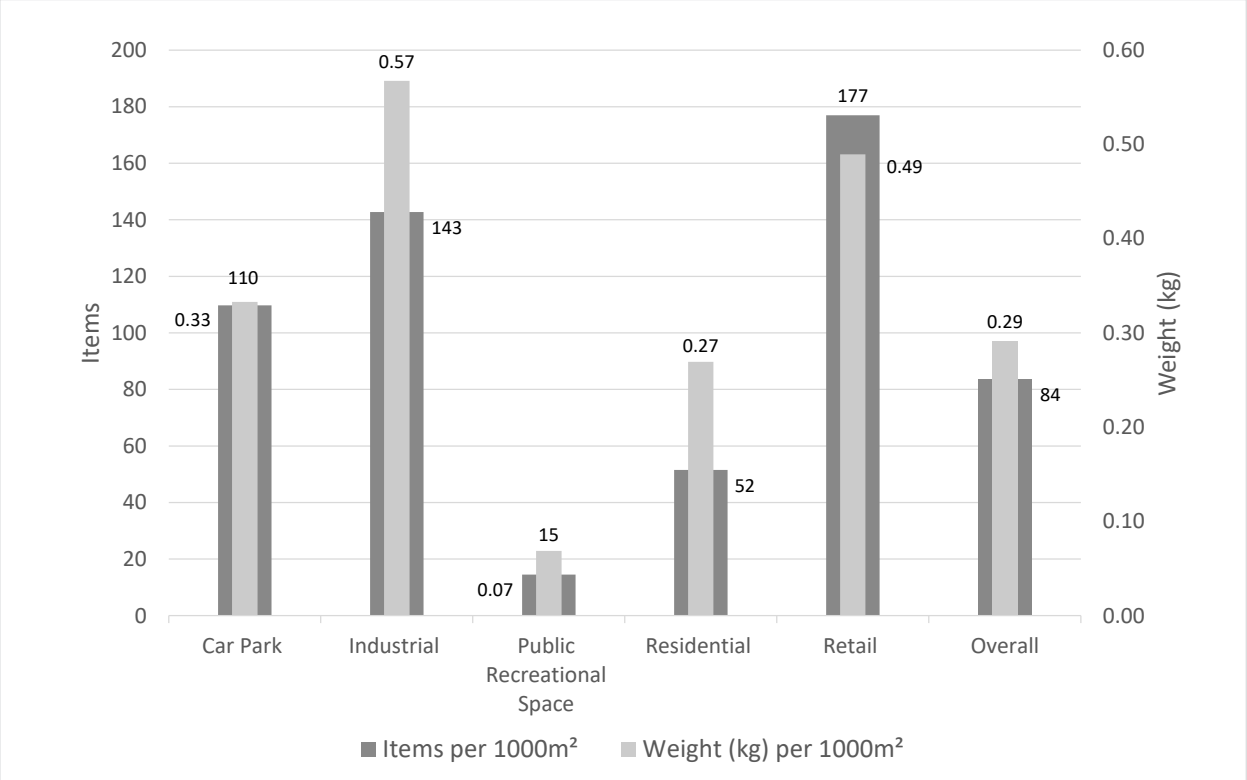
High estimated volumes per 1,000 m² of the litter objects were associated with Industrial sites (5.31 ltr), Car Park sites (4.93 ltr) and Retail sites (4.57 ltr) while moderate litter volumes were recorded at Residential sites (2.59 ltr). Public Recreational sites (1.29 ltr) contributed to the lowest volume of litter items per 1,000 m².

Figure 153 - Taranaki 2019 Items and Volume per 1,000 m² by Site Type



The highest litter weights per 1,000 m² in the Taranaki Region were associated with Industrial sites (0.57 kg) and Retail sites (0.49 kg). More moderate litter weights were recorded at Car Park sites (0.33 kg) and Residential sites (0.27 kg), while low litter weights were associated with Public Recreational sites (0.07 kg).

Figure 154 - Taranaki 2019 Items and Weight per 1,000 m² by Site Type

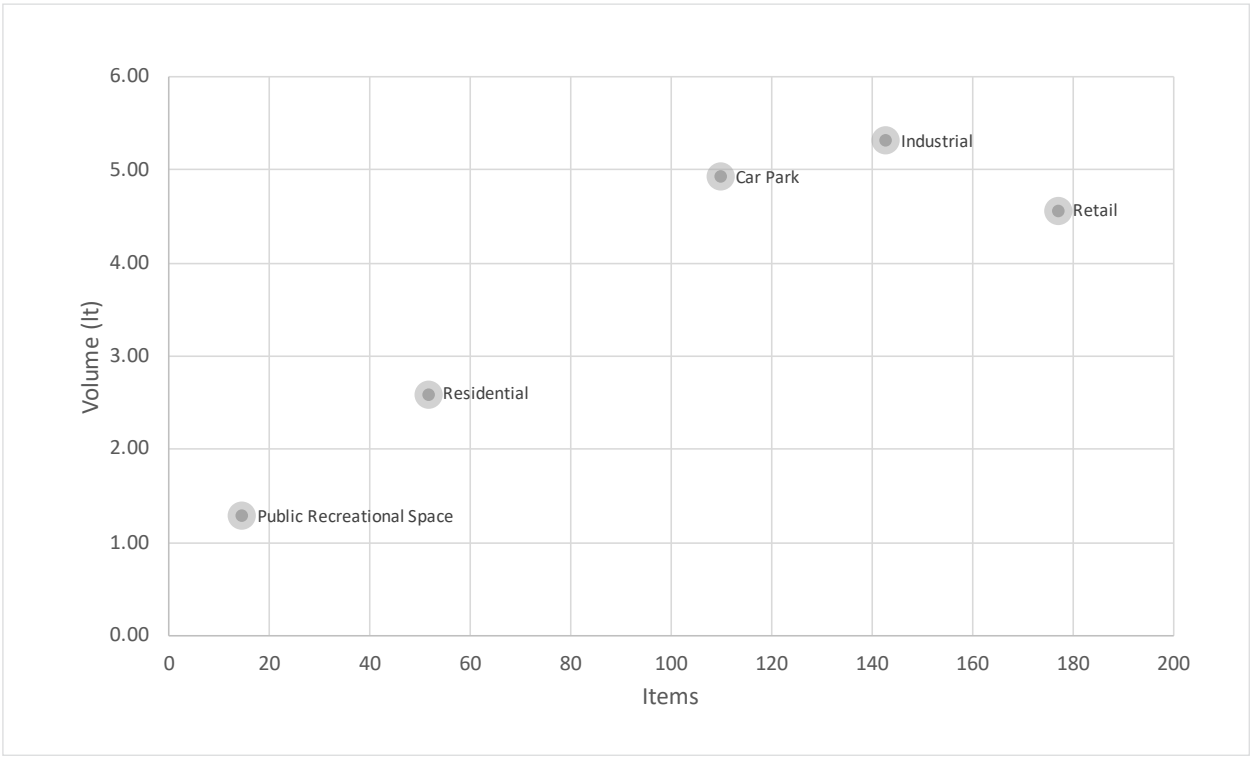


SITE CHARACTERISTICS

The following site characteristics across all site types within the Taranaki Region were identified for items and volume estimates per 1,000 m²:

- Industrial and Retail sites contributed to high numbers of litter items and large litter volumes
- Car Park sites were associated with moderate to high numbers of litter items and large litter volumes
- Residential sites contributed to low to moderate numbers of litter items and moderate litter volumes
- Public Recreational sites were associated with both low numbers of litter items and small litter volumes

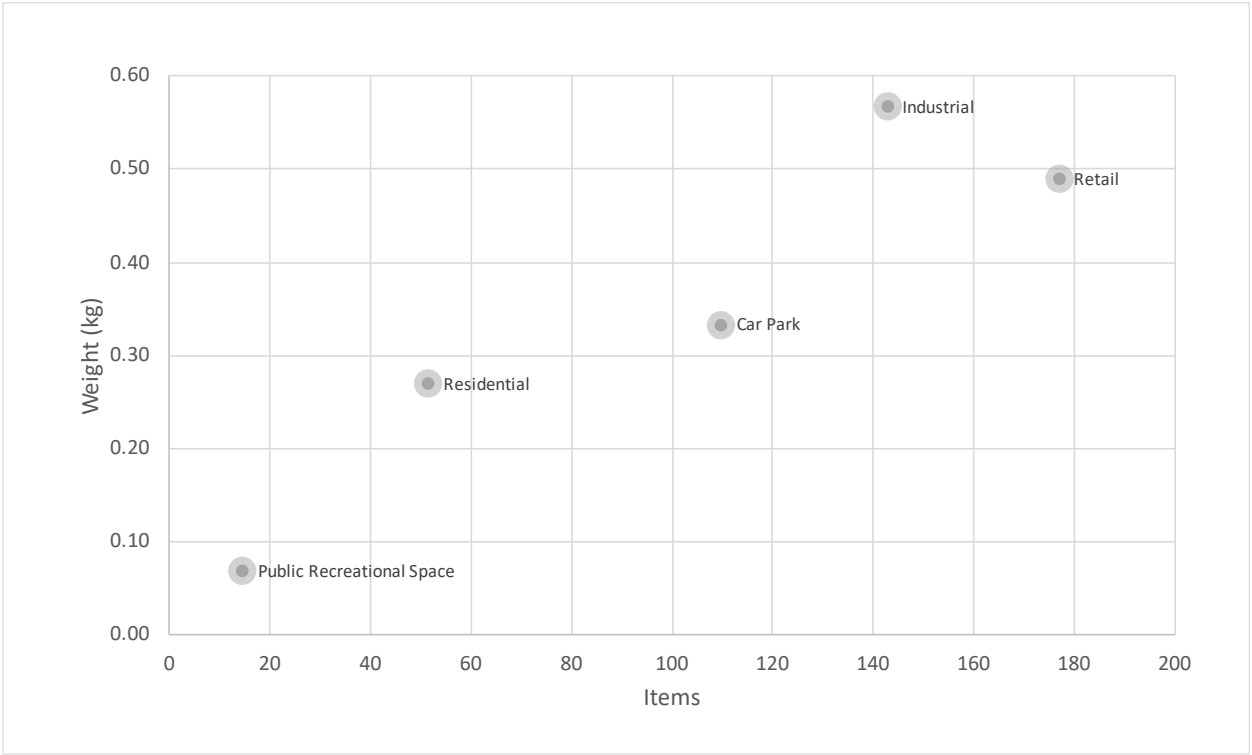
Figure 155 - Taranaki 2019 Items and Volume per 1,000 m² by Site Type



The following site characteristics across all site types within the Taranaki Region were identified for items and weight estimates per 1,000 m²:

- Industrial and Retail sites were associated with large litter weights and high numbers of litter items
- Car Park sites contributed moderate litter weights and moderate to high numbers of litter items
- Residential sites were associated with moderate litter weights and low to moderate numbers of litter items
- Public Recreational sites contributed both small litter weights and low numbers of litter items to the regional litter stream

Figure 156 - Taranaki 2019 Items and Weight per 1,000 m² by Site Type



COMPARISON BY MAIN MATERIAL TYPES

Cigarette Butts/Vaping (26 items) and Plastic (25 items) were the most frequently identified objects per 1,000 m² within the Taranaki Region.

Smaller numbers of items per 1,000 m² were recorded for Paper/Cardboard (7 items), Miscellaneous (7 items), Glass (6 items) and Organic Waste (less than 1 item per 1,000 m²). There were no instances of Illegal Dumping recorded at the sites audited.

Miscellaneous items contributed the largest amount of volume per 1,000 m² to the litter stream (1.79 ltr). Smaller volumes were recorded for Paper/Cardboard (0.51 ltr), Plastic (0.49 ltr), Metal (0.34 ltr), Plastic (0.36 ltr), Glass (0.21 ltr) and Organic Waste (0.01 ltr). Cigarette Butts/Vaping items were associated with the smallest proportion of the overall litter volume (0.003 ltr per 1,000 m²).

Glass (0.09 kg), Metal (0.08 kg) and Plastic (0.07 kg) contributed the largest average litter weights per 1,000 m² to the overall regional litter weight. Smaller litter weights were associated with Miscellaneous items (0.03 kg), Paper/Cardboard (0.02 kg) and Cigarette Butts/Vaping (0.01 kg). Organic Waste (0.002 kg) contributed the smallest litter weight per 1,000 m². A weight measure was not recorded for any Illegal Dumping identified during the Audit.

Figure 157 - Taranaki 2019 Items and Volume per 1,000 m² by Main Material Type

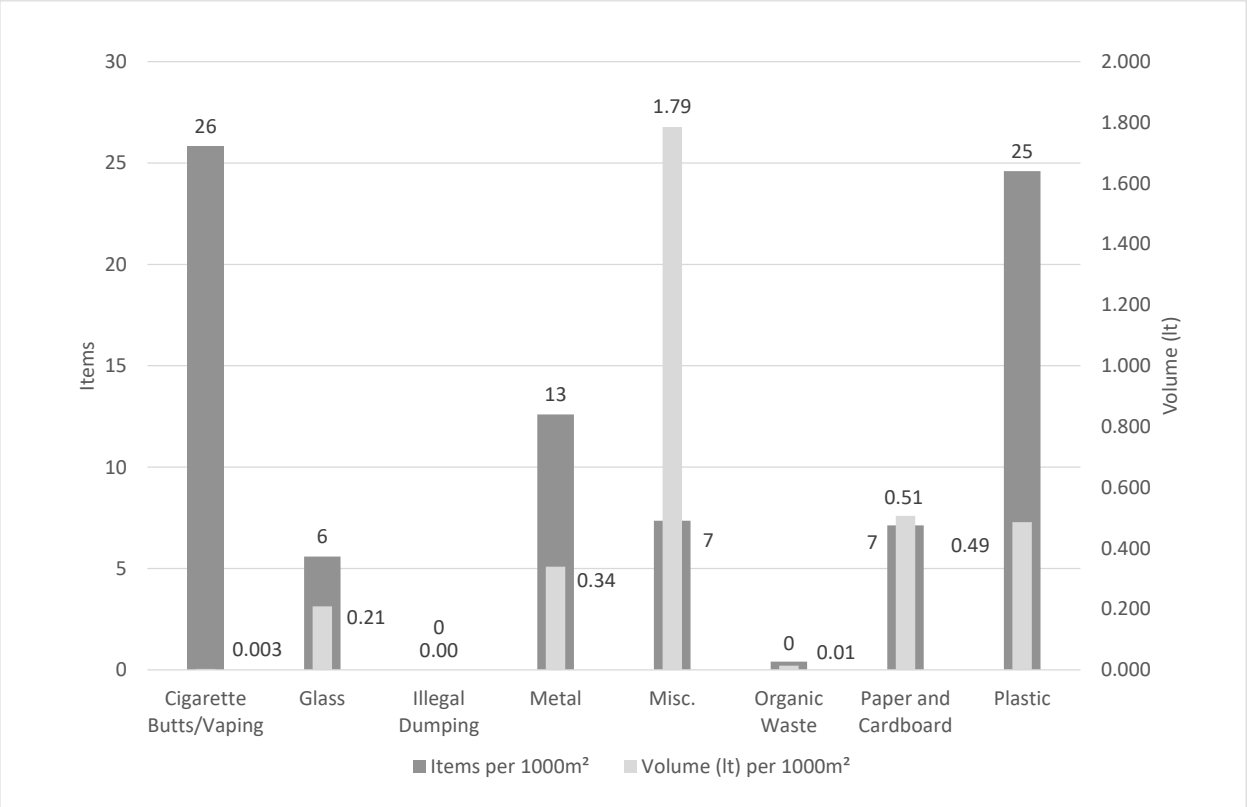
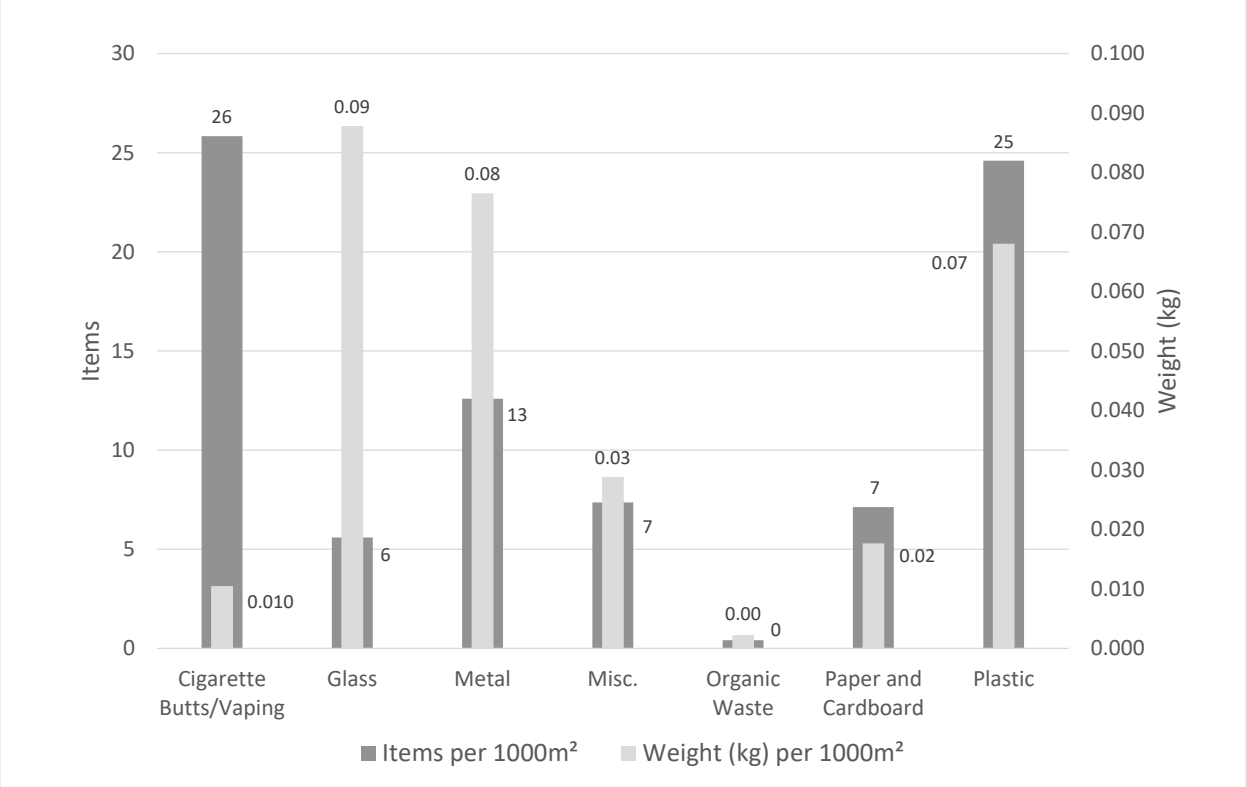


Figure 158 - Taranaki 2019 Items and Weight per 1,000 m² by Main Material Type

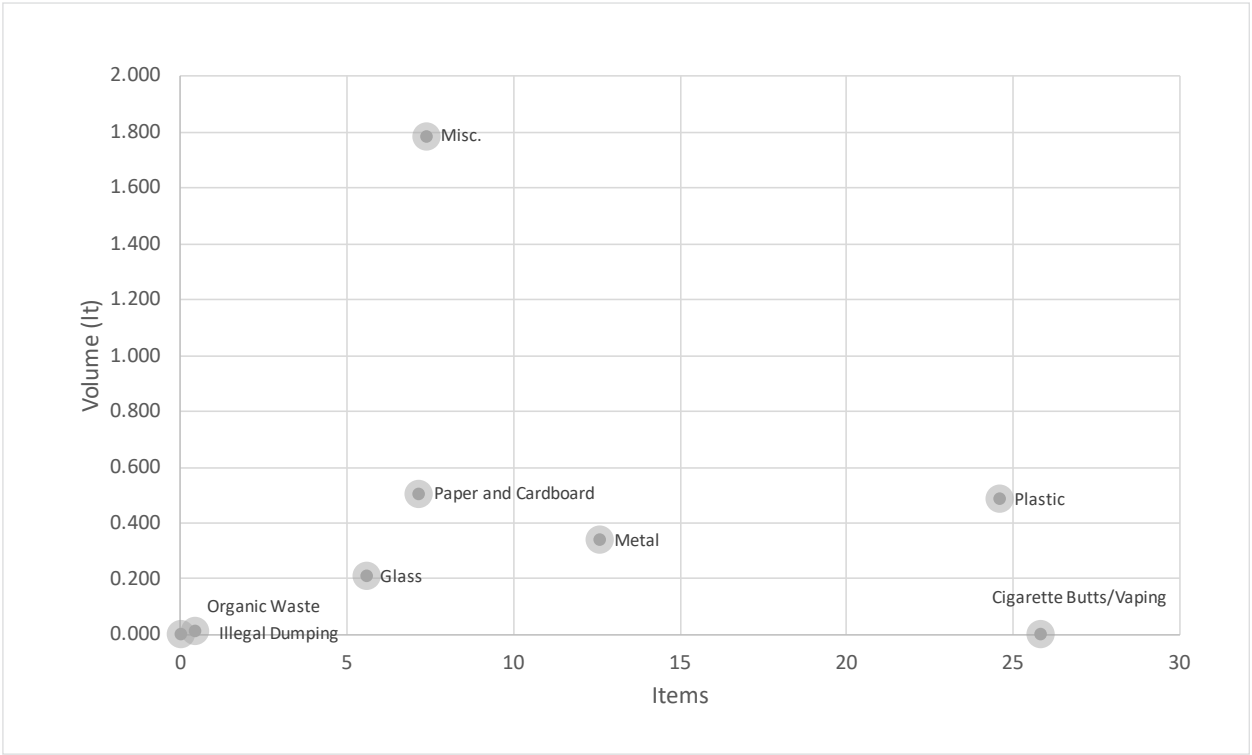


MAIN MATERIAL CHARACTERISTICS

Figures for items and volumes per 1,000 m² across main material types identified the following characteristics of litter objects within the Taranaki Region:

- Cigarette Butts/Vaping were associated with a high number of litter items but contributed only a negligible volume to the litter stream
- Plastic contributed to high numbers of litter items but small litter volumes
- Miscellaneous items contributed large volumes of litter but were associated with low numbers of litter items
- Metal contributed moderate numbers of litter items and low litter volumes
- Paper/Cardboard and Glass contributed low numbers of litter items and small litter volumes
- Organic Waste was associated with very low numbers of litter items and very small litter volumes
- There were no instances of Illegal Dumping recorded at the sites audited

Figure 159 - Taranaki 2019 Items and Volume per 1,000 m² by Main Material Type

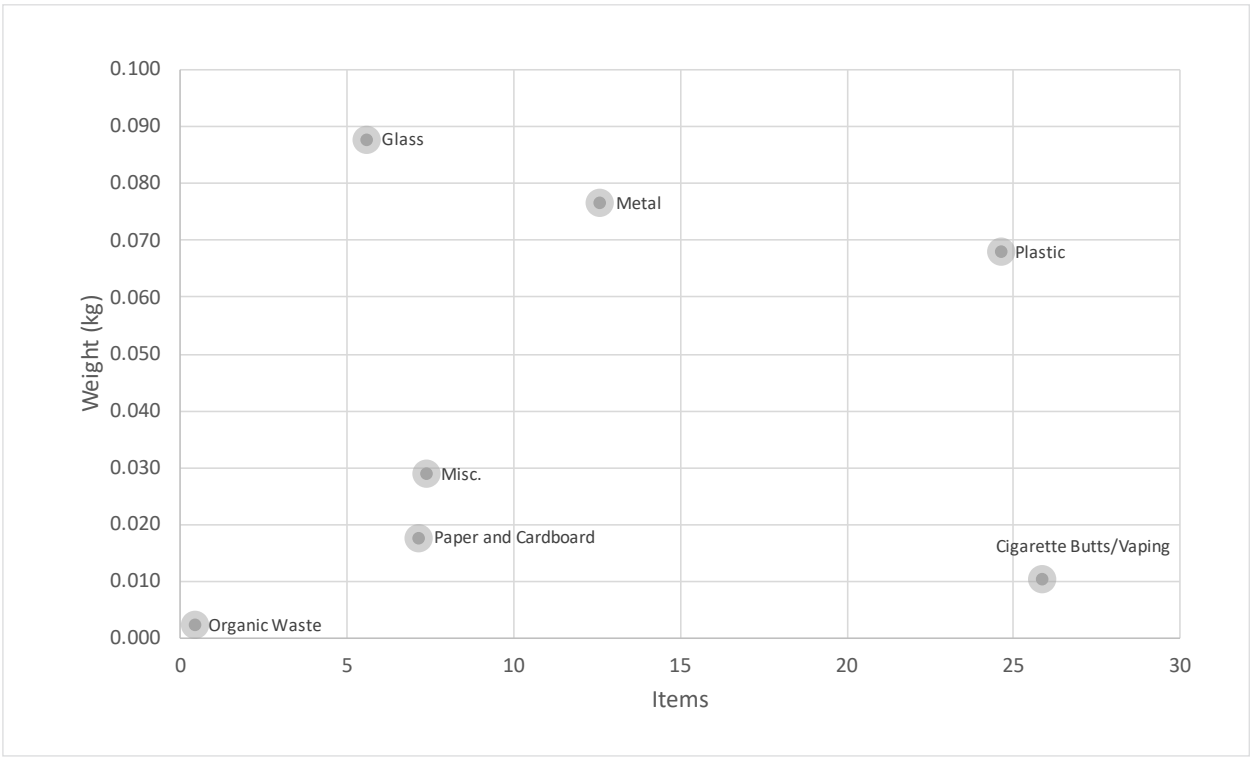


Figures for items and weights per 1,000 m² across main material types identified the following characteristics of litter objects within the Taranaki Region:

- Glass items were associated with large litter weights, however this category contributed low numbers of litter items to the litter stream
- Metal contributed large litter weights and moderate numbers of litter items
- Plastic was associated with large litter weights and high numbers of litter items
- Cigarette Butts/Vaping items contributed small litter weights, but were associated with high numbers of litter items
- Miscellaneous items and Paper/Cardboard were associated with small litter weights and low numbers of litter items
- Organic Waste contributed very small litter weights and numbers of litter items

Note: Illegal Dumping items were not weighed during the Audit

Figure 160 - Taranaki 2019 Items and Weight per 1,000 m² by Main Material Type

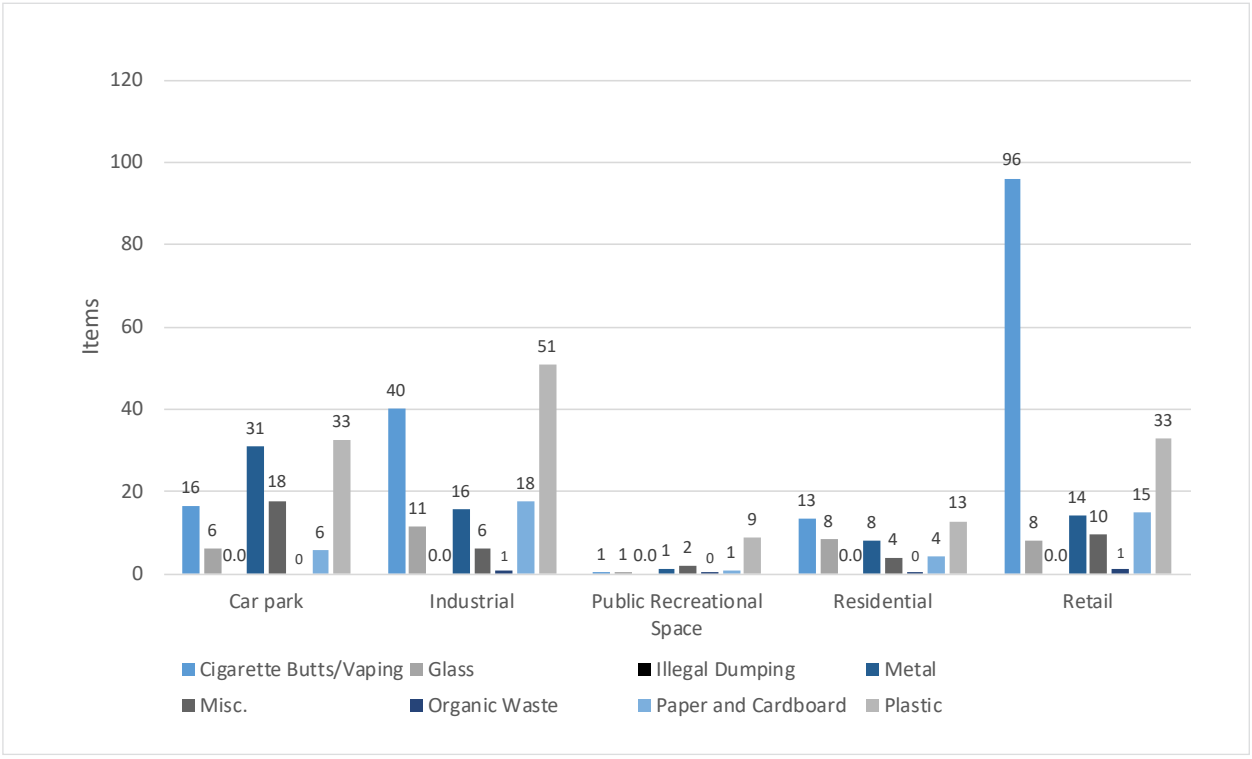


SITE TYPES BY MATERIAL TYPES

Figures for items and volumes per 1,000 m² across main material types identified the following characteristics of litter objects within the Taranaki Region:

- Car Park sites: Plastic (33 items), Metal (31 items), Miscellaneous (18 items), Cigarette Butts/Vaping (16 items), Glass (6 items), Paper/Cardboard (6 items), Organic Waste (0 items) and Illegal Dumping (0 items)
- Industrial sites: Plastic (51 items), Cigarette Butts/Vaping (40 items), Paper/Cardboard (18 items), Metal (16 items), Glass (11 items), Miscellaneous (6 items), Organic Waste (1 item) and Illegal Dumping (0 items)
- Public Recreational sites: Plastic (9 items), Miscellaneous (2 items), Cigarette Butts/Vaping (1 item), Glass (1 item), Metal (1 item), Paper/Cardboard (1 item), Organic Waste (0 items) and Illegal Dumping (0 items)
- Residential sites: Cigarette Butts/Vaping (13 items), Plastic (13 items), Glass (8 items), Metal (8 items), Miscellaneous (4 items), Paper/Cardboard (4 items), Organic Waste (0 items) and Illegal Dumping (0 items)
- Retail sites: Cigarette Butts/Vaping (96 items), Plastic (33 items), Paper/Cardboard (15 items), Metal (14 items), Miscellaneous (10 items), Glass (8 items), Organic Waste (1 item) and Illegal Dumping (0 items)

Figure 161 - Taranaki 2019 Sites by Main Material Types - Items per 1,000 m²



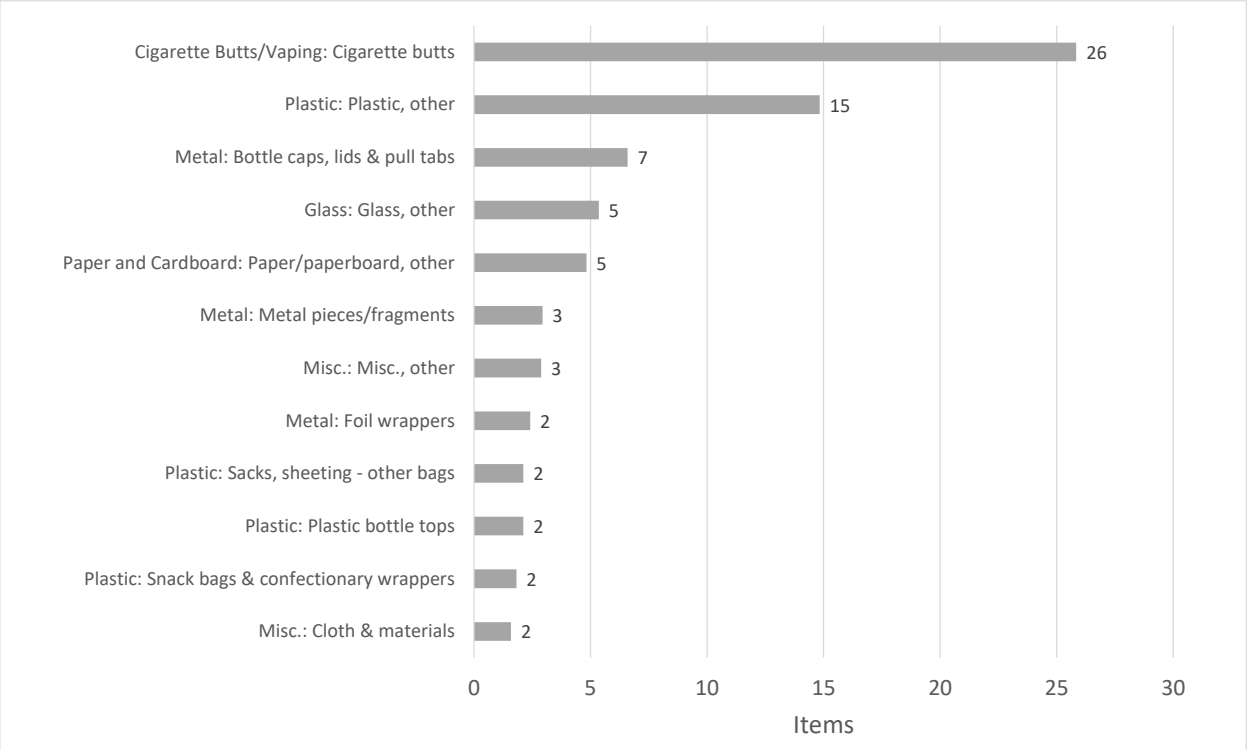
THE DIRTY DOZEN

Within the litter object type sub-categories, Cigarette butts were the largest contributors to the litter objects within the Taranaki Region, with 26 butts per 1,000 m² identified on average across the sites.

Other object sub-categories which were associated with large litter counts included:

- Uncategorised Plastic objects (15 items per 1,000 m²)
- Metal: Bottle caps, lids & pull tabs (7 items per 1,000 m²)
- Uncategorised Glass objects (5 items per 1,000 m²)
- Uncategorised Paper/paperboard objects (5 items per 1,000 m²)

Figure 162 - Taranaki 2019 Dirty Dozen - Items per 1,000 m² - Object Sub Categories

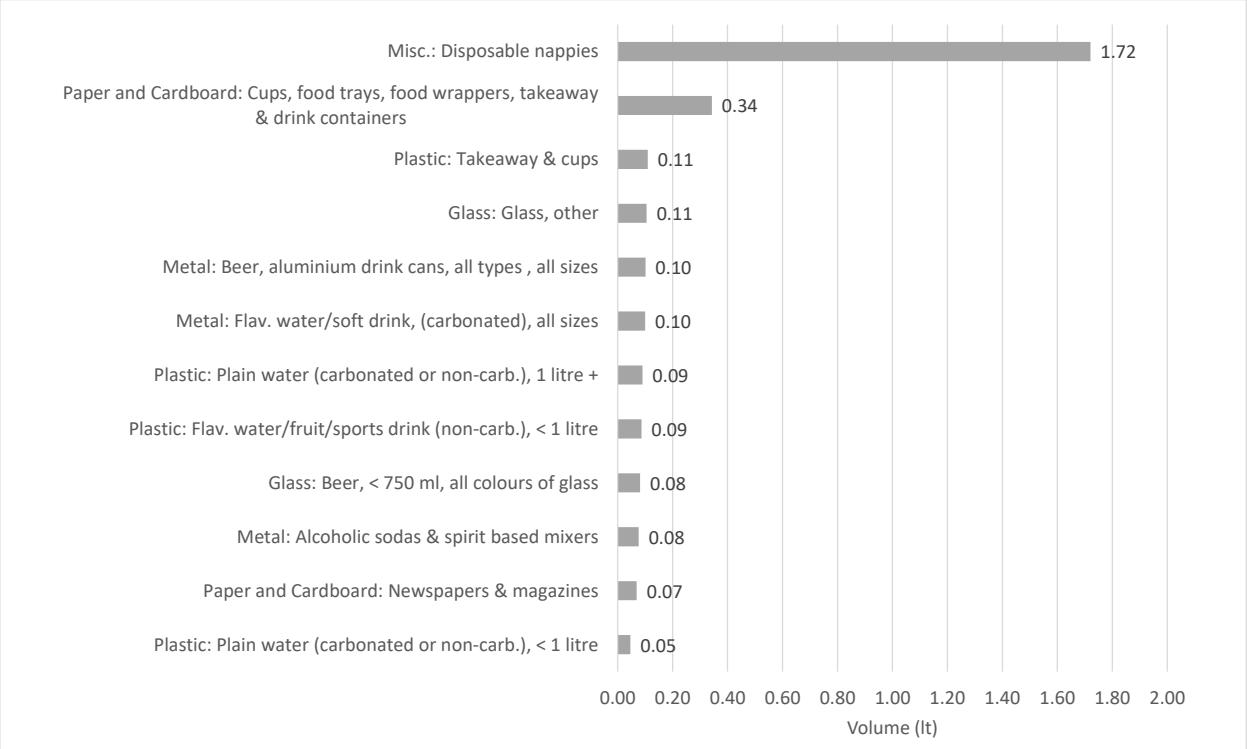


Disposable nappies were strongly associated with estimated litter volumes at the audited sites in the Taranaki Region, contributing 1.72 ltr of volume per 1,000 m².

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

- Paper/Cardboard: Cups, food trays, food wrappers, takeaway & drink containers (0.34 ltr per 1,000 m²)
- Plastic: Takeaway & cups (0.11 ltr per 1,000 m²)
- Uncategorised Glass objects (0.11 ltr per 1,000 m²)
- Metal: Beer, aluminium drink cans, all types, all sizes (0.10 ltr per 1,000 m²)
- Metal: Flavoured water/soft drink, (carbonated), all sizes (0.10 ltr per 1,000 m²)

Figure 163 - Taranaki 2019 Dirty Dozen - Volume per 1,000 m² - Object Sub Categories

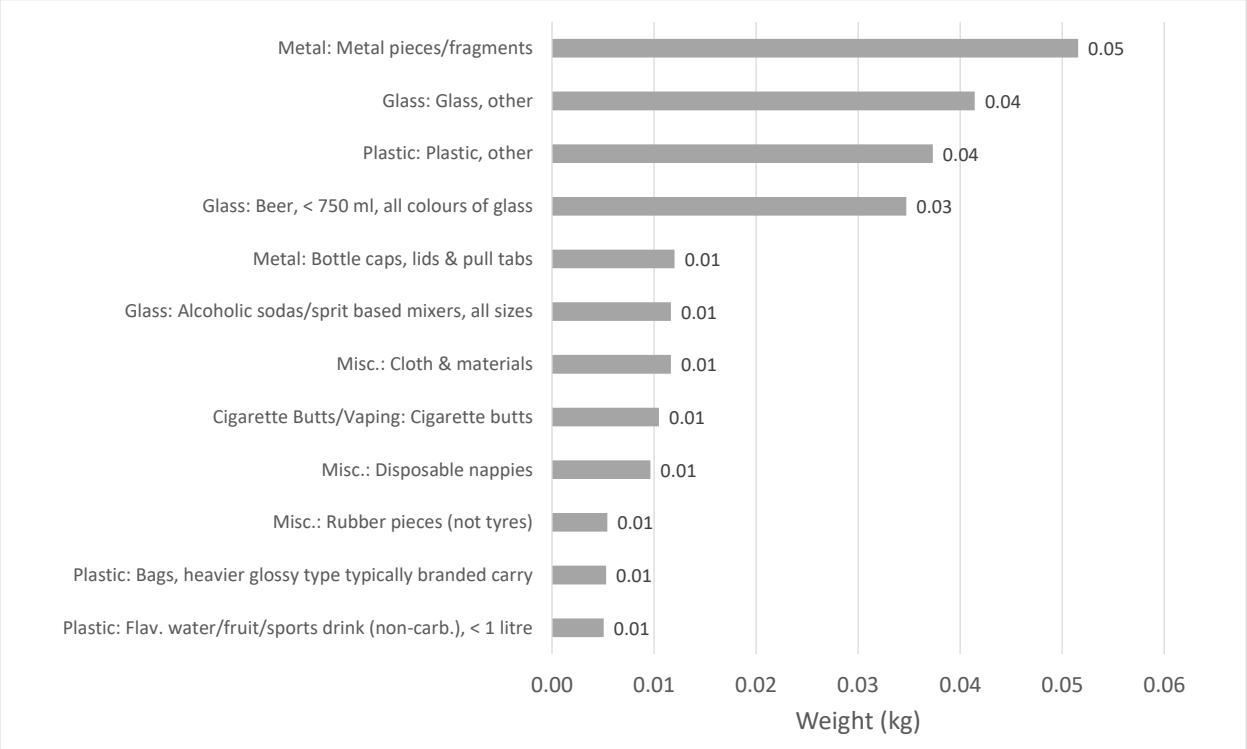


Metal pieces/fragments represented the largest contribution to litter weights per 1,000 m² in the Taranaki Region, recording an average weight of 0.05 kg per 1,000 m². Weights were not measured for Illegal Dumping objects and therefore are not included in the weight analysis.

Other object sub-categories which recorded larger weights per 1,000 m² throughout the region included:

- Uncategorised Glass objects (0.04 kg per 1,000 m²)
- Uncategorised Plastic objects (0.04 kg per 1,000 m²)
- Glass: Beer, less than 750 ml, all colours (0.03 kg per 1,000 m²)

Figure 164 - Taranaki 2019 Dirty Dozen - Weight per 1,000 m² - Object Sub Categories



TERRITORY SUMMARIES

Taranaki Region is comprised of 3 territorial authorities:

- New Plymouth District
- South Taranaki District
- Stratford District

A total of 15 sites (from Industrial, Retail, Residential, Car Park and Public Recreational sites) were audited in the Taranaki Region with a minimum of 5 sites audited from each territory.

The results are summarised in the following table:

Extract from Table 3 – Territory Data: Taranaki Region

Territory	Total Area Surveyed (m^2)	Items per 1,000 m^2	Weight (kg) per 1,000 m^2	Volume (lt) per 1,000 m^2
TARANAKI REGION				
New Plymouth District	*5963*	*68*	*0.28*	*2.92*
South Taranaki District	*5521*	*85*	*0.27*	*2.86*
Stratford District	*5506*	*99*	*0.32*	*4.28*
Taranaki Region Overall	**16990**	**84**	**0.29**	**3.34**

SITE GRADINGS

All sites were assigned gradings in 4 categories: Visual rating, Litter hotshots rating, Risk present and Litter distribution. These were analysed to determine rating percentages and averages from the total sites audited within the region.

Extract from Table 2 - Site Types: Taranaki

	Risk Present		Litter Distribution	
Taranaki	*Moderate hazard or risk*	*Significant hazard or risk*	*Widespread*	*Clustered*
	100%	*0%*	*100%*	*0%*

Figure 165 - Taranaki 2019 Grading - Visual Site Ratings

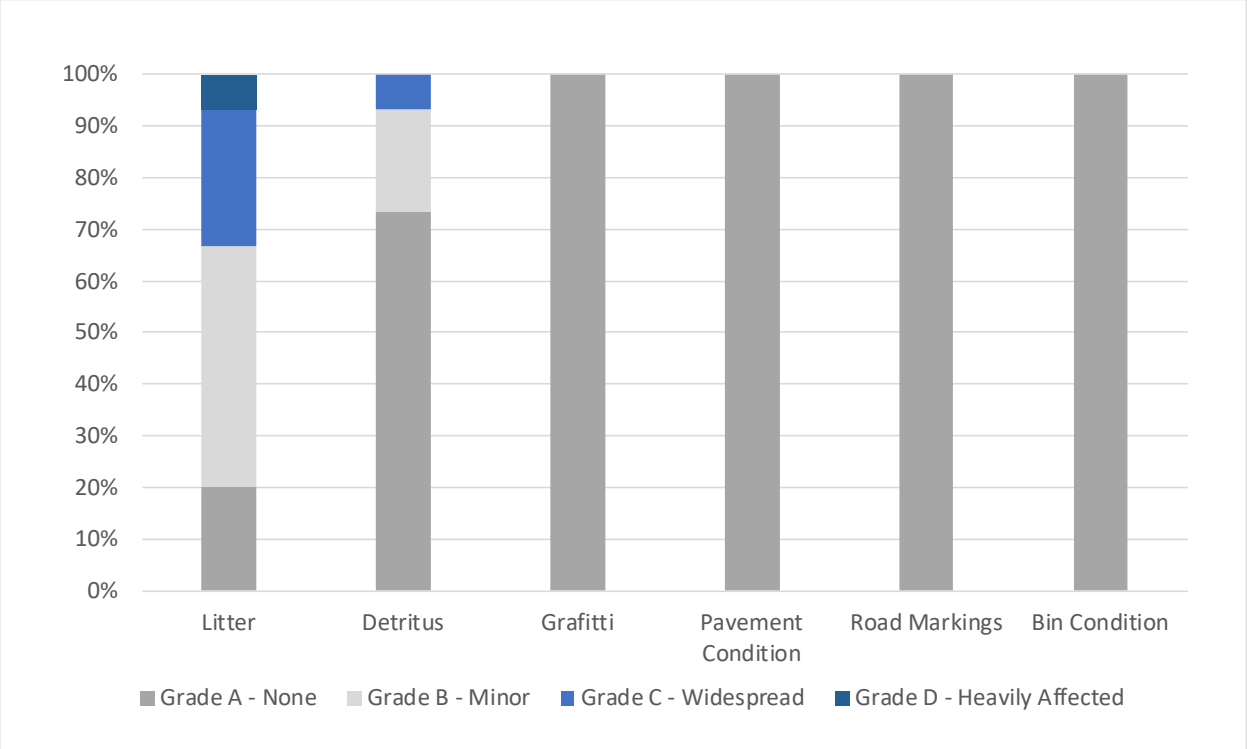
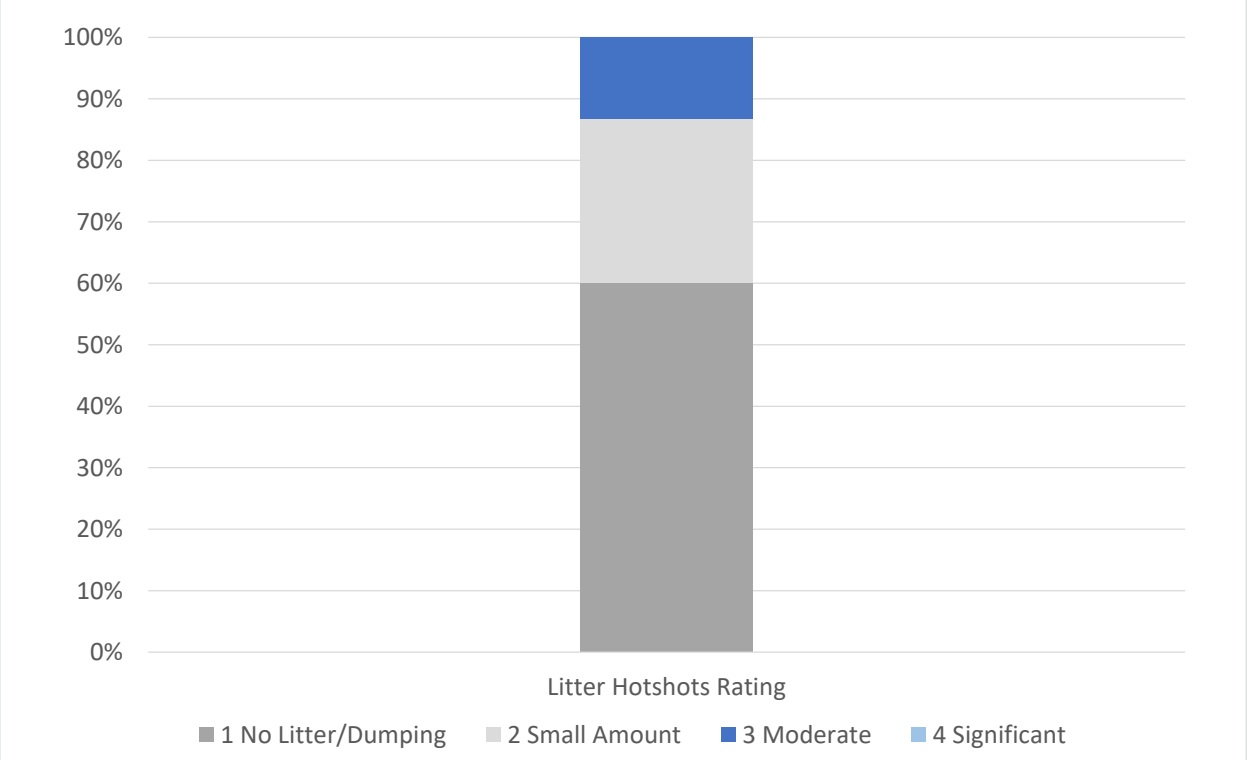


Figure 166 - Taranaki 2019 Grading - Site Litter Hotshots Ratings



TASMAN, NELSON AND MARLBOROUGH REGIONS

AT A GLANCE

The overall average number of items per 1,000 m² across the 15 sites surveyed in the Tasman, Nelson and Marlborough Regions was 143 items, the overall average litter weight per 1,000 m² was 0.37 kg, while the overall average estimated volume per 1,000 m² was 4.39 ltr.

Industrial sites within the region were associated with the highest numbers of litter items, litter weights and litter volumes. Retail sites also contributed high numbers of litter items to the overall litter stream but only moderate litter weights and volumes. Residential sites were associated with moderate numbers of litter items, while contributing moderate to large litter weights and volumes. Lower numbers of litter items, litter weights and litter volumes per 1,000 m² were associated with Car Park and Public Recreational sites.

Cigarette Butts/Vaping were the most frequently identified item per 1,000 m² in the Tasman, Nelson and Marlborough Regions but contributed the smallest weights and volumes of litter to the regional litter stream. Plastic was associated with the second most frequently identified item and the second largest volume.

Glass contributed the largest litter weight per 1,000 m², however this material category was recorded as having more moderate numbers of litter items and litter volumes.

Paper/Cardboard contributed the largest volume per 1,000 m² to the overall regional litter stream and was associated with moderate numbers of litter items and smaller litter weights.

COMPARISONS BY SITE TYPES

The highest numbers of litter items per 1,000 m² collected at the sites surveyed in the Tasman, Nelson and Marlborough Regions were Industrial sites (330 items) and Retail sites (312 items). Moderate numbers of litter items were associated with Residential sites (132 items) while lower numbers of litter items were found at Car Park sites (100 items) and Public Recreational sites (33 items).

High estimated volumes per 1,000 m² of the litter objects were associated with Industrial sites (11.25 ltr) while Residential sites (7.33 ltr) were associated with moderate

to large volumes of litter. Retail sites (4.72 ltr) contributed to moderate volumes of litter while Car Park sites (2.91 ltr) and Public Recreational sites (1.44 ltr) were recorded has having lower volumes of litter per 1,000 m².

The highest litter weights per 1,000 m² were associated with Industrial sites (1.19 kg). More moderate litter weights were recorded at Residential sites (0.50 kg) and Retail sites (0.45 kg), while lower litter weights were associated with Car Park sites (0.20 kg) and Public Recreational sites (0.09 kg).

Figure 167 - Tasman/Nelson/Marlborough 2019 Items and Volume per 1,000 m² by Site Type

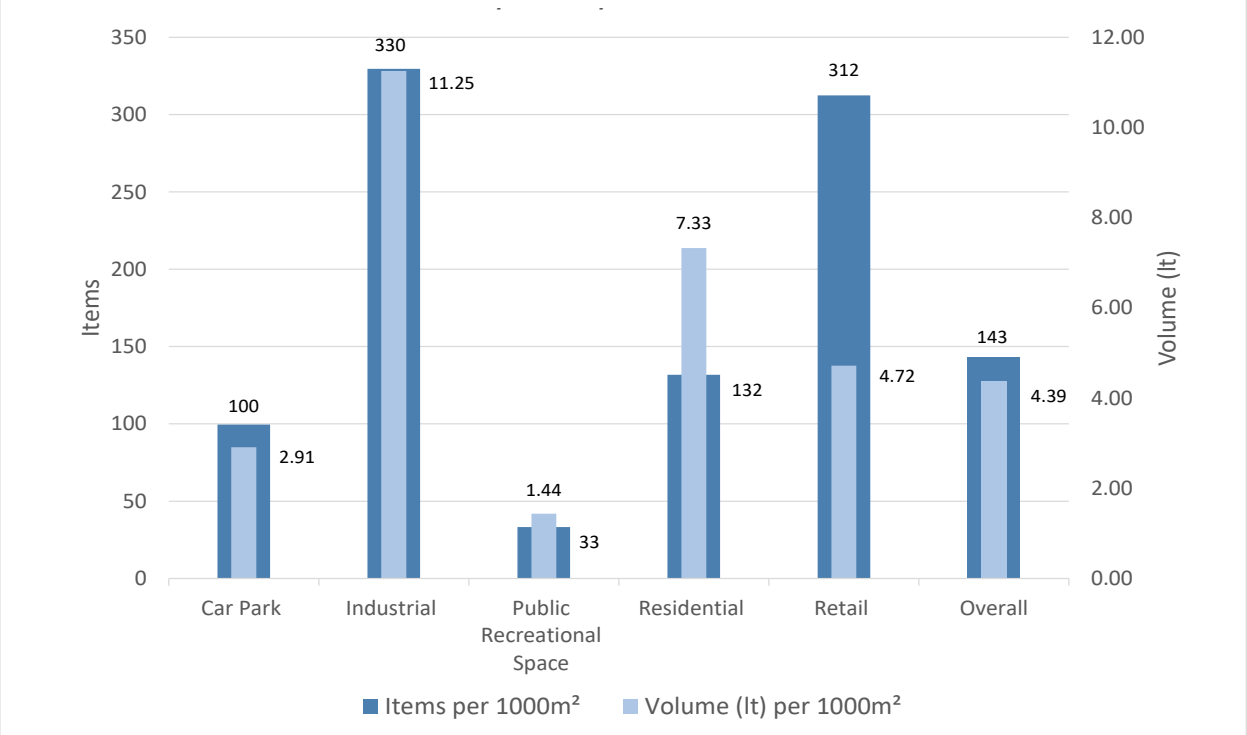
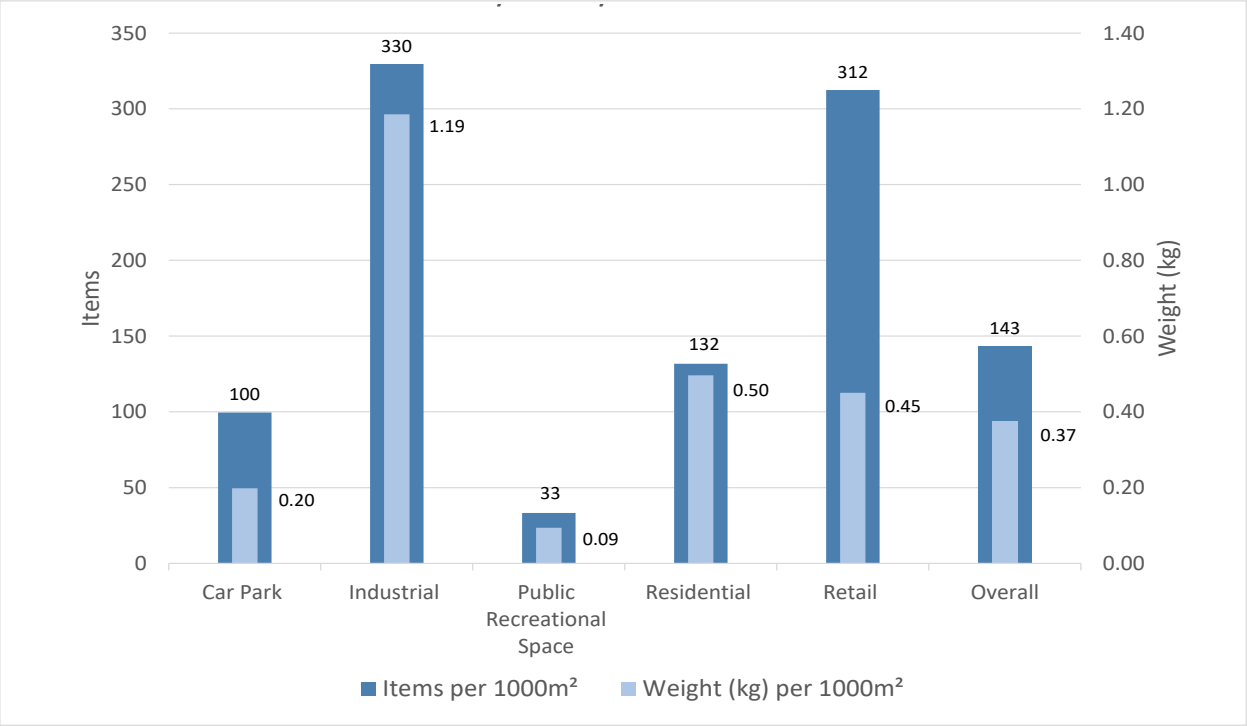


Figure 168 - Tasman/Nelson/Marlborough 2019 Items and Weight per 1,000 m² by Site Type

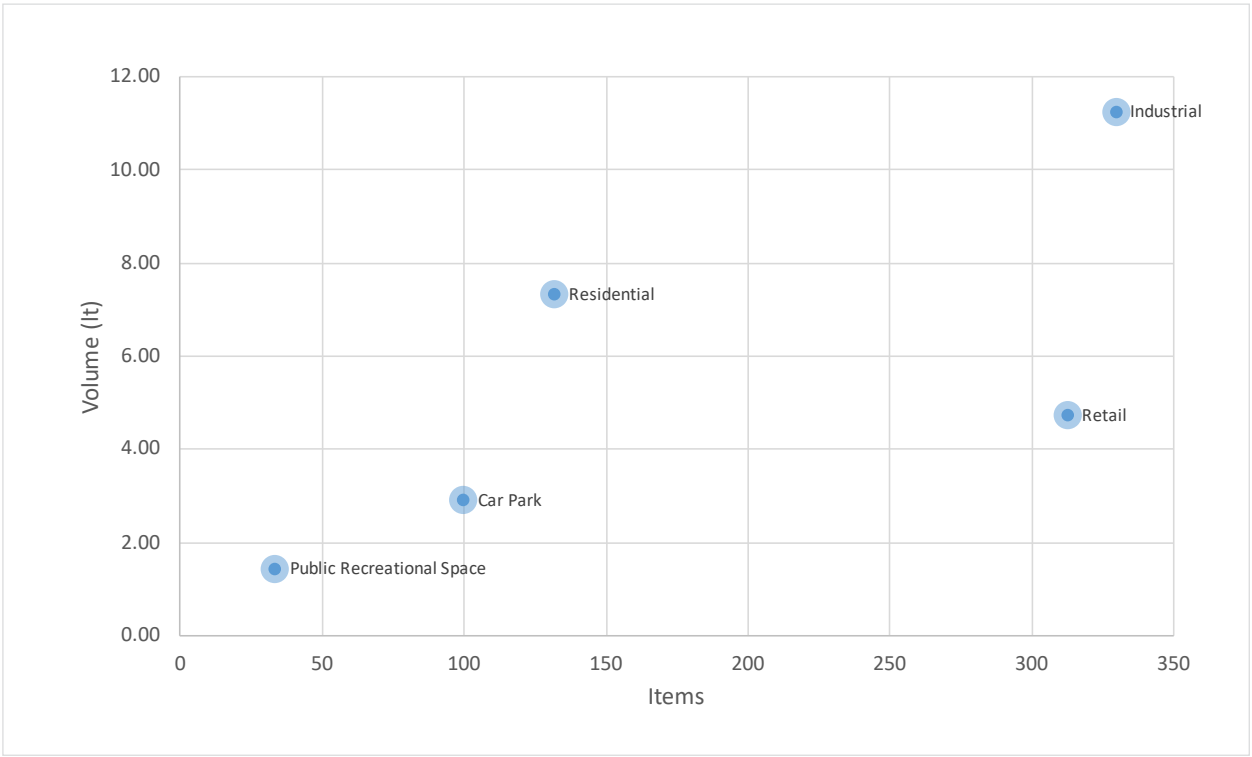


SITE CHARACTERISTICS

The following site characteristics across all site types within the Tasman, Nelson and Marlborough Regions were identified for items and volume estimates per 1,000 m²:

- Industrial sites contributed to high numbers of litter items and large litter volumes
- Retail sites were associated with high numbers of litter items and moderate litter volumes
- Residential sites contributed to moderate numbers of litter items and moderate to high litter volumes
- Car Park sites were associated with low to moderate numbers of litter items and small to moderate litter volumes
- Public Recreational sites were associated with both low numbers of litter items and small litter volumes

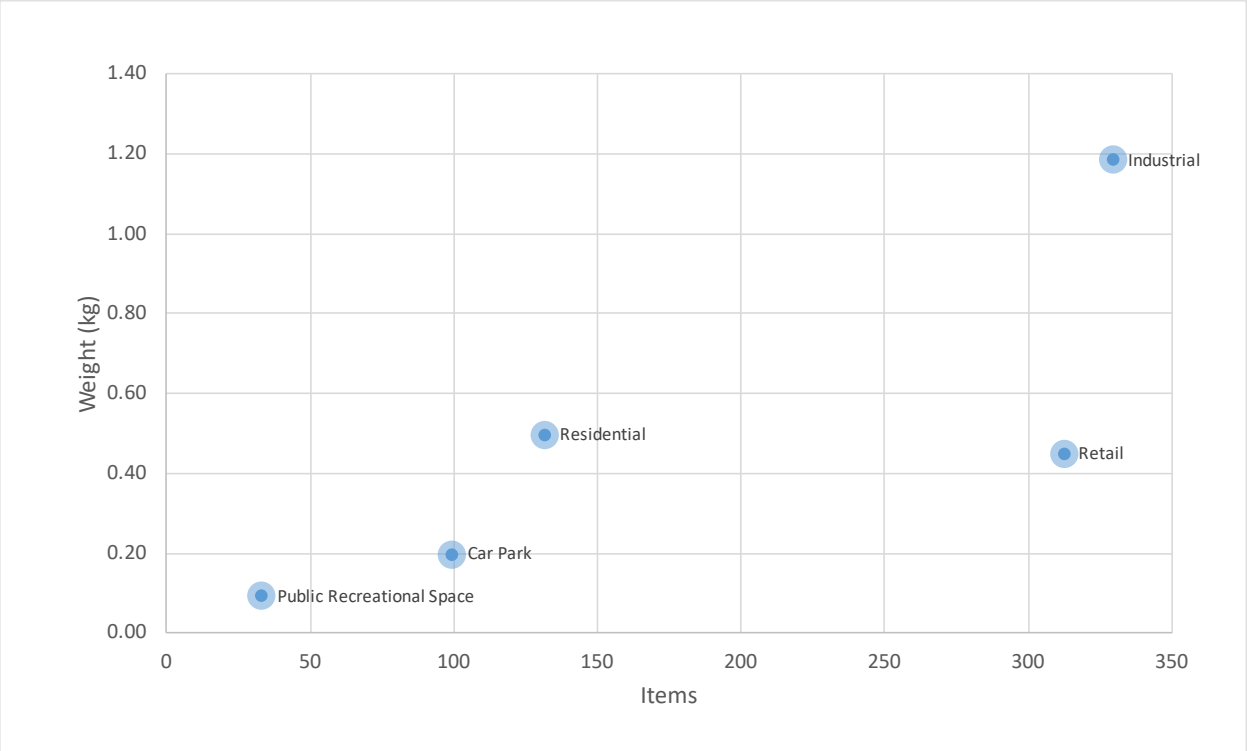
Figure 169 - Tasman/Nelson/Marlborough 2019 Items and Volume per 1,000 m² by Site Type



Items and weight characteristics per 1,000 m² across the site types within the Tasman, Marlborough and Nelson Regions were identified as follows:

- Industrial sites were associated with both large litter weights and high numbers of litter items
- Retail sites contributed moderate litter weights and high numbers of litter items
- Residential sites were associated with moderate litter weights and moderate numbers of litter items
- Car Park sites contributed small litter weights and low to moderate numbers of litter items
- Public Recreational sites were associated with both small litter weights and low numbers of litter items

Figure 170 - Tasman/Nelson/Marlborough 2019 Items and Weight per 1,000 m² by Site Type



COMPARISON BY MAIN MATERIAL TYPES

Cigarette Butts/Vaping was the most frequently identified object per 1,000 m² within the Tasman, Nelson and Marlborough Regions (59 items) while Plastic (30 items) contributed to the second most frequently identified item.

Smaller numbers of items per 1,000 m² were recorded for Paper/Cardboard (16 items), Glass (16 items), Metal (13 items), Miscellaneous (8 items), and Organic Waste (2 items). There were no instances of Illegal Dumping recorded at the sites audited.

Paper/Cardboard contributed the largest amount of volume per 1,000 m² to the litter stream (1.74 ltr), and the second largest volume was associated with Plastic (0.79 ltr). Smaller volumes were recorded for Glass (0.64 ltr), Miscellaneous (0.64 ltr), Metal (0.52 ltr) and Organic Waste (0.06 ltr). Cigarette Butts/Vaping items were associated with the smallest proportion of the overall litter volume (0.007 ltr per 1,000 m²).

The largest amount of weight per 1,000 m² collected in the region was associated with Glass (0.14 kg), while Plastic (0.09 kg) also contributed significantly to the overall regional litter weight per 1,000 m². Smaller litter weights were recorded for Metal (0.05 kg), Miscellaneous items (0.03 kg), Organic Waste (0.03 kg), Paper/Cardboard (0.03 kg), and Cigarette Butts/Vaping (0.01 kg). A weight measure was not recorded for any Illegal Dumping identified during the Audit.

Figure 171 - Tasman/Nelson/Marlborough 2019 Items and Volume per 1,000 m² by Main Material Type

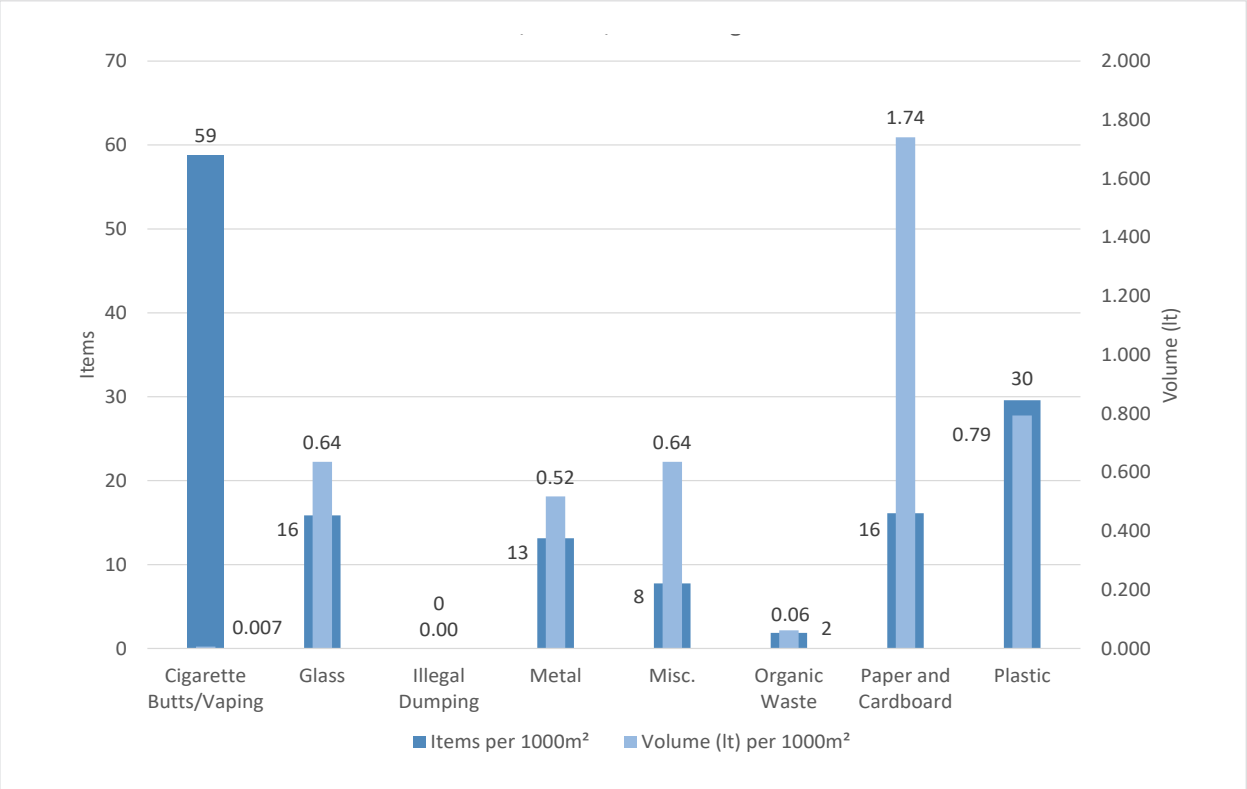
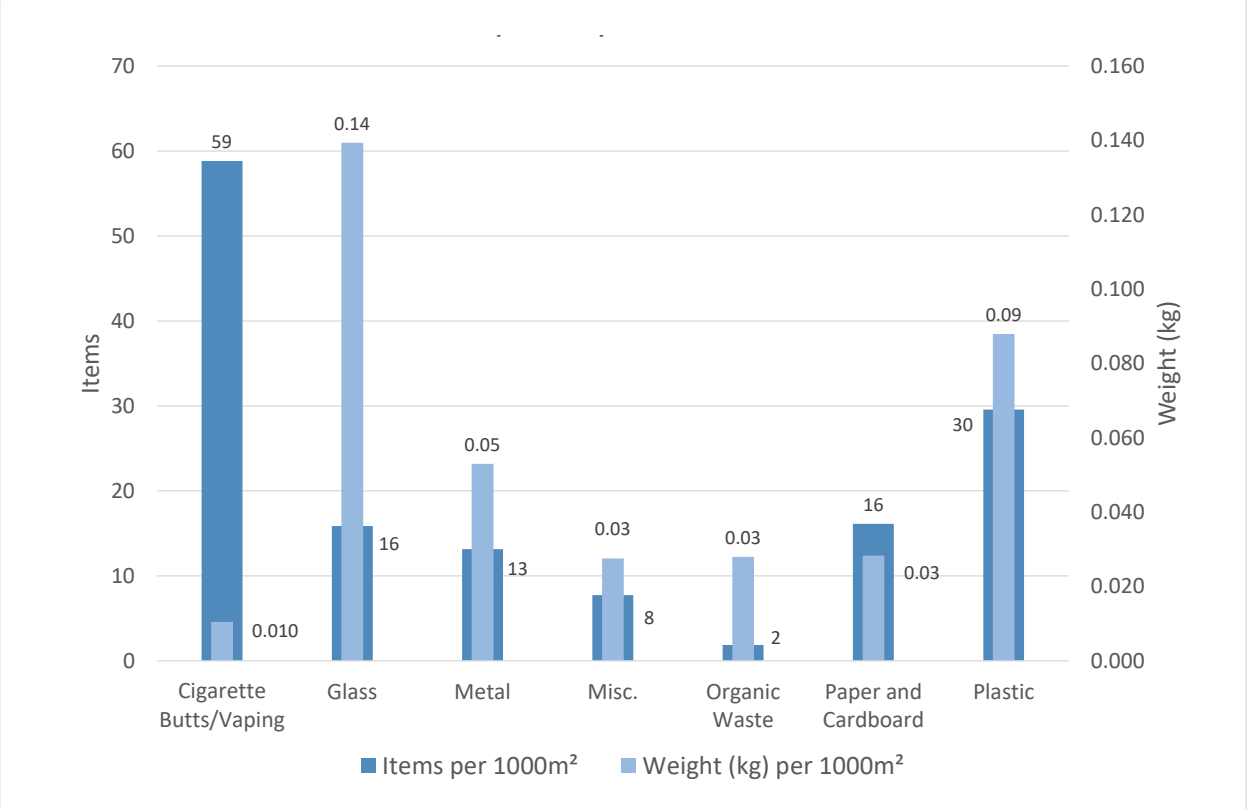


Figure 172 - Tasman/Nelson/Marlborough 2019 Items and Weight per 1,000 m² by Main Material Type

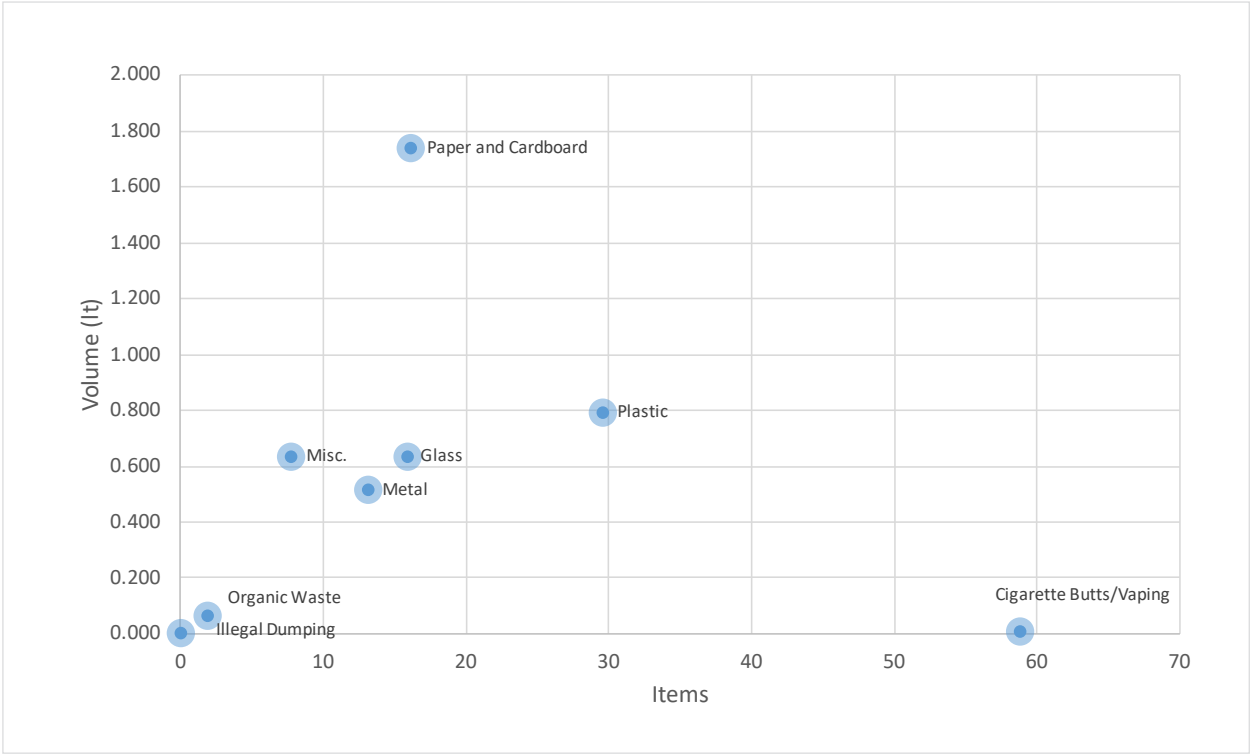


MAIN MATERIAL CHARACTERISTICS

Figures for items and volumes per 1,000 m² across main material types identified the following characteristics of litter objects within the Tasman, Nelson and Marlborough Regions:

- Cigarette Butts/Vaping were associated with a high number of litter items but contributed only a negligible volume to the litter stream
- Paper/Cardboard contributed large volumes of litter but only low to moderate numbers of litter items
- Plastic contributed to moderate numbers of litter items and moderate litter volumes
- Glass and Metal were associated with low to moderate numbers of litter items and small to moderate litter volumes
- Miscellaneous items contributed small to moderate volumes of litter and low numbers of litter items
- Organic Waste contributed low numbers of litter items and small litter volumes
- There were no instances of Illegal Dumping recorded at the sites audited

Figure 173 - Tasman/Nelson/Marlborough 2019 Items and Volume per 1,000 m² by Main Material Type

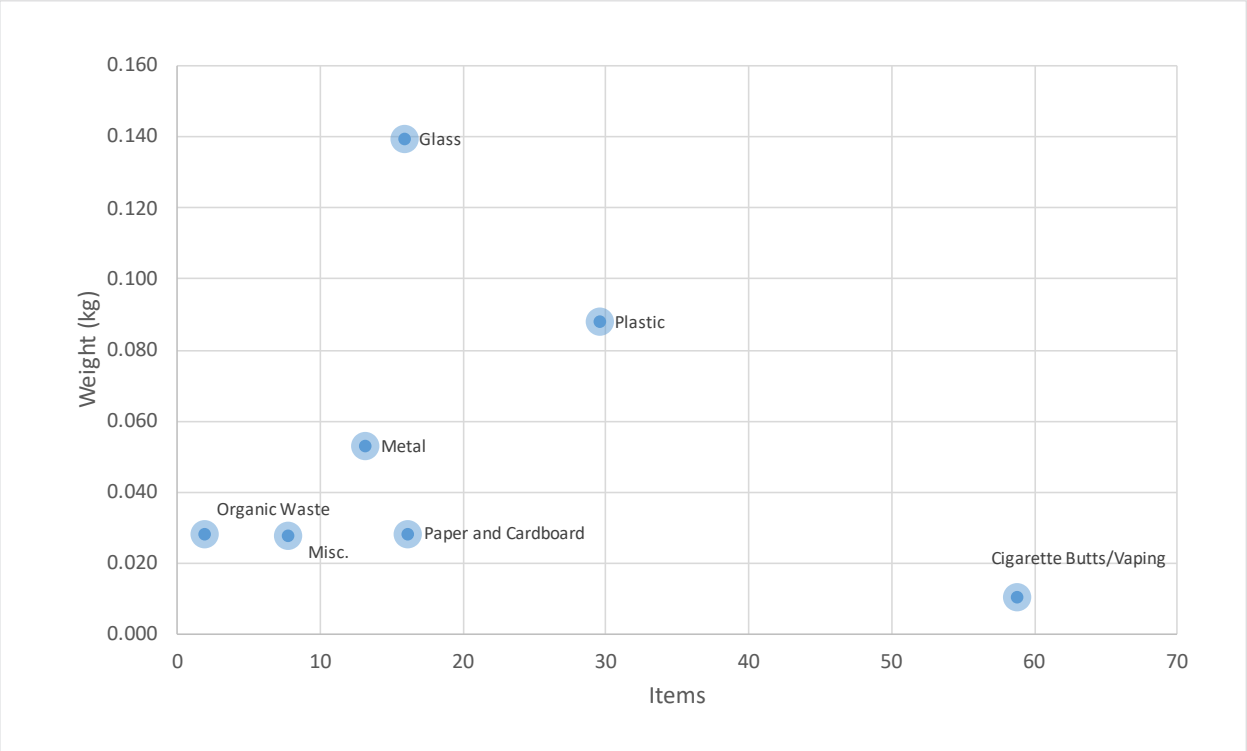


Items and weight characteristics across the main material types per 1,000 m² within the Tasman, Marlborough and Nelson Regions were identified as follows:

- Glass items were associated with large litter weights, but low to moderate numbers of litter items
- Plastic items contributed both moderate litter weights and moderate numbers of litter items
- Metal and Paper/Cardboard were associated with both small litter weights and low to moderate numbers of litter items
- Organic Waste and Miscellaneous items contributed small litter weights and low numbers of litter items
- Cigarette Butts/Vaping items were associated with small litter weights, but they contributed high numbers of litter items to the overall litter stream

Note: Illegal Dumping items were not weighed during the Audit

Figure 174 - Tasman/Nelson/Marlborough 2019 Items and Weight per 1,000 m² by Main Material Type

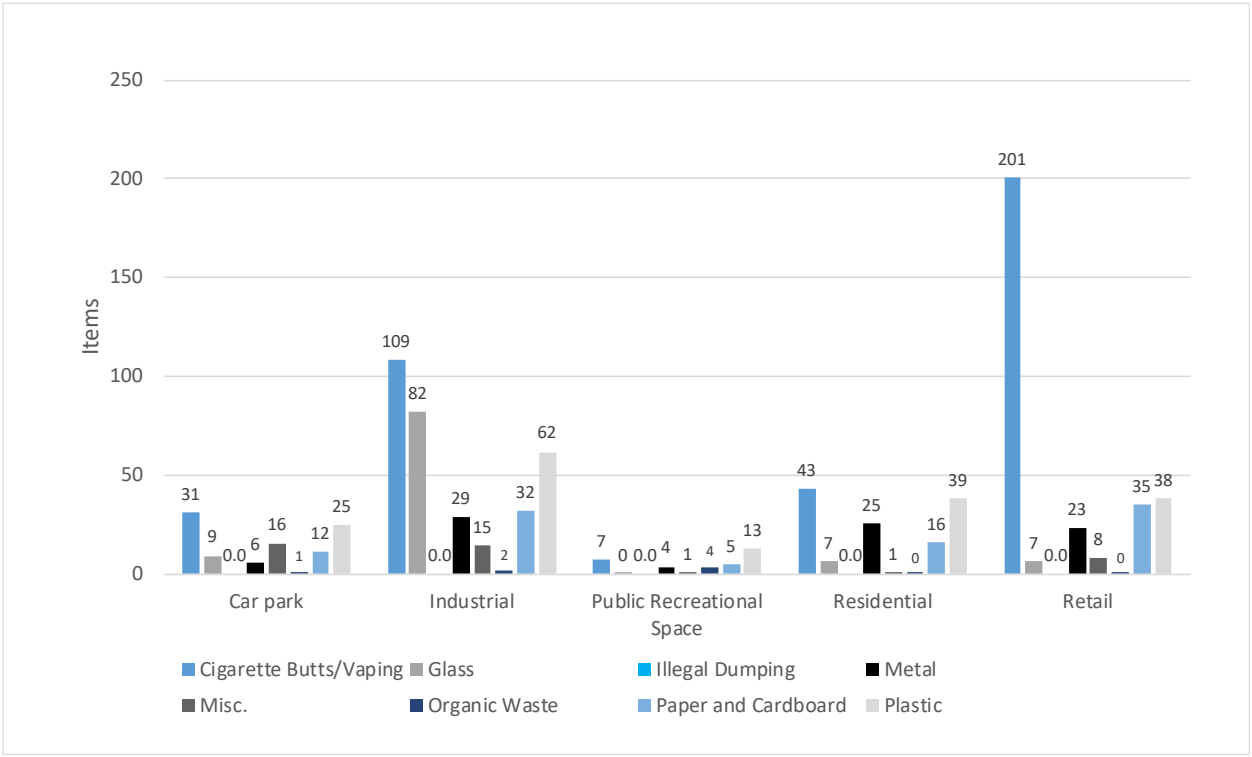


SITE TYPES BY MATERIAL TYPES

Figures for items and volumes per 1,000 m² across main material types identified the following characteristics of litter objects within the Tasman, Nelson and Marlborough Regions:

- Car Park sites: Cigarette Butts/Vaping (31 items), Plastic (25 items), Miscellaneous (16 items), Paper/Cardboard (12 items), Glass (9 items), Metal (6 items), Organic Waste (1 item) and Illegal Dumping (0 items)
- Industrial sites: Cigarette Butts/Vaping (109 items), Glass (82 items), Plastic (62 items), Paper/Cardboard (32 items), Metal (29 items), Miscellaneous (15 items), Organic Waste (2 items) and Illegal Dumping (0 items)
- Public Recreational sites: Plastic (13 items), Cigarette Butts/Vaping (7 items), Paper/Cardboard (5 items), Metal (4 items), Organic Waste (4 items), Miscellaneous (1 item), Glass (0 items) and Illegal Dumping (0 items)
- Residential sites: Cigarette Butts/Vaping (43 items), Plastic (39 items), Metal (25 items), Paper/Cardboard (16 items), Glass (7 items), Miscellaneous (1 item), Organic Waste (0 items) and Illegal Dumping (0 items)
- Retail sites: Cigarette Butts/Vaping (201 items), Plastic (38 items), Paper/Cardboard (35 items), Metal (23 items), Miscellaneous (8 items), Glass (7 items), Organic Waste (0 items) and Illegal Dumping (0 items)

Figure 175 - Tasman/Nelson/Marlborough 2019 Sites by Main Material Types - Items per 1,000 m²



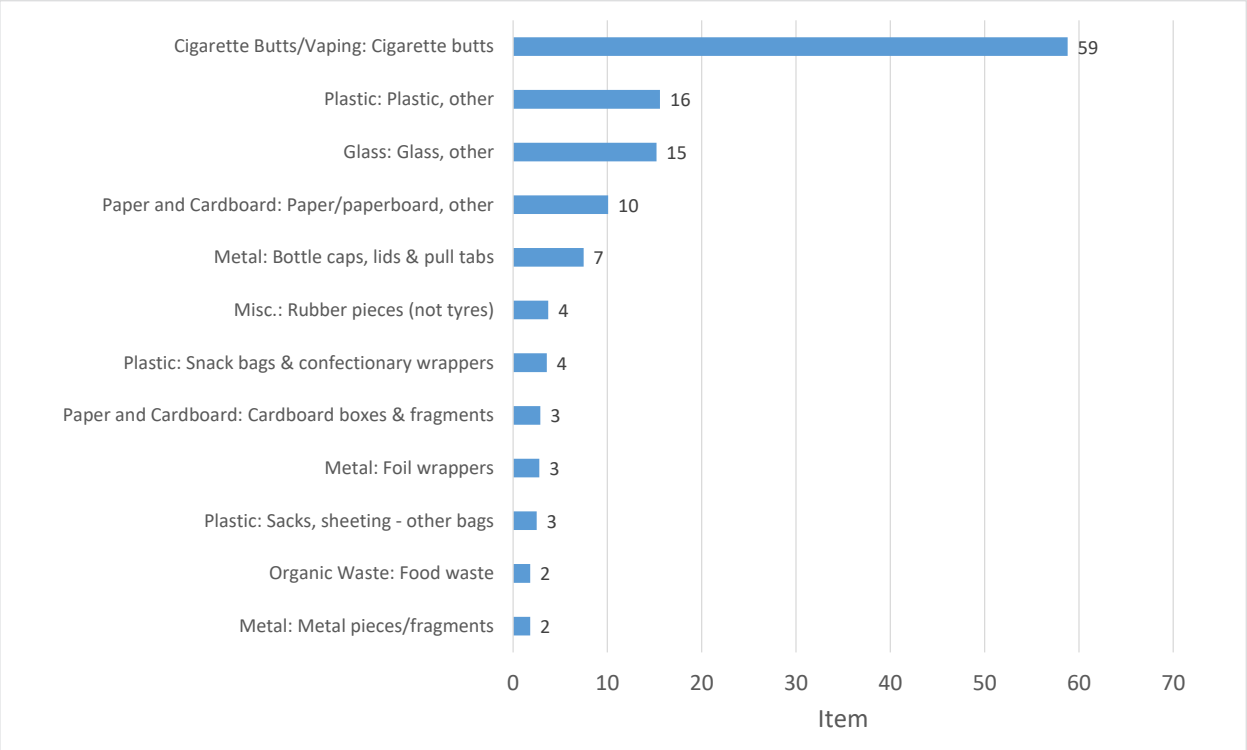
THE DIRTY DOZEN

Within the litter object type sub-categories, Cigarette butts were the largest contributors to the litter objects within the Tasman, Nelson and Marlborough Regions, with 59 butts per 1,000 m² identified on average across the sites.

Other object sub-categories which were associated with large litter counts included:

- Uncategorised Plastic objects (16 items per 1,000 m²)
- Uncategorised Glass objects (15 items per 1,000 m²)
- Uncategorised Paper/paperboard objects (10 items per 1,000 m²)
- Metal: Bottle caps, lids & pull tabs (7 items per 1,000 m²)

Figure 176 - Tasman/Nelson/Marlborough 2019 Dirty Dozen - Items per 1,000 m² - Object Sub Categories

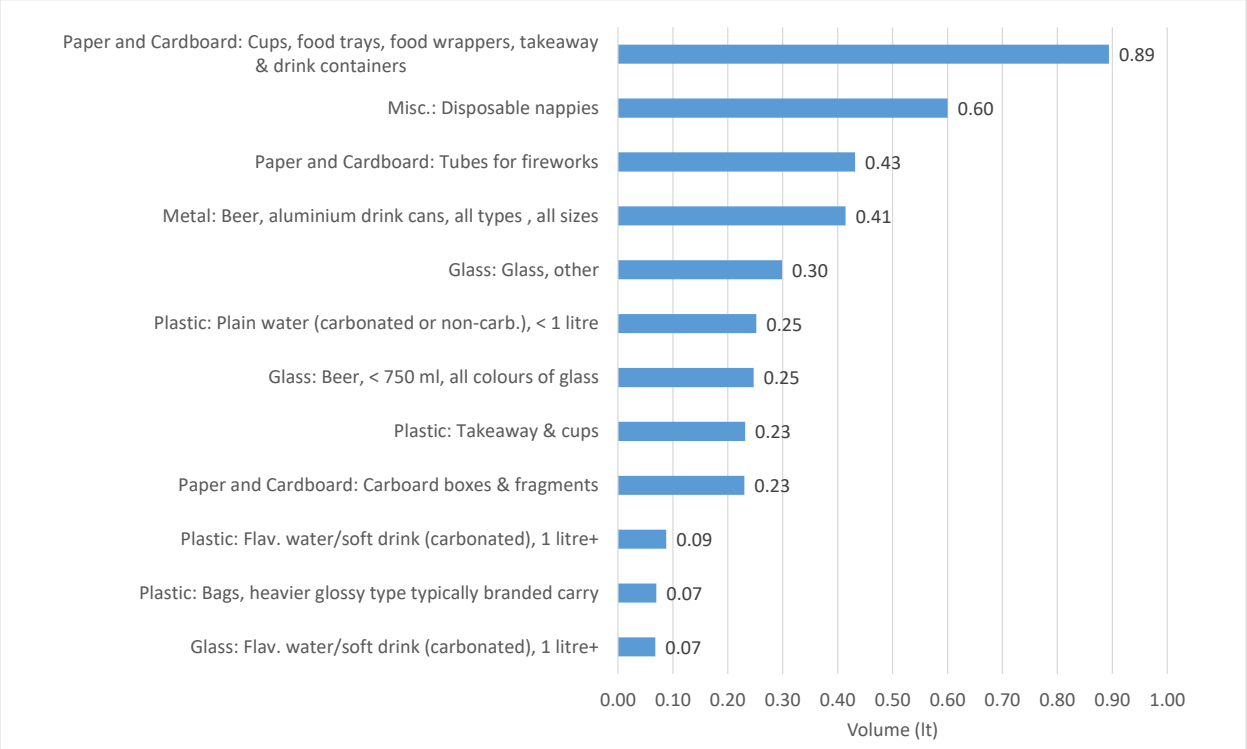


Paper/Cardboard: Cups, food trays, food wrappers, takeaway & drink containers represented the largest contribution to estimated litter volumes per 1,000 m² in the Tasman, Nelson and Marlborough Regions, recording a volume of 0.90 ltr per 1,000 m².

Other object sub-categories which recorded large estimated volumes per 1,000 m² throughout the region included:

- Disposable nappies (0.60 ltr per 1,000 m²)
- Paper/Cardboard: Tubes for fireworks (0.43 ltr per 1,000 m²)
- Metal: Beer, aluminium drink cans, all types, all sizes (0.41 ltr per 1,000 m²)
- Uncategorised Glass objects (0.30 ltr per 1,000 m²)

Figure 177 - Tasman/Nelson/Marlborough 2019 Dirty Dozen - Volume per 1,000 m² - Object Sub Categories

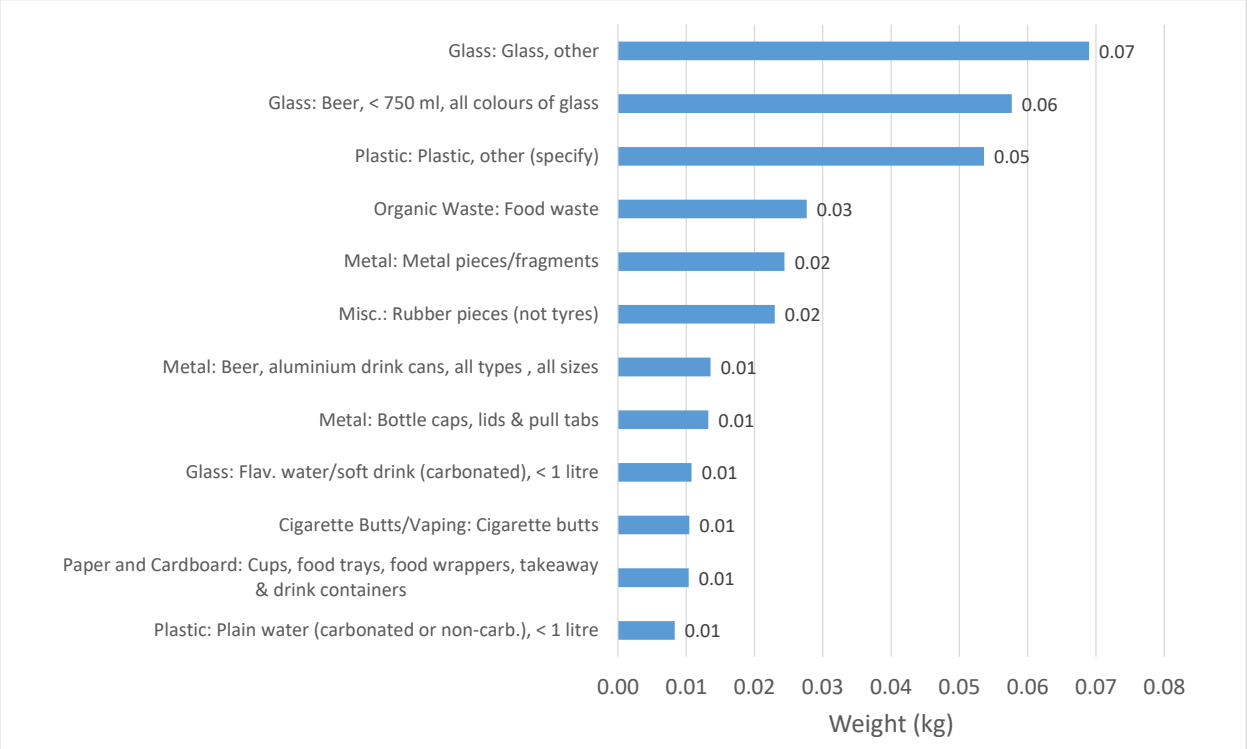


Within the objects sub-categories, uncategorised Glass objects contributed the largest litter weights per 1,000 m² across the region, with an average weight of 0.07 kg per 1,000 m² recorded. Weights were not measured for Illegal Dumping objects and therefore are not included in the weight analysis.

Other object sub-categories which were associated with large litter weights included:

- Glass: Beer, less than 750 ml, all colours (0.06 kg per 1,000 m²)
- Uncategorised Plastic objects (0.05 kg per 1,000 m²)
- Food waste (0.03 kg per 1,000 m²)

Figure 178 - Tasman/Nelson/Marlborough 2019 Dirty Dozen - Weight per 1,000 m² - Object Sub Categoriess



TERRITORY SUMMARIES

The Tasman, Nelson and Marlborough Regions are unitary authorities (territorial authorities which also perform the functions of a regional council). Due to their size and population, these regions were included in one section for the purposes of the Audit.

The following territories were included in the Audit:

- Marlborough District
- Nelson City
- Tasman District

A total of 15 sites (from Industrial, Retail, Residential, Car Park and Public Recreational sites) were audited in the Tasman, Nelson and Marlborough Regions with a minimum of 5 sites audited from each territory.

The results are summarised in the following table:

Extract from Table 3 – Territory Data: Tasman, Nelson and Marlborough Regions

Territory	Total Area Surveyed (m^2)	Items per 1,000 m^2	Weight (kg) per 1,000 m^2	Volume (lt) per 1,000 m^2
TASMAN, NELSON AND MARLBOROUGH REGIONS				
Marlborough District	*6760*	*170*	*0.54*	*6.38*
Nelson City	*5983*	*148*	*0.27*	*4.05*
Tasman District	*5988*	*108*	*0.29*	*2.48*
Tasman, Nelson and Marlborough Regions Overall	**18730**	**143**	**0.37**	**4.39**

SITE GRADINGS

All sites were assigned gradings in 4 categories: Visual rating, Litter hotshots rating, Risk present and Litter distribution. These were analysed to determine rating percentages and averages from the total sites audited within the region.

Extract from Table 2 - Site Types: Tasman, Nelson and Marlborough

	Risk Present		Litter Distribution	
Tasman, Nelson and Marlborough	*Moderate hazard or risk*	*Significant hazard or risk*	*Widespread*	*Clustered*
	87%	*13%*	*93%*	*7%*

Figure 179 - Tasman/Nelson/Marlborough 2019 Grading - Visual Site Ratings

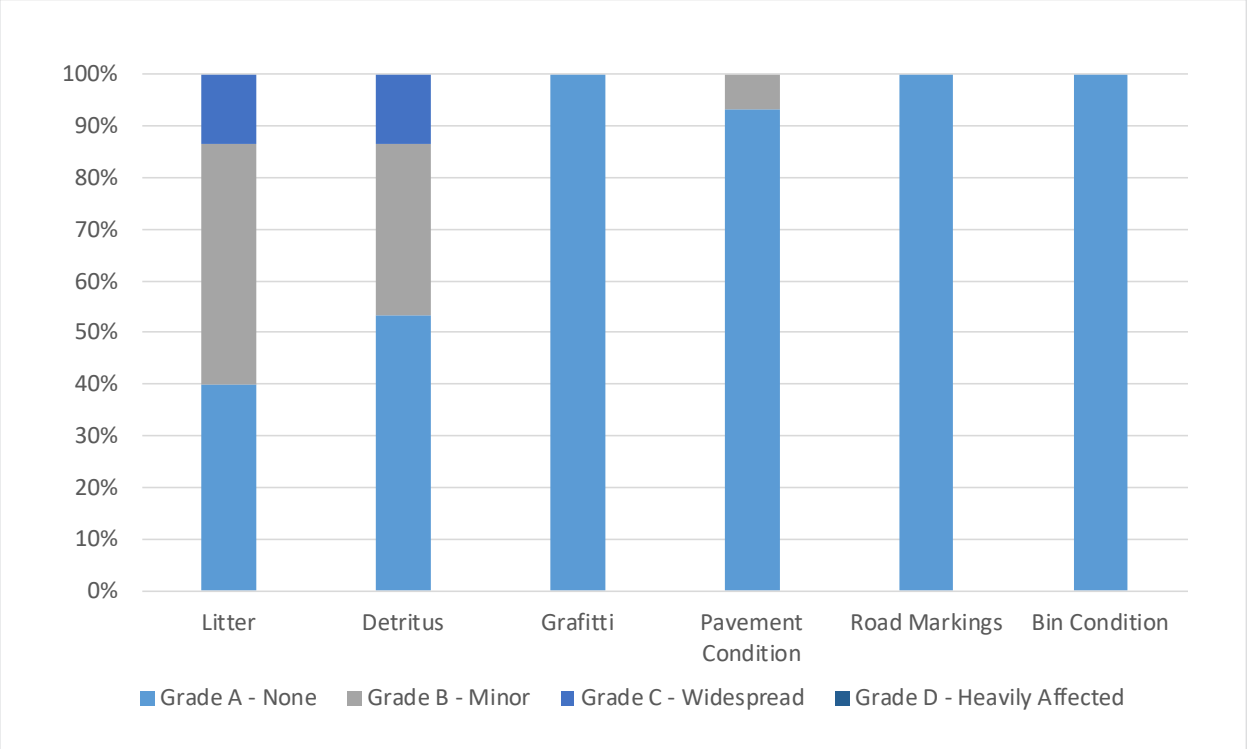
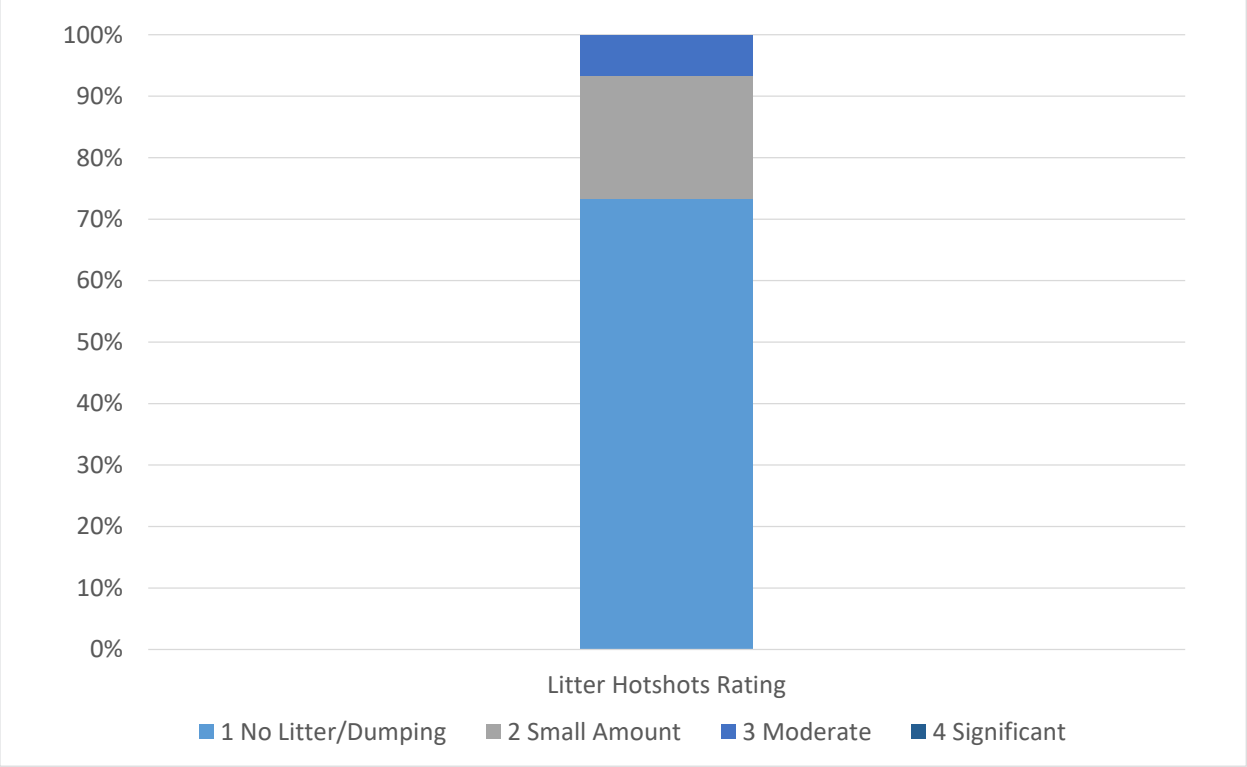


Figure 180 - Tasman/Nelson/Marlborough 2019 Grading - Site Litter Hotshots Ratings



WAIKATO REGION

AT A GLANCE

The overall average number of items per 1,000 m^2 across all the 51 sites surveyed in the Waikato Region was 113 items, the overall average litter weight per 1,000 m^2 was 0.43 kg while the overall average estimated volume per 1,000 m^2 was 5.68 ltr.

Industrial sites within the region were associated with the highest numbers of litter items, litter weights and litter volumes, while Retail sites contributed high numbers of litter items, moderate to large litter volumes and small to moderate litter weights. Residential sites were recorded as having large litter volumes, more moderate numbers of litter items and small to moderate litter weights, while Car Park sites were associated with moderate numbers of litter items and small to moderate litter volumes and weights. Public Recreational sites contributed to low numbers of litter items, litter weights and litter volumes per 1,000 m^2.

Cigarette Butts/Vaping were the most frequently identified item per 1,000 m^2 but were associated with the smallest weights and volumes recorded in the region. Plastic was associated with the second highest identified item, second largest weight and the third largest volume per 1,000 m^2.

Glass contributed significantly larger weight per 1,000 m^2 than any other material type in the Waikato Region but recorded lower numbers of litter items and small litter volumes.

Miscellaneous items contributed the largest volume per 1,000 m^2 to the overall regional litter stream (with Disposable nappies being the main contributor of volume in this category), however this category was associated with smaller numbers of litter items and weights.

COMPARISONS BY SITE TYPES

The highest numbers of litter items per 1,000 m^2 collected at the sites surveyed in the Waikato Region were from Industrial sites (248 items) and Retail sites (232 items). Moderate numbers of litter items were associated with Residential sites (109 items) and Car Park sites (108 items) while lower numbers of litter items were counted at Public Recreational sites (20 items).

High estimated volumes per 1,000 m^2 of the litter objects were associated with Industrial sites (13.01 ltr) and

Residential sites (10.46 ltr) while Retail sites (8.08 ltr) contributed to moderate to large volumes of litter. Small to moderate volumes of litter were associated with Car Park sites (3.57 ltr) and low volumes of litter recorded at Public Recreational sites (1.59 ltr).

Industrial sites (1.60 kg) contributed to the highest litter weights per 1,000 m² in the Waikato Region. Small to moderate litter weights were associated with Retail sites (0.43 kg), Car Park sites (0.39 kg) and Residential sites (0.37 kg). Public Recreational sites (0.04 kg) contributed to the lowest litter weights per 1,000 m².

Figure 181 - Waikato 2019 Items and Volume per 1,000 m² by Site Type

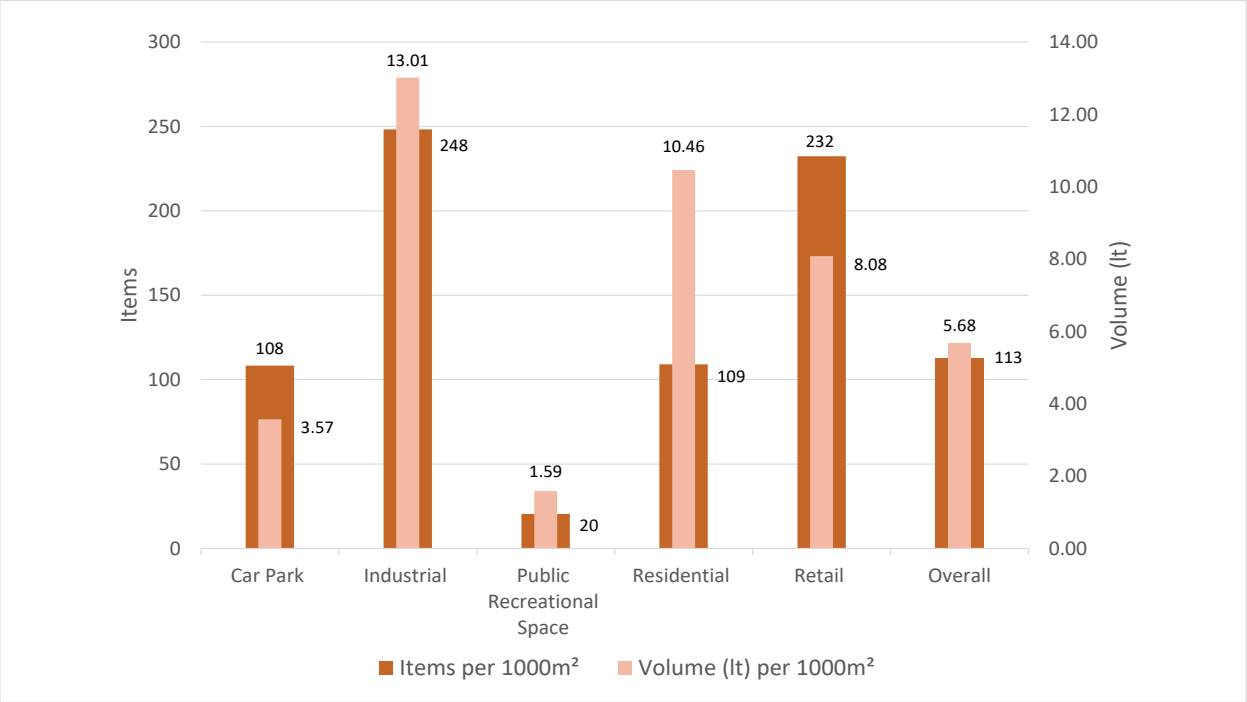
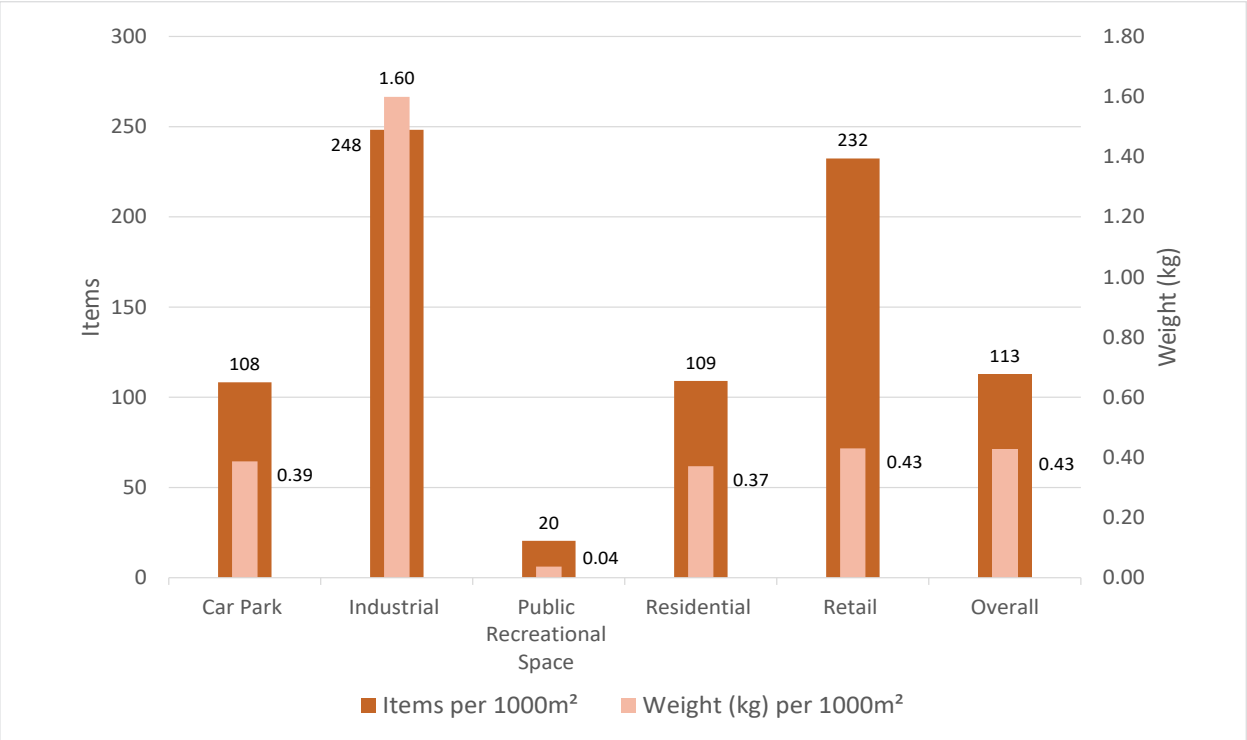


Figure 182 - Waikato 2019 Items and Weight per 1,000 m² by Site Type

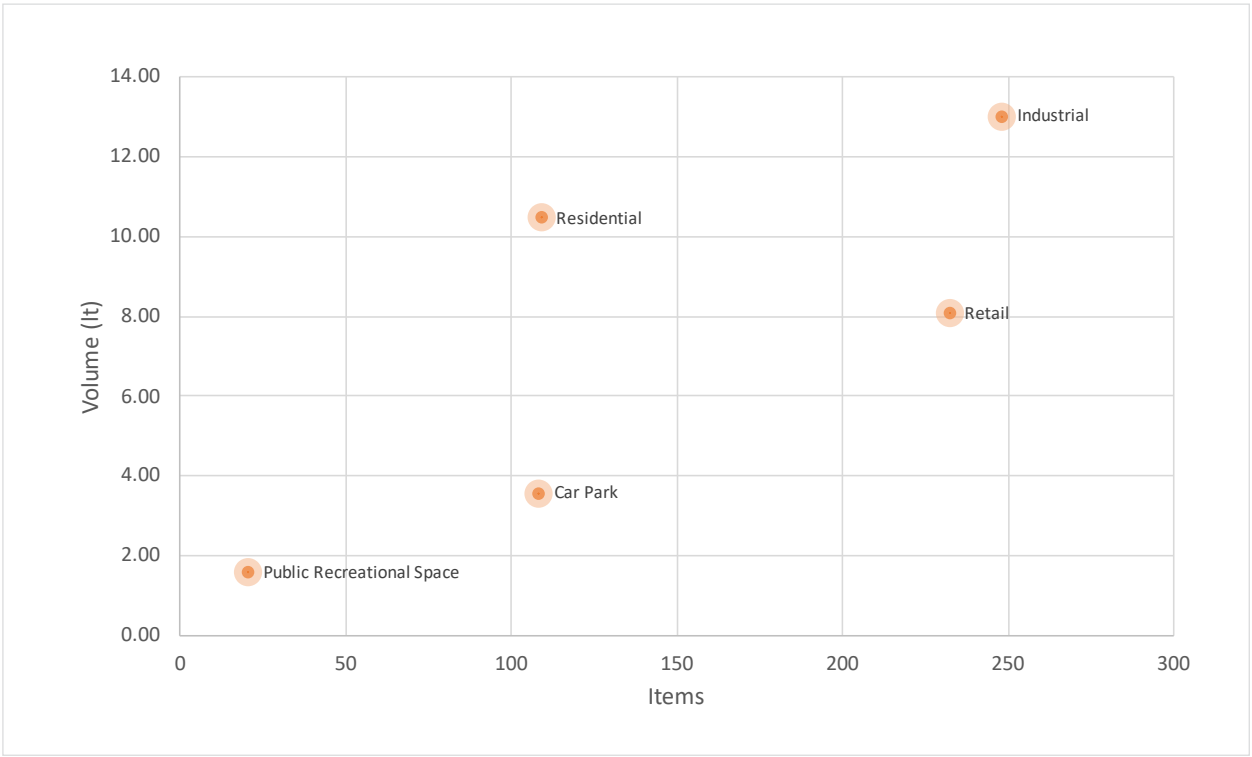


SITE CHARACTERISTICS

The following site characteristics across all site types within the Waikato Region were identified for items and volume estimates per 1,000 m²:

- Industrial sites contributed to high numbers of litter items and large litter volumes
- Retail sites were associated with high numbers of litter items and moderate to large litter volumes
- Residential sites contributed moderate numbers of litter items and large litter volumes
- Car Park sites were associated with moderate numbers of litter items and small to moderate litter volumes
- Public Recreational sites contributed to both low numbers of litter items and small litter volumes

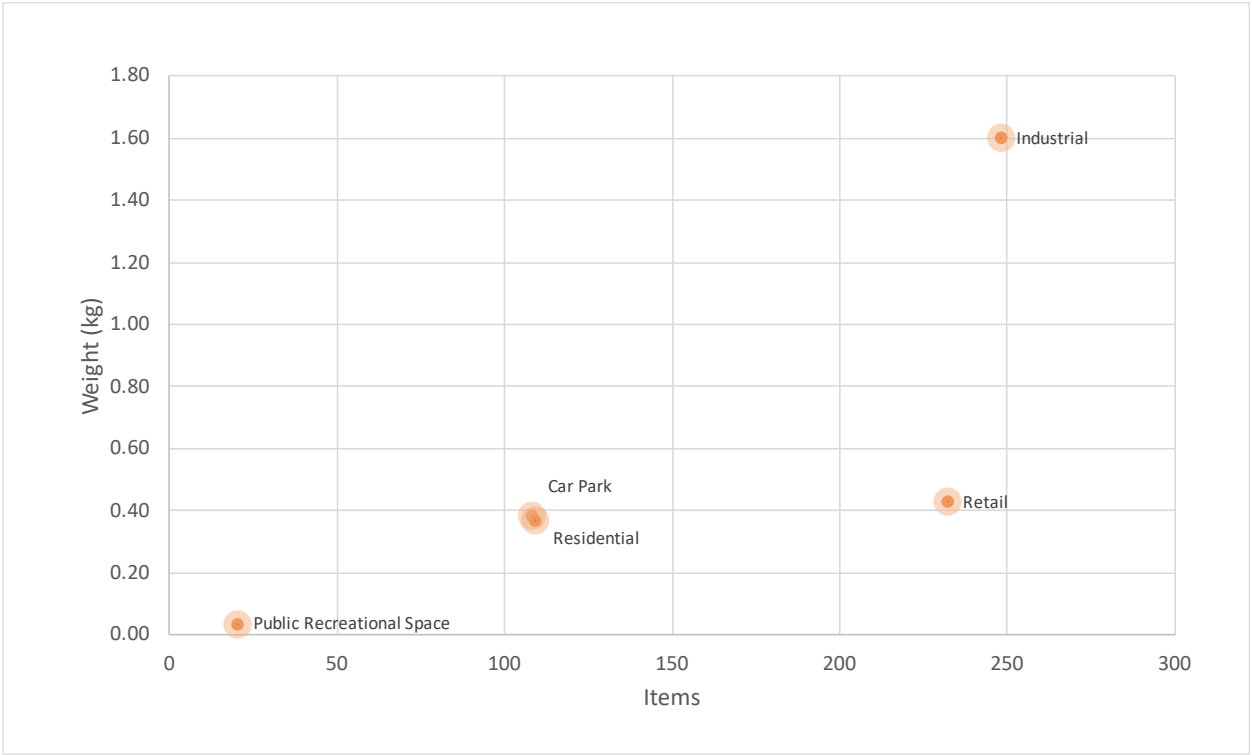
Figure 183 - Waikato 2019 Items and Volume per 1,000 m² by Site Type



The following site characteristics across all site types within the Waikato Region were identified for items and weights per 1,000 m²:

- Industrial sites were associated with large litter weights and high numbers of litter items
- Retail sites contributed small to moderate litter weights and high numbers of litter items
- Car Park and Residential sites were associated with small to moderate litter weights and moderate numbers of litter items
- Public Recreational sites contributed both small litter weights and low numbers of litter items to the regional litter stream

Figure 184 - Waikato 2019 Items and Weight per 1,000 m² by Site Type



COMPARISON BY MAIN MATERIAL TYPES

Cigarette Butts/Vaping was the most frequently identified object per 1,000 m² within the Waikato Region (36 items) while Plastic (31 items) contributed to the second highest identified item.

Smaller numbers of items per 1,000 m² were recorded for Paper/Cardboard (17items), Metal (12 items), Miscellaneous (8 items), Glass (7 items), and Organic Waste (1 item). There were no instances of Illegal Dumping recorded at the sites audited.

Miscellaneous items contributed the largest amount of volume per 1,000 m² to the litter stream (2.31 ltr), with the second largest volume associated with Paper/Cardboard (1.31 ltr). Smaller volumes were recorded for Plastic (0.76 ltr), Metal (0.75 ltr) Glass (0.53 ltr), and Organic Waste (0.03 ltr).

Cigarette Butts/Vaping items were associated with the smallest proportion of the overall litter volume (0.004 ltr per 1,000 m²).

Glass was associated with the largest weight per 1,000 m² recorded in the region (0.20 kg), while Plastic (0.08 kg) contributed the second highest weights to the regional litter weights. Smaller litter weights per 1,000 m² were associated with Metal (0.05 kg), Paper/Cardboard (0.04 kg), Miscellaneous items (0.03 kg), Organic Waste (0.01 kg) and Cigarette Butts/Vaping (0.006 kg).
A weight measure was not recorded for any Illegal Dumping identified during the Audit.

Figure 185 - Waikato 2019 Items and Volume per 1,000 m² by Main Material Type

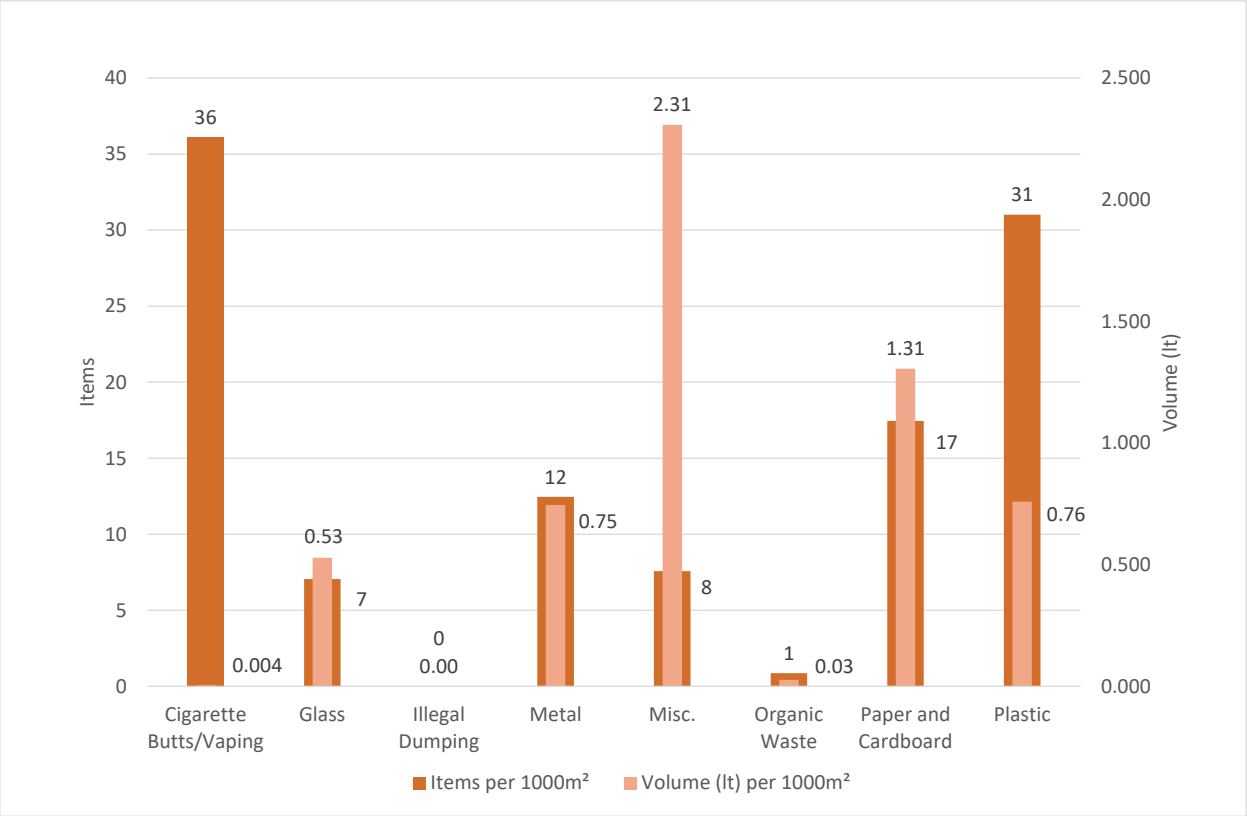
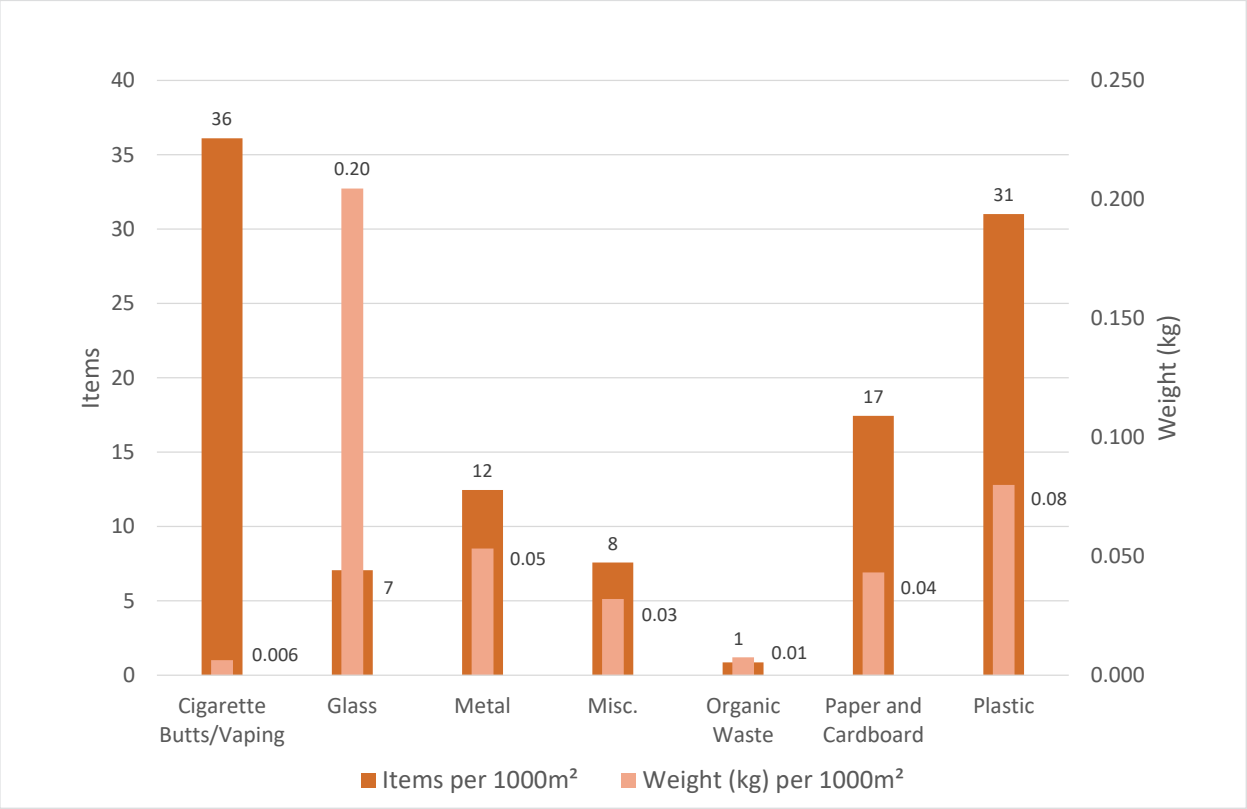


Figure 186 - Waikato 2019 Items and Weight per 1,000 m² by Main Material Type

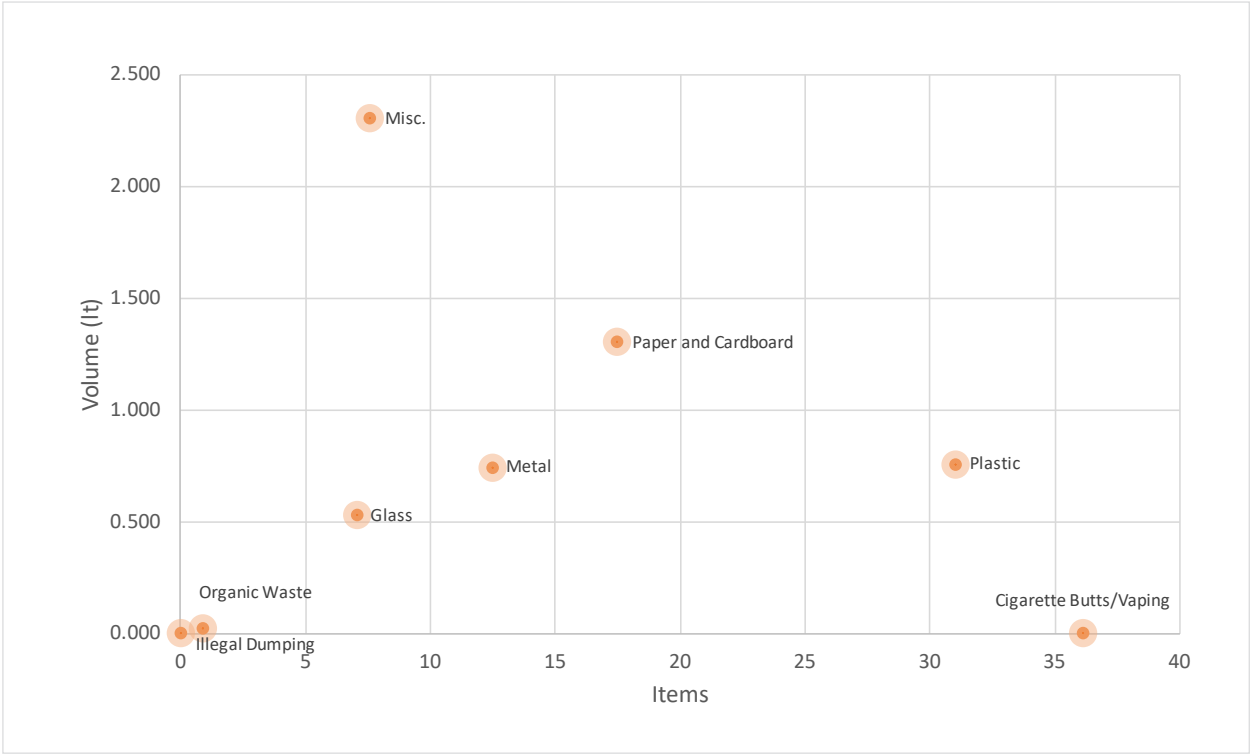


MAIN MATERIAL CHARACTERISTICS

Figures for items and volumes per 1,000 m² across main material types identified the following characteristics of litter objects within the Waikato Region:

- Cigarette Butts/Vaping were associated with a high number of litter items but contributed only a negligible volume to the litter stream
- Miscellaneous items contributed to large litter volumes but only low numbers of litter items
- Plastic contributed high numbers of litter items but low to moderate litter volumes
- Paper/Cardboard contributed moderate volumes of litter and moderate numbers of litter items
- Metal was associated with low to moderate number of litter items and small to moderate litter volumes
- Glass and Organic Waste contributed to low numbers of litter items and small litter volumes
- There were no instances of Illegal Dumping recorded at the sites audited

Figure 187 - Waikato 2019 Items and Volume per 1,000 m² by Main Material Type

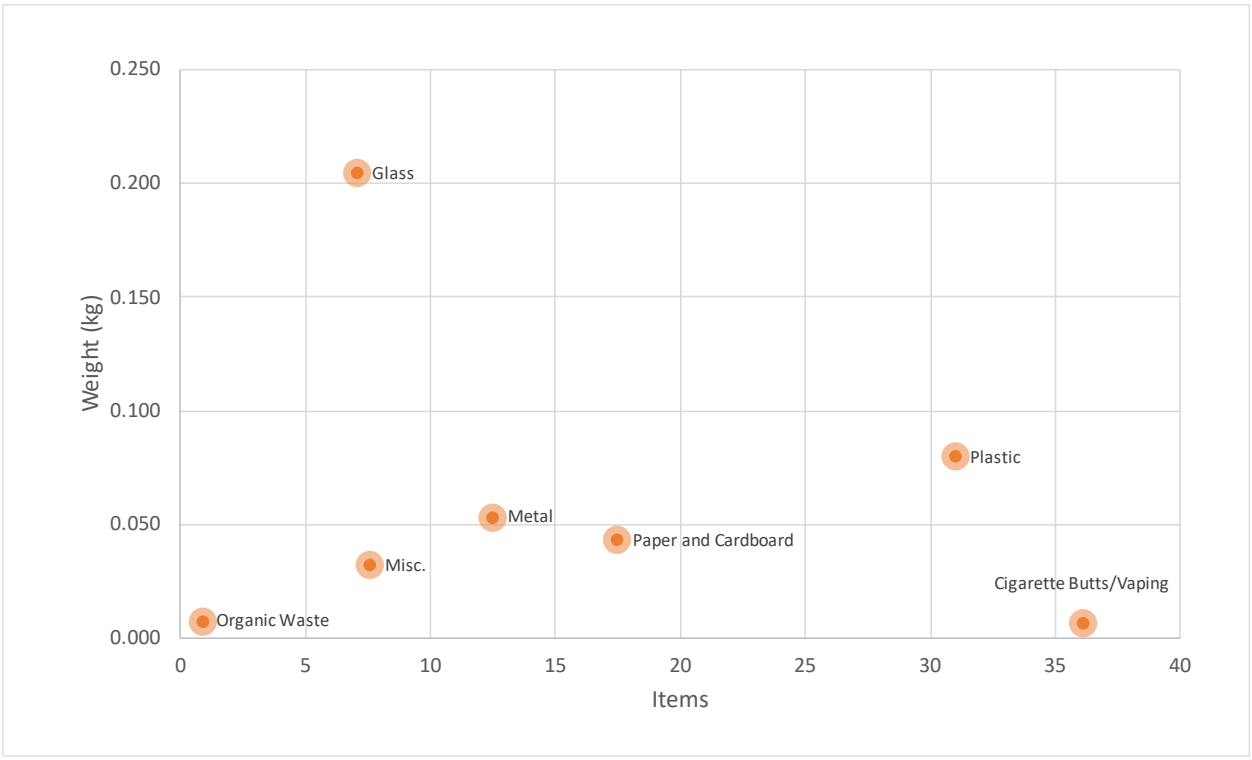


Figures for items and weights per 1,000 m² across main material types identified the following characteristics of litter objects within the Waikato Region:

- Glass was associated with large litter weights, but contributed only low numbers of litter items
- Plastic contributed low to moderate litter weights and high numbers of litter items
- Cigarette Butts/Vaping items were associated with small litter weights, but contributed high numbers of litter items
- Paper/Cardboard contributed small litter weights and moderate numbers of litter items
- Metal was associated with small litter weights and low to moderate numbers of litter items
- Organic Waste and Miscellaneous items were associated with both small litter weights and low numbers of litter items

Note: Illegal Dumping items were not weighed during the Audit

Figure 188 - Waikato 2019 Items and Weight per 1,000 m² by Main Material Type

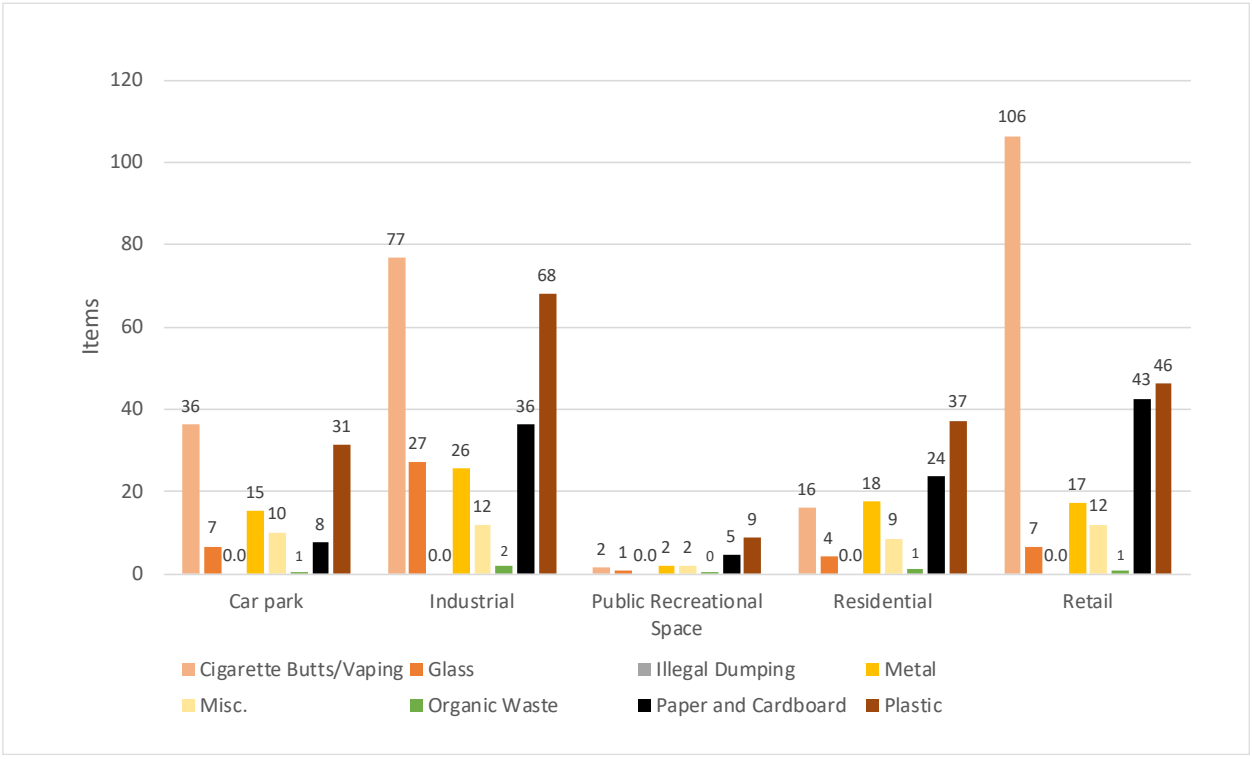


SITE TYPES BY MATERIAL TYPES

Figures for items and volumes per 1,000 m² across main material types identified the following characteristics of litter objects within the Waikato Region:

- Car Park sites: Cigarette Butts/Vaping (36 items), Plastic (31 items), Metal (15 items), Miscellaneous (10 items), Paper/Cardboard (8 items), Glass (7 items), Organic Waste (1 item) and Illegal Dumping (0 items)
- Industrial sites: Cigarette Butts/Vaping (77 items), Plastic (68 items), Paper/Cardboard (36 items), Glass (27 items), Metal (26 items), Miscellaneous (12 items), Organic Waste (2 items) and Illegal Dumping (0 items)
- Public Recreational sites: Plastic (9 items), Paper/Cardboard (5 items), Cigarette Butts/Vaping (2 items), Metal (2 items), Miscellaneous (2 items), Glass (1 item), Organic Waste (0 items) and Illegal Dumping (0 items)
- Residential sites: Plastic (37 items), Paper/Cardboard (24 items), Metal (18 items), Cigarette Butts/Vaping (16 items), Miscellaneous (9 items), Glass (4 items), Organic Waste (1 item) and Illegal Dumping (0 items)
- Retail sites: Cigarette Butts/Vaping (106 items), Plastic (46 items), Paper/Cardboard (43 items), Metal (17 items), Miscellaneous (12 items), Glass (7 items), Organic Waste (1 item) and Illegal Dumping (0 items)

Figure 189 - Waikato 2019 Sites by Main Material Types - Items per 1,000 m²



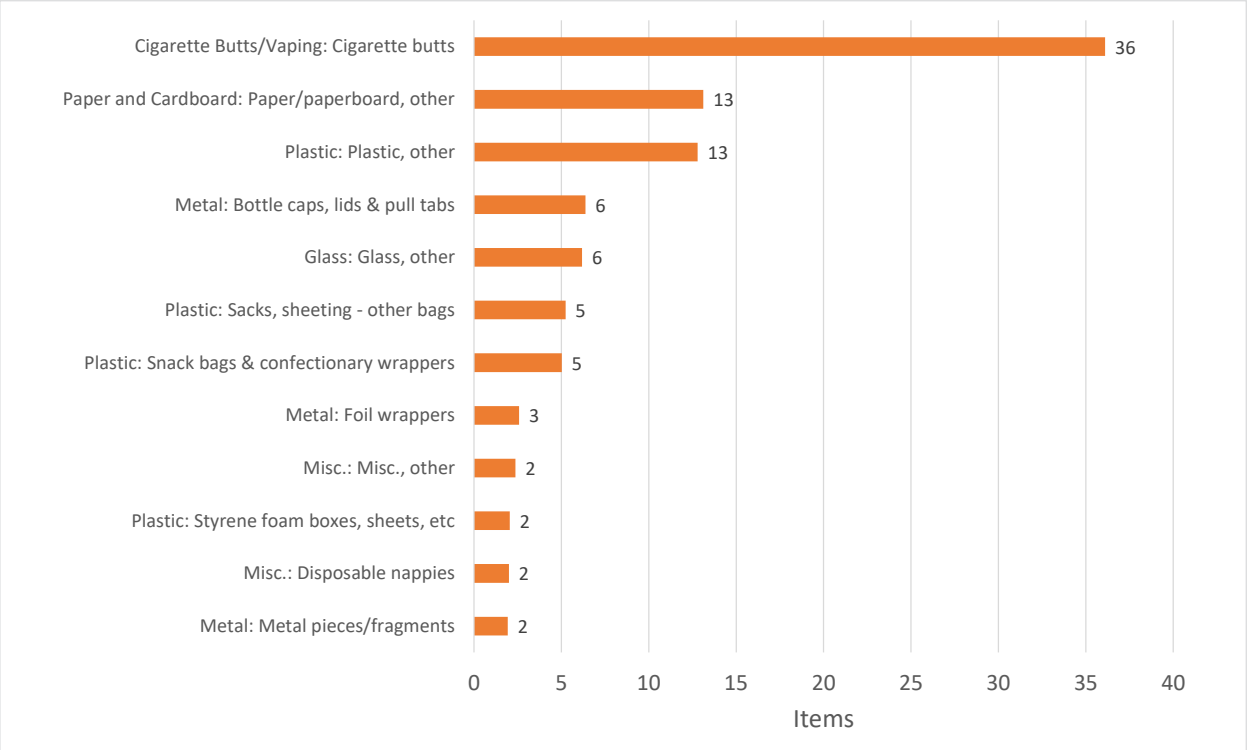
THE DIRTY DOZEN

Within the litter object type sub-categories, Cigarette butts were the largest contributors to the litter objects within the Waikato Region, with 36 butts per 1,000 m² identified on average across the sites.

Other object sub-categories which were associated with large litter counts included:

- Uncategorised Paper/paperboard objects (13 items per 1,000 m²)
- Uncategorised Plastic objects (13 items per 1,000 m²)
- Metal: Bottle caps, lids & pull tabs (6 items per 1,000 m²)
- Uncategorised Glass objects (6 items per 1,000 m²)

Figure 190 - Waikato 2019 Dirty Dozen - Items per 1,000 m² - Object Sub Categories

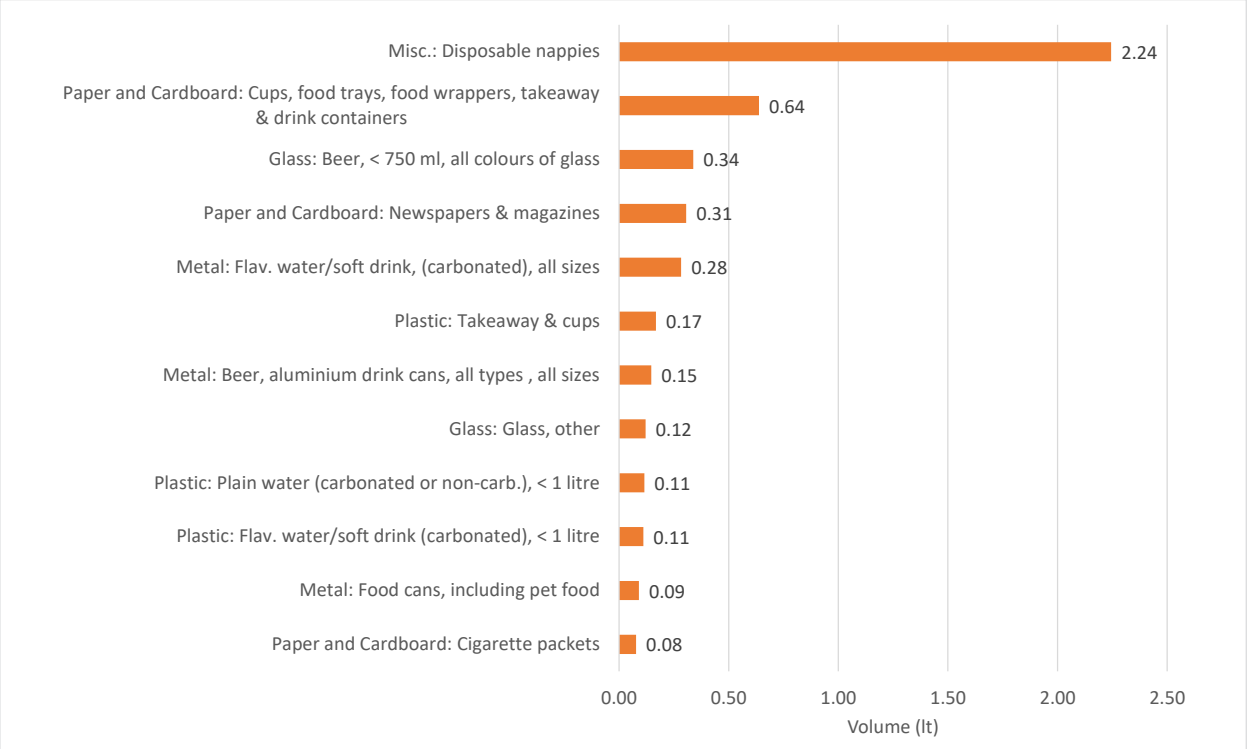


The largest contributor to the volume of the litter stream in the Waikato Region was Disposable nappies, with an estimated litter volume of 2.25 ltr per 1,000 m².

Other object sub-categories which were associated with large litter volumes per 1,000 m² included:

- Paper/Cardboard: Cups, food trays, food wrappers, takeaway & drink containers (0.64 ltr per 1,000 m²)
- Glass: Beer, less than 750 ml, all colours of glass (0.34 ltr per 1,000 m²)
- Paper/Cardboard: Newspapers & magazines (0.31 ltr per 1,000 m²)
- Metal: Flavoured water/soft drink, (carbonated), all sizes (0.28 ltr per 1,000 m²)

Figure 191 - Waikato 2019 Dirty Dozen - Volume per 1,000 m² - Object Sub Categories

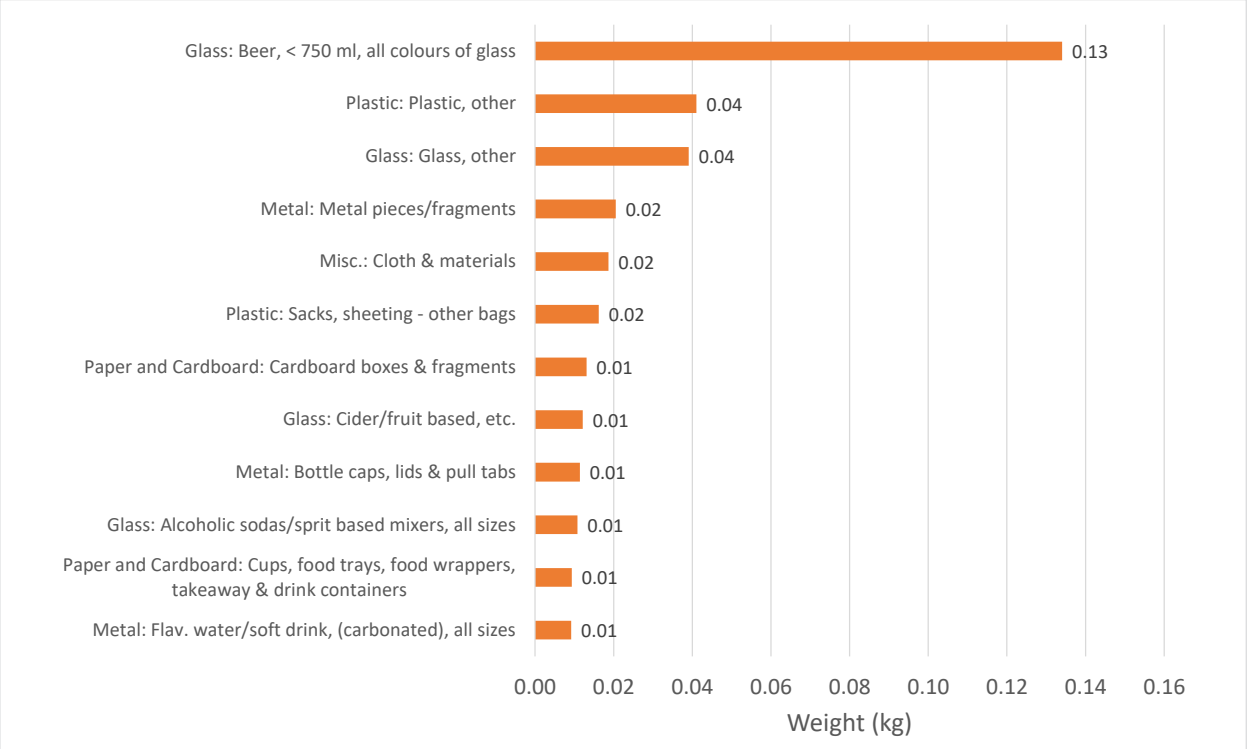


The largest contributor to litter weights in the Waikato Region was Glass: Beer bottles (less than 750 ml, all colours), with an average litter weight of 0.13 kg per 1,000 m² recorded. Weights were not measured for Illegal Dumping objects and therefore are not included in the weight analysis.

Other object sub-categories which were associated with large litter weights per 1,000 m² included:

- Uncategorised Plastic objects (0.04 kg per 1,000 m²)
- Uncategorised Glass objects (0.04 kg per 1,000 m²)
- Metal pieces/fragments (0.02 kg per 1,000 m²)
- Cloth & materials (0.02 kg per 1,000 m²)
- Plastic: Sacks, sheeting, other bags (0.02 kg per 1,000 m²)

Figure 192 - Waikato 2019 Dirty Dozen - Weight per 1,000 m² - Object Sub Categories



TERRITORY SUMMARIES

There are 10 territorial authorities which fall within the Waikato Region:

- Hamilton City
- Hauraki District
- Matamata-Piako District
- Otorohanga District
- South Waikato District
- Taupo District
- Thames-Coromandel District
- Waikato District
- Waipa District
- Waitomo District

A total of 51 sites (from Industrial, Retail, Residential, Car Park and Public Recreational sites) were audited in the Waikato Region with a minimum of 5 sites audited from each territory.

The results are summarised in the following table:

Extract from Table 3 – Territory Data: Waikato Region

Territory	Total Area Surveyed (m²)	Items per 1,000 m²	Weight (kg) per 1,000 m²	Volume (lt) per 1,000 m²
WAIKATO REGION				
Hauraki District	*5958*	*134*	*0.62*	*4.83*
Matamata-Piako District	*4933*	*90*	*0.60*	*9.15*
Otorohanga District	*5910*	*64*	*0.24*	*3.60*
South Waikato District	*5975*	*95*	*0.39*	*4.66*
Taupo District	*5412*	*204*	*0.33*	*5.78*
Thames-Coromandel District	*6206*	*65*	*0.17*	*4.14*
Waikato District	*7682*	*158*	*1.09*	*6.82*
Waipa District	*7850*	*65*	*0.21*	*6.08*
Waitomo District	*6105*	*90*	*0.14*	*2.57*
Waikato Region Overall	**61621**	**113**	**0.43**	**5.68**

SITE GRADINGS

All sites were assigned gradings in 4 categories: Visual rating, Litter hotshots rating, Risk present and Litter distribution. These were analysed to determine rating percentages and averages from the total sites audited within the region.

Extract from Table 2 - Site Types: Waikato

	Risk Present		Litter Distribution	
Waikato	*Moderate hazard or risk*	*Significant hazard or risk*	*Widespread*	*Clustered*
	100%	*0%*	*100%*	*0%*

Figure 193 - Waikato 2019 Grading - Visual Site Ratings

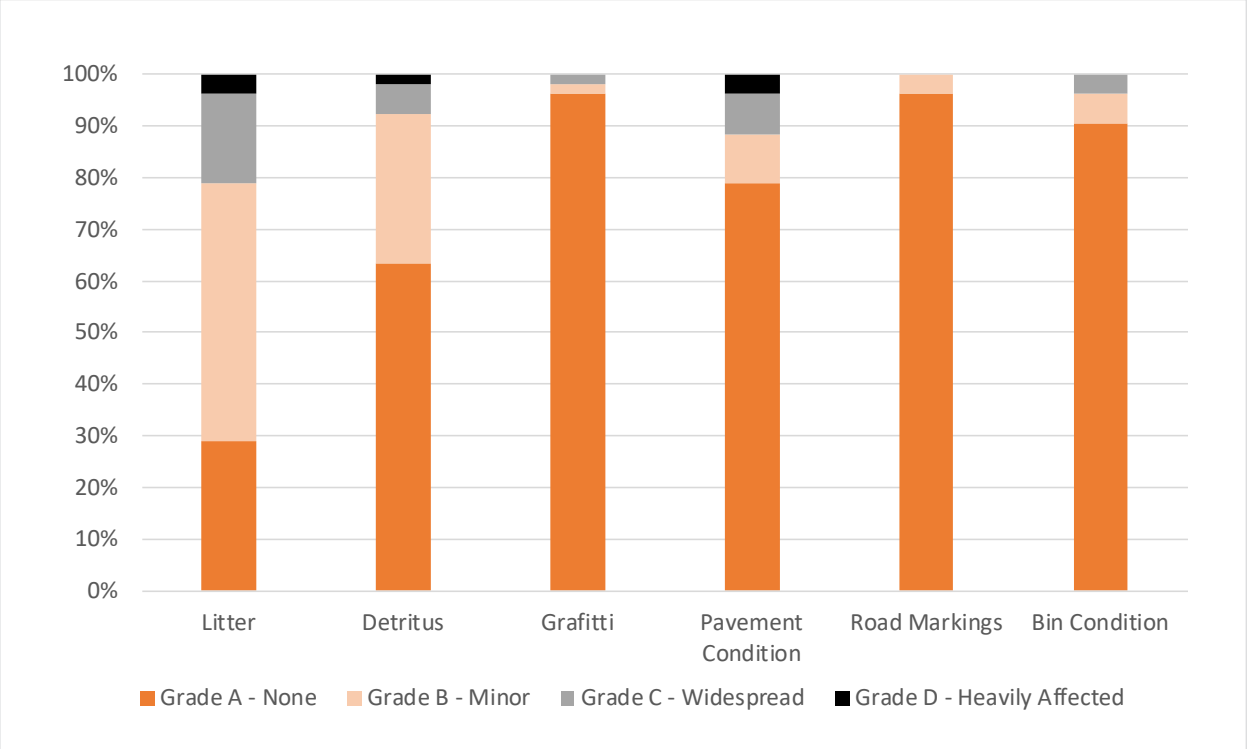
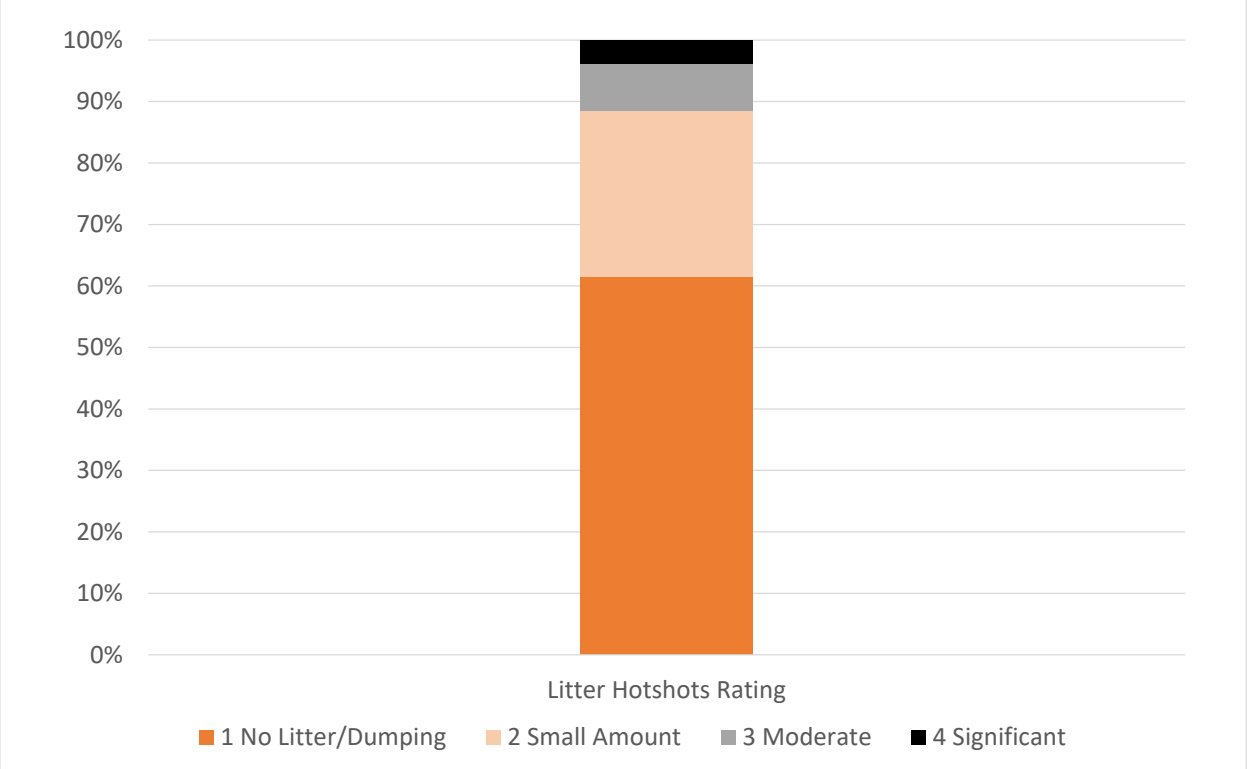


Figure 194 - Waikato 2019 Grading - Site Litter Hotshots Ratings



WELLINGTON REGION

AT A GLANCE

The overall average number of items per 1,000 m^2 across the 40 sites surveyed in the Wellington Region was 129 items, the overall average litter weight per 1,000 m^2 was 0.44 kg while the overall average estimated volume per 1,000 m^2 was 6.66 ltr.

Industrial sites were associated with high numbers of litter items, litter weights and litter volumes while Retail sites were also recorded as having high numbers of litter items but lower litter weights and volumes. Residential sites contributed to large litter weights and volumes, recording moderate to high numbers of litter items, while Car Park sites were associated with small to moderate numbers of litter items, litter weights and litter volumes. Public Recreational sites contributed low numbers of litter items, litter weights and litter volumes per 1,000 m^2.

Cigarette Butts/Vaping were the most frequently identified item per 1,000 m^2 but were associated with the smallest litter weight and volume recorded in the region, while Plastic was associated with the second highest identified item, second largest weight and the third largest volume.

Glass was the largest contributor of litter weight per 1,000 m^2 to the regional litter stream, however this category was associated with low numbers of items and small volumes.

Miscellaneous items contributed the largest volume per 1,000 m^2 to the overall regional litter stream (with Disposable nappies being the main contributor of volume in this category) but were associated with lower numbers of items and smaller litter weights.

COMPARISONS BY SITE TYPES

The highest numbers of litter items per 1,000 m^2 collected at the sites surveyed in the Wellington Region were Retail sites (262 items) and Industrial sites (236 items). Moderate to high numbers of litter items were found at Residential sites (154 items) while Car Park sites (85 items) were associated with low to moderate numbers of litter items. Public Recreational sites (39 items) contributed to low numbers of litter items per 1,000 m^2.

High estimated volumes per 1,000 m^2 of the litter objects were associated with Industrial sites (15.08 ltr) and Residential sites (13.10 ltr) while small to moderate

volumes per 1,000 m² were associated with Car Park sites (4.84 ltr) and Retail sites (3.88 ltr). Public Recreational sites (2.47 ltr) contributed to small litter volumes per 1,000 m².

The largest litter weights per 1,000 m² of litter items were associated with Industrial sites (1.11 kg) and Residential sites (0.97 kg). Smaller litter weights were recorded at Car Park sites (0.23 kg), Retail sites (0.19 kg) and Public Recreational sites (0.16 kg).

Figure 195 - Wellington 2019 Items and Volume per 1,000 m² by Site Type

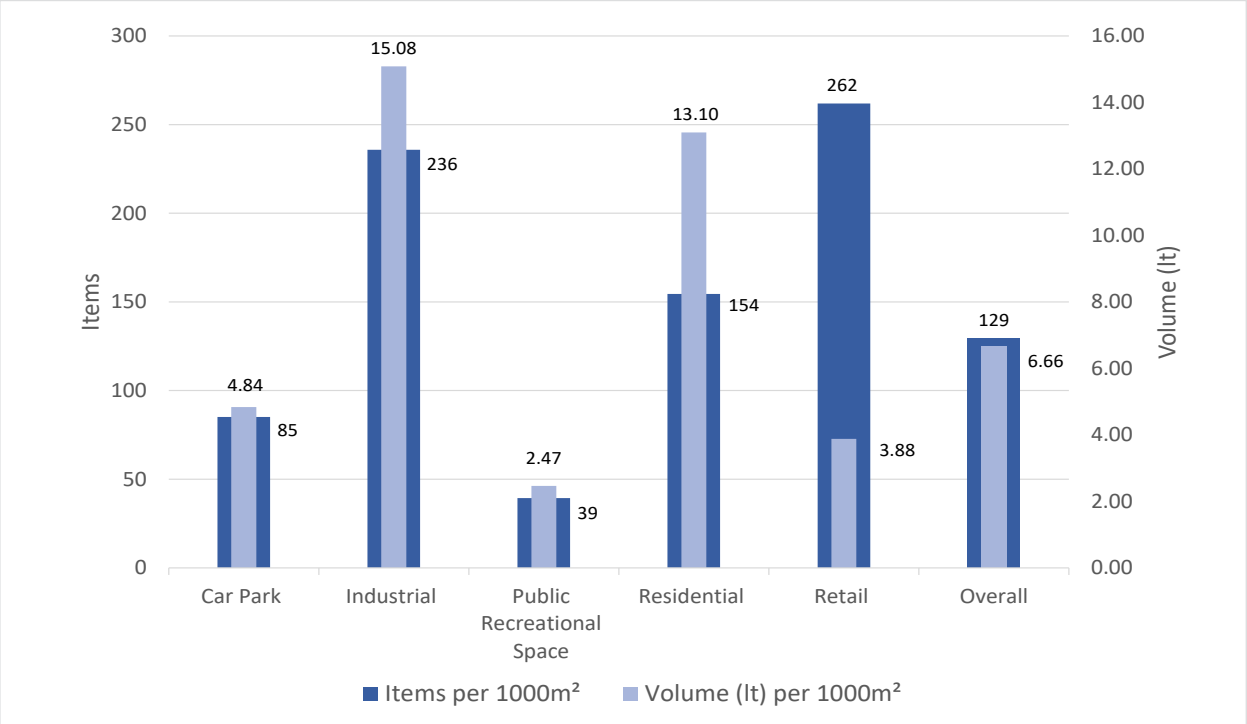
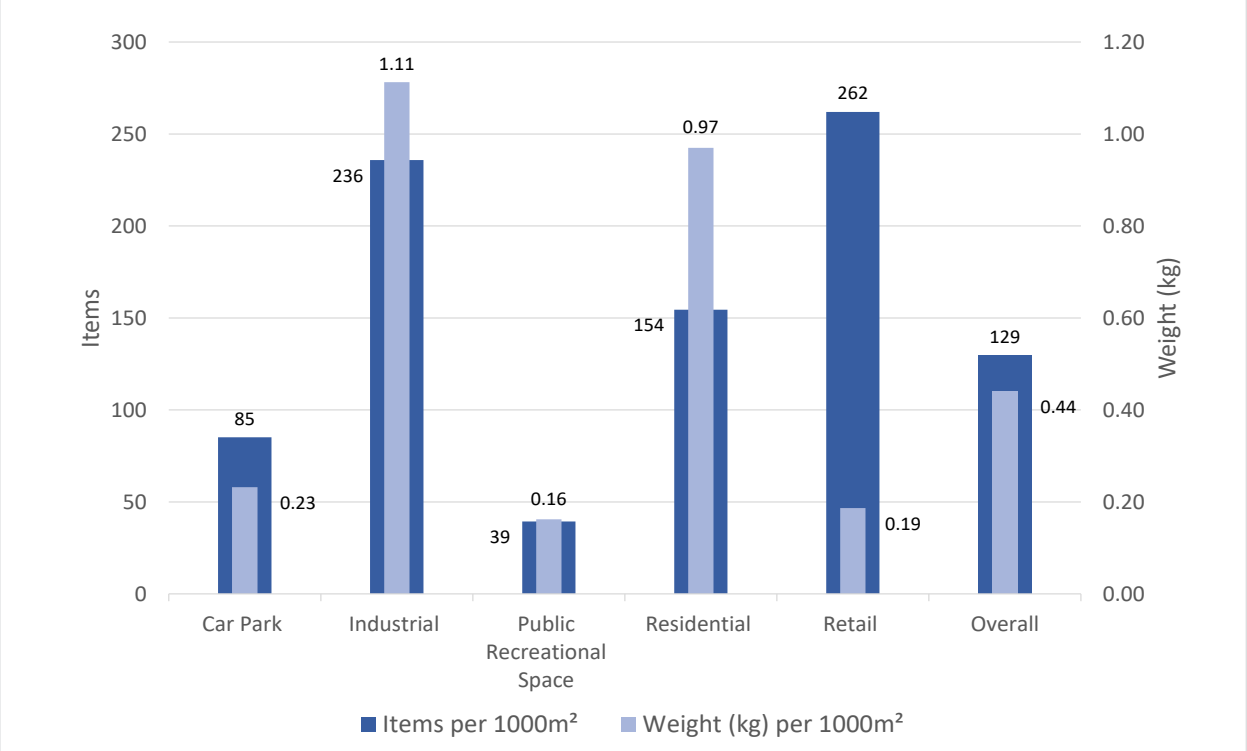


Figure 196 - Wellington 2019 Items and Weight per 1,000 m² by Site Type

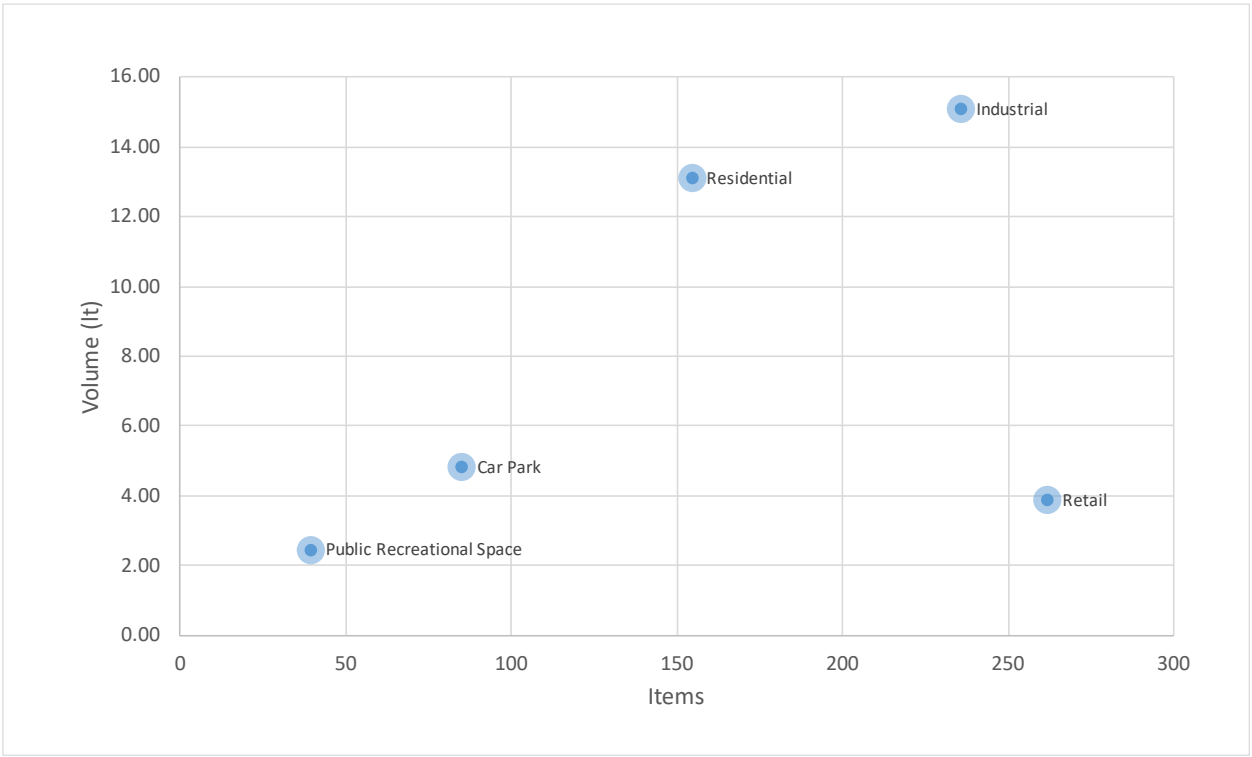


SITE CHARACTERISTICS

The following site characteristics across all site types within the Wellington Region were identified for items and volume estimates per 1,000 m²:

- Industrial sites were associated with high numbers of litter items and large litter volumes
- Retail sites contributed to high numbers of litter items but small to moderate litter volumes
- Residential sites were associated with large litter volumes and moderate to high numbers of litter items
- Car Park sites were associated with low to moderate numbers of litter items and small to moderate litter volumes
- Public Recreational sites contributed to both low numbers of litter items and small litter volumes

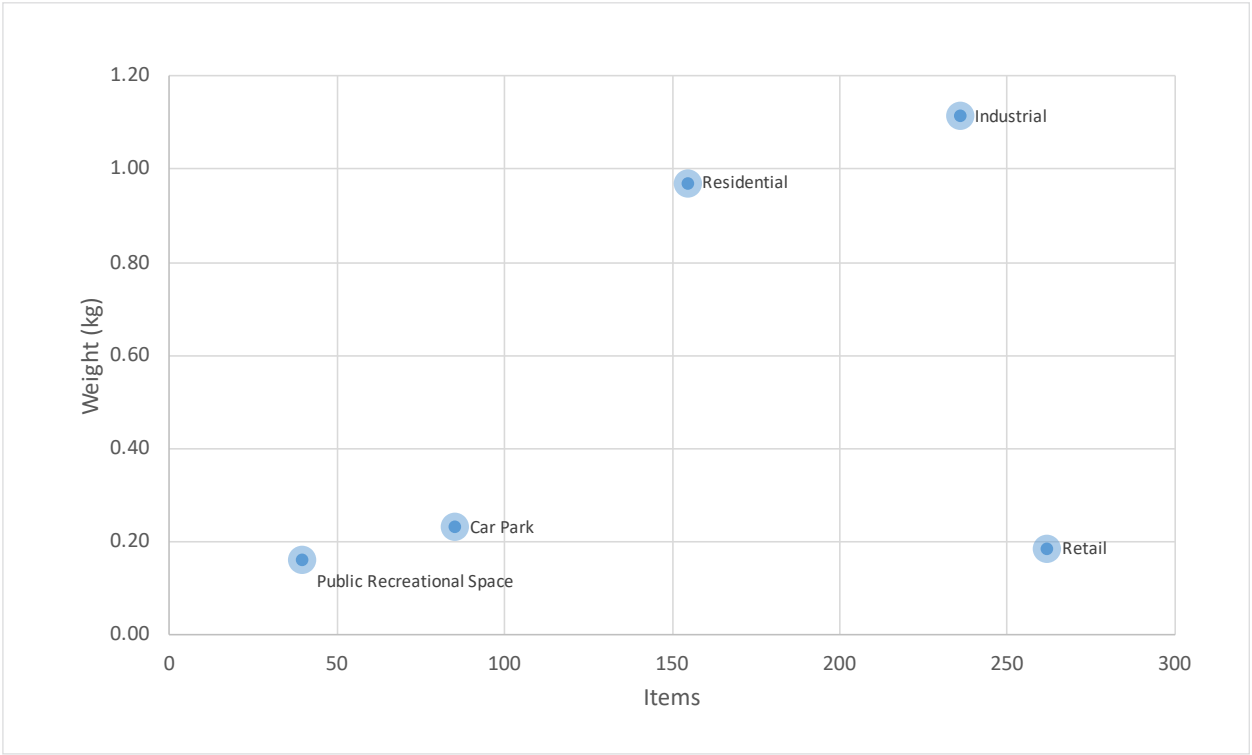
Figure 197 - Wellington 2019 Items and Volume per 1,000 m² by Site Type



The following site characteristics across all site types within the Wellington Region were identified for items and weights per 1,000 m²:

- Industrial sites were associated with large litter weights and high numbers of litter items
- Residential sites were associated with large litter weights and moderate to high numbers of litter items
- Retail sites contributed small litter weights but were associated with high numbers of litter items
- Car Park sites were associated with small to moderate litter weights and low to moderate numbers of litter items
- Public Recreational sites were associated with small litter weights and low numbers of litter items

Figure 198 - Wellington 2019 Items and Weight per 1,000 m² by Site Type



COMPARISON BY MAIN MATERIAL TYPES

Cigarette Butts/Vaping was the most frequently identified object per 1,000 m² within the Wellington Region (51 items) while Plastic (32 items) contributed to the second highest identified item.

Smaller numbers of items per 1,000 m² were recorded for Paper/Cardboard (17 items), Metal (13 items), Glass (9 items), Miscellaneous (8 items), and Organic Waste (less than 1 item per 1,000 m²). There were no instances of Illegal Dumping recorded at the sites audited.

Miscellaneous items contributed the largest amount of volume per 1,000 m² to the litter stream (2.44 ltr), with the second and third largest volumes associated with Paper/Cardboard (1.52 ltr) and Plastic (1.41 ltr). Smaller volumes were recorded for Metal (0.90 ltr), Glass (0.38 ltr), and Organic Waste (0.01 ltr). Cigarette Butts/Vaping items were associated with the smallest proportion of the overall litter volume (0.006 ltr per 1,000 m²).

Glass (0.15 kg) and Plastic (0.11 kg) were associated with the largest litter weights per 1,000 m² in the Wellington Region, while smaller litter weights were recorded for Metal (0.06 kg), Paper/Cardboard (0.06 kg), Miscellaneous items (0.03 kg), Cigarette Butts/Vaping (0.01 kg) and Organic Waste (0.01 kg). A weight measure was not recorded for any Illegal Dumping identified during the Audit.

Figure 199 - Wellington 2019 Items and Volume per 1,000 m² by Main Material Type

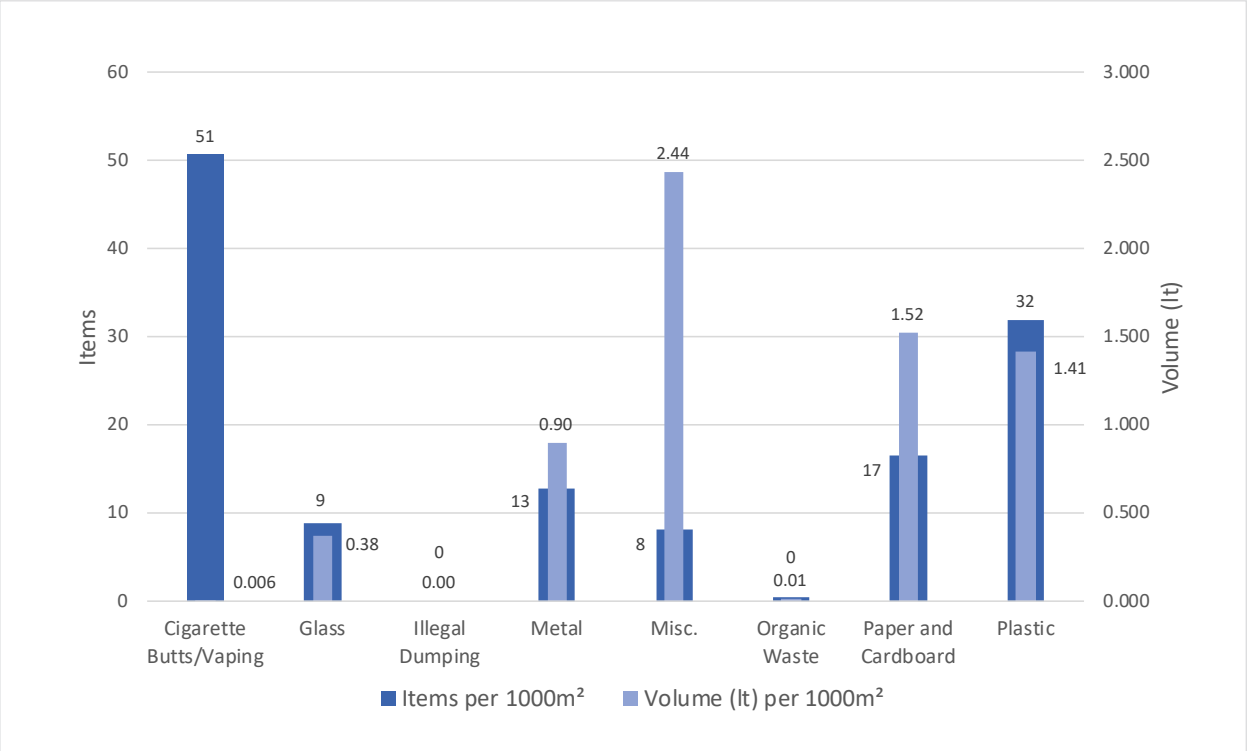
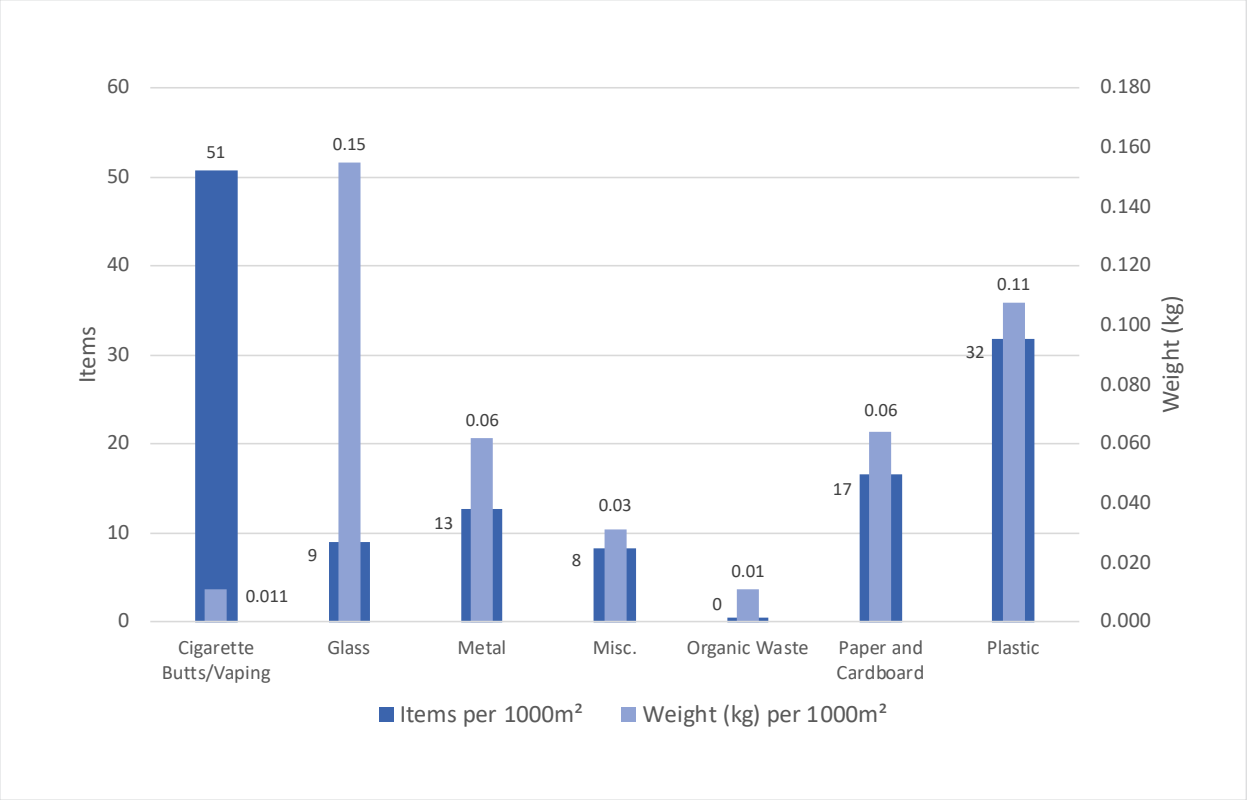


Figure 200 - Wellington 2019 Items and Weight per 1,000 m² by Main Material Type

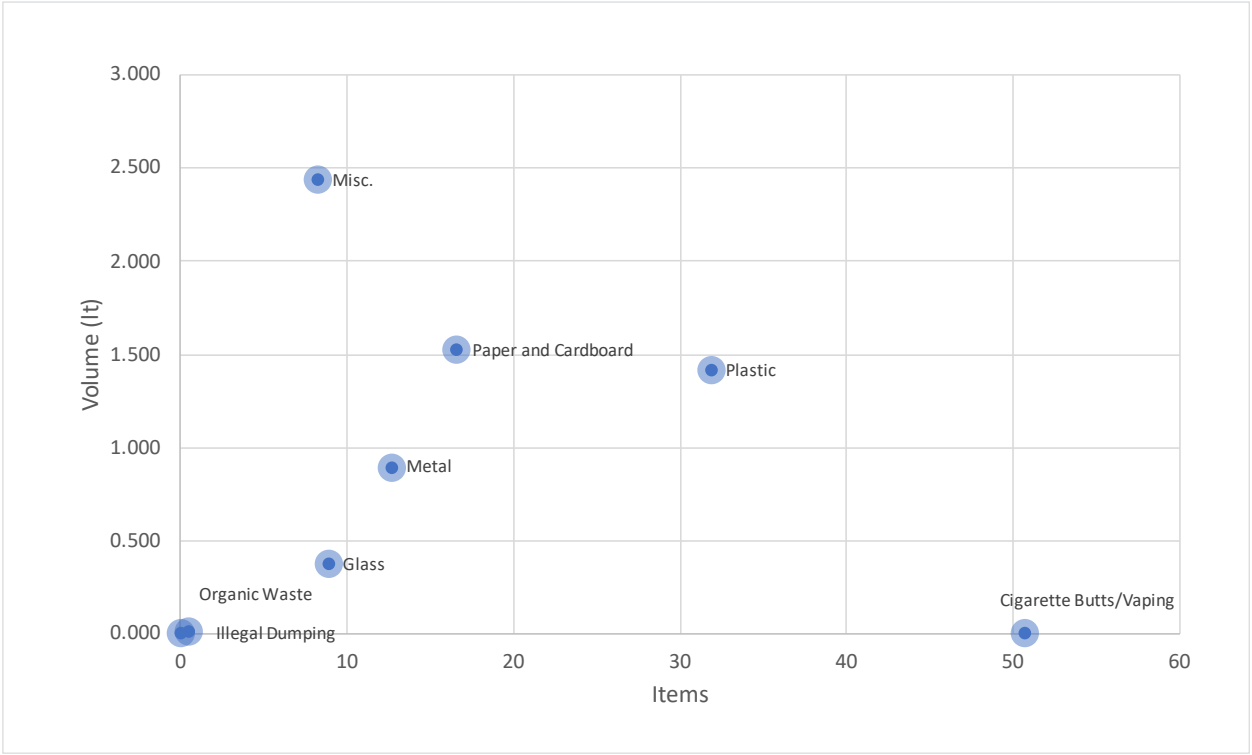


MAIN MATERIAL CHARACTERISTICS

Figures for items and volumes per 1,000 m² across main material types identified the following characteristics of litter objects within the Wellington Region:

- Cigarette Butts/Vaping were associated with a high number of litter items but contributed only a negligible volume to the litter stream
- Miscellaneous items contributed to large litter volumes but only low numbers of litter items
- Plastic contributed moderate numbers of litter items and moderate litter volumes
- Paper/Cardboard contributed moderate volumes of litter and low to moderate numbers of litter items
- Metal was associated with low to moderate number of litter items and small to moderate litter volumes
- Glass and Organic Waste contributed to low numbers of litter items and small litter volumes
- There were no instances of Illegal Dumping recorded at the sites audited

Figure 201 - Wellington 2019 Items and Volume per 1,000 m² by Main Material Type

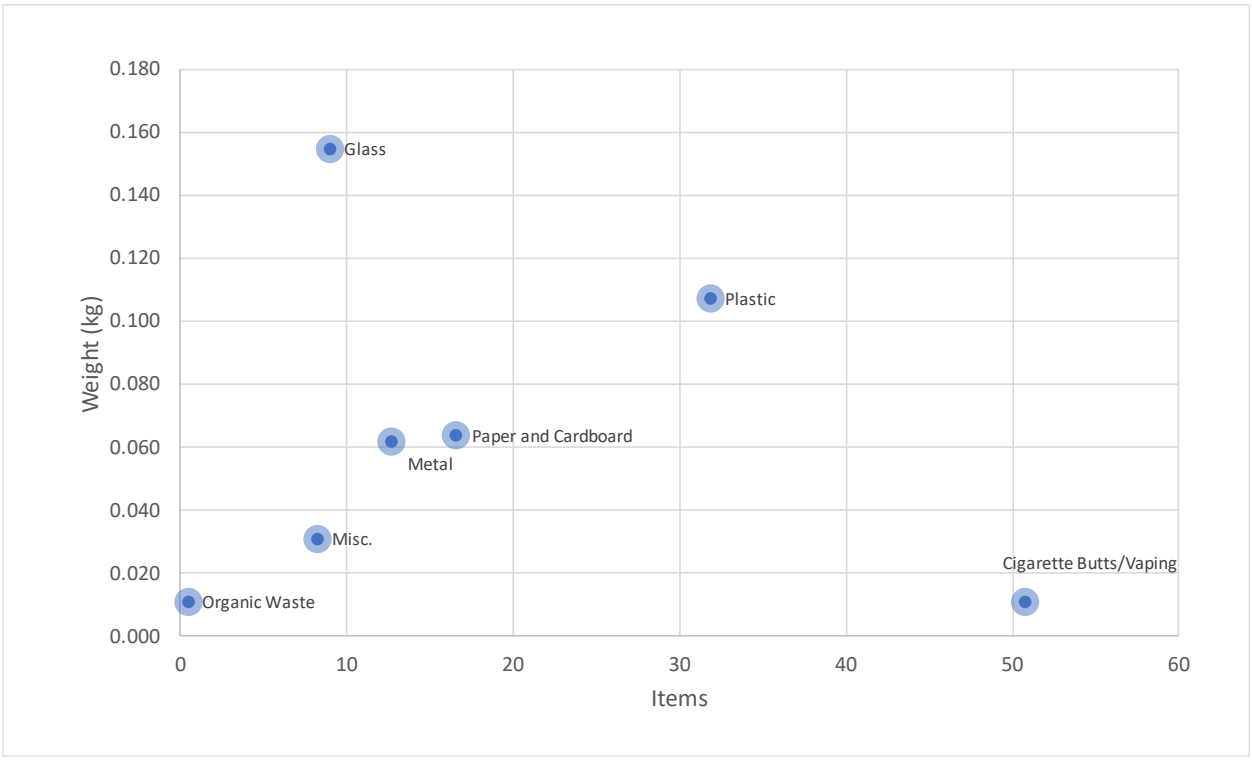


Figures for items and weights per 1,000 m² across main material types identified the following characteristics of litter objects within the Wellington Region:

- Glass items were associated with large litter weights and low numbers of litter items
- Plastic items contributed moderate to large litter weights and moderate numbers of litter items
- Metal and Paper/Cardboard items were associated with moderate litter weights and low to moderate numbers of litter items
- Organic Waste and Miscellaneous items contributed both small litter weights and low numbers of litter items
- Cigarette Butts/Vaping items were associated with small litter weights, but they contributed high numbers of litter items to the overall litter stream

Note: Illegal Dumping items were not weighed during the Audit

Figure 202 - Wellington 2019 Items and Weight per 1,000 m² by Main Material Type

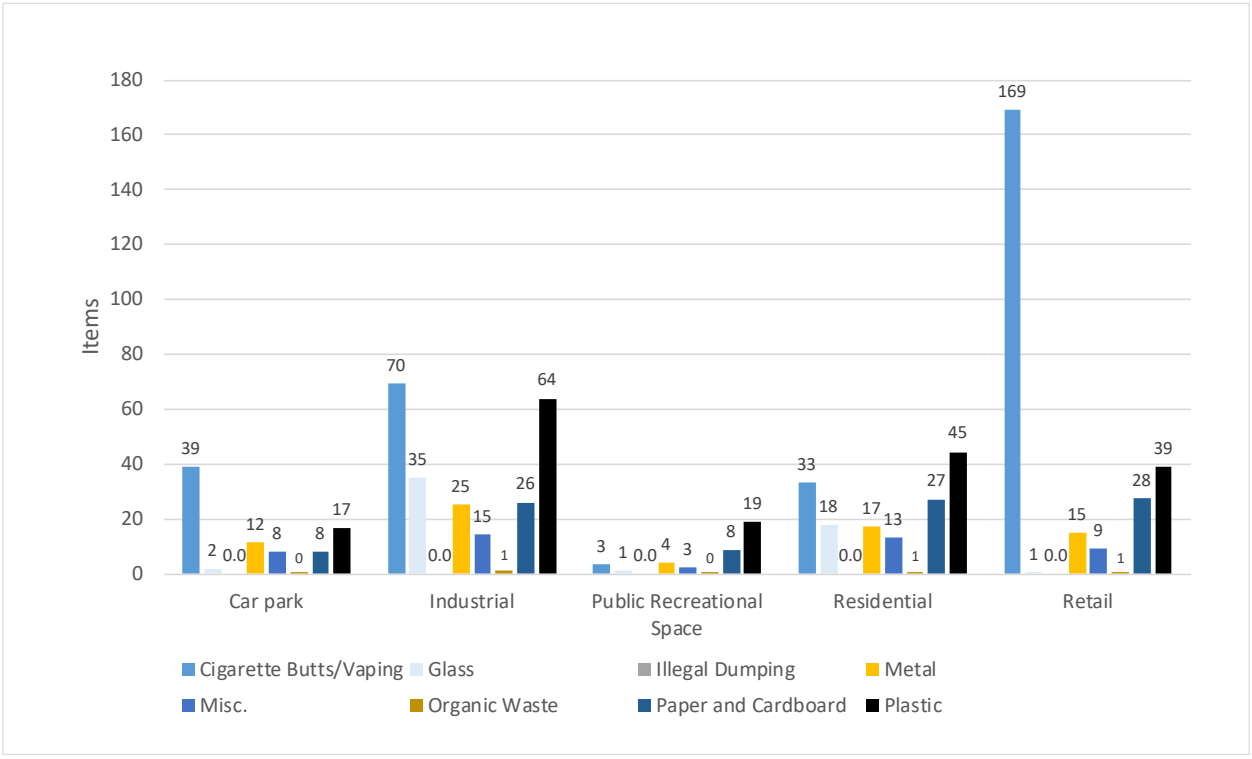


SITE TYPES BY MATERIAL TYPES

Figures for items and volumes per 1,000 m² across main material types identified the following characteristics of litter objects within the Wellington Region:

- Car Park sites: Cigarette Butts/Vaping (39 items), Plastic (17 items), Metal (12 items), Miscellaneous (8 items), Paper/Cardboard (8 items), Glass (2 items), Organic Waste (0 items) and Illegal Dumping (0 items)
- Industrial sites: Cigarette Butts/Vaping (70 items), Plastic (64 items), Glass (35 items), Paper/Cardboard (26 items), Metal (25 items), Miscellaneous (15 items), Organic Waste (1 item) and Illegal Dumping (0 items)
- Public Recreational sites: Plastic (19 items), Paper/Cardboard (8 items), Metal (4 items), Cigarette Butts/Vaping (3 items), Miscellaneous (3 items), Glass (1 item), Organic Waste (0 items) and Illegal Dumping (0 items)
- Residential sites: Plastic (45 items), Cigarette Butts/Vaping (33 items), Paper/Cardboard (27 items), Glass (18 items), Metal (17 items), Miscellaneous (13 items), Organic Waste (1 item) and Illegal Dumping (0 items)
- Retail sites: Cigarette Butts/Vaping (169 items), Plastic (39 items), Paper/Cardboard (28 items), Metal (15 items), Miscellaneous (9 items), Glass (1 item), Organic Waste (1 item) and Illegal Dumping (0 items)

Figure 203 - Wellington 2019 Sites by Main Material Types - Items per 1,000 m²



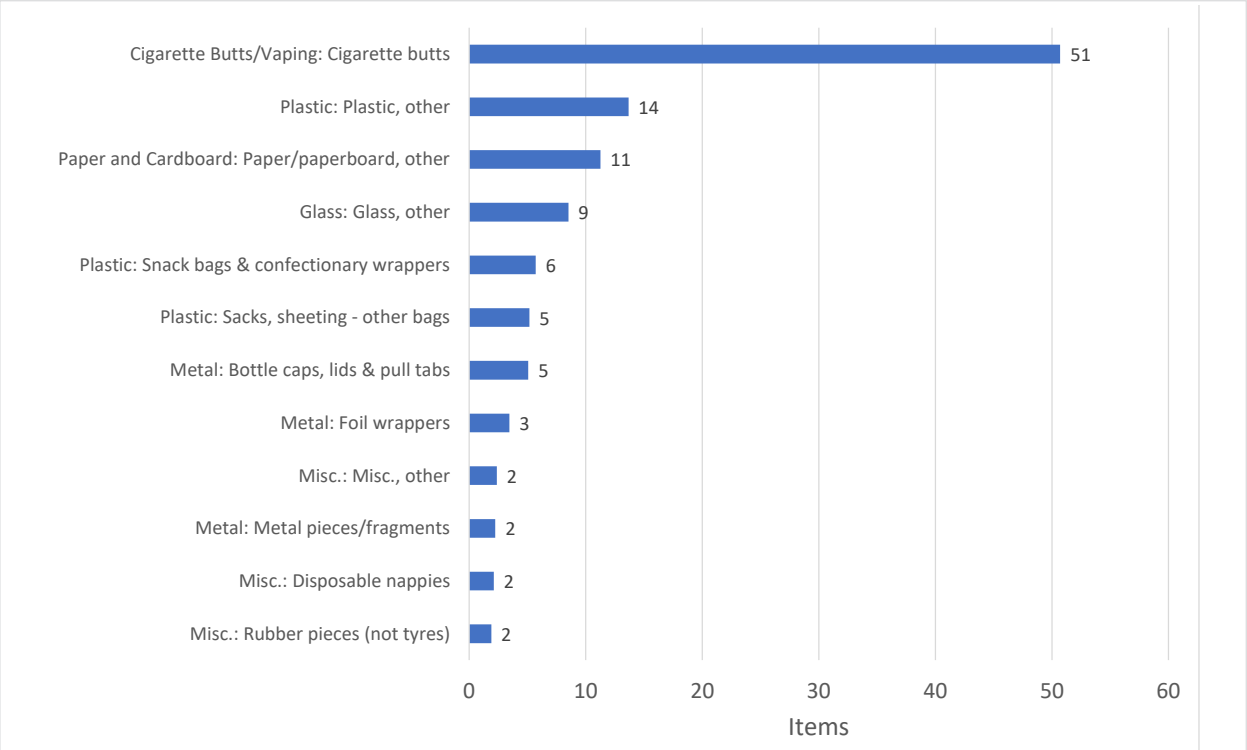
THE DIRTY DOZEN

Within the litter object type sub-categories, Cigarette butts were the largest contributors to the litter objects within the Wellington Region, with 51 butts per 1,000 m² identified on average across the sites.

Other object sub-categories which were associated with large litter counts included:

- Uncategorised Plastic objects (14 items per 1,000 m²)
- Uncategorised Paper/paperboard objects (11 items per 1,000 m²)
- Uncategorised Glass objects (9 items per 1,000 m²)
- Plastic: Snack bags & confectionary wrappers (6 items per 1,000 m²)

Figure 204 - Wellington 2019 Dirty Dozen - Items per 1,000 m² - Object Sub Categories

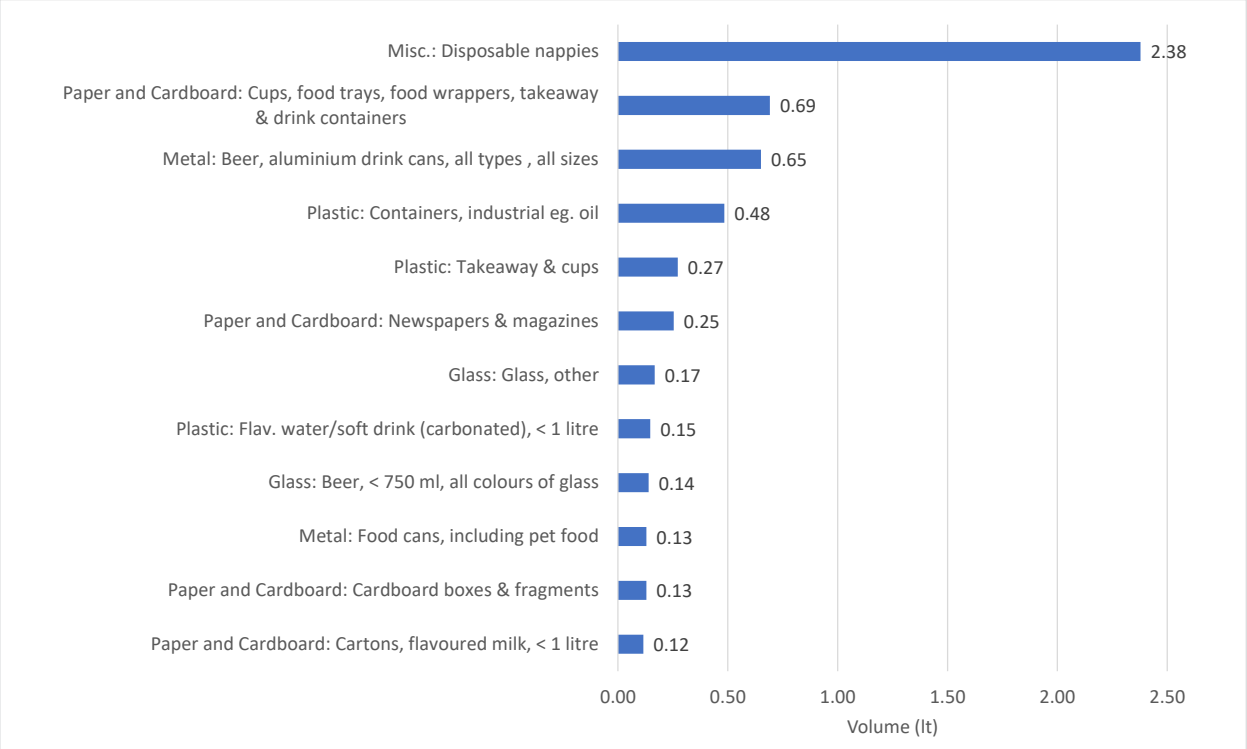


Disposable nappies were strongly associated with estimated litter volumes at the audited sites in the Wellington Region, contributing 2.38 ltr of volume per 1,000 m².

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

- Paper/Cardboard: Cups, food trays, food wrappers, takeaway & drink containers (0.69 ltr per 1,000 m²)
- Metal: Beer, aluminium drink cans, all types, all sizes (0.65 ltr per 1,000 m²)
- Plastic: Containers, industrial e.g. oil (0.48 ltr per 1,000 m²)
- Plastic: Takeaway & cups (0.27 ltr per 1,000 m²)

Figure 205 - Wellington 2019 Dirty Dozen - Volume per 1,000 m² - Object Sub Categories

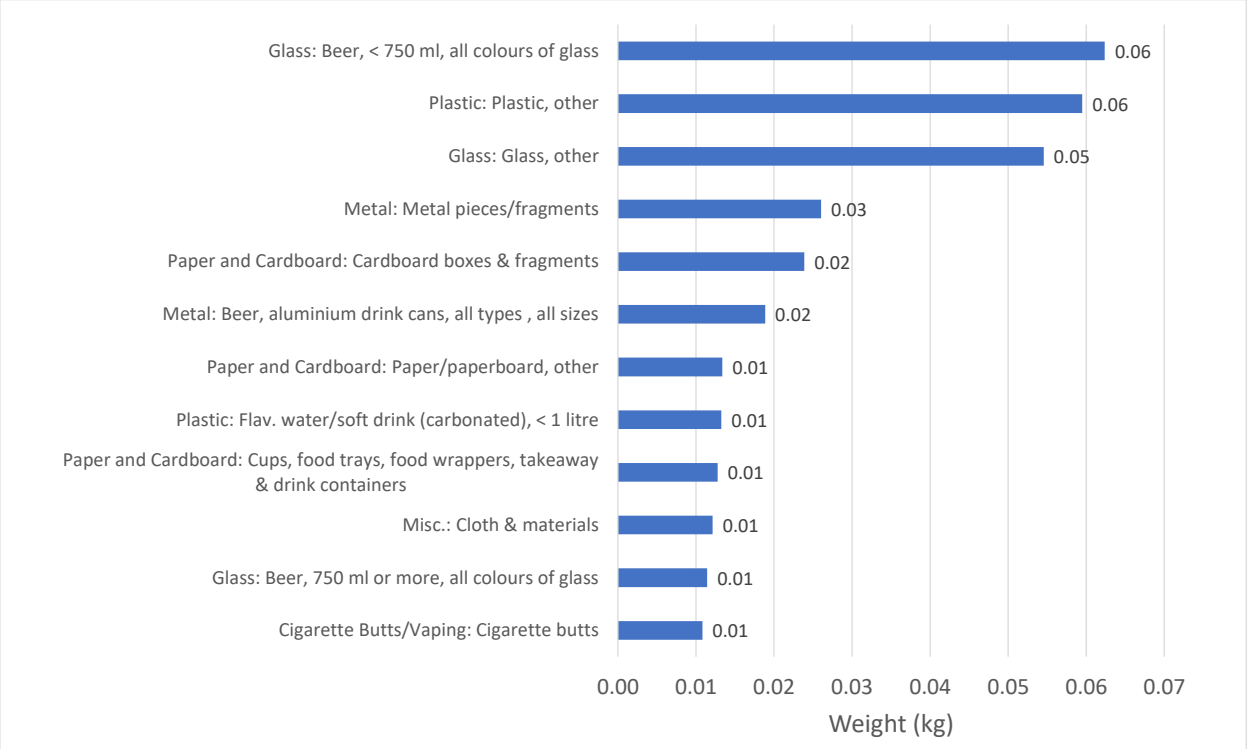


The largest contributors to litter weights per 1,000 m² in the Wellington Region were Glass: Beer bottles (less than 750 ml, all colours) and uncategorised Plastic objects, both recording an average weight of 0.06 kg per 1,000 m². Weights were not measured for Illegal Dumping objects and therefore are not included in the weight analysis.

Other object sub-categories which were associated with large litter weights per 1,000 m² included:

- Uncategorised Glass objects (0.05 kg per 1,000 m²)
- Metal pieces/fragments (0.03 kg per 1,000 m²)
- Paper/Cardboard: Cardboard boxes & fragments (0.02 kg per 1,000 m²)
- Metal: Beer, aluminium drink cans, all types, all sizes (0.02 kg per 1,000 m²)

Figure 206 - Wellington 2019 Dirty Dozen - Weight per 1,000 m² - Object Sub Categories



TERRITORY SUMMARIES

There are 8 territorial authorities which fall within the Wellington Region:

- Carterton District
- Kapiti Coast District
- Lower Hutt City
- Masterton District
- Porirua City
- South Wairarapa District
- Upper Hutt City
- Wellington City

A total of 40 sites (from Industrial, Retail, Residential, Car Park and Public Recreational sites) were audited in the Wellington Region with a minimum of 5 sites audited from each territory.

The results are summarised in the following table:

Extract from Table 3 – Territory Data: Wellington Region

Territory	Total Area Surveyed (m^2)	Items per 1,000 m^2	Weight (kg) per 1,000 m^2	Volume (lt) per 1,000 m^2
WELLINGTON REGION				
Carterton District	*6100*	*115*	*0.32*	*4.08*
Kapiti Coast District	*4518*	*164*	*0.20*	*4.57*
Lower Hutt City	*5277*	*162*	*0.59*	*7.76*
Masterton District	*6059*	*119*	*0.58*	*6.43*
Porirua City	*6178*	*158*	*0.66*	*16.28*
South Wairarapa District	*5769*	*122*	*0.48*	*3.46*
Upper Hutt City	*5684*	*83*	*0.27*	*6.69*
Wellington City	*6751*	*124*	*0.38*	*3.66*
Wellington Region Overall	**46334**	**129**	**0.44**	**6.66**

SITE GRADINGS

All sites were assigned gradings in 4 categories: Visual rating, Litter hotshots rating, Risk present and Litter distribution. These were analysed to determine rating percentages and averages from the total sites audited within the region.

Extract from Table 2 - Site Types: Wellington

	Risk Present		Litter Distribution	
Wellington	*Moderate hazard or risk*	*Significant hazard or risk*	*Widespread*	*Clustered*
	100%	*0%*	*98%*	*2%*

Figure 207 - Wellington 2019 Grading - Visual Site Ratings

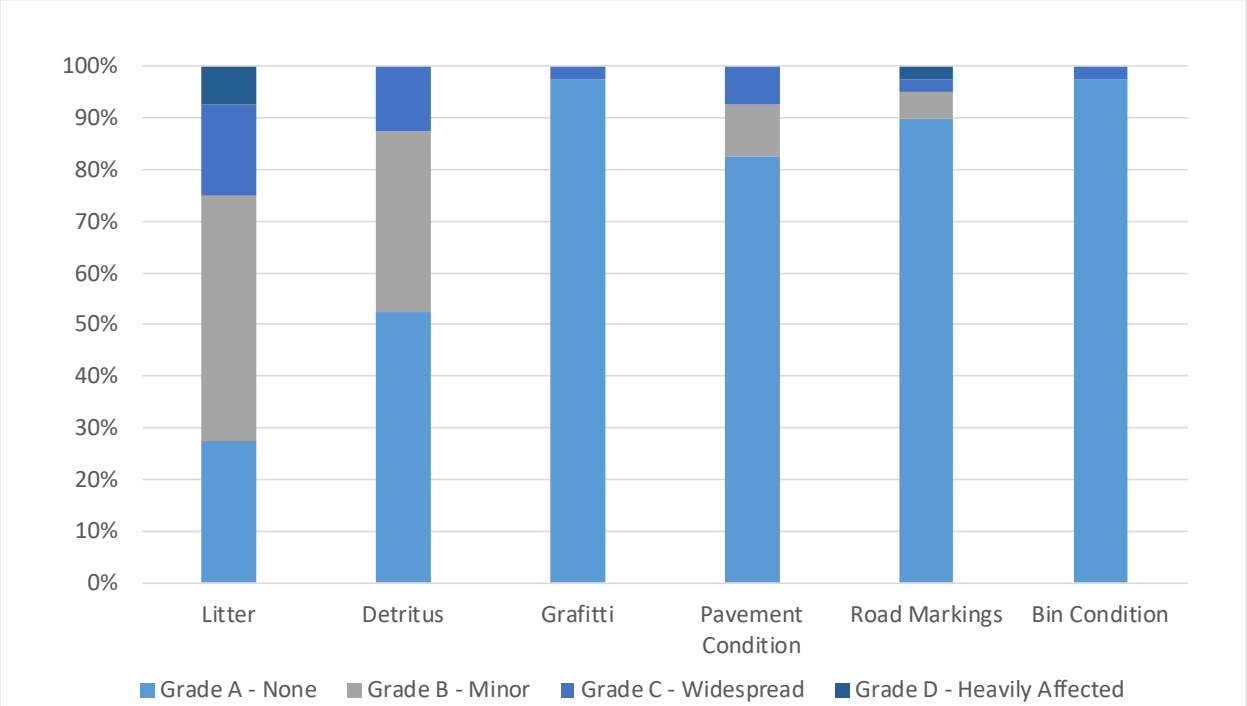
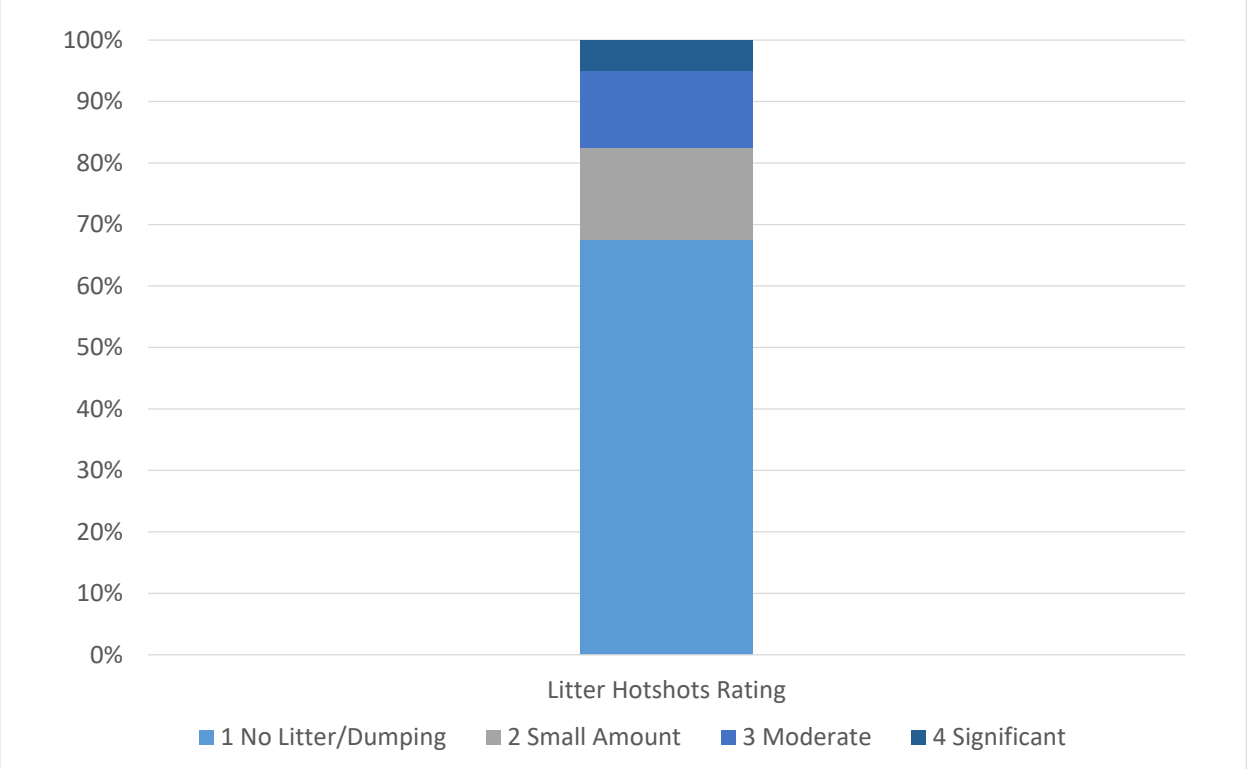


Figure 208 - Wellington 2019 Grading - Site Litter Hotshots Ratings



WEST COAST REGION

AT A GLANCE

The overall average number of items per 1,000 m^2 across the 15 sites surveyed in the West Coast Region was 114 items, the overall average litter weight per 1,000 m^2 was 0.42 kg while the overall average estimated volume per 1,000 m^2 was 5.45 ltr.

High numbers of litter items, litter weights and litter volumes per 1,000 m^2 were associated with Industrial sites within the West Coast Region. Retail sites also recorded high numbers of litter items and weights, while contributing moderate litter volumes. Car Park sites contributed moderate numbers of litter items, and small litter weights and volumes. Residential sites were associated with low numbers of litter items and small litter weights and volumes. Public Recreational sites contributed to low numbers of litter items, litter weights and litter volumes per 1,000 m^2.

Cigarette Butts/Vaping were the most frequently identified items per 1,000 m^2, however this category was associated with the smallest weight and volume recorded in the region. Plastic was associated with the second highest identified item, third largest weight and the fourth largest volume.

Glass was associated with the largest weight per 1,000 m^2 but contributed low numbers of litter items and small litter volumes.

The 3 main contributors to the overall volume collected per 1,000 m^2 in the region were Illegal Dumping, Paper/ Cardboard, and Miscellaneous items (with Disposable nappies being the main contributor of volume in this category).

COMPARISONS BY SITE TYPES

The highest numbers of litter items per 1,000 m^2 collected at the sites surveyed in the West Coast Region were Retail sites (258 items) and Industrial sites (211 items). More moderate numbers of litter items were found at Car Park sites (140 items) while Residential sites (81 items) were associated with lower numbers of litter items. Public Recreational sites (11 items) contributed to the lowest numbers of litter items per 1,000 m^2 in the region.

High estimated volumes per 1,000 m² of the litter objects were associated with Industrial sites (18.16 ltr) while more moderate litter volumes were recorded at Retail sites (8.02 ltr). Residential sites (4.57 ltr) and Car Park sites (3.58 ltr) contributed smaller litter volumes while Public Recreational sites (0.57 ltr) were associated with the lowest litter volumes per 1,000 m² within the region.

Figure 209 - West Coast 2019 Items and Volume per 1,000 m² by Site Type

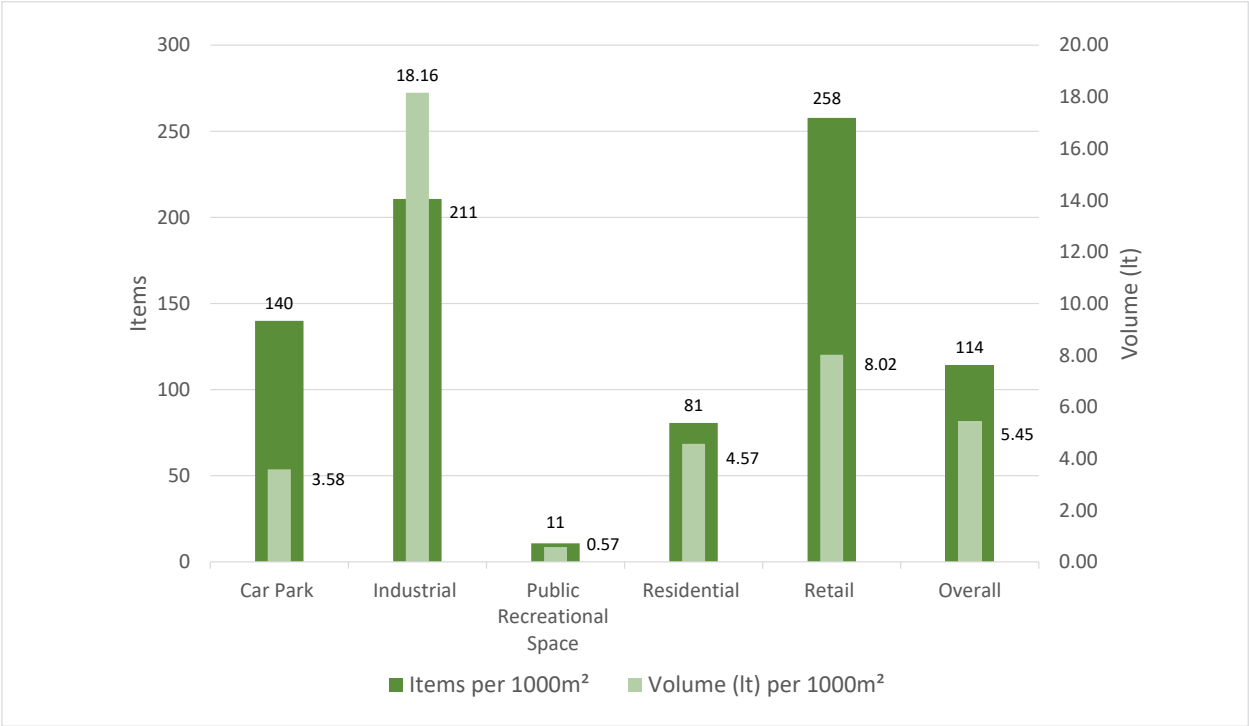
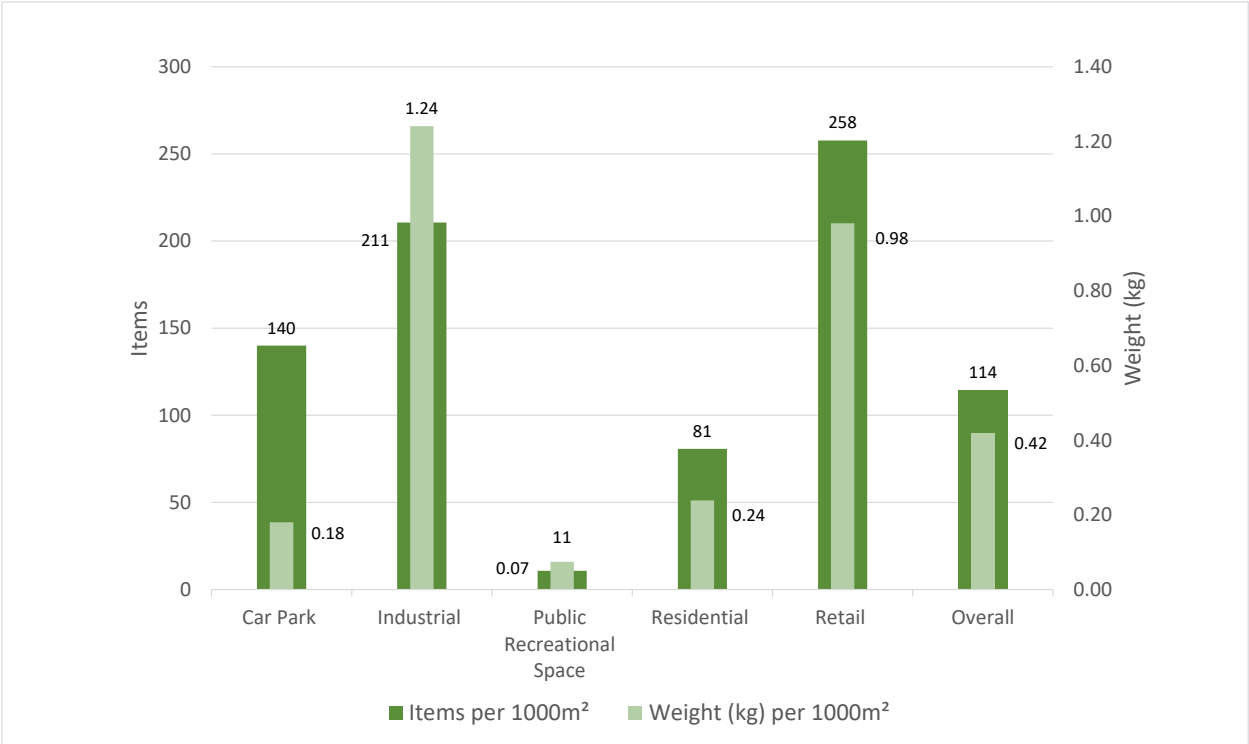


Figure 210 - West Coast 2019 Items and Weight per 1,000 m² by Site Type

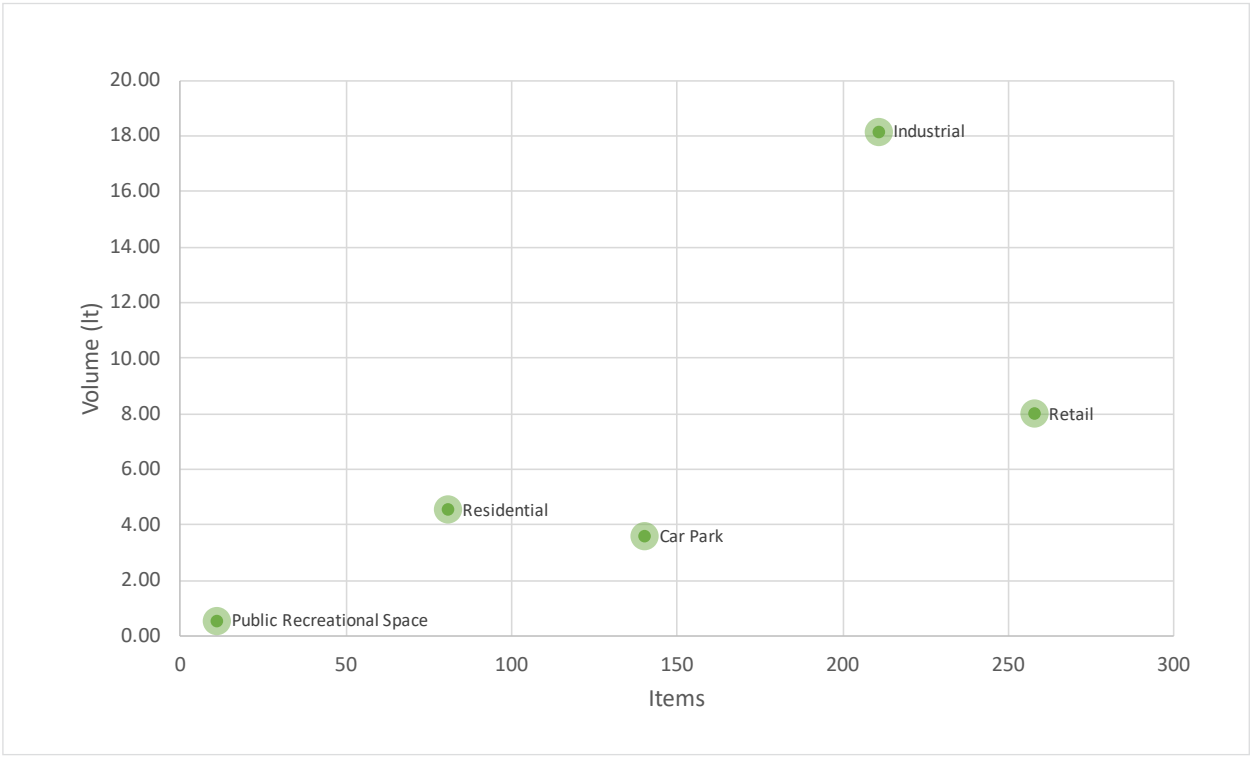


SITE CHARACTERISTICS

The following site characteristics across all site types within the West Coast Region were identified for items and volume estimates per 1,000 m²:

- Industrial sites were associated with high numbers of litter items and large litter volumes
- Retail sites contributed to high numbers of litter items and moderate litter volumes
- Car Park sites were associated with moderate numbers of litter items and small litter volumes
- Residential sites contributed to low numbers of litter items and small litter volumes
- Public Recreational sites contributed to both low numbers of litter items and small litter volumes
- Public Recreational sites contributed to both low numbers of litter items and small litter volumes

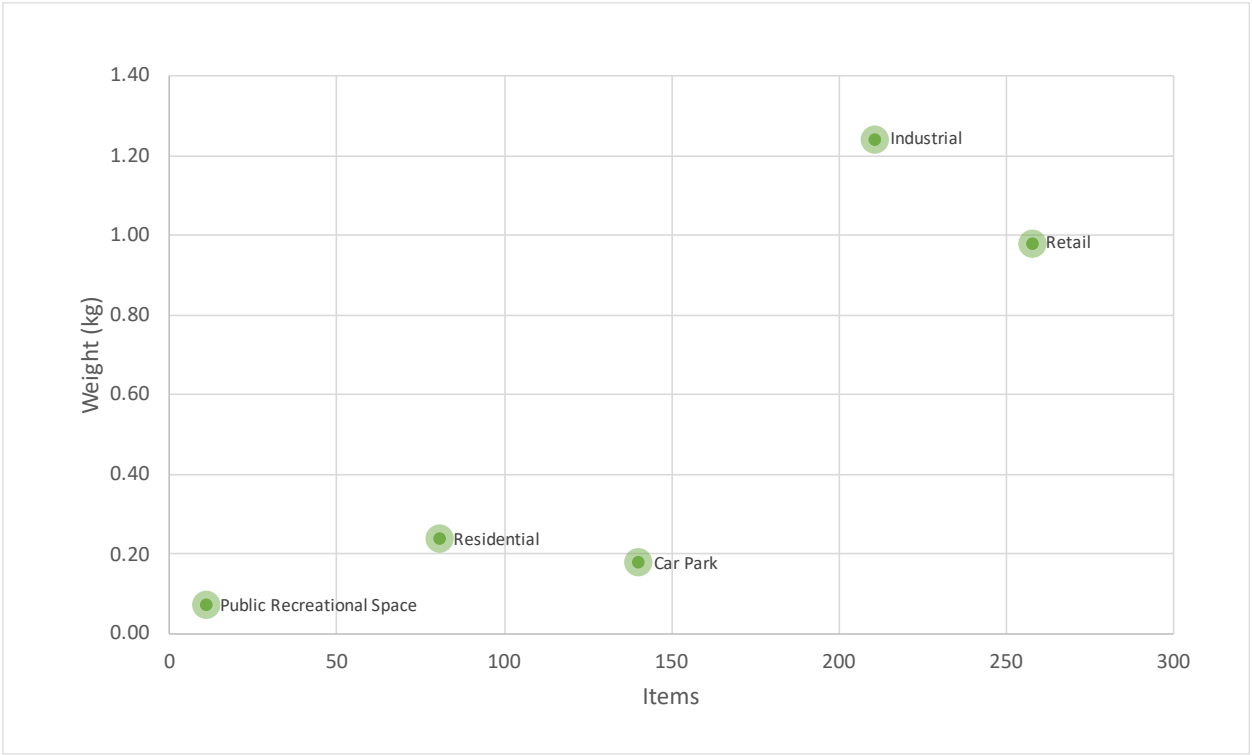
Figure 211 - West Coast 2019 Items and Volume per 1,000 m² by Site Type



The following site characteristics across all site types within the West Coast Region were identified for items and weights per 1,000 m²:

- Industrial and Retail sites were associated with large litter weights and high numbers of litter items
- Car Park sites contributed small litter weights and moderate numbers of litter items
- Residential sites were associated with small litter weights and low numbers of litter items
- Public Recreational sites contributed both small litter weights and low numbers of litter items to the regional litter stream

Figure 212 - West Coast 2019 Items and Weight per 1,000 m² by Site Type



COMPARISON BY MAIN MATERIAL TYPES

Cigarette Butts/Vaping was the most frequently identified object per 1,000 m² within the West Coast Region (37 items) while Plastic (32 items) contributed to the second highest identified item.

Smaller numbers of items per 1,000 m² were recorded for Paper/Cardboard (18 items), Metal (13 items), Miscellaneous (8 items), Glass (9 items), Organic Waste (2 items) and Illegal Dumping (less than 1 item per 1,000 m²).

Illegal Dumping contributed the largest amount of volume per 1,000 m² to the litter stream (1.30 ltr), with the second and third largest volumes associated with Paper/Cardboard (1.24 ltr) and Miscellaneous (1.21 ltr). Smaller volumes were recorded for Plastic (0.84 ltr), Metal (0.45 ltr), Glass (0.36 ltr) and Organic Waste (0.05 ltr). Cigarette Butts/Vaping items were associated with the smallest proportion of the overall litter volume (0.004 ltr per 1,000 m²).

The highest proportion of litter weights recorded per 1,000 m² in the West Coast Region included Glass (0.16 kg), Metal (0.09 kg) and Plastic (0.08 kg), while smaller litter weights were associated with Paper/Cardboard (0.04 kg), Miscellaneous items (0.03 kg), Organic Waste (0.02 kg) and Cigarette Butts/Vaping (0.007 kg). A weight measure was not recorded for the Illegal Dumping identified during the Audit.

Figure 213 - West Coast 2019 Items and Volume per 1,000 m² by Main Material Type

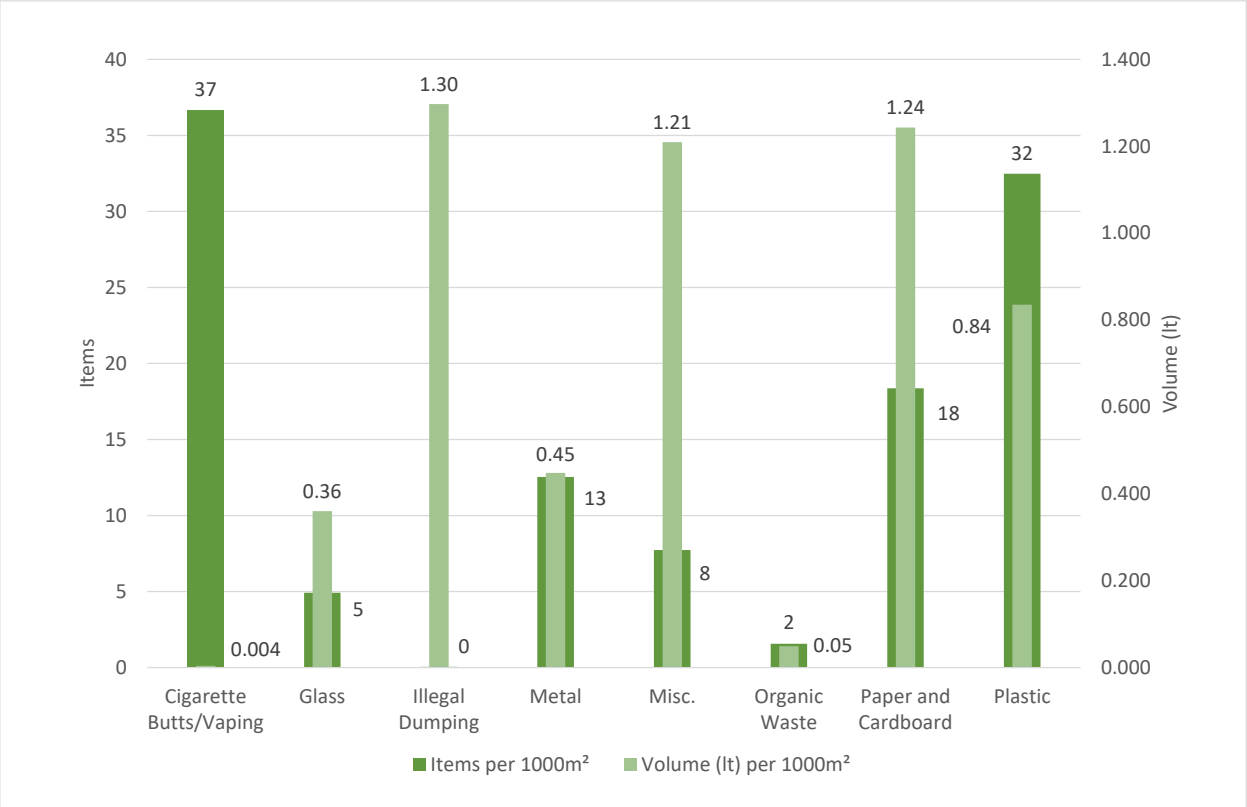
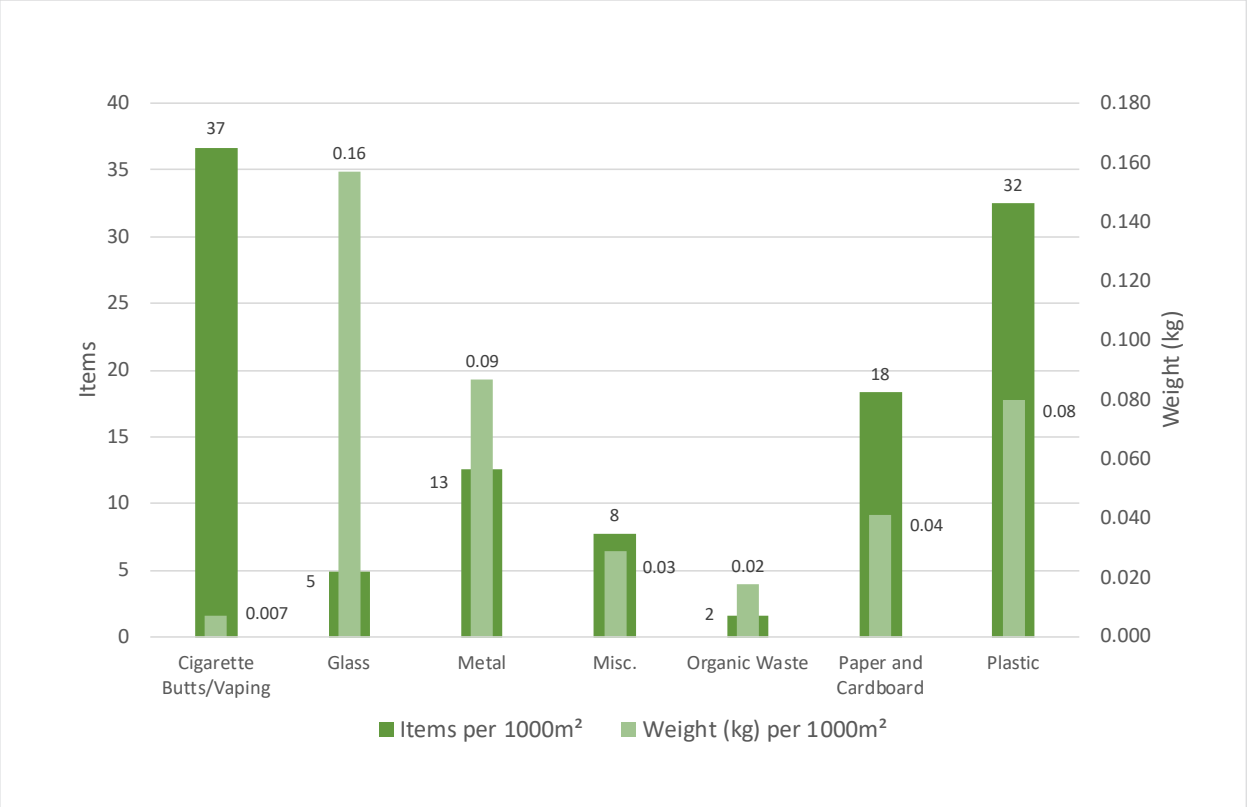


Figure 214 - West Coast 2019 Items and Weight per 1,000 m² by Main Material Type

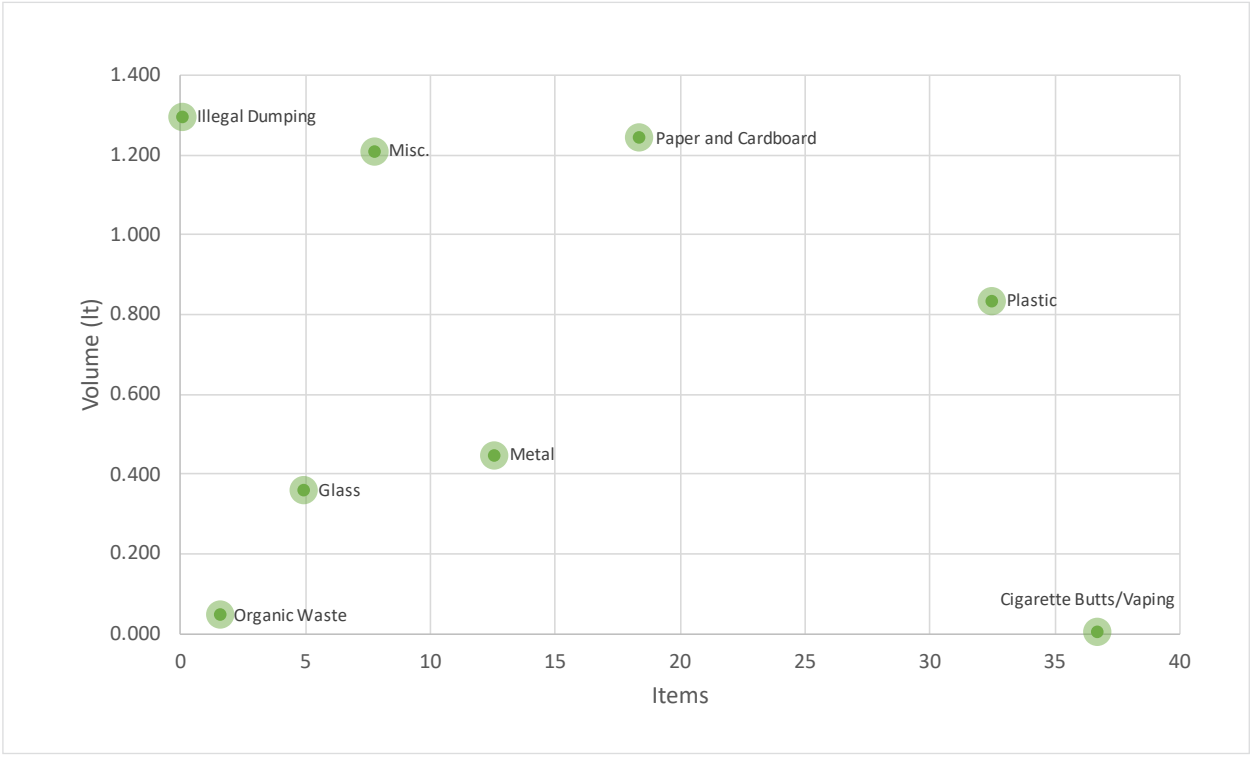


MAIN MATERIAL CHARACTERISTICS

Figures for items and volumes per 1,000 m² across main material types identified the following characteristics of litter objects within the West Coast Region:

- Cigarette Butts/Vaping were associated with a high number of litter items but contributed only a negligible volume to the litter stream
- Illegal Dumping contributed to large volumes of litter but negligible numbers of litter items
- Miscellaneous items contributed to large litter volumes but only low numbers of litter items
- Plastic contributed to high numbers of litter items and moderate litter volumes
- Paper/Cardboard contributed large volumes of litter and moderate numbers of litter items
- Metal was associated with low to moderate number of litter items and small to moderate litter volumes
- Glass and Organic Waste contributed to low numbers of litter items and small litter volumes

Figure 215 - West Coast 2019 Items and Volume per 1,000 m² by Main Material Type

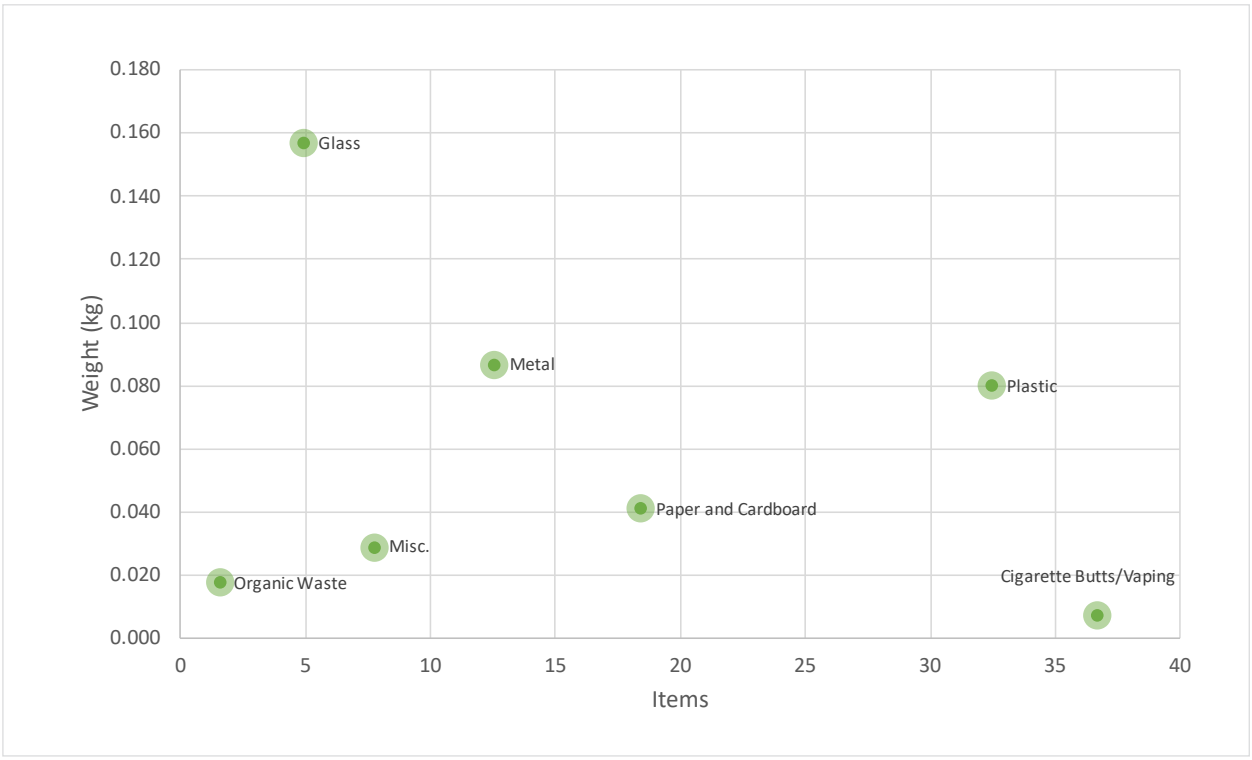


Figures for items and weights per 1,000 m² across main material types identified the following characteristics of litter objects within the West Coast Region:

- Glass items were associated with large litter weights, but contributed low numbers of litter items
- Metal was associated with moderate litter weights and low to moderate numbers of litter items
- Plastic items contributed moderate litter weights, however they were associated with high numbers of litter items
- Cigarette Butts/Vaping items were associated with small litter weights, but they contributed high numbers of litter items
- Paper/Cardboard items were associated with small to moderate litter weights and moderate numbers of litter items
- Organic Waste and Miscellaneous items contributed both small litter weights and low numbers of litter items to the regional litter stream

Note: Illegal Dumping items were not weighed during the Audit

Figure 216 - West Coast 2019 Items and Weight per 1,000 m² by Main Material Type

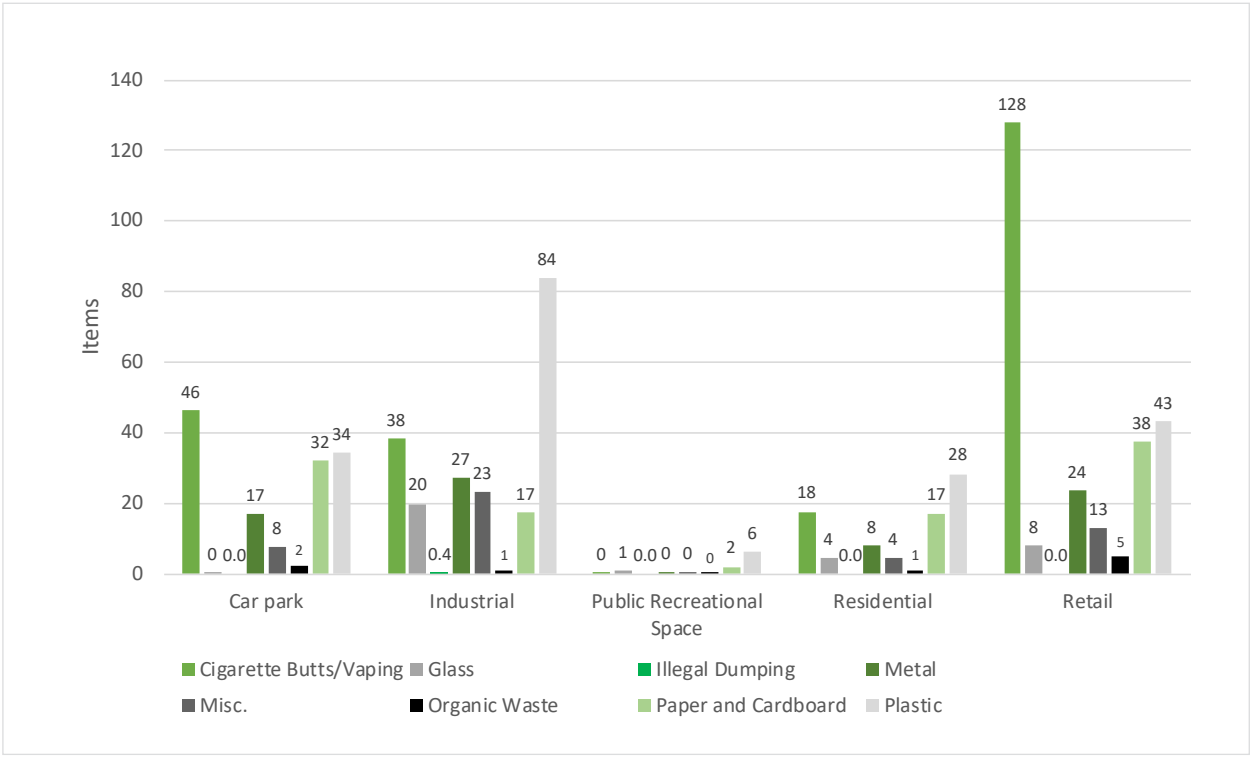


SITE TYPES BY MATERIAL TYPES

Figures for items and volumes per 1,000 m² across main material types identified the following characteristics of litter objects within the West Coast Region:

- Car Park sites: Cigarette Butts/Vaping (46 items), Plastic (34 items), Paper/Cardboard (32 items), Metal (17 items), Miscellaneous (8 items), Organic Waste (2 items), Glass (0 items) and Illegal Dumping (0 items)
- Industrial sites: Plastic (84 items), Cigarette Butts/Vaping (38 items), Metal (27 items), Miscellaneous (23 items), Glass (20 items), Paper/Cardboard (17 items), Organic Waste (1 item) and Illegal Dumping (less than 1 item per 1000m²)
- Public Recreational sites: Plastic (6 items), Paper/Cardboard (2 items), Glass (1 item), Cigarette Butts/Vaping (0 items), Metal (0 items), Miscellaneous (0 items), Organic Waste (0 items) and Illegal Dumping (0 items)
- Residential sites: Plastic (28 items), Cigarette Butts/Vaping (18 items), Paper/Cardboard (17 items), Metal (8 items), Glass (4 items), Miscellaneous (4 items), Organic Waste (1 item) and Illegal Dumping (0 items)
- Retail sites: Cigarette butts (128 items), Plastic (43 items), Paper/Cardboard (38 items), Metal (24 items), Miscellaneous (13 items), Glass (8 items), Organic Waste (5 items) and Illegal Dumping (0 items)

Figure 217 - West Coast 2019 Sites by Main Material Types - Items per 1,000 m²



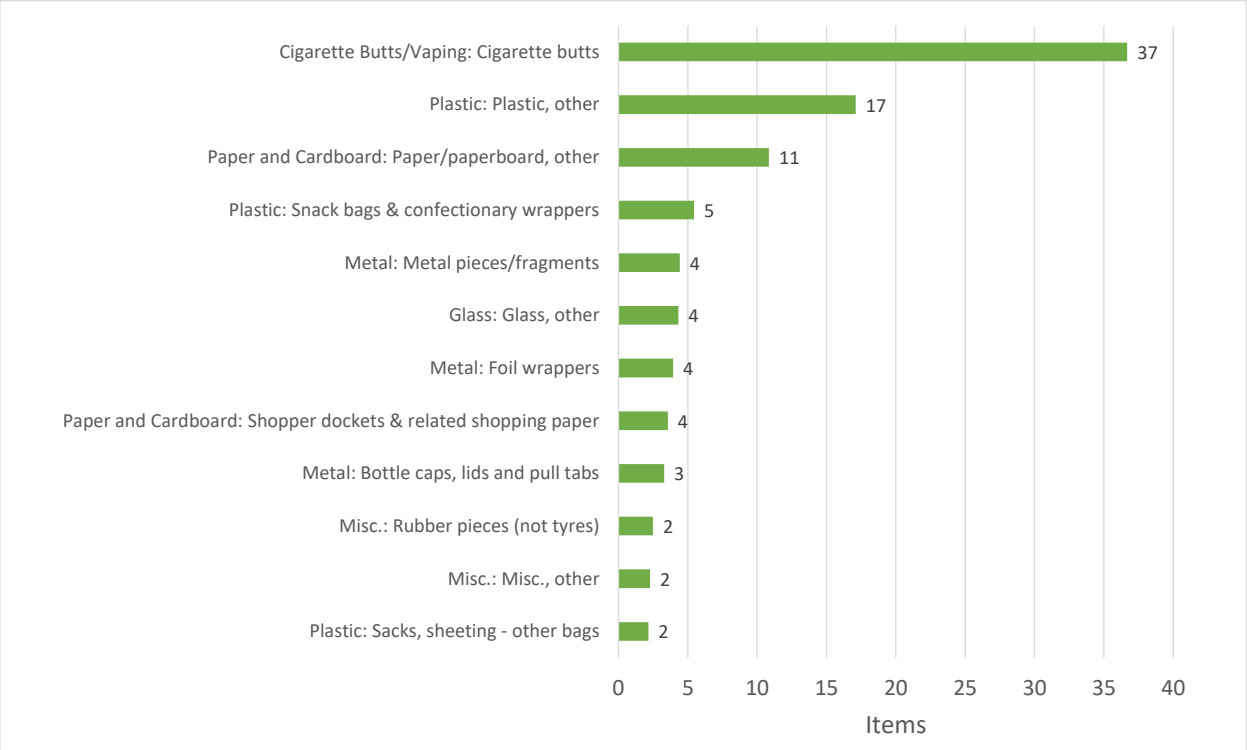
THE DIRTY DOZEN

Cigarette butts were the most frequently identified litter item in the West Coast Region with an average of 37 butts recorded per 1,000 m² across the audited sites.

Other frequently identified items in the West Coast Region included:

- Uncategorised Plastic objects (17 items per 1,000 m²)
- Uncategorised Paper/paperboard objects (11 items per 1,000 m²)
- Plastic: Snack bags & confectionary wrappers (5 items per 1,000 m²)

Figure 218 - West Coast 2019 Dirty Dozen - Items per 1,000 m² - Object Sub Categories

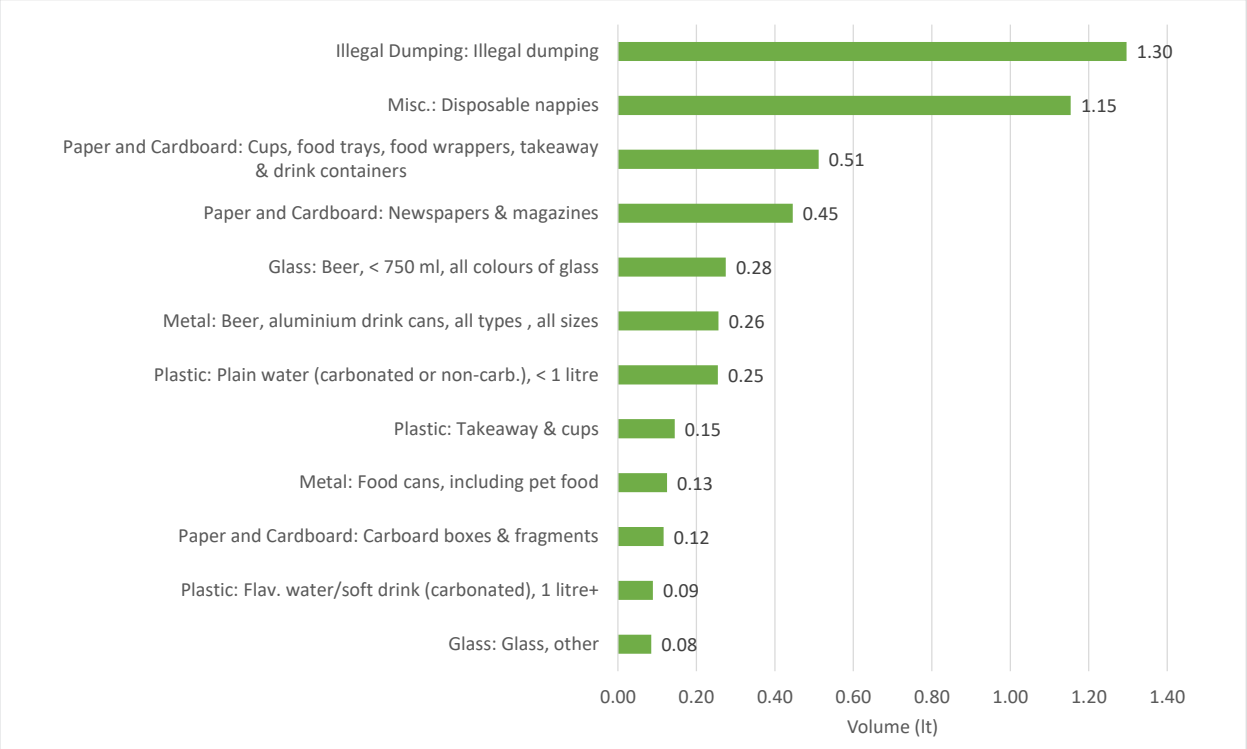


The largest contributor to the estimated litter volume per 1,000 m² in the West Coast Region was Illegal dumping, recording a volume of 1.30 ltr per 1,000 m².

Other object sub-categories which were associated with large estimated litter volumes per 1,000 m² included:

- Disposable nappies (1.16 ltr per 1,000 m²)
- Paper/Cardboard: Cups, food trays, food wrappers, takeaway & drink containers (0.51 ltr per 1,000 m²)
- Paper/Cardboard: Newspapers & magazines (0.45 ltr per 1,000 m²)
- Glass: Beer, less than 750 ml, all colours of glass (0.28 ltr per 1,000 m²)

Figure 219 - West Coast 2019 Dirty Dozen - Volume per 1,000 m² - Object Sub Categories

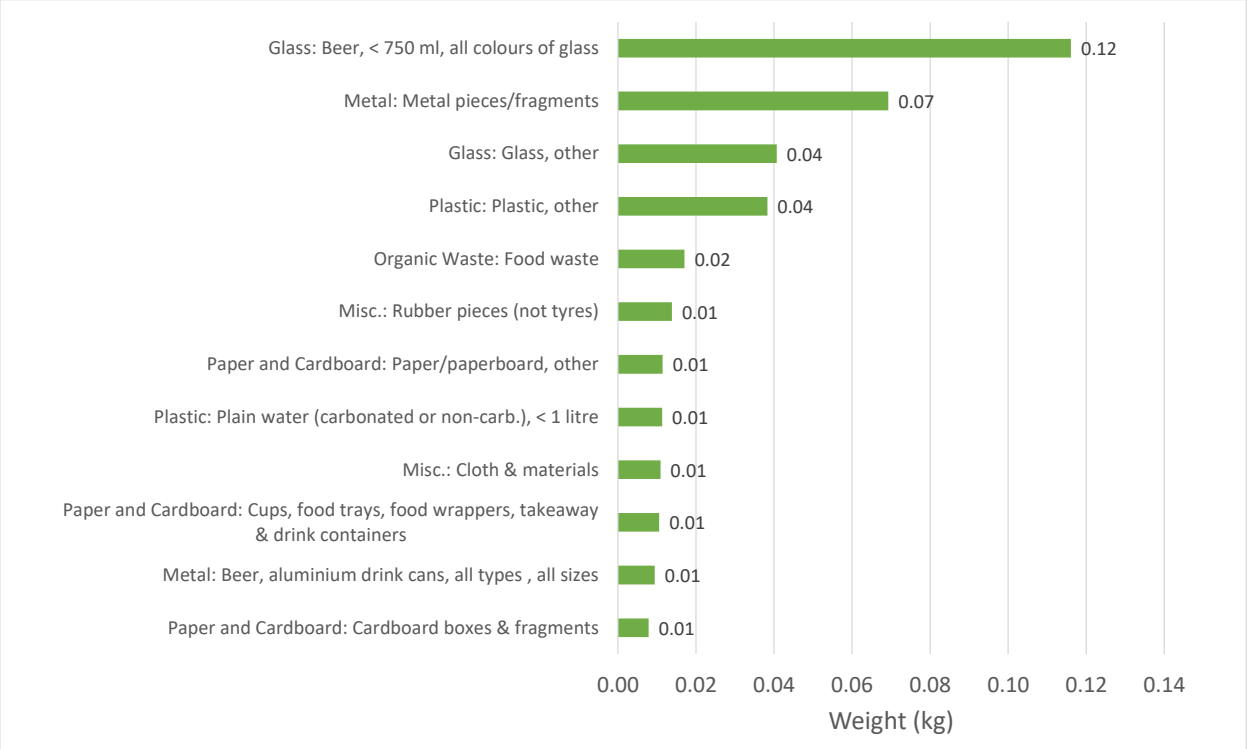


From an analysis of all the material type sub-categories, Glass: Beer bottles (less than 750 ml, all colours) contributed the largest proportion to the overall litter weight in the West Coast Region, recording an average weight of 0.12 kg per 1,000 m². Weights were not measured for Illegal Dumping objects and therefore are not included in the weight analysis.

Other object sub-categories with significant weights per 1,000 m² included:

- Metal pieces/fragments (0.07 kg per 1,000 m²)
- Uncategorised Glass objects (0.04 kg per 1,000 m²)
- Uncategorised Plastic objects (0.04 kg per 1,000 m²)

Figure 220 - West Coast 2019 Dirty Dozen - Weight per 1,000 m² - Object Sub Categories



TERRITORY SUMMARIES

The West Coast Region is comprised of 3 territorial authorities:

- Buller District
- Grey District
- Westland District

A total of 15 sites (from Industrial, Retail, Residential, Car Park and Public Recreational sites) were audited in the West Coast Region with a minimum of 5 sites audited from each territory.

The results are summarised in the following table:

Extract from Table 3 – Territory Data: West Coast Region

Territory	Total Area Surveyed (m^2)	Items per 1,000 m^2	Weight (kg) per 1,000 m^2	Volume (lt) per 1,000 m^2
WEST COAST REGION				
Buller District	*6047*	*121*	*0.83*	*9.74*
Grey District	*6409*	*136*	*0.29*	*3.29*
Westland District	*6049*	*85*	*0.14*	*3.44*
West Coast Overall	**18505**	**114**	**0.42**	**5.45**

SITE GRADINGS

All sites were assigned gradings in 4 categories: Visual rating, Litter hotshots rating, Risk present and Litter distribution. These were analysed to determine rating percentages and averages from the total sites audited within the region.

Extract from Table 2 - Site Types: West Coast

	Risk Present		Litter Distribution	
West Coast	*Moderate hazard or risk*	*Significant hazard or risk*	*Widespread*	*Clustered*
	100%	*0%*	*87%*	*13%*

Figure 221 - West Coast 2019 Grading - Visual Site Ratings

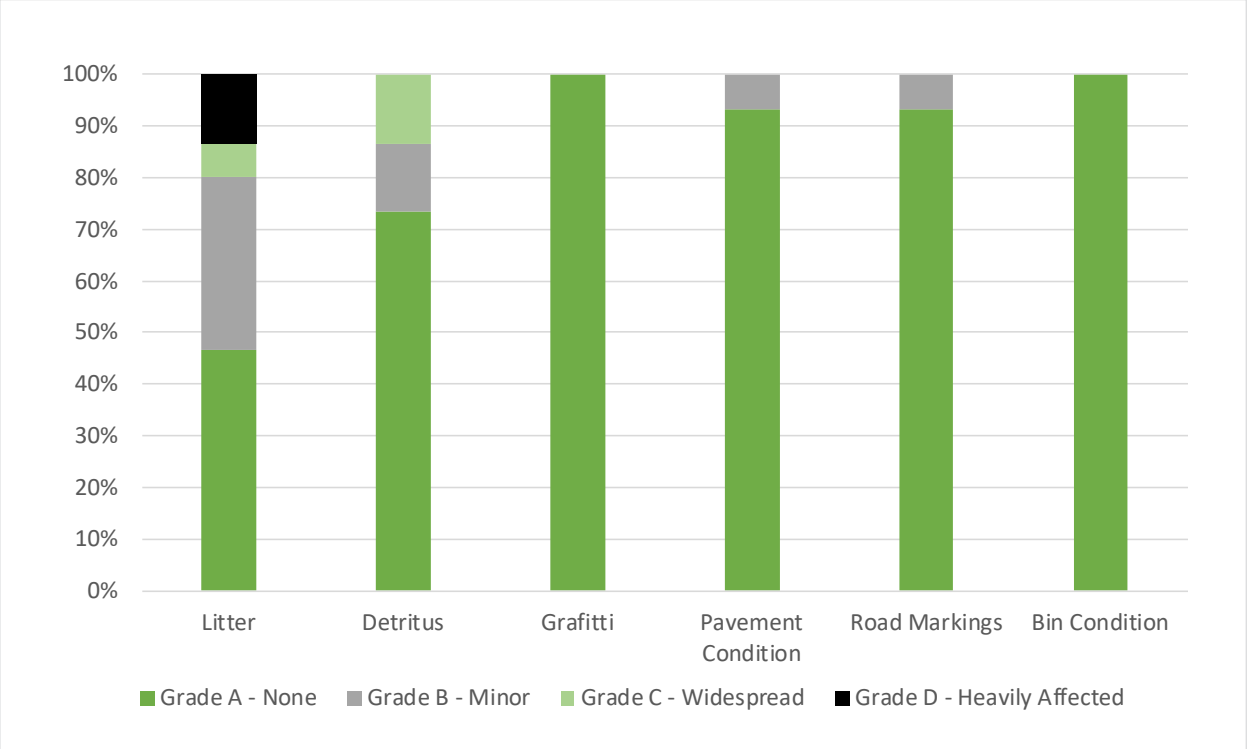
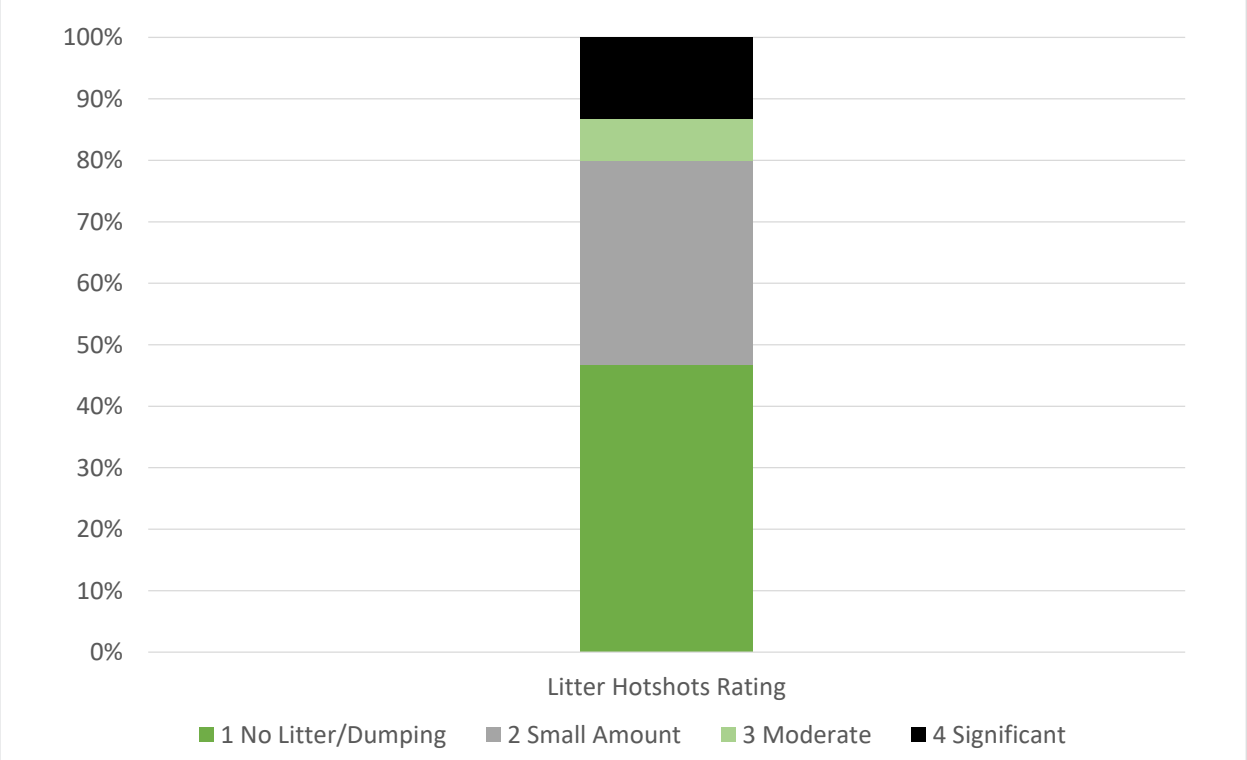


Figure 222 - West Coast 2019 Grading - Site Litter Hotshots Ratings



BRANDED LITTER

For the purpose of the Branded Litter Audit, any item with a recognisable brand name or logo printed on it was counted as branded litter. However in some cases the product brand may not have been distinguishable from the brand owner (e.g. where a brand owner logo was the only identifier). In this case the litter object was grouped under the brand owners name.

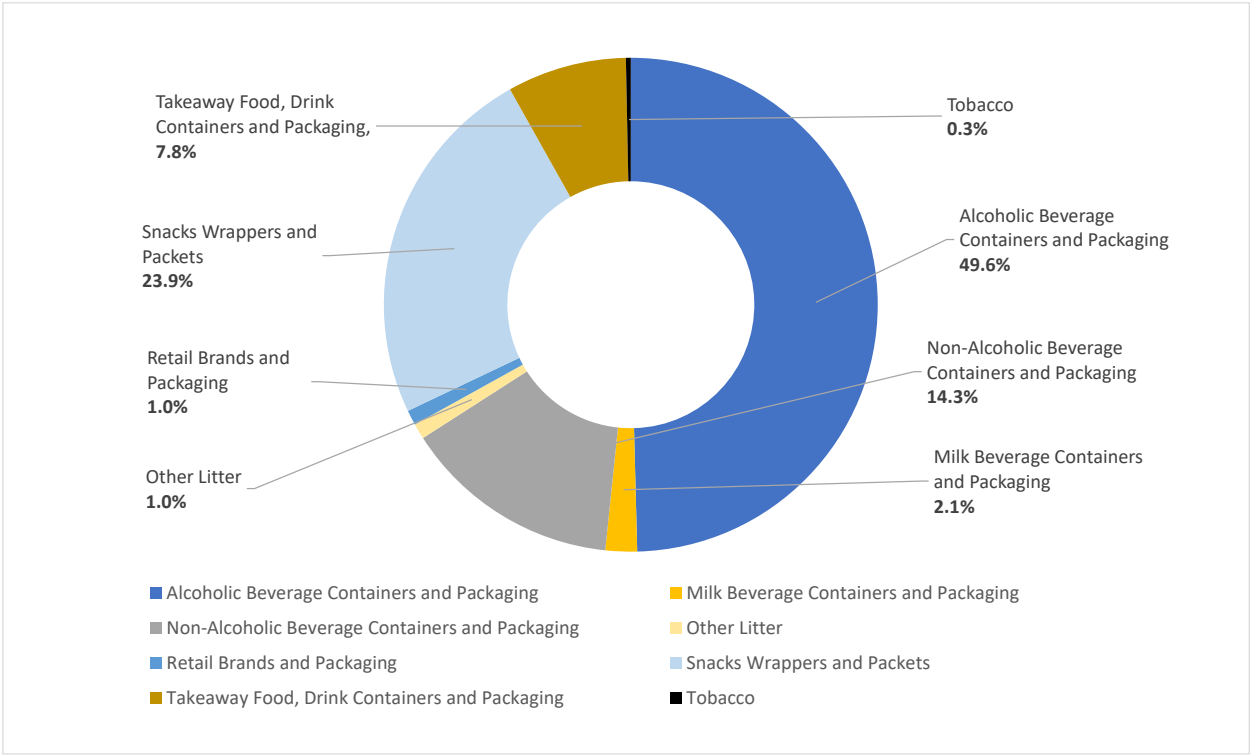
INDUSTRY CATEGORIES – OVERALL

Alcoholic Beverage Container and Packaging represented the largest proportion of branded litter items counted across the 2019 National Litter Audit (49.6%).

Other industry categories that were associated with large proportions of the branded litter recorded nationally included:

- Snacks Wrappers and Packets (23.9%)
- Non-alcoholic Beverage Containers and Packaging (14.3%)
- Takeaway Food, Drink Container and Packaging (7.8%)

Figure 223 - National 2019 – Branded Litter by Industry Category



MOST PREVALENT BRANDS

The overall number of branded litter objects identified across all sites nationally in 2019 was 3,146 items.

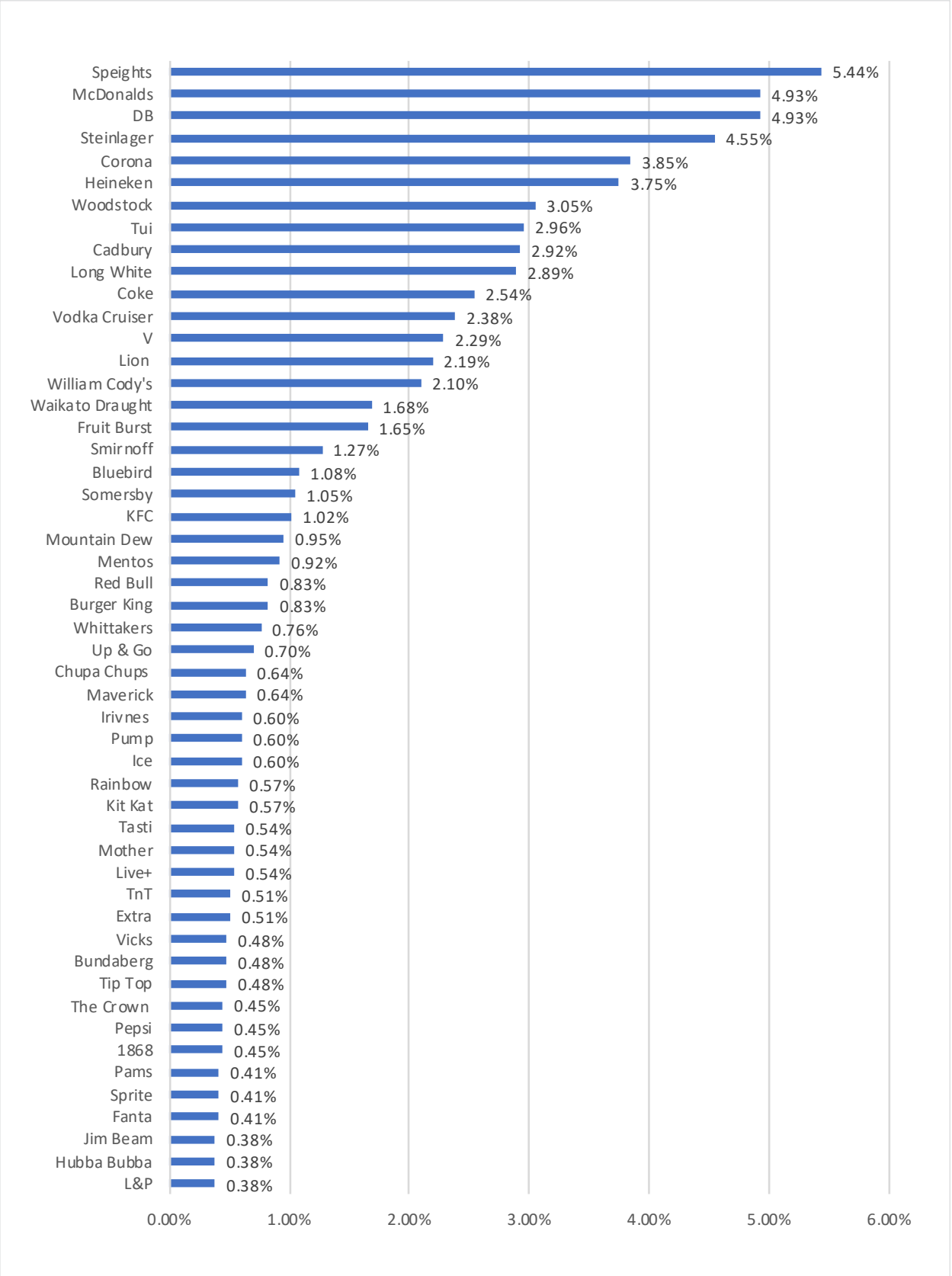
When evaluated proportionally against the overall branded litter count, Speights was identified as the most frequently identified brand, accounting for 5.44% of all branded litter items recorded in 2019.

McDonalds and DB also contributed significantly to the proportion of branded litter items, with each brand representing 4.93% of all branded litter items recorded in 2019.

Other brands which recorded high levels of litter as a percentage of the overall branded litter count included:

- Steinlager (4.55%)
- Corona (3.85%)
- Heineken (3.75%)
- Woodstock (3.05%)
- Tui (2.96%)
- Cadbury (2.92%)
- Long White (2.89%)
- Coke (2.54%)
- Vodka Cruiser (2.38%)
- V (2.29%)
- Lion (2.19%)
- William Cody's (2.10%)

Figure 224 - National 2019 – Most 50 Prevalent Brands as % of All Branded Litter



INDUSTRY CATEGORIES – ANALYSIS

ALCOHOLIC BEVERAGE CONTAINERS AND PACKAGING

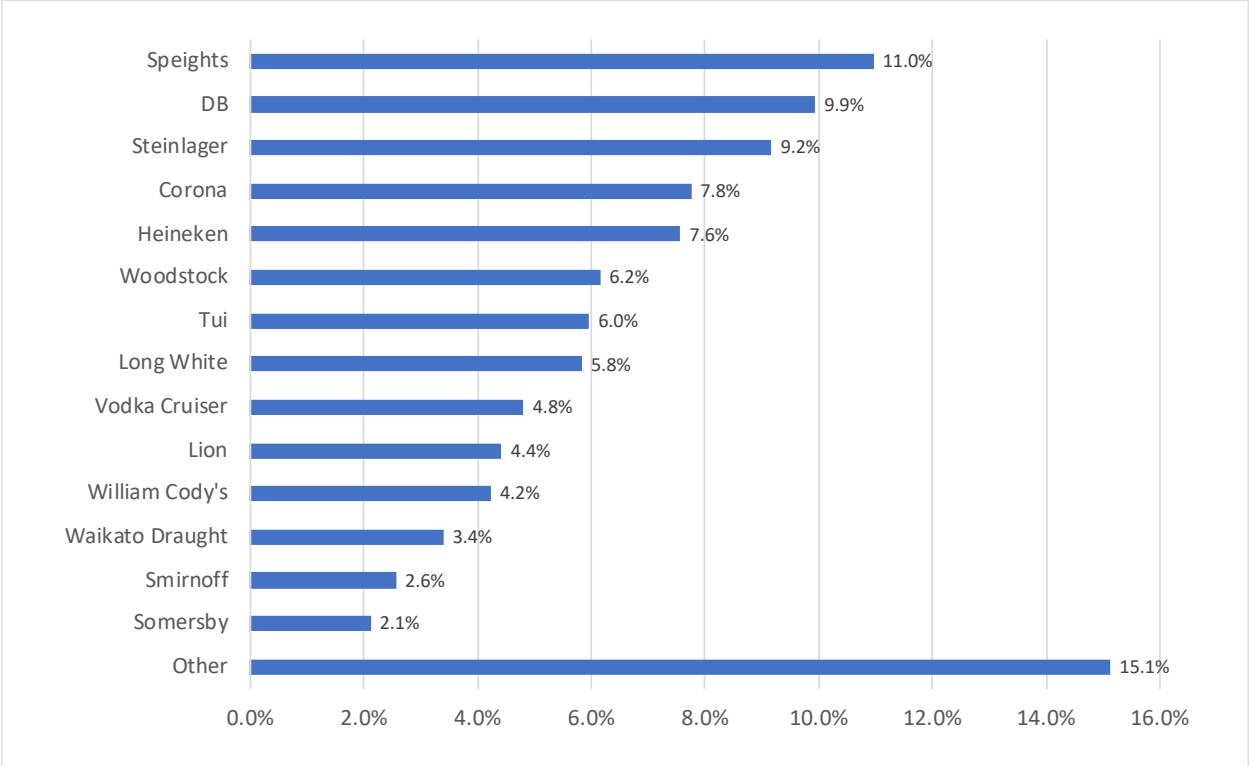
A total of 1,560 branded litter objects were counted within the Alcoholic Beverage Containers and Packaging category, across all sites surveyed nationally in 2019.

Within this industry category, the highest contributor to branded litter items was Speights, which represented 11.0% of all branded alcoholic beverage containers and packaging.

Other frequently identified brands included:

- DB (9.9%)
- Steinlager (9.2%)
- Corona (7.8%)
- Heineken (7.6%)
- Woodstock (6.2%)
- Tui (6.0%)

Figure 225 - National 2019 – Alcoholic Beverage Containers and Packaging - % of Branded Litter in Industry Category – Main Brands Identified

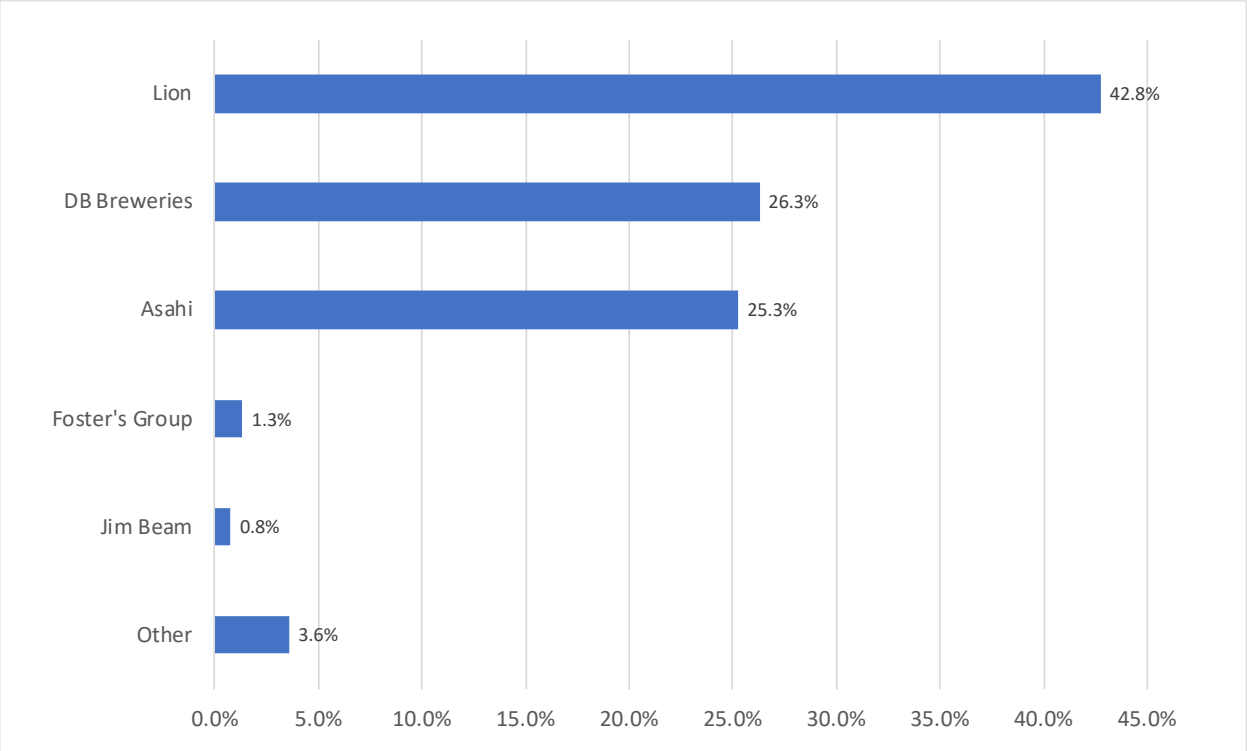


The largest proportion of brands within the Alcoholic Beverage Containers and Packaging category belonged to Lion, which was the brand owner associated with 42.8% of the most frequently identified brands in 2019.

Other significant brand owner contributors counted as a proportion of the brands within this category included:

- DB Breweries (26.3%)
- Asahi (25.3%)
- Foster's Group (1.3%)
- Jim Beam (0.8%)

Figure 226 - National 2019 – Alcoholic Beverage Containers and Packaging - % of Branded Litter in Industry Category – Brand Owners



SNACKS WRAPPERS AND PACKETS

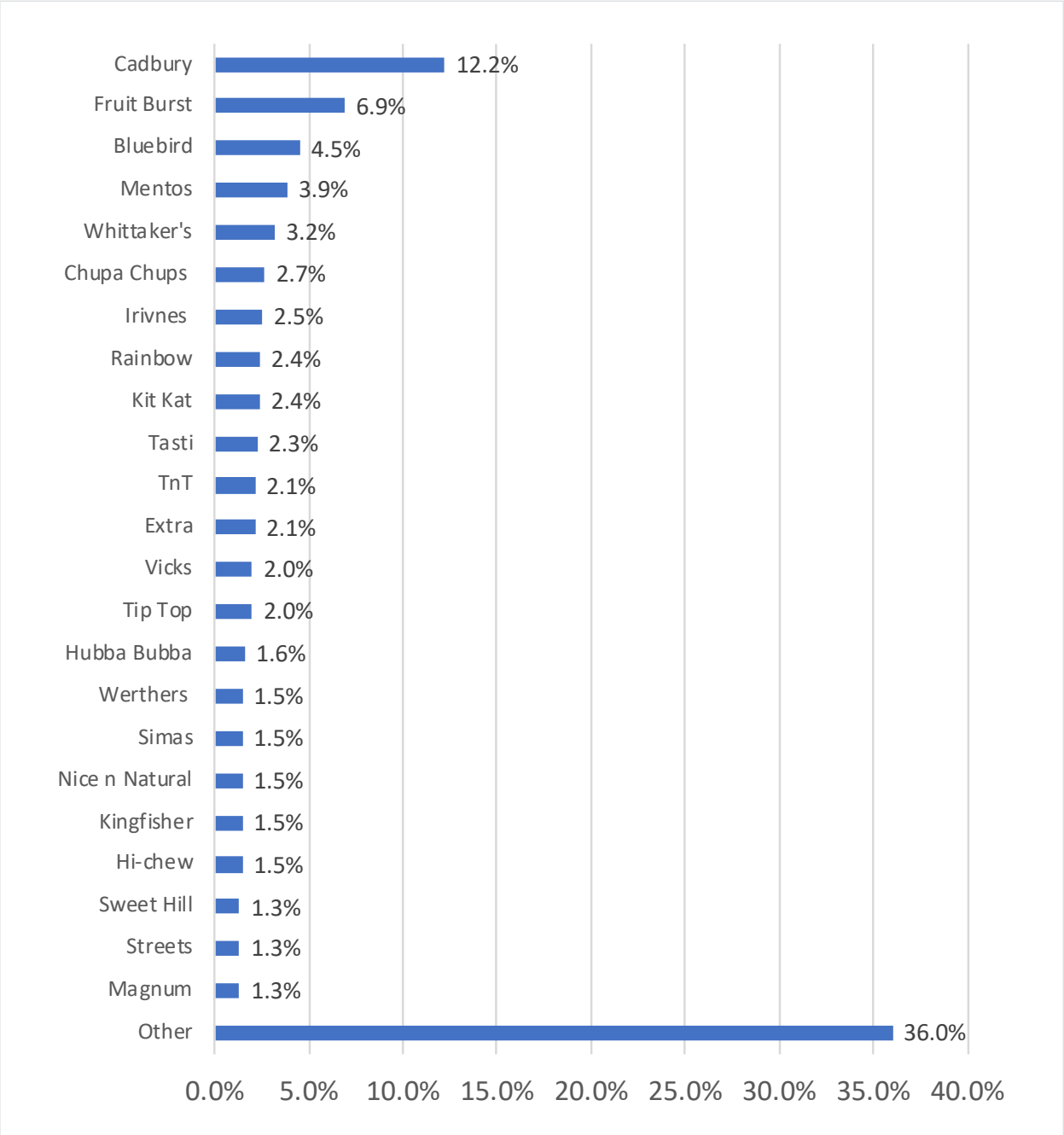
A total of 753 branded litter items were recorded within the Snacks Wrappers and Packets category for the year 2019.

Within this industry category, the highest contributor to branded litter items was Cadbury, which represented 12.2% of all branded snacks wrappers and packets.

Other frequently identified brands included:

- Fruit Burst (6.9%)
- Bluebird (4.5%)
- Mentos (3.9%)
- Whittaker's (3.2%)
- Chupa Chups (2.7%)
- Irvines (2.5%)

Figure 227 - National 2019 – Snack Wrappers and Packets - % of Branded Litter in Industry Category – Main Brands Identified

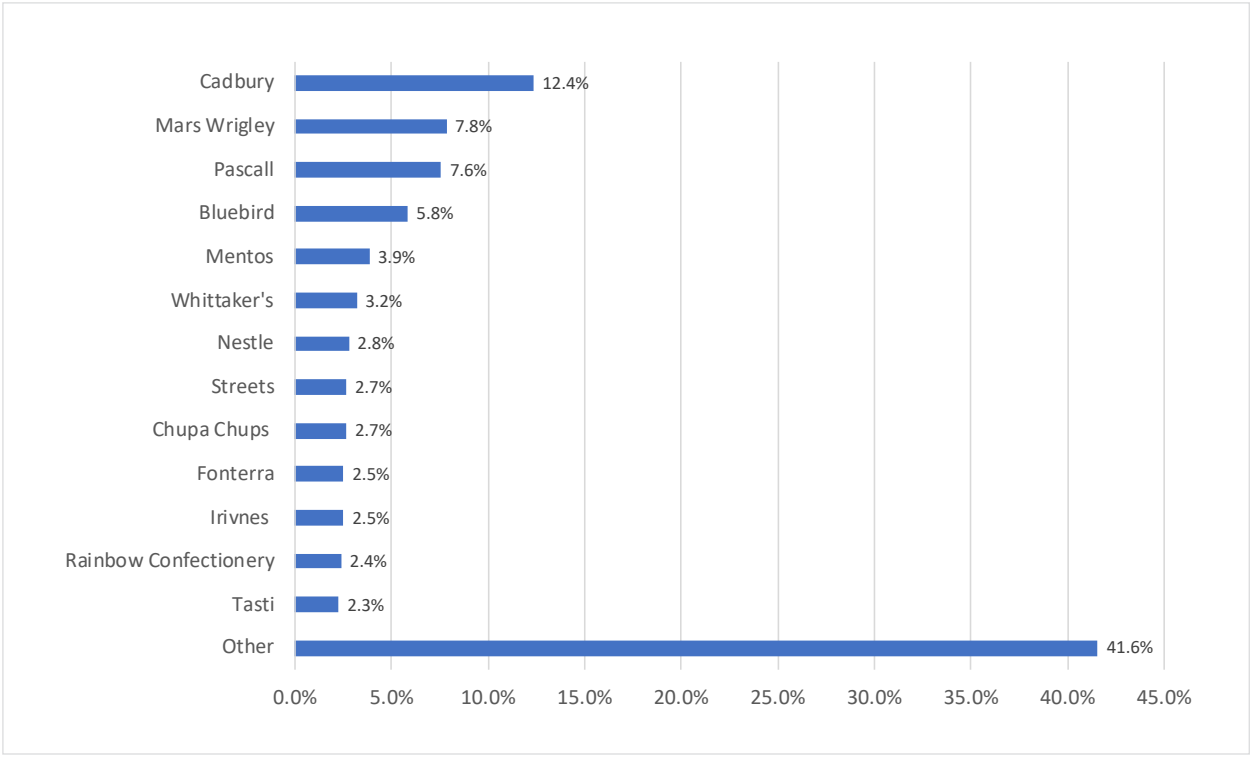


The largest proportion of brands within the Snack Wrappers and Packets category belonged to Cadbury, which was the brand owner associated with 12.4% of the most frequently identified brands in 2019.

Other significant brand owner contributors counted as a proportion of the brands within this category included:

- Mars Wrigley (7.8%)
- Pascall (7.6%)
- Bluebird (5.8%)
- Mentos (3.9%)
- Whittaker's (3.2%)

Figure 228 - National 2019 – Snack Wrappers and Packets - % of Branded Litter in Industry Category – Brand Owners



NON-ALCOHOLIC BEVERAGE CONTAINERS AND PACKAGING

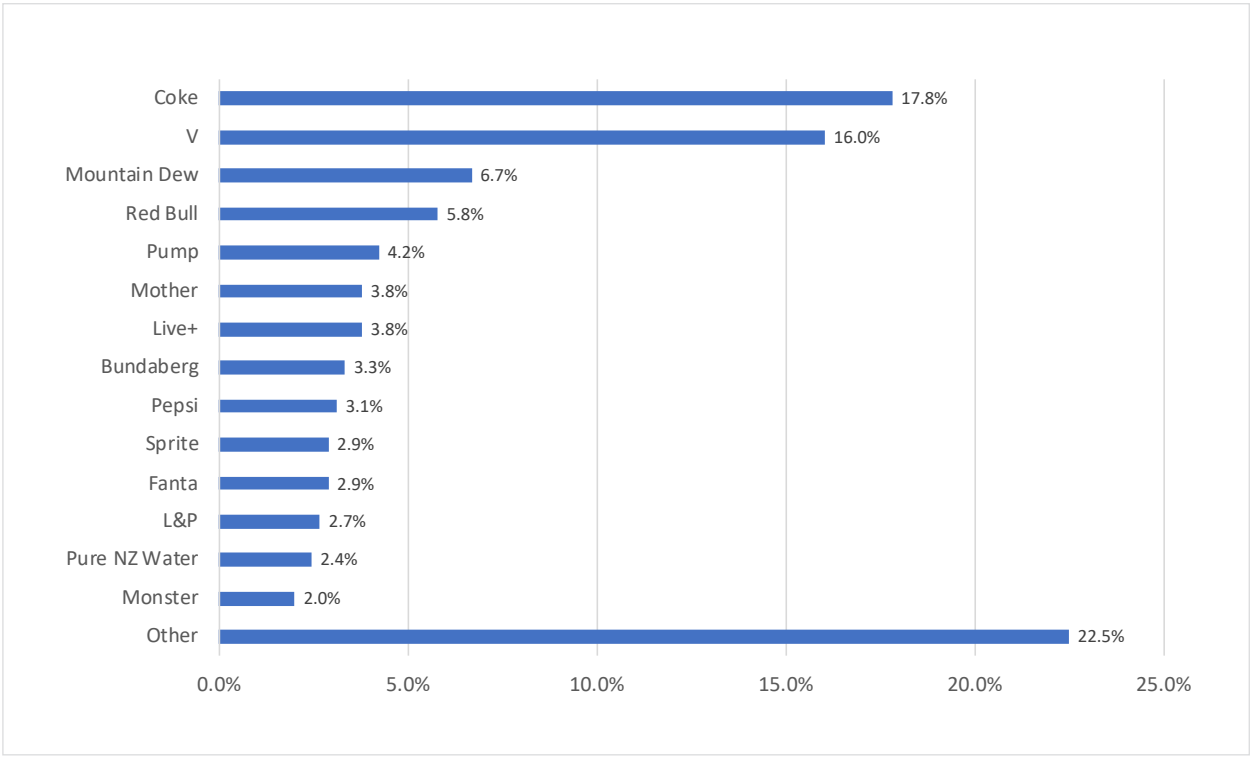
A total of 449 branded litter objects were counted within the Non-Alcoholic Beverage Containers and Packaging category, across all sites surveyed nationally in 2019.

Within this industry category, the highest contributor to branded litter items was Coke, which represented 17.8% of all branded non-alcoholic beverage containers and packaging.

Other frequently identified brands included:

- V (16.0%)
- Mountain Dew (6.7%)
- Red Bull (5.8%)
- Pump (4.2%)
- Mother (3.8%)
- Live+ (3.8%)

Figure 229 - National 2019 – Non-Alcoholic Beverage Containers and Packaging - % of Branded Litter in Industry Category – Main Brands Identified

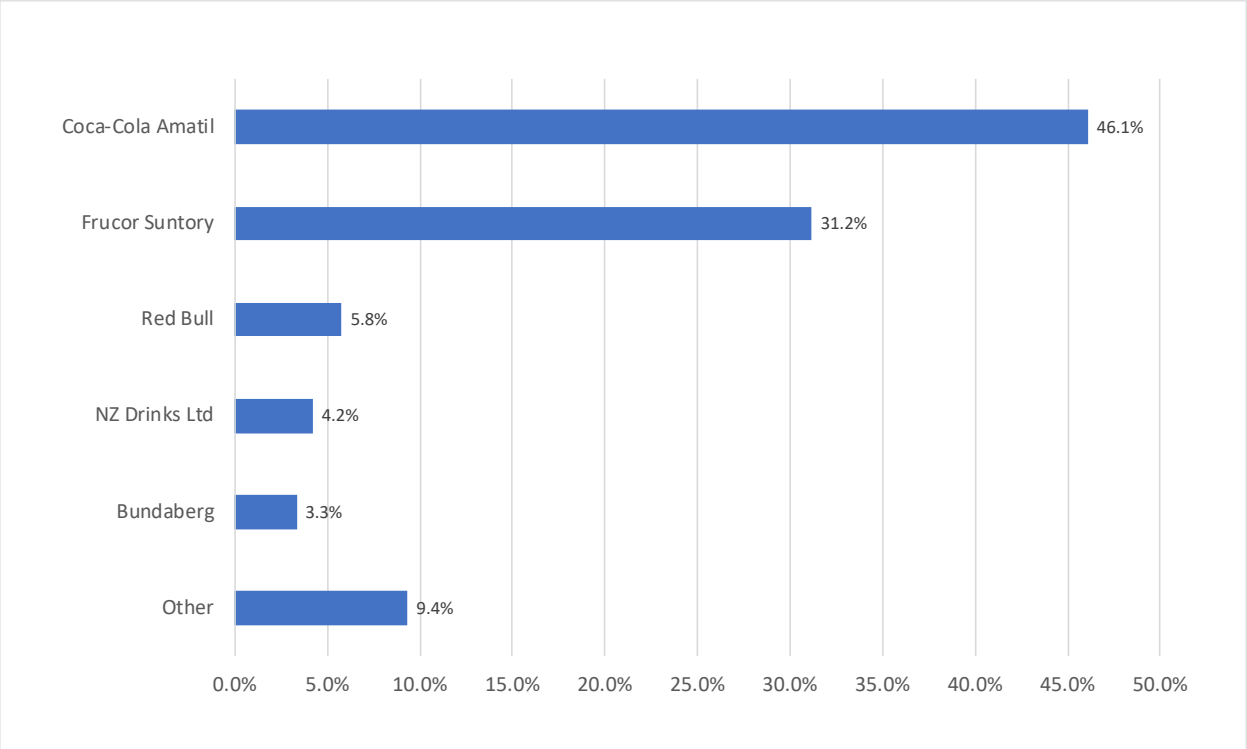


The largest proportion of brands within the Non-Alcoholic Beverage Containers and Packaging category belonged to Coca-Cola Amatil, which was the brand owner associated with 46.1% of the most frequently identified brands in 2019.

Other significant brand owner contributors counted as a proportion of the brands within this category included:

- Frucor Suntory (31.2%)
- Red Bull (5.8%)
- NZ Drinks Ltd (4.2%)
- Bundaberg (3.3%)

Figure 230 - National 2019 – Non-Alcoholic Beverage Containers and Packaging - % of Branded Litter in Industry Category – Brand Owners



TAKEAWAY FOOD, DRINK CONTAINERS AND PACKAGING

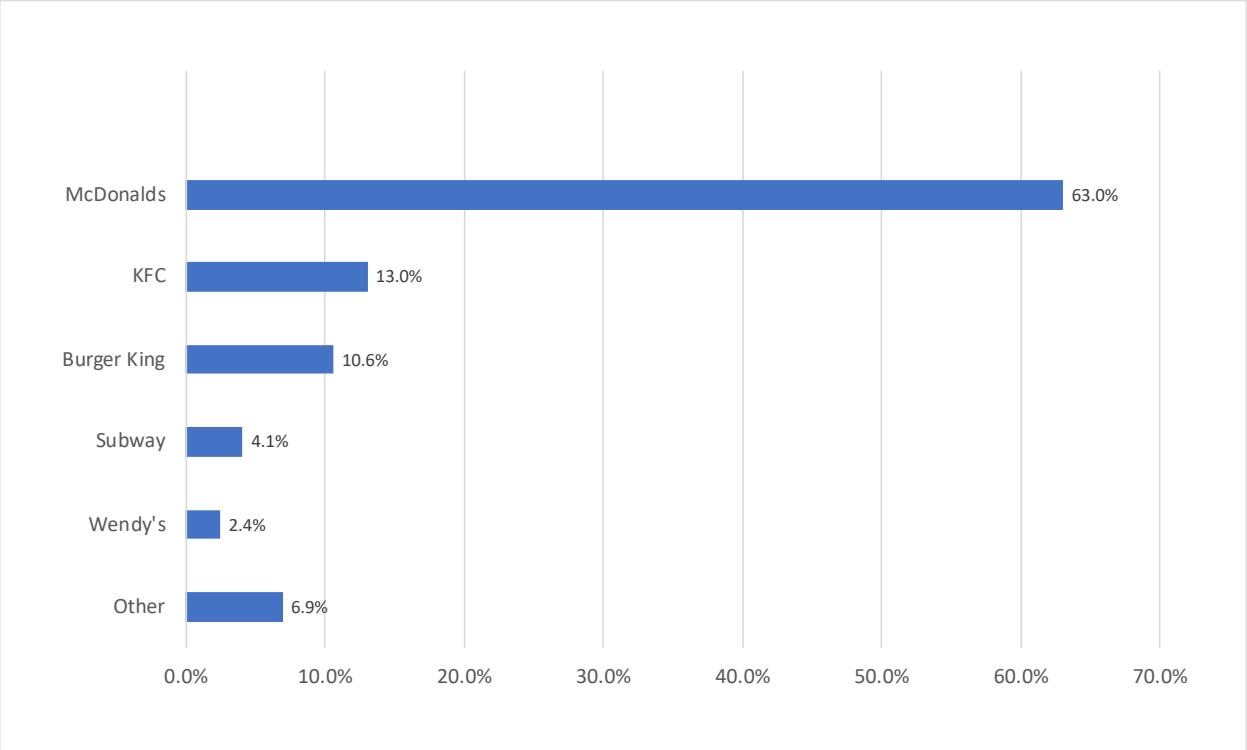
A total of 246 branded litter objects were counted within the Takeaway Food, Drink Containers and Packaging category, across all sites surveyed nationally in 2019.

Within this industry category, the highest contributor to branded litter items was McDonalds, which represented 63.0% of all branded takeaway food/drink containers and packaging.

Other frequently identified brands included:

- KFC (13.0%)
- Burger King (10.6%)
- Subway (4.1%)
- Wendy's (2.4%)

Figure 231 - National 2019 – Takeaway Food and Drink Containers - % of Branded Litter in Industry Category – Main Brands Identified

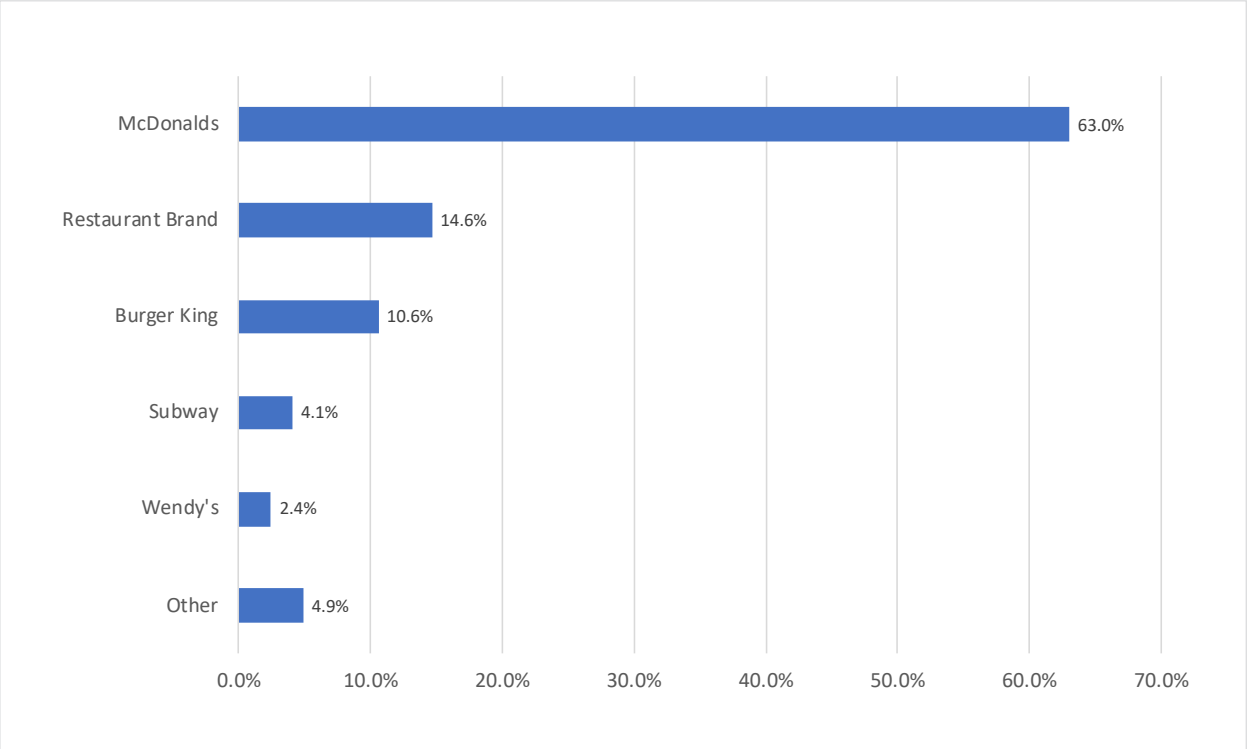


The largest proportion of brands within the Takeaway Food, Drink Containers and Packaging category belonged to the brand owner McDonalds, which was associated with 63.0% of the most frequently identified brands in 2019.

Other significant brand owner contributors counted as a proportion of the brands within this category included:

- Restaurant Brand (14.6%)
- Burger King (10.6%)
- Subway (4.1%)
- Wendy's (2.4%)

Figure 232 - National 2019 – Takeaway Food and Drink Containers - % of Branded Litter in Industry Category – Brand Owners



MILK BEVERAGE CONTAINERS AND PACKAGING

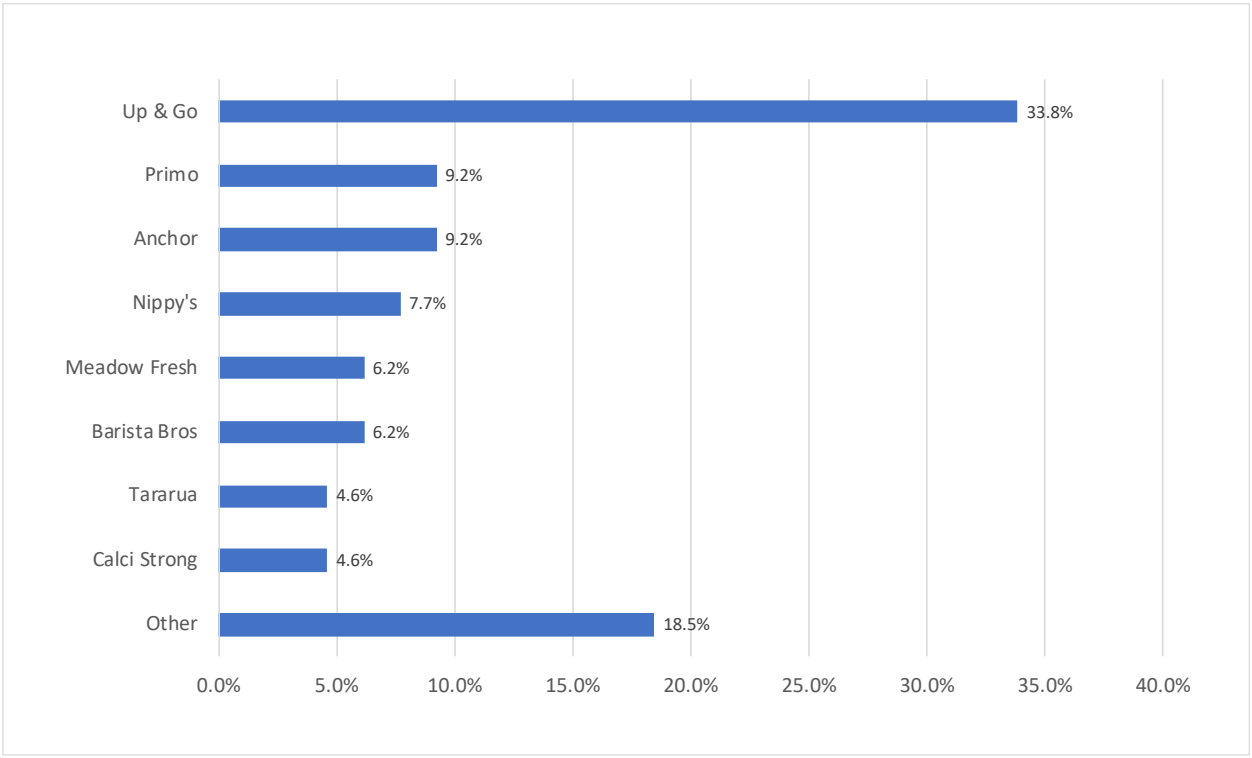
A total of 65 branded litter objects were counted within the Milk Beverage Containers and Packaging category, across all sites surveyed nationally in 2019.

Within this industry category, the highest contributor to branded litter items was Up & Go, which represented 33.8% of all branded milk beverage containers and packaging.

Other frequently identified brands included:

- Primo (9.2%)
- Anchor (9.2%)
- Nippy's (7.7%)
- Meadow Fresh (6.2%)
- Barista Bros (6.2%)
- Tararua (4.6%)
- Calci Strong (4.6%)

Figure 233 - National 2019 – Milk Beverage Containers and Packaging - % of Branded Litter in Industry Category – Main Brands Identified

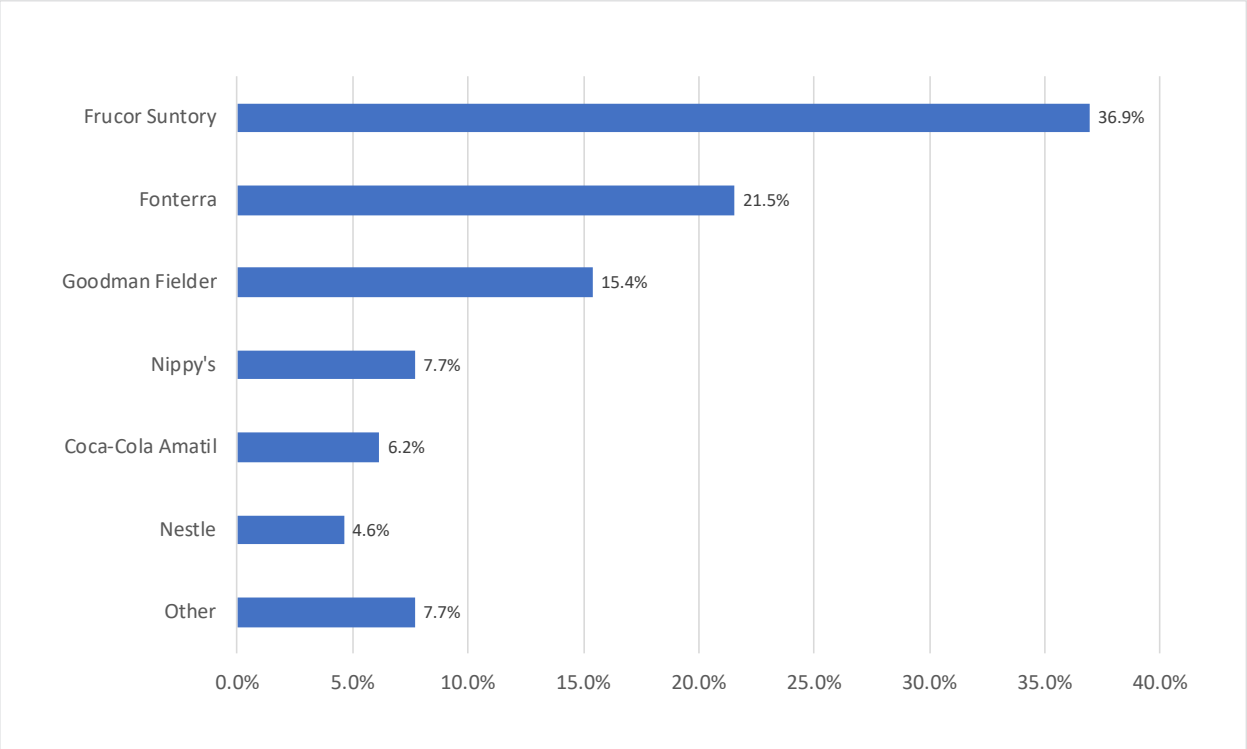


The largest proportion of brands within the Milk Beverage Containers and Packaging category belonged to Frucor Suntory, which was the brand owner associated with 36.9% of the most frequently identified brands in 2019.

Other significant brand owner contributors counted as a proportion of the brands within this category included:

- Fonterra (21.5%)
- Goodman Fielder (15.4%)
- Nippy's (7.7%)
- Coca-Cola Amatil (6.2%)
- Nestle (4.6%)

Figure 234 - National 2019 – Milk Beverage Containers and Packaging - % of Branded Litter in Industry Category – Brand Owners



OTHER LITTER

A total of 32 branded litter objects were counted within the Other Litter category, across all sites surveyed nationally in 2019 which represented 1.0% of all branded litter identified.

The litter in this category was associated with a very broad range of brands which were not recorded with significant frequencies. Subsequently no main brands are summarised.

RETAIL BRANDS AND PACKAGING

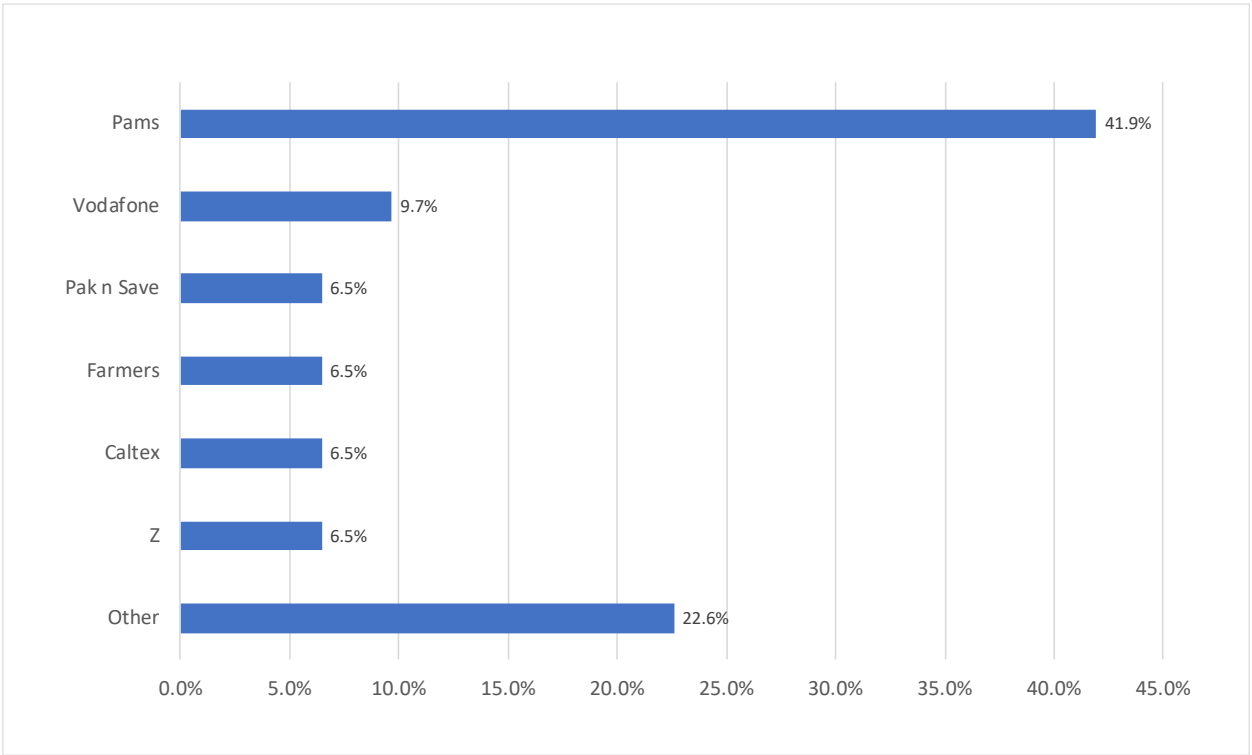
A total of 31 branded litter objects were counted within the Retail Brands and Packaging category, across all sites surveyed nationally in 2019.

Within this industry category, the highest contributor to branded litter items was Pams, which represented 41.9% of all retail brands and packaging.

Other identified brands included:

- Vodafone (9.7%)
- Pak n Save (6.5%)
- Farmers (6.5%)
- Caltex (6.5%)
- Z (6.5%)

Figure 235 - National 2019 – Retail Brands and Packaging - % of Branded Litter in Industry Category – Main Brands Identified

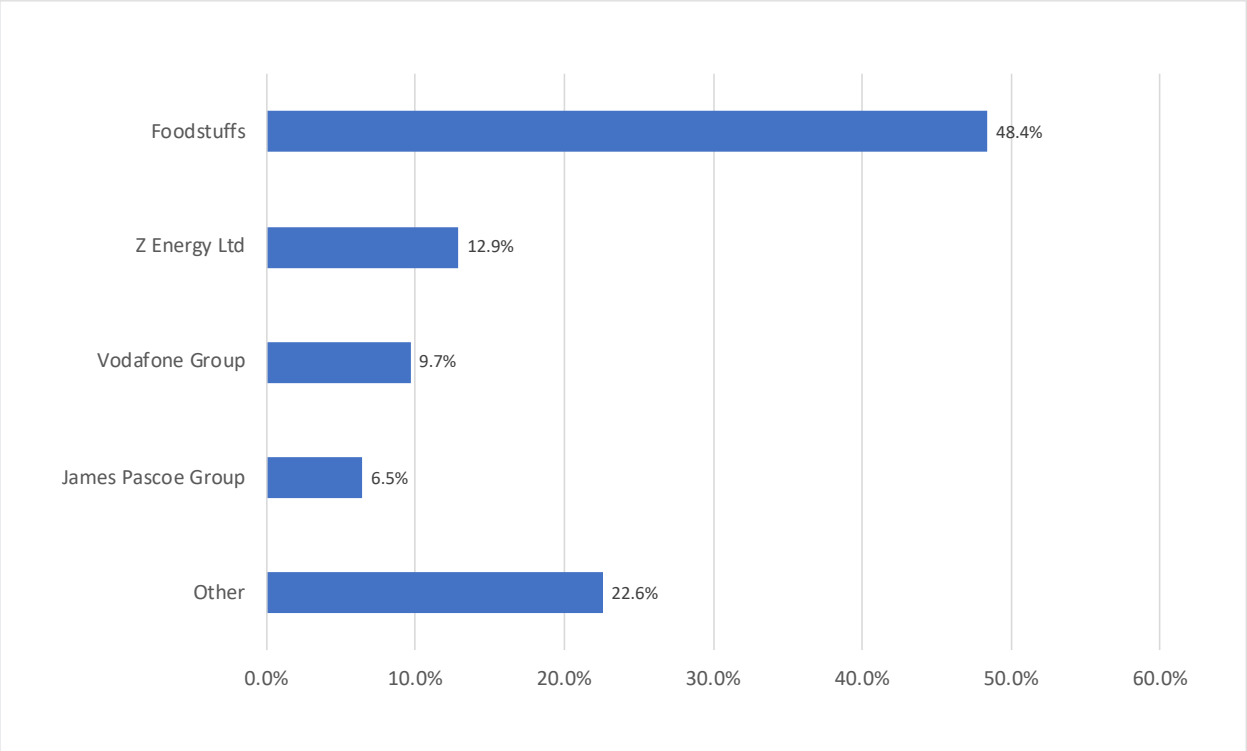


The largest proportion of brands within the Retail Brands and Packaging category belonged to Foodstuffs, which was the brand owner associated with 48.4% of the most frequently identified brands in 2019.

Other brand owner contributors counted as a proportion of the brands within this category included:

- Z Energy Ltd (12.9%)
- Vodafone Group (9.7%)
- James Pascoe Group (6.5%)

Figure 236 - National 2019 – Retail Brands and Packaging - % of Branded Litter in Industry Category – Brand Owners



TOBACCO

A total of 10 branded litter objects were counted within the Tobacco category, across all sites surveyed nationally in 2019 which represented 0.3% of all branded litter identified. This is largely due to the fact that cigarette butts are not branded.

The litter in this category was associated with a range of brands which were not recorded with significant frequencies. Subsequently no main brands are summarised.

APPENDIX 1

Table 2 - Site Types

	Risk Present		Litter Distribution	
National	*Moderate hazard or risk*	*Significant hazard or risk*	*Widespread*	*Clustered*
	91%	*73%*	*97%*	*3%*
Auckland	*Moderate hazard or risk*	*Significant hazard or risk*	*Widespread*	*Clustered*
	100%	*0%*	*100%*	*0%*
Bay of Plenty	*Moderate hazard or risk*	*Significant hazard or risk*	*Widespread*	*Clustered*
	100%	*0%*	*100%*	*0%*
Canterbury/Chatham Islands	*Moderate hazard or risk*	*Significant hazard or risk*	*Widespread*	*Clustered*
	96%	*4%*	*98%*	*2%*
Gisborne/Hawke's Bay	*Moderate hazard or risk*	*Significant hazard or risk*	*Widespread*	*Clustered*
	100%	*0%*	*100%*	*0%*
Manawatu/Whanganui	*Moderate hazard or risk*	*Significant hazard or risk*	*Widespread*	*Clustered*
	97%	*3%*	*94%*	*6%*
Northland	*Moderate hazard or risk*	*Significant hazard or risk*	*Widespread*	*Clustered*
	94%	*6%*	*100%*	*0%*
Otago	*Moderate hazard or risk*	*Significant hazard or risk*	*Widespread*	*Clustered*
	100%	*0%*	*95%*	*5%*
Southland	*Moderate hazard or risk*	*Significant hazard or risk*	*Widespread*	*Clustered*
	93%	*7%*	*87%*	*13%*
Taranaki	*Moderate hazard or risk*	*Significant hazard or risk*	*Widespread*	*Clustered*
	100%	*0%*	*100%*	*0%*
Tasman/Nelson/Marlborough	*Moderate hazard or risk*	*Significant hazard or risk*	*Widespread*	*Clustered*
	87%	*13%*	*93%*	*7%*
Waikato	*Moderate hazard or risk*	*Significant hazard or risk*	*Widespread*	*Clustered*
	100%	*0%*	*100%*	*0%*
Wellington	*Moderate hazard or risk*	*Significant hazard or risk*	*Widespread*	*Clustered*
	100%	*0%*	*98%*	*2%*
West Coast	*Moderate hazard or risk*	*Significant hazard or risk*	*Widespread*	*Clustered*

	Risk Present		Litter Distribution	
	100%	*0%*	*87%*	*13%*
Highways	*Moderate hazard or risk*	*Significant hazard or risk*	*Widespread*	*Clustered*
	24%	*76%*	*95%*	*5%*
Railways	*Moderate hazard or risk*	*Significant hazard or risk*	*Widespread*	*Clustered*
	32%	*68%*	*100%*	*0%*
Carparks	*Moderate hazard or risk*	*Significant hazard or risk*	*Widespread*	*Clustered*
	100%		*96%*	*4%*
Industrial	*Moderate hazard or risk*	*Significant hazard or risk*	*Widespread*	*Clustered*
	94%	*6%*	*98%*	*2%*
Public Recriational Spaces	*Moderate hazard or risk*	*Significant hazard or risk*	*Widespread*	*Clustered*
	100%		*97%*	*3%*
Residential	*Moderate hazard or risk*	*Significant hazard or risk*	*Widespread*	*Clustered*
	100%	*0%*	*99%*	*1%*
Retail	*Moderate hazard or risk*	*Significant hazard or risk*	*Widespread*	*Clustered*
	96%		*96%*	*4%*

Table 3 – Territory Data

Territory	Total Area Surveyed (m^2)	Items per 1,000 m^2	Weight (kg) per 1,000 m^2	Volume (lt) per 1,000 m^2
AUCKLAND REGION				
Auckland City	6314	159	0.56	5.95
Franklin District	5833	187	0.96	9.51
Manukau District	6088	90	0.23	3.08
North Shore District	6309	368	4.24	14.36
Papakura District	4854	260	0.74	6.18
Rodney District	6282	172	0.69	14.50
Waitakere District	5691	181	0.50	8.18
Auckland Region Overall	**41369**	**202**	**1.16**	**8.95**
BAY OF PLENTY REGION				
Kawerau District	5565	126	0.22	3.60
Opotiki District	5970	169	0.88	4.31
Rotorua District	5939	97	0.41	4.63
Tauranga City	5964	122	0.29	6.22
Western Bay of Plenty District	6003	88	0.35	2.69
Whakatane District	5680	105	0.15	1.44
Bay of Plenty Region Overall	**35120**	**118**	**0.39**	**3.83**
CANTERBURY AND CHATHAM ISLANDS REGIONS				
Chatham Islands Territory	6135	26	0.14	1.10
Ashburton District	6453	98	0.18	7.13
Christchurch City	6079	116	0.60	7.84
Hurunui District	5444	61	0.22	2.59
Kaikoura District	7126	155	0.34	4.16
Mackenzie District	5113	87	0.34	3.67
Selwyn District	5982	65	0.15	1.31
Timaru District	6373	102	0.41	4.89
Waimakariri District	6072	137	0.61	12.18
Waimate District	8560	59	0.31	6.04
Waitaki District	6084	185	0.55	7.34
Canterbury and Chatham Islands Overall	**69418**	**99**	**0.35**	**5.36**
GISBORNE AND HAWKE'S BAY REGION				
Gisborne Region	5785	122	0.23	4.03
Central Hawke's Bay District	5660	135	0.66	4.86
Hastings District	6137	64	0.17	4.18

Napier City	5892	49	0.23	2.28
Wairoa District	5648	59	0.39	3.76
Gisborne and Hawke's Bay Regions Overall	**29121**	**85**	**0.33**	**3.81**
MANAWATU-WHANGANUI REGION				
Horowhenua District	6041	177	0.57	8.45
Manawatu District	6070	91	0.12	1.47
Palmerston North City	6480	114	0.42	4.12
Rangitikei District	4504	144	0.21	4.56
Ruapehu District	8744	41	0.22	10.48
Tararua District	5714	41	0.11	2.47
Whanganui District	5614	89	0.28	6.89
Manawatu-Whanganui Region Overall	**43166**	**95**	**0.28**	**5.83**
NORTHLAND REGION				
Far North District	7122	112	0.35	4.69
Kaipara District	7036	56	0.25	2.61
Whangarei District	7198	47	0.26	3.46
Northland Region Overall	**21356**	**71**	**0.29**	**3.59**
OTAGO REGION				
Central Otago District	6253	91	0.23	3.49
Clutha District	6174	122	0.39	8.23
Dunedin City	5874	152	0.78	4.14
Queenstown-Lakes District	5651	124	0.32	6.97
Otago Region Overall	**23951**	**122**	**0.43**	**5.69**
SOUTHLAND REGION				
Gore District	5880	122	0.74	4.74
Invercargill City	5985	65	0.37	1.79
Southland District	5859	37	0.05	1.11
Southland Region Overall	**17724**	**75**	**0.39**	**2.54**
TARANAKI REGION				
New Plymouth District	5963	68	0.28	2.92
South Taranaki District	5521	85	0.27	2.86
Stratford District	5506	99	0.32	4.28
Taranaki Region Overall	**16990**	**84**	**0.29**	**3.34**
TASMAN, NELSON AND MARLBOROUGH REGIONS				
Marlborough District	6760	170	0.54	6.38

Nelson City	5983	148	0.27	4.05
Tasman District	5988	108	0.29	2.48
Tasman, Nelson and Marlborough Regions Overall	**18730**	**143**	**0.37**	**4.39**
WAIKATO REGION				
Hauraki District	5958	134	0.62	4.83
Matamata-Piako District	4933	90	0.60	9.15
Otorohanga District	5910	64	0.24	3.60
South Waikato District	5975	95	0.39	4.66
Taupo District	5412	204	0.33	5.78
Thames-Coromandel District	6206	65	0.17	4.14
Waikato District	7682	158	1.09	6.82
Waipa District	7850	65	0.21	6.08
Waitomo District	6105	90	0.14	2.57
Waikato Region Overall	**61621**	**113**	**0.43**	**5.68**
WELLINGTON REGION				
Carterton District	6100	115	0.32	4.08
Kapiti Coast District	4518	164	0.20	4.57
Lower Hutt City	5277	162	0.59	7.76
Masterton District	6059	119	0.58	6.43
Porirua City	6178	158	0.66	16.28
South Wairarapa District	5769	122	0.48	3.46
Upper Hutt City	5684	83	0.27	6.69
Wellington City	6751	124	0.38	3.66
Wellington Region Overall	**46334**	**129**	**0.44**	**6.66**
WEST COAST REGION				
Buller District	6047	121	0.83	9.74
Grey District	6409	136	0.29	3.29
Westland District	6049	85	0.14	3.44
West Coast Overall	**18505**	**114**	**0.42**	**5.45**

Table 4 – 2019 – Areas Surveyed - m²

SITE TYPE		NORTHLAND	AUCKLAND	WAIKATO	BAY OF PLENTY	TARANAKI	MANAWATU-WHANGANUI	GISBORNE AND HAWKE'S BAY	WELLINGTON	TASMAN, NELSON AND MARLBOROUGH	WEST COAST	CANTERBURY AND CHATHAM ISLANDS	OTAGO	SOUTHLAND	NATIONAL
Car Park	*Number of Sites Surveyed*	3	7	11	6	3	7	5	8	3	3	11	4	3	74
	Average Site Area - m²	2220	1106	1317	1407	1179	1242	1359	1421	1678	1500	1447	1468	1750	1409
	Total Area - m²	6660	7745	14485	8440	3536	8691	6795	11366	5035	4500	15920	5870	5250	104293
Industrial	*Number of Sites Surveyed*	1	7	9	6	3	5	5	8	3	3	8	4	2	64
	Average Site Area - m²	906	892	914	897	906	910	892	917	884	924	925	932	912	909
	Total Area - m²	906	6246	8226	5382	2718	4548	4458	7332	2652	2772	7398	3726	1824	58188
Public Recreational	*Number of Sites Surveyed*	3	8	11	6	3	7	5	8	3	3	11	4	3	75
	Average Site Area - m²	2187	1928	2008	1983	2000	2457	2000	1840	2067	2133	2359	1981	1683	2072
	Total Area - m²	6560	15425	22085	11900	6000	17200	10000	14721	6200	6400	25950	7925	5050	155416
Residential	*Number of Sites Surveyed*	4	8	11	6	3	9	5	8	3	3	14	4	4	82
	Average Site Area - m²	750	768	765	745	750	764	753	769	762	777	771	769	755	763
	Total Area - m²	3000	6145	8415	4470	2250	6880	3765	6150	2285	2330	10800	3075	3020	62585
Retail	*Number of Sites Surveyed*	5	7	10	6	3	7	5	8	3	3	11	4	3	75
	Average Site Area - m²	846	830	841	821	829	835	821	846	853	834	850	839	860	839
	Total Area - m²	4230	5808	8410	4928	2486	5847	4103	6765	2558	2503	9350	3355	2580	62920
Highways	*Number of Sites Surveyed*		1	5	4	1	1	3	1			4		1	21
	Average Site Area - m²		725	647	672	620	572	592	596			750		612	658
	Total Area - m²		725	3233	2688	620	572	1777	596			3000		612	13823
Railways	*Number of Sites Surveyed*		2	8	1	2	3	1	1	1	1	1		1	22
	Average Site Area - m²		876	920	900	948	900	924	942	912	924	924		894	915
	Total Area - m²		1752	7356	900	1896	2700	924	942	912	924	924		894	20124
Total Number of Sites		16	40	65	35	18	39	29	42	16	16	60	20	17	413
Average area across all sites (m²)		1335	1096	1111	1106	1084	1191	1097	1140	1228	1214	1222	1198	1131	1156
TOTAL AREA SURVEYED (M²)		**21356**	**43846**	**72210**	**38708**	**19506**	**46438**	**31822**	**47872**	**19642**	**19429**	**73342**	**23951**	**19230**	**477349**

APPENDIX 2

Table 5 – Data Collection Form

MATERIAL TYPE	2019 ITEMS	2019 WEIGHT (KG)	2019 AVERAGE VOLUME (LTR)	2019 ITEMS PER 1,000 M	2019 WEIGHT (KG) PER 1,000 M	2019 VOLUME (LTR) PER 1,000 M
CIGARETTE BUTTS/VAPING						
Cigarette butts	18561	5.6630	2.1345	38.9	0.0119	0.0045
Vaping Canisters	0.00	0.00	0.00	0.00	0.00	0.00
Cigarette Butts/Vaping - Total	**18561**	**5.6630**	**2.1345**	**38.9**	**0.0119**	**0.0045**
GLASS						
Alcoholic sodas/sprit based mixers, all sizes	36	7.2080	13.4748	0.1	0.0151	0.0282
Beer, < 750 ml, all colours of glass	333	58.7360	154.1537	0.7	0.1230	0.3229
Beer, 750 ml or more, all colours of glass	2	1.0540	1.8146	0.0	0.0022	0.0038
Cider/fruit based, etc.	18	1.6560	8.2414	0.0	0.0035	0.0173
Flav. water/soft drink (carbonated), < 1 litre	28	2.2540	11.0835	0.1	0.0047	0.0232
Flav. water/soft drink (carbonated), 1 litre+	1	0.0360	1.2772	0.0	0.0001	0.0027
Fruit juice, < 1 litre	4	0.6860	1.6965	0.0	0.0014	0.0036
Glass, other (specify)	5429	34.0120	106.6256	11.4	0.0713	0.2234
Plain water (carbonated or non-carb.), < 1 litre	5	0.1700	2.9053	0.0	0.0004	0.0061
Wine & spirit, all sizes	7	4.7350	6.2398	0.0	0.0099	0.0131
Glass - Total	**5863**	**110.5470**	**307.5124**	**12.3**	**0.2316**	**0.6442**
ILLEGAL DUMPING						
Illegal dumping	26		624.0000	0.1	Not Recorded	1.3072
Illegal Dumping - Total	**26**		**624.0000**	**0.1**	**Not Recorded**	**1.3072**
METAL						
Aerosols - pressure packs	23	1.2080	15.7375	0.0	0.0025	0.0330
Alcoholic sodas & spirit based mixers	145	1.7360	62.5530	0.3	0.0036	0.1310
Beer, aluminium drink cans, all types , all sizes	482	6.8620	207.9348	1.0	0.0144	0.4356
Bottle caps, lids & pull tabs	2534	4.9900	10.1360	5.3	0.0105	0.0212
Cider/fruit based, etc.	19	0.0160	8.1966	0.0	0.0000	0.0172
Flav. water/soft drink, (carbonated), all sizes	196	2.6910	83.4049	0.4	0.0056	0.1747
Flav. water/soft drink, (non-carbonated), all sizes	21	0.3460	8.0136	0.0	0.0007	0.0168
Foil wrappers	1523	0.8740	2.3759	3.2	0.0018	0.0050
Food cans, including pet food	63	1.1800	29.2194	0.1	0.0025	0.0612
Metal pieces/fragments	1584	27.0838	16.7904	3.3	0.0567	0.0352
Metal - Total	**6590**	**46.9868**	**444.3621**	**13.8**	**0.0984**	**0.9309**

MATERIAL TYPE	2019 ITEMS	2019 WEIGHT (KG)	2019 AVERAGE VOLUME (LTR)	2019 ITEMS PER 1,000 M	2019 WEIGHT (KG) PER 1,000 M	2019 VOLUME (LTR) PER 1,000 M
MISC.						
Cloth & materials	*746*	*12.2930*	*11.4138*	*1.6*	*0.0258*	*0.0239*
Condoms	*1*	*0.0040*	*0.0003*	*0.0*	*0.0000*	*0.0000*
Construction materials	*2*	*4.5000*	*0.7200*	*0.0*	*0.0094*	*0.0015*
Disposable nappies	*638*	*2.2980*	*717.7500*	*1.3*	*0.0048*	*1.5036*
Ice cream sticks	*301*	*0.4190*	*0.2769*	*0.6*	*0.0009*	*0.0006*
Misc., other (specify)	*1085*	*2.2230*	*14.6475*	*2.3*	*0.0047*	*0.0307*
Rubber pieces (not tyres)	*689*	*9.7080*	*0.1133*	*1.4*	*0.0203*	*0.0002*
Sanitary products	*6*	*0.0240*	*0.0675*	*0.0*	*0.0001*	*0.00w01*
Syringes	*1*	*0.0020*	*0.0023*	*0.0*	*0.0000*	*0.0000*
Tyres & pieces	*64*	*1.8180*	*14.4000*	*0.1*	*0.0038*	*0.0302*
Misc. - Total	**3533**	**33.2890**	**759.3916**	**7.4**	**0.0697**	**1.5909**
ORGANIC WASTE						
Dog faeces	*66*	*1.2480*	*1.1979*	*0.1*	*0.0026*	*0.0025*
Food waste	*591*	*11.0740*	*19.7979*	*1.2*	*0.0232*	*0.0415*
Human faeces	*1*	*0.0040*	*0.0182*	*0.0*	*0.0000*	*0.0000*
Other faeces	*1*	*0.0070*	*0.0182*	*0.0*	*0.0000*	*0.0000*
Other organic waste	*5*	*0.0480*	*0.1675*	*0.0*	*0.0001*	*0.0004*
Organic Waste - Total	**664**	**12.3810**	**21.1997**	**1.4**	**0.0259**	**0.0444**
PAPER AND CARDBOARD						
Carboard boxes & fragments	*690*	*8.6690*	*55.2000*	*1.4*	*0.0182*	*0.1156*
Cartons, flavoured milk, < 1 litre	*33*	*0.4420*	*22.1918*	*0.1*	*0.0009*	*0.0465*
Cartons, fruit juice, < 1 litre	*9*	*0.0980*	*5.6228*	*0.0*	*0.0002*	*0.0118*
Cartons, fruit juice, 1 litre +	*1*	*0.0340*	*2.0700*	*0.0*	*0.0001*	*0.0043*
Cartons, milk, plain (white), all sizes	*12*	*0.1800*	*12.1519*	*0.0*	*0.0004*	*0.0255*
Cigarette packets	*202*	*1.5160*	*44.0097*	*0.4*	*0.0032*	*0.0922*
Cups, food trays, food wrappers, takeaway, containers, drink containers	*644*	*9.7980*	*469.4438*	*1.3*	*0.0205*	*0.9834*
Flav. water/fruit/sports drink (non-carb.), < 1 litre	*1*	*0.0120*	*0.3024*	*0.0*	*0.0000*	*0.0006*
Ice cream wrappers	*25*	*0.0360*	*0.0600*	*0.1*	*0.0001*	*0.0001*
Junk mail/free circulars	*84*	*1.4000*	*14.6160*	*0.2*	*0.0029*	*0.0306*
Newspapers & magazines	*106*	*1.3160*	*125.0800*	*0.2*	*0.0028*	*0.2620*
Paper bags	*18*	*0.1260*	*0.1904*	*0.0*	*0.0003*	*0.0004*
Paper/paperboard, other	*4520*	*5.5250*	*15.2776*	*9.5*	*0.0116*	*0.0320*
Shopper dockets & related shopping paper	*666*	*0.6240*	*1.3520*	*1.4*	*0.0013*	*0.0028*

MATERIAL TYPE	2019 ITEMS	2019 WEIGHT (KG)	2019 AVERAGE VOLUME (LTR)	2019 ITEMS PER 1,000 M	2019 WEIGHT (KG) PER 1,000 M	2019 VOLUME (LTR) PER 1,000 M
Tickets, eg bus, ATM, parking, vending, etc	*141*	*0.1460*	*0.1241*	*0.3*	*0.0003*	*0.0003*
Tubes for fireworks	*25*	*0.2500*	*25.3165*	*0.1*	*0.0005*	*0.0530*
Paper and Cardboard - Total	**7177**	**30.1720**	**793.0090**	**15.0**	**0.0632**	**1.6613**
PLASTIC						
Bags, heavier glossy type typically branded carry	*48*	*0.2200*	*4.2048*	*0.1*	*0.0005*	*0.0088*
Bread bag tags	*90*	*0.0160*	*0.0207*	*0.2*	*0.0000*	*0.0000*
Containers, industrial eg. oil	*5*	*1.1000*	*112.2900*	*0.0*	*0.0023*	*0.2352*
Drink package rings, six pack rings, ring carriers	*5*	*0.0320*	*0.0075*	*0.0*	*0.0001*	*0.0000*
Drink pouches	*8*	*0.1200*	*0.6900*	*0.0*	*0.0003*	*0.0014*
Flav. milk, < 1 litre	*19*	*0.5960*	*10.1213*	*0.0*	*0.0012*	*0.0212*
Flav. water/fruit/sports drink (non-carb.), + 1 litre	*6*	*0.2720*	*7.2066*	*0.0*	*0.0006*	*0.0151*
Flav. water/fruit/sports drink (non-carb.), < 1 litre	*41*	*1.6420*	*30.2424*	*0.1*	*0.0034*	*0.0634*
Flav. water/soft drink (carbonated), < 1 litre	*65*	*2.5160*	*40.4372*	*0.1*	*0.0053*	*0.0847*
Flav. water/soft drink (carbonated), 1 litre+	*31*	*1.9360*	*51.2740*	*0.1*	*0.0041*	*0.1074*
Fruit juice, < 1 litre	*7*	*0.2400*	*2.8003*	*0.0*	*0.0005*	*0.0059*
Fruit juice, 1 litre +	*4*	*0.0600*	*8.5468*	*0.0*	*0.0001*	*0.0179*
Lollipop sticks	*522*	*0.1980*	*0.2767*	*1.1*	*0.0004*	*0.0006*
Plain water (carbonated or non-carb.), < 1 litre	*103*	*2.4240*	*81.1537*	*0.2*	*0.0051*	*0.1700*
Plain water (carbonated or non-carb.), 1 litre +	*12*	*1.0980*	*18.4988*	*0.0*	*0.0023*	*0.0388*
Plastic bags, supermarket type light weight carry	*118*	*0.4240*	*4.0049*	*0.2*	*0.0009*	*0.0084*
Plastic bottle tops	*729*	*1.4040*	*5.8356*	*1.5*	*0.0029*	*0.0122*
Plastic, other (specify)	*6483*	*29.9560*	*8.1038*	*13.6*	*0.0628*	*0.0170*
Sacks, sheeting - other bags	*1695*	*3.5220*	*0.5339*	*3.6*	*0.0074*	*0.0011*
Snack bags & confectionary wrappers	*2105*	*1.9030*	*16.4822*	*4.4*	*0.0040*	*0.0345*
Spoons/cutlery	*161*	*0.3600*	*1.5456*	*0.3*	*0.0008*	*0.0032*
Straws	*415*	*0.2380*	*1.7119*	*0.9*	*0.0005*	*0.0036*
Styrene foam boxes, sheets, etc	*783*	*1.2700*	*29.3625*	*1.6*	*0.0027*	*0.0615*
Takeaway & cups	*422*	*2.5010*	*87.3624*	*0.9*	*0.0052*	*0.1830*
White milk, all sizes	*11*	*0.5160*	*23.5036*	*0.0*	*0.0011*	*0.0492*
Wine cask, bladders	*20*	*0.0620*	*9.2000*	*0.0*	*0.0001*	*0.0193*
Plastic - Total	**13908**	**54.6260**	**555.4172**	**29.1**	**0.1144**	**0.6262**
Grand Total	**56322**	**293.6648**	**3507.0266**	**118.0**	**0.6152**	**7.3469**

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CONTACT

Keep New Zealand Beautiful

PO Box 58932
Botany, Auckland

info@knzb.org.nz
09 264 1434

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