KEEP NEW ZEALAND BEAUTIFUL

NATIONAL

Litter Audit

NATIONAL
Litter Audit

NOVEMBER 2022

LITTER POLLUTES OUR RIVERS, STREAMS AND OCEAN AND THREATENS WILDLIFE.

Funded with support from the Waste Minimisation Fund, this 2022 National Litter Audit Report is one of the initiatives the Government supports to better manage and monitor litter in New Zealand.

This Government's work programme will help New Zealand become a low-waste, low-emissions economy, with a world-class system for managing our waste responsibly.

Building on the success of the 2019 plastic shopping bag ban, we are phasing out a range of other hard-to-recycle and single-use plastics. Already a number of the most commonly littered or single-use plastics have been banned from sale, and on 1 July 2023 we begin to phase out the next set of these, with a ban on plastic produce bags, plates, bowls, and cutlery. By the time the phase-outs are completed in 2025 we will have prevented more than two billion items going to landfill or ending up as litter every year.

Through the Waste Minimisation Fund we are investing to make it easy for New Zealanders to recycle or dispose of their waste responsibly, and through the Plastics Innovation Fund we are supporting efforts to find alternatives to plastic products or new ways to prevent them ending up in landfill.

Last year we consulted on proposals that would make responsible disposal of waste much easier for New Zealanders by standardising the products that can go into household recycling, and ensuring councils provide kerbside recycling and food scrap collection services to all urban communities.

A standardised kerbside recycling collection will make it clear exactly what can or can't be recycled from home and make it more likely what is thrown in the bin is recycled rather than sent to landfill.

This **Keep New Zealand Beautiful** report will expand our knowledge and help identify where Kiwis need to change their behaviour, what policy changes may be needed, what impact previous policies are having and where our investments will be most effective.

Hon David Parker
Minister for the Environment

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OVERVIEW

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

"

Keep New Zealand Beautiful 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 504 Community and Educational Branches nation-wide, Keep New Zealand Beautiful educates, inspires and empowers New Zealanders to participate and do their bit for a cleaner, more biologically diverse and climate conscious future. For over 55 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 Keep New Zealand Beautiful volunteers. Motivated by this and with the support of the New Zealand Government and Waste Minimisation Fund, Keep New Zealand Beautiful carried out 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 provided 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 Keep New Zealand Beautiful in consultation with Stats NZ, the Department of Conservation and the Ministry for the Environment.

The 2019 NLA has helped to address the litter problem in New Zealand by providing statistics and baseline data on litter across the country. This report is a repeat of the 2019 NLA, using data collected by Field Researchers in 2022. The 2022 NLA provides insights into the amount of litter that has accumulated over a three-year period (2019-2022) and will be used to inform policy development and as a tool for ongoing environmental reporting.

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

These sites were divided into seven site types:

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

Number of litter items and weights were captured at each site (with the exception of Illegal Dumping weights). Using the numbers of items, volumes of litter were estimated using well established conversion factors provided by Keep Australia Beautiful. A copy of the volume conversion chart used can be collected in Appendix 5.

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

To allow for the future calculation of litter change rates, in 2019 an initial clearance to remove all accumulated litter was undertaken. This provided a clean slate against which future samples are assessed. Although data from this initial clearance did not form a component of the general change analysis, it was 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).

To measure change rates, we need to know the period of time over which litter has accumulated; consequently, this has a direct influence on the definition of sampling frequency (i.e. the length of the interval between audits). The 2022 NLA will help us to understand the litter change over time across New Zealand. However, Keep New Zealand Beautiful recommends smaller sample audits be undertaken every 18 months, with a full scale audit undertaken every 2-3 years to establish further trends and recommendations.

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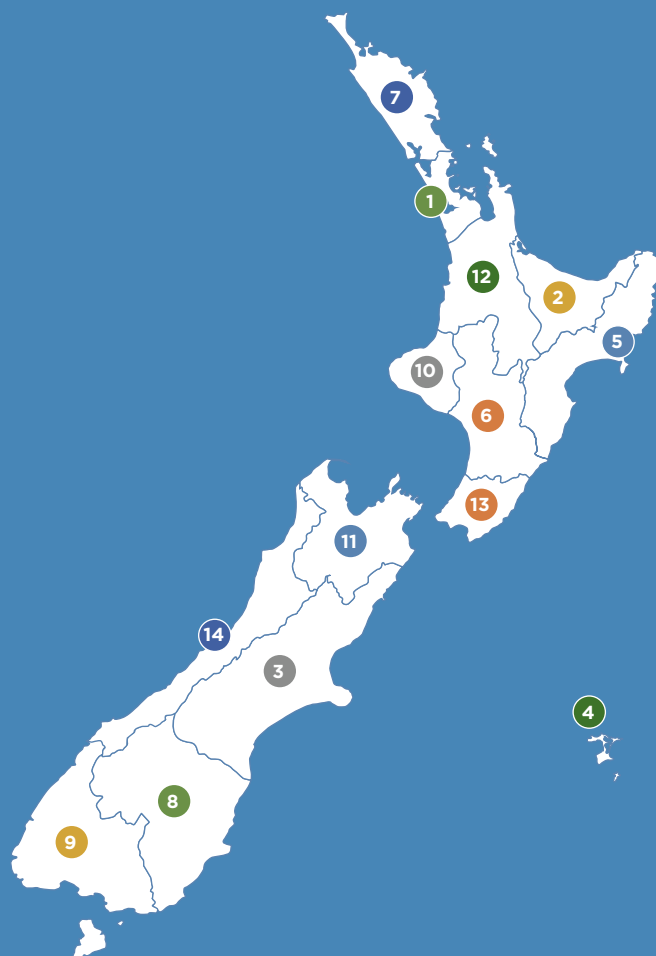
1. **Auckland**
2. **Bay of Plenty**
3. **Canterbury**
4. **Chatham Islands**
5. **Gisborne and Hawke's Bay**
6. **Manawatū-Whanganui**
7. **Northland**
8. **Otago**
9. **Southland**
10. **Taranaki**
11. **Tasman, Nelson and Marlborough**
12. **Waikato**
13. **Wellington**
14. **West Coast**

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.

- Collect raw data to meet environment reporting requirements of the Ministry for the Environment 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 Litter Intelligence beach audit methodology (material classifications may differ slightly).

Inform

- Inform government policy decision making.

- Assist with environment reporting.

- Make information easily accessible to the public.

Monitoring

- Assessment of the national state of the quantity, type, location and brand of litter.

- Baseline to track behaviour change.

- Evaluate litter change over time.

- 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.

METHODOLOGY

SCOPE

The 2022 NLA is a repeat of the audit completed in 2019. Data for the 2022 NLA was collected from April – November 2022. Data for the 2019 NLA was collected from February - July 2019. After being provided with appropriate training and materials two Field Researchers travelled throughout New Zealand collecting litter from 413 sites and auditing a total of 361,293 m2. More information on the skills, training and field equipment provided to these Field Researchers can be found in Appendix 3.

LOCATIONS AUDITED

Seven different location types were included in the audit to get an accurate picture of litter across the country.

Each Territorial Authority (excluding the Chatham Islands) had at least one of each of the following types of site types included in the audit:

- Car Park (approx. 30 m x 50 m)
- Industrial (approx. 150 m x variable)
- Public Recreational Space (approx. 50 m x 40 m)
- Residential (approx. 150 m x variable)
- Retail (approx. 150 m x variable)

In addition, at least 20 Highway and Railway sites were included nationally in the audit. Not all regions had Highway and Railway sites represented. The safety of the Field Researchers was paramount in this audit and detailed information on the safety procedures employed can be found in Appendix 3.

HOW SITES WERE SELECTED

Sites were selected by stratified random sampling to capture key characteristics of land-based litter across different environment types (locations audited). All but six of the sites audited in 2022 were the same as in 2019. Occasionally, a pre-selected site was rejected for

reasons such as security or safety concerns of the Field Researchers, the site no longer exists, or its function has changed (e.g. a previous residential site was now a commercial site). The full list of rejection criteria can be found in Appendix 3.

If a site was rejected (in 2022 this was six of the 413 sites), new sites were allocated.

DATA COLLECTION

When completing the site audit, Field Researchers used the GPS coordinates from the 2019 NLA and area requirements of the site type to establish the exact size and location of the site. Once at a site, a Litter Collection Form was filled out which recorded descriptors, such as the site ID (a unique identifier for each site), start and finish coordinates of the site, date, region/town, time, weather and the season. A full list of the fields of the Litter Collection Form can be found in Appendix 3.

Field Researchers also recorded a visual rating of the site to assess the relevant local environmental elements outlined below, both on the Litter Collection Form and with photographs, using a pre-established photo guide (see Appendix 3). Visual ratings were given for litter present, detritus, graffiti, pavement condition, road markings and bin condition (if applicable).

Starting from the back of the site and working towards the front, the Field Researchers collected any litter that was larger than 2.5 cm wide. Once this was done smaller areas (10 m wide) were sectioned off and litter items smaller than 2.5 cm were collected and kept separate from the larger litter items. Large, immovable items (e.g. abandoned cars or couches) were left at the site and recorded as Illegal Dumping. A more detailed version of the sampling procedure can be found in Appendix 3.

CLASSIFYING THE LITTER

Following collection, litter items were sorted by the Field Researchers. The items were grouped firstly by material type (i.e. Cigarettes/Vaping, Organic Waste, Glass, Metal, Miscellaneous items, Paper/Cardboard, Plastic, Illegal

Dumping) and then by the material subcategory (e.g. Bottle caps or Cigarette butts). For each material subcategory, the litter numbers and weights (reported as kg) were recorded, with the exception of Illegal Dumping where weights were not recorded. Where applicable the brand information of each piece of litter was also captured. An example of the Litter Collection Form that was used to collect this information can be found in Appendix 8, along with the different material types and discrete material subcategories.

On completion of the site audit, all litter was disposed of in an appropriate manner (e.g. recycled).

DATA ENTRY AND QUALITY ASSURANCE

The information from the Litter Collection Forms were manually entered into Keep New Zealand Beautiful's data collection software. As a quality assurance, 10% of the Litter Collection Forms were independently reviewed, with a human error rate of 0.17% for the 2022 NLA. More details on the quality assurance of this research can be found in Appendix 3.

Without prior notice, members of the Keep New Zealand Beautiful leadership team undertook six random spot check of the Field Researchers and audited their litter collection, sorting of litter items and material classification to ensure that all protocols were being adhered to and quality controls remained in place.

Estimated litter volumes for each material subcategory were added after the data had been entered into the data collection software, using Keep Australia Beautiful's volume conversion chart as a base and manually calculating an average of any new material subcategories added in 2022.

LIMITATIONS

The NLA 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 insights into the amount of litter that has accumulated over time, regarding the presence of litter within material types regionally and nationally.

If comparing these results to the Litter Intelligence beach audit data, it is important to note that the Litter Intelligence beach audit collection data excludes litter items/fragments that are smaller than 5.0 mm, whilst the data in Keep New Zealand Beautiful's NLA excludes items/fragments that are smaller than 2.5 mm.

For a more detailed version of this methodology, please see Appendix 3.

EXECUTIVE SUMMARY

OVERALL LITTER PICTURE

Overall, the litter problem in New Zealand has grown worse since 2019, with the total number of items, estimated volume and weight of litter all increasing in 2022 (see below).

Table 1: Overview of Changes in Items, Volume and Weight per 1,000 m^2 Since 2019

	2022	2019
Items per 1,000 m^2	144 items	118 items
Volume per 1,000 m^2	32.04 litres	7.35 litres
Weight per 1,000 m^2	1.16 kilogrammes	0.62 kilogrammes

ITEMS PER 1,000 M^2

NATIONAL RESULTS

For those sites measured nationally, there has been an increase in the number of litter items collected compared with 2019 results. This increase is consistent across most site types, with the exception of Car Parks and Public Recreational Spaces, which have a similar number of litter items compared with 2019.

REGIONAL RESULTS

As shown below, an increase in the number of items is consistent across most regions*, with the exception of the Auckland, Waikato and the West Coast regions which have all seen decreases in the number of litter items collected.

*For consistency, Highway and Railway sites are excluded from the overall regional analysis of litter items. However, an increase in the number of litter items in Highway and Railway sites is mostly consistent across the country, except for the Auckland and Southland regions, where both Highway and Railway sites have seen a decrease in the number of litter items, and in the Canterbury region which has seen a decrease in litter items found on Railway sites.

Figure 1: Items per 1,000 m^2, National Picture: Comparison Over Time

National

2022	2019
144 items	118 items

- Result has increased (is worse) from 2019
- Result has decreased (is better) from 2019
- Result is the same as 2019

Figure 2: Items per 1,000 m^2, 2022 vs. 2019: Regional Comparison (Excluding Railway and Highway Sites)

- Result has increased (is worse) from 2019
- Result has decreased (is better) from 2019
- Result is the same as 2019

WHERE WERE THESE LITTER ITEMS FOUND?

At a national level, Retail sites overtook Industrial sites in 2022 as having the most litter items collected, with Cigarette Butts/Vaping: Cigarette butts being the most prevalent material subcategory collected at these sites. Retail sites recorded the most litter items in five of the 14 regions around the country. Highway sites also featured highly, with half of the regions who had Highway sites audited (n=10), having Highways as the sites with the most pieces of litter.

VOLUME OF LITTER PER 1,000 M²

NATIONAL RESULTS

For those sites measured nationally, there has been an increase in the estimated volume of litter items collected, compared with 2019 results. This increase is consistent across all site types. The litter weight of Illegal Dumping was not recorded, and so is not included in the data analysis.

Figure 3: Volume per 1,000 m², National Picture: Comparison Over Time

National

2022	2019
32.04 litres	7.35 litres

■ Result has increased (is worse) from 2019

■ Result has decreased (is better) from 2019

■ Result is the same as 2019

REGIONAL RESULTS

As shown below, the increase in litter volume is consistent across all regions. Whilst these results exclude Highway and Railway sites, results for Highways and Railways have also increased in volume compared with 2019, consistent across all regions except for the Canterbury region where the volume of litter on Railway sites decreased.

Figure 4: Volume of litter per 1,000 m², 2022 vs. 2019: Regional Comparison (Excluding Railway and Highway Sites)

■ Result has increased (is worse) from 2019

■ Result has decreased (is better) from 2019

■ Result is the same as 2019

WHICH SITES HAD THE LARGEST VOLUMES OF LITTER?

Nationally, Highway sites recorded the highest volumes of litter, seeing an increase of over 200 ltr compared with 2019. For those regions with Highway sites audited (n=10), 70% had Highways as the top site type for amount of litter volume. This shows that whilst Highways may not have the highest numbers of litter items, people tend to dispose of larger items in these areas. For those regions without Highway sites, Railway, Industrial and Residential sites had the largest volumes of litter.

WEIGHT OF LITTER PER 1,000 M²

NATIONAL RESULTS

For those sites measured nationally, there has been an increase in the weight of litter items collected compared with 2019 results. This increase is consistent across all site types except for Public Recreational Spaces which have decreased slightly compared with 2019.

REGIONAL RESULTS

As shown below, an increase in litter weight is consistent across all regions except for the Auckland region, which has stayed the same as in 2019. Whilst Highway and Railway sites are not included in the regional analysis, both site types have also seen increases in litter weight in all the regions except for the Auckland region, where the average weight for these site types has decreased.

Figure 5: Weight per 1,000 m², National Picture: Comparison Over Time

National

2022	2019
1.16 kg	0.62 kg

- Result has increased (is worse) from 2019
- Result has decreased (is better) from 2019
- Result is the same as 2019

Figure 6: Weight per 1,000 m², 2022 vs. 2019: Regional Comparison (Excluding Highway and Railway Sites)

- Result has increased (is worse) from 2019
- Result has decreased (is better) from 2019
- Result is the same as 2019

WHICH SITES HAD THE LARGEST LITTER WEIGHTS?

Nationally, Railway sites had the largest litter weights, a result consistent with 2019. This suggests that whilst litter is not being disposed of as frequently or to the same degree as at other sites, the litter that is disposed of at Railway sites is typically heavier. For those regions with Railway sites (n=11), eight recorded Railway sites as having the top litter weights. For those regions that did not have Railway sites audited (Chatham Islands, Otago and Northland regions), top weights were recorded at Retail, Industrial and Residential sites.

MAIN MATERIAL TYPE

Plastic was the most prevalent material type collected at nationally measured sites, with almost double the number of litter items than in 2019 (50 items vs. 29 items per 1,000 m² in 2019). This is consistent for litter weight as well, with the weight of Plastic collected more than doubling since 2019

(0.28 kg vs. 0.11 kg per 1,000 m² in 2019). Whilst Plastic also had a large increase in estimated volume, Paper/Cardboard had the largest volume of litter, with an increase of more than ten ltr per 1,000 m² compared with 2019 (12.25 ltrs per vs. 1.66 ltrs 1,000 m² in 2019).

MAIN MATERIAL TYPE BY ITEMS AND WEIGHT PER 1,000 M²

Plastic was the most prevalent material type by number of items and weight consistently across most regions.

Regional exceptions to this include:

- In the Canterbury, Gisborne and Hawke's Bay, Otago, Taranaki, Waikato and West Coast regions, where litter classified under Miscellaneous was the heaviest.
- In the Manawatū-Whanganui and Wellington regions, litter under Cigarette Butts/Vaping had the greatest number of items and Miscellaneous was the heaviest.
- In the Northland region litter classified under Cigarette Butts/Vaping was the most prevalent (collected mostly at Retail sites).
- In the Southland region, litter classified under Glass was the heaviest.
- In the Tasman, Nelson and Marlborough regions, litter classified under Paper/Cardboard was the heaviest.

Similar to the average of nationally audited sites, Plastic was the most prevalent material type collected at Highway and Railway sites in terms of litter items and weight.

Regions that were an exception to this include:

- The Bay of Plenty, Canterbury, Manawatū-Whanganui and West Coast region's Railway sites, where Glass was the heaviest.
- For Chatham Islands and Tasman, Nelson and Marlborough region's Highway sites, Glass was the heaviest.
- In the Gisborne and Hawke's Bay region's Highway and Railway sites, Metal was the heaviest.
- In the Manawatū-Whanganui region's Highway sites, Plastic was the heaviest.
- Likewise, at the Southland region's Highway site, Metal was the heaviest.
- In the Taranaki region, Metal was the heaviest material type on Railway sites.
- In the Waikato region, Miscellaneous items had the heaviest weights on Highway and Railway sites, Cigarette Butts/Vaping had the most litter items.
- Miscellaneous items had the heaviest litter weights at the Wellington region's Highway site and Glass had the most litter items and heaviest litter weights at the region's Railway site.

MAIN MATERIAL TYPE BY VOLUME PER 1,000 M²

Paper/Cardboard was the most prevalent material type by litter volume consistently across most regions.

Regional exceptions to this include:

- In the Canterbury, Gisborne and Hawke's Bay, Otago and Taranaki regions, Plastic had the largest litter volume.
- In the Chatham Islands region, Illegal Dumping was the most prevalent material type by litter volume (this was mostly collected at Residential sites).

Paper/Cardboard was the most prevalent material type in terms of litter volume across nationally measured Highway and Railway sites.

Regions that were an exception to this include:

- The Bay of Plenty region, where Miscellaneous items were the most prevalent in litter volume for Highway sites. At the Bay of Plenty Railway site, Organic Waste had the biggest litter volume.
- At the Canterbury region's Railway site, Glass had the largest volume.
- For the Chatham Islands region's Highway site, Organic Waste had the largest volume.
- In the Southland region, Miscellaneous litter had the largest volume at the region's Highway site, and Plastic had the largest volume at the Railway site.
- In the Taranaki and Wellington region's Railway sites, Illegal Dumping had the largest volumes of litter.
- In the Waikato region, Illegal Dumping had the largest volumes on Highway and Railways sites.
- In the West Coast region, Plastic had the largest volumes on Railway sites.

DIRTY DOZEN

DIRTY DOZEN: ITEMS PER 1,000 M²

Not all material subcategories were comparable to the 2019 NLA due to the addition of new subcategories in 2022. When ranking the top 12 material subcategories from nationally measured sites, Cigarette Butts/Vaping: Cigarette butts came out on top, consistent with 2019. However, the number of Cigarette butts collected has decreased since 2019 (34 items vs. 39 items per 1,000 m² in 2019).

This was consistent across all regions in New Zealand, with the exception of Highway and Railway sites.

When looking specifically at Highway and Railway sites, Plastic: Unidentifiable hard plastic fragments were the most common litter item collected nationally on Highways, whilst Glass: Unidentifiable glass fragments were the most common litter items nationally at Railway sites. Both were new material subcategories in 2022.

This was consistent across most Highway and Railway sites nationally, with the exception of:

- In the Bay of Plenty region the most prevalent material subcategory collected on Highways was Glass: Unidentifiable glass fragments.

- In the Canterbury region, the most prevalent material subcategory collected on Highways was Plastic: Snack bags & confectionary wrappers and at the region's Railway sites, this was Plastic: Unidentifiable soft plastic fragments.

- In the Gisborne and Hawke's Bay regions, Plastic: Unidentifiable soft plastic fragments were most common on Highway sites and Plastic: Unidentifiable hard plastic fragments the most prevalent at the region's Railway site.

- In the Manawatū-Whanganui and Tasman, Nelson, and Marlborough regions, Plastic: Unidentifiable soft plastic fragments were the most common on Railway sites.

- In the Southland region, the most prevalent litter item at the region's Highway site was Glass: Unidentifiable glass fragments and at the Highway Plastic: Unidentifiable soft plastic fragments.

- In the Taranaki region, the most prevalent litter item at the region's Highway site was Plastic: Snack bags & confectionary wrappers and on Railways sites Plastic: Unidentifiable hard plastic fragments.

- In the Wellington region, Cigarette Butts/Vaping: Cigarette butts were the most common item collected on Highway sites.

- In the West Coast region, Cigarette Butts/Vaping: Cigarette butts were the most common item collected on Railway sites.

DIRTY DOZEN: VOLUME PER 1,000 M²

When ranking the top 12 material subcategories from nationally measured sites by average estimated volume, Paper/Cardboard: Cardboard boxes (a new subcategory in 2022) came out on top.

This was consistent across most regions (excluding Highway and Railway sites), except for the following:

- In the Bay of Plenty region, Plastic: Reusable bags had the largest volume.

- In the Canterbury, Otago and Taranaki regions, Plastic: Polystyrene insulation had the largest volume.

- In the Chatham Islands region, Illegal dumping had the largest volume.

- In the Gisborne and Hawke's Bay regions, Organic Waste: Compostable packaging had the largest volume.

Similar to nationally measured sites, Paper/Cardboard: Cardboard boxes were the most common with respect to litter volume on Highway sites.

Differences in Highway sites by region included:

- In the Bay of Plenty and Southland region's Highway sites, Miscellaneous: Tyre pieces had the largest volume.

- At the Chatham Islands region's Highways site, Organic Waste: Compostable packaging had the largest volume.

- At the Manawatū-Whanganui region's Highway site, Plastic: Polystyrene insulation had the largest volume.

Railway sites, however, differed to the national and Highway site datasets, with Illegal Dumping having the most prevalent volume nationally.

Differences in Railway sites by region included:

- At the Bay of Plenty region's Railway site, Organic Waste: Compostable packaging had the largest volume.

- At the Canterbury region's Railway sites, Glass: Alcoholic sodas/ spirit-based mixers, all sizes had the largest volumes.

- In the Gisborne and Hawke's Bay and Manawatū-Whanganui, and Tasman, Nelson, and Marlborough region's Railway sites, Paper/Cardboard: Cardboard boxes had the largest volume.

- At the Southland region's Railway site, Plastic: Polystyrene insulation had the largest volume.

- In the West Coast Railways sites, Plastic containers (domestic) had the largest volumes.

DIRTY DOZEN: WEIGHT PER 1,000 M²

When ranked by weight, Glass: Beer bottles < 750 ml, all colours was the heaviest litter item nationally, consistent with 2019.

This was consistent across most regions, with the exception of the following:

- In the Auckland and Chatham Islands regions, Paper/Cardboard: Cardboard boxes had the heaviest weight.
- In the Canterbury region, Miscellaneous: Tyres (whole) had the heaviest weight.
- In the Gisborne and Hawke's Bay regions, Miscellaneous: Cloth (other) had the heaviest weight.
- In the Manawatū-Whanganui and Taranaki regions, litter that fell under Miscellaneous: Miscellaneous (other) was the heaviest.
- In the Northland region, Plastic: Plastic bottle tops had the heaviest weights.
- In the Otago, Waikato, Wellington and West Coast regions, Miscellaneous: Clothing, towels & linen had the heaviest weights.

Similar to nationally measured sites, Glass: Beer bottles < 750 ml, all colours was the most common in terms of weight for Highway sites in 2022.

Differences in Highway sites by region included:

- In the Gisborne and Hawke's Bay regions, Metal: Metal pieces/fragments had the heaviest weights.
- At the Manawatū-Whanganui region's Highway site, Plastic: Unidentifiable hard plastic fragments had the heaviest weights.

- At the Southland region,'s Highway site, Miscellaneous: Clothing, towels & linen had the heaviest weights.
- At the Taranaki region's Highway site, Miscellaneous: Tyre pieces had the heaviest weights.
- At the Wellington region's Highway site, Miscellaneous: Cloth (other) had the heaviest weights.

The heaviest litter type nationally at Railway sites was Metal: Construction materials.

Differences in Railway sites by region included:

- At the Bay of Plenty region's Railway site, Glass: Beer bottles < 750 ml, all colours had the heaviest weights.
- At the Canterbury region's Railway site, Glass: Alcoholic sodas/spirit based mixers, all sizes had the heaviest weights.
- In the Manawatū-Whanganui region's Railway sites, Plastic : Unidentifiable hard plastic fragments had the heaviest weights.
- In the Taranaki region,'s Highway sites Metal: Metal pieces/fragments had the heaviest weights.
- In Tasman, Nelson and Marlborough regions, Glass: Beer bottles < 750 ml (all colours) had the heaviest weights.
- In the Waikato region's Railway sites, Miscellaneous: Rubber pieces 's (not tyres) had the heaviest weights.
- At the Wellington region's Railway site, Glass: Unidentifiable glass fragments had the heaviest weights.
- At the West Coast region's Railway site, Glass: Beer bottles, < 750 ml, all colours had the heaviest weights.

BRANDED LITTER

In 2022, the top industry category of branded litter collected was Snack Wrappers and Packets, which surpassed 2019's top industry of Alcoholic Beverage Containers and Packaging. McDonald's rose to be the most prevalent brand collected in 2022, compared with Speights in 2019 (which has dropped to 5th most prevalent).

The table below displays a summary of the top main brands and brand owners for each industry category. As shown, many of the top main brands and brand owners remain the same as 2019, except for Alcoholic Beverage Containers and Packaging, and Retail Brands and Packaging.

Table 2: Summary of The Top Main Brands and Brand Owners by Industry Category

		Alcoholic Beverage Containers and Packaging	Snack Wrappers and Packets	Non-Alcoholic Beverage Containers and Packaging	Takeaway food, drink containers and Packaging	Milk Beverage Container and Packaging	Other	Retail Brands and Packaging	Tobacco	Vaping
Top Main Brands	2022	Long White	Cadbury	Coca-Cola	McDonald's	Sanitarium Up & Go	Master Foods	Countdown	Chesterfield	Alt.
	2019	Speights	Cadbury	Coca-Cola	McDonald's	Sanitarium Up & Go	n/a	Pams	n/a	n/a
Top Brand Owners	2022	Asahi	Cadbury	Coca-Cola Amatil	McDonald's	Frucor Suntory	Master Foods	Foodstuffs	Altria	Alt.
	2019	Lion	Cadbury	Coca-Cola Amatil	McDonald's	Frucor Suntory	n/a	Foodstuffs	n/a	n/a

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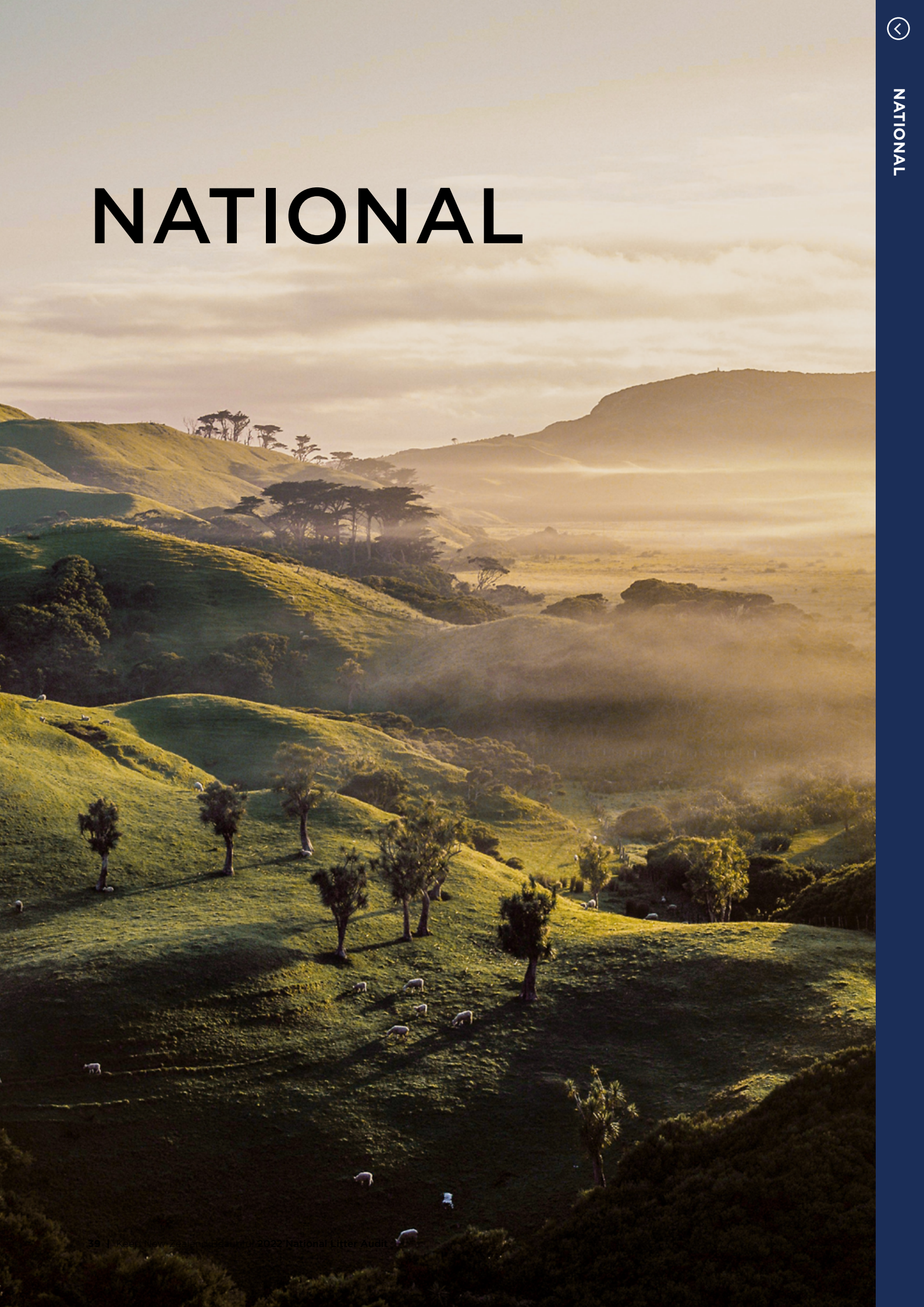
NATIONAL

AT A GLANCE

The overall average number of litter items per 1,000 m² across the 413 sites audited in the 2022 NLA was 144 (an increase from 118 in 2019), the overall average estimated volume of litter per 1,000 m² was 32.04 ltr (an increase from 7.35 ltr in 2019) and the overall average litter weight per 1,000 m² was 1.16 kg (an increase from 0.62 kg in 2019).

Retail sites were the most littered sites recorded nationally, however they only had moderate volumes and weights per 1,000 m². Highway and Industrial sites also recorded large numbers of litter items per 1,000 m² (between the two site types, they made up 45% of all litter items) and had moderate to high volumes (combined they made up 61% of litter volume) and weights (combined they made up 47% of litter weight).

Compared with 2019, there were increases in the average number of litter items and weight, but the largest increase was seen in litter volume (32.04 ltr vs. 7.35 ltr per 1,000 m² in 2019). Highway and Railway sites consistently saw the biggest increases across all three measures.

Plastic was the most frequently identified material type per 1,000 m² nationally (50 items), and contributed to high litter weights and volumes. Similar to 2019, Cigarette Butts/Vaping still had high litter numbers per 1,000 m² but they contributed the smallest volumes and weights to the litter stream. Paper/Cardboard were associated with the largest litter volumes per 1,000 m².

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

Plastic was the most common material type collected at most site types, apart from Retail sites, where Cigarette Butts/Vaping had the highest prevalence per 1,000 m² (155 items).

Within the material subcategories, Cigarette Butts/ Vaping: Cigarette butts were the most common litter item collected nationally, however the number of butts collected per 1,000 m² has declined from 2019 (34 items vs. 39 items in 2019).

Paper/Cardboard: Cardboard boxes were found to have the largest litter volume per 1,000 m² (9.32 ltr). Since 2019, the volume of Illegal Dumping has increased (4.45 ltr vs. 1.31 ltr per 1,000 m² in 2019). Glass: Beer bottles < 750 ml, all colours remains the heaviest litter item per 1,000 m² (0.09 kg vs. 0.12 kg in 2019).

Note:

- *New material subcategories were added in 2022 and so not all material subcategories are comparable between 2019 and 2022.*

- *A weight measure was not recorded for any items of Illegal Dumping identified during the audit, and therefore has not been include in the analysis.*

- *Not all regions were audited for Railway and/or Highway sites, and so these site types have been separated out and specifics for each region given at the end of the relevant chapter. The Chatham Islands were audited for Highway sites, only. Manawatu and Whanganui regions, and the Northland region were not audited for any Highway or Railway sites. Tasman, Nelson and Marlborough regions and the West Coast region were audited for Railway sites only.*

Figure 7: National 2022, % of Items per 1,000 m² by Site Type

Legend:
- Car Park
- Highway
- Industrial
- Public Recreational Space
- Railway
- Residential
- Retail
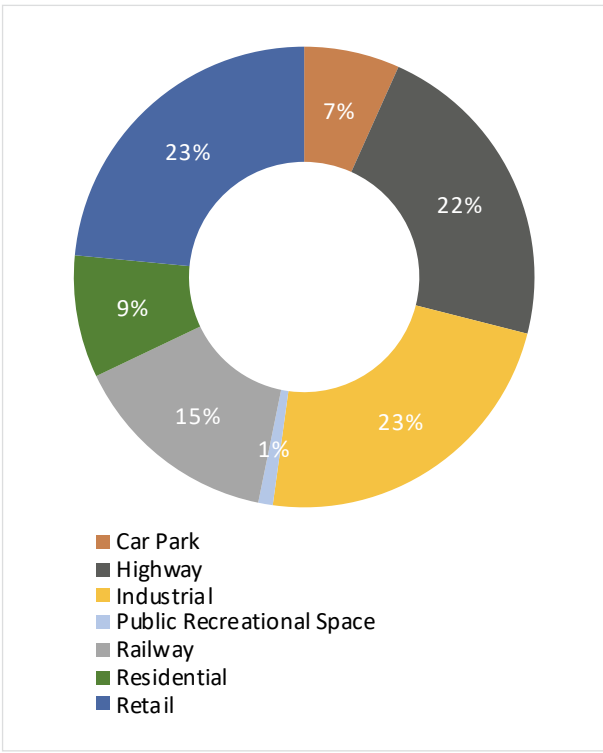
Figure 8: National 2022, % of Volume per 1,000 m² by Site Type
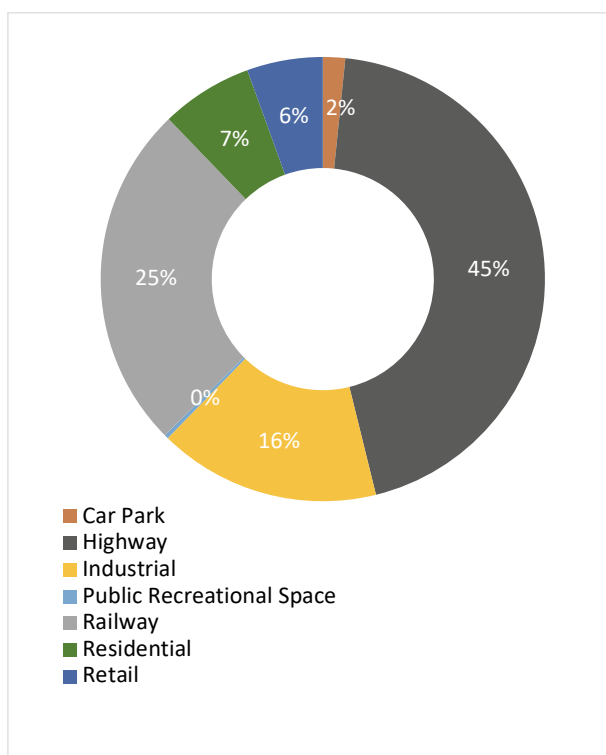
Figure 9: National 2022, % of Weight per 1,000 m² by Site Type
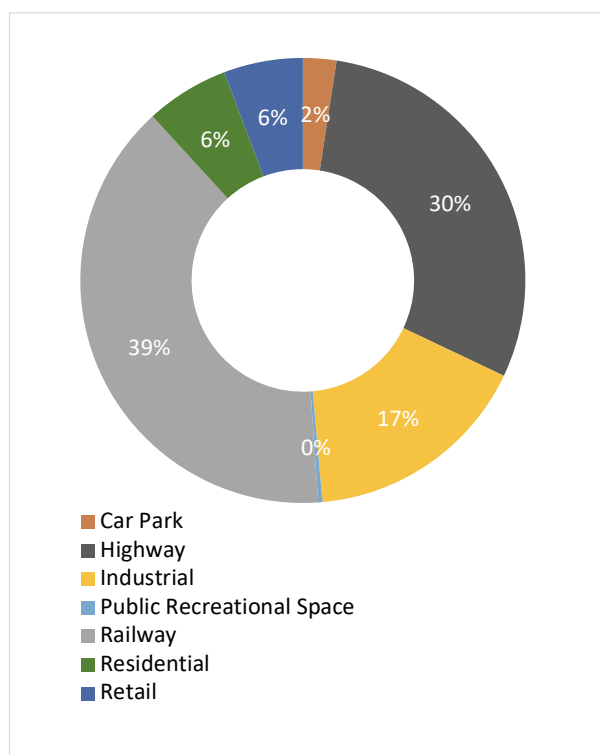
COMPARISONS BY SITE TYPES

The highest numbers of litter items per 1,000 m² were collected at Retail (385 items), Industrial (381 items) and Highway (365 items) sites. Moderate to high levels of litter items were recorded at Railway sites (241 items) whilst more moderate numbers of litter items were recorded at Residential (141 items) and Car Park (110 items) sites. Public Recreational Spaces were associated with the lowest levels of litter items per 1,000 m² (17 items).

The highest estimated volumes of litter items per 1,000 m² were collected at Highway (254.00 ltr) and Railway (143.75 ltr) sites. Moderate to high volumes of litter per 1,000 m² were also observed at Industrial sites (92.08 ltr), whilst more moderate volumes were recorded at Residential (38.10 ltr) and Retail (31.49 ltr) sites. Smaller volumes of litter per 1,000 m² were collected at Car Park sites (9.26 ltr) and Public Recreational Spaces (1.72 ltr).

Nationally, the highest litter weights per 1,000 m² were recorded at Railway (7.85 kg), Highway (5.91 kg) and Industrial (3.30 kg sites). Moderate litter weights were associated with Residential (1.21 kg) and Retail (1.15 kg) sites, whilst low to moderate weights were recorded at Car Park sites (0.49 kg). The lowest weights per 1,000 m² were associated with Public Recreational Spaces (0.06 kg).

Figure 10: National 2022, Items and Volume per 1,000 m² by Site Type
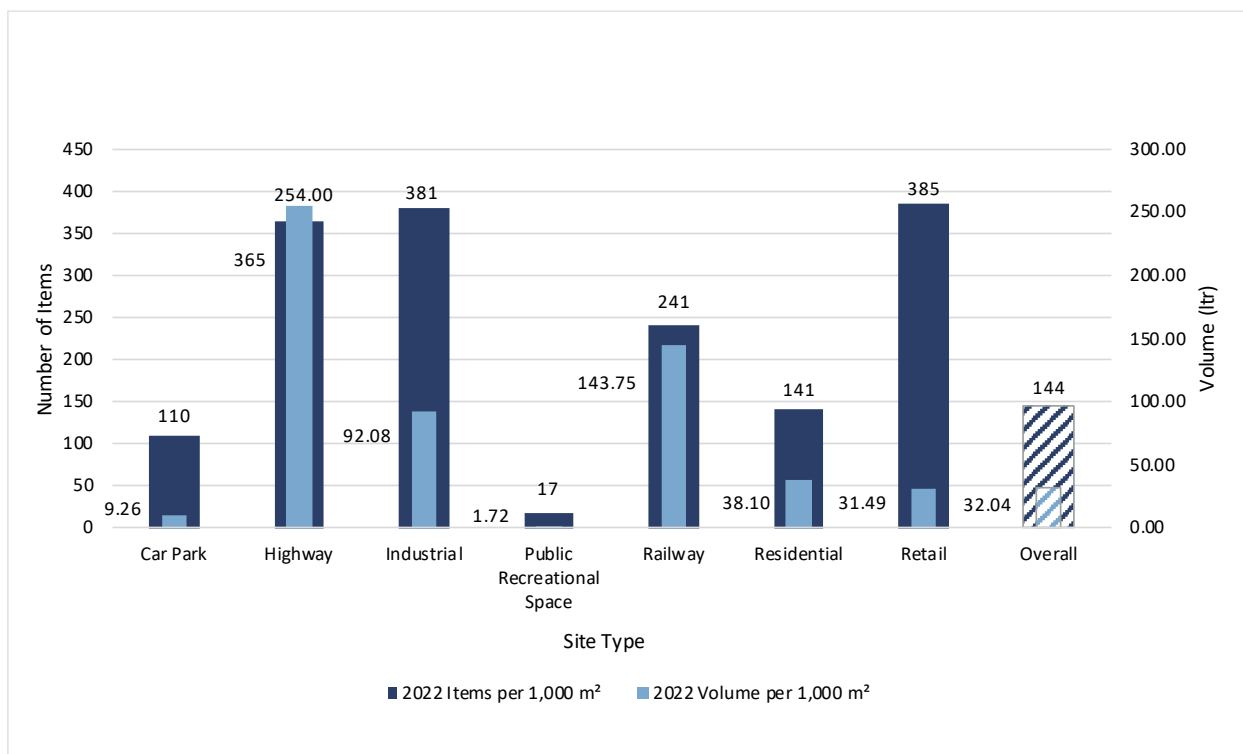
Figure 11: National 2022, Items and Weight per 1,000 m² by Site Type
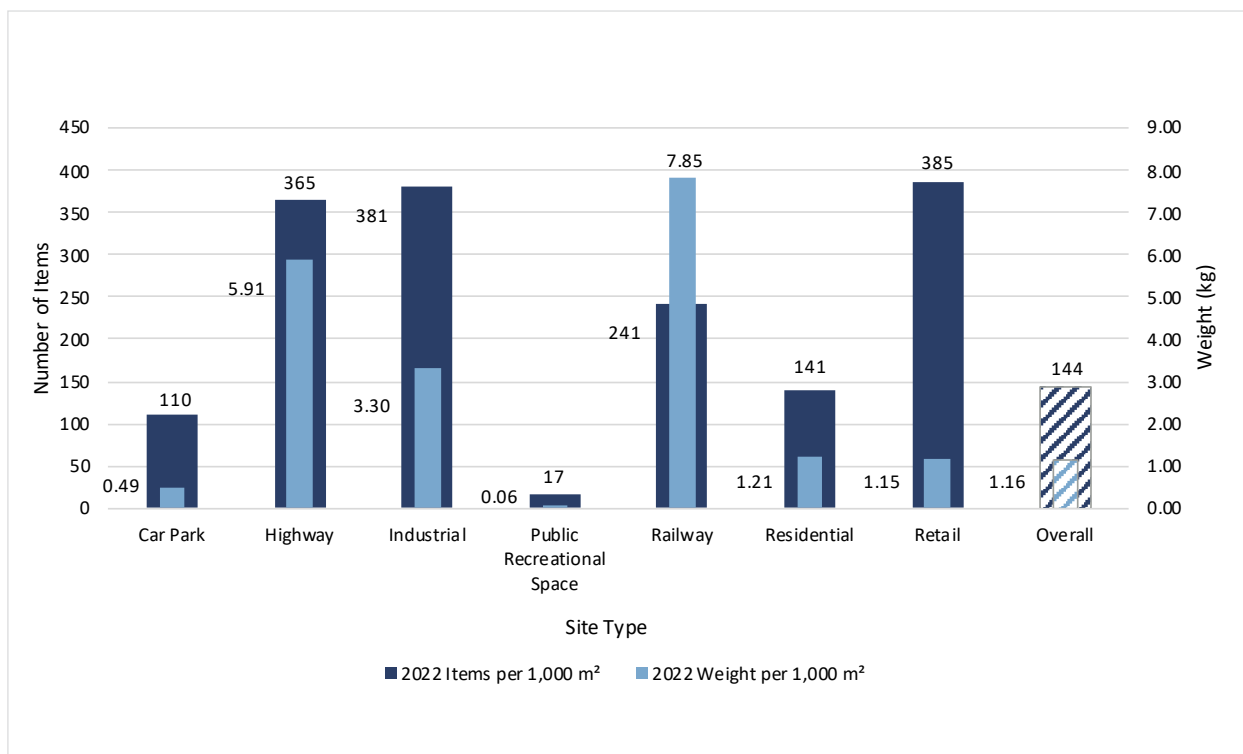
SITE CHARACTERISTICS

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

- Highway sites contributed high numbers of litter items and very large volumes of litter per 1,000 m².

- Industrial sites were associated with a high numbers of litter items and moderate to large litter volumes.

- Railway sites contributed moderate to high numbers of litter items and high volumes of litter.

- Retail sites contributed high numbers of litter items and moderate litter volumes.

- Residential sites contributed moderate numbers of litter items and litter volumes.

- Car Park sites contributed a moderate numbers of litter items and small to moderate litter volumes.

- Public Recreational Spaces were associated with a low number of litter items and small litter volumes.

Figure 12: National 2022, Items and Volume per 1,000 m² by Site Type
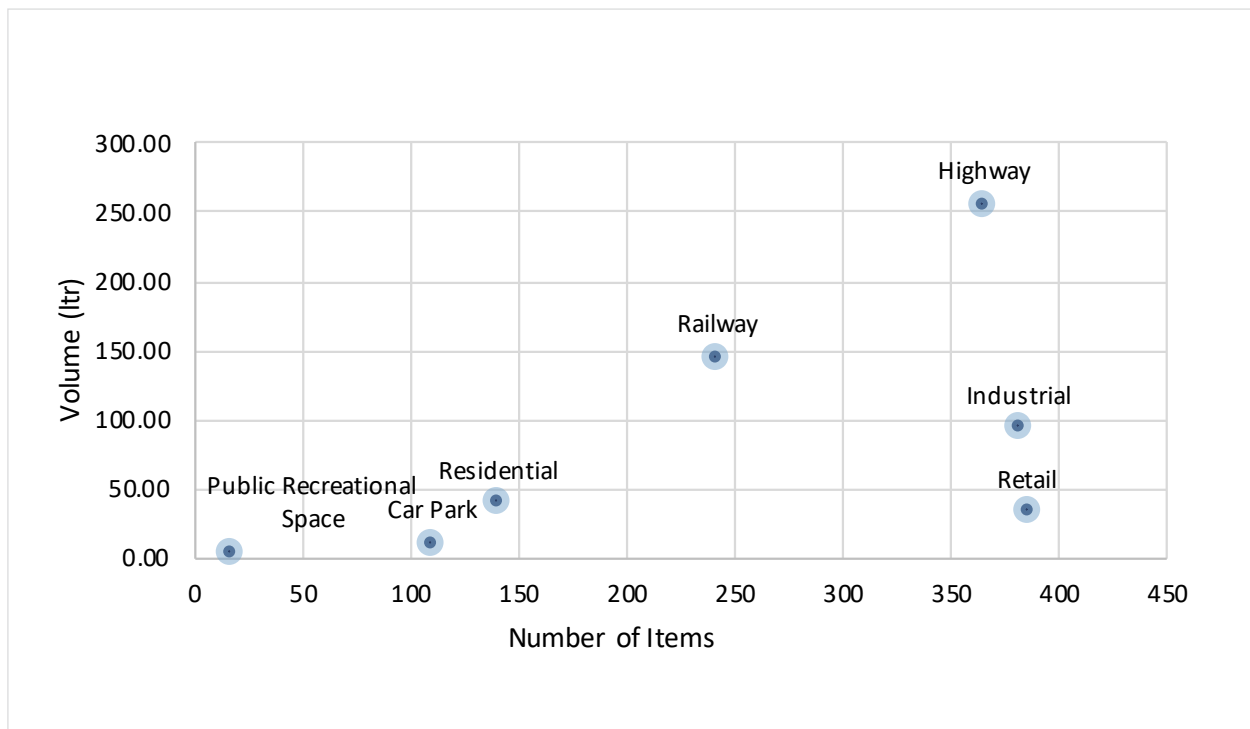
The following site characteristics across all site types were identified nationally for items and weights per 1,000 m²:

- Railway sites contributed moderate to high numbers of litter items, but were associated with the largest litter weights.

- Highway sites were associated with high numbers of litter items and large litter weights.

- Industrial sites contributed high numbers of litter items and moderate to high litter weights.

- Retail sites were associated with high numbers of litter items, but contributed moderate litter weights.

- Residential site contributed moderate numbes of litter items and litter weights.

- Car Park sites contributed moderate numbers of litter items and small to moderate litter weights.

- Public Recreational Spaces were associated with low numbers of litter items and small litter weights.

Figure 13: National 2022, Items and Weight per 1,000 m² by Site Type
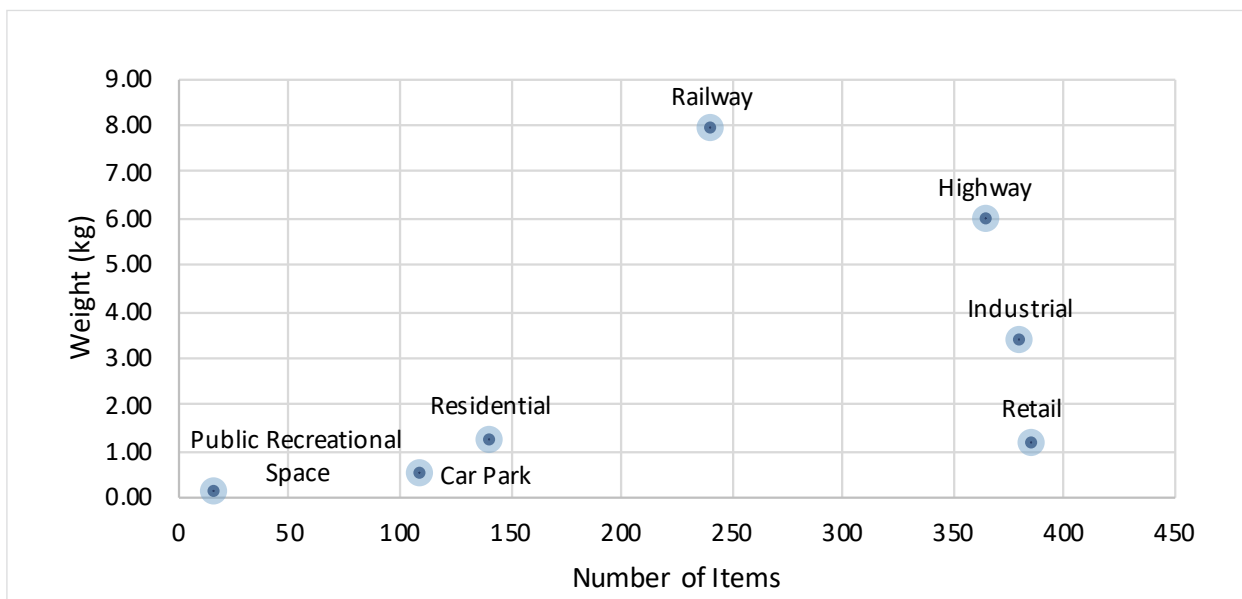
COMPARISON BY SITE TYPE OVER TIME

Since 2019, there have been increases in litter numbers, estimated volume, and litter weight per 1,000 m² nationally. Highway, Railway, and Industrial sites have typically seen the largest increases since 2019 in all three measures. Car Parks and Public Recreational Spaces have similar numbers of litter items, weights and volumes compared with 2019.

ITEMS PER 1,000 M²

There has been a small increase in the average number of litter items collected per 1,000 m² nationally. As shown in the graph below, all site types have seen increases in the number of litter items, except for Car Park sites and Public Recreational Spaces, which have remained on par with 2019.

Figure 14: National, Items per 1,000 m² by Site Type: Comparison Over Time
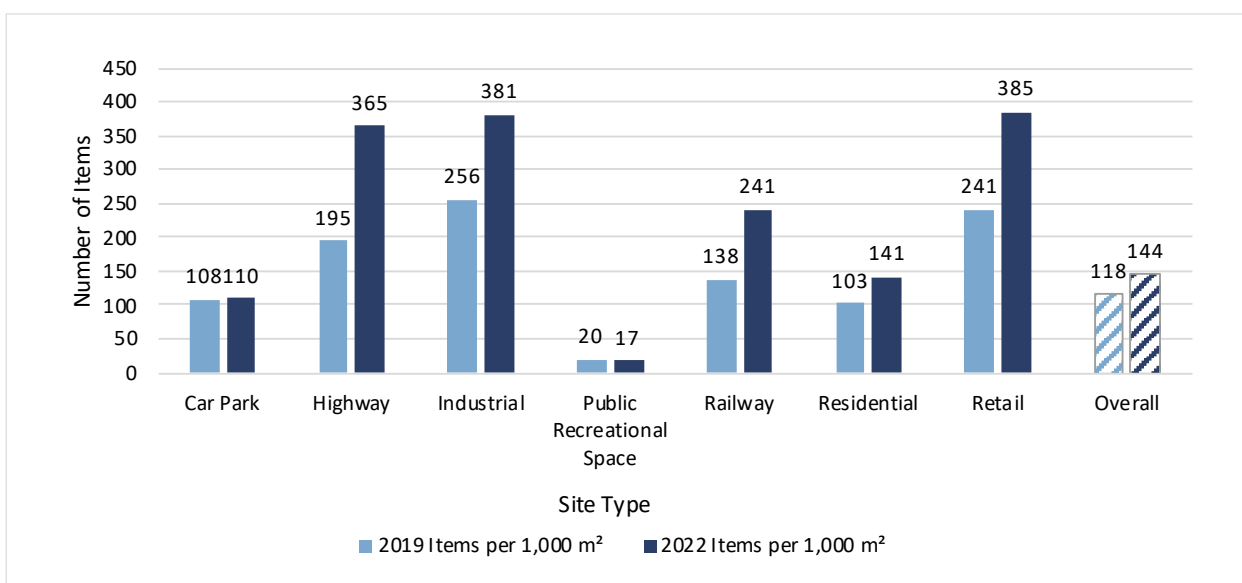
VOLUME PER 1,000 M²

Overall, there has been an increase of 24.69 ltr* in the volume of litter per 1,000 m² nationally (32.04 ltr vs. 7.35 ltr in 2019).

As shown in the graph below, this increase in volume is consistent across most site types, with the biggest increases per 1,000 m² being seen in Highway (254.00 ltr vs. 43.67 ltr in 2019), Railway (143.75 ltr vs. 25.21 ltr in 2019), and Industrial (92.08 ltr vs. 13.66 ltr in 2019) sites. Public Recreational Spaces are the only site type that has remained relatively consistent with 2019 volumes of litter.

Note: whilst the increase in litter volume nationally can be considered large, the comparison with 2019 should be interpreted with caution as there may be several factors contributing to this increase, such as new material subcategories included this year which subsequently had different volume measures.

Figure 15: National, Volume per 1,000 m² by Site Type: Comparison Over Time
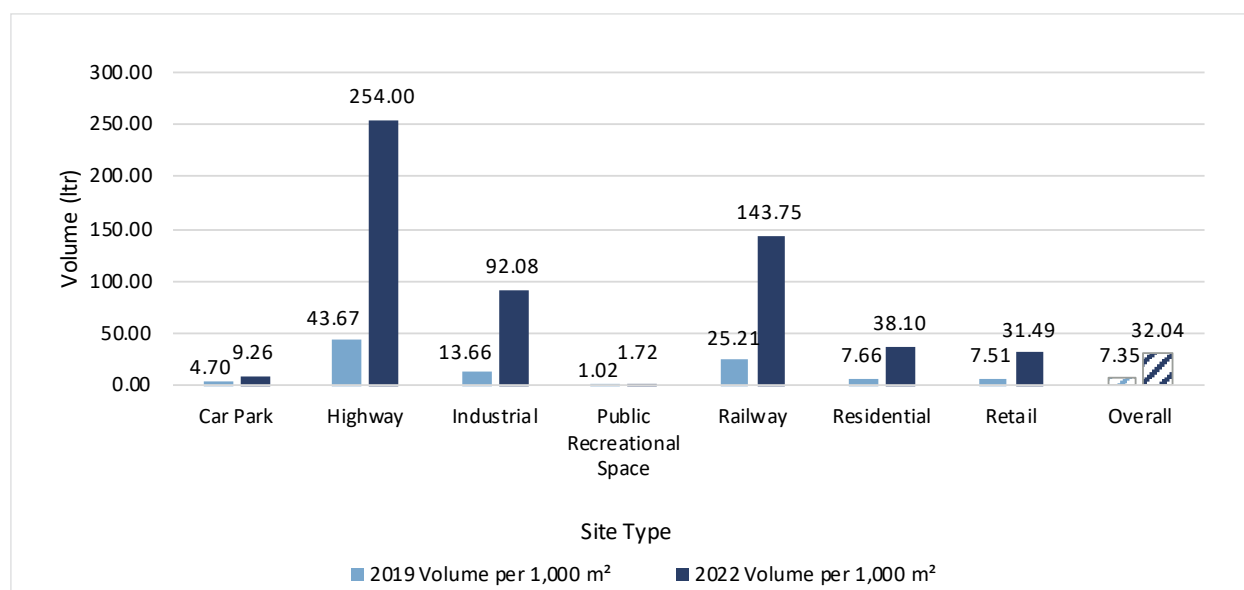
WEIGHT PER 1,000 M²

Overall, the national weight of litter per 1,000 m² has increased from 2019 (1.16 kg vs. 0.62 kg in 2019). As with the results for litter items and volume, increases in litter weight are consistent across all site types except for Car Park sites and Public Recreational Spaces, which show similar litter weights to 2019.

Figure 16: National, Weight per 1,000 m² by Site Type: Comparison Over Time
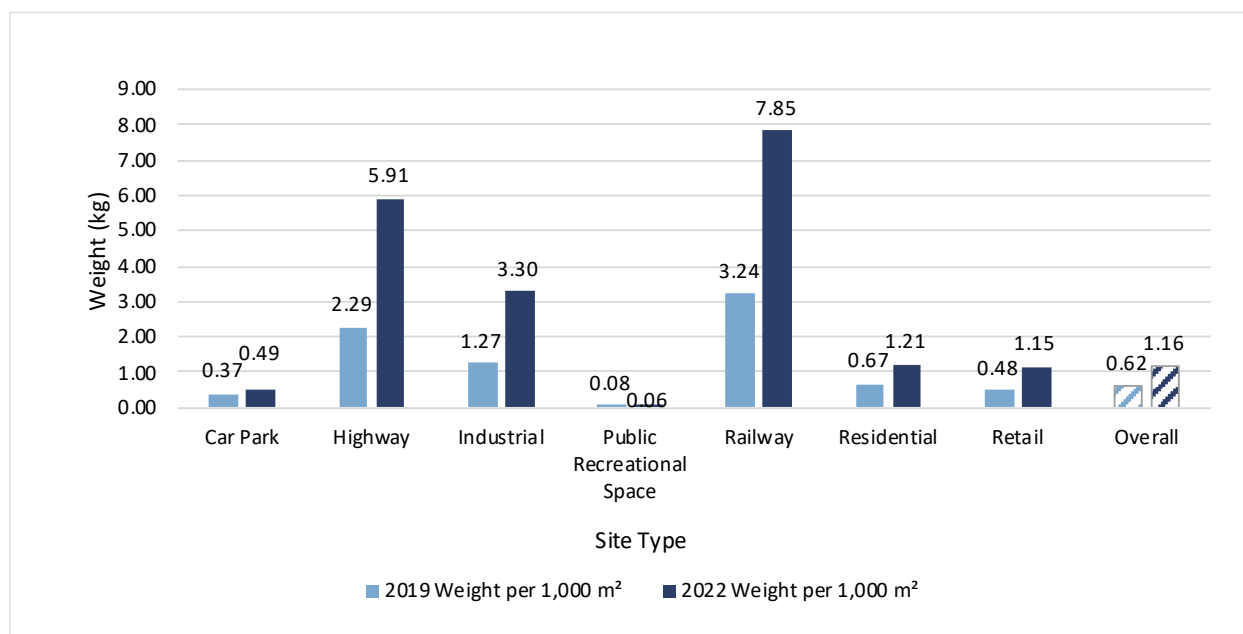
COMPARISON BY MAIN MATERIAL TYPES

Plastic was the most prevalent main material type nationally in 2022 with 50 litter items collected per 1,000 m². Plastic also contributed to high litter volumes (7.93 ltr) and weights (0.28 kg) per 1,000 m².

Cigarette Butts/Vaping also had high numbers of litter items per 1,000 m². Although a commonly collected litter item, Cigarette Butts/Vaping were associated with the lowest litter volumes per 1,000 m² (0.04 ltr).

Metal (20 items), Miscellaneous (14 items), and Paper/Cardboard (14 items) contributed moderate numbers of litter per 1,000 m² to the litter stream. Smaller numbers of litter items per 1,000 m² for Glass (10 items), Organic Waste (2 items) and Illegal Dumping (less than 1 item) were collected.

Paper/Cardboard litter items were associated with the largest proportion of estimated litter volume per 1,000 m², contributing 12.19 ltr. Plastic (7.93 ltr). contributed moderate to high volumes, whilst Illegal Dumping (4.45 ltr) and Miscellaneous items (3.57 ltr) contributed moderate volumes per 1,000 m² to the litter stream.

Smaller litter volumes were recorded for Organic Waste (1.83 ltr), Metal (1.36 ltr), and Glass (0.66 ltr).

The largest litter weights per 1,000 m² recorded nationally were associated with Plastic (0.28 kg) and Miscellaneous items (0.26 kg). Metal (0.22 kg) and Glass (0.21 kg) also contributed relatively high weights nationally. Moderate litter weights were associated with Paper/Cardboard (0.14 kg). Organic Waste (0.03 kg) and Cigarette Butts/Vaping (0.02 kg) contributed the smallest litter weights to the overall litter stream.

Figure 17: National 2022, Items and Volume per 1,000 m² by Main Material Type
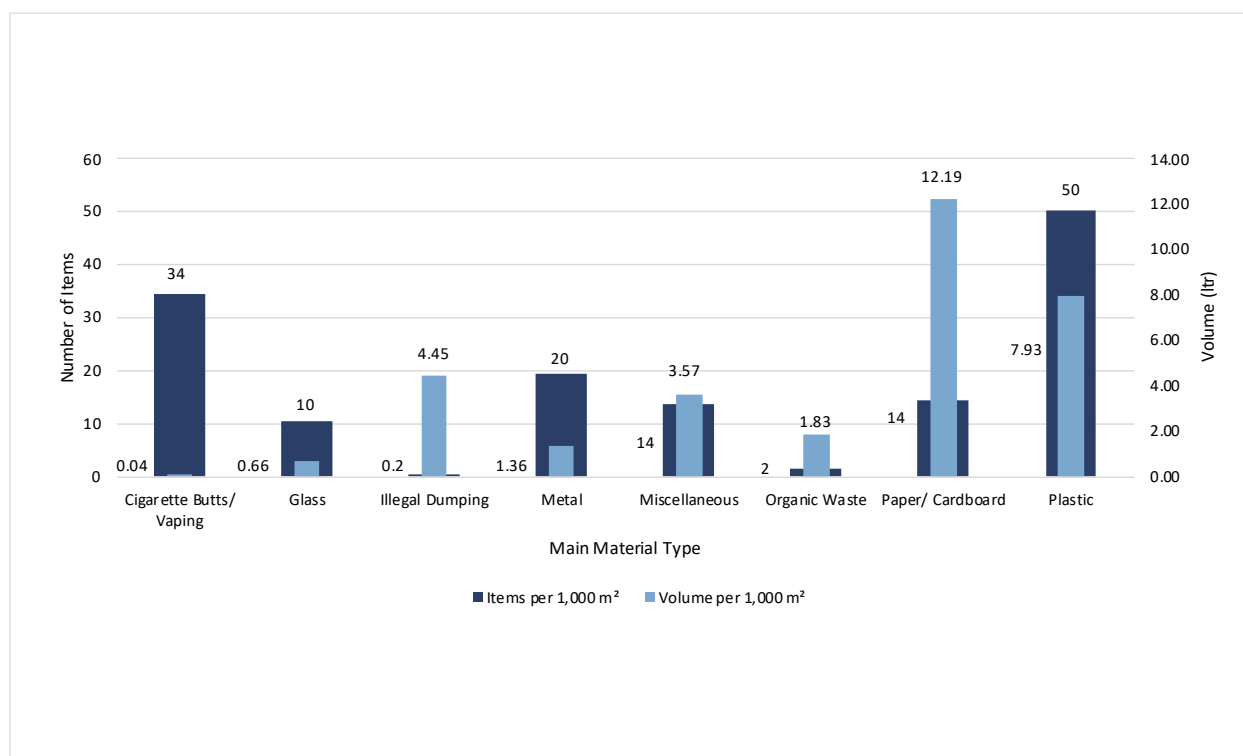
Figure 18: National 2022, Items and Weight per 1,000 m² by Main Material Type
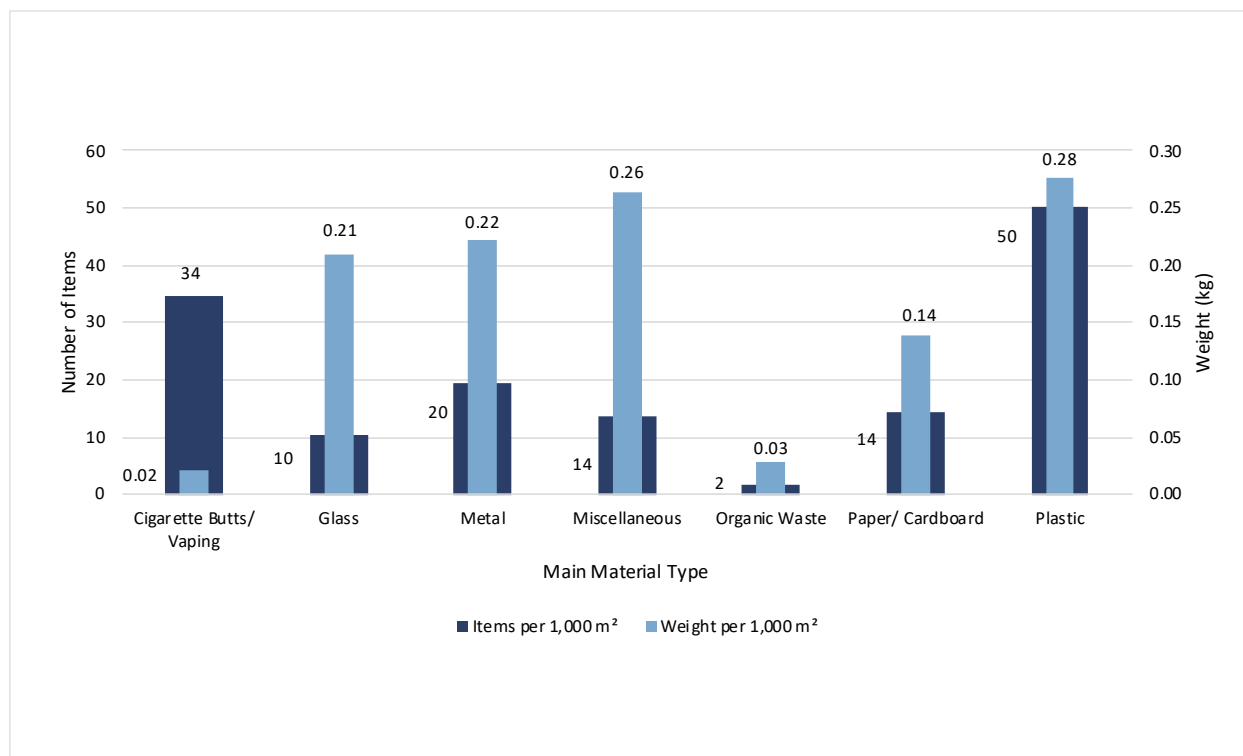
MAIN MATERIAL CHARACTERISTICS

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

- Cigarette Butts/Vaping contributed high numbers of litter items but low litter volumes.

- Plastic contributed high numbers of litter items and moderate to high litter volumes.

- Paper/Cardboard contributed moderate numbers of litter items and large litter volumes.

- Miscellaneous items were associated with moderate numbers of litter items and litter volumes.

- Illegal Dumping contributed low numbers of litter items, but moderate litter volumes.

- Metal was associated with moderate numbers of litter items and small litter volumes.

- Glass contributed moderate numbers of litter items and small litter volumes.

- Organic Waste was associated with low numbers of litter items and small litter volumes.

Figure 19: National 2022, Items and Volume per 1,000 m² by Main Material Type
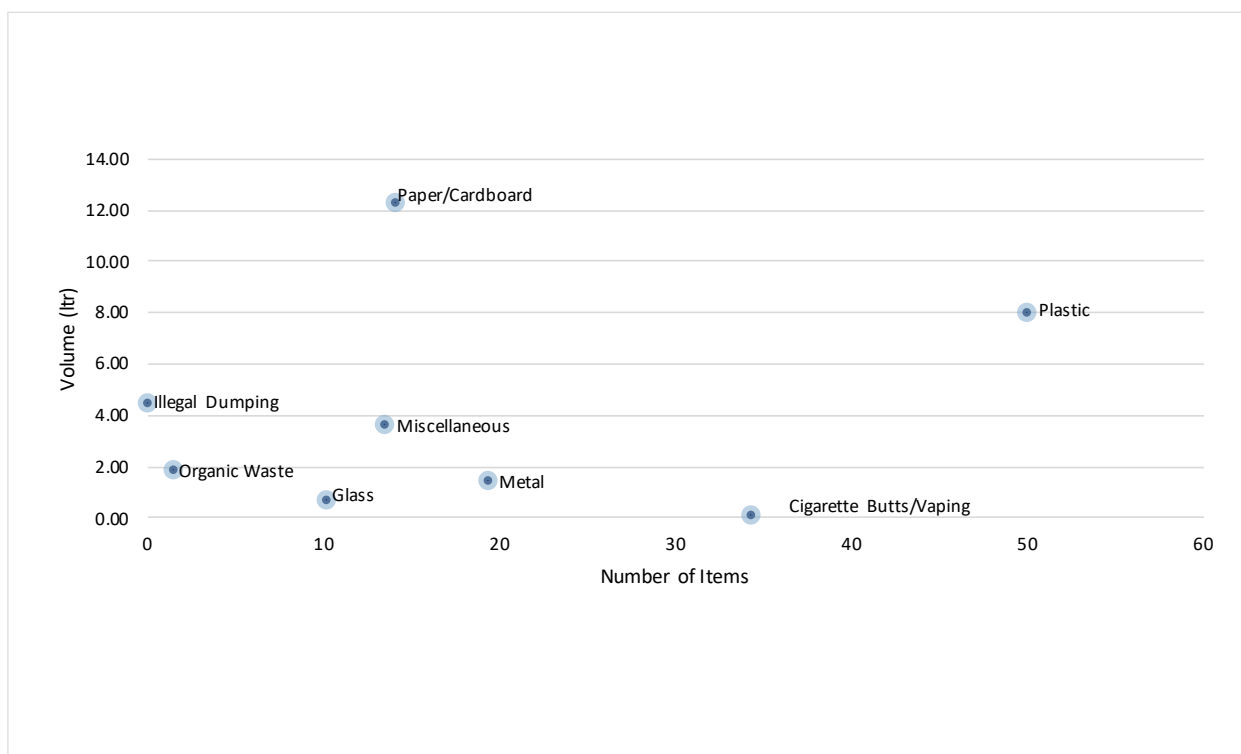
The following characteristics were identified for litter items and weights per 1,000 m² nationally across the material types:

- Plastic items were associated with high numbers of litter items and high litter weights.
- Metal and Miscellaneous items contributed moderate numbers of litter items and high litter weights.
- Glass items were associated with low to moderate numbers of litter items, but contributed high litter weights.

- Paper/Cardboard items were associated with moderate numbers of litter items and litter weights.
- Organic Waste was associated with low numbers of litter items and small litter weights.
- Cigarette Butts/Vaping items were associated with high numbers of litter items, but contributed small litter weights.

Figure 20: National 2022, Items and Weight per 1,000 m² by Main Material Type
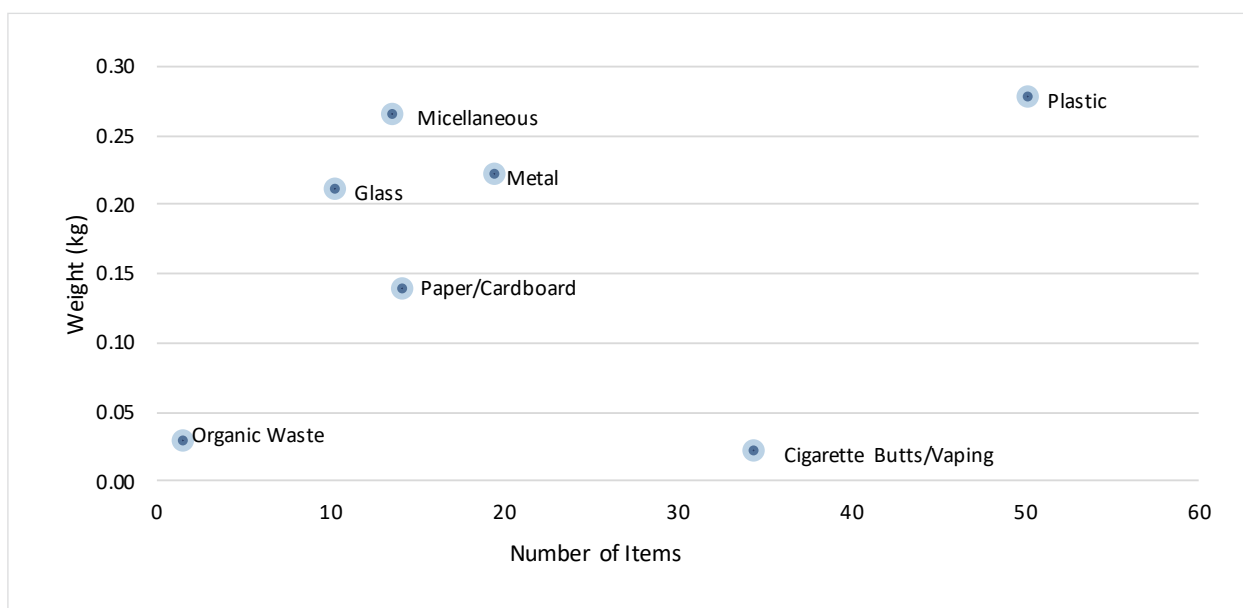
COMPARISON BY MAIN MATERIAL TYPE OVER TIME

Plastic has surpassed Cigarette Butts/Vaping in 2022 to become the most prevalent material type collected nationwide per 1,000 m². Paper/Cardboard has had the largest increase in estimated volume (12.19 ltr vs. 1.66 ltr per 1,000 m² in 2019). Litter weight per 1,000 m² has increased across most material types, except for Cigarette Butts/Vaping and Organic Waste which remain consistent with 2019.

ITEMS PER 1,000 M²

Since 2019, the biggest increase nationally in the number of litter items per 1,000 m² can be seen in items classified as Plastic (50 items vs. 29 items in 2019). There have been moderate increases in the number of Metal (20 items vs. 14 items in 2019) and Miscellaneous items (14 items vs. 7 items in 2019) collected per 1,000 m². The number of items classified under Cigarette Butts/Vaping in 2022 has decreased by five items collected per 1,000 m² compared with 2019.

Figure 21: National, Items per 1,000 m² by Main Material Type: Comparison Over Time
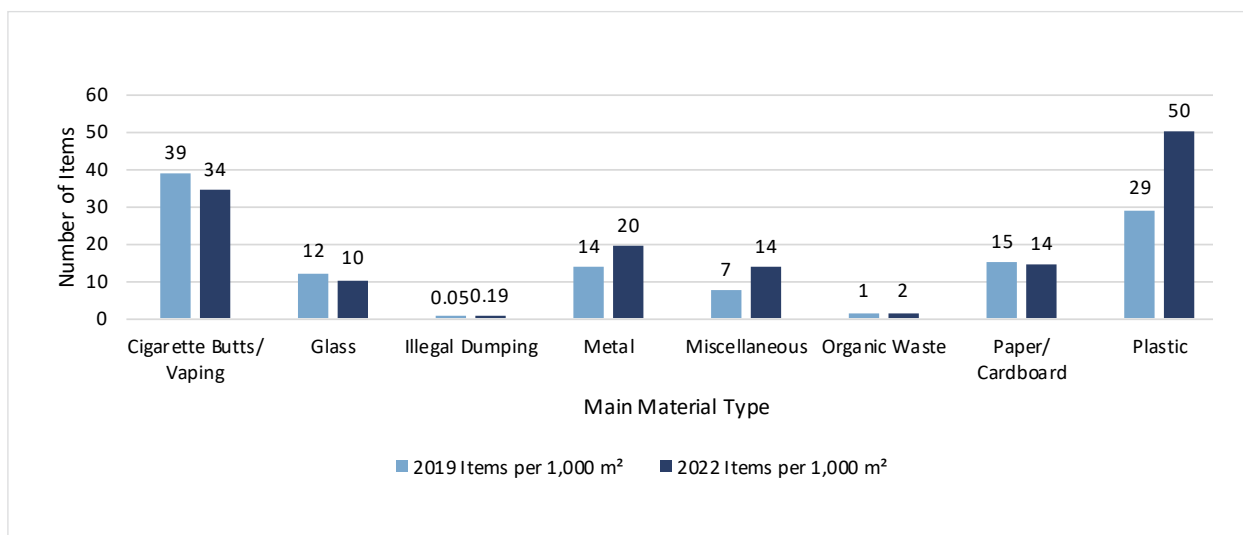
VOLUME PER 1,000 M²

Overall, litter volumes per 1,000 m² have increased across most of the material types since 2019. Paper/Cardboard has seen the largest increase in the volume of litter per 1,000 m² since 2019 (12.19 ltr vs. 1.66 ltr in 2019).

Large increases in litter volume can also be seen in Plastic (7.93 ltr vs. 1.16 ltr per 1,000 m² in 2019) and Illegal Dumping (4.45 ltr vs. 1.31 ltr per 1,000 m² in 2019).

Figure 22: National, Volume per 1,000 m² by Main Material Type: Comparison Over Time
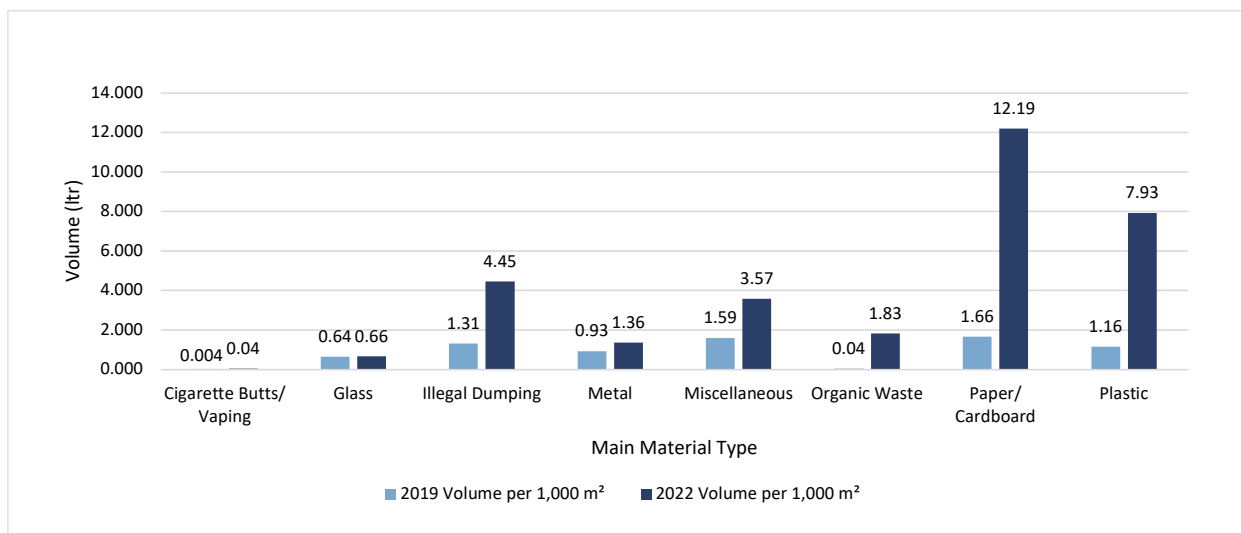
WEIGHT PER 1,000 M²

Litter weights per 1,000 m² across most of the material types has increased since 2019. The biggest increases can be seen in Miscellaneous items (0.26 kg vs. 0.07 kg in 2019) and

Plastic (0.28 kg vs. 0.11 kg in 2019) per 1,000 m². The litter weights for items classified under Cigarette Butts/Vaping and Organic Waste have remained consistent with 2019.

Figure 23: National, Weight per 1,000 m² by Main Material Type: Comparison Over Time
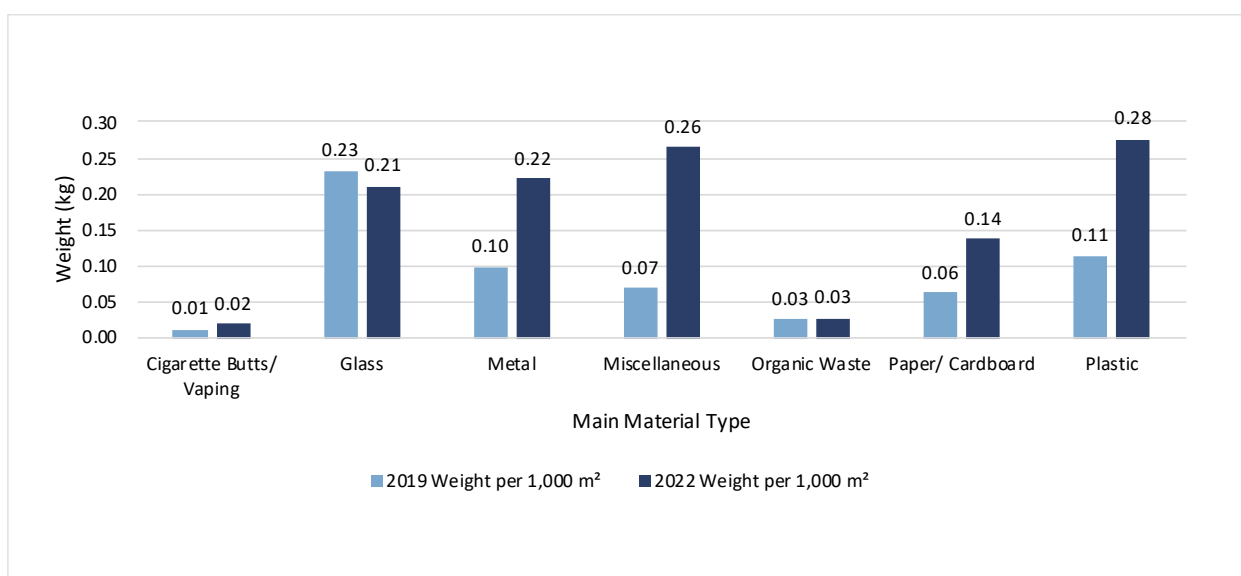
SITE TYPES BY MAIN MATERIAL TYPE

Plastic was the most common material type collected at most site types, apart from Retail sites, where Cigarette Butts/Vaping had the highest prevalence per 1,000 m² (155 items).

The number of litter items per 1,000 m² for the material types nationally, at each of the different site types were as follows:

- Car Park sites: Plastic (34 items), Cigarette Butts/Vaping (31 items), Metal (18 items), Miscellaneous (14 items), Paper/Cardboard (8 items), Glass (4 items), Organic Waste (1 item) and Illegal Dumping (0 items).

- Highway sites: Plastic (161 items), Metal (65 items), Paper/Cardboard (39 items), Cigarette Butts/Vaping (33 items), Glass (33 items), Miscellaneous (28 items), Organic Waste (5 items) and Illegal Dumping (less than 1 item).

- Industrial sites: Plastic (146 items), Cigarette Butts/Vaping (71 items), Metal (52 items), Glass (40 items), Paper/Cardboard (38 items), Miscellaneous (30 items), Organic Waste (3 items) and Illegal Dumping (less than 1 item).

- Public Recreational Spaces: Plastic (8 items), Paper/Cardboard (2 items), Miscellaneous (2 items), Cigarette Butts/Vaping (1 item), Glass (1 item), Metal (1 item), Organic Waste (less than 1 item) and Illegal Dumping (0 items).

- Railway sites: Plastic (110 items), Glass (38 items), Metal (36 items), Paper/Cardboard (21 items), Miscellaneous (20 items), Cigarette Butts/Vaping (12 items), Illegal Dumping (3 items) and Organic Waste (1 item).

- Residential sites: Plastic (55 items), Metal (23 items), Cigarette Butts/Vaping (21 items), Paper/Cardboard (16 items), Miscellaneous (15 items), Glass (9 items), Organic Waste (3 items) and Illegal Dumping (less than 1 item).

- Retail sites: Cigarette Butts/Vaping (155 items), Plastic (97 items), Paper/Cardboard (41 items), Metal (38 items), Miscellaneous (33 items), Glass (17 items), Organic Waste (4 items) and Illegal Dumping (0 items).

Figure 24: National 2022, Sites by Main Material Type: Items per 1,000 m²
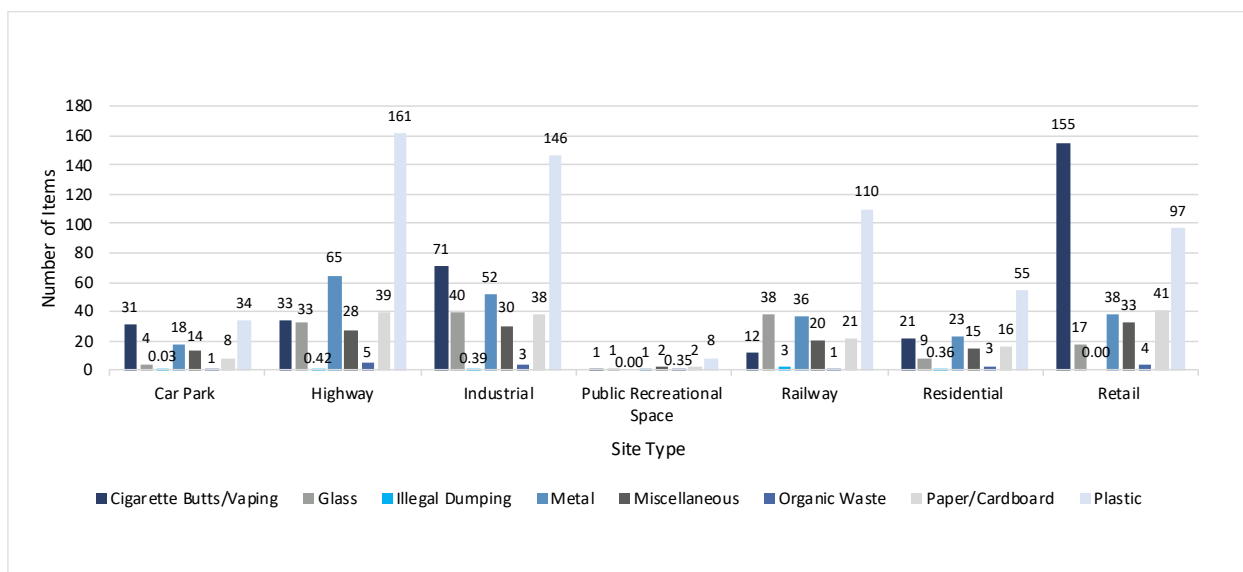
THE DIRTY DOZEN

On ranking the top 12 material subcategories nationally, Cigarette Butts/Vaping: Cigarette butts were the most frequently identified litter item, with an average of 34 butts recorded per 1,000 m².

Other litter items frequently identified nationally included:

- Plastic: Unidentifiable hard plastic fragments (13 items per 1,000 m²)
- Plastic: Unidentifiable soft plastic fragments (13 items per 1,000 m²)
- Glass: Unidentifiable glass fragments (9 items per 1,000 m²)
- Plastic: Snack bags & confectionary wrappers (7 items per 1,000 m²)

Not all material subcategories were comparable to the 2019 NLA due to the addition of new subcategories in 2022.

Amongst comparable material subcategories, the number of Cigarette butts collected per 1,000 m² has decreased from 2019 (34 items vs. 39 items in 2019).

Figure 25: National, Dirty Dozen, Items per 1,000 m², Material Subcategories: Comparison Over Time
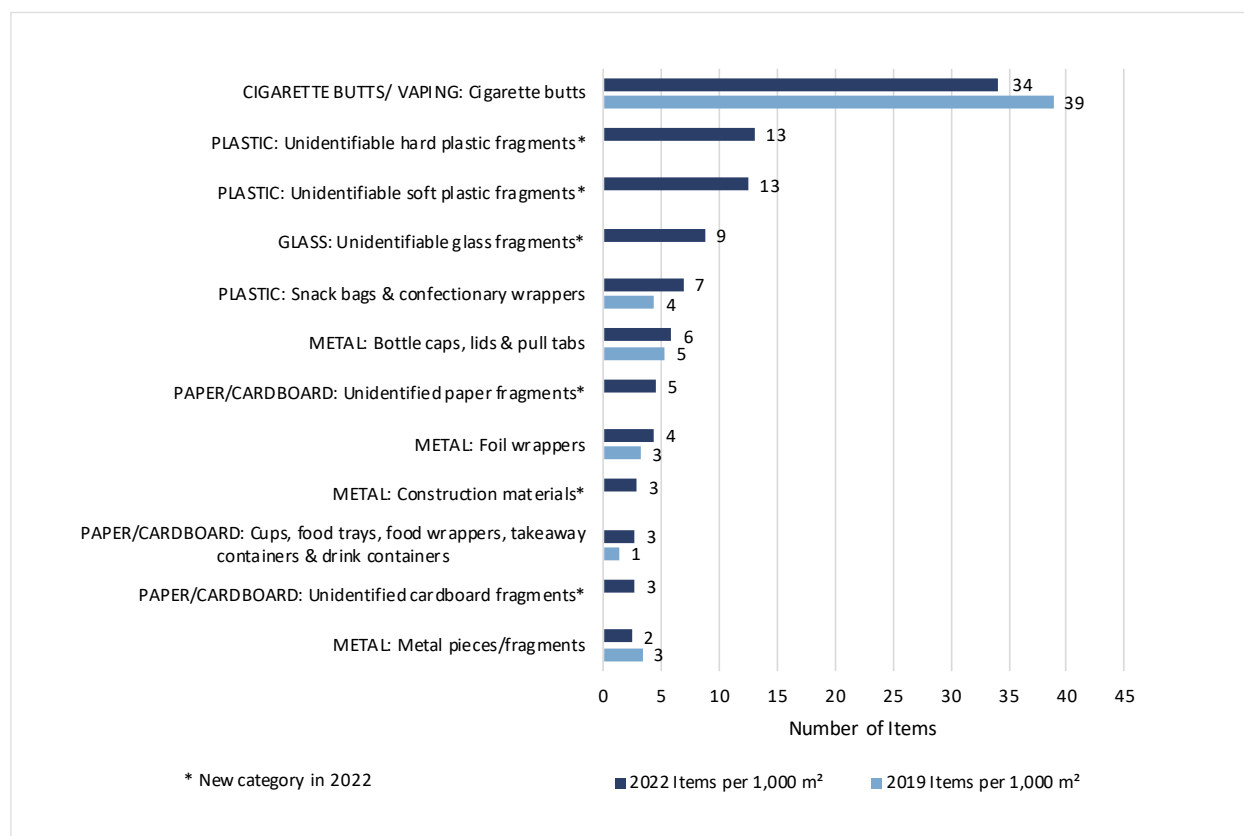
NATIONAL

CIGARETTE BUTTS

—

Cigarette butts were the most frequently identified item nationally, with 34 butts recorded per 1000 m^2

Figure 26: National, Dirty Dozen, Volume per 1,000 m², Material Subcategories: Comparison Over Time
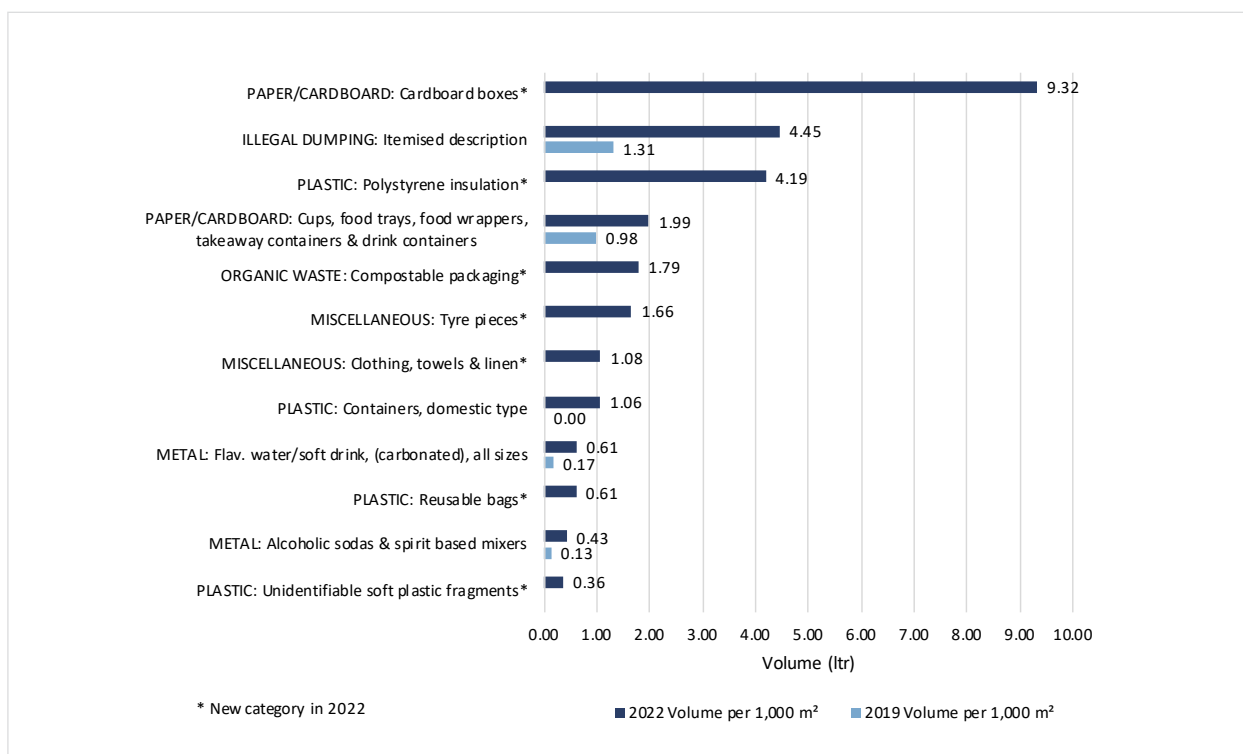
Paper/Cardboard: Cardboard boxes represented the largest contribution to the national litter volumes (9.32 ltr) per 1,000 m² in 2022.

Other material subcategories which were associated with large litter volumes included:

- Illegal Dumping: Illegal dumping (4.45 ltr per 1,000 m²)

- Plastic: Polystyrene insulation (4.19 ltr per 1,000 m²)

- Paper/Cardboard: Cups, food trays, food wrappers, takeaway & drink containers (1.99 ltr per 1,000 m²)

- Organic Waste: Compostable packaging (1.79 ltr per 1,000 m²)

Not all material subcategories were comparable to the 2019 NLA due to the addition of new subcategories in 2022.

Amongst comparable material subcategories, there has been large increases in the volume of Illegal dumping (4.45 ltr vs. 1.31 ltr in 2019) and Paper/Cardboard: Cups, food trays, food wrappers, takeaway & drink containers (1.99 ltr vs. 0.98 ltr in 2019).

CARDBOARD BOXES

–

Cardboard boxes
represented the largest
contribution
to the estimated national
litter volumes, recording
9.32 ltr of volume
per 1,000 m^2

Glass: Beer bottles < 750 ml, all colours represented the largest contribution to the national litter weights, recording 0.09 kg of weight per 1,000 m². This is slightly lower than in 2019 (0.12 kg) per 1,000 m².

Other material subcategories which were associated with high litter weights per 1,000 m² included:

- Metal: Construction materials (0.06 kg per 1,000 m²)
- Plastic: Unidentifiable hard plastic fragments (0.06 kg per 1,000 m²)
- Miscellaneous: Clothing, towels & linen (0.06 kg per 1,000 m²)

Figure 27: National, Dirty Dozen, Weight per 1,000 m², Material Subcategories: Comparison Over Time
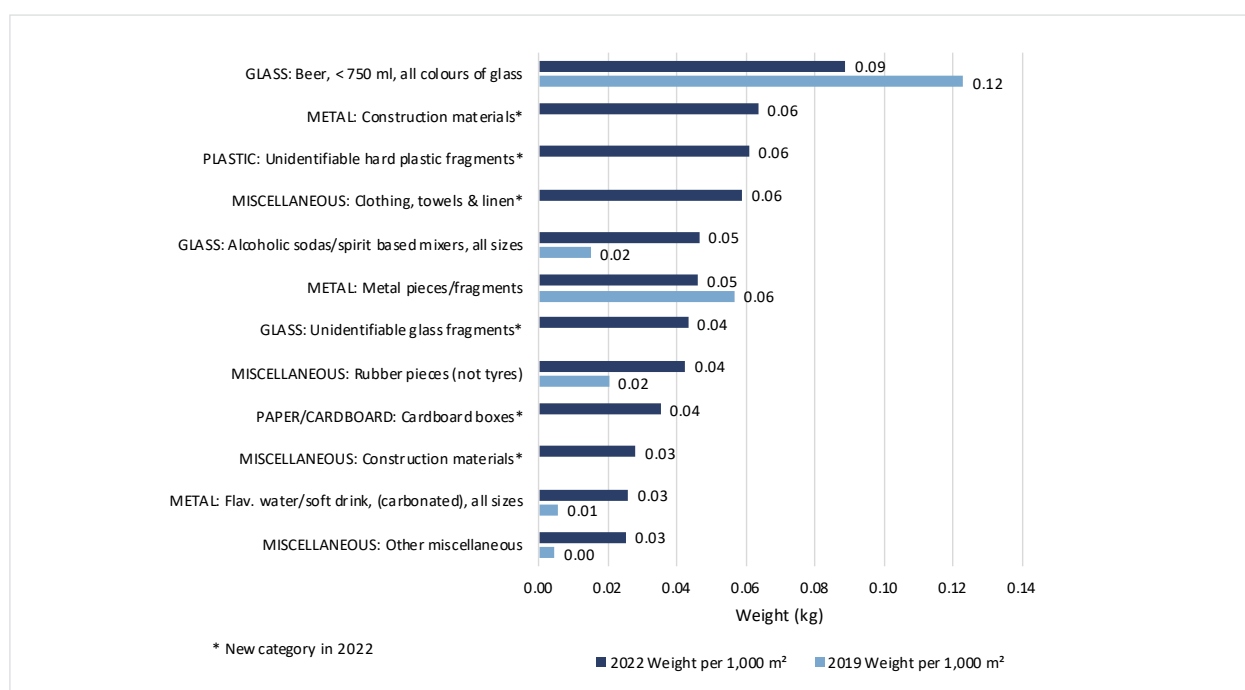
SITE GRADINGS

All sites were assigned gradings in four 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 3, Risk and Litter Distribution: National

	Risk Present		Litter Distribution	
	Moderate hazard or risk	Significant hazard or risk	Widespread	Clustered
National				
	100%	0%	86%	14%

GLASS BEER BOTTLES

—

Glass beer bottles less than 750 ml (all colours) represented the largest contribution to the national litter weights, recording 0.09 kg of weight per 1,000 m^2

Figure 28: National 2022, Grading: Visual Site Ratings
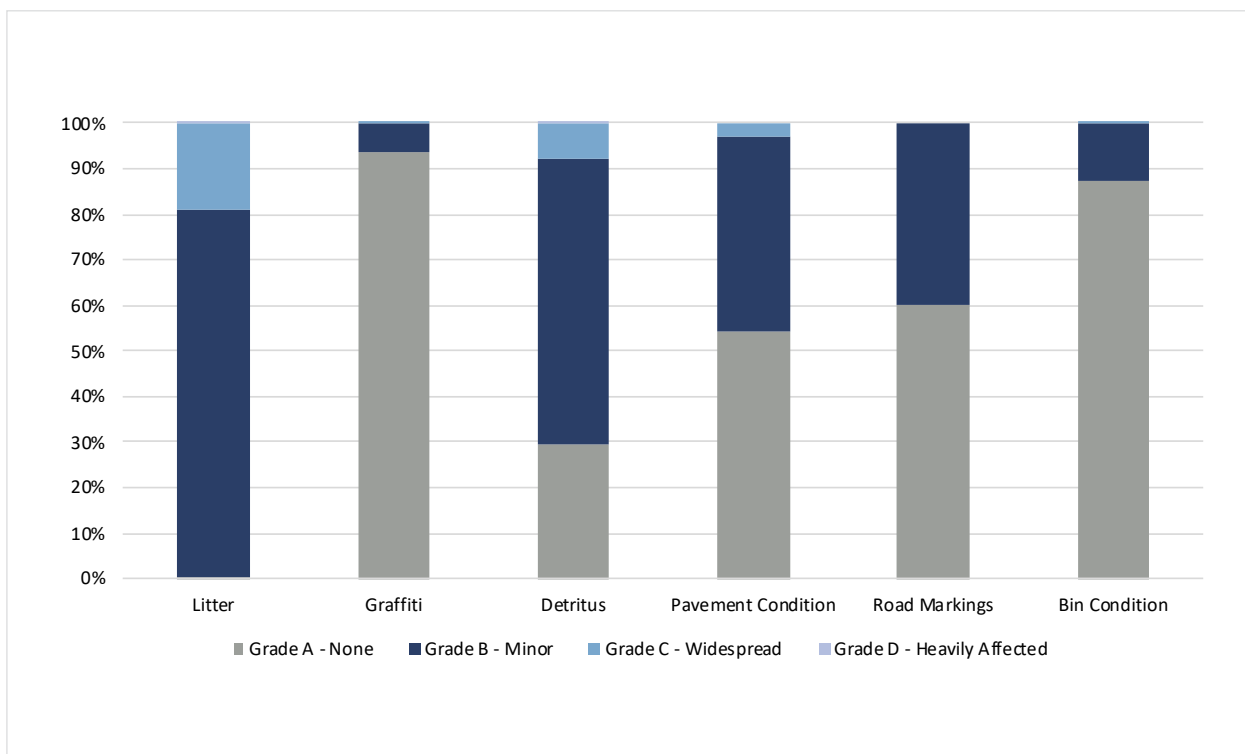
Figure 29: National 2022, Grading: Site Litter Hotshots Ratings
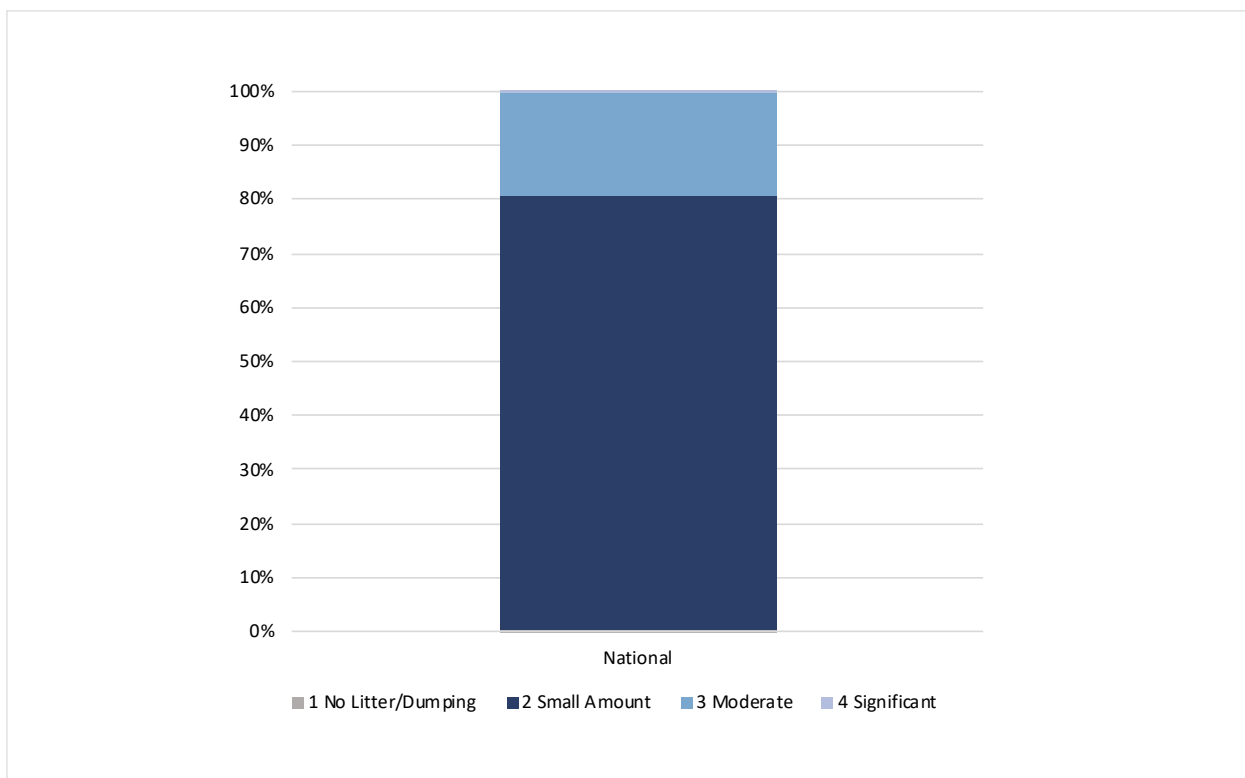
HIGHWAYS AND RAILWAYS
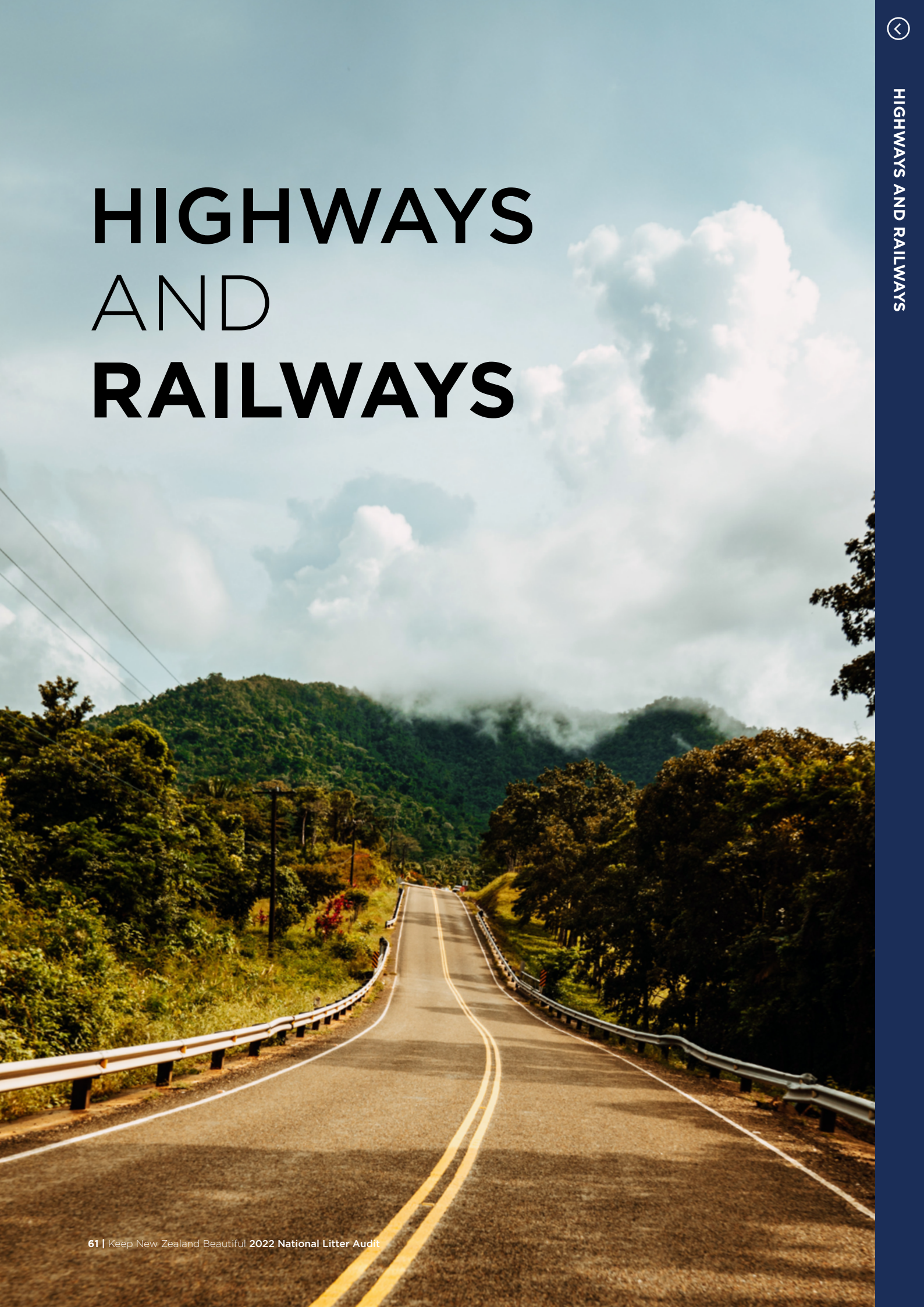
HIGHWAYS AND RAILWAYS

AT A GLANCE

Not all regions were audited for Highway and Railway sites, therefore the reporting is included here separately. Refer to the end of each regional chapter for more information on any given region (where applicable).

A sample of 21 Highway and 23 Railway sites were audited nationally in 2022.

The overall average number of litter items per 1,000 m² across all Highway sites audited nationally was 365 items, the overall average estimated volume of litter items per 1,000 m² was 254.00 ltr and the overall average weight per 1,000 m² was 5.91 kg.

Railway sites contributed an overall average of 254 litter items per 1,000 m², an overall average estimated volume per 1,000 m² of 151.22 ltr and an overall average weight of 8.25 kg.

Plastic was the most frequently identified material type at both Highway and Railway sites, and contributed to high litter weights per 1,000 m².

Paper/Cardboard contributed to the highest volumes at Highway sites, whilst contributing more moderate numbers of litter items and weights.

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

Note:

- *New material subcategories were added in 2022 and so not all material subcategories are comparable between 2019 and 2022.*

- *A weight measure was not recorded for any items of Illegal Dumping identified during the audit, and therefore has not been include in the analysis.*

COMPARISONS BY SITE TYPES

On average, Highway sites had 365 items of litter per 1,000 m², 221 items more than the national average. The estimated volume and weight of litter for Highways was also high, with 254.00 ltr and 5.91 kg collected per 1,000 m² respectively.

Figure 30: Highways 2022, Items and Volume per 1,000 m² by Site Type
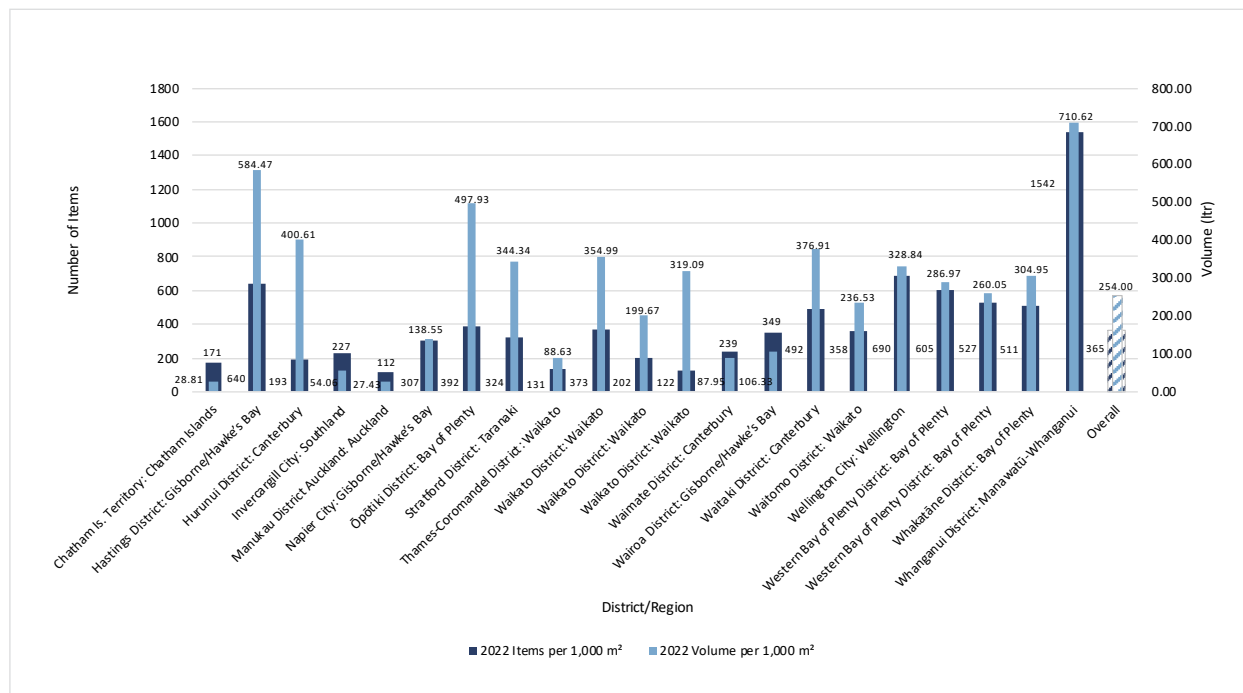
Figure 31: Highways 2022, Items and Weight per 1,000 m² by Site Type
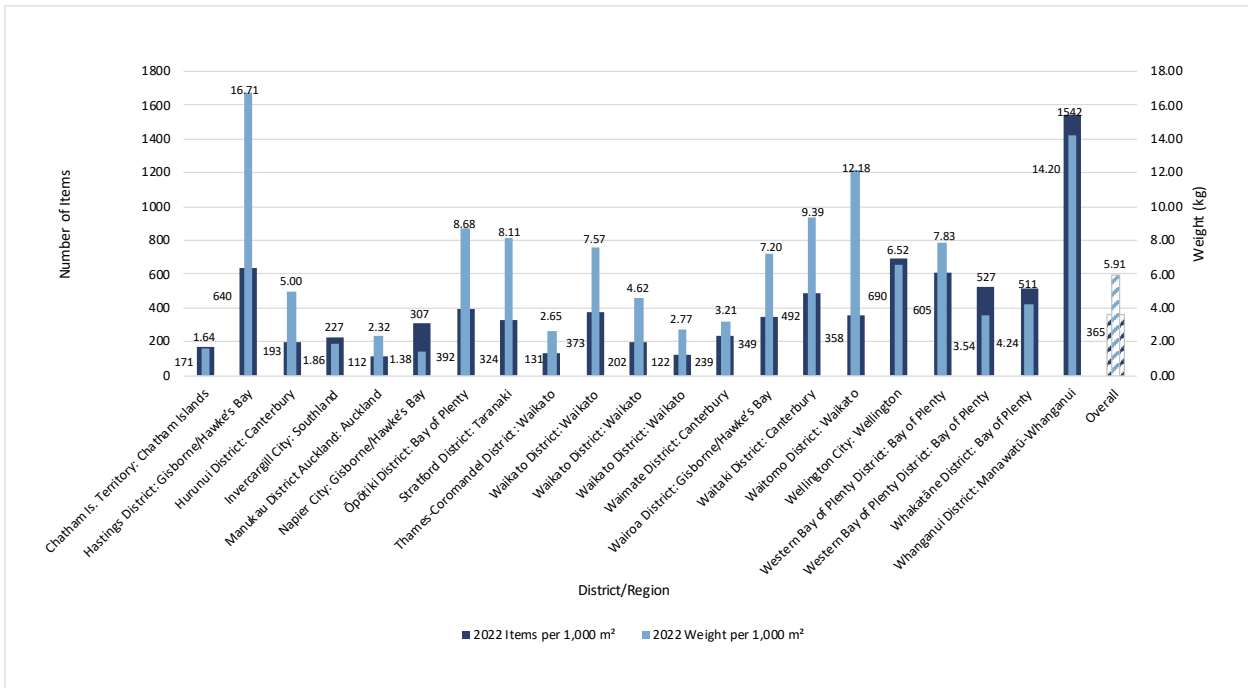
Railway sites also had high numbers of litter items, with an average of 254 pieces collected per 1,000 m² across the country. Litter items collected at Railway sites were the heaviest across all site types, with 8.25 kg of litter per 1,000 m². Railway sites also had a high litter volume of 151.22 ltr per 1,000 m².

Figure 32: Railways 2022, Items and Volume per 1,000 m² by Site Type
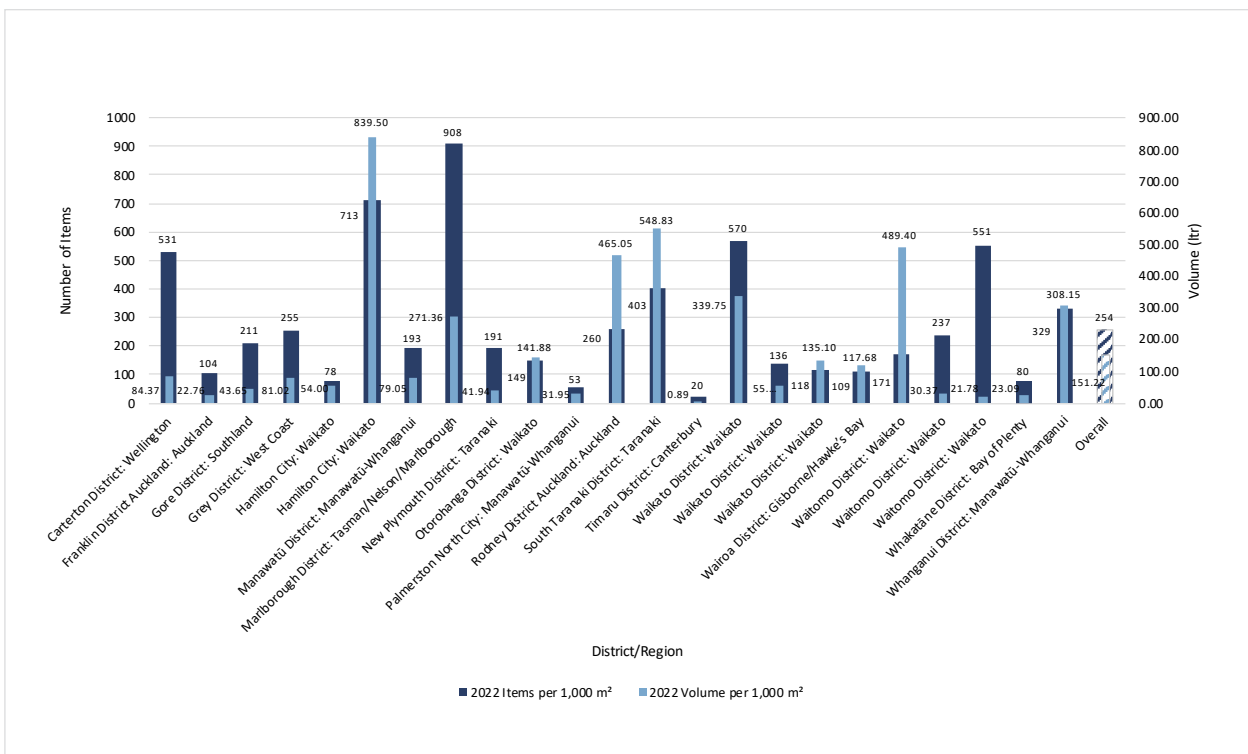
Figure 33: Railways 2022, Items and Weight per 1,000 m² by Site Type
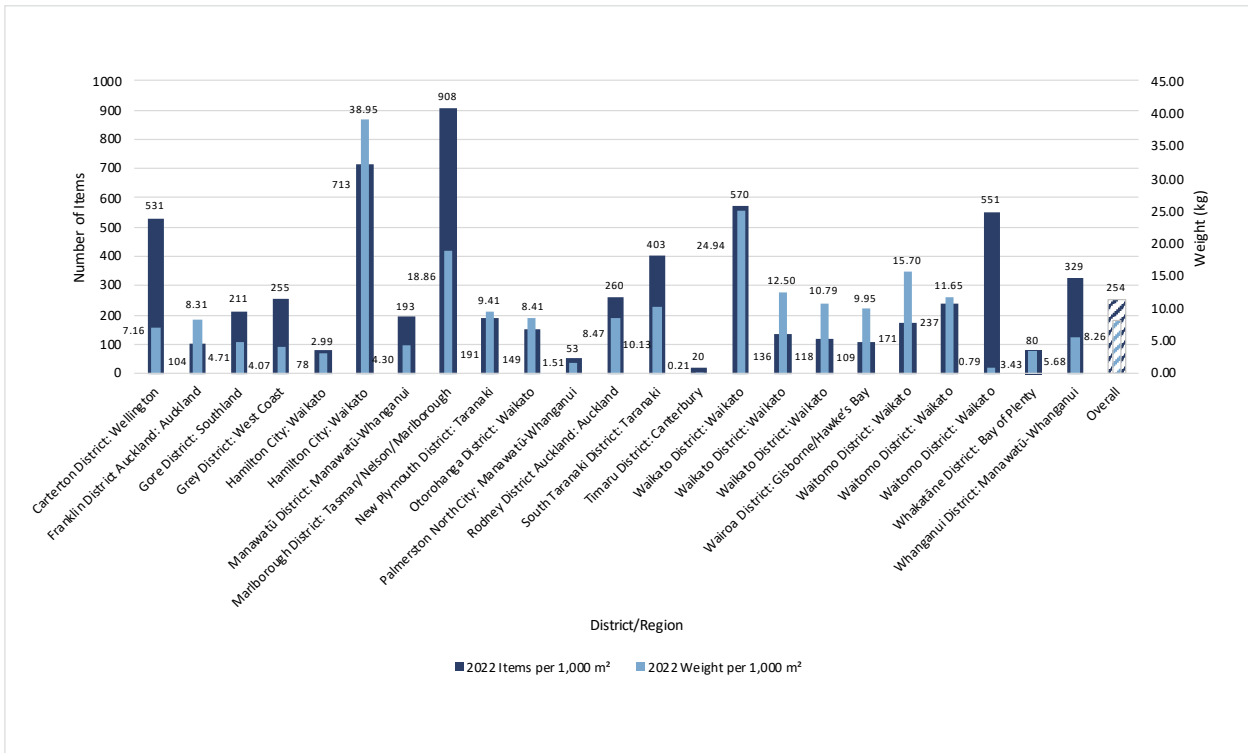
COMPARISON BY SITE TYPE OVER TIME

ITEMS PER 1,000 M²

The number of litter items collected per 1,000 m² has increased since 2019 for both Highway and Railway sites, with the biggest increase being seen at Highway sites (365 items vs. 195 items in 2019).

Figure 34: Highways, Items per 1,000 m² by Site Type: Comparison Over Time
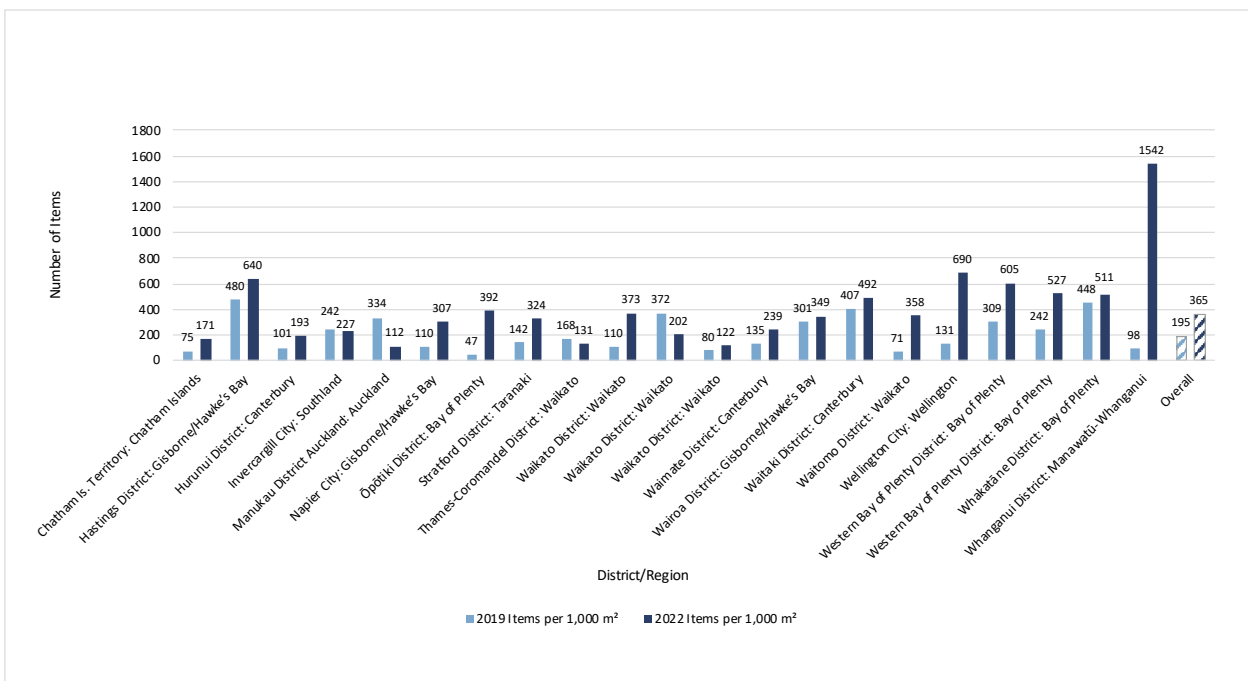
Figure 35: Railways, Items per 1,000 m² by Site Type: Comparison Over Time
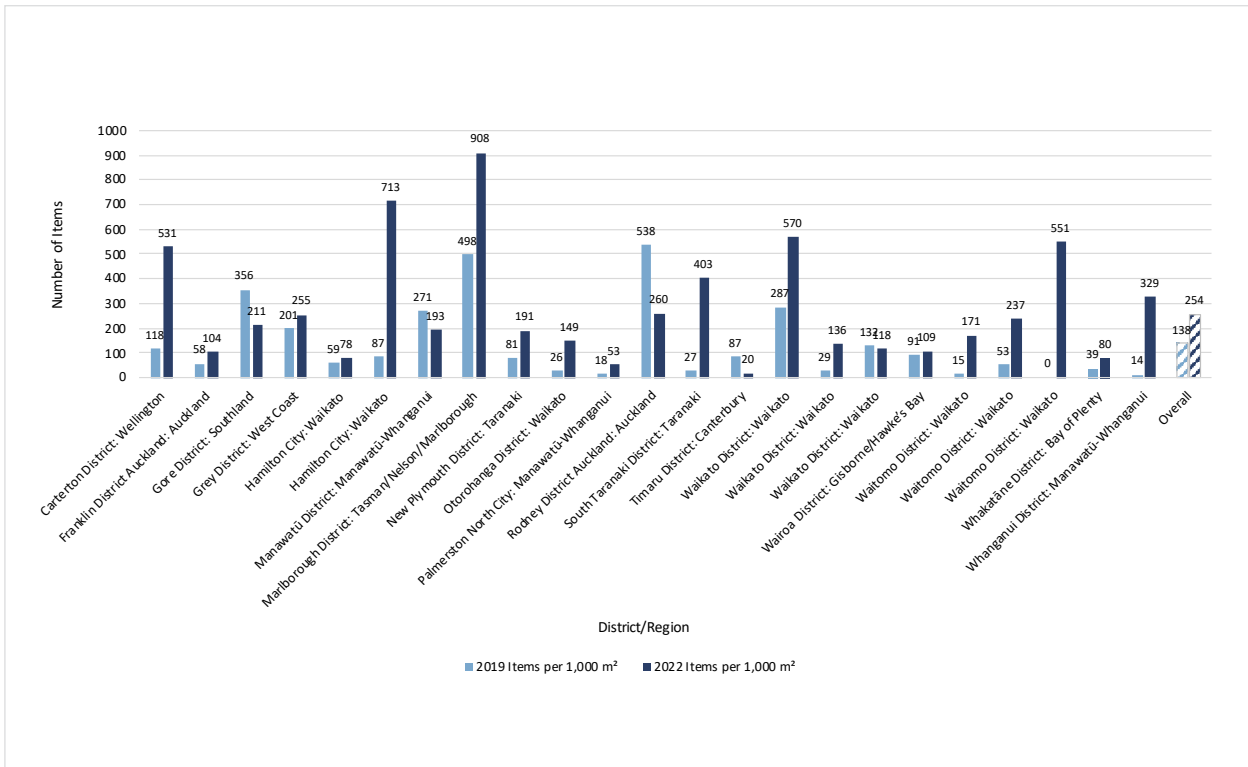
VOLUME PER 1,000M²

Likewise, the estimated volume of litter items has risen since 2019, with an increase of 210.33 ltr per 1,000 m² collected at Highway sites, and an increase of 126.01 ltr per 1,000 m² collected at Railway sites.

Figure 36: Highways, Volume per 1,000 m² by Site Type: Comparison Over Time
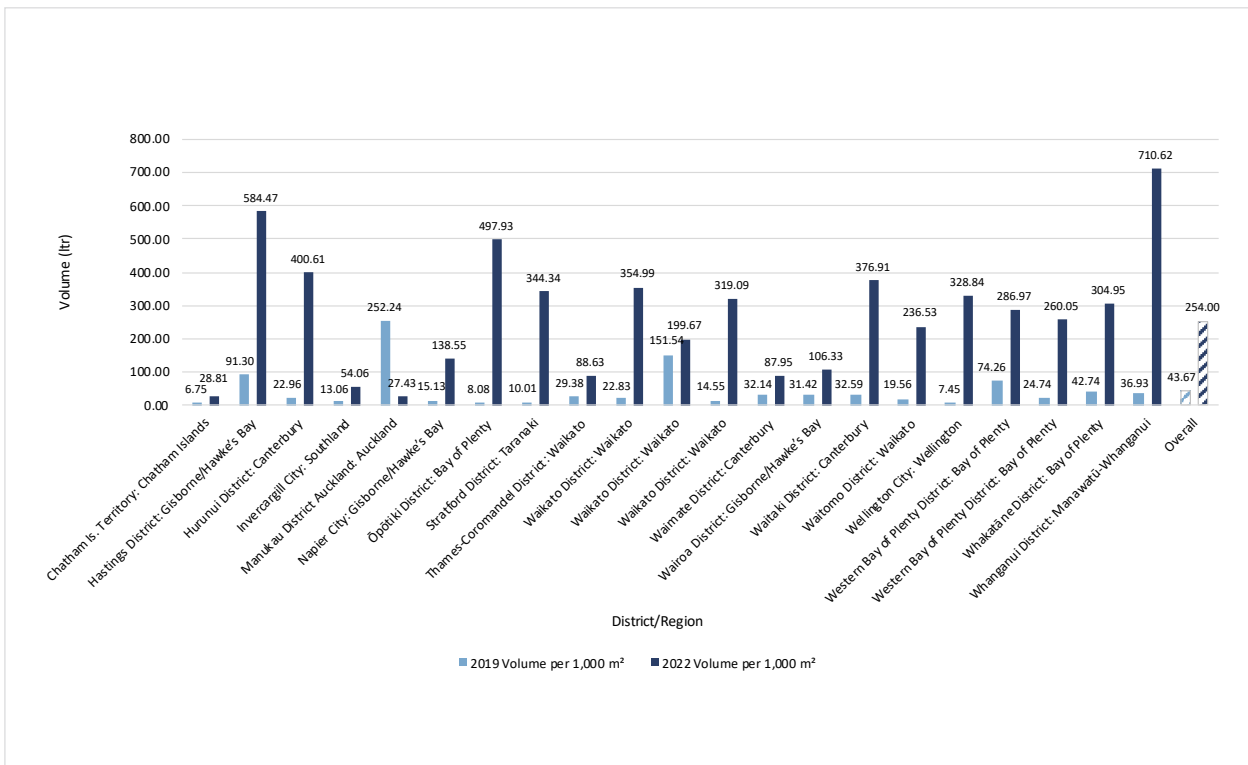
Figure 37: Railways, Volume per 1,000 m² by Site Type: Comparison Over Time
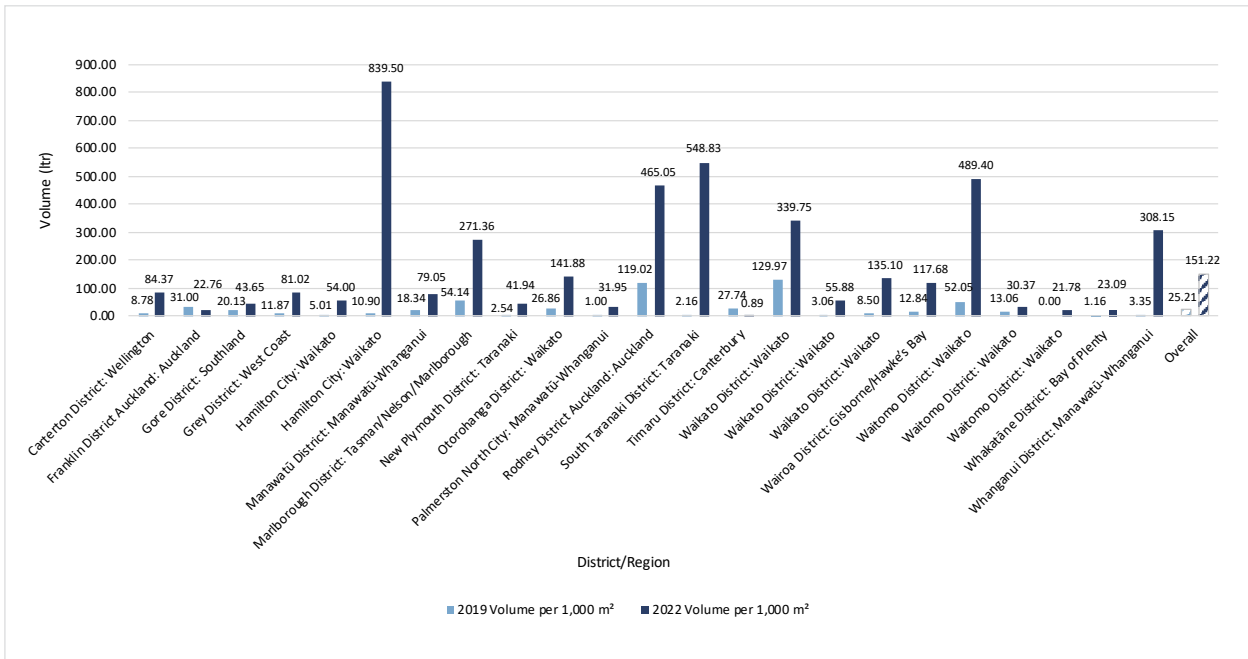
WEIGHT PER 1,000 M²

The weight of items has also risen for both Highway and Railway sites since 2019, with an increase of 3.62 kg per 1,000 m2 at Highway sites, and an increase of 5.02 kg per 1,000 m2 at Railway sites.

Figure 38: Highways, Weight per 1,000 m² by Site Type: Comparison Over Time
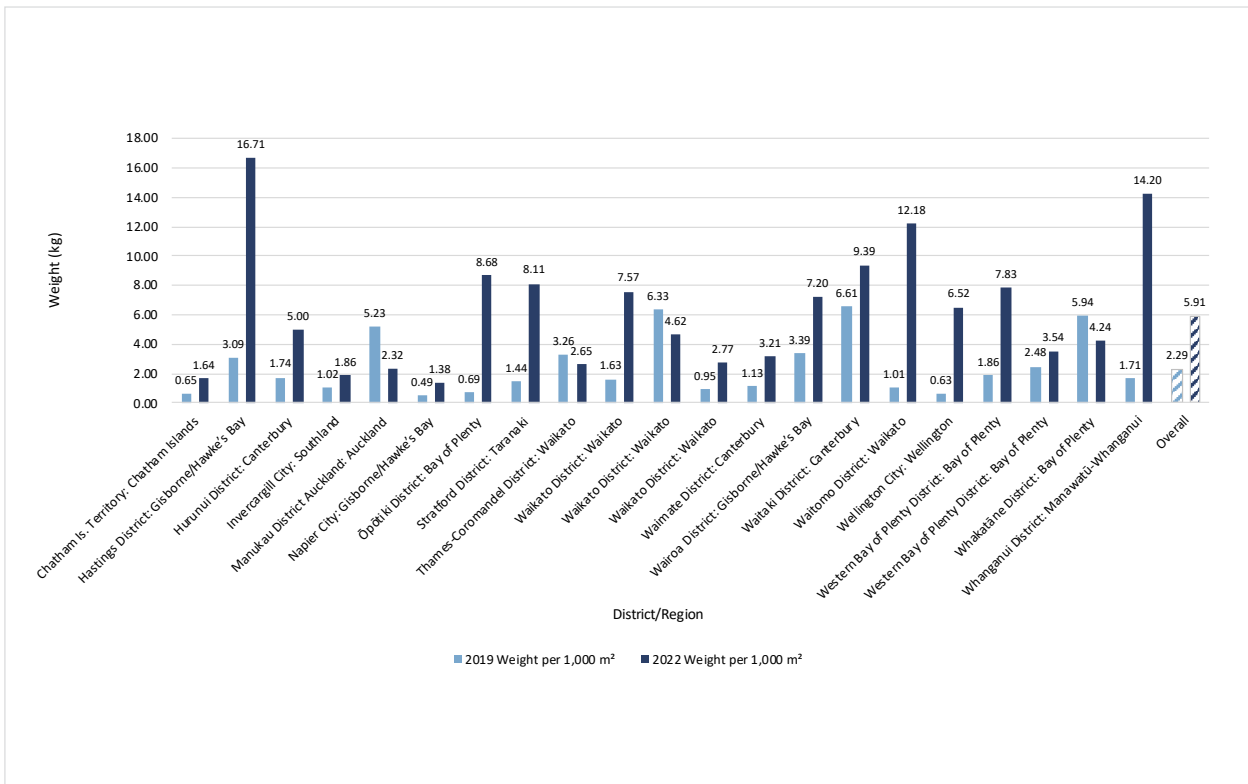
Figure 39: Railways, Weight per 1,000 m² by Site Type: Comparison Over Time
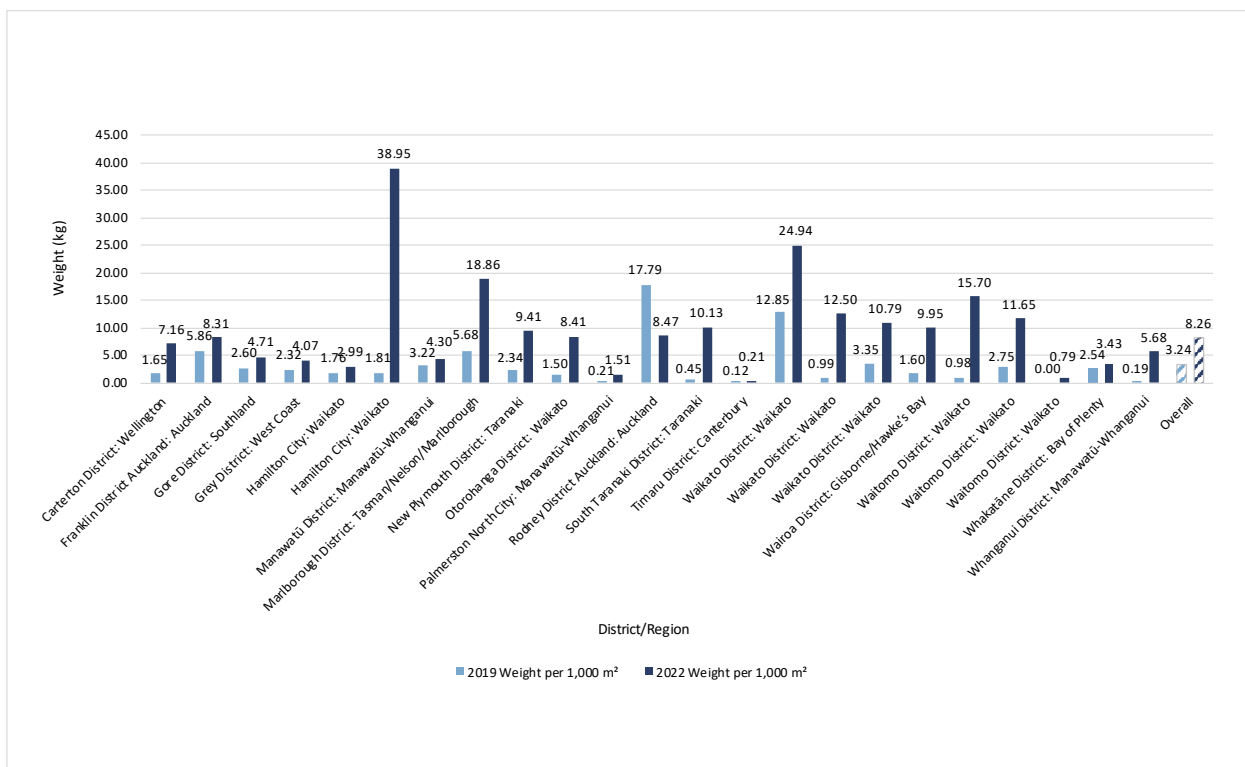
HIGHWAYS

COMPARISON BY MAIN MATERIAL TYPES

Plastic was the most frequently collected material type at Highway sites nationally (161 items) per 1,000 m², whilst Metal (65 items), Paper/Cardboard (39 items), Cigarette Butts/Vaping (33 items) and Glass (33 items) also added significantly to the litter stream. Lower numbers were recorded for litter items classified as Miscellaneous (28 items), Organic Waste (5 items) and Illegal Dumping (less than 1 item).

The material types which contributed the greatest estimated volumes per 1,000 m² at Highway sites throughout New Zealand were Paper/Cardboard (109.73 ltr), Plastic (50.95 ltr), and Miscellaneous (45.69 ltr). Organic waste (21.31 ltr), Metal (12.32 ltr), Illegal Dumping (10.13 ltr), and Glass (8.77 ltr) were associated with lower litter volumes. Cigarette Butts/Vaping contributed the smallest proportion of the overall litter volume (0.10 ltr).

Figure 40: Highways 2022, Items and Volume per 1,000 m² by Main Material Type
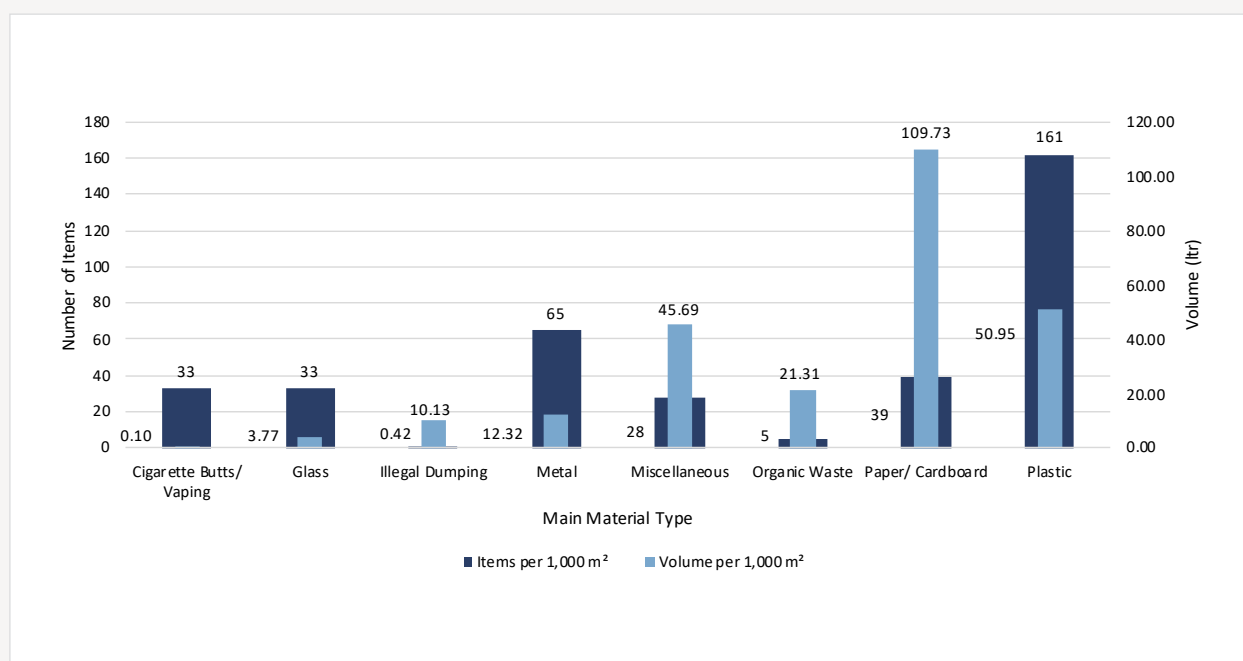
Larger litter weights per 1,000 m² contributing to the overall litter stream of Highway sites were associated with Plastic (1.68 kg), Metal (1.22 kg), and Glass (1.18 kg). More moderate litter weights were recorded for Miscellaneous (1.05 kg) and Paper/Cardboard (0.72 kg). Smaller litter weights per 1,000 m² were associated with Organic Waste (0.05 kg) and Cigarette Butts/Vaping (0.02 kg).

Figure 41: Highways 2022, Items and Weight per 1,000 m² by Main Material Type
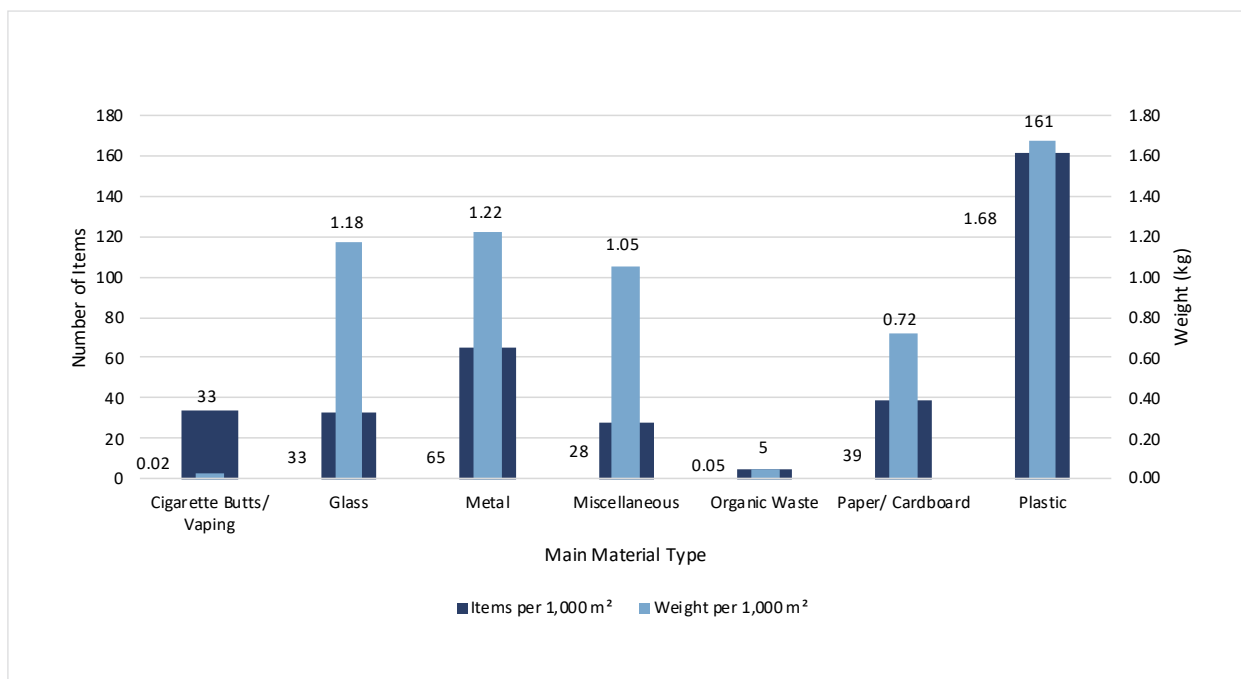
MAIN MATERIAL CHARACTERISTICS

The following material type characteristics were identified for litter items and volume per 1,000 m² across Highway sites nationally:

- Plastic was associated with high numbers of litter items, and contributed moderate to high litter volumes.

- Paper/Cardboard contributed moderate numbers of litter items, but very high litter volumes.

- Metal was associated with moderate numbers of litter items and low litter volumes.

- Miscellaneous items contributed low to moderate numbers of litter items and moderate litter volumes.

- Glass was associated with low to moderate numbers of litter items and small litter volumes.

- Cigarette Butts/Vaping items were associated with low to moderate numbers of litter items, but contributed low litter volumes.

- Organic Waste was associated with low numbers of litter items and low to moderate litter volumes.

- Illegal Dumping was associated with a small number of litter items and low litter volumes.

Figure 42: Highways 2022, Items and Volume per 1,000 m² by Main Material Type
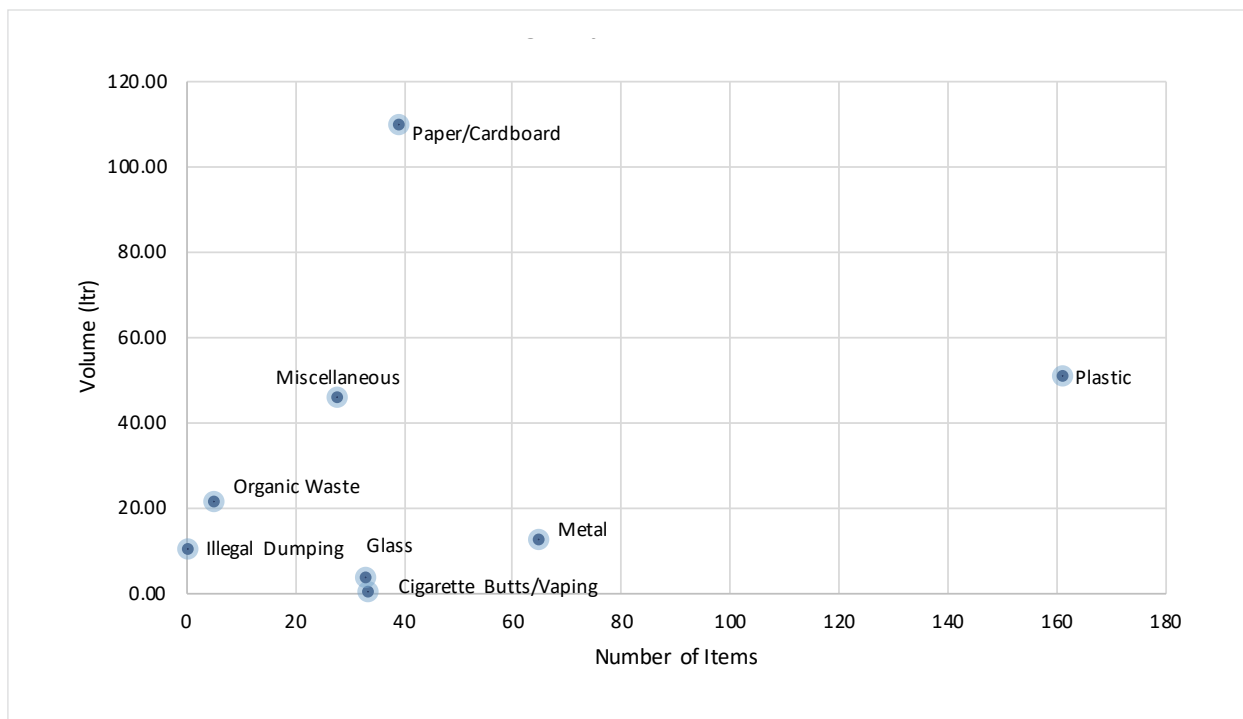
The following material type characteristics were identified for litter items and weight per 1,000 m² across Highway sites nationally:

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

Figure 43: Highways 2022, Items and Weight per 1,000 m² by Main Material Type
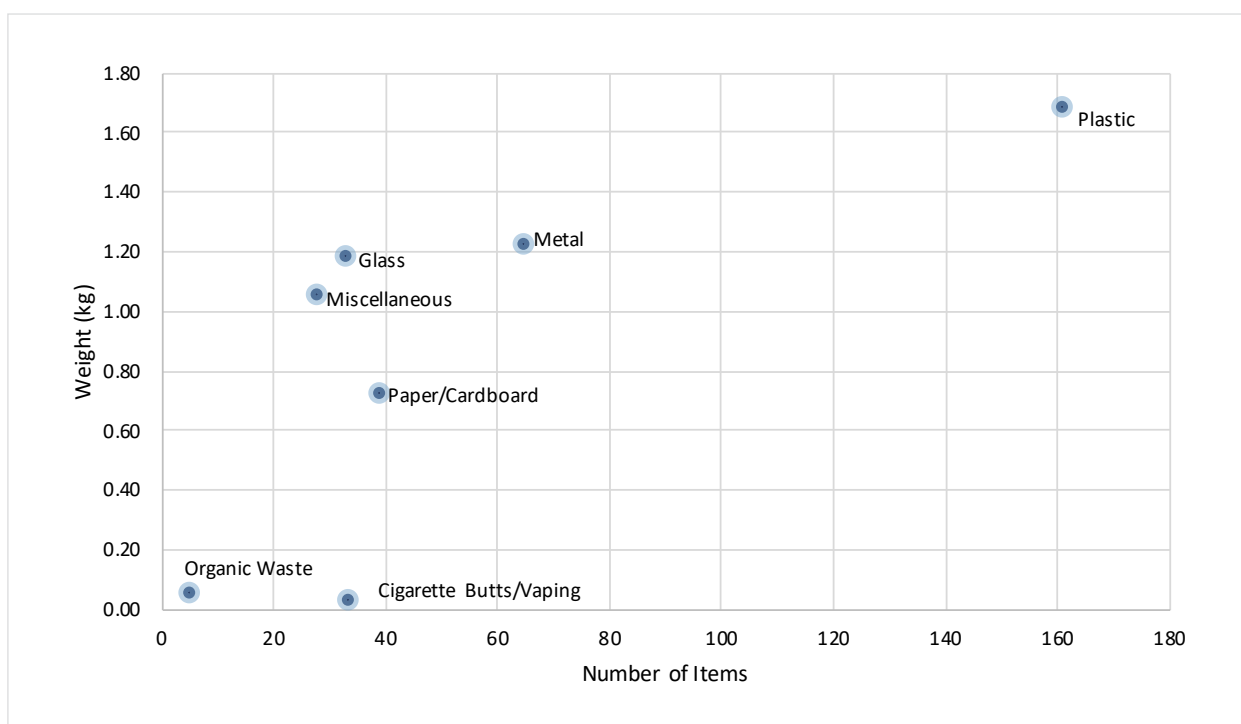
COMPARISON BY MATERIAL TYPE OVER TIME

ITEMS PER 1,000 M²

Plastic has seen the biggest increase in the number of litter items collected per 1,000 m² at Highway sites since 2019 (161 items vs. 71 items in 2019). Glass, Metal and Miscellaneous material types have also seen small to moderate increases in the number of litter items collected compared with 2019.

Figure 44: Highways, Items per 1,000 m² by Main Material Type: Comparison Over Time
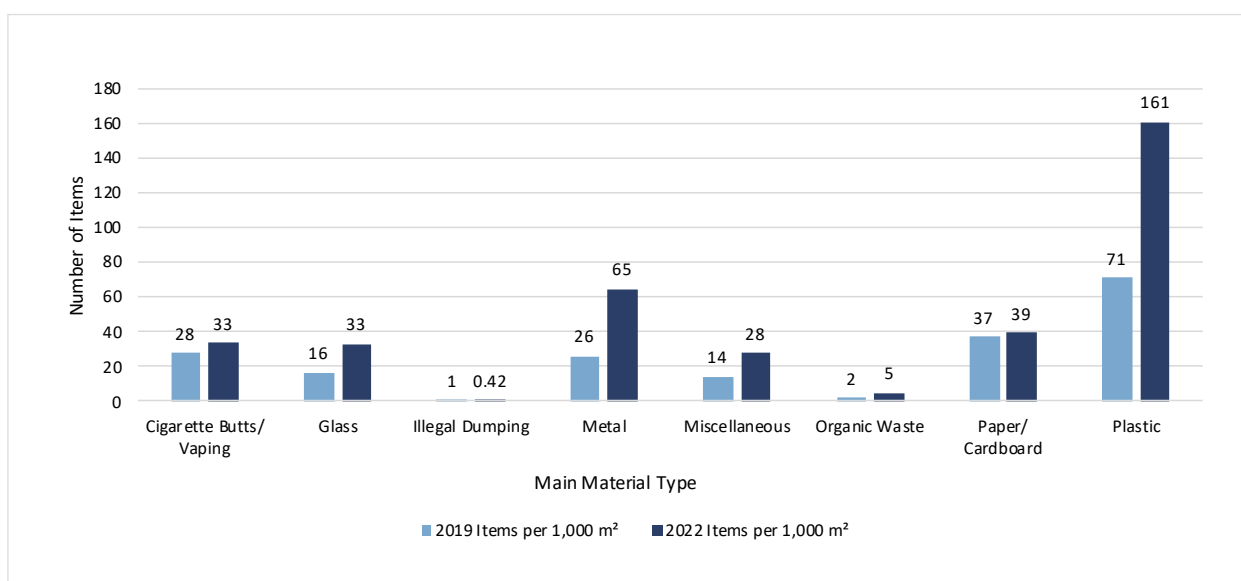
VOLUME PER 1,000 M²

The estimated volume per 1,000 m² at Highway sites has increased for six of the eight material types since 2019, with the largest increase being seen in Paper/Cardboard (109.73 ltr vs 9.55 ltr in 2019). The average volume of Illegal Dumping collected on Highway sites has decreased from 2019 (10.13 ltr vs. 17.36 ltr per 1,000 m² in 2019).

Figure 45: Highways, Volume per 1,000 m² by Main Material Type: Comparison Over Time
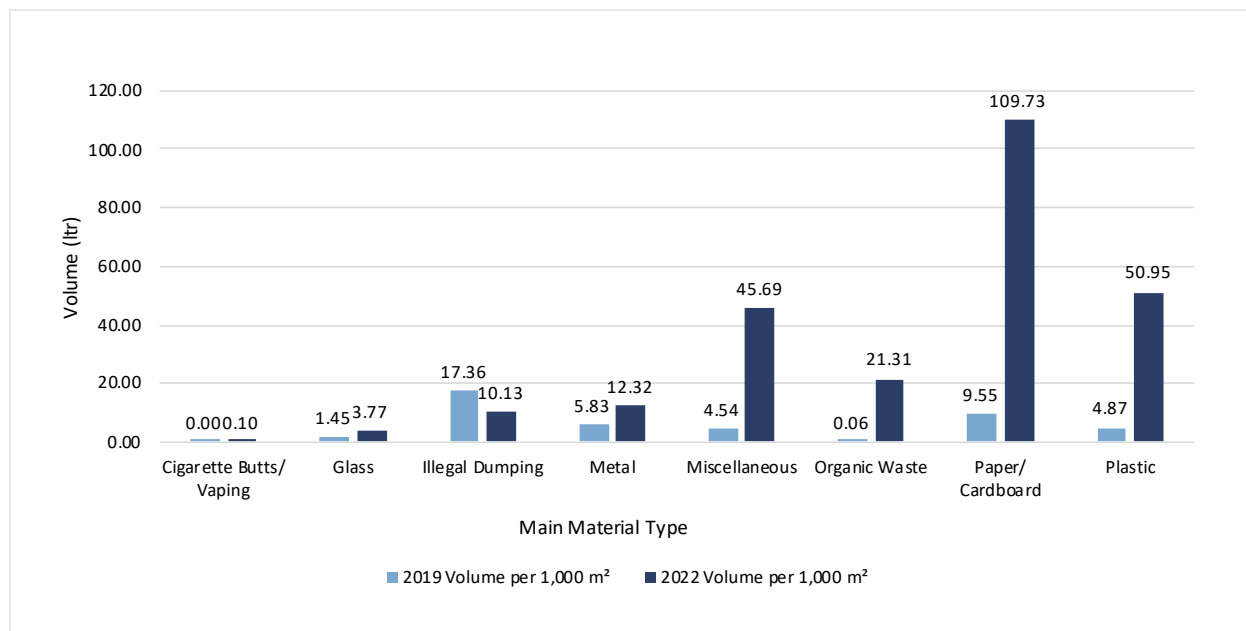
WEIGHT PER 1,000 M²

The weight of litter has increased for most material types at Highway sites per 1,000 m², with Plastic, Metal and Miscellaneous items seeing the biggest increases since 2019. Organic Waste and Cigarette Butts/Vaping litter weights have remained relatively consistent with 2019.

Figure 46: Highways, Weight per 1,000 m² by Main Material Type: Comparison Over Time
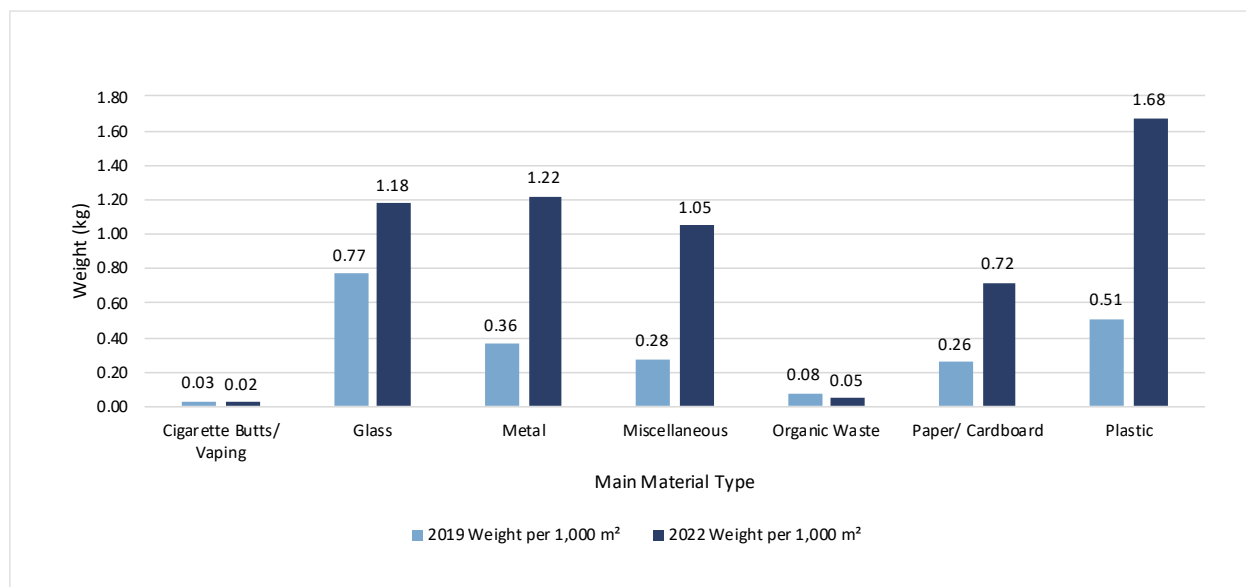
PAPER AND CARDBOARD

—

Paper and Cardboard contributed the largest proportion to the total estimated litter volume at Highway sites nationally, recording 109.73 ltr per 1,000 m^2

RAILWAYS

COMPARISON BY MAIN MATERIAL TYPES

Plastic was the most frequently identified material type per 1,000 m² at Railway sites (116 items). More moderate numbers of litter items per 1,000 m² were recorded for Glass (40 items) and Metal (38 items), whilst small to moderate numbers of items were associated with Paper/Cardboard (22 items) and Miscellaneous (21 items). Lower numbers of litter items were associated with Cigarette Butts/Vaping (13 items), Illegal Dumping (3 items), and Organic Waste (1 item) per 1,000 m².

Illegal Dumping (66.49 ltr) contributed significantly more volume per 1,000 m² to the litter stream than any other material type. Paper/Cardboard (38.31 ltr) and Plastic (25.63 ltr) were also associated with higher litter volumes, whilst smaller volumes were recorded for Metal (6.42 ltr), Miscellaneous (5.79 ltr), Glass (4.46 ltr), Organic Waste (4.10 ltr) and Cigarette Butts/Vaping (0.03 ltr) per 1,000 m².

Figure 47: Railways 2022, Items and Volume per 1,000 m² by Main Material Type
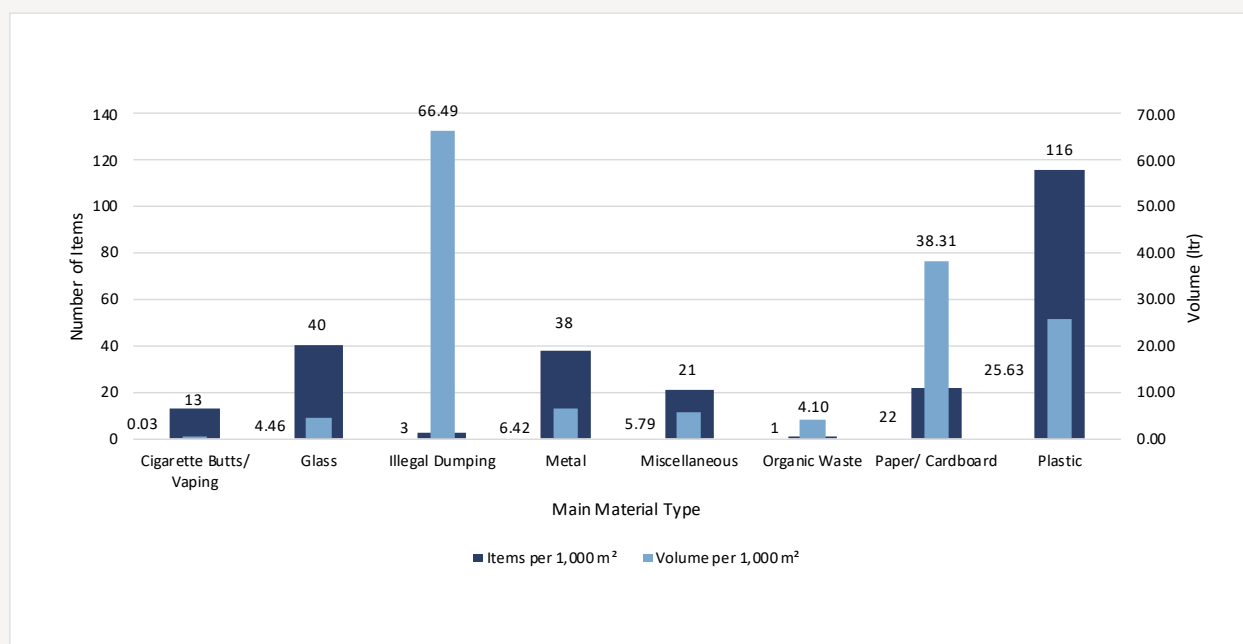
Metal (2.26 kg) was associated with the largest litter weights per 1,000 m² collected at Railway sites, followed closely by Plastic (2.01 kg) and Glass (1.93 kg). Moderate to high litter weights were associated with Miscellaneous items (1.41 kg) and moderate to low weights associated with Paper/Cardboard (0.61 kg) per 1,000 m².

Smaller litter weights were associated with Organic Waste (0.02 kg) and Cigarette Butts/Vaping (0.01 kg) per 1,000 m².

Figure 48: Railways 2022, Items and Weight per 1,000 m² by Main Material Type
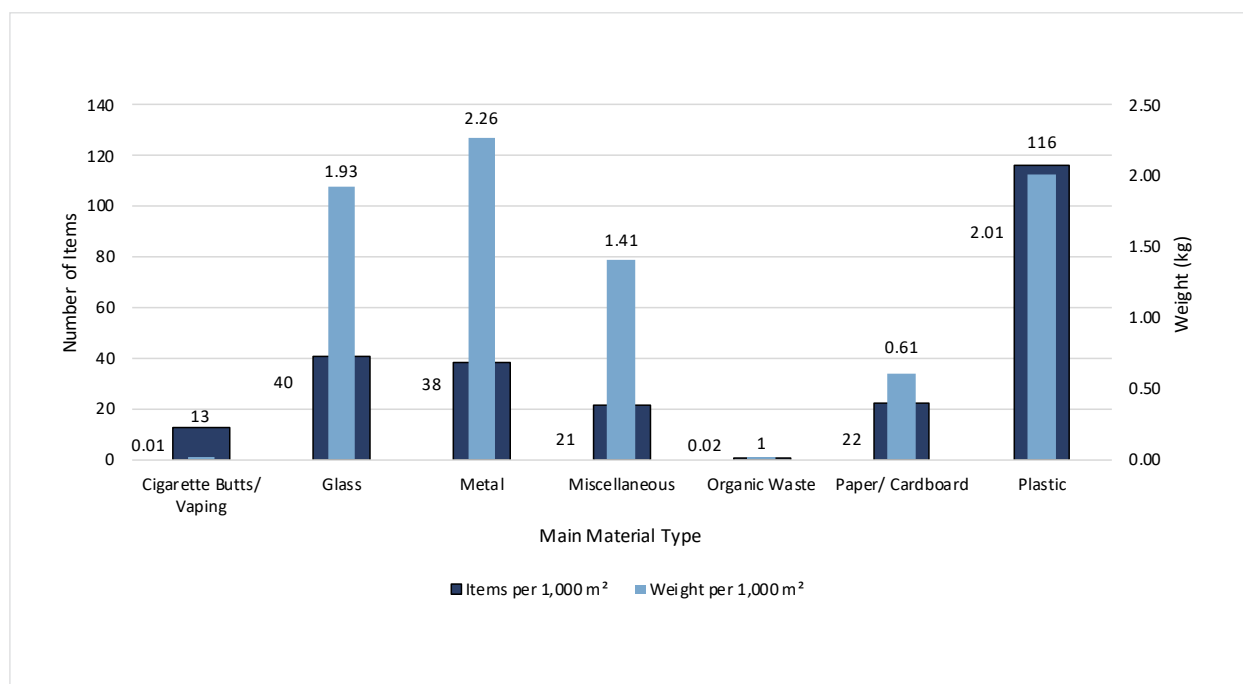
MAIN MATERIAL CHARACTERISTICS

The following material type characteristics were identified for litter items and volume per 1,000 m² across Railway sites nationally:

- Illegal Dumping contributed very small numbers of litter items, but large litter volumes.

- Plastic was associated with high numbers of litter items and moderate litter volumes.

- Metal and Glass were associated with moderate numbers of litter items and small litter volumes.

- Paper/Cardboard contributed low to moderate numbers of litter items and moderate to high litter volumes.

- Miscellaneous items contributed low to moderate numbers of litter items and small litter volumes.

- Organic Waste and Cigarette Butts/Vaping were both associated with low numbers of litter items and small litter volumes.

Figure 49: Railways 2022, Items and Volume per 1,000 m² by Main Material Type
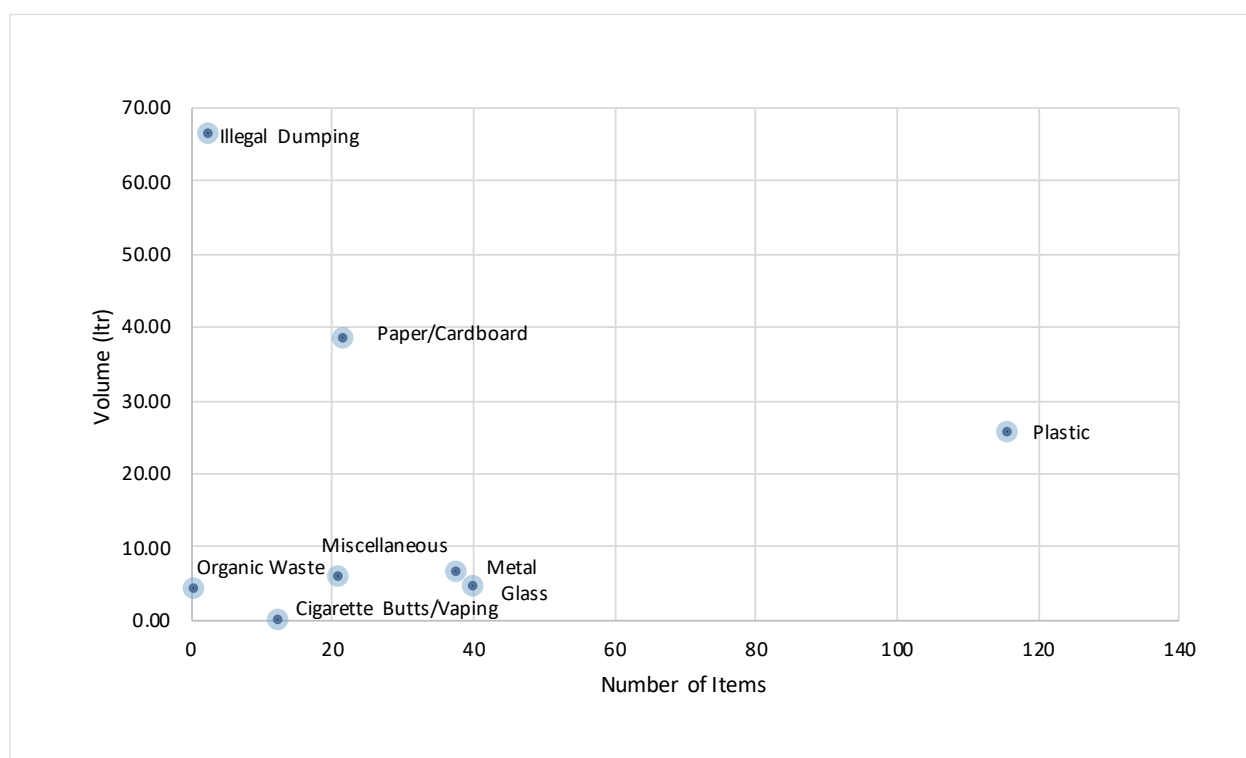
The following material type characteristics were identified for litter items and weight per 1,000 m² across Railway sites nationally:

- Plastic items were associated with high numbers of litter items and large litter weights.

- Metal and Glass items contributed moderate numbers of litter items and high litter weights.

- Miscellaneous items were associated low to moderate numbers of litter items with moderate to large litter weights.

- Paper/Cardboard contributed low to moderate numbers of litter items and small to moderate litter weights.

- Cigarette Butts/Vaping and Organic Waste were associated with low numbers of litter items and small litter weights.

Figure 50: Railways 2022 Items and Weight per 1,000 m² by Main Material Type
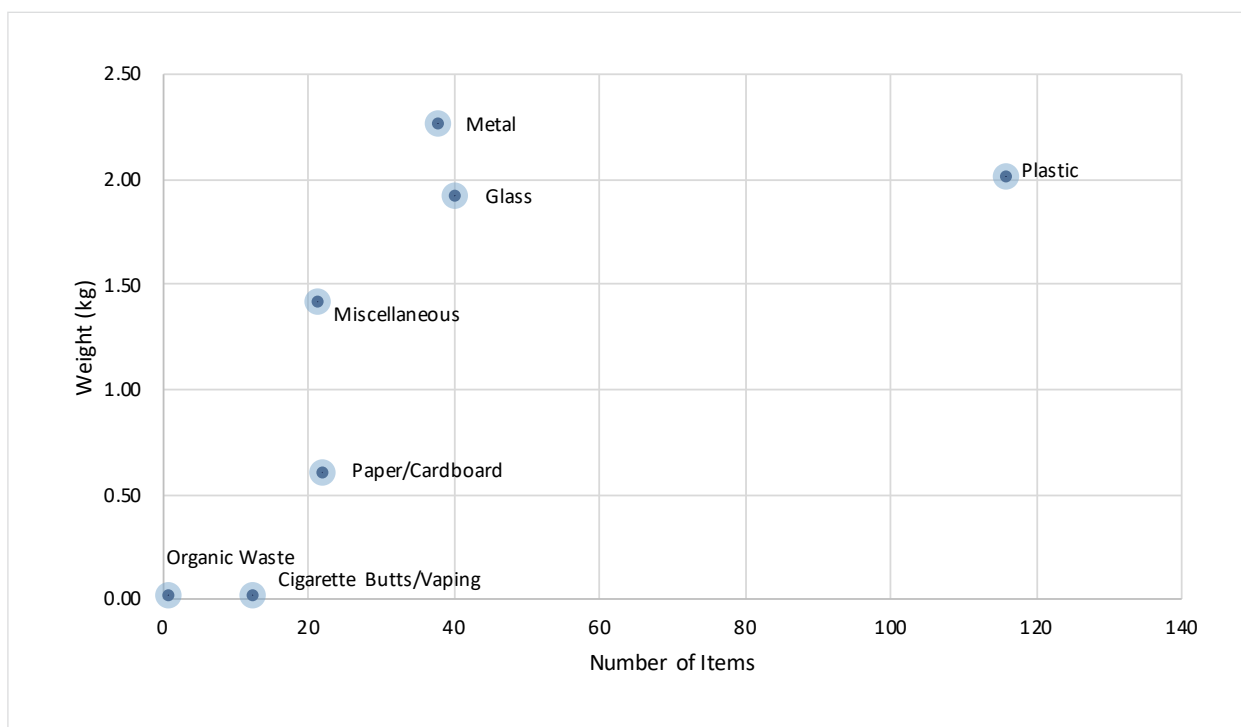
COMPARISON BY MAIN MATERIAL TYPE OVER TIME

ITEMS PER 1,000 M²

Plastic has seen the biggest increase in the number of litter items collected per 1,000 m² at Railway sites since 2019 (116 items vs. 37 items in 2019). Metal, Paper/Cardboard and Miscellaneous items have also seen small to moderate increases in the number of litter items collected compared with 2019. The number of Glass collected per 1,000 m² on Railway sites has decreased compared with 2019 (40 items vs. 53 items in 2019).

Figure 51: Railways, Items per 1,000 m² by Main Material Type: Comparison Over Time
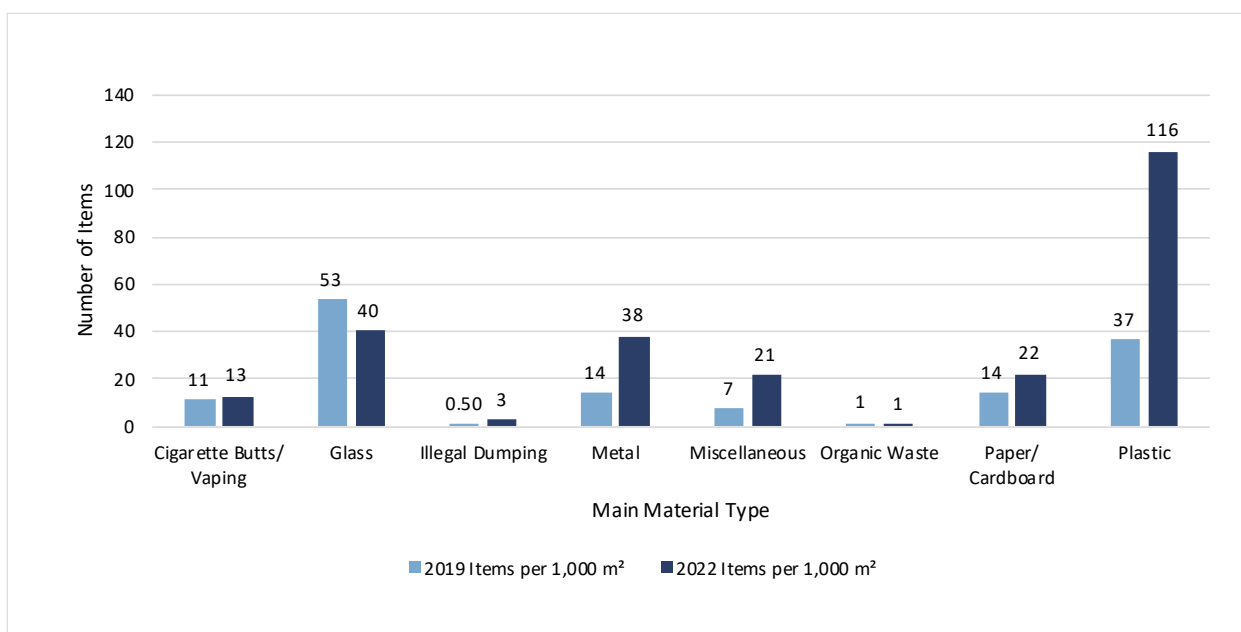
VOLUME PER 1,000 M²

Illegal Dumping had the biggest increase in estimated volume at Railway sites compared with 2019 (66.49 ltr vs. 11.93 ltr in 2019 per 1,000 m²). Paper/Cardboard and Plastic have also seen a large increase in litter volumes since 2019 whilst Cigarette Butts/Vaping volumes have remained relatively consistent with 2019 results (0.03 ltr vs. 0.001 ltr in 2019). Paper/Cardboard and Plastic have also seen a large increase in litter volumes since 2019.

Figure 52: Railways, Volume per 1,000 m² by Main Material Type: Comparison Over Time
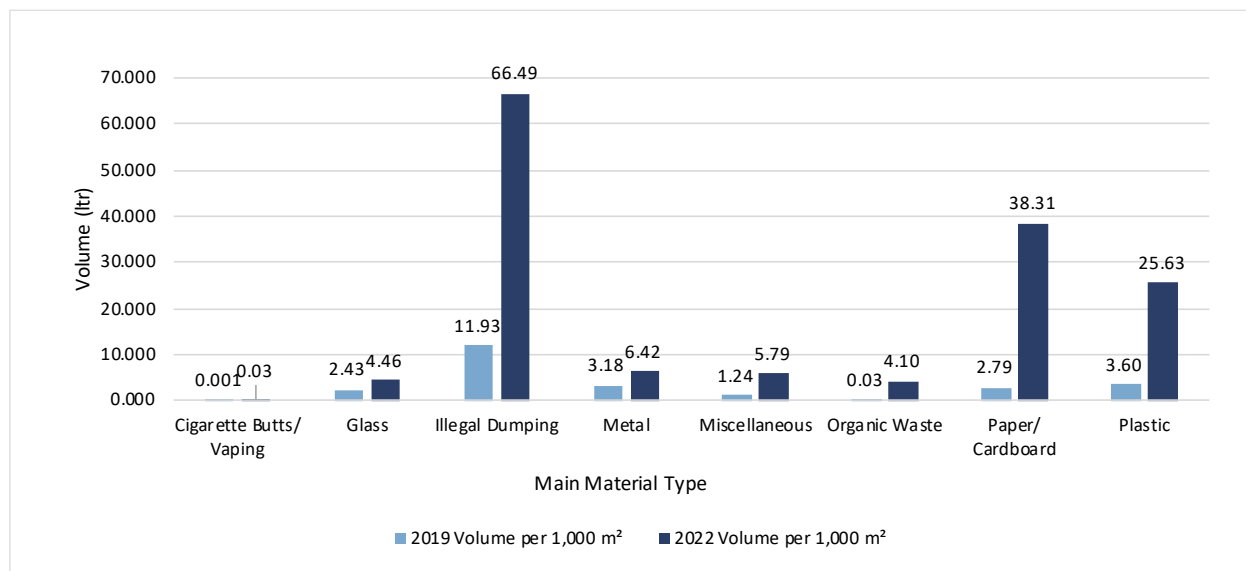
WEIGHT PER 1,000 M²

Metal has seen the biggest increase in litter weight at Railway sites per 1,000 m² since 2019 (2.26 kg vs. 0.54 kg in 2019), followed closely by Plastic (2.01 kg vs. 0.64 kg in 2019). The litter weight of Organic Waste collected has decreased slightly since 2019 (0.02 kg vs. 0.15 kg per 1,000 m² in 2019).

Figure 53: Railways, Weight per 1,000 m² by Main Material Type: Comparison Over Time
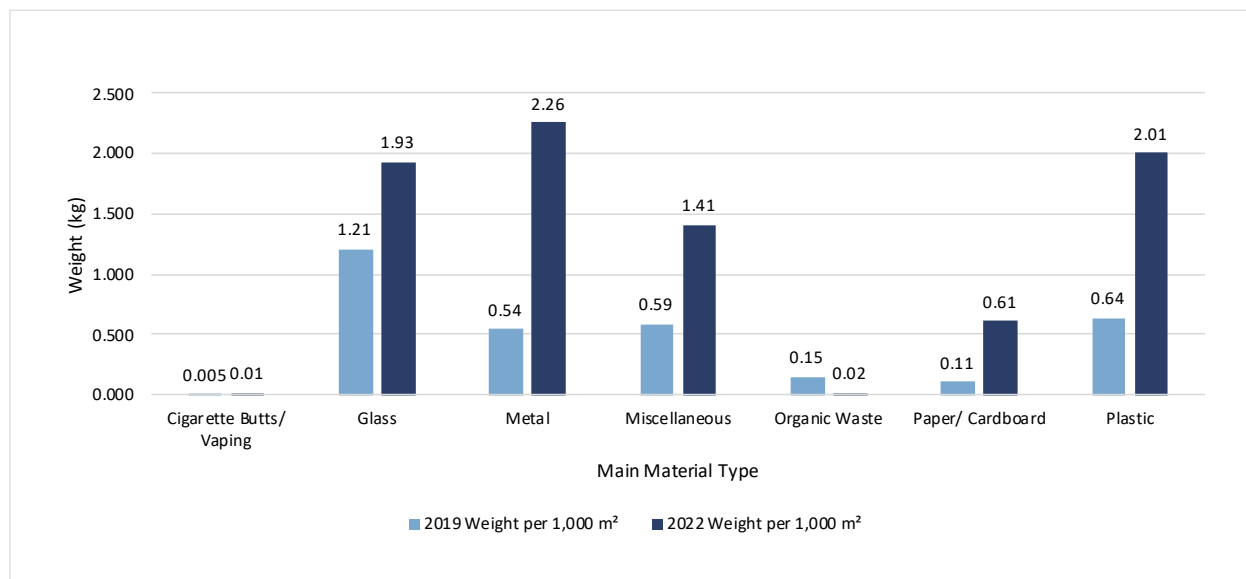
HIGHWAYS & RAILWAYS

SITE TYPES BY MATERIAL TYPE

The number of litter items per 1,000 m² for the main material types nationally, at Highway and Railway sites were as follows:

- Highway sites: Plastic (161 items), Metal (65 items), Paper/Cardboard (39 items), Cigarette Butts/Vaping (33 items), Glass (33 items), Miscellaneous (28 items), Organic Waste (5 items) and Illegal Dumping (less than 1 item).

- Railway sites: Plastic (116 items), Glass (40 items), Metal (38 items), Paper/Cardboard (22 items), Miscellaneous (21 items), Cigarette Butts/Vaping (13 items), Illegal Dumping (3 items) and Organic Waste (1 item).

Figure 54: Highways and Railways 2022, Sites by Main Material Type: Items per 1,000 m²
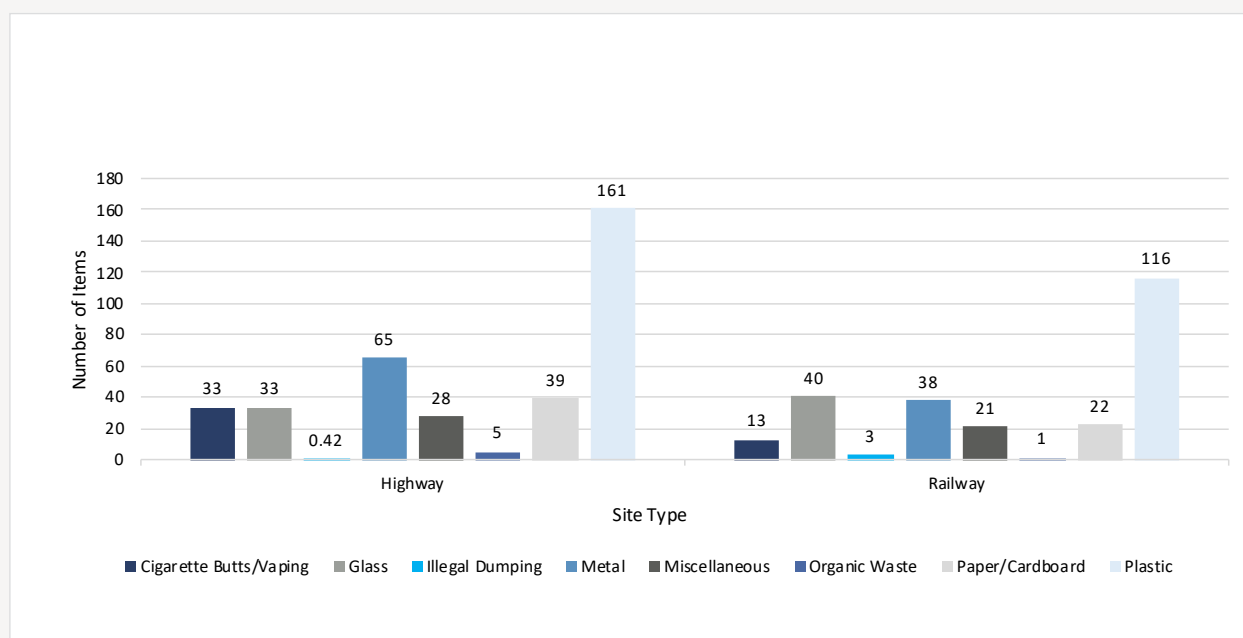
THE DIRTY DOZEN

HIGHWAY SITES

Within the material subcategories, Plastic: Unidentifiable hard plastic fragments was the largest contributor to the number of litter items collected at Highway sites nationally, with an average of 40 items per 1,000 m.

Other material subcategories which were associated with large litter numbers included:

- Cigarette Butts/Vaping: Cigarette butts (32 items per 1,000 m²)
- Plastic: Unidentifiable soft plastic fragments (29 items per 1,000 m²)
- Glass: Unidentifiable glass fragments (24 items per 1,000 m²)

Not all material subcategories were comparable to the 2019 NLA due to the addition of new subcategories in 2022.

Amongst comparable material subcategories there was a large increase in the number of Plastic: Snack bags & confectionary wrappers, Metal: Flavoured water/soft drink (carbonated, all sizes) and Metal: Alcoholic sodas & spirit-based mixers collected.

Figure 55: Highways, Dirty Dozen, Items per 1,000 m², Material Subcategories: Comparison Over Time
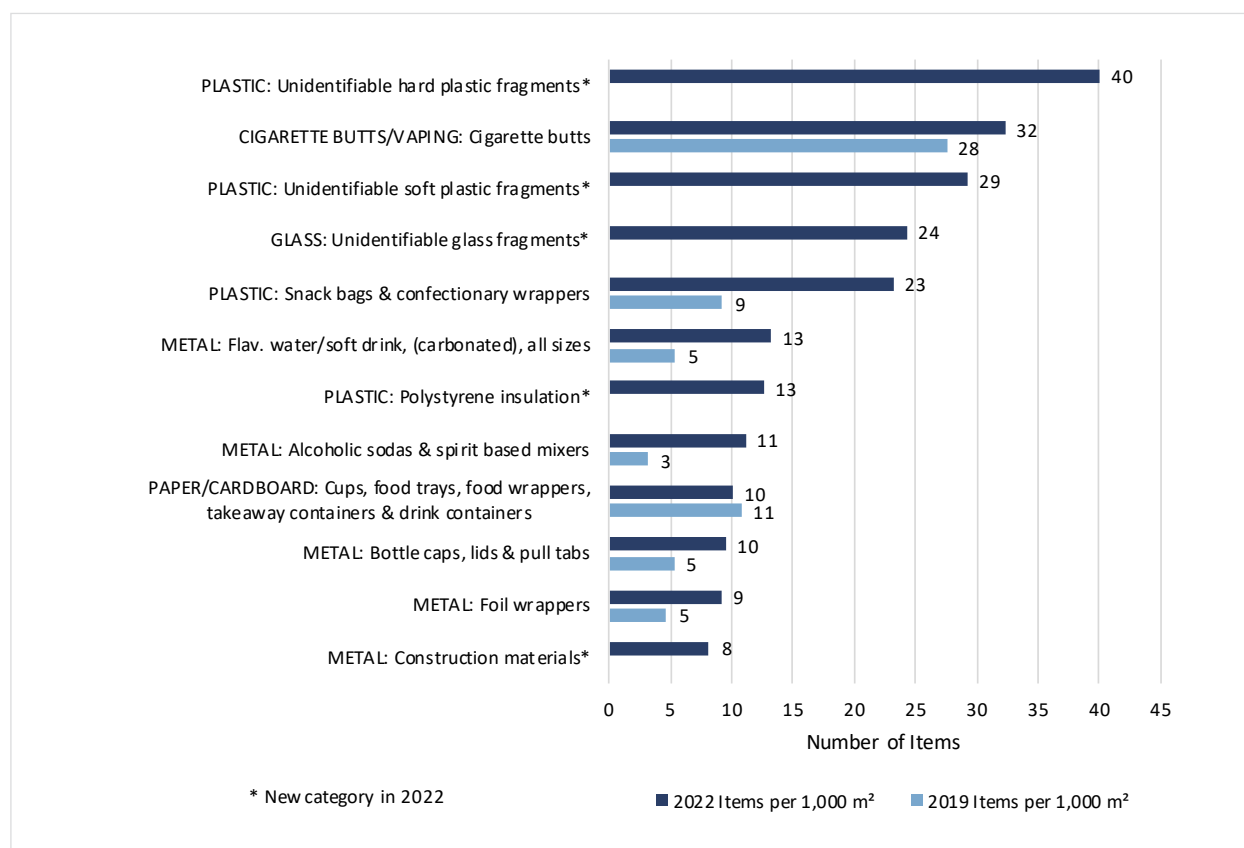
From an analysis of all the material subcategories, Paper/Cardboard: Cardboard boxes contributed the largest proportion to the total estimated litter volumes at Highway sites nationally, recording 98.41 ltr per 1,000 m². This differs to 2019, where Illegal Dumping had the largest volume per 1,000 m².

Other material subcategories with significant litter volumes included:

- Miscellaneous: Tyre pieces (40.51 ltr per 1,000 m²)

- Plastic: Polystyrene insulation (23.73 ltr per 1,000 m²)

- Organic Waste: Compostable packaging (21.24 ltr per 1,000 m²)

Not all material subcategories were comparable to the 2019 NLA due to the addition of new subcategories in 2022.

Amongst comparable material subcategories, Illegal Dumping has seen a decrease in volume per 1,000 m² compared with 2019 (10.13 ltr vs. 17.36 ltr in 2019).

Figure 56: Highways, Dirty Dozen, Volume per 1,000 m², Material Subcategories: Comparison Over Time
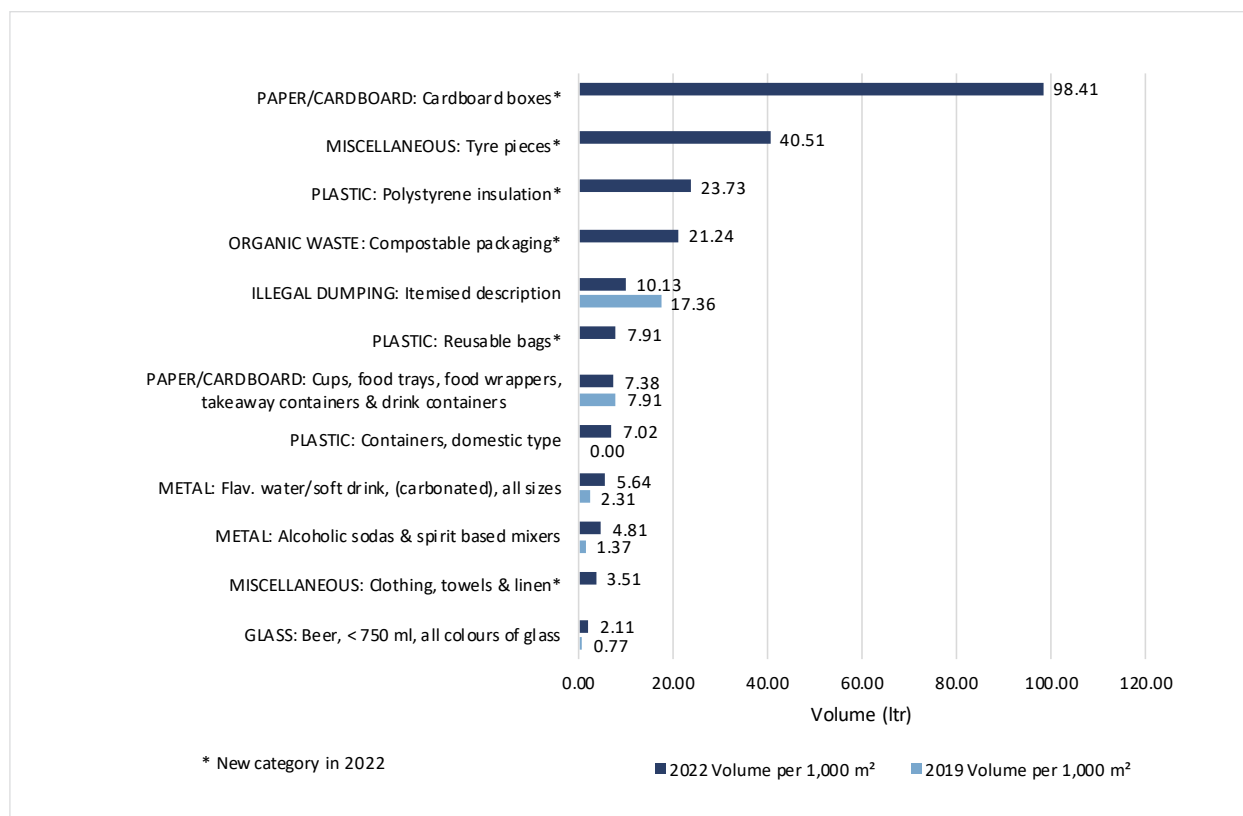
As in 2019, Glass: Beer bottles < 750 ml, all colours was the largest contributor to the overall litter weight across Highway sites nationally (0.70 kg vs 0.33 kg in 2019) per 1,000 m².

Material subcategories which contributed proportionally higher litter weights included:

- Miscellaneous: Tyre pieces (0.33 kg per 1,000 m²)

- Paper/Cardboard: Cardboard boxes (0.33 kg per 1,000 m²)

- Metal: Metal pieces/fragments (0.33 kg per 1,000 m²)

Figure 57: Highways, Dirty Dozen, Weight per 1,000 m², Material Subcategories: Comparison Over Time

Chart data:

Category	2022 Weight per 1,000 m²	2019 Weight per 1,000 m²
GLASS: Beer, < 750 ml, all colours of glass	0.70	0.33
MISCELLANEOUS: Tyre pieces*	0.33	
PAPER/CARDBOARD: Cardboard boxes*	0.33	
METAL: Metal pieces/fragments	0.33	0.14
PLASTIC: Unidentifiable hard plastic fragments*	0.26	
MISCELLANEOUS: Clothing, towels & linen*	0.23	
METAL: Flav. water/soft drink, (carbonated), all sizes	0.23	0.07
PLASTIC: Construction materials*	0.22	
PLASTIC: Other plastic	0.22	0.26
METAL: Vehicle parts*	0.21	
GLASS: Alcoholic sodas/spirit based mixers, all sizes	0.18	0.08
MISCELLANEOUS: Other cloth*	0.16	

Weight (kg)

* New category in 2022

RAILWAY SITES

Glass: Unidentifiable glass objects was the largest contributor to the litter collected at Railway sites nationally, with an average of 29 litter items identified per 1,000 m².

Other material subcategories which were associated with large litter numbers included:

- Plastic: Unidentifiable soft plastic fragments (28 items per 1,000 m²)
- Plastic: Unidentifiable hard plastic fragments (23 items per 1,000 m²)
- Plastic: Snack bags & confectionery wrappers (19 items per 1,000 m²).
- Cigarette Butts/Vaping: Cigarette butts (12 items per 1,000 m²)

Not all material subcategories were comparable to the 2019 NLA due to the addition of new subcategories in 2022.

Amongst comparable material subcategories, there has been a large increase in the number of Plastic: Snack bags & confectionary wrappers collected per 1,000 m² (19 items vs. 8 items in 2019).

Figure 58: Railways, Dirty Dozen, Items per 1,000 m², Material Subcategories: Comparison Over Time
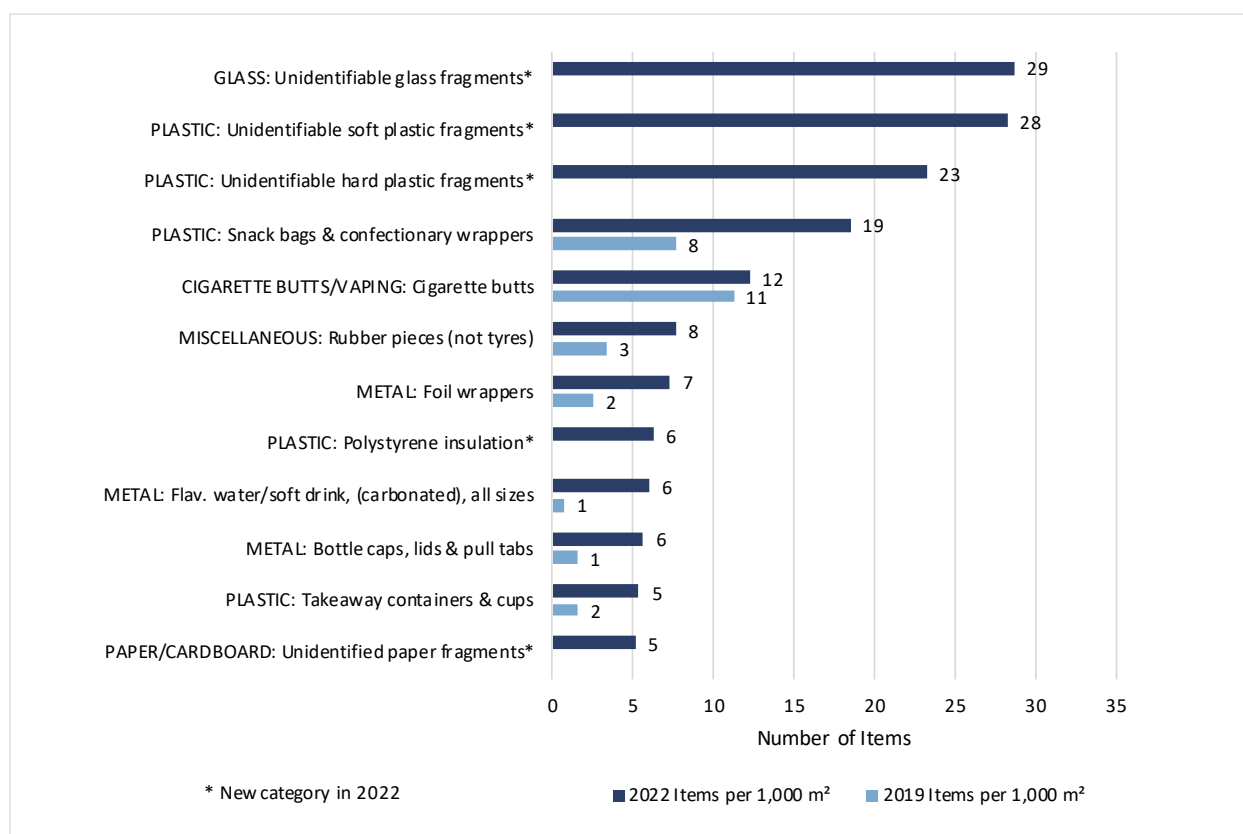
As in 2019, Illegal Dumping represented the largest contribution to the estimated national Railway site litter volumes, recording 66.49 ltr of volume per 1,000 m².

Other material subcategories which were associated with large litter volumes included:

- Paper/Cardboard: Cardboard boxes (29.92 ltr per 1,000 m²)
- Plastic: Polystyrene insulation (11.69 ltr per 1,000 m²)
- Plastic: Container, domestic type (4.32 ltr per 1,000 m²)

Not all material subcategories were comparable to the 2019 NLA due to the addition of new subcategories in 2022.

Amongst comparable material subcategories, there has been a large increase in the volume of Illegal Dumping found per 1,000 m² (66.49 ltr vs. 11.93 ltr in 2019).

Figure 59: Railways, Dirty Dozen, Volume per 1,000 m², Material Subcategories: Comparison Over Time

* New category in 2022

■ 2022 Volume per 1,000 m²   ■ 2019 Volume per 1,000 m²
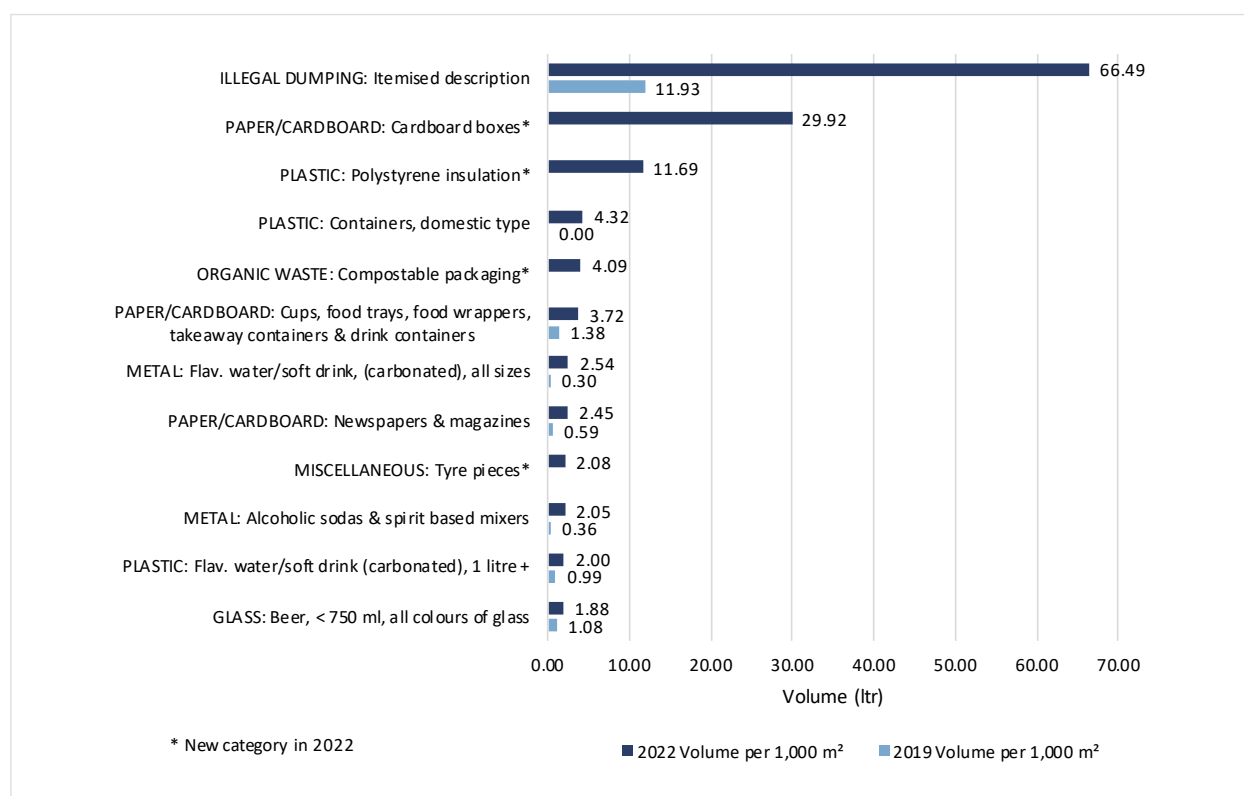
Within material subcategories, Metal: Construction materials was the highest contributor to litter weight across Railway sites nationally, with 1.05 kg per 1,000 m² recorded. Compared with 2019, there was a large increase in Miscellaneous: Rubber pieces (not tyres) and a large decrease in Glass: Glass (other) collected per 1,000 m².

Other material subcategories which contributed larger litter weights per 1,000 m² included:

- Plastic: Unidentifiable hard plastic fragments (0.79 kg per 1,000 m²)

- Miscellaneous: Rubber pieces (not tyres) (0.76 kg per 1,000 m²)

- Glass: Beer bottles < 750ml (all colours) (0.71 kg per 1,000 m²).

Figure 60: Railways, Dirty Dozen, Weight per 1,000 m², Material Subcategories: Comparison Over Time
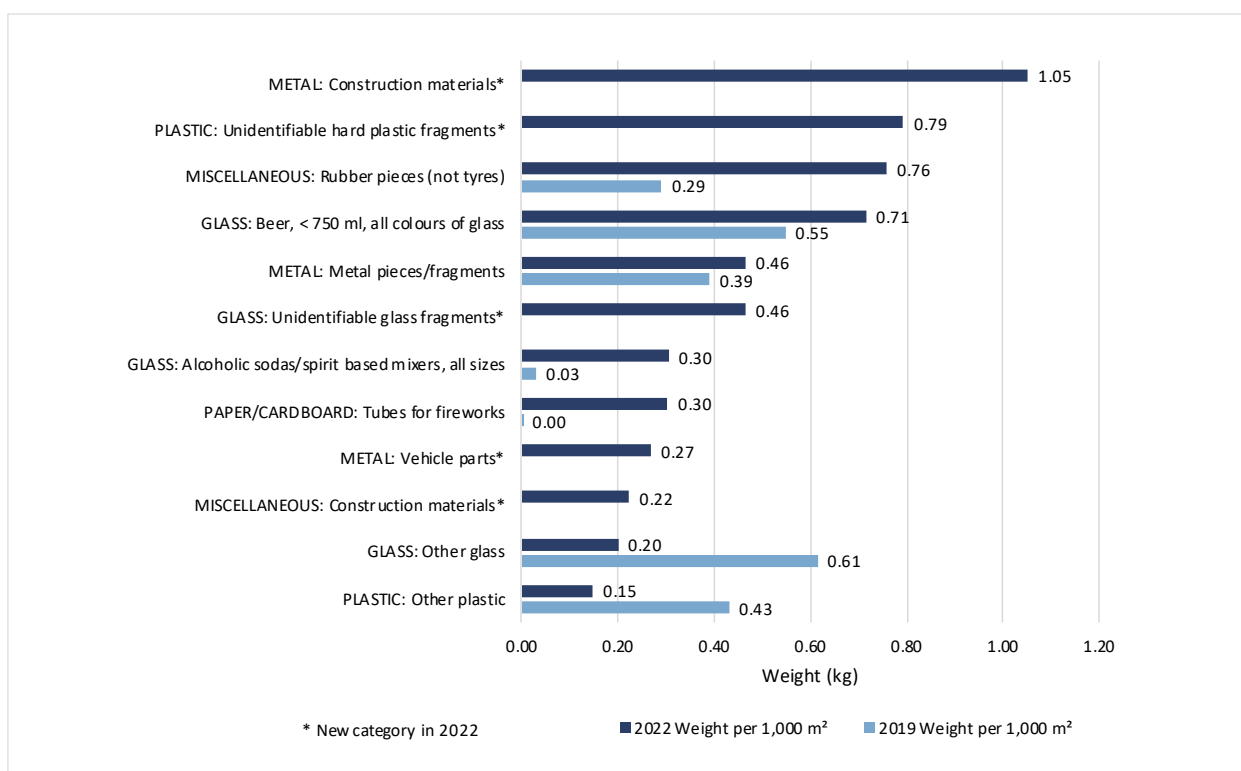
SITE GRADINGS

All sites were assigned gradings in four 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 4, Risk and Litter Distribution: Highways

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

Figure 61: Highways 2022, Grading: Visual Site Ratings
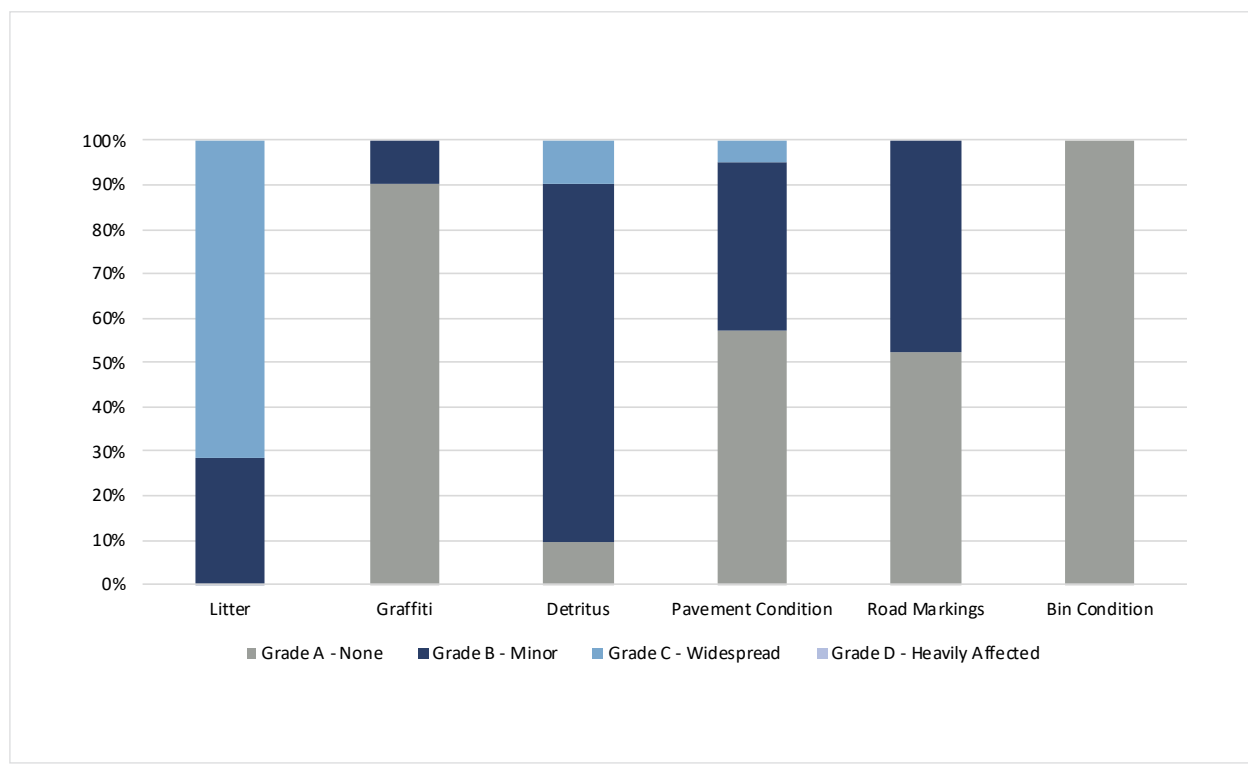
Figure 62: Highways 2022, Grading: Site Litter Hotshots Ratings
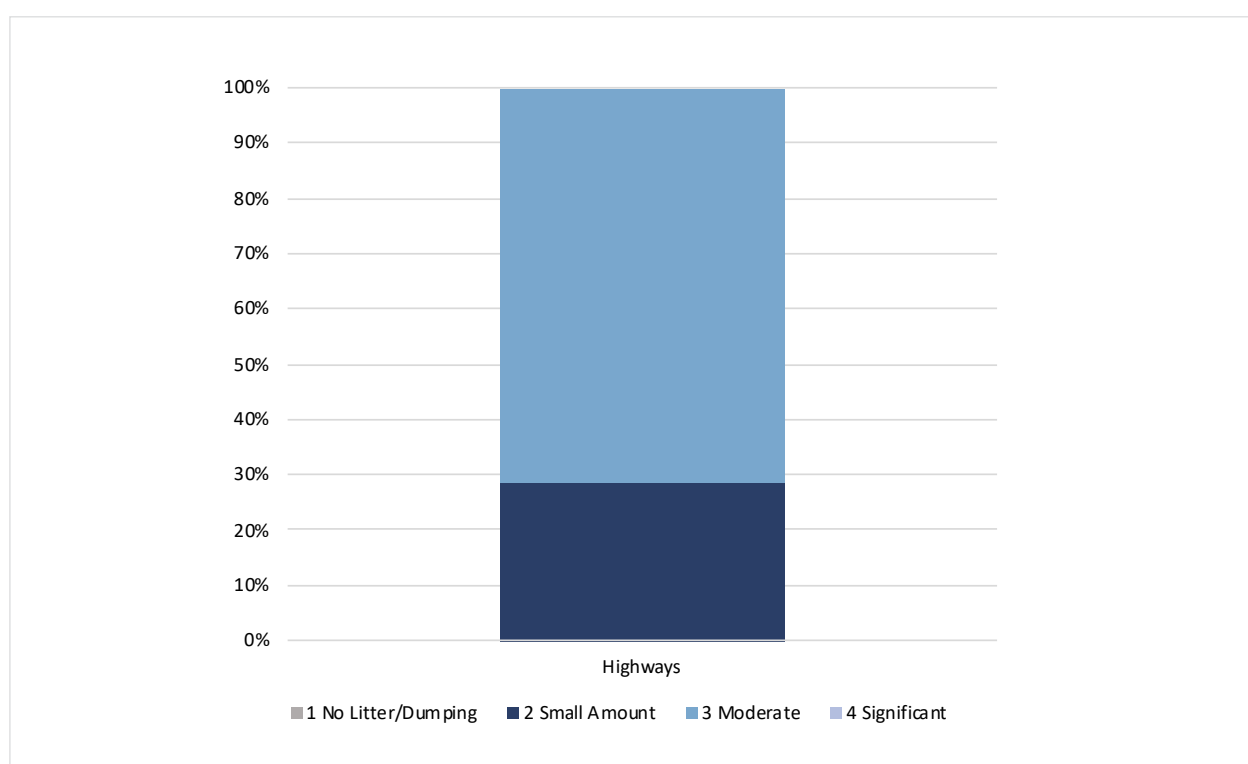
Extract from Table 4, Risk and Litter Distribution: Railways

Railways	Risk Present		Litter Distribution	
	Moderate hazard or risk	Significant hazard or risk	Widespread	Clustered
	100%	0%	91%	9%

Figure 63: Railways 2022, Grading: Visual Site Ratings
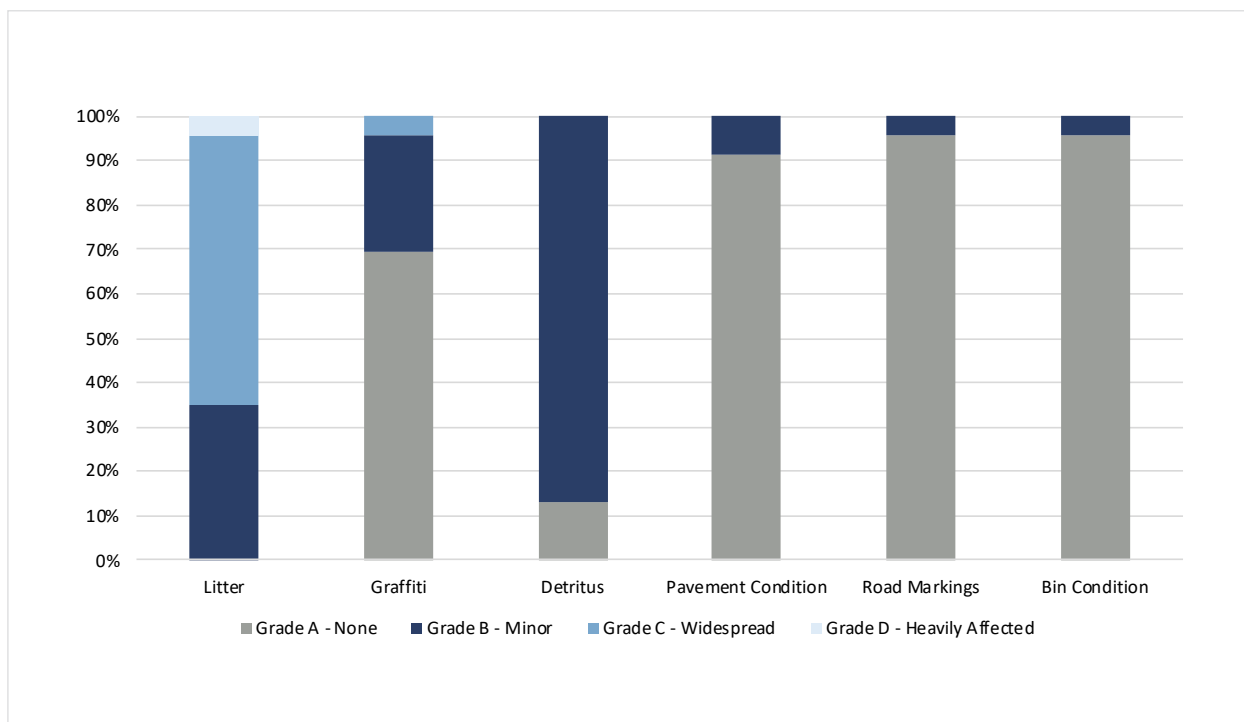
Figure 64: Railways 2022, Grading: Site Litter Hotshots Ratings
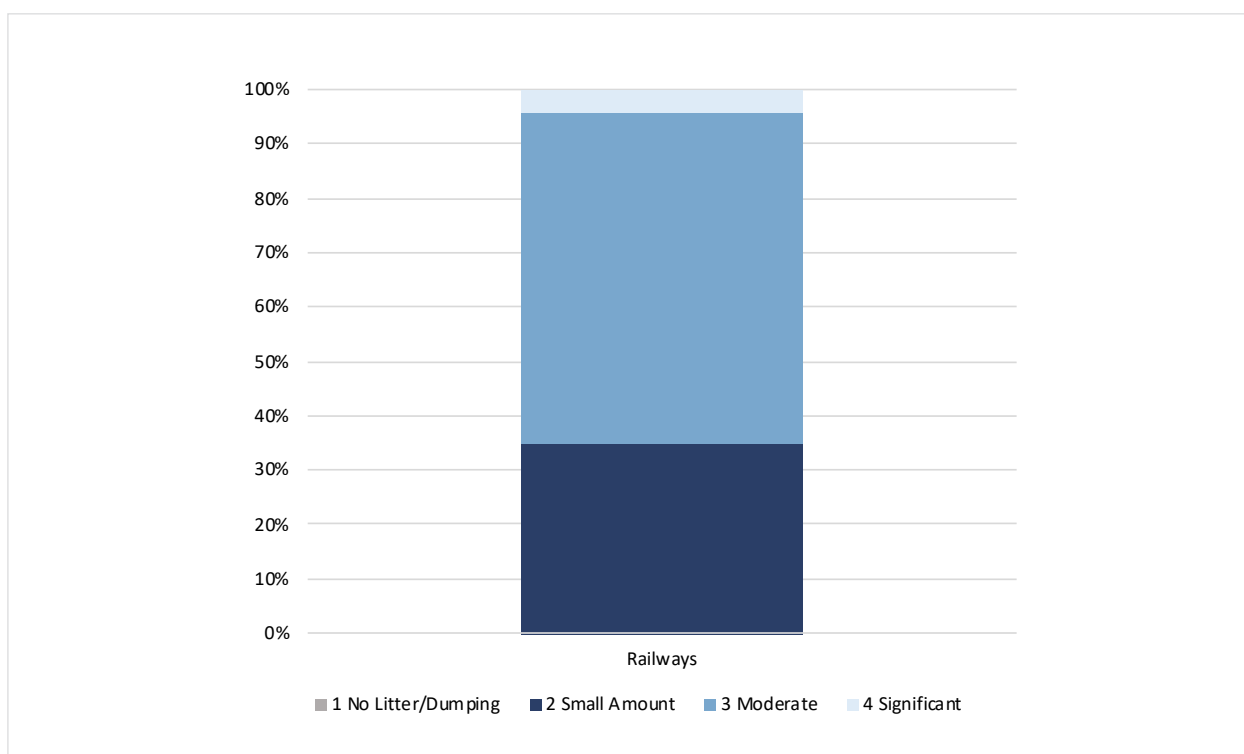
THE
REGIONS

AUCKLAND
REGION

AT A GLANCE

The overall average number of litter items per 1,000 m² across the 37 sites audited in the Auckland region was 134 items, the average estimated volume of litter per 1,000 m² was 47.97 ltr and the overall average litter weight per 1,000 m² was 1.18 kg.

Industrial sites contributed high numbers across all three measures of litter, including number of litter items, volume and weight. Residential sites contributed to moderate to high litter volumes per 1,000 m², whilst recording moderate litter items and weights.

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

Plastic was the most frequently recorded material type identified per 1,000 m² in the Auckland region and was associated with the highest weights whilst contributing moderate volumes of litter. Cigarette Butts/Vaping was the second most frequently identified material type, but contributed the smallest volumes and weights of litter. Paper/Cardboard contributed the largest volumes of litter and third largest litter weights but were associated with moderate numbers of litter items. Miscellaneous items were identified as the second largest contributor to litter weight per 1,000 m², whilst contributing moderate numbers of litter items and low volumes to the litter stream.

Note:

- *New material subcategories were added in 2022 and so not all material subcategories are comparable between 2019 and 2022.*

- *A litter weight was not recorded for any items of Illegal Dumping identified during the audit, and therefore has not been included in the analysis.*

- *Not all regions were audited for Highway and/or Railway sites, and so these site types have been separated out and specifics for each region given at the end of the relevant chapter. The Auckland region was audited for one Highway site and two Railway sites.*

COMPARISONS BY SITE TYPES

The site type with the highest number of litter items per 1,000 m² was Industrial sites (576 items). Moderate levels of litter items per 1,000 m² were associated with Retail (174 items) and Residential (141 items) sites. The smallest number of litter items per 1,000 m² were located at Car Park sites (55 items) and Public Recreational Spaces (16 items).

The estimated litter volumes per 1,000 m² at Industrial (252.07 ltr) and Residential (100.22 ltr) sites were both higher than the regional average (47.97 ltr). Public

Recreational Spaces contributed to the smallest volume per 1,000 m² (1.19 ltr).

The largest litter weights per 1,000 m² in the Auckland region were recorded at Industrial sites (5.79 kg). More moderate weights were associated with Residential sites (1.63 kg), whilst moderate to low weights were associated with Retail sites (0.64 kg). Public Recreational Spaces and Car Park sites had the smallest weights of litter per 1,000 m² compared to the rest of the site types (both 0.22 kg).

Figure 65: Auckland 2022, Items and Volume per 1,000 m² by Site Type
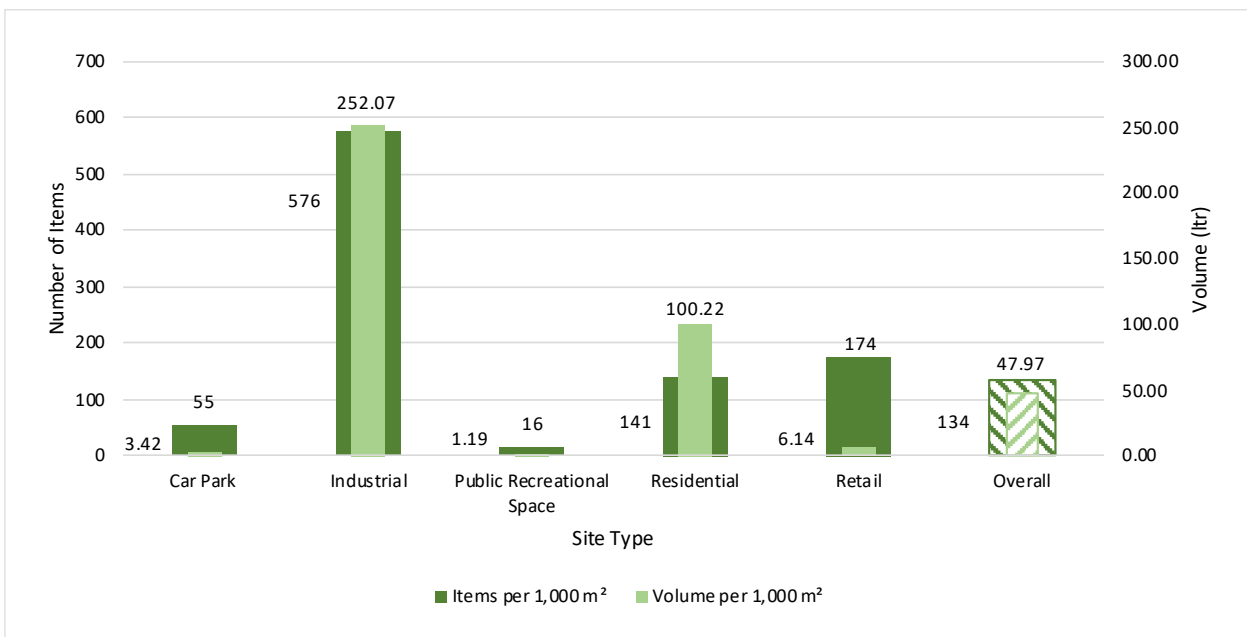
Figure 66: Auckland 2022, Items and Weight per 1,000 m² by Site Type
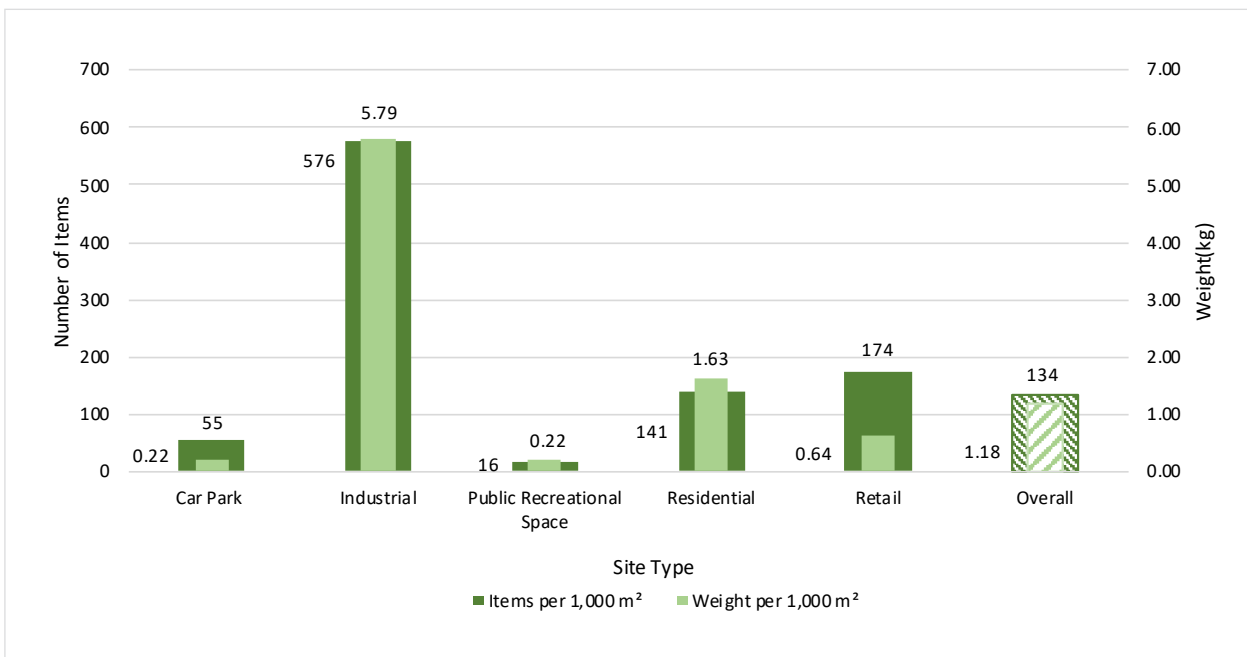
SITE CHARACTERISTICS

The following site characteristics across all site types (excluding Highway and Railway sites) were identified for litter items and volume per 1,000 m² in the Auckland region:

- Industrial sites contributed to high numbers of litter items and large volumes of litter.

- Residential sites were associated with moderate numbers of litter items and moderate to high volumes of litter.

- Retail sites contributed to moderate numbers of litter items and small volumes of litter.

- Public Recreational Spaces and Car Parks contributed to low numbers of litter items and small volumes of litter.

Figure 67: Auckland 2022, Items and Volume per 1,000 m² by Site Type
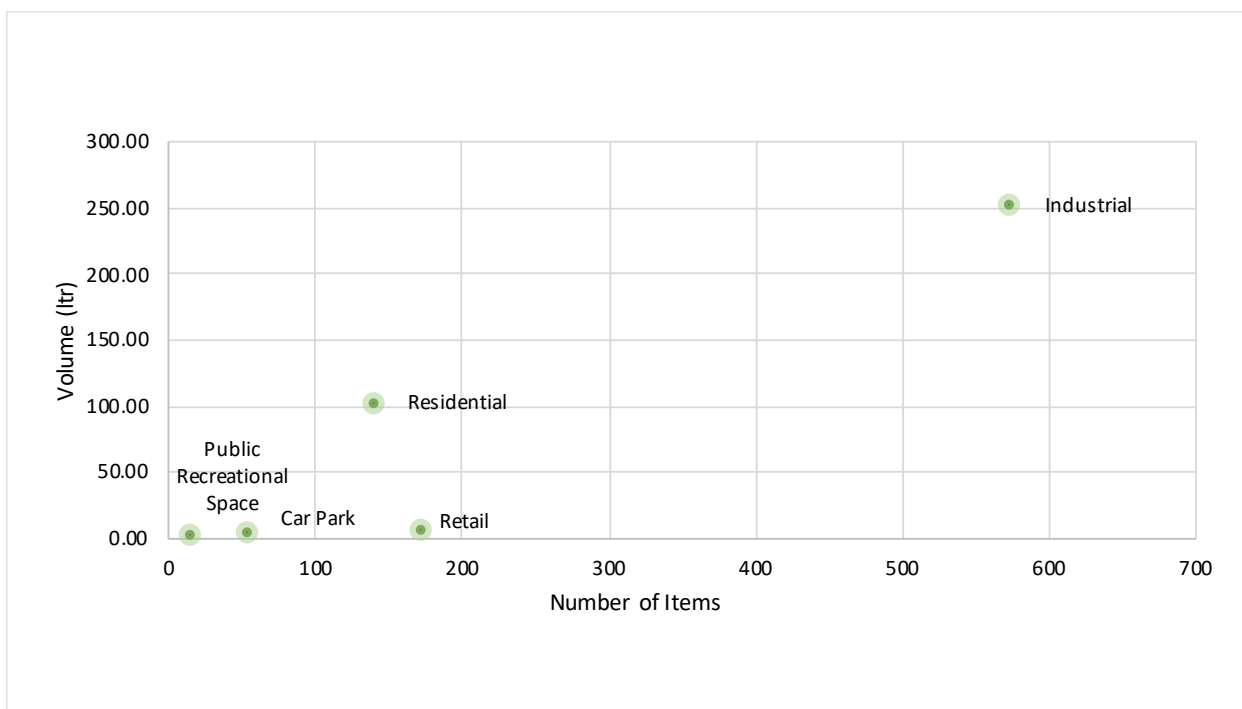
The following site characteristics across all site types (excluding Highway and Railway sites) were identified for litter items and weight per 1,000 m² in the Auckland region:

- Industrial sites recorded high numbers of litter items and large litter weights.

- Car Parks and Public Recreational Spaces contributed low numbers of litter items and weights.

- Residential sites were associated with moderate numbers of litter items and weights.

- Retail sites were associated with moderate numbers of litter items and moderate to low litter weights.

Figure 68: Auckland 2022, Items and Weight per 1,000 m² by Site Type
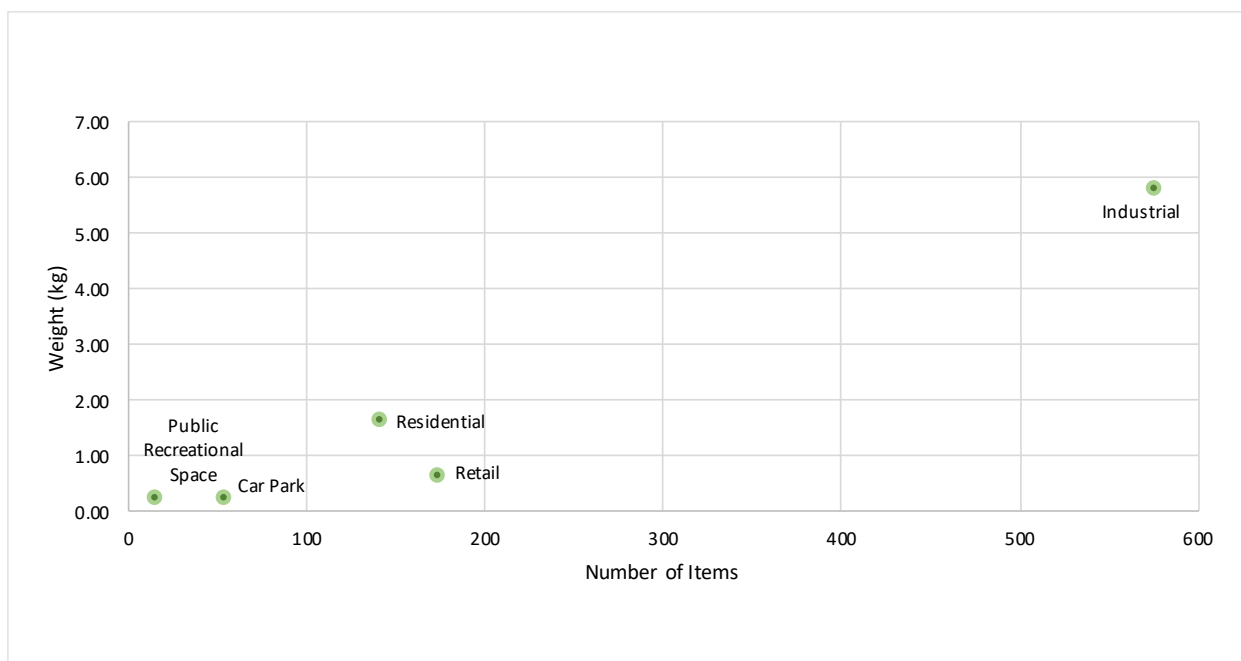
COMPARISON BY SITE TYPE OVER TIME

Since 2019, there has been a large increase in the estimated volume of litter per 1,000 m² in the Auckland region, whilst there has been a decrease in the number of litter items per 1,000 m². The litter weight per 1,000 m² has remained consistent with 2019 findings. Industrial sites had the most noticeable increases in litter items, volume and weight per 1,000 m² since 2019.

ITEMS PER 1,000 M²

The number of litter items collected per 1,000 m² in the Auckland region has decreased by 68 items since 2019. As shown in the graphs below, there has been significant decreases in the number of litter items collected in Car Park (55 vs. 235 per 1,000 m² in 2019) and Retail (174 vs. 422 per 1,000 m² in 2019) sites, whilst there has been an increase in the number of litter items collected at Industrial sites (576 vs. 411 per 1,000 m² in 2019).

Figure 69: Auckland, Items per 1,000 m² by Site Type: Comparison Over Time
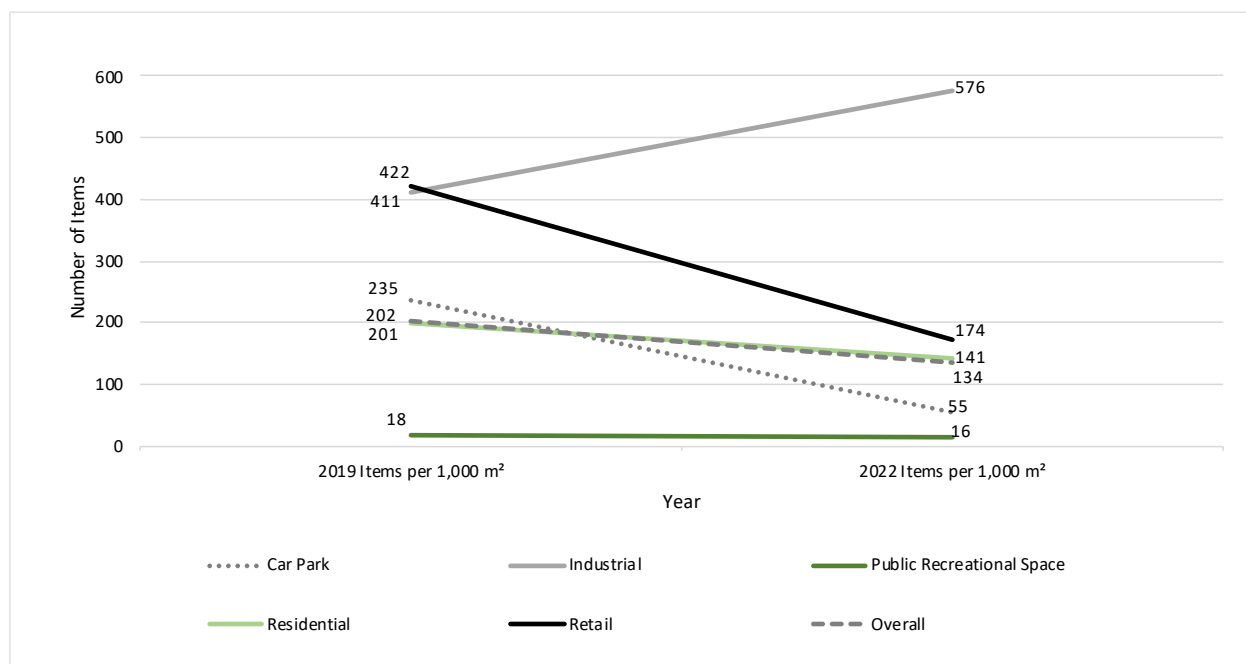
Figure 70: Auckland, Items per 1,000 m² by Site Type: Comparison Over Time
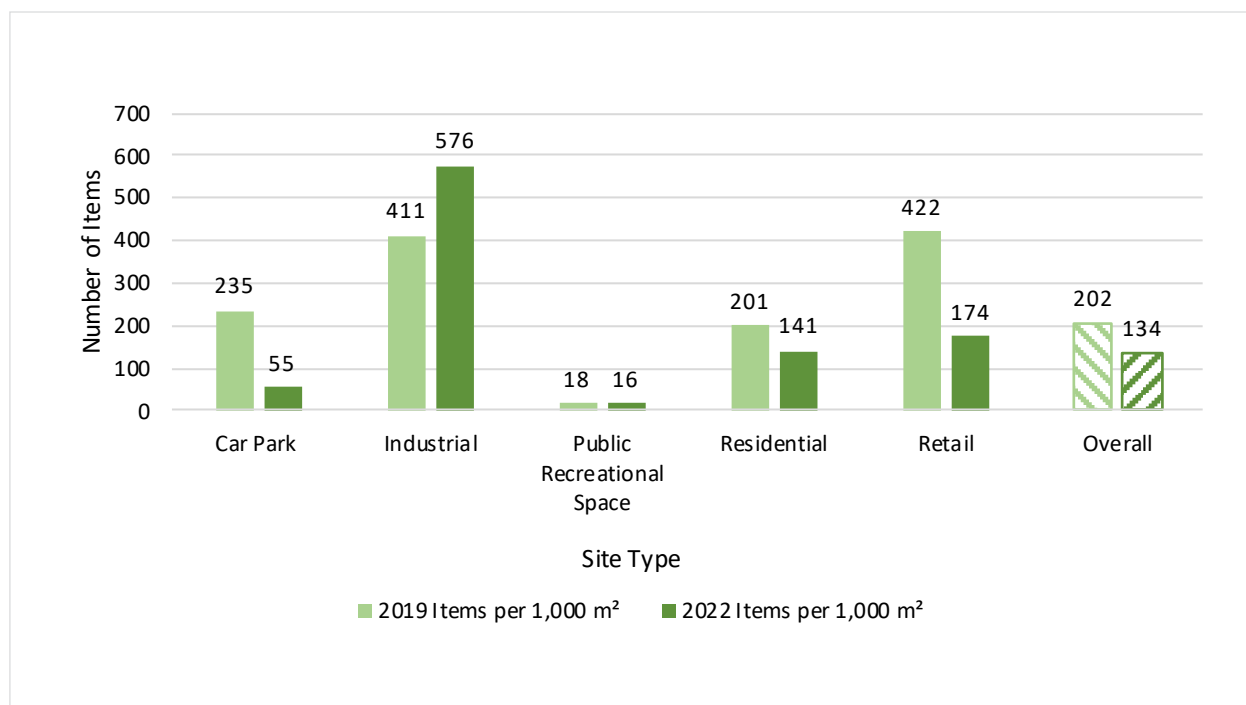
VOLUME PER 1,000 M²

Overall, litter volume per 1,000 m² in the Auckland region has increased by 39.02 ltr since 2019. As shown in the graphs below, this increase is significant at Industrial (252.07 ltr vs. 14.52 ltr in 2019) and Residential (100.22 ltr vs. 15.12 ltr in 2019) sites.

Figure 71: Auckland, Volume per 1,000 m² by Site Type: Comparison Over Time
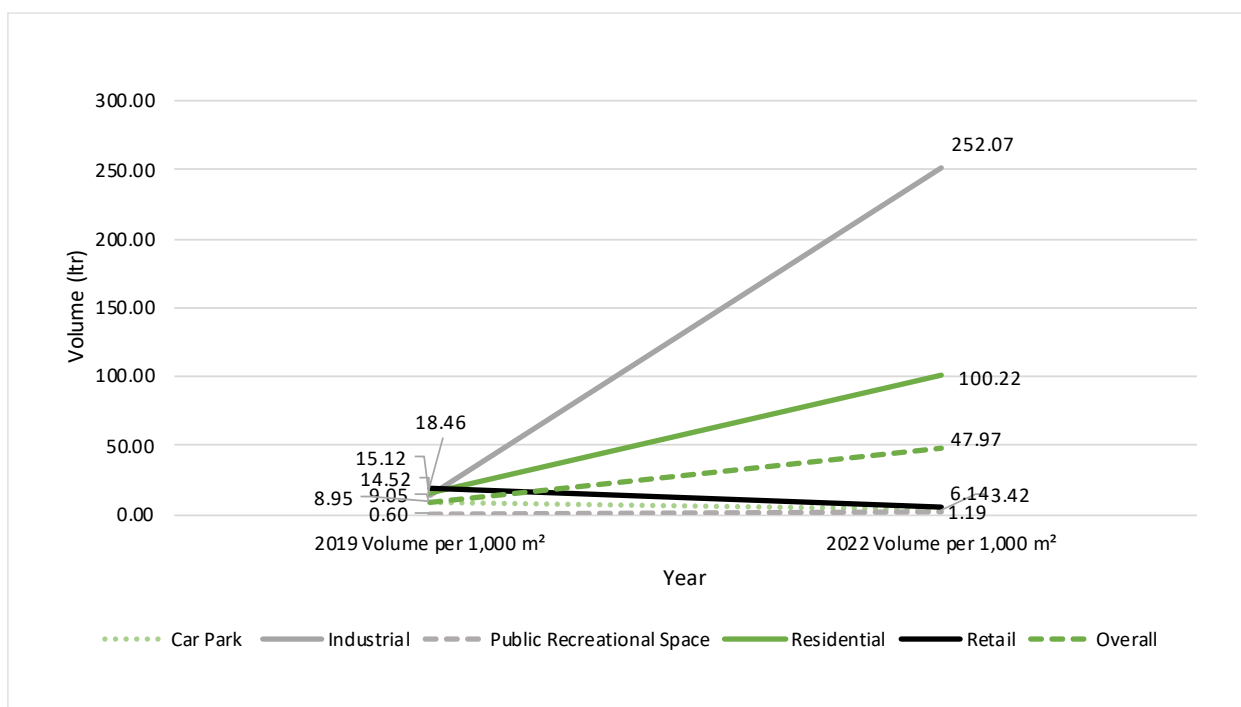
Figure 72: Auckland, Volume per 1,000 m² by Site Type: Comparison Over Time
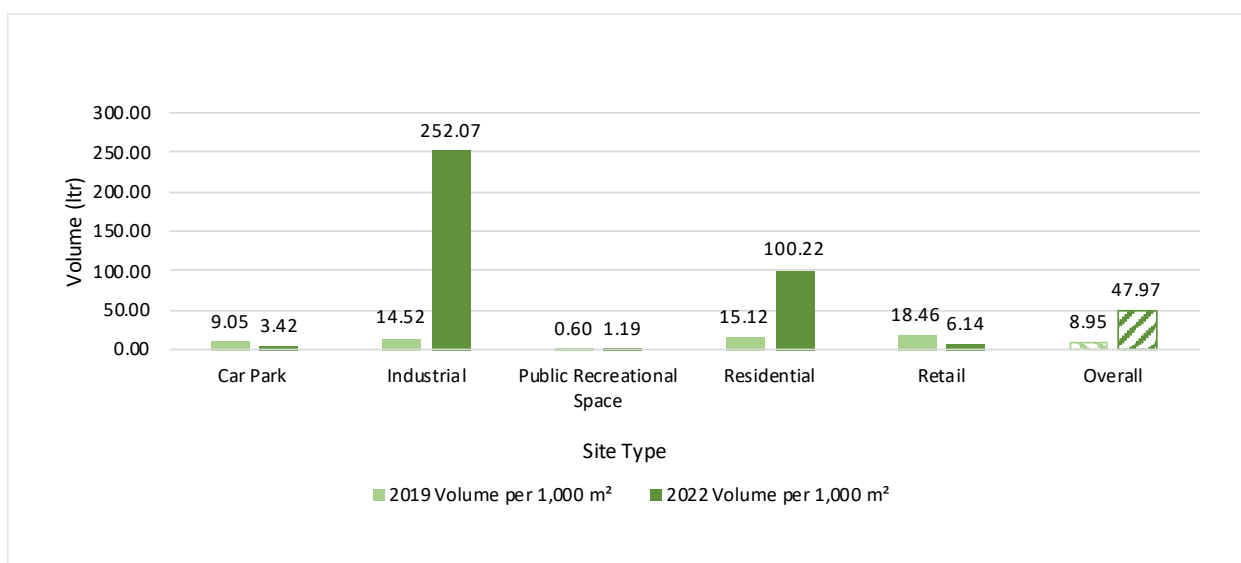
WEIGHT PER 1,000 M²

Overall, the litter weight in the Auckland region remains consistent with 2019 (1.18 kg vs. 1.16 kg per 1,000 m² in 2019). As shown in the graphs below, there was a significant increase in litter weight per 1,000 m² at Industrial sites (5.79 kg vs. 1.87 kg in 2019), with Car Park, Residential and Retail sites all recording decreases in weight per 1,000 m².

Figure 73: Auckland, Weight per 1,000 m² by Site Type: Comparison Over Time
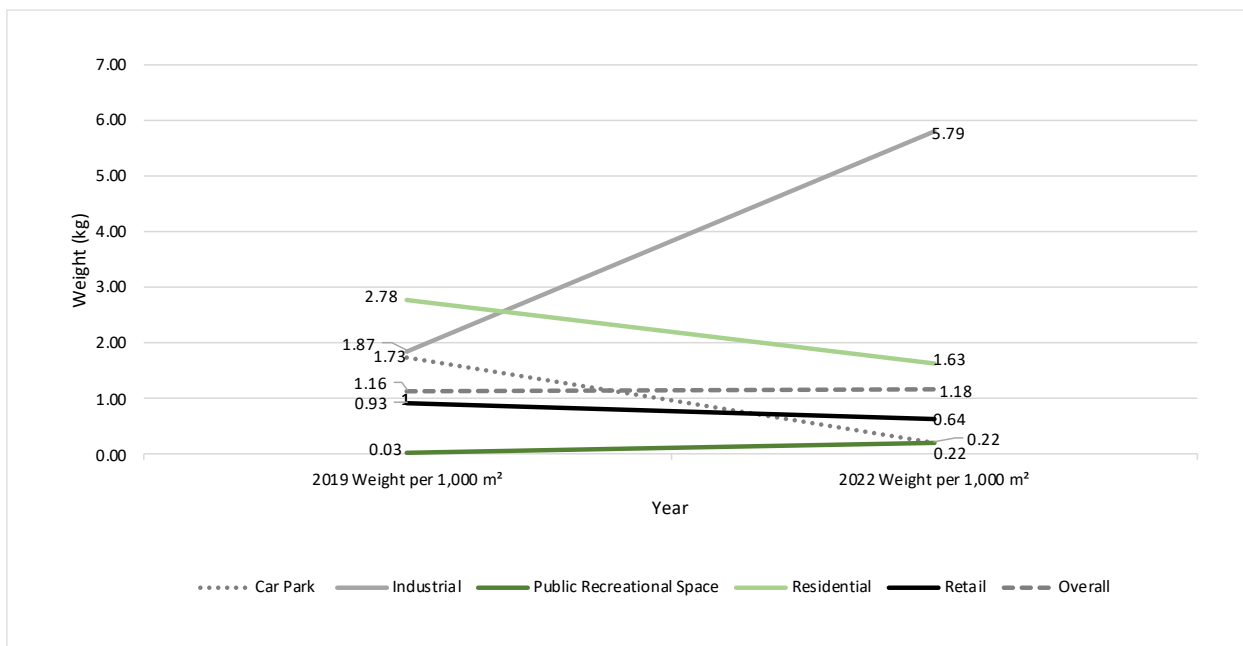
Figure 74: Auckland, Weight per 1,000 m² by Site Type: Comparison Over Time
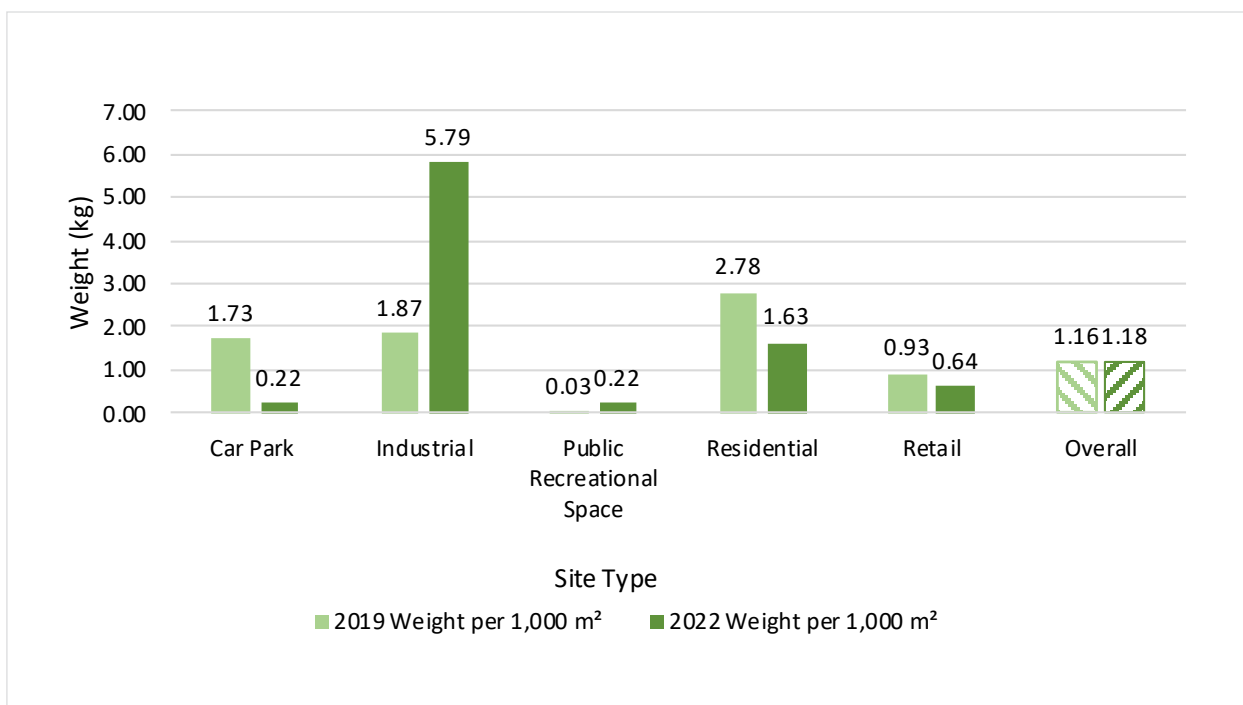
COMPARISON BY MAIN MATERIAL TYPES

Plastic was the most frequently recorded material type in the Auckland region (49 items) whilst Cigarette Butts/ Vaping (28 items) also added significantly to the litter stream. Moderate numbers of litter items per 1,000 m² were recorded for Paper/Cardboard (16 items), Metal (15 items), Miscellaneous (13 items) and Glass (12 items). Organic Waste (1 item) and Illegal Dumping (less than 1 item) contributed very low numbers of litter items.

The material types which contributed the greatest estimated volumes per 1,000 m² to the litter stream in the Auckland region were Paper/Cardboard (22.04 ltr), Illegal Dumping (10.91 ltr) and Plastic (9.62 ltr). Although there was a relatively high number of litter items collected, Cigarette Butts/Vaping contributed the smallest amount to litter volume (0.06 ltr).

The largest litter weights per 1,000 m² in the region were associated with the material types of Plastic (0.30 kg), Miscellaneous (0.29 kg) and Paper/Cardboard (0.26 kg), whilst more moderate litter weights were recorded for Metal (0.13 kg) and Glass (0.12 kg). Cigarette Butts/Vaping (0.03 kg) and Organic Waste (0.03 kg) contributed the smallest proportion of weight to the overall litter stream.

Figure 75: Auckland 2022, Items and Volume per 1,000 m² by Main Material Type
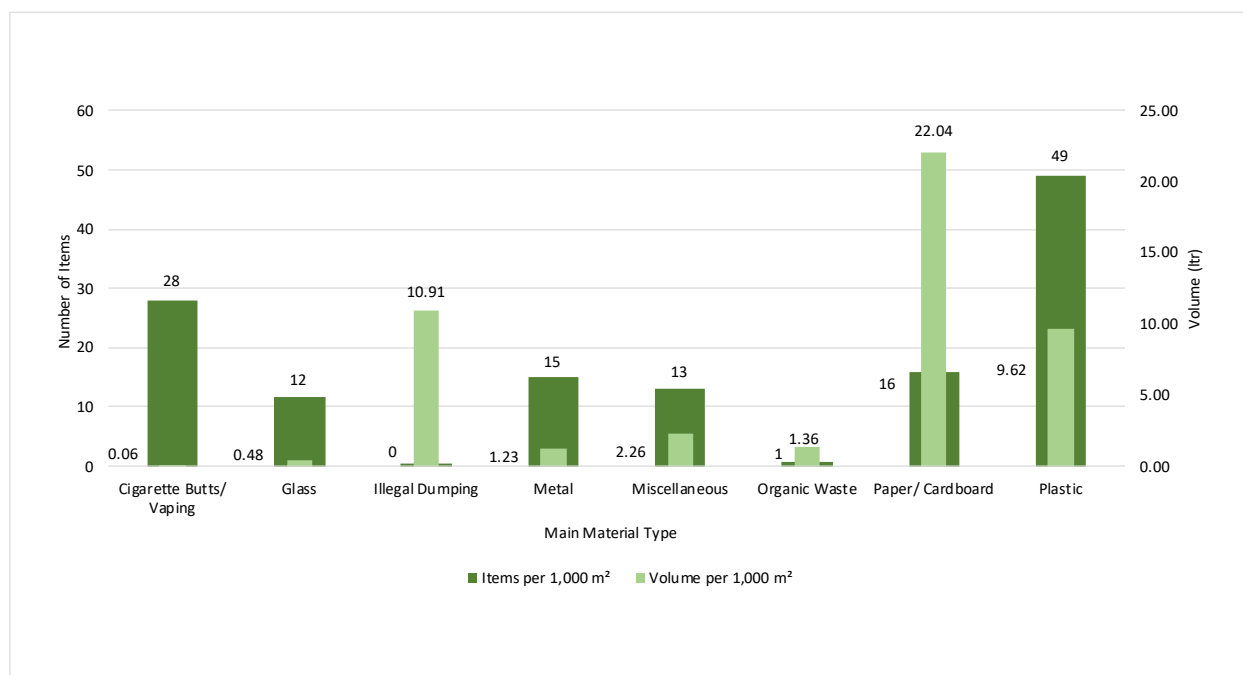
Figure 76: Auckland 2022, Items and Weight per 1,000 m² by Main Material Type
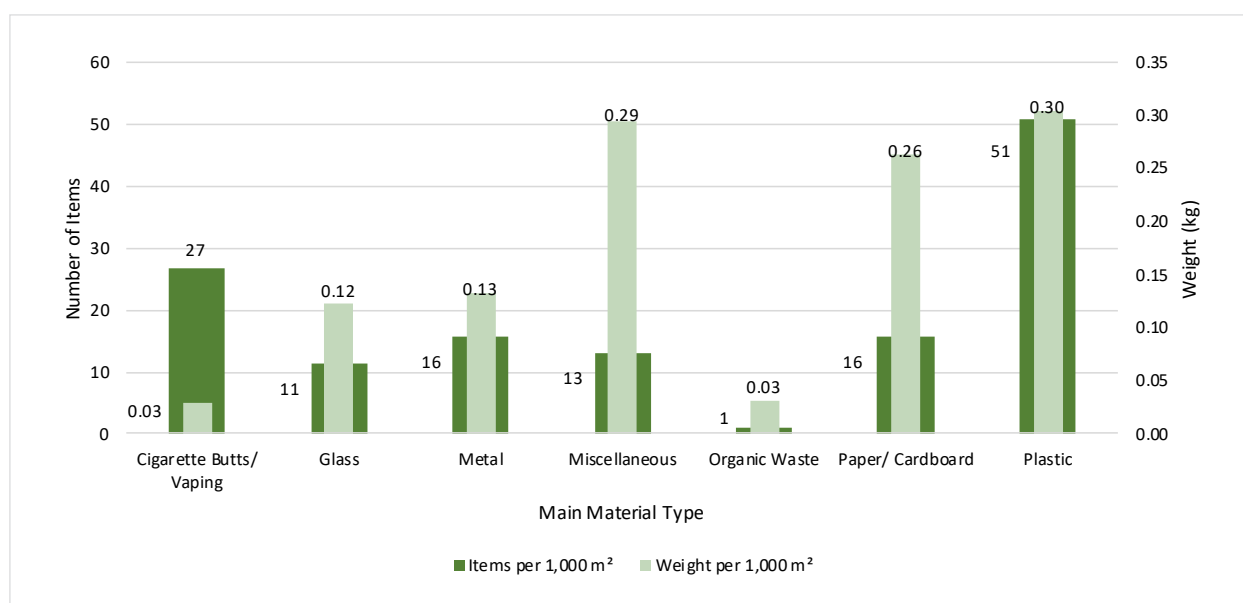
MAIN MATERIAL CHARACTERISTICS

The following material type characteristics were identified for litter items and volume per 1,000 m² in the Auckland region (excluding Highway and Railway sites):

- Paper/Cardboard contributed moderate numbers of litter items, but the largest litter volumes.

- Cigarette Butts/Vaping were associated with large numbers of litter items but contributed low litter volumes.

- Plastic contributed very large numbers of litter items and moderate litter volumes.

- Metal, Glass and Miscellaneous items were associated with moderate numbers of litter items and low litter volumes.

- Illegal Dumping had low litter numbers but contributed moderate to high volumes.

- Organic Waste was associated with smaller numbers of litter items and contributed low litter volumes.

Figure 77: Auckland 2022, Items and Volume per 1,000 m² by Main Material Type
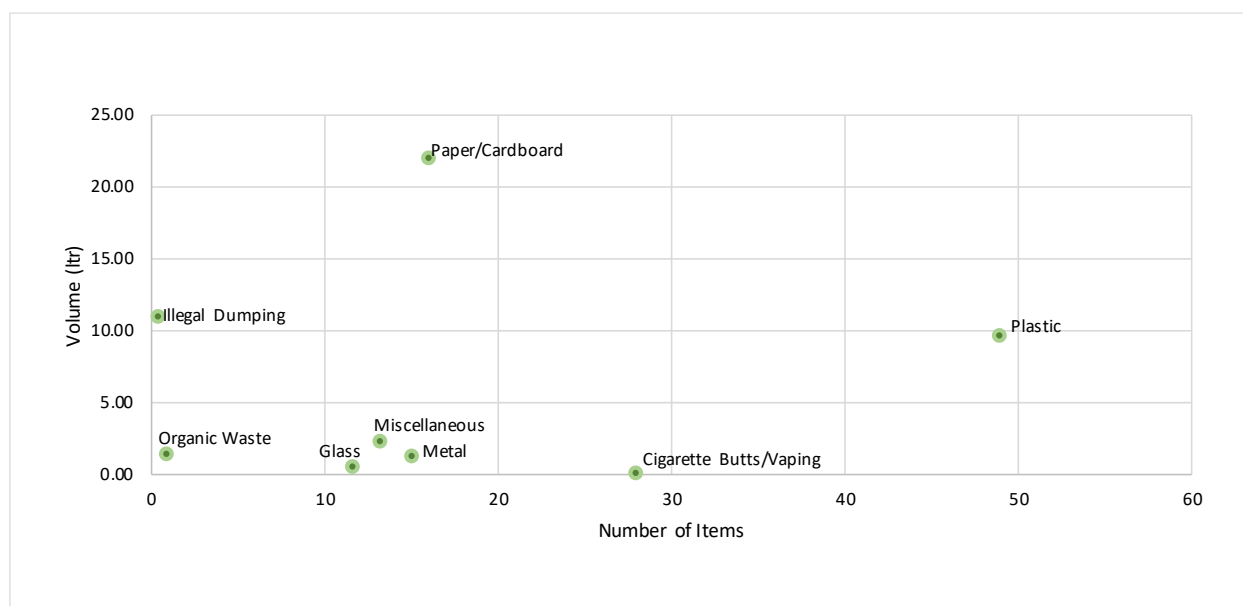
The following material type characteristics were identified for litter items and weight per 1,000 m² in the Auckland region (excluding Highways and Railway sites):

- Plastic had the highest number of litter items and litter weight.

- Miscellaneous items and Paper/Cardboard were associated with moderate numbers of litter items and large litter weights.

- Metal and Glass contributed moderate numbers of litter items and weights.

- Organic Waste was associated with low numbers of litter items and small litter weights.

- Cigarette Butts/Vaping was associated with high numbers of litter items, but small litter weights.

Figure 78: Auckland 2022, Items and Weight per 1,000 m² by Main Material Type
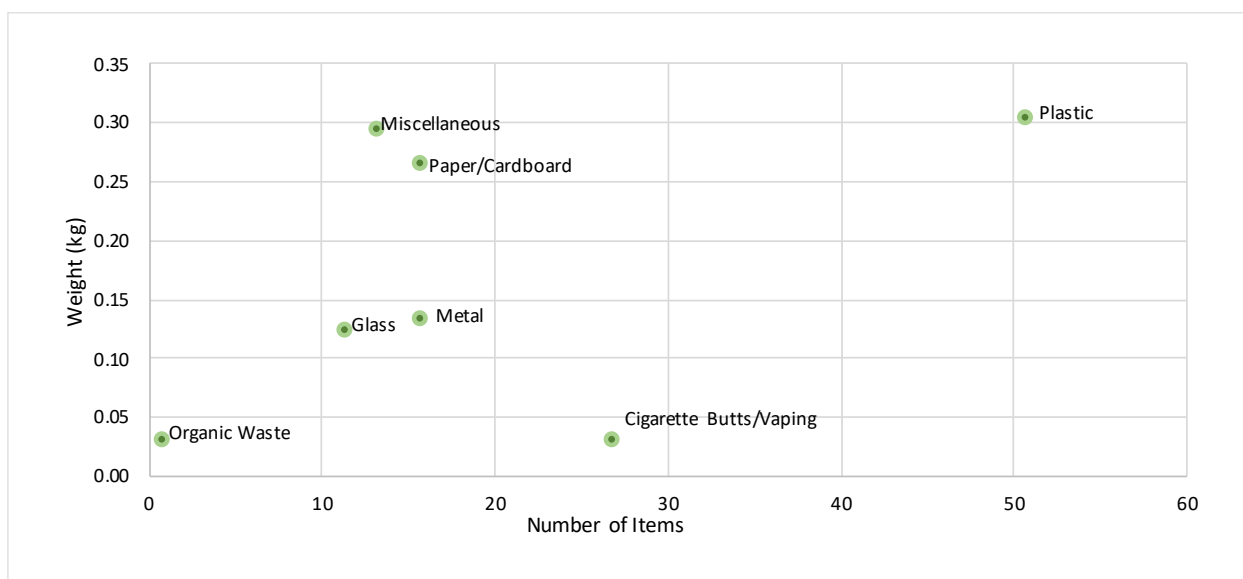
COMPARISON BY MAIN MATERIAL TYPE OVER TIME

Compared with 2019, the material type, Plastic, has seen increases across all three measures, including number of litter items, estimated volume and weight per 1,000 m². Whereas the material type of Glass has seen a decline across all three measures since 2019. Whilst the litter weight and volume remain much the same, the number of items classified under Cigarette Butts/Vaping has decreased by 54 items per 1,000 m² since 2019.

ITEMS PER 1,000 M²

Since 2019, there has been a decline in the number of litter items per 1,000 m² collected classified under Cigarette Butts/Vaping (28 items vs. 82 items in 2019), Glass (12 items vs. 28 items in 2019), and Metal (15 items vs. 27 items in 2019). The number of items classified under Plastic has increased since 2019 (49 items vs. 33 items per 1,000 m² in 2019).

Figure 79: Auckland, Items per 1,000 m² by Main Material Type: Comparison Over Time
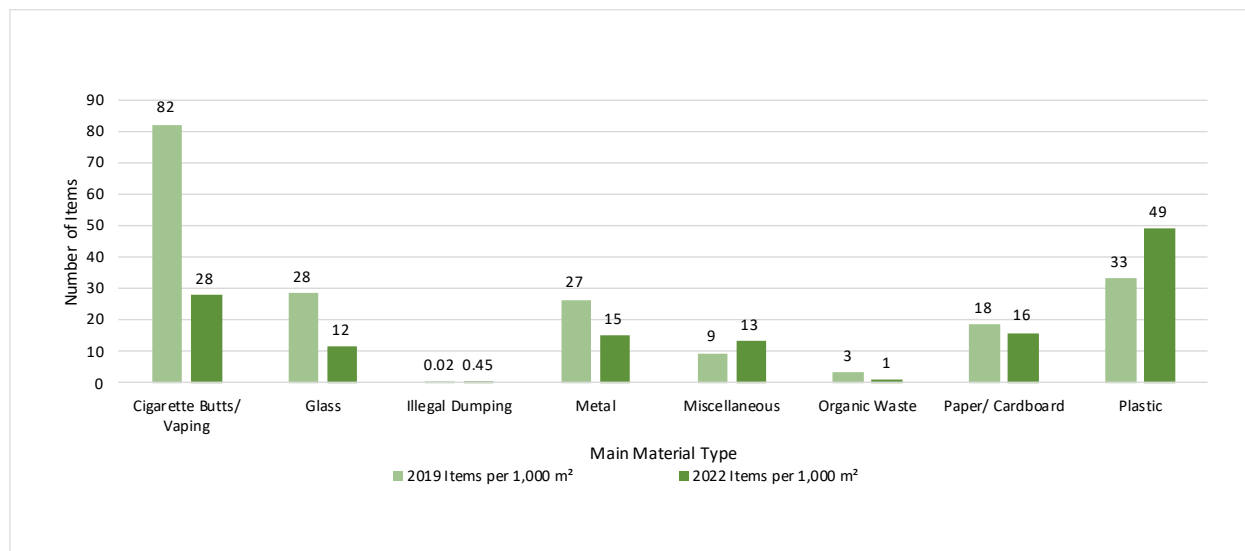
VOLUME PER 1,000 M²

Since 2019, the biggest increases in the litter volume of material types per 1,000 m² in the Auckland region can be seen in Paper/Cardboard (22.04 ltr vs. 3.12 ltr in 2019), Illegal Dumping (10.91 ltr vs. 0.58 ltr in 2019), and Plastic (9.62 ltr vs. 1.59 ltr in 2019). There has also been a decrease in the volume of Glass collected per 1,000 m² (0.48 ltr vs. 1.83 ltr in 2019).

Figure 80: Auckland, Volume per 1,000 m² by Main Material Type: Comparison Over Time
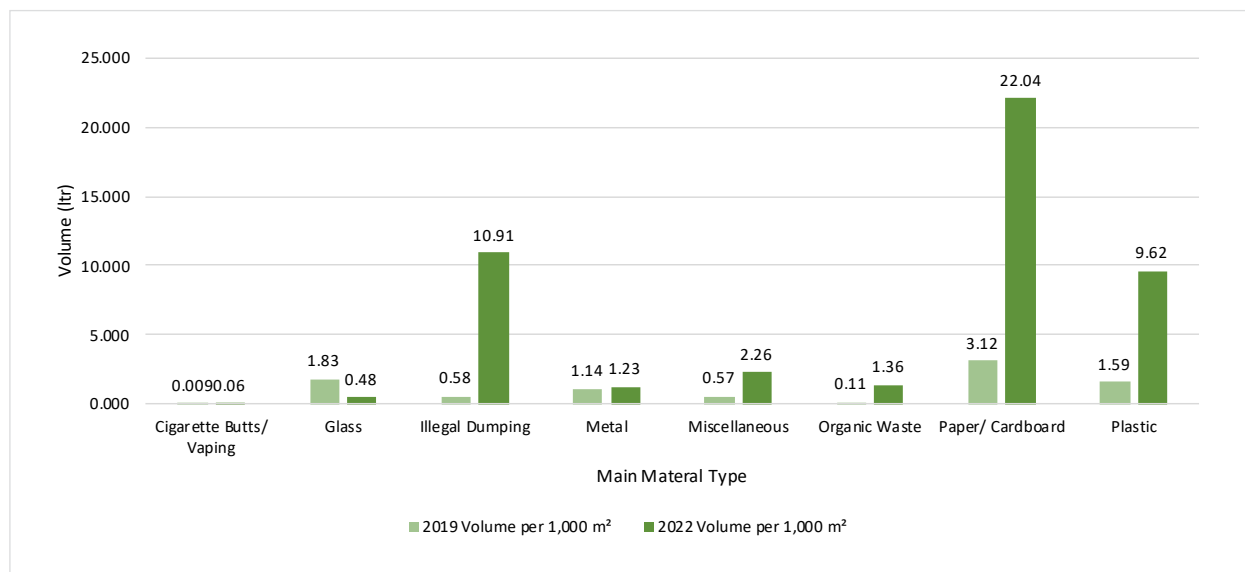
WEIGHT PER 1,000 M²

Compared with 2019, there has been a large increase in the litter weight of items per 1,000 m² in Auckland, classified under Plastic (0.30 kg vs. 0.09 kg in 2019) and Miscellaneous items (0.29 kg. vs. 0.06 kg in 2019). The weight of litter items per 1,000 m² classified under Glass has decreased since 2019 (0.12 kg vs. 0.55 kg in 2019).

Figure 81: Auckland, Weight per 1,000 m² by Main Material Type: Comparison Over Time
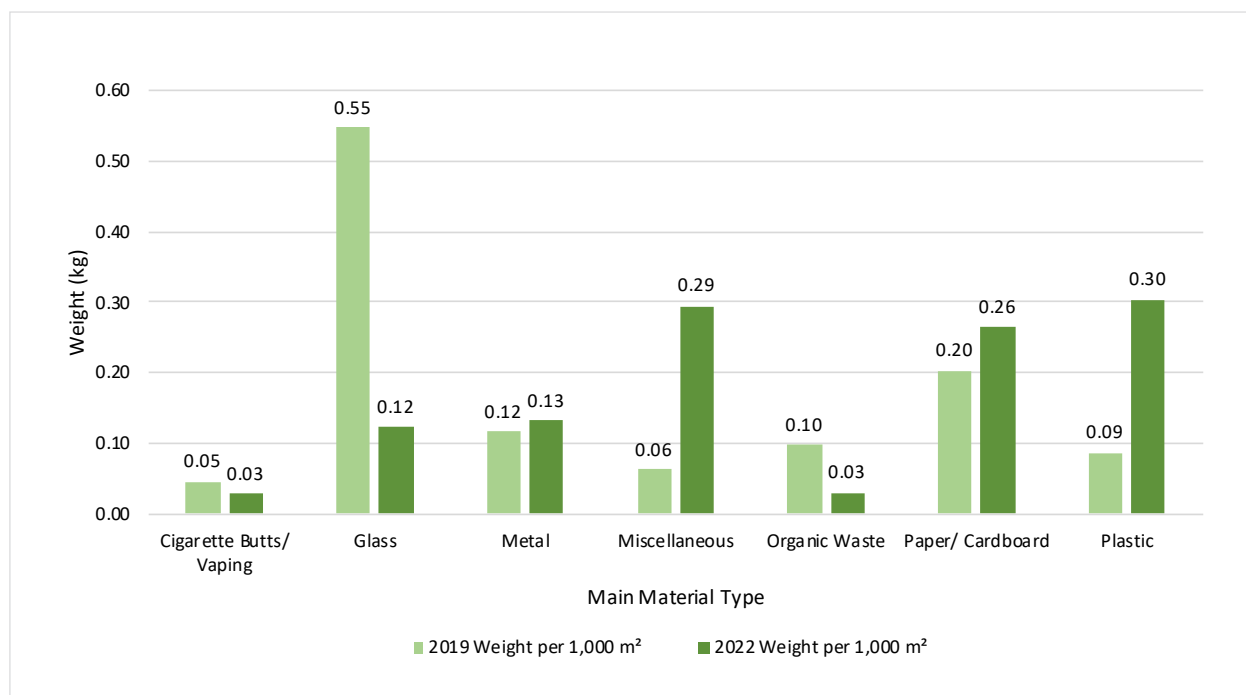
SITE TYPES BY MAIN MATERIAL TYPE

In the Auckland region, the number of material type litter items collected per 1,000 m² at the different site types (excluding Highways and Railway sites) was as follows:

- Car Park sites: Cigarette Butts/Vaping (17 items), Plastic (16 items), Miscellaneous (10 items), Metal (8 items), Paper/Cardboard (3 items), Glass (1 item), Organic Waste (0 items) and Illegal Dumping (0 items).

- Industrial sites: Plastic (215 items), Cigarette Butts/Vaping (98 items), Glass (75 items), Paper/Cardboard (71 items), Metal (68 items), Miscellaneous (43 items), Illegal Dumping (3 items) and Organic Waste (2 items).

- Public Recreational Spaces: Plastic (6 items), Glass (4 items), Metal (2 items), Miscellaneous (1 item), Paper/Cardboard (1 item), Cigarette Butts/Vaping (1 item), Organic Waste (0 items) and Illegal Dumping (0 items).

- Residential sites: Plastic (67 items), Miscellaneous (24 items), Paper/Cardboard (20 items), Metal (14 items), Cigarette Butts/Vaping (9 items), Glass (3 items), Organic Waste (3 items) and Illegal Dumping (1 item).

- Retail sites: Cigarette Butts/Vaping (77 items), Plastic (49 items), Paper/Cardboard (23 items), Metal (12 items), Miscellaneous (11 items), Organic Waste (1 item), Glass (1 item) and Illegal Dumping (0 items).

Figure 82: Auckland 2022, Sites by Main Material Type: Items per 1,000 m²
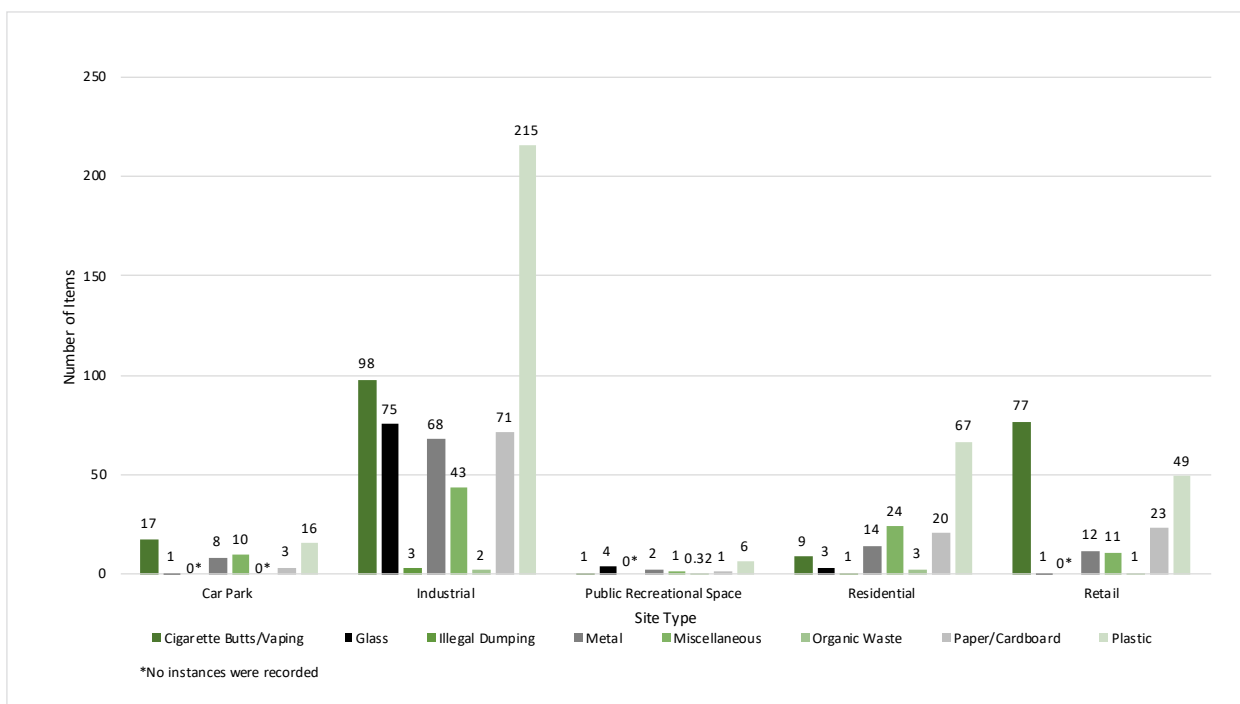
THE DIRTY DOZEN

Within the material subcategories, Cigarette/Vaping: Cigarette butts were the largest contributor to the number of litter items collected within the Auckland region, with 27 butts per 1,000 m² identified across all sites.

Other material subcategories which were associated with large litter numbers included:

- Plastic: Unidentifiable soft plastic fragments (13 items per 1,000 m²)
- Plastic: Unidentifiable hard plastic fragments (13 items per 1,000 m²)
- Glass: Unidentifiable glass fragments (11 items per 1,000 m²)
- Plastic: Snack bags & confectionary wrappers (6 items per 1,000 m²)

Not all material subcategories were comparable to the 2019 NLA due to the addition of new subcategories in 2022.

Amongst comparable material subcategories, the number of Cigarette/Vaping: Cigarette butts collected per 1,000 m² in Auckland has decreased since 2019 (27 items vs. 82 items in 2019) whilst the number of Plastic: Snack bags & confectionary wrappers has increased (6 items vs. 3 items in 2019).

Figure 83: Auckland, Dirty Dozen, Items per 1,000 m², Material Subcategories: Comparison Over Time
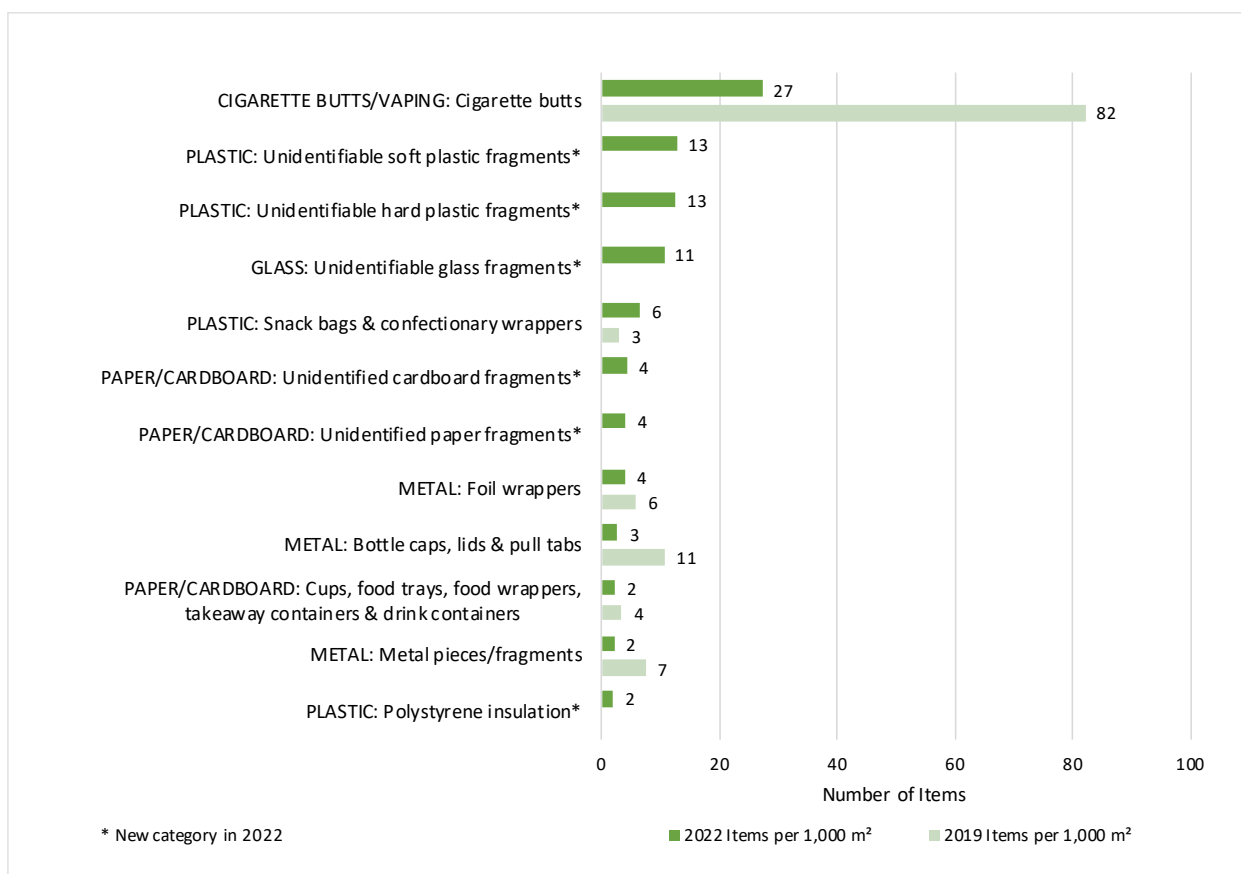
From an analysis of all the material subcategories, Paper/Cardboard: Cardboard boxes contributed the largest proportion to the total estimated litter volume in the Auckland region, recording 19.64 ltr per 1,000 m².

Other material subcategories with significant volume estimates included:

- Illegal Dumping
  (10.91 ltr per 1,000 m²)
- Plastic: Polystyrene insulation
  (3.73 ltr per 1,000 m²)
- Plastic: Containers domestic type
  (3.31 ltr per 1,000 m²)
- Miscellaneous: Clothing, towels & linen
  (1.95 ltr per 1,000 m²)

Not all material subcategories were comparable to the 2019 NLA due to the addition of new subcategories in 2022.

Whilst several of Auckland's Dirty Dozen by litter volume are new in 2022, amongst comparable material categories, the biggest difference in litter volume can be seen in Illegal Dumping which has increased by 10.33 ltr per 1,000 m² since 2019.

Figure 84: Auckland, Dirty Dozen, Volume per 1,000 m², Material Subcategories: Comparison Over Time
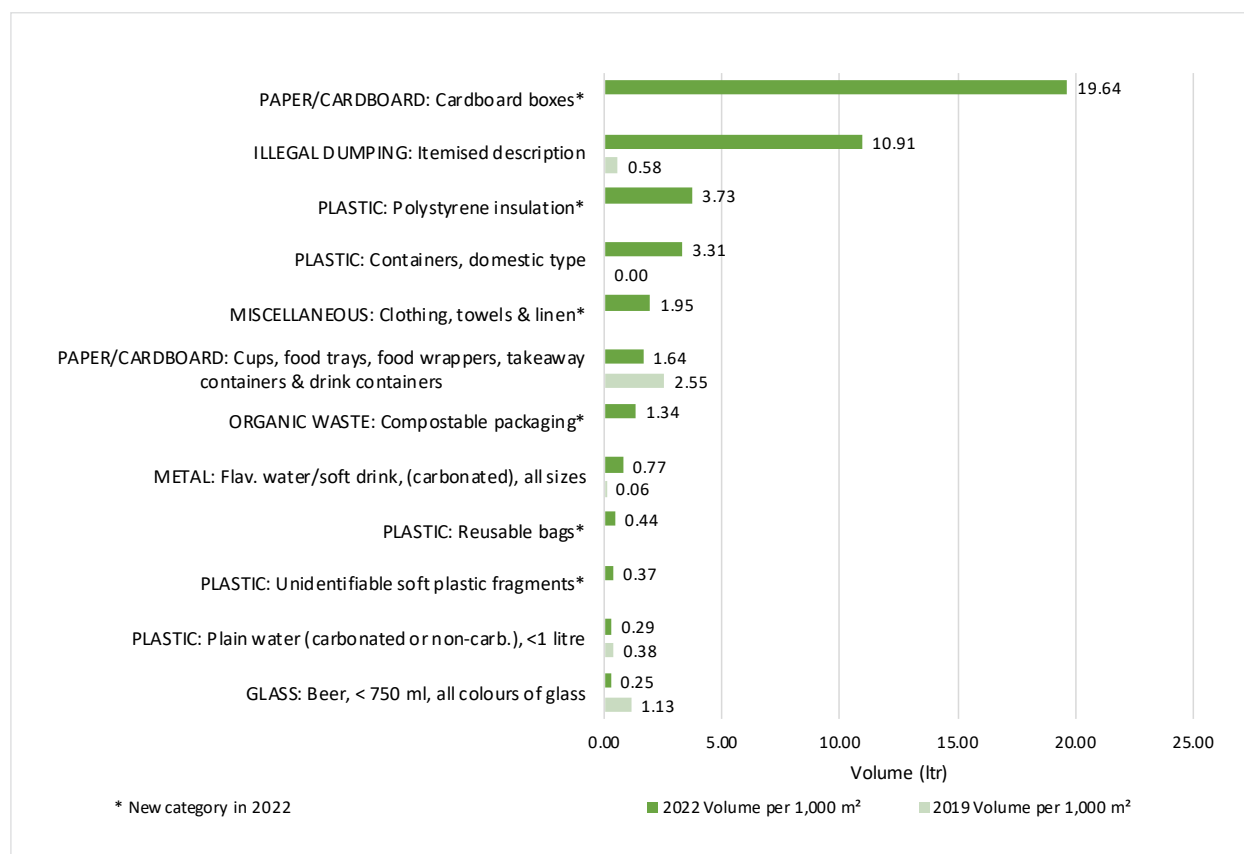
Paper/Cardboard: Cardboard boxes as the largest contributor per 1,000 m² to the overall litter weights in the Auckland region (0.11 kg).

Material subcategories which contributed proportionally higher litter weights included:

- Miscellaneous: Clothing, towels & linen (0.09 kg per 1,000 m²)
- Miscellaneous: Rubber pieces (not tyres) (0.06 kg per 1,000 m²)
- Glass: Alcoholic sodas/spirit based mixers, all sizes (0.06 kg per 1,000 m²)
- Plastic: Plain water (carbonated or non carb.), 1 litre + (0.06 kg per 1,000 m²)

Not all material subcategories were comparable to the 2019 NLA due to the addition of new subcategories in 2022.

Amongst comparable material subcategories there has been a large decrease in the weight of Glass: Beer bottles < 750ml, all colours collected per 1,000 m² in Auckland (0.04 kg vs. 0.42 kg in 2019).

Figure 85: Auckland, Dirty Dozen, Weight per 1,000 m², Material Subcategories: Comparison Over Time
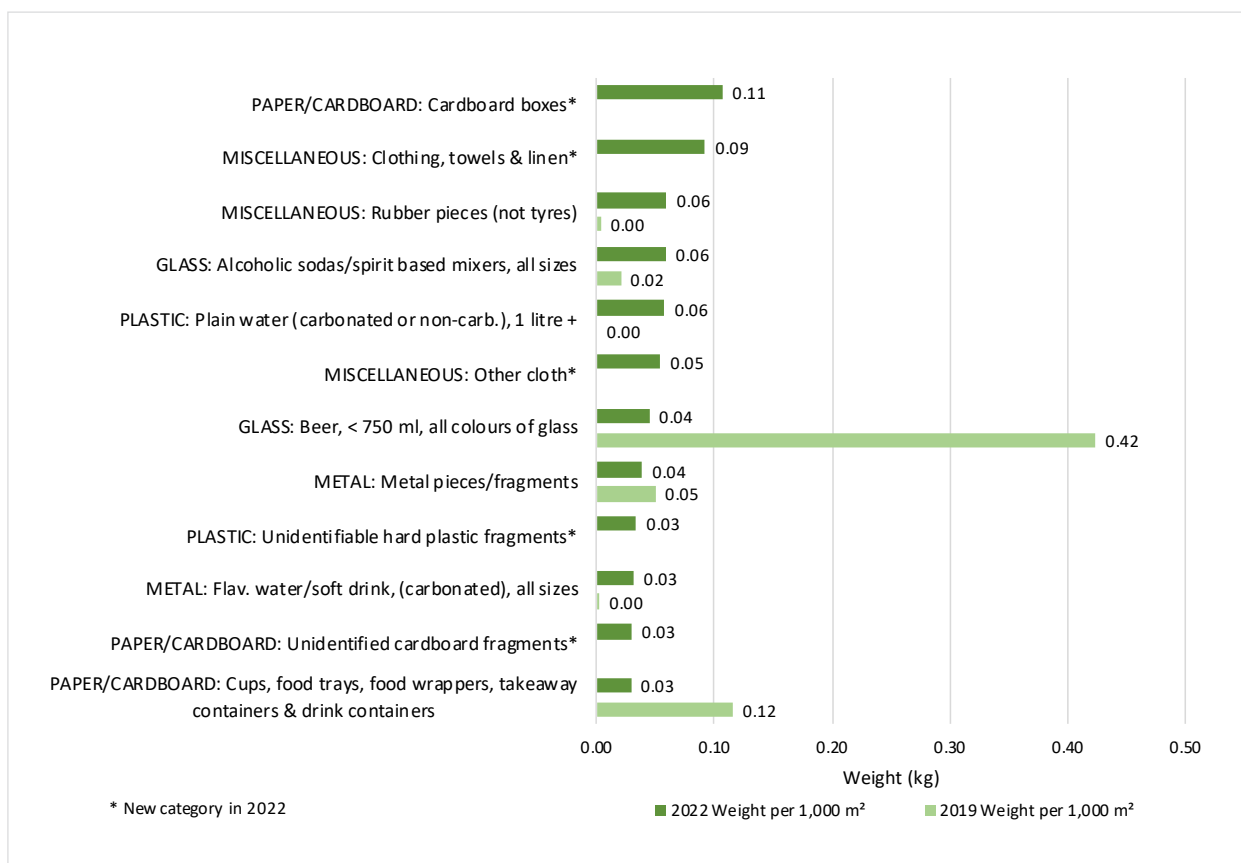
TERRITORIAL SUMMARIES

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 seven 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
- Waitākere District
- Auckland City
- Manukau District
- Papakura District
- Franklin District

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

Extract from Table 5, 2022 Territory Data: Auckland Region (Excluding Railway and Highway Sites)

Territory	Total Area Audited (m²)	Items per 1,000 m²	Weight (kg) per 1,000 m²	Volume (ltr) per 1,000 m²
AUCKLAND REGION				
Auckland City	5,210	354	1.72	34.08
Franklin District	4,232	71	0.36	24.63
Manukau District	5,550	84	0.88	13.23
North Shore District	5,950	125	1.67	76.57
Papakura District	4,150	138	1.12	25.77
Rodney District	6,100	84	1.32	99.13
Waitākere District	4,000	71	0.85	41.40
Auckland Region Overall	**35,192**	**134**	**1.18**	**47.97**

SITE GRADINGS

All sites were assigned gradings in four 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 Auckland region.

Extract from Table 3, Risk and Litter Distribution: Auckland (Excluding Railway and Highway Sites)

	Risk Present		Litter Distribution	
Auckland	Moderate hazard or risk	Significant hazard or risk	Widespread	Clustered
	100%	0%	78%	22%

Figure 86: Auckland 2022, Grading: Visual Site Ratings (Excluding Highway and Railway Sites)
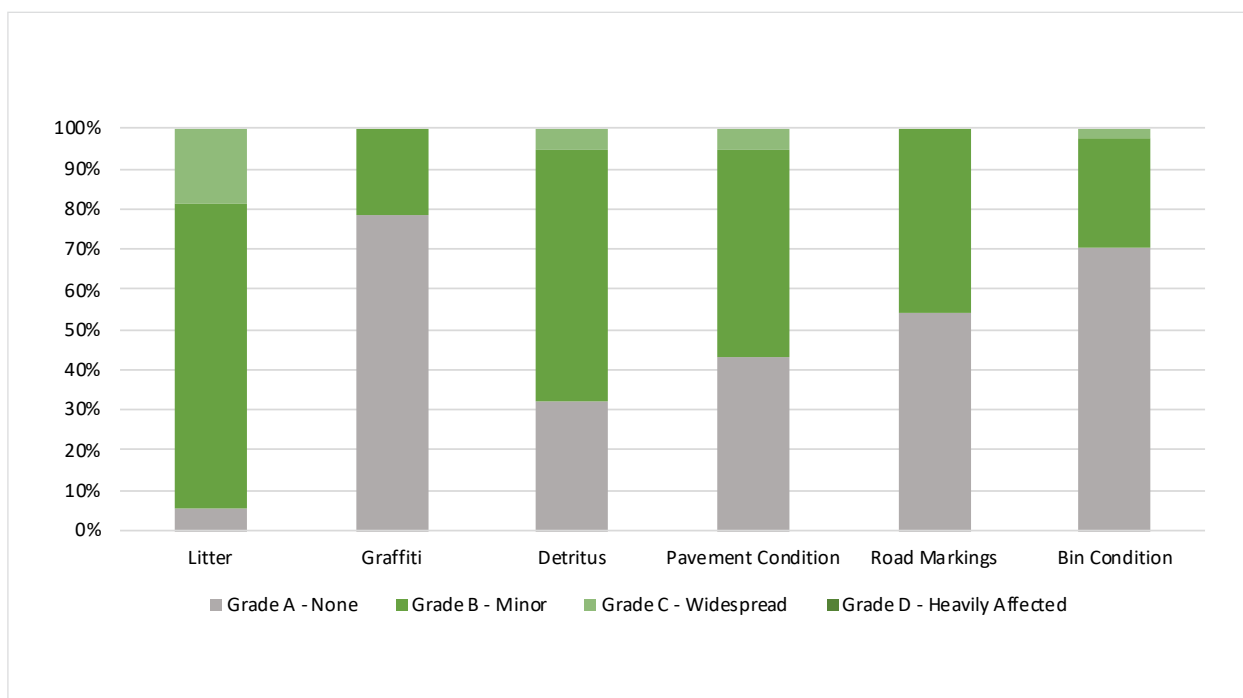
Figure 87: Auckland 2022, Grading: Site Litter Hotshots Ratings (Excluding Highway and Railway Sites)
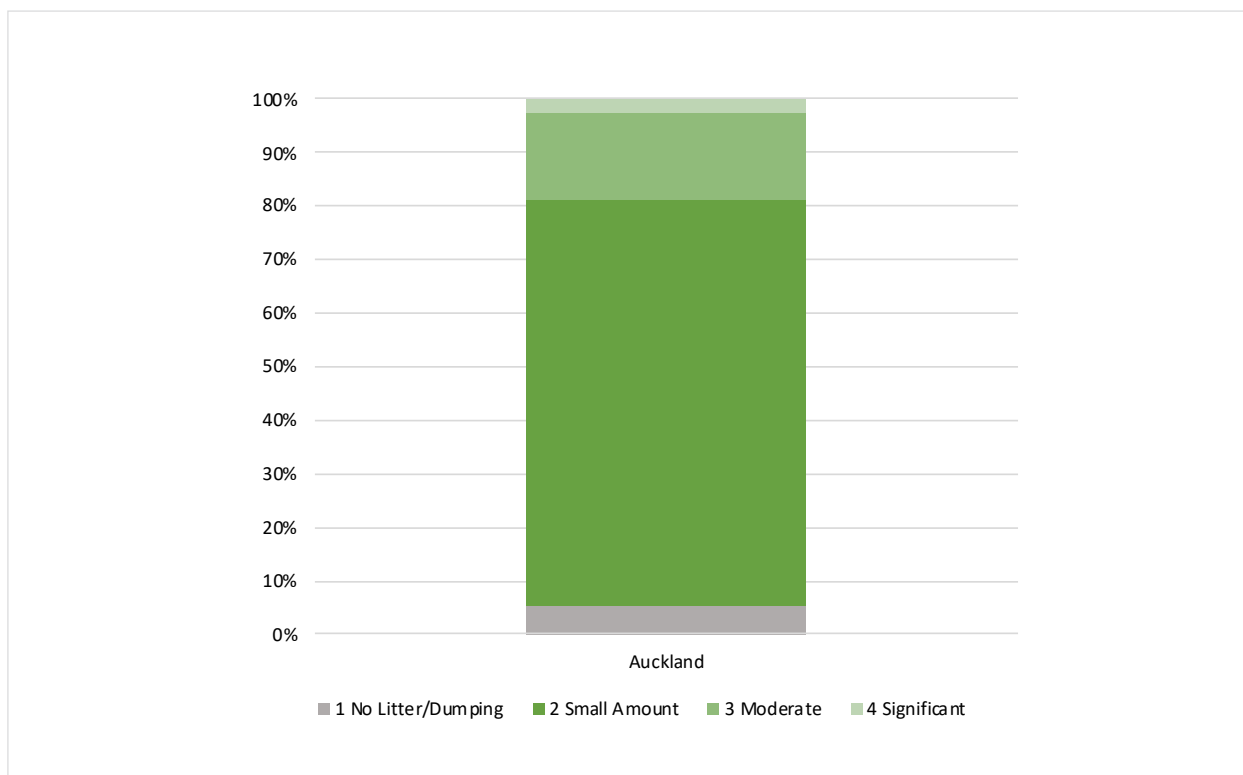
HIGHWAYS AND RAILWAYS

The following section shows the results for Highway and Railway sites in the Auckland region. In the Auckland region one Highway site and two Railway sites were audited.

Figure 88: Auckland Highways and Railways, Items per 1,000 m² by Site Type: Comparison Over Time
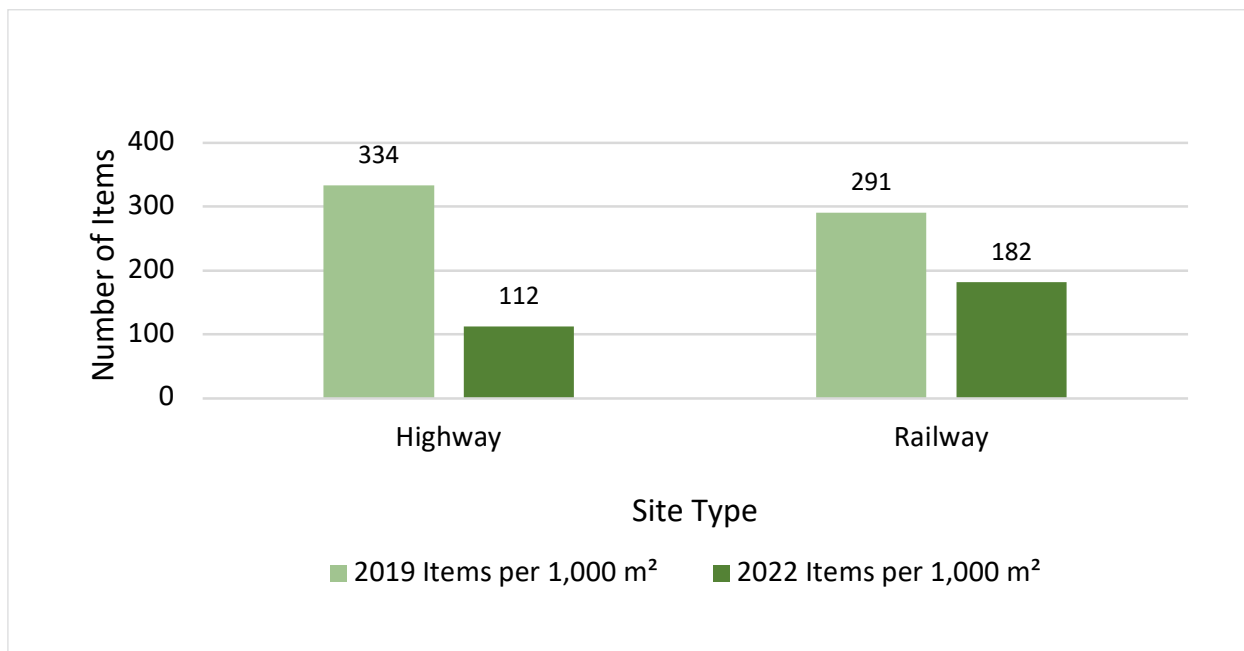
Figure 89: Auckland Highways and Railways, Weight per 1,000 m² by Site Type: Comparison Over Time

Figure 90: Auckland Highways and Railways, Volume per 1,000 m² by Site Type: Comparison Over Time
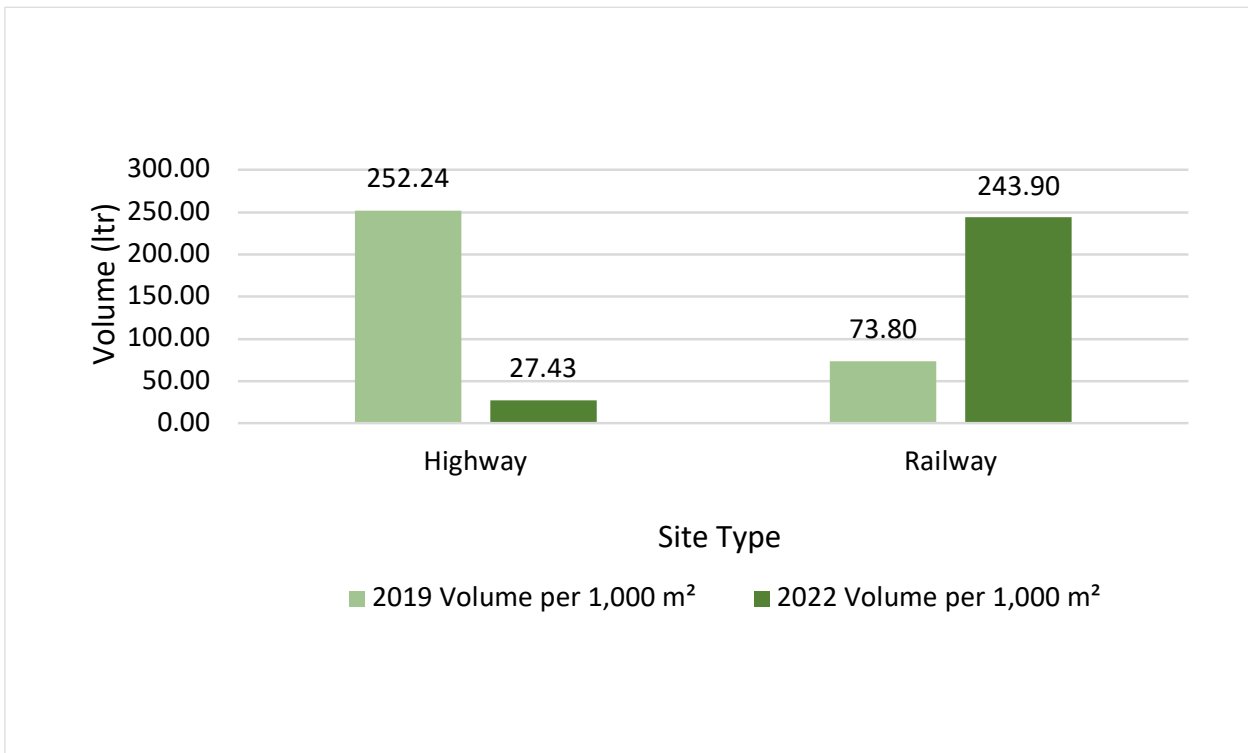
Figure 91: Auckland Highways, Items per 1,000 m² by Main Material Type: Comparison Over Time
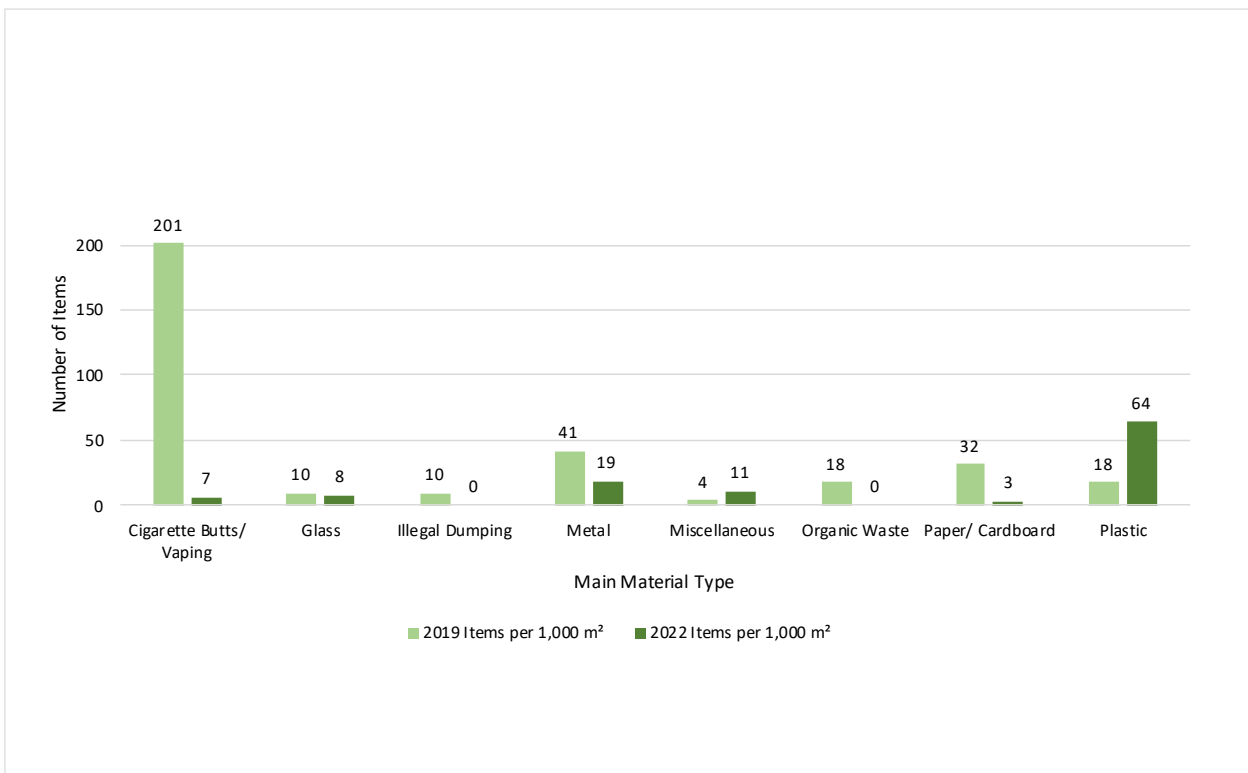
Figure 92: Auckland Highways, Weight per 1,000 m² by Main Material Type: Comparison Over Time
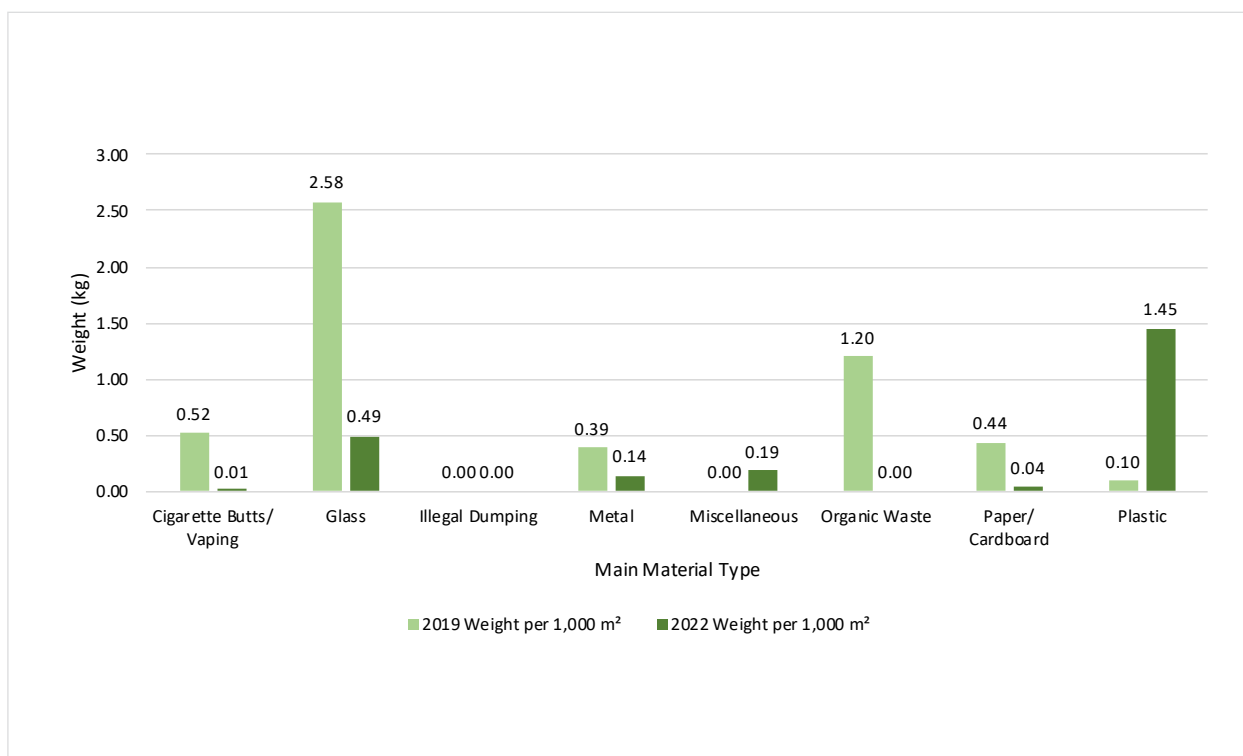
Figure 93: Auckland Highways, Volume per 1,000 m² by Main Material Type: Comparison Over Time
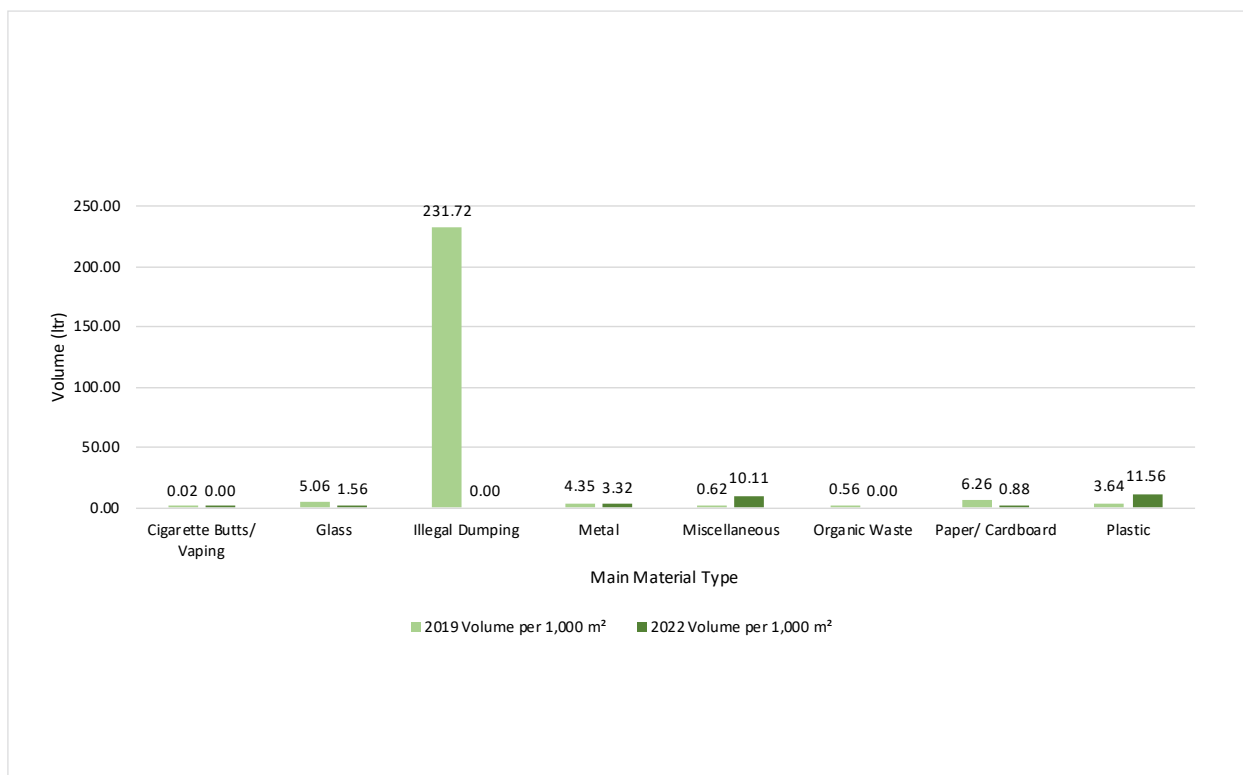
Figure 94: Auckland Railways, Items per 1,000 m^2 by Main Material Type: Comparison Over Time
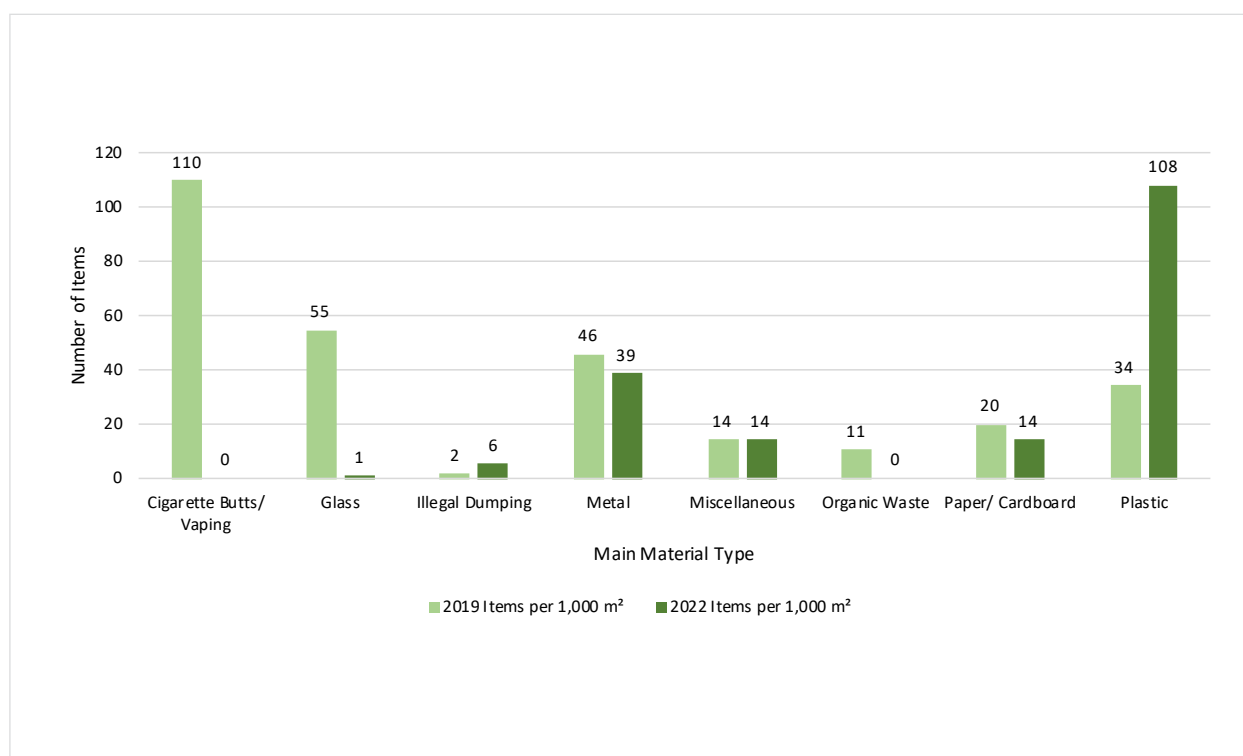
Figure 95: Auckland Railways, Weight per 1,000 m^2 by Main Material Type: Comparison Over Time
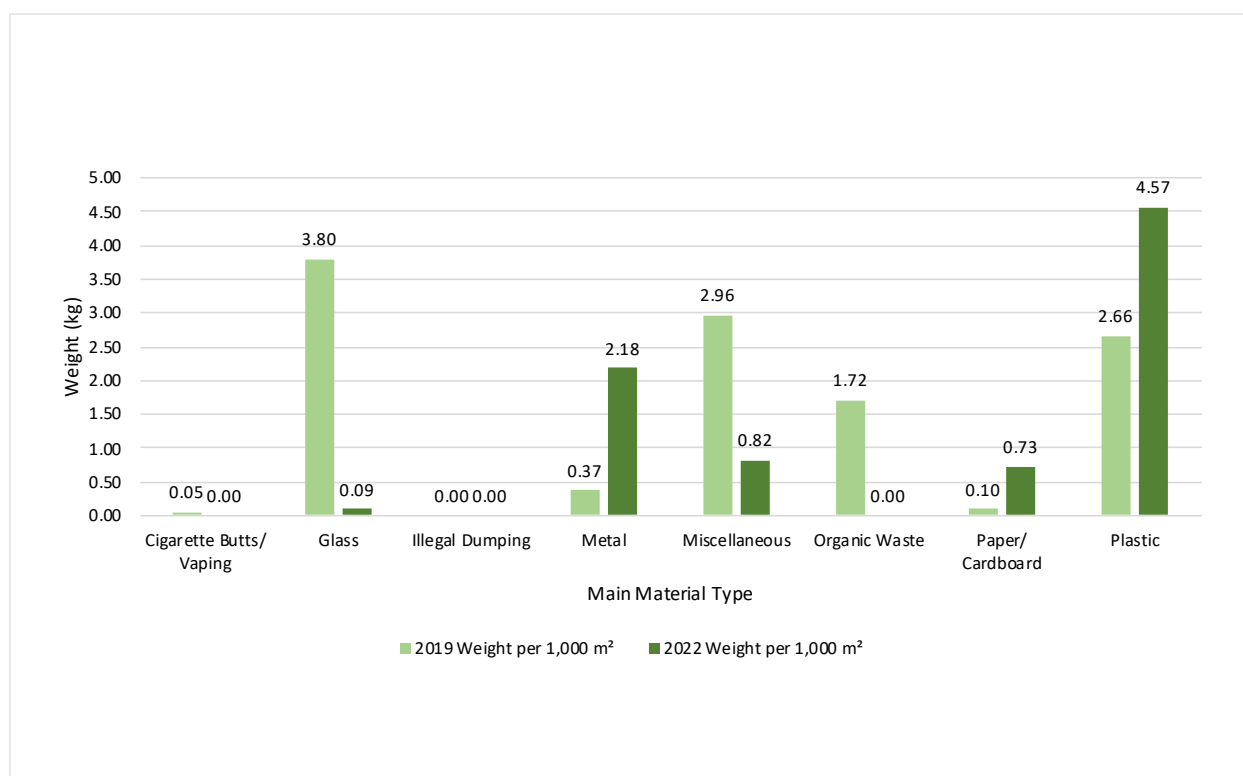
Figure 96: Auckland Railways, Volume per 1,000 m^2 by Main Material Type: Comparison Over Time
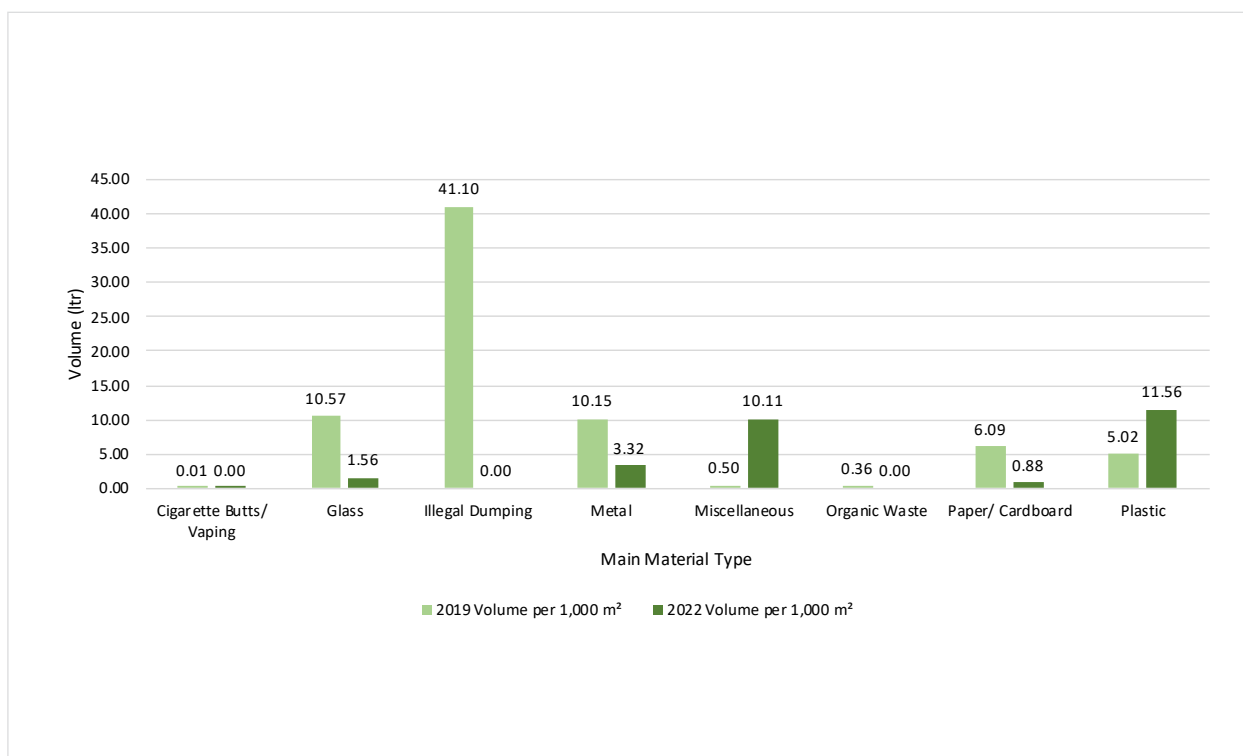
Figure 97: Auckland Highways, Dirty Dozen, Items per 1,000 m^2, Material Subcategories: Comparison Over Time
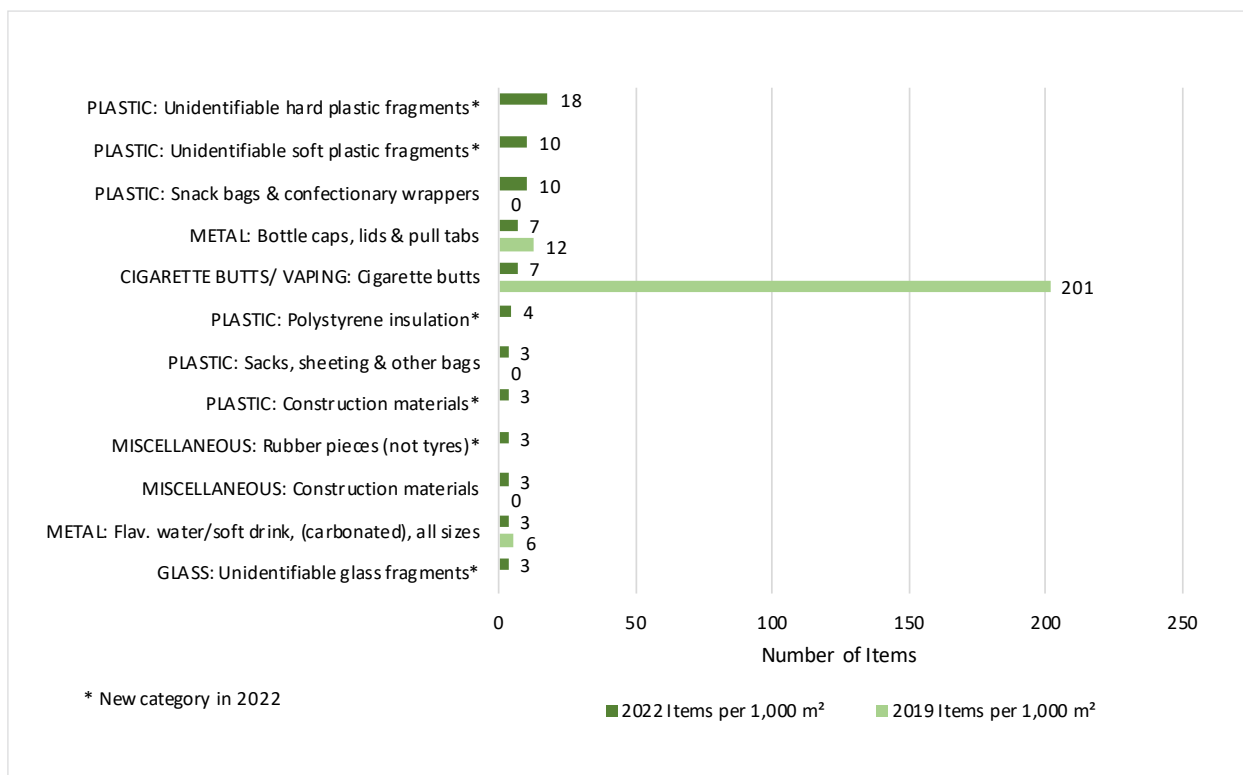
Figure 98: Auckland Highways, Dirty Dozen, Weight per 1,000 m², Material Subcategories: Comparison Over Time
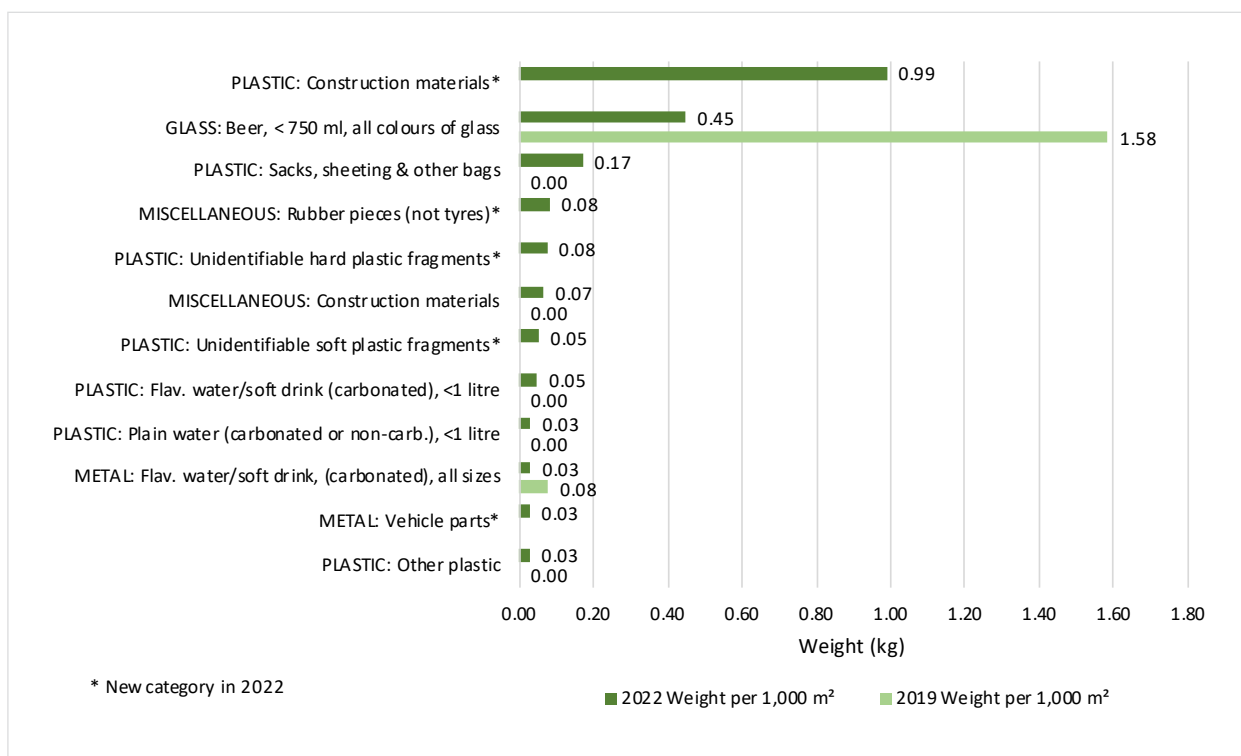
Figure 99: Auckland Highways, Dirty Dozen, Volume per 1,000 m², Material Subcategories: Comparison Over Time
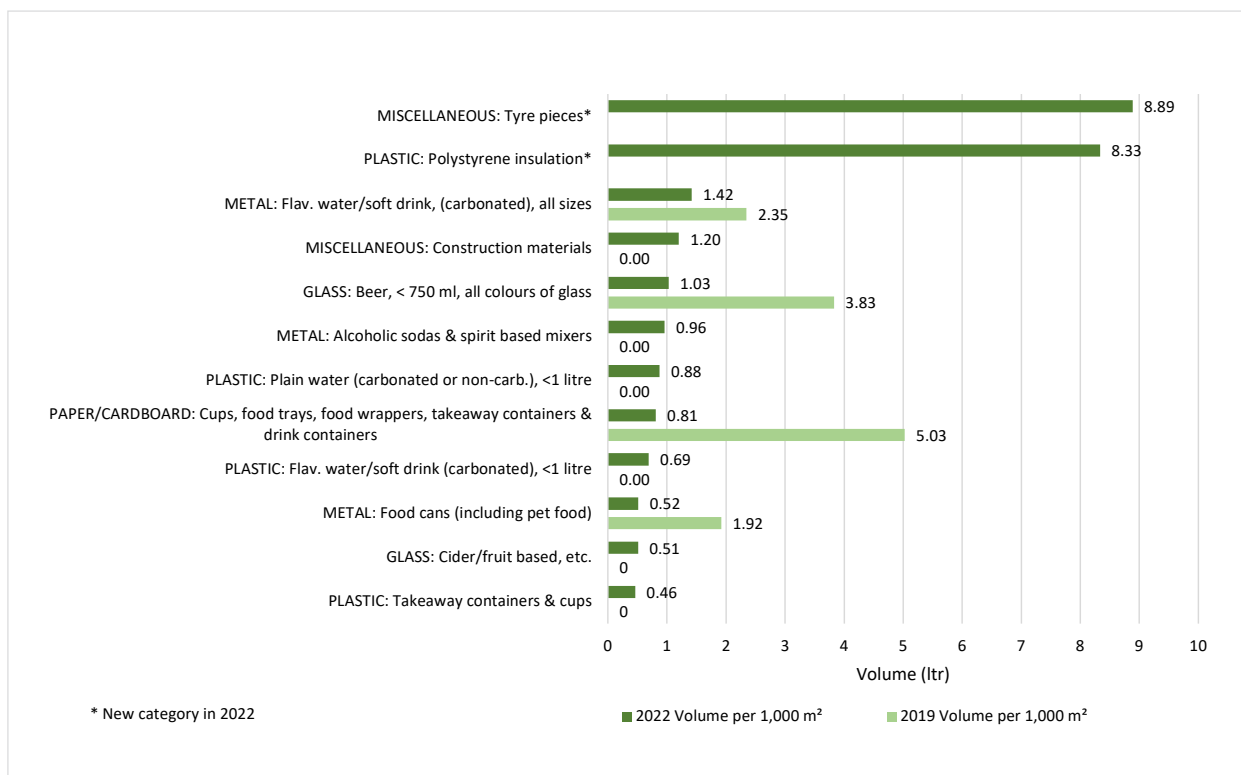
Figure 100: Auckland Railways, Dirty Dozen, Items per 1,000 m², Material Subcategories: Comparison Over Time

Chart data (2022 Items per 1,000 m² | 2019 Items per 1,000 m²):

- PLASTIC: Unidentifiable hard plastic fragments* — 42
- METAL: Flav. water/soft drink, (carbonated), all sizes — 18 | 1
- PLASTIC: Unidentifiable soft plastic fragments* — 17
- PLASTIC: Polystyrene insulation* — 16
- PAPER/CARDBOARD: Unidentified cardboard fragments* — 7
- MISCELLANEOUS: Construction materials — 7 | 1
- METAL: Metal pieces/fragments — 7 | 12
- PLASTIC: Plastic bottle tops — 6 | 0
- METAL: Foil wrappers — 6 | 11
- ILLEGAL DUMPING: Itemised description — 6 | 2
- PLASTIC: Snack bags & confectionary wrappers — 4 | 3
- PLASTIC: Plain water (carbonated or non-carb.), <1 litre — 4 | 5

* New category in 2022

2022 Items per 1,000 m²   2019 Items per 1,000 m²

Figure 101: Auckland Railways, Dirty Dozen, Weight per 1,000 m², Material Subcategories: Comparison Over Time

Chart data (2022 Weight per 1,000 m² | 2019 Weight per 1,000 m²):

- PLASTIC: Unidentifiable hard plastic fragments* — 2.70
- METAL: Construction materials* — 1.29
- PLASTIC: Plain water (carbonated or non-carb.), <1 litre — 0.73 | 0.17
- MISCELLANEOUS: Rubber pieces (not tyres) — 0.50 | 0.39
- METAL: Flav. water/soft drink, (carbonated), all sizes — 0.47 | 0.01
- PLASTIC: Unidentifiable soft plastic fragments* — 0.47
- PAPER/CARDBOARD: Unidentified cardboard fragments* — 0.32
- PAPER/CARDBOARD: Cardboard boxes* — 0.25
- METAL: Metal pieces/fragments — 0.19 | 0.04
- MISCELLANEOUS: Clothing, towels & linen* — 0.17
- PLASTIC: Polystyrene insulation* — 0.15
- MISCELLANEOUS: Other cloth* — 0.12

* New category in 2022

2022 Weight per 1,000 m²   2019 Weight per 1,000 m²

Figure 102: Auckland Railways, Dirty Dozen, Volume per 1,000 m², Material Subcategories: Comparison Over Time

* New category in 2022

■ 2022 Volume per 1,000 m²   ■ 2019 Volume per 1,000 m²
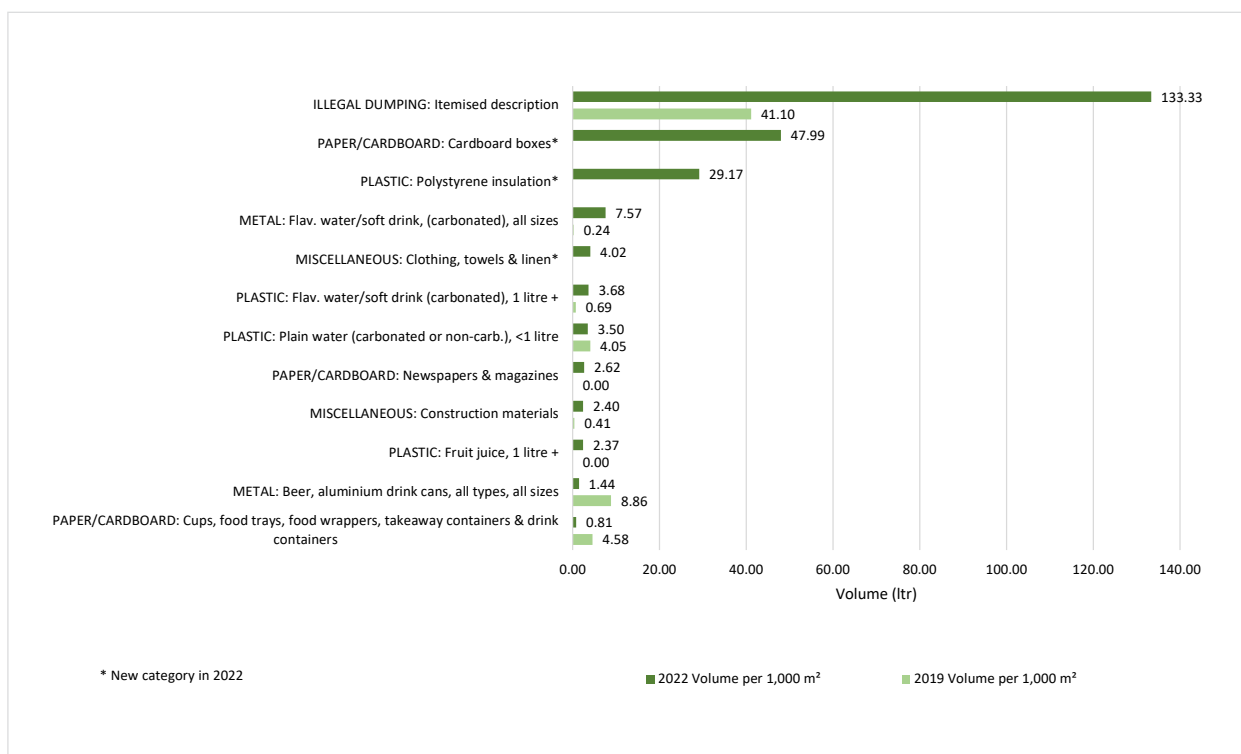
BAY OF PLENTY
REGION

AT A GLANCE

The overall average number of litter items per 1,000 m² across the 30 sites audited in the Bay of Plenty region was 127 items, the overall average estimated volume of litter items per 1,000 m² was 9.79 ltr and the overall average litter weight per 1,000 m² was 0.46 kg.

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

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

Plastic was the most frequently identified material type within the Bay of Plenty Region and was associated with the highest proportion of the overall litter volume whilst also recording a high litter weight. Cigarette Butts/Vaping was the second most frequently identified material type within the region but was associated with low volumes and weights per 1,000 m².

Miscellaneous items, Metal, Paper/Cardboard and Glass items also contributed high weights to the litter stream per 1,000 m², but were associated with moderate to lower number of items and litter volumes.

Note:

- *New material subcategories were added in 2022 and so not all material subcategories are comparable between 2019 and 2022.*

- *A weight measure was not recorded for any items of Illegal Dumping identified during the audit, and therefore has not been included in the analysis.*

- *Not all regions were audited for Highway and/or Railway sites, and so these site types have been separated out and specifics for each region given at the end of the relevant chapter. The Bay of Plenty region was audited for four Highway site and one Railway sites.*

COMPARISONS BY SITE TYPES

The highest number of litter items per 1,000 m² in the Bay of Plenty region were associated with Retail (437 items) and Industrial (368 items) sites. Moderate numbers of litter items per 1,000 m² were collected at Residential sites (173 items). The lowest number of litter items per 1,000 m² were collected at Car Park sites (60 items) and Public Recreational Spaces (37 items).

The estimated litter volumes per 1,000 m² at Industrial sites (41.05 ltr) was significantly higher than the other site types within the region.

More moderate volumes of litter per 1,000 m² were recorded at Retail (17.23 ltr), Residential (10.54 ltr) and Car Park (8.75 ltr) sites, whilst lower volumes of litter were associated with Public Recreational Spaces (1.15 ltr).

The largest weights per 1,000 m² were associated with Industrial sites (2.33 kg). Moderate to high weights were associated with Residential sites (1.11 kg) and moderate weights were recorded at Retail sites (0.64 kg). The smallest weights per 1,000 m² were recorded at Car Park sites (0.12 kg) and Public Recreational Spaces (0.10 kg).

Figure 103: Bay of Plenty 2022, Items and Volume per 1,000 m² by Site Type

Figure 104: Bay of Plenty 2022, Items and Weight per 1,000 m² by Site Type
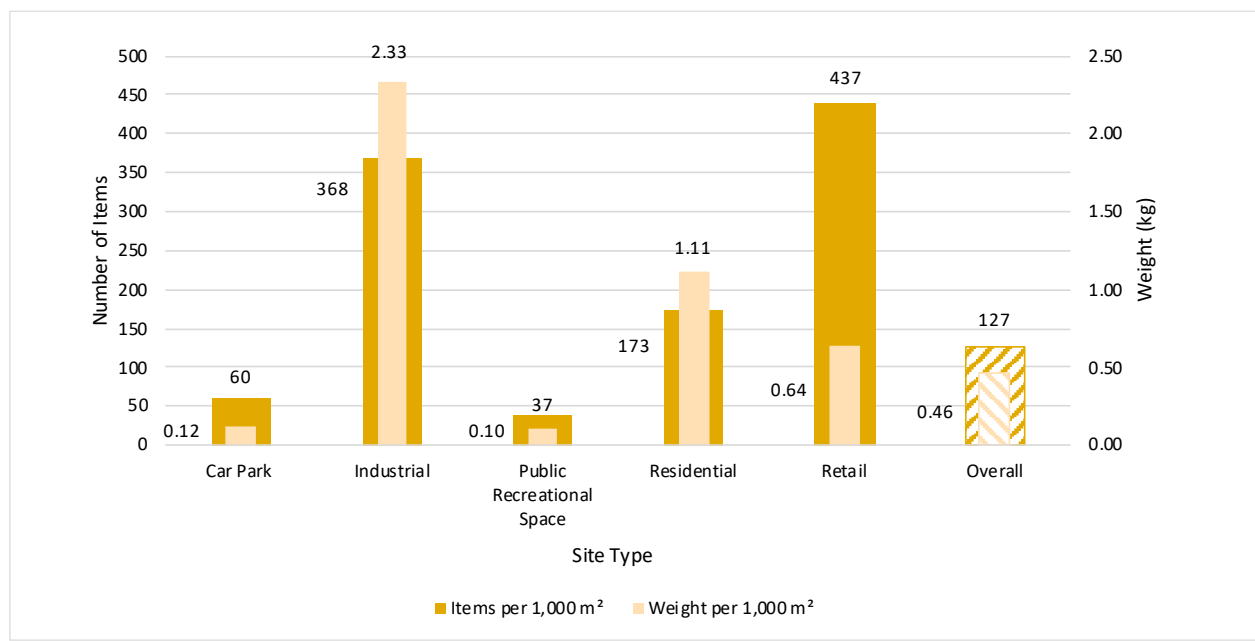
SITE CHARACTERISTICS

The following site characteristics across all site types (excluding Highway and Railway sites) were identified for litter items and volume per 1,000 m² in the Bay of Plenty region:

- Retail sites contributed to high numbers of litter items and moderate litter volumes.
- Industrial sites were recorded as having high levels of litter items and large volumes of litter.
- Residential sites contributed moderate numbers of litter items and volumes of litter.

- Car Park sites contributed to low numbers of litter items and moderate litter volumes.
- Public Recreational Spaces were associated with low numbers of litter items and small litter volumes.

Figure 105: Bay of Plenty 2022, Items and Volume per 1,000 m² by Site Type

The following site characteristics across all site types (excluding Highways and Railway sites) were identified for litter items and weight per 1,000 m² in the Bay of Plenty region:

- Residential sites were associated with moderate numbers of litter items and moderate to high litter weights.
- Industrial sites were associated with high numbers of litter items and large litter weights.
- Retail sites contributed high numbers of litter items and moderate litter weights to the regional litter stream.

- Car Park and Public Recreational Spaces contributed low numbers of litter items and were associated with small litter weights.

Figure 106: Bay of Plenty 2022, Items and Weight per 1,000 m² by Site Type
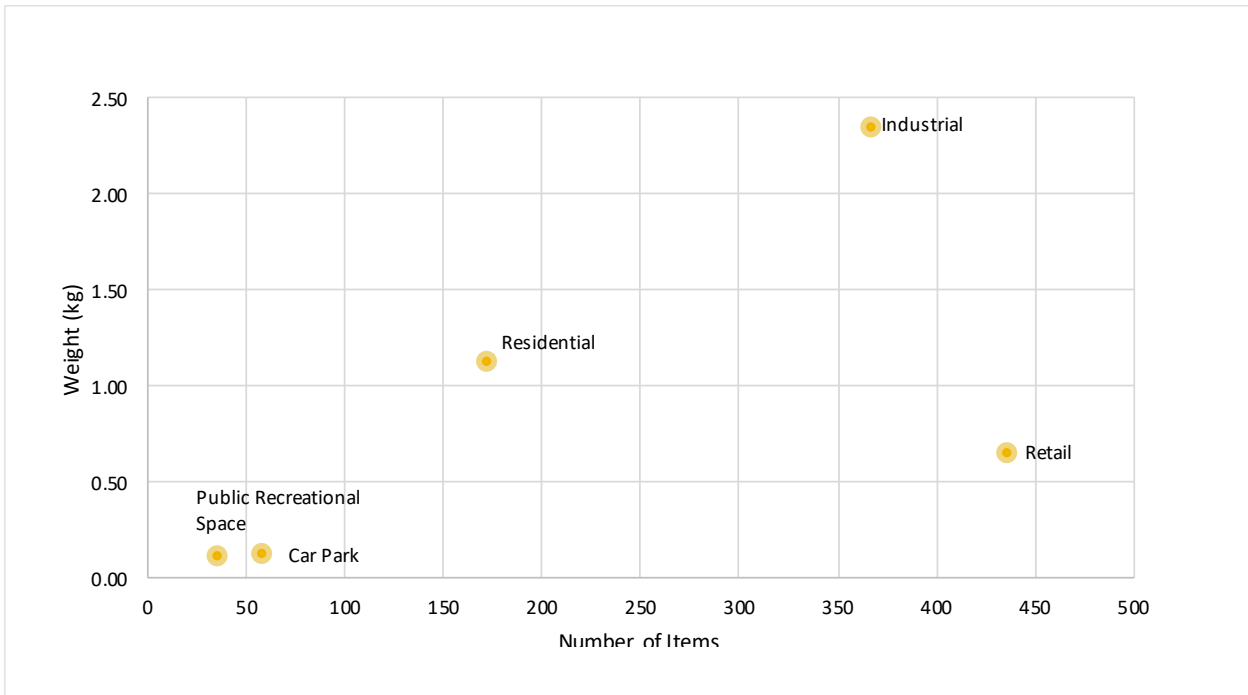
COMPARISON BY SITE TYPE OVER TIME

Since 2019, there has been an increase in the estimated volume of litter per 1,000 m² in the Bay of Plenty region, whilst the number of litter items and weight per 1,000 m²

have remained roughly the same. Industrial sites have had the most noticeable increases across the board in litter items, volume and weight per 1,000 m² since 2019.

ITEMS PER 1,000 M²

The number of litter items collected in the Bay of Plenty region remains consistent with 2019 (127 items vs. 118 items per 1,000 m² in 2019). As shown in the graphs below, there has been a decrease per 1,000 m² in the

number of litter items collected in Car Parks sites (60 items vs. 111 items in 2019), and increases at Industrial (368 items vs. 161 items in 2019) and Retail (437 items vs. 279 items 2019) sites.

Figure 107: Bay of Plenty, Items per 1,000 m² by Site Type: Comparison Over Time

Figure 108: Bay of Plenty, Items per 1,000 m² by Site Type: Comparison Over Time

VOLUME PER 1,000 M²

Overall, litter volumes per 1,000 m² in the Bay of Plenty region have increased by 5.96 ltr since 2019. As shown in the graphs below, this increase is consistent across most site types, with the biggest increases per 1,000 m² being seen at Industrial (41.05 ltr vs. 8.97 ltr in 2019) and Retail (17.23 ltr vs. 4.47 ltr in 2019) sites.

Figure 109: Bay of Plenty, Volume per 1,000 m² by Site Type: Comparison Over Time
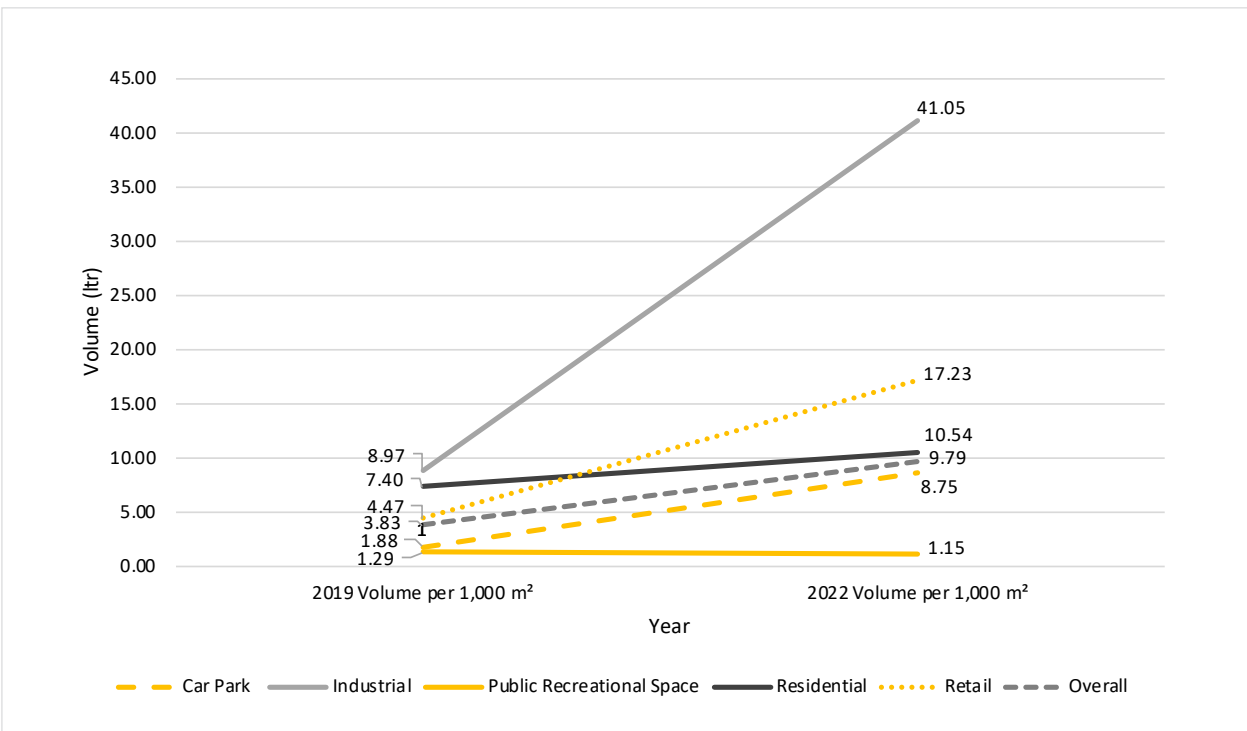
Figure 110: Bay of Plenty, Volume per 1,000 m² by Site Type: Comparison Over Time
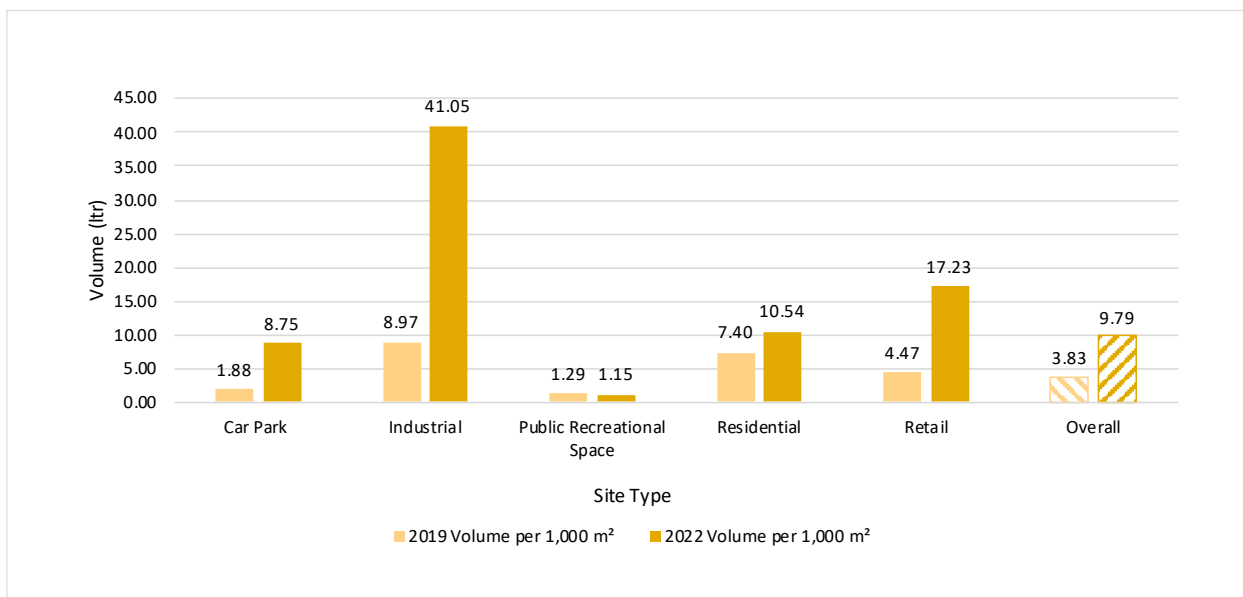
WEIGHT PER 1,000 M²

Overall, the litter weight in the Bay of Plenty region has remained relatively consistent since 2019 (0.46 kg vs. 0.39 kg per 1,000 m² in 2019). As shown in the graphs below, Industrial sites had the biggest increase in weight (2.33 kg vs. 0.56 kg per 1,000 m² in 2019). Public Recreational Spaces and Car Park sites have recorded slightly decreased weights per 1,000 m² since 2019.

Figure 111: Bay of Plenty, Weight per 1,000 m² by Site Type: Comparison Over Time
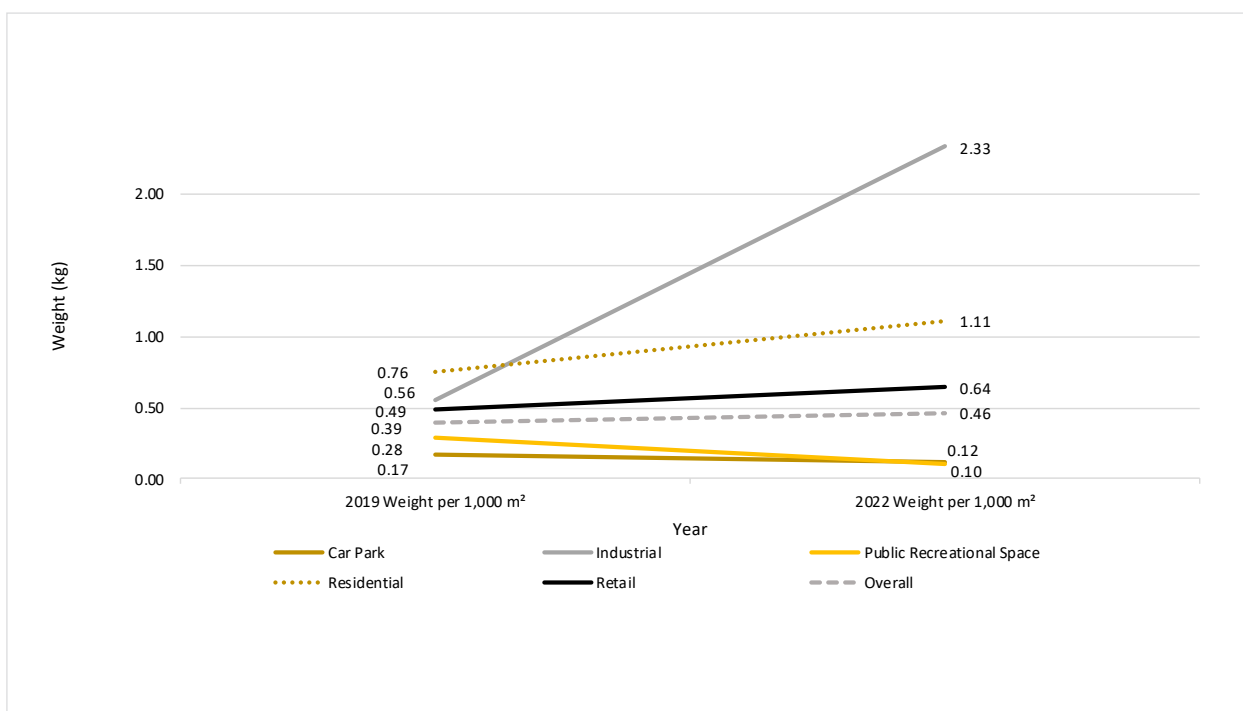
Figure 112: Bay of Plenty, Weight per 1,000 m² by Site Type: Comparison Over Time
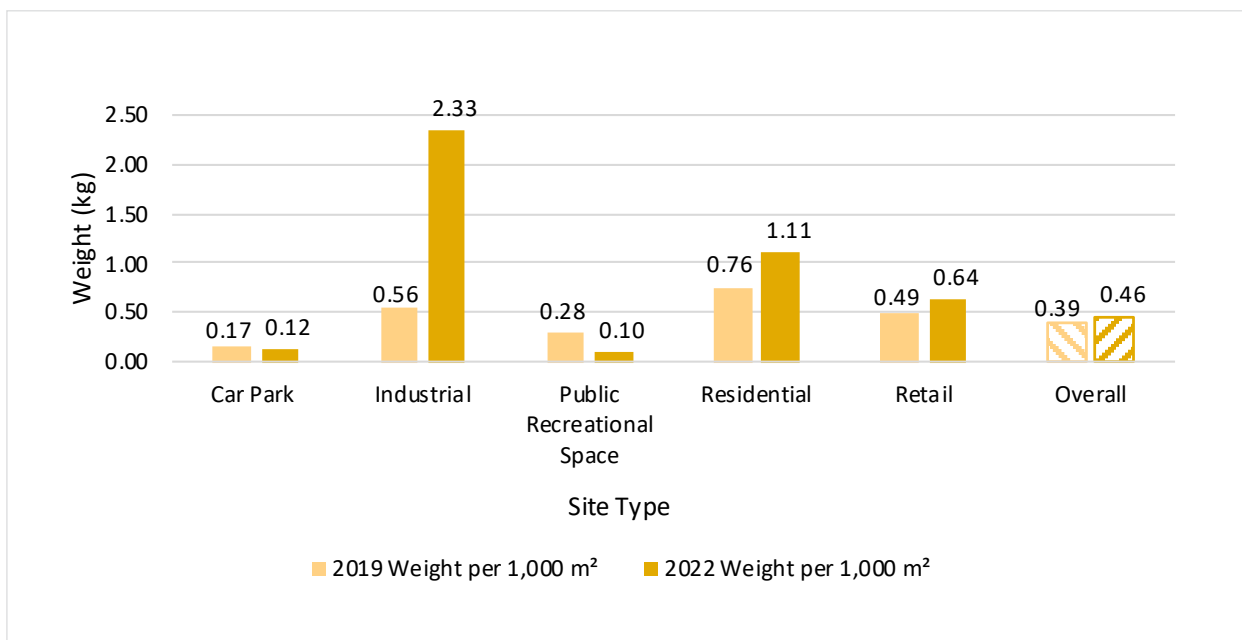
COMPARISON BY MAIN MATERIAL TYPES

Plastic (43 items) was the most frequently identified material type recorded in the Bay of Plenty region, whilst Cigarette Butts/Vaping items also contributed significantly to the litter stream (34 items). Moderate numbers of litter items per 1,000 m² were recorded for Metal (20 items) whilst smaller numbers of items per 1,000 m² were recorded for Miscellaneous (11 items), Paper/Cardboard (10 items), Glass (8 items) and Organic Waste (2 items).

The material type that contributed the largest amount of estimated volume to the litter stream was Plastic (5.32 ltr) per 1,000 m²., followed by Paper/Cardboard as the second largest contributor to litter volume (1.71 ltr). Smaller litter volumes per 1,000 m² were recorded for Miscellaneous (0.92 ltr), Organic Waste (0.89 ltr), Metal (0.66 ltr) and Glass (0.27 ltr). The smallest proportion of the overall litter volume was associated with Cigarette Butts/Vaping (0.03 ltr).

The largest contributors of litter weight per 1,000 m² to the overall litter stream in the Bay of Plenty region were Miscellaneous, Plastic and Metal (all 0.09 kg) closely followed by Paper/Cardboard (0.08 kg) and Glass (0.07 kg). Organic Waste (0.03 kg), and Cigarette Butts/Vaping (0.02 kg) were associated with the smallest litter weights per 1,000 m² in the region.

There was no Illegal Dumping identified at the sites audited.

Figure 113: Bay of Plenty 2022, Items and Volume per 1,000 m² by Main Material Type
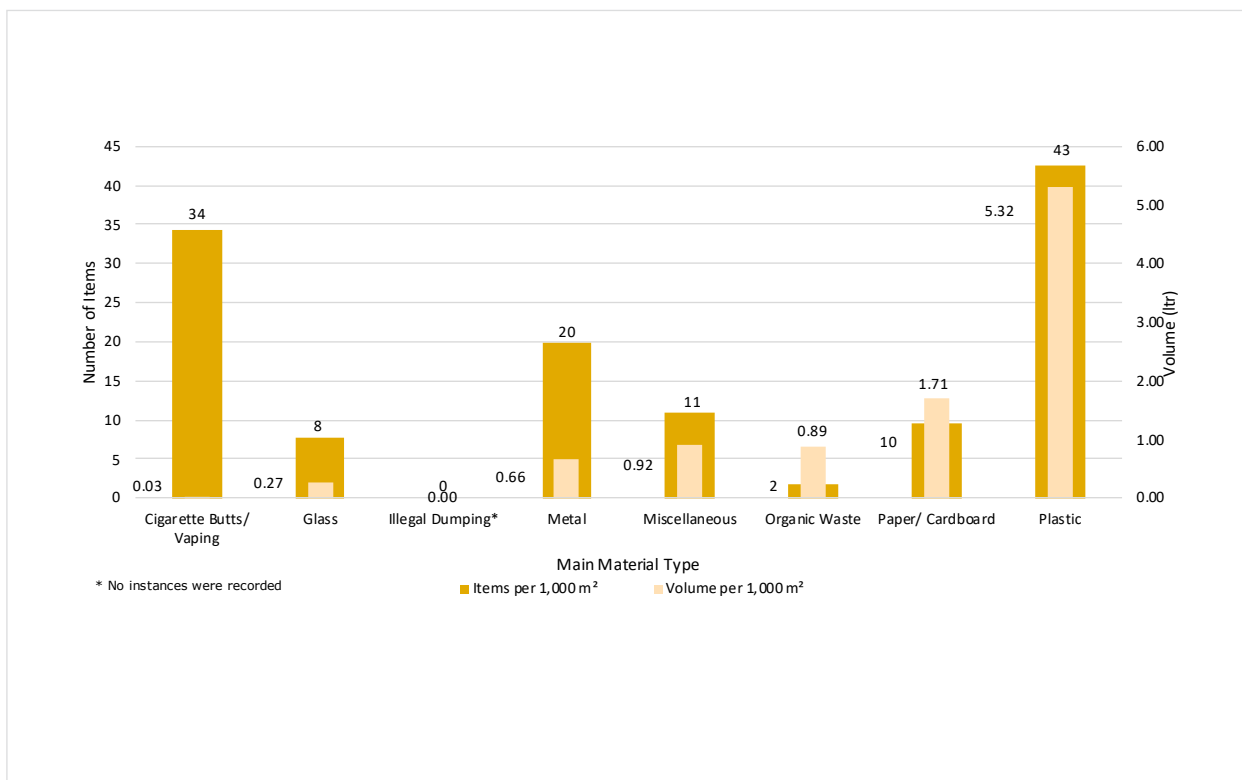
Figure 114: Bay of Plenty 2022 Items and Weight per 1,000 m² by Main Material Type
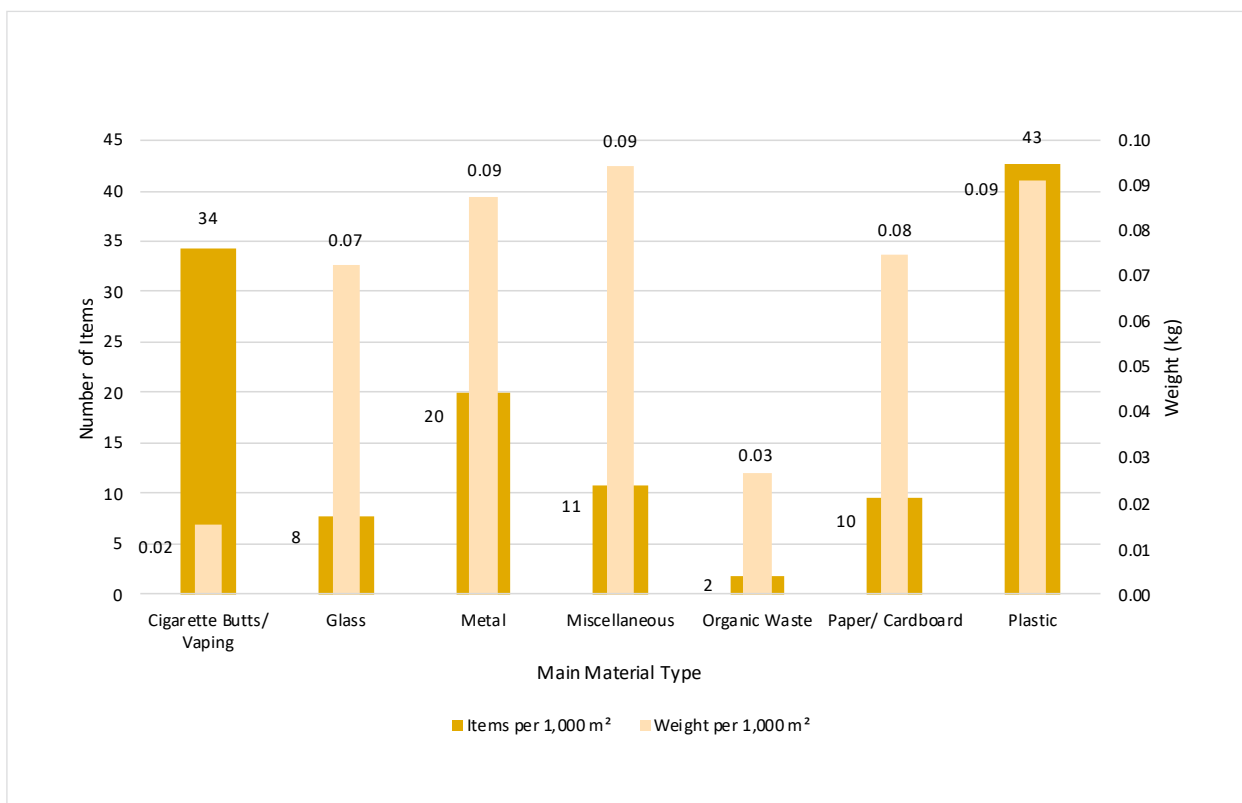
MAIN MATERIAL CHARACTERISTICS

The following material type characteristics were identified for litter items and volume per 1,000 m² in the Bay of Plenty region (excluding Highway and Railway sites):

- Plastic items contributed a high number of litter items and large litter volumes.

- Cigarette Butts/Vaping was associated with a high number of litter items and low litter volumes.

- Metal contributed a moderate number of litter items and small litter volumes.

- Paper/Cardboard contributed low to moderate numbers of litter items and moderate litter volumes.

- Miscellaneous items were associated with small to

moderate numbers of litter items and small litter volumes.

- Glass items were associated with small numbers of litter items and volumes.

- Organic Waste was associated with very small numbers of litter items and contributed low volumes of litter.

Figure 115: Bay of Plenty 2022, Items and Volume per 1,000 m² by Main Material Type
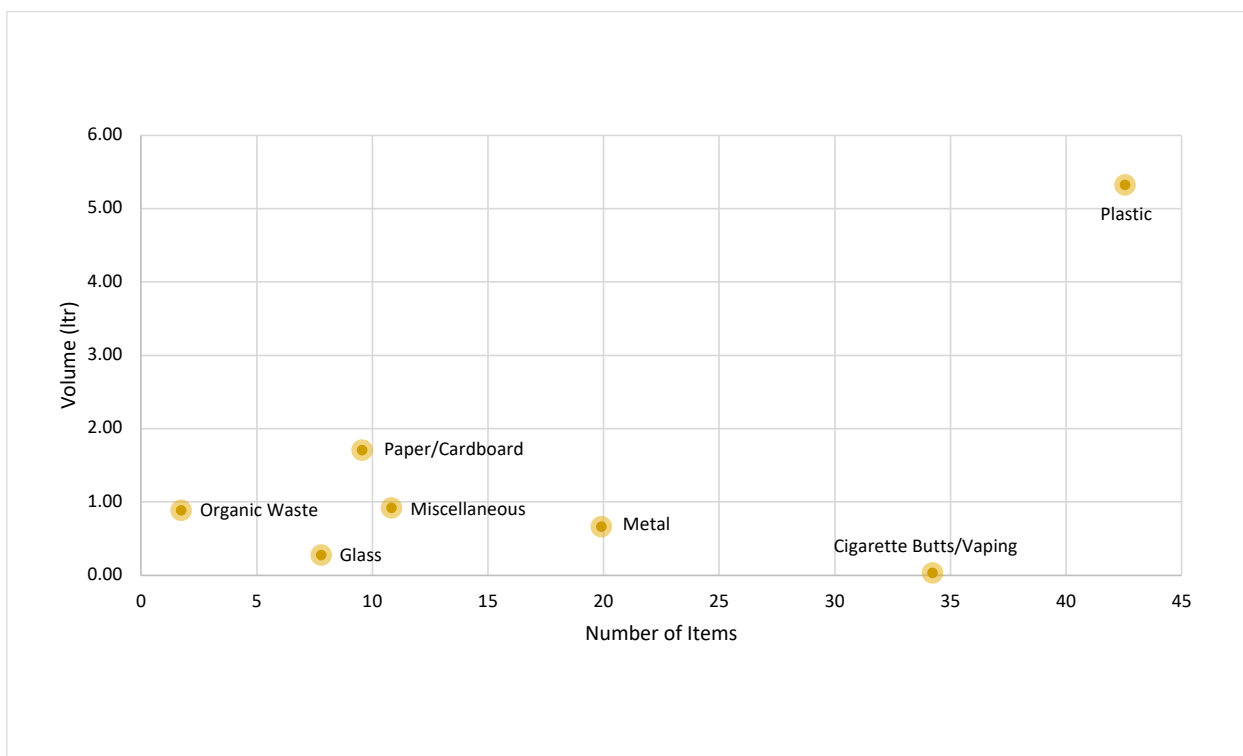
The following material type characteristics were identified for litter items and weight per 1,000 m² in the Bay of Plenty region (excluding Highway and Railway sites):

- Plastic items contributed high numbers of litter items and large litter weights.

- Metal contributed moderate numbers of litter items and high litter weights.

- Miscellaneous items were associated with small to moderate numbers of litter items and high litter weights.

- Paper/Cardboard and Glass contributed low to moderate numbers of litter items and high litter weights.

- Organic Waste was associated with low numbers of litter items and small litter weights.

- Cigarette Butts/Vaping was associated with high numbers of litter items, but contributed the smallest litter weights.

Figure 116: Bay of Plenty 2022, Items and Weight per 1,000 m² by Main Material Type
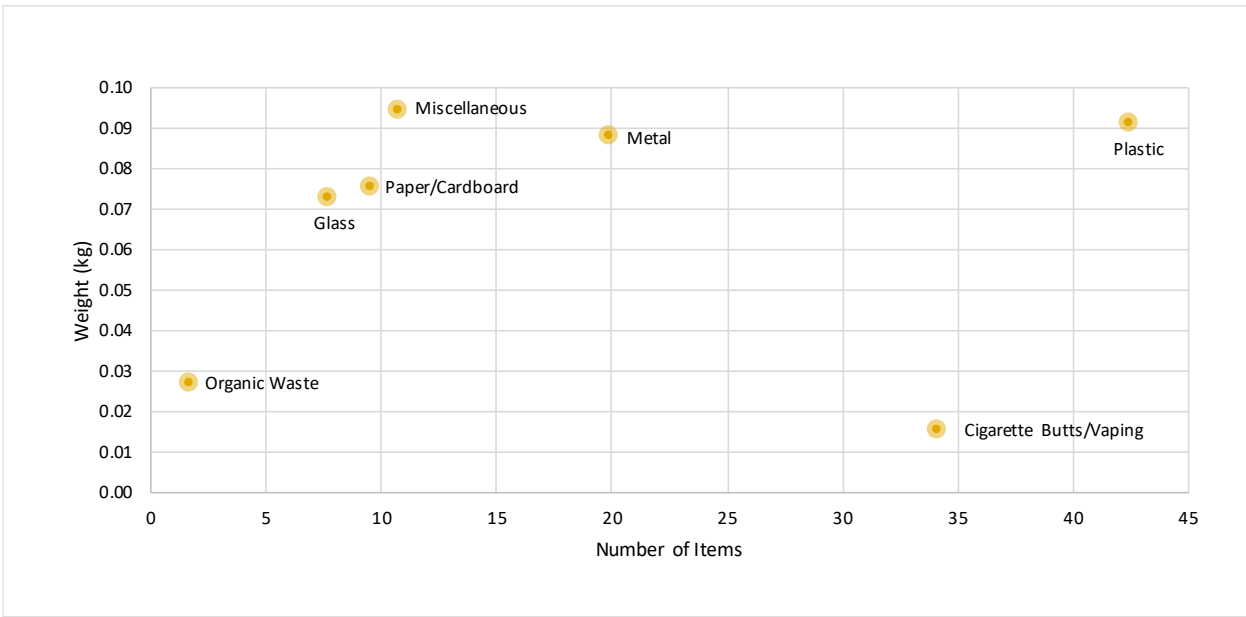
COMPARISON BY MAIN MATERIAL TYPE OVER TIME

Compared with 2019, the material type, Plastic, has seen increases across all three measures, including litter items, volume and weight per 1,000 m². Conversely the material type, Glass has seen a decline across all three measures since 2019. Whilst the weight and volume remain much the same, the number of items classified under Metal has increased by six items per 1,000 m² since 2019.

ITEMS PER 1,000 M²

Since 2019, there has been a decline in the Bay of Plenty region in the number of litter items per 1,000 m² collected classified under the material type Paper/ Cardboard (10 items vs. 15 items in 2019), whilst Cigarette Butts/Vaping, Glass, Miscellaneous items and Organic Waste remained relatively consistent. The number of items classified under Plastic have increased since 2019 (43 items vs. 30 items per 1,000 m² in 2019).

Figure 117: Bay of Plenty, Items per 1,000 m² by Main Material Type: Comparison Over Time
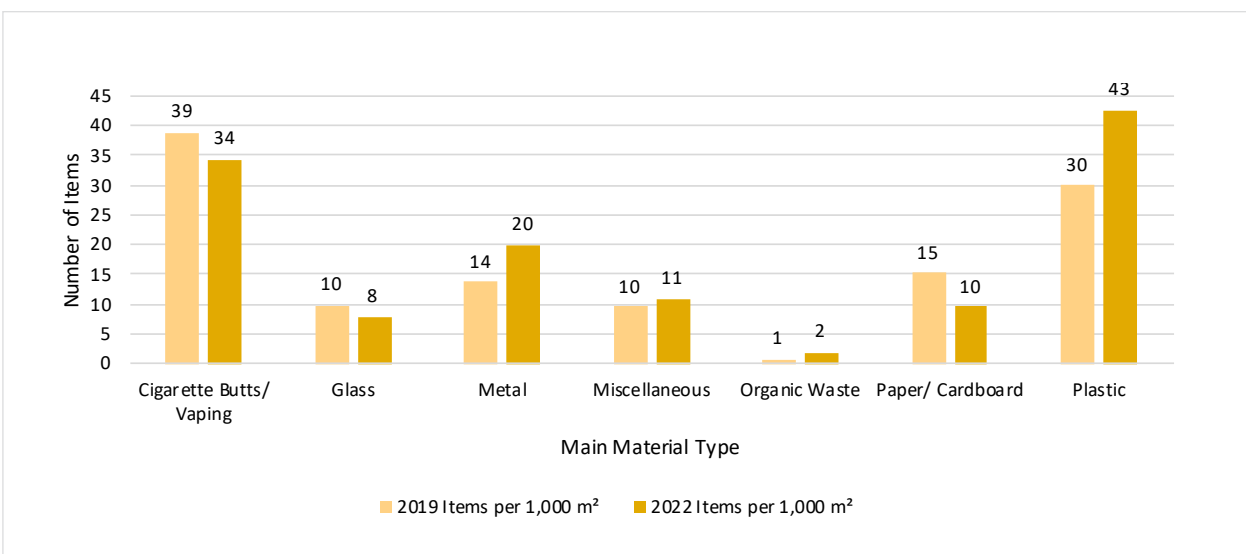
VOLUME PER 1,000 M²

Since 2019, the biggest increase in the estimated volume of material types per 1,000 m² in the Bay of Plenty region can be seen in Plastic (5.32 ltr vs. 0.35 ltr in 2019). There has also been a decrease in the volume of Miscellaneous items collected per 1,000 m² (0.92 ltr vs. 1.55 ltr in 2019).

Figure 118: Bay of Plenty, Volume per 1,000 m² by Main Material Type: Comparison Over Time
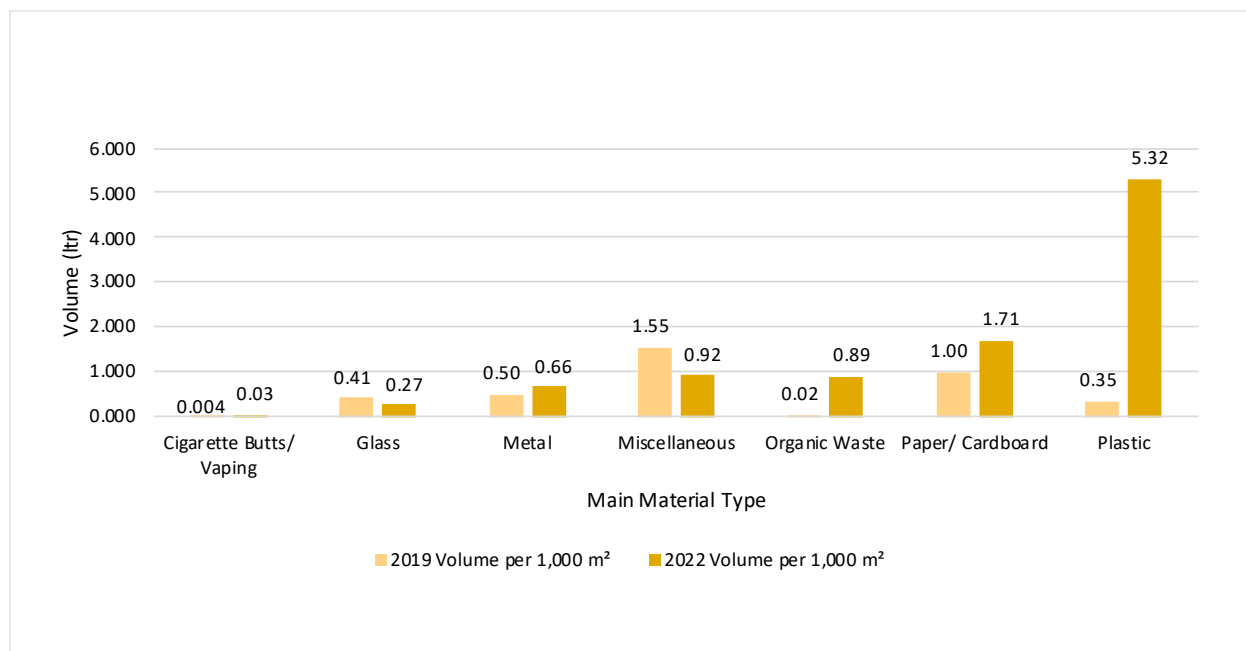
WEIGHT PER 1,000 M²

Compared with 2019, there have been increases across most material type weights per 1,000 m² in Bay of Plenty region, with the highest increase seen in Miscellaneous items (0.09 kg vs. 0.03 kg in 2019). The weight of items classified under Glass has decreased significantly since 2019 (0.07 kg vs. 0.18 kg per 1,000 m²n 2019).

Figure 119: Bay of Plenty, Weight per 1,000 m² by Main Material Type: Comparison Over Time
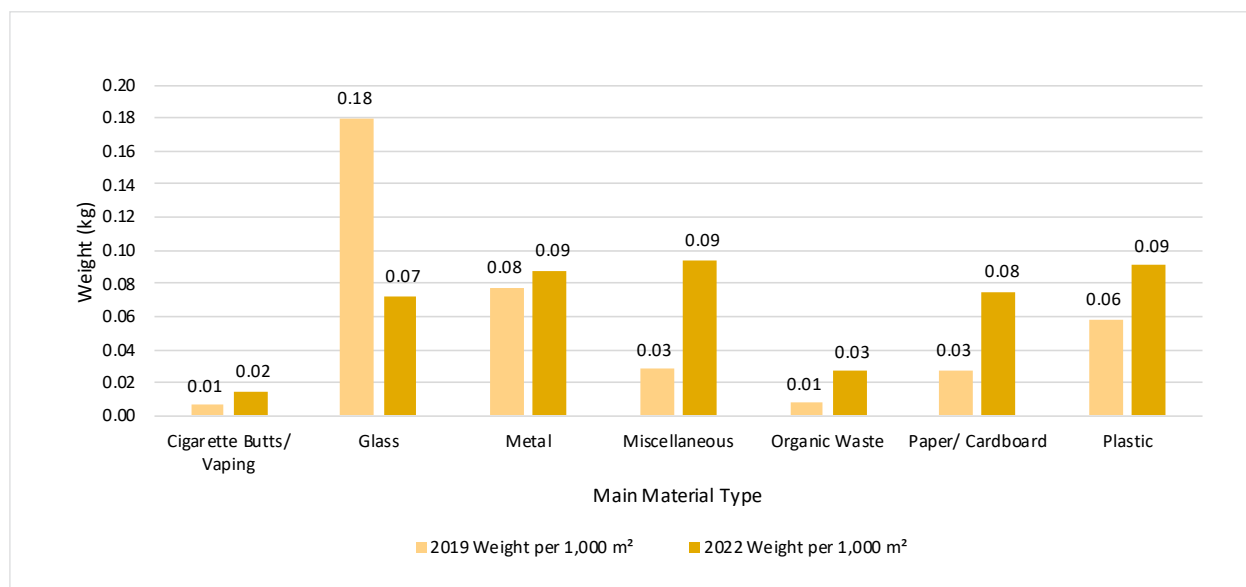
SITE TYPES BY MAIN MATERIAL TYPE

In the Bay of Plenty region, the number of material type litter items collected per 1,000 m² at the different site types (excluding Highway and Railway sites) was as follows:

- Car Park sites: Plastic (19 items), Cigarette Butts/Vaping (18 items), Metal (12 items), Miscellaneous (5 items), Paper/Cardboard (3 items), Glass (3 items), Organic Waste (0 items) and Illegal Dumping (0 items).

- Industrial sites: Plastic (145 items), Cigarette Butts/Vaping (67 items), Metal (67 items), Miscellaneous (40 items), Paper/Cardboard (34 items), Glass (10 items), Organic Waste (5 items), Illegal Dumping (0 items).

- Public Recreational Spaces: Plastic (20 items), Glass (9 items), Miscellaneous (3 items), Metal (2 items), Paper/Cardboard (2 items), Cigarette Butts/Vaping (1 item), Organic Waste (0 items) and Illegal Dumping (0 items).

- Residential sites: Plastic (57 items), Metal (44 items), Cigarette Butts/Vaping (27 items), Miscellaneous (18 items), Paper/Cardboard (12 items), Glass (9 items), Organic Waste (7 items) and Illegal Dumping (0 items).

- Retail sites: Cigarette Butts/Vaping (199 items), Plastic (102 items), Metal (48 items), Paper/Cardboard (39 items), Miscellaneous (28 items), Glass (17 items), Organic Waste (4 items) and Illegal Dumping (0 items).

Figure 120: Bay of Plenty 2022, Sites by Main Material Type: Items per 1,000 m²
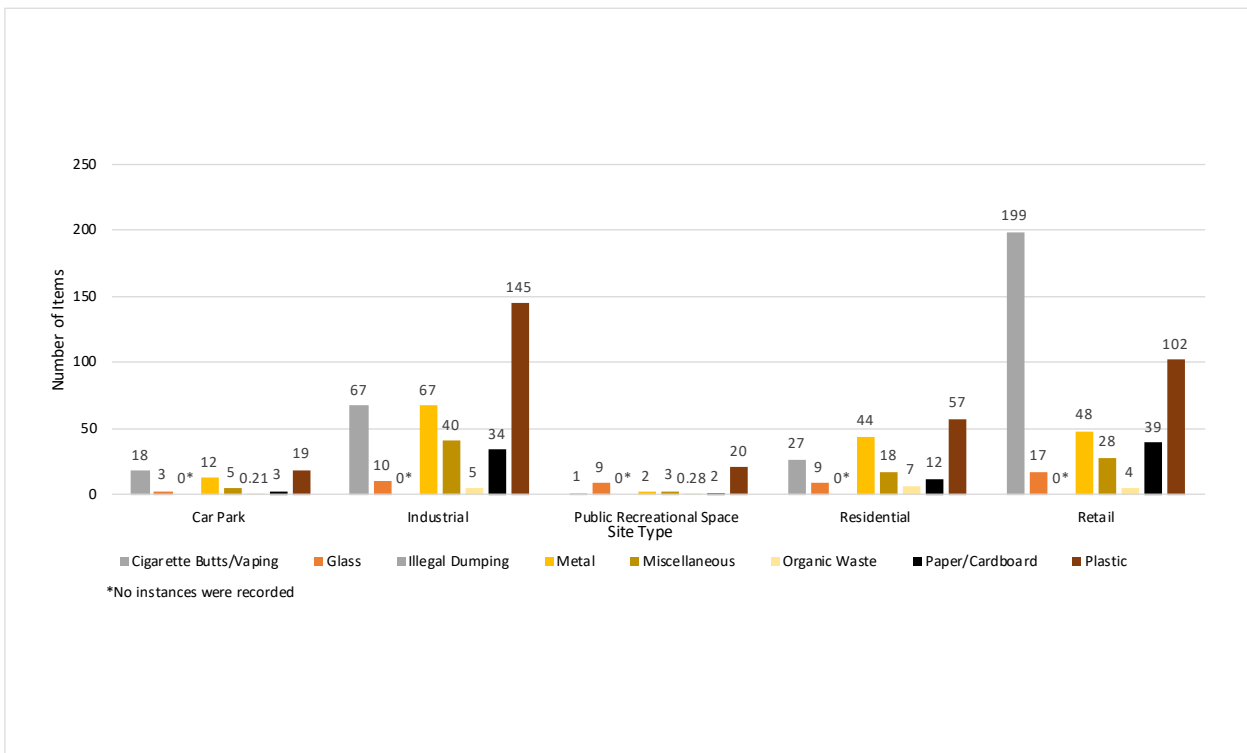
THE DIRTY DOZEN

On average across the Bay of Plenty region, Cigarette/ Vaping: Cigarette butts were the largest contributor to the number of litter items, with 34 butts per 1,000 m² identified across the sites.

Other material subcategories frequently identified included:

- Plastic: Unidentifiable soft plastic fragments (12 items per 1,000 m²)
- Metal: Bottle caps, lids & pull tabs (9 items per 1,000 m²)
- Plastic: Unidentifiable hard plastic fragments (8 items per 1,000 m²)
- Plastic: Snack bags & confectionary wrappers (8 items per 1,000 m²)

Not all material subcategories were comparable to the 2019 NLA due to the addition of new subcategories in 2022.

Amongst comparable material subcategories, the number of Cigarette/Vaping: Cigarette butts collected per 1,000 m² in the Bay of Plenty region has decreased slightly by 5 butts compared with 2019. The biggest difference in litter items can be seen in Plastic: Plastic (other), which has decreased by 10 items per 1,000 m² since 2019.

Figure 121: Bay of Plenty, Dirty Dozen, Items per 1,000 m², Material Subcategories: Comparison Over Time
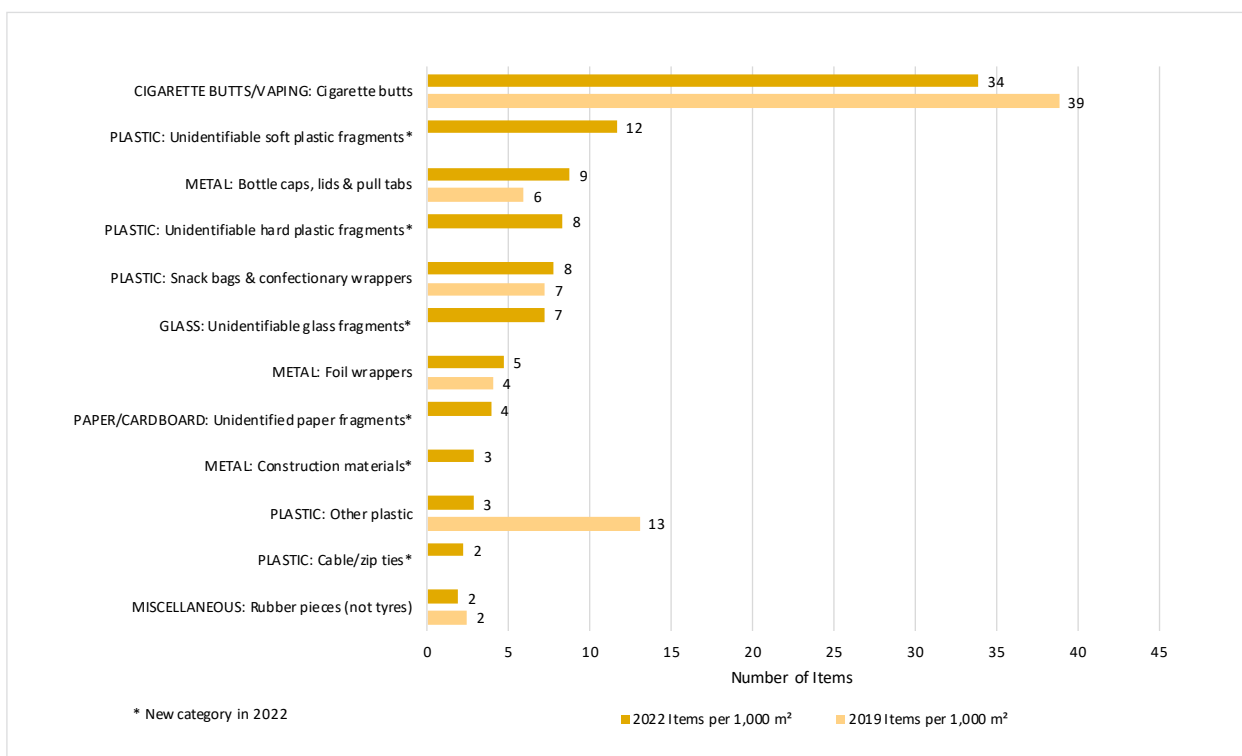
Plastic: Reusable bags was the largest contributor of estimated litter volumes at the site audited in the Bay of Plenty region contributing 2.21 ltr of volume per 1,000 m².

Other material subcategories associated with large litter volumes included:

- Plastic: Polystyrene insulation (1.86 ltr per 1,000 m²)
- Paper/Cardboard: Cups, food trays, food wrappers, takeaway & drink containers (1.37 ltr per 1,000 m²)
- Organic Waste: Compostable packaging (0.84 ltr per 1,000 m²)
- Miscellaneous: Clothing, towels & linen (0.38 ltr per 1,000 m²)

Not all material subcategories were comparable to the 2019 NLA due to the addition of new subcategories,

Amongst comparable material subcategories, there are a few differences from 2019. As shown in the graph below, the biggest difference in volume can be seen in Paper/Cardboard: Cups, food trays, food wrappers, takeaway containers & drink containers which has increased (1.37 ltr vs. 0.56 ltr per 1,000 m² in 2019).

Figure 122: Bay of Plenty, Dirty Dozen, Volume per 1,000 m², Material Subcategories: Comparison Over Time
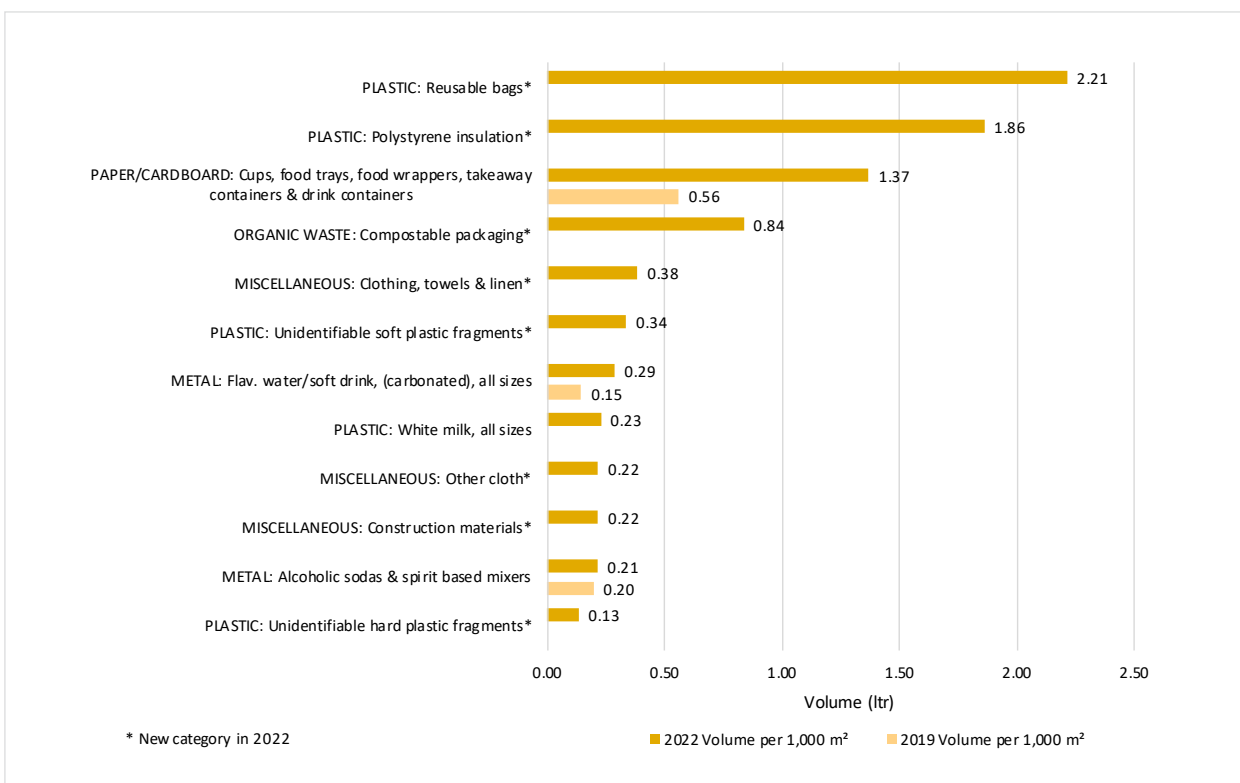
Within the material subcategories, Miscellaneous: Clothing, towels & linen was the largest contributor to the Bay of Plenty's regional litter weights (0.04 kg per 1,000 m²).

Other material subcategories associated with proportionally higher litter weights included:

- Paper/Cardboard: Paper/cardboard (other) (0.03 kg per 1,000 m²)
- Glass: Unidentifiable glass fragments (0.03 kg per 1,000 m²)
- Glass: Beer bottles < 750 ml (all colours) (0.02 per 1,000 m²)

Not all material subcategories were comparable to the 2019 NLA due to the addition of new subcategories in 2022.

Amongst comparable material subcategories, compared with 2019 there are minor differences with the largest weight increase collected in Paper/cardboard (other) (0.03 kg vs 0.01 kg in 2019).

Figure 123: Bay of Plenty, Dirty Dozen, Weight per 1,000 m², Material Subcategories: Comparison Over Time
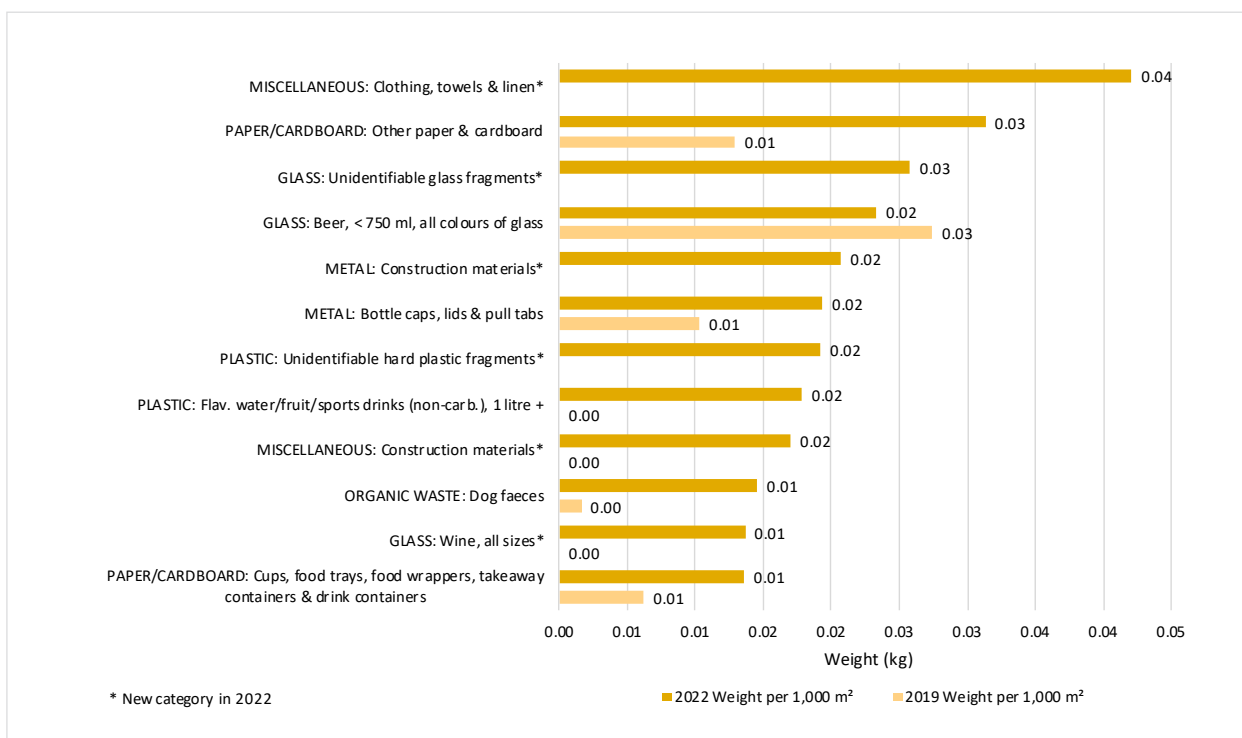
TERRITORIAL SUMMARIES

There are six Territorial Authorities within the Bay of Plenty region:

- Kawerau District
- Ōpōtiki District
- Rotorua District
- Tauranga City
- Western Bay of Plenty District
- Whakatāne District

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

Extract from Table 5, 2022 Territory Data: Bay of Plenty Region

Territory	Total Area Audited (m²)	Items per 1,000 m²	Weight (kg) per 1,000 m²	Volume (ltr) per 1,000 m²
BAY OF PLENTY REGION				
Kawerau District	4,520	221	0.45	21.42
Ōpōtiki District	4,700	157	0.66	12.30
Rotorua District	5,150	90	0.39	6.94
Tauranga City	4,900	94	0.50	8.49
Western Bay of Plenty District	4,879	61	0.29	4.23
Whakatāne District	4,070	151	0.50	5.84
Bay of Plenty Region Overall	**28,219**	**127**	**0.46**	**9.79**

SITE GRADINGS

All sites were assigned gradings in four 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 Bay of Islands region.

Extract from Table 3, Risk and Litter Distribution: Bay of Plenty (Excluding Highway and Railway Sites)

Bay of Plenty	Risk Present		Litter Distribution	
	Moderate hazard or risk	Significant hazard or risk	Widespread	Clustered
	100%	0%	93%	7%

Figure 124: Bay of Plenty 2022, Grading: Visual Site Ratings (Excluding Highway and Railway Sites)
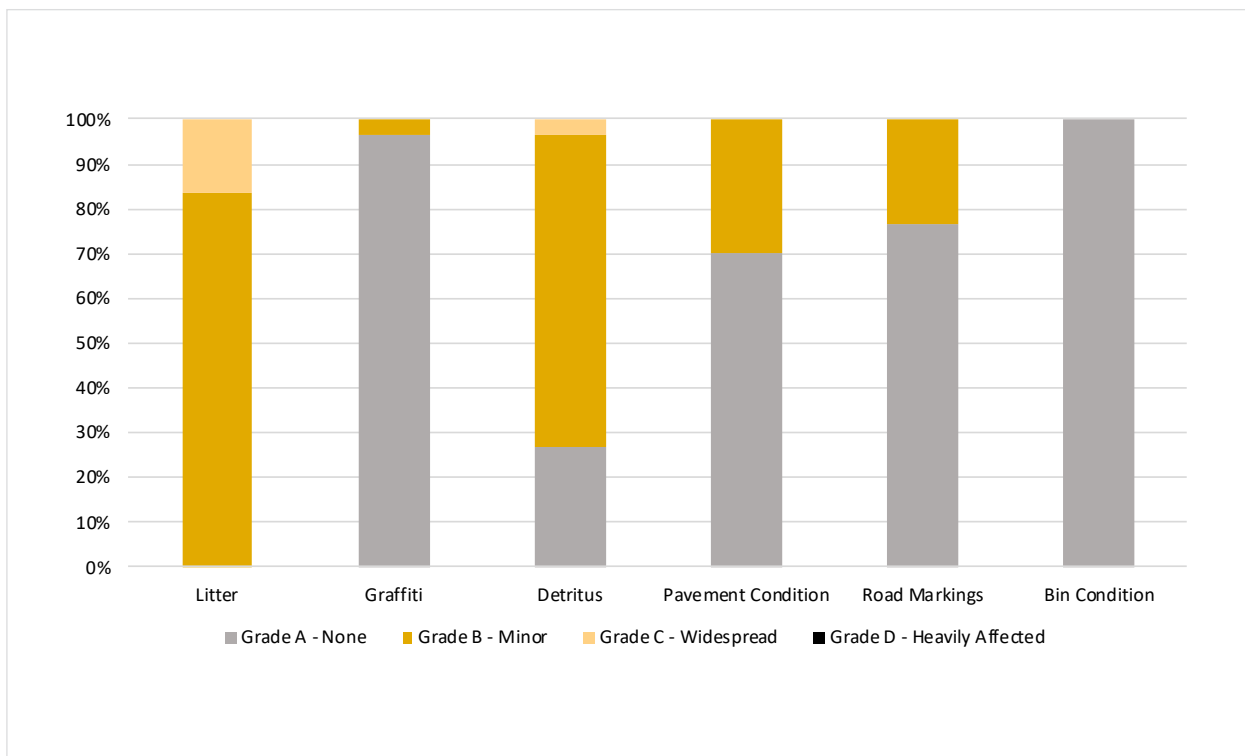
Figure 125: Bay of Plenty 2022, Grading: Site Litter Hotshots Ratings (Excluding Railway and Highway Sites)
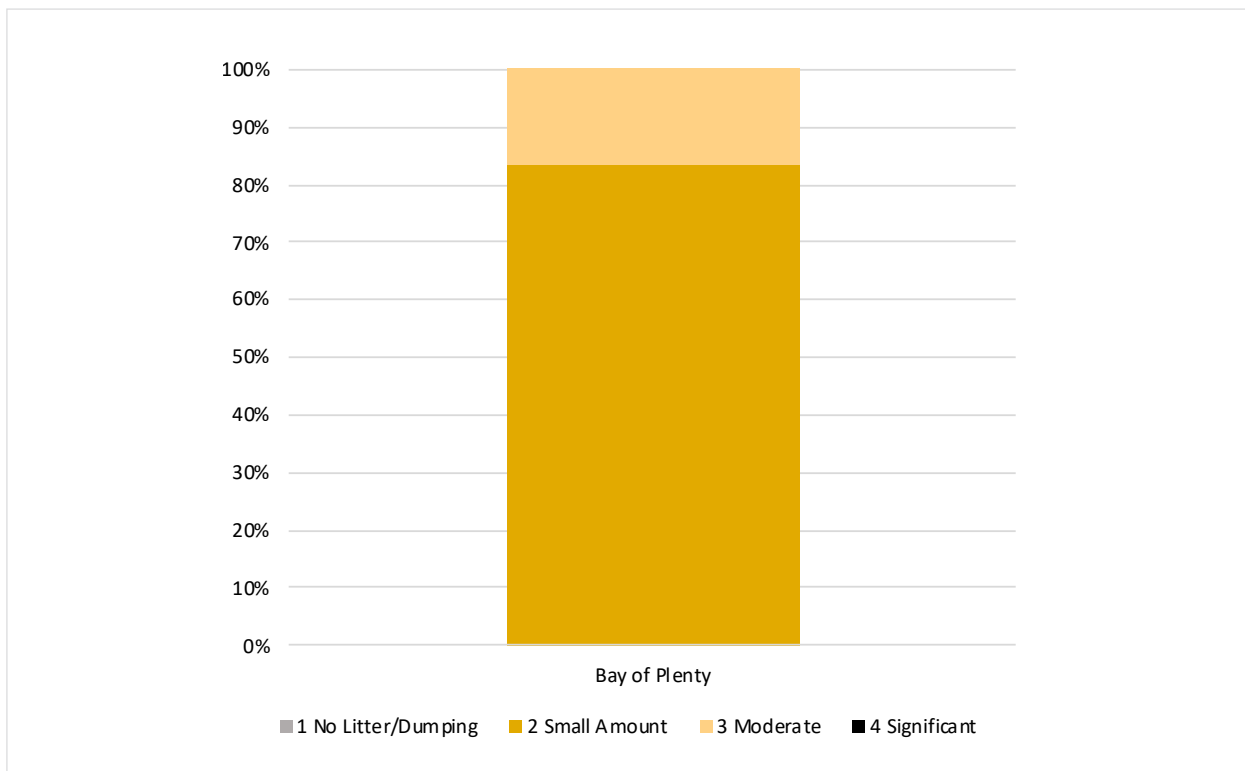
HIGHWAYS AND RAILWAYS

The following section shows the results for Highways and Railways in the Bay of Plenty region. In the Bay of Plenty region four Highway sites and one Railway site was audited.

Figure 126: Bay of Plenty Highways and Railways, Items per 1,000 m² by Site Type: Comparison Over Time
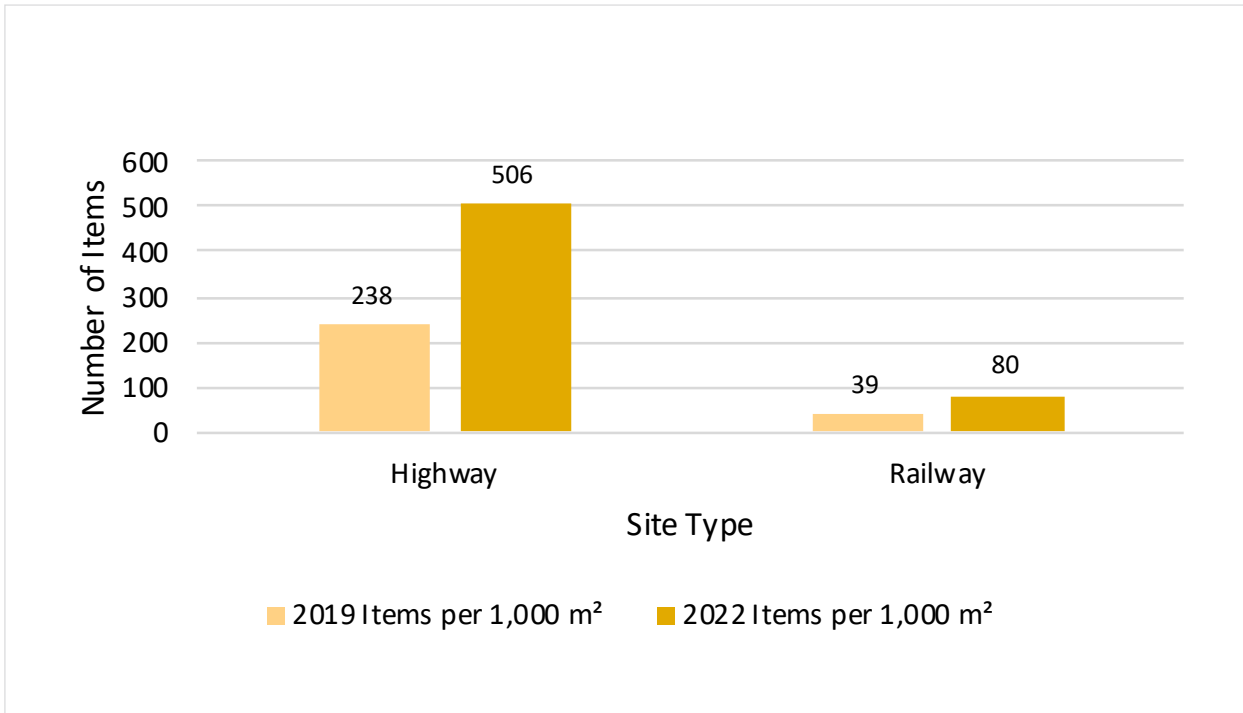
Figure 127: Bay of Plenty Highways and Railways, Weight per 1,000 m² by Site Type: Comparison Over Time
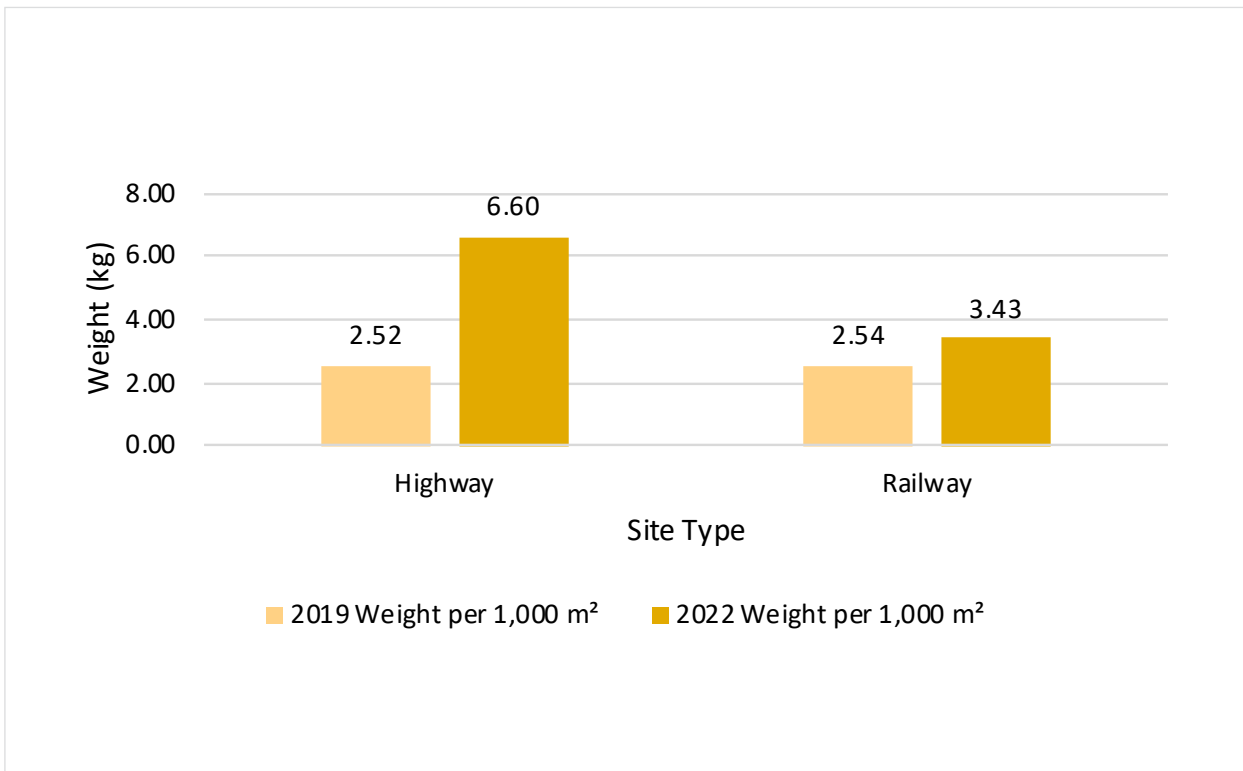
Figure 128: Bay of Plenty Highways and Railways, Volume per 1,000 m² by Site Type: Comparison Over Time
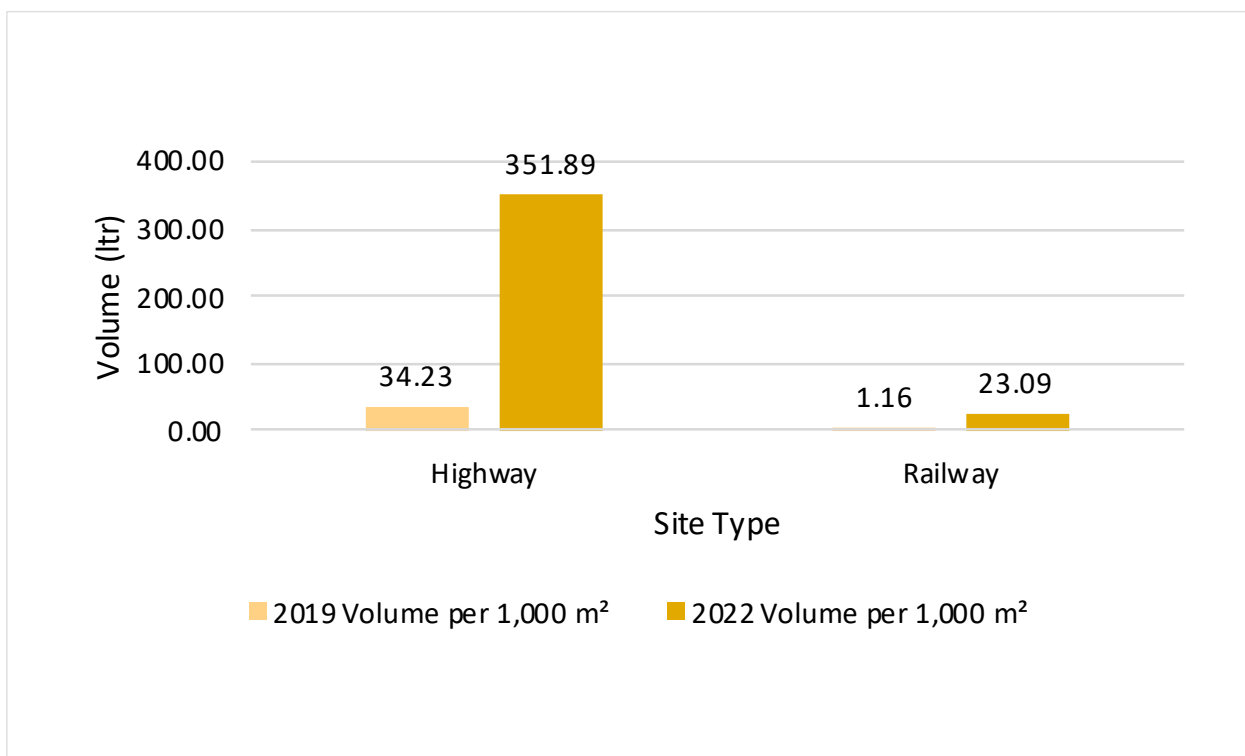
Figure 129: Bay of Plenty Highways, Items per 1,000 m² by Main Material Type: Comparison Over Time
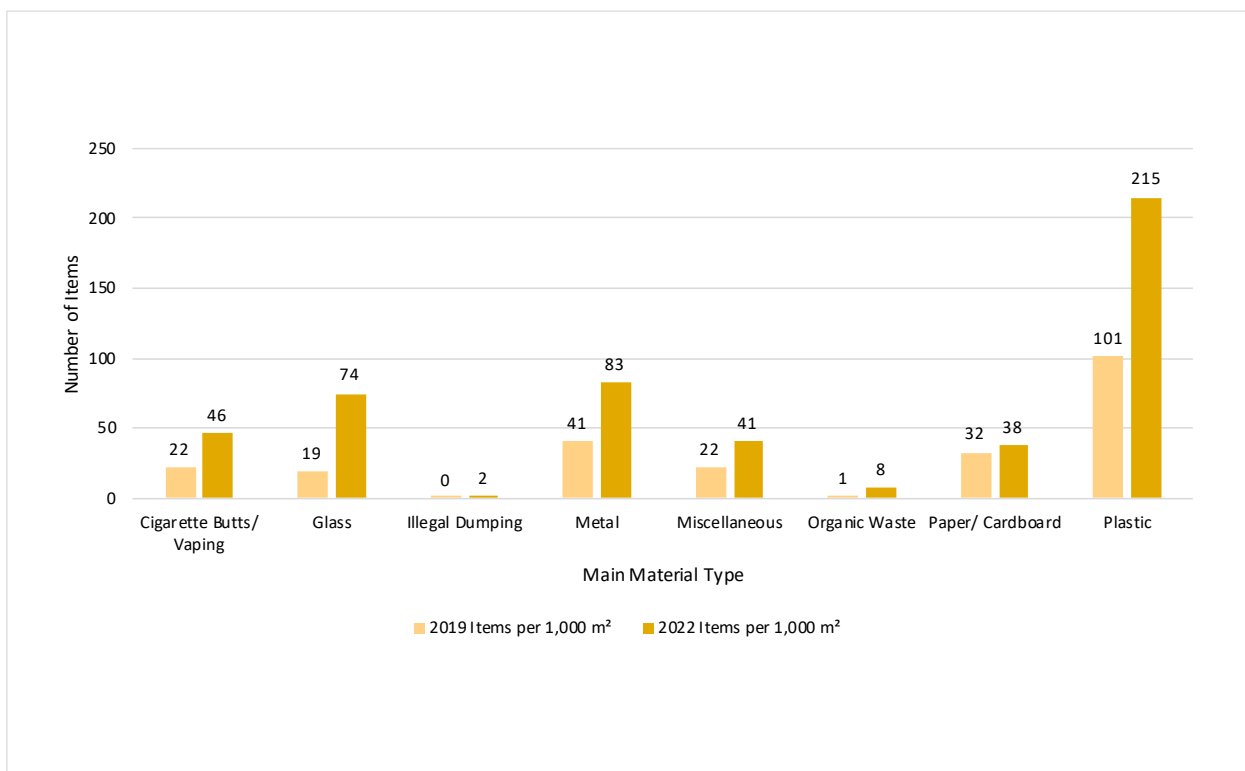
Figure 130: Bay of Plenty Highways, Weight per 1,000 m² by Main Material Type: Comparison Over Time
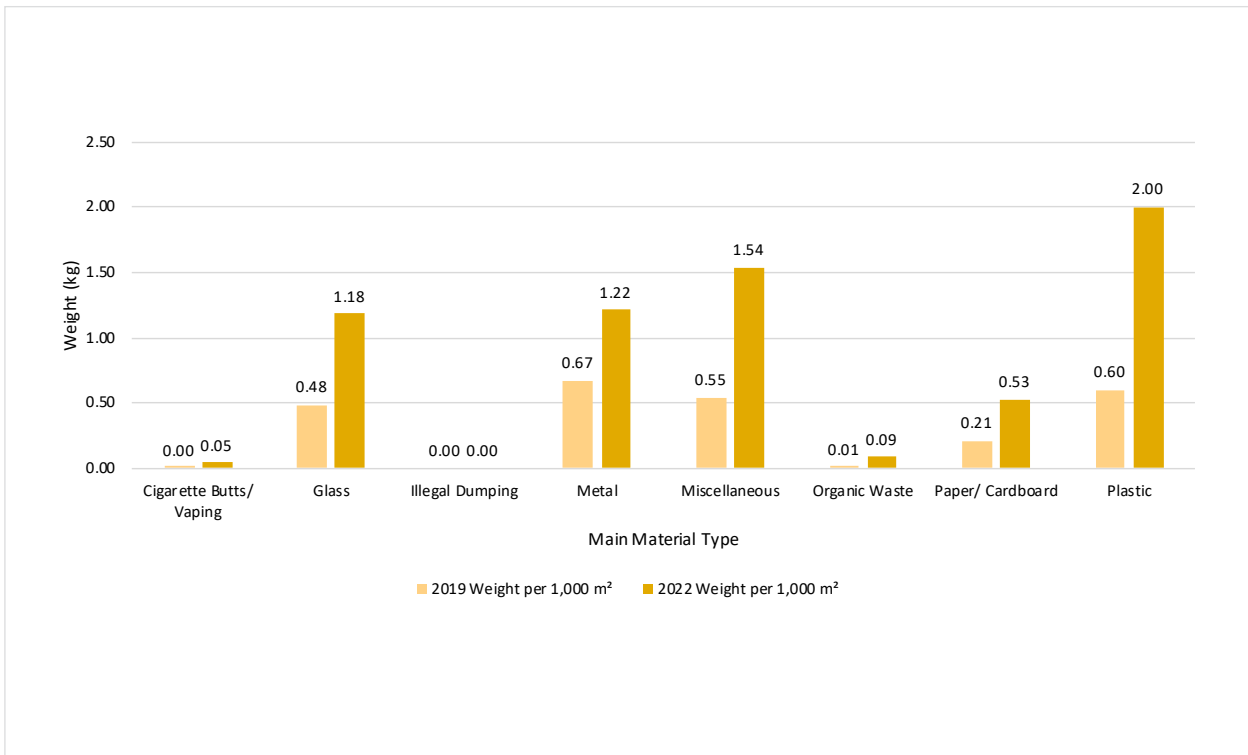
Figure 131: Bay of Plenty Highways, Volume per 1,000 m² by Main Material Type: Comparison Over Time
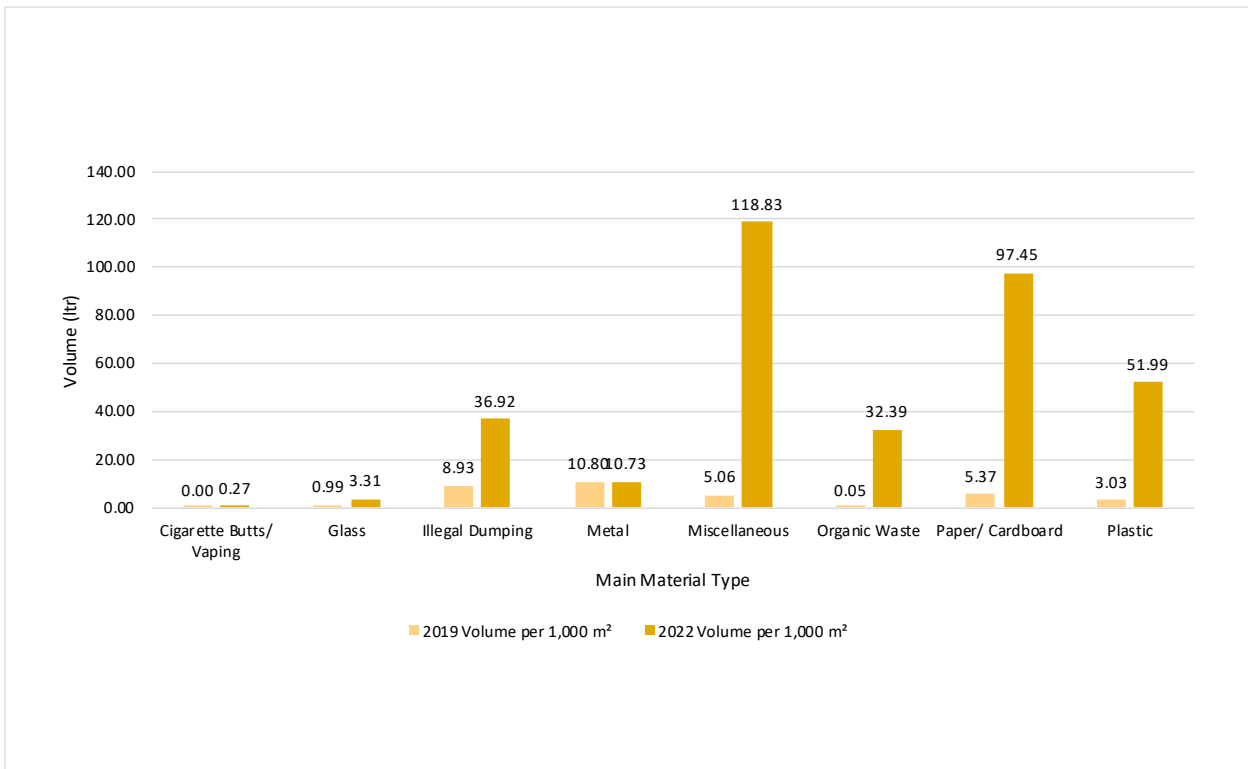
Figure 132: Bay of Plenty Railways, Items per 1,000 m^2 by Main Material Type: Comparison Over Time
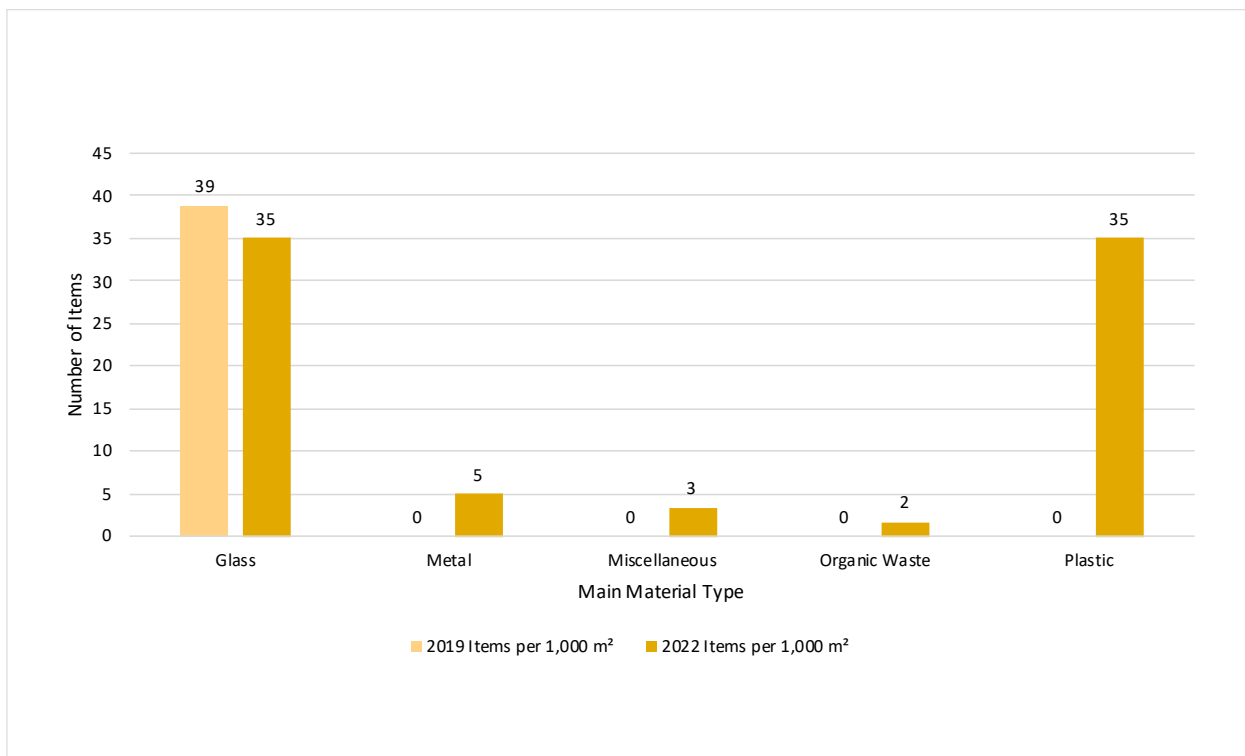
Figure 133: Bay of Plenty Railways, Weight per 1,000 m^2 by Main Material Type: Comparison Over Time
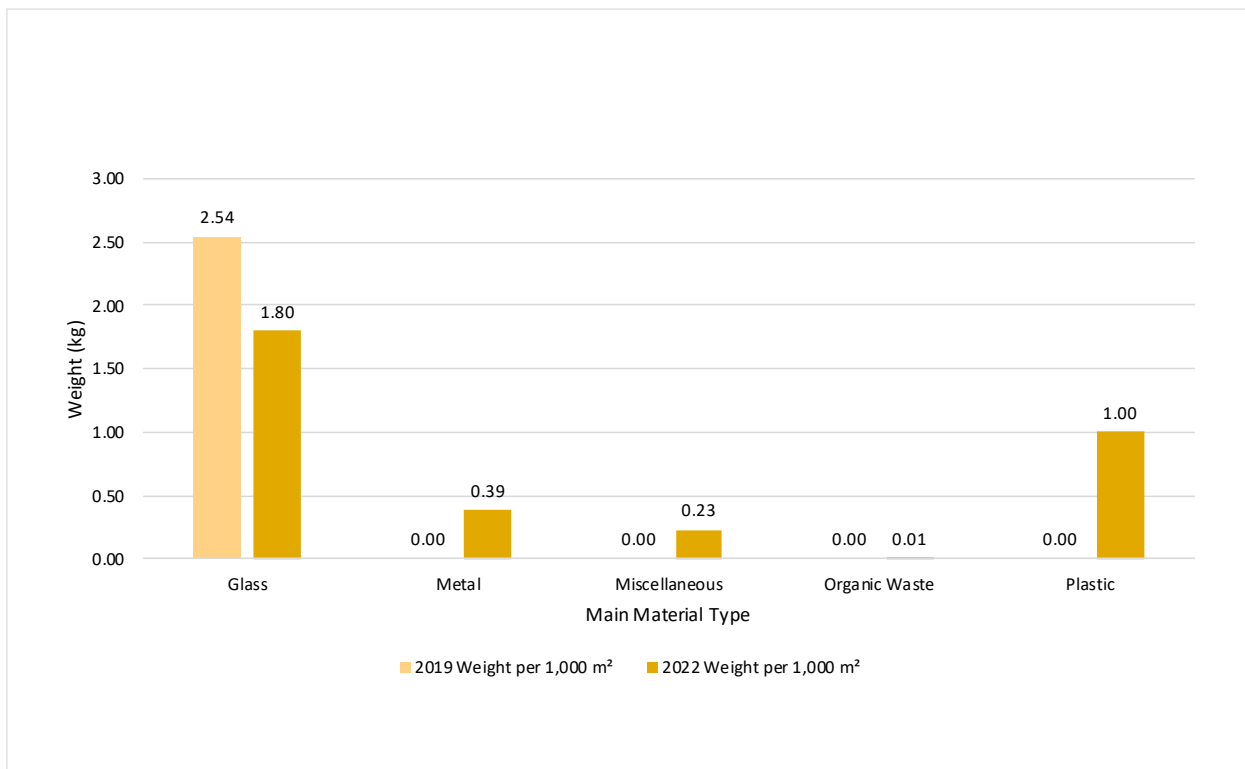
Figure 134: Bay of Plenty Railways, Volume per 1,000 m² by Main Material Type: Comparison Over Time
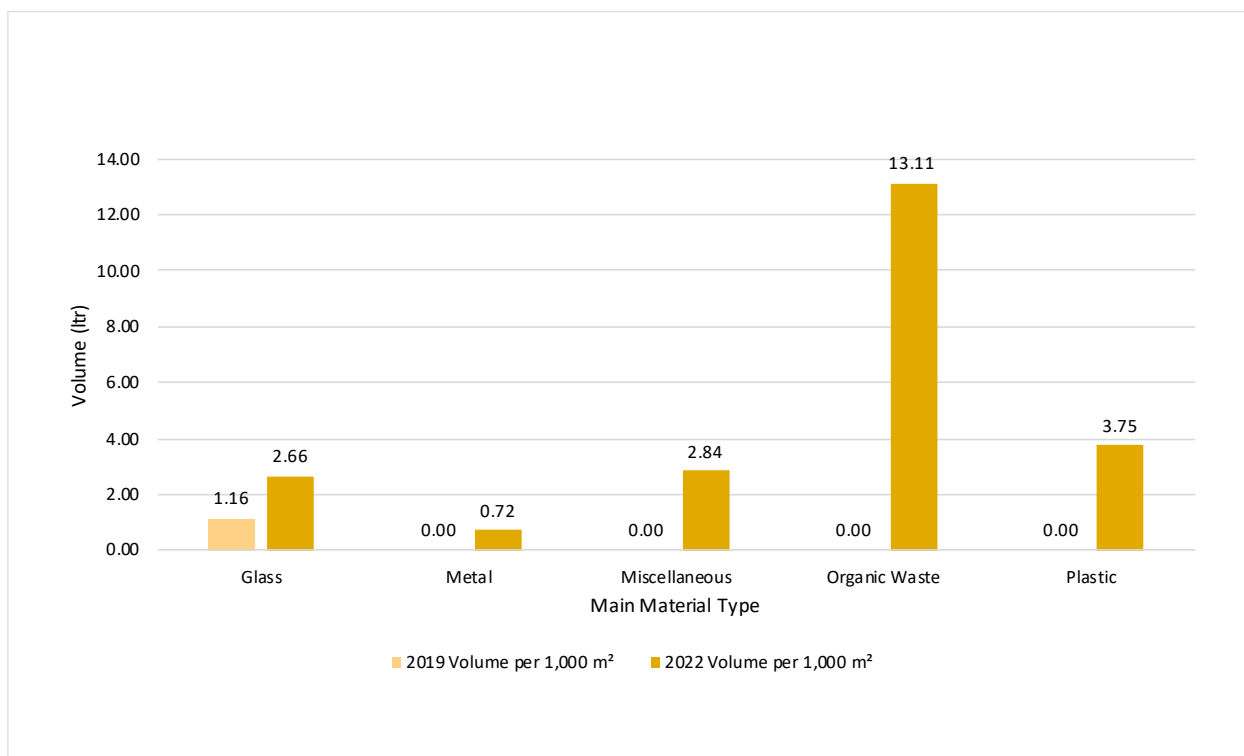
Figure 135: Bay of Plenty Highways, Dirty Dozen, Items per 1,000 m², Material Subcategories: Comparison Over Time
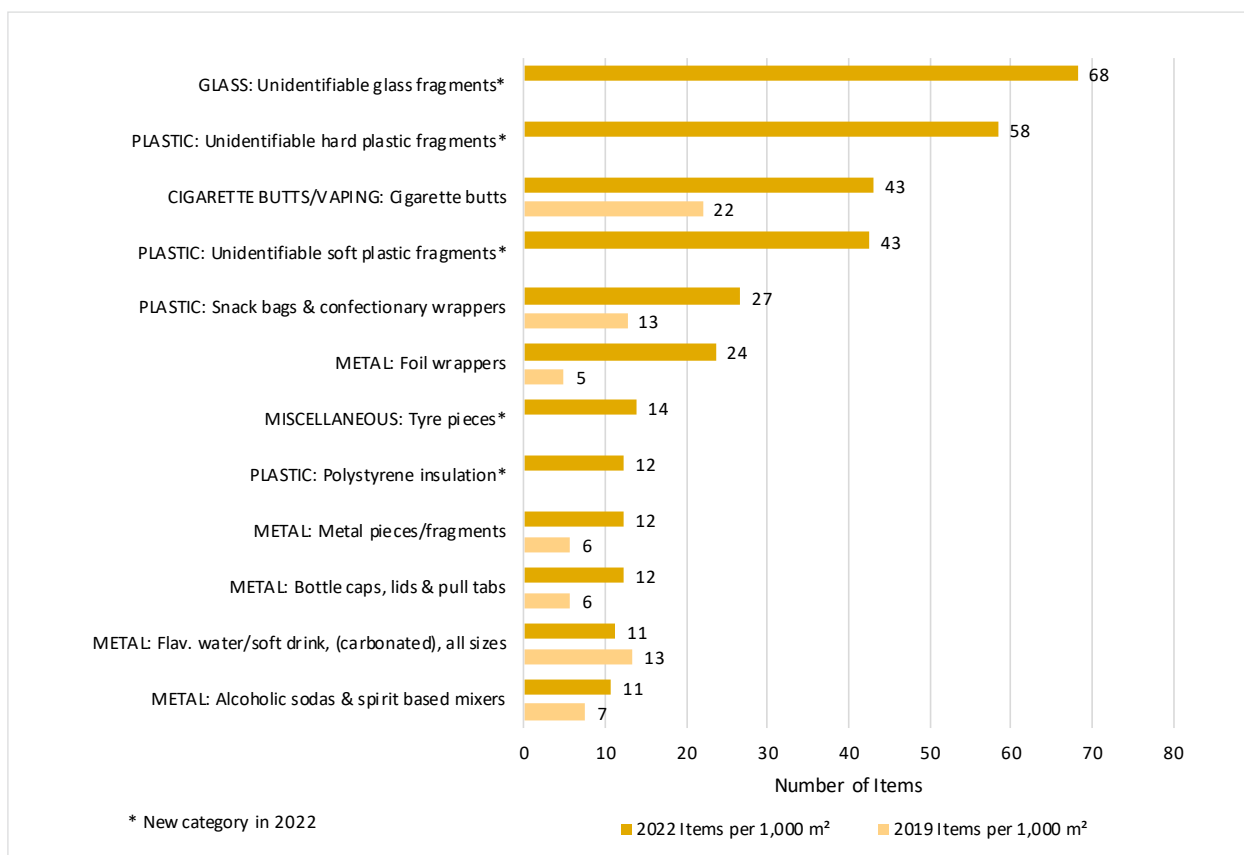
Figure 136: Bay of Plenty Highways, Dirty Dozen, Weight per 1,000 m², Material Subcategories: Comparison Over Time

Figure 137: Bay of Plenty Highways, Dirty Dozen, Volume per 1,000 m², Material Subcategories: Comparison Over Time

Figure 138: Bay of Plenty Railways, Dirty Dozen, Items per 1,000 m², Material Subcategories: Comparison Over Time

Category	2022	2019
GLASS: Unidentifiable glass fragments*	15	
GLASS: Other glass	15	38
PLASTIC: Unidentifiable soft plastic fragments*	13	
PLASTIC: Snack bags & confectionary wrappers	10	0
PLASTIC: Unidentifiable hard plastic fragments*	7	
GLASS: Beer, < 750 ml, all colours of glass	5	0
METAL: Other metal	3	0
PLASTIC: Bags - supermarket type light weight carry bags	2	0
ORGANIC WASTE: Compostable packaging*	2	
MISCELLANEOUS: Other cloth*	2	
MISCELLANEOUS: Footwear*	2	
METAL: Beer, aluminium drink cans, all types, all sizes	2	0

* New category in 2022
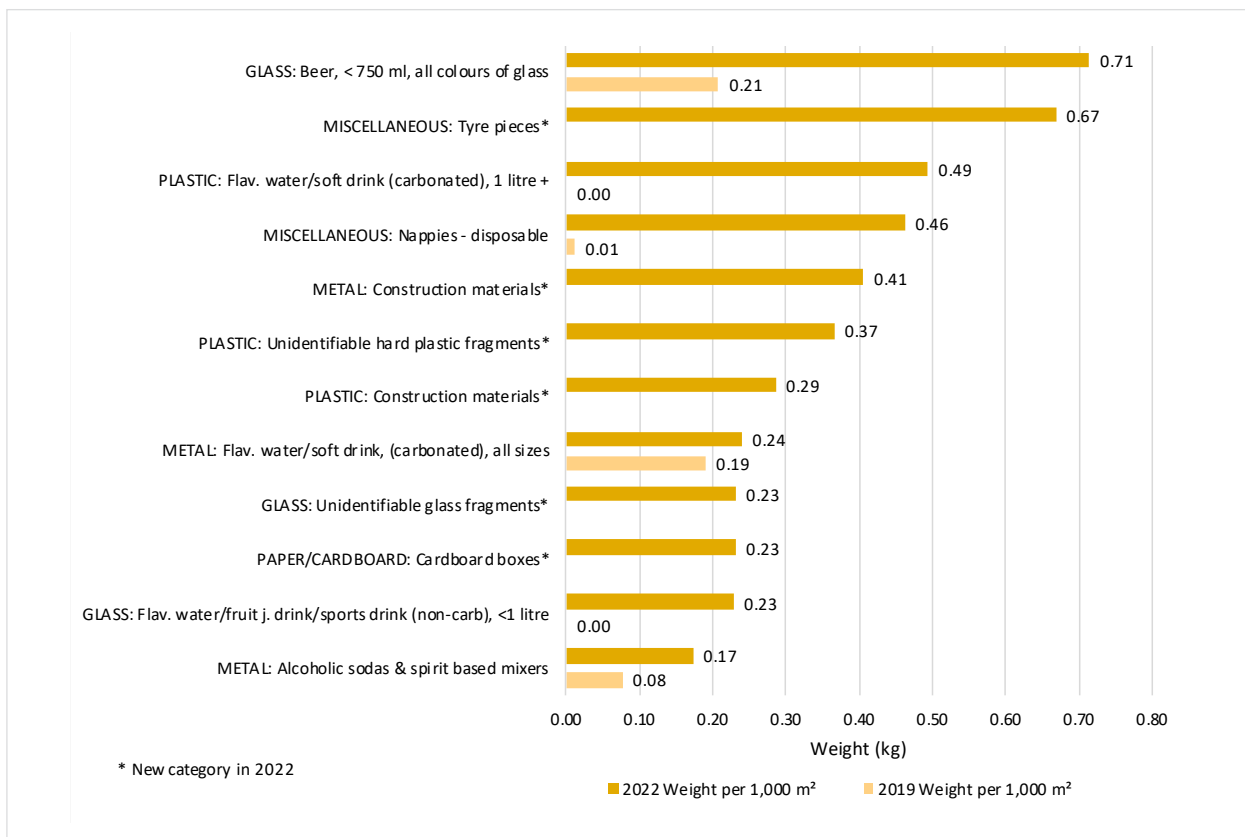
■ 2022 Items per 1,000 m²   ■ 2019 Items per 1,000 m²

Figure 139: Bay of Plenty Railways, Dirty Dozen, Weight per 1,000 m², Material Subcategories: Comparison Over Time

Category	2022	2019
GLASS: Beer, < 750 ml, all colours of glass	0.83	0.00
GLASS: Other glass	0.63	2.34
PLASTIC: Unidentifiable hard plastic fragments*	0.44	
PLASTIC: Polystyrene insulation*	0.43	
METAL: Other metal	0.36	0.00
GLASS: Unidentifiable glass fragments*	0.34	
MISCELLANEOUS: Footwear*	0.23	
PLASTIC: Bags - supermarket type light weight carry bags	0.06	0.00
PLASTIC: Snack bags & confectionary wrappers	0.04	0.00
PLASTIC: Sacks, sheeting & other bags	0.03	0.00
METAL: Beer, aluminium drink cans, all types, all sizes	0.03	0.00
ORGANIC WASTE: Compostable packaging*	0.01	

* New category in 2022

■ 2022 Weight per 1,000 m²   ■ 2019 Weight per 1,000 m²

Figure 140: Bay of Plenty Railways, Dirty Dozen, Volume per 1,000 m², Material Subcategories: Comparison Over Time

Chart data:

Category	Value
ORGANIC WASTE: Compostable packaging*	13.11
PLASTIC: Polystyrene insulation*	3.13
MISCELLANEOUS: Footwear*	2.64
GLASS: Beer, < 750 ml, all colours of glass	2.31 / 0.00
METAL: Beer, aluminium drink cans, all types, all sizes	0.72 / 0.00
PLASTIC: Unidentifiable soft plastic fragments*	0.38
GLASS: Other glass	0.29 / 0.74
MISCELLANEOUS: Other cloth*	0.20
PLASTIC: Unidentifiable hard plastic fragments*	0.11
PLASTIC: Snack bags & confectionary wrappers	0.08 / 0.00
PLASTIC: Bags - supermarket type light weight carry bags	0.06 / 0.00
GLASS: Unidentifiable glass fragments*	0.05

Volume (ltr)

* New category in 2022 ■ 2022 Volume per 1,000 m² ■ 2019 Volume per 1,000 m²

CANTERBURY
REGION

AT A GLANCE

The overall average number of litter items per 1,000 m² across the 50 sites audited in the Canterbury region was 156 items, the overall average estimated volume of litter items per 1,000 m² was 20.29 ltr and the overall average litter weight per 1,000 m² was 0.82 kg.

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

Plastic items were the most frequently identified main material type per 1,000 m² within the Canterbury region and they were associated with the largest litter volumes and second largest litter weights. Cigarette Butts/Vaping were the second highest contributor to the number of items collected but had the smallest volume and weights of litter per 1,000 m².

Paper/Cardboard items contributed the second largest amount of volume to the litter stream, however, were associated with more moderate numbers of litter items and litter weights per 1,000 m².

Note:

* *New material subcategories were added in 2022 and so not all material subcategories are comparable between 2019 and 2022.*

* *A weight measure was not recorded for any items of Illegal Dumping identified during the audit, and therefore has not been included in the analysis. There were no instances of Illegal Dumping at the sites audited in the Canterbury region.*

* *Not all regions were audited for Highway and/or Railway sites, and so these site types have been separated out and specifics for each region given at the end of the relevant chapter. The Canterbury region was audited for three Highway sites and one Railway site.*

COMPARISONS BY SITE TYPES

The highest numbers of litter items per 1,000 m² at the sites audited in the Canterbury region were recorded at Industrial (664 items) and Retail (348 items) sites. Moderate numbers of litter items were collected at Residential (143 items) and Car Park (129 items) sites. The lowest number of litter items were collected at Public Recreational Spaces (11 items).

The largest estimated volumes of litter per 1,000 m² were also collected at Industrial sites (136.74 ltr). Moderate volumes were recorded at Retail (25.72 ltr) and Residential (22.34 ltr) sites. The smallest volumes of litter within the Canterbury region was associated with Car Park sites (8.40 ltr) and Public Recreational Spaces (0.80 ltr).

Industrial sites (5.38 kg) were associated with the highest litter weights per 1,000 m² in the region. More moderate litter weights were recorded for Residential sites (1.07 kg) and Retail sites (0.83 kg), whilst smaller litter weights were associated with Car Park sites (0.37 kg) and Public Recreational Spaces (0.03 kg).

Figure 141: Canterbury 2022, Items and Volume per 1,000 m² by Site Type

Figure 142: Canterbury 2022, Items and Weight per 1,000 m² by Site Type

SITE CHARACTERISTICS

The following site characteristics across all site types (excluding Highway and Railway sites) were identified for litter items and volume per 1,000 m² in the Canterbury region:

- Industrial sites contributed high numbers of litter items and large litter volumes.

- Retail sites contributed high numbers of litter items and moderate litter volumes.

- Car Park sites were associated with moderate to low numbers of litter items and small litter volumes.

- Residential sites were associated with moderate numbers of litter items and moderate litter volumes.

- Public Recreational Spaces contributed low numbers of litter items and small volumes of litter.

Figure 143: Canterbury 2022, Items and Volume per 1,000 m² by Site Type

The following site characteristics across all site types (excluding Highway and Railway sites) were identified for litter items and weight per 1,000 m² in the Canterbury region:

- Industrial sites were associated with high numbers of litter items and large litter weights.

- Retail sites contributed high numbers of litter items and moderate litter weights to the regional litter stream.

- Residential sites were associated with moderate numbers of litter items and weights.

- Car Park sites contributed low numbers of litter items and small litter weights to the litter stream.

- Public Recreational Spaces were associated with low numbers of litter items and small litter weights.

Figure 144: Canterbury 2022, Items and Weight per 1,000 m² by Site Type
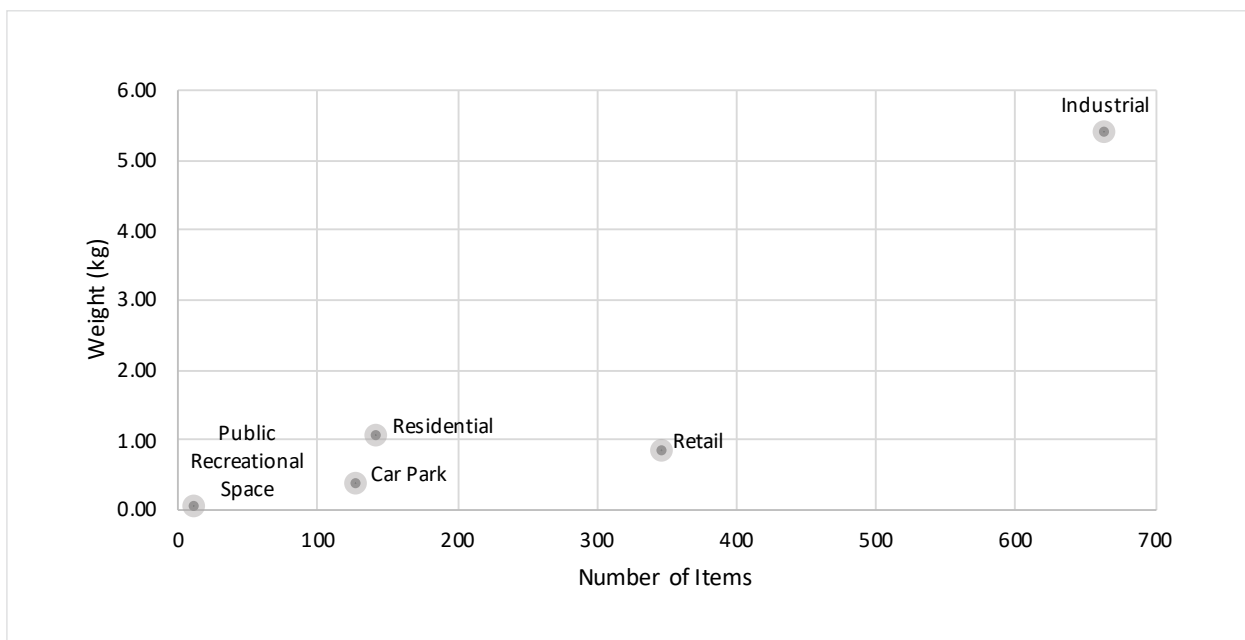
COMPARISON BY SITE TYPE OVER TIME

Since 2019, there have been increases in the number of items, estimated volume and weight of litter in the Canterbury region, with litter volume having the biggest increase (20.29 ltr vs. 5.78 ltr per 1,000 m² in 2019).

Industrial site types had the most noticeable increases in litter items, volume and weight per 1,000 m² since 2019.

ITEMS PER 1,000 M²

The number of litter items collected in the Canterbury region has increased from 2019 (147 items vs. 106 items per 1,000 m² in 2019). As shown in the graphs below, there has been an increase in the number of litter items across all site types with the largest increase being seen in Industrial sites (664 items vs. 289 items per 1,000 m² in 2019).

Figure 145: Canterbury, Items per 1,000 m² by Site Type: Comparison Over Time
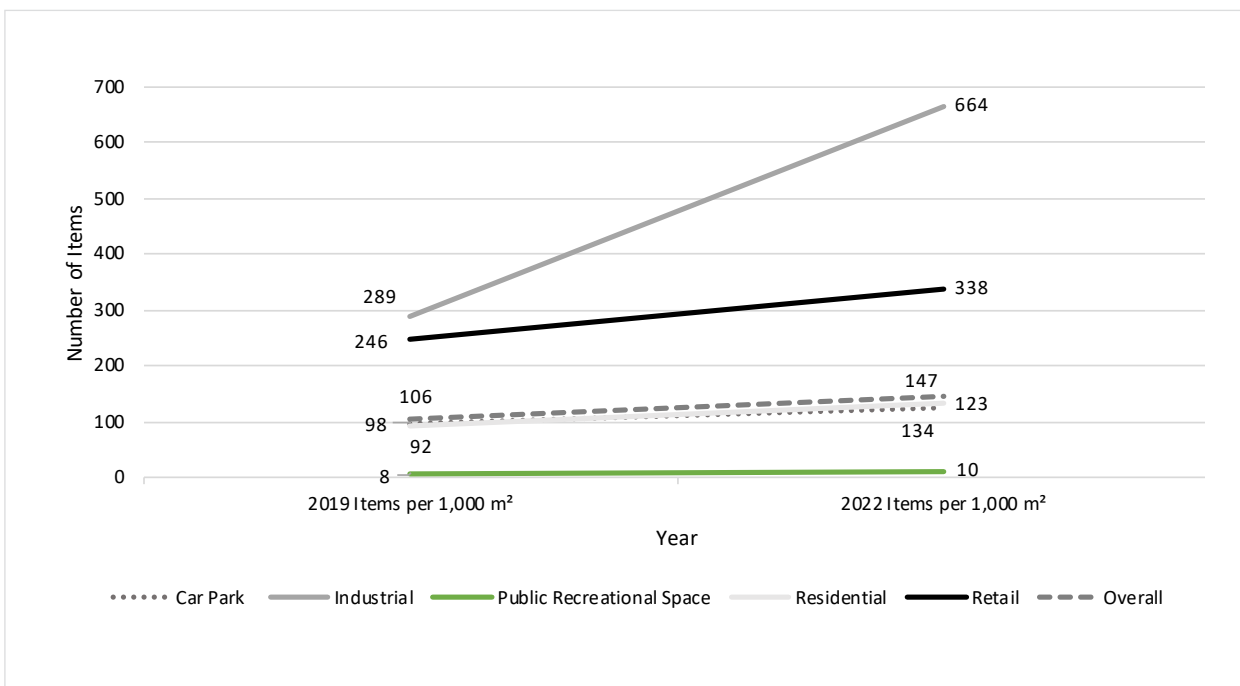
Figure 146: Canterbury, Items per 1,000 m² by Site Type: Comparison Over Time
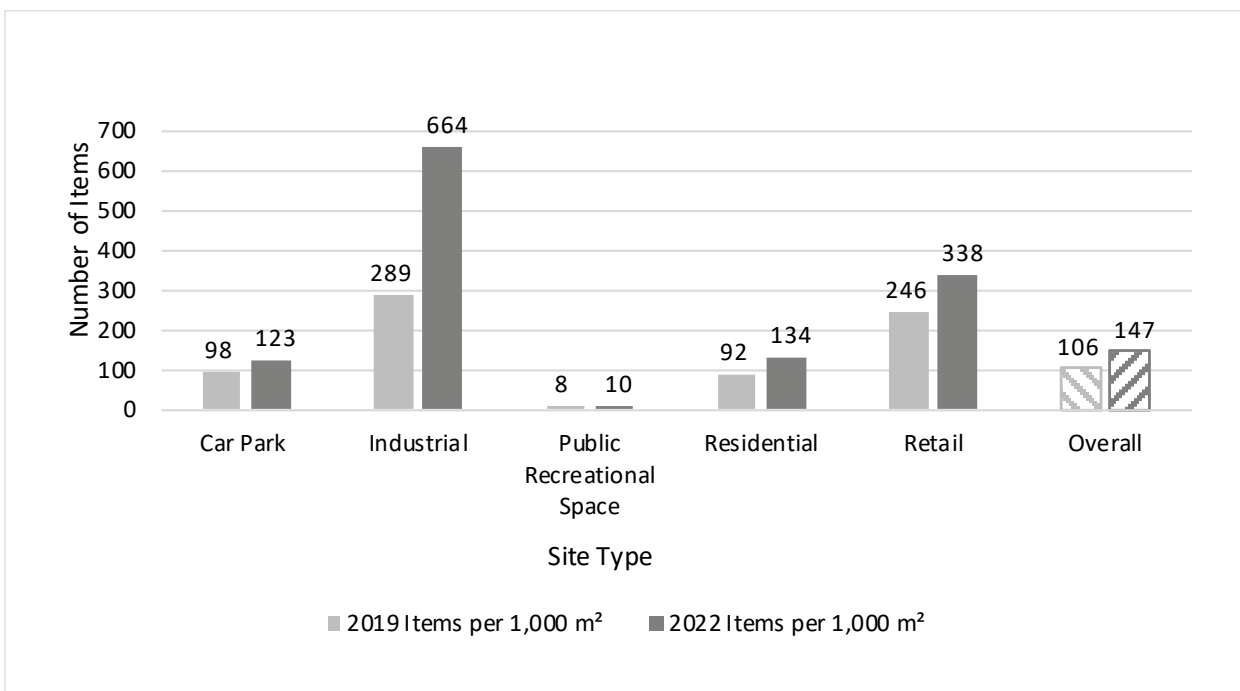
VOLUME PER 1,000 M²

Overall, litter volumes per 1,000 m² in the Canterbury region have increased by 14.51 ltr since 2019. As shown in the graphs below, this increase is consistent across all site types, with the biggest increase being seen in Industrial sites (136.74 ltr vs. 18.98 ltr per 1,000 m² in 2019).

Figure 147: Canterbury, Volume per 1,000 m² by Site Type: Comparison Over Time
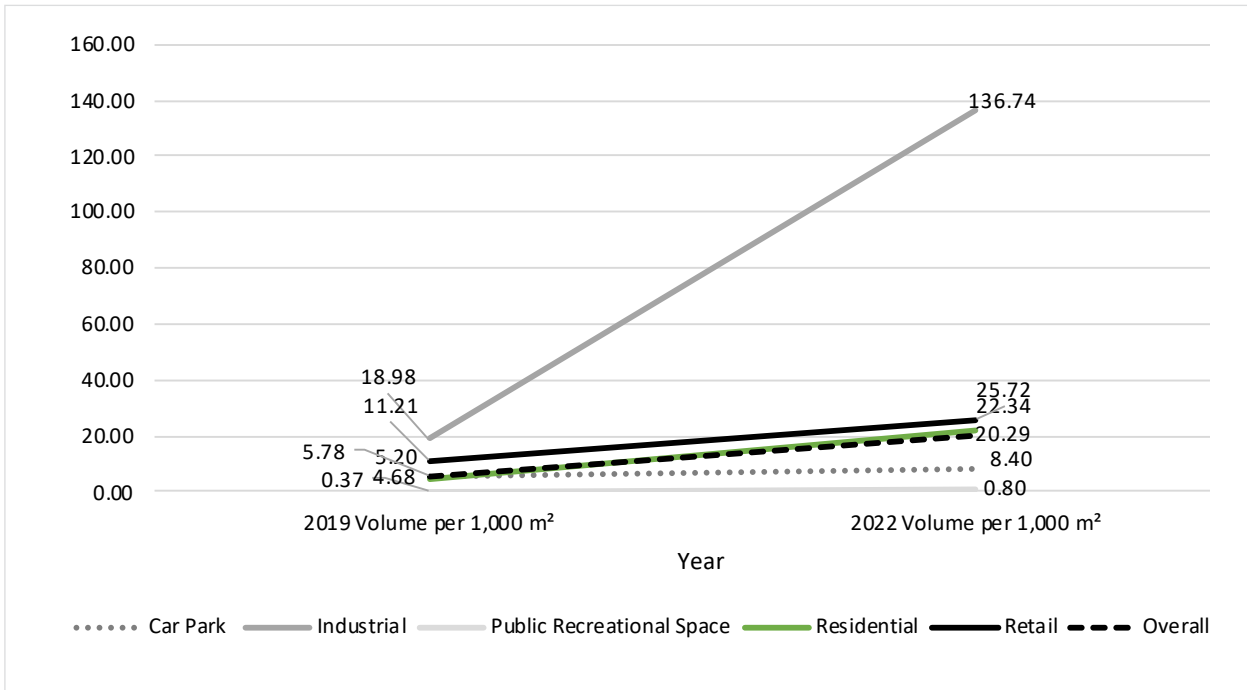
Figure 148: Canterbury, Volume per 1,000 m² by Site Type: Comparison Over Time
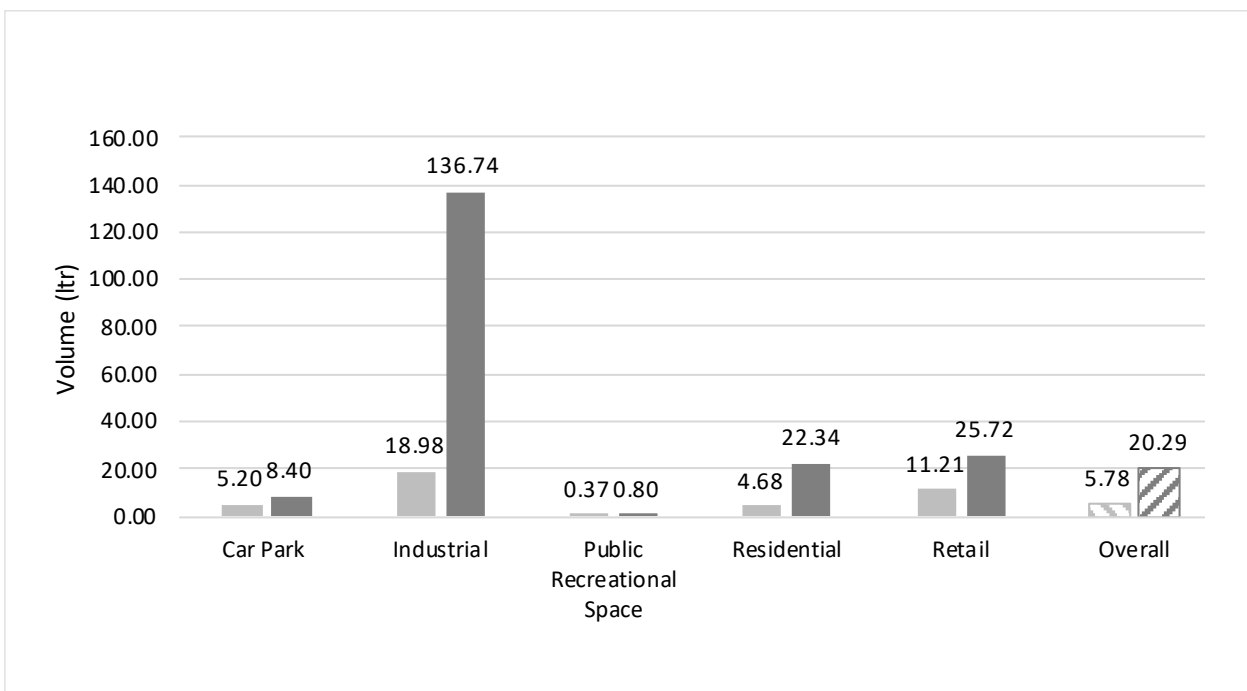
WEIGHT PER 1,000 M²

Overall, the litter weight in the Canterbury region has more than doubled since 2019 (0.82 kg vs. 0.37 kg per 1,000 m² in 2019). As shown in the graphs below, the site types with the biggest increases in litter weight per 1,000 m² are Industrial (5.38 kg vs. 1.41 kg in 2019) and Residential (1.18 kg vs. 0.47 kg in 2019) sites.

Figure 149: Canterbury, Weight per 1,000 m² by Site Type: Comparison Over Time
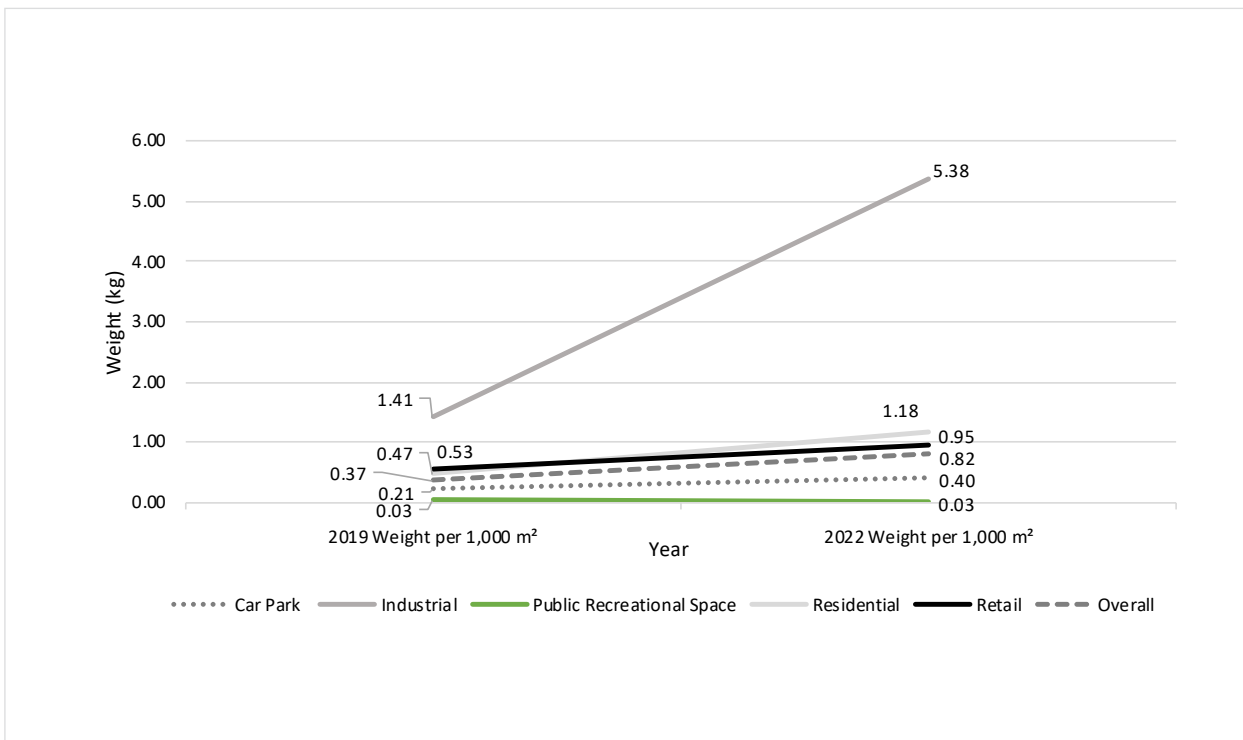
Figure 150: Canterbury, Weight per 1,000 m² by Site Type: Comparison Over Time
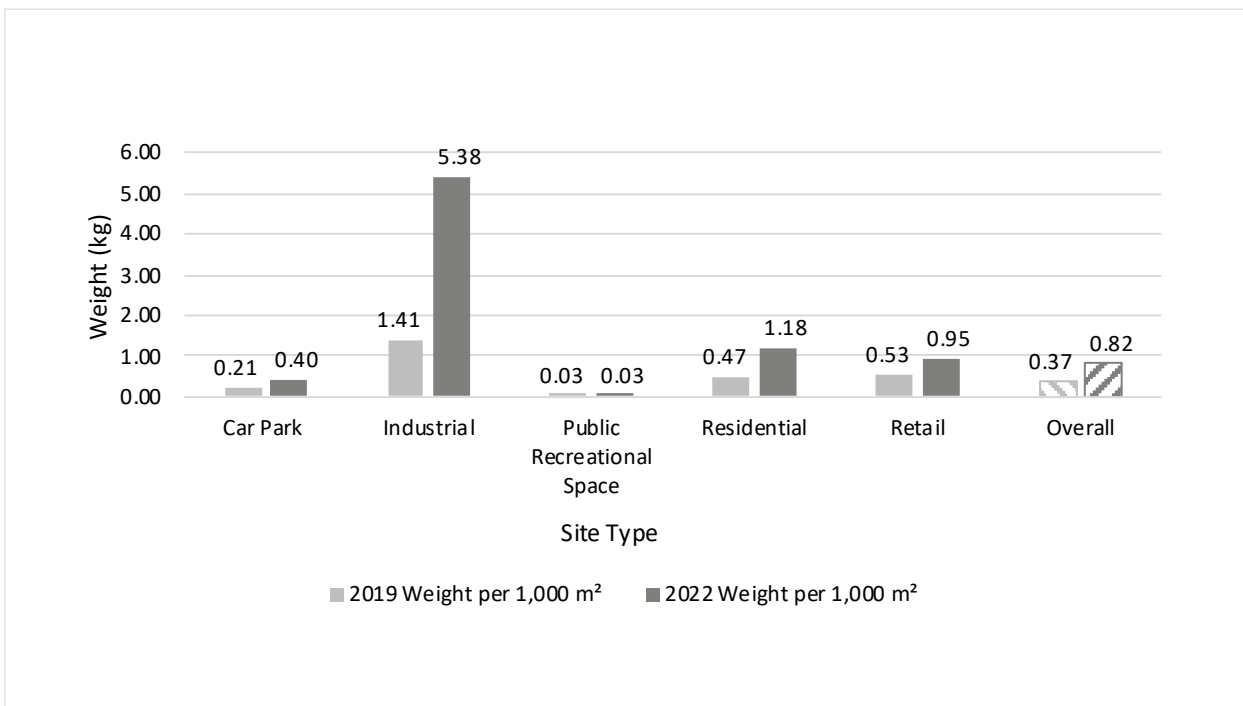
COMPARISON BY MAIN MATERIAL TYPES

Plastic was the most frequently identified litter per 1,000 m² within the Canterbury region (56 items) whilst the second highest material type recorded was Cigarette Butts/Vaping (36 items). Smaller numbers of litter items were recorded for Paper/Cardboard (17 items), Metal (16 items), Glass (14 items), Miscellaneous (14 items), and Organic Waste (2 items).

Plastic contributed the largest amount of litter volume per 1,000 m² to the Canterbury region (11.33 ltr) whilst the second and third largest litter volumes per 1,000 m² were recorded for Paper/Cardboard (4.45 ltr) and Miscellaneous (2.90 ltr). Smaller litter volumes were recorded for Metal (0.62 ltr), Organic Waste (0.57 ltr) and Glass (0.39 ltr). Cigarette Butts/Vaping items were associated with the smallest proportion of the overall litter volume per 1,000 m²(0.03 ltr).

Miscellaneous (0.29 kg), and Plastic (0.18 kg) contributed the largest litter weights per 1,000 m² to the overall Canterbury region's litter stream. Moderate litter weights were recorded for Glass (0.12 kg), Metal (0.11 kg) and Paper/Cardboard (0.07 kg). The smallest litter weights per 1,000 m² were associated with Organic Waste (0.03 kg) and Cigarette Butts/Vaping (0.02 kg).

There was no Illegal Dumping identified at the sites audited.

Figure 151: Canterbury 2022, Items and Volume per 1,000 m² by Main Material Type

*No instances were recorded

■ Items per 1,000 m² ■ Volume per 1,000 m²
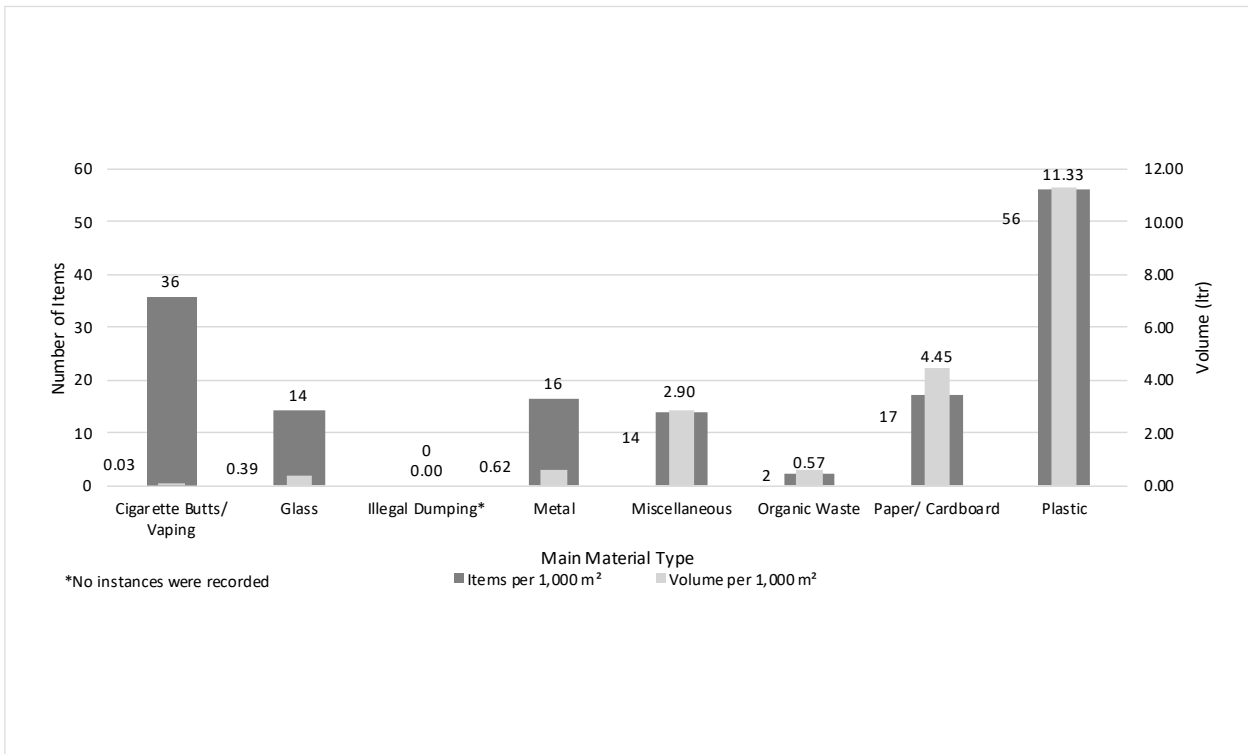
Figure 152: Canterbury 2022, Items and Weight per 1,000 m² by Main Material Type

■ Items per 1,000 m² ■ Weight per 1,000 m²

MAIN MATERIAL CHARACTERISTICS

The following material type characteristics were identified for litter items and volume per 1,000 m² in the Canterbury region (excluding Highway and Railway sites):

- Plastic items contributed high numbers of litter items and large litter volumes.

- Cigarette Butts/Vaping were associated with a high number of litter items and low litter volumes.

- Paper/Cardboard was associated with moderate numbers of litter items and high litter volumes.

- Miscellaneous items were associated with moderate numbers of litter items and volumes.

- Metal and Glass contributed moderate numbers of litter items and small litter volumes.

- Organic Waste was associated with small numbers of litter items and contributed low litter volumes.

Figure 153: Canterbury 2022, Items and Volume per 1,000 m² by Main Material Type

The following material type characteristics were identified for litter items and weight per 1,000 m² in the Canterbury region (excluding Highway and Railway sites):

- Plastic items were associated with high numbers of litter items and moderate litter weights.

- Glass, Metal and Paper/Cardboard was associated with moderate numbers of litter items and weights.

- Cigarette Butts/Vaping contributed high numbers of litter items, but were associated with small litter weights.

- Miscellaneous items were associated with moderate numbers of litter items and large litter weights.

- Organic Waste contributed low numbers of litter items and small litter weights.

Figure 154: Canterbury 2022, Items and Weight per 1,000 m² by Main Material Type
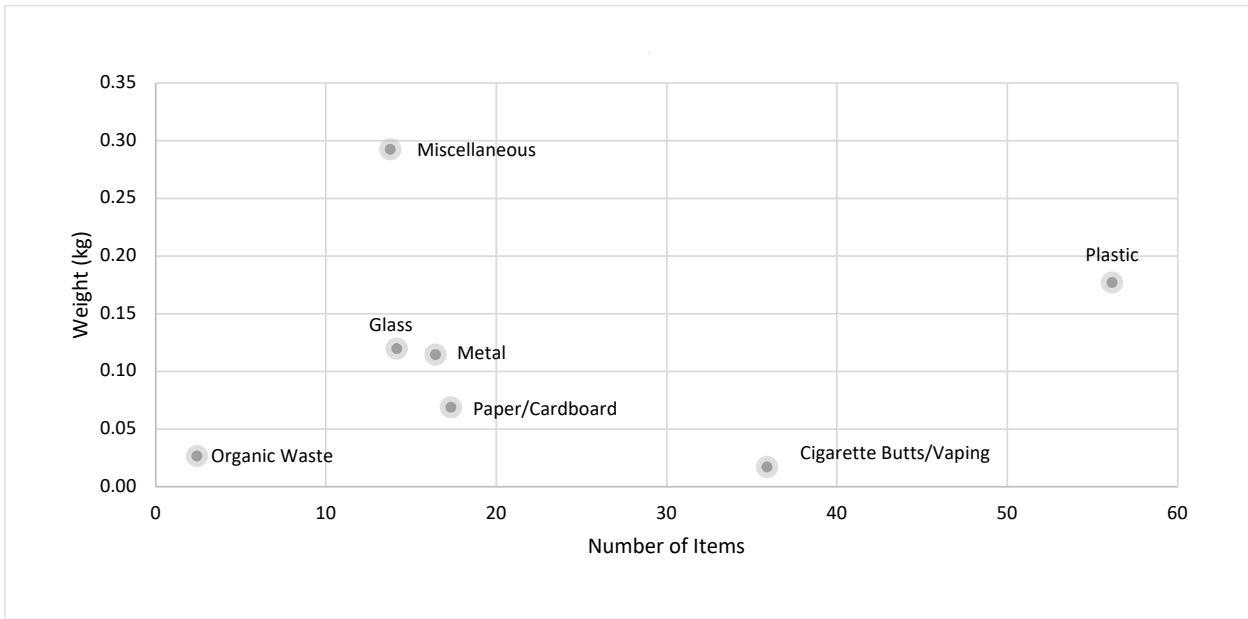
COMPARISONS BY MAIN MATERIAL TYPE OVER TIME

Compared with 2019, the material type, Plastic, has increased substantially across all three measures of litter, including items, estimated volume and weight per 1,000 m². Whereas, Cigarette Butts/Vaping has remained relatively constant across all three measures since 2019. There have been varying degrees of increases in all other material types for number of litter items, volume and weight across the board.

ITEMS PER 1,000 M²

Since 2019, the number of litter items per 1,000 m² collected classified under Cigarette Butts/Vaping and Illegal Dumping have remained the same. All other material types have seen an increase in the number of litter items since 2019, with the biggest increase occurring in Plastic (56 items vs. 27 items in 2019).

Figure 155: Canterbury, Items per 1,000 m² by Main Material Type: Comparison Over Time
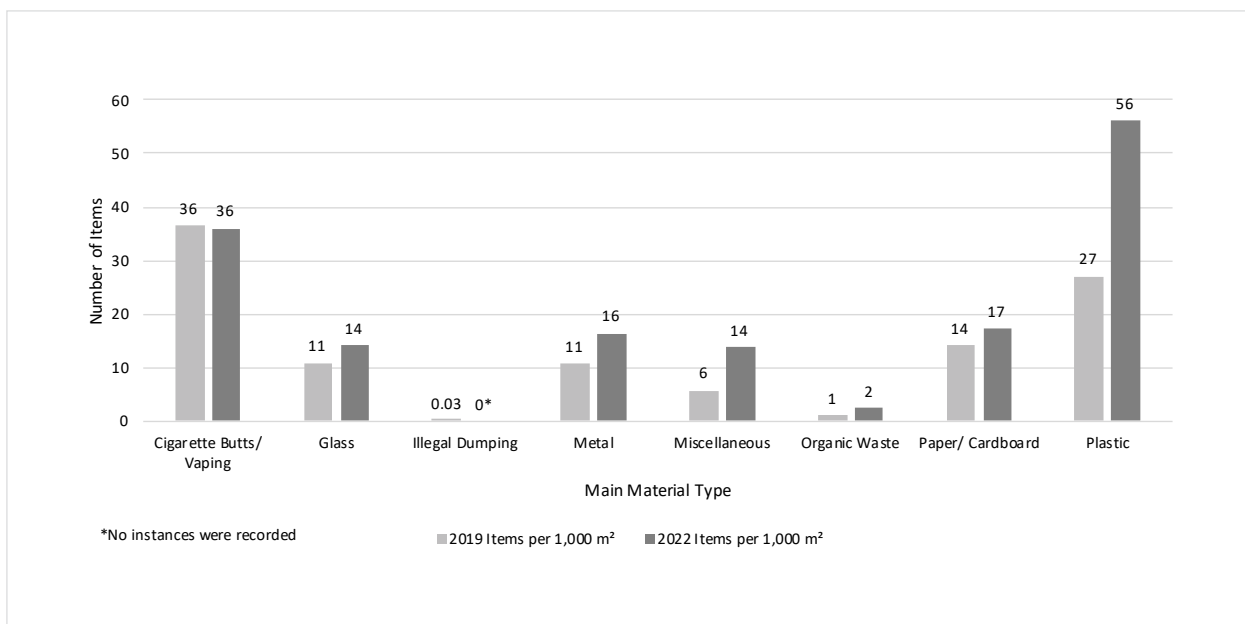
*No instances were recorded

■2019 Items per 1,000 m²   ■2022 Items per 1,000 m²

VOLUME PER 1,000 M²

Since 2019, there has been an increase in the litter volume of all material types per 1,000 m² (with the exception of Illegal Dumping) in the Canterbury region, with the biggest increases being seen in Plastic (11.33 ltr vs. 0.99 ltr in 2019), and Paper/Cardboard (4.45 ltr vs. 1.37 ltr in 2019).

Figure 156: Canterbury, Volume per 1,000 m² by Main Material Type: Comparison Over Time
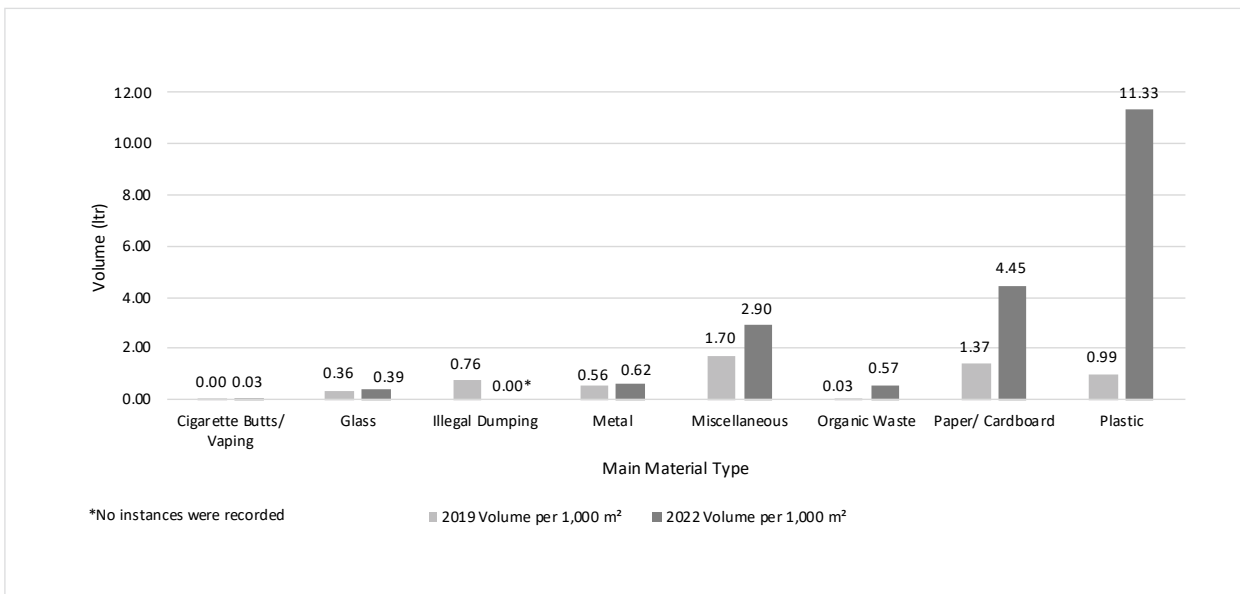
*No instances were recorded

WEIGHT PER 1,000 M²

Compared with 2019, there has been a large increase in the litter weight of all material types per 1,000 m², in the Canterbury region. The largest increases were classified under Miscellaneous items (0.29 kg vs. 0.04 kg per 1,000 m² in 2019) and Plastic (0.18 kg vs. 0.08 kg per 1,000 m² in 2019).

Figure 157: Canterbury, Weight per 1,000 m² by Main Material Type: Comparison Over Time
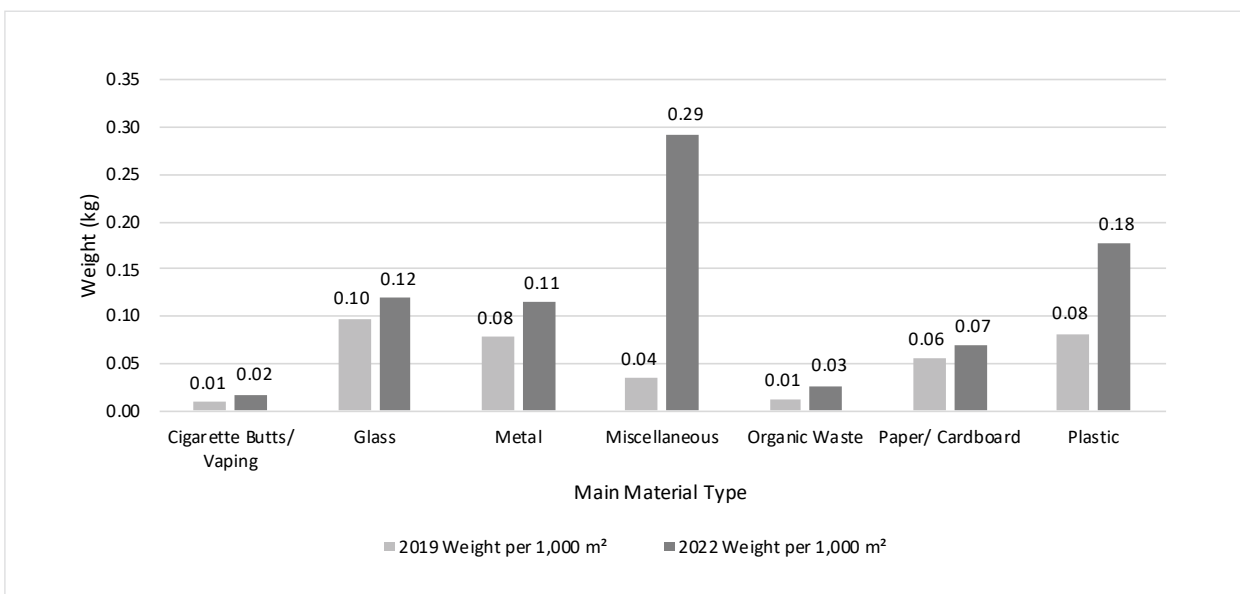
SITE TYPES BY MAIN MATERIAL TYPE

In the Canterbury region, the number of material type litter items collected per 1,000 m² at the different site types (excluding Highway and Railway sites) was as follows:

- Car Park sites: Plastic (46 items), Cigarette Butts/Vaping (35 items), Metal (15 items), Miscellaneous (15 items), Paper/Cardboard (10 items), Glass (4 items), Organic Waste (2 items) and Illegal Dumping (0 items).

- Industrial sites: Plastic (249 items), Cigarette Butts/Vaping (132 items), Glass (114 items), Paper/Cardboard (64 items), Metal (57 items), Miscellaneous (40 items), Organic Waste (8 items) and Illegal Dumping (0 items).

- Public Recreational Spaces: Plastic (6 items), Paper/Cardboard (3 items), Metal (1 item), Miscellaneous (1 item), Organic Waste (1 item), Cigarette Butts/Vaping (0 items), Glass (0 items) and Illegal Dumping (0 items).

- Residential sites: Plastic (54 items), Cigarette Butts/Vaping (21 items), Metal (21 items), Paper/Cardboard (20 items), Miscellaneous (12 items), Glass (11 items), Organic Waste (5 items) and Illegal Dumping (0 items).

- Retail sites: Plastic (109 items), Cigarette Butts/Vaping (103 items), Paper/Cardboard (47 items), Metal (37 items), Miscellaneous (36 items), Glass (15 items), Organic Waste (2 items) and Illegal Dumping (0 items).

Figure 158: Canterbury 2022, Sites by Main Material Type: Items per 1,000 m²
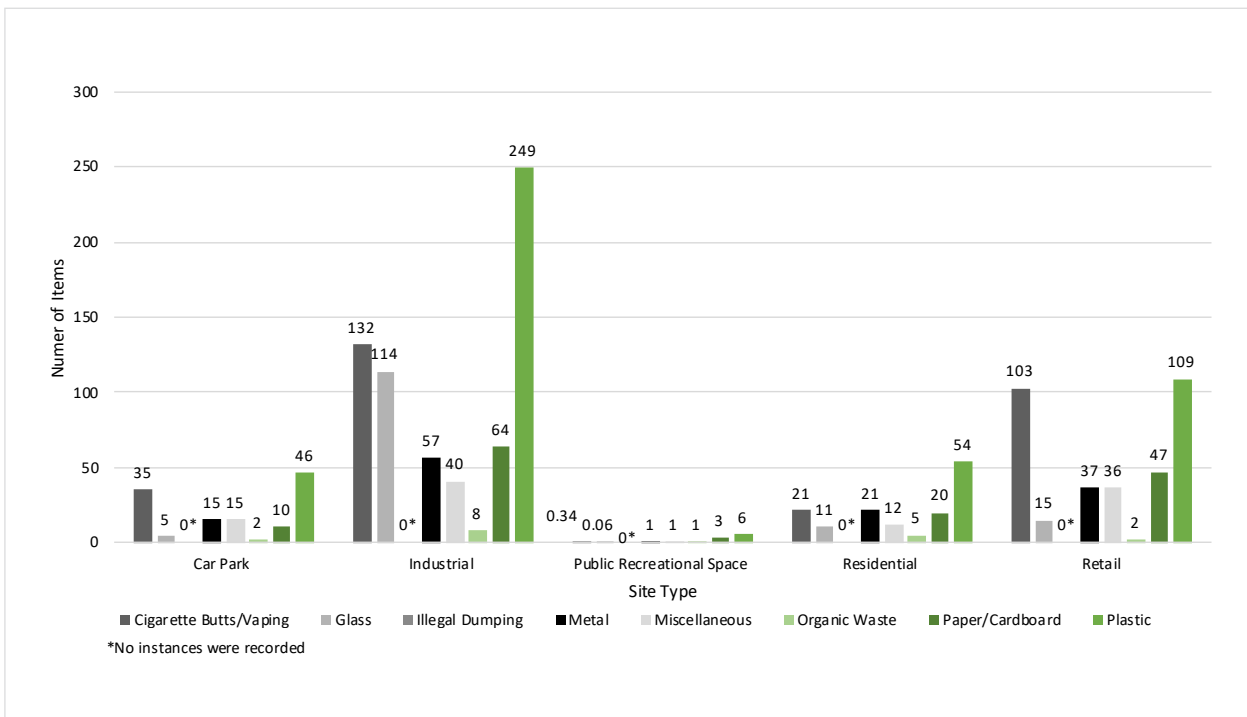
THE DIRTY DOZEN

Across the Canterbury region, Cigarette/Vaping: Cigarette butts were the largest contributor to the number of litter items, with 36 butts per 1,000 m² identified at the sites audited.

Other material subcategories frequently identified included were:

• Plastic: Unidentifiable hard plastic fragments (20 items per 1,000 m²)

• Plastic: Unidentifiable soft plastic fragments (15 items per 1,000 m²)

• Glass: Unidentifiable glass fragments (13 items per 1,000 m²)

• Paper/Cardboard: Unidentifiable paper fragments (8 items per 1,000m²)

Not all material subcategories were comparable to the 2019 NLA due to the addition of new subcategories in 2022.

Amongst comparable material subcategories, the number of Cigarette/Vaping: Cigarette butts collected per 1,000 m² in the Canterbury region has remained the same as in 2019 (36 items) per 1,000 m².
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Figure 159: Canterbury, Dirty Dozen, Items per 1,000 m², Material Subcategories: Comparison Over Time
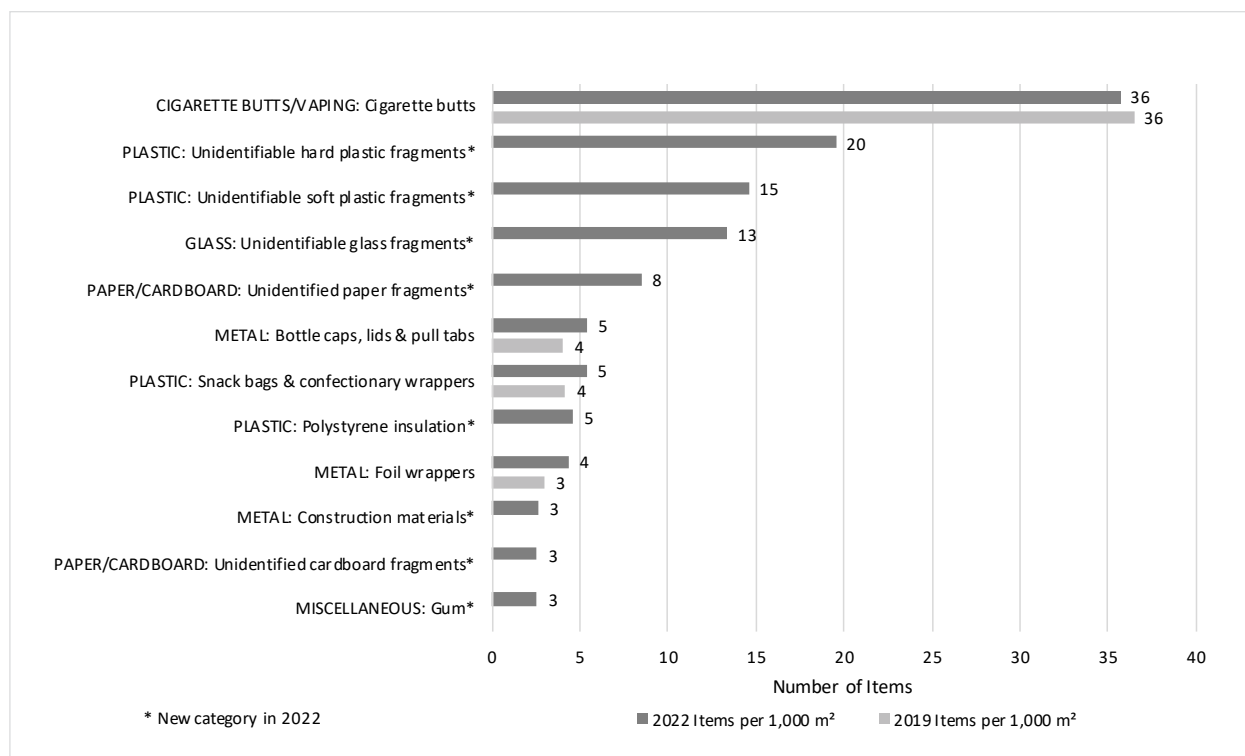
The largest contributor to the estimated litter volume per 1,000 m² in the Canterbury region was Plastic: Polystyrene insulation, recording a volume of 8.59 ltr per 1,000 m².

Other material subcategories which were associated with large litter volumes per 1,000 m² included:

- Paper/Cardboard: Cups, food trays, food wrappers, takeaway & drink containers (1.85 ltr per 1,000 m²)
- Paper/Cardboard: Cardboard boxes (1.84 ltr per 1,000 m²)
- Miscellaneous: Clothing, towels & linen (1.04 ltr per 1,000 m²)

Not all material subcategories were comparable to the 2019 NLA due to the addition of new subcategories in 2022.

Whilst most of the categories featured in the Canterbury region's Dirty Dozen by volume are new this year, amongst comparable material subcategories there are a few differences from 2019. The largest increase in volume per 1,000 m² has been seen in Paper/Cardboard: Cups, food trays, food wrappers, takeaway containers & drink containers (1.85 ltr vs 0.03 ltr in 2019).

Figure 160: Canterbury, Dirty Dozen, Volume per 1,000 m², Material Subcategories: Comparison Over Time

Within the material subcategories, the largest litter weights per 1,000 m² were associated with Miscellaneous: Tyres (whole), recording a weight of 0.14 kg per 1,000 m² across the site audited.

Other material subcategories which were associated with higher litter weights per 1,000 m² included:

- Miscellaneous: Construction materials (0.05 kg per 1,000 m²)
- Glass: Beer bottles < 750 ml, all colours (0.05 kg per 1,000 m²)
- Metal: Construction materials (0.04 kg per 1,000 m²)

Not all material subcategories were comparable to the 2019 NLA due to the addition of new subcategories in 2022.

Amongst comparable material subcategories, there has been a small increase in the weight of Glass: Beer bottles < 750 ml, all colours (0.05 kg vs. 0.01 kg in 2019).

Figure 161: Canterbury, Dirty Dozen, Weight per 1,000 m², Material Subcategories: Comparison Over Time

Category	2022 Weight per 1,000 m²	2019 Weight per 1,000 m²
MISCELLANEOUS: Tyres (whole)*	0.14	
MISCELLANEOUS: Construction materials*	0.05	
GLASS: Beer, < 750 ml, all colours of glass	0.05	0.01
METAL: Construction materials*	0.04	
PLASTIC: Unidentifiable hard plastic fragments*	0.04	
GLASS: Unidentifiable glass fragments*	0.03	
PLASTIC: Unidentifiable soft plastic fragments*	0.03	
MISCELLANEOUS: Clothing, towels & linen*	0.03	
PLASTIC: Plain water (carbonated or non-carb.), 1 litre +	0.02	0.00
PAPER/CARDBOARD: Cups, food trays, food wrappers, takeaway containers & drink containers	0.02	0.00
METAL: Bottle caps, lids & pull tabs	0.02	
GLASS: Alcoholic sodas/spirit based mixers, all sizes	0.02	

Weight (kg)

* New category in 2022

TERRITORIAL SUMMARIES

There are 10 Territorial Authorities within the Canterbury region:

- Ashburton District
- Christchurch City
- Hurunui District
- Kaikōura District
- Mackenzie District
- Selwyn District

- Timaru District
- Waimakariri District
- Waimate District
- Waitaki District

A total of 50 sites (from Industrial, Retail, Residential, Car Park and Public Recreational Spaces) were audited in the Canterbury region with a minimum of five sites audited from each territory.

Extract from Table 5, 2022 Territory Data: Canterbury Region (Excluding Highway and Railway Sites)

Territory	Total Area Audited (m²)	Items per 1,000 m²	Weight (kg) per 1,000 m²	Volume (ltr) per 1,000 m²
CANTERBURY REGION				
Ashburton District	5,500	196	0.55	9.07
Christchurch City	4,850	168	0.77	22.18
Hurunui District	3,450	116	0.58	8.99
Kaikōura District	4,700	145	0.84	7.30
Mackenzie District	4,200	81	0.32	6.85
Selwyn District	3,600	209	0.28	16.72
Timaru District	5,300	98	1.78	44.21
Waimakariri District	4,350	185	1.77	46.67
Waimate District	5,850	72	0.16	11.38
Waitaki District	5,150	297	1.00	26.57
Canterbury Overall	**46,950**	**156**	**0.82**	**20.29**

SITE GRADINGS

All sites were assigned gradings in four 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 3, Risk and Litter Distribution: Canterbury (Excluding Highway and Railway Sites)

Canterbury	Risk Present		Litter Distribution	
	Moderate hazard or risk	Significant hazard or risk	Widespread	Clustered
	100%	0%	96%	4%

Figure 162: Canterbury 2022, Grading: Visual Site Ratings (Excluding Highway and Railway Sites)

Figure 163: Canterbury 2022, Grading: Site Litter Hotshots Ratings (Excluding Highway and Railway Sites)
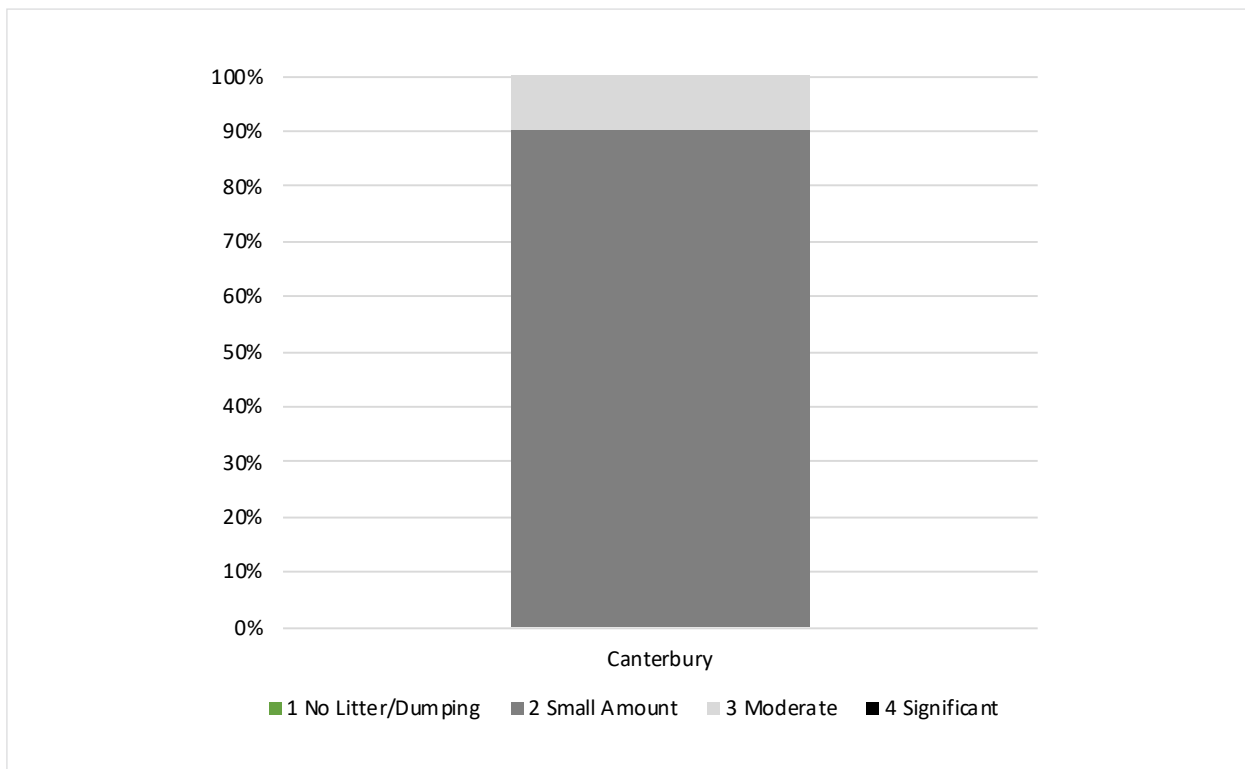
HIGHWAYS AND RAILWAYS

The following section shows the results for Highways and Railways in the Canterbury region. In the Canterbury region three Highway sites and one Railway site was audited.

Figure 164: Canterbury Highways and Railways, Items per 1,000 m² by Site Type: Comparison Over Time

Figure 165: Canterbury Highways and Railways, Weight per 1,000 m² by Site Type: Comparison Over Time

Figure 166: Canterbury Highways and Railways, Volume per 1,000 m² by Site Type: Comparison Over Time
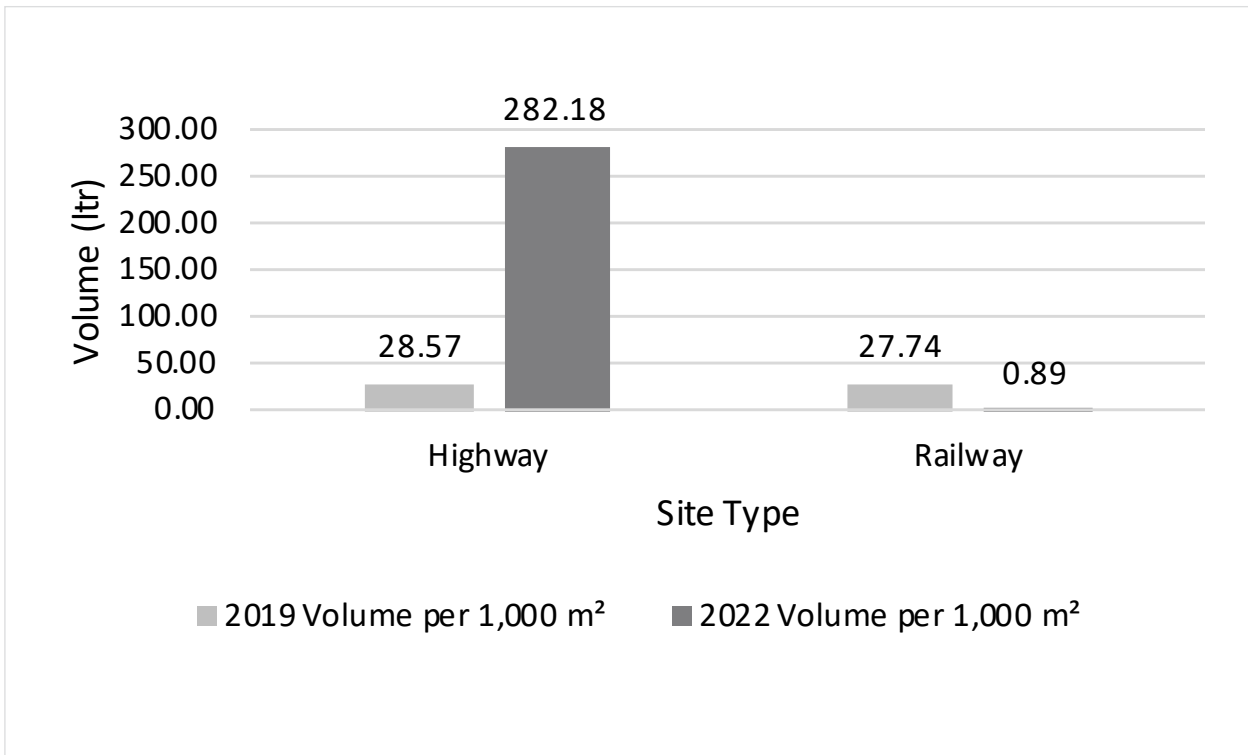
Figure 167: Canterbury Highways, Items per 1,000 m² by Main Material Type: Comparison Over Time
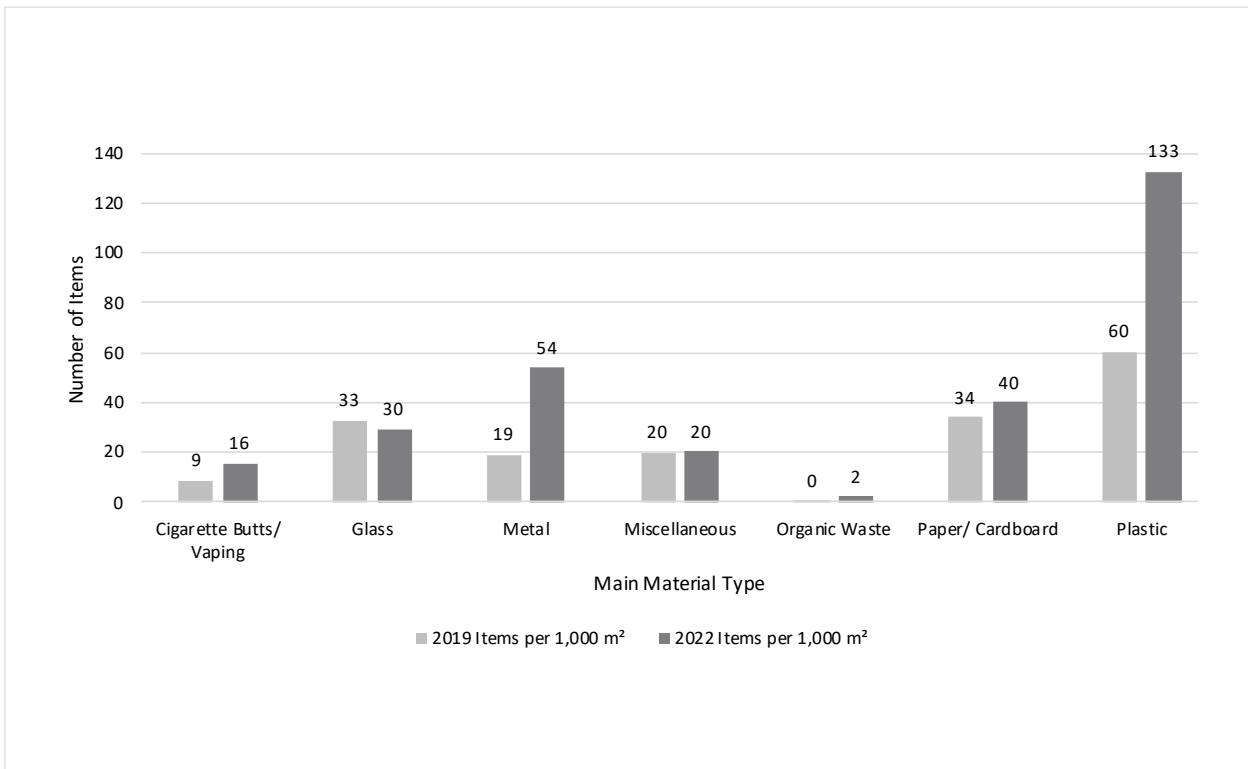
Figure 168: Canterbury Highways, Weight per 1,000 m² by Main Material Type: Comparison Over Time
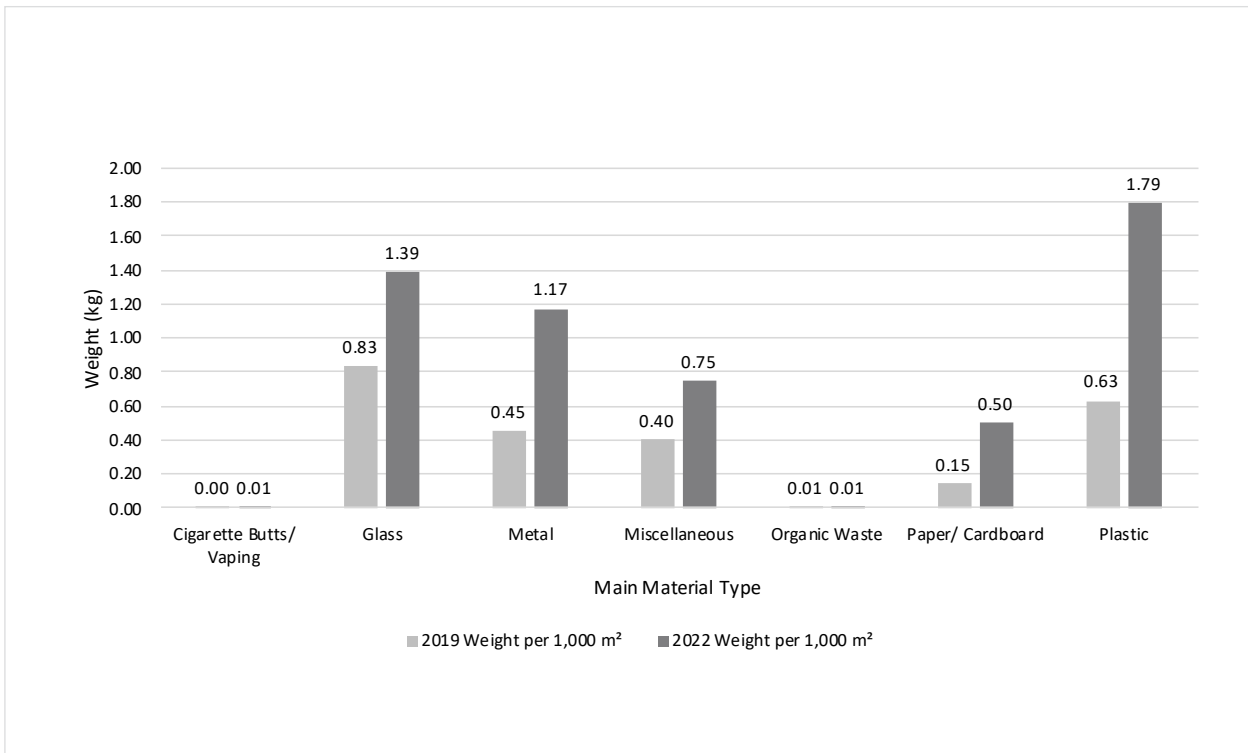
Figure 169: Canterbury Highways, Volume per 1,000 m² by Main Material Type: Comparison Over Time
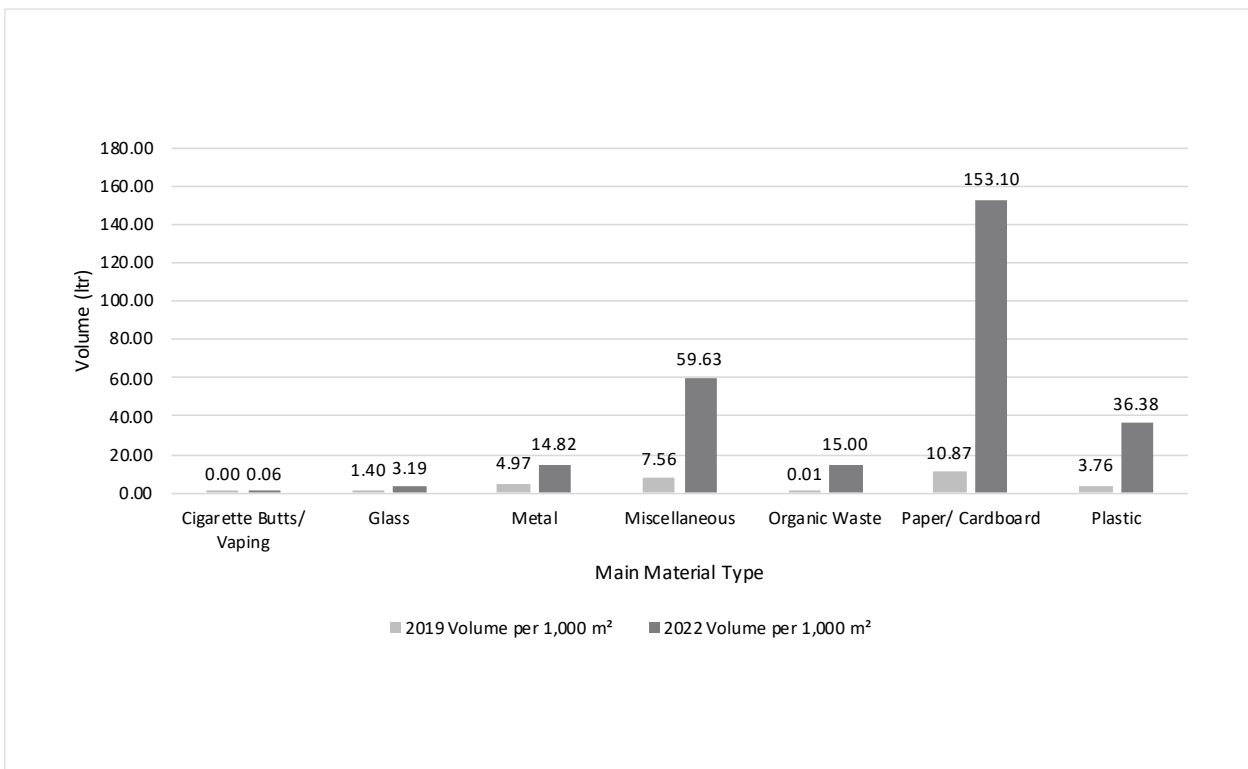
Figure 170: Canterbury Railways, Items per 1,000 m^2 by Main Material Type: Comparison Over Time
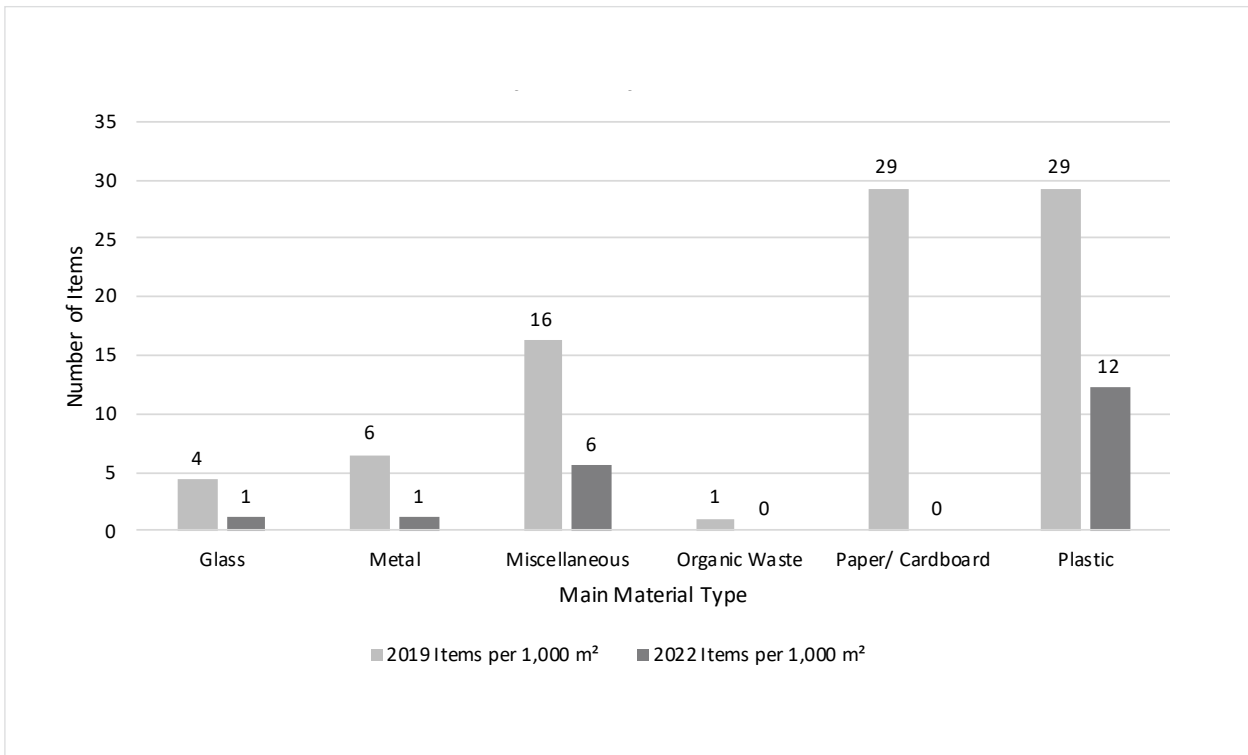
Figure 171: Canterbury Railways, Weight per 1,000 m^2 by Main Material Type: Comparison Over Time

Figure 172: Canterbury Railways, Volume per 1,000 m² by Main Material Type: Comparison Over Time

Figure 173: Canterbury Highways, Dirty Dozen, Items per 1,000 m², Material Subcategories: Comparison Over Time

Figure 174: Canterbury Highways, Dirty Dozen, Weight per 1,000 m², Material Subcategories: Comparison Over Time

Weight (kg)

* New category in 2022

■ 2022 Weight per 1,000 m² ■ 2019 Weight per 1,000 m²
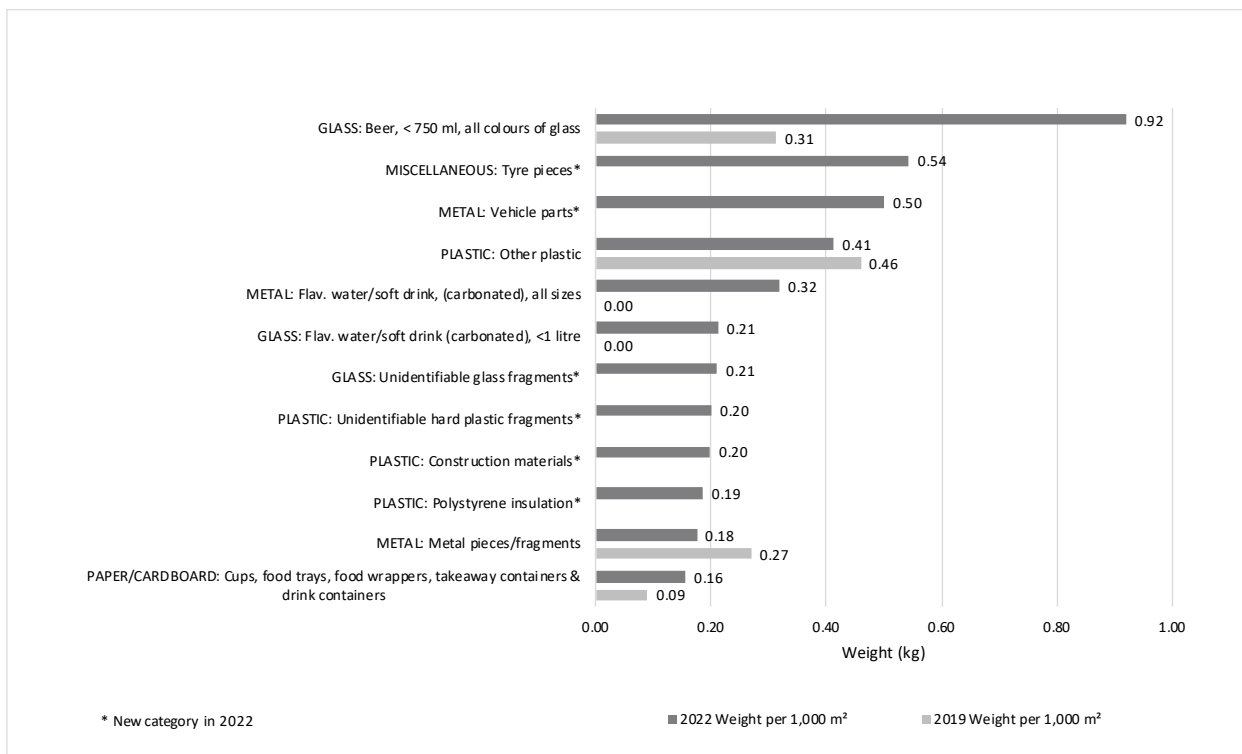
Figure 175: Canterbury Highways, Dirty Dozen, Volume per 1,000 m², Material Subcategories: Comparison Over Time

Volume (ltr)

* New category in 2022

■ 2022 Volume per 1,000 m² ■ 2019 Volume per 1,000 m²

Figure 176: Canterbury Railways, Dirty Dozen, Items per 1,000 m², Material Subcategories: Comparison Over Time

Number of Items

** Note only nine subcategories were found on Canterbury Railways.

* New category in 2022

■ 2022 Items per 1,000 m²   ■ 2019 Items per 1,000 m²

Figure 177: Canterbury Railways, Dirty Dozen, Weight per 1,000 m², Material Subcategories: Comparison Over Time

Weight (kg)

** Note only nine subcategories were found on Canterbury Railways.

* New category in 2022

■ 2022 Weight per 1,000 m²   ■ 2019 Weight per 1,000 m²
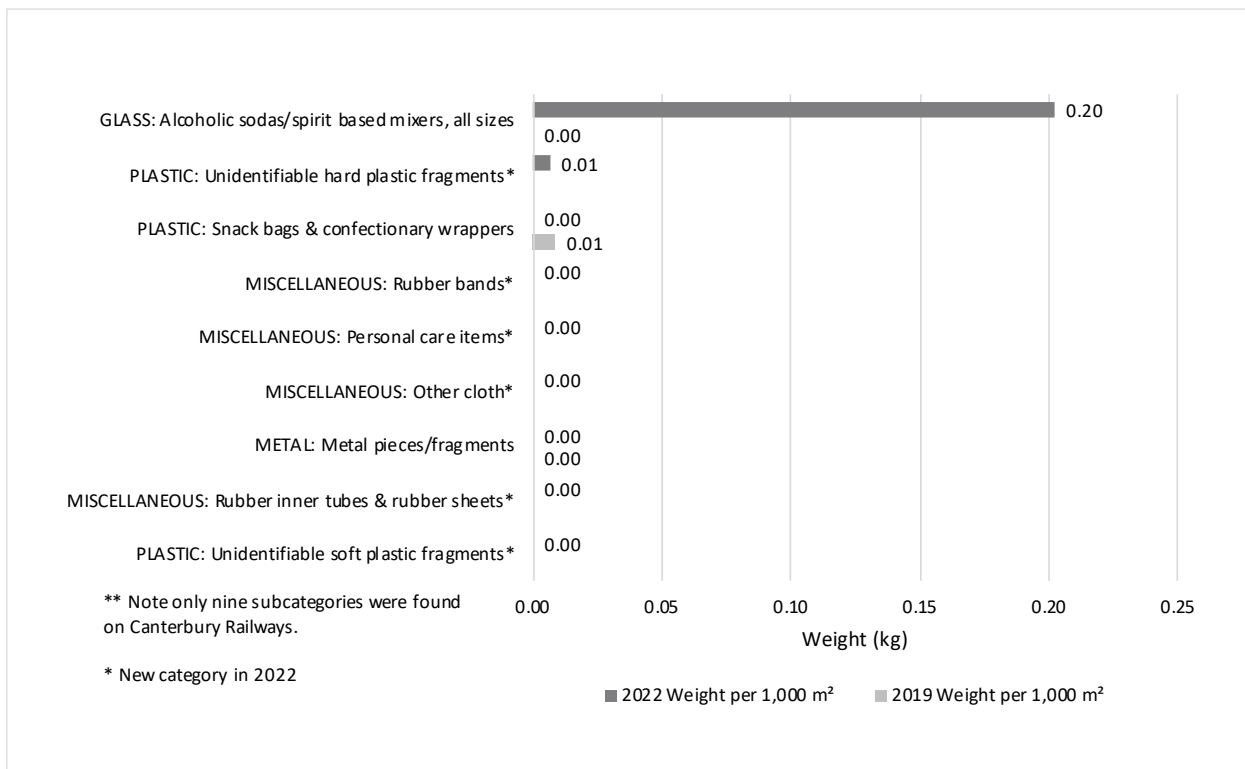
Figure 178: Canterbury Railways, Dirty Dozen, Volume per 1,000 m², Material Subcategories: Comparison Over Time

GLASS: Alcoholic sodas/spirit based mixers, all sizes — 0.42 / 0.00
PLASTIC: Unidentifiable soft plastic fragments* — 0.26
MISCELLANEOUS: Other cloth* — 0.13
PLASTIC: Unidentifiable hard plastic fragments* — 0.04
MISCELLANEOUS: Rubber inner tubes & rubber sheets* — 0.02
METAL: Metal pieces/fragments — 0.01 / 0.00
PLASTIC: Snack bags & confectionary wrappers — 0.01 / 0.08
MISCELLANEOUS: Personal care items* — 0.00
MISCELLANEOUS: Rubber bands* — 0.00

** Note only nine subcategories were found on Canterbury Railways.

* New category in 2022

Volume (ltr)

■ 2022 Volume per 1,000 m²   ■ 2019 Volume per 1,000 m²

CHATHAM
ISLANDS

AT A GLANCE

The overall average number of litter items per 1,000 m² across the five sites audited in the Chatham Islands region was 29 items, the overall average estimated volume of litter per 1,000 m² was 64.15 ltr and the overall average litter weight per 1,000 m² was 0.83 kg.

Retail sites were associated with the highest numbers of litter items and largest litter weights whilst contributing smaller litter volumes per 1,000 m². Residential sites contributed to the highest volume and second highest numbers of litter items and weights recorded in the region. Car Park sites contributed moderate litter weights, low to moderate numbers of litter items and were associated with small litter volumes. Public Recreational Spaces contributed to low numbers of litter items, small litter volumes and weights per 1,000 m². There were no Industrial sites audited as this site type is not present within the Chatham Islands region.

Plastic items were the most frequently identified material type per 1,000 m² within the Chatham Islands region and were associated with the largest litter weights and relatively small volumes. Cigarette Butts/Vaping were the second highest contributor to the number of litter items collected but had the smallest volumes and weights of litter per 1,000 m².

Illegal Dumping items contributed the largest amount of volume to the litter stream per 1,000 m², however, was associated with low numbers of litter items.

Note: When referring to different site types, often the word "sites" is used. Please note that in this region there was only one site per location type audited in all cases except the Residential site type which received an audit at two locations.

Note:

- *New material subcategories were added in 2022 and so not all material subcategories are comparable between 2019 and 2022.*

- *A weight measure was not recorded for any items of Illegal Dumping identified during the audit, and therefore has not been included in the analysis.*

- *Not all regions were audited for Highway and/or Railway sites, and so these site types have been separated out and specifics for each region given at the end of the relevant chapter. The Chatham Islands region was audited for one Highway site and no Railway sites.*

COMPARISONS BY SITE TYPES

The highest numbers of litter items per 1,000 m² at the sites audited in the Chatham Islands region were recorded at Retail sites (163 items). Moderate to high numbers of litter items were collected at Residential sites (61 items). The lowest number of litter items per 1,000 m² were counted at Car Park sites (19 items) and Public Recreational Spaces (2 items). There were no Industrial sites audited in the Chatham Islands region.

The largest estimated volumes of litter per 1,000 m² were collected at Residential sites (317.89 ltr) whilst smaller volumes were recorded at Retail sites (20.65 ltr). The smallest volumes of litter per 1,000 m² within the region were associated with Car Park sites (2.41 ltr) and Public Recreational Spaces (0.22 ltr).

Retail (2.99 kg) and Residential sites (2.09 kg) were associated with the highest litter weights per 1,000 m² in the region. More moderate litter weights were recorded for Car Park sites (0.91 kg), whilst the smallest litter weights were associated with Public Recreational Spaces (0.00 kg).

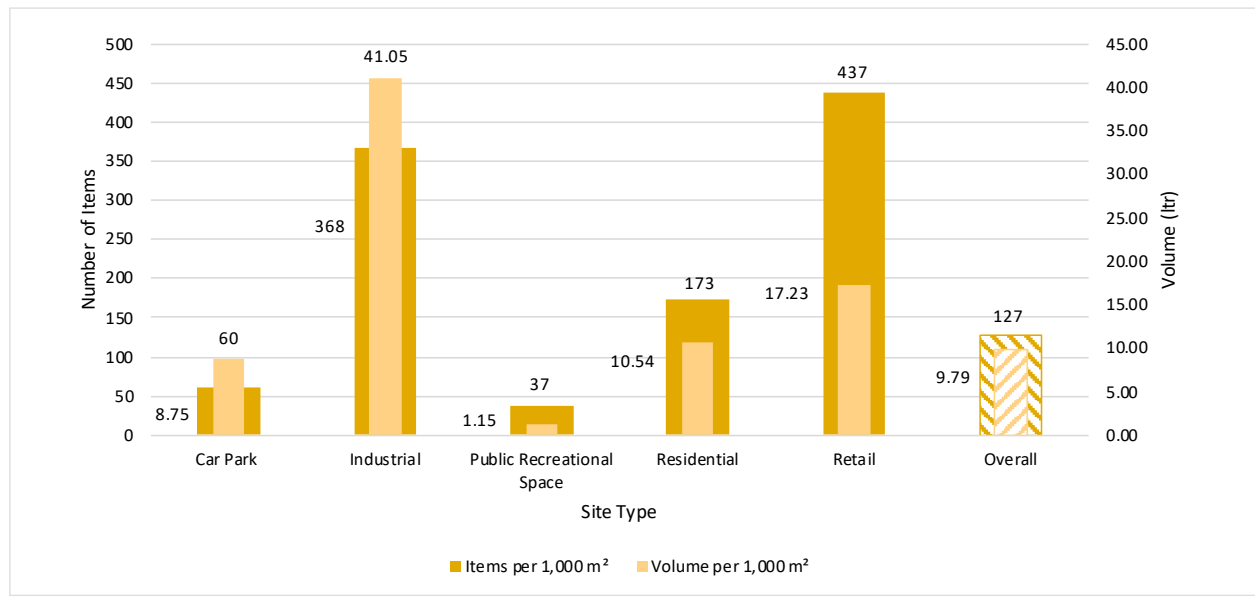*Figure 179: Chatham Islands 2022, Items and Volume per 1,000 m² by Site Type*

Figure 180: Chatham Islands 2022, Items and Weight per 1,000 m² by Site Type
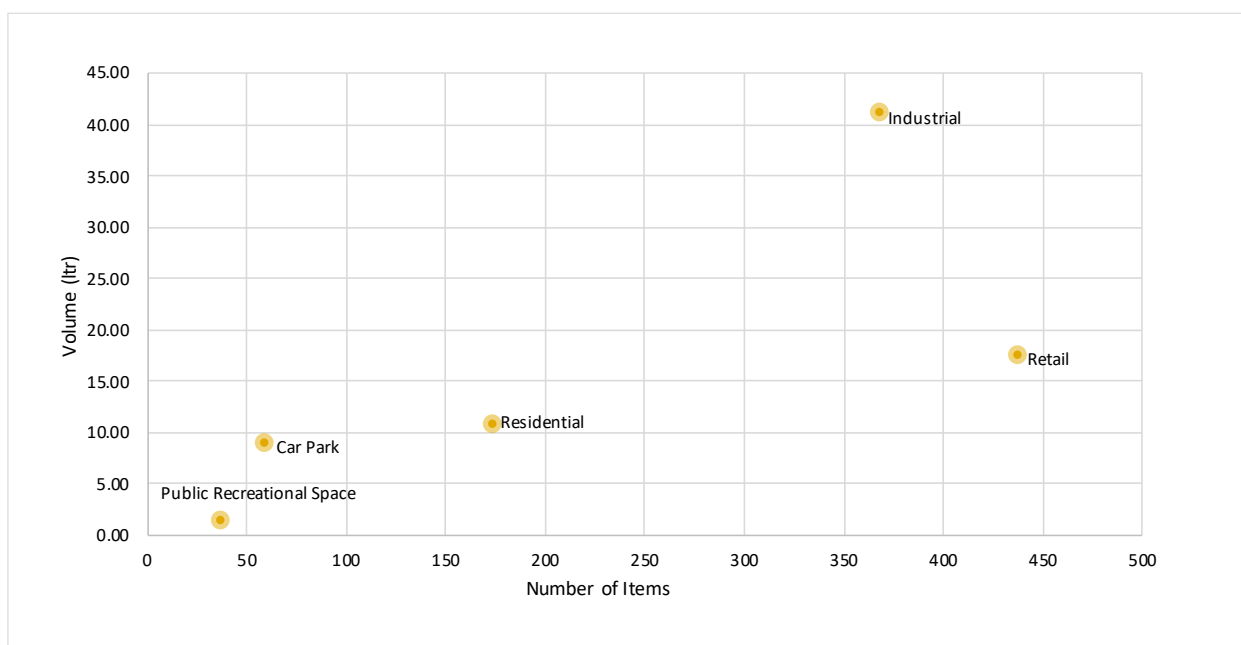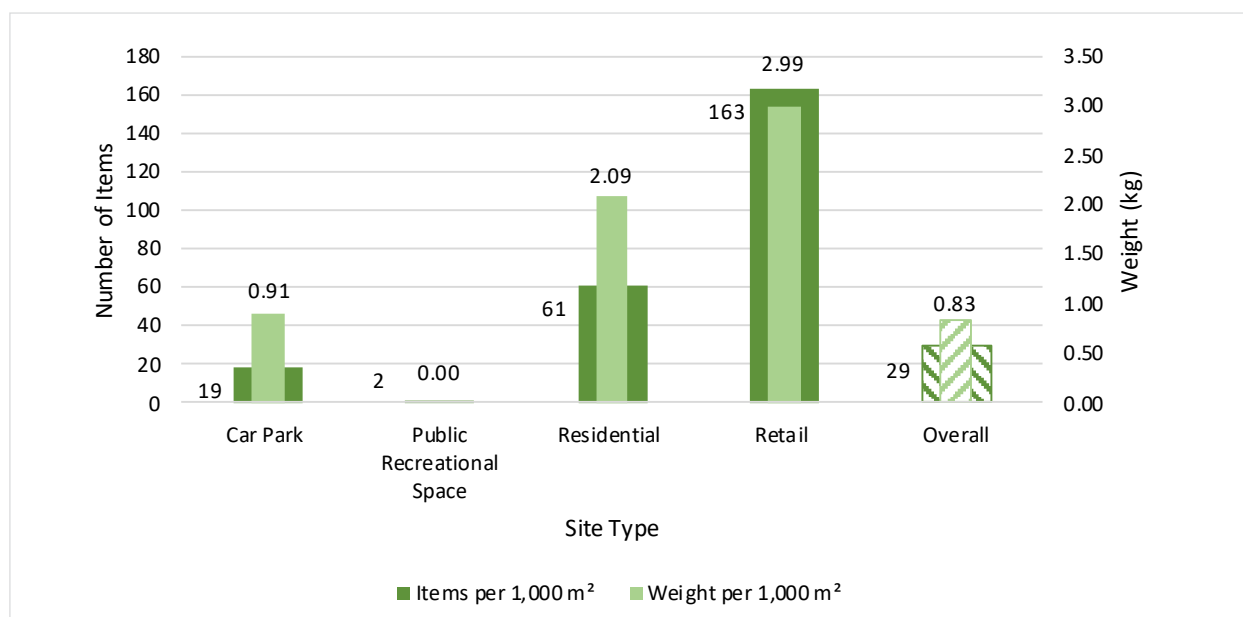
SITE CHARACTERISTICS

The following site characteristics across all site types (excluding Highway and Railway sites) were identified for litter items and volume per 1,000 m² in the Chatham Islands region:

- Retail sites contributed very high numbers of litter items and smaller litter volumes to the overall regional litter stream.

- Car Park sites were associated with moderate numbers of litter items and small litter volumes.

- Residential sites were associated with moderate to high numbers of litter items and very high litter volumes.

- Public Recreational Spaces contributed low numbers of litter items and small volumes.

- There were no Industrial sites audited within the region.

Figure 181: Chatham Islands 2022, Items and Volume per 1,000 m² by Site Type

The following site characteristics across all site types (excluding Highway and Railway sites) were identified for litter items and weight per 1,000 m² in the Chatham Island region:

- Retail sites contributed very high numbers of litter items and high litter weights to the regional litter stream.

- Residential sites were associated with moderate to high numbers of litter items and high litter weights.

- Car Park sites contributed moderate numbers of litter items and moderate litter weights to the litter stream.

- Public Recreational Spaces were associated with low numbers of litter items and small litter weights.

- There were no Industrial sites audited within the region.

Figure 182: Chatham Islands 2022, Items and Weight per 1,000 m² by Site Type
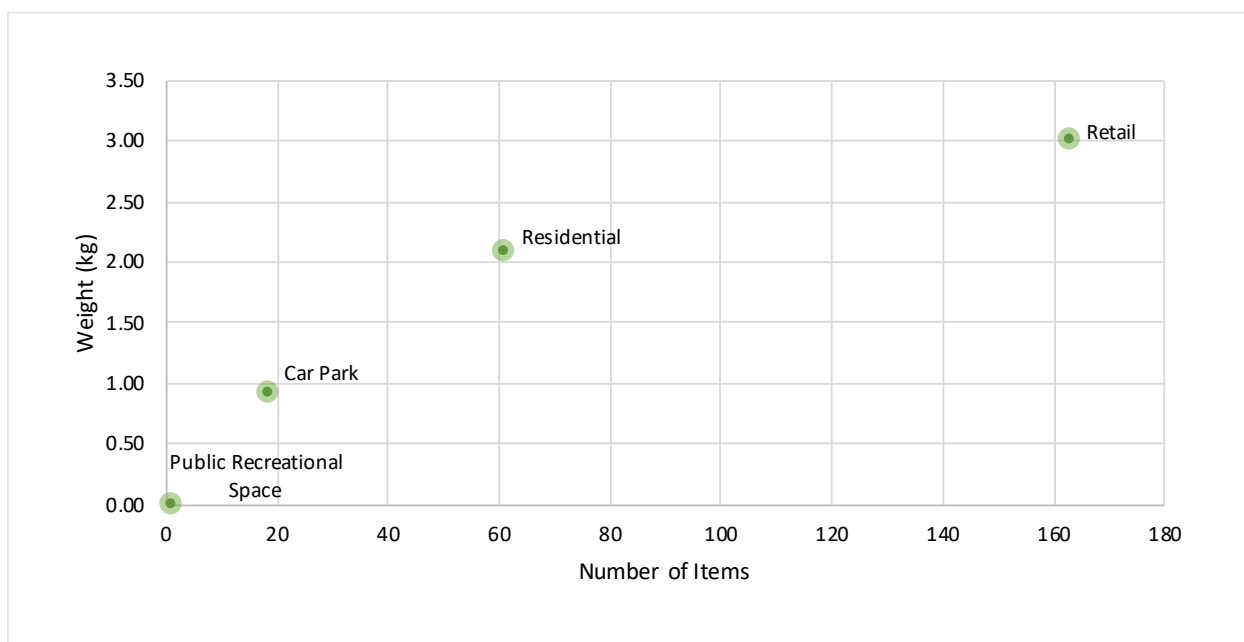
COMPARISON BY SITE TYPE OVER TIME

Since 2019, there have been increases in the number of litter items, estimated volume and weight of litter per 1,000 m² in the Chatham Islands region, with litter volume having the biggest increase (64.15 ltr vs. 1.10 ltr per 1,000 m² in 2019). Retail sites had the most noticeable increase in number of litter items and weight per 1,000 m² since 2019, whilst Residential sites had the highest increase in litter volume.

ITEMS PER 1,000 M²

The number of litter items collected in the Chatham Islands region has increased slightly from 2019 (29 items vs. 26 items per 1,000 m² in 2019). As shown in the graphs below, there has been an increase in the number of litter items across most site types with the largest increase being seen in Retail sites (163 items vs. 29 items per 1,000 m² in 2019). There was a decrease in the number of litter items collected at Public Recreational Spaces (2 items vs. 24 items per 1,000 m² in 2019).

Figure 183: Chatham Islands, Items per 1,000 m² by Site Type: Comparison Over Time
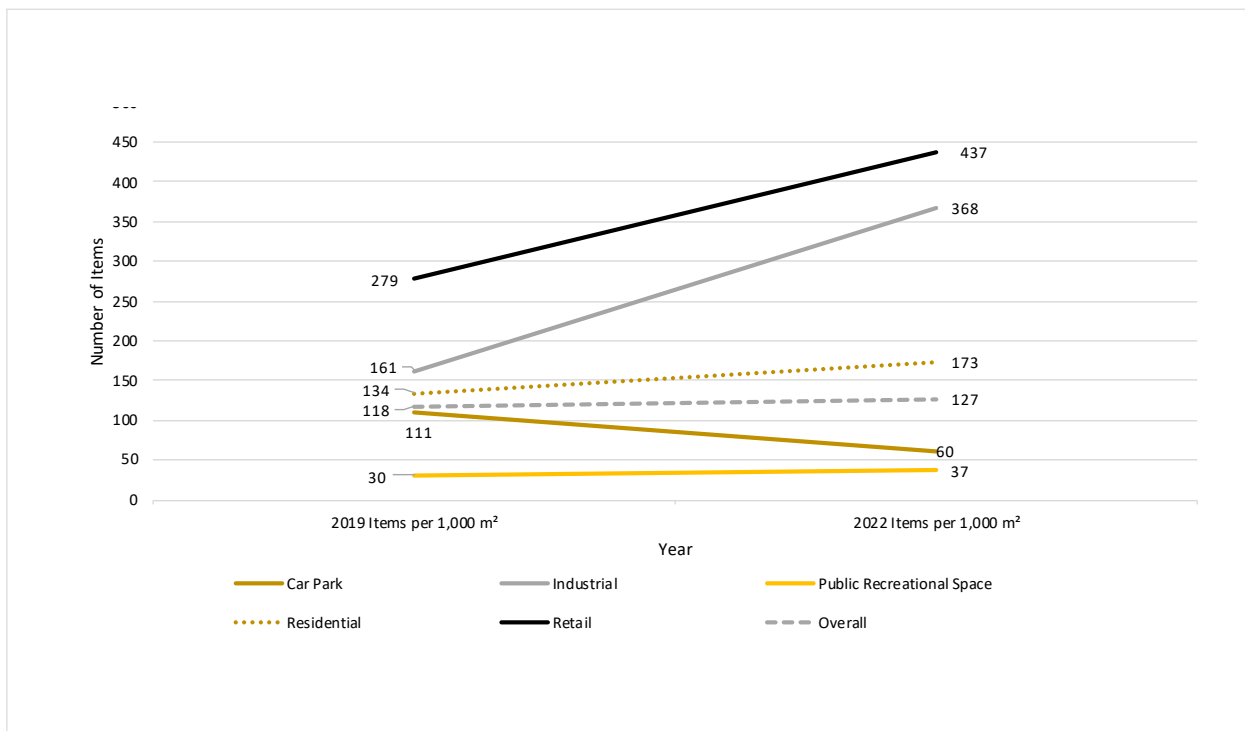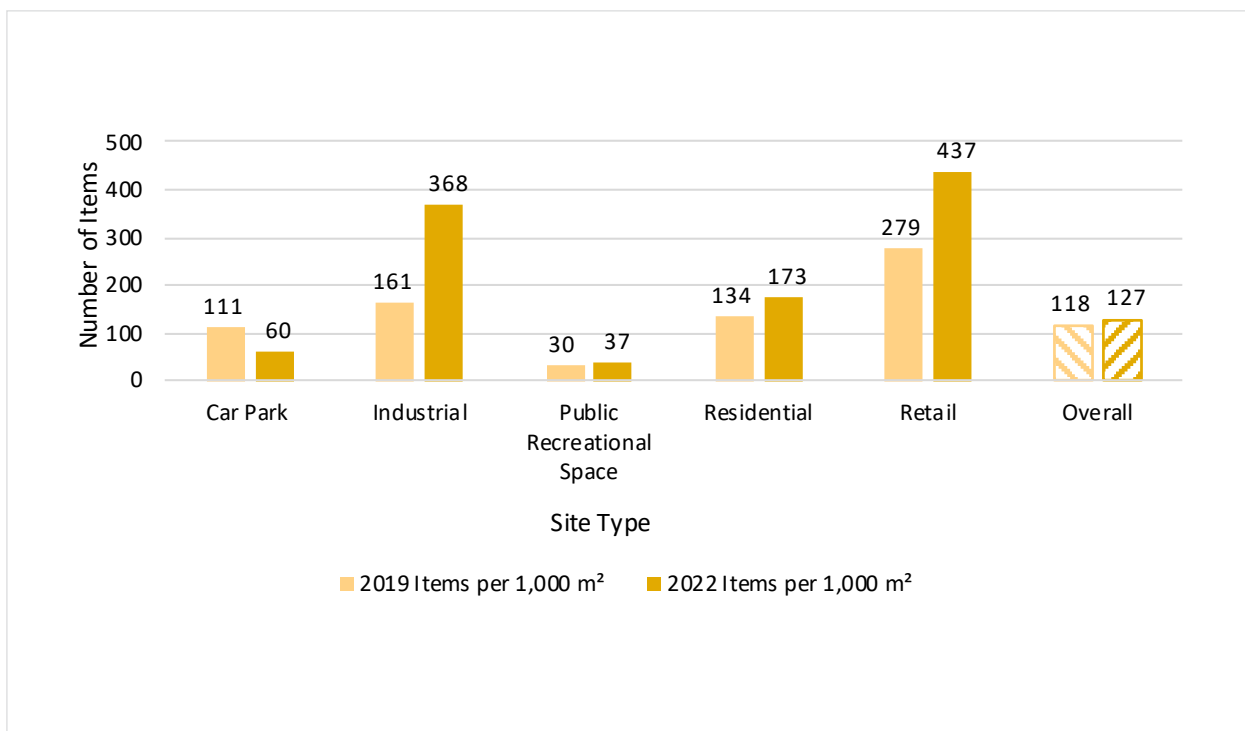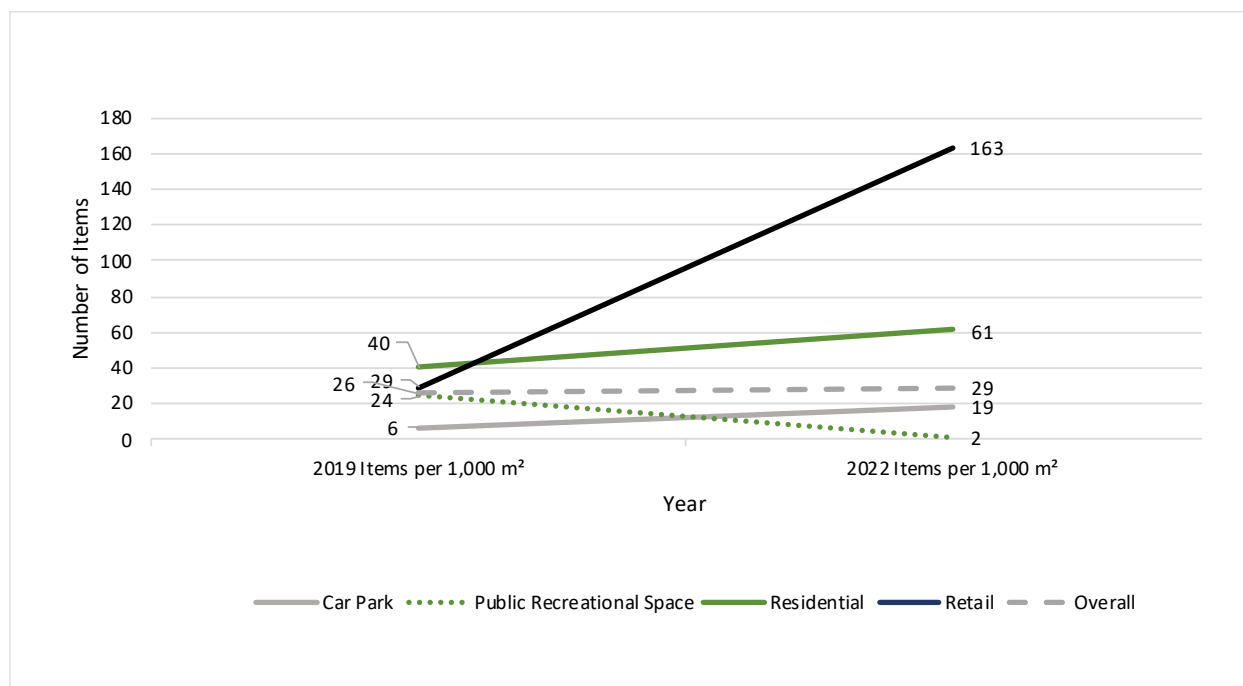

Figure 184: Chatham Islands, Items per 1,000 m² by Site Type: Comparison Over Time
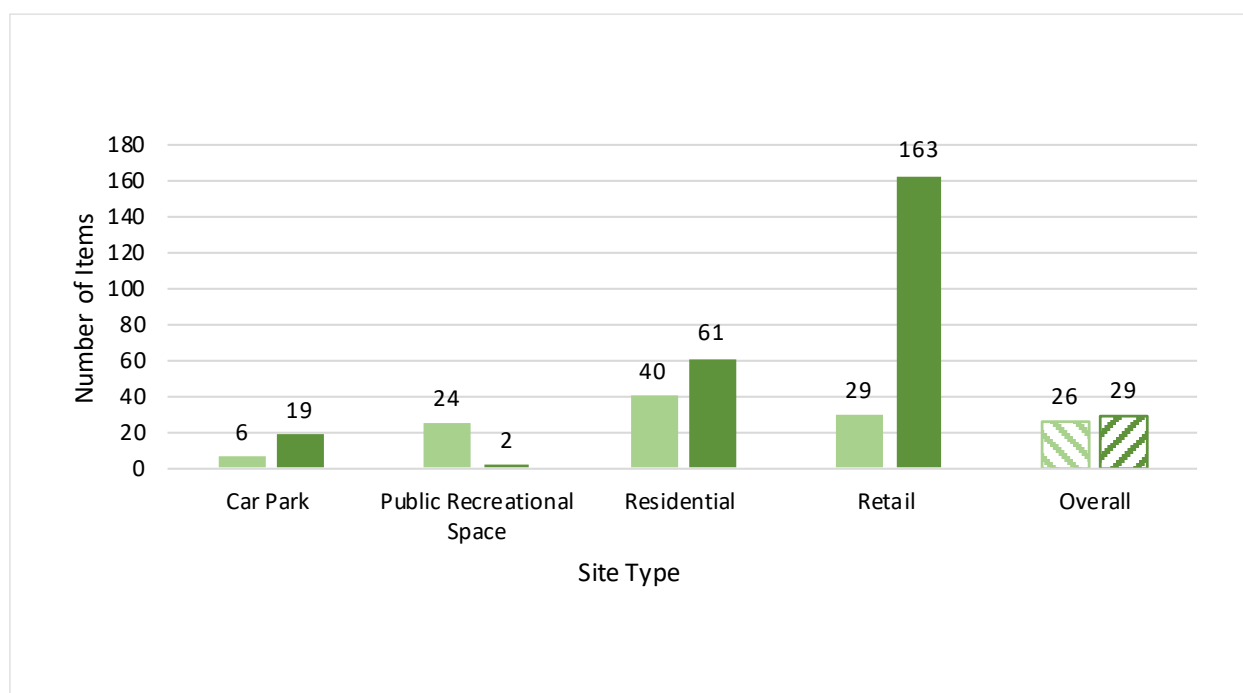
VOLUME PER 1,000M²

Overall, litter volumes per 1,000 m² in the Chatham Islands region have increased significantly by 63.05 ltr since 2019. As shown in the graphs below, an increase is consistent across most site types, with the biggest increase being seen in Residential sites (317.89 ltr vs. 2.65 ltr per 1,000 m² in 2019). Public Recreational Spaces recorded a slight decrease in volume per 1,000 m² (0.22 ltr vs. 0.51 ltr in 2019).

Figure 185: Chatham Islands, Volume per 1,000 m² by Site Type: Comparison Over Time
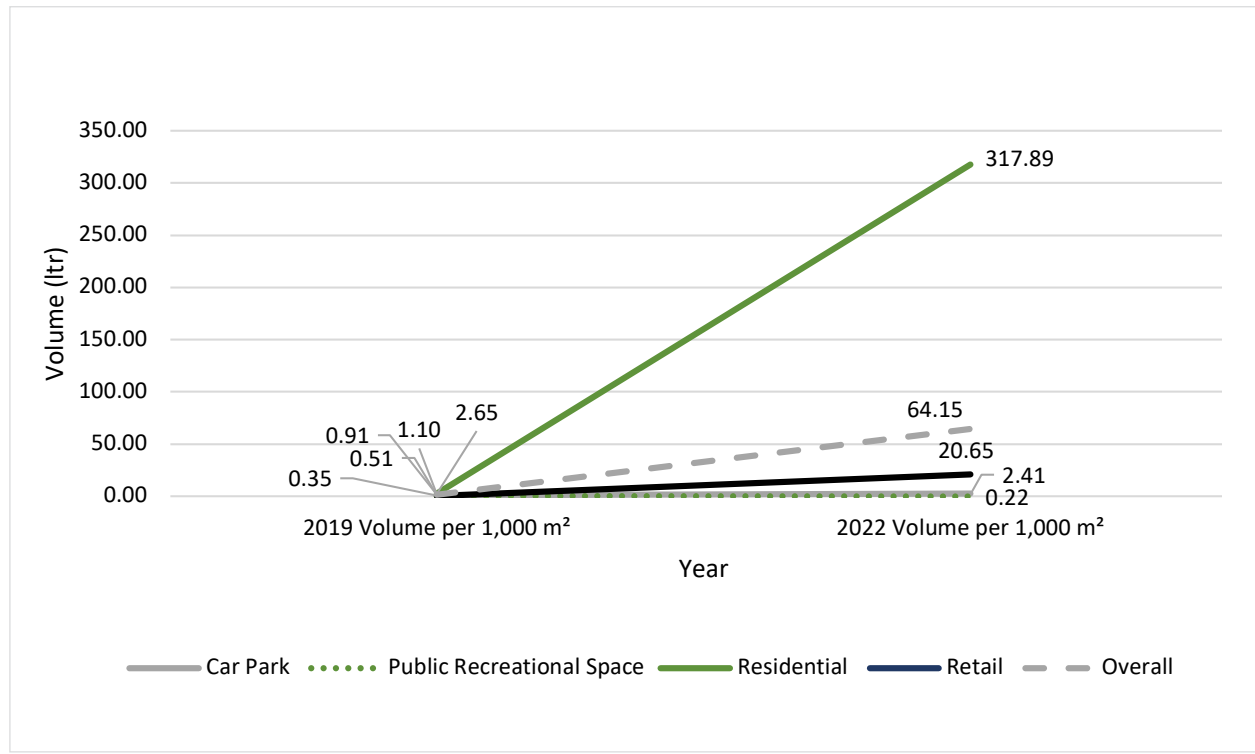
Figure 186: Chatham Islands, Volume per 1,000 m² by Site Type: Comparison Over Time
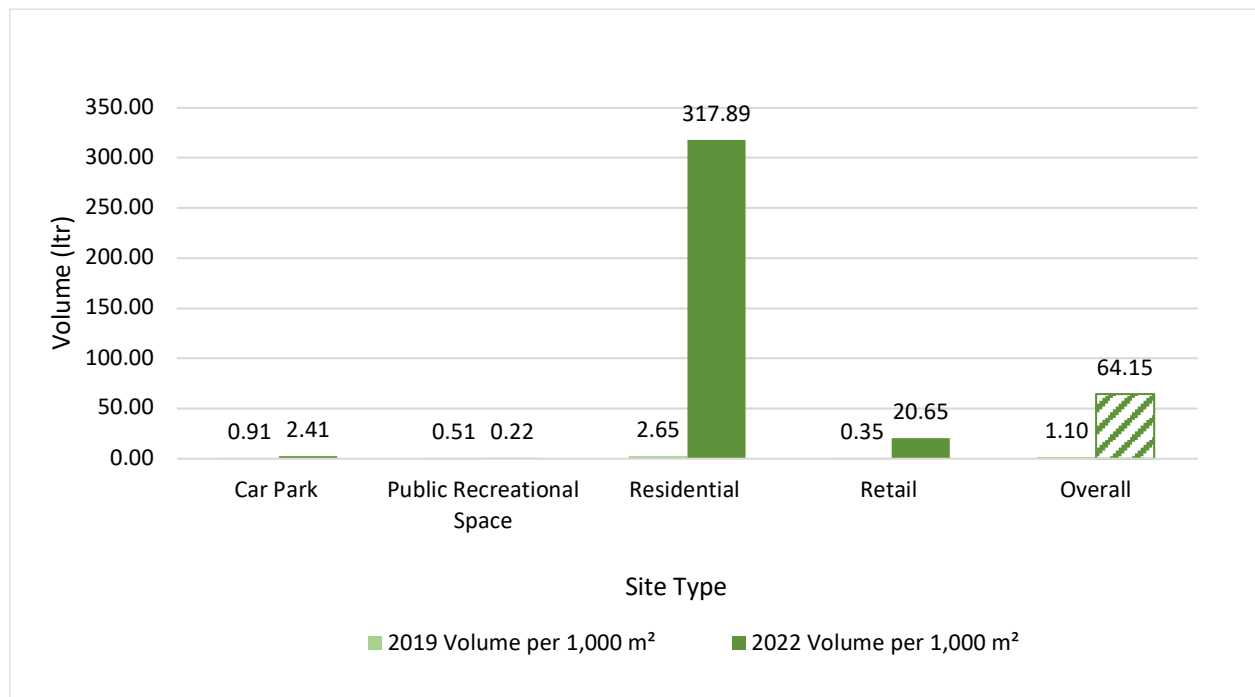
WEIGHT PER 1,000 M²

Overall, the litter weight in the Chatham Islands region has increased significantly since 2019 (0.83 kg vs. 0.14 kg per 1,000 m² in 2019). As shown in the graphs below, the site types with the biggest increases in weight per 1,000 m² are Retail (2.99 kg vs. 0.20 kg in 2019) and Residential (2.09 kg vs. 0.18 kg in 2019) sites.

*Figure 187: Chatham Islands, Weight per 1,000 m² by Site Type: Comparison Over Time*
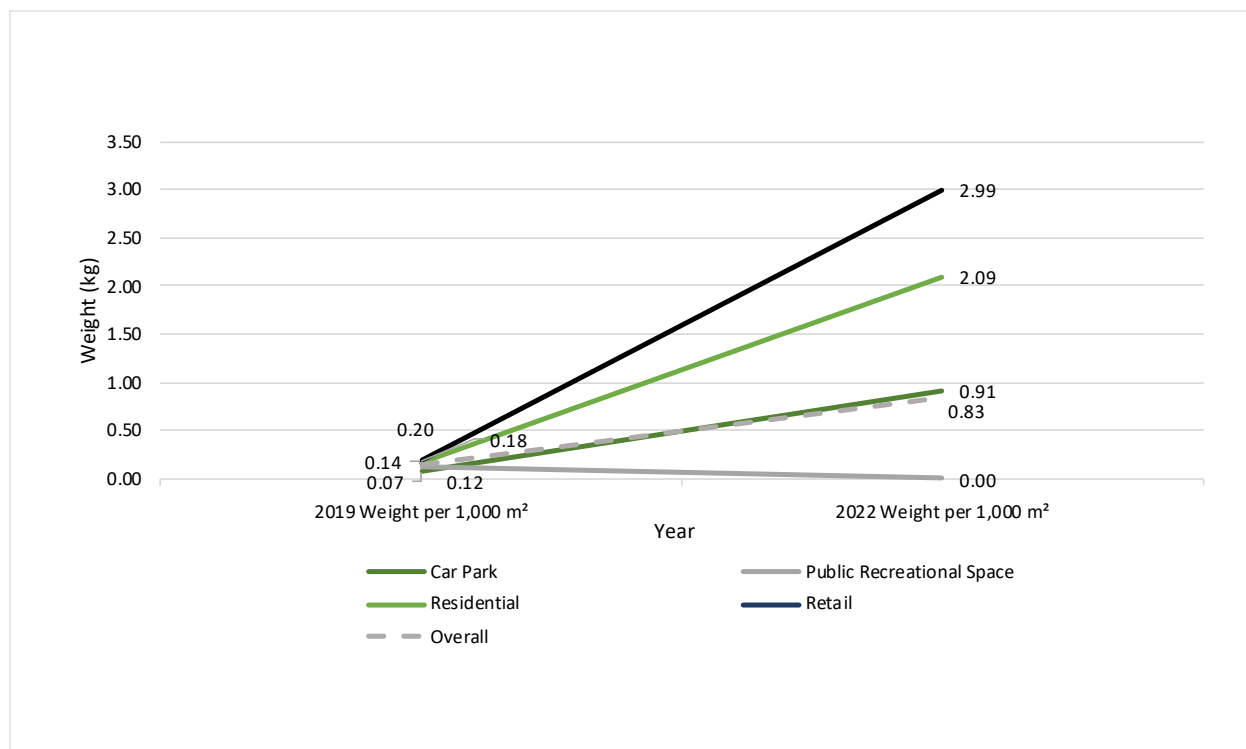
*Figure 188: Chatham Islands, Weight per 1,000 m² by Site Type: Comparison Over Time*
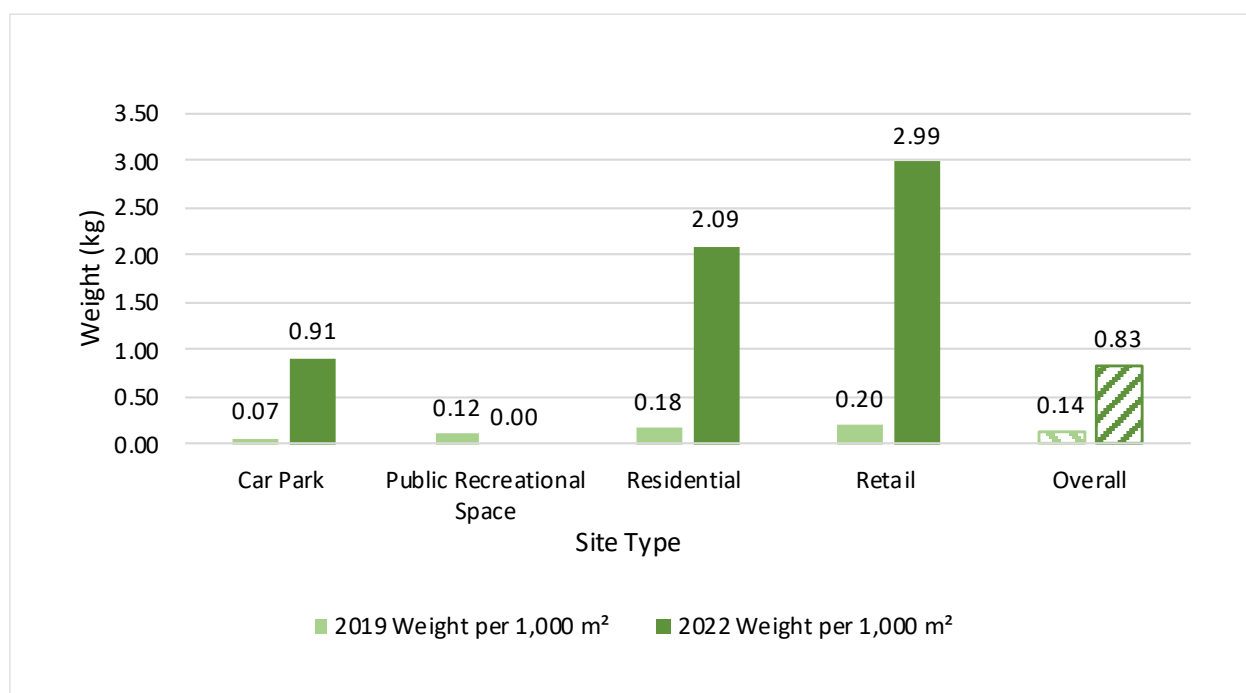
COMPARISON BY MAIN MATERIAL TYPES

Plastic was the most frequently identified material type per 1,000 m² within the Chatham Islands region (11 items) whilst the second highest contributing material type was Cigarette Butts/Vaping (7 items) .

Moderate numbers of litter items were recorded for Metal (4 items), with smaller numbers recorded for Miscellaneous (3 items), Illegal Dumping (2 items), Glass (1 item) and Paper/Cardboard (1 item). There were no recorded instances of Organic Waste at the sites audited.

Illegal Dumping contributed the largest amount of volume per 1,000 m² to the litter stream (49.87 ltr) whilst the second largest litter volumes per 1,000 m² were recorded for Paper/Cardboard (11.29 ltr). Smaller litter volumes were recorded for Plastic (1.22 ltr), Miscellaneous (1.10 ltr), Metal (0.57 ltr), and Glass (0.10 ltr). Cigarette Butts/Vaping was associated with the smallest proportion of the overall litter volume per 1,000 m² (0.001 ltr).

Plastic (0.31 kg) and Paper/Cardboard (0.29 kg) contributed the largest litter weights per 1,000 m² to the overall regional litter stream. Moderate litter weights were recorded for Metal (0.10 kg), Glass (0.07 kg) and Miscellaneous (0.05 kg). The smallest litter weights per 1,000 m² were associated with Cigarette Butts/Vaping (0.00 kg).

Figure 189: Chatham Islands 2022, Items and Volume per 1,000 m² by Main Material Type

Figure 190: Chatham Islands 2022, Items and Weight per 1,000 m² by Main Material Type
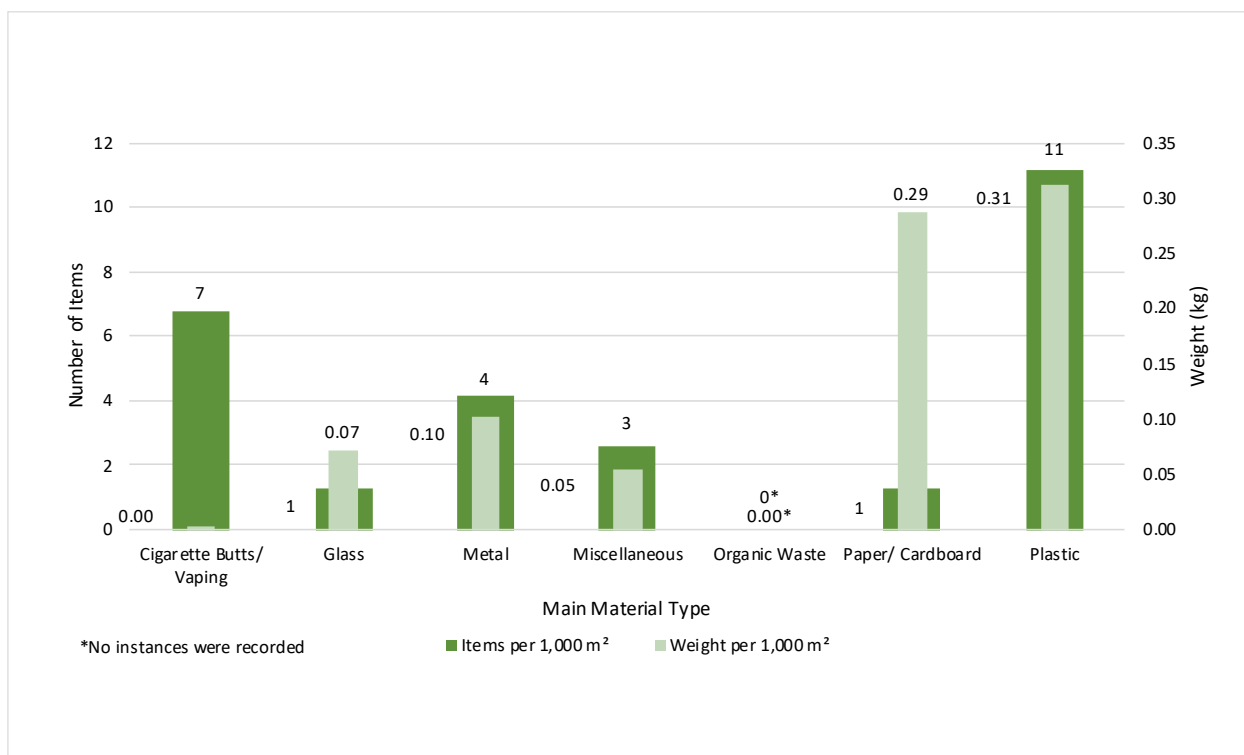
*No instances were recorded

■ Items per 1,000 m²   ■ Weight per 1,000 m²

MAIN MATERIAL CHARACTERISTICS

The following material type characteristics were identified for litter items and volume per 1,000 m² in the Chatham Islands region (excluding Highway and Railway sites):

- Plastic items contributed high numbers of litter items and small litter volumes.

- Cigarette Butts/Vaping were associated with a moderate to high number of litter items, but contributed only low litter volumes.

- Paper/Cardboard was associated with low numbers of litter items and moderate litter volumes.

- Metal contributed moderate numbers of litter items and small litter volumes.

- Miscellaneous and Glass contributed low numbers of litter items and small litter volumes.

- Illegal Dumping contributed to low numbers of litter items, but very high litter volumes.

Figure 191: Chatham Islands 2022, Items and Volume per 1,000 m² by Main Material Type
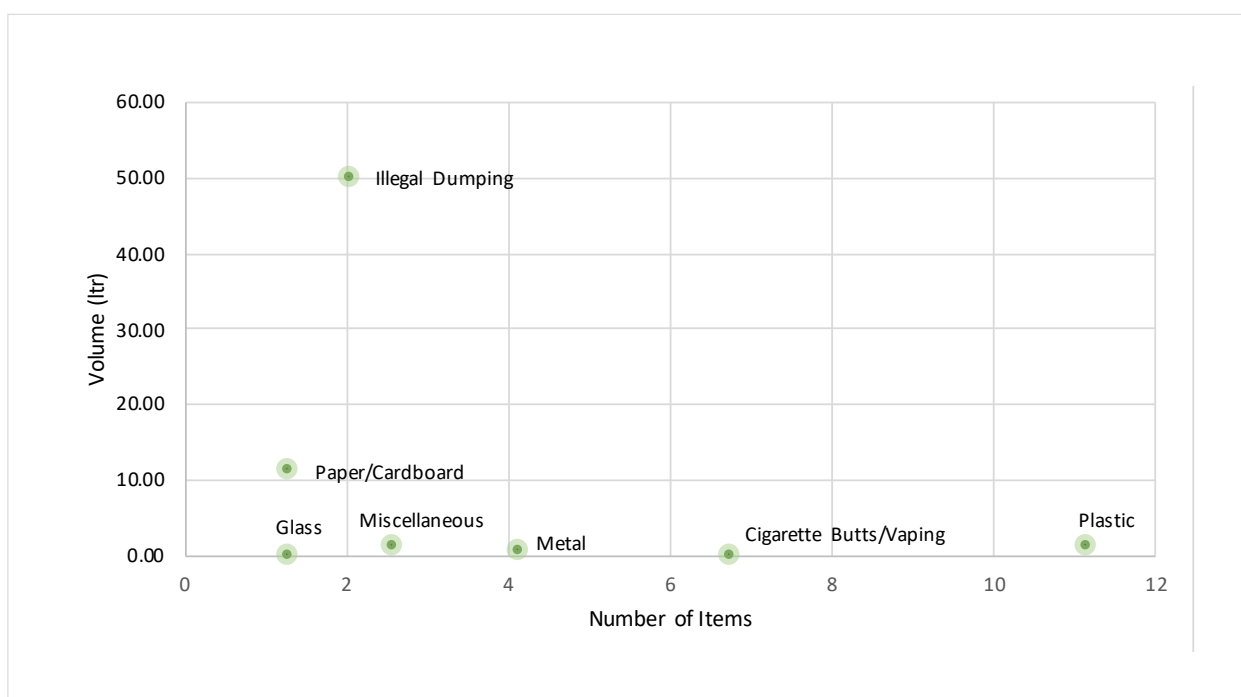
The following material type characteristics were identified for litter items and weight per 1,000 m² in the Chatham Islands region (excluding Highway and Railway sites):

- Plastic was associated with high numbers of litter items and large litter weights.

- Glass and Miscellaneous items were associated with lower numbers of litter items and moderate litter weights.

- Cigarette Butts/Vaping contributed moderate to high numbers of litter items, but were associated with small litter weights.

- Metal items were associated with moderate numbers of litter items and weights.

- Paper/Cardboard items were associated with low numbers of litter items and large litter weights.

Figure 192: Chatham Islands 2022, Items and Weight per 1,000 m² by Main Material Type
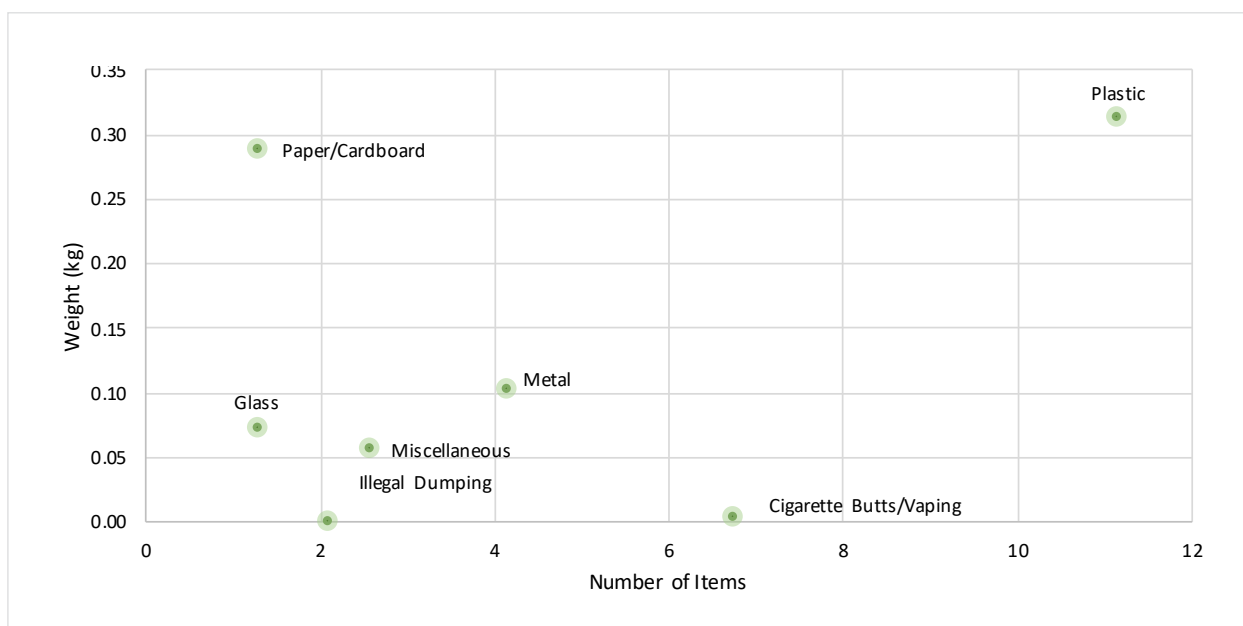
COMPARISONS BY MAIN MATERIAL TYPE OVER TIME

Compared with 2019, the material type, Plastic, has increased across all three measures, including number of litter items, estimated volume and weight per 1,000 m².

Illegal Dumping volume has also increased substantially since 2019, whereas Cigarette Butts/Vaping has remained relatively constant across all three measures since 2019.

ITEMS PER 1,000 M²

Since 2019, there has been a decrease in the number of litter items per 1,000 m² collected classified under Cigarette Butts/Vaping (7 items vs. 11 items in 2019) and Paper/Cardboard (1 item vs 2 items in 2019).

All other material types have seen an increase in the number of litter items since 2019, with the biggest increase occurring in Plastic (11 items vs. 8 items 1,000 m² in 2019).

Figure 193: Chatham Islands, Items per 1,000 m² by Main Material Type: Comparison Over Time

VOLUME PER 1,000 M²

Since 2019, there has been an increase in the litter volume of all main material types per 1,000 m² in the Chatham Islands region, with the biggest increases being seen in Illegal Dumping (49.87 ltr vs. 0.00 ltr in 2019) and Paper/Cardboard (11.29 ltr vs. 0.08 ltr in 2019). Smaller increases have been seen in Plastic (1.22 ltr vs. 0.25 ltr per 1,000 m² in 2019), Miscellaneous items (1.10 ltr vs 0.19 ltr per 1,000 m² in 2019) and Glass (0.10 ltr vs 0.01 ltr per 1,000 m² in 2019). The volume of Cigarette Butts/Vaping and Metal have remained relatively consistent.

Figure 194: Chatham Islands, Volume per 1,000 m² by Main Material Type: Comparison Over Time
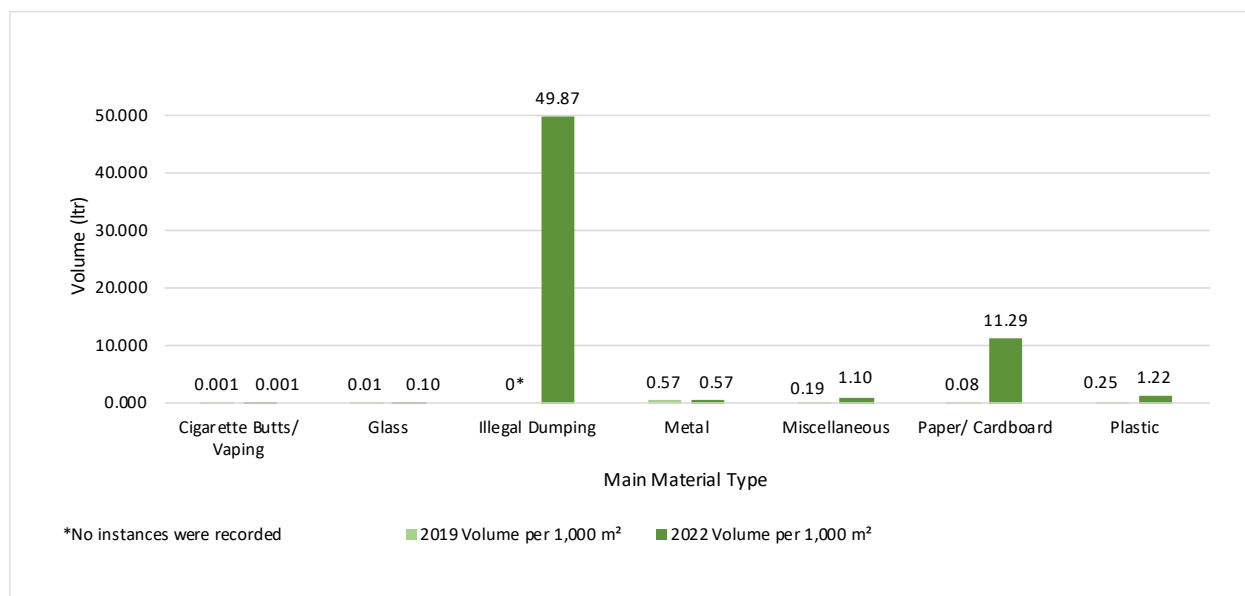
WEIGHT PER 1,000 M²

Compared with 2019, there has been a large increase in the litter weight of all material types per 1,000 m², in the Chatham Islands region. The largest increases were classified under Paper/Cardboard (0.29 kg vs. 0.01 kg per 1,000 m² in 2019) and Plastic (0.31 kg. vs. 0.09 kg per 1,000 m² in 2019).

Figure 195: Chatham Islands, Weight per 1,000 m² by Main Material Type: Comparison Over Time
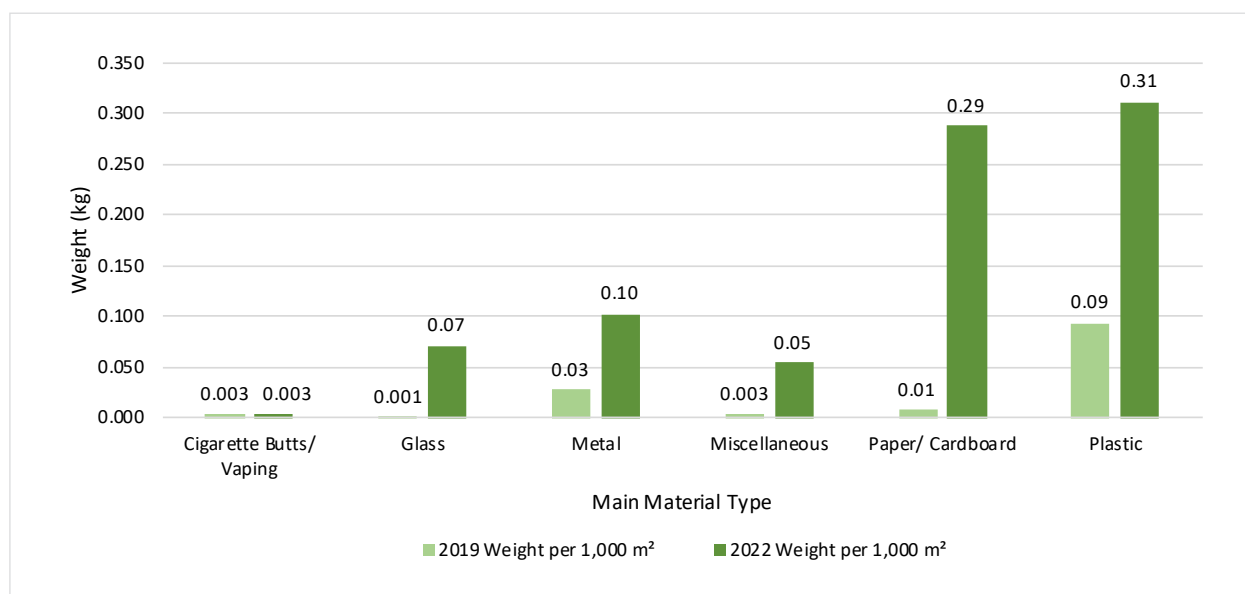
SITE TYPES BY MAIN MATERIAL TYPE

In the Chatham Islands region, the number of material type litter items collected per 1,000 m^2 at the different site types (excluding Highway and Railway sites) was as follows:

- Car Park sites: Plastic (9 items), Metal (5 items), Cigarette Butts/Vaping (3 items), Miscellaneous (3 items), Paper/Cardboard (0 items), Glass (0 items), Organic Waste (0 items) and Illegal Dumping (0 items).

- Public Recreational Spaces: Plastic (2 items), Paper/Cardboard (0 items), Metal (0 items), Miscellaneous (0 items), Organic Waste (0 items), Cigarette Butts/Vaping (0 items), Glass (0 items) and Illegal Dumping (0 items).

- Residential sites: Plastic (19 items), Cigarette Butts/Vaping (15 items), Illegal Dumping (11 items), Paper/Cardboard (7 items), Metal (4 items), Miscellaneous (4 items), Glass (3 items) and Organic Waste (0 items).

- Retail sites: Plastic (63 items), Cigarette Butts/Vaping (43 items), Metal (30 items), Miscellaneous (17 items), Glass (10 items), Paper/Cardboard (0 items), Organic Waste (0 items) and Illegal Dumping (0 items).

Figure 196: Chatham Islands 2022, Sites by Main Material Types: Items per 1,000 m^2
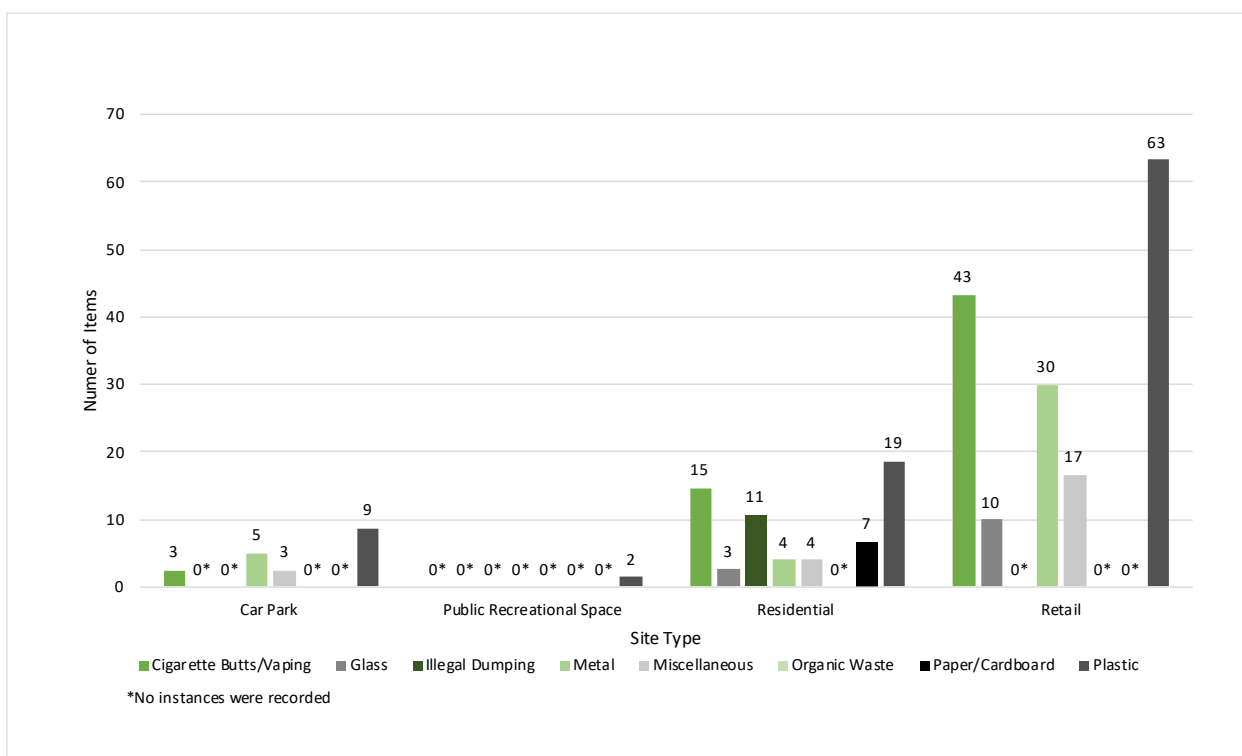
THE DIRTY DOZEN

Across the Chatham Islands region litter counts, Cigarette/Vaping: Cigarette butts were the largest contributor to the litter count, with 7 butts per 1,000 m² identified at the sites audited.

Other material subcategories frequently identified during the litter counts included:

• Plastic: Unidentifiable hard plastic fragments (5 items per 1,000 m²)

• Plastic: Unidentifiable soft plastic fragments (2 items per 1,000 m²)

• Illegal Dumping (2 items per 1,000 m²)

Not all material subcategories were comparable to the 2019 NLA due to the addition of new subcategories in 2022.

Amongst comparable material subcategories, the number of Cigarette/Vaping: Cigarette butts collected per 1,000 m² in Chatham Islands has decreased (7 items vs 11 items per 1,000 m² in 2019).

Figure 197: Chatham Islands, Dirty Dozen, Items per 1,000 m², Material Subcategories: Comparison Over Time
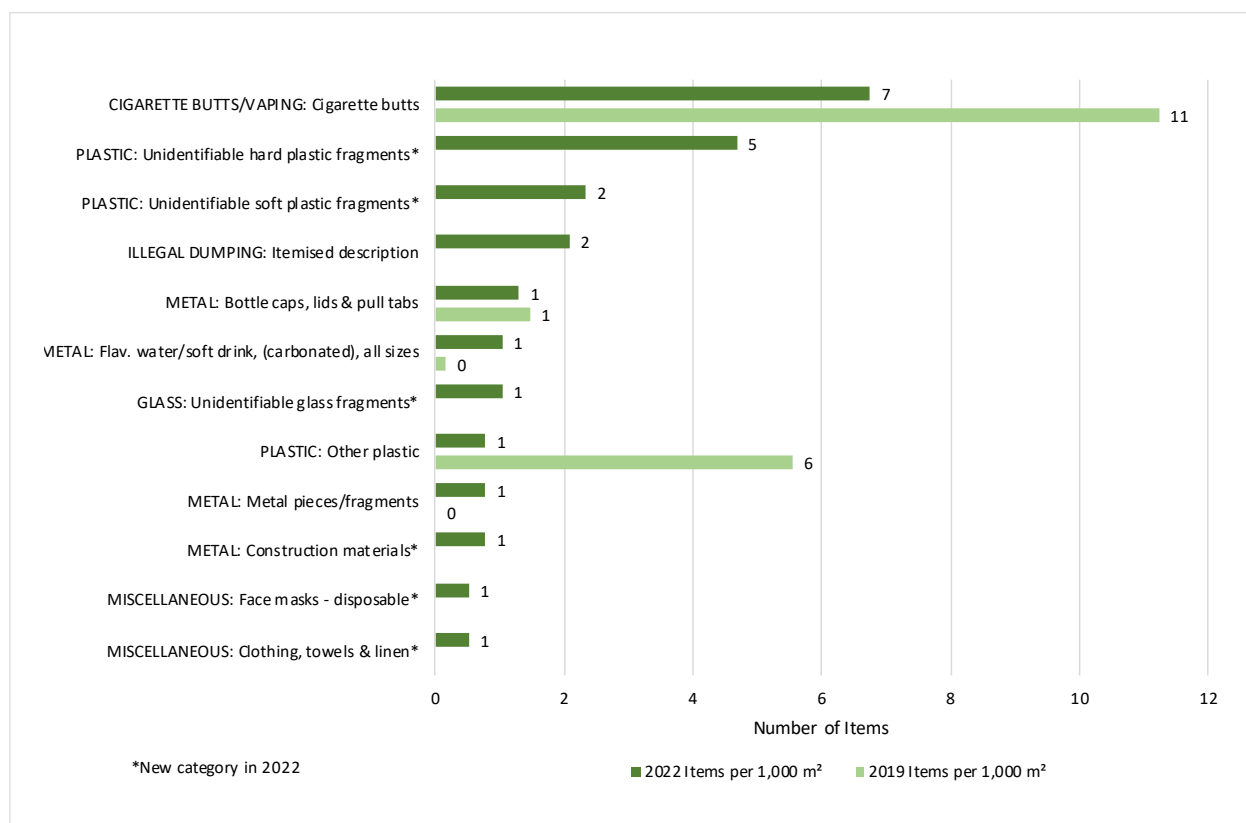
The largest contributor to the estimated litter volume per 1,000 m² in the Chatham Islands region was Illegal Dumping, recording a volume of 49.87 ltr per 1,000 m².

Other material subcategories which were associated with large, litter volumes per 1,000 m² included:

- Paper/Cardboard: Cardboard boxes (11.22 ltr per 1,000 m²)
- Miscellaneous: Clothing, towels & linen (0.94 ltr per 1,000 m²)

Not all material subcategories were comparable to the 2019 NLA due to the addition of new subcategories in 2022.

Whilst most of the categories featured in the Chatham Islands region's Dirty Dozen by volume are new this year, amongst comparable material subcategories, there are a few differences from 2019. As shown in the graph below, the biggest difference in litter volume between 2019 and 2022 is seen in Illegal Dumping, which has increased by 49.87 ltr per 1,000 m².

Figure 198: Chatham Islands, Dirty Dozen, Volume per 1,000 m², Material Subcategories: Comparison Over Time

Within the material subcategories, the largest litter weights per 1,000 m² were associated with Paper/Cardboard: Cardboard boxes, recording (0.28 kg) per 1,000 m².

Other material subcategories which were associated with higher litter weights per 1,000 m² included:

- Plastic: Other Plastic (0.15 kg per 1,000 m²)
- Glass: Alcoholic soda/spirit based mixers, all sizes (0.05 kg per 1,000 m²)
- Plastic: Construction materials (0.05 kg per 1,000 m²)

Not all material subcategories were comparable to the 2019 NLA due to the addition of new subcategories in 2022.

Amongst comparable material subcategories, there were increases per 1,000 m² across the categories of Plastic: Plastic (other) (0.15 kg vs 0.06 kg in 2019), Glass: Alcoholic soda/spirit based mixers, all sizes (0.05 kg vs. 0.00 kg per in 2019) and Metal: Flavoured water/soft drink (carbonated, all sizes) (0.04 kg vs. 0.00 kg in 2019).

Figure 199: Chatham Islands, Dirty Dozen, Weight per 1,000 m², Material Subcategories: Comparison Over Time

PAPER/CARDBOARD: Cardboard boxes* — 0.28

PLASTIC: Other plastic — 0.15 / 0.06

GLASS: Alcoholic sodas/spirit based mixers, all sizes — 0.05 / 0.00

PLASTIC: Construction materials* — 0.05

METAL: Metal pieces/fragments — 0.04 / 0.00

PLASTIC: Unidentifiable soft plastic fragments* — 0.04

METAL: Flav. water/soft drink, (carbonated), all sizes — 0.04 / 0.00

PLASTIC: Plain water (carbonated or non-carb.), 1 litre + — 0.03 / 0.01

PLASTIC: Unidentifiable hard plastic fragments* — 0.03

MISCELLANEOUS: Clothing, towels & linen* — 0.02

GLASS: Unidentifiable glass fragments* — 0.02

METAL: Beer, aluminium drink cans, all types, all sizes — 0.01 / 0.02

Weight (kg)

* New category in 2022   ■ 2022 Weight per 1,000 m²   ■ 2019 Weight per 1,000 m²

TERRITORIAL SUMMARIES

There is one Territorial Authority within the Chatham Islands region:

- Chatham Islands Territory (A Territorial Authority which also performs the functions of a Regional Council)

A total of five sites (from Retail, Residential, Car Park and Public Recreational Spaces) were audited in the Chatham Islands region.

Extract from Table 5, 2022 Territory Data: Chatham Islands region (Excluding Railways)

Territory	Total Area Audited (m²)	Items per 1,000 m²	Weight (kg) per 1,000 m²	Volume (ltr) per 1,000 m²
CHATHAM ISLANDS				
Chatham Islands Overall	**3850**	**29**	**0.83**	**64.15**

SITE GRADINGS

All sites were assigned gradings in four 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 Chatham Islands region.

Extract from Table 3, Risk and Litter Distribution: Chatham Islands (Excluding Railways)

	Risk Present		Litter Distribution	
Chatham Islands	Moderate hazard or risk	Significant hazard or risk	Widespread	Clustered
	100%	0%	100%	0%

Figure 200: Chatham Islands 2022, Grading: Visual Site Ratings (Excluding Railways)
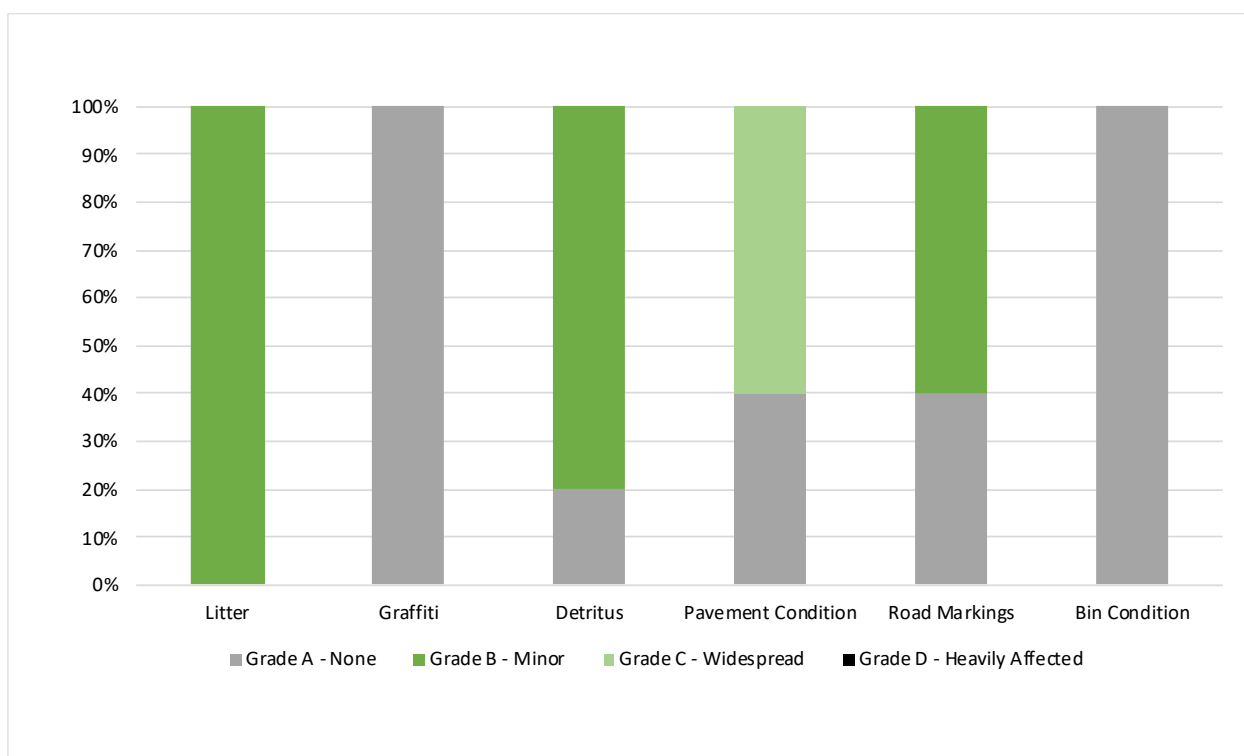
Figure 201: Chatham Islands 2022, Grading: Site Litter Hotshots Ratings (Excluding Railways)
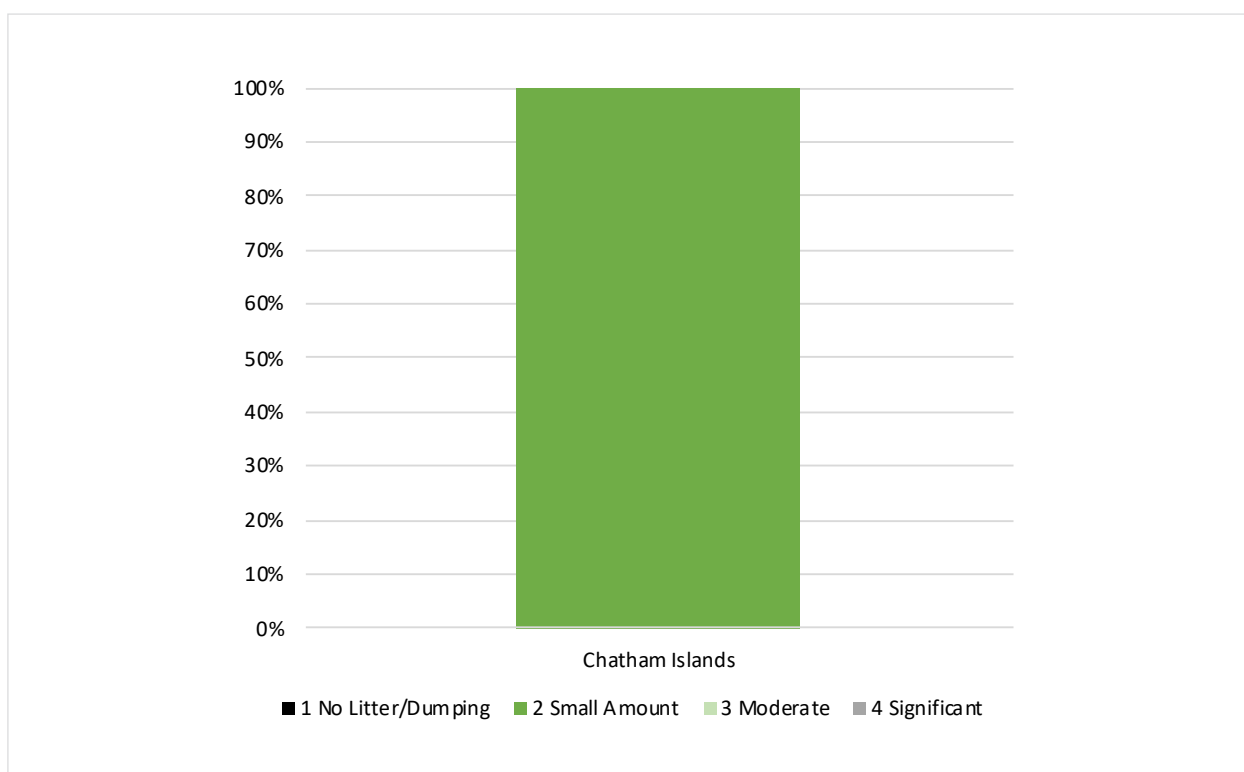
HIGHWAYS

The following section shows the results for Highways in the Chatham Islands region. In the Chatham Islands region one Highway site and no Railway sites were audited.

Figure 202: Chatham Islands Highways, Items per 1,000 m² by Site Type: Comparison Over Time
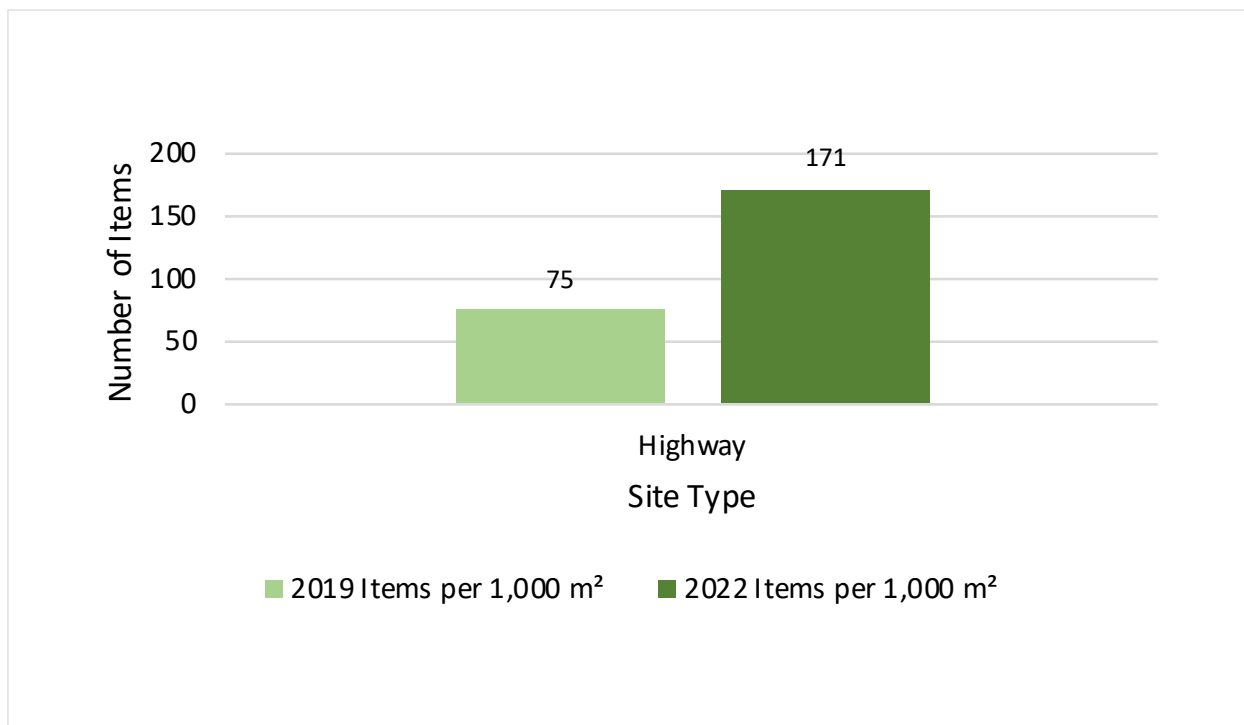
Figure 203: Chatham Islands Highways, Weight per 1,000 m² by Site Type: Comparison Over Time
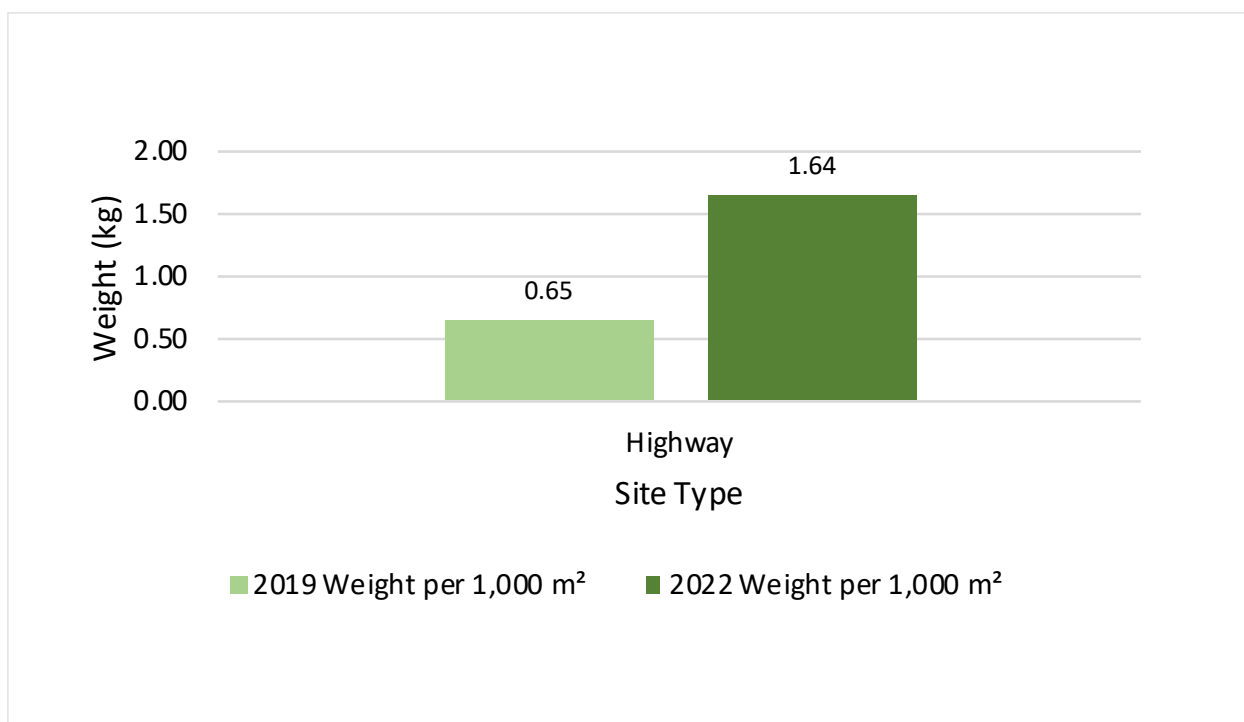
Figure 204: Chatham Islands Highways, Volume per 1,000 m^2 by Site Type: Comparison Over Time
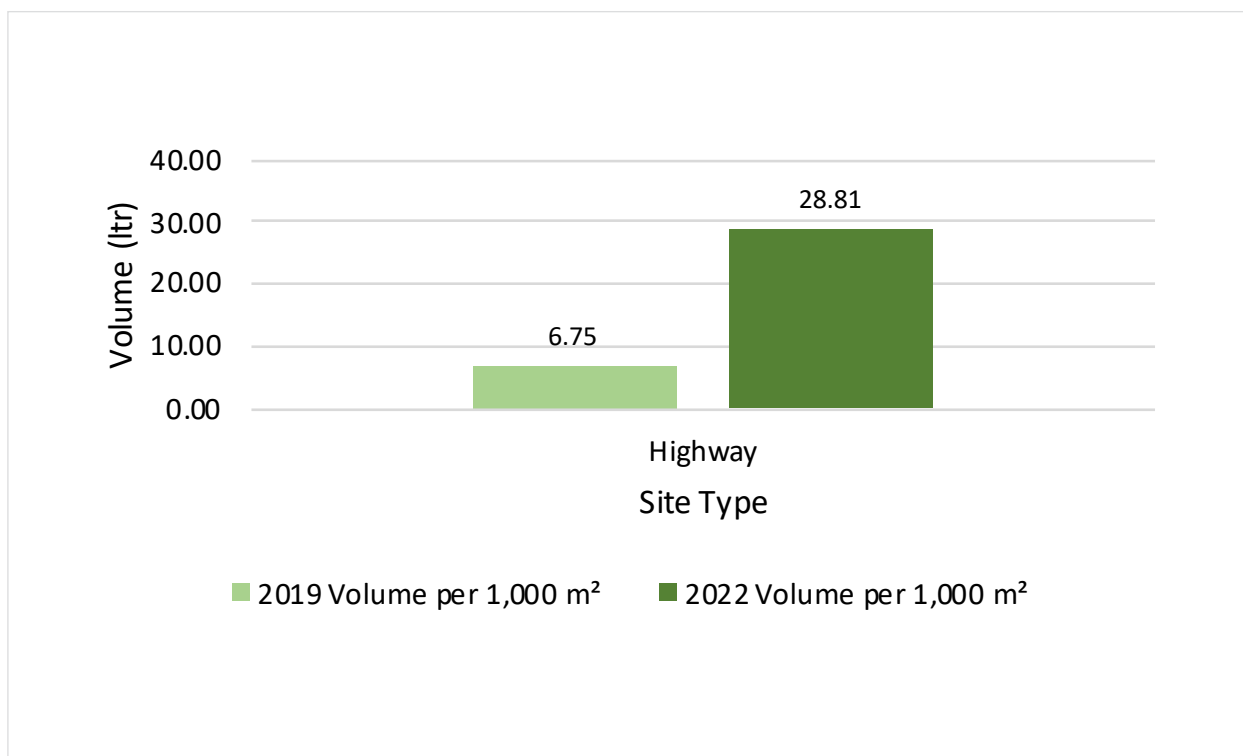
Figure 205: Chatham Islands Highways, Items per 1,000 m^2 by Main Material Type: Comparison Over Time
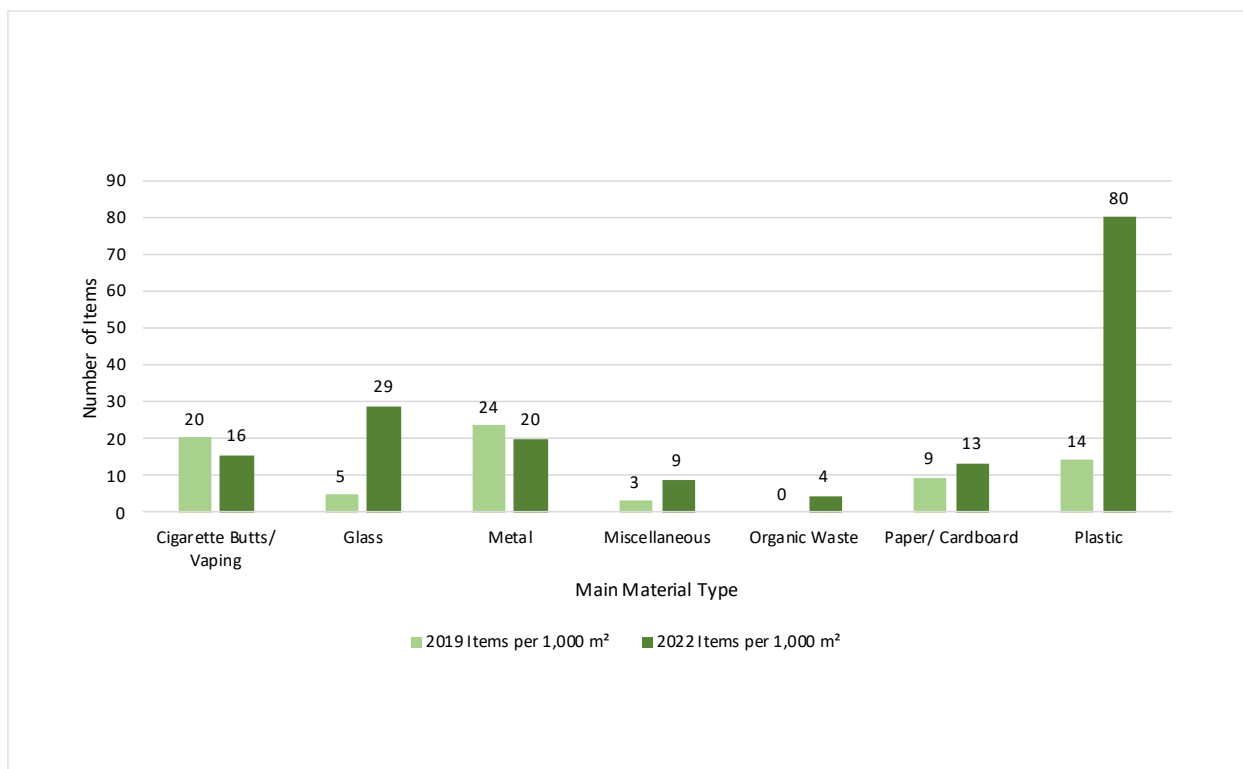
Figure 206: Chatham Islands Highways, Weight per 1,000 m² by Main Material Type: Comparison Over Time
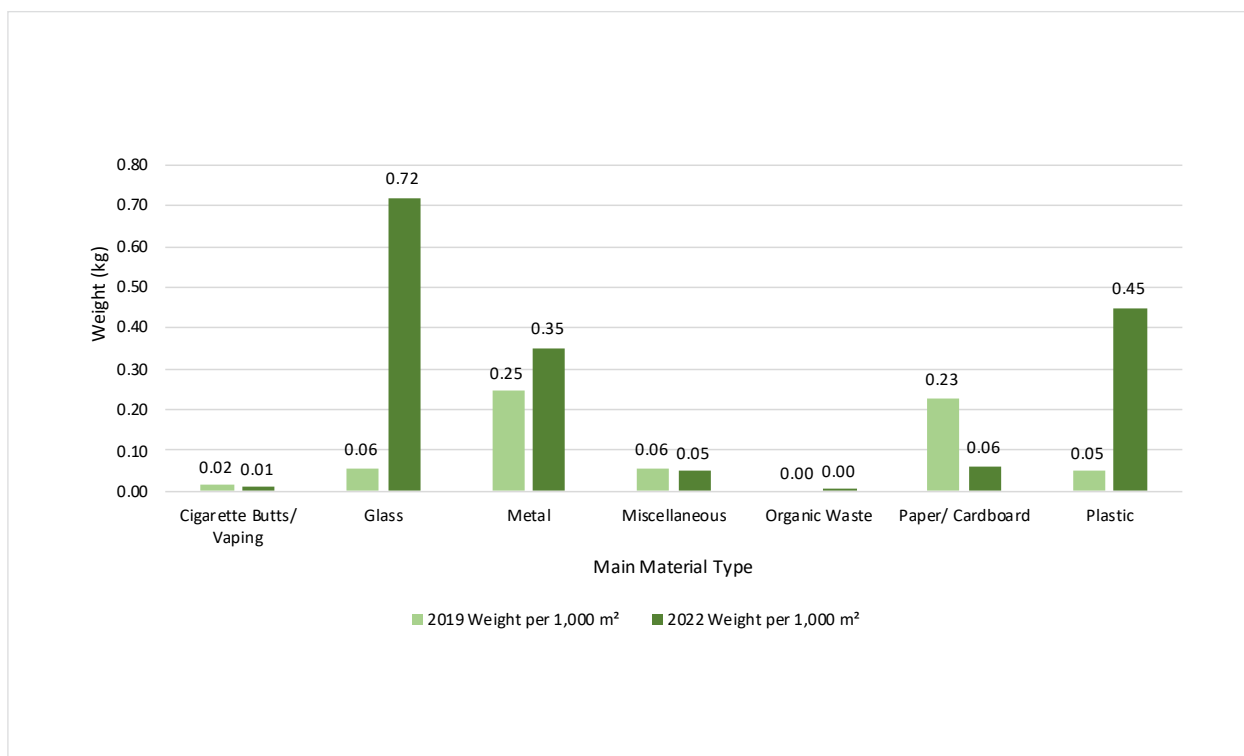
Figure 207: Chatham Islands Highways, Volume per 1,000 m² by Main Material Type: Comparison Over Time
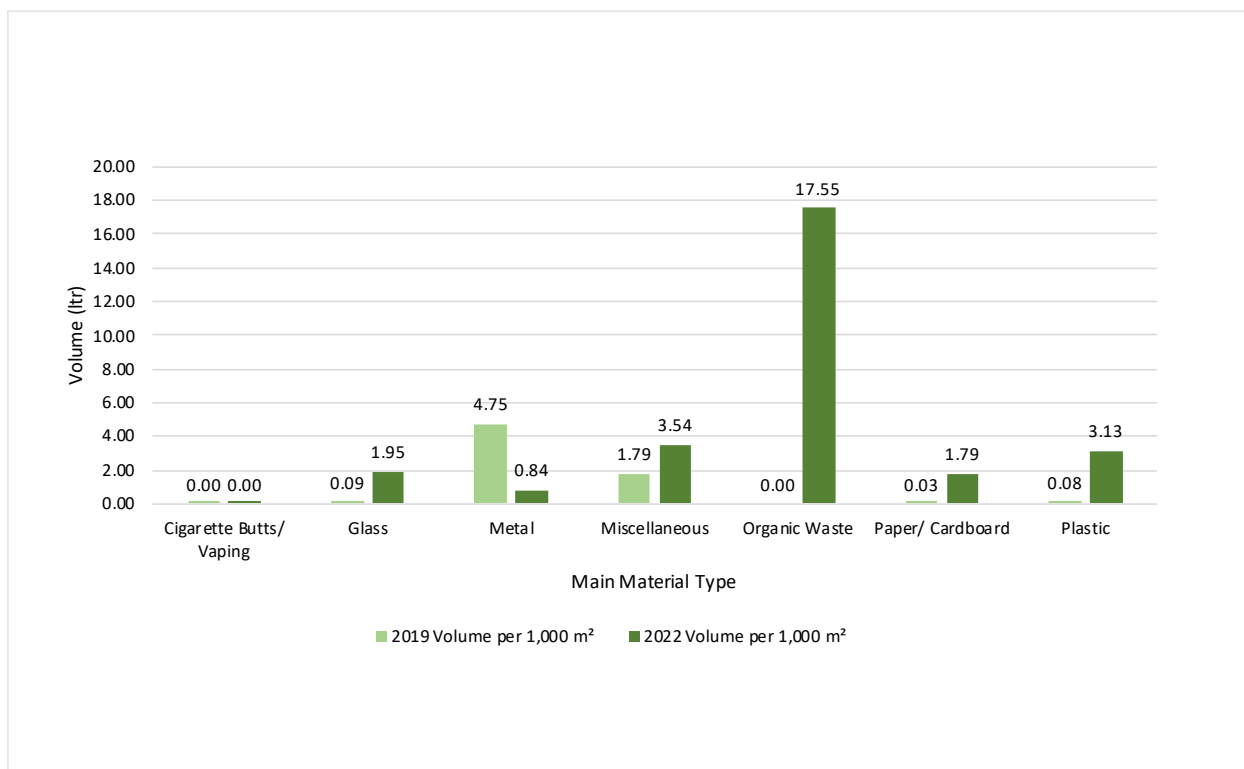
Figure 208: Chatham Islands Highways, Dirty Dozen, Items per 1,000 m², Material Subcategories: Comparison Over Time

* New category in 2022

■ 2022 Items per 1,000 m² ■ 2019 Items per 1,000 m²
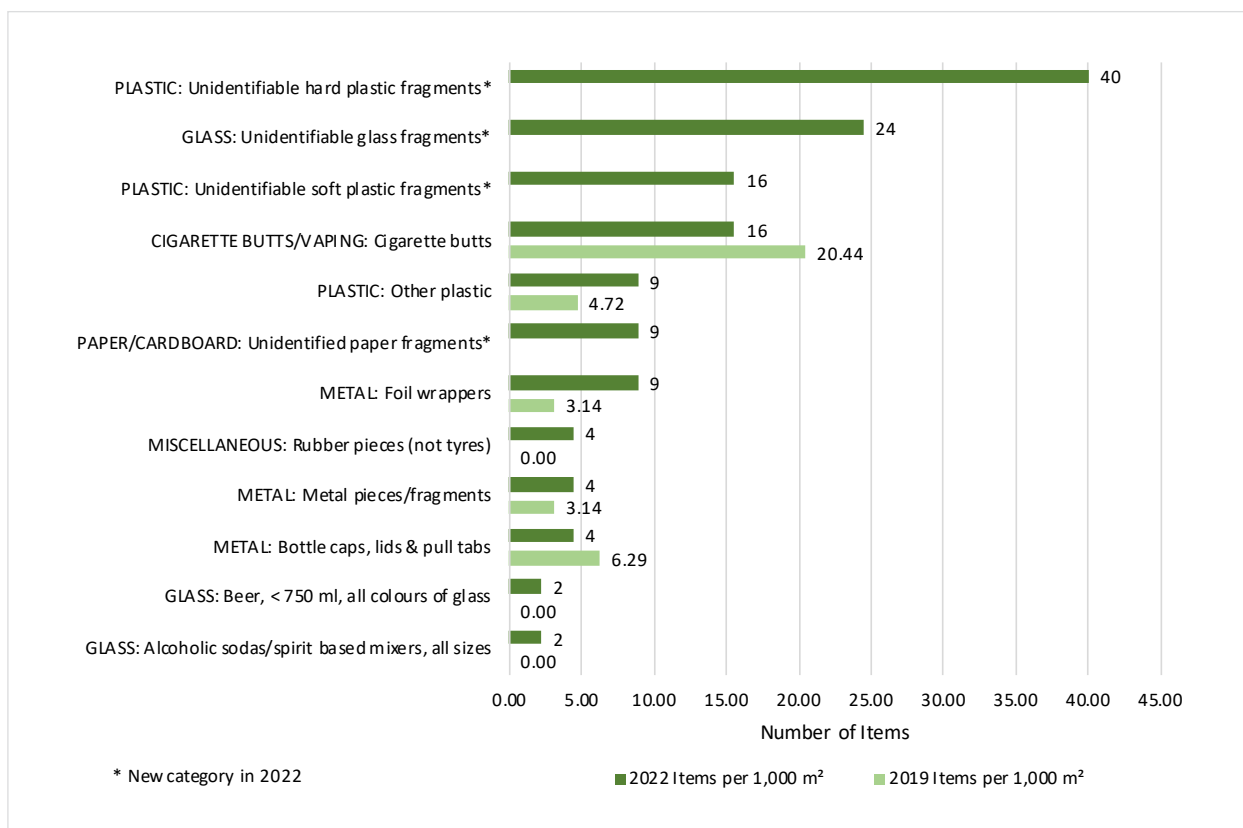
Figure 209: Chatham Islands Highways, Dirty Dozen, Weight per 1,000 m², Material Subcategories: Comparison Over Time

* New category in 2022

■ 2022 Weight per 1,000 m² ■ 2019 Weight per 1,000 m²
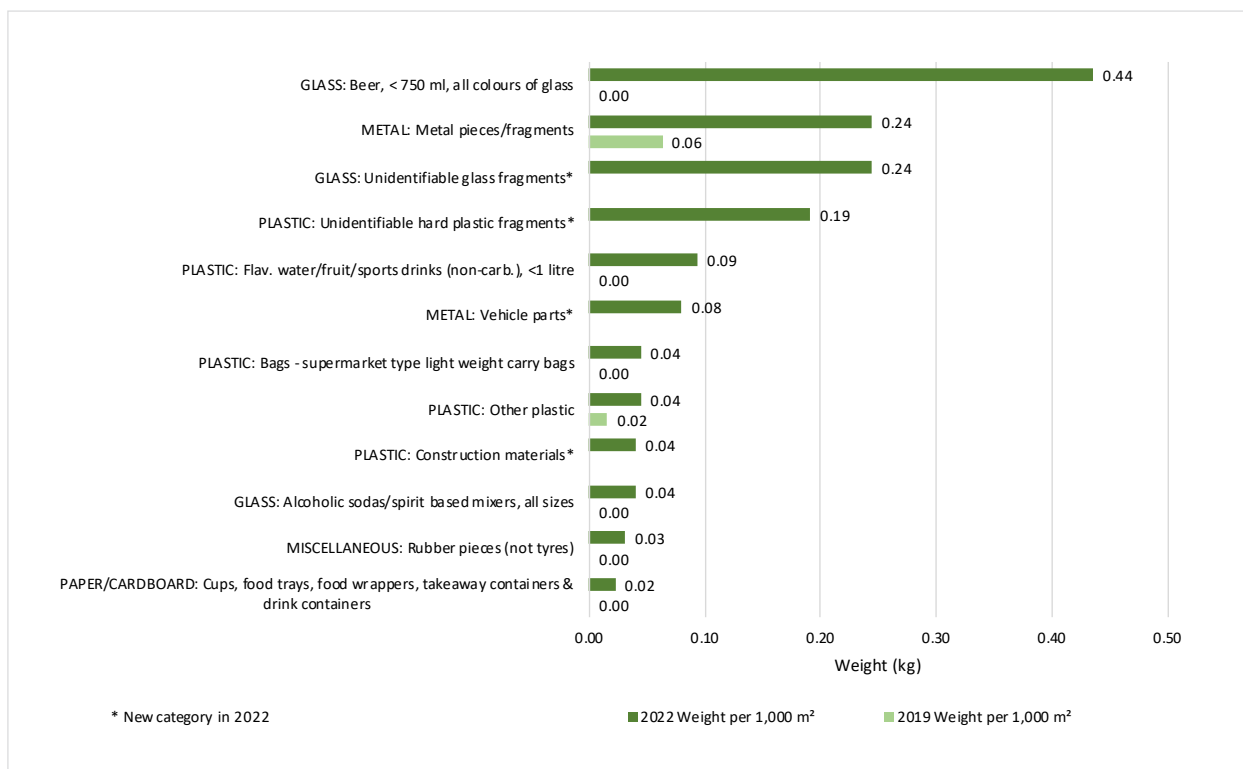
Figure 210: Chatham Islands Highways, Dirty Dozen, Volume per 1,000 m², Material Subcategories: Comparison Over Time

Category	Value
ORGANIC WASTE: Compostable packaging*	17.48
MISCELLANEOUS: Footwear*	3.52
PLASTIC: Flav. water/fruit/sports drinks (non-carb.), <1 litre	1.64 / 0.00
PAPER/CARDBOARD: Cups, food trays, food wrappers, takeaway containers & drink containers	1.62 / 0.00
GLASS: Beer, < 750 ml, all colours of glass	1.03 / 0.00
GLASS: Alcoholic sodas/spirit based mixers, all sizes	0.83 / 0.00
METAL: Vehicle parts*	0.77
PLASTIC: Unidentifiable hard plastic fragments*	0.64
PLASTIC: Unidentifiable soft plastic fragments*	0.45
PLASTIC: Construction materials*	0.18
PLASTIC: Cigarette lighters*	0.11
PAPER/CARDBOARD: Unidentified paper fragments*	0.10

Volume (ltr)

* New category in 2022

■ 2022 Volume per 1,000 m²   ■ 2019 Volume per 1,000 m²

GISBORNE AND HAWKE'S BAY REGIONS

AT A GLANCE

The overall average number of litter items per 1,000 m² across the 25 sites audited in the Gisborne and Hawke's Bay regions was 113 items, the overall average estimated volume of litter per 1,000 m² was 7.97 ltr and the overall average litter weight per 1,000 m² was 0.44 kg.

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

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

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

The highest litter weights in the region were recorded for Miscellaneous items, although this category contributed moderate numbers of litter items and small to moderate volumes of litter per 1,000 m².

Organic Waste contributed the lowest number of items and the second lowest litter weights per 1,000 m² but were associated with the third highest litter volumes in the region.

Note:

- *New material subcategories were added in 2022 and so not all material subcategories are comparable between 2019 and 2022.*

- *A weight measure was not recorded for any items of Illegal Dumping identified during the audit, and therefore has not been included in the analysis. There were no instances of Illegal Dumping at the sites audited in the Gisborne and Hawke's Bay regions.*

- *Not all regions were audited for Highway and/or Railway sites, and so these site types have been separated out and specifics for each region given at the end of the relevant chapter. The Gisborne and Hawke's Bay regions were audited for three Highway sites and one Railway site.*

COMPARISONS BY SITE TYPES

The highest numbers of litter items per 1,000 m² at the sites audited in the Gisborne and Hawke's Bay regions were recorded at Retail sites (518 items) and Industrial sites (293 items). More moderate numbers of litter items were collected at Residential sites (106 items), whilst low to moderate numbers of litter items were recorded at Car Park sites (72 items). The lowest numbers of litter items per 1,000 m² were associated with Public Recreational Spaces (9 items).

The estimated volumes per 1,000 m² at Industrial sites (32.73 ltr) were significantly larger than other site types within the region. Moderate to large volumes of litter per

1,000 m² were also recorded at Retail sites (13.69 ltr) and Residential sites (12.38 ltr) whilst moderate volumes were observed at Car Park sites (7.99 ltr). Public Recreational Spaces recorded the lowest volumes of litter (0.51 ltr).

Industrial sites (2.16 kg) were associated with the largest litter weights per 1,000 m² in the region whilst moderate to high litter weights were recorded for Residential sites (0.86 kg). More moderate weights per 1,000 m² were associated with Retail sites (0.53 kg) and Car Park sites (0.39 kg) whilst the lowest weights were recorded at Public Recreational Spaces (0.01 kg).

Figure 211: Gisborne/Hawke's Bay 2022, Items and Volume per 1,000 m² by Site Type
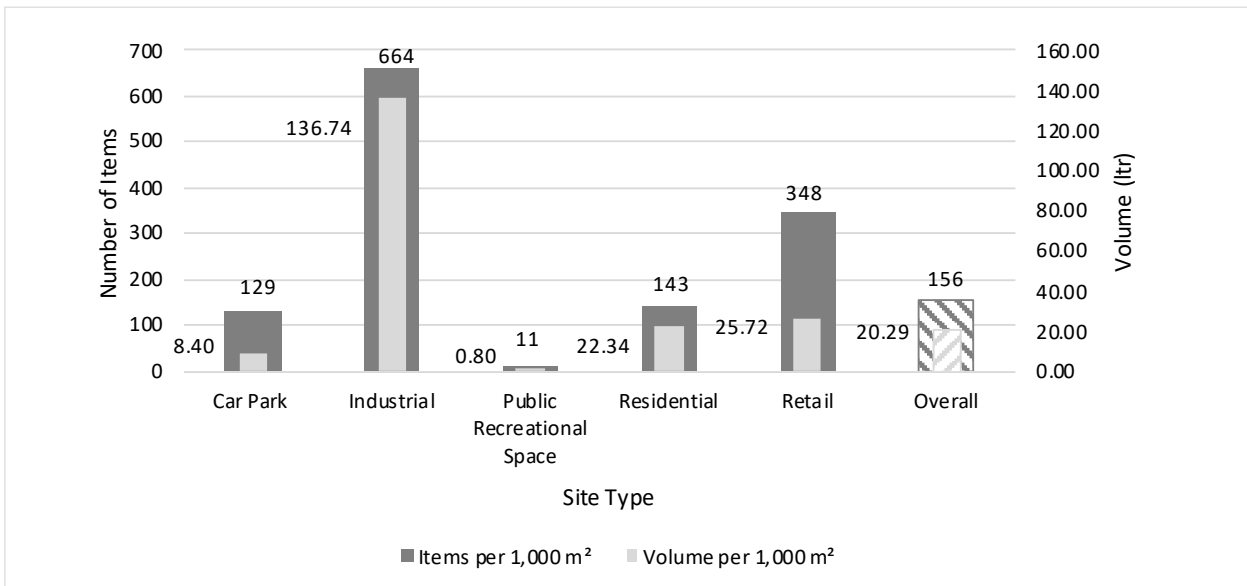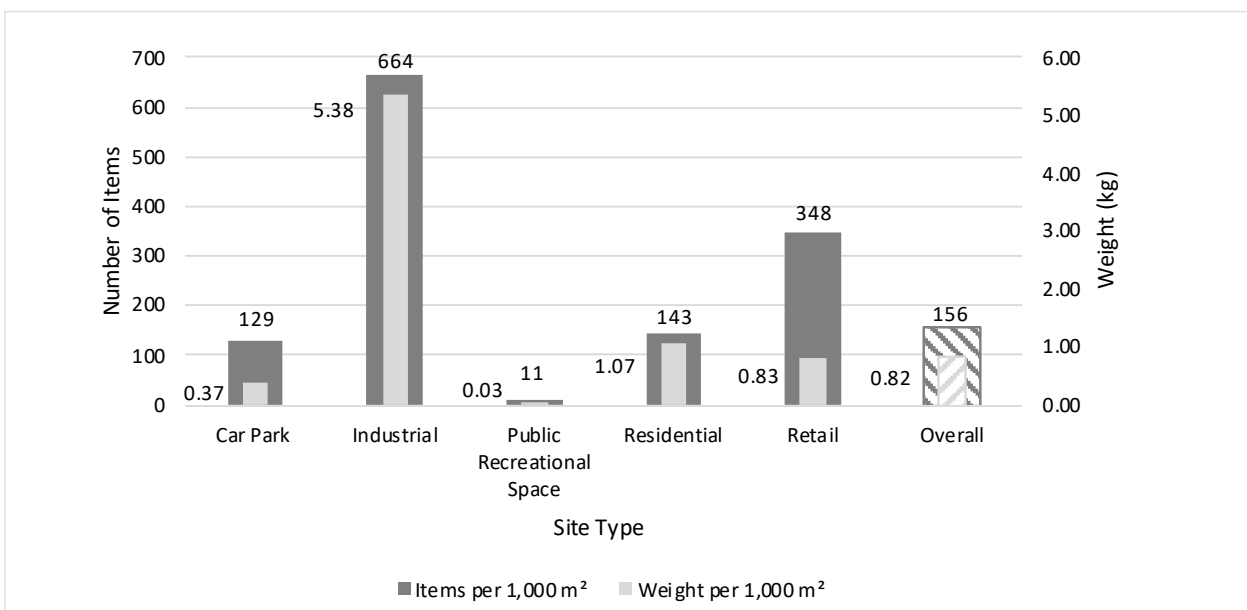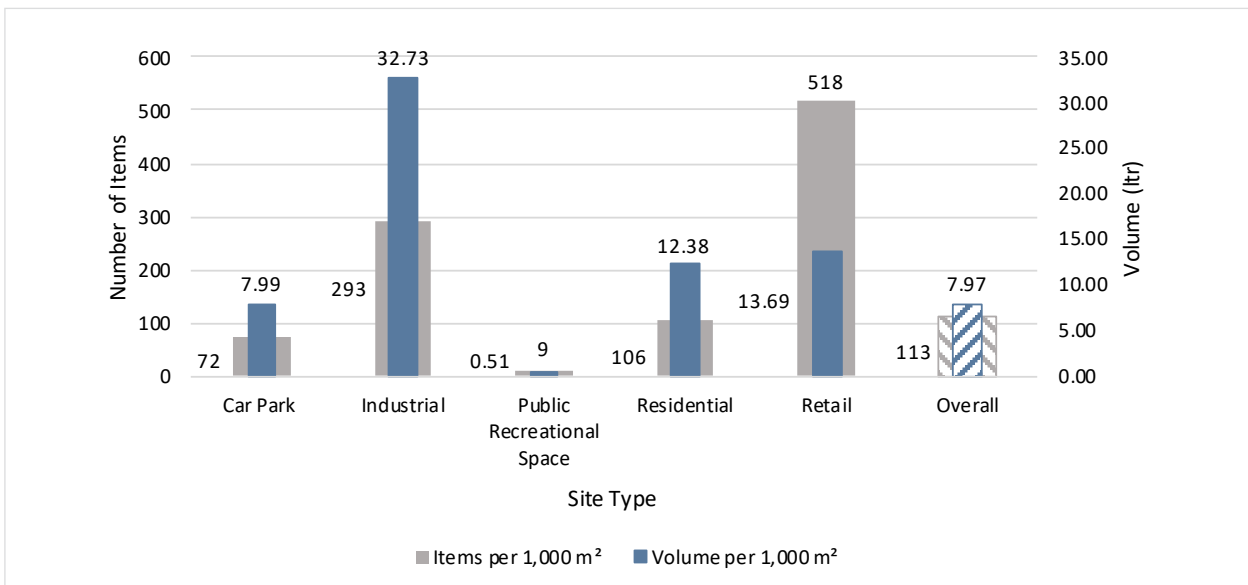

Figure 212: Gisborne/Hawke's Bay 2022, Items and Weight per 1,000 m² by Site Type
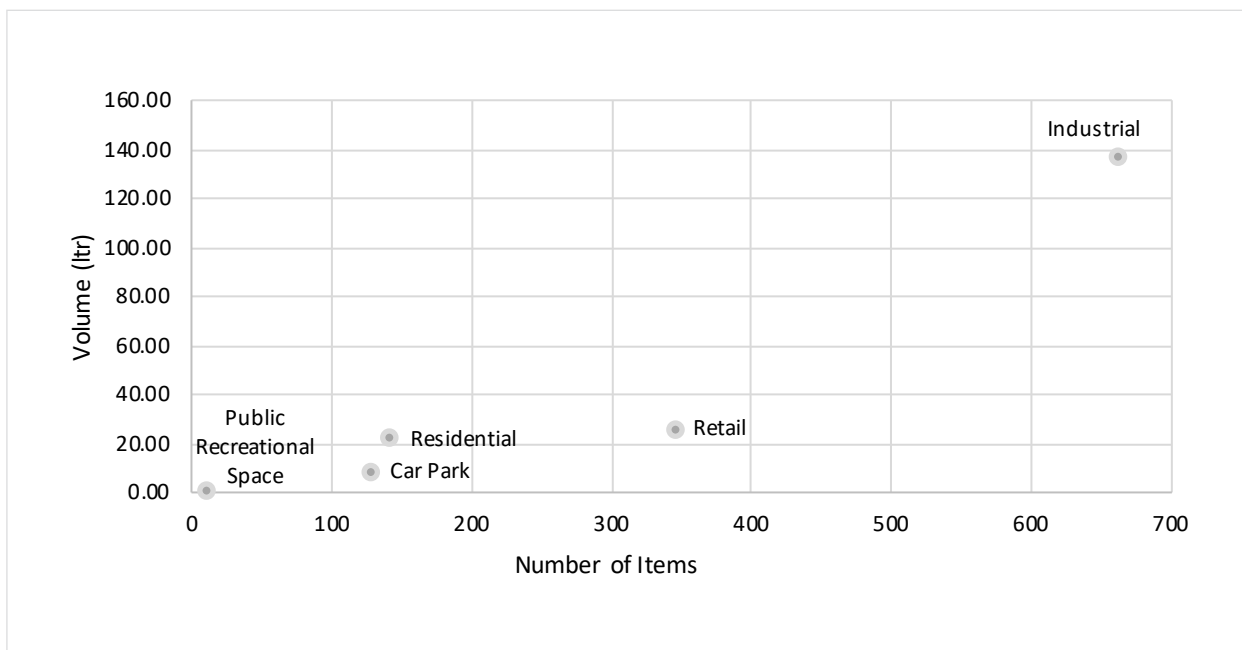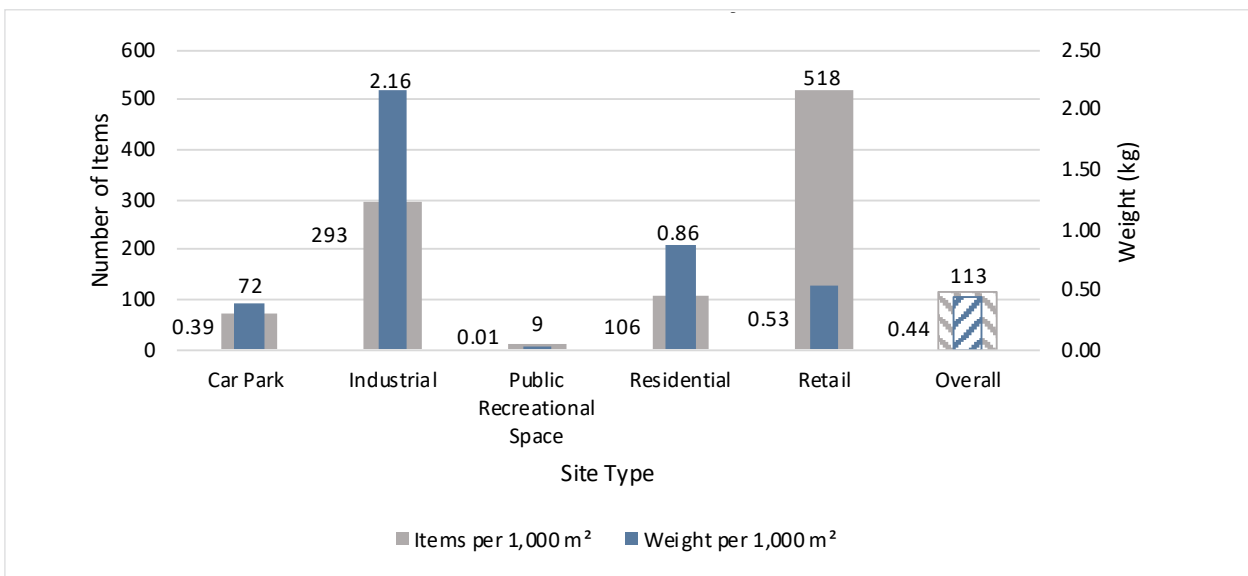
SITE CHARACTERISTICS

The following site characteristics across all site types (excluding Highway and Railway sites) were identified for litter items and volume per 1,000 m² in the Gisborne and Hawke's Bay regions:

- Industrial sites contributed high numbers of litter items and large litter volumes.
- Retail sites were associated with very high numbers of litter items and moderate to high litter volumes.
- Car Park sites contributed low to moderate numbers of litter items and moderate litter volumes.

- Residential sites were associated with moderate numbers of litter items and moderate to large litter volumes.
- Public Recreational Spaces were associated with low litter items and small litter volumes.

Figure 213: Gisborne/Hawke's Bay 2022, Items and Volume per 1,000 m² by Site Type

The following site characteristics across all site types (excluding Highway and Railway sites) were identified for litter items and weight per 1,000 m² in the Gisborne and Hawke's Bay regions:

- Industrial sites were associated with high numbers of litter items and large litter weights.
- Retail sites contributed very high numbers of litter items, but were associated with moderate litter weights.
- Car Park sites were associated with low to moderate numbers of litter items and moderate litter weights.

- Residential sites contributed moderate numbers of litter items and moderate to large litter weights.
- Public Recreational Spaces were associated with low numbers of litter items and small litter weights.

Figure 214: Gisborne/Hawke's Bay 2022, Items and Weight per 1,000 m² by Site Type
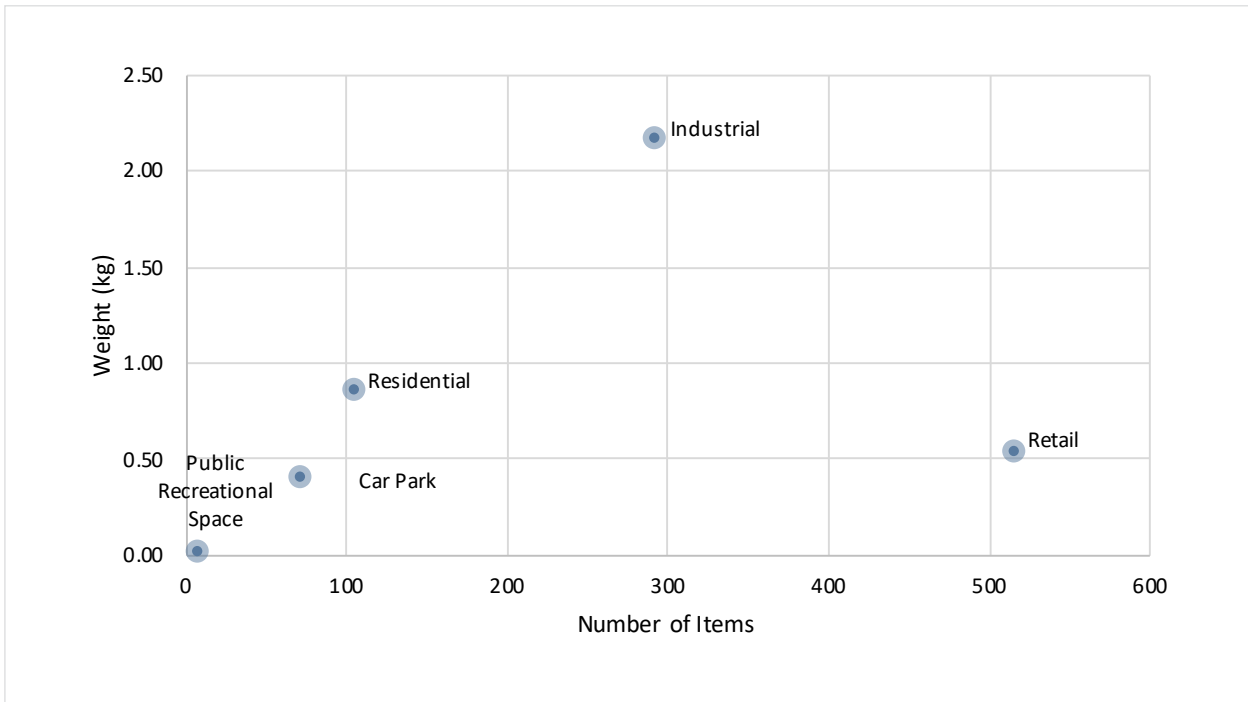
COMPARISON BY SITE TYPE OVER TIME

Since 2019, there have been increases in the number of litter items, estimated volume and weight of litter per 1,000 m² in the Gisborne and Hawke's Bay regions, with litter volume having the biggest increase (7.97 ltr vs. 3.81 ltr per 1,000 m² in 2019). Industrial, Residential and Retail sites have had the most noticeable increases in litter items, volume and weight per 1,000 m² since 2019.

ITEMS PER 1,000 M²

The number of litter items collected in the Gisborne and Hawke's Bay regions have increased since 2019 (113 items vs. 85 items per 1,000 m² in 2019). The biggest increase in the number of litter items since 2019 has been identified at Retail sites (518 items vs. 214 items per 1,000 m² in 2019). As shown in the graphs below, the number of litter items has remained relatively consistent in Car Park sites and Public Recreation Spaces.

Figure 215: Gisborne/Hawke's Bay, Items per 1,000 m² by Site Type: Comparison Over Time
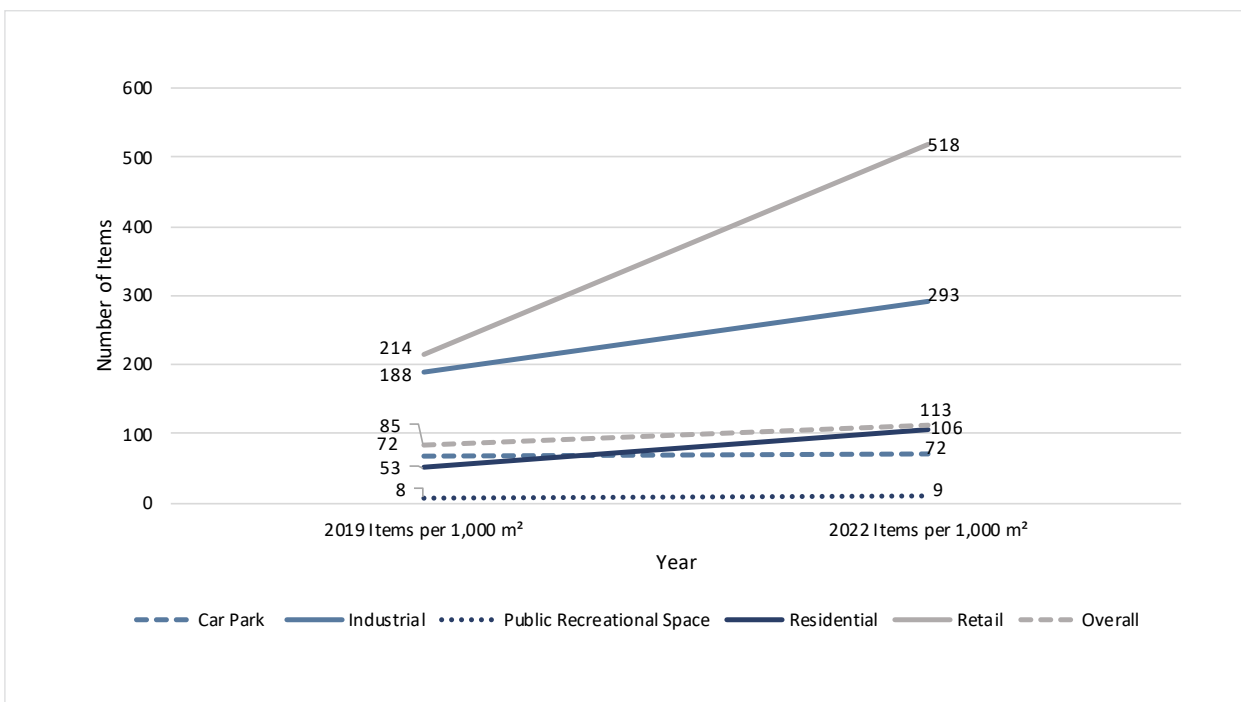
Figure 216: Gisborne/Hawke's Bay, Items per 1,000 m² by Site Type: Comparison Over Time
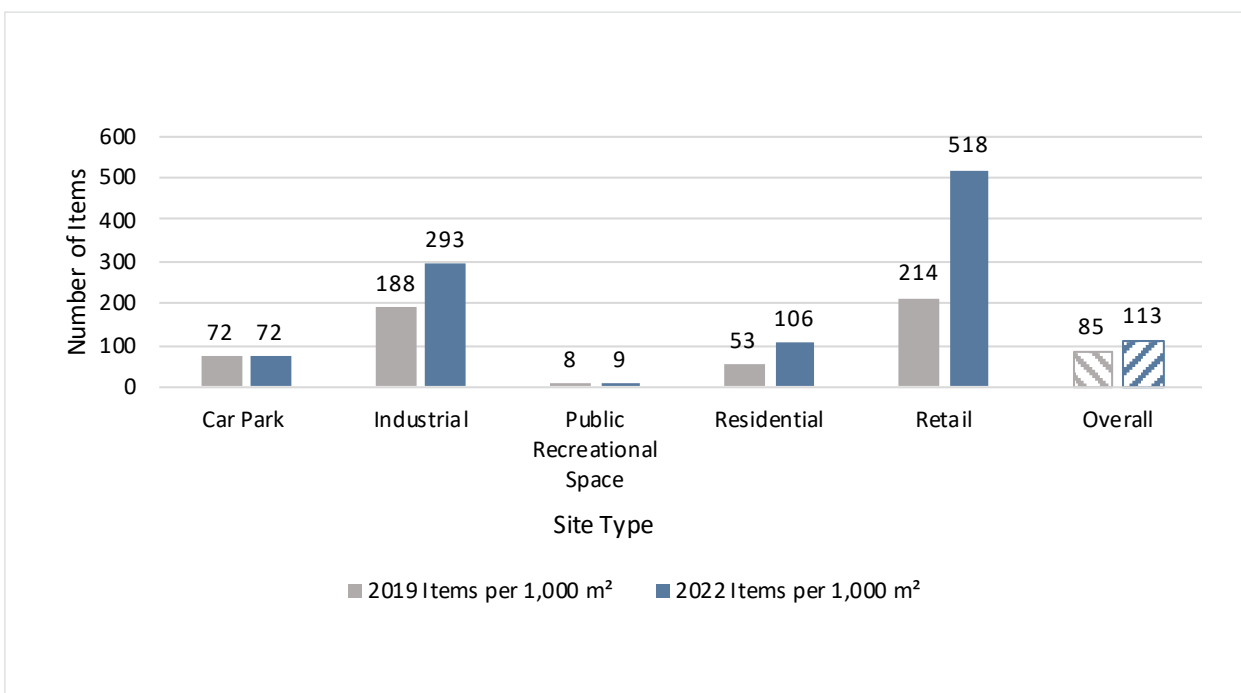
VOLUME PER 1,000 M²

Overall, litter volumes per 1,000 m² in the Gisborne and Hawke's Bay regions have increased by an average of 4.16 ltr since 2019. As shown in the graphs below, this increase is consistent across all site types, with the biggest increases being seen in Industrial (32.73 ltr vs. 10.11 ltr per 1,000 m² in 2019) and Retail (13.69 ltr vs. 5.36 ltr per 1,000 m² in 2019) sites.

Figure 217: Gisborne/Hawke's Bay, Volume per 1,000 m² by Site Type: Comparison Over Time
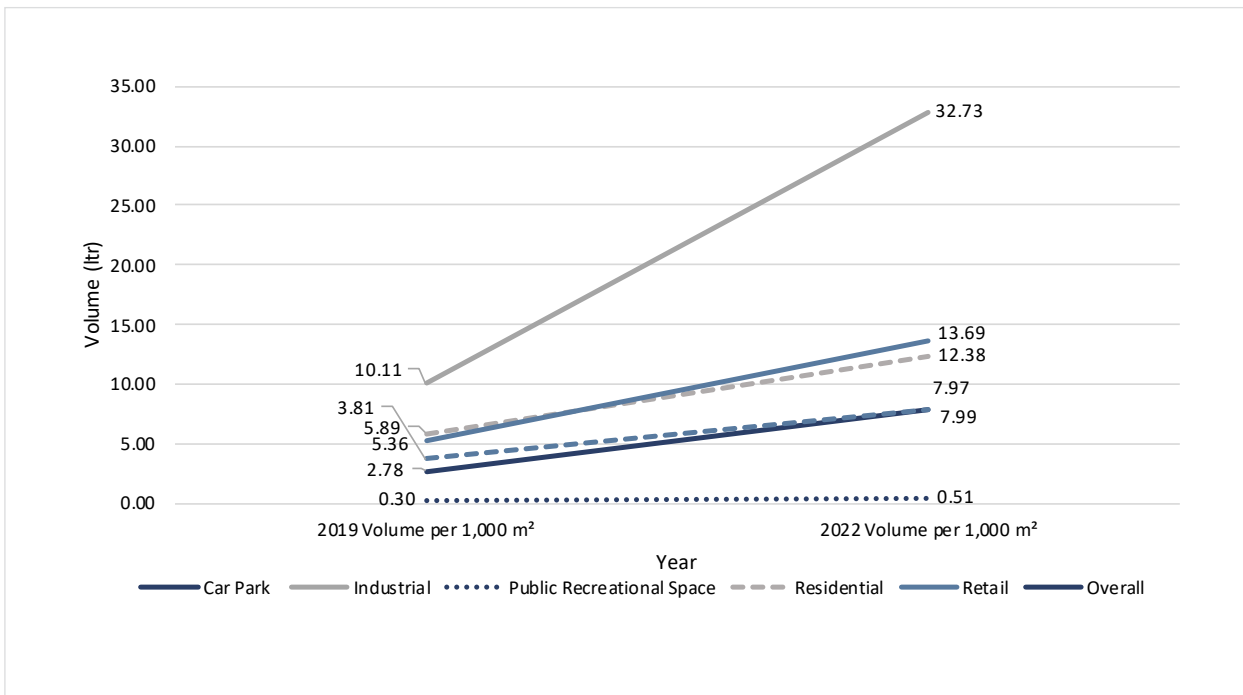
Figure 218: Gisborne/Hawke's Bay, Volume per 1,000 m² by Site Type: Comparison Over Time
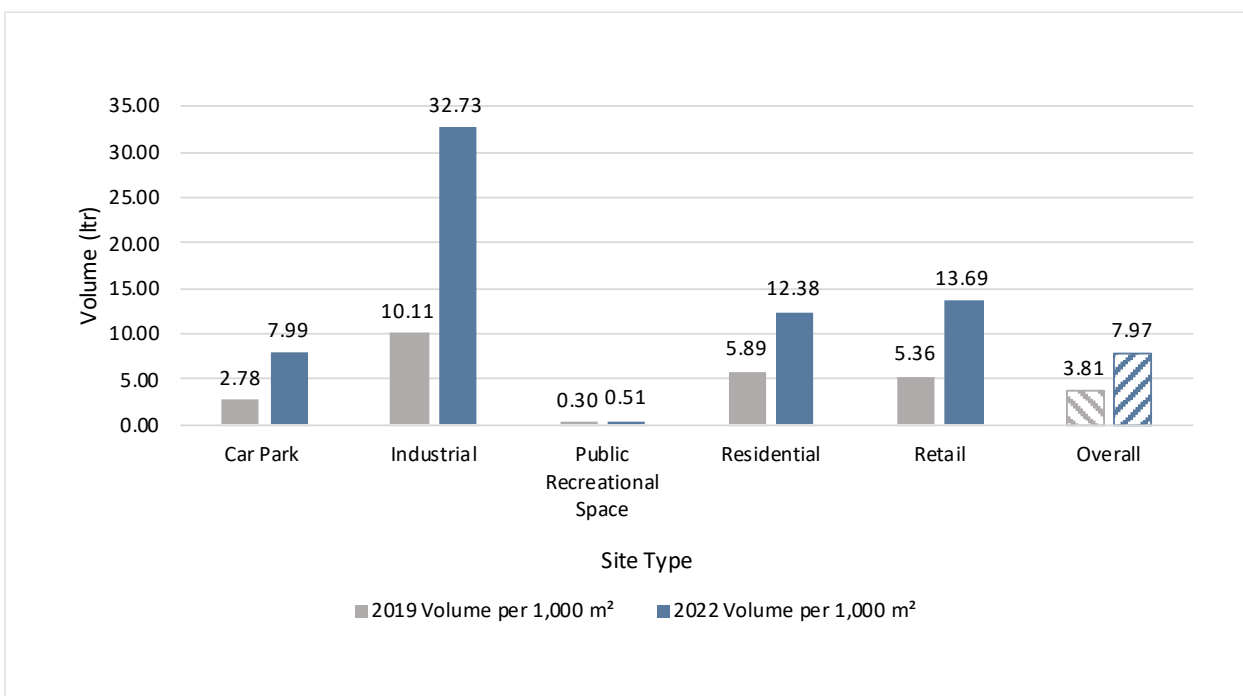
WEIGHT PER 1,000 M²

Overall, the litter weight in the Gisborne and Hawke's Bay regions has increased since 2019 (0.44 kg vs. 0.33 kg per 1,000 m² in 2019). As shown in the graphs below, the site types with the biggest increases in litter weight per 1,000 m² are Residential (0.86 kg vs. 0.24 kg in 2019), Retail (0.53 kg vs. 0.18 kg in 2019) and Industrial (2.16 kg vs. 1.19 kg in 2019) sites.

Figure 219: Gisborne/Hawke's Bay, Weight per 1,000 m² by Site Type: Comparison Over Time
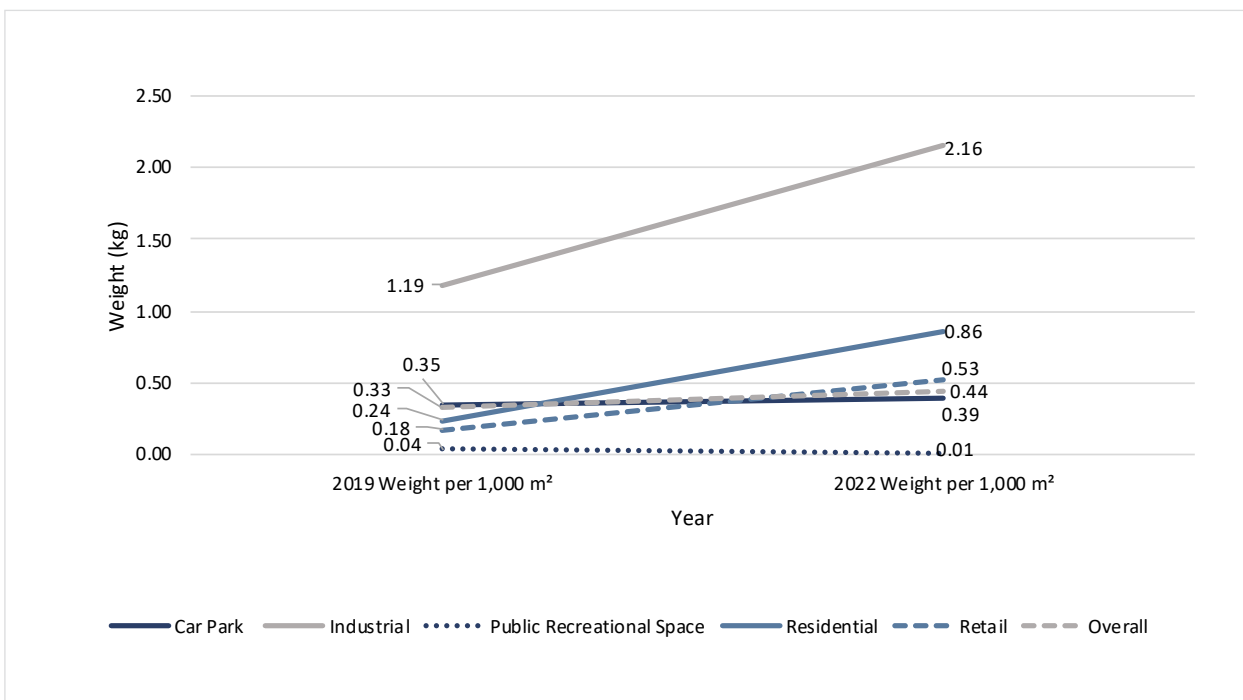
Figure 220: Gisborne/Hawke's Bay, Weight per 1,000 m² by Site Type: Comparison Over Time
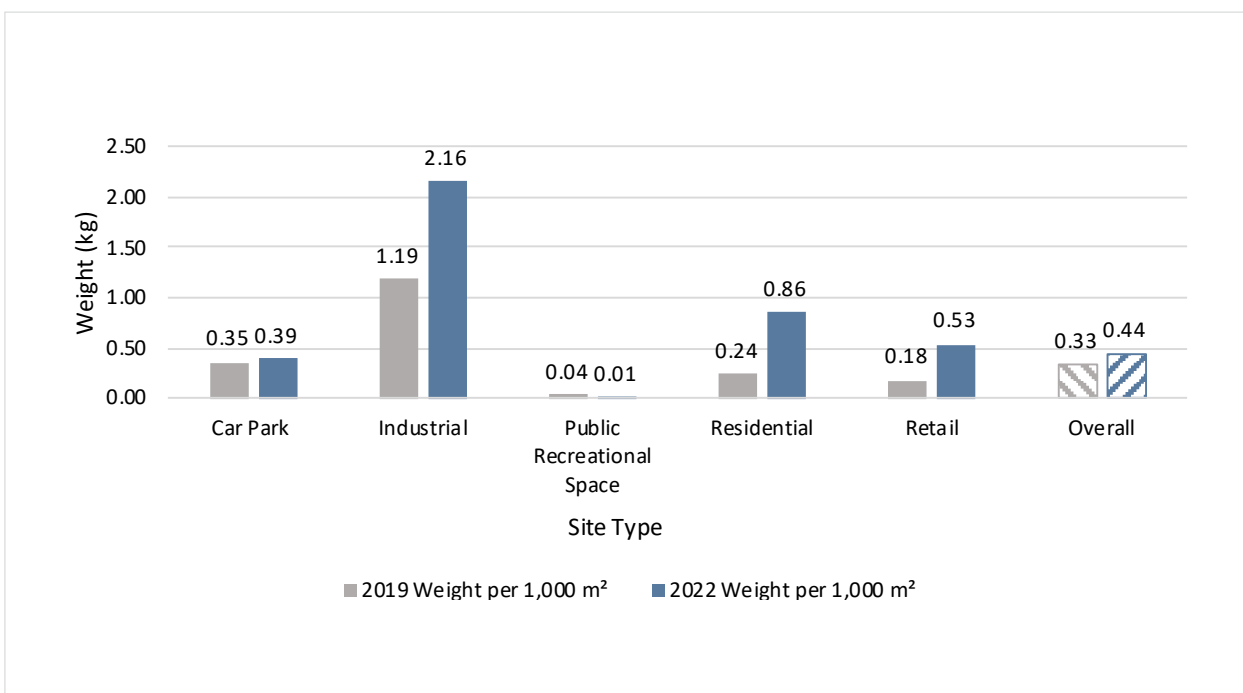
COMPARISON BY MAIN MATERIAL TYPES

Plastic (36 items) and Cigarette Butts/Vaping (32 items) were the most frequently identified material types per 1,000 m² in the Gisborne and Hawke's Bay regions. Smaller numbers of litter items were recorded for Metal (15 items), Miscellaneous (11 items), Paper/Cardboard (8 items), Glass (8 items) and Organic Waste (2 items).

Plastic contributed the largest amount of estimated volume to the litter stream per 1,000 m² (3.10 ltr) and Paper/Cardboard were the second largest contributors of litter volume (1.99 ltr). Moderate volumes were recorded for Organic Waste (1.36 ltr), whilst smaller volumes were recorded for Miscellaneous (0.73), Metal (0.47 ltr), and Glass (0.29 ltr). Cigarette Butts/Vaping items were associated with the smallest proportion of the overall litter volume per 1,000 m² (0.04 ltr).

The largest litter weights per 1,000 m² for the Gisborne and Hawke's Bay regions were associated with Miscellaneous (0.11 kg) and Plastic (0.10 kg). Metal (0.08 kg) and Glass (0.07) were the third and fourth highest contributors of weight to the litter stream. Smaller litter weights per 1,000 m² were recorded for Paper/Cardboard (0.04 kg), Organic Waste (0.03 kg) and Cigarette Butts/Vaping (0.01 kg).

There was no Illegal Dumping identified at the sites audited.

Figure 221: Gisborne/Hawke's Bay 2022, Items and Volume per 1,000 m² by Main Material Type
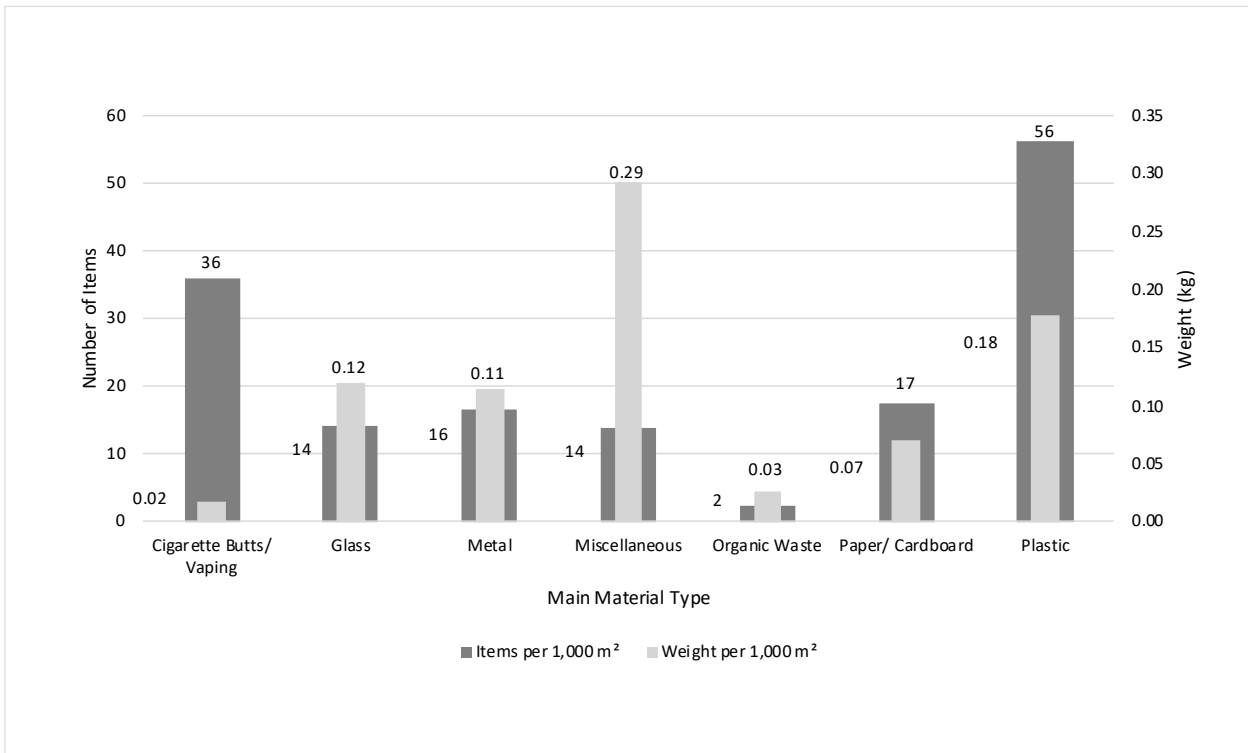

* No instances were recorded

■ Items per 1,000 m² ■ Volume per 1,000 m²
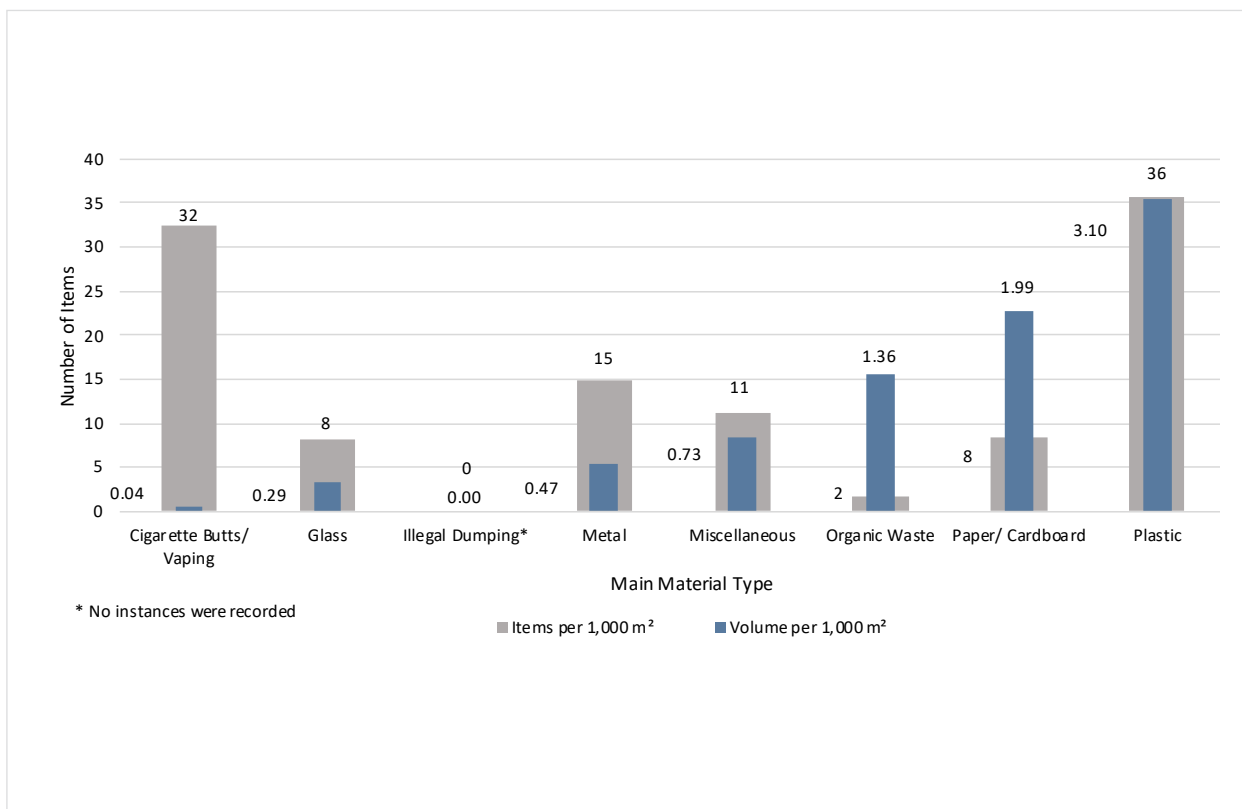
Figure 222: Gisborne/Hawke's Bay 2022, Items and Weight per 1,000 m² by Main Material Type
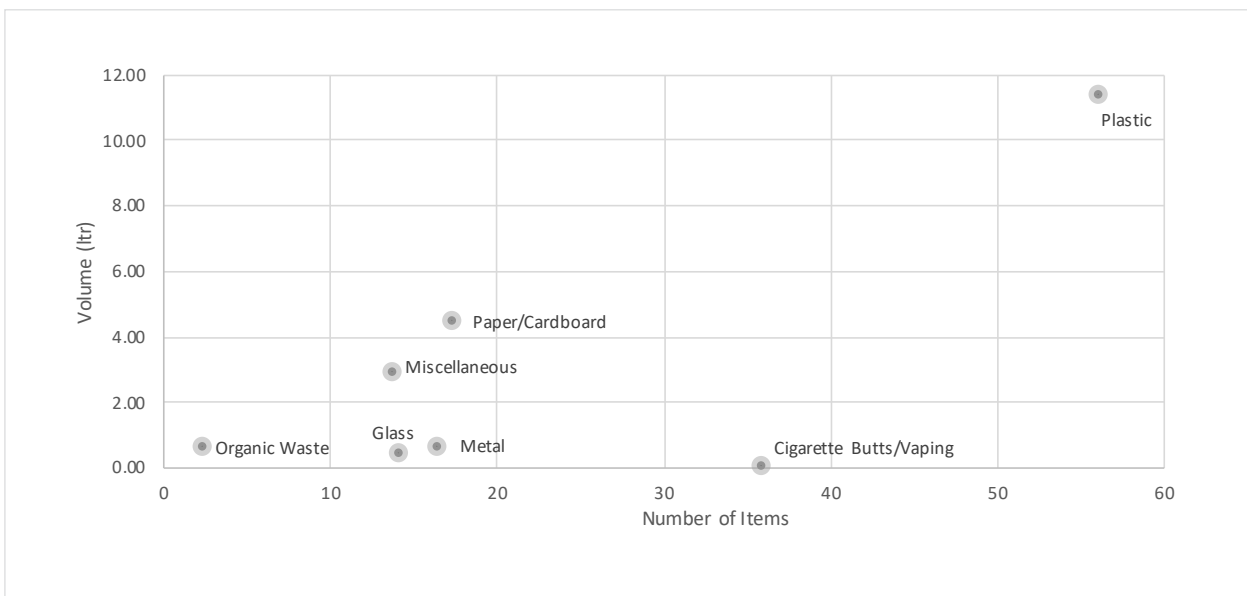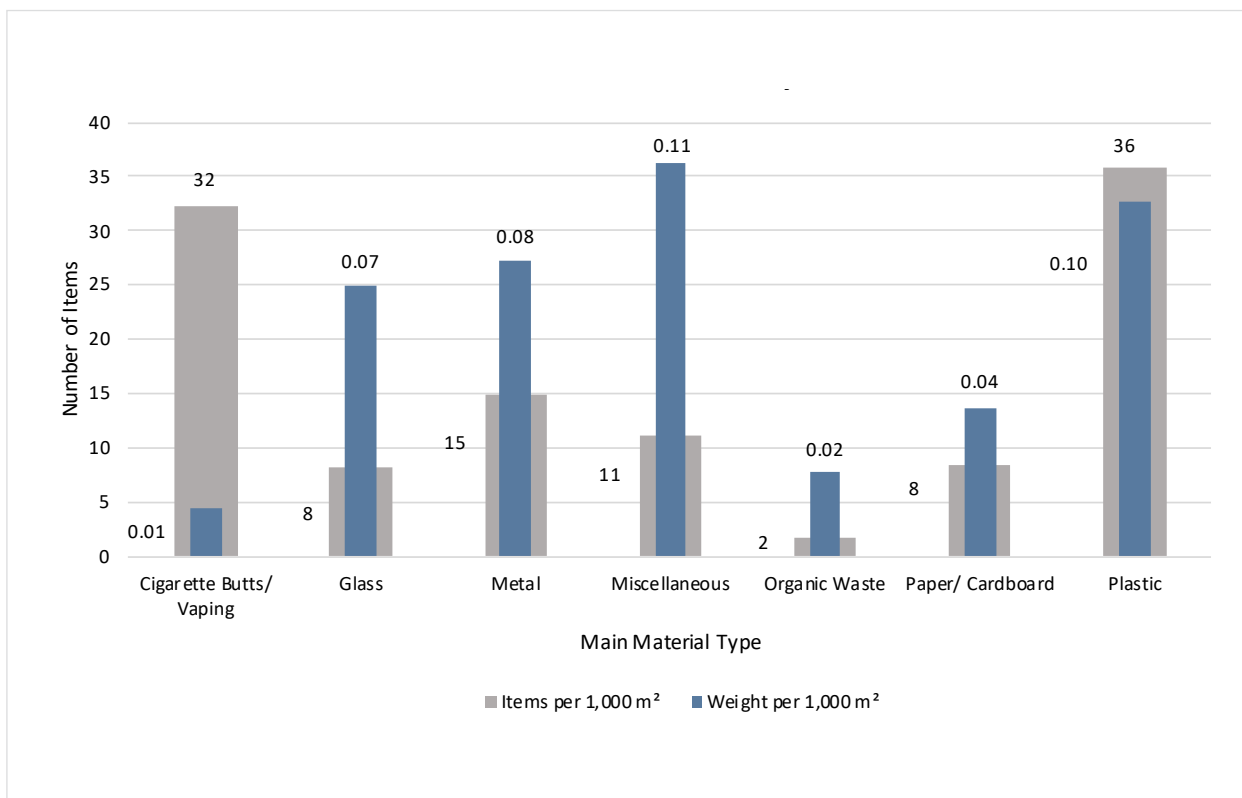

■ Items per 1,000 m² ■ Weight per 1,000 m²

MAIN MATERIAL CHARACTERISTICS

The following material type characteristics were identified for litter items and volume per 1,000 m² in the Gisborne and Hawke's Bay regions (excluding Highway and Railway sites):

- Plastic contributed high numbers of litter items and large litter volumes.

- Paper/Cardboard was associated with low to moderate numbers of litter items and large litter volumes.

- Metal contributed moderate numbers of litter items and small volumes.

- Glass contributed low to moderate numbers of litter items and small litter volumes.

- Miscellaneous items contributed moderate numbers of litter items and small to moderate litter volumes.

- Cigarette Butts/Vaping was associated with a high number of litter items, but contributed only low litter volumes.

- Organic Waste was associated with small numbers of litter items and moderate volumes of litter.

Figure 223: Gisborne/Hawke's Bay 2022, Items and Volume per 1,000 m² by Main Material Type
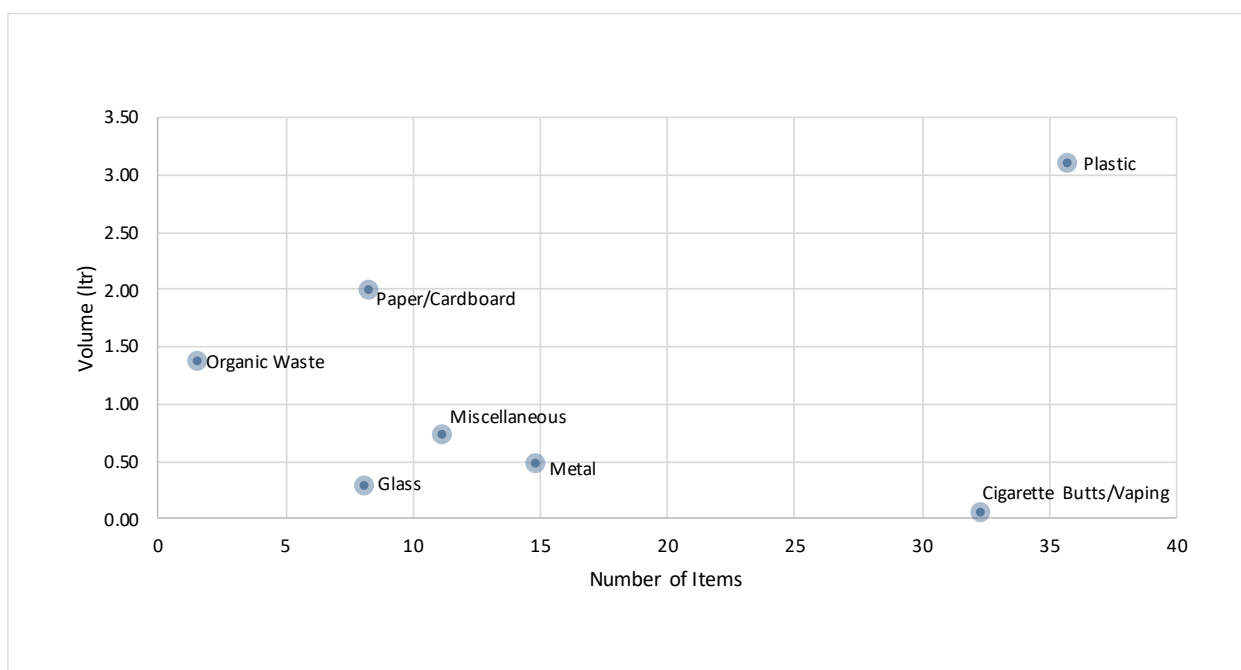
The following material type characteristics were identified for litter items and weight per 1,000 m² in the Gisborne and Hawke's Bay regions (excluding Highway and Railway sites):

- Miscellaneous items were associated with moderate numbers of litter items, but contributed the largest litter weights.

- Plastic was associated with high numbers of litter items and large litter weights.

- Cigarette Butts/Vaping contributed high numbers of litter items, but small litter weights.

- Metal was associated with moderate numbers of litter items and high litter weights.

- Glass was associated with low to moderate numbers of litter items and high litter weights.

- Paper/Cardboard contributed low to moderate numbers of litter items and moderate litter weights.

- Organic Waste contributed low numbers of litter items and small litter weights.

Figure 224: Gisborne/Hawke's Bay 2022, Items and Weight per 1,000 m² by Main Material Type
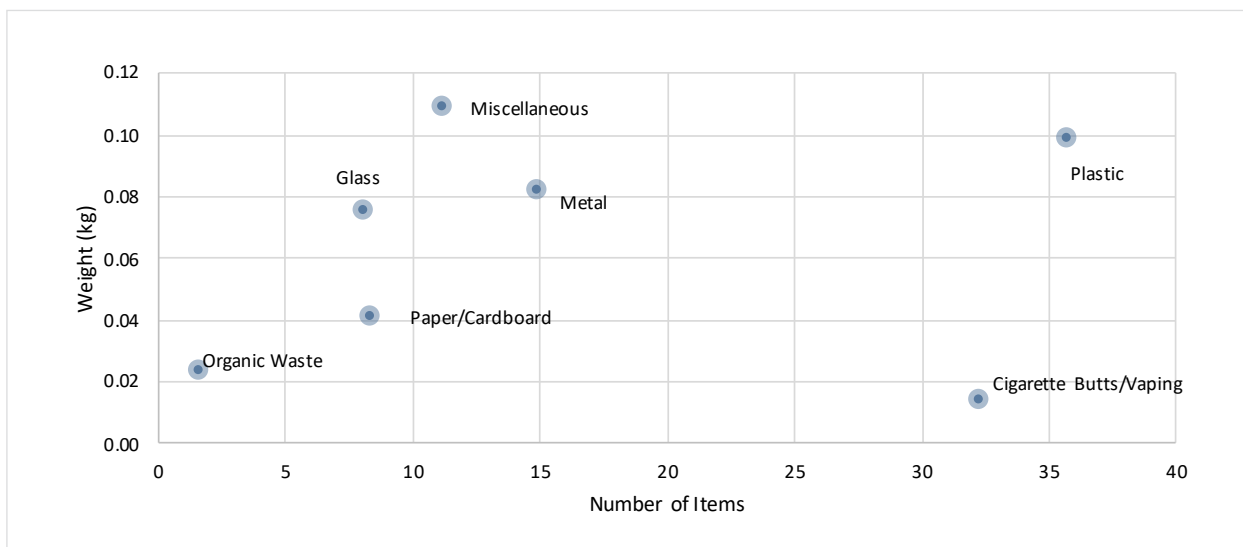
COMPARISONS BY MAIN MATERIAL TYPE OVER TIME

Compared with 2019, the main material types, Plastic, Cigarette Butts/Vaping and Organic Waste have seen increases across all three measures, including number of litter items, estimated volume and weight per 1,000 m².

Whilst the number of litter items and litter volume have remained much the same, the litter weight of items classified under Glass has decreased by 0.05 kg per 1,000 m² since 2019.

ITEMS PER 1,000 M²

Since 2019, there has been a decline in the number of litter items collected per 1,000 m² classified under Paper/ Cardboard (8 items vs. 12 items in 2019). The number of

litter items have increased across all other material types since 2019, with larger increases identified for Miscellaneous items, Plastic, Metal and Cigarette Butts/Vaping.

Figure 225: Gisborne/Hawke's Bay, Items per 1,000 m² by Main Material Type: Comparison Over Time
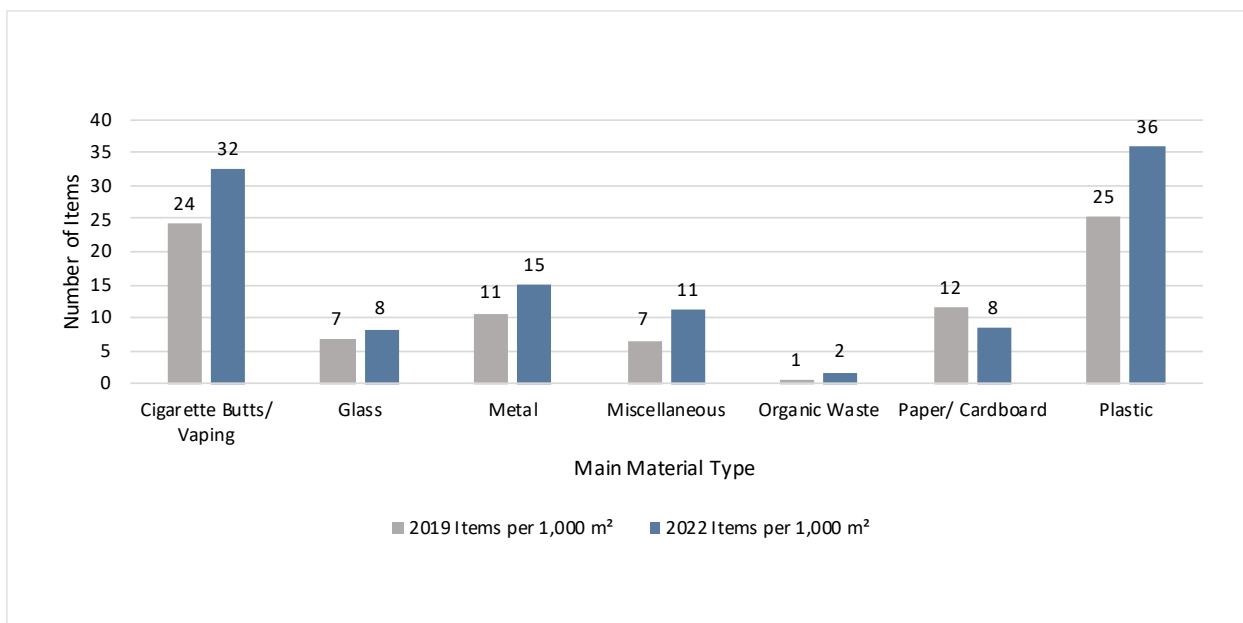
VOLUME PER 1,000 M²

Since 2019, the biggest increases in the litter volume of material types per 1,000 m² in Gisborne and Hawke's Bay regions can be seen in Plastic (3.10 ltr vs. 0.61 ltr in 2019), Organic Waste (1.36 ltr vs. 0.02 ltr in 2019), and

Paper/Cardboard (1.99 ltr vs. 1.04 ltr in 2019). There has been a decrease in the litter volume per 1,000 m² of Miscellaneous items (0.73 ltr vs. 1.10 ltr in 2019) and Metal (0.47 ltr vs. 0.77 ltr in 2019).

Figure 226: Gisborne/Hawke's Bay, Volume per 1,000 m² by Main Material Type: Comparison Over Time
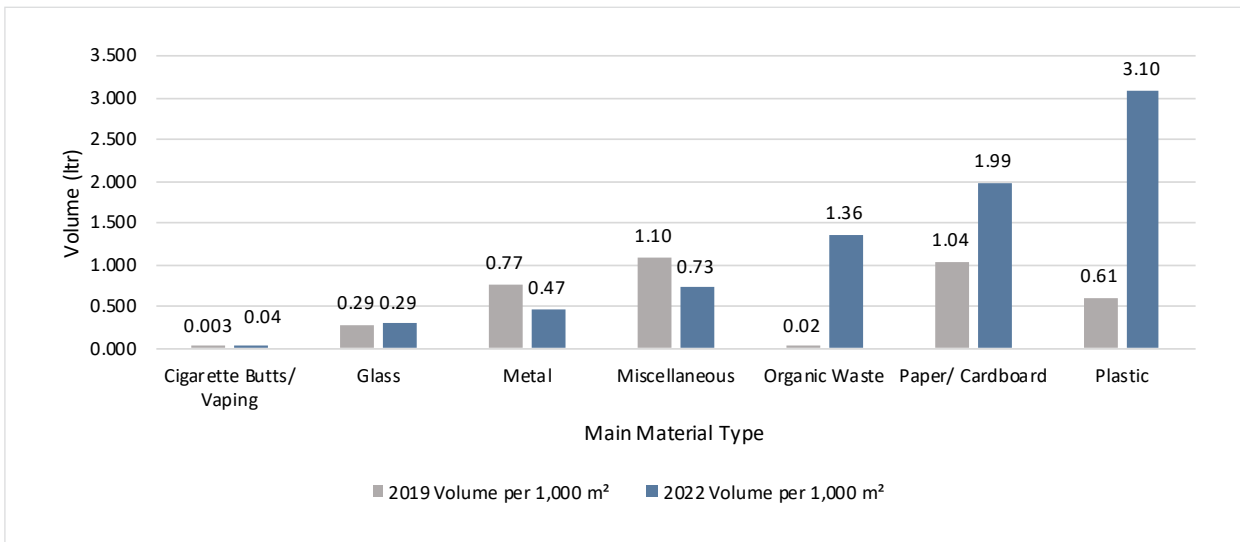
WEIGHT PER 1,000 M²

Compared with 2019, most material types in the Gisborne and Hawke's Bay regions have seen an increase in litter weight per 1,000 m². The largest increase was recorded for Miscellaneous items (0.11 kg vs. 0.02 kg per

1,000 m² in 2019). The litter weight of items per 1,000 m² classified under Glass has decreased since 2019 (0.07 kg vs. 0.12 kg per 1,000 m² in 2019).

Figure 227: Gisborne/Hawke's Bay, Weight per 1,000 m² by Main Material Type: Comparison Over Time
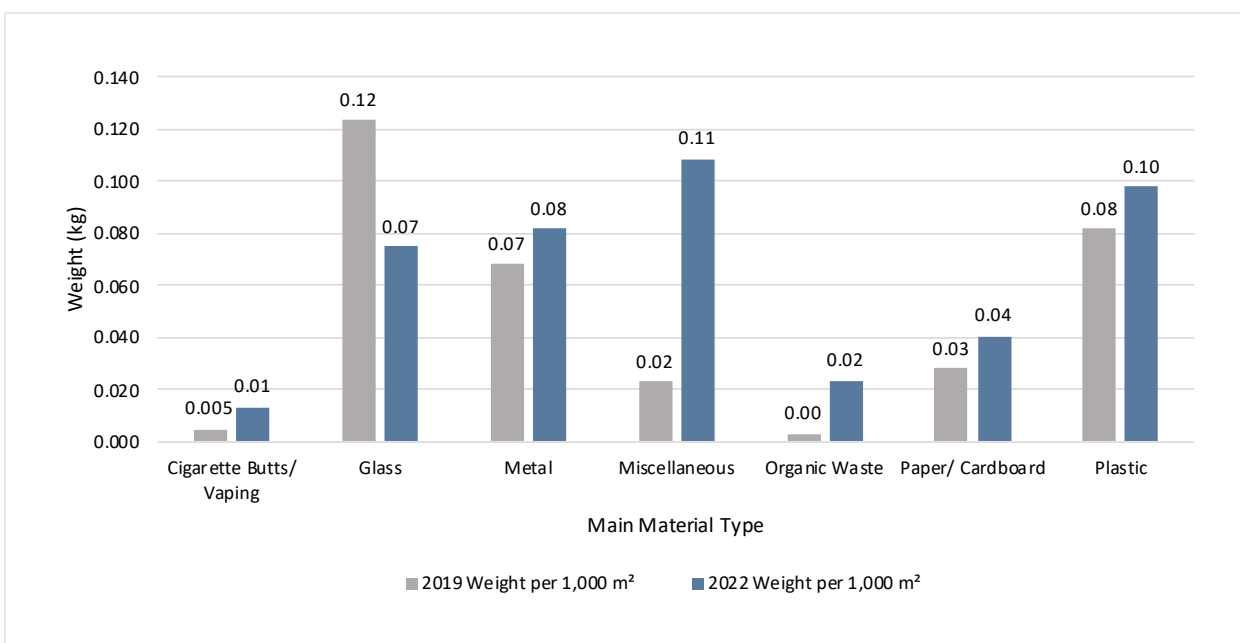
SITE TYPES BY MAIN MATERIAL TYPE

In the Gisborne and Hawke's Bay regions, the number of material type litter items collected per 1,000 m2 at the different site types (excluding Highway and Railway sites) was as follows:

- Car Park sites: Plastic (25 items), Metal (16 items), Miscellaneous (11 items), Cigarette Butts/Vaping (10 items), Paper/Cardboard (4 items), Glass (3 items), Organic Waste (2 items) and Illegal Dumping (0 items).

- Industrial sites: Plastic (108 items), Glass (49 items), Metal (48 items), Cigarette Butts/Vaping (41 items), Miscellaneous (27 items), Paper/Cardboard (19 items), Organic Waste (1 item) and Illegal Dumping (0 items).

- Public Recreational Spaces: Plastic (6 items), Miscellaneous (2 items), Metal (0 items), Paper/Cardboard (0 items), Cigarette Butts/Vaping (0 items), Glass (0 items), Organic Waste (0 items) and Illegal Dumping (0 items).

- Residential sites: Plastic (44 items), Metal (23 items), Paper/Cardboard (12 items), Glass (12 items), Miscellaneous (10 items), Cigarette Butts/Vaping (3 items), Organic Waste (2 items) and Illegal Dumping (0 items).

- Retail sites: Cigarette Butts/Vaping (252 items), Plastic (120 items), Paper/Cardboard (43 items), Miscellaneous (40 items), Metal (37 items), Glass (18 items), Organic Waste (8 items), Illegal Dumping (0 items).

Figure 228: Gisborne/Hawke's Bay 2022, Sites by Main Material Type: Items per 1,000 m²

*No instances were recorded
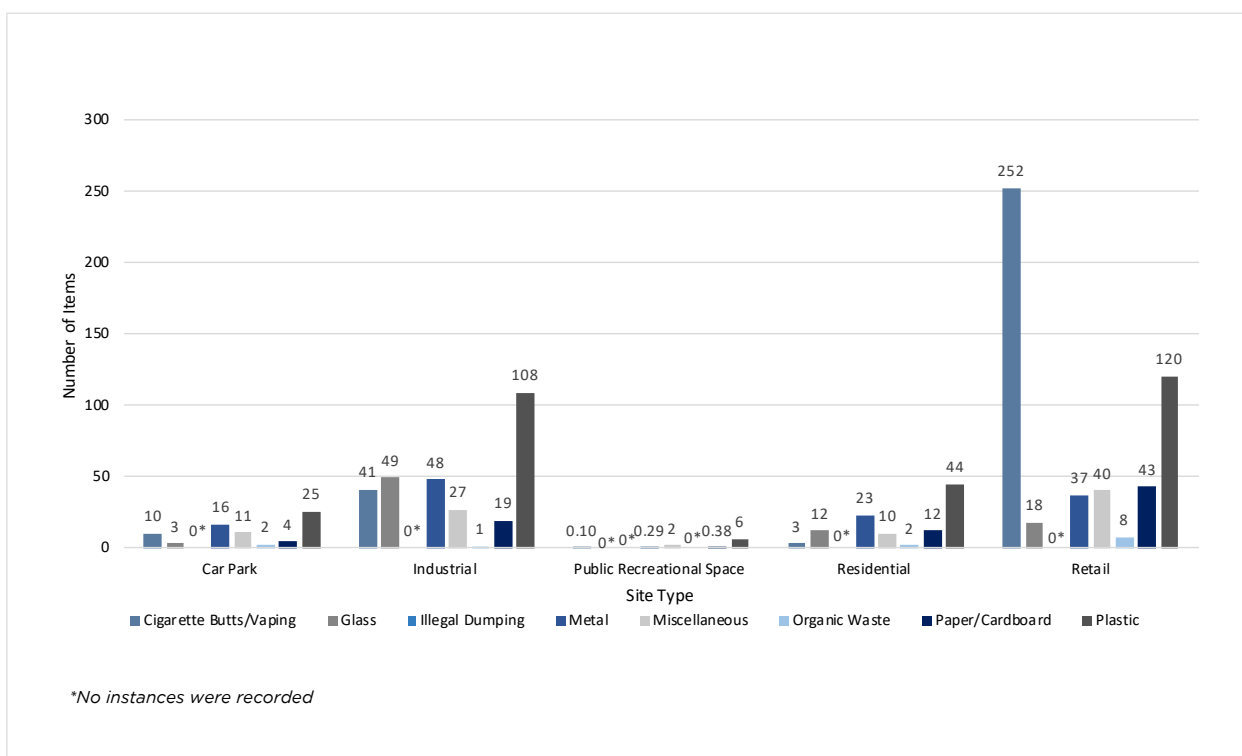
THE DIRTY DOZEN

Across the Gisborne and Hawke's Bay region, Cigarette/Vaping: Cigarette butts were the most frequently identified litter item with 32 butts recorded per 1,000 m².

Other litter items frequently identified included:

- Plastic: Unidentifiable hard plastic fragments (10 items per 1,000 m²)
- Plastic: Unidentifiable soft plastic fragments (9 items per 1,000 m²)
- Glass: Unidentifiable glass fragments (8 items per 1,000 m²)

Not all material subcategories were comparable to the 2019 NLA due to the addition of new subcategories in 2022.

Amongst the comparable material subcategories, the number of Cigarette/Vaping Cigarette butts collected per 1,000 m² in the Gisborne and Hawke's Bay regions has increased since 2019 (32 items vs. 24 items in 2019), and the number of Metal: Bottle caps, lids & pull tabs has slightly increased (5 items vs. 3 items in 2019).

Figure 229: Gisborne/Hawke's Bay, Dirty Dozen, Items per 1,000 m², Material Subcategories: Comparison Over Time
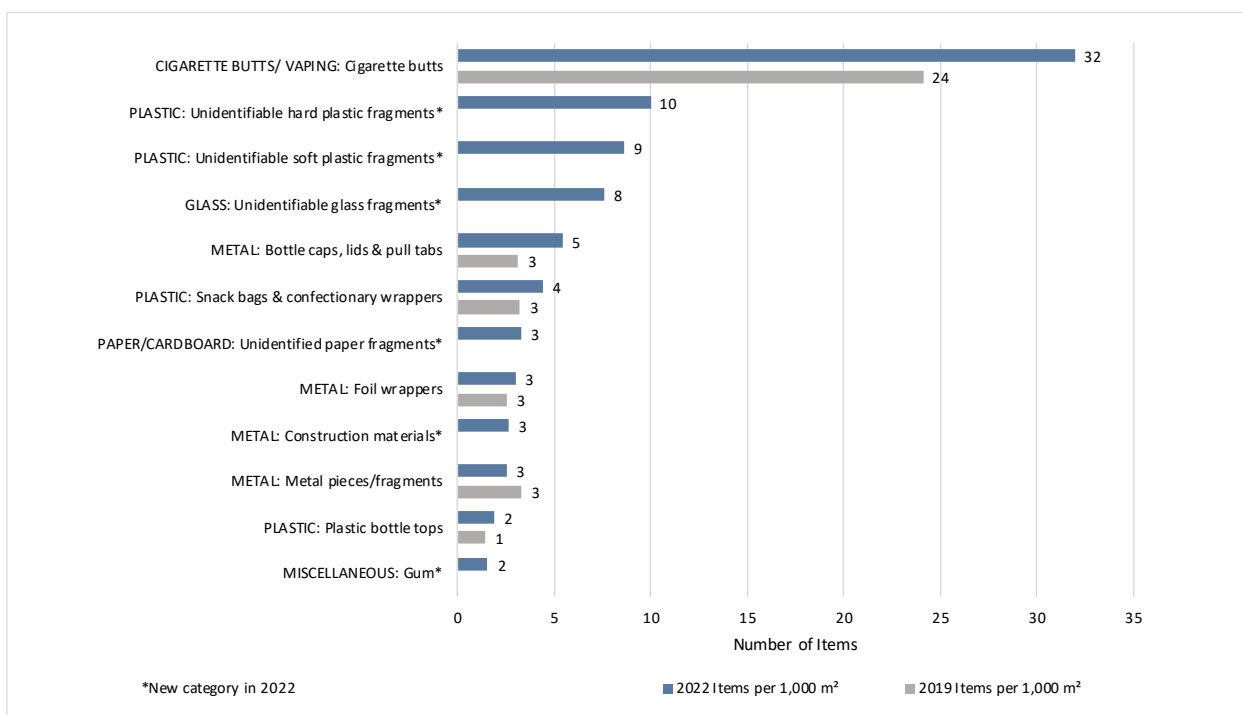
The largest contributor to the estimated volume of the litter stream in the Gisborne and Hawke's Bay regions was Organic Waste: Compostable packaging, with an average litter volume of 1.31 ltr per 1,000 m².
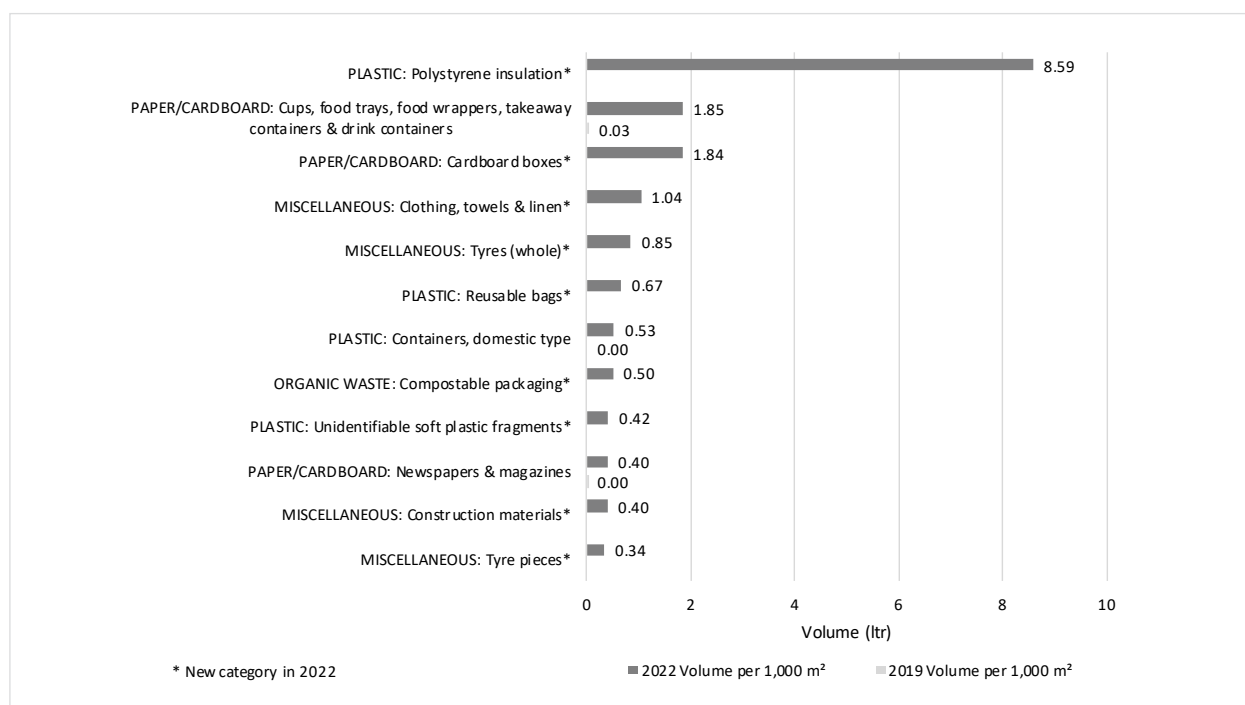
Other material subcategories which were associated with large litter volumes per 1,000 m² were:

- Paper/Cardboard: Cups, food trays, food wrappers, takeaway & drink containers (1.10 ltr per 1,000 m²)
- Plastic: Containers domestic type (0.70 ltr per 1,000 m²)
- Paper/Cardboard: Newspapers & magazines (0.69 ltr per 1,000 m²)

- Plastic: Reusable bags (0.65 ltr per 1,000 m²)

Not all material subcategories were comparable to the 2019 NLA due to the addition of new subcategories in 2022.

Amongst the comparable material subcategories, and as shown in the graph below, the biggest differences in litter volume between 2019 and 2022 can be seen in Paper/Cardboard: Newspapers & magazines which has increased by 0.49 ltr per 1,000 m² since 2019, and Paper/Cardboard: Cups, food trays, food wrappers, takeaway containers & drink containers which has increased by 0.45 ltr per 1,000 m² since 2019.

Figure 230: Gisborne/Hawke's Bay, Dirty Dozen, Volume per 1,000 m², Material Subcategories: Comparison Over Time
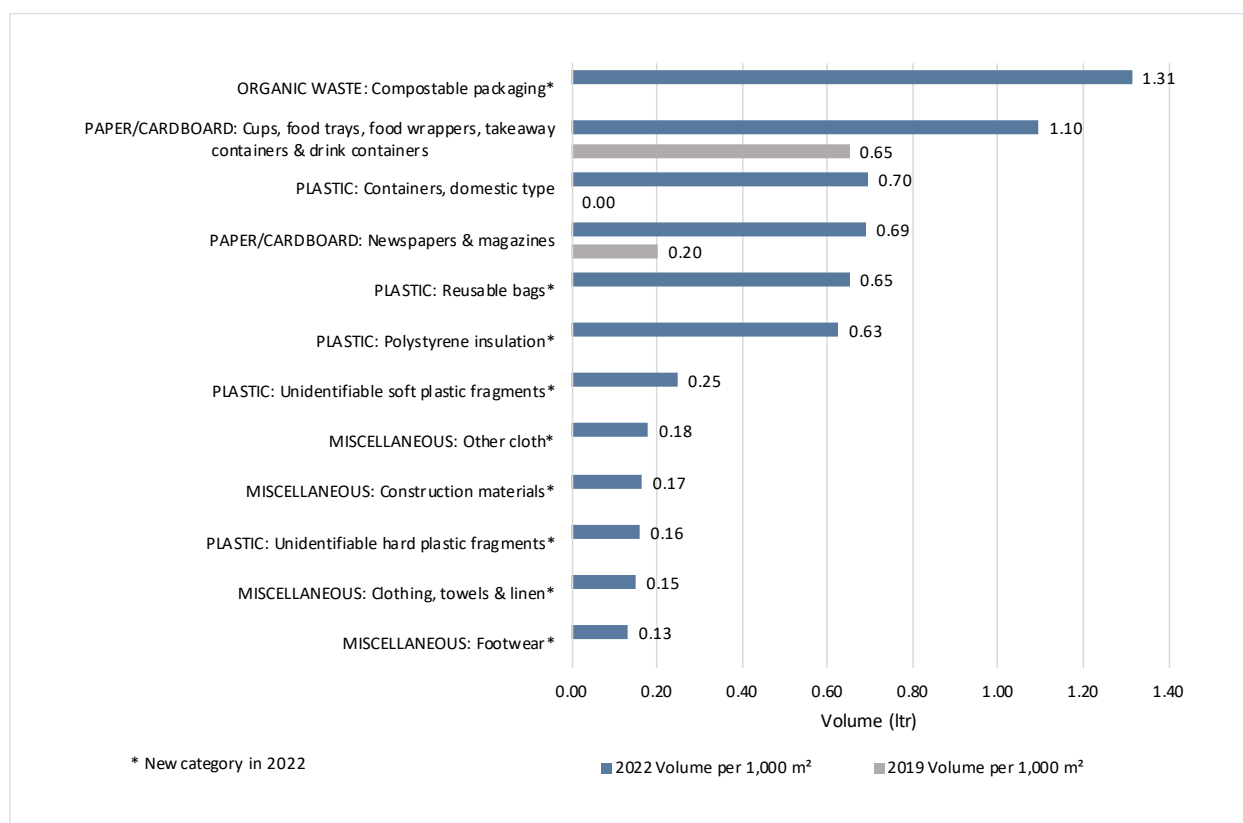
The largest material subcategory contributor to the litter weight of the overall regional litter stream was Miscellaneous: Cloth (other), recording an average weight of 0.03 kg per 1,000 m².

Other material subcategories which were associated with higher litter weights included:

- Glass: Alcoholic sodas/spirit-based mixers, all sizes (0.03 kg per 1,000 m²)
- Glass: Unidentifiable glass fragments (0.03 kg per 1,000 m²)
- Metal: Metal pieces/fragments (0.02 kg per 1,000 m²)

Not all material subcategories were comparable to the 2019 NLA due to the addition of new subcategories in 2022.

Amongst the comparable material subcatergoties, there were many new material subcategories in 2022 compared with 2019. The largest decrease in litter weight in the Gisborne and Hawke's Bay regions was in the weight of Glass: Alcoholic sodas/spirit-based mixers collected per 1,000 m² (0.03 kg vs. 0.08kg in 2019).

Figure 231: Gisborne/Hawke's Bay, Dirty Dozen, Weight per 1,000 m², Material Subcategories: Comparison Over Time
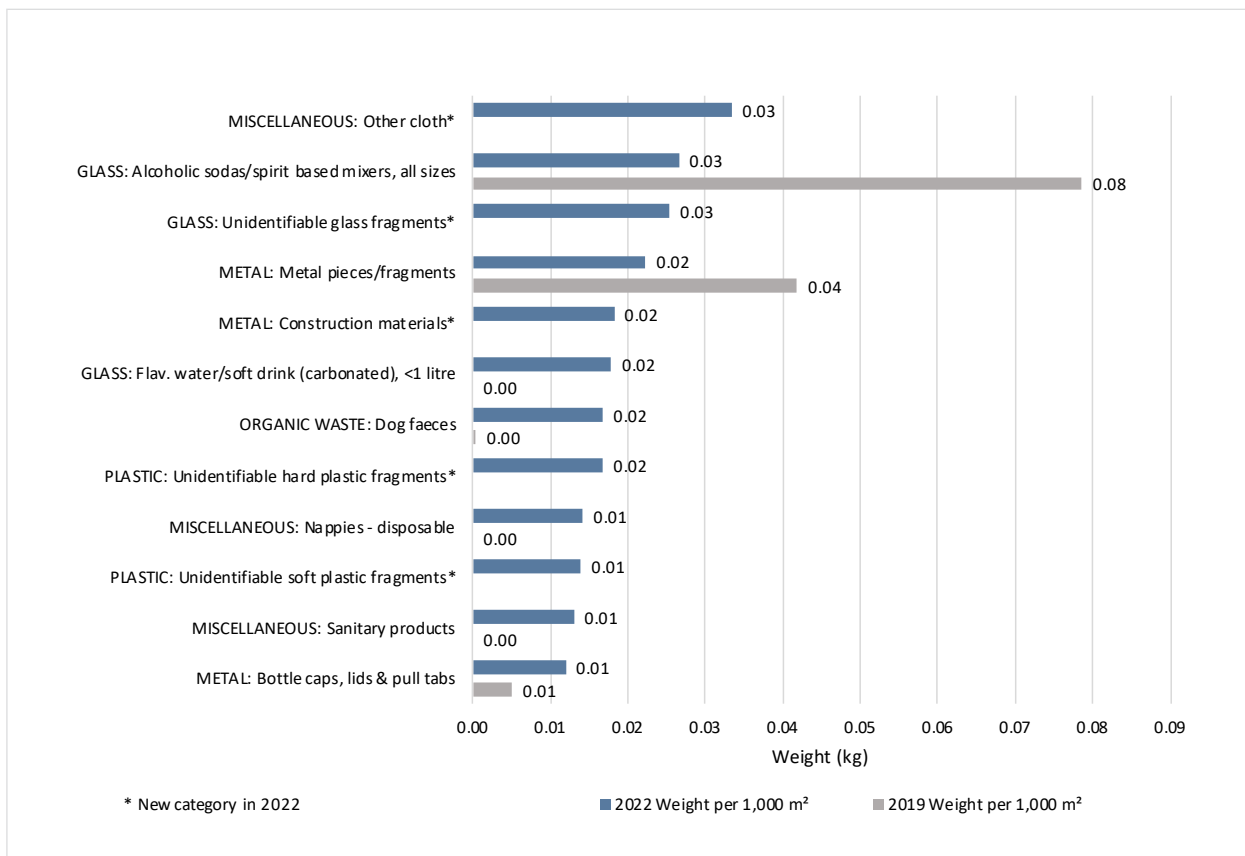
TERRITORIAL SUMMARIES

The Gisborne region is a Unitary Authority and due to its size and population, was included with Hawke's Bay for the purposes of the NLA. There are five 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 Spaces) were audited in the Gisborne and Hawke's Bay regions with a minimum of five sites audited from each territory.

Extract from Table 5, 2022 Territory Data: Gisborne and Hawke's Bay Regions (Excluding Highway and Railway Sites)

Territory	Total Area Audited (m²)	Items per 1,000 m²	Weight (kg) per 1,000 m²	Volume (ltr) per 1,000 m²
GISBORNE AND HAWKE'S BAY REGION				
Gisborne Region	5,300	168	0.37	12.91
Central Hawke's Bay District	4,400	121	0.68	10.35
Hastings District	4,850	72	0.52	8.80
Napier City	4,700	108	0.26	3.22
Wairoa District	4700	90	0.39	4.05
Gisborne and Hawke's Bay Regions Overall	**23,950**	**113**	**0.44**	**7.97**

SITE GRADINGS

All sites were assigned gradings in four 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 Gisborne and Hawke's Bay region.

Extract from Table 3, Risk and Litter Distribution: Gisborne and Hawke's Bay (Excluding Highway and Railway Sites)

	Risk Present		Litter Distribution	
Gisborne and Hawke's Bay	Moderate hazard or risk	Significant hazard or risk	Widespread	Clustered
	100%	0%	88%	12%

Figure 232: Gisborne/Hawke's Bay 2022, Grading: Visual Site Ratings (Excluding Highway and Railway Sites)
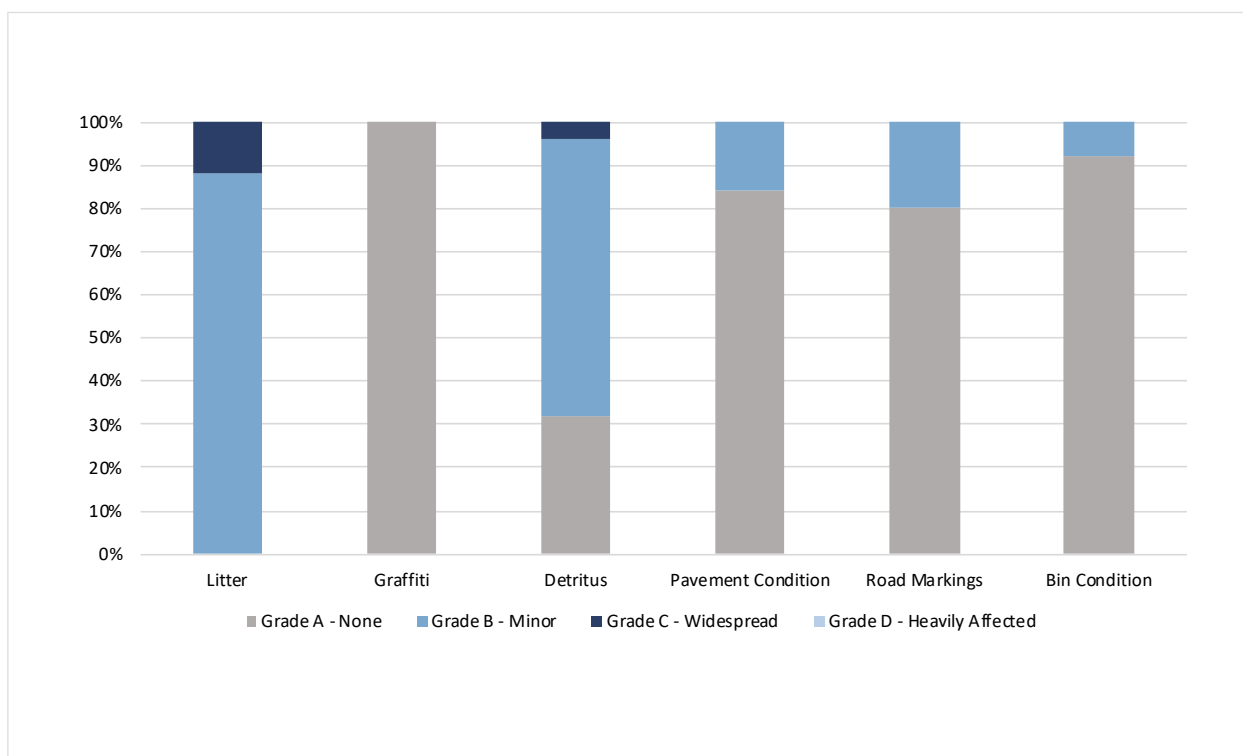
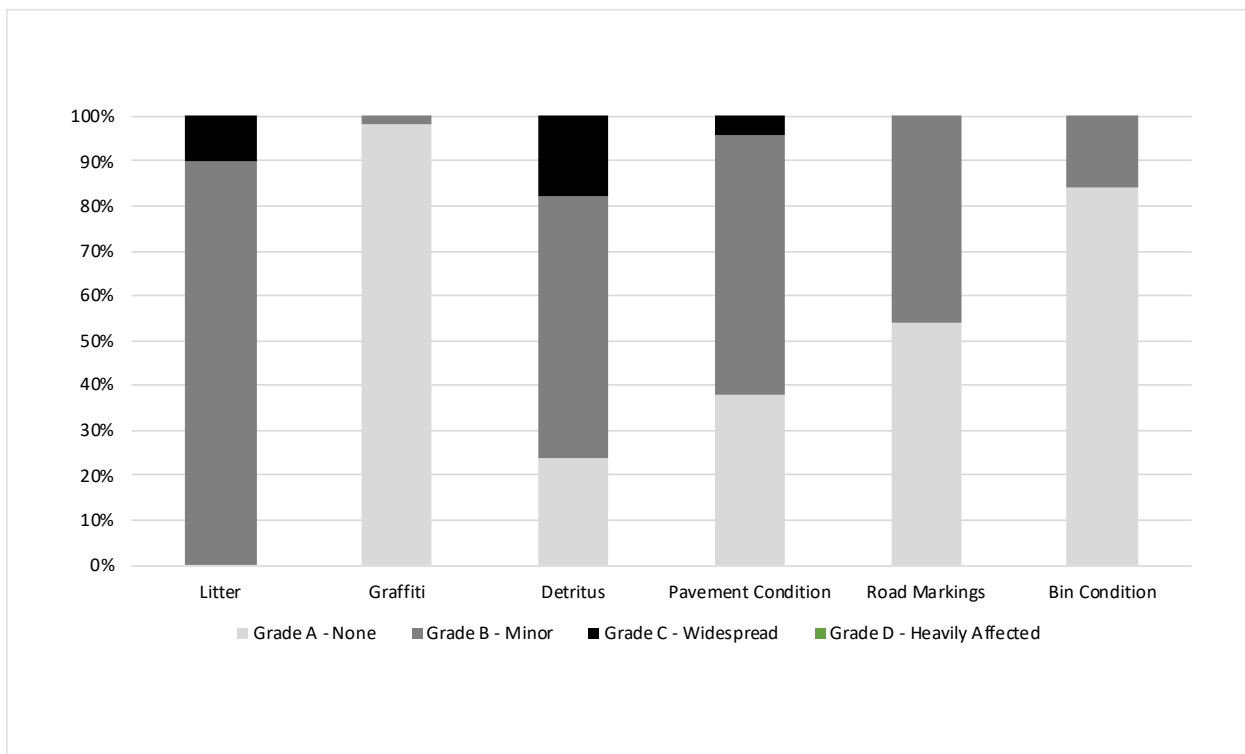*Figure 233: Gisborne/Hawke's Bay 2022, Grading: Site Litter Hotshots Ratings (Excluding Highway and Railway Sites)*
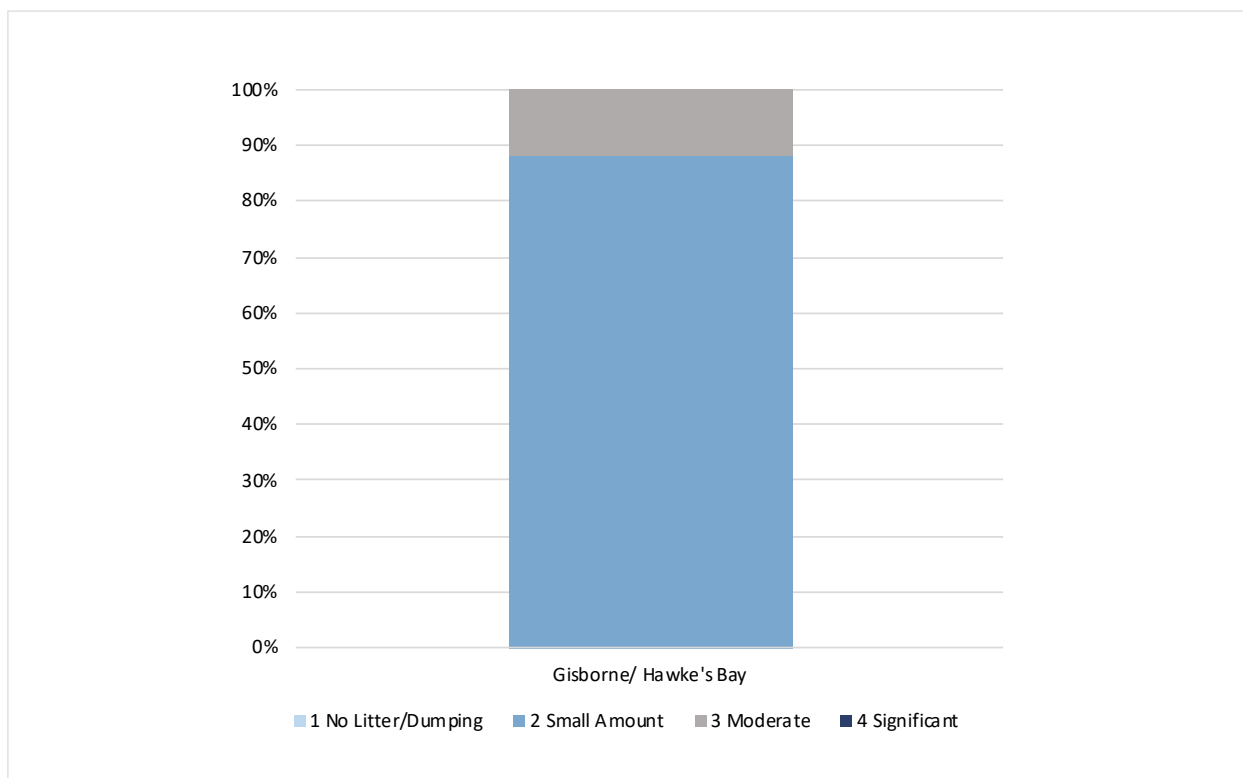
HIGHWAYS AND RAILWAYS

The following section shows the results for Highways and Railways in the Gisborne and Hawke's Bay regions. In the Gisborne and Hawke's Bay regions three Highway sites and one Railway site was audited.

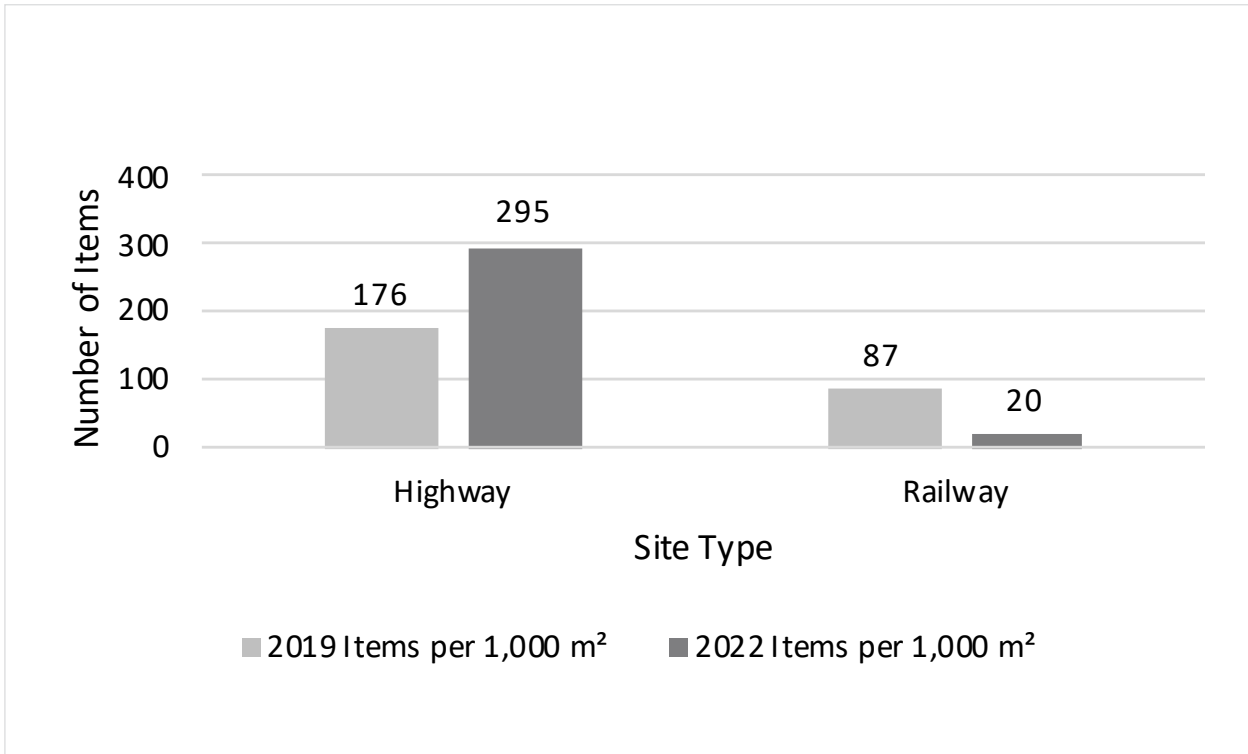*Figure 234: Gisborne/Hawke's Bay Highways and Railways, Items per 1,000 m² by Site Type: Comparison Over Time*
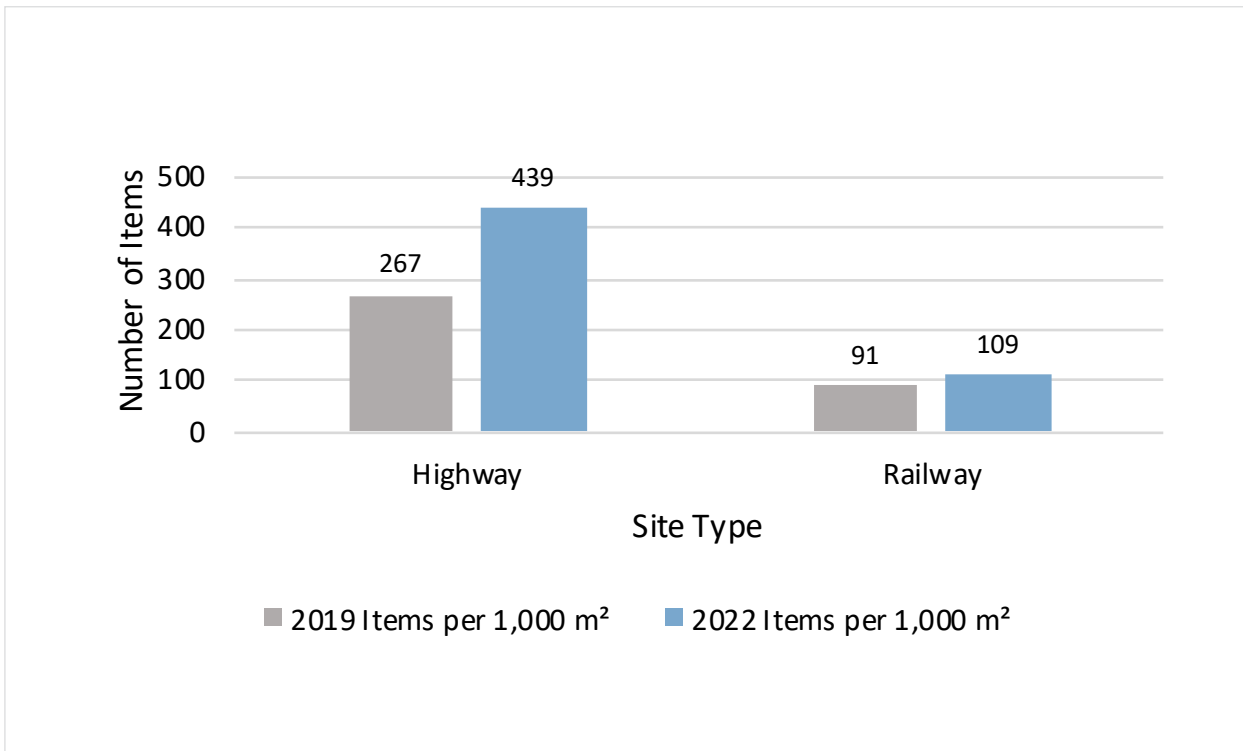
Figure 235: Gisborne/Hawke's Bay Highways and Railways, Weight per 1,000 m² by Site Type: Comparison Over Time
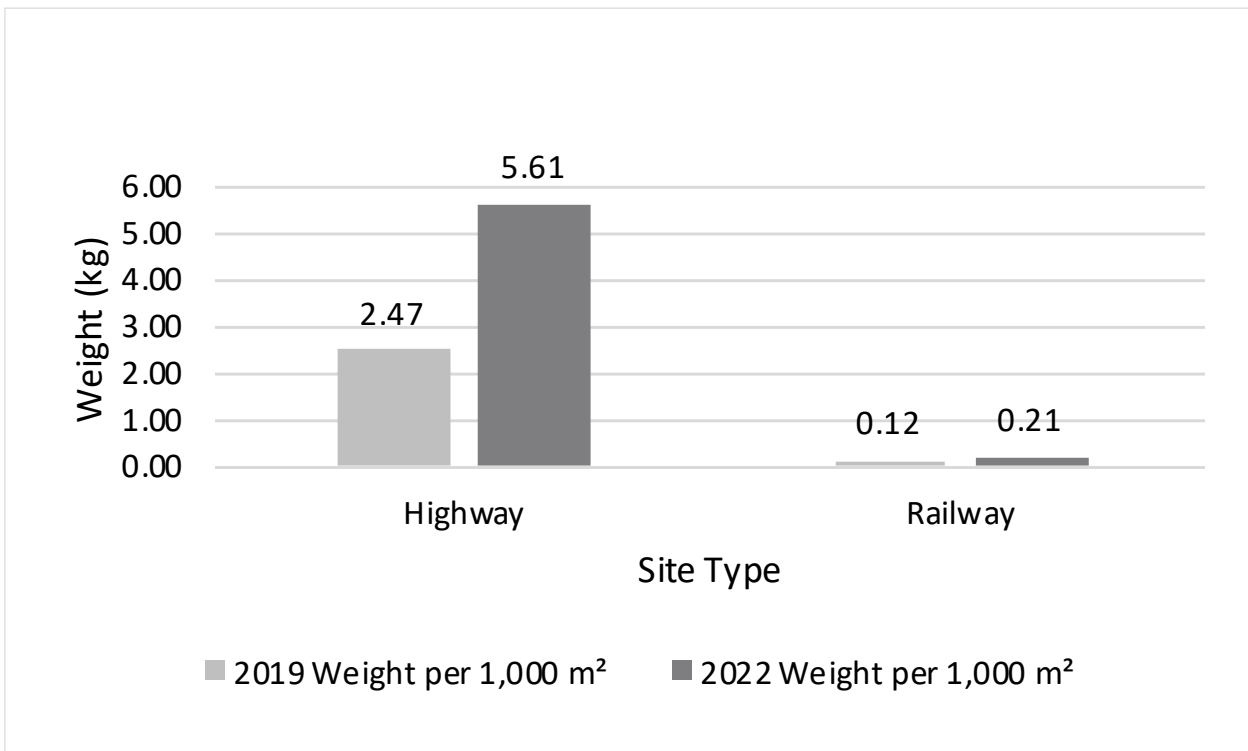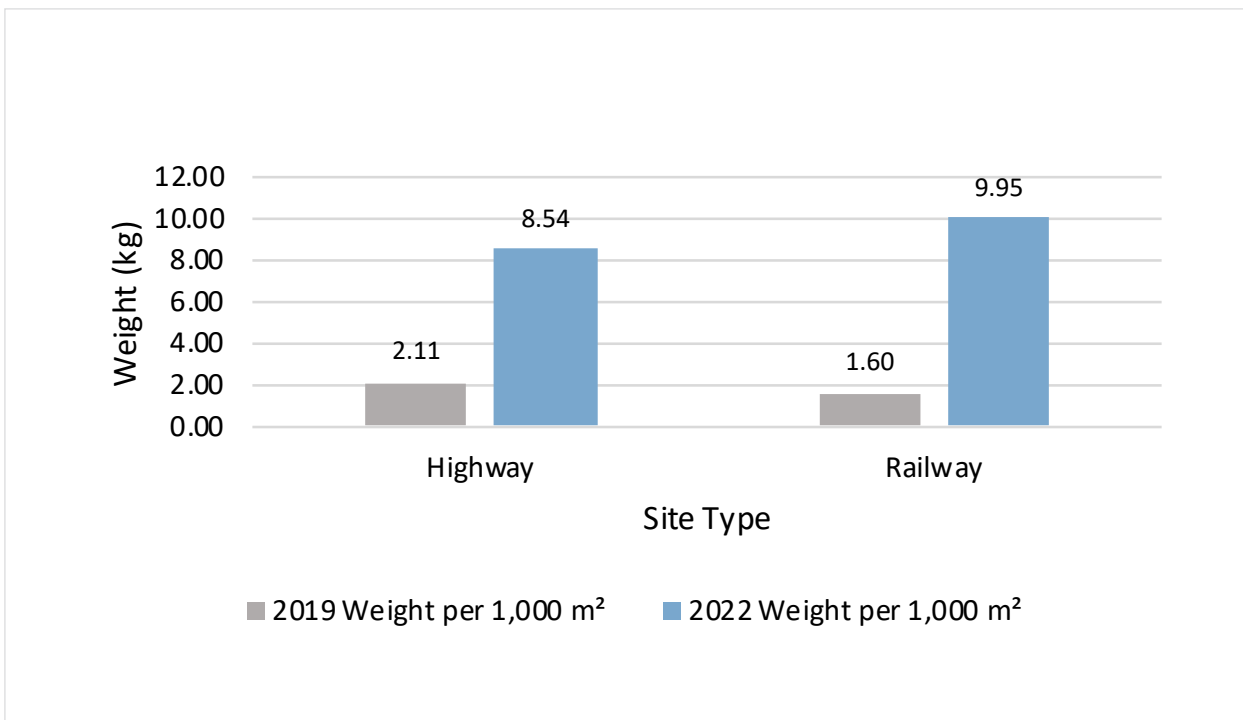
Figure 236: Gisborne/Hawke's Bay Highways and Railways, Volume per 1,000 m^2 by Site Type: Comparison Over Time
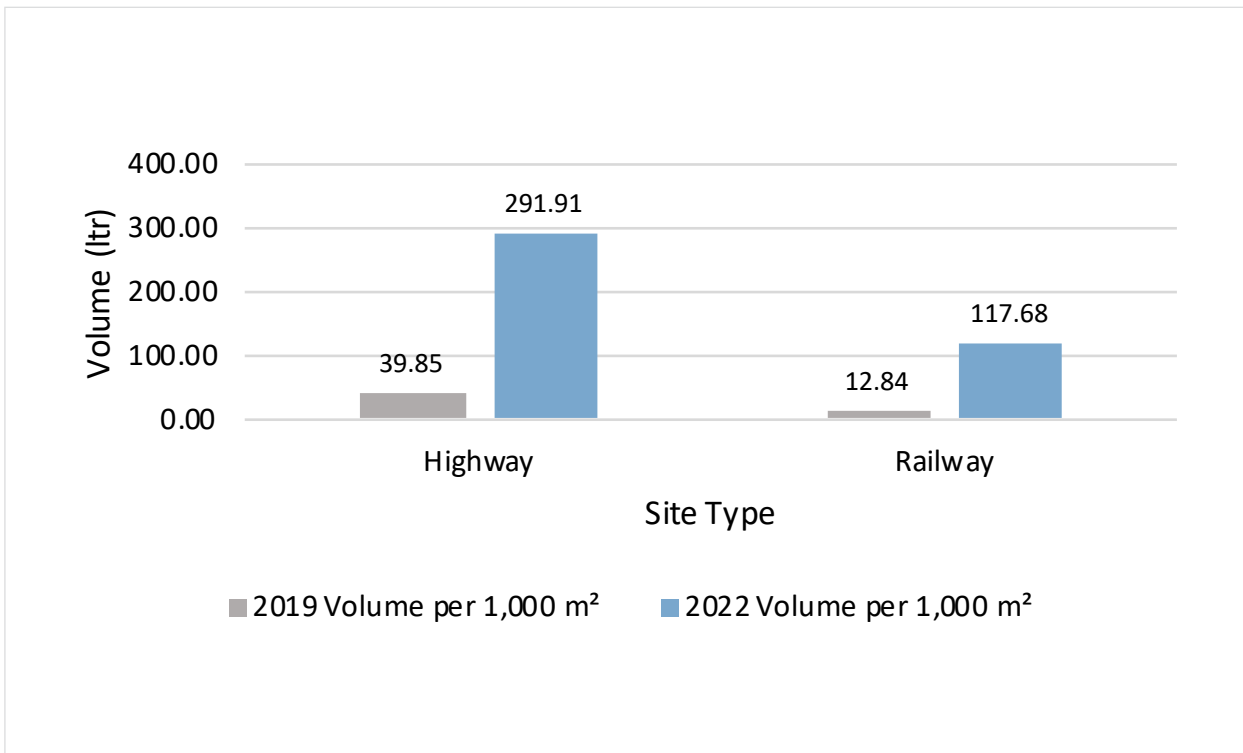
Figure 237: Gisborne/Hawke's Bay Highways, Items per 1,000 m^2 by Main Material Type: Comparison Over Time
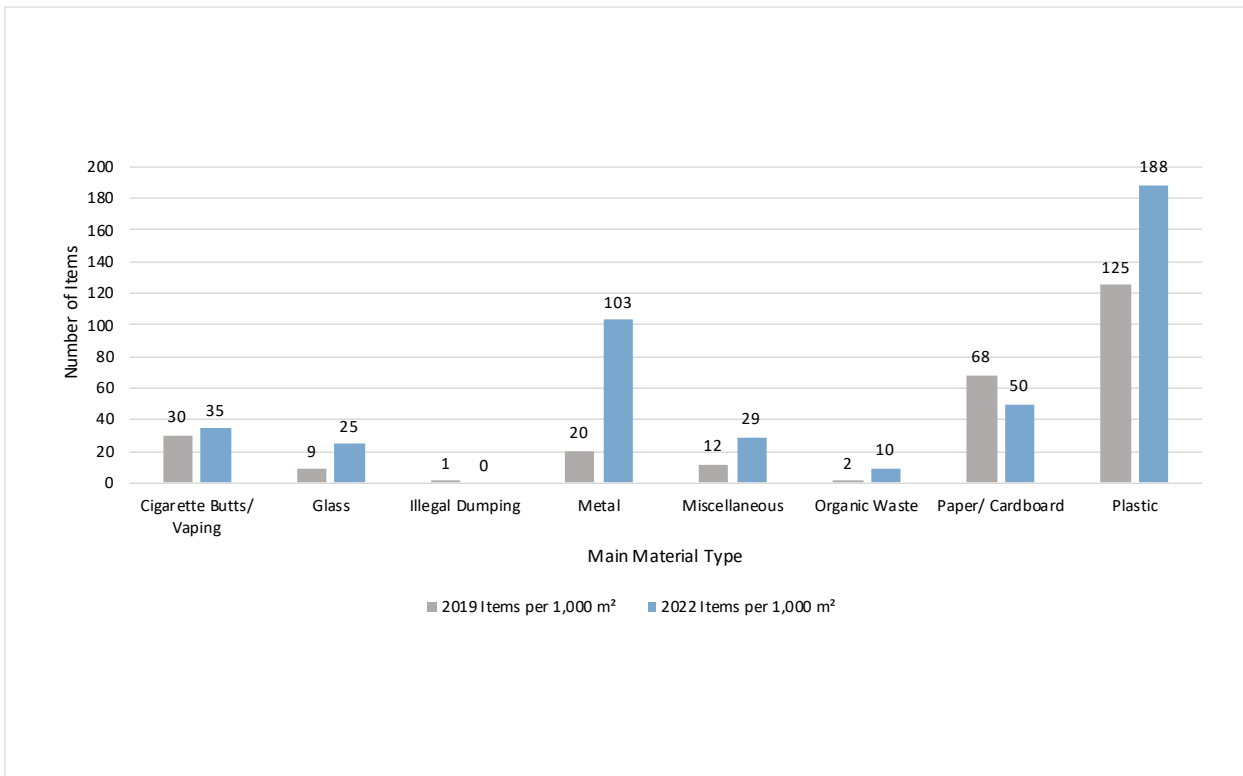
Figure 238: Gisborne/Hawke's Bay Highways, Weight per 1,000 m^2 by Main Material Type: Comparison Over Time

Weight (kg)

Main Material Type	2019 Weight per 1,000 m²	2022 Weight per 1,000 m²
Cigarette Butts/Vaping	0.01	0.02
Glass	0.39	0.93
Illegal Dumping	0.00	0.00
Metal	0.44	2.47
Miscellaneous	0.19	1.52
Organic Waste	0.06	0.11
Paper/ Cardboard	0.21	1.50
Plastic	0.81	1.99
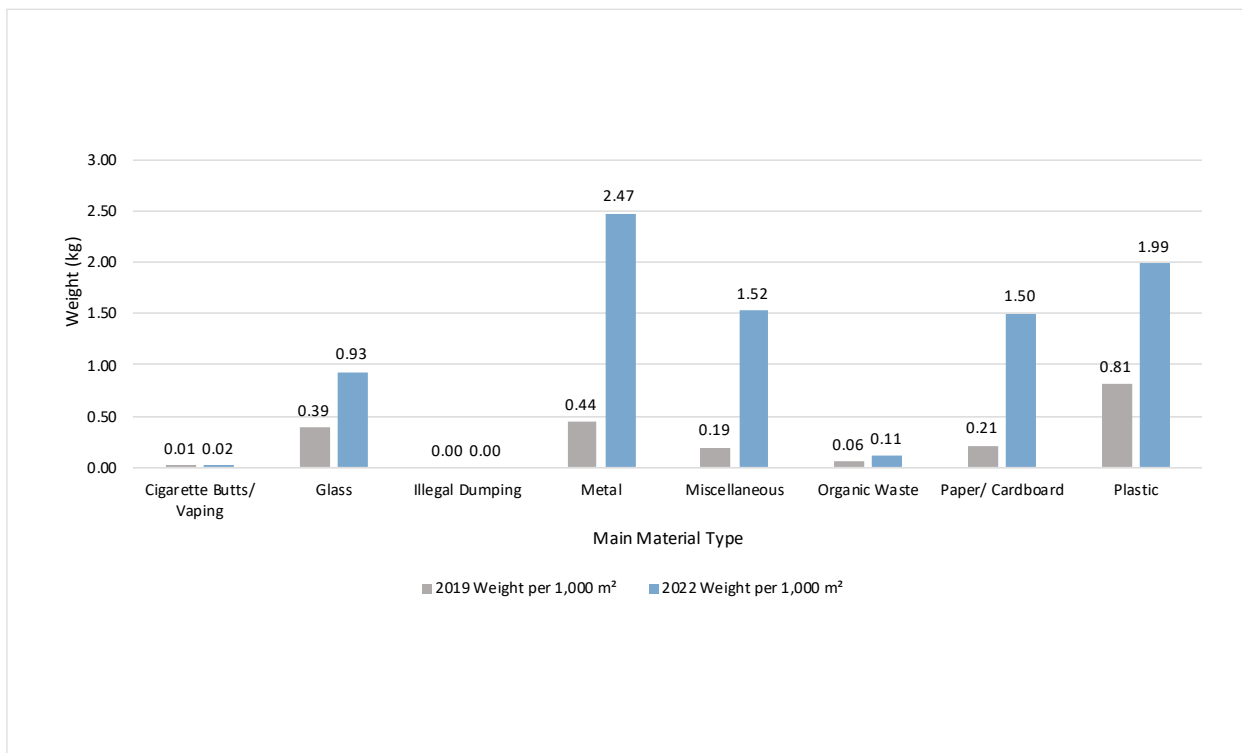
Figure 239: Gisborne/Hawke's Bay Highways, Volume per 1,000 m^2 by Main Material Type: Comparison Over Time

Volume (ltr)

Main Material Type	2019 Volume per 1,000 m²	2022 Volume per 1,000 m²
Cigarette Butts/Vaping	0.00	0.04
Glass	0.58	4.16
Illegal Dumping	13.51	0.00
Metal	5.01	17.43
Miscellaneous	1.35	20.42
Organic Waste	0.06	19.31
Paper/ Cardboard	11.48	120.75
Plastic	7.87	109.81
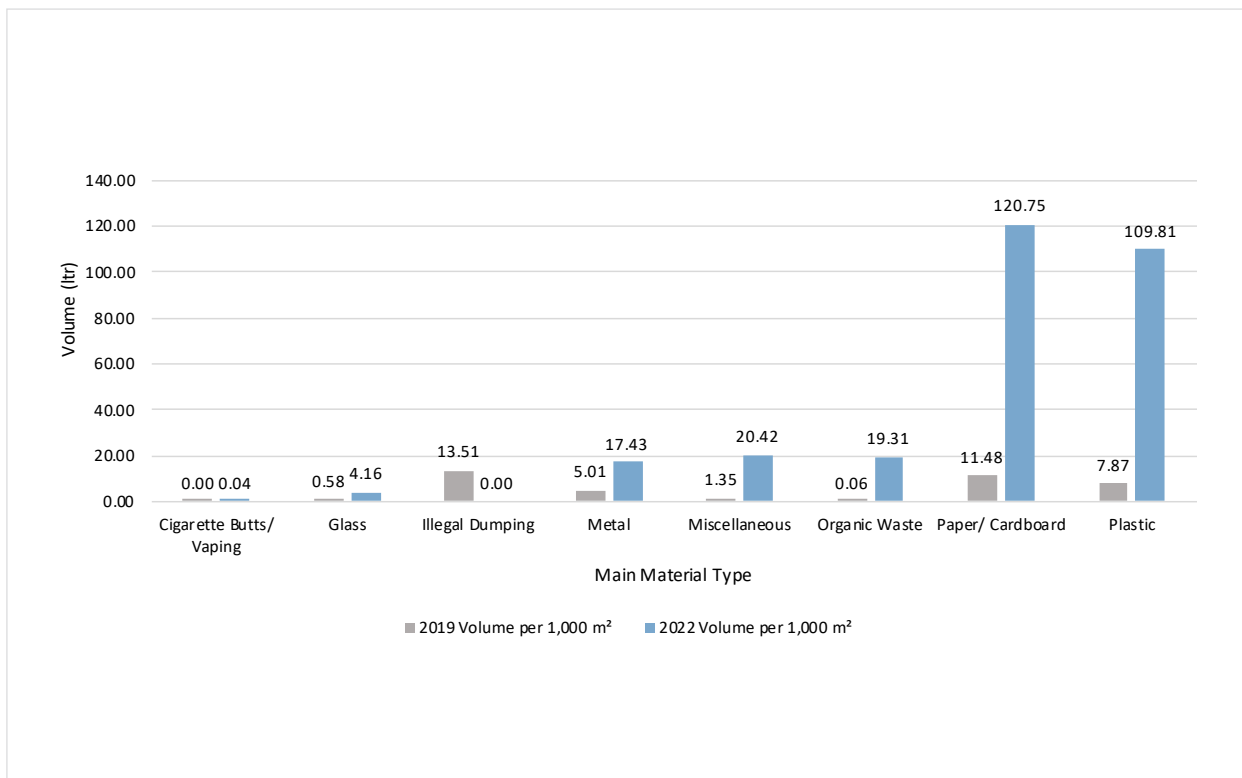
Figure 240: Gisborne/Hawke's Bay Railways, Items per 1,000 m² by Main Material Type: Comparison Over Time
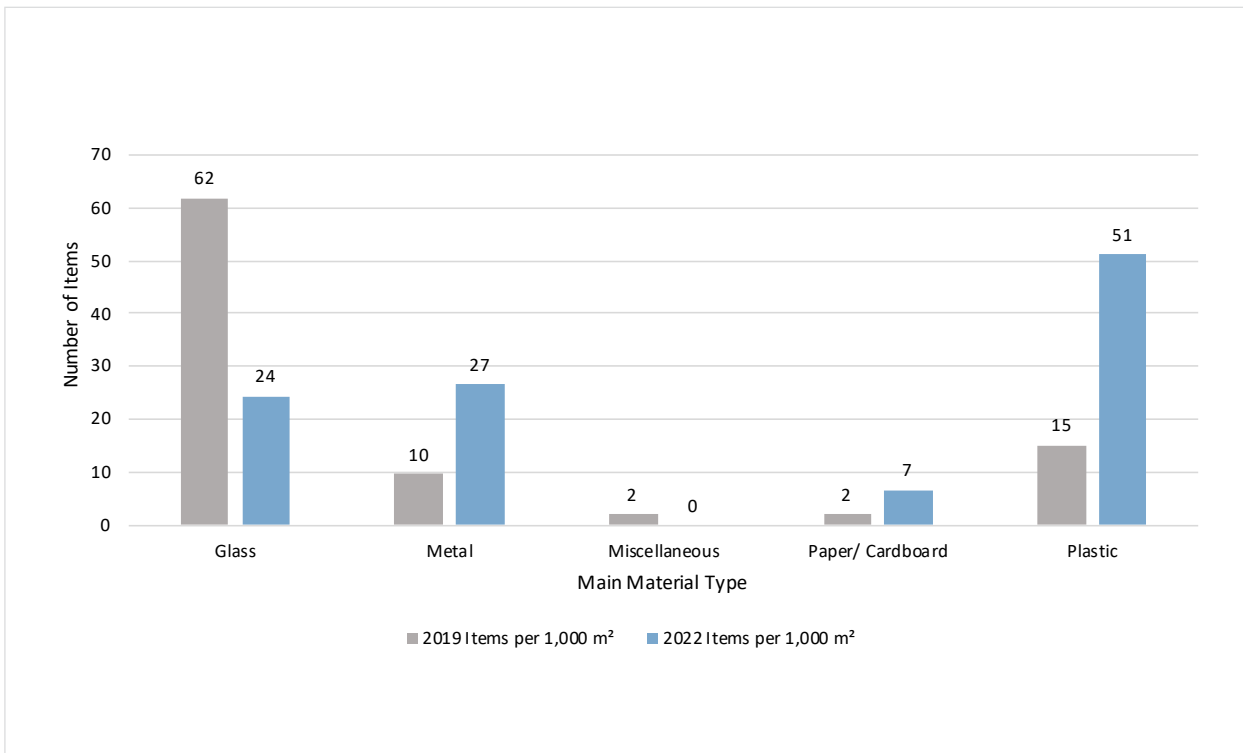
Figure 241: Gisborne/Hawke's Bay Railways, Weight per 1,000 m² by Main Material Type: Comparison Over Time
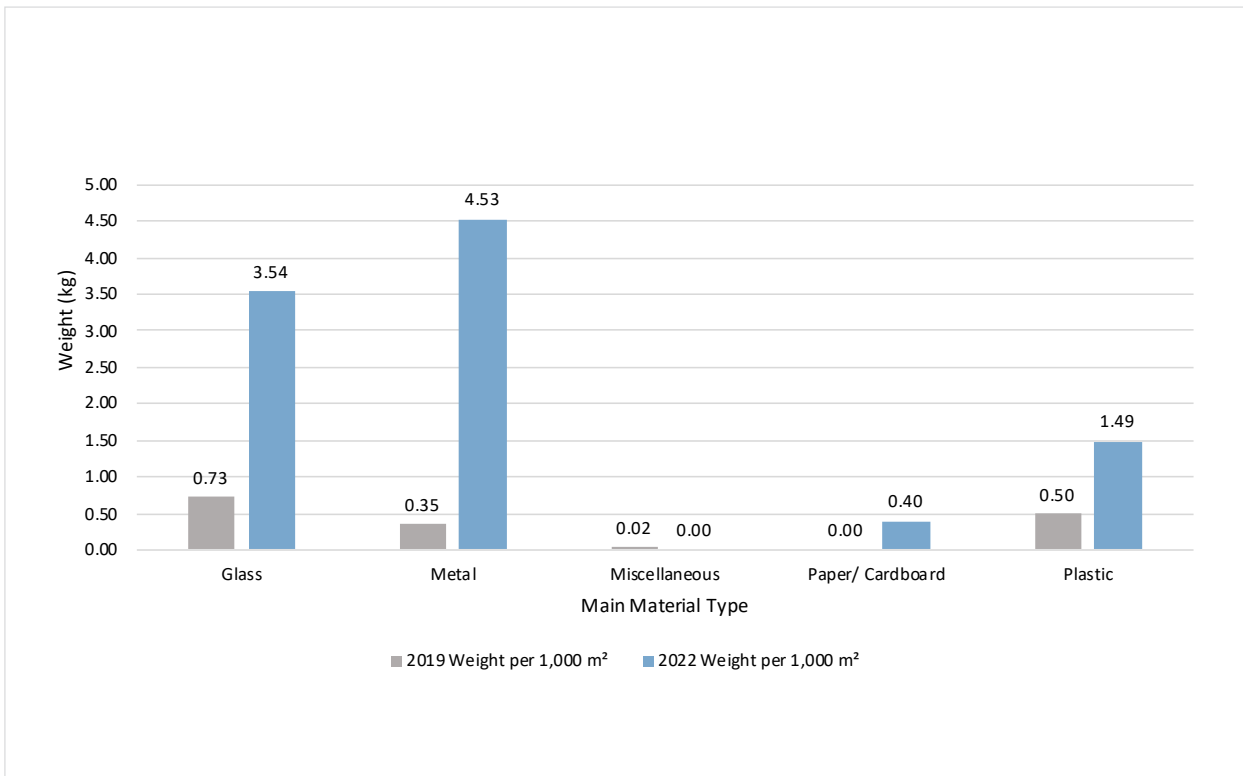
Figure 242: Gisborne/Hawke's Bay Railways, Volume per 1,000 m² by Main Material Type: Comparison Over Time
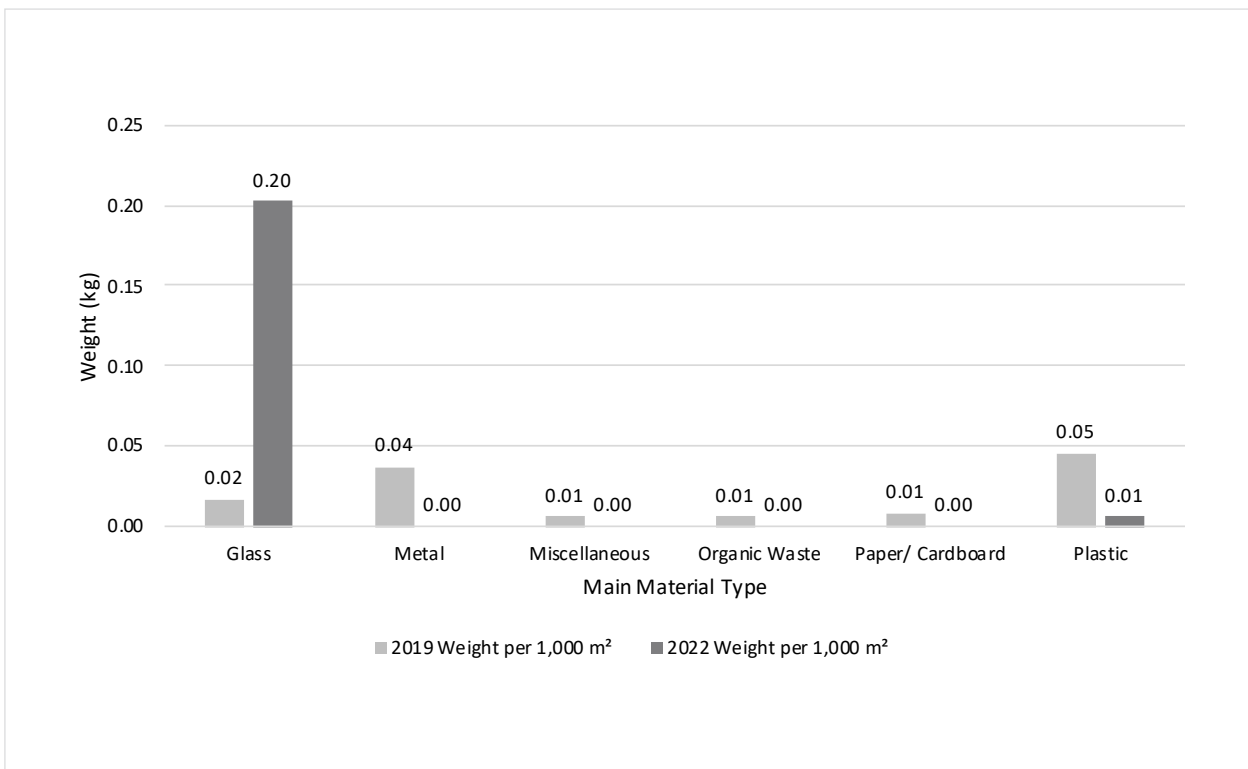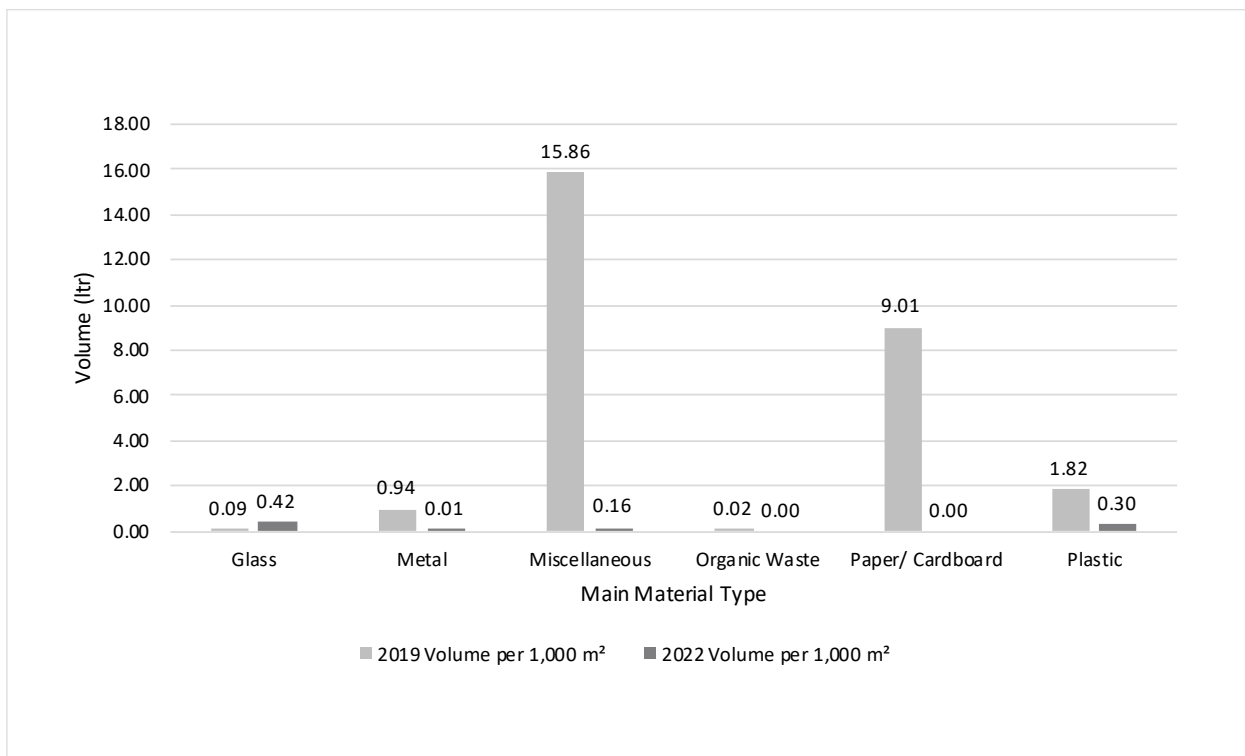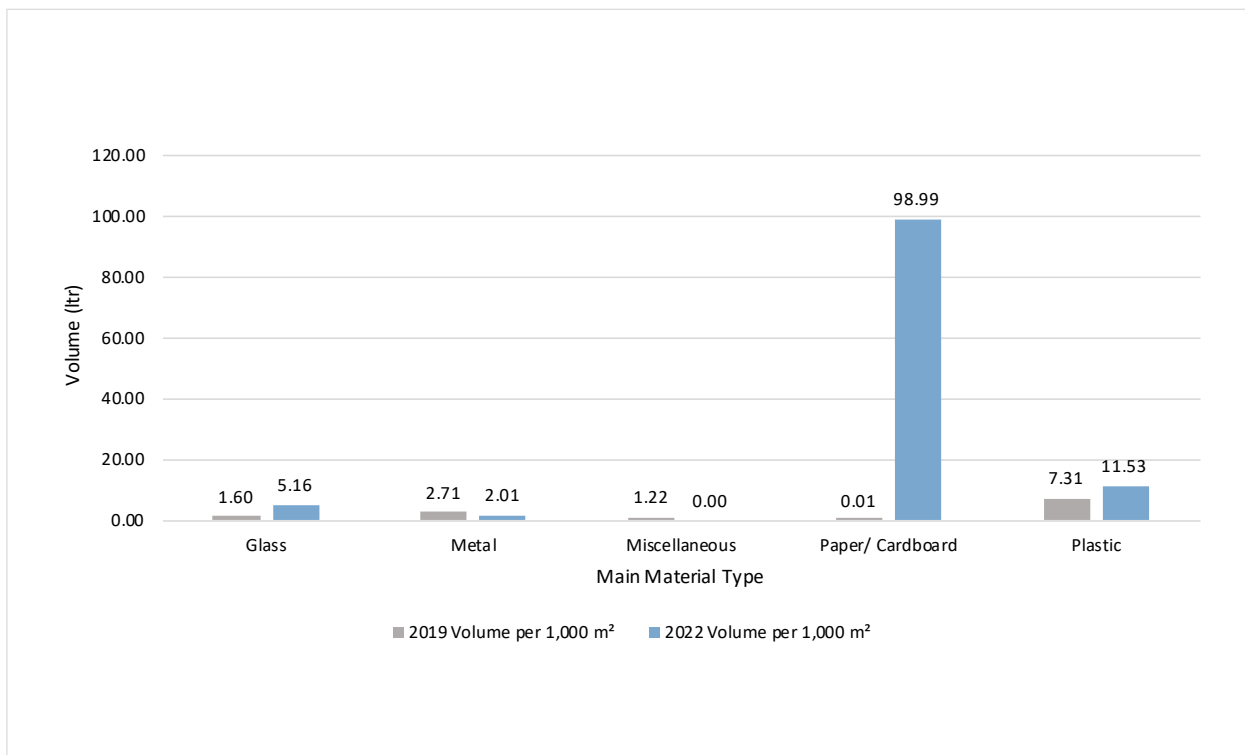

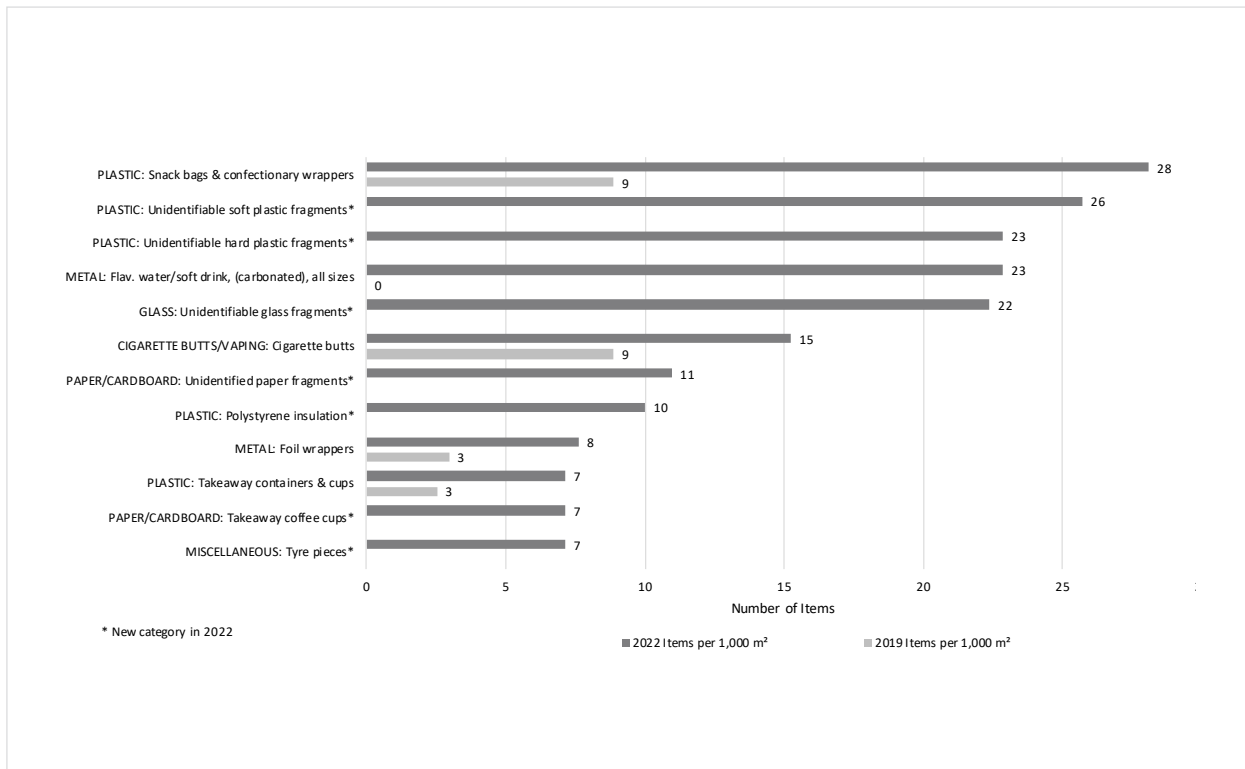*Figure 243: Gisborne/Hawke's Bay Highways, Dirty Dozen, Items per 1,000 m², Material Subcategories: Comparison Over Time*
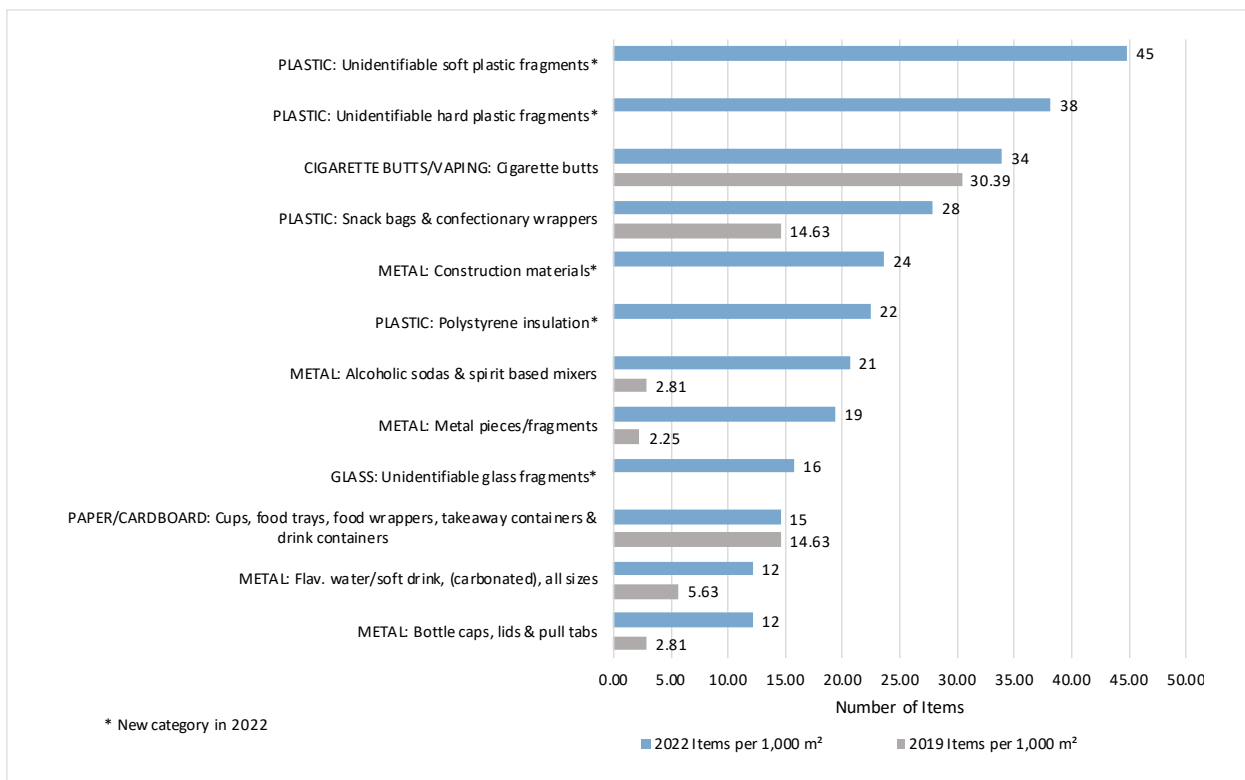
Figure 244: Gisborne/Hawke's Bay Highways, Dirty Dozen, Weight per 1,000 m², Material Subcategories: Comparison Over Time
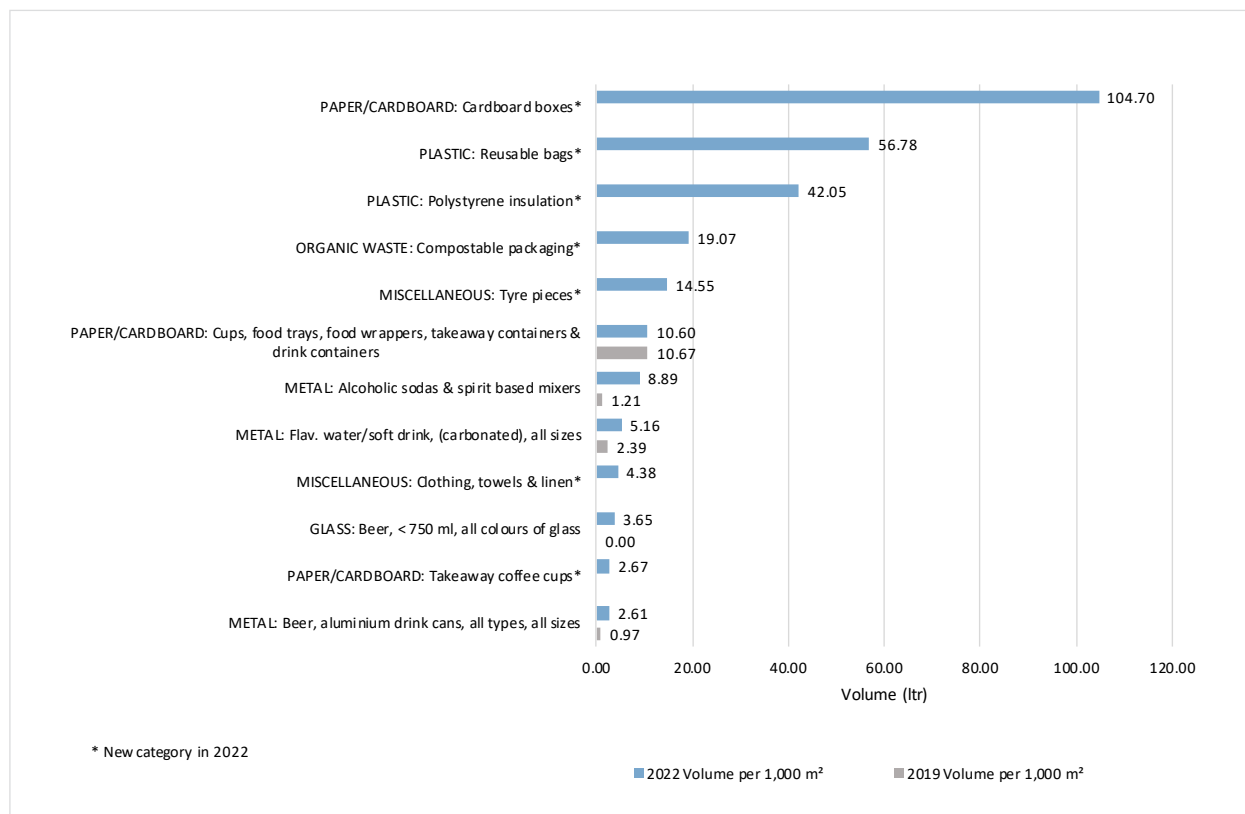
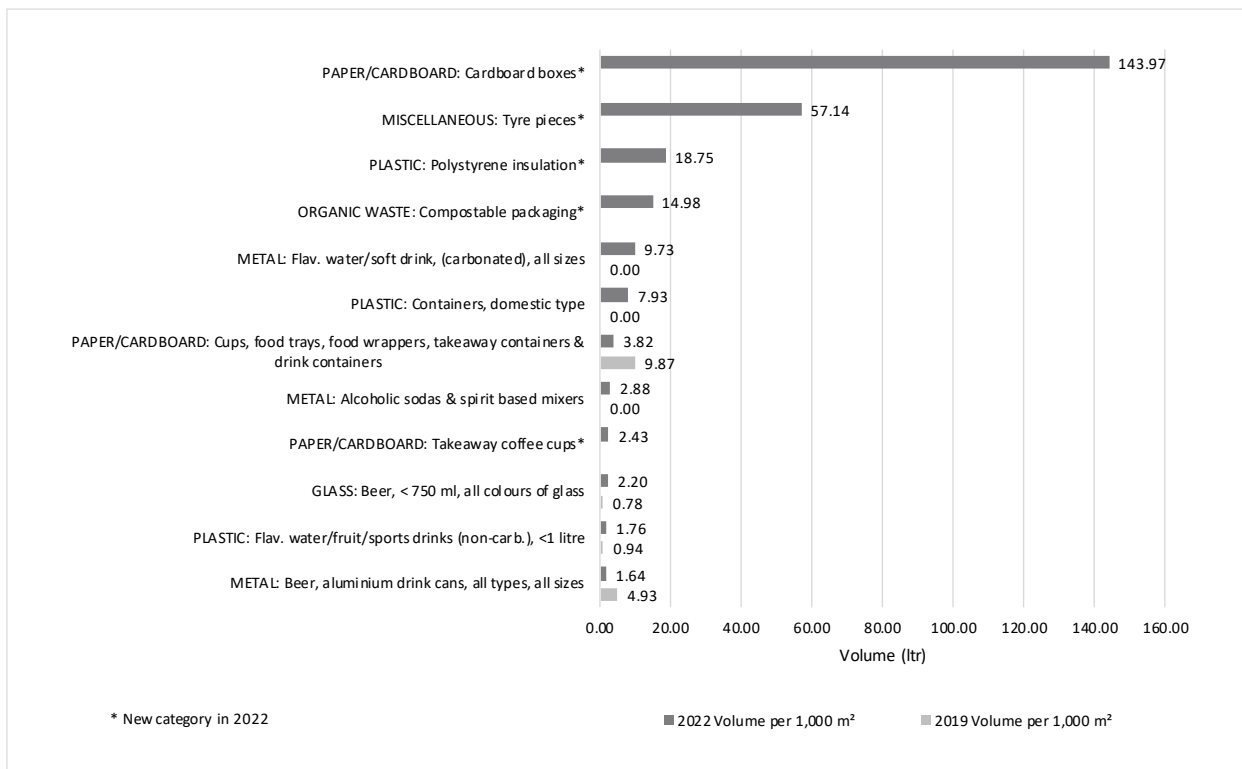*Figure 245: Gisborne/Hawke's Bay Highways, Dirty Dozen, Volume per 1,000 m², Material Subcategories: Comparison Over Time*
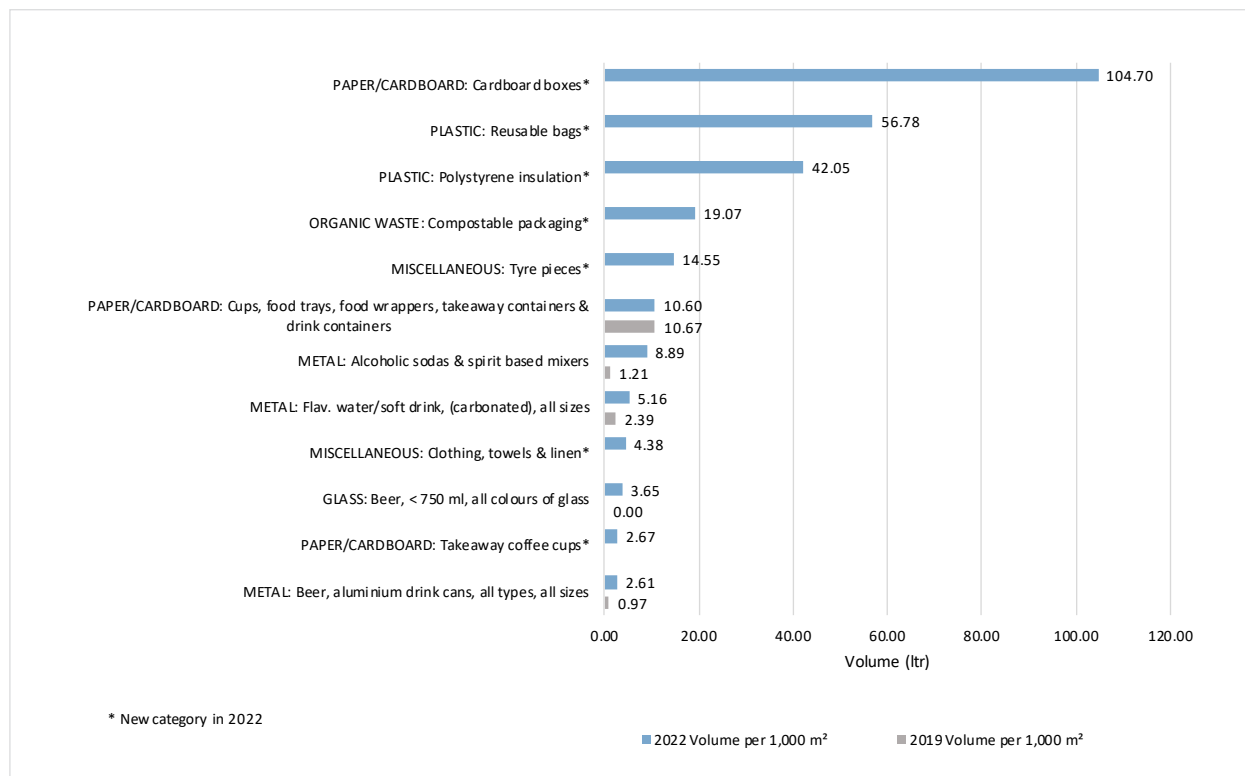
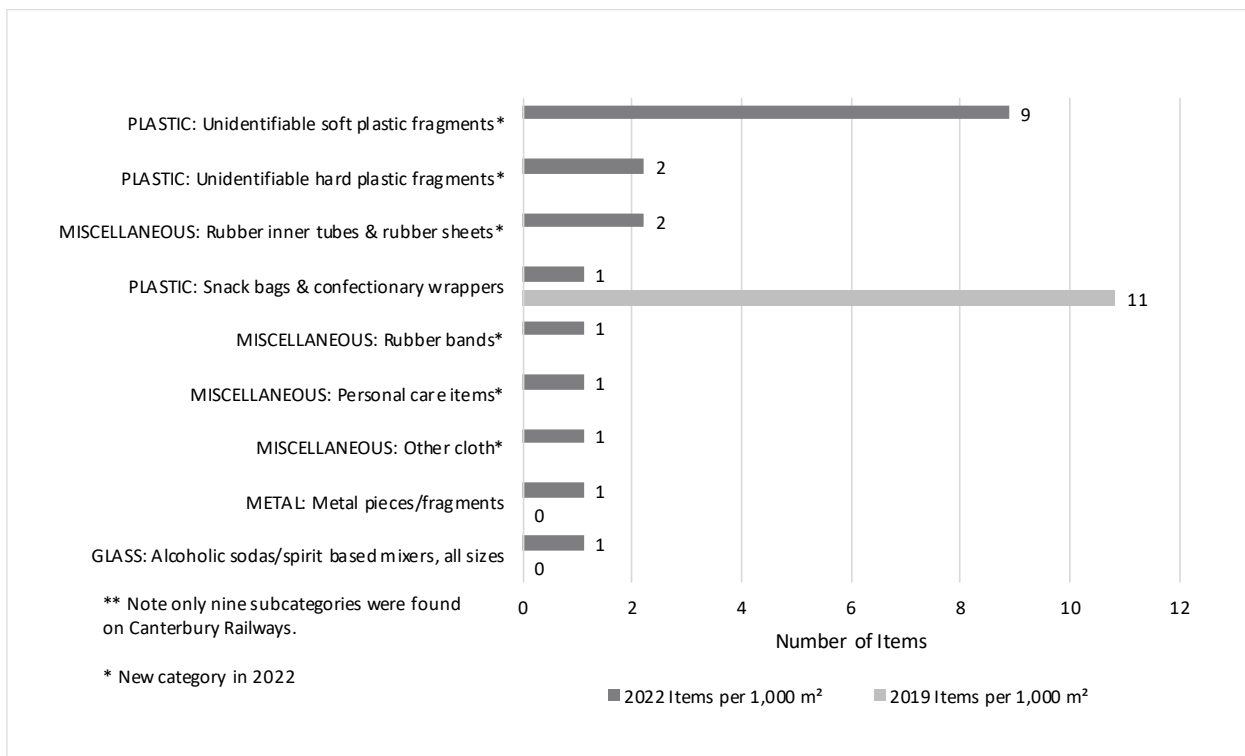*Figure 246: Gisborne/Hawke's Bay Railways, Dirty Dozen, Items per 1,000 m², Material Subcategories: Comparison Over Time*

* New category in 2022

■ 2022 Items per 1,000 m²   ■ 2019 Items per 1,000 m²
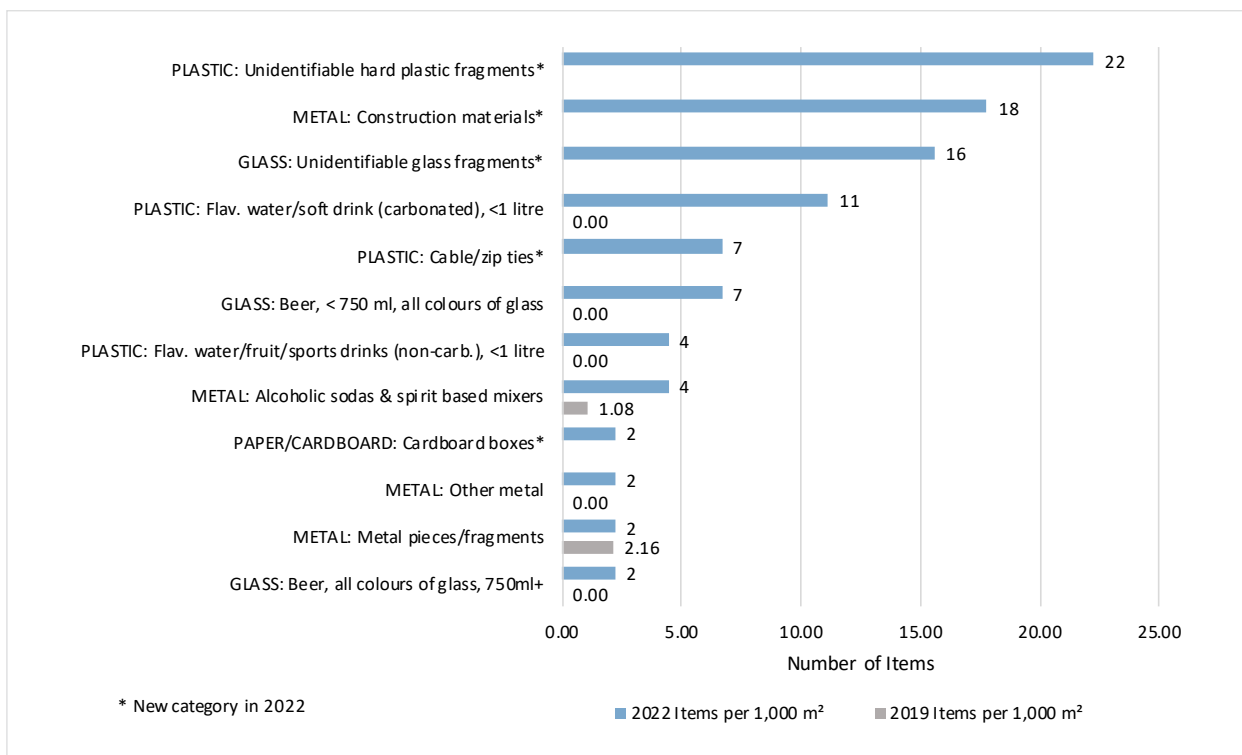
Figure 247: Gisborne/Hawke's Bay Railways, Dirty Dozen, Weight per 1,000 m², Material Subcategories: Comparison Over Time

* New category in 2022

■ 2022 Weight per 1,000 m²   ■ 2019 Weight per 1,000 m²
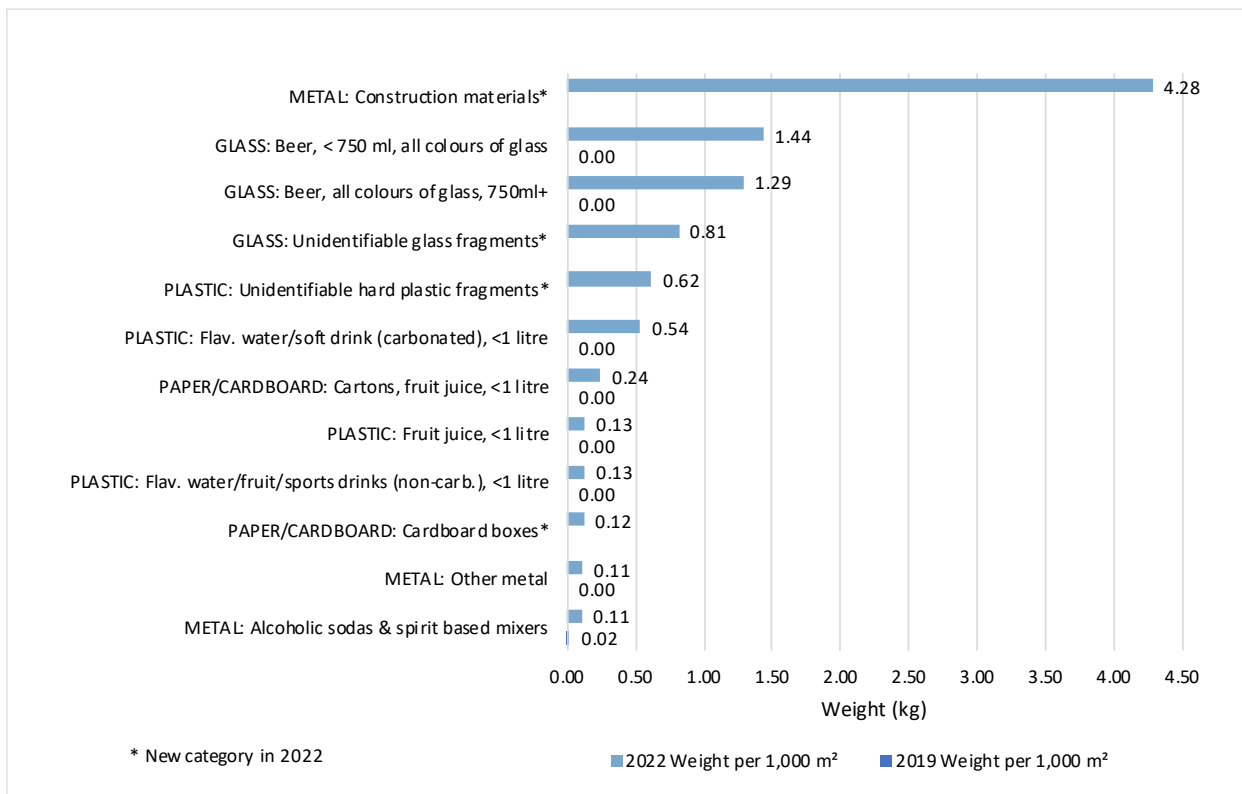
Figure 248: Gisborne/Hawke's Bay Railways, Dirty Dozen, Volume per 1,000 m², Material Subcategories: Comparison Over Time

Category	Volume
PAPER/CARDBOARD: Cardboard boxes*	95.98
PLASTIC: Flav. water/soft drink (carbonated), <1 litre	6.91 / 0.00
PLASTIC: Flav. water/fruit/sports drinks (non-carb.), <1 litre	3.28 / 0.00
GLASS: Beer, < 750 ml, all colours of glass	3.09 / 0.00
GLASS: Beer, all colours of glass, 750ml+	2.02 / 0.00
METAL: Alcoholic sodas & spirit based mixers	1.92 / 0.47
PAPER/CARDBOARD: Cups, food trays, food wrappers, takeaway containers & drink containers	1.62 / 0.00
PAPER/CARDBOARD: Cartons, fruit juice, <1 litre	1.39 / 0.00
PLASTIC: Fruit juice, <1 litre	0.89 / 0.00
PLASTIC: Unidentifiable hard plastic fragments*	0.36
PLASTIC: Unidentifiable soft plastic fragments*	0.06
METAL: Construction materials*	0.06

Volume (ltr)

* New category in 2022

■ 2022 Volume per 1,000 m²   ■ 2019 Volume per 1,000 m²

MANAWATŪ-WHANGANUI REGION

AT A GLANCE

The overall average number of litter items per 1,000 m² across the 35 sites audited in the Manawatū-Whanganui region was 132 items, the overall average estimated volume of litter per 1,000 m² was 19.24 ltr and the overall average estimated weight was 0.74 kg.

Within the Manawatū-Whanganui region, Industrial sites were associated with the highest numbers of litter items, volumes and weights. Retail sites were also recorded as having high numbers of litter items but moderate to high litter volumes and weights. Car Park sites were associated with moderate numbers of litter items and volumes, and moderate to large litter weights. Whilst Residential sites were recorded as having low to moderate numbers of litter items and volumes, with moderate litter weights. Public Recreational Spaces contributed low numbers of litter items, volumes and small litter weights per 1,000 m².

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

Paper/Cardboard contributed the largest volumes of litter, however, were associated with both moderate litter weights and numbers of items collected per 1,000 m². Miscellaneous items were associated with moderate numbers of items and low to moderate volumes within the region, but the largest litter weights.

Note:

- *New material subcategories were added in 2022 and so not all material subcategories are comparable between 2019 and 2022.*

- *A weight measure was not recorded for any items of Illegal Dumping identified during the audit, and therefore has not been included in the analysis.*

- *Not all regions were audited for Highway and/or Railway sites, and so these site types have been separated out and specifics for each region given at the end of the relevant chapter. The Manawatū-Whanganui region was audited for one Highway site and three Railway sites.*

COMPARISONS BY SITE TYPES

The highest numbers of litter items per 1,000 m² at the sites audited in the Manawatū-Whanganui region were recorded at Industrial sites (529 items) and Retail sites (472 items). Moderate numbers of litter items were collected at Car Park sites (153 items) whilst low to moderate numbers of litter items per 1,000 m² were collected at Residential sites (104 items). The lowest number of litter items collected were at Public Recreational Spaces (13 items).

The estimated volumes per 1,000 m² of the litter items at Industrial sites (129.90 ltr) and Retail sites (36.47 ltr) were higher than at any other site type within the region.

More moderate volumes of litter were recorded at Car Park sites (16.10 ltr), low to moderate volumes of litter were collected at Residential sites (11.08 ltr), whilst small volumes of litter were recorded at Public Recreational Spaces (4.36 lts).

Large litter weights per 1,000 m² were associated with Industrial sites (3.64 kg) whilst more moderate to high litter weights were recorded at Car Park sites (1.16 kg) and Retail sites (1.03 kg). Moderate litter weights were recorded at Residential sites (0.68 kg) per 1,000 m². The smallest litter weights per 1,000 m² in the region were associated with Public Recreational Spaces (0.07 kg).

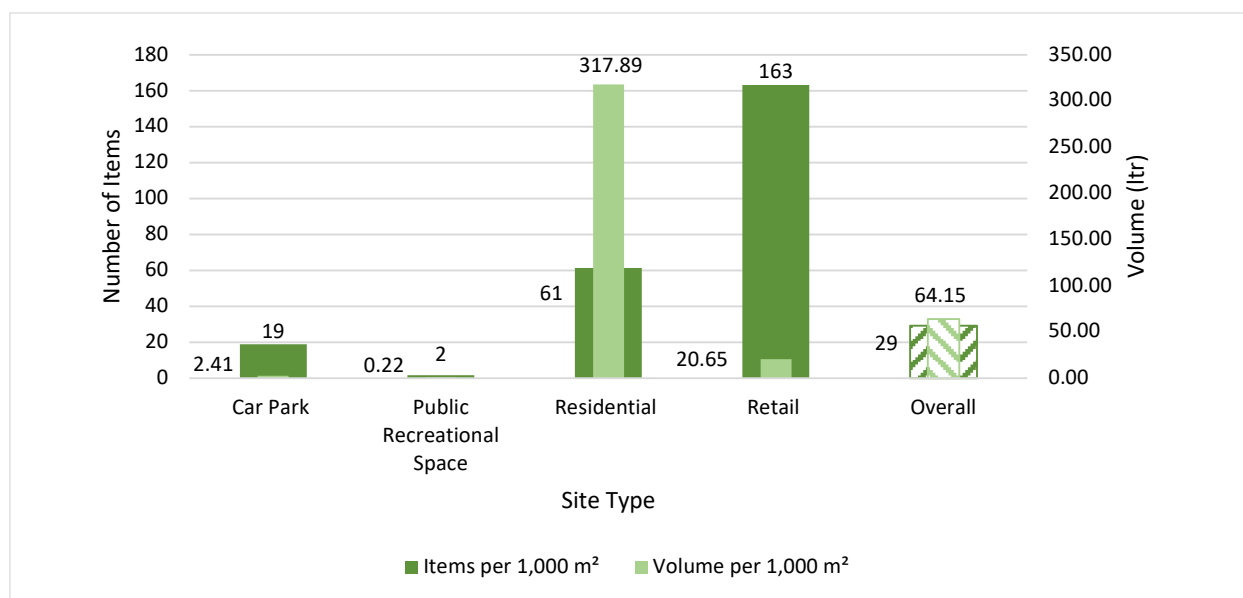*Figure 249: Manawatū-Whanganui 2022, Items and Volume per 1,000 m² by Site Type*

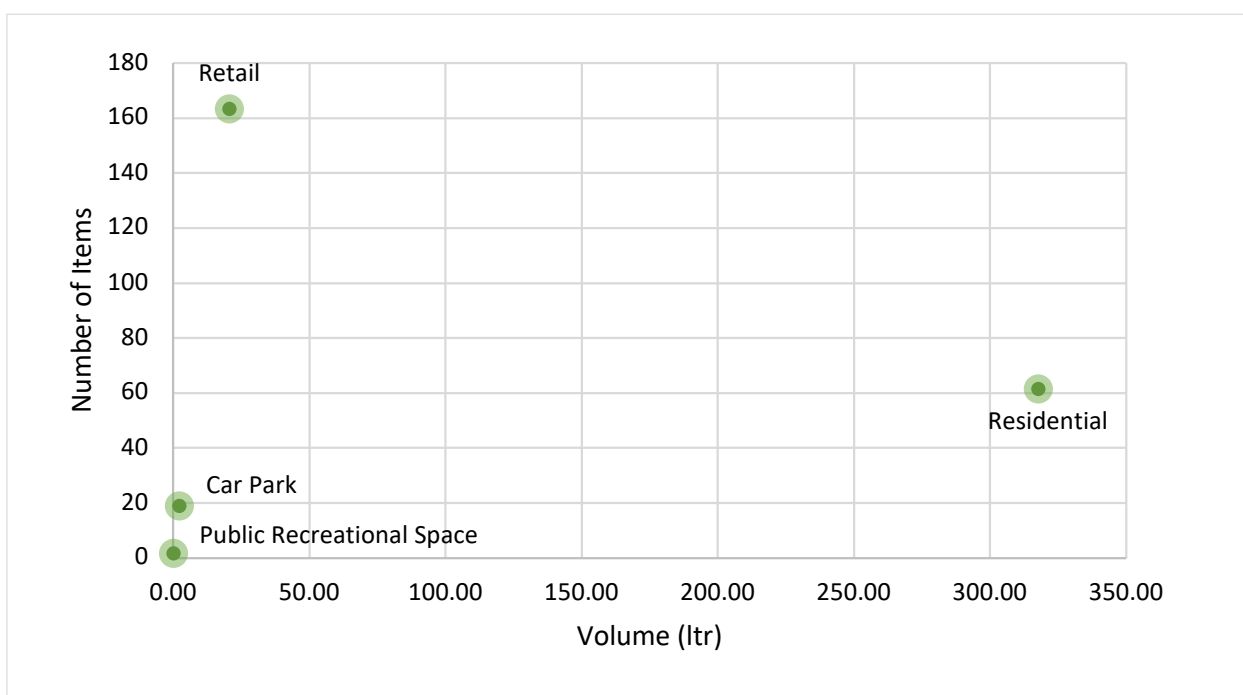*Figure 250: Manawatū-Whanganui 2022, Items and Weight per 1,000 m² by Site Type*

SITE CHARACTERISTICS

The following site characteristics across all site types (excluding Highway and Railway sites) were identified for litter items and volume per 1,000 m² in the Manawatū-Whanganui region:

- 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 to high litter volumes.
- Car Park sites were associated with moderate numbers of litter items and volumes.

- Residential sites were recorded as having low to moderate numbers of litter items and volumes.
- Public Recreational Spaces were associated with low numbers of litter items and small volumes of litter.

Figure 251: Manawatū-Whanganui 2022, Items and Volume per 1,000 m² by Site Type

The following site characteristics across all site types (excluding Highway and Railway sites) were identified for litter items and volume per 1,000 m² in the Manawatū-Whanganui region:

- Industrial sites were associated with high numbers of litter items and large litter weights.
- Retail sites contributed high numbers of litter items and moderate to high litter weights.
- Car Park sites were associated with moderate numbers of litter items and moderate to high litter weights.

- Residential sites contributed low to moderate numbers of litter items and moderate litter weights.
- Public Recreational Spaces were associated with low numbers of litter items and small litter weights.

Figure 252: Manawatū-Whanganui 2022, Items and Weight per 1,000 m² by Site Type
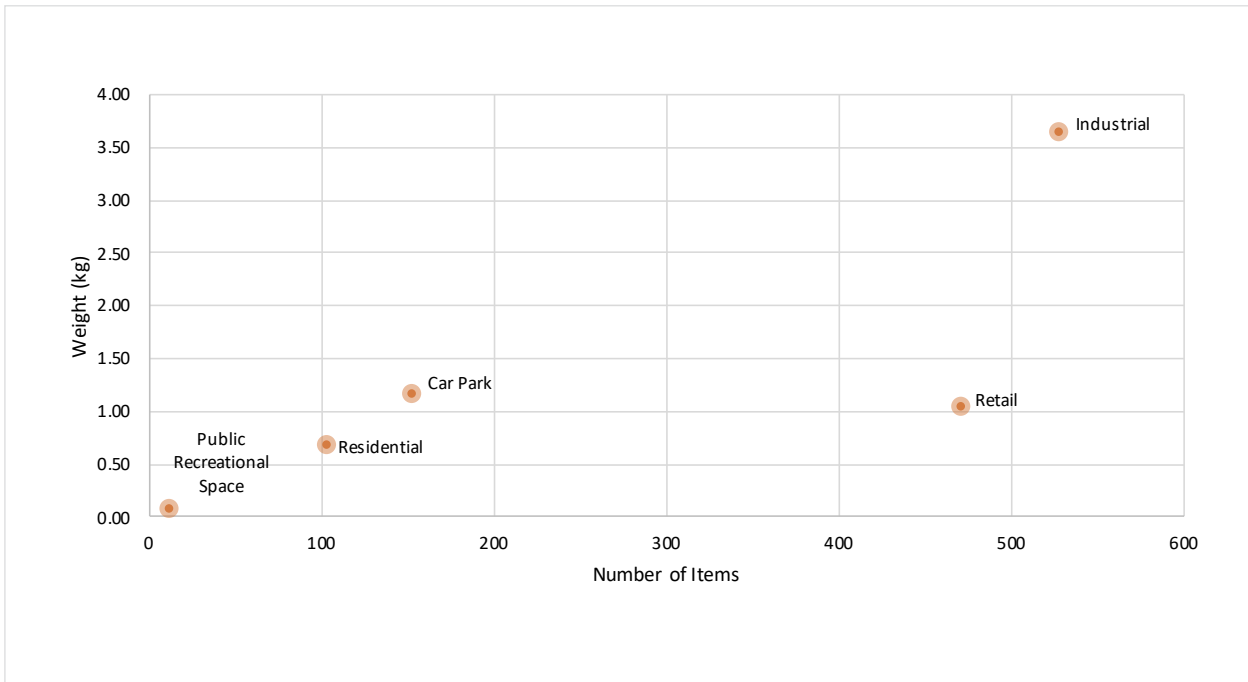
COMPARISON BY SITE TYPE OVER TIME

Since 2019, there has been an increase in the number of items, estimated volume and weight of litter per 1,000 m² in the Manawatū-Whanganui region, with litter volume having the biggest increase (19.24 ltr vs. 5.83 ltr per 1,000 m² in 2019). Industrial and Retail sites have had the most noticeable increases across the board in all three measures, including litter items, volume and weight per 1,000 m² since 2019.

ITEMS PER 1,000 M²

The number of litter items collected in the Manawatū-Whanganui region have increased since 2019 (132 items vs. 95 items per 1,000 m² in 2019). As shown in the graphs below, there have been larger increases in the number of litter items collected in Retail (472 items vs. 191 items per 1,000 m² in 2019) and Industrial (529 items vs. 262 items per 1,000 m² in 2019) sites.

Figure 253: Manawatū-Whanganui, Items per 1,000 m² by Site Type: Comparison Over Time
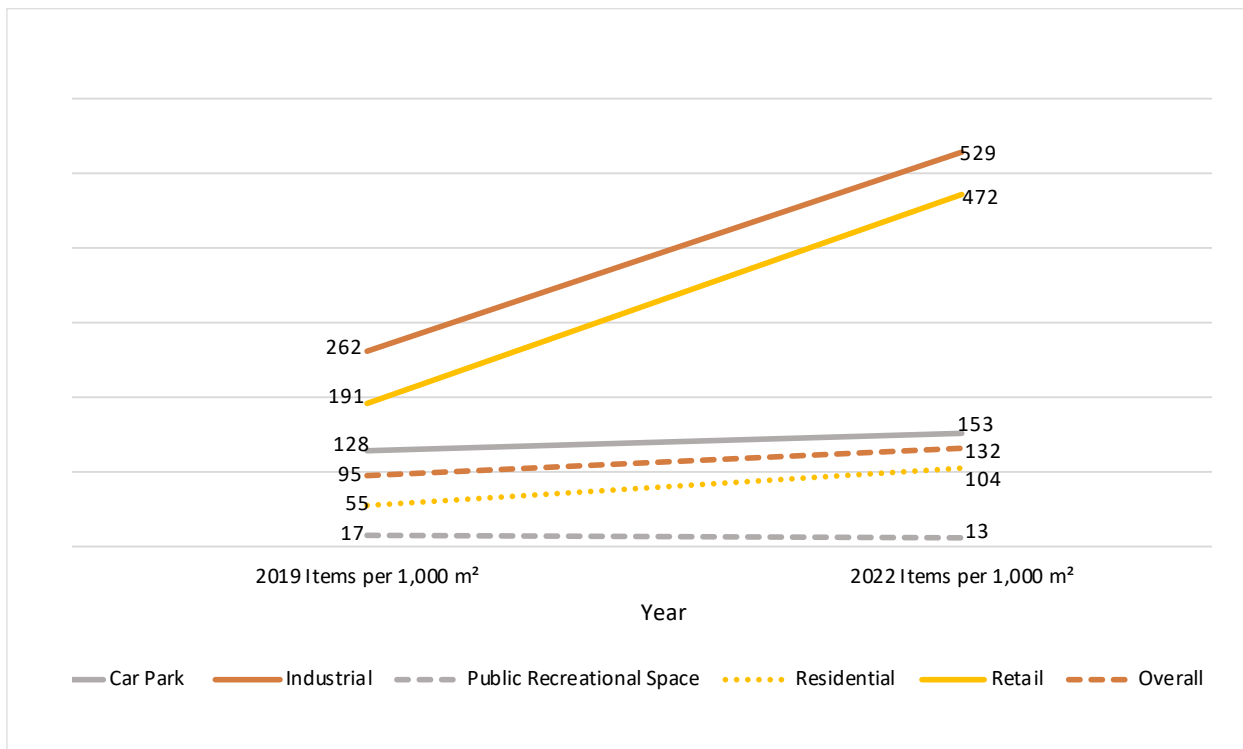
Figure 254: Manawatū-Whanganui, Items per 1,000 m² by Site Type: Comparison Over Time
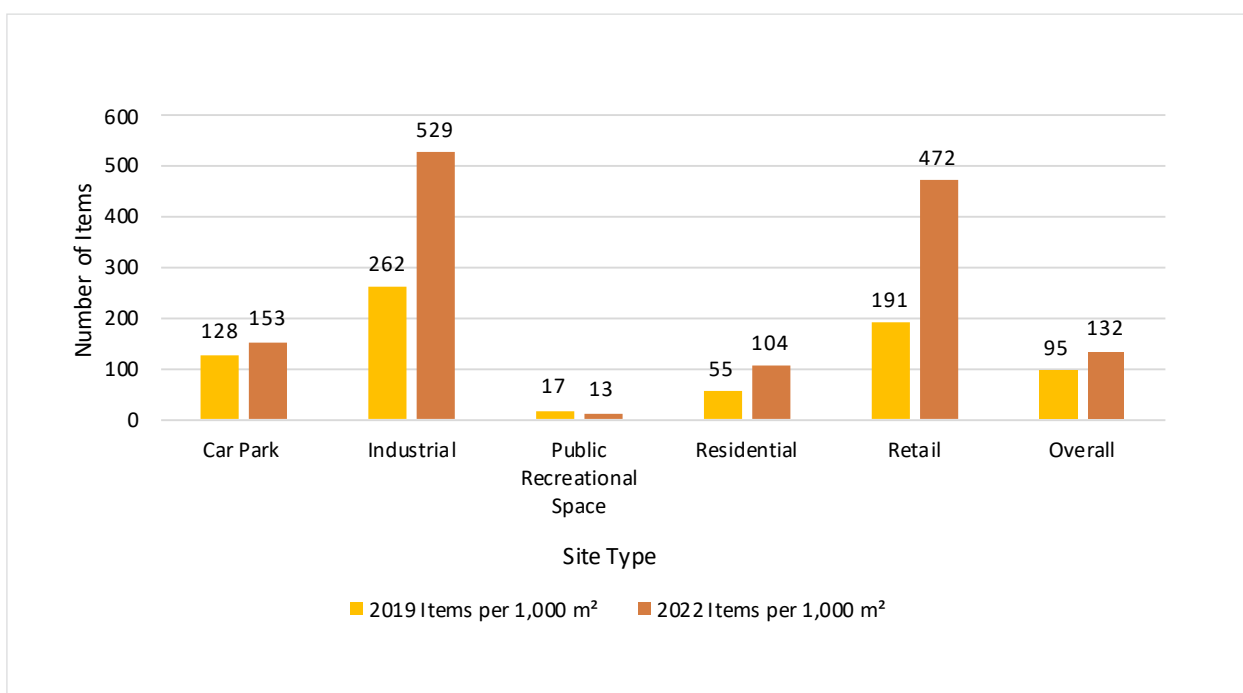
VOLUME PER 1,000 M²

Overall, litter volumes per 1,000 m² in the Manawatū-Whanganui region have increased by 13.41 ltr since 2019. As shown in the graphs below, this increase is consistent across all site types, with the biggest increase seen in Industrial sites (129.90 ltr vs. 12.85 ltr per 1,000 m² in 2019).

Figure 255: Manawatū-Whanganui, Volume per 1,000 m² by Site Type: Comparison Over Time
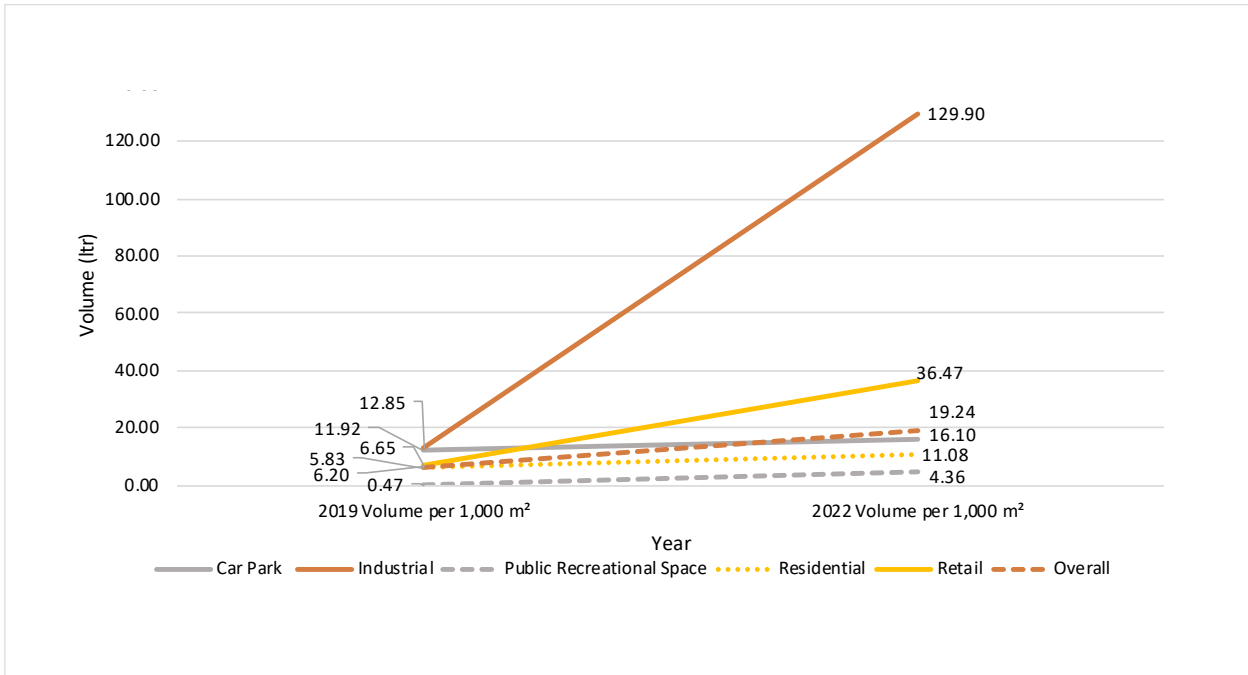
Figure 256: Manawatū-Whanganui, Volume per 1,000 m² by Site Type: Comparison Over Time
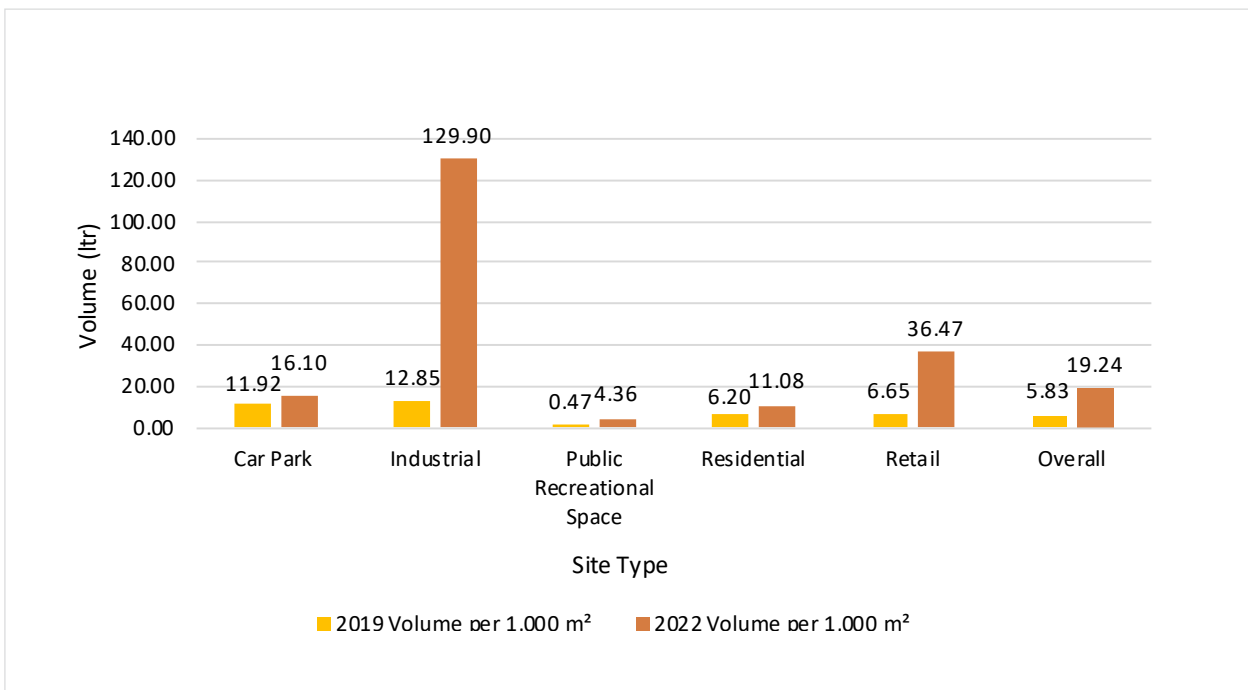
WEIGHT PER 1,000 M²

Overall, the litter weight in the Manawatū-Whanganui region has increased since 2019 (0.74 kg vs. 0.28 kg per 1,000 m² in 2019). As shown in the graphs below, the site types with the biggest increases in litter weight per 1,000 m² are Industrial (3.64 kg vs. 1.05 kg in 2019) and Car Park (1.16 kg vs. 0.31 kg in 2019) sites.

Figure 257: Manawatū-Whanganui, Weight per 1,000 m² by Site Type: Comparison Over Time

Figure 258: Manawatū-Whanganui, Weight per 1,000 m² by Site Type: Comparison Over Time

COMPARISON BY MAIN MATERIAL TYPES

Cigarette Butts/Vaping was the most frequently identified material type per 1,000 m² within the Manawatū-Whanganui region (43 items) whilst Plastics were recorded as having the second highest number of litter items collected (36 items).

Moderate numbers of litter items were recorded for Metal (17 items), Miscellaneous (14 items) and Paper/Cardboard (12 items). Small to moderate numbers of litter items were recorded for Glass (10 items), and the smallest numbers of items were recorded for Organic Waste (1 item) and Illegal Dumping (less than 1 item).

Paper/Cardboard contributed the largest amount of estimated litter volume per 1,000 m² to the litter stream (9.23 ltr), whilst Plastic (3.51 ltr) was the second largest contributor to the overall volume of litter collected within the region. Moderate volumes were recorded per 1,000 m² for Illegal Dumping (2.15 ltr) and smaller volumes were recorded for Miscellaneous (1.56 ltr), Organic Waste (1.44 ltr), Metal (0.74 ltr), and Glass (0.58 ltr). Cigarette Butts/Vaping items were associated with the smallest proportion of the overall litter volume (0.04 ltr).

The largest litter weights per 1,000 m² in the Manawatū-Whanganui region were associated with Miscellaneous (0.27 kg). More moderate litter weights were recorded for Metal (0.11 kg), Glass (0.11 kg), Plastic (0.10 kg) and Paper/Cardboard (0.09 kg). Organic Waste (0.03 kg) and Cigarette Butts/Vaping (0.03 kg) contributed the smallest litter weights to the overall litter stream.

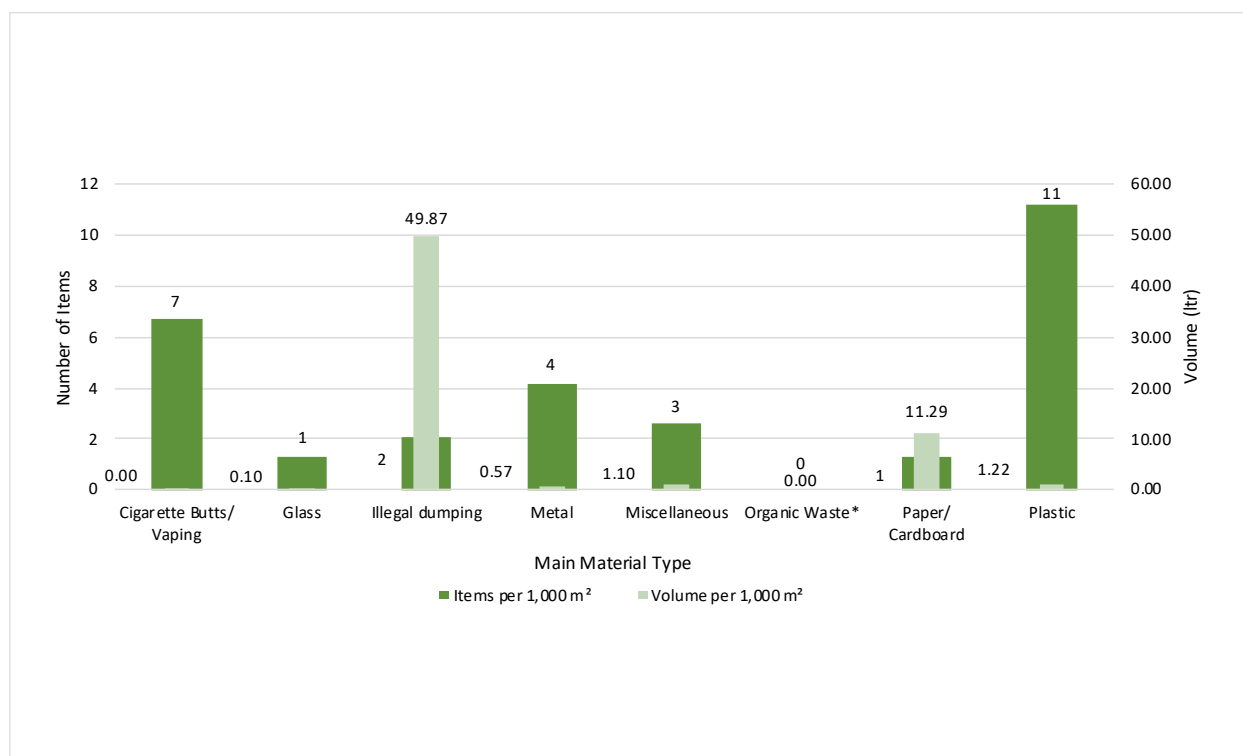*Figure 259: Manawatū-Whanganui 2022, Items and Volume per 1,000 m² by Main Material Type*
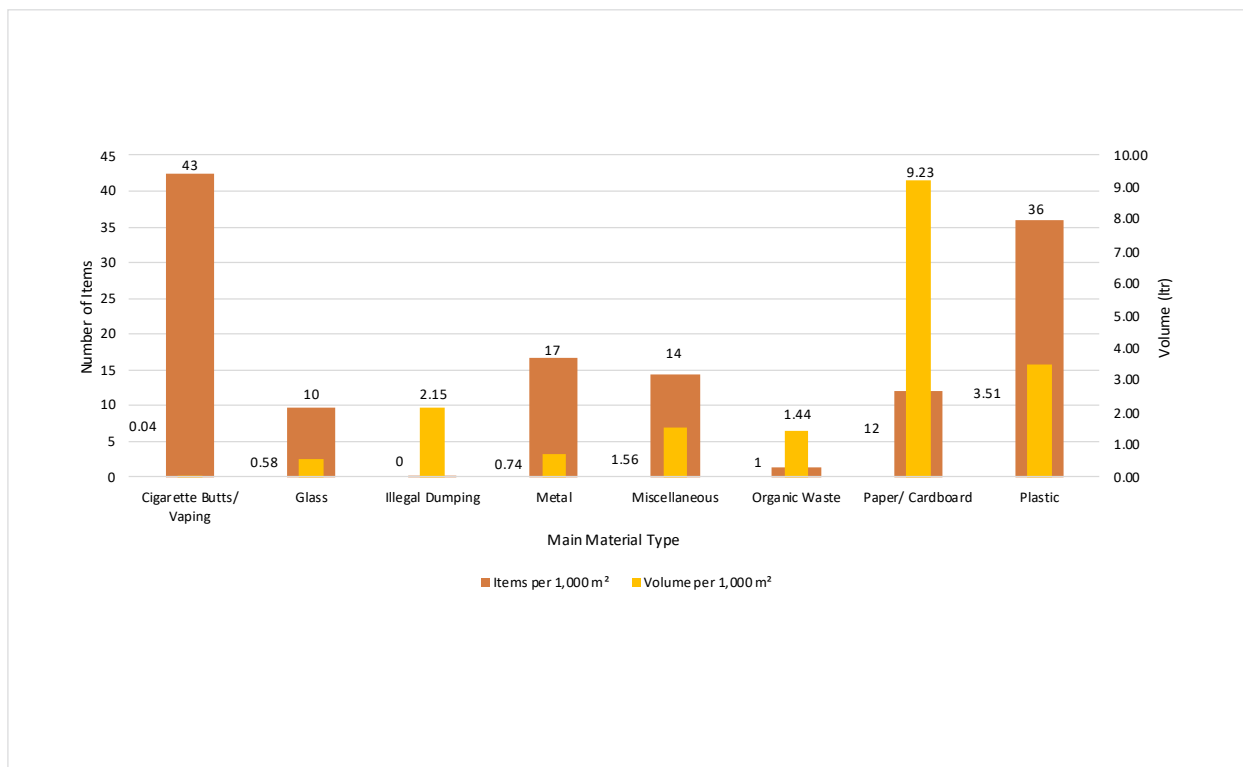
Figure 260: Manawatū-Whanganui 2022, Items and Weight per 1,000 m² by Main Material Type

MAIN MATERIAL CHARACTERISTICS

The following material type characteristics were identified for litter items and volume per 1,000 m² in the Manawatū-Whanganui region (excluding Highway and Railway sites):

- Cigarette Butts/Vaping were associated with high numbers of litter items and low litter volumes.

- Paper/Cardboard was associated with moderate numbers of litter items and large litter volumes.

- Plastic was associated with large numbers of litter items and moderate to high litter volumes.

- Miscellaneous items were associated with moderate numbers of litter items and small to moderate litter volumes.

- Metal contributed moderate numbers of litter items and small litter volumes.

- Glass contributed low to moderate numbers of litter items and small litter volumes.

- Organic Waste was associated with small numbers of litter items and contributed low litter volumes.

- Illegal Dumping contributed small numbers of litter items and moderate litter volumes.

Figure 261: Manawatū-Whanganui 2022, Items and Volume per 1,000 m² by Main Material Type
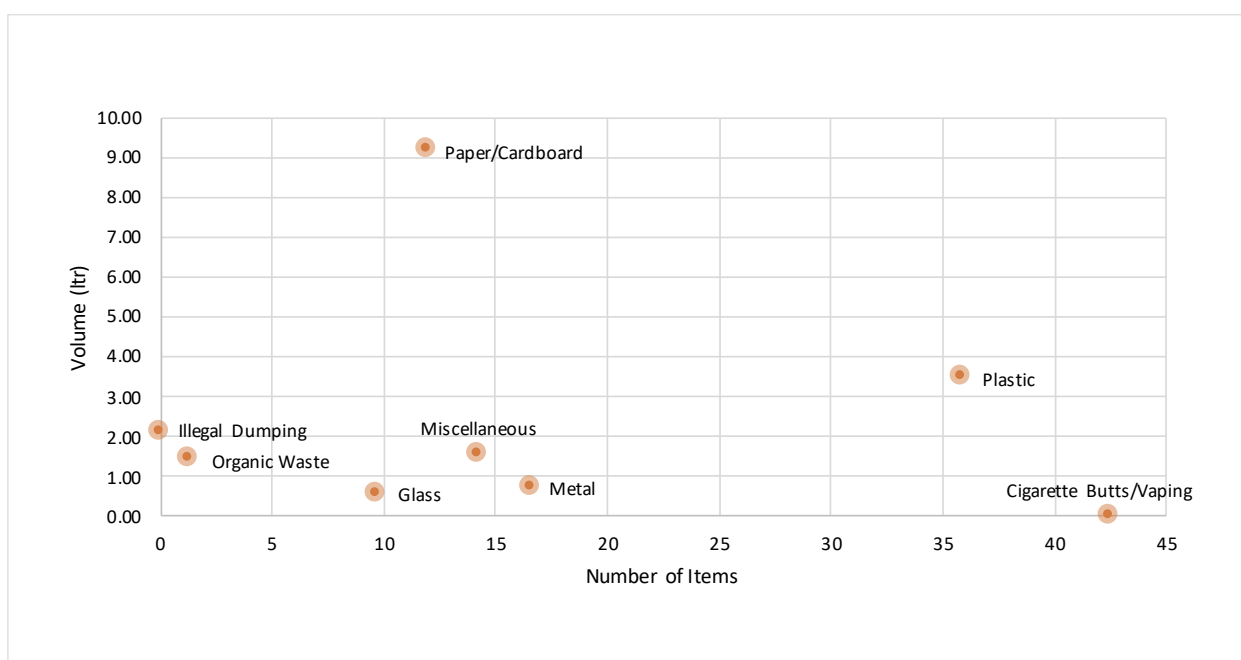
The following material type characteristics were identified for litter items and weight per 1,000 m² in the Manawatū-Whanganui region (excluding Highway and Railway sites):

- Miscellaneous items were associated with moderate numbers of litter items, however they contributed large litter weights.

- Plastic contributed high numbers of litter items and moderate litter weights to the litter stream.

- Cigarette Butts/Vaping items were associated with high numbers of litter items, but contributed small litter weights.

- Paper/Cardboard and Metal items contributed moderate numbers of litter items and moderate litter weights.

- Glass items contributed low to moderate numbers of litter items and moderate litter weights.

- Organic Waste contributed low numbers of litter items and small litter weights to the overall litter stream.

Figure 262: Manawatū-Whanganui 2022, Items and Weight per 1,000 m² by Main Material Type
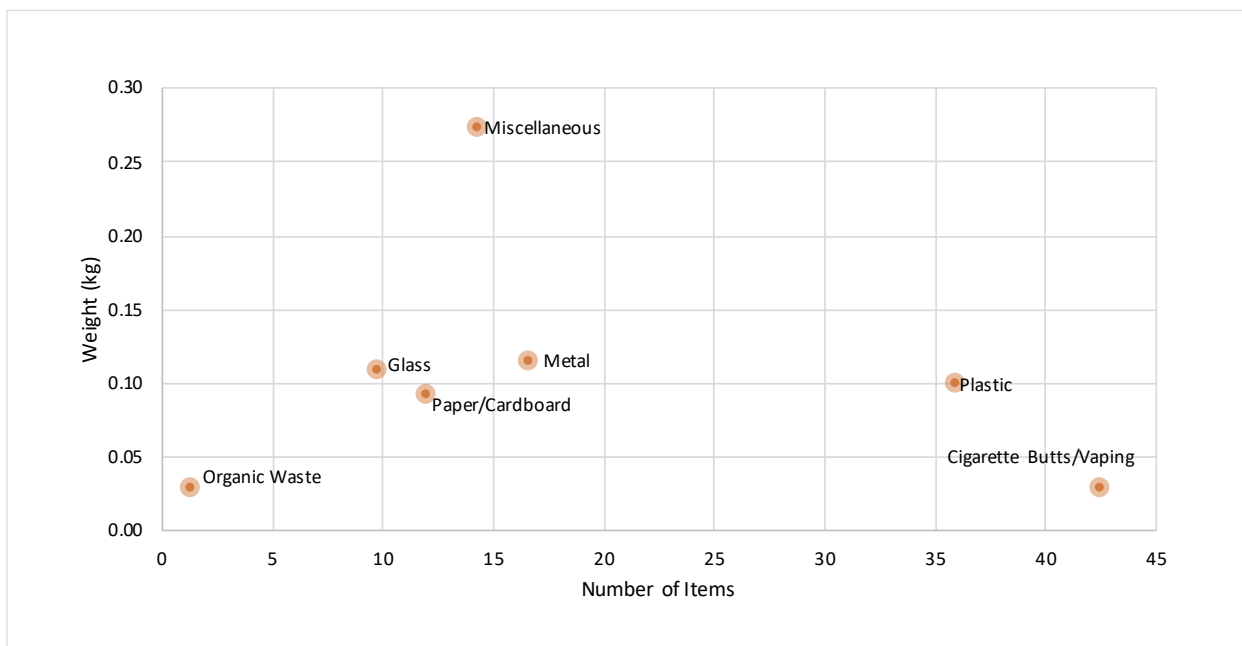
COMPARISONS BY MAIN MATERIAL TYPE OVER TIME

Compared with 2019, the material types, Plastic and Metal have seen increases across all three measures, including number of litter items, estimated volume and weight per 1,000 m².
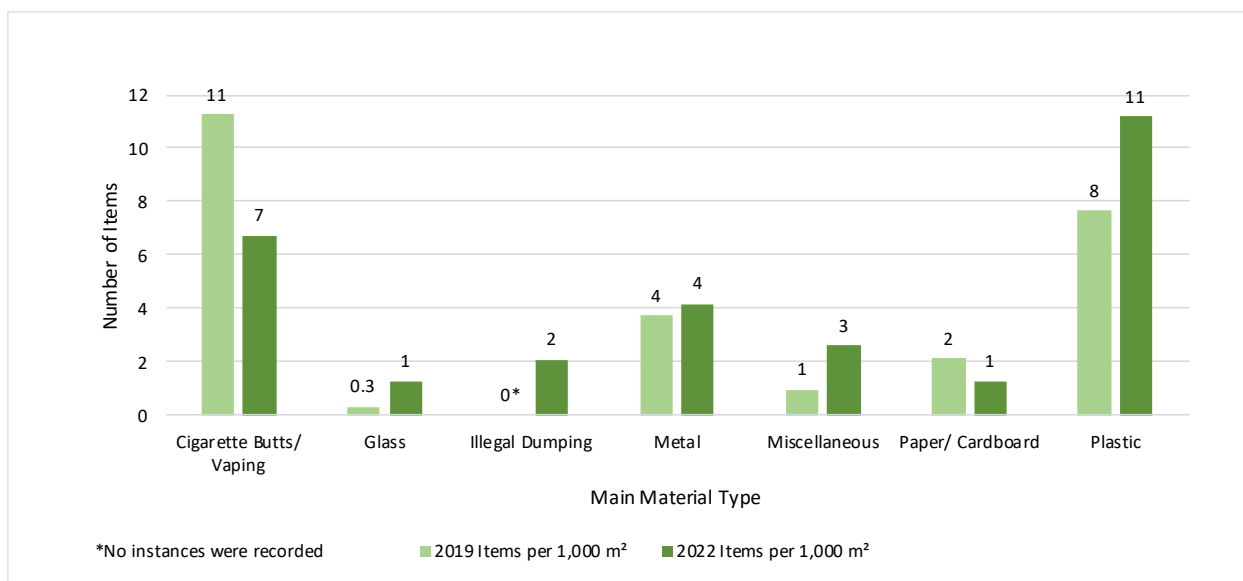
ITEMS PER 1,000 M²

Since 2019, most material categories have seen increases in the number of items of litter collected per 1,000 m², with the highest increase being seen in Plastic (36 items

Whilst the volume has decreased slightly, the weight and number of items classified under Miscellaneous items has increased significantly per 1,000 m² since 2019.

vs. 21 items in 2019). The number of litter items classified under Glass, Paper/Cardboard and Organic Waste have remained relatively consistent with 2019.

Figure 263: Manawatū-Whanganui, Items per 1,000 m² by Main Material Type: Comparison Over Time
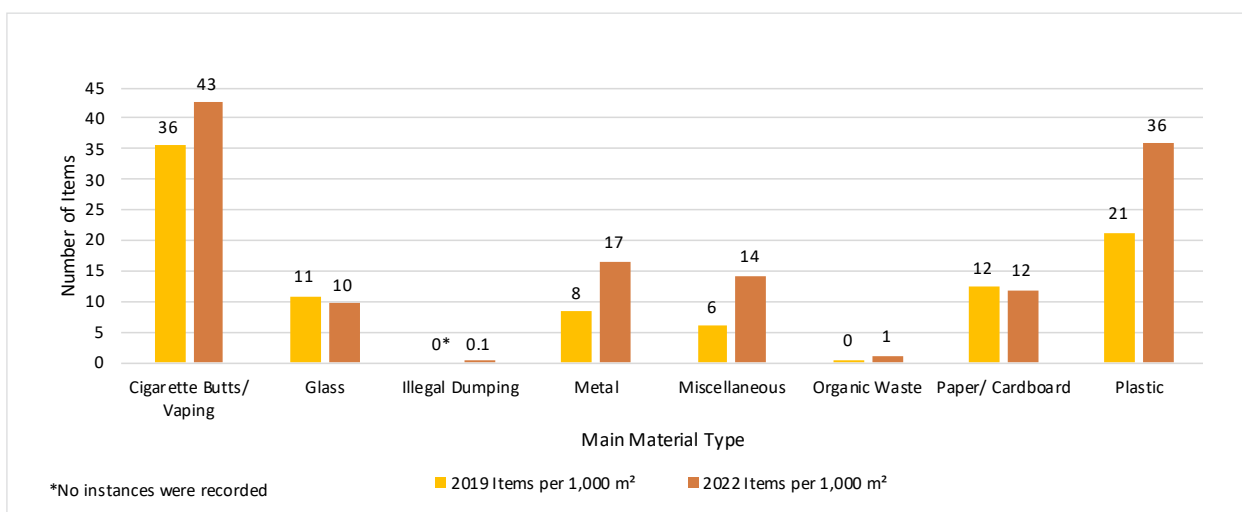
VOLUME PER 1,000 M²

Since 2019, the biggest increases in the litter volume of material types per 1,000 m² in the Manawatū-Whanganui region can be seen in Paper/Cardboard (9.23 ltr vs. 1.36 ltr in 2019), Illegal Dumping (2.15 ltr vs. 0.00 ltr in 2019), and Plastic (3.51 ltr vs. 1.66 ltr in 2019).

Figure 264: Manawatū-Whanganui, Volume per 1,000 m² by Main Material Type: Comparison Over Time

*No instances were recorded

■ 2019 Volume per 1,000 m²   ■ 2022 Volume per 1,000 m²
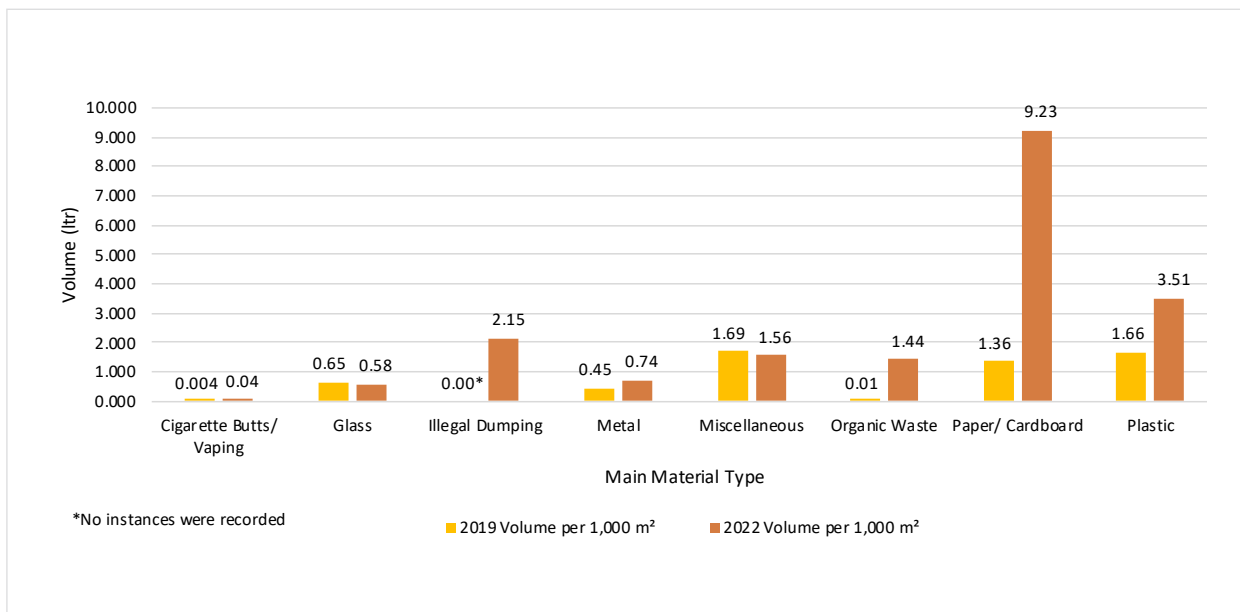
WEIGHT PER 1,000 M²

Whilst all material categories recorded increases in litter weight per 1,000 m² in the Manawatū-Whanganui region since 2019, there has been a substantial increase in the weight of items classified under Miscellaneous (0.27 kg. vs. 0.05 kg in 2019).

Figure 265: Manawatū-Whanganui, Weight per 1,000 m² by Main Material Type: Comparison Over Time

■ 2019 Weight per 1,000 m²   ■ 2022 Weight per 1,000 m²
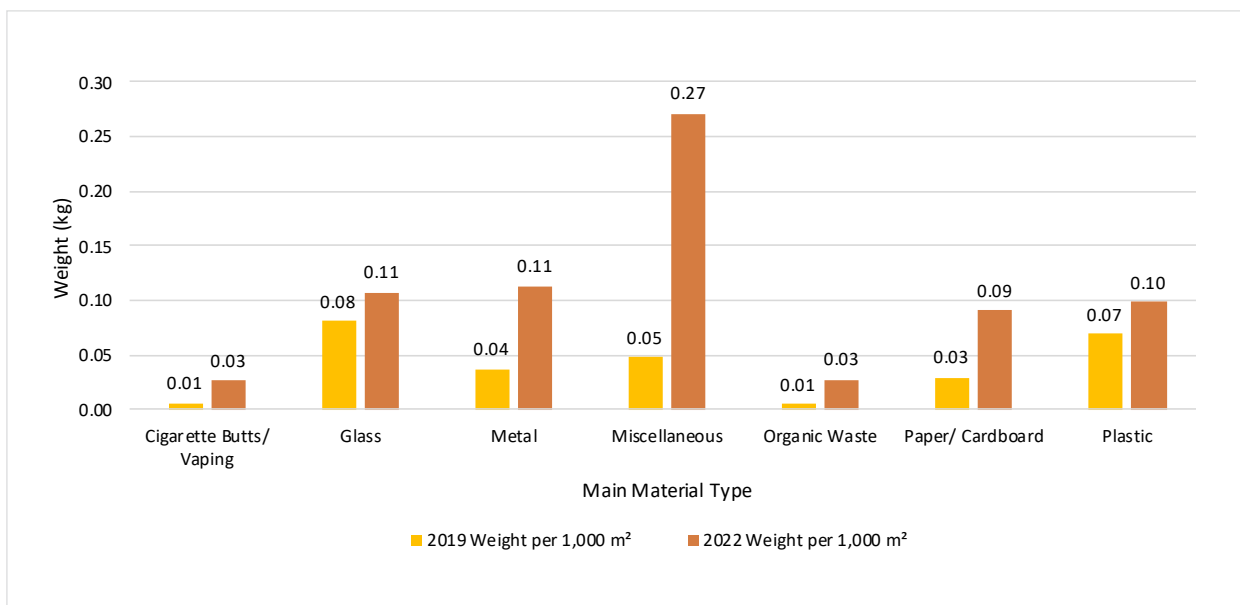
SITE TYPES BY MAIN MATERIAL TYPE

In the Manawatū-Whanganui region, the number of material type litter items collected per 1,000 m² at the different site types (excluding Highway and Railway sites) was as follows:

- Car Park sites: Cigarette Butts/Vaping (48 items), Plastic (41 items), Metal (26 items), Miscellaneous (19 items), Paper/Cardboard (9 items), Glass (8 items), Organic Waste (1 item) and Illegal Dumping (less than 1 item).

- Industrial sites: Plastic (167 items), Cigarette Butts/Vaping (134 items), Metal (67 items), Paper/Cardboard (64 items), Glass (56 items), Miscellaneous (39 items), Organic Waste (2 items) and Illegal Dumping (0 items).

- Public Recreational Spaces: Plastic (6 items), Miscellaneous (3 items), Glass (2 items), Paper/Cardboard (1 item), Metal (1 item), Cigarette Butts/Vaping (0 items), Organic Waste (0 items) and Illegal Dumping (0 items).

- Residential sites: Plastic (34 items), Paper/Cardboard (19 items), Cigarette Butts/Vaping (15 items), Glass (13 items), Metal (12 items), Miscellaneous (10 items), Organic Waste (1 item) and Illegal Dumping (0 items).

- Retail sites: Cigarette Butts/Vaping (228 items), Plastic (91 items), Miscellaneous (49 Items), Metal (44 items), Paper/Cardboard (32 items), Glass (20 items), Organic Waste (7 items) and Illegal Dumping (0 items).

Figure 266: Manawatū-Whanganui 2022, Sites by Main Material Type: Items per 1,000 m²
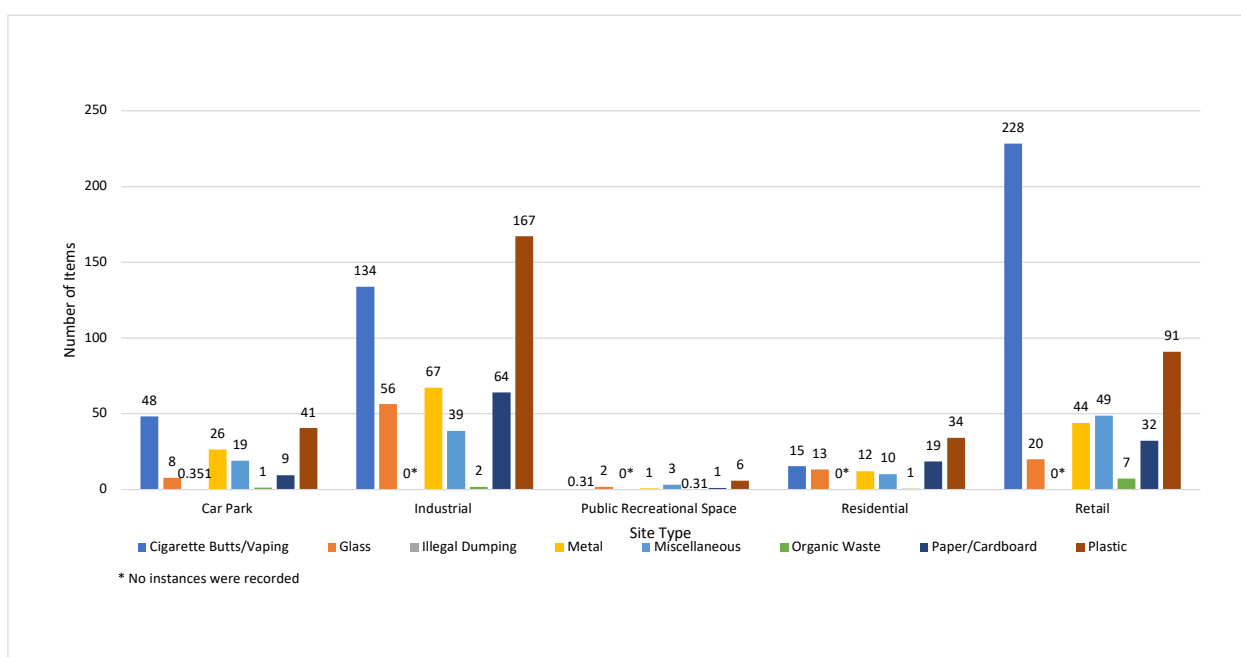
THE DIRTY DOZEN

Cigarette/Vaping: Cigarette butts were the most frequently identified litter item in the Manawatū-Whanganui region, with an average of 42 butts recorded per 1,000 m² across the sites audited.

Other frequently identified litter items in the Manawatū-Whanganui region included:

• Plastic: Unidentifiable hard plastic fragments (11 items per 1,000 m²)

• Glass: Unidentifiable glass fragments (8 items per 1,000 m²)

• Plastic: Unidentifiable soft plastic fragments (8 items per 1,000 m²)

Not all material subcategories were comparable to the 2019 NLA due to the addition of new subcategories in 2022.

Amongst the comaparable material subcategories, the number of Cigarette/Vaping: Cigarette butts collected per 1,000 m² in the Manawatū-Whanganui region has increased since 2019 (42 items vs. 36 items in 2019). Another increase can be seen in the number of Metal: Bottle caps, lids & pull tabs collected (6 items vs. 3 items in 2019).

Figure 267: Manawatū-Whanganui, Dirty Dozen, Items per 1,000 m², Material Subcategories: Comparison Over Time
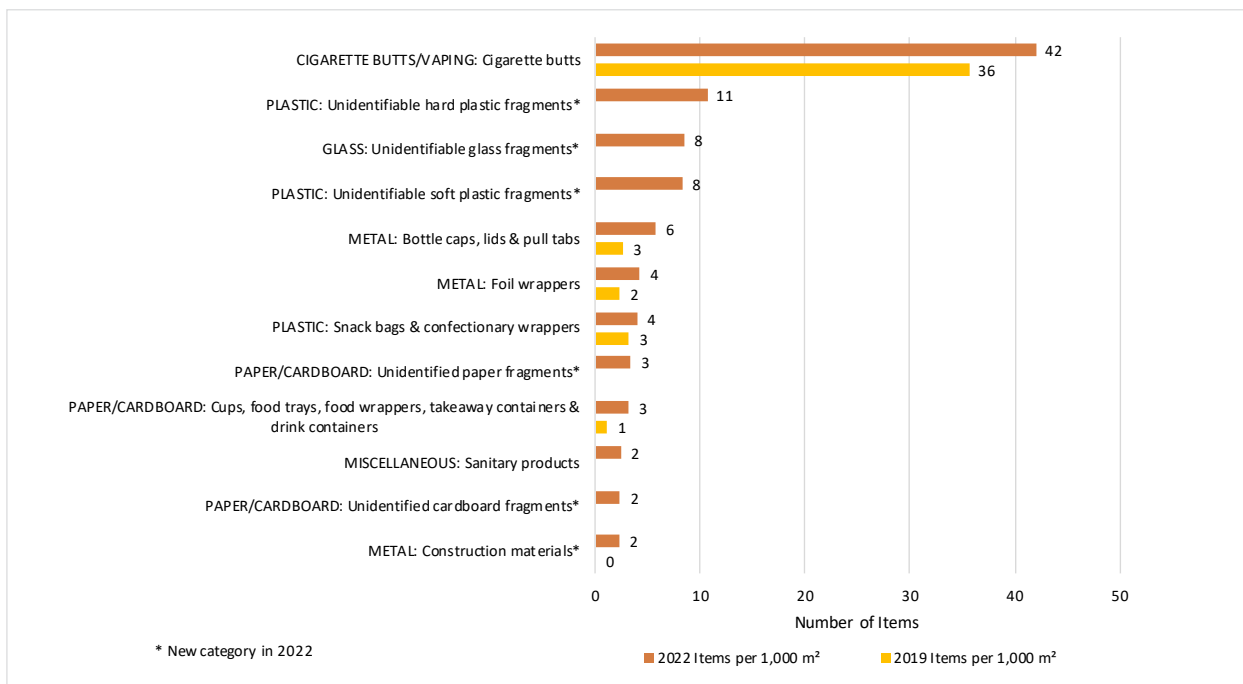
The largest contributor to the estimated litter volume of in the Manawatū-Whanganui region was Paper/Cardboard: Cardboard boxes, with a litter volume of 6.44 ltr per 1,000 m².
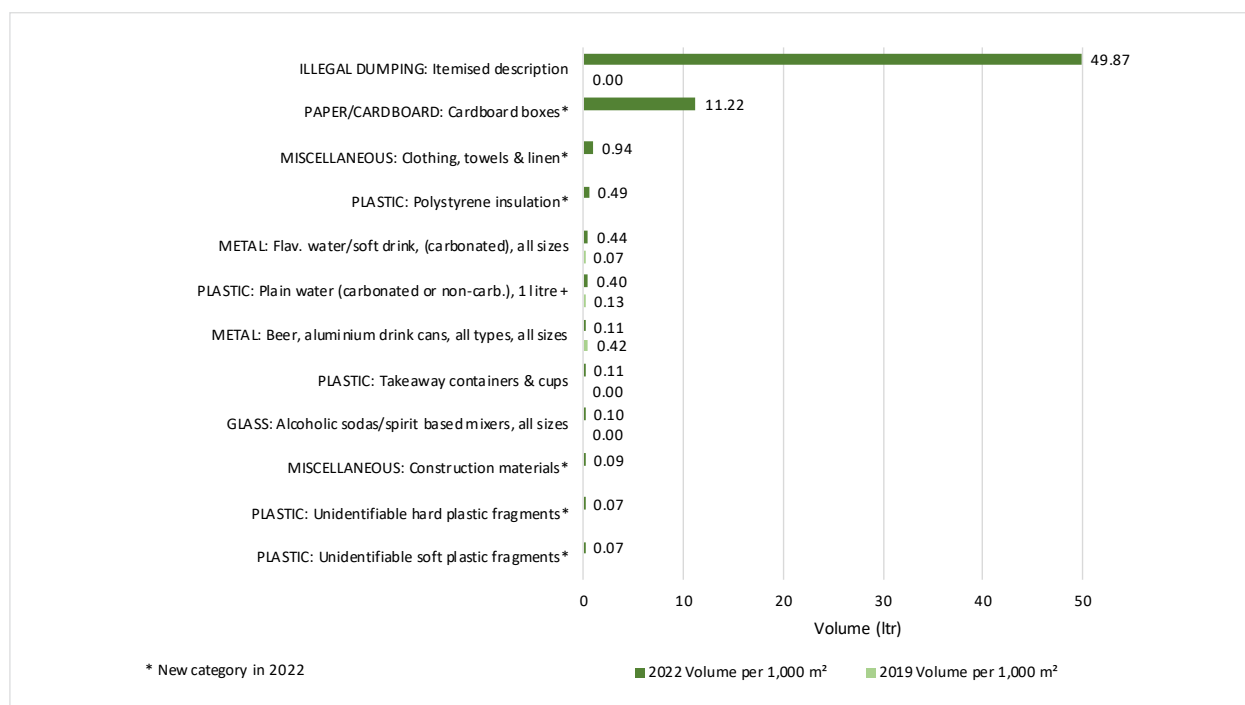
Other material subcategories which were associated with large litter volumes per 1,000 m² included:

• Paper/Cardboard: Cups, food trays, food wrappers, takeaway & drink containers (2.30 ltr per 1,000 m²)

• Illegal Dumping (2.15 ltr per 1,000 m²)

• Plastic: Polystyrene insulation (2.01 ltr per 1,000 m²)

• Organic Waste: Compostable packaging (1.41 ltr per 1,000 m²)

Not all material subcategories were comparable to the 2019 NLA due to the addition of new subcategories in 2022..

Amongst the comparable material subcategories most of the categories featured in Manawatū-Whanganui region's Dirty Dozen (as shown in the graph below) shows that the biggest difference in litter volume per 1,000 m² has been seen in Paper/Cardboard: Cups, food trays, food wrappers, takeaway containers & drink containers, which has increased by 1.46 ltr since 2019.

Figure 268: Manawatū-Whanganui, Dirty Dozen, Volume per 1,000 m², Material Subcategories: Comparison Over Time

The largest materials subcategory litter weights per 1,000 m² were associated with Miscellaneous: miscellaneous (other), recording a weight of 0.15 kg per 1,000 m² across the sites.

Other material subcategories which were associated with larger litter weights per 1,000 m² included:

- Miscellaneous: Rubber pieces (not tyres) (0.04 kg per 1,000 m²)
- Glass: Beer bottles, < 750 ml, all colours (0.04 kg per 1,000 m²)

Not all material subcategories were comparable to the 2019 NLA due to the addition of new subcategories in 2022.

Amongst comparable material subcategories in the Manawatū-Whanganui region, there are many new material subcategories in 2022. There has been a minor decrease in the weight of Glass: Beer bottles < 750 ml, all colours collected per 1,000 m² in the Manawatū-Whanganui region's Dirty Dozen (0.04 kg vs. 0.05 kg in 2019).

Figure 269: Manawatū-Whanganui, Dirty Dozen, Weight per 1,000 m², Material Subcategories: Comparison Over Time

* New category in 2022

■ 2022 Weight per 1,000 m²   ■ 2019 Weight per 1,000 m²
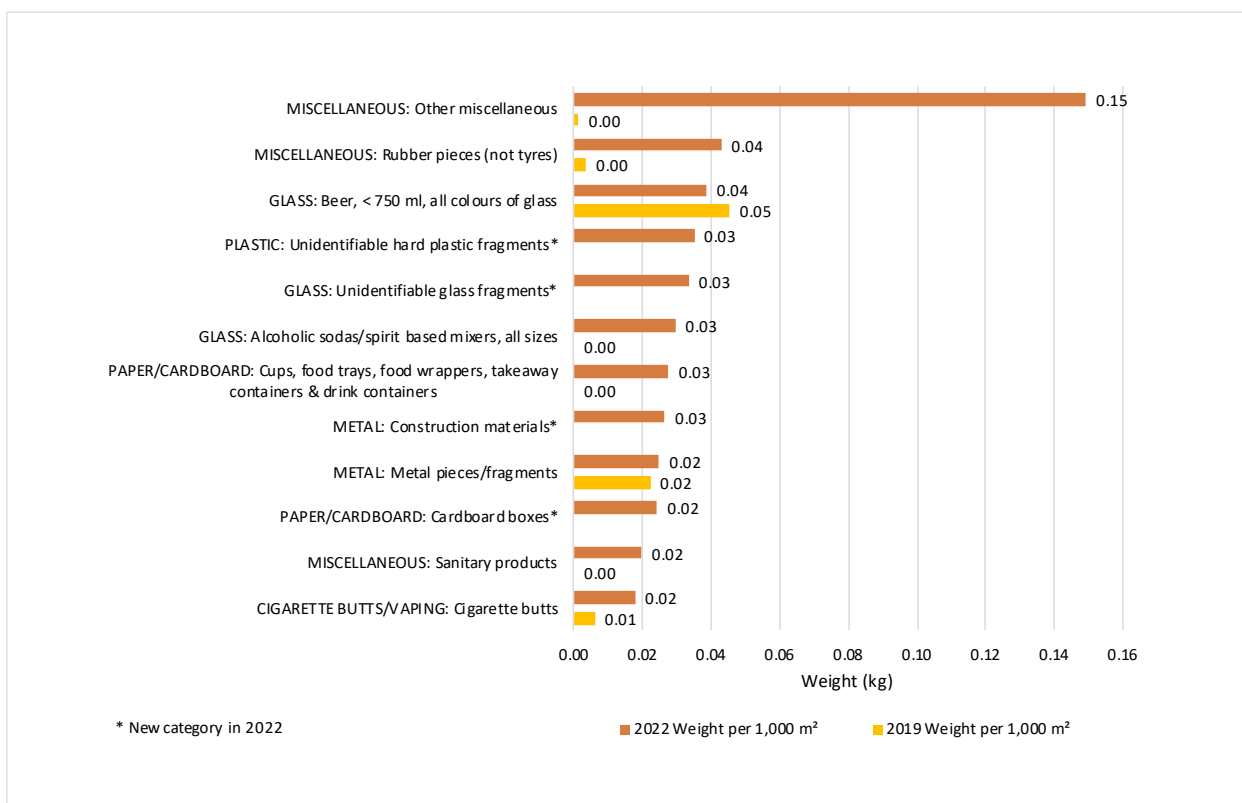
TERRITORIAL SUMMARIES

There are seven Territorial Authorities within the Manawatū-Whanganui region:

- Horowhenua District
- Manawatū 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 Spaces) were audited in the Manawatū-Whanganui region with a minimum of five sites audited from each territory.

Extract from Table 5, 2022 Territory Data: Manawatū-Whanganui Region (Excluding Highway and Railway Sites)

Territory	Total Area Audited (m²)	Items per 1,000 m²	Weight (kg) per 1,000 m²	Volume (ltr) per 1,000 m²
MANAWATŪ-WHANGANUI REGION				
Horowhenua District	4,050	196	0.83	32.54
Manawatū District	4,850	98	0.51	6.01
Masterton District	5,200	135	0.64	18.07
Rangitikei District	4,000	165	0.79	17.18
Ruapehu District	5,750	109	0.61	11.86
Tararua District	4,650	75	0.26	12.84
Whanganui District	5,050	166	1.50	38.40
Manawatū-Whanganui Region Overall	**33,550**	**132**	**0.74**	**19.24**

SITE GRADINGS

All sites were assigned gradings in four 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 Manawatū-Whanganui region.

Extract from Table 3, Risk and Litter Distribution: Manawatū-Whanganui (Excluding Highway and Railway Sites)

	Risk Present		Litter Distribution	
Manawatū-Whanganui	Moderate hazard or risk	Significant hazard or risk	Widespread	Clustered
	100%	0%	71%	29%

Figure 270: Manawatū-Whanganui 2022, Grading: Visual Site Ratings (Excluding Highway and Railway Sites)

Grade A - None   Grade B - Minor   Grade C - Widespread   Grade D - Heavily Affected
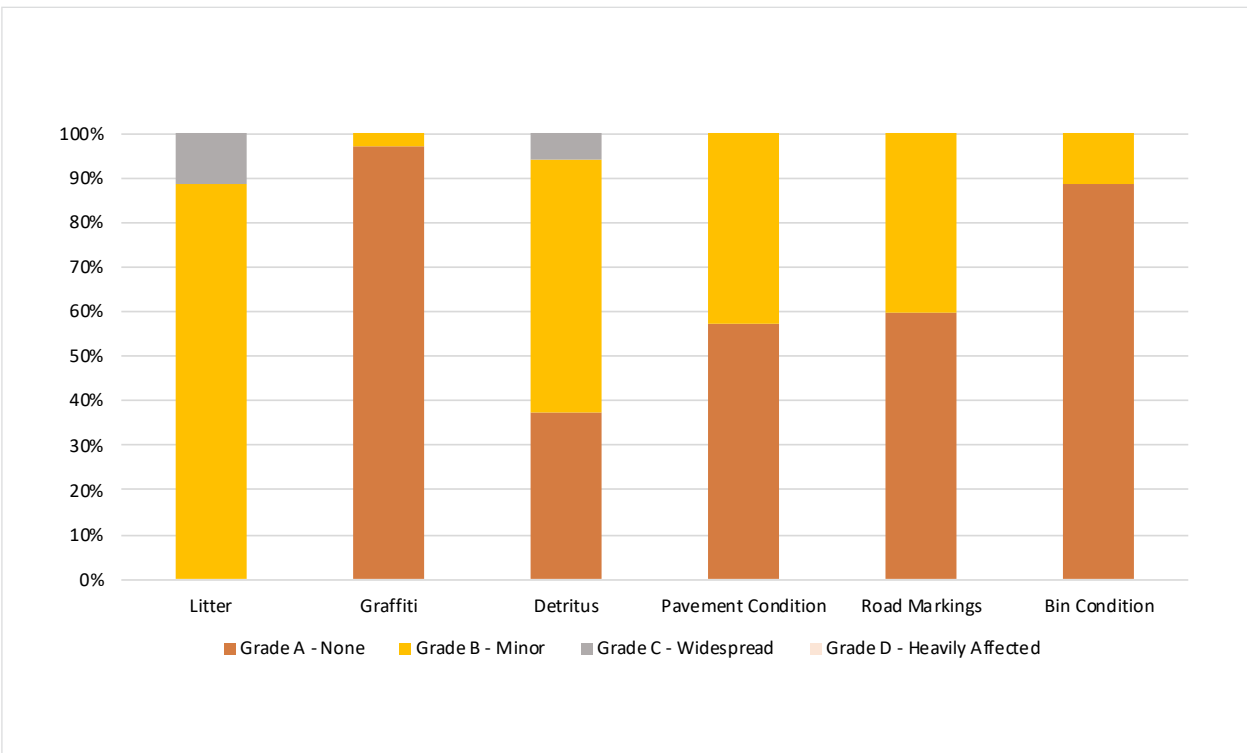
Figure 271: Manawatū-Whanganui 2022, Grading: Site Litter Hotshots Ratings (Excluding Highway and Railway Sites)
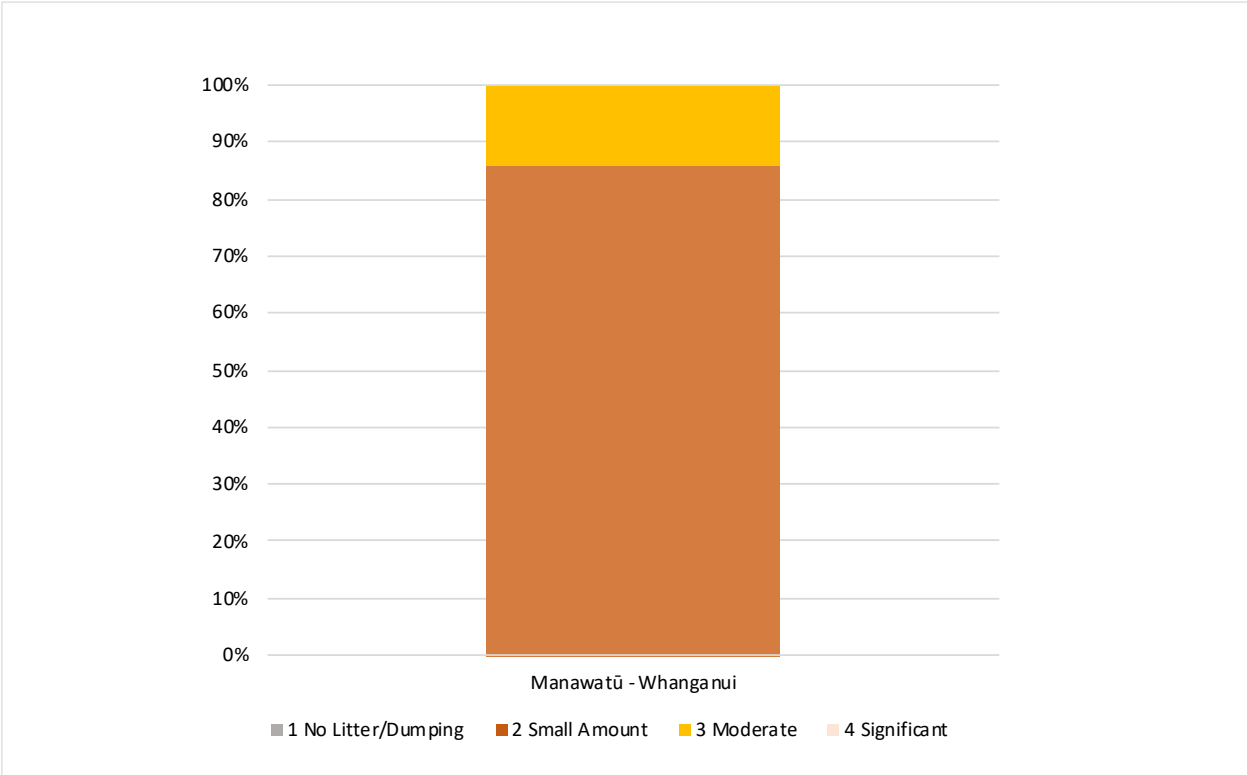
1 No Litter/Dumping   2 Small Amount   3 Moderate   4 Significant

HIGHWAYS AND RAILWAYS

The following section shows the results for Highways and Railways in the Manawatū-Whanganui region. In the Manawatū-Whanganui region one Highway site and three Railway sites were were audited.

Figure 272: Manawatū-Whanganui Highways and Railways, Items per 1,000 m² by Site Type: Comparison Over Time
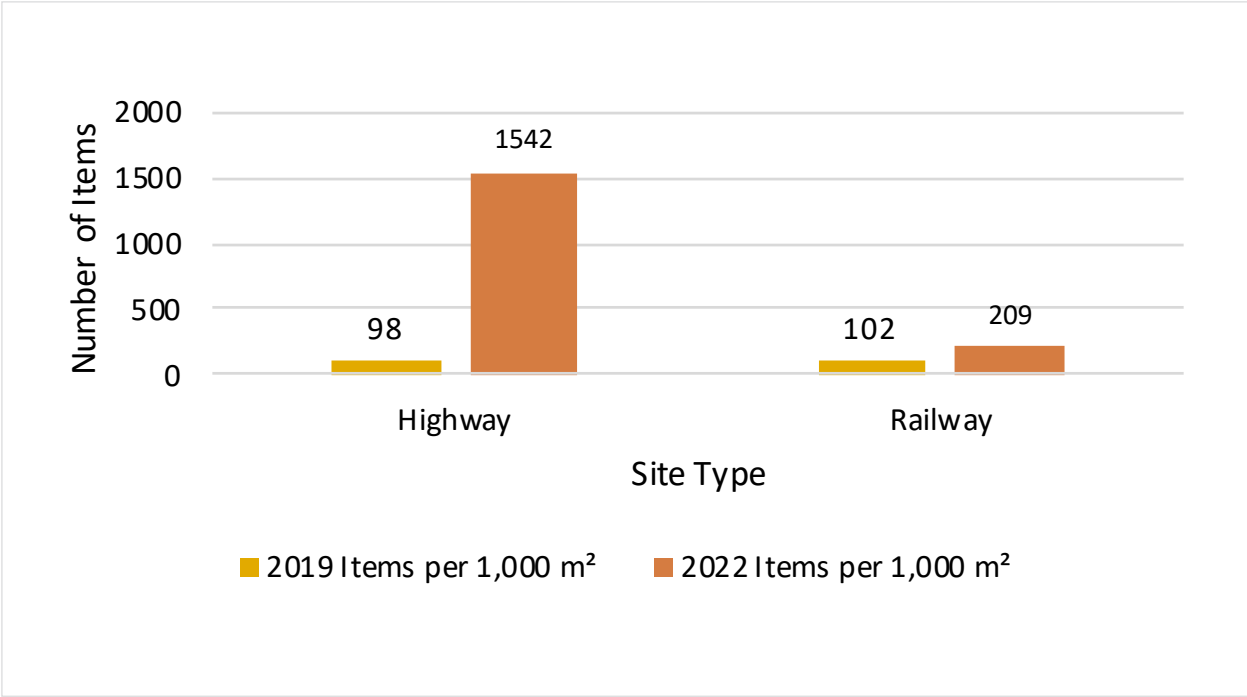
Figure 273: Manawatū-Whanganui Highways and Railways, Weight per 1,000 m² by Site Type: Comparison Over Time
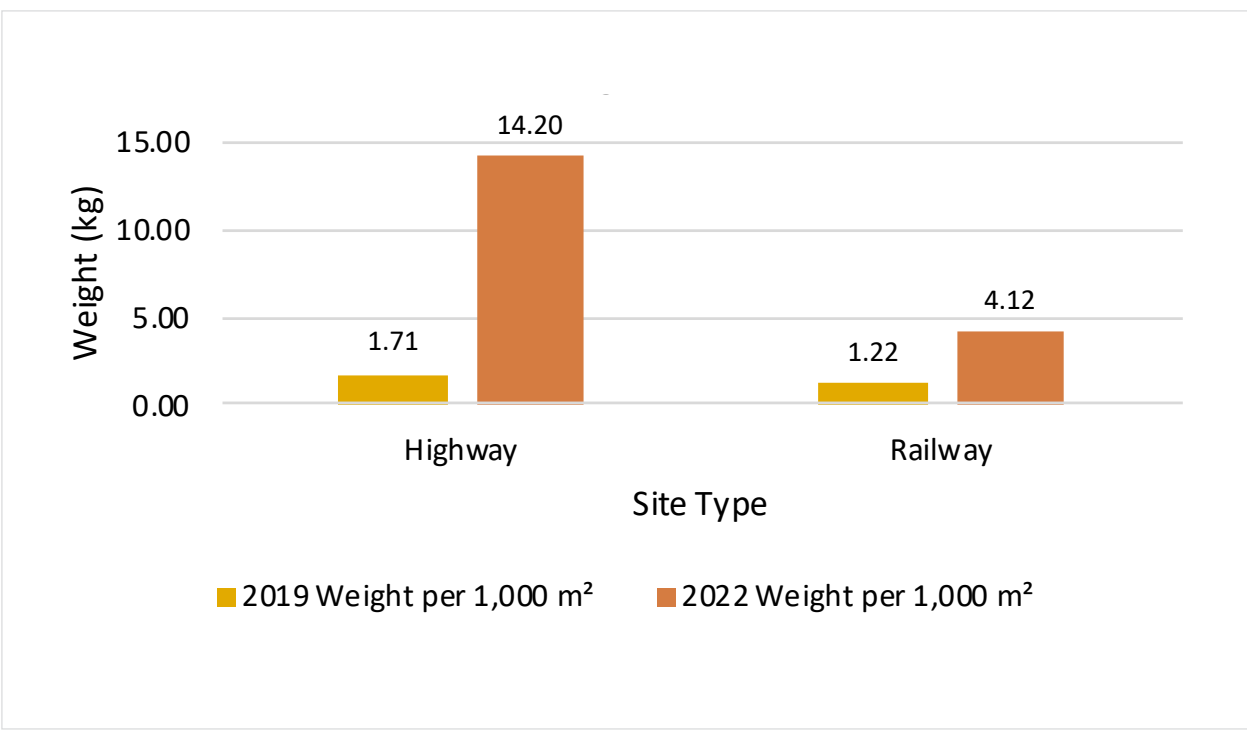
Figure 274: Manawatū-Whanganui Highways and Railways, Volume per 1,000 m² by Site Type: Comparison Over Time
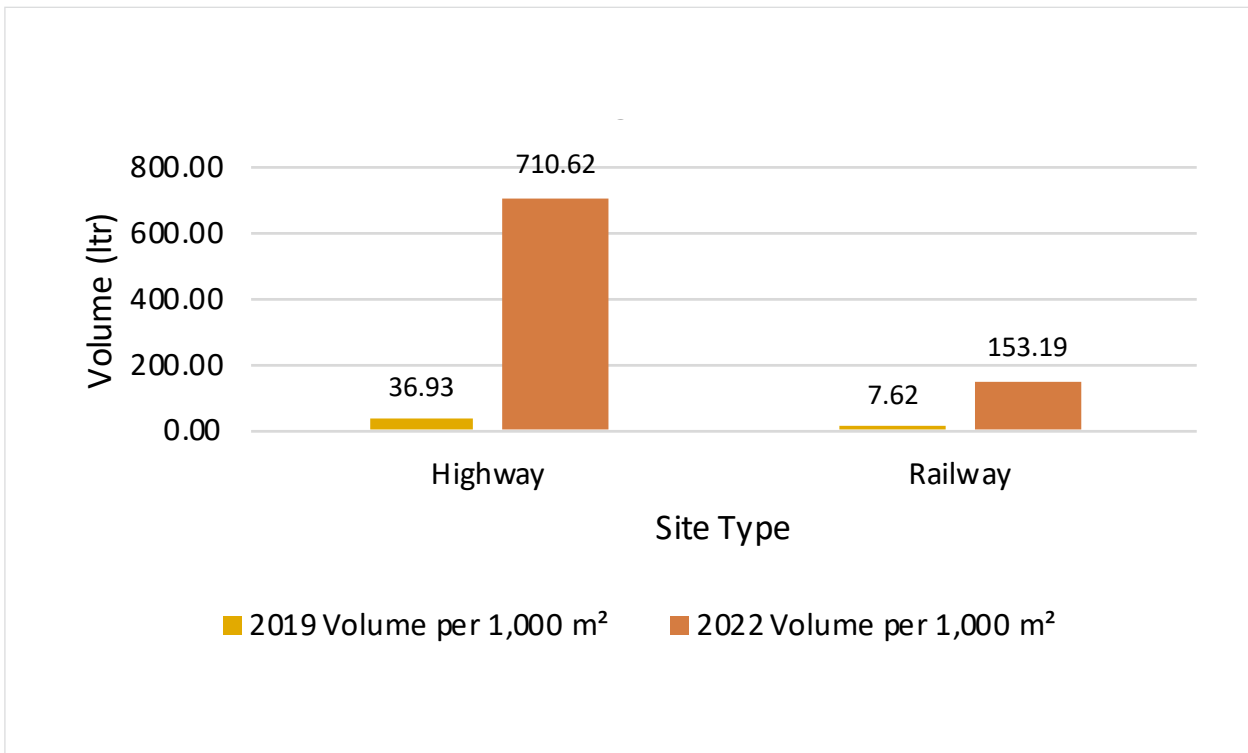
Figure 275: Manawatū-Whanganui Highways, Items per 1,000 m² by Main Material Type: Comparison Over Time
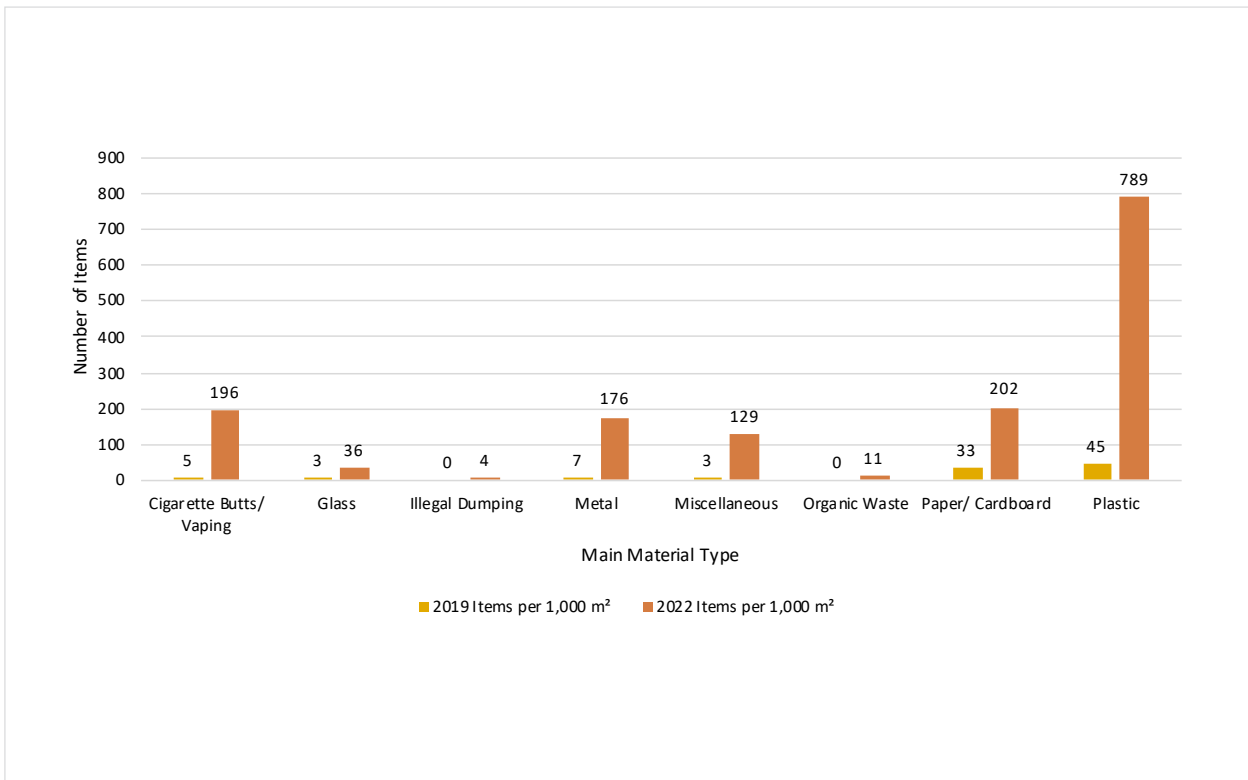
Figure 276: Manawatū-Whanganui Highways, Weight per 1,000 m² by Main Material Type: Comparison Over Time
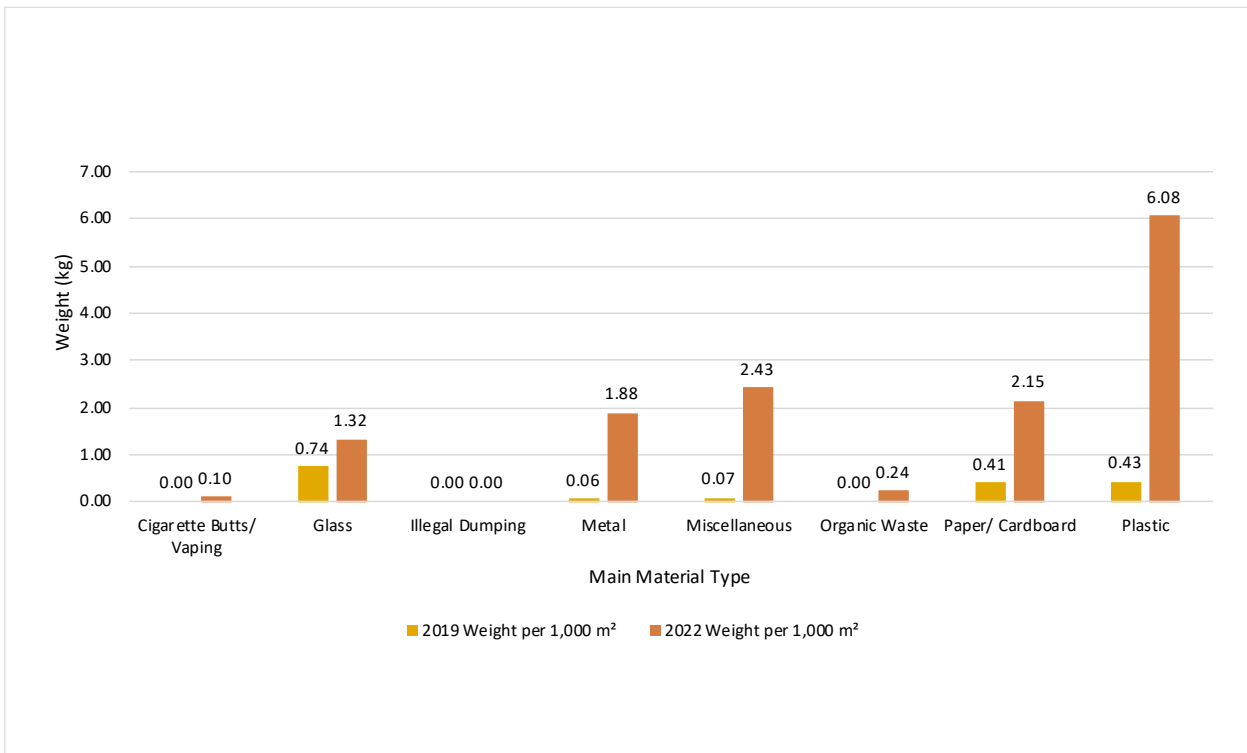
Figure 277: Manawatū-Whanganui Highways, Volume per 1,000 m² by Main Material Type: Comparison Over Time
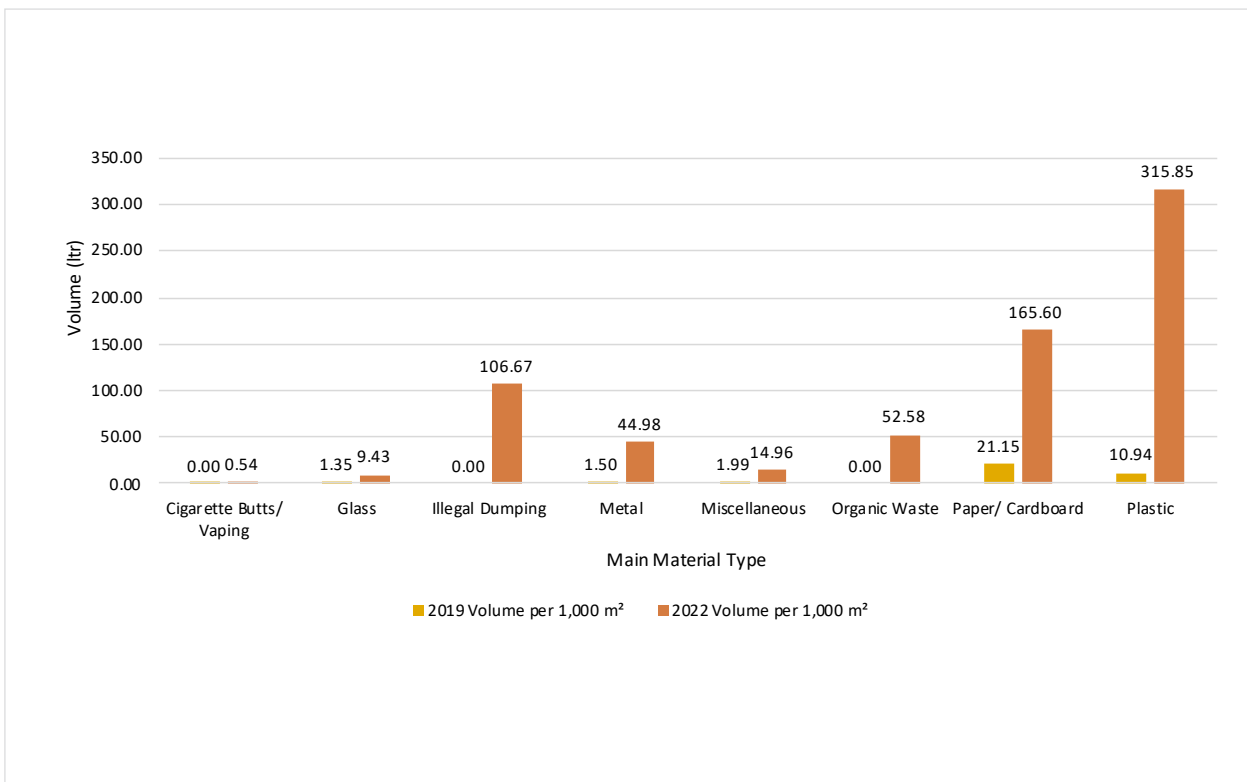
Figure 278: Manawatū-Whanganui Railways, Items per 1,000 m² by Main Material Type: Comparison Over Time
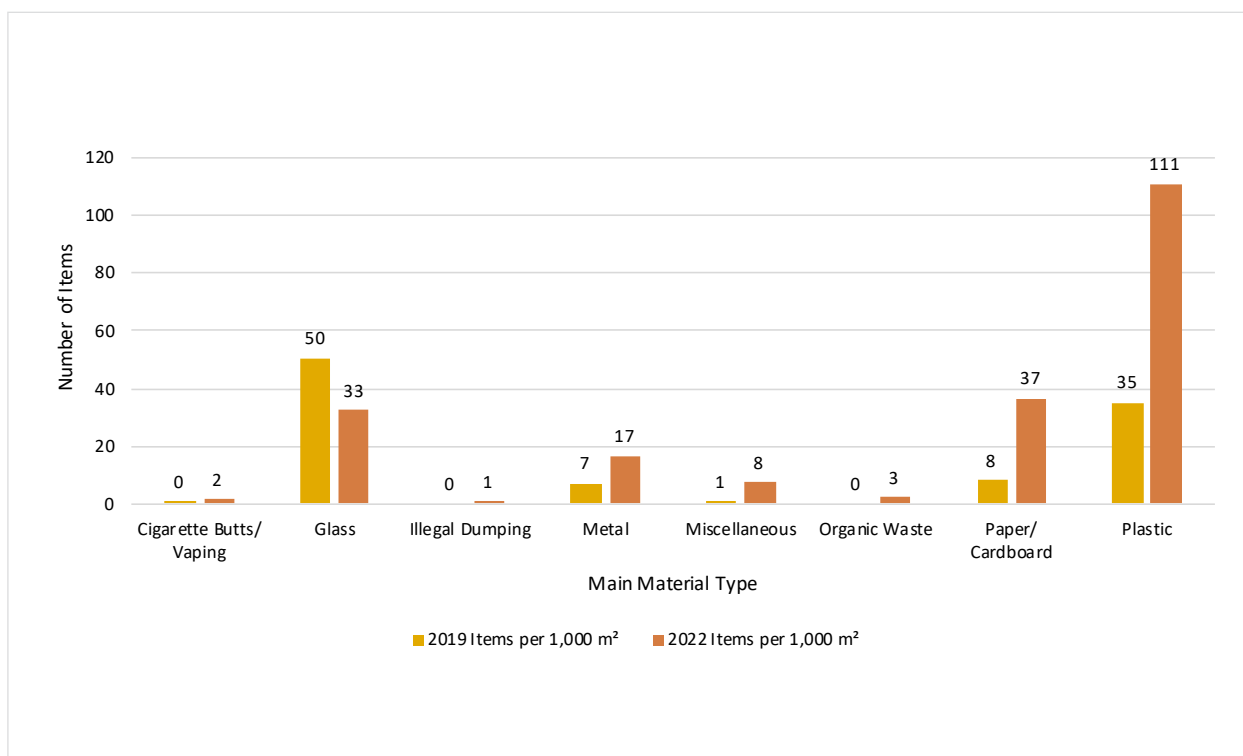
Figure 279: Manawatū-Whanganui Railways, Weight per 1,000 m² by Main Material Type: Comparison Over Time
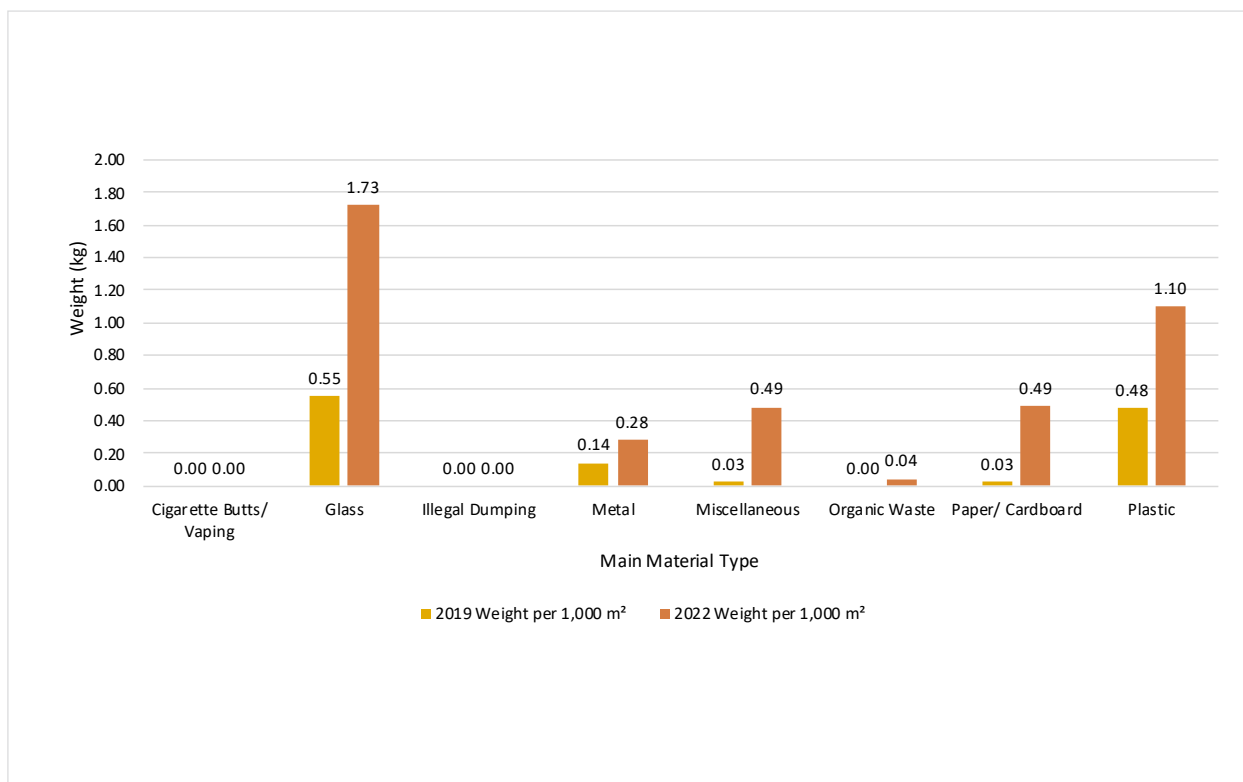
Figure 280: Manawatū-Whanganui Railways, Volume per 1,000 m² by Main Material Type: Comparison Over Time
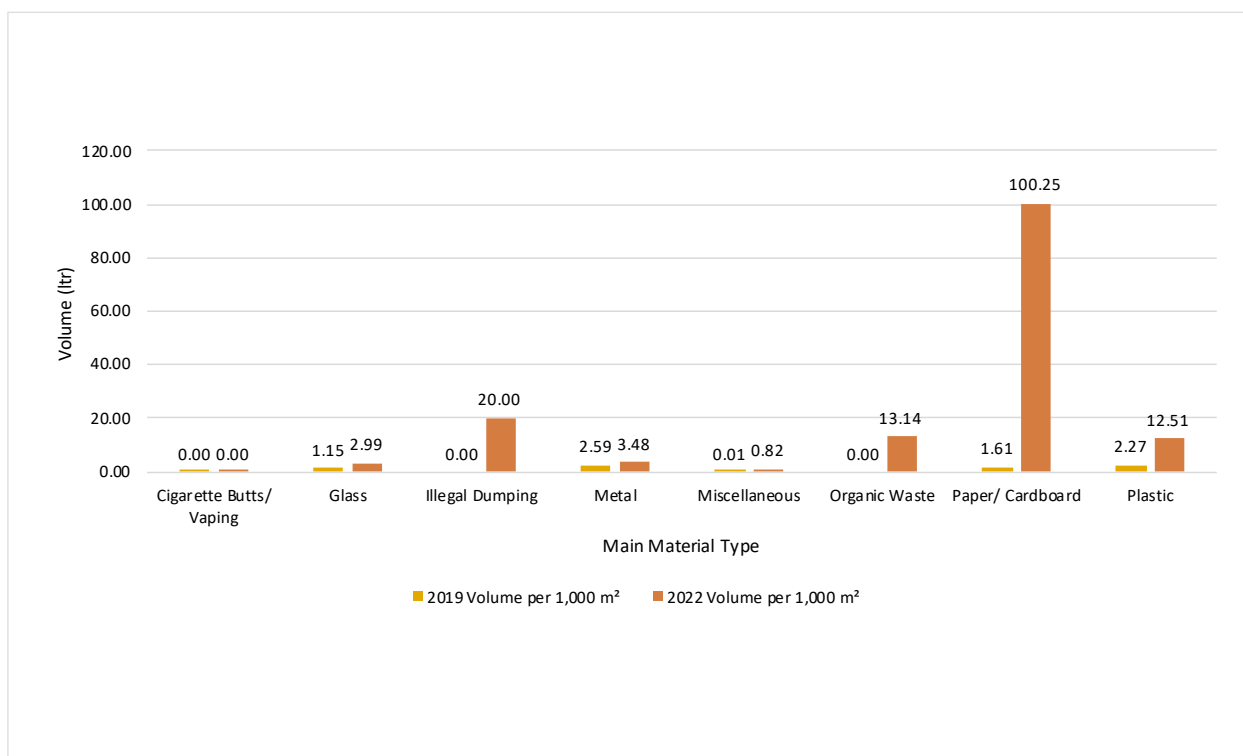
Figure 281: Manawatū-Whanganui Highways, Dirty Dozen, Items per 1,000 m², Material Subcategories: Comparison Over Time
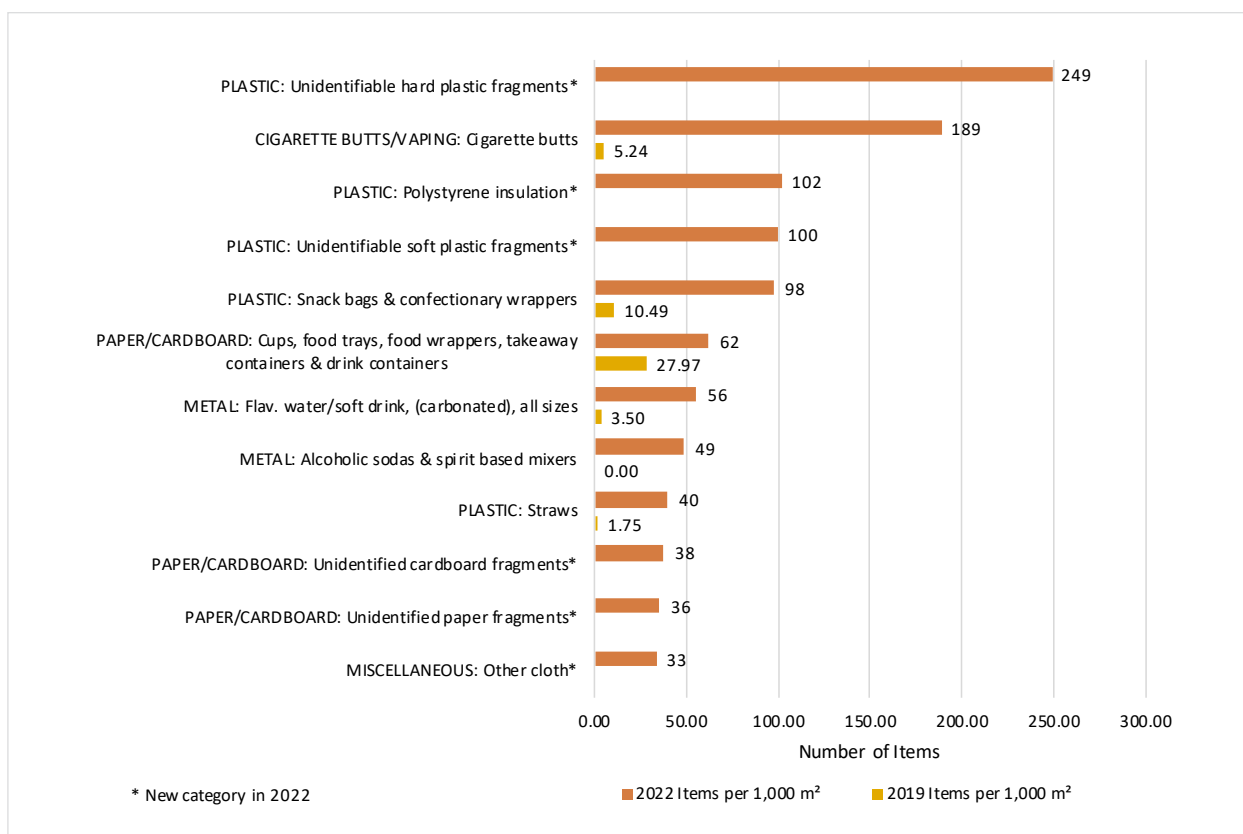
Figure 282: Manawatū-Whanganui Highways, Dirty Dozen, Weight per 1,000 m², Material Subcategories: Comparison Over Time

PLASTIC: Unidentifiable hard plastic fragments* — 1.32
GLASS: Alcoholic sodas/spirit based mixers, all sizes — 1.28 / 0.32
MISCELLANEOUS: Rubber pieces (not tyres) — 1.14 / 0.00
PLASTIC: Polystyrene insulation* — 1.02
MISCELLANEOUS: Other cloth* — 0.78
METAL: Flav. water/soft drink, (carbonated), all sizes — 0.76 / 0.05
PAPER/CARDBOARD: Cups, food trays, food wrappers, takeaway containers & drink containers — 0.76 / 0.40
PLASTIC: Bags - heavier glossy typically branded carry bags — 0.74 / 0.00
METAL: Alcoholic sodas & spirit based mixers — 0.55 / 0.00
PAPER/CARDBOARD: Cartons, flavoured milk, <1 litre — 0.48 / 0.00
METAL: Construction materials* — 0.40
PLASTIC: Flav. water/soft drink (carbonated), <1 litre — 0.36 / 0.07

Weight (kg)

* New category in 2022

■ 2022 Weight per 1,000 m²   ■ 2019 Weight per 1,000 m²

Figure 283: Manawatū-Whanganui Highways, Dirty Dozen, Volume per 1,000 m², Material Subcategories: Comparison Over Time

PLASTIC: Polystyrene insulation* — 191.67
ILLEGAL DUMPING: Itemised description — 106.67 / 0.00
PAPER/CARDBOARD: Cardboard boxes* — 95.98
PLASTIC: Containers, domestic type — 73.99 / 0.00
ORGANIC WASTE: Compostable packaging* — 52.43
PAPER/CARDBOARD: Cups, food trays, food wrappers, takeaway containers & drink containers — 45.36 / 20.39
METAL: Flav. water/soft drink, (carbonated), all sizes — 23.64 / 1.49
METAL: Alcoholic sodas & spirit based mixers — 21.09 / 0.00
PAPER/CARDBOARD: Cartons, flavoured milk, <1 litre — 17.93 / 0.00
PLASTIC: Flav. water/soft drink (carbonated), 1 litre + — 11.03 / 0.00
PLASTIC: Flav. water/soft drink (carbonated), <1 litre — 9.68 / 2.18
MISCELLANEOUS: Clothing, towels & linen* — 8.03

Volume (ltr)

* New category in 2022

■ 2022 Volume per 1,000 m²   ■ 2019 Volume per 1,000 m²

Figure 284: Manawatū-Whanganui Railways, Dirty Dozen, Items per 1,000 m², Material Subcategories: Comparison Over Time

* New category in 2022
■ 2022 Items per 1,000 m²   ■ 2019 Items per 1,000 m²
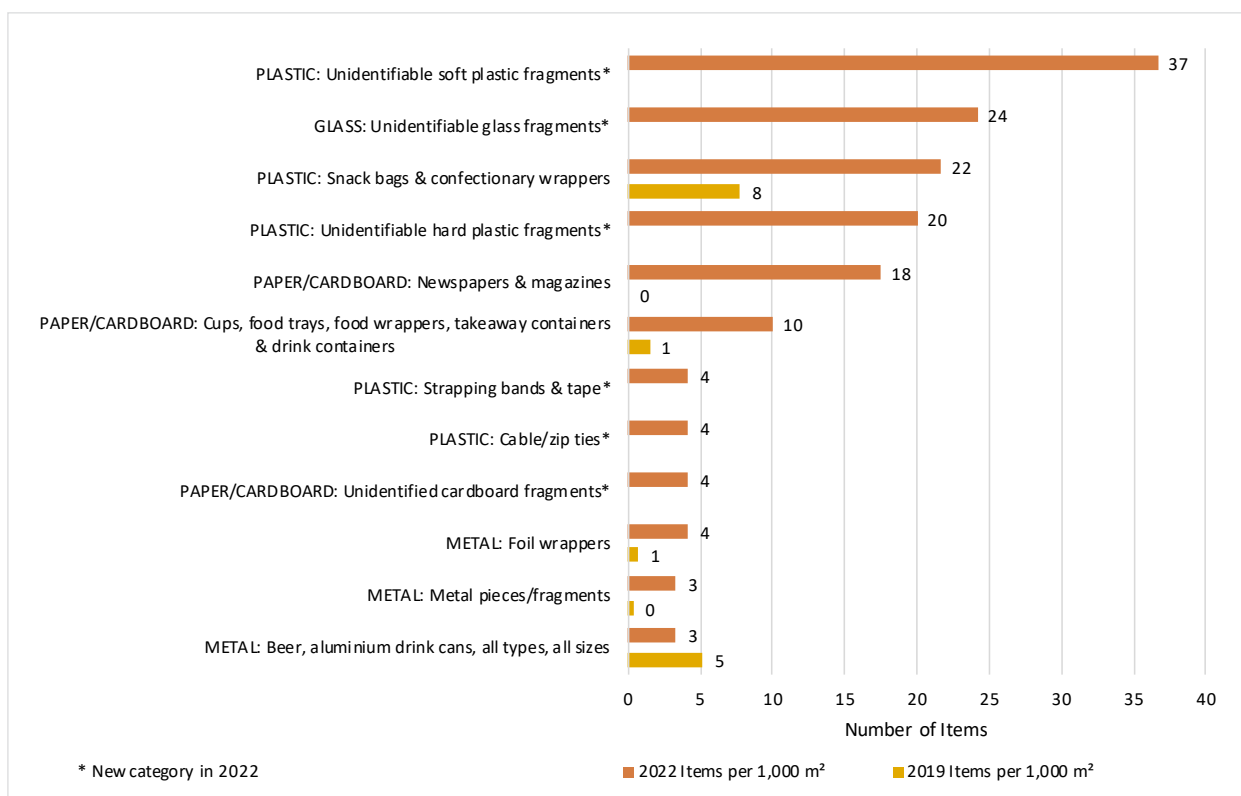
Figure 285: Manawatū-Whanganui Railways, Dirty Dozen, Weight per 1,000 m², Material Subcategories: Comparison Over Time

* New category in 2022
■ 2022 Weight per 1,000 m²   ■ 2019 Weight per 1,000 m²
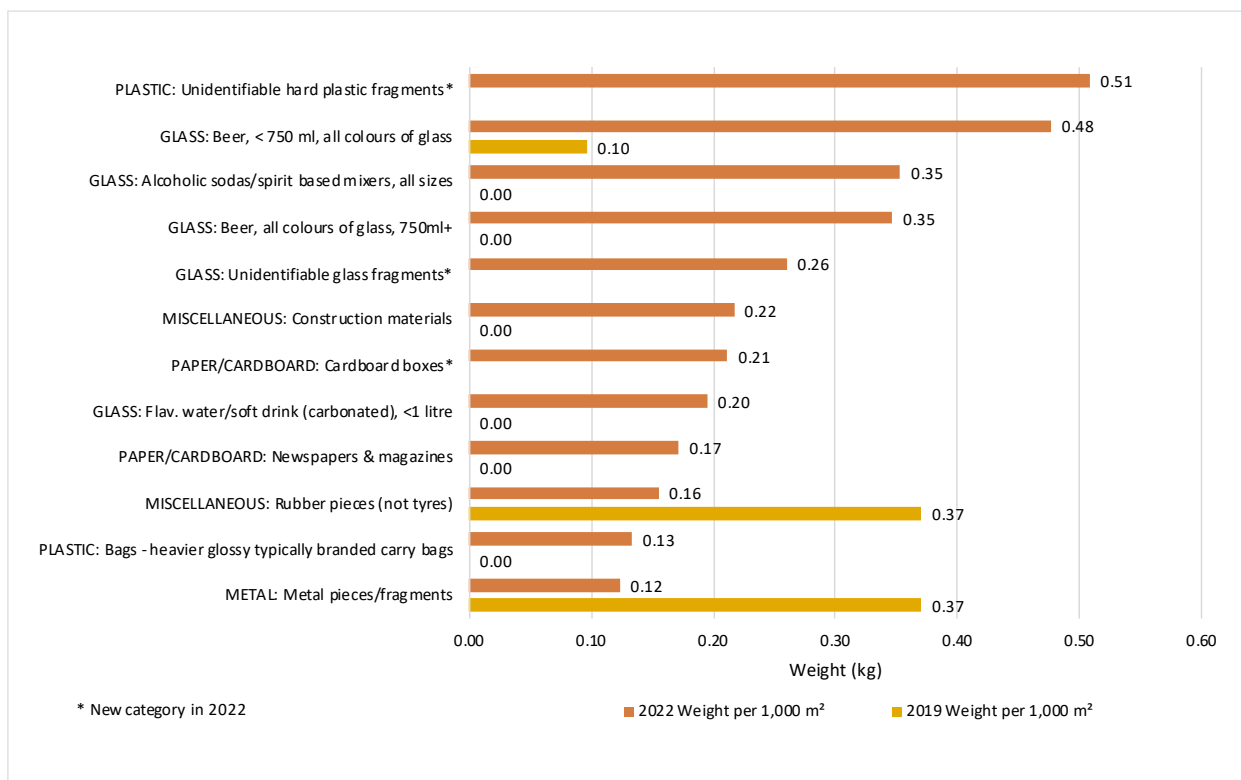
Figure 286: Manawatū-Whanganui Railways, Dirty Dozen, Volume per 1,000 m² , Material Subcategories: Comparison Over Time

Category	Volume (ltr)
PAPER/CARDBOARD: Cardboard boxes*	71.98 / 0.00
PAPER/CARDBOARD: Newspapers & magazines	20.65 / 0.00
ILLEGAL DUMPING: Itemised description	20.00 / 0.00
ORGANIC WASTE: Compostable packaging*	13.11 / 0.00
PAPER/CARDBOARD: Cups, food trays, food wrappers, takeaway containers & drink containers	7.29 / 1.08
PLASTIC: Containers, domestic type	6.94 / 0.00
METAL: Beer, aluminium drink cans, all types, all sizes	1.44 / 2.24
PLASTIC: Plain water (carbonated or non-carb.), <1 litre	1.31 / 0.00
PLASTIC: Plain water (carbonated or non-carb.), 1 litre +	1.28 / 0.00
GLASS: Beer, < 750 ml, all colours of glass	1.16 / 0.17
PLASTIC: Unidentifiable soft plastic fragments*	1.06 / 0.00
GLASS: Beer, all colours of glass, 750ml+	0.76 / 0.00

* New category in 2022

■ 2022 Volume per 1,000 m² ■ 2019 Volume per 1,000 m²

NORTHLAND
REGION

AT A GLANCE

The overall average number of litter items per 1,000 m² across the 16 sites audited in the Northland region was 86 items, the overall average estimated volume of litter per 1,000 m² was 9.20 ltr and the overall average litter weight 1,000 m² was 0.78 kg.

Within the Northland region, Retail sites were associated with high numbers of litter items, moderate to high litter weights and moderate litter volumes. Industrial sites were recorded as having large litter volumes and moderate to high numbers of litter items and weights per 1,000 m². High numbers of items and weights of litter were also recorded at Residential sites; however, these sites were associated with more moderate to high litter volumes.

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

Plastic and Cigarette Butts/Vaping were the most frequently identified material types per 1,000 m² within the Northland region. However, whilst Plastic was also associated with higher litter volumes and weight, Cigarette Butts/Vaping was associated with the smallest litter volumes and weights recorded in the region.

Glass recorded moderate litter weights per 1,000 m² but was associated with low numbers of litter items and volumes.

Miscellaneous items contributed a moderate amount of volume to the litter stream (Clothing, towels & linen represented a high percentage of the volume in this material type), and this category contributed moderate to low numbers of items and low litter weights per 1,000 m².

Paper/Cardboard items were associated with the largest recorded litter volumes but contributed low to moderate numbers of items and low litter weights to the overall litter stream.

Note:

- *New material subcategories were added in 2022 and so not all material subcategories are comparable between 2019 and 2022.*

- *A weight measure was not recorded for any items of Illegal Dumping identified during the audit, and therefore has not been included in the analysis. There were no instances of Illegal Dumping at the sites audited in the Northland region.*

- *Not all regions were audited for Highway and/or Railway sites, and so these site types have been separated out and specifics for each region given at the end of the relevant chapter. No Highway or Railway sites were audited for the Northland region.*

COMPARISON BY SITE TYPES

The highest numbers of litter items per 1,000 m² at the sites audited in the Northland region were recorded at Retail (316 items) and Residential (190 items) sites. Moderate to high numbers of items were collected at Industrial sites (122 items) and moderate numbers of items were recorded at Car Park sites (66 items). The lowest number of litter items were collected at Public Recreational Spaces (9 items).

Higher estimated volumes per 1,000 m² of litter items were observed at Industrial sites (126.61 ltr). Moderate to high litter volumes were collected at Residential

sites (30.18 ltr) whilst more moderate volumes were associated with Retail sites (15.78 ltr). Low volumes of litter were collected at Car Park sites (2.28 ltr) and Public Recreational Spaces (0.48 ltr).

Large litter weights per 1,000 m² were associated with Residential sites (5.21 kg), whilst moderate to high litter weights were recorded for Industrial (1.84 kg) and Retail (1.51 kg) sites. Small litter weights per 1,000 m² were recorded at Car Park sites (0.16 kg) and Public Recreational Spaces (0.02 kg).

Figure 287: Northland 2022, Items and Volume per 1,000 m² by Site Type
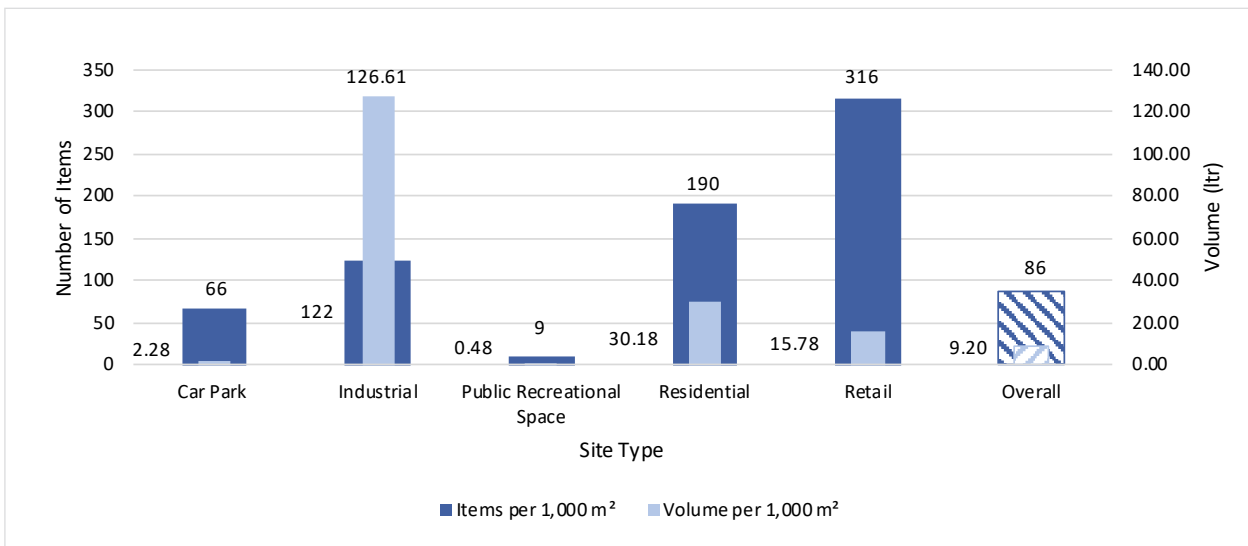
Figure 288: Northland 2022 Items and Weight per 1,000 m² by Site Type
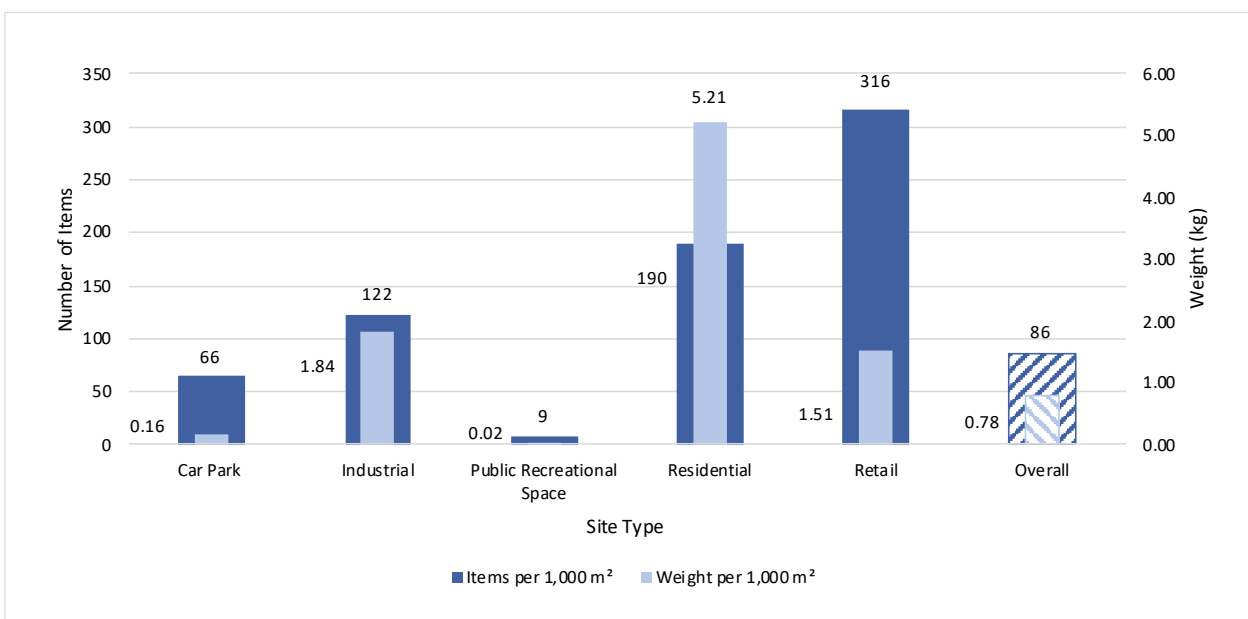
SITE CHARACTERISTICS

The following site characteristics across all site types (excluding Highway and Railway sites) were identified for litter items and volume per 1,000 m² in the Northland region:

- Retail sites contributed to high numbers of litter items and moderate litter volumes.

- Residential sites were associated with high numbers of litter items and moderate to high litter volumes.

- Industrial sites were associated with moderate to high numbers of litter items and very large litter volumes.

- Car Park sites contributed to moderate numbers of litter items and small litter volumes.

- Public Recreational Spaces were associated with low numbers of litter items and small litter volumes.

Figure 289: Northland 2022, Items and Volume per 1,000 m² by Site Type
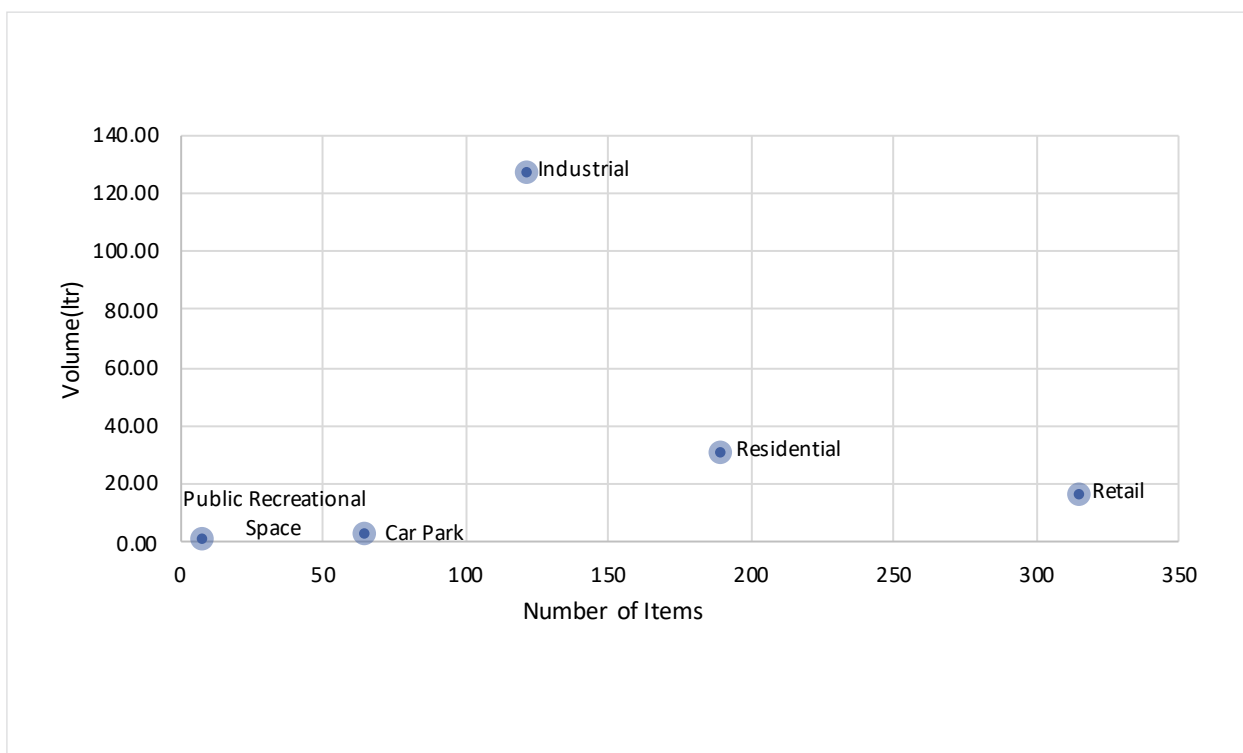
The following site characteristics across all site types (excluding Highway and Railway sites) were identified for litter items and weights per 1,000 m² in the Northland region:

- Retail sites contributed high numbers of litter items and moderate to large litter weights.

- Industrial sites were associated with moderate to high numbers of litter items and weights.

- Residential contributed high numbers of litter items and weights.

- Car Park sites were associated with moderate numbers of litter items and low litter weights.

- Public Recreational Spaces were associated with low numbers of litter items and small litter weights.

Figure 290: Northland 2022, Items and Weight per 1,000 m² by Site Type
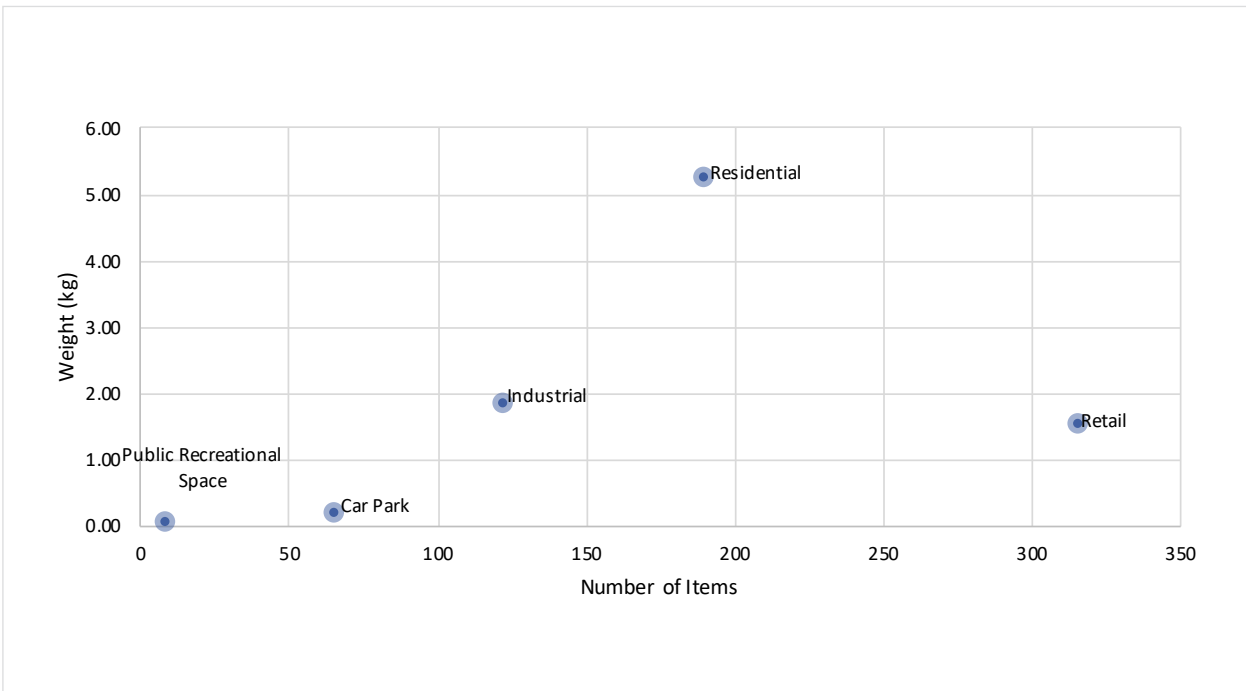
COMPARISON BY SITE TYPE OVER TIME

Since 2019, there have been increases in the number of litter items, estimated volume and weight of litter per 1,000 m² in the Northland region, with litter weight having the biggest increase (0.78 kg vs. 0.29 kg per 1,000 m² in 2019). Industrial and Residential sites had the most noticeable increases in both litter volume and weight per 1,000 m² since 2019.

ITEMS PER 1,000 M²

The number of litter items collected in the Northland region has seen a slight increase since 2019 (86 items vs. 71 items per 1,000 m² in 2019). As shown in the graphs below, there has been a decrease in the number of litter items collected in Public Recreational Spaces (9 items vs. 15 items per 1,000 m² in 2019).

All other site types have seen an increase in litter items since 2019 with the largest increases per 1,000 m² seen at Residential (190 items vs. 76 items in 2019), Industrial (122 items vs. 64 items in 2019) and Retail (316 items vs. 171 items in 2019) sites.

Figure 291: Northland, Items per 1,000 m² by Site Type: Comparison Over Time
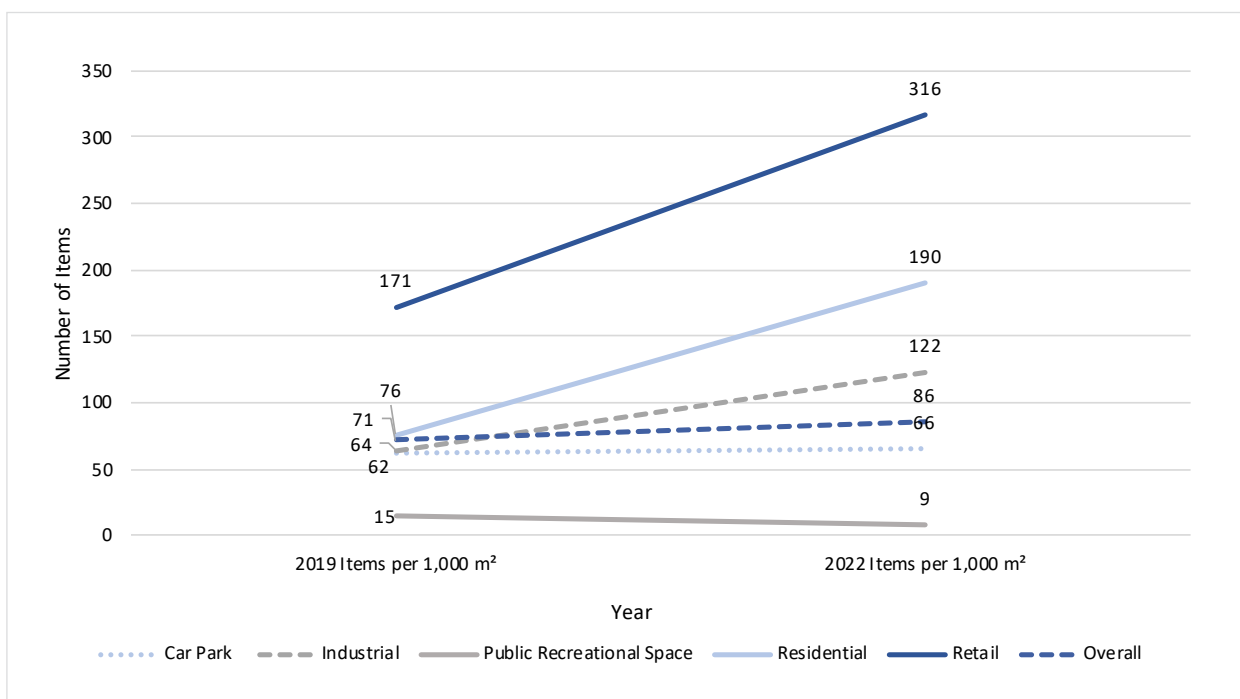
Figure 292: Northland, Items per 1,000 m² by Site Type: Comparison Over Time
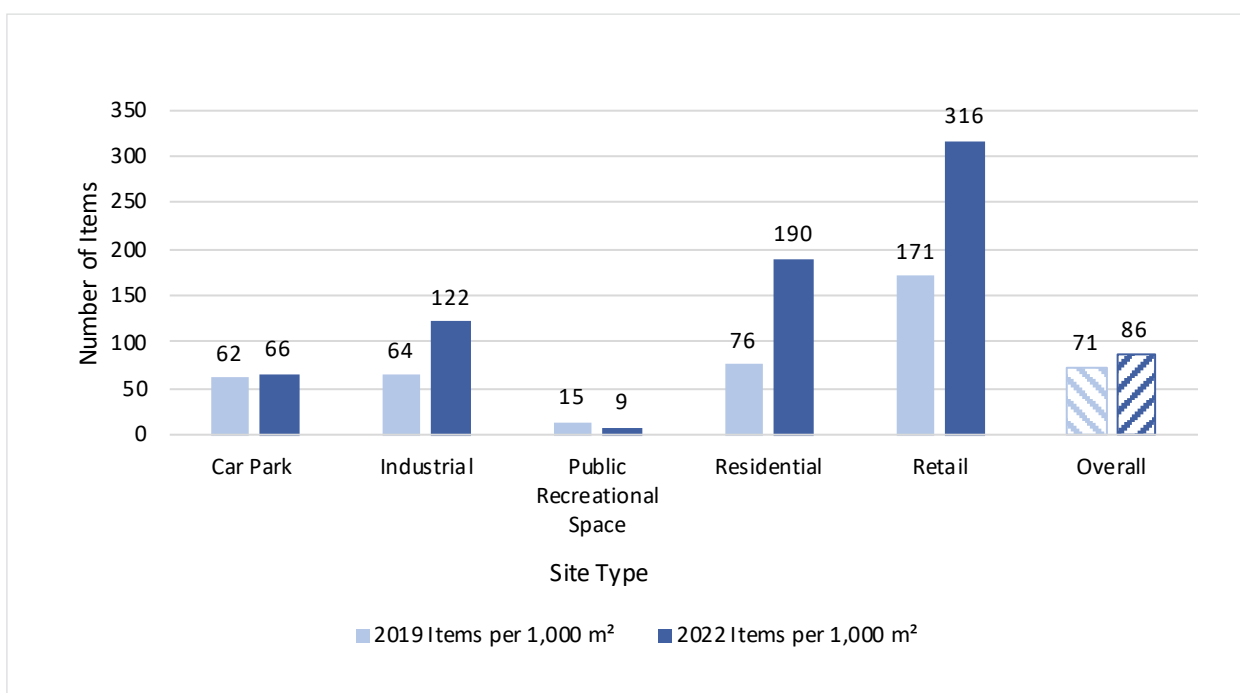
VOLUME PER 1,000 M²

Overall, litter volume per 1,000 m² in Northland has increased by 5.61 ltr since 2019. As shown in the graphs below, this increase is consistent across most site types, with the biggest increases being seen in Industrial (126.61 ltr vs. 5.52 ltr in 2019) and Residential (30.18 ltr vs. 5.65 ltr in 2019) sites.

Figure 293: Northland, Volume per 1,000 m² by Site Type: Comparison Over Time
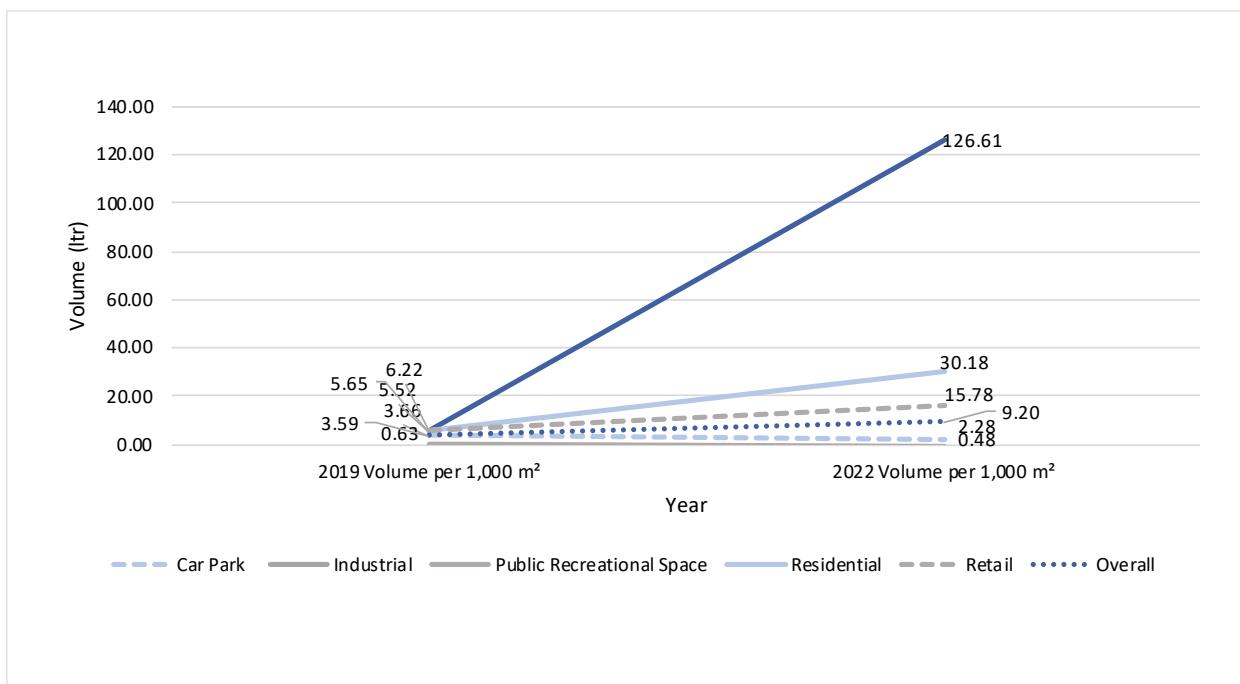
Figure 294: Northland, Volume per 1,000 m² by Site Type: Comparison Over Time
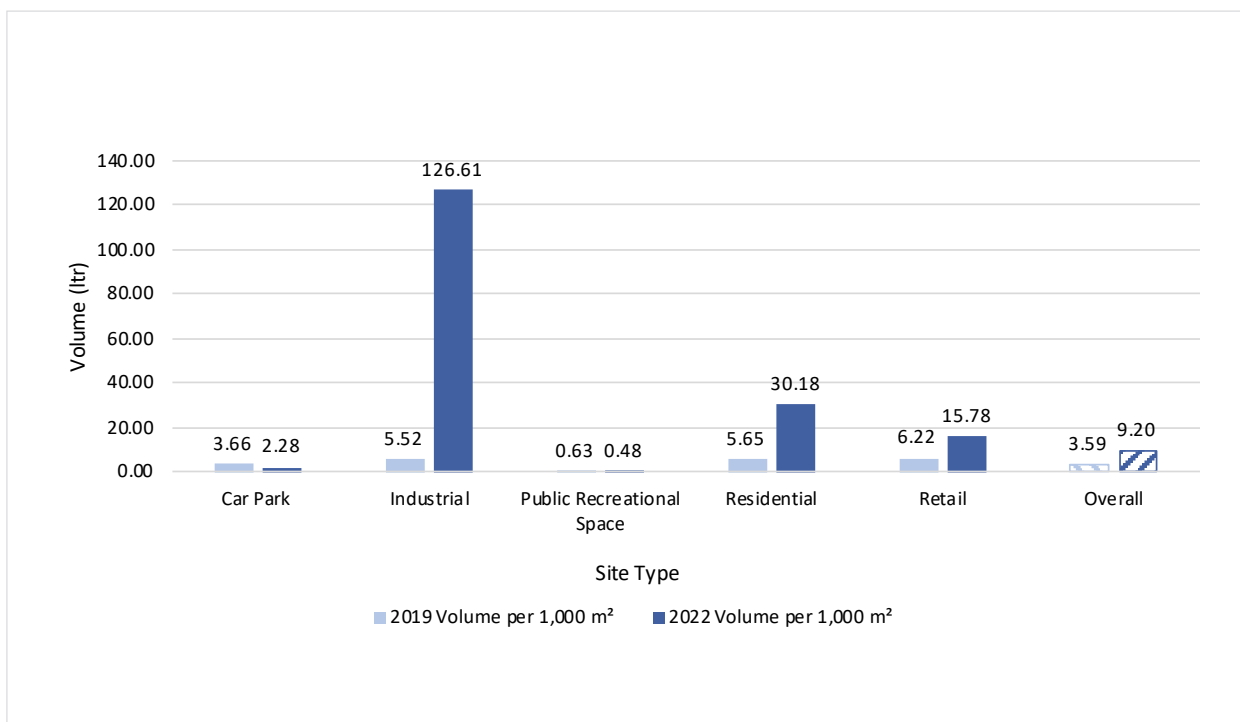
WEIGHT PER 1,000 M²

Overall, the litter weight per 1,000 m² in Northland has increased slightly since 2019 (0.78 kg vs. 0.29 kg in 2019). As shown in the graphs below, the site types with the biggest increases in weight per 1,000 m² are Residential (5.21 kg vs. 0.30 kg in 2019) and Industrial (1.84 kg vs. 0.64 kg in 2019) sites.

Figure 295: Northland, Weight per 1,000 m² by Site Type: Comparison Over Time
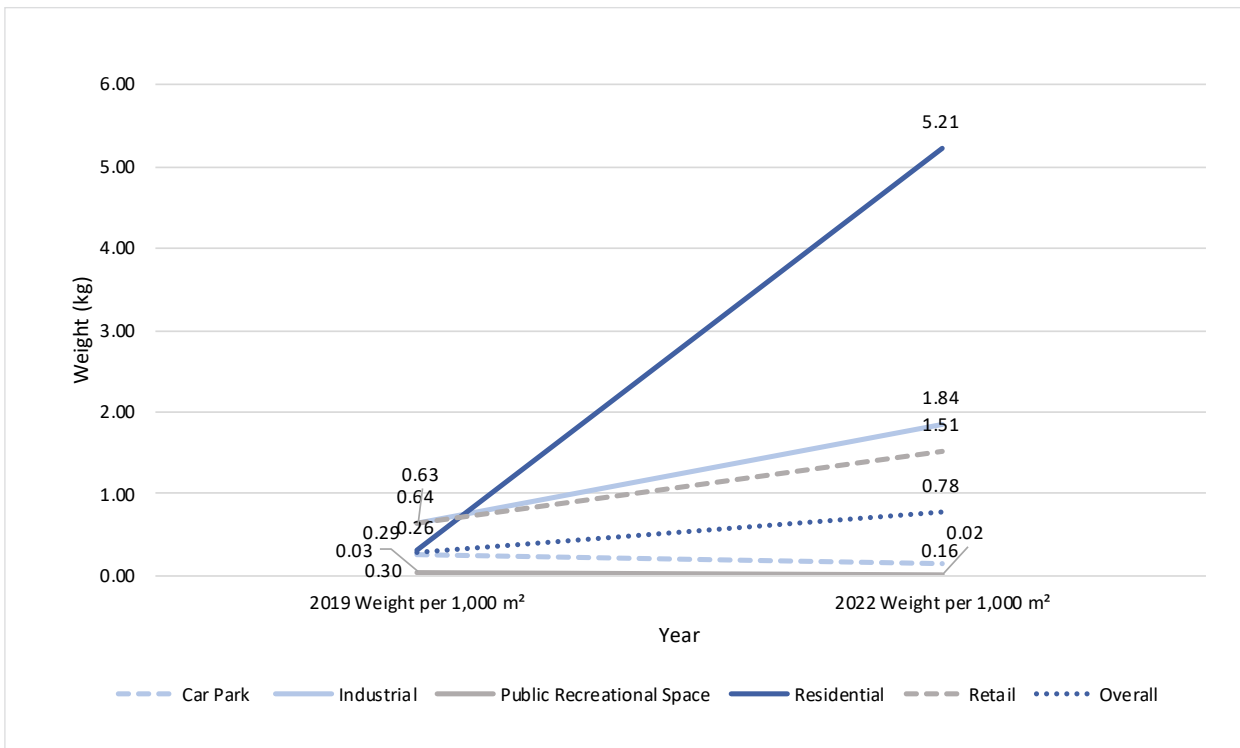
Figure 296: Northland, Weight per 1,000 m² by Site Type: Comparison Over Time
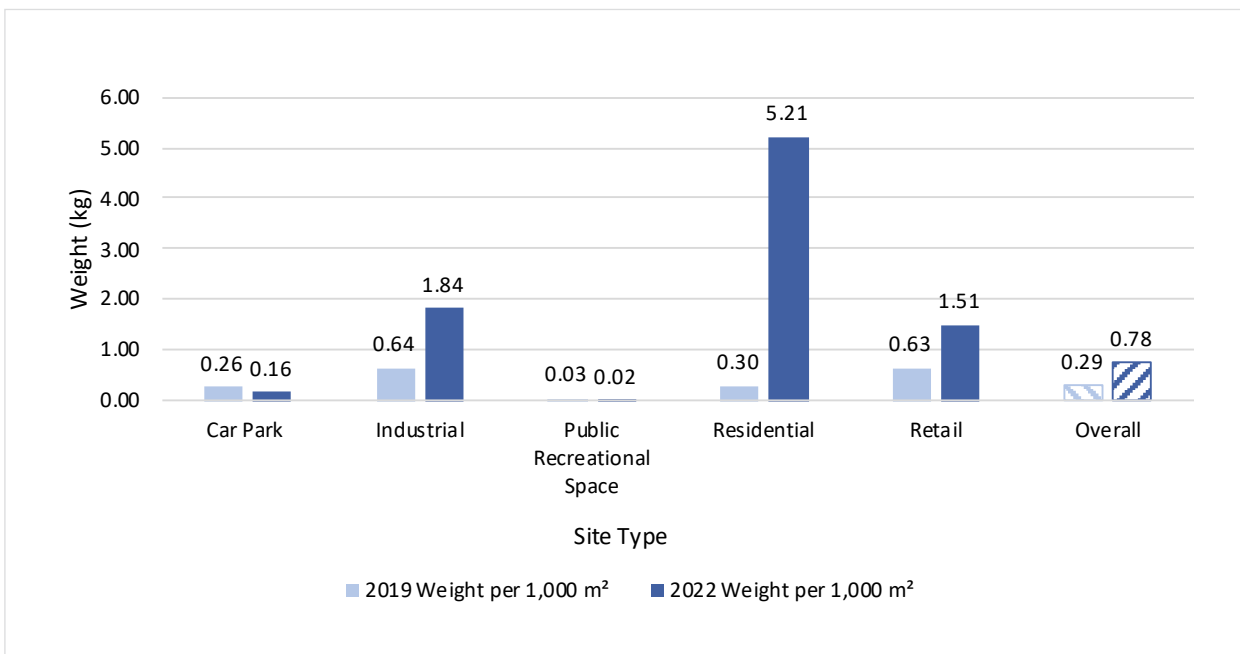
COMPARISON BY MAIN MATERIAL TYPES

Cigarette Butts/Vaping (26 items) and Plastic (25 items) were the most frequently identified material types per 1,000 m² within the Northland region, whilst Metals were recorded as having the third highest number of litter items collected (15 items).

Smaller numbers of litter items were recorded for Miscellaneous (9 items), Paper/Cardboard (7 items), Glass (3 items) and Organic Waste (1 item). There was no Illegal Dumping identified at the sites audited.

Paper/Cardboard contributed the largest amount of volume per 1,000 m² to the litter stream (3.71 ltr) whilst Plastic (2.39 ltr) was also a strong contributor to the overall volume of litter collected within the region. More moderate litter volumes were recorded for Organic Waste (1.00 ltr), Miscellaneous (0.97 ltr) and Metal (0.84 ltr), whilst smaller volumes were associated with Glass (0.24 ltr). Cigarette Butts/Vaping items were associated with the smallest proportion of the overall litter volume (0.09 ltr) per 1,000 m².

Larger litter weights per 1,000 m² contributing to the overall regional litter stream were associated with Plastic (0.45 kg), whilst moderate weights were recorded for Metal (0.11 kg) and Glass (0.10 kg). Smaller litter weights were recorded for Miscellaneous (0.05 kg), Organic Waste (0.04 kg), Paper/Cardboard (0.03 kg) and Cigarette Butts/Vaping (0.01 kg).

Figure 297: Northland 2022, Items and Volume per 1,000 m² by Main Material Type
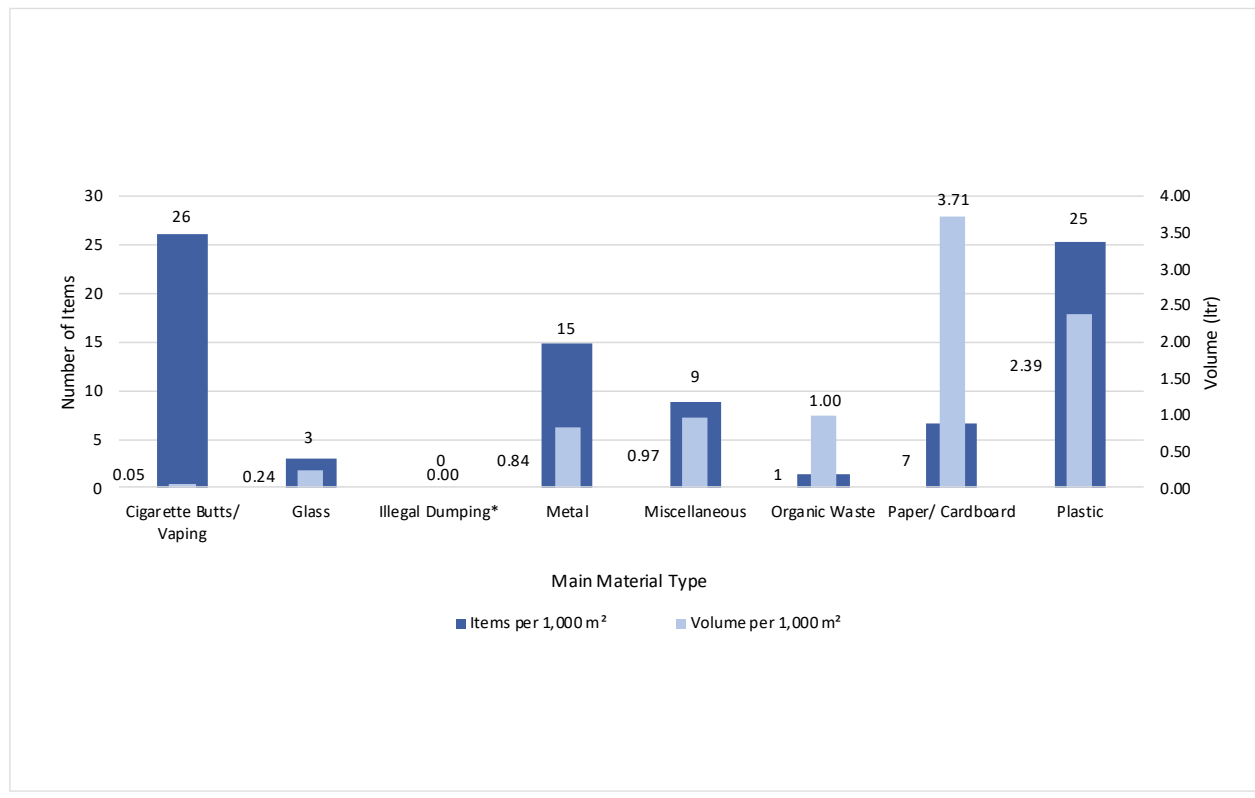
Figure 298: Northland 2022, Items and Weight per 1,000 m² by Main Material Type
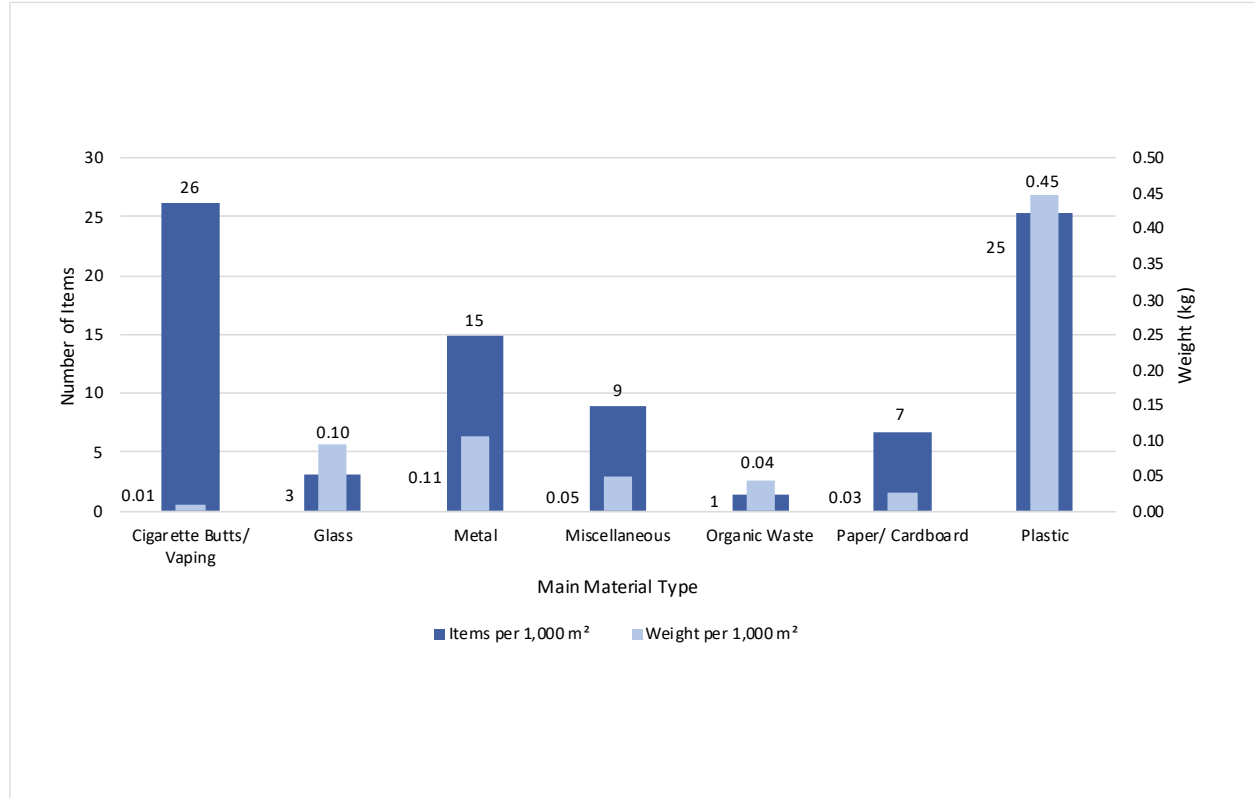
MAIN MATERIAL CHARACTERISTICS

The following material type characteristics were identified for litter items and volume per 1,000 m² in the Northland region (excluding Highway and Railway sites):

- Paper/Cardboard contributed low to moderate numbers of litter items, but were associated with large litter volumes.

- Miscellaneous items were associated with low to moderate numbers of litter items and volumes.

- Cigarette Butts/Vaping were associated with the highest number of litter items, but contributed low litter volumes.

- Metal contributed moderate numbers of litter items and volumes.

- Plastic was associated with high numbers of litter items and large litter volumes.

- Organic Waste was associated with small numbers of litter items and moderate litter volumes.

- Glass contributed low numbers of litter items and litter volumes.

Figure 299: Northland 2022, Items and Volume per 1,000 m² by Main Material Type

The following material type characteristics were identified for litter items and weight per 1,000 m² in the Northland region (excluding Highway and Railway sites):

- Glass was associated with low numbers of litter items and moderate litter weights.

- Metal contributed moderate numbers of litter items and litter weights.

- Plastic was associated with high numbers of litter items and the largest litter weights.

- Cigarette Butts/Vaping contributed the highest number of litter items, but were associated with the smallest litter weights.

- Miscellaneous items and Paper/Cardboard were associated with low to moderate numbers of litter items and small litter weights.

- Organic Waste was associated with low numbers of litter items and weights.

Figure 300: Northland, Items and Weight per 1,000 m² by Main Material Type
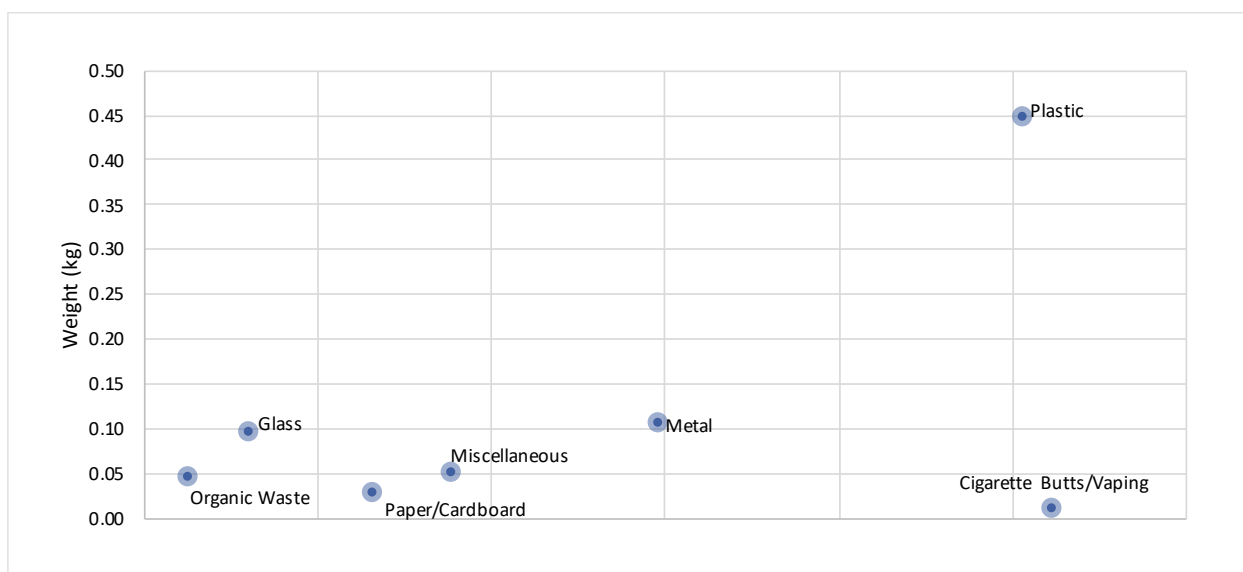
COMPARISONS BY MAIN MATERIAL TYPE OVER TIME

Compared with 2019, the material type, Plastic, has seen an increase across all three measures, including number of litter items, estimated volume and weight per 1,000 m². Other material types have remained relatively consistent across all three measures since 2019, with the exception of an increase in the number of Cigarette Butts/Vaping litter items and Paper/Cardboard litter volumes.

ITEMS PER 1,000 M²

The number of litter items per 1,000 m² classified under Cigarette Butts/Vaping (26 items vs. 19 items in 2019) and Plastic (25 items vs. 19 items in 2019) has increased since 2019. The other main material types remain consistent with 2019.

Figure 301: Northland, Items per 1,000 m² by Main Material Type: Comparison Over Time
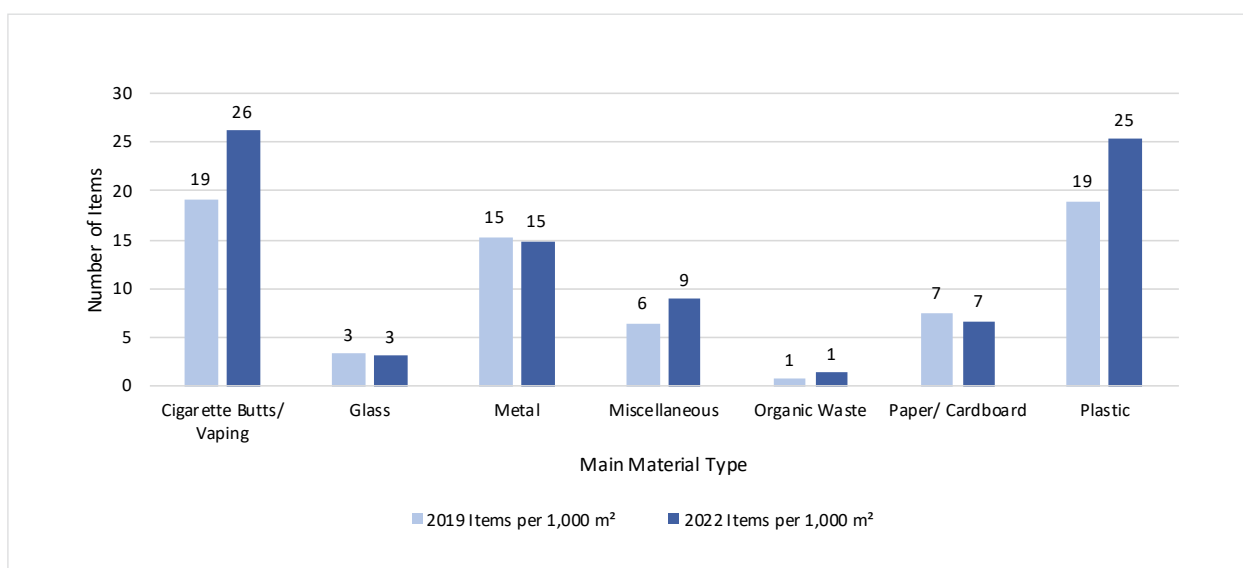
VOLUME PER 1,000 M²

Since 2019, increases in the litter volume of material types per 1,000 m² in the Northland region can be seen in Organic Waste (1.00 ltr vs. 0.02 ltr in 2019),

Plastic (2.39 ltr vs. 0.42 ltr in 2019) and Paper/Cardboard (3.71 ltr vs. 0.92 ltr in 2019).

Figure 302: Northland, Volume per 1,000 m² by Main Material Type: Comparison Over Time
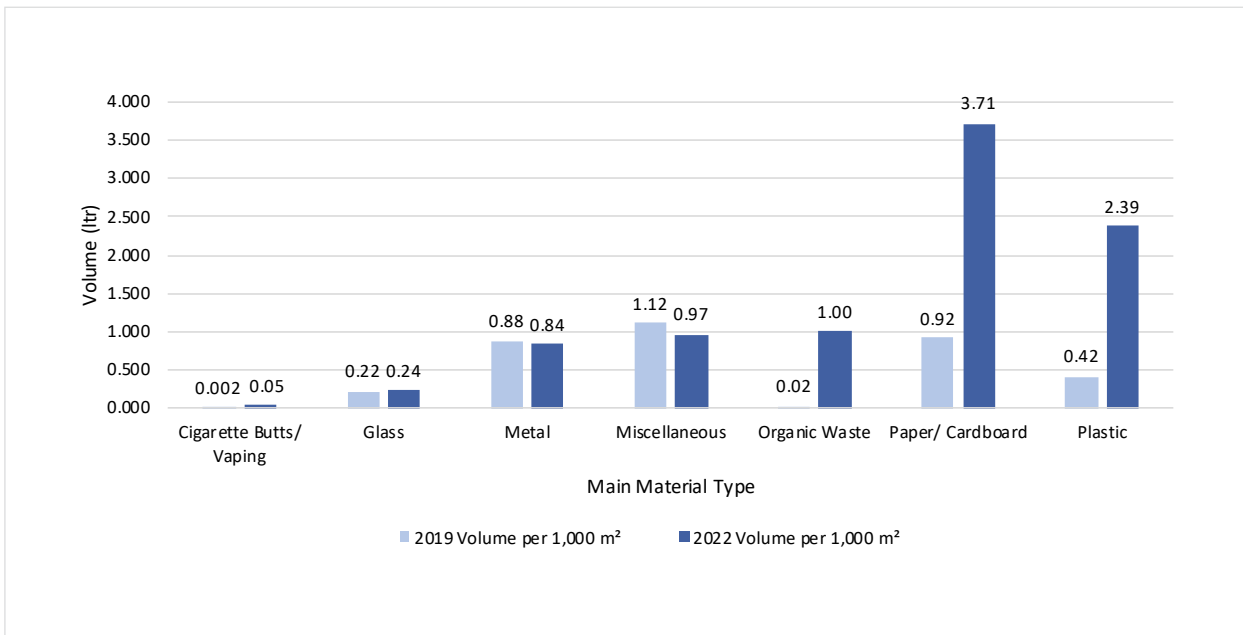
WEIGHT PER 1,000 M²

Compared with 2019, there has been a large increase in the weight of litter per 1,000 m² in the Northland region, classified under Plastic (0.45 kg vs. 0.06 kg in 2019).

The weight of all other material types is relatively consistent with 2019 results.

Figure 303: Northland, Weight per 1,000 m² by Main Material Type: Comparison Over Time
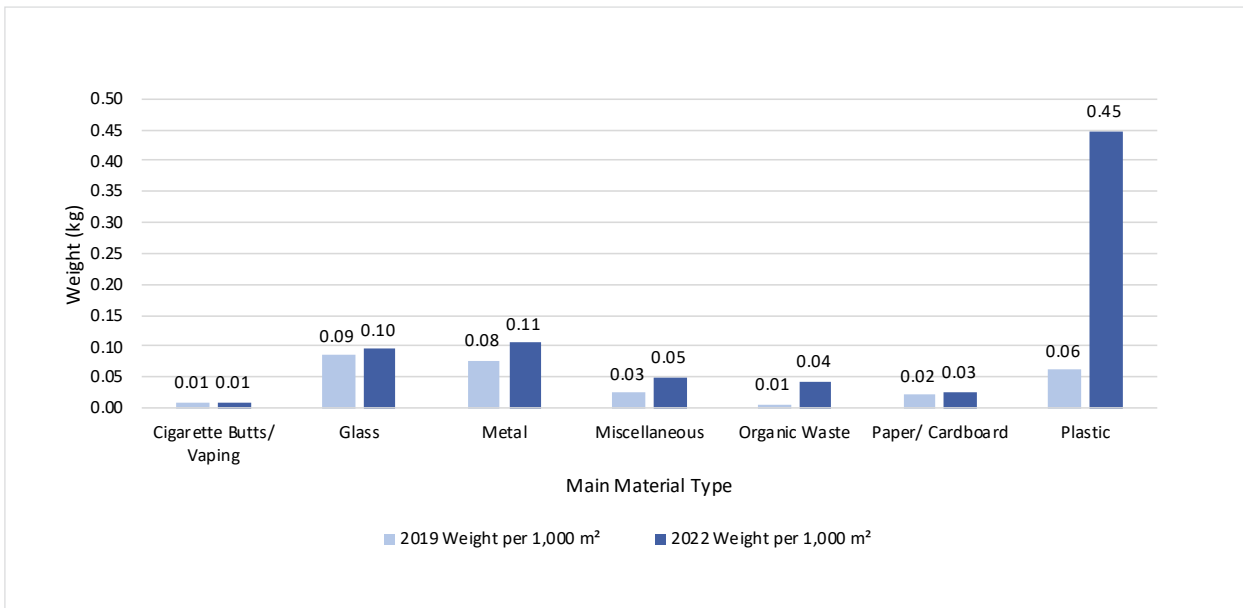
SITE TYPES BY MATERIAL TYPE

The following material type characteristics were identified for litter items and volume per 1,000 m² (excluding Highway and Railway sites) in the Northland region:

- Car Park sites: Cigarette Butts/Vaping (24 items), Plastic (15 items), Metal (15 items), Miscellaneous (6 items), Paper/Cardboard (3 items), Organic Waste (1 item), Glass (0 items), and Illegal Dumping (0 items).

- Industrial sites: Glass (36 items), Plastic (29 items), Cigarette Butts/Vaping (16 items), Paper/Cardboard (16 items), Miscellaneous (16 items), Metal (7 items), Organic Waste (4 items) and Illegal Dumping (0 items).

- Public Recreational Spaces: Plastic (5 items), Miscellaneous (3 items), Paper/Cardboard (0 items), Metal (0 items), Cigarette Butts/Vaping (0 items), Organic Waste (0 items), Glass (0 items) and Illegal Dumping (0 items).

- Residential sites: Plastic (87 items), Metal (37 items), Miscellaneous (23 items), Cigarette Butts/Vaping (21 items), Paper/Cardboard (14 items), Glass (7 items), Organic Waste (1 item), and Illegal Dumping (0 items).

- Retail sites: Cigarette Butts/Vaping (124 items), Plastic (75 items), Metal (46 items), Paper/Cardboard (32 items), Miscellaneous (22 items), Glass (11 items), Organic Waste (6 items) and Illegal Dumping (0 items).

Figure 304: Northland 2022, Sites by Main Material Type: Items per 1,000 m²

No instances were recorded
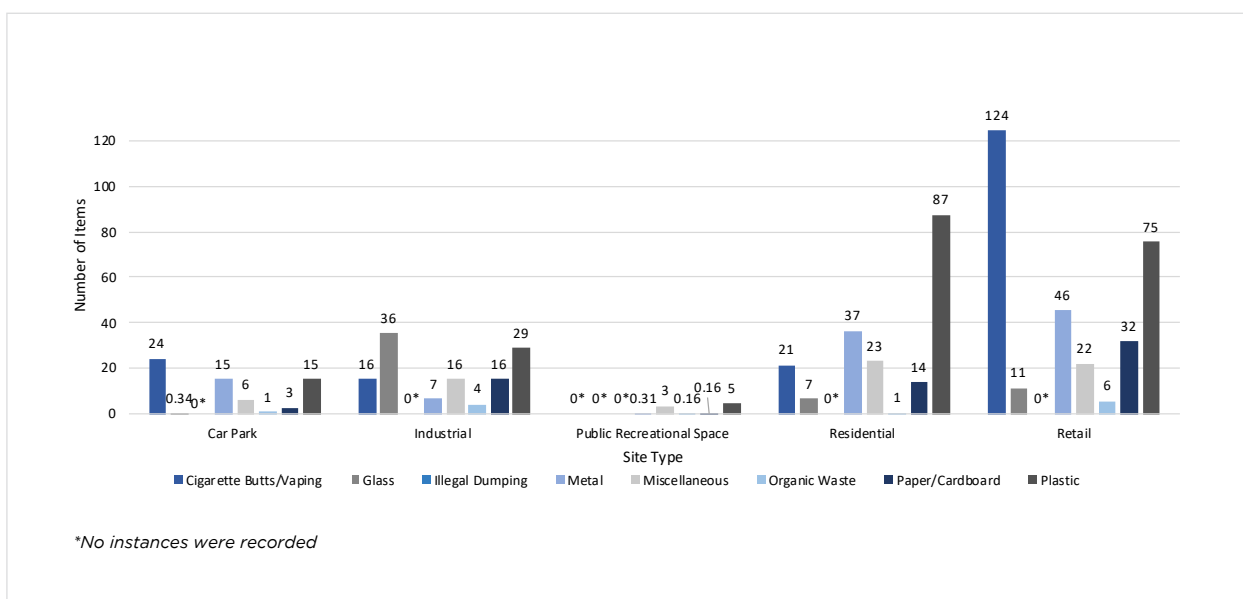
THE DIRTY DOZEN

Across the Northland region, Cigarette/Vaping: Cigarette butts were the largest contributors to the litter items collected, with 26 butts per 1,000 m² identified at the sites audited.

Not all material subcategories were comparable to the 2019 NLA due to the addition of new subcategories in 2022.

Amongst comparable material subcategories in the Northland region, several categories in the Dirty Dozen are new this year. The number of Cigarette/Vaping: Cigarette butts collected per 1,000 m² in the Northland region has increased since 2019 (26 items vs. 19 items in 2019), whilst the number of Metal: Bottle caps, lids & pull tabs has decreased slightly (7 items vs. 9 items in 2019).

Figure 305: Northland, Dirty Dozen, Items per 1,000 m², Material Subcategories: Comparison Over Time
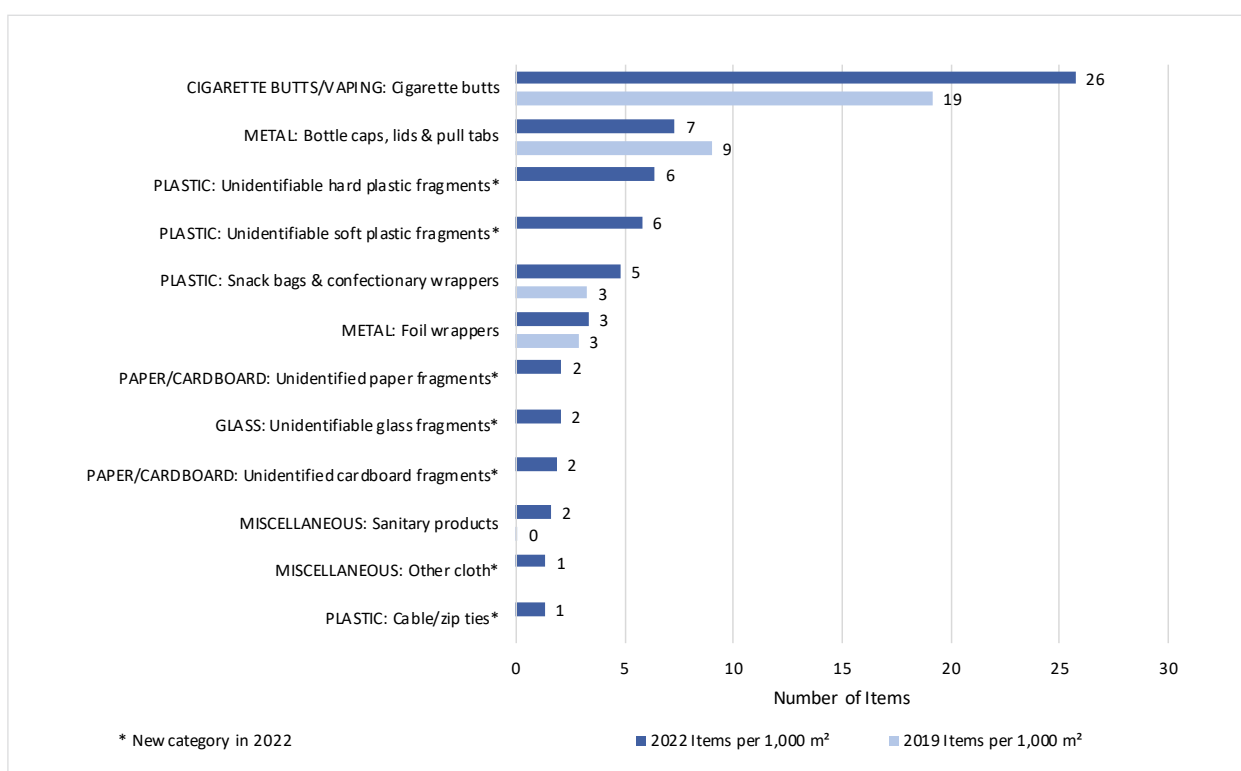
Paper/Cardboard: Cardboard boxes represented the largest contribution to estimated litter volumes per 1,000 m² in the Northland region, recording a estimated volume of 2.66 ltr per 1,000 m².

Other material subcategories which recorded large, volumes per 1,000 m² throughout the region included:

• Plastic: Containers, domestic type (1.02 ltr per 1,000 m²)

• Organic Waste: Compostable packaging (0.97 ltr per 1,000 m²)

• Paper and Cardboard: Cups, food trays, food wrappers, takeaway containers & drink containers: (0.90 ltr per 1,000 m²)

• Miscellaneous: Clothing, towels & linen (0.67 ltr per 1,000 m²)

Not all material subcategories were comparable to the 2019 NLA due to the addition of new subcategories in 2022.

Amonst comparable material subcategories and as shown in the graph below, a difference in litter volume is seen in Paper/Cardboard: Cups, food trays, food wrappers, takeaway containers & drink containers which has increased by 0.29 ltr per 1,000 m² since 2019. An increase has also been seen in Metal: Flavoured water/ soft drink, (carbonated, all sizes) (0.31 ltr vs. 0.14 ltr in 2019).

Figure 306: Northland, Dirty Dozen, Volume per 1,000 m², Material Subcategories: Comparison Over Time
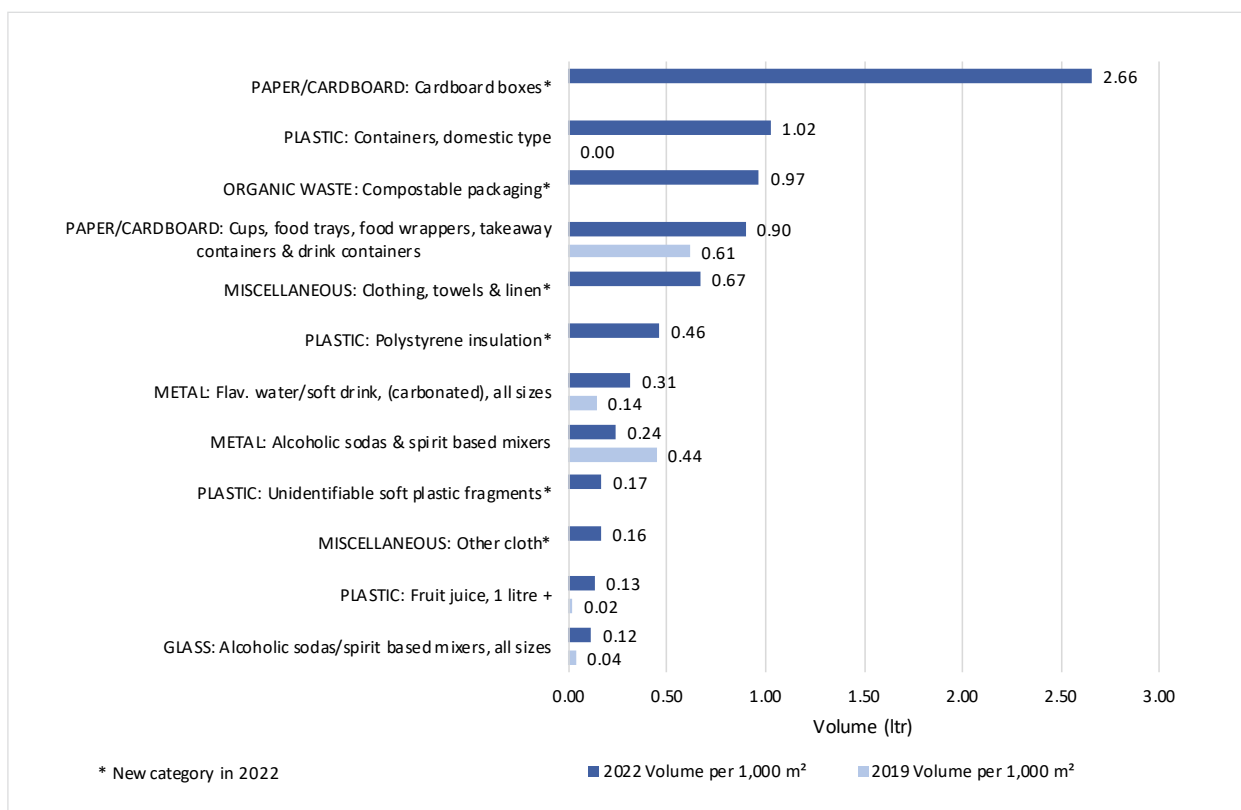
Within the material subcategories, Plastic: Bottle tops were the largest contributor to the regional litter weights (0.37 kg per 1,000 m²).

Other material subcategories associated with proportionally higher litter weights included:

- Glass: Alcoholic sodas/ spirit-based mixers, all sizes (0.06 kg per 1,000 m²)

- Organic Waste: Dog faeces (0.03 kg per 1,000 m²)

- Plastic: Unidentifiable hard plastic fragments (0.03 kg per 1,000 m²)

- Glass: Beer, <750 ml, all colours (0.03 kg per 1,000 m²).

Not all material subcategories were comparable to the 2019 NLA due to the addition of new subcategories in 2022.

Amongst comparable material subcategories in there has been a large increase in the litter weight of Plastic: Bottle tops per 1,000 m² in Northland (0.37 kg vs. 0.00 kg in 2019) and a decrease in the weight of Glass: Beer bottles < 750 ml, all colours (0.03 kg vs. 0.06g kg in 2019).

Figure 307: Northland, Dirty Dozen, Weight per 1,000 m², Material Subcategories: Comparison Over Time

Category	2022 Weight per 1,000 m²	2019 Weight per 1,000 m²
PLASTIC: Plastic bottle tops	0.37	0.00
GLASS: Alcoholic sodas/spirit based mixers, all sizes	0.06	0.02
ORGANIC WASTE: Dog faeces	0.03	0.00
PLASTIC: Unidentifiable hard plastic fragments*	0.03	
GLASS: Beer, < 750 ml, all colours of glass	0.03	0.06
METAL: Construction materials*	0.02	
METAL: Industrial cans, <4 litres*	0.02	
METAL: Bottle caps, lids & pull tabs	0.02	0.02
PLASTIC: Construction materials*	0.02	
MISCELLANEOUS: Clothing, towels & linen*	0.01	
METAL: Flav. water/soft drink, (carbonated), all sizes	0.01	0.01
METAL: Aerosols/pressure packs	0.01	0.00

Weight (kg)

* New category in 2022

TERRITORIAL SUMMARIES

Northland region is comprised of three Territorial Authorities:

- Far North District
- Kaipara District
- Whangarei District

A total of 16 sites (from Industrial, Retail, Residential, Car Park and Public Recreational Spaces) were audited in the Northland region with a minimum of five sites audited from each territorial.

Extract from Table 5, 2022 Territory Data: Northland Region

Territory	Total Area Audited (m²)	Items per 1,000 m²	Weight (kg) per 1,000 m²	Volume (ltr) per 1,000 m²
NORTHLAND REGION				
Far North District	5,440	79	1.56	6.12
Kaipara District	5,100	114	0.57	9.69
Whangarei District	5,724	69	0.23	11.70
Northland Region Overall	**16,264**	**86**	**0.78**	**9.20**

SITE GRADINGS

All sites were assigned gradings in four 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 Northland region.

Extract from Table 3, Site Risk and Litter Distribution: Northland

	Risk Present		Litter Distribution	
Northland	Moderate hazard or risk	Significant hazard or risk	Widespread	Clustered
	100%	0%	69%	31%

Figure 308: Northland 2022, Grading: Visual Site Ratings
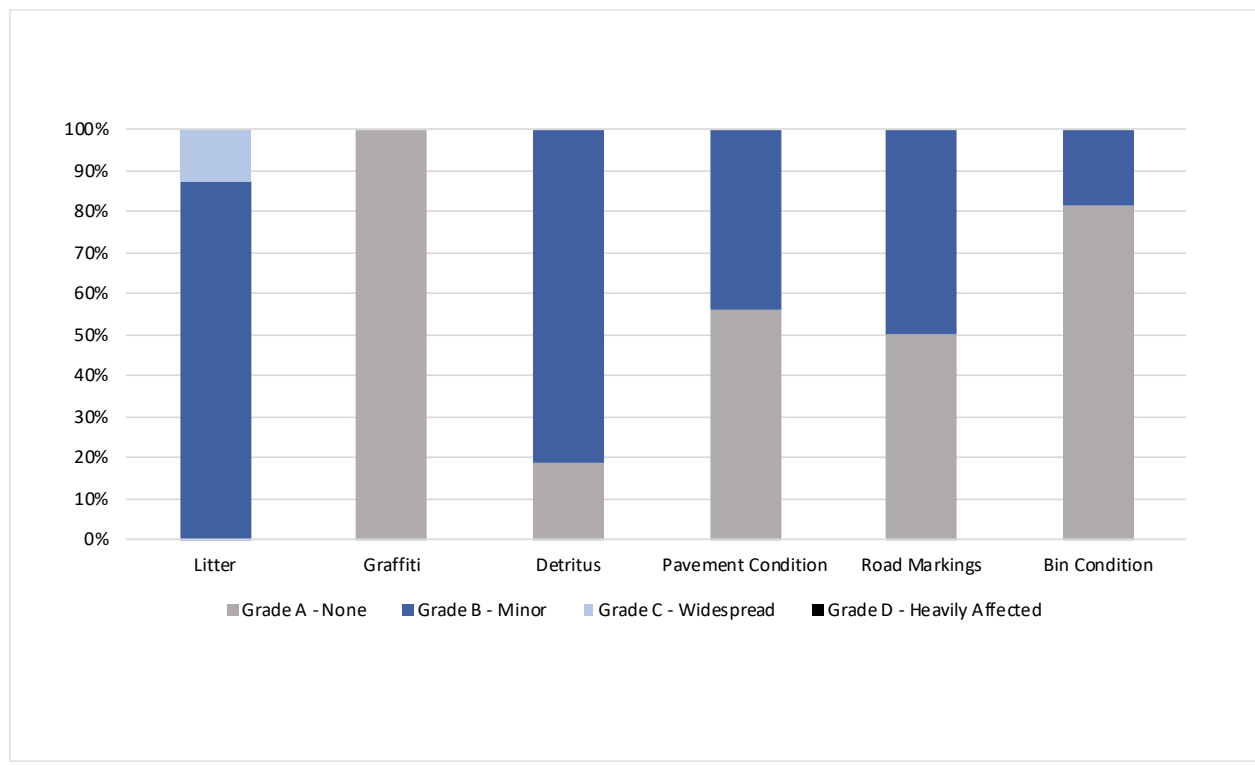
Figure 309: Northland 2022, Grading: Site Litter Hotshots Ratings
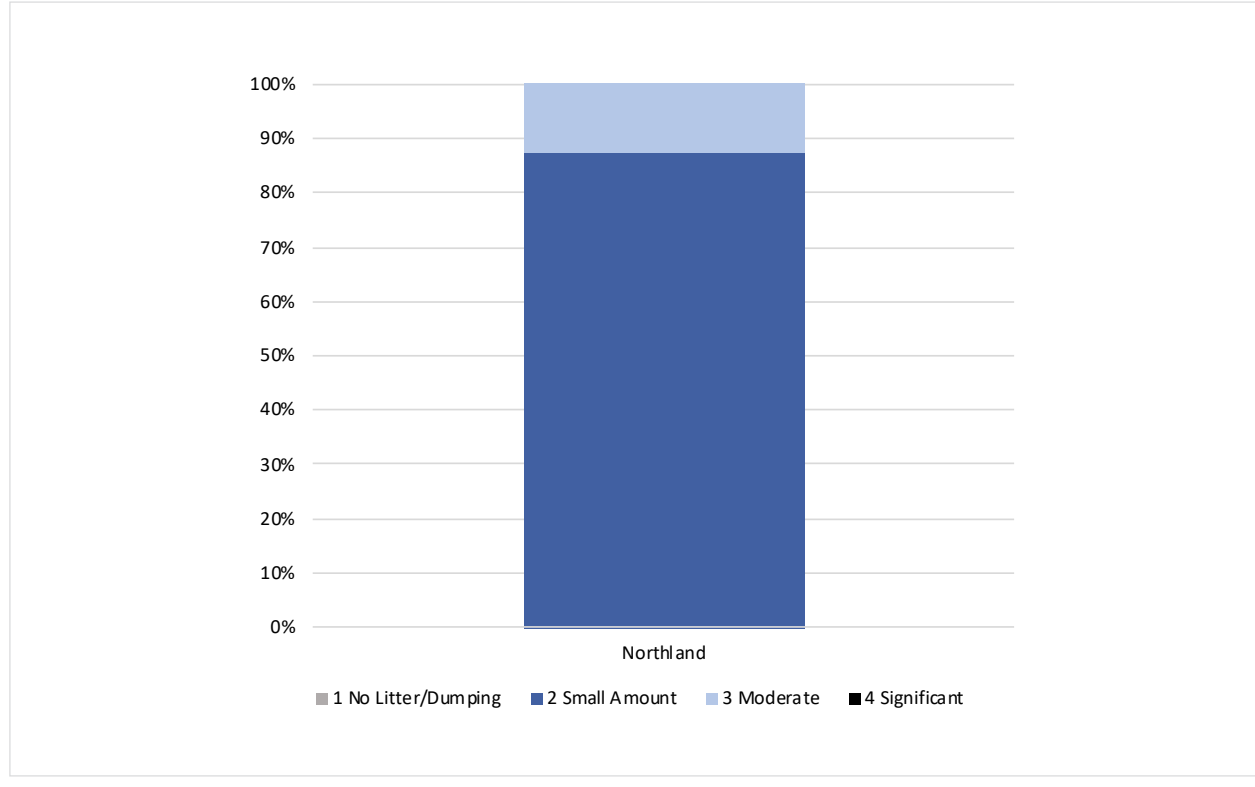
OTAGO
REGION

AT A GLANCE

The overall average number of litter items per 1,000 m² across the 20 sites audited in the Otago region was 202 items, the overall average estimated volume of litter per 1,000 m² was 15.95 ltr and the overall average litter weight per 1,000 m² was 0.78 kg.

Industrial sites were associated with the highest number of litter items and weights and moderate to high litter volumes within the Otago region. Car Park sites recorded the second highest numbers of litter items and weights, and more moderate litter volumes. Retail sites were associated with moderate to high numbers of litter items and weights and contributed moderate volumes to the overall litter stream per 1,000 m².

Residential sites were associated with high litter volumes but a moderate number of litter items and weights per 1,000 m², whilst Public Recreational Spaces were associated with low numbers of litter items, volumes and weights.

Cigarette Butts/Vaping was the most frequently identified material type per 1,000 m², however this material type was associated with the smallest litter volumes and weights recorded in the Otago region. Plastic was the second most frequently identified material type and was associated with high litter volumes and moderate to high litter weights.

Miscellaneous items were associated with the largest litter weights per 1,000 m² in the region, but contributed moderate litter volumes and low to moderate numbers of items to the overall litter stream.

Note:

• *New material subcategories were added in 2022 and so not all material subcategories are comparable between 2019 and 2022.*

• *A weight measure was not recorded for any items of Illegal Dumping identified during the audit, and therefore has not been included in the analysis. There were no instances of Illegal Dumping at the sites audited in the Otago region.*

• *Not all regions were audited for Highway and/or Railway sites, and so these site types have been separated out and specifics for each region given at the end of the relevant chapter. No Highway or Railway sites were audited for the Otago region.*

COMPARISONS BY SITE TYPES

The highest numbers of litter items per 1,000 m² at the sites audited in the Otago region were recorded at Industrial (465 items), Car Park (279 items) and Retail (271 items) sites. Moderate numbers of litter items were recorded for Residential sites (208 items). Lower numbers of litter items were associated with Public Recreational Spaces (15 items).

Higher estimated volumes per 1,000 m² of litter items were recorded at Residential sites (31.95 ltr), with moderate to high volumes collected at Industrial sites (24.04 ltr). Moderate volumes of litter were associated

with Retail (20.75 ltr) and Car Park (19.29 ltr) sites, whilst smaller volumes were recorded at Public Recreational Spaces (3.59 ltr).

Industrial sites (1.91 kg) recorded the largest litter weights per 1,000 m² in the region whilst moderate to high litter weights were associated with Car Park (1.13 kg) and Retail (1.05 kg) sites. Residential sties (0.69 kg) contributed moderate litter weights to the Otago litter stream whilst lower litter weights were associated with Public Recreational Spaces (0.02 kg).

Figure 310: Otago 2022, Items and Volume per 1,000 m² by Site Type
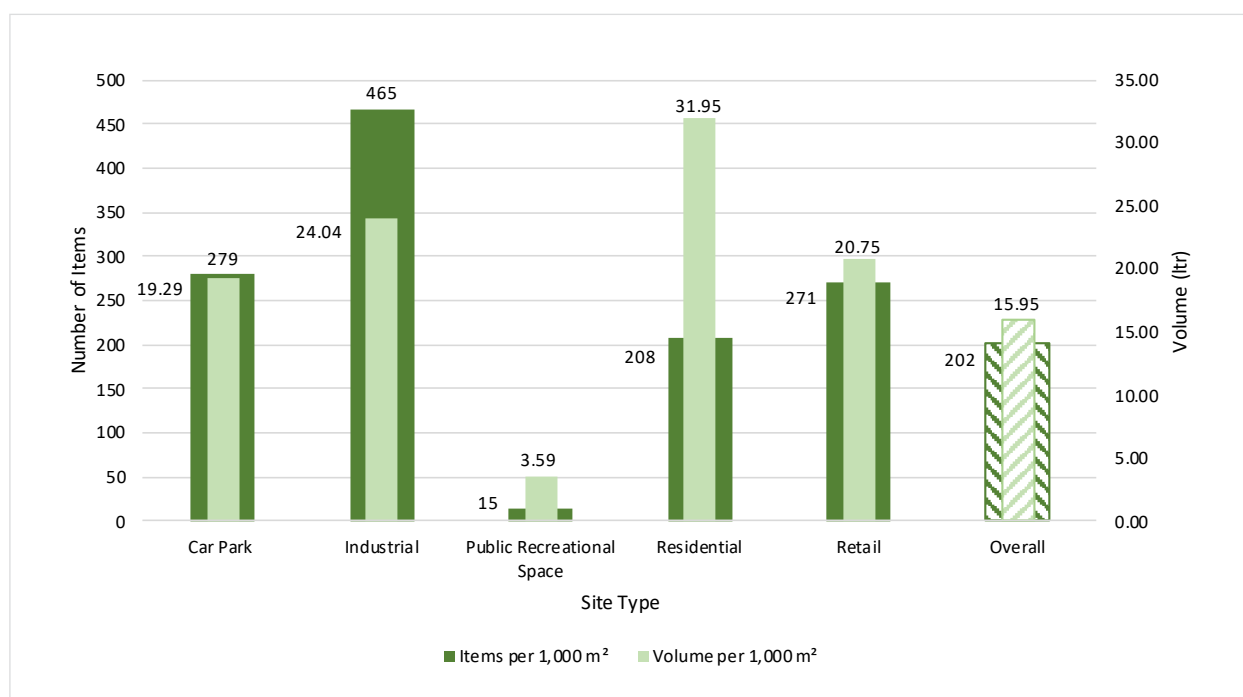
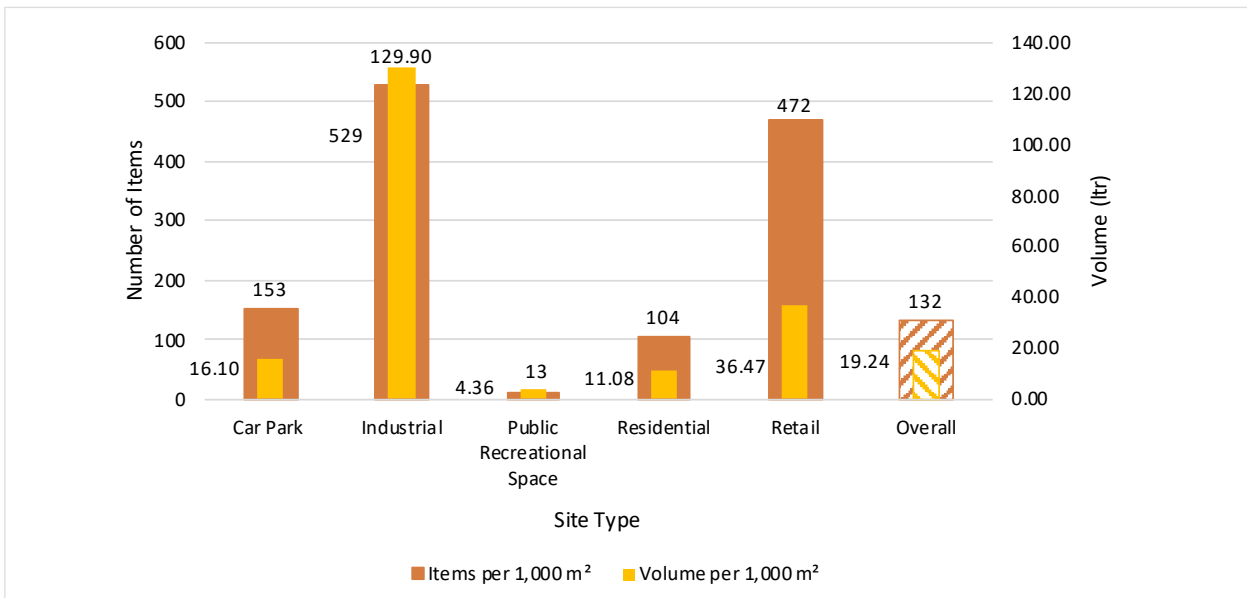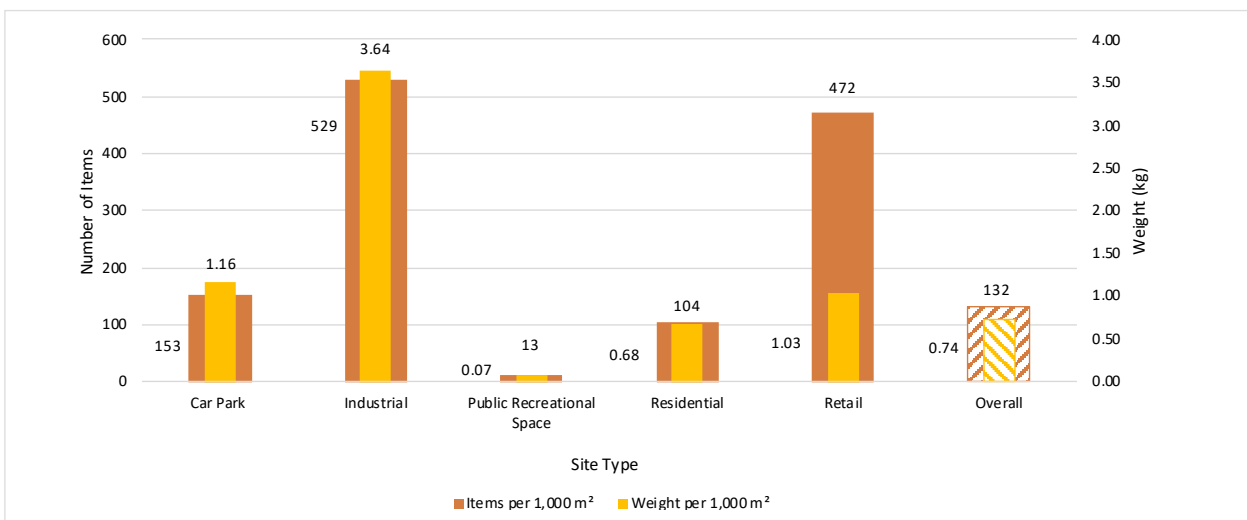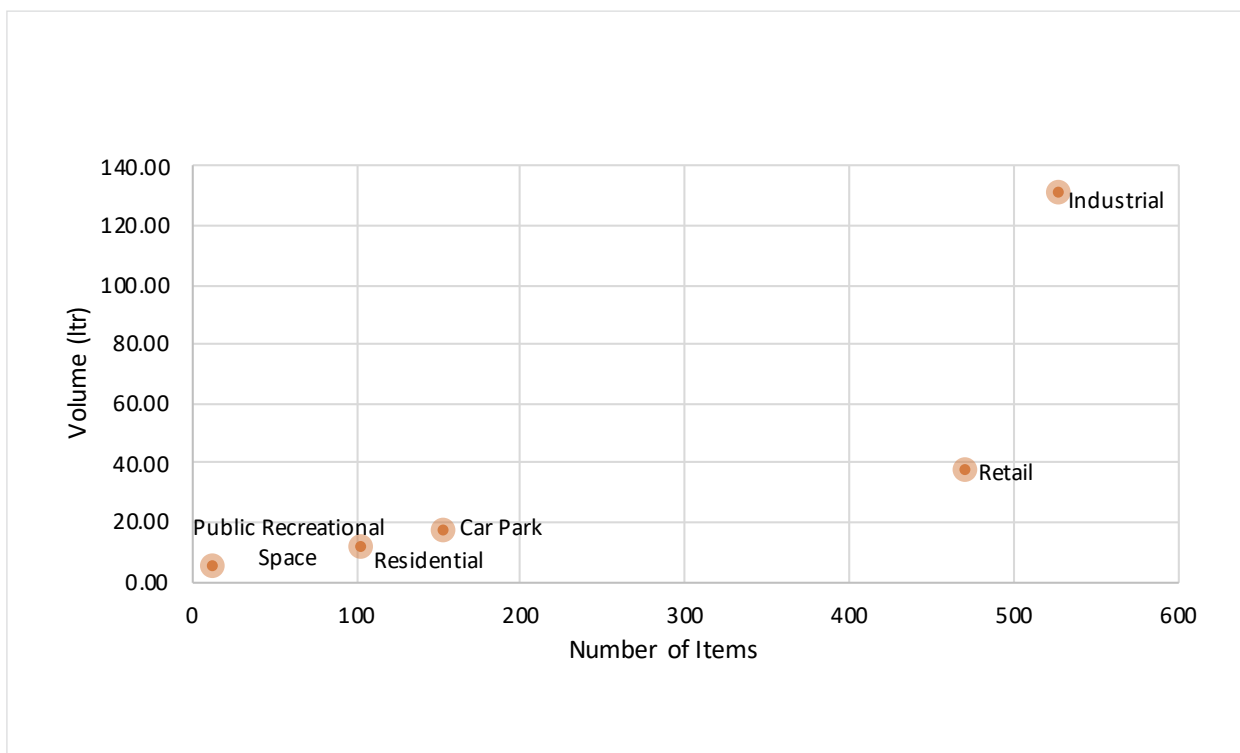*Figure 311: Otago 2022, Items and Weight per 1,000 m² by Site Type*
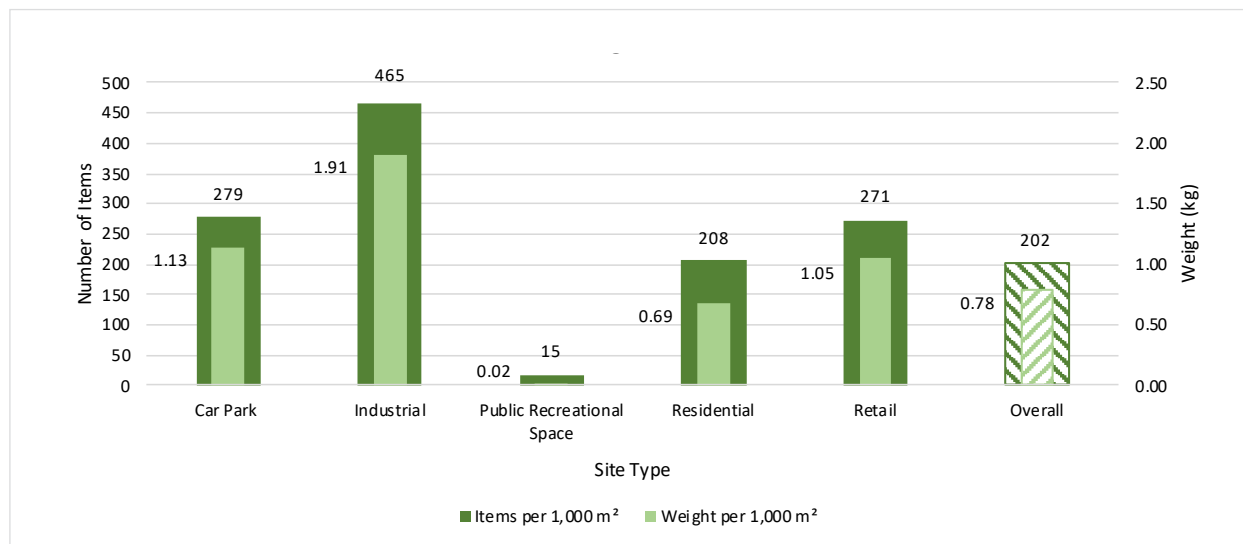
SITE CHARACTERISTICS

The following site characteristics across all site types (excluding Highway and Railway sites) were identified for litter items and volume per 1,000 m² in the Otago region:

- Industrial sites were associated with high numbers of litter items and moderate to large litter volumes.

- Retail and Car Park sites were associated with moderate to high numbers of litter items and moderate litter volumes.

- Residential sites were associated with moderate numbers of litter items and high litter volumes.

- Public Recreational Spaces contributed to low numbers of litter and small litter volumes.

Figure 312: Otago 2022, Items and Volume per 1,000 m² by Site Type
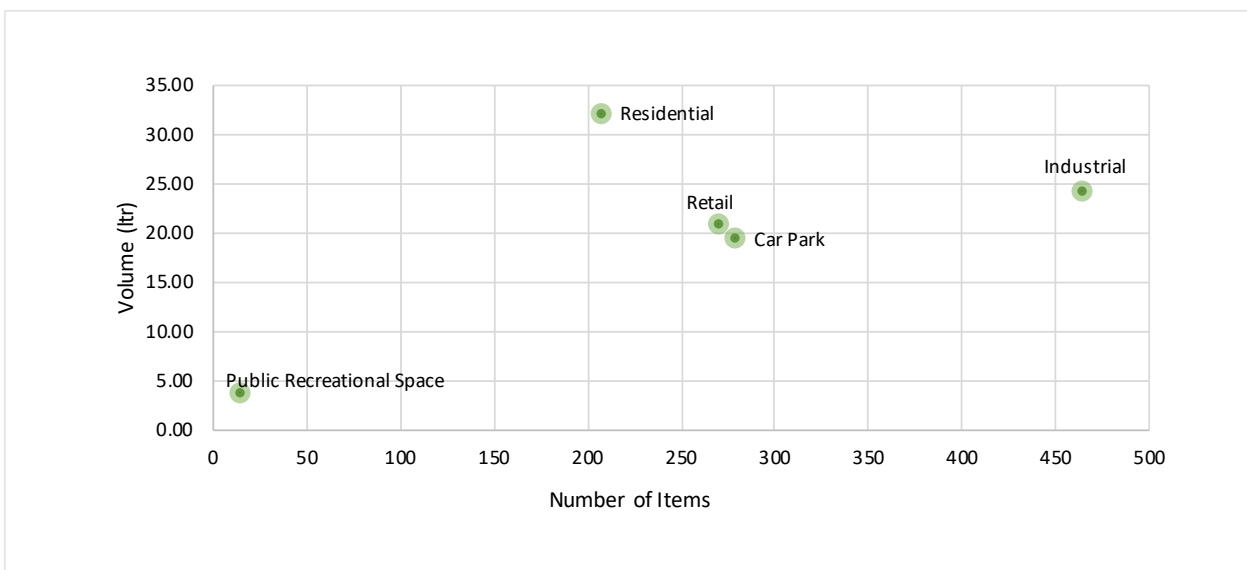
The following site characteristics across all site types (excluding Highways and Railway sites) were identified for litter items and weight per 1,000 m² in the Otago region:

- Industrial sites were associated with high numbers of litter items and large litter weights.

- Residential sites contributed moderate numbers of litter items and weights.

- Car Park and Retail sites were associated with moderate to high numbers of litter items and weights.

- Public Recreational Spaces contributed low numbers of litter items and small litter weights to the regional litter stream.

Figure 313: Otago 2022, Items and Weight per 1,000 m² by Site Type
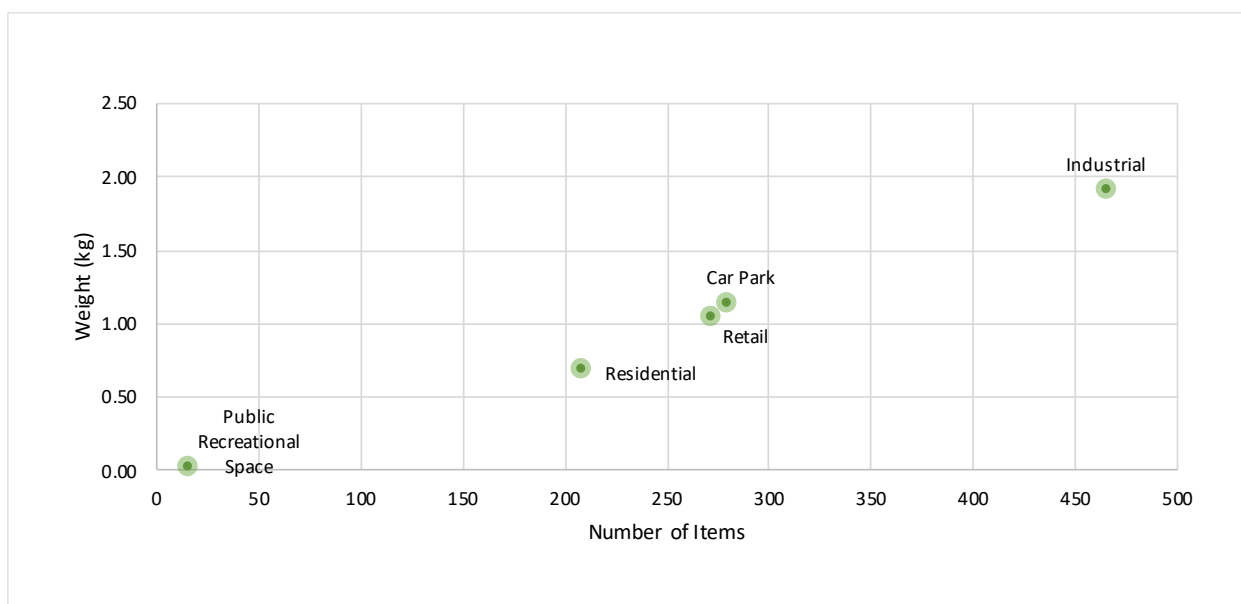
COMPARISON BY SITE TYPE OVER TIME

Since 2019, there has been an increase in the number of litter items, estimated volume and weight of litter per 1,000 m² in the Otago region, with litter volume having the biggest increase (15.95 ltr vs. 5.69 ltr per 1,000 m² in 2019). Increases in all three measures have been seen across all site types, with the exception of Public Recreational Spaces where decreases were identified in the number of litter items and weights per 1,000 m².

ITEMS PER 1,000 M²

The number of litter items collected in the Otago region have increased since 2019 (202 items vs. 122 items per 1,000 m² in 2019). As shown in the graphs below, there has been a decrease in the number of litter items collected in Public Recreational Spaces (15 items vs. 28 items per 1,000 m² in 2019) and an increase for all other site types.

Figure 314: Otago, Items per 1,000 m² by Site Type: Comparison Over Time
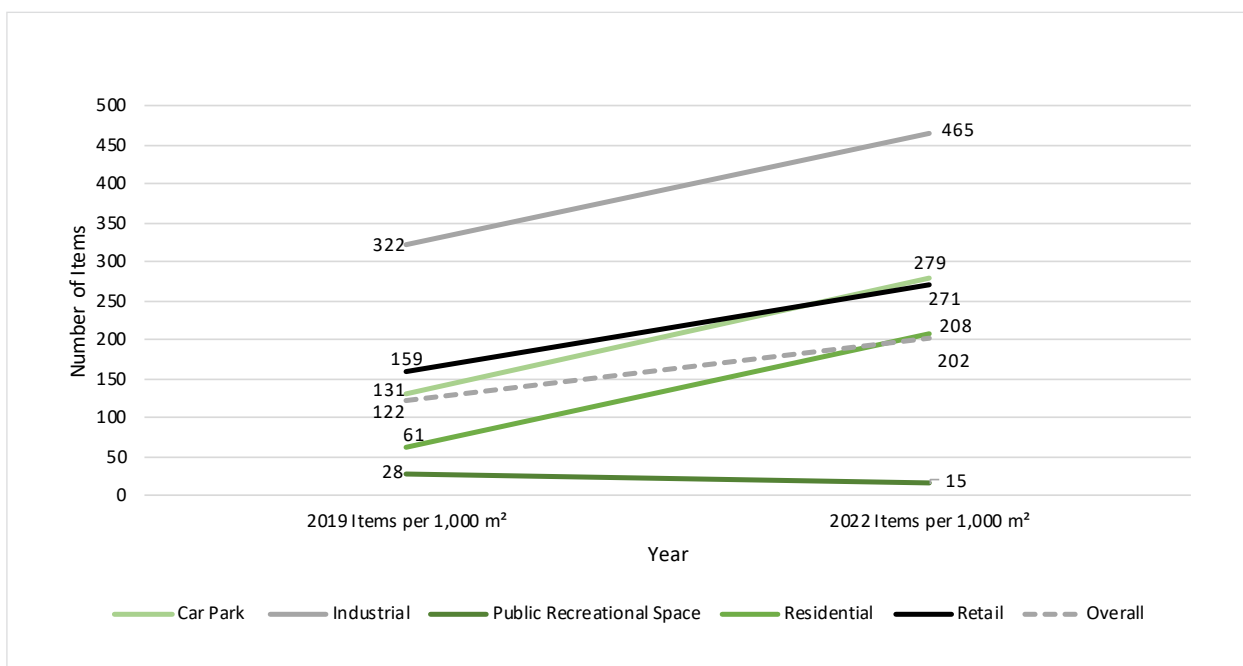
Figure 315: Otago, Items per 1,000 m² by Site Type: Comparison Over Time
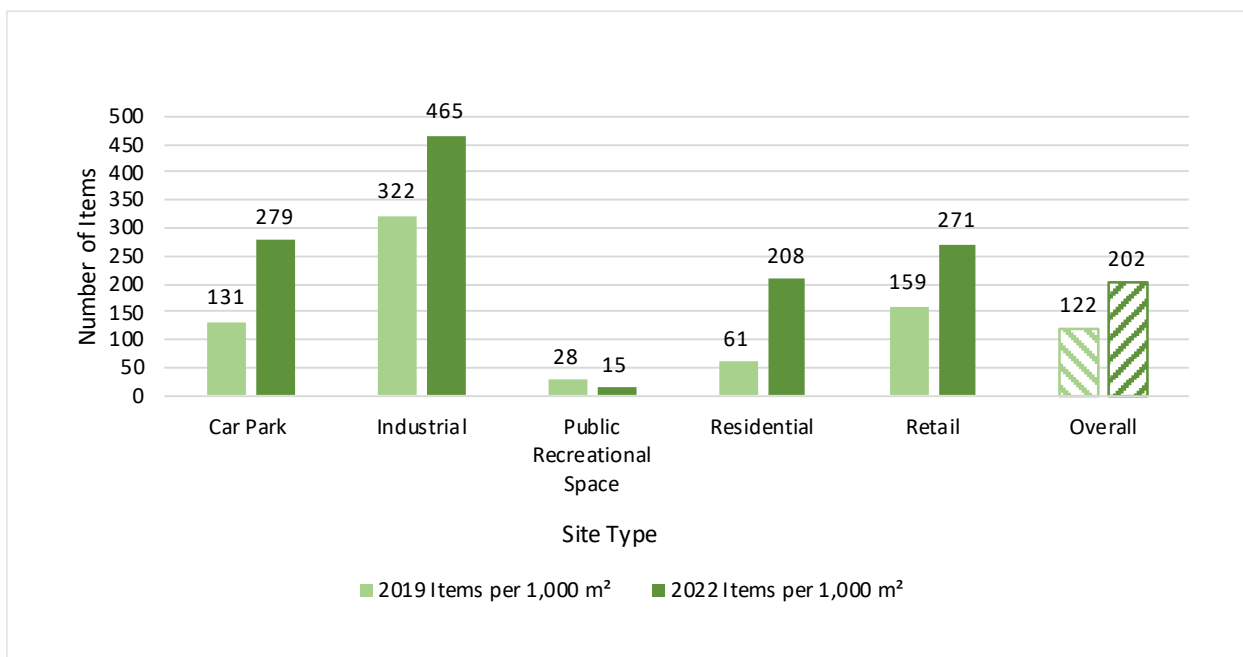
VOLUME PER 1,000 M²

Overall, litter volume per 1,000 m² in the Otago region has increased by 10.26 ltr since 2019. As shown in the graphs below, this increase is consistent across most site types, with the biggest increases per 1,000 m² being seen in Car Park (19.29 ltr vs. 3.32 ltr in 2019), Residential (31.95 ltr vs. 5.85 ltr in 2019) and Retail (20.75 ltr vs. 3.62 ltr per 1,000 m² in 2019) sites.

Figure 316: Otago, Volume per 1,000 m² by Site Type: Comparison Over Time
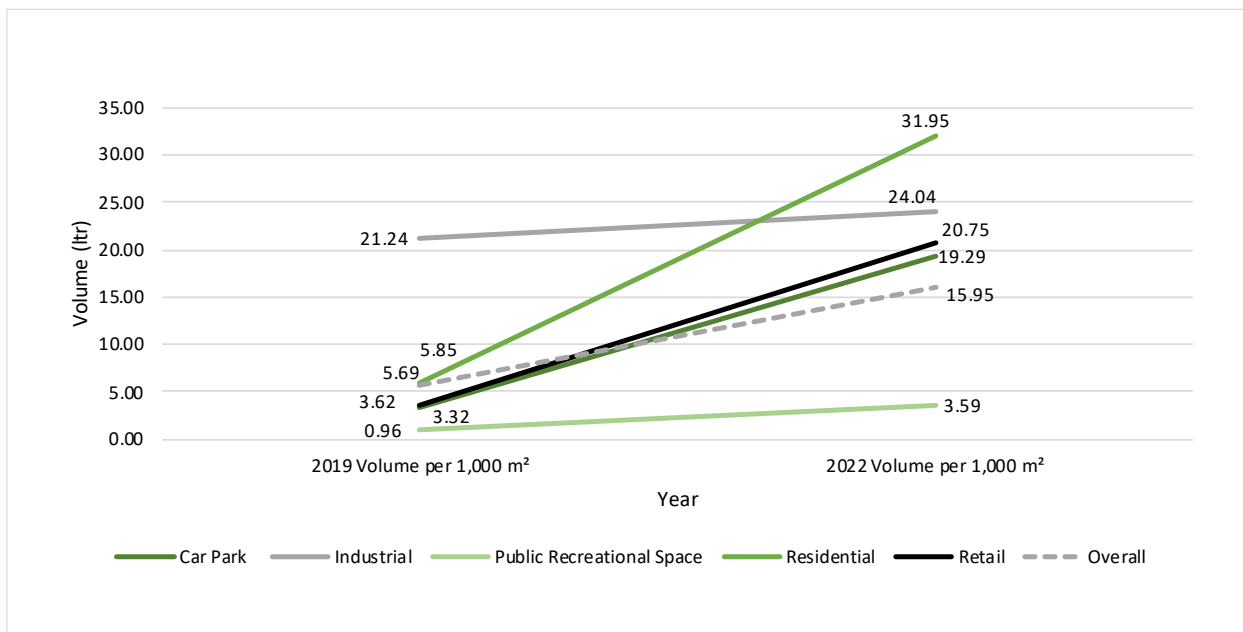
Figure 317: Otago, Volume per 1,000 m² by Site Type: Comparison Over Time
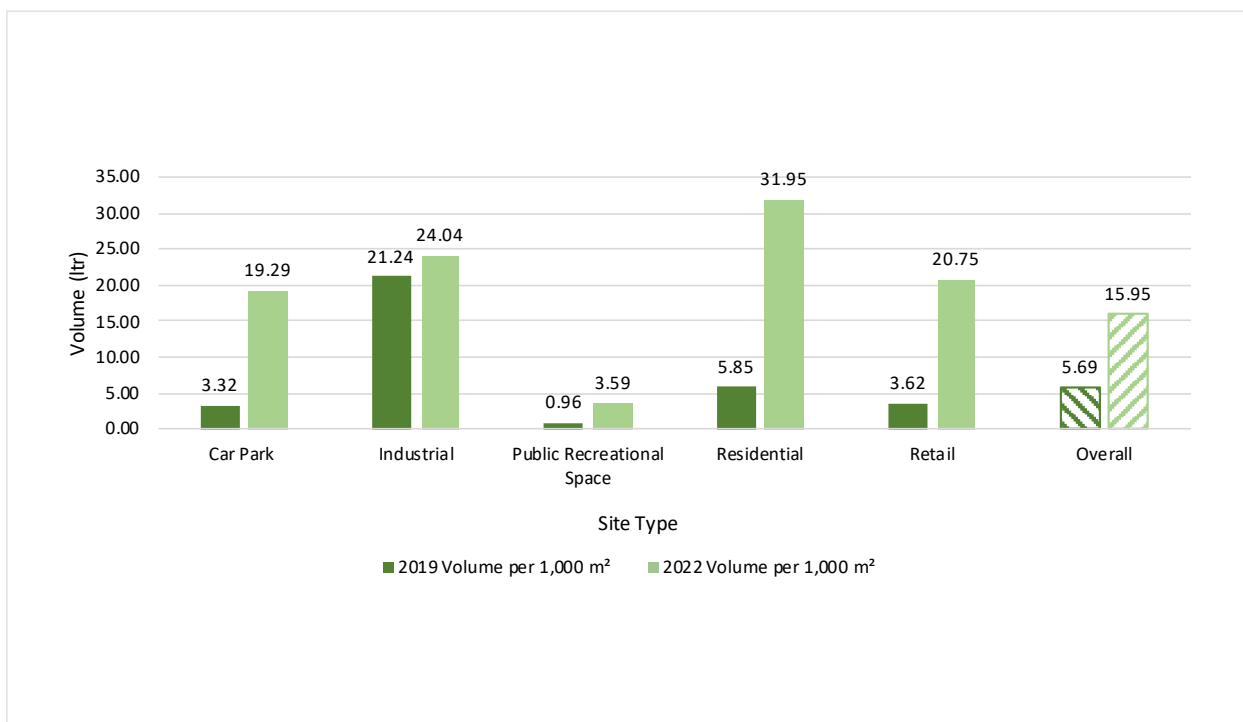
WEIGHT PER 1,000 M²

Overall, the litter weight in the Otago region has increased slightly since 2019 (0.78 kg vs. 0.43 kg per 1,000 m² in 2019). As shown in the graphs below, the site types with the biggest increases in litter weight per 1,000 m² were Residential (0.69 kg vs. 0.16 kg in 2019) and Car Park (1.13 kg vs. 0.32 kg in 2019) sites.

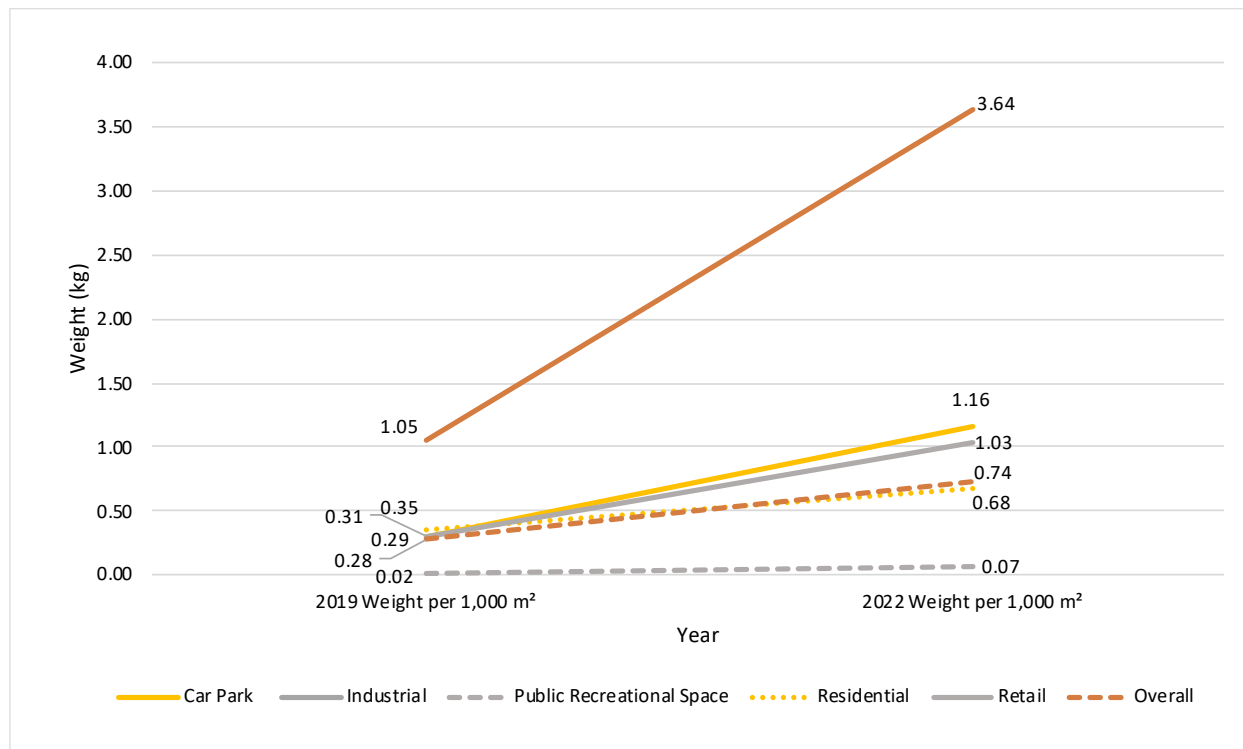*Figure 318: Otago, Weight per 1,000 m² by Site Type: Comparison Over Time*
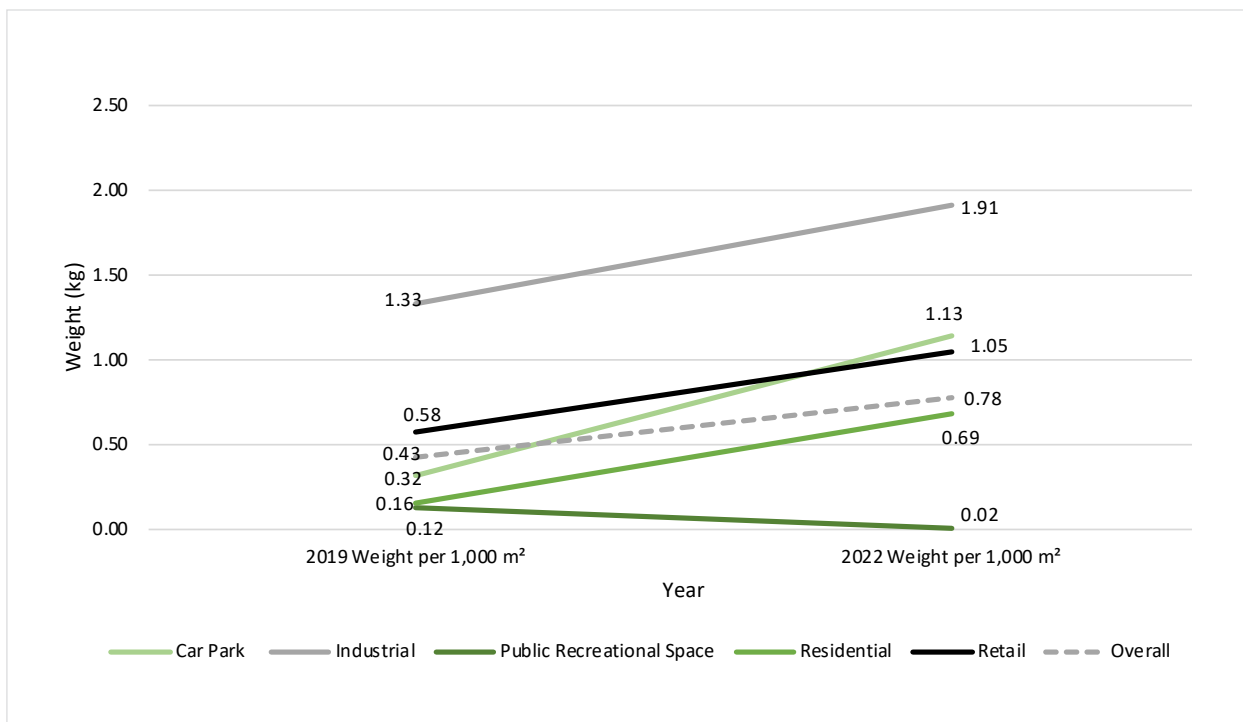
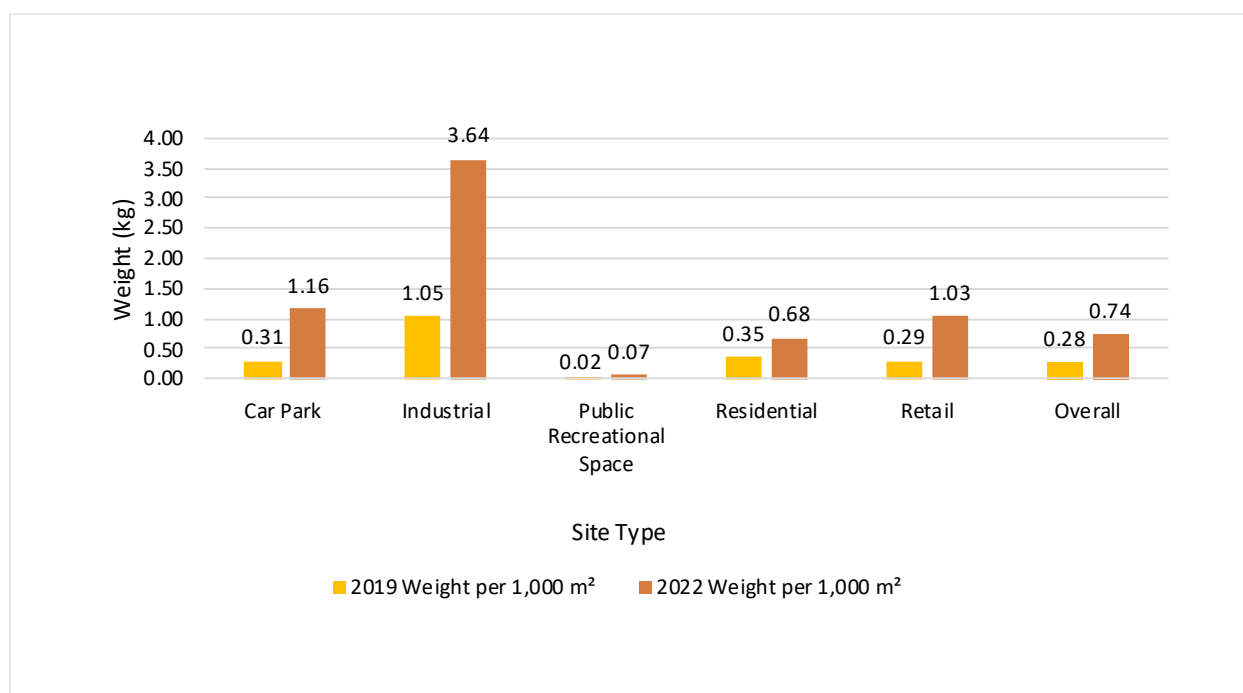*Figure 319: Otago, Weight per 1,000 m² by Site Type: Comparison Over Time*
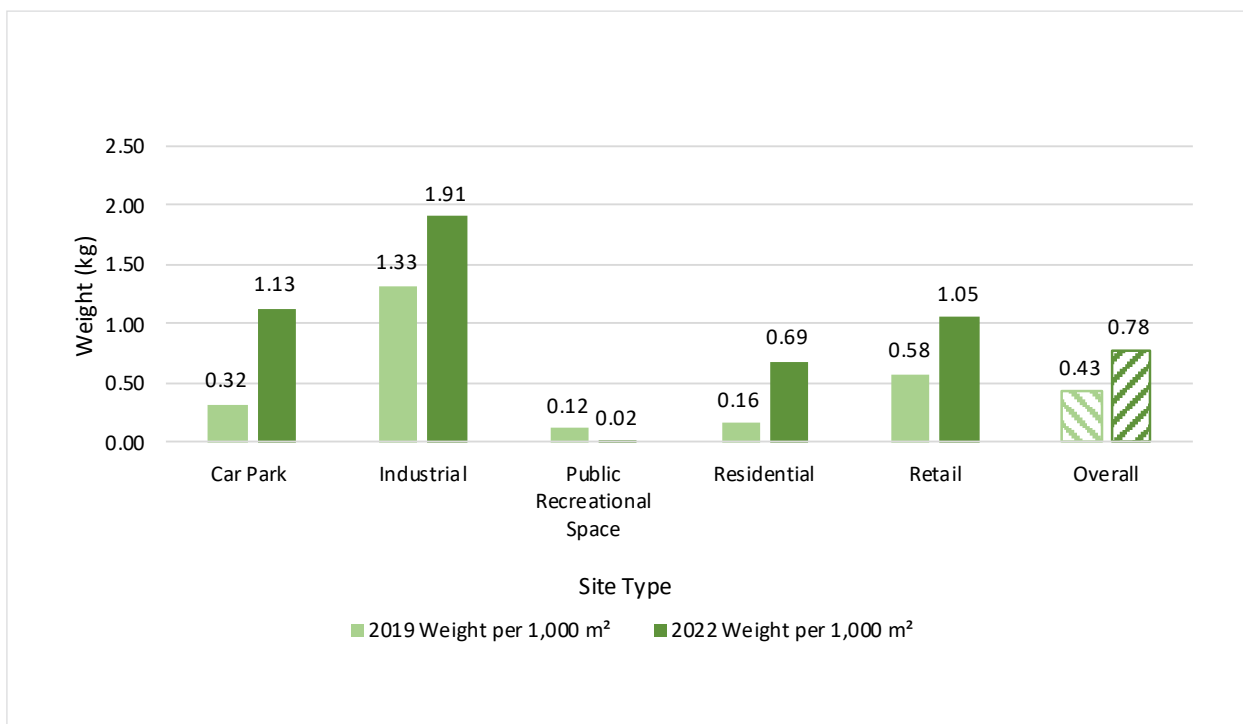
COMPARISON BY MAIN MATERIAL TYPES

Plastic was the most frequently identified material type per 1,000 m² within the Otago region (61 items), whilst Cigarette Butts/Vaping (53 items) were another significant contributor to the overall number of litter items collected.

Moderate numbers of litter items were identified for Metal (30 items), whilst low to moderate numbers of items were recorded for Glass (20 items), Miscellaneous (19 items) and Paper/Cardboard (17 items). Organic Waste (3 items) contributed the lowest number of items to the regional litter stream.

Plastic also contributed the largest volumes per 1,000 m² to the litter stream (7.59 ltr), whilst moderate volumes were recorded for Miscellaneous items (3.65 ltr). Paper/Cardboard (2.41 ltr) contributed low to moderate litter volumes and smaller volumes were recorded for Organic Waste (0.99 ltr), Glass (0.66 ltr) and Metal (0.65 ltr).

Cigarette Butts/Vaping items were associated with the smallest proportion of the overall litter volume (0.03 ltr) per 1,000 m².

The largest litter weights per 1,000 m² in the Otago region were associated with Miscellaneous items (0.21 kg) and Metal (0.19 kg), whilst Plastic items (0.16 kg) and Glass (0.14 kg) were also significant contributors to overall litter weights. Smaller litter weights were recorded for Paper/Cardboard (0.05 kg), Organic Waste (0.02 kg) and Cigarette Butts/Vaping (0.02 kg).

There was no Illegal Dumping identified at the sites audited.

Figure 320: Otago 2022, Items and Volume per 1,000 m² by Main Material Type

*No instances were recorded

Legend: Items per 1,000 m²   Volume per 1,000 m²
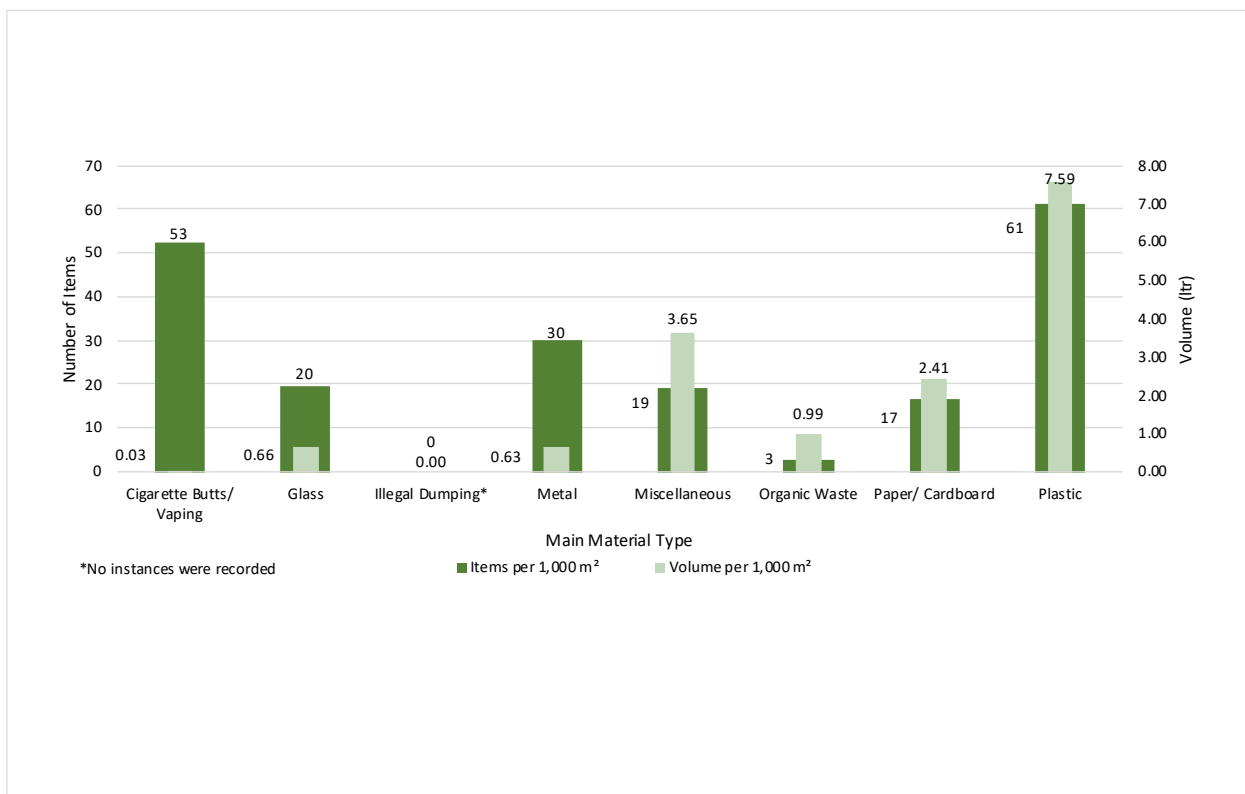
Figure 321: Otago 2022, Items and Weight per 1,000 m² by Main Material Type
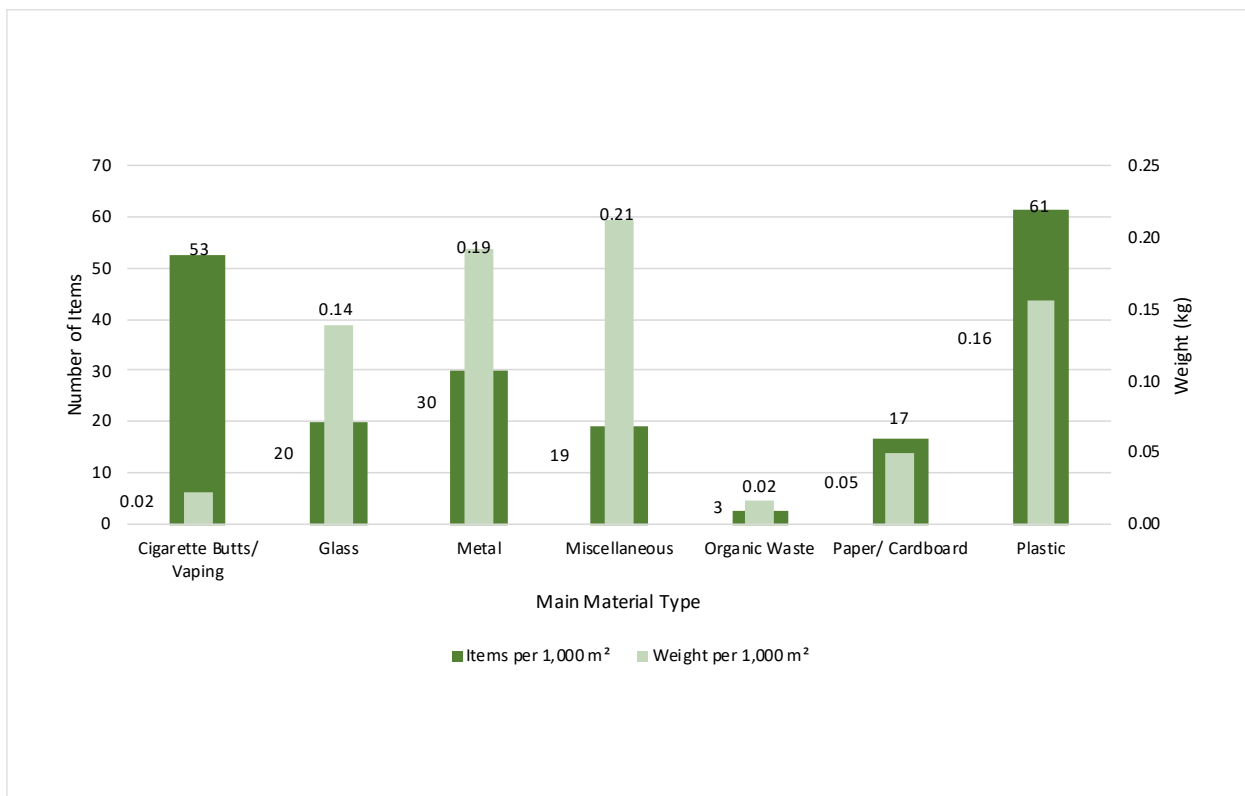
Legend: Items per 1,000 m²   Weight per 1,000 m²

MAIN MATERIAL CHARACTERISTICS

The following material type characteristics were identified for litter items and volume per 1,000 m² in the Otago region (excluding Highway and Railway sites):

- Plastic contributed to high numbers of litter items and large litter volumes.

- Cigarette Butts/Vaping were associated with high numbers of litter items, but contributed low litter volumes.

- Paper/Cardboard contributed small to moderate numbers of litter items and volumes.

- Miscellaneous items contributed small to moderate numbers of litter items and moderate litter volumes.

- Metal items were associated with moderate numbers of litter items and small litter volumes.

- Glass was associated with small to moderate numbers of litter items and contributed low litter volumes.

Figure 322: Otago 2022, Items and Volume per 1,000 m² by Main Material Type

The following material type characteristics were identified for litter items and weight per 1,000 m² in the Otago region (excluding Highway and Railway sites):

- Glass was associated with low to moderate numbers of litter items and moderate to high litter weights.

- Miscellaneous items contributed low to moderate numbers of litter items and the largest litter weights.

- Metal was associated with moderate numbers of litter items and large litter weights.

- Plastic contributed the highest number of litter items and moderate to large litter weights.

- Paper/Cardboard was associated with low to

moderate numbers of litter items and small to moderate litter weights.

- Cigarette Butts/Vaping items contributed high numbers of litter items, but small litter weights.

- Organic Waste was associated with low numbers of litter items and small litter weights.

Figure 323: Otago 2022, Items and Weight per 1,000 m² by Main Material Type
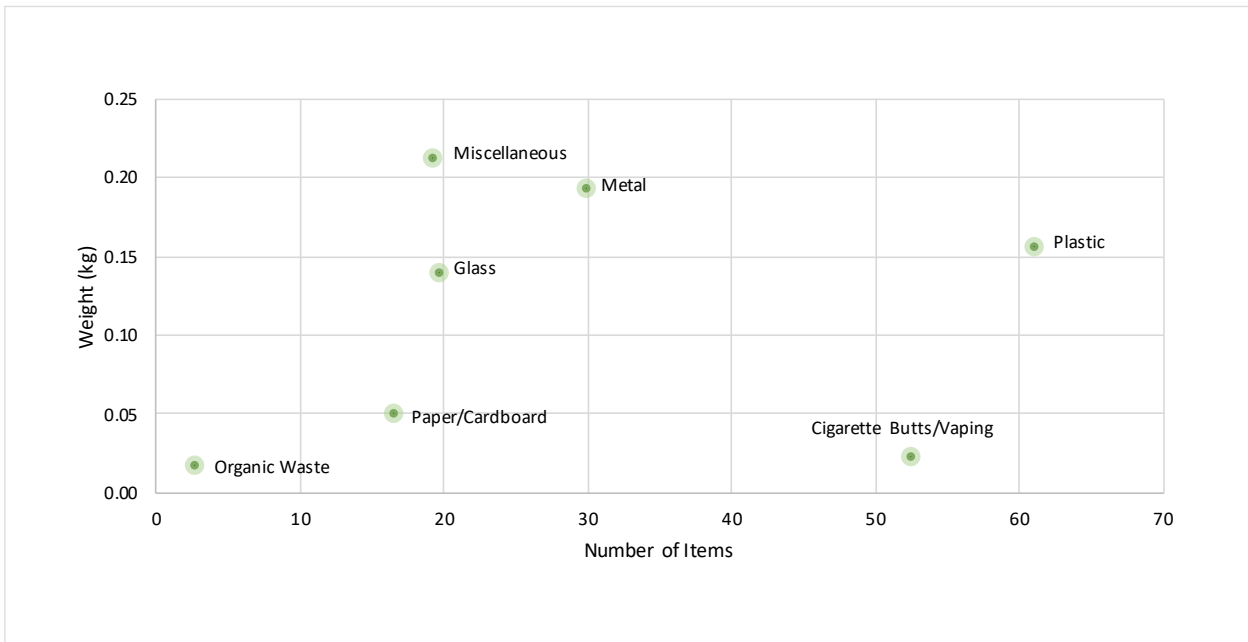
COMPARISONS BY MAIN MATERIAL TYPE OVER TIME

Compared with 2019, the material types, Glass, Miscellaneous items and Plastic have seen increases across all three measures, including number of litter items, estimated volume and weight per 1,000m².

ITEMS PER 1,000 M²

Since 2019, there has been an increase in the number of litter items per 1,000 m² classified under Cigarette Butts/ Vaping (53 items vs. 41 items in 2019), Glass (20 items vs. 7 items in 2019), and Metal (30 items vs. 21 items in 2019), Miscellaneous (19 items vs. 7 items in 2019) and Plastic (61 items vs. 26 items in 2019).

Whilst the number of litter items and weight remain much the same, the volume of litter classified under Organic Waste has increased by 0.90 tr per 1,000 m² since 2019.

Other material categories have remained consistent with 2019, except for Illegal Dumping where no items were recorded in the Otago region (0 items vs. less than 1 item in 2019).

Figure 324: Otago, Items per 1,000 m² by Main Material Type: Comparison Over Time
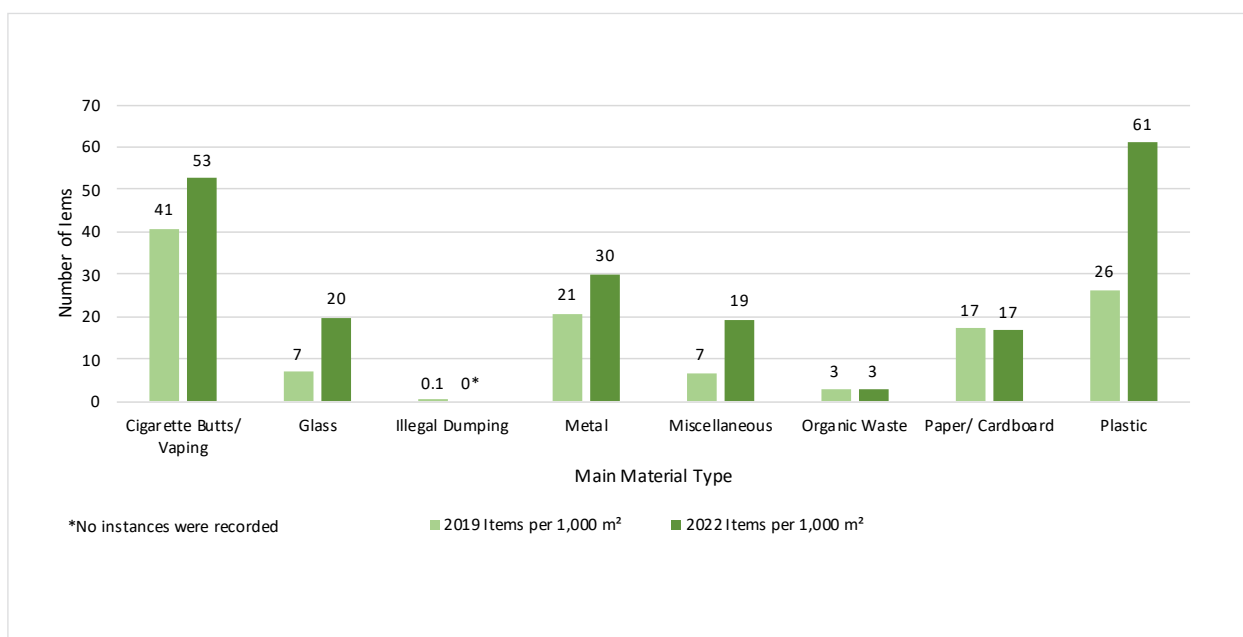
*No instances were recorded

■ 2019 Items per 1,000 m²   ■ 2022 Items per 1,000 m²

VOLUME PER 1,000 M²

Since 2019, the biggest increases in the litter volume of material types per 1,000 m² in the Otago region can be seen in Plastic (7.59 ltr vs. 0.76 ltr in 2019), Organic Waste (0.99 ltr vs. 0.09 ltr in 2019) and Miscellaneous (3.65 ltr vs. 0.90 ltr in 2019). There has also been a decrease in the litter volume of Illegal Dumping (0.00 ltr vs. 2.00 ltr in 2019) and Metal (0.63 vs. 0.70 ltr in 2019).

Figure 325: Otago, Volume per 1,000 m² by Main Material Type: Comparison Over Time
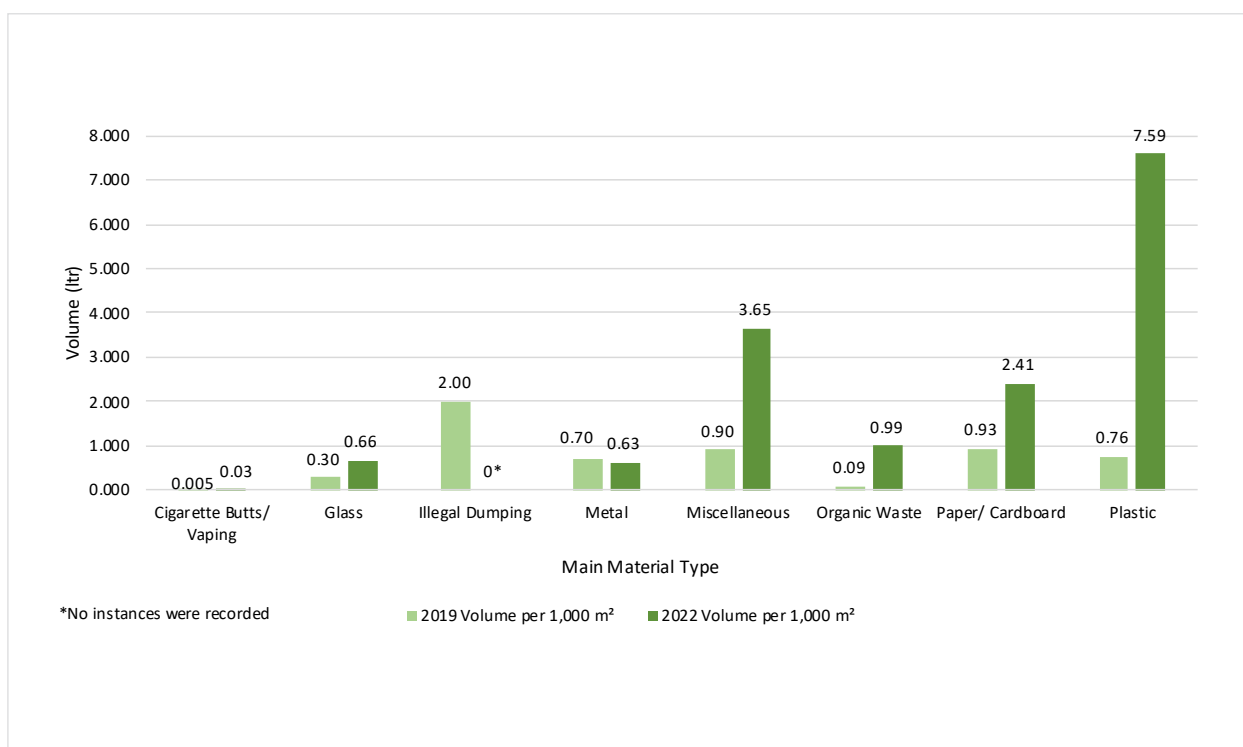
*No instances were recorded

■ 2019 Volume per 1,000 m²   ■ 2022 Volume per 1,000 m²

WEIGHT PER 1,000 M²

Compared with 2019, there has been a large increase in the litter weight of items per 1,000 m² in the Otago region classified under Miscellaneous (0.21 kg vs. 0.08 kg in 2019), Metal (0.19 kg vs. 0.10 kg in 2019) and Plastic (0.16 kg. vs. 0.07 kg in 2019). Cigarette Butts/ Vaping and Organic Waste weights have remained relatively consistent with 2019.

Figure 326: Otago, Weight per 1,000 m² by Main Material Type: Comparison Over Time
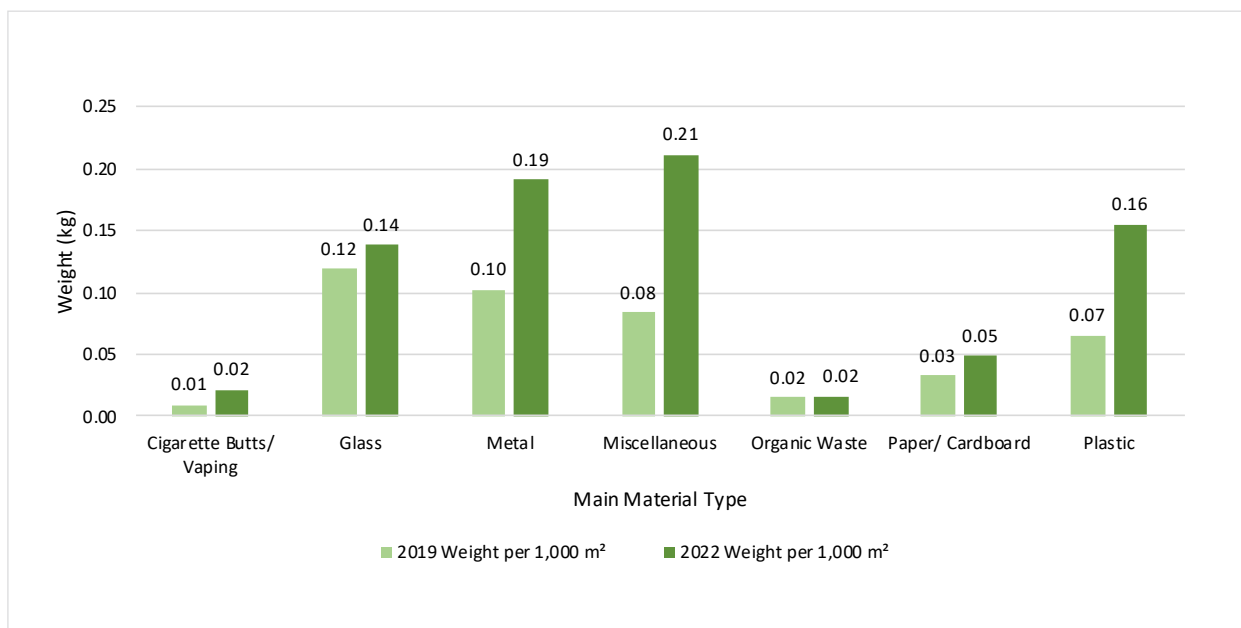
SITE TYPES BY MAIN MATERIAL TYPE

In the Otage region, the number of material type litter items collected per 1,000 m2 at the different site types (excluding Highway and Railway sites) was as follows:

- Car Park sites: Plastic (85 items), Cigarette Butts/ Vaping (74 items), Metal (40 items), Miscellaneous (32 items), Paper/Cardboard (24 items), Glass (21 items), Organic Waste (3 items) and Illegal Dumping (0 items).

- Industrial sites: Plastic (139 items), Cigarette Butts/ Vaping (116 items), Metal (90 items), Glass (60 items), Paper/Cardboard (27 items), Miscellaneous (26 items), Organic Waste (8 items) and Illegal Dumping (0 items).

- Public Recreational Spaces: Plastic (8 items), Paper/ Cardboard (2 items), Cigarette Butts/Vaping (2 items), Miscellaneous (2 items), Metal (1 item), Organic Waste (1 item), Glass (0 items) and Illegal Dumping (0 items).

- Residential sites: Plastic (69 items), Cigarette Butts/ Vaping (67 items), Metal (27 items), Miscellaneous (20 items), Paper/Cardboard (15 items), Glass (9 items), Organic Waste (1 item) and Illegal Dumping (0 items).

- Retail sites: Plastic (71 items), Cigarette Butts/Vaping (69 items), Glass (35 items), Miscellaneous (32 items), Paper/Cardboard (31 items), Metal (30 items), Organic Waste (4 items) and Illegal Dumping (0 items).

Figure 327: Otago 2022, Sites by Main Material Type: Items per 1,000 m²
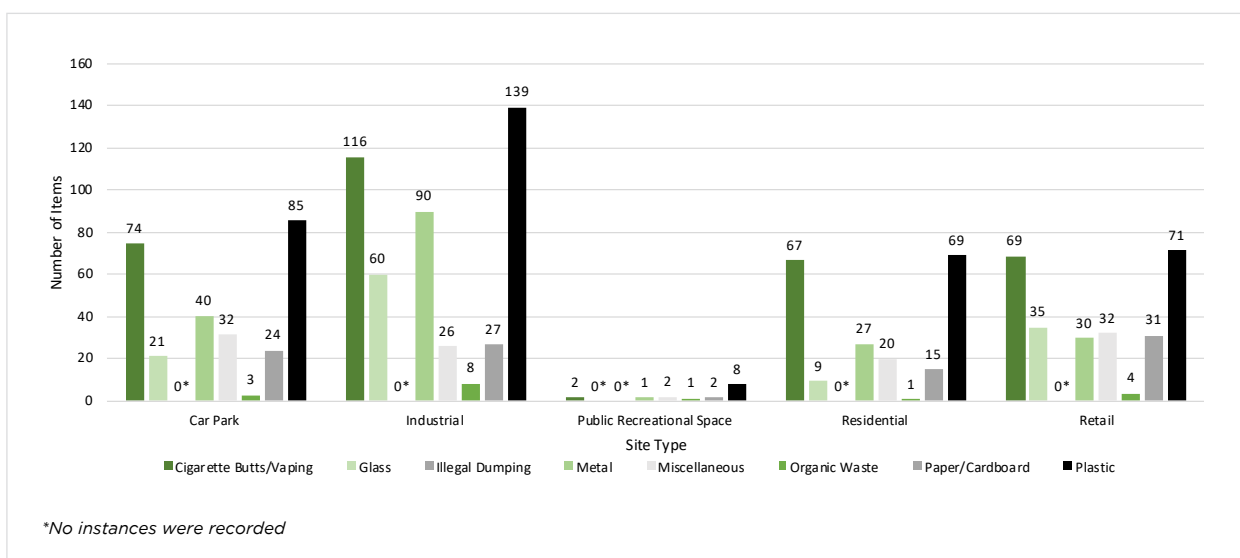
*No instances were recorded

THE DIRTY DOZEN

Cigarette/Vaping: Cigarette butts were the most frequently identified litter item in the Otago region, with 52 butts recorded per 1,000 m².

Other material types frequently identified in the Otago region included:

- Plastic: Unidentifiable hard plastic fragments (24 items per 1,000 m²)
- Glass: Unidentifiable glass fragments (18 items per 1,000 m²)
- Plastic: Unidentifiable soft plastic fragments (14 items per 1,000 m²)
- Metal: Bottle caps, lids & pull tabs (10 items per 1,000 m²).

Not all material subcategories were comparable to the 2019 NLA due to the addition of new subcategories in 2022.

Amongst comparable material subcategories, there have been increases in the number of Cigarette/Vaping: Cigarette butts collected per 1,000 m² (52 items vs. 41 items in 2019), Metal: Bottle caps, lids & pull tabs (10 items vs. 5 items in 2019) and Metal: Foil wrappers (6 items vs. 3 items in 2019). A decrease in the number of items has been identified for Metal: Metal pieces/fragments (5 items vs. 11 items in 2019).

Figure 328: Otago, Dirty Dozen, Items per 1,000 m², Material Subcategories: Comparison Over Time
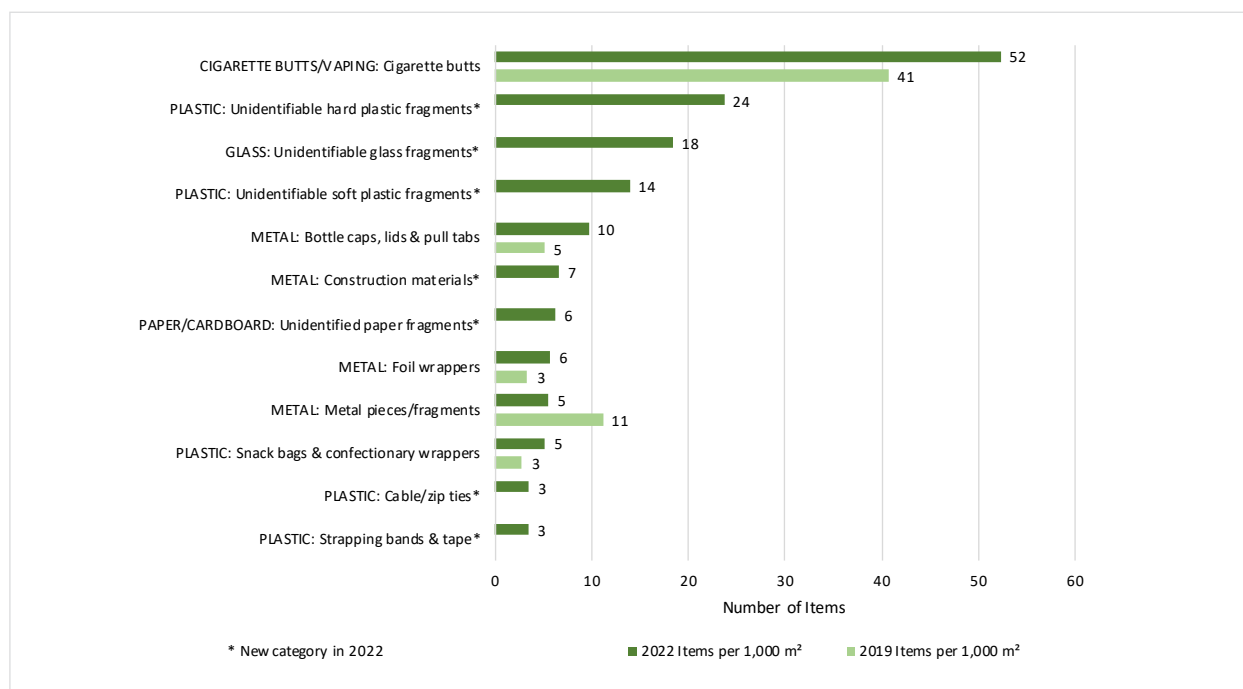
Plastic: Polystyrene insulation contributed the largest proportion to the total estimated litter volume in the Otago region, recording 4.84 ltr of volume per 1,000 m².
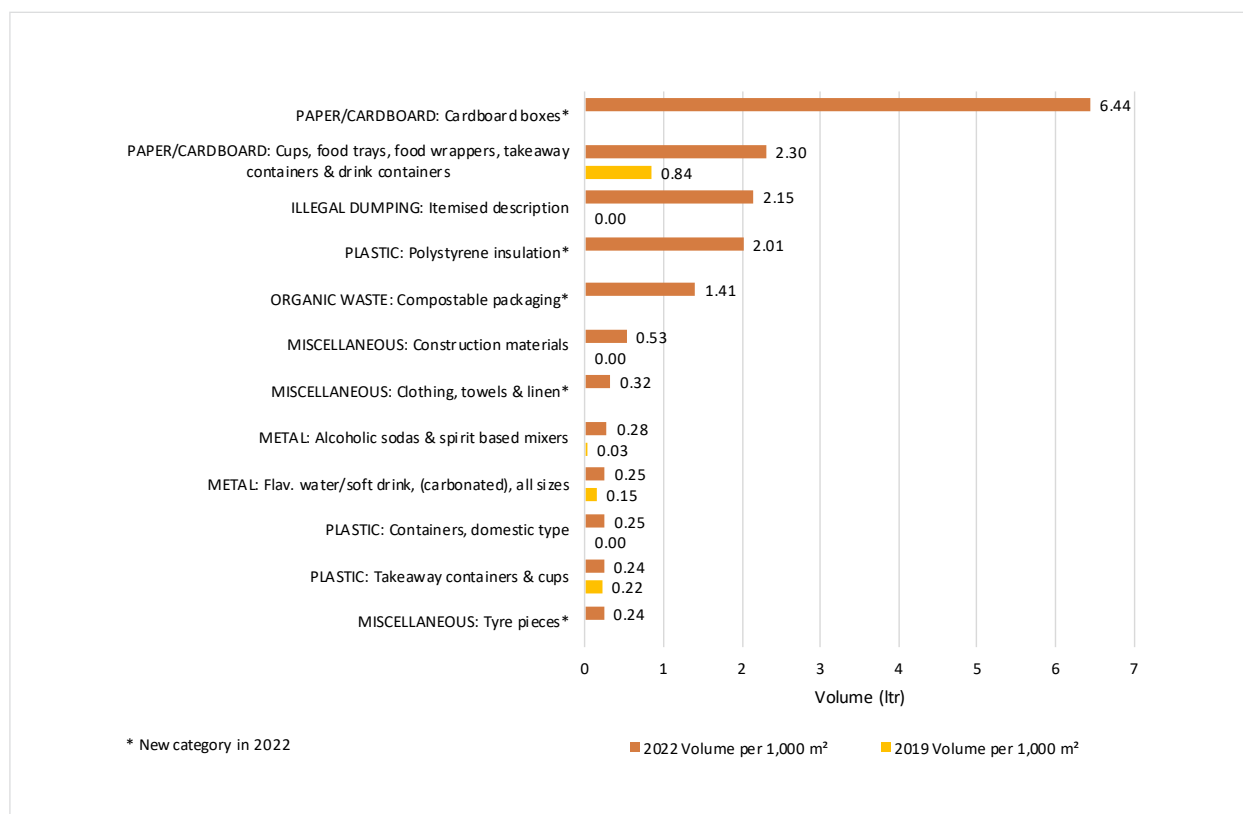
Other material subcategories with significant litter volumes per 1,000 m² included:

- Paper/Cardboard: Cups, food trays, food wrappers, takeaway containers & drink containers (1.88 ltr per 1,000 m²)
- Miscellaneous: Tyre pieces (1.38 ltr per 1,000 m²)
- Miscellaneous: Clothing towels & linen (1.24 ltr per 1,000 m²)

- Plastic: Containers, domestic type (0.96 ltr per 1,000 m²)

Not all material subcategories were comparable to the 2019 NLA due to the addition of new subcategories in 2022.

Whilst most of the categories featured in Otago's Dirty Dozen by volume are new this year, amongst comparable material subcategories, there has been a few differences from 2019. As shown in the graph below, the biggest difference in litter volume between 2019 and 2022 can be seen in Paper/Cardboard: Cups, food trays, food wrappers, takeaway containers & drink containers which has increased by 1.79 ltr per 1,000 m² since 2019.

Figure 329: Otago, Dirty Dozen, Volume per 1,000 m², Material Subcategories: Comparison Over Time
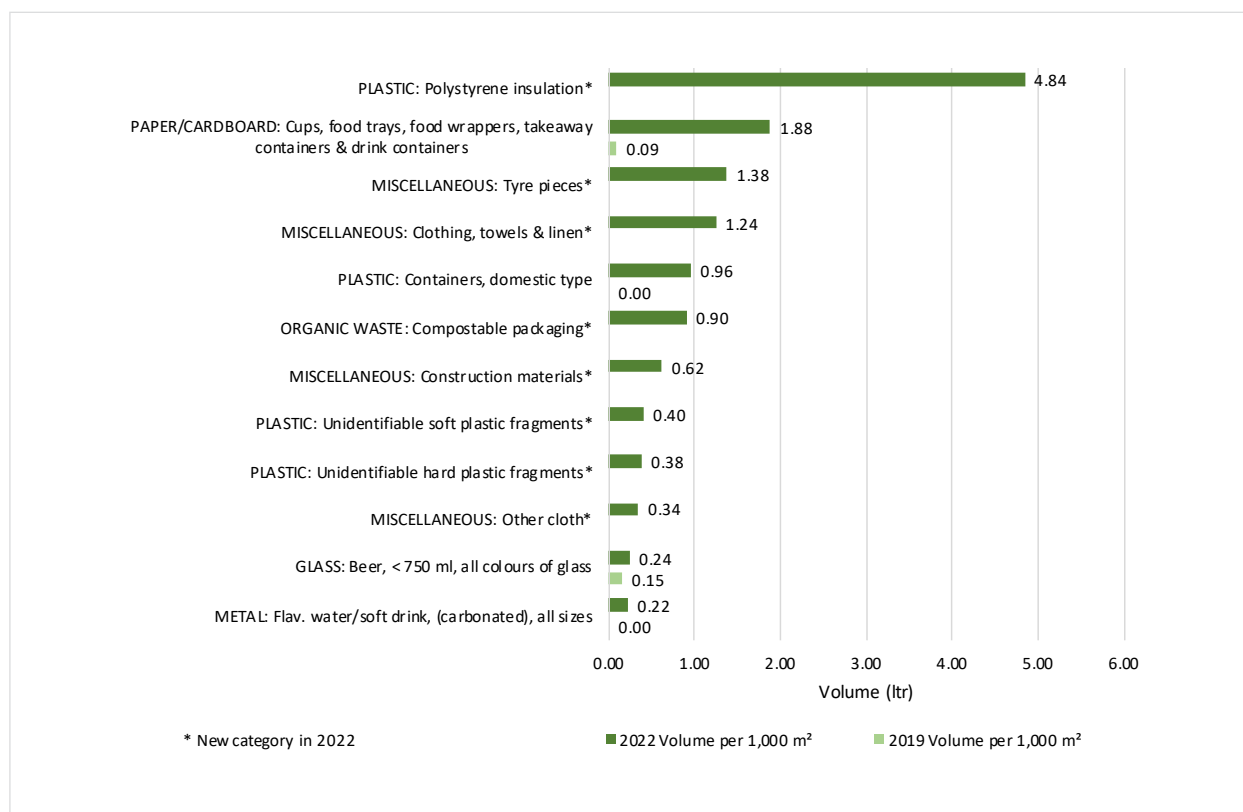
Miscellaneous: Clothing, towels & linen items represented the largest contribution to litter weights per 1,000 m² in the Otago region (0.14 kg).

Other material subcategories which recorded large litter weights per 1,000 m² throughout the region included:

- Metal: Bottle caps, lids & pull tabs (0.06 kg per 1,000 m²)
- Metal: Construction materials (0.05 kg per 1,000 m²)
- Plastic: Unidentifiable hard plastic fragments (0.05 kg per 1,000 m²)
- Glass: Alcoholic sodas/spirit based mixers, all sizes (0.05 kg per 1,000 m²).

Not all material subcategories were comparable to the 2019 NLA due to the addition of new subcategories in 2022.

Amongst comparable material subcategories, there has been an increase in the litter weight of Metal: Bottle caps (0.06 kg vs. 0.01kg in 2019) and Glass: Alcoholic sodas/spirit based mixers, all sizes (0.05 kg vs. 0.00 kg in 2019) collected per 1,000m² in the Otago region's Dirty Dozen. There has been a decrease in litter weight identified for Glass: Beer bottles < 750 ml, all colours (0.04 kg vs. 0.07 kg in 2019).

Figure 330: Otago, Dirty Dozen, Weight per 1,000 m², Material Subcategories: Comparison Over Time

Category	2022 Weight per 1,000 m²	2019 Weight per 1,000 m²
MISCELLANEOUS: Clothing, towels & linen*	0.14	
METAL: Bottle caps, lids & pull tabs	0.06	0.01
METAL: Construction materials*	0.05	
PLASTIC: Unidentifiable hard plastic fragments*	0.05	
GLASS: Alcoholic sodas/spirit based mixers, all sizes	0.05	0.00
GLASS: Beer, < 750 ml, all colours of glass	0.04	0.07
METAL: Metal pieces/fragments*	0.04	
GLASS: Unidentifiable glass fragments*	0.04	
PLASTIC: Flav. water/fruit/sports drinks (non-carb.), <1 litre	0.03	0.01
METAL: Vehicle parts*	0.02	
CIGARETTE BUTTS/VAPING: Cigarette butts	0.02	0.01
PLASTIC: Flav. milk, <1 litre	0.02	0.00

* New category in 2022

TERRITORIAL SUMMARIES

The Otago region is comprised of four 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 Spaces) were audited in the Otago Region with a minimum of five sites audited from each territory.

The results are summarised below.

Extract from Table 5, 2022 Territory Data: Otago Region

Territory	Total Area Audited (m²)	Items per 1,000 m²	Weight (kg) per 1,000 m²	Volume (ltr) per 1,000 m²
OTAGO REGION				
Central Otago District	6,180	162	0.40	11.73
Clutha District	4,450	189	0.62	14.09
Dunedin City	3,450	331	1.34	21.11
Queenstown-Lakes District	3,350	163	1.14	20.89
Otago Region Overall	**17,430**	**202**	**0.78**	**15.95**

SITE GRADINGS

All sites were assigned gradings in four 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 Otago region.

Extract from Table 3, Risk and Litter Distribution: Otago

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

Figure 331: Otago 2022, Grading: Visual Site Ratings
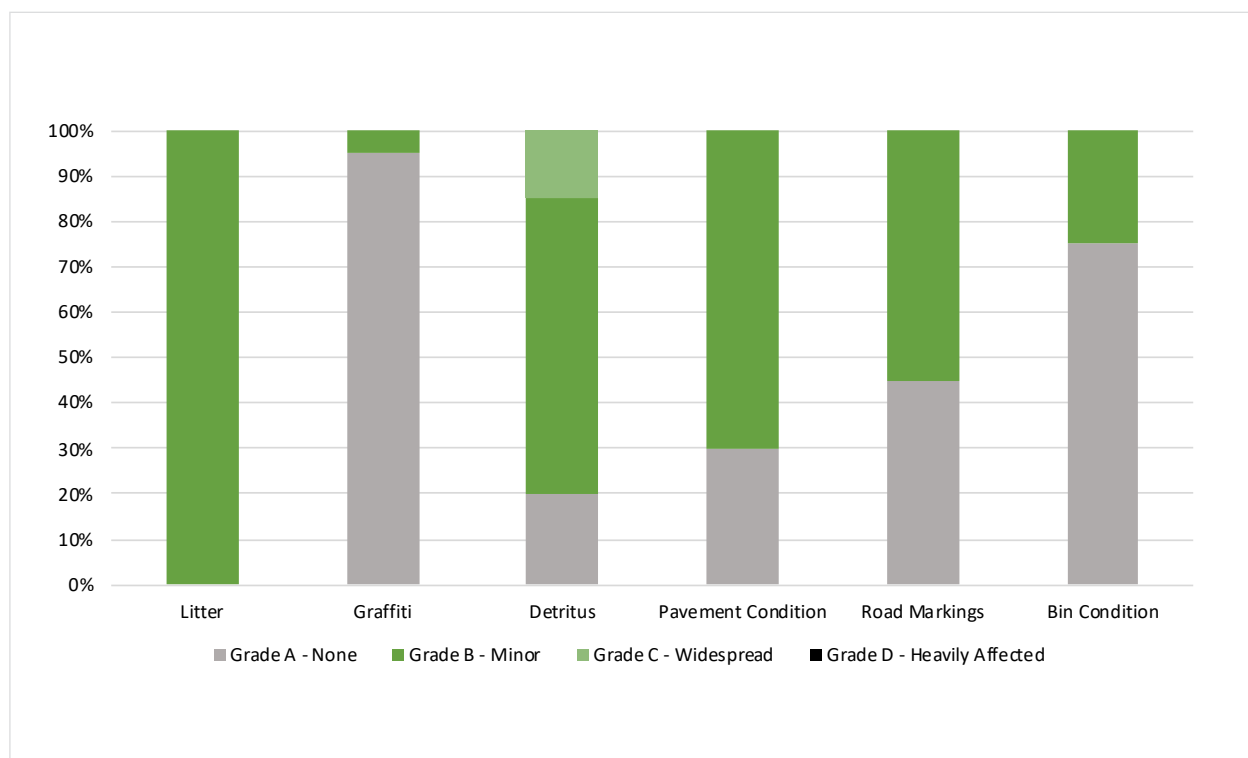
Figure 332: Otago 2022, Grading: Site Litter Hotshots Ratings
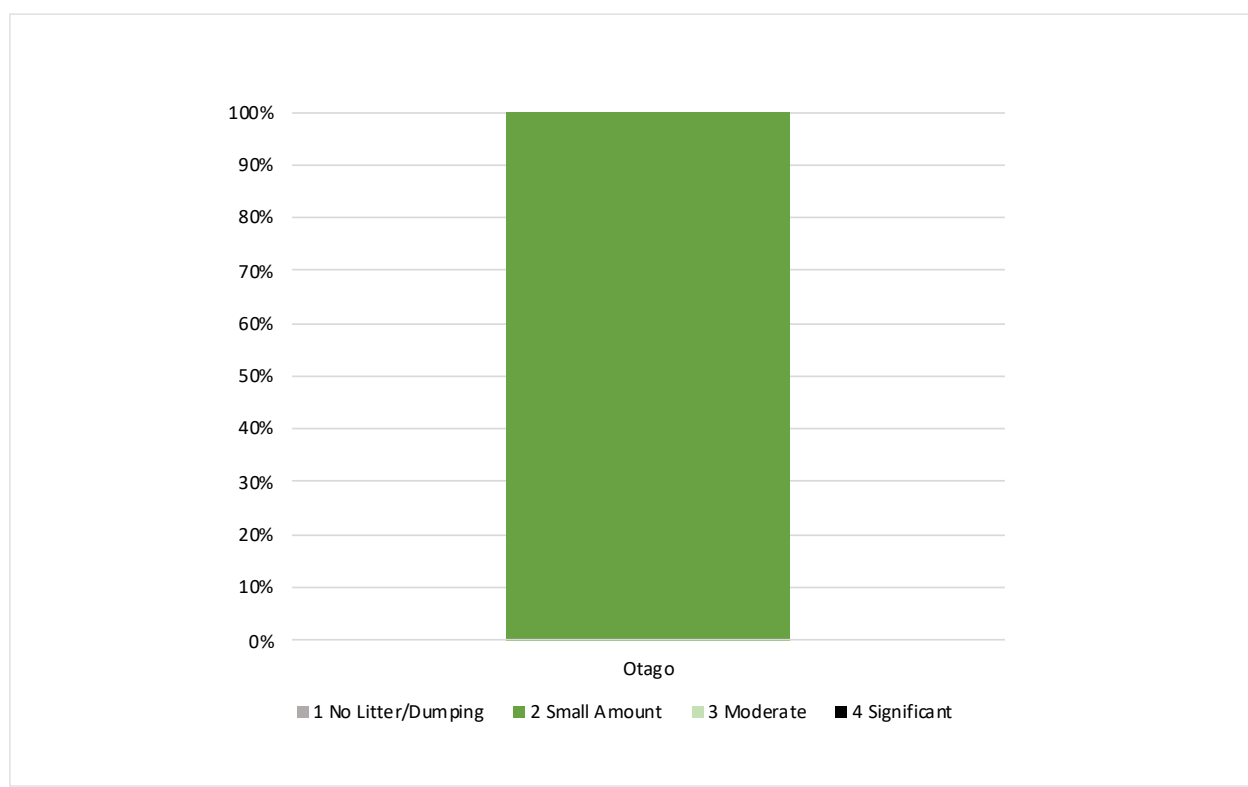
SOUTHLAND
REGION

AT A GLANCE

The overall average number of items per 1,000 m² across the 15 sites audited in the Southland region was 204 items, the overall average estimated volume of litter per 1,000 m² was 27.08 ltr and the overall average litter weight per 1,000 m²was 0.88 kg.

Retail sites were associated with the highest numbers of litter items, volumes and weights per 1,000 m² within the region, whilst Industrial sites contributed moderate to high numbers of litter items, volumes and weights.

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

Plastic was the most frequently identified material type per 1,000 m² recorded in the Southland region and was associated with moderate to high litter volumes and moderate weights. The second most frequently identified material type was Cigarette Butts/Vaping, which was associated with the lowest litter volumes and weights.

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

Paper/Cardboard items contributed the largest volume per 1,000 m² to the overall regional litter stream (with Cardboard boxes being the main contributor of volume in this material type) and contributed moderate litter weights and low to moderate numbers of items.

Note:

- *New material subcategories were added in 2022 and so not all subcategories are comparable between the 2022 and 2019 NLAs.*

- *A weight measure was not recorded for any items of Illegal Dumping identified during the audit, and therefore has not been included in the analysis. There were no instances of Illegal Dumping at the sites audited in the Sothland region.*

- *Not all regions were audited for Highway and/or Railway sites, and so these site types have been separated out and specifics for each region given at the end of the relevant chapter. The Southland region was audited for one Highway site and one Railway site.*

COMPARISONS BY SITE TYPES

The highest numbers of litter items per 1,000 m² at the sites audited in the Southland region were recorded at Retail sites (770 items). Moderate to high numbers of litter items were also associated with Industrial sites (363 items) whilst low to moderate numbers of items were collected at Car Park (152 items) and Residential (130 items) sites. The lowest number of items per 1,000 m² were recorded at Public Recreational Spaces (24 items).

High estimated volumes per 1,000 m² of the litter items were associated with Retail sites (121.81 ltr) whilst the second highest volumes were recorded at Industrial sites (67.81 ltr). Low to moderate volumes were associated

with Residential (14.23 ltr) and Car Park (11.20 ltr) sites, whilst small litter volumes per 1,000 m² were associated with Public Recreational Spaces (1.94 ltr).

Retail sites (3.68 kg) contributed to the highest litter weights per 1,000 m² in the Southland region. Moderate to high litter weights were associated with Industrial sites (1.77 kg), whilst low to moderate weights were recorded for Residential (0.56 kg) and Car Park (0.54 kg) sites. Public Recreational Spaces (0.04 kg) were associated with the lowest litter weights in the region.

Figure 333: Southland 2022, Items and Volume per 1,000 m² by Site Type
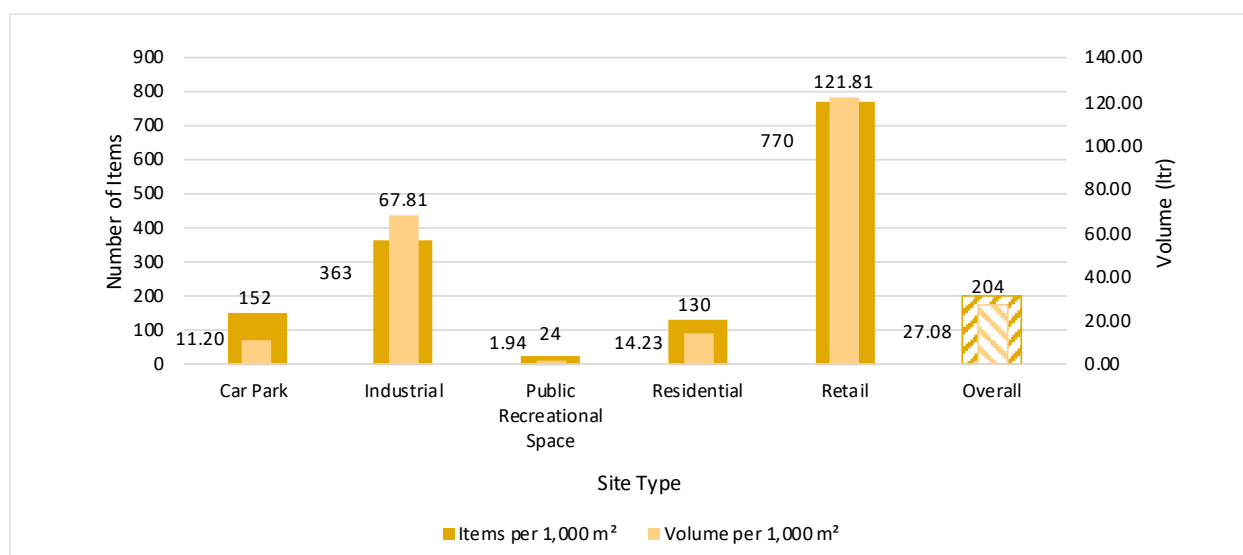
Figure 334: Southland 2022, Items and Weight per 1,000 m² by Site Type
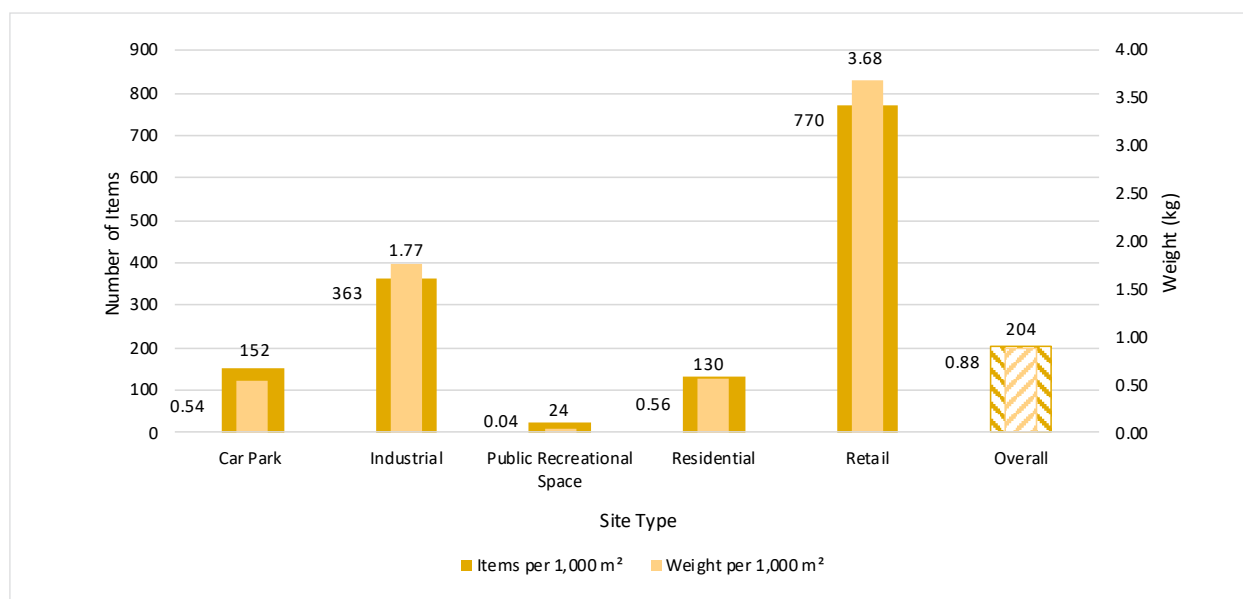
SITE CHARACTERISTICS

The following site characteristics across all site types (excluding Highway and Railway sites) were identified for litter items and volume per 1,000 m² in the Southland region:

- Retail sites contributed to the highest numbers of litter items and volumes.

- Industrial sites were associated with moderate to high numbers of litter items and volumes.

- Car Park and Residential sites contributed low to moderate numbers of litter items and volumes.

- Public Recreational Spaces were associated with low numbers of litter items and small litter volumes.

Figure 335: Southland 2022, Items and Volume per 1,000 m² by Site Type
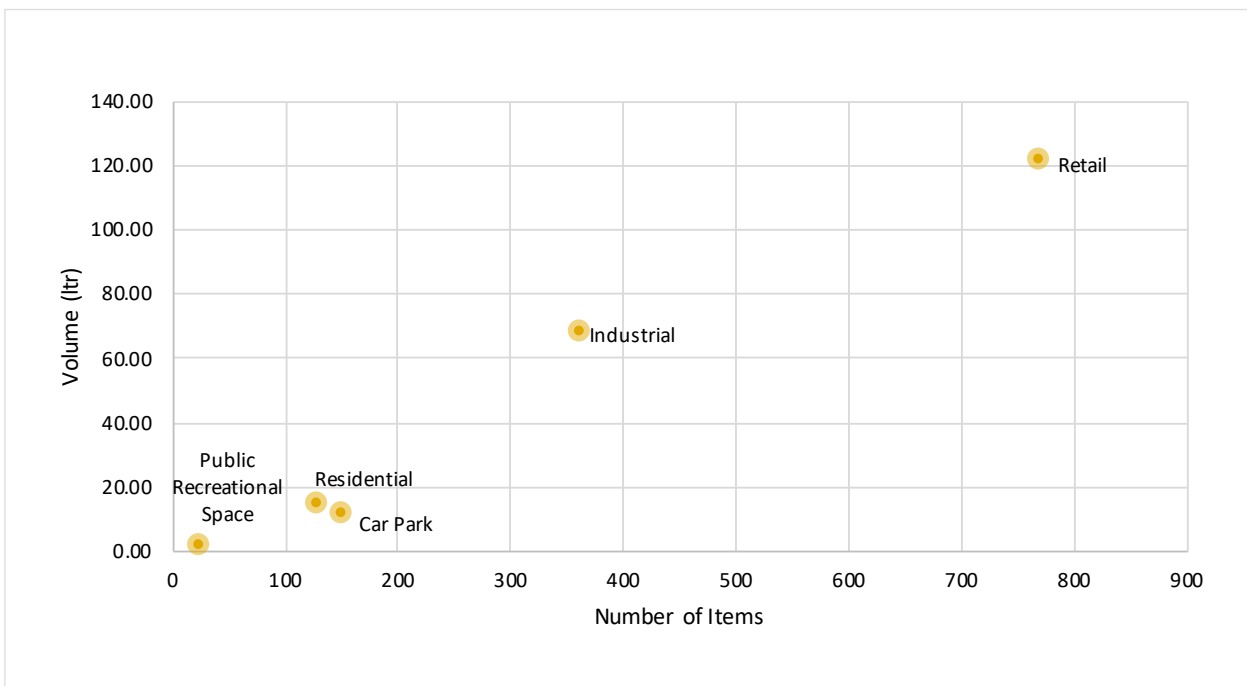
The following site characteristics across all site types (excluding Highway and Railway sites) were identified for litter items and volume per 1,000 m² in the Southland region:

- Retail sites were associated with the highest numbers of litter items and largest litter weights.

- Industrial sites contributed both moderate to high numbers of litter items and weights.

- Car Park and Residential sites were associated with low to moderate numbers of litter items and weights.

- Public Recreational Spaces contributed low numbers of litter items and small litter weights.

Figure 336: Southland 2022, Items and Weight per 1,000 m² by Site Type
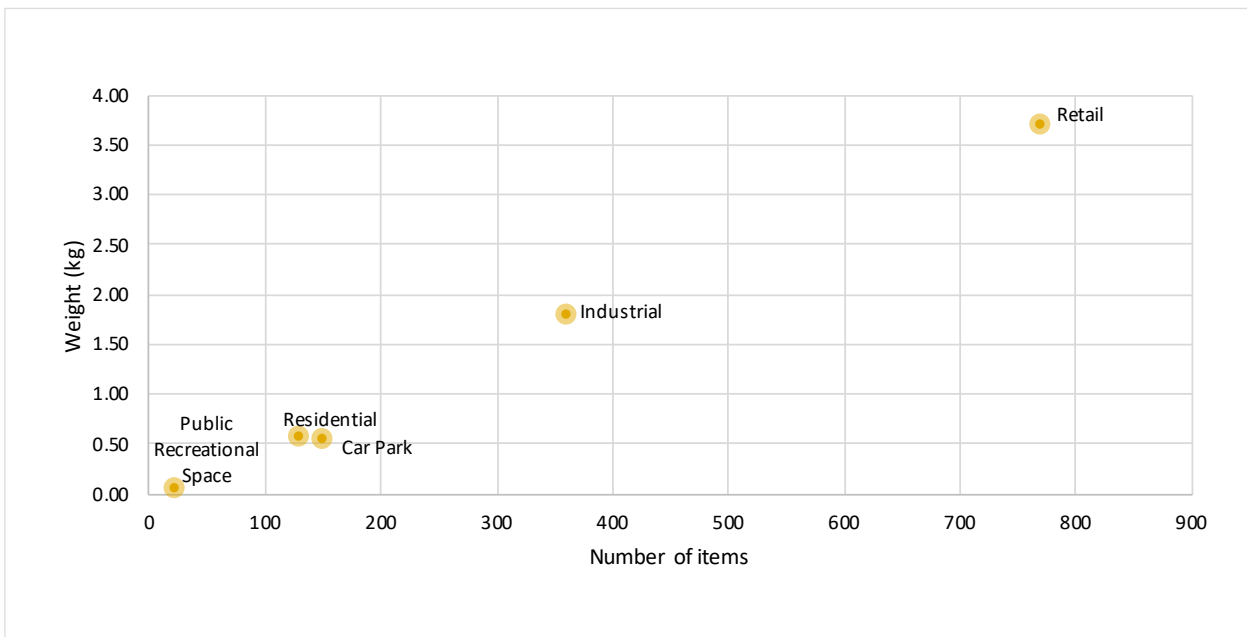
COMPARISONS BY SITE TYPE OVER TIME

Since 2019, there have been increases in the number of litter items, estimated volume and weight of litter per 1,000 m² in the Southland region, with litter volume having the biggest increase (27.08 ltr vs. 2.54 ltr per 1,000 m² in 2019). Retail sites have had the most noticeable increase across the board in the number of litter items, volume and weight per 1,000 m² since 2019.

ITEMS PER 1,000 M²

The number of litter items collected in the Southland region has increased since 2019 (204 items vs. 75 in 2019). As shown in the graphs below, there has been an increase in the number of litter items collected in all site types, with the exception of Public Recreational Spaces,

which remain the same as in 2019 (24 items vs. 24 items in 2019). Retail sites saw the biggest increase in the number of litter items since 2019 (770 items vs. 128 items in 2019).

Figure 337: Southland, Items per 1,000 m² by Site Type: Comparison Over Time
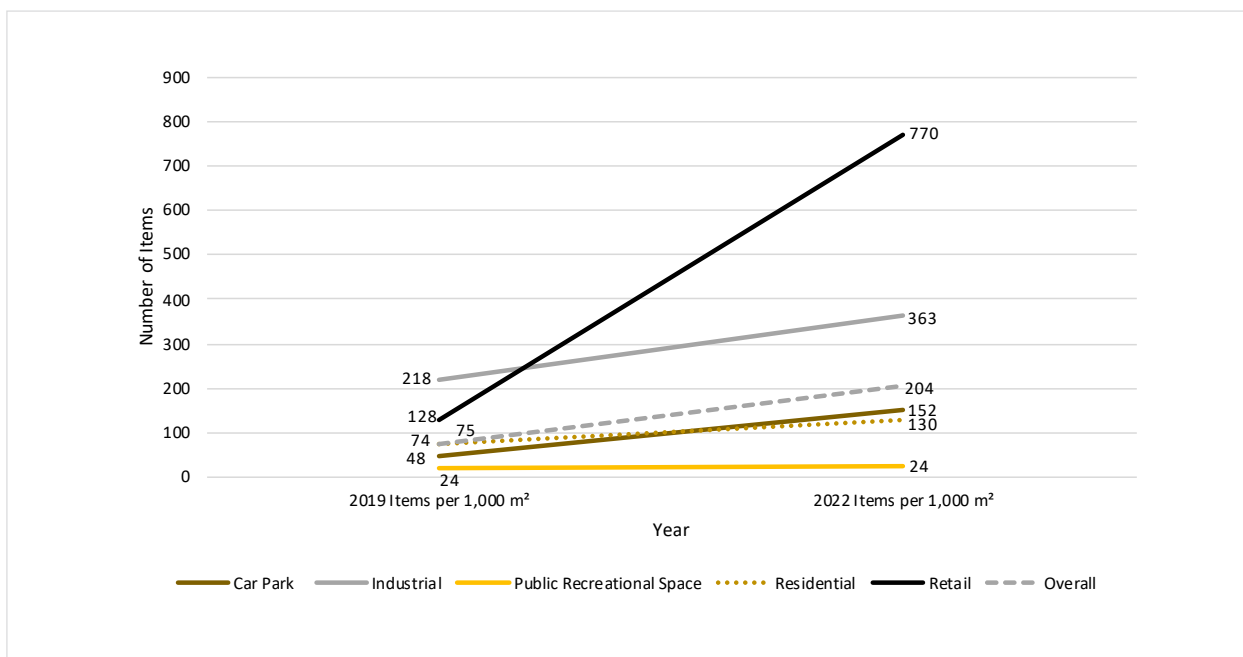
Figure 338: Southland, Items per 1,000 m² by Site Type: Comparison Over Time
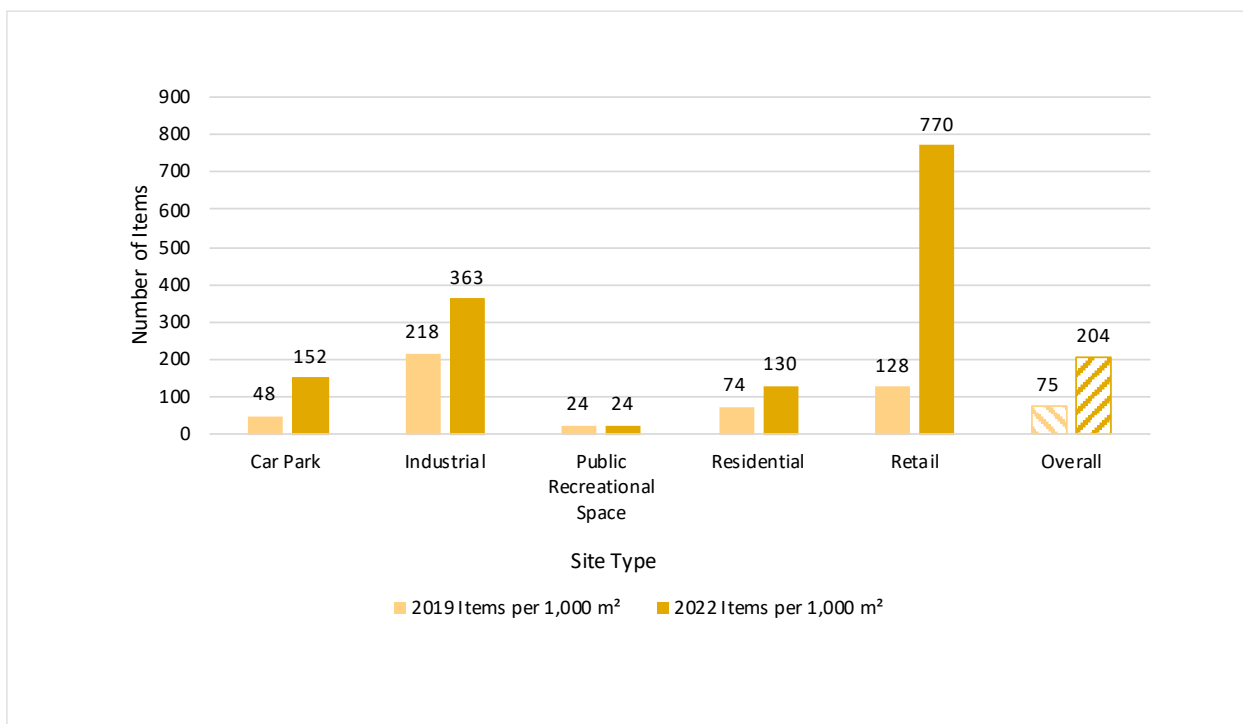
VOLUME PER 1,000 M²

Overall, litter volumes per 1,000 m² in the Southland region have increased by 24.54 ltr since 2019. As shown in the graphs below, this increase is consistent across almost all site types, with the biggest increases per 1,000 m² being seen in Retail (121.81 ltr vs. 4.12 ltr in 2019) and

Industrial (67.81 ltr vs. 8.62 ltr in 2019) sites. The average litter volume recorded at Public Recreational Spaces has remained consistent with 2019.

Figure 339: Southland, Volume per 1,000 m² by Site Type: Comparison Over Time
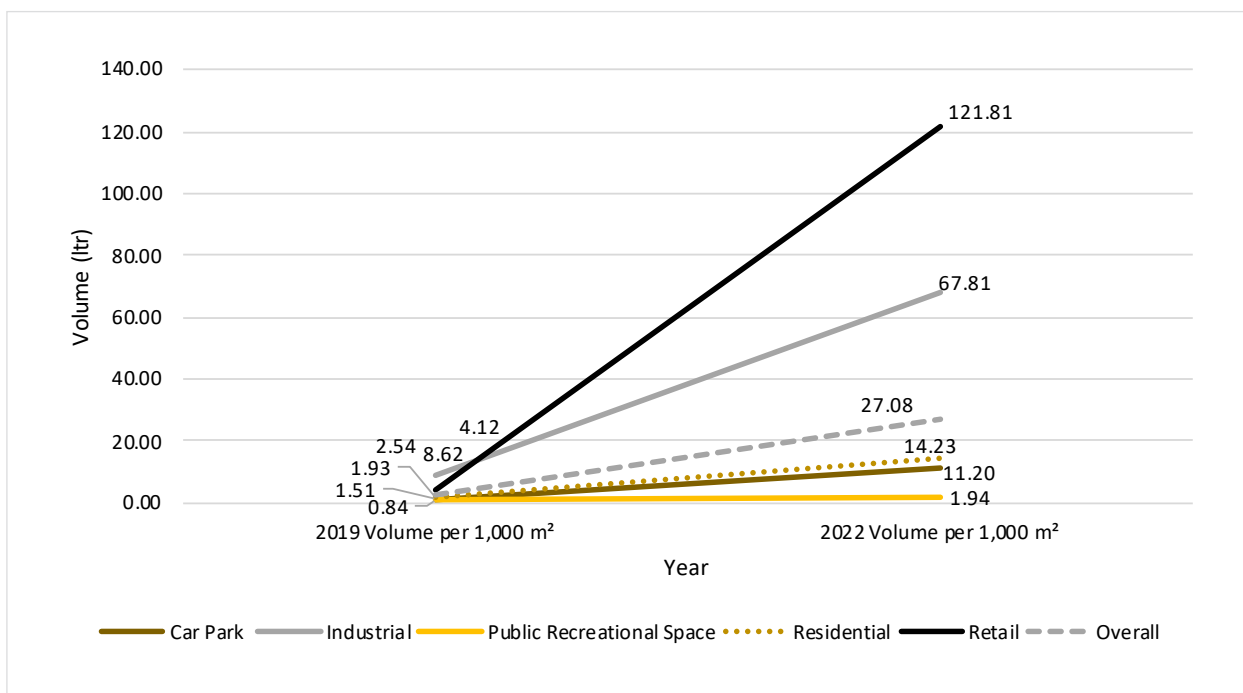
Figure 340: Southland, Volume per 1,000 m² by Site Type: Comparison Over Time
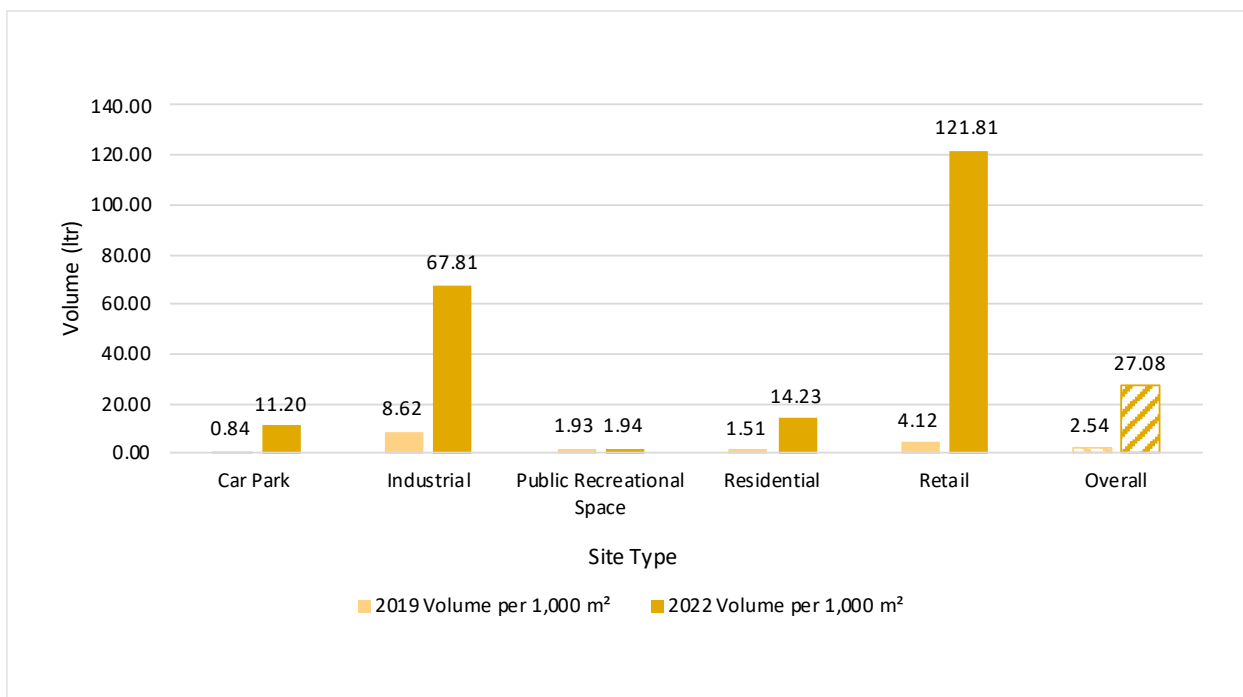
WEIGHT PER 1,000 M²

Overall, the litter weight per 1,000 m² in the Southland region has increased since 2019 (0.88 kg vs. 0.39 kg in 2019). As shown in the graphs below, the site type with the biggest increase in litter weight per 1,000 m² is Retail

(3.68 kg vs. 0.34 kg in 2019). A small decrease in litter weight since 2019 was recorded for Industrial sites (1.77 kg vs. 2.10 kg per 1,000 m² in 2019).

Figure 341: Southland, Weight per 1,000 m² by Site Type: Comparison Over Time
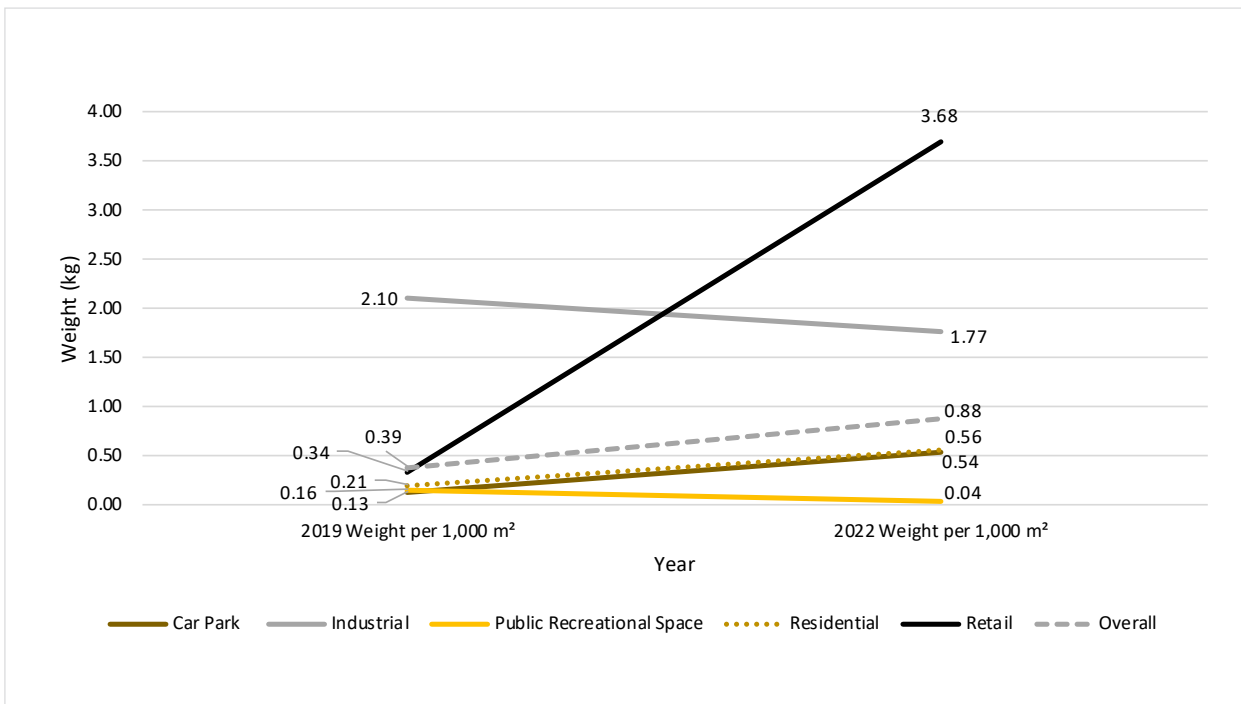
Figure 342: Southland, Weight per 1,000 m² by Site Type: Comparison Over Time
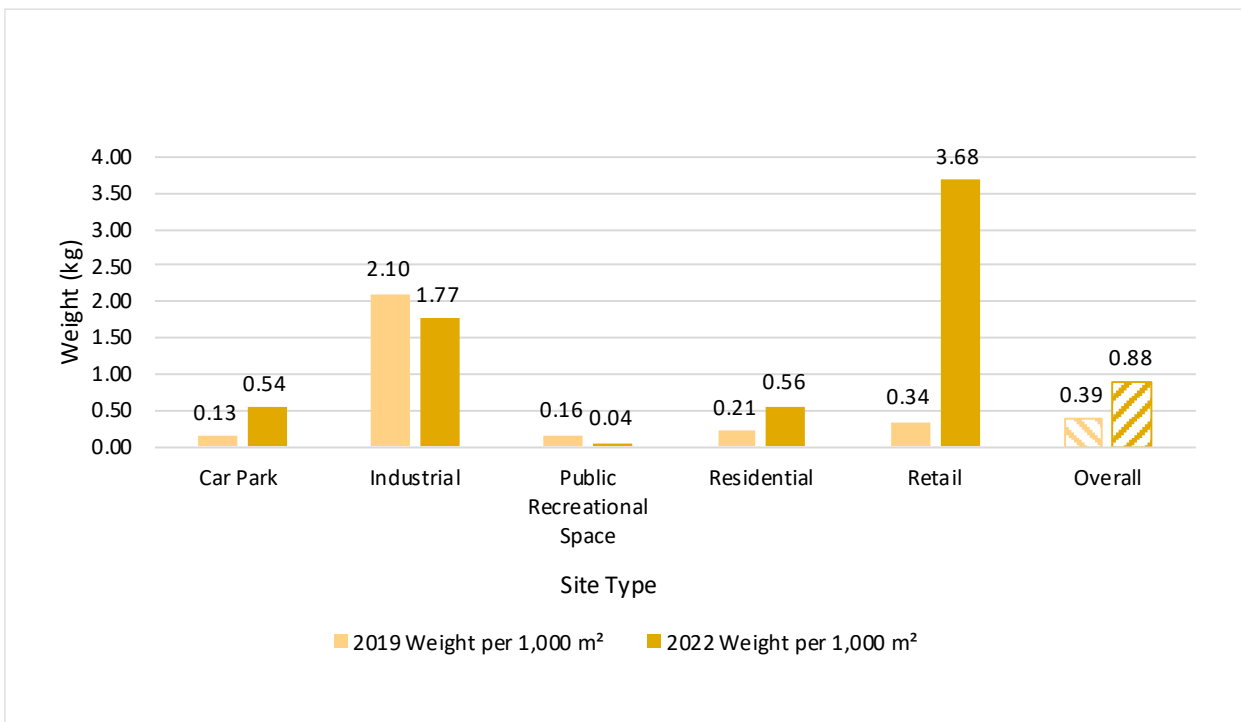
COMPARISON BY MAIN MATERIAL TYPES

Plastic was the most frequently identified material type per 1,000 m² within the Southland region (69 items), whilst Cigarette Butts/Vaping (48 items) was also a significant contributor to the overall number of litter items collected.

Moderate numbers of litter items per 1,000 m² were recorded for Metal (30 items) whilst low to moderate numbers of items were associated with Paper/Cardboard (21 items), Miscellaneous (18 items) and Glass (15 items). Small numbers of litter items were recorded for Organic Waste (1 item).

Paper/Cardboard contributed the largest volumes per 1,000 m² to the litter stream (12.58 ltr). Moderate to high litter volumes were recorded for Plastic (8.05 ltr), and low to moderate volumes for Miscellaneous items (2.68 ltr). Organic Waste (1.58 ltr), Glass (1.30 ltr) and Metal (0.79 ltr) contributed low volumes to the regional litter stream.

Cigarette Butts/Vaping items were associated with the smallest proportion of the overall litter volume (0.09 ltr) per 1,000 m².

Glass (0.32 kg) was associated with the largest litter weights recorded per 1,000 m², whilst moderate weights were associated with Plastic (0.13 kg), Metal (0.13 kg), Miscellaneous (0.13 kg) and Paper/Cardboard (0.12 kg). The smallest litter weights recorded in the Southland region were attributed to Organic Waste (0.03 kg) and Cigarette Butts/Vaping (0.02 kg).
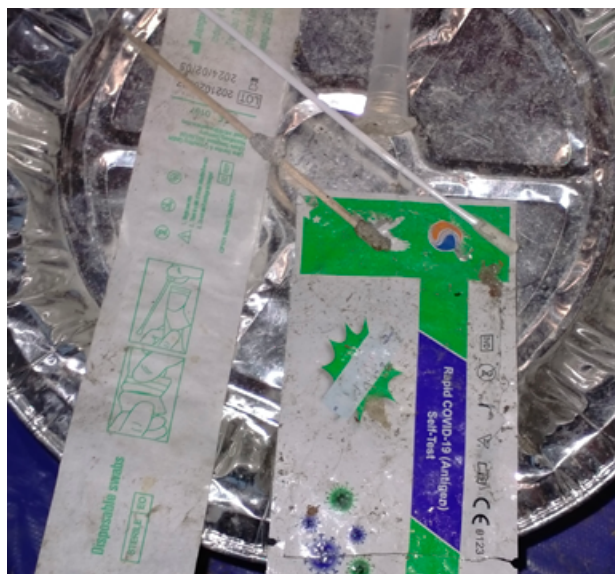
Figure 343: Southland 2022, Items and Volume per 1,000 m² by Main Material Type

*No instances were recorded

■ Items per 1,000 m²   ■ Volume per 1,000 m²
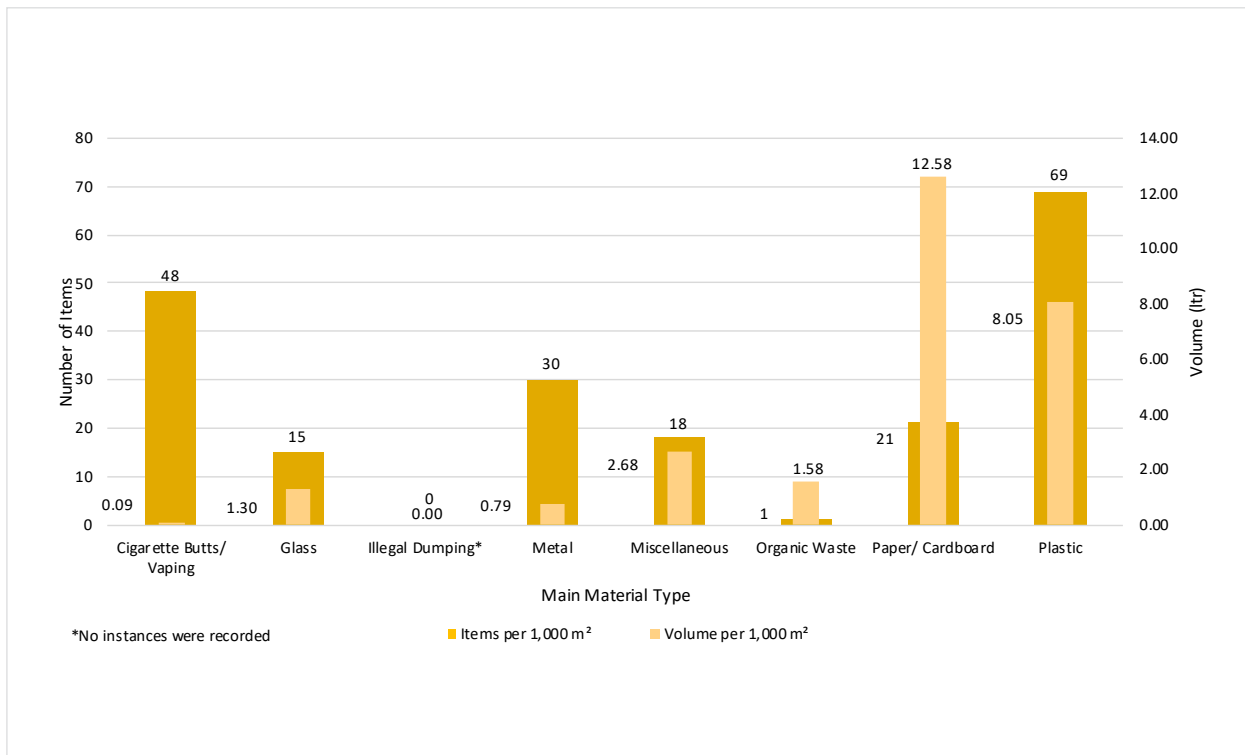
Figure 344: Southland 2022, Items and Weight per 1,000 m² by Main Material Type
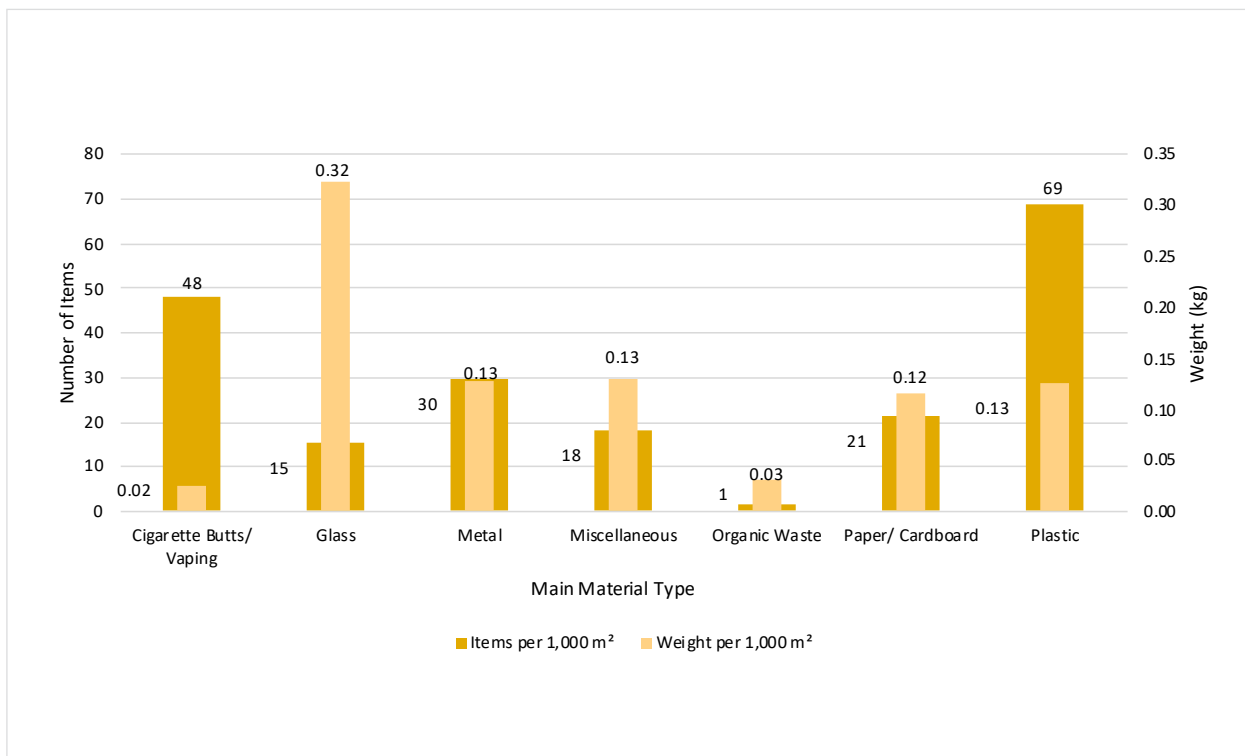
■ Items per 1,000 m²   ■ Weight per 1,000 m²

MAIN MATERIAL CHARACTERISTICS

The following material type characteristics were identified for litter items and volume per 1,000 m² in the Southland region (excluding Highway and Railway sites):

- Cigarette Butts/Vaping was associated with moderate to high numbers of litter items but low litter volumes.

- Miscellaneous items were associated with low to moderate numbers of litter items and volumes.

- Glass items contributed low to moderate numbers of litter items and small litter volumes.

- Plastic contributed high numbers of litter items and moderate to high litter volumes.

- Paper/Cardboard contributed low to moderate numbers of litter items and high litter volumes.

- Metal contributed moderate numbers of litter items and low litter volumes.

- Organic Waste was associated with low numbers of litter items and volumes.

Figure 345: Southland 2022, Items and Volume per 1,000 m² by Main Material Type
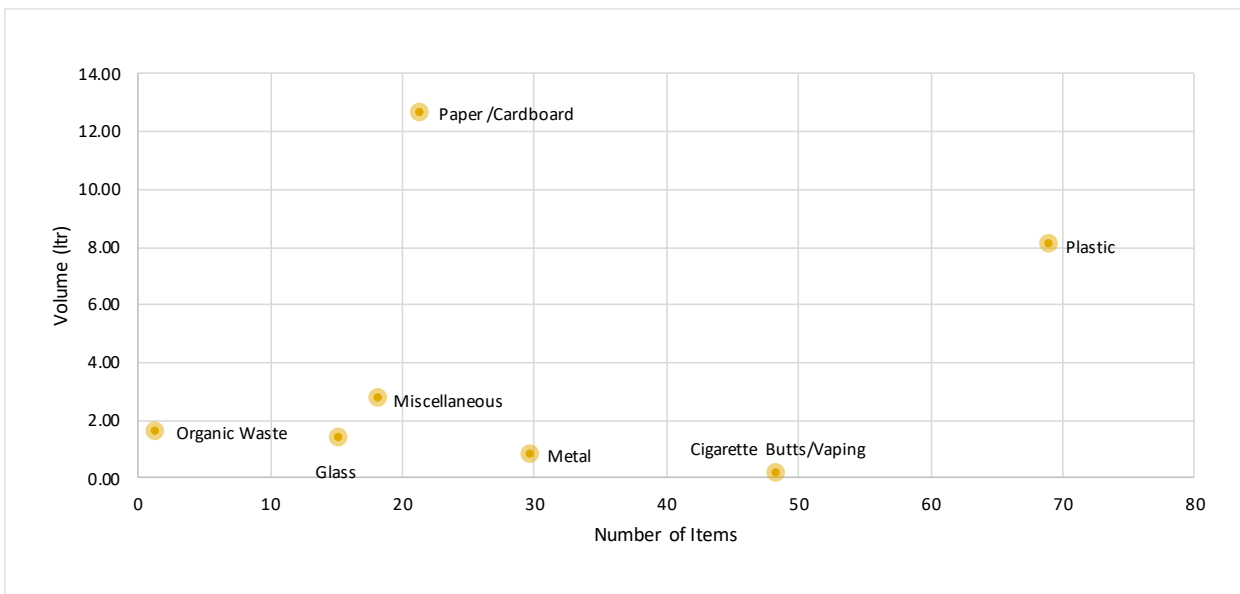
The following material type characteristics were identified for litter items and weight per 1,000 m² in the Southland region (excluding Highway and Railway sites):

- Glass was associated with low to moderate numbers of litter items and large litter weights.

- Miscellaneous and Paper/Cardboard contributed low to moderate numbers of litter items and moderate litter weights.

- Metal was associated with moderate numbers of litter items and weights.

- Plastic items contributed high numbers of litter items and moderate litter weights.

- Cigarette Butts/Vaping items were associated with high numbers of litter items, but contributed small litter weights.

- Organic Waste contributed the lowest number of litter items and low litter weights.

Figure 346: Southland 2022, Items and Weight per 1,000 m² by Main Material Type
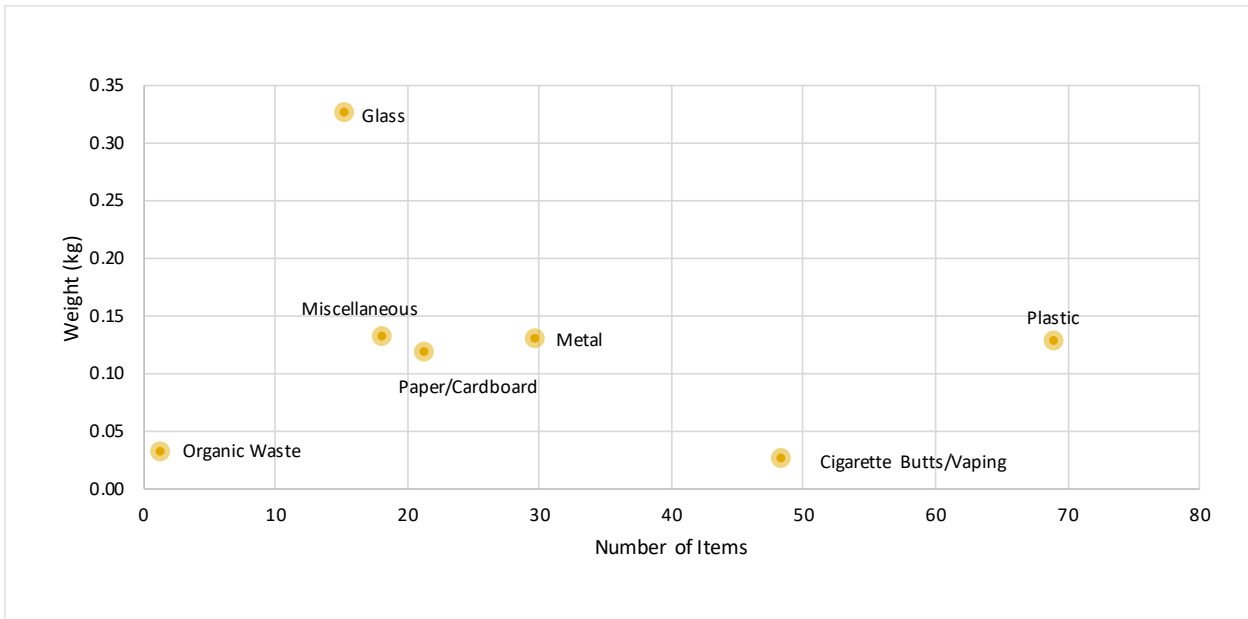
COMPARISONS BY MAIN MATERIAL TYPE OVER TIME

Compared with 2019, most material types have seen increases across all three measures, number of litter items, estimated volume and weight per 1,00 m². Whilst the litter weight and volume have remained consistent, the number of litter items classified under Cigarette Butts/Vaping has increased by 26 items per 1,000 m² since 2019.

ITEMS PER 1,000 M²

Since 2019, there has been an increase in the number of items per 1,000 m² across almost all material types except for Organic Waste, which recorded a decrease (1 item vs. 7 items in 2019). The most significant increases per 1,000 m² have been recorded for material types classified under Metal (30 items vs. 7 items in 2019), Miscellaneous (18 items vs. 5 items in 2019) and Plastic (69 items vs. 20 items in 2019).

Figure 347: Southland, Items per 1,000 m² by Main Material Type: Comparison Over Time
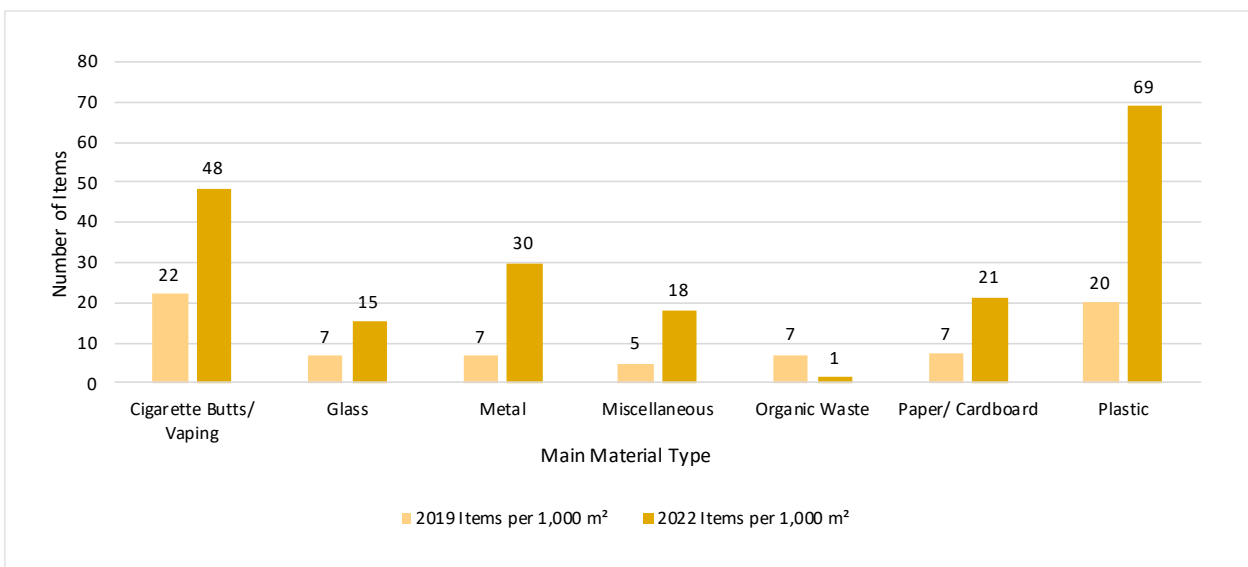
VOLUME PER 1,000 M²

Since 2019, the biggest increases in the litter volume of main material types per 1,000 m² in the Southland region can be seen in Paper/Cardboard (12.58 ltr vs. 0.39 ltr in 2019) and Plastic (8.05 ltr vs. 0.36 ltr in 2019).

Figure 348: Southland, Volume per 1,000 m² by Main Material Type: Comparison Over Time
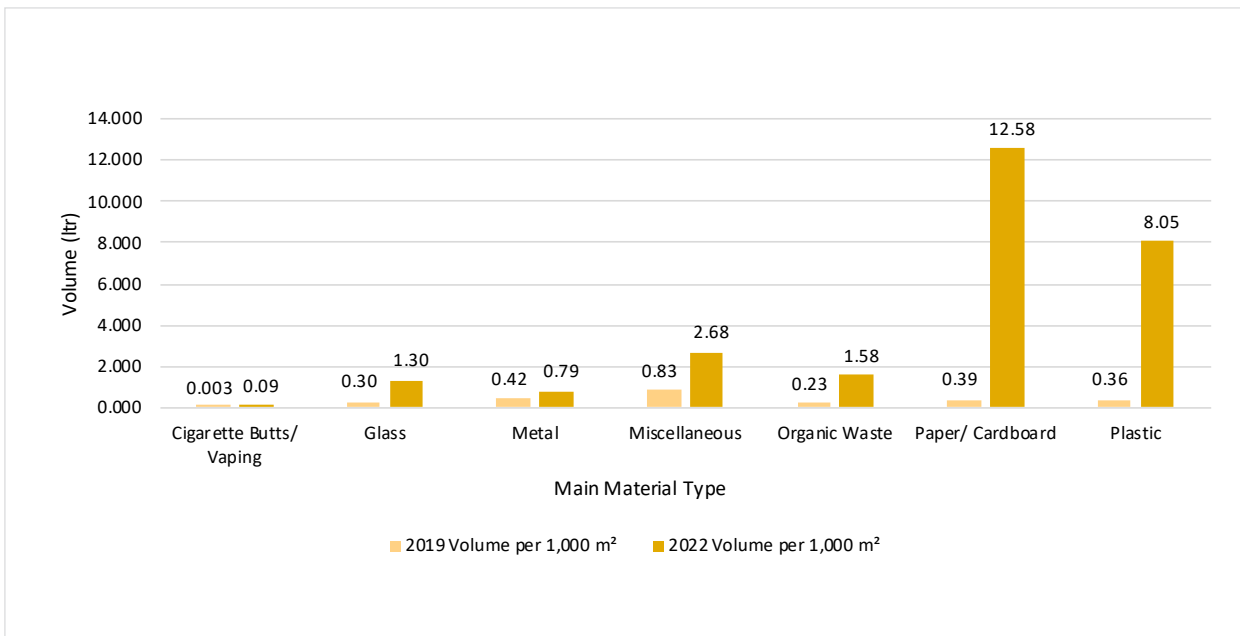
WEIGHT PER 1,000 M²

Compared with 2019, there has been an increase in the litter weights of almost all material types per 1,000 m² in the Southland region, with the exception of Organic Waste, which has remained the same. The largest increase in litter weight can be seen in Glass (0.32 kg vs. 0.11 kg per 1,000 m² 2019).

Figure 349: Southland, Weight per 1,000 m² by Main Material Type: Comparison Over Time
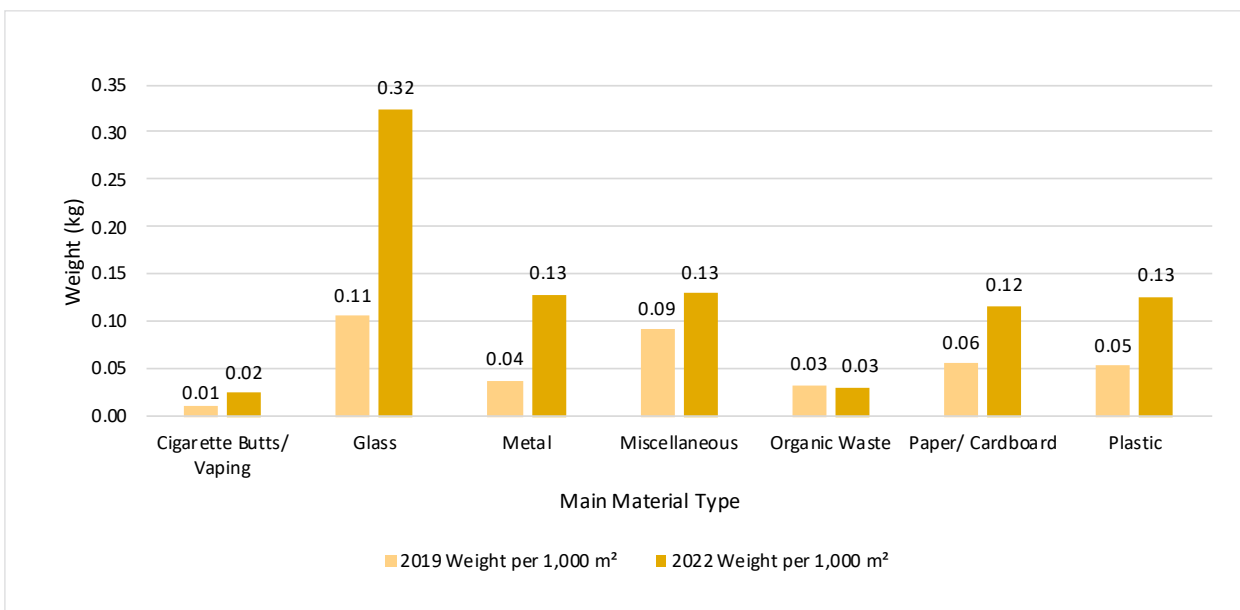
SITE TYPES BY MAIN MATERIAL TYPE

In the Southland region, the number of material type litter items collected per 1,000 m^2 at the different site types (excluding Highway and Railway sites) was as follows:

- Car Park sites: Plastic (51 items), Cigarette Butts/ Vaping (38 items), Metal (23 items), Miscellaneous (21 items), Paper/Cardboard (16 items), Glass (3 items), Organic Waste (1 item) and Illegal Dumping (0 items).

- Industrial sites: Plastic (159 items), Metal (91 items), Cigarette Butts/Vaping (44 items), Paper/Cardboard (33 items), Miscellaneous (23 items) Glass (13 items), Organic Waste (1 item) and Illegal Dumping (0 items).

- Public Recreational Spaces: Plastic (13 items), Paper/ Cardboard (4 items), Cigarette Butts/Vaping (3 items), Metal (3 items), Miscellaneous (1 item), Glass (0 items), Organic Waste (0 items) and Illegal Dumping (0 items).

- Residential sites: Plastic (57 items), Metal (24 items), Miscellaneous (18 items), Cigarette Butts/Vaping (17 items), Paper/Cardboard (11 items), Glass (2 items), Organic Waste (1 item) and Illegal Dumping (0 items).

- Retail sites: Cigarette Butts/Vaping (224 items), Plastic (216 items), Glass (103 items), Metal (87 items), Paper/Cardboard (83 items), Miscellaneous (52 items), Organic Waste (6 items) and Illegal Dumping (0 items).

Figure 350: Southland 2022, Sites by Main Material Type: Items per 1,000 m^2

*No instances were recorded
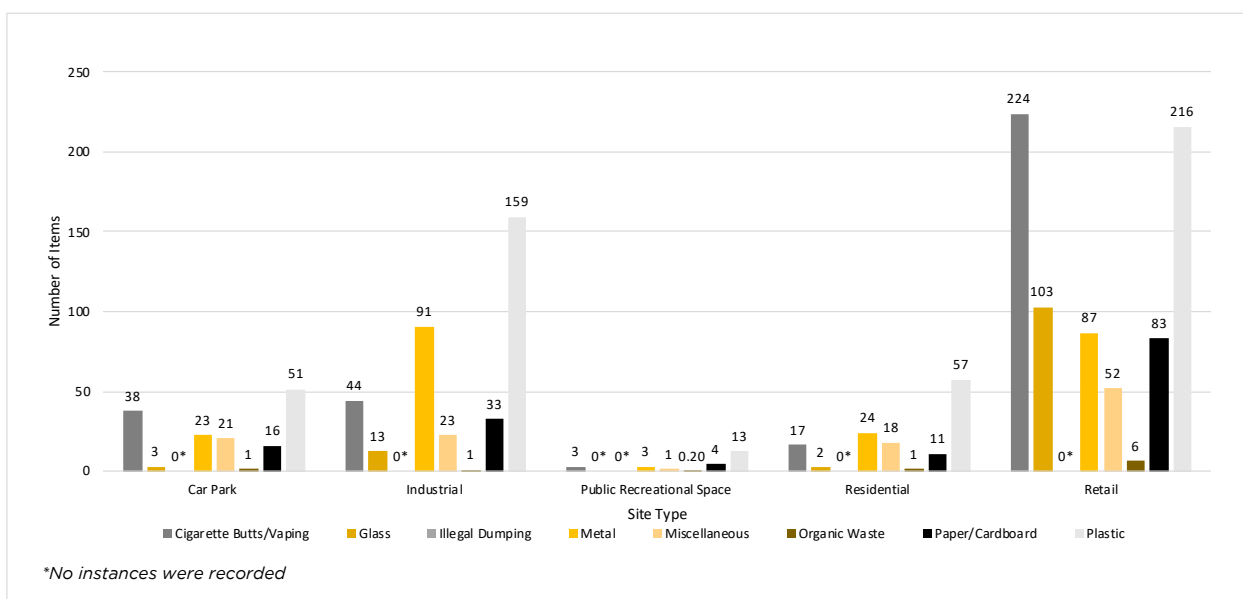
THE DIRTY DOZEN

Across the Southland region, Cigarette/Vaping: Cigarette butts were the largest contributor to the number of litter items, with 47 butts per 1,000 m² identified at the sites audited.

Other material subcategories frequently identified included:

- Plastic: Unidentifiable hard plastic fragments (17 items per 1,000 m²)
- Plastic: Unidentifiable soft plastic fragments (17 items per 1,000 m²)
- Glass: Unidentifiable glass fragments (12 items per 1,000 m²)

- Metal: Bottle caps, lids & pull tabs (10 items per 1,000 m²)

Not all material subcategories were comparable to the 2019 NLA due to the addition of new subcategories in 2022.

Whilst several categories in the Dirty Dozen are new this year, amongst comparable material subcategories, the number of Cigarette butts collected per 1,000 m² in the Southland region has increased since 2019 (47 items vs. 22 items in 2019), whilst the number of Plastic: Plastic (other) items has decreased (4 items vs. 13 items in 2019).

Figure 351: Southland, Dirty Dozen, Items per 1,000 m², Material Subcategories: Comparison Over Time
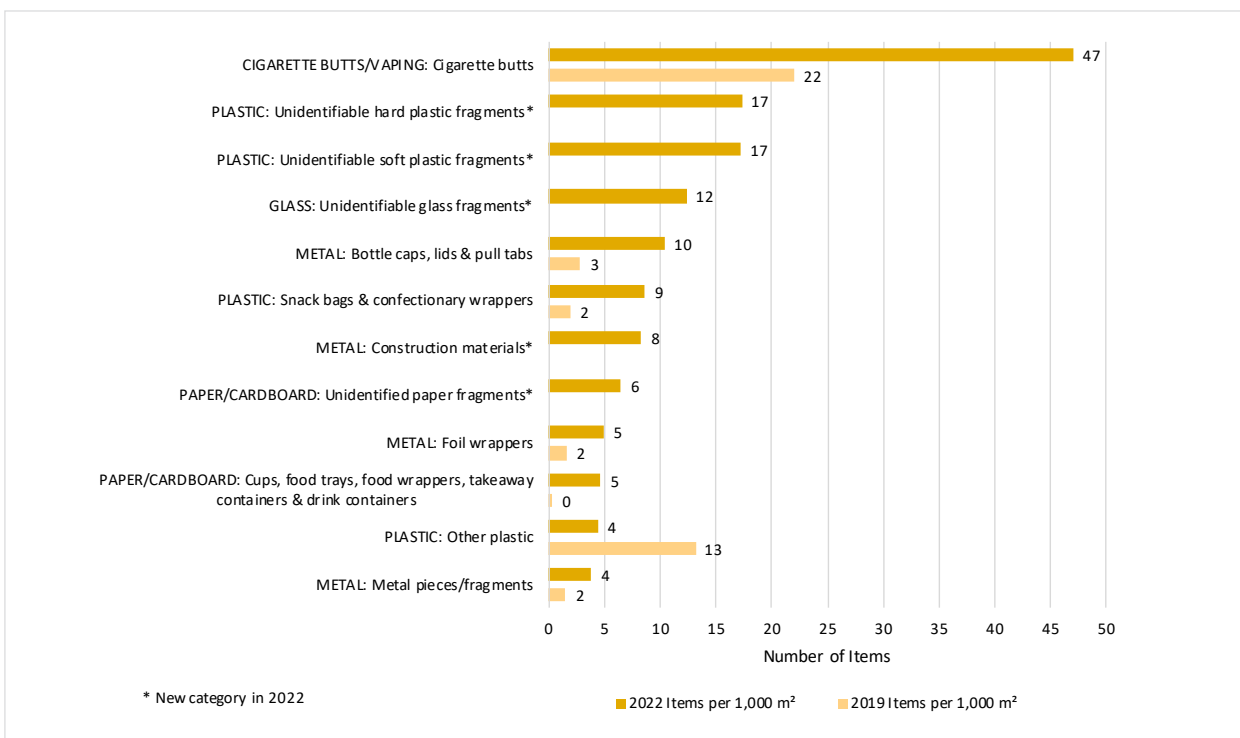
The largest contributor to the overall estimated litter volume per 1,000 m² in the Southland region was Paper/Cardboard: Cardboard boxes (8.44 ltr) per 1,000 m².

Other material subcategories which were associated with large litter volumes per 1,000 m² included:

- Plastic: Polystyrene insulation (5.86 ltr per 1,000 m²)
- Paper/Cardboard: Cups, food trays, food wrappers, takeaway containers & drink containers (3.37 ltr per 1,000 m²)
- Organic Waste: Compostable packaging (1.54 ltr per 1,000 m²)

- Miscellaneous: Clothing, towels & linen (1.53 ltr per 1,000 m²)

Not all material subcategories were comparable to the 2019 NLA due to the addition of new subcategories in 2022.

Whilst most of the material subcategories featured in the Southlands Dirty Dozen by volume are new this year, amongst comparable material subcategories, and as shown in the graph below, the biggest difference in litter volume between 2019 and 2022 has been seen in Paper/Cardboard: Cups, food trays, food wrappers, takeaway containers & drink containers which has increased (3.16 ltr) per 1,000 m² since 2019.

Figure 352: Southland, Dirty Dozen, Volume per 1,000 m², Material Subcategories: Comparison Over Time
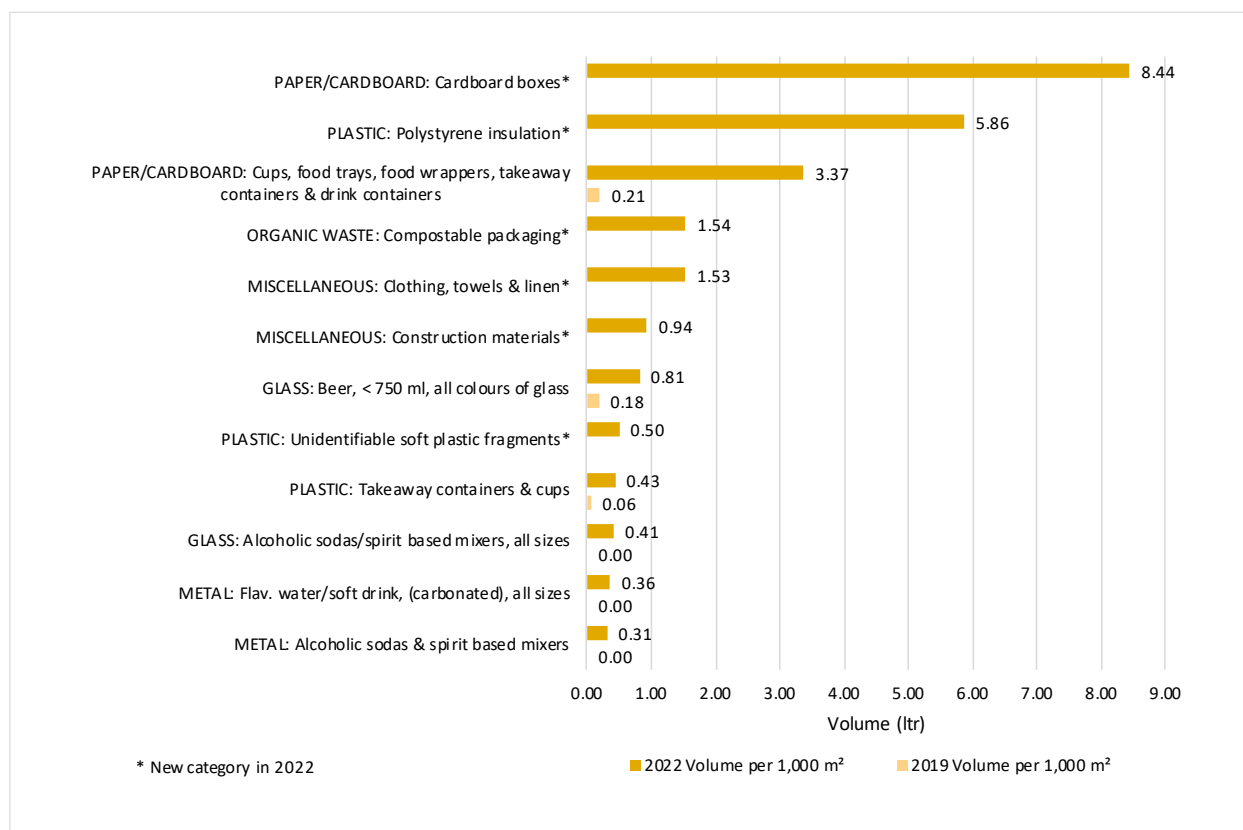
Glass: Beer bottles < 750 ml, all colours contributed the largest amounts to the overall litter weight in the Southland region, recording an average weight of 0.20 kg per 1,000 m².

Other material subcategories with significant litter weights per 1,000 m² included:

- Glass: Alcoholic sodas/spirit-based mixers, all sizes (0.07 kg per 1,000 m²)
- Metal: Construction materials (0.05 kg per 1,000 m²)
- Glass: Unidentifiable glass fragments (0.05 kg per 1,000 m²)
- Miscellaneous: Clothing, towels & linen (0.04 kg per 1,000 m²)
- Paper/Cardboard: Cups, food trays, food wrappers, takeaway containers & drink containers (0.04 kg per 1,000 m²)

Not all material subcategories were comparable to the 2019 NLA due to the addition of new subcategories in 2022.

Amongst comparable material subcategories there has been a large increase in the weight of Glass: Beer bottles < 750 ml, all colours collected per 1,000 m² in the Southland region's Dirty Dozen (0.20 kg vs. 0.07 kg in 2019). The litter weights of Metal: Meatal pieces/fragments, Organic Waste: Food waste and Cigrette/Vaping: Cigarette butts per 1,000 m² has remained consistent with 2019.

Figure 353: Southland, Dirty Dozen, Weight per 1,000 m², Material Subcategories: Comparison Over Time

GLASS: Beer, < 750 ml, all colours of glass — 0.20 / 0.07
GLASS: Alcoholic sodas/spirit based mixers, all sizes — 0.07 / 0.00
METAL: Construction materials* — 0.05
GLASS: Unidentifiable glass fragments* — 0.05
MISCELLANEOUS: Clothing, towels & linen* — 0.04
PAPER/CARDBOARD: Cups, food trays, food wrappers, takeaway containers & drink containers — 0.04 / 0.01
PLASTIC: Unidentifiable hard plastic fragments* — 0.03
MISCELLANEOUS: Construction materials* — 0.03
METAL: Metal pieces/fragments — 0.02 / 0.02
PAPER/CARDBOARD: Unidentified cardboard fragments* — 0.02
ORGANIC WASTE: Food waste — 0.02 / 0.03
CIGARETTE BUTTS/VAPING: Cigarette butts — 0.02 / 0.01

Weight (kg)

* New category in 2022   ■ 2022 Weight per 1,000 m²   ■ 2019 Weight per 1,000 m²

TERRITORIAL SUMMARIES

Southland Region is comprised of three Territorial Authorities:

- Gore District
- Invercargill City
- Southland District

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

Extract from Table 5, 2022 Territory Data: Southland Region (Excluding Highway and Railway Sites)

Territory	Total Area Audited (m²)	Items per 1,000 m²	Weight (kg) per 1,000 m²	Volume (ltr) per 1,000 m²
SOUTHLAND REGION				
Gore District	4,850	204	0.44	21.58
Invercargill City	6,000	300	1.68	44.25
Southland District	4,500	76	0.28	10.09
Southland Region Overall	**15,350**	**204**	**0.88**	**27.08**

SITE GRADINGS

All sites were assigned gradings in four 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 3, Risk and Litter Distribution: Southland (Excluding Highway and Railway Sites)

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

Figure 354: Southland 2022, Grading: Visual Site Ratings (Excluding Highway and Railway Sites)
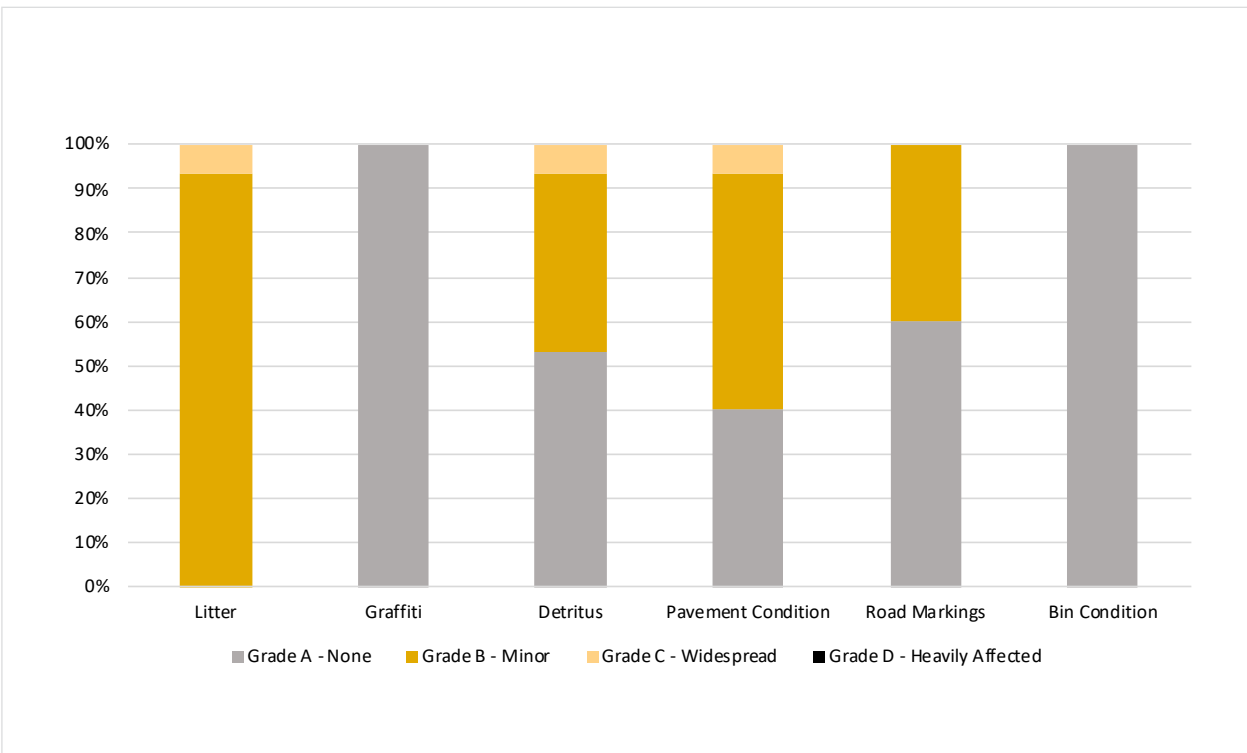
Figure 355: Southland 2022, Grading: Site Litter Hotshots Ratings (Excluding Highway and Railway Sites)
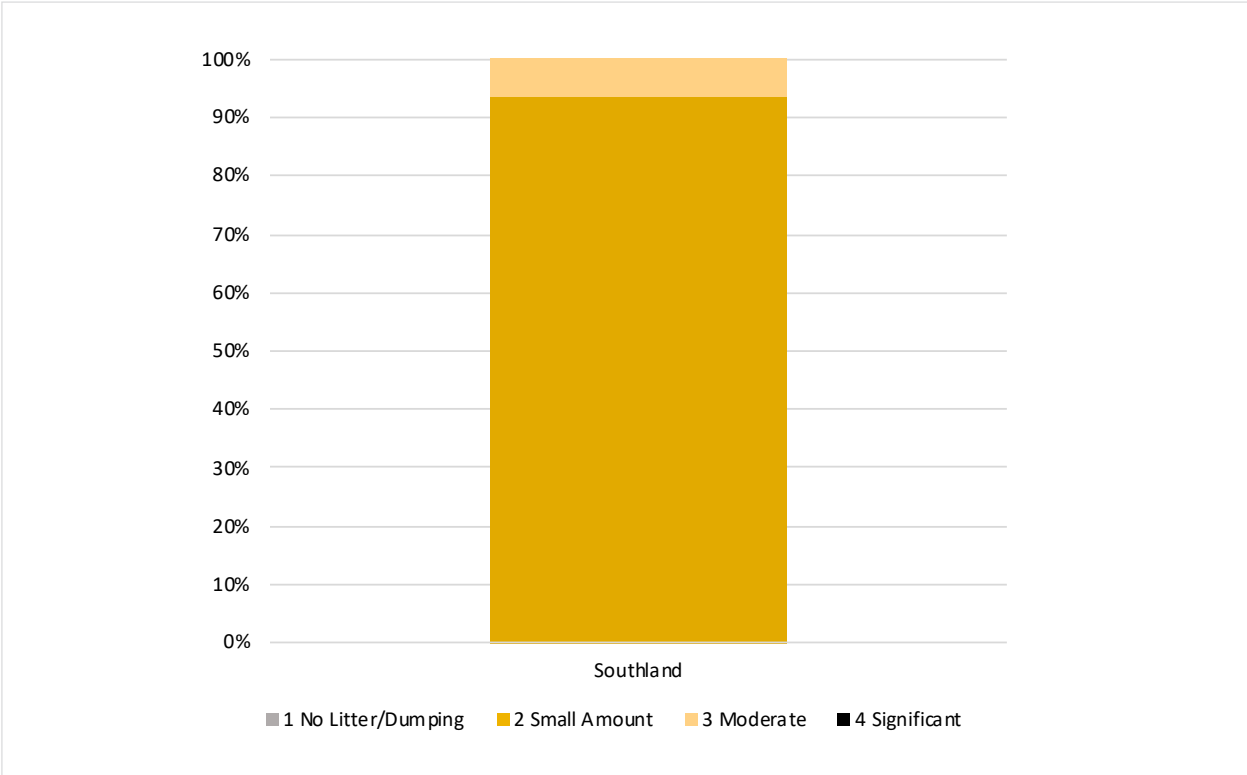
HIGHWAYS AND RAILWAYS

The following section shows the results for Highways and Railways in the Southland region. In the Southland region one Highway site and one Railway site was audited.

Figure 356: Southland Highways and Railways, Items per 1,000 m² by Site Type: Comparison Over Time
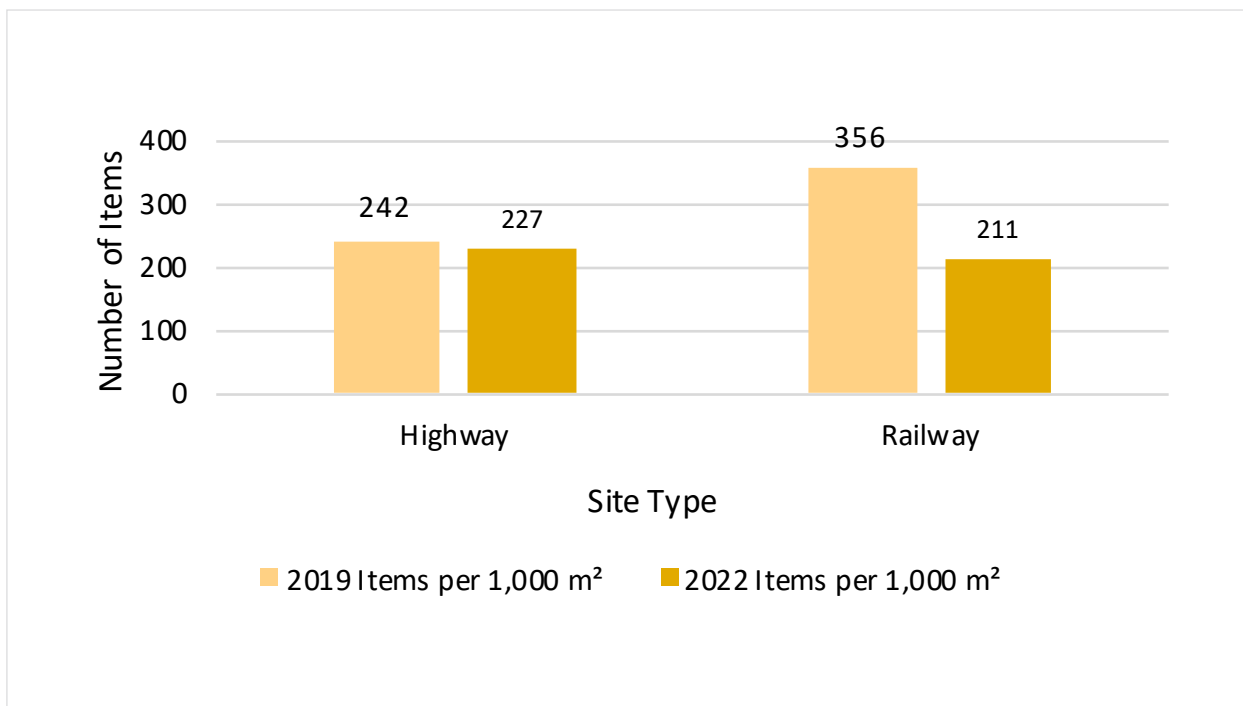
Figure 357: Southland Highways and Railways, Weight per 1,000 m² by Site Type: Comparison Over Time
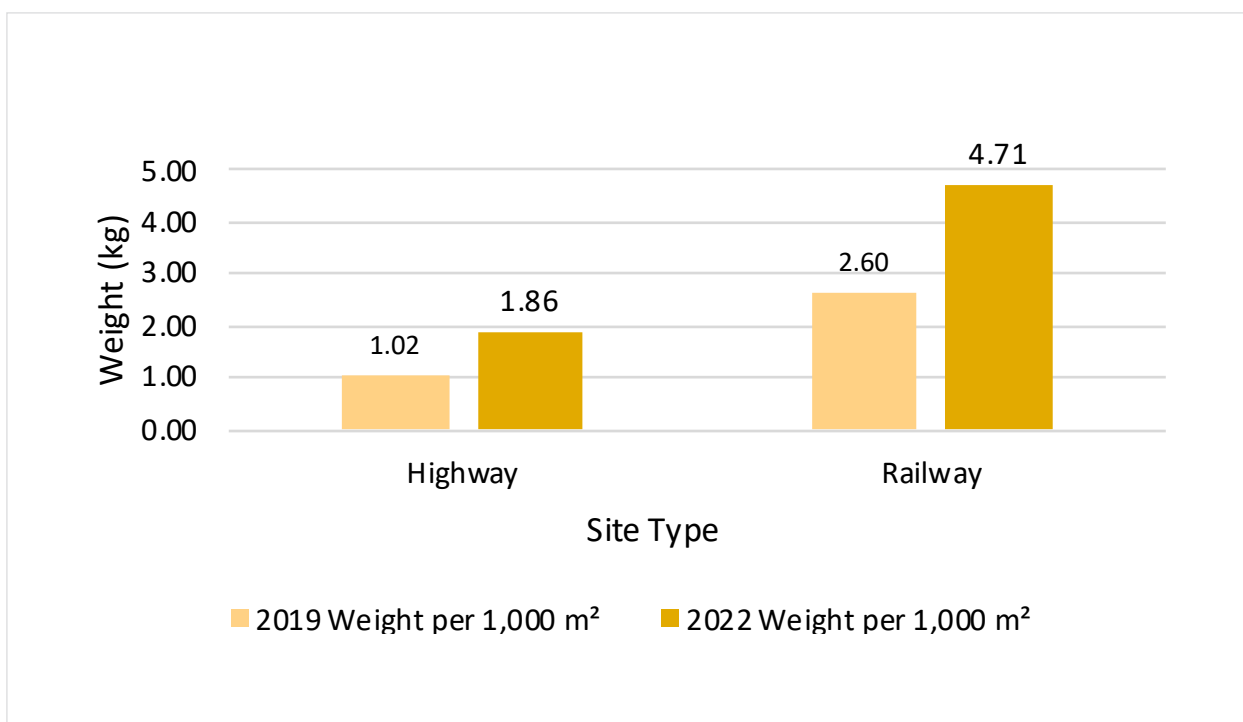
Figure 358: Southland Highways and Railways, Volume per 1,000 m² by Site Type: Comparison Over Time
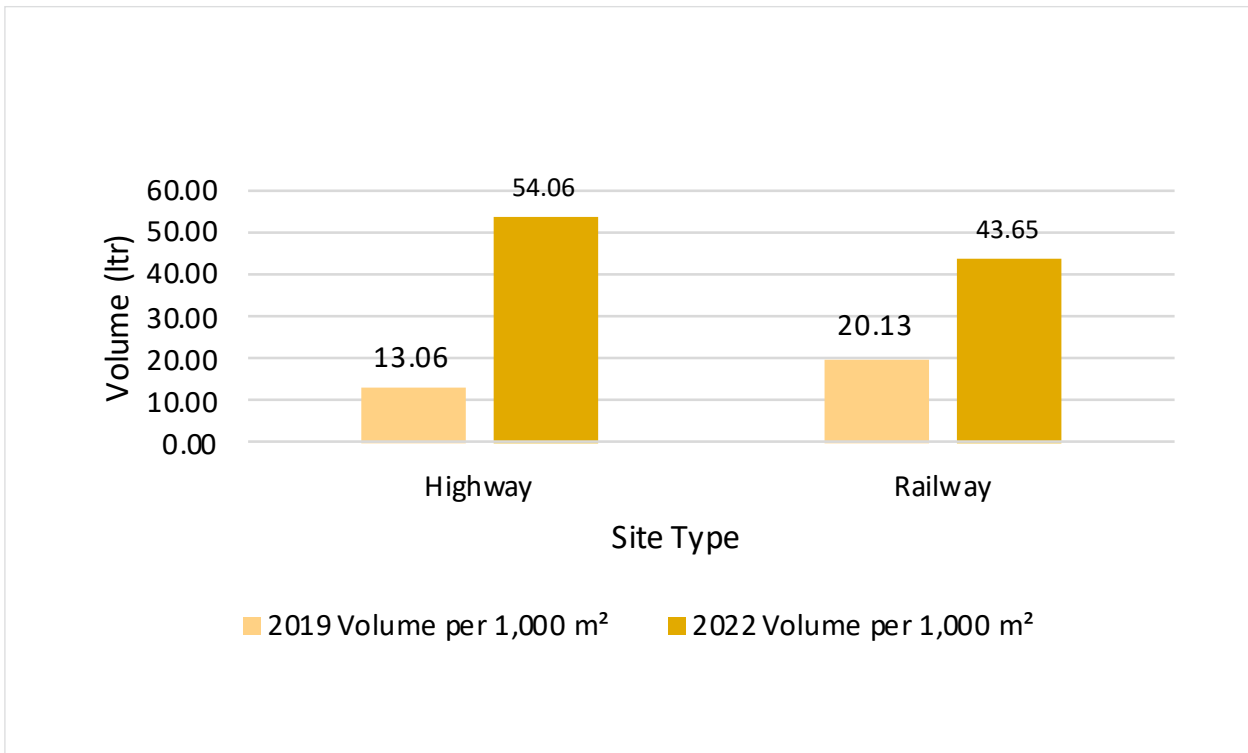
Figure 359: Southland Highways, Items per 1,000 m² by Main Material Type: Comparison Over Time
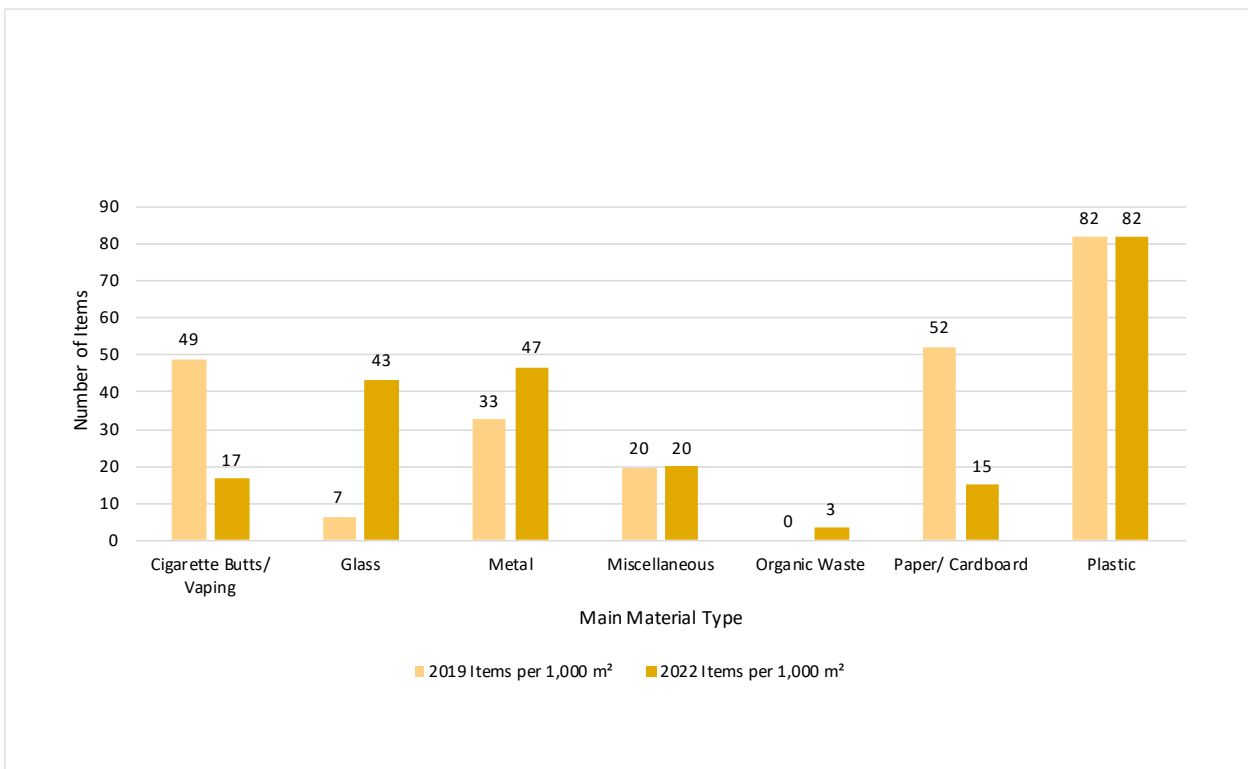
Figure 360: Southland Highways, Weight per 1,000 m² by Main Material Type: Comparison Over Time
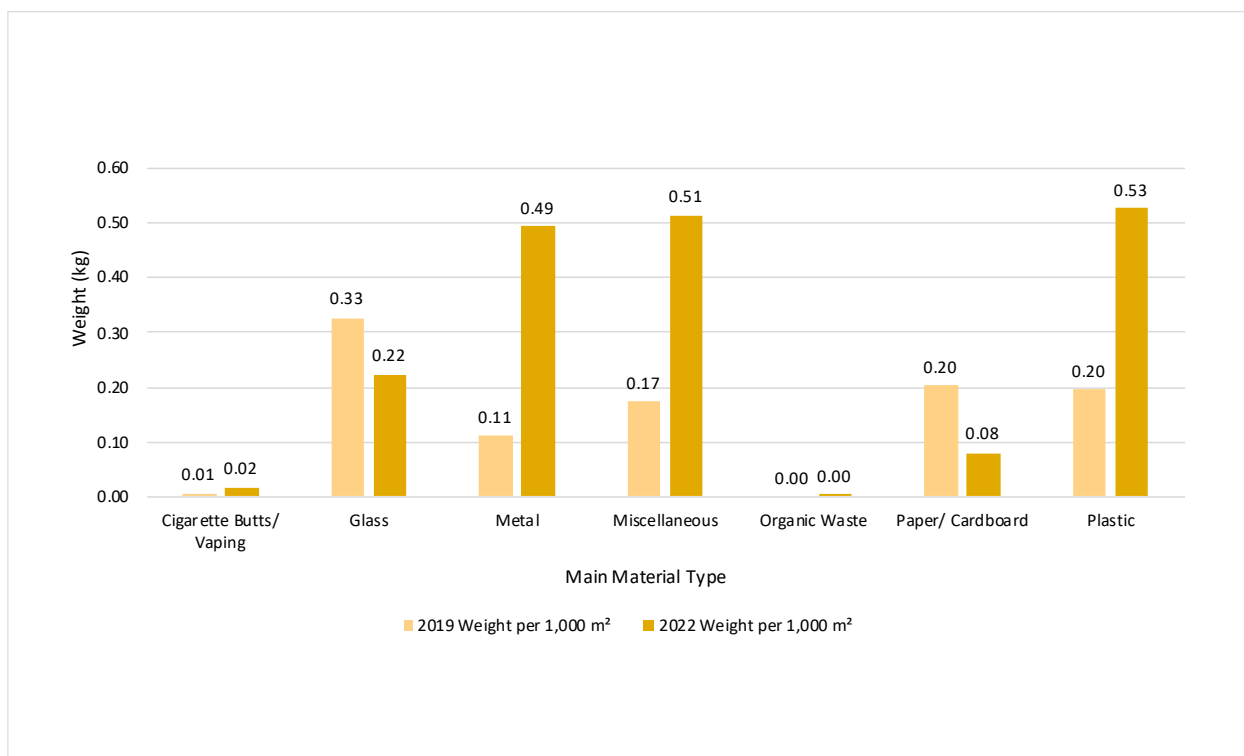
Figure 361: Southland Highways, Volume per 1,000 m² by Main Material Type: Comparison Over Time
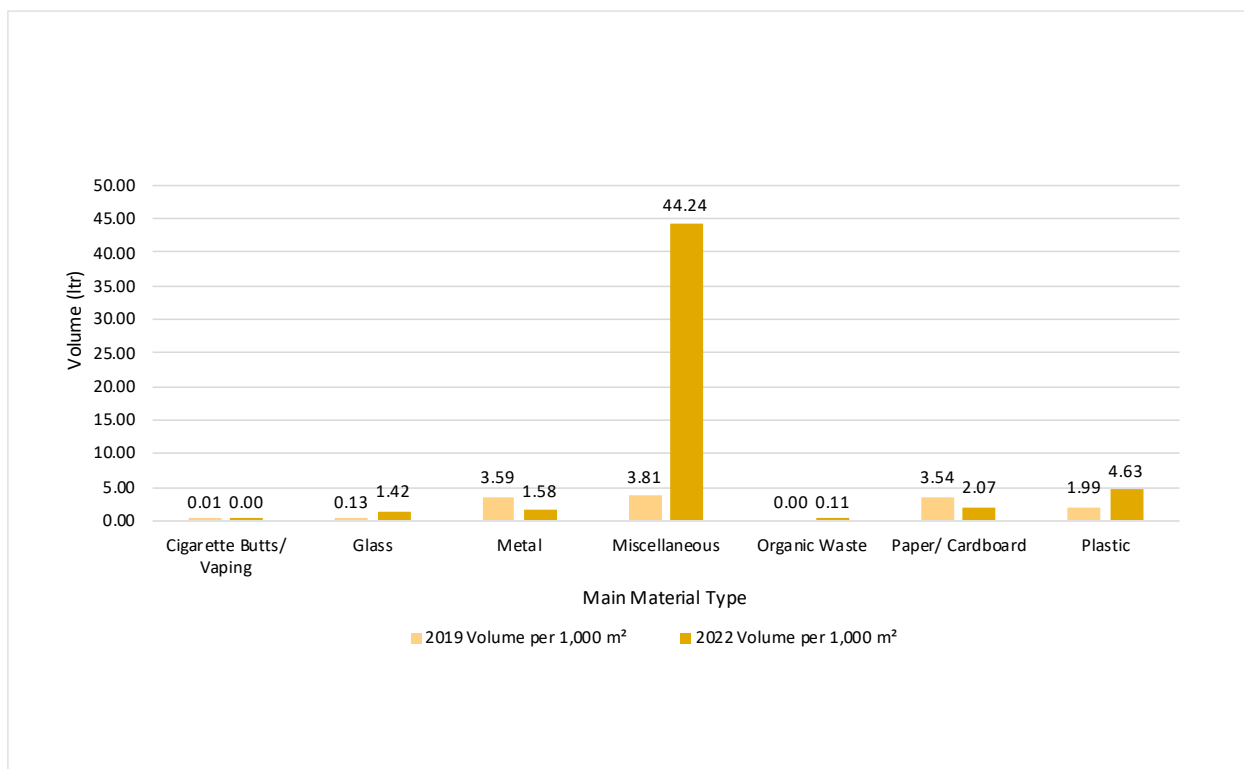
Figure 362: Southland Railways, Items per 1,000 m² by Main Material Type: Comparison Over Time
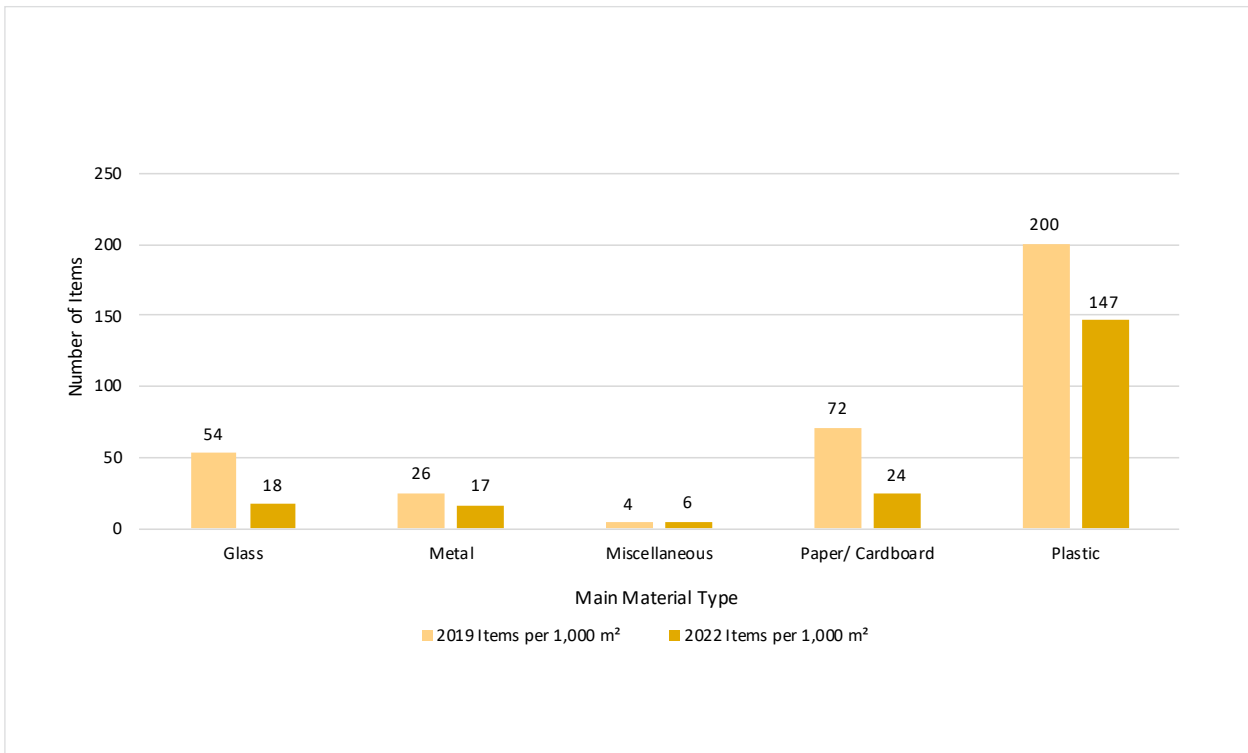
Figure 363: Southland Railways, Weight per 1,000 m² by Main Material Type: Comparison Over Time
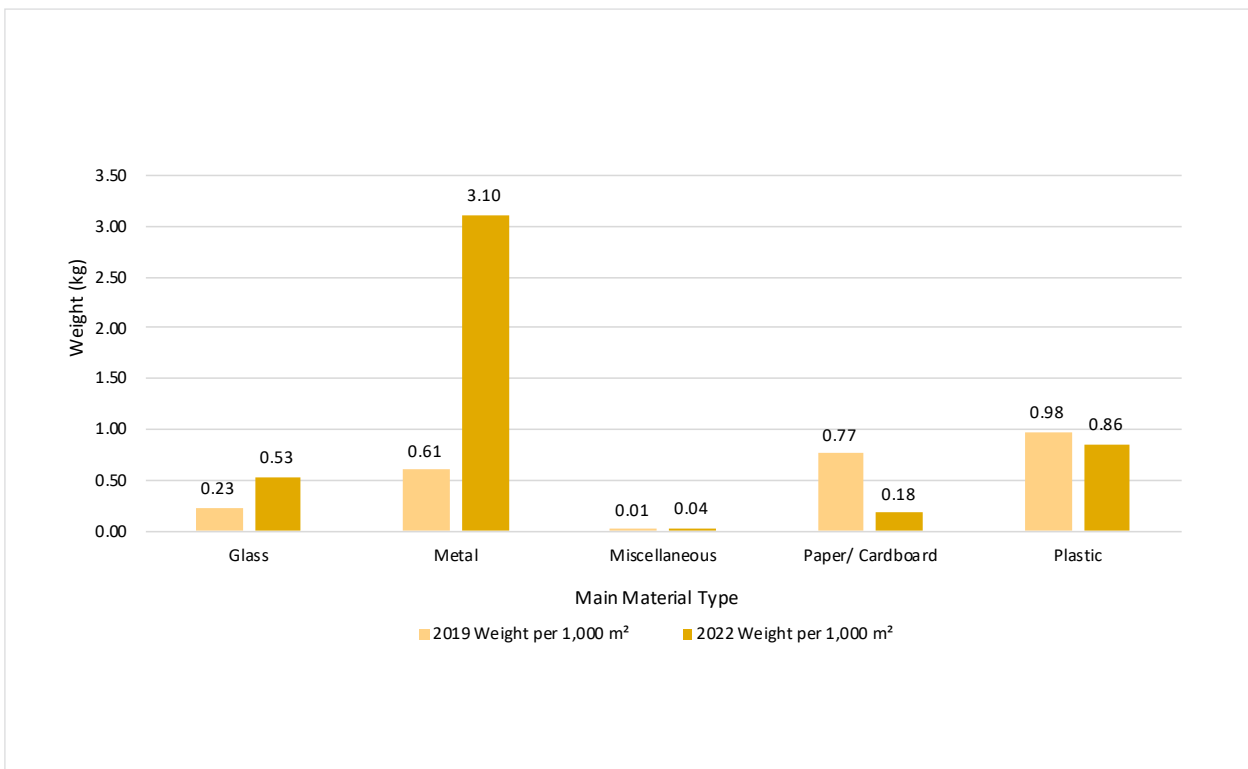
Figure 364: Southland Railways, Volume per 1,000 m² by Main Material Type: Comparison Over Time
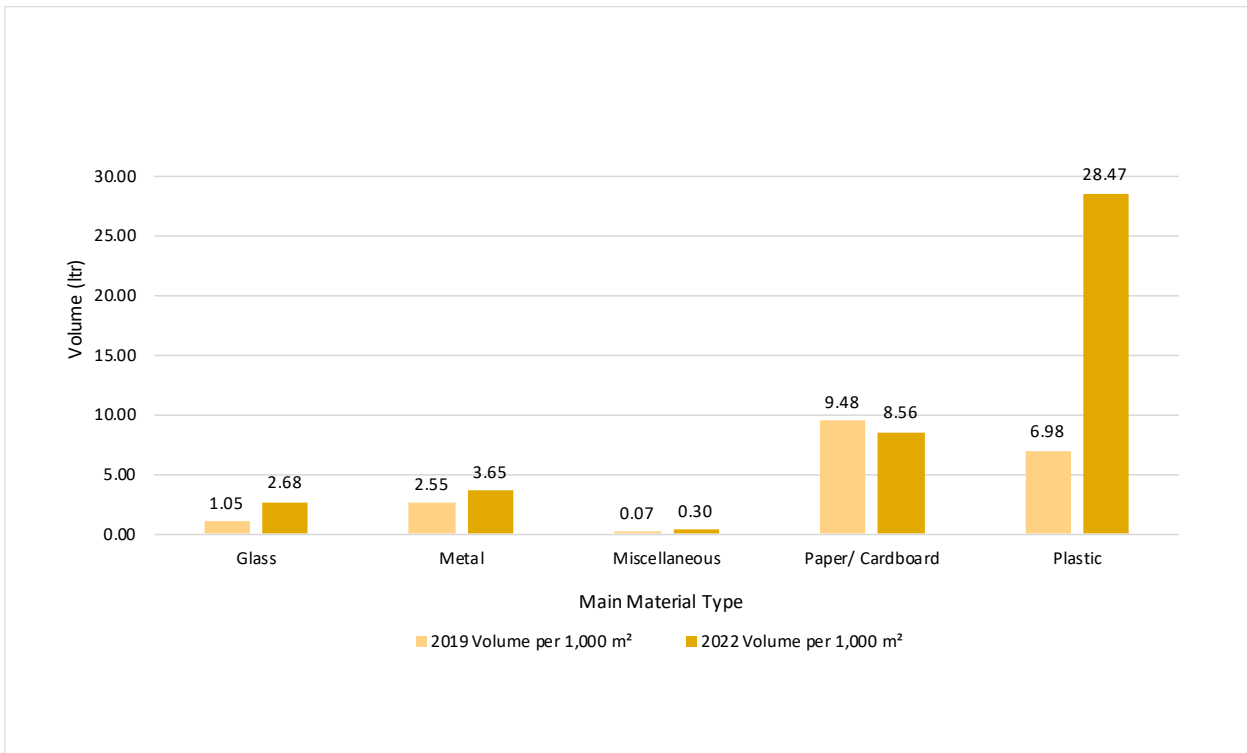
Figure 365: Southland Highways, Dirty Dozen, Items per 1,000 m², Object Subcategories: Comparison Over Time
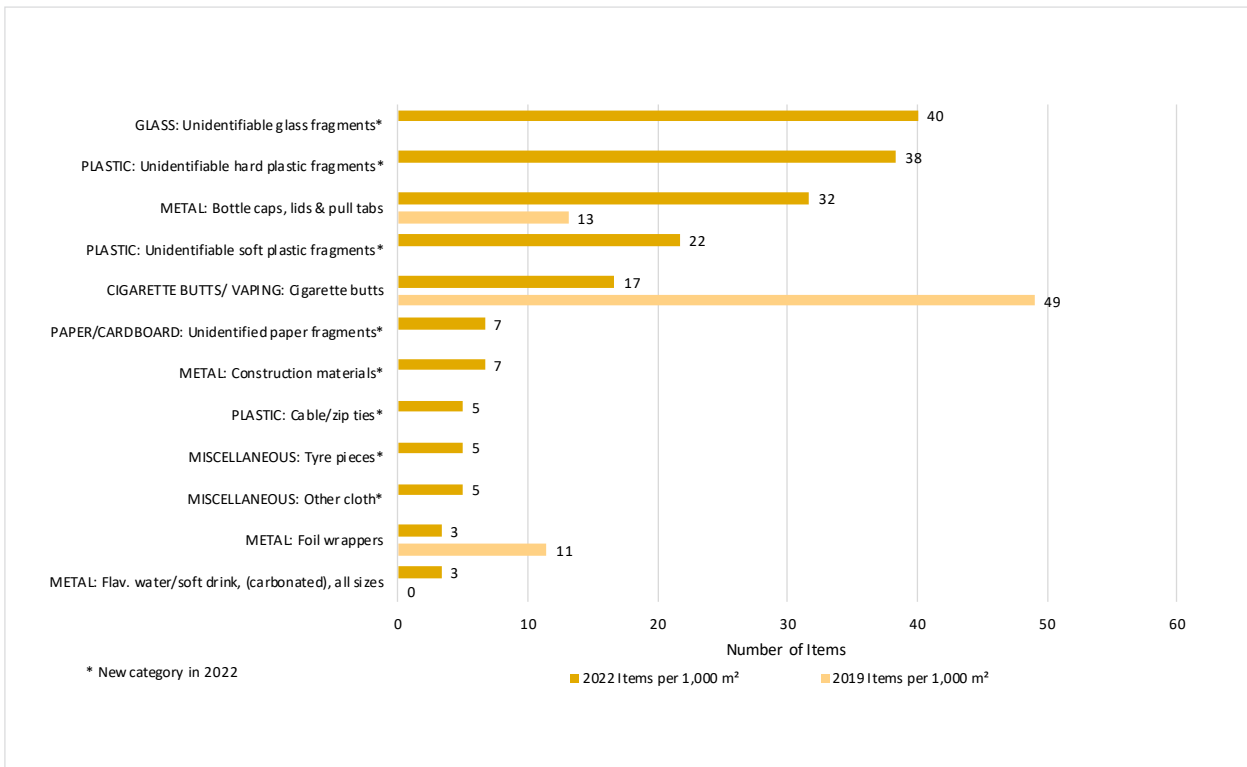
Figure 366: Southland Highways, Dirty Dozen, Weight per 1,000 m², Material Subcategories: Comparison Over Time

* New category in 2022

■ 2022 Weight per 1,000 m²   ■ 2019 Weight per 1,000 m²
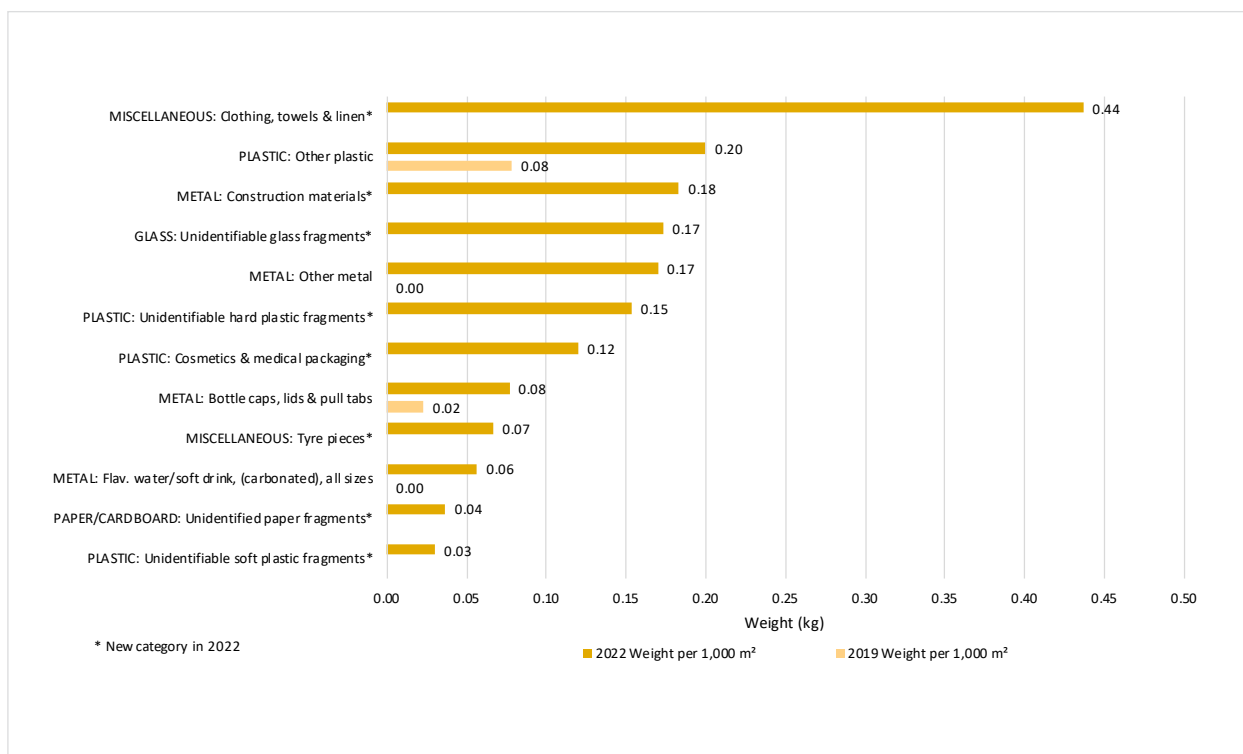
Figure 367: Southland Highways, Dirty Dozen, Volume per 1,000 m², Material Subcategories: Comparison Over Time

* New category in 2022

■ 2022 Volume per 1,000 m²   ■ 2019 Volume per 1,000 m²
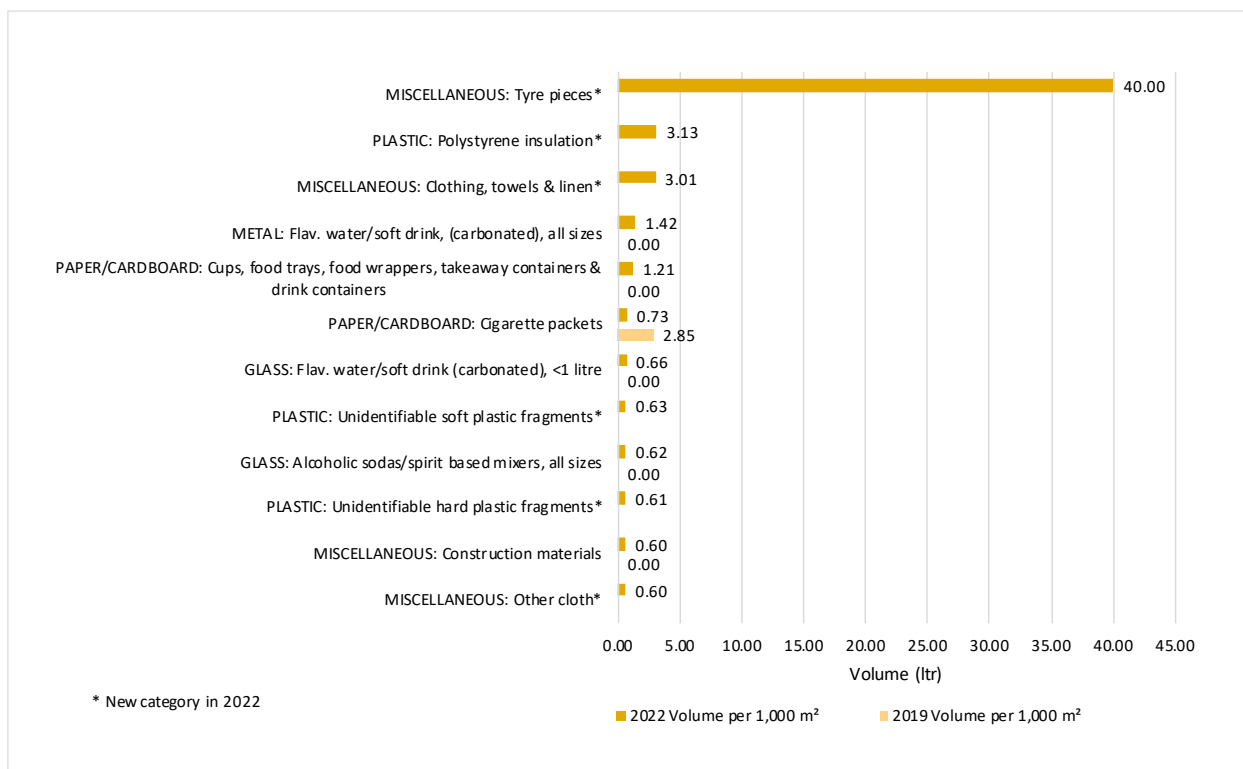
Figure 368: Southland Railways, Dirty Dozen, Items per 1,000 m², Material Subcategories: Comparison Over Time

* New category in 2022

■2022 Items per 1,000 m² ■2019 Items per 1,000 m²
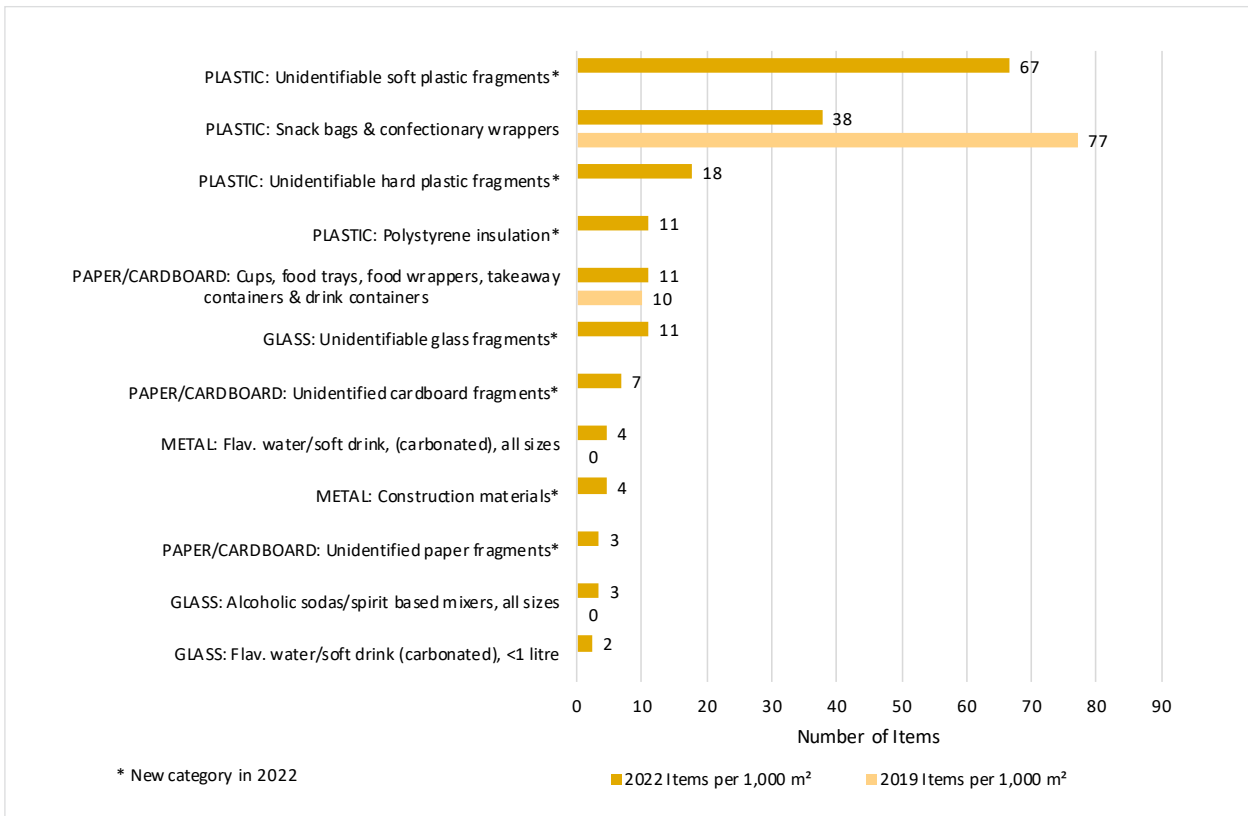
Figure 369: Southland Railways, Dirty Dozen, Weight per 1,000 m², Material Subcategories: Comparison Over Time

* New category in 2022

■2022 Weight per 1,000 m² ■2019 Weight per 1,000 m²
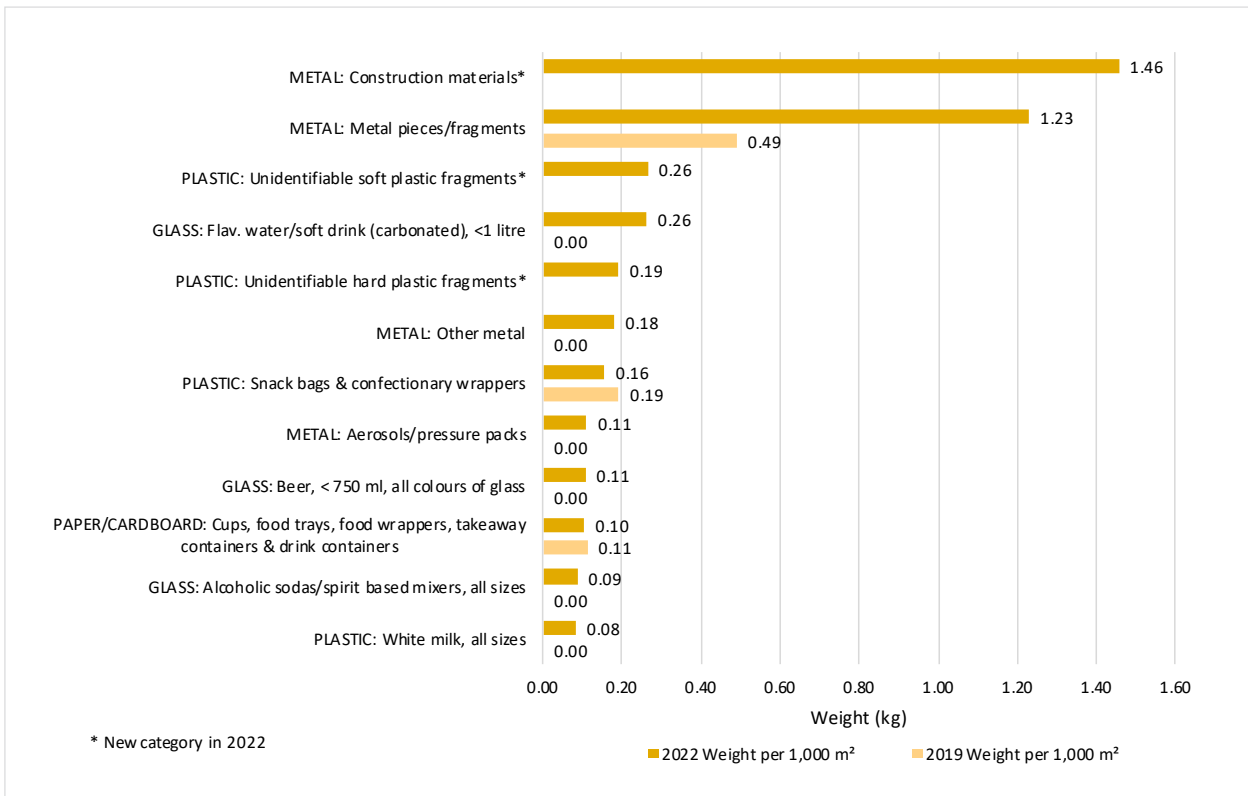
Figure 370: Southland Railways, Dirty Dozen, Volume per 1,000 m², Material Subcategories: Comparison Over Time

PLASTIC: Polystyrene insulation* — 20.83

PAPER/CARDBOARD: Cups, food trays, food wrappers, takeaway containers & drink containers — 8.10 / 7.34

PLASTIC: White milk, all sizes — 2.37 / 0.00

PLASTIC: Unidentifiable soft plastic fragments* — 1.92

METAL: Flav. water/soft drink, (carbonated), all sizes — 1.89 / 0.00

PLASTIC: Flav. water/soft drink (carbonated), 1 litre + — 1.84 / 0.00

GLASS: Alcoholic sodas/spirit based mixers, all sizes — 1.25 / 0.00

GLASS: Flav. water/soft drink (carbonated), <1 litre — 0.88 / 0.00

PLASTIC: Flav. water/fruit/sports drinks (non-carb.), <1 litre — 0.82 / 4.13

METAL: Aerosols/pressure packs — 0.76 / 0.00

GLASS: Beer, < 750 ml, all colours of glass — 0.51 / 0.00

METAL: Alcoholic sodas & spirit based mixers — 0.48 / 0.00

Volume (ltr)

* New category in 2022

■ 2022 Volume per 1,000 m²   ■ 2019 Volume per 1,000 m²

TARANAKI
REGION

AT A GLANCE

The overall average number of litter items per 1,000 m² across the 15 sites audited in the Taranaki region was 111 items, the overall average estimated volume of litter items per 1,000 m² was 14.61 ltr and the overall average litter weight per 1,000 m² was 0.87 kg.

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

Plastic (with Polystyrene insulation as the main contributor to volume in this material type) was the most frequently identified material type per 1,000 m² and contributed highest volumes and moderate weights to the litter stream in the Taranaki region. Cigarette Butts/Vaping and Metal were the second most frequently identified litter items; however Cigarette Butts/Vaping was associated with the lowest litter volumes and weights.

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

Note:

- *New material subcategories were added in 2022 and so not all material subcategories are comparable between 2019 and 2022.*

- *A weight measure was not recorded for any items of Illegal Dumping identified during the audit, and therefore has not been included in the analysis. There were no instances of Illegal Dumping at the sites audited in the Taranaki region.*

- *Not all regions were audited for Highlway and/or Railway sites, and so these site types have been separated out and specifics for each region given at the end of the relevant chapter. The Taraknaki region was audited for one Highway site and two Railway sites.*

COMPARISONS BY SITE TYPES

The highest numbers of litter items per 1,000 m² at the sites audited in the Taranaki region were recorded at Retail (330 items) and Industrial (267 items) sites. Moderate numbers of litter items were collected at Residential (138 items) and Car Park (105 items) sites. The lowest number of items per 1,000 m² were collected at Public Recreational Spaces (19 items).

High estimated volumes per 1,000 m² of litter items were associated with Industrial (41.49 ltr) and Residential (30.29 ltr) sites, whilst moderate to high volumes were recorded at Car Park sites (21.97 ltr). Moderate volumes were associated with Retail sites (15.01 ltr). Public Recreational Spaces (0.97 ltr) contributed the lowest volumes of litter per 1,000 m² within the region.

The highest litter weights per 1,000 m² in the Taranaki region were associated with Industrial sites (4.41 kg). More moderate litter weights were recorded at Retail (1.20 kg), Residential (1.10 kg) and Car Park (0.75 kg) sites, whilst low litter weights were associated with Public Recreational Spaces (0.06 kg).

Figure 371: Taranaki 2022, Items and Volume per 1,000 m² by Site Type
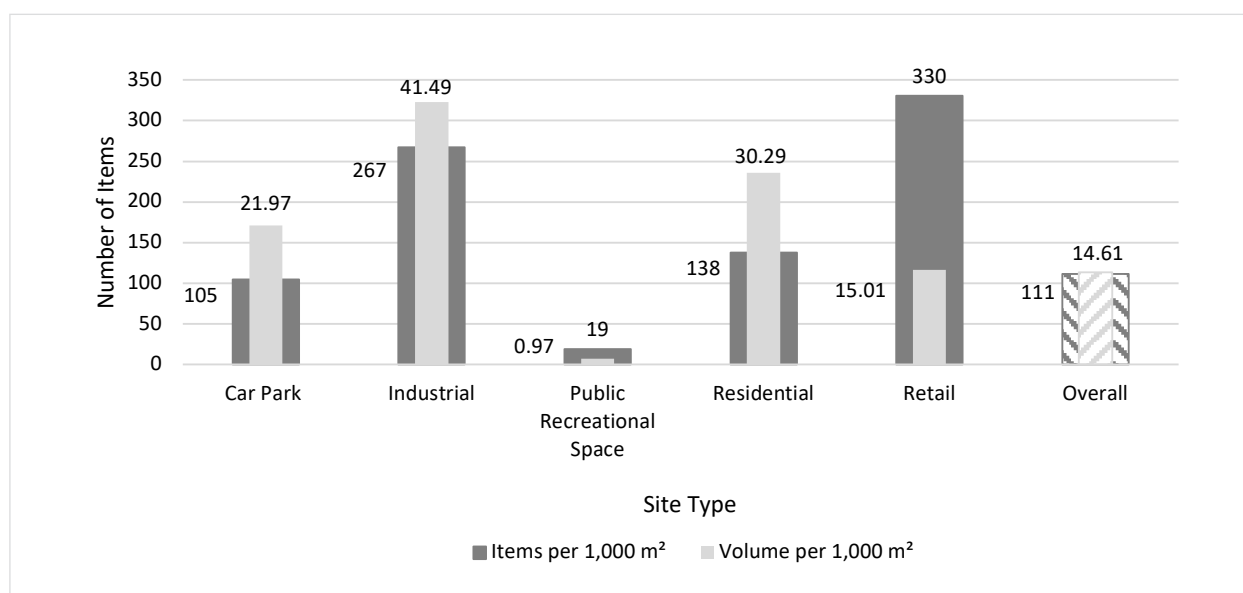
Figure 372: Taranaki 2022, Items and Weight per 1,000 m² by Site Type
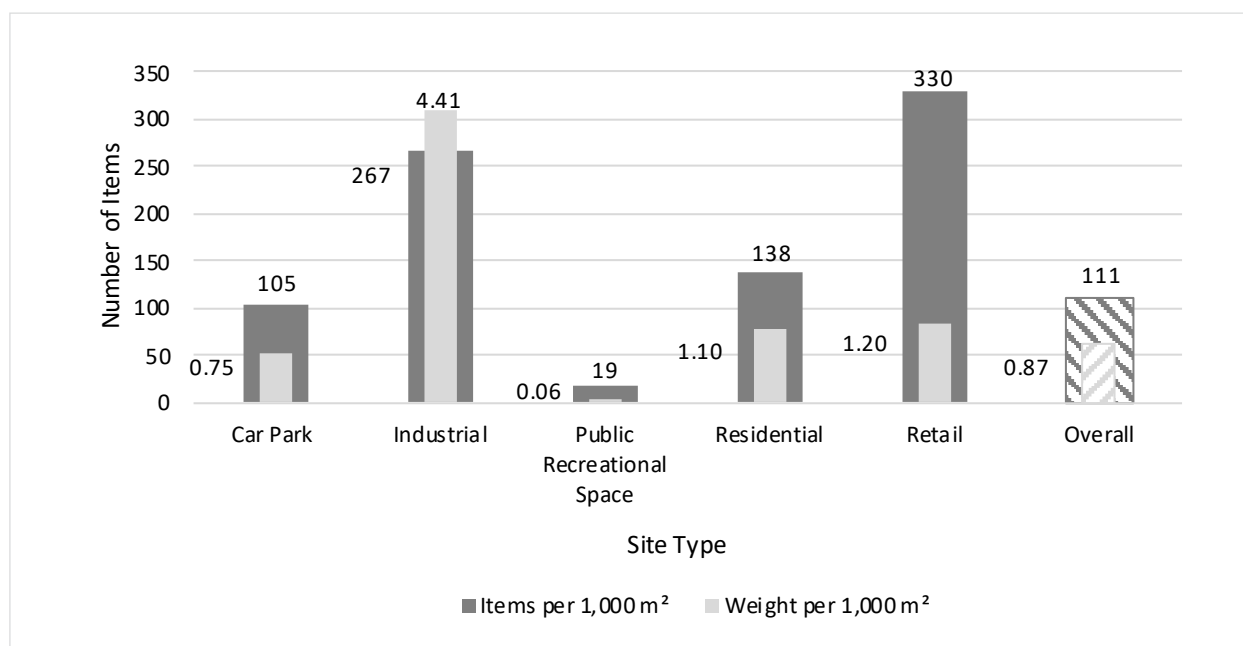
SITE CHARACTERISTICS

The following site characteristics across all site types (excluding Highway and Railway sites) were identified for litter items and volume per 1,000 m² in the Taranaki region:

- Industrial sites contributed high numbers of litter items and volumes.

- Retail sites contributed to high litter items and moderate litter volumes.

- Car Park sites were associated with moderate numbers of litter items and moderate to high litter volumes.

- Residential sites were associated with moderate numbers of litter items and high litter volumes.

- Retail sites contributed high numbers of litter items and moderate volumes to the regional litter stream.

- Public Recreational Spaces were associated with low numbers of litter items and small litter volumes.

Figure 373: Taranaki 2022, Items and Volume per 1,000 m² by Site Type
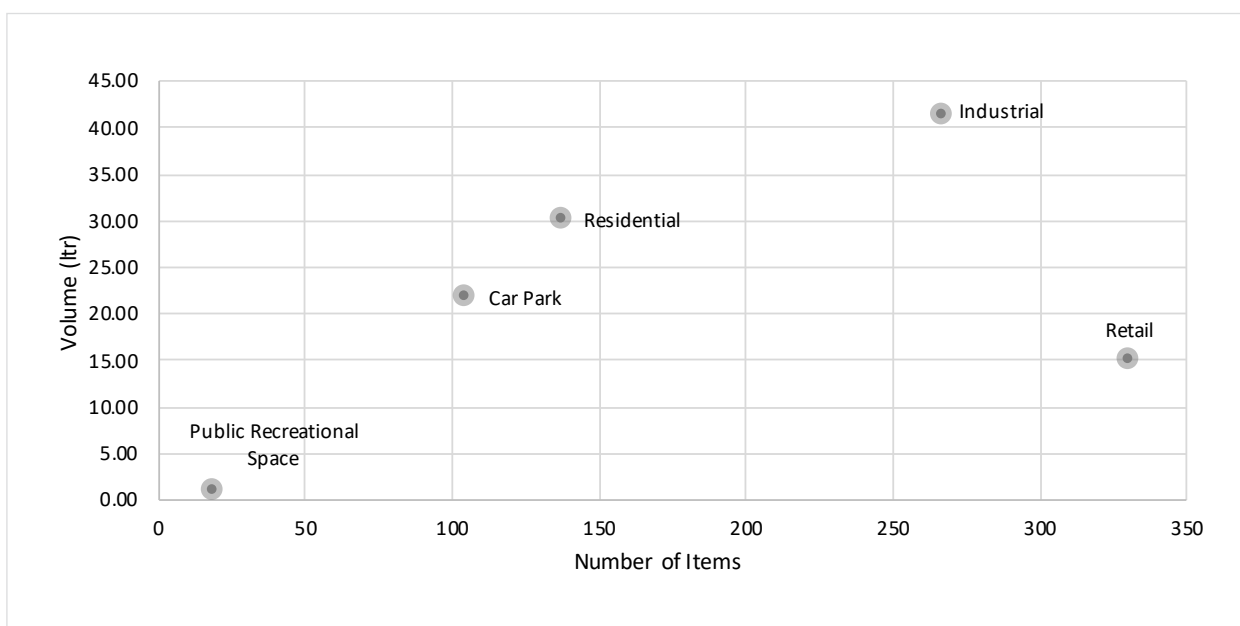
The following site characteristics across all site types (excluding Highway and Railway sites) were identified for litter items and weight per 1,000 m² in the Taranaki region:

- Industrial sites were associated with high numbers of litter items and large litter weights.

- Retail sites contributed the highest number of litter items and moderate litter weights.

- Car Park and Residential sites contributed moderate numbers of litter items and weights.

- Public Recreational Spaces sites contributed low numbers of litter items and small litter weights to the regional litter stream.

Figure 374: Taranaki 2022, Items and Weight per 1,000 m² by Site Type
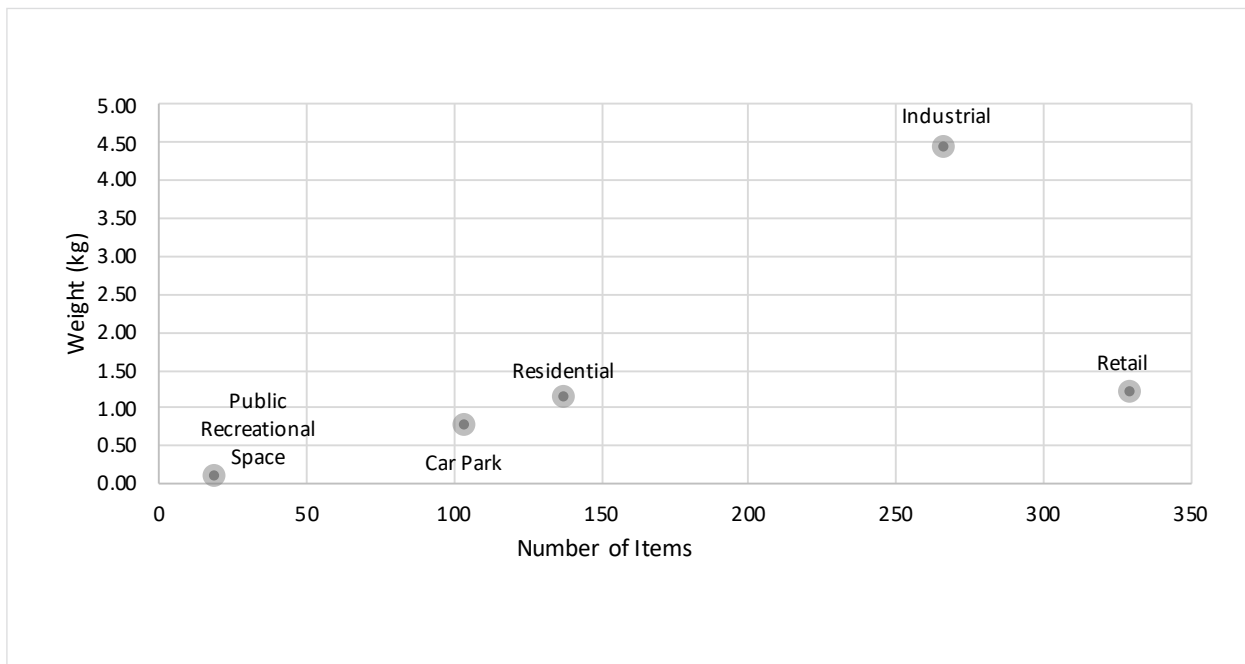
COMPARISON BY SITE TYPE OVER TIME

Since 2019, there has been an increase in the number of litter items, estimated volume and weight of litter per 1,000 m² in the Taranaki region, with litter volume having the biggest increase (14.61 ltr vs. 3.34 ltr in 2019).

Industrial and Residential sites have seen noticeable increases in both litter volume and weight per 1,000 m² since 2019.

ITEMS PER 1,000 M²

The number of litter items collected in the Taranaki region have increased from 2019 (111 items vs. 84 items per 1,000 m² in 2019). As shown in the graphs below, there has been an increase in the number of items collected at Industrial, Residential and Retail sites, whilst Car Park sites and Public Recreational Spaces have remained consistent with 2019.

Figure 375: Taranaki, Items per 1,000 m² by Site Type: Comparison Over Time
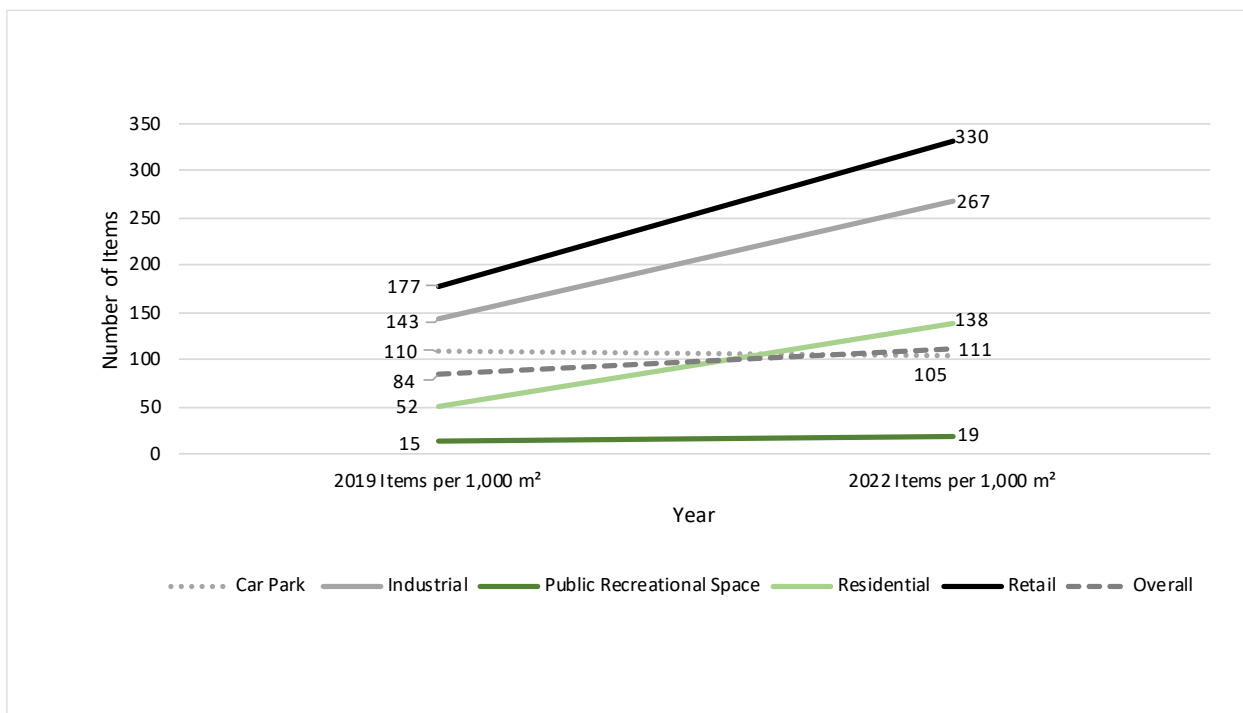
Figure 376: Taranaki, Items per 1,000 m² by Site Type: Comparison Over Time
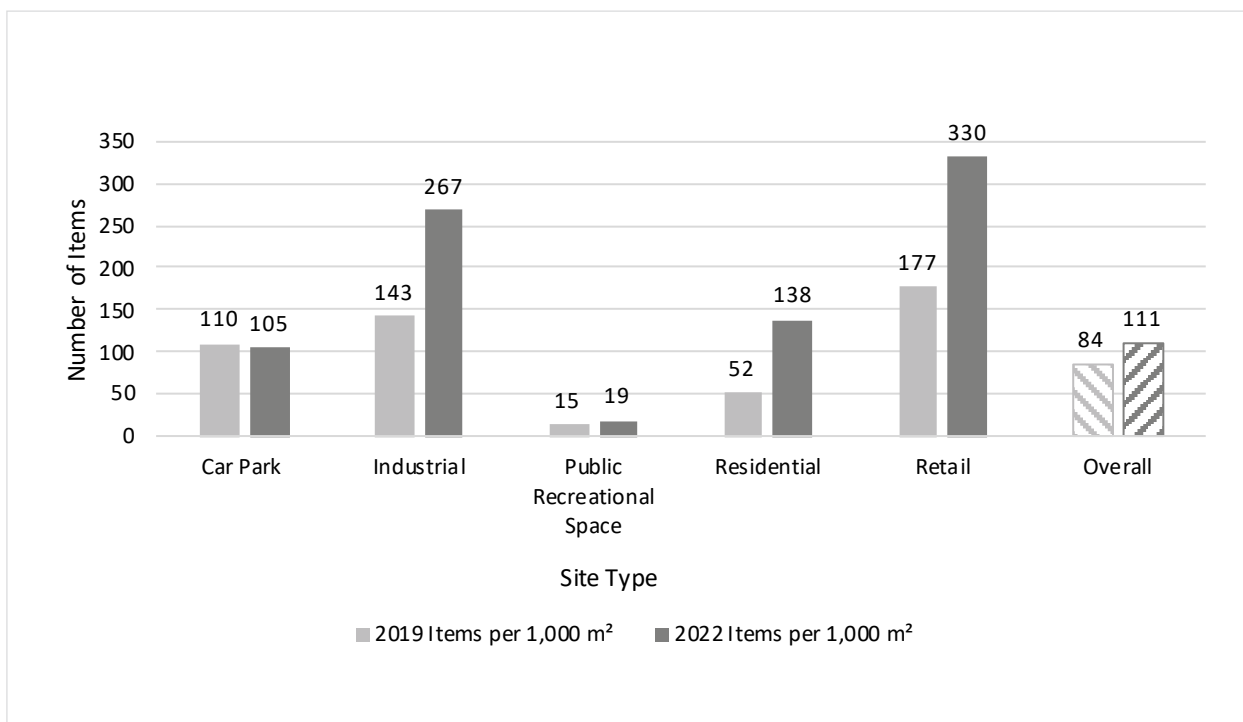
VOLUME PER 1,000 M²

Overall, litter volumes per 1,000 m² in the Taranaki region have increased by 11.27 ltr since 2019. As shown in the graphs below, this increase is consistent across most site types, with the biggest increases being seen in Industrial (41.49 ltr vs. 5.31 ltr per 1,000 m² in 2019) and Residential (30.29 ltr vs. 2.59 ltr i per 1,000 m² in 2019) sites.

Figure 377: Taranaki, Volume per 1,000 m² by Site Type: Comparison Over Time
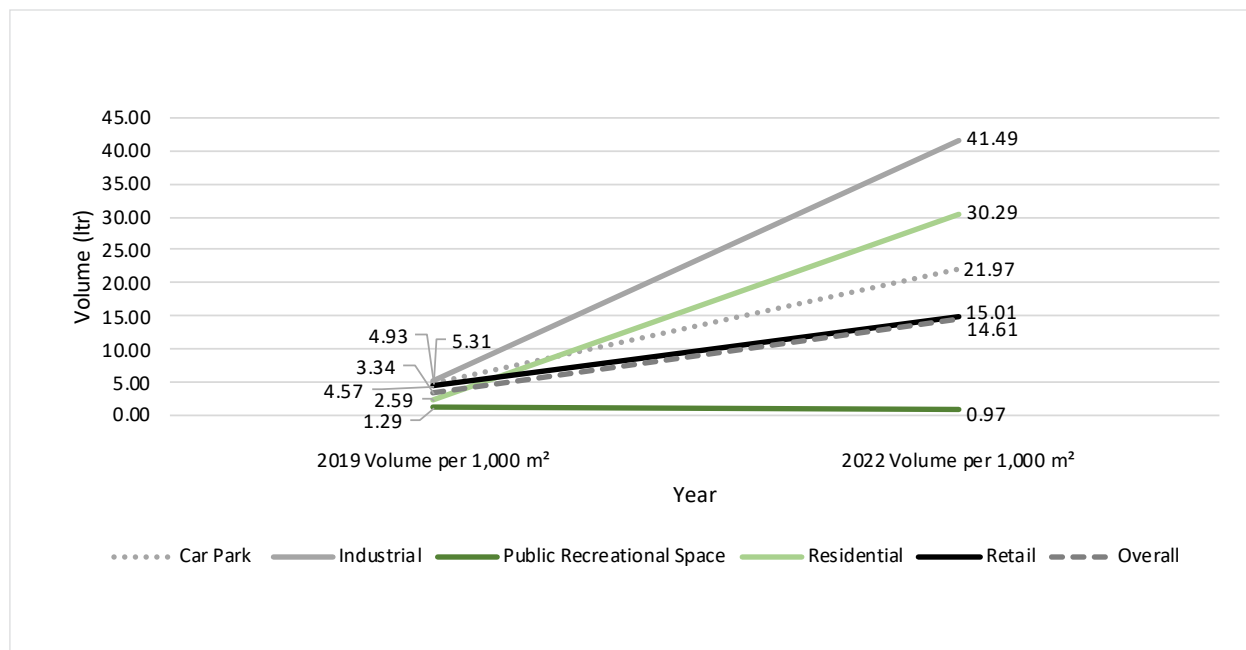
Figure 378: Taranaki, Volume per 1,000 m² by Site Type: Comparison Over Time
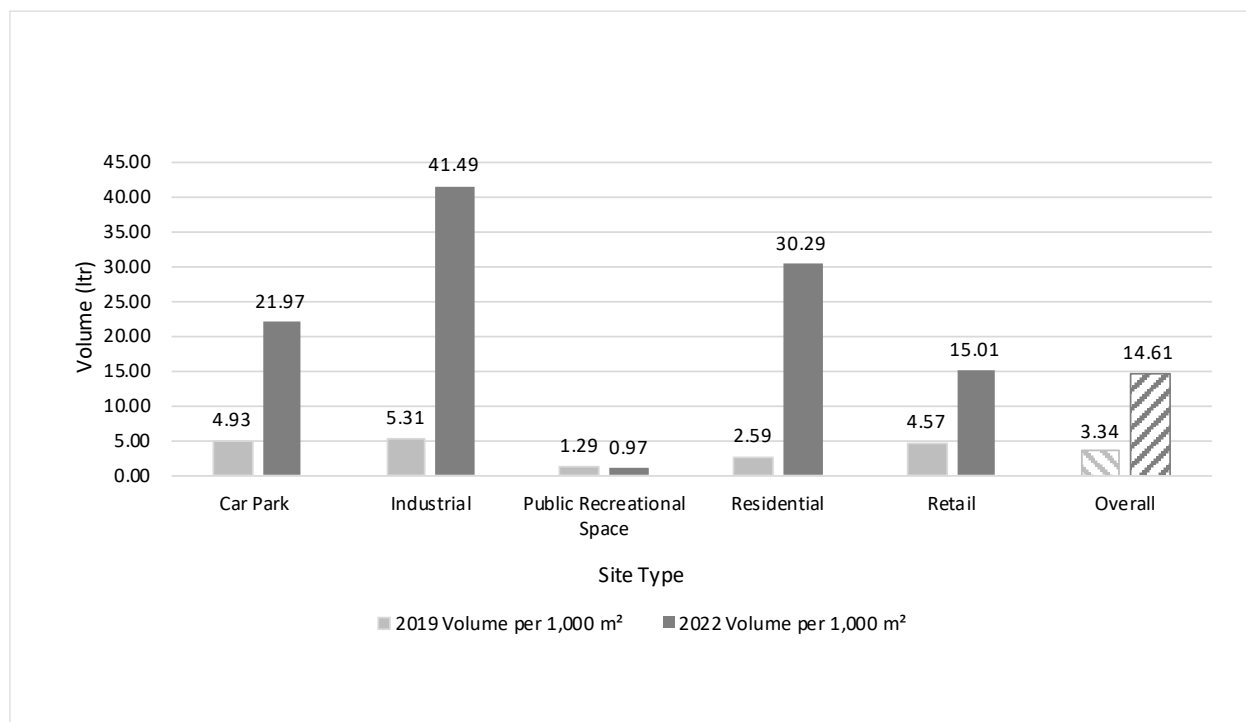
WEIGHT PER 1,000 M²

Overall, the litter weight in the Taranaki region has increased since 2019 (0.87 kg vs. 0.29 kg per 1,000 m² in 2019).

As shown in the graphs below, the site types with the biggest increases in litter weight per 1,000 m² are Industrial (4.41 kg vs. 0.57 kg in 2019) and Residential (1.10 kg vs. 0.27 kg in 2019) sites.

Figure 379: Taranaki, Weight per 1,000 m² by Site Type: Comparison Over Time
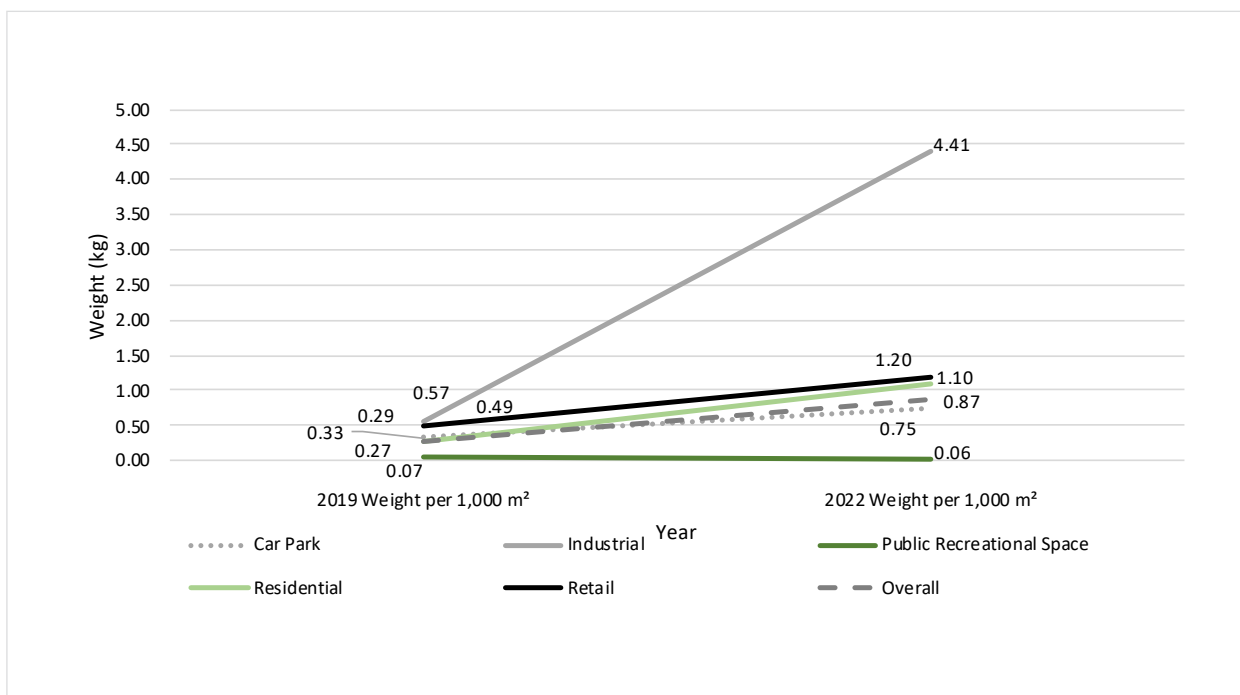
Figure 380: Taranaki, Weight per 1,000 m² by Site Type: Comparison Over Time
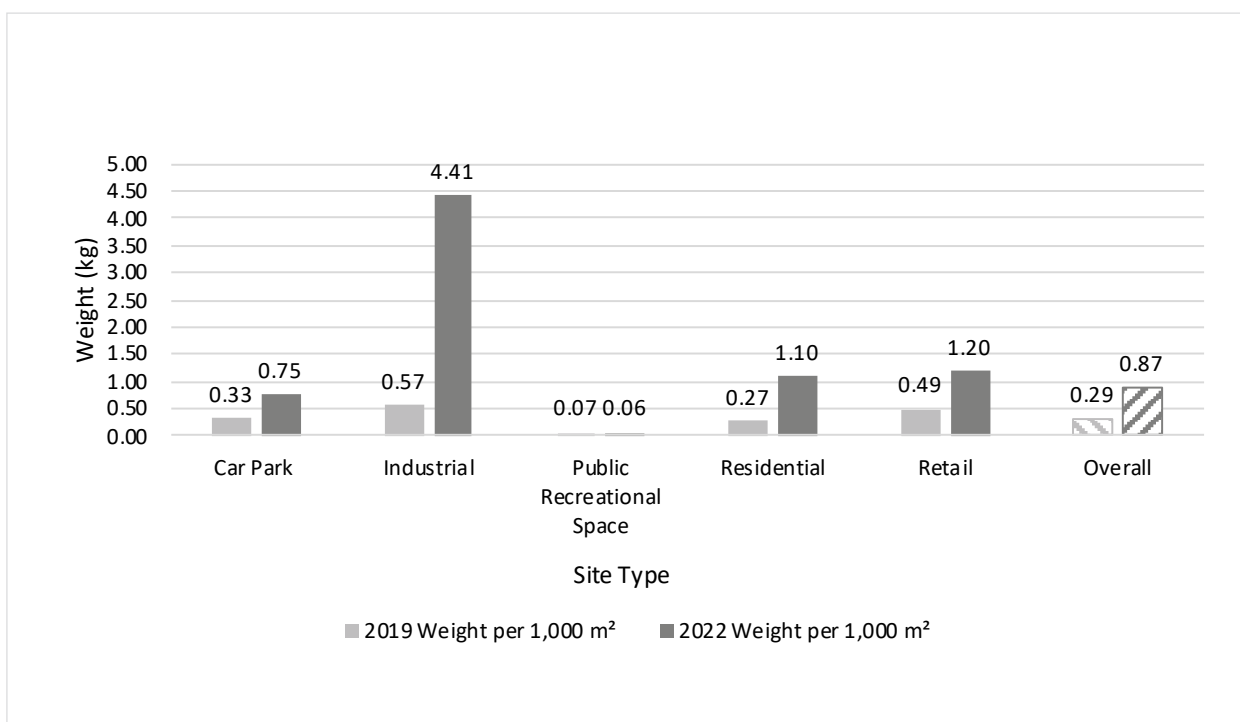
COMPARISON BY MAIN MATERIAL TYPES

Plastic was the most frequently identified material type (45 items) per 1,000 m² within the Taranaki region.

Moderate numbers of litter items were recorded for Cigarette Butts/Vaping (18 items), Metal (18 items) and Miscellaneous (15 items), whilst low to moderate numbers of items were recorded for Paper/Cardboard (9 items). Glass (5 items) and Organic Waste (1 item) were associated with the lowest number of items per 1,000 m².

Plastic (5.31 ltr) and Paper/Cardboard (4.52 ltr) contributed the largest volumes per 1,000 m² to the regional litter stream. Moderate litter volumes were recorded for Miscellaneous (2.65 ltr), whilst low to moderate volumes were associated with Organic Waste (1.12 ltr). The lowest litter volumes in the region were recorded for Metal (0.54 ltr), Glass (0.45 ltr) and Cigarette Butts/Vaping items (0.03 ltr) per 1,000 m².

Miscellaneous (0.33 kg) material types contributed the largest average litter weights per 1,000 m² to the overall regional litter stream. Glass (0.16 kg), Metal (0.12 kg) and Plastic (0.12 kg) contributed moderate litter weights whilst smaller litter weights were associated with Paper/Cardboard (0.07 kg), Organic Waste (0.06 kg) and Cigarette Butts/Vaping (0.02 kg) per 1,000 m².

There was no Illegal Dumping identified at the sites audited.

Figure 381: Taranaki 2022, Items and Volume per 1,000 m² by Main Material Type

*No instances were recorded

■ Items per 1,000 m²   ■ Volume per 1,000 m²
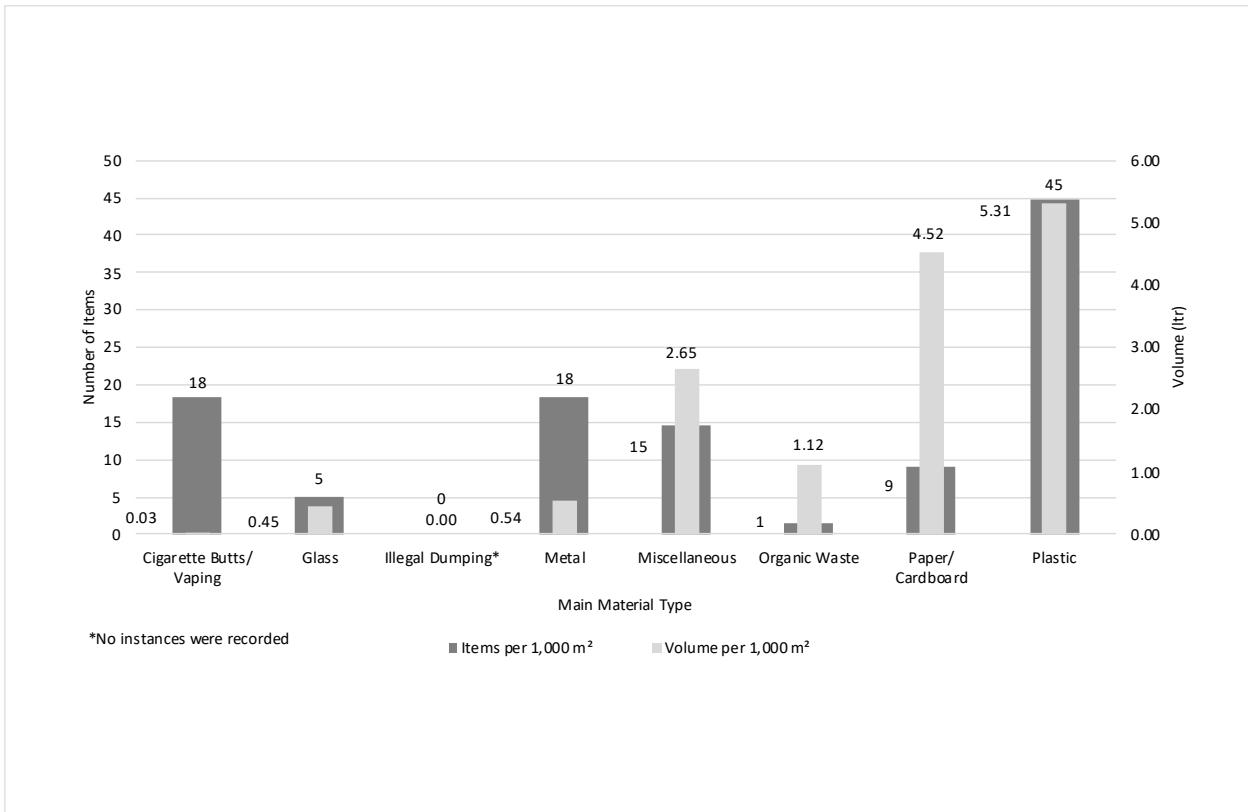
Figure 382: Taranaki 2022, Items and Weight per 1,000 m² by Main Material Type
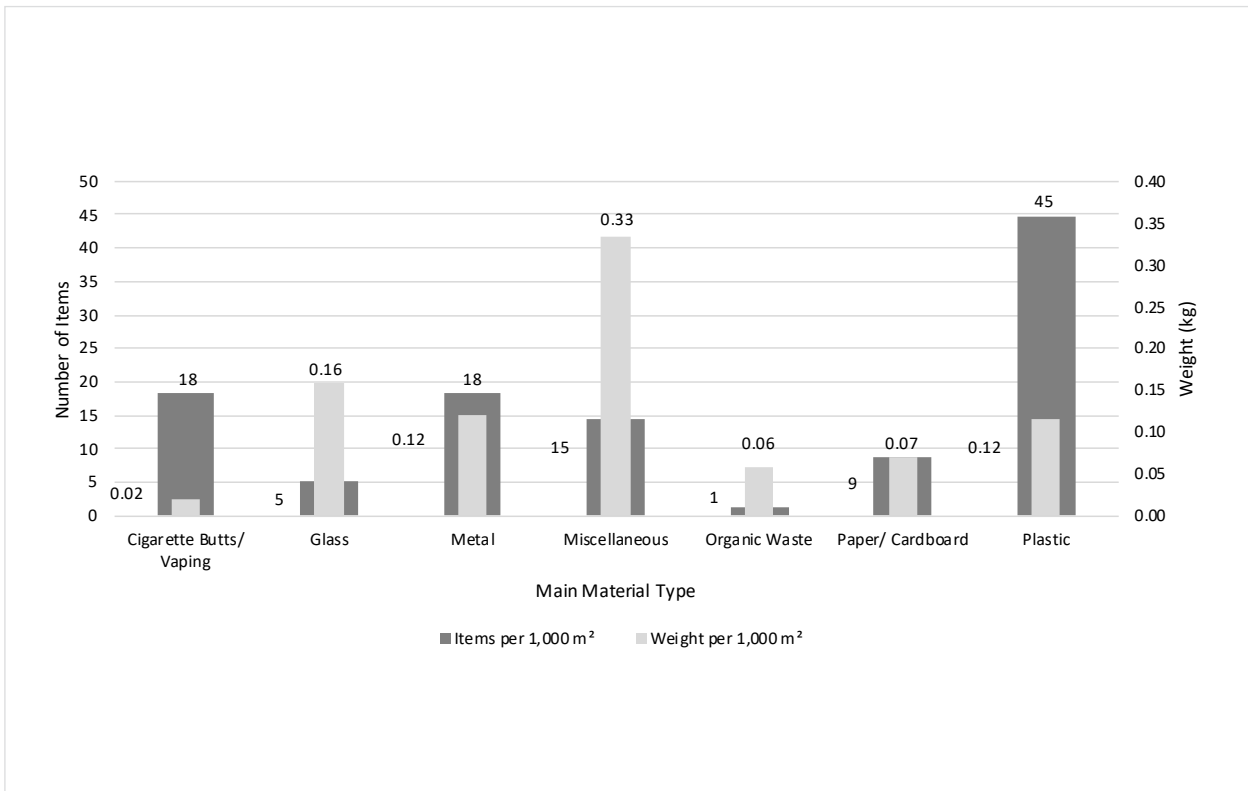
■ Items per 1,000 m²   ■ Weight per 1,000 m²

MAIN MATERIAL CHARACTERISTICS

The following material type characteristics were identified for litter items and volume per 1,000 m² in the Taranaki region (excluding Highway and Railway sites):

- Cigarette Butts/Vaping was associated with a moderate number of litter items, but low litter volumes.
- Plastic contributed to high numbers of litter items and volumes.
- Miscellaneous items contributed moderate numbers of litter items and volumes.
- Metal contributed moderate numbers of litter items and low litter volumes.

- Paper/Cardboard contributed low to moderate numbers of litter items and high litter volumes.
- Glass contributed low numbers of litter items and volumes.

Figure 383: Taranaki 2022, Items and Volume per 1,000 m² by Main Material Type

The following material type characteristics were identified for litter items and weight per 1,000 m² in the Taranaki region (excluding Highway and Railway sites):

- Glass was associated with low numbers of litter items and moderate litter weights.
- Metal contributed moderate numbers of litter items and weights.
- Plastic was associated with high numbers of litter items and moderate litter weights.
- Cigarette Butts/Vaping items contributed moderate numbers of litter items, but were associated with small litter weights.

- Miscellaneous items were associated with moderate numbers of litter items and high litter weights.
- Paper/Cardboard was associated with low to moderate litter items and small litter weights.
- Organic Waste contributed low numbers of litter items and small litter weights.

Figure 384: Taranaki 2022, Items and Weight per 1,000 m² by Main Material Type
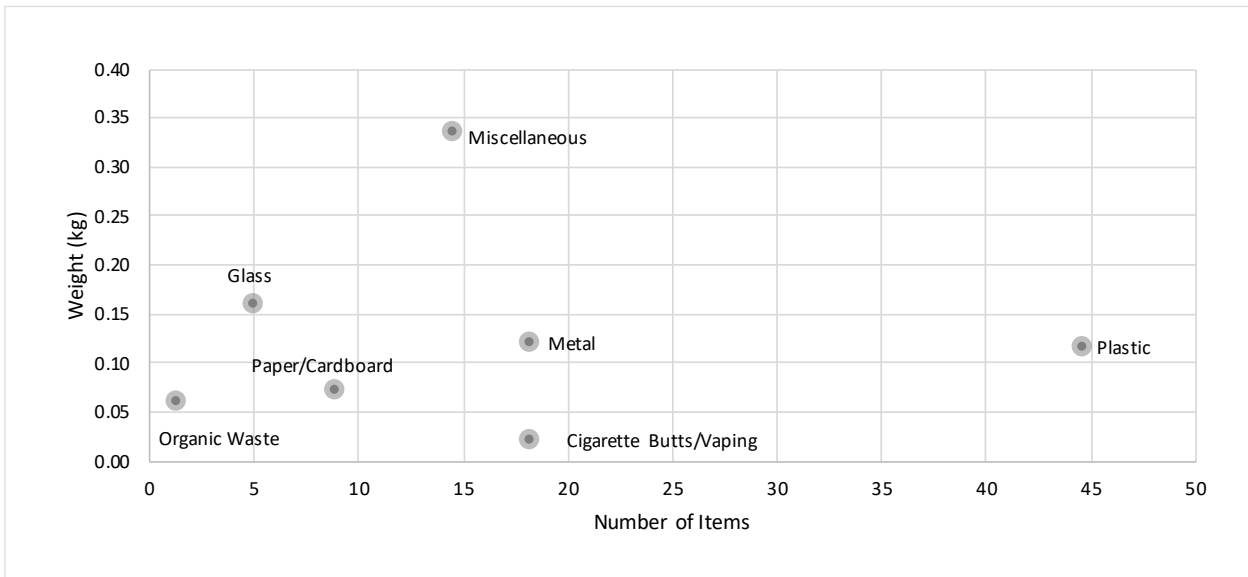
COMPARISONS BY MAIN MATERIAL TYPE OVER TIME

Compared with 2019, the main material types, Plastic and Miscellaneous items, have seen an increase across all three measures of litter count, estimated volume and weight per 1,000 m². Whilst the litter weight and volume remain much the same, the number of litter items classified under Cigarette Butts/Vaping has decreased slightly by 8 items per 1,000 m since 2019.

ITEMS PER 1,000 M²

Since 2019, there has been a decline in the number of litter items per 1,000 m² collected in the Taranaki region classified under Cigarette Butts/Vaping (18 items vs. 26 items in 2019). Larger increases since 2019 have been associated with Plastic (45 items vs. 25 items in 2019) and Miscellaneous items (15 items vs. 7 items in 2019).

Figure 385: Taranaki, Items per 1,000 m² by Main Material Type: Comparison Over Time
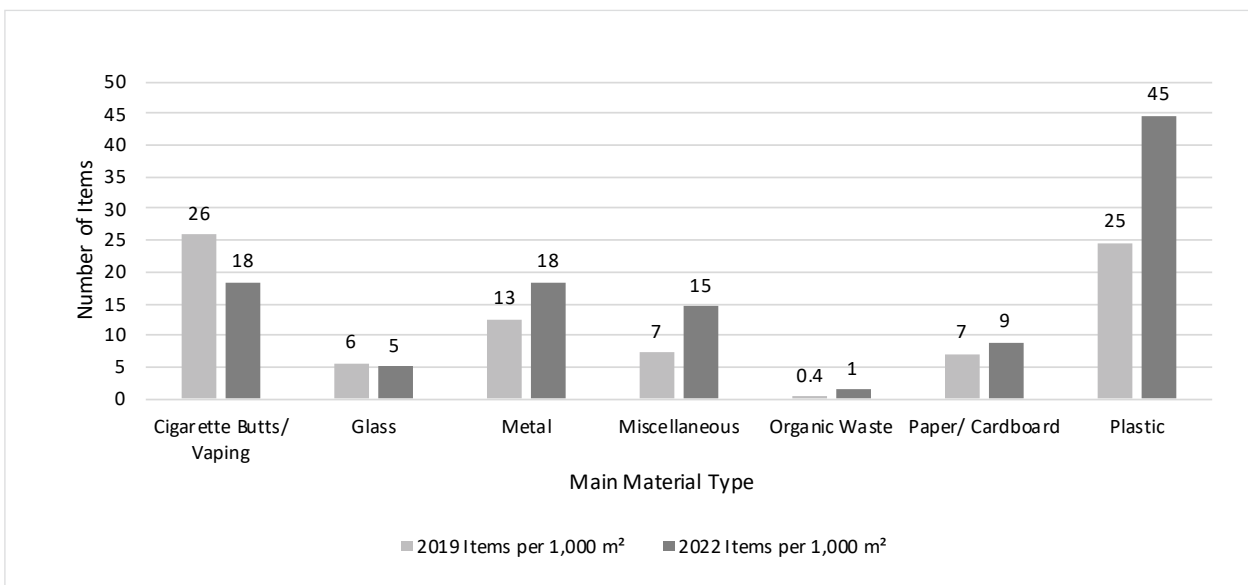
VOLUME PER 1,000 M²

Since 2019, increases can be seen in the litter volume of all material types in the Taranaki region, with the biggest increases seen in Plastic (5.31 ltr vs. 0.49 ltr in 2019) and

Paper/Cardboard (4.52 ltr vs. 0.51 ltr in 2019) per 1,000 m².

Figure 386: Taranaki, Volume per 1,000 m² by Main Material Type: Comparison Over Time
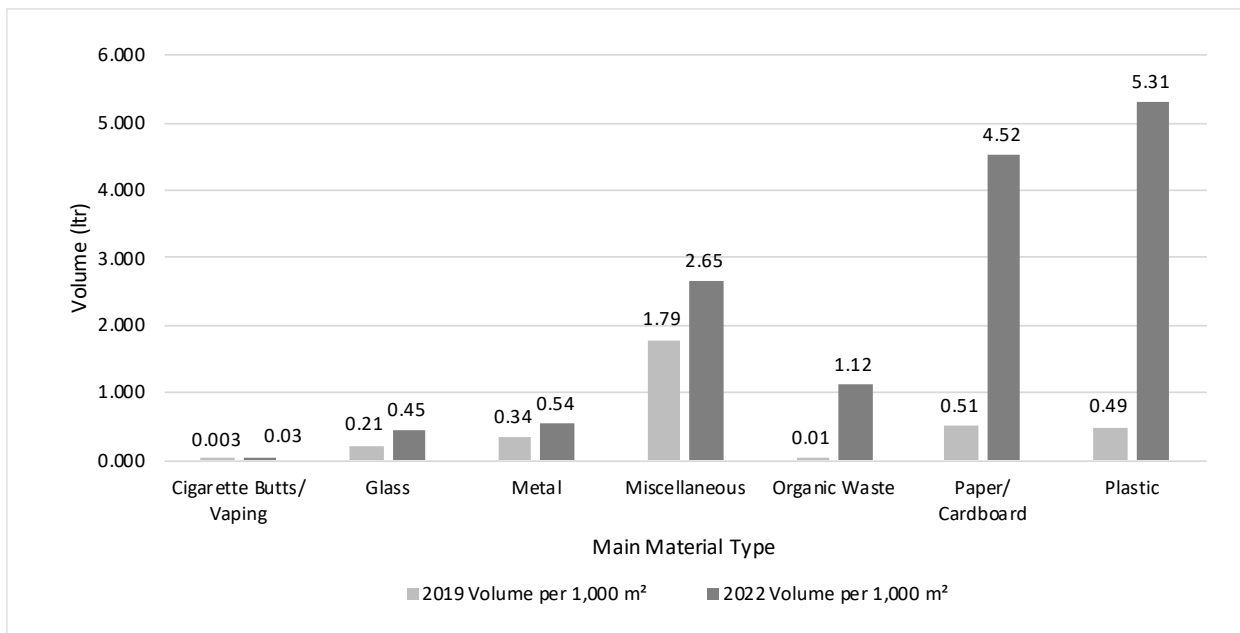
WEIGHT PER 1,000 M²

Compared with 2019, there has been a large increase in the litter weight of items per 1,000 m², in the Taranaki region classified under Miscellaneous items (0.33 kg. vs.

0.03 kg in 2019). Whilst almost all the other material types saw increases in litter weight per 1,000 m², Cigarette Butts/Vaping weights remain consistent with 2019.

Figure 387: Taranaki, Weight per 1,000 m² by Main Material Type: Comparison Over Time
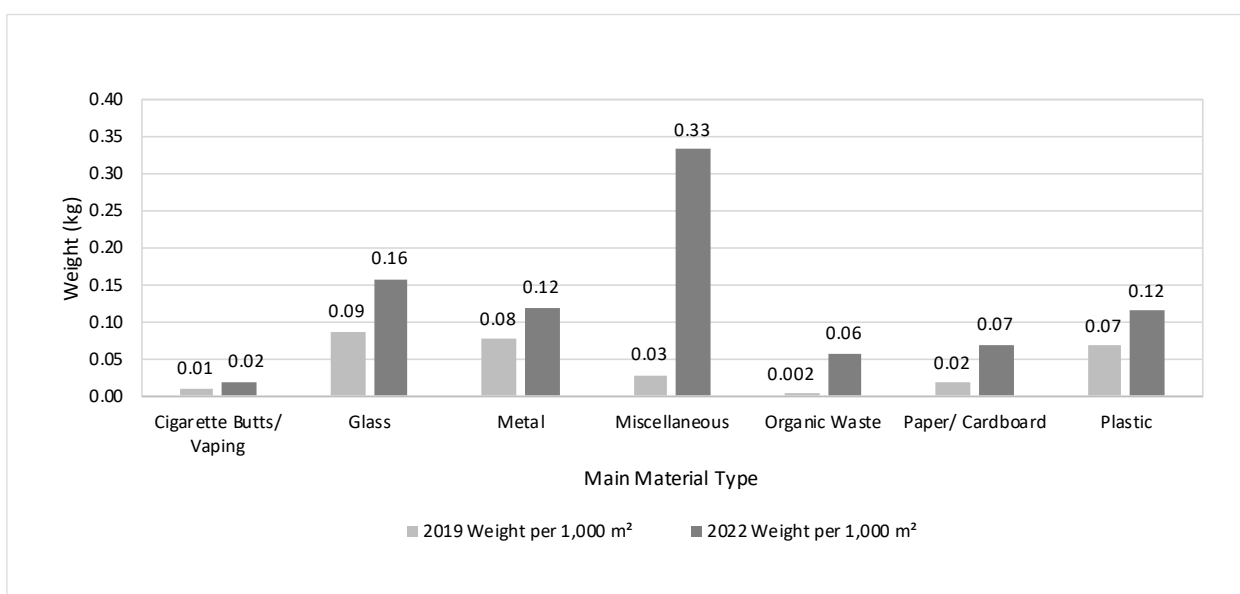
SITE TYPES BY MAIN MATERIAL TYPE

In the Taranaki region, the number of material type litter items found per 1,000 m2 at the different site types (excluding Highway and Railway sites) was as follows:

- Car Park sites: Plastic (37 items), Metal (25 items), Miscellaneous (21 items), Cigarette Butts/Vaping (13 items), Paper/Cardboard (7 items), Glass (2 items), Organic Waste (0 items) and Illegal Dumping (0 items).

- Industrial sites: Plastic (119 items), Metal (49 items), Cigarette Butts/Vaping (31 items), Miscellaneous (31 items), Paper/Cardboard (20 items), Glass (13 items), Organic Waste (4 items) and Illegal Dumping (0 items).

- Public Recreational Spaces: Plastic (13 items), Miscellaneous (4 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 (57 items), Metal (21 items), Glass (19 items), Cigarette Butts/Vaping (17 items), Miscellaneous (14 items), Paper/ Cardboard (7 items), Organic Waste (3 items) and Illegal Dumping (0 items).

- Retail sites: Plastic (113 items), Cigarette Butts/ Vaping (91 items), Metal (44 items), Paper/Cardboard (38 items), Miscellaneous (28 items), Glass (11 items), Organic Waste (5 items) and Illegal Dumping (0 items).

Figure 388: Taranaki 2022, Sites by Main Material Type: Items per 1,000 m²
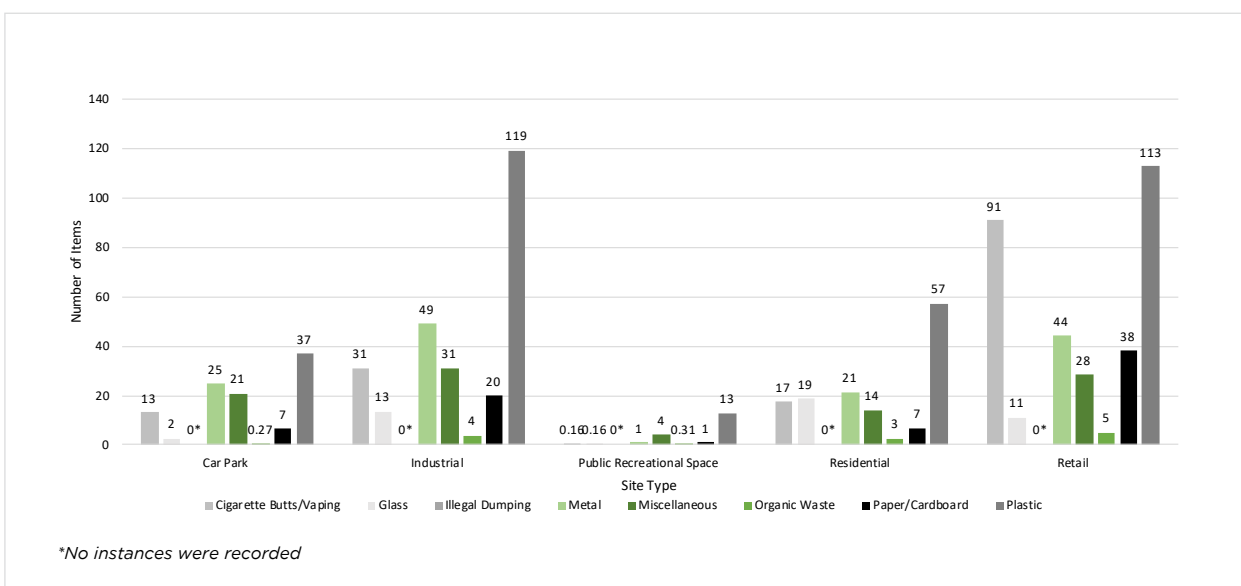
No instances were recorded

THE DIRTY DOZEN

Cigarette/Vaping: Cigarette butts were the largest contributors to the litter items within the Taranaki region, with 18 butts per 1,000 m² identified across the sites audited.

Other material subcategories which were associated with large numbers of litter items:

- Plastic: Unidentifiable soft plastic fragments (12 items per 1,000 m²)

- Plastic: Unidentifiable hard plastic fragments (10 items per 1,000 m²)

- Metal: Bottle caps, lids & pull tabs (7 items per 1,000 m²)

- Plastic: Snack bags & confectionary wrappers (6 items per 1,000 m²)

Not all material subcategories were comparable to the 2019 NLA due to the addition of new subcategories in 2022.

Whilst several categories in the Dirty Dozen are new this year, amongst comparable material subcategories, the number of Cigarette/Vaping: Cigarette butts (18 items vs. 26 items in 2019) and Plastic: Plastic (other) (2 items vs. 15 items in 2019) collected per 1,000 m² in Taranaki has decreased since 2019.

Figure 389: Taranaki, Dirty Dozen, Items per 1,000 m², Material Subcategories: Comparison Over Time
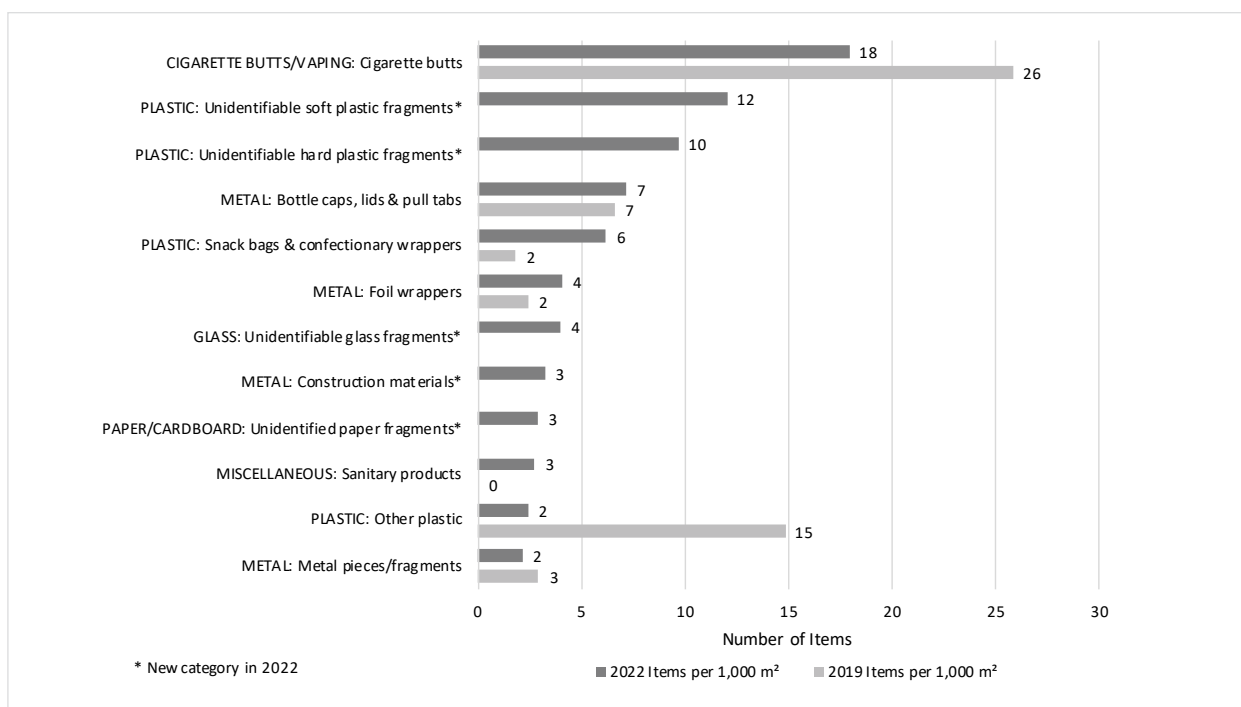
Plastic: Polystyrene insulation was the largest contributor to estimated litter volumes in the Taranaki region, contributing 3.09 ltr of volume per 1,000 m².

Other material subcategories associated with large litter volumes included:

- Paper/Cardboard: Cardboard boxes (2.97 ltr per 1,000 m²)

- Plastic: Containers, domestic type (1.14 ltr per 1,000 m²)

- Miscellaneous: Tyre pieces (1.10 ltr per 1,000 m²)

- Organic Waste: Compostable packaging (1.08 ltr per 1,000 m²)

Not all material subcategories were comparable to the 2019 NLA due to the addition of new subcategories in 2022.

Whilst most of the categories featured in Taranaki's Dirty Dozen by volume are new this year, there have been a few differences from 2019. As shown in the graph below, amongst comparable material subcategories, a large difference in litter volume has been seen in Paper/Cardboard: Cups, food trays, food wrappers, takeaway containers & drink containers which has increased by 0.71 ltr per 1,000 m² since 2019.

Figure 390: Taranaki, Dirty Dozen, Volume per 1,000 m², Material Subcategories: Comparison Over Time
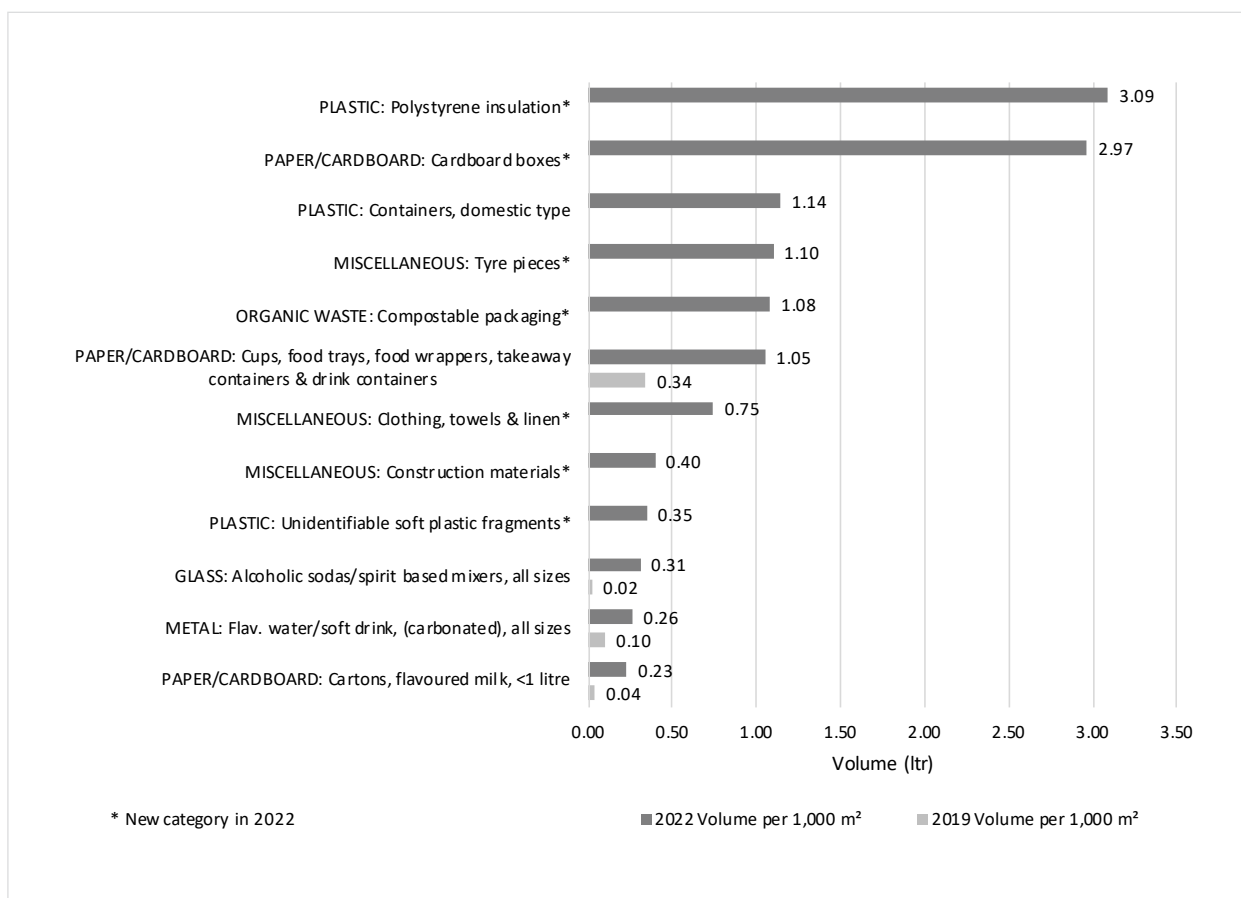
Miscellaneous: Miscellaneous (other) items represented the largest contribution to litter weights per 1,000 m² in the Taranaki region, (0.15 kg) per 1,000 m².

Other material subcategories which recorded larger litter weights per 1,000 m² included:

• Glass: Alcoholic sodas/spirit based mixers, all sizes (0.09 kg per 1,000 m²)

• Miscellaneous: Clothing, towels & linen (0.06 kg per 1,000 m²)

• Glass: Beer bottle, < 750 ml, all colours (0.04 kg per 1,000 m²)

Not all material subcategories were comparable to the 2019 NLA due to the addition of new subcategories in 2022.

Whilst there are several new categories this year, compared with 2019, amongst comparable material subcategories, there has been a large increase in the weight of Glass: Alcoholic sodas/spirit-based mixers, all sizes per 1,000 m² in the Taranaki region's Dirty Dozen (0.09 kg vs. 0.01 kg in 2019).

Figure 391: Taranaki, Dirty Dozen, Weight per 1,000 m², Material Subcategories: Comparison Over Time
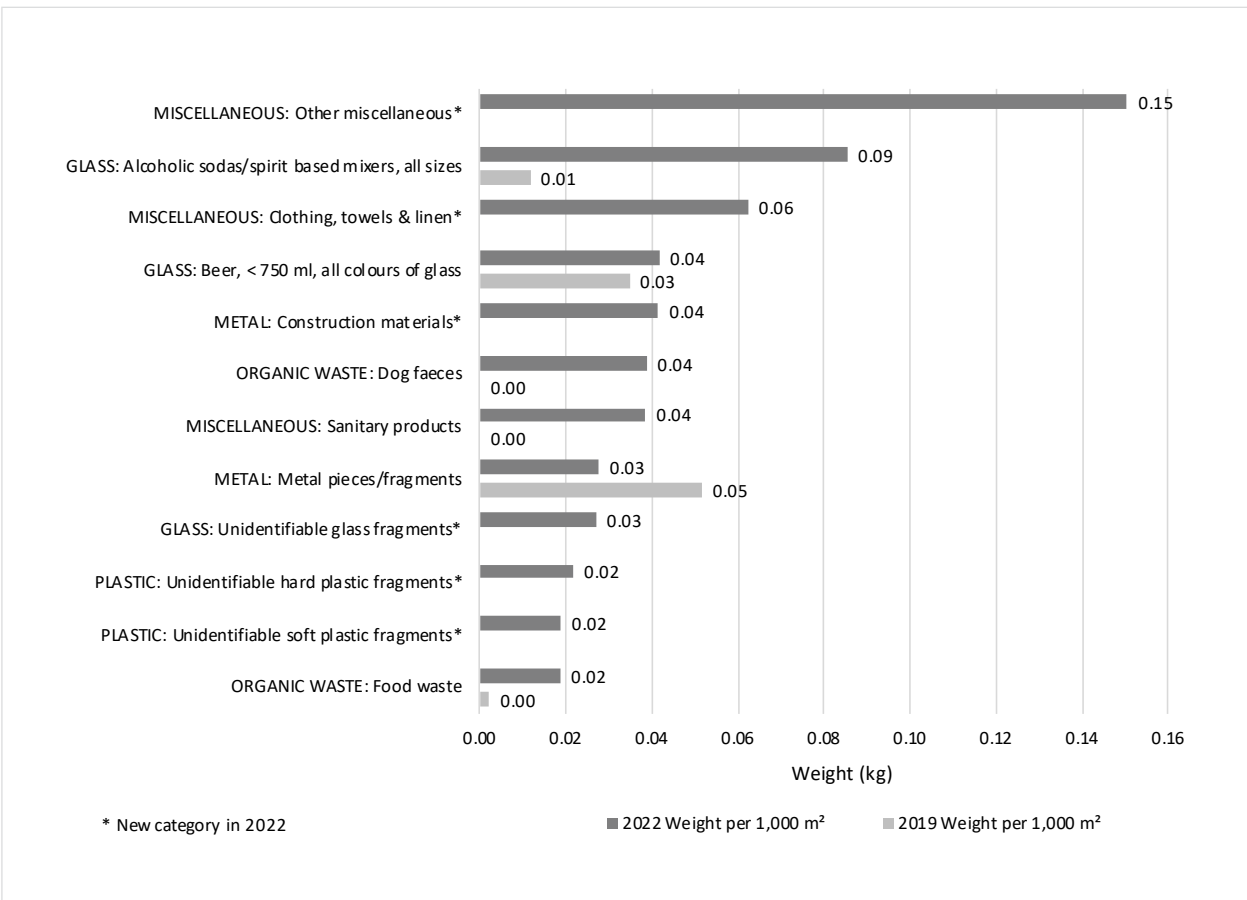
TERRITORIAL SUMMARIES

Taranaki Region is comprised of three Territorial Authorities:

- New Plymouth District
- South Taranaki District
- Stratford District

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

Extract from Table 5, 2022 Territory Data: Taranaki Region (Excluding Highway and Railway Sites)

Territory	Total Area Audited (m²)	Items per 1,000 m²	Weight (kg) per 1,000 m²	Volume (ltr) per 1,000 m²
TARANAKI REGION				
New Plymouth District	5,100	65	0.75	7.66
South Taranaki District	4,802	159	1.32	26.51
Stratford District	4,650	113	0.55	9.95
Taranaki Region Overall	**14,552**	**111**	**0.87**	**14.61**

SITE GRADINGS

All sites were assigned gradings in four 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 Taranaki region.

Extract from Table 3, Risk and Litter Distribution: Taranaki (Excluding Highway and Railway Sites)

	Risk Present		Litter Distribution	
Taranaki	Moderate hazard or risk	Significant hazard or risk	Widespread	Clustered
	100%	0%	60%	40%

Figure 392: Taranaki 2022, Grading: Visual Site Ratings (Excluding Highway and Railway Sites)
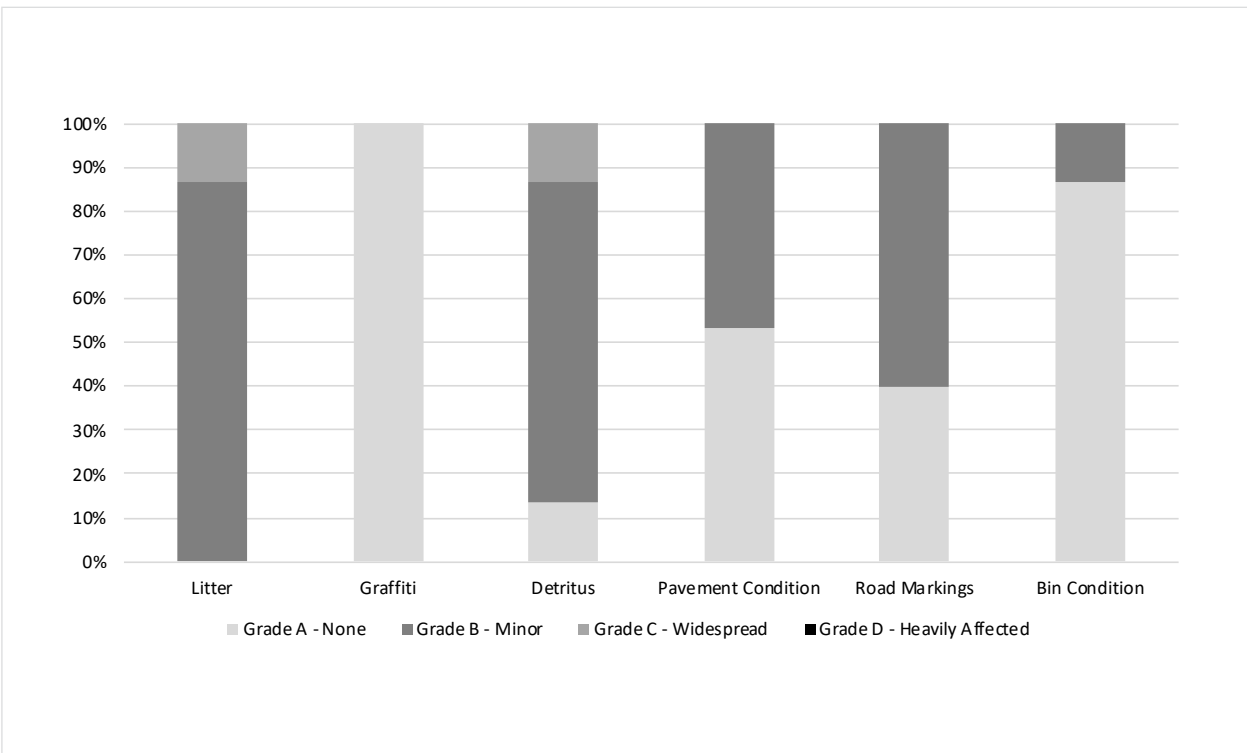
Figure 393: Taranaki 2022, Grading: Site Litter Hotshots Ratings (Excluding Highway and Railway Sites)
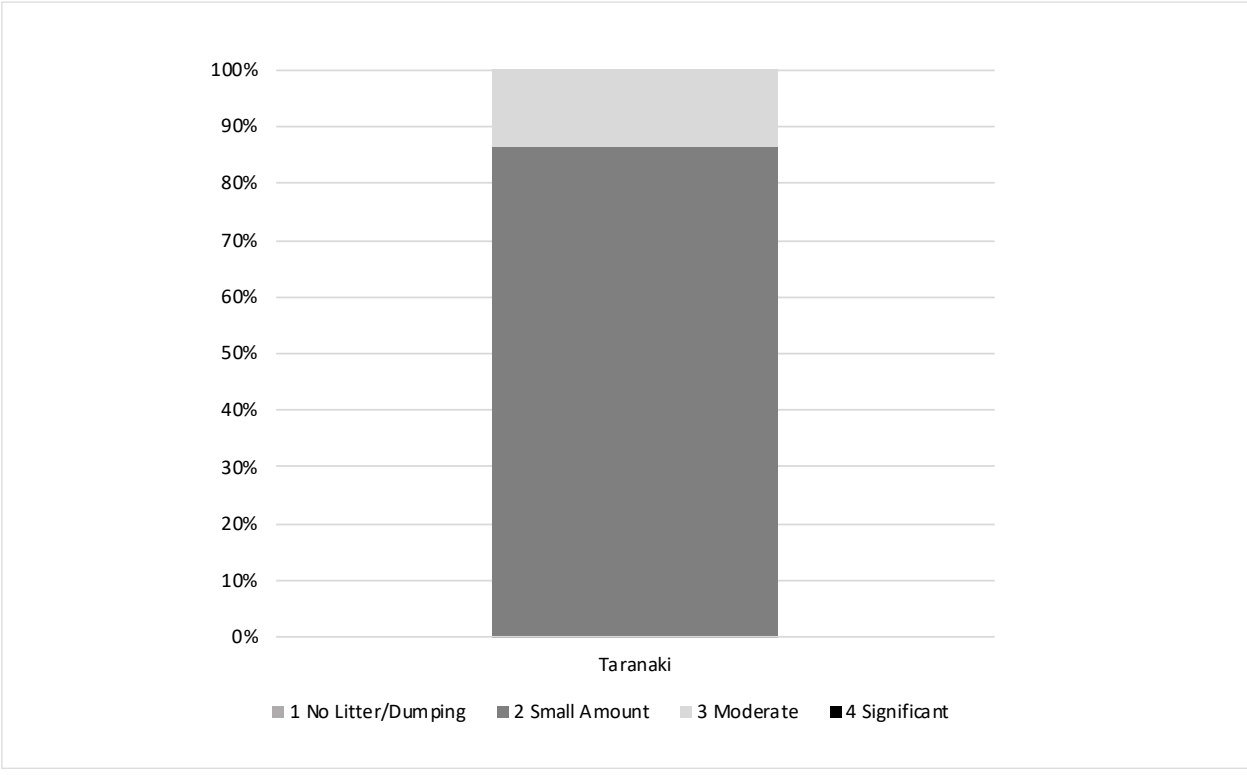
HIGHWAYS AND RAILWAYS

The following section shows the results for Highways and Railways in the Taranaki region. In the Taranaki region one Highway site and two Railway sites were audited.

Figure 394: Taranaki Highways and Railways, Items per 1,000 m² by Site Type: Comparison Over Time
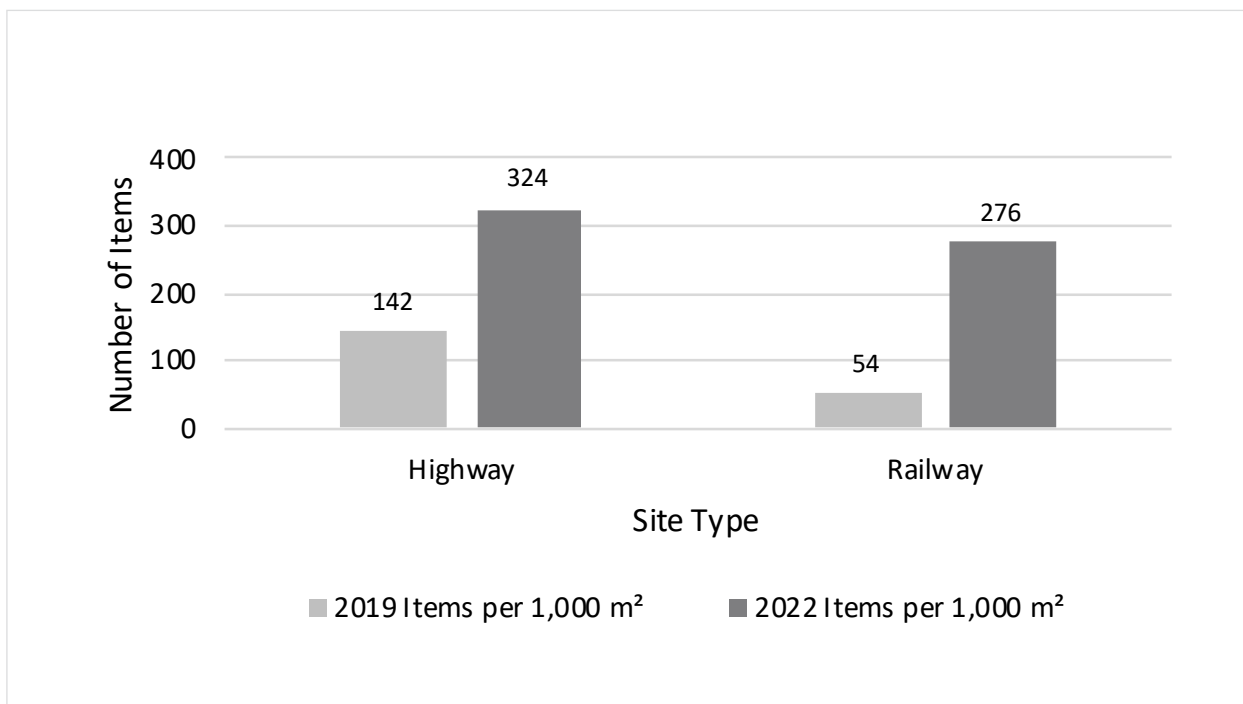
Figure 395: Taranaki Highways and Railways, Weight per 1,000 m² by Site Type: Comparison Over Time
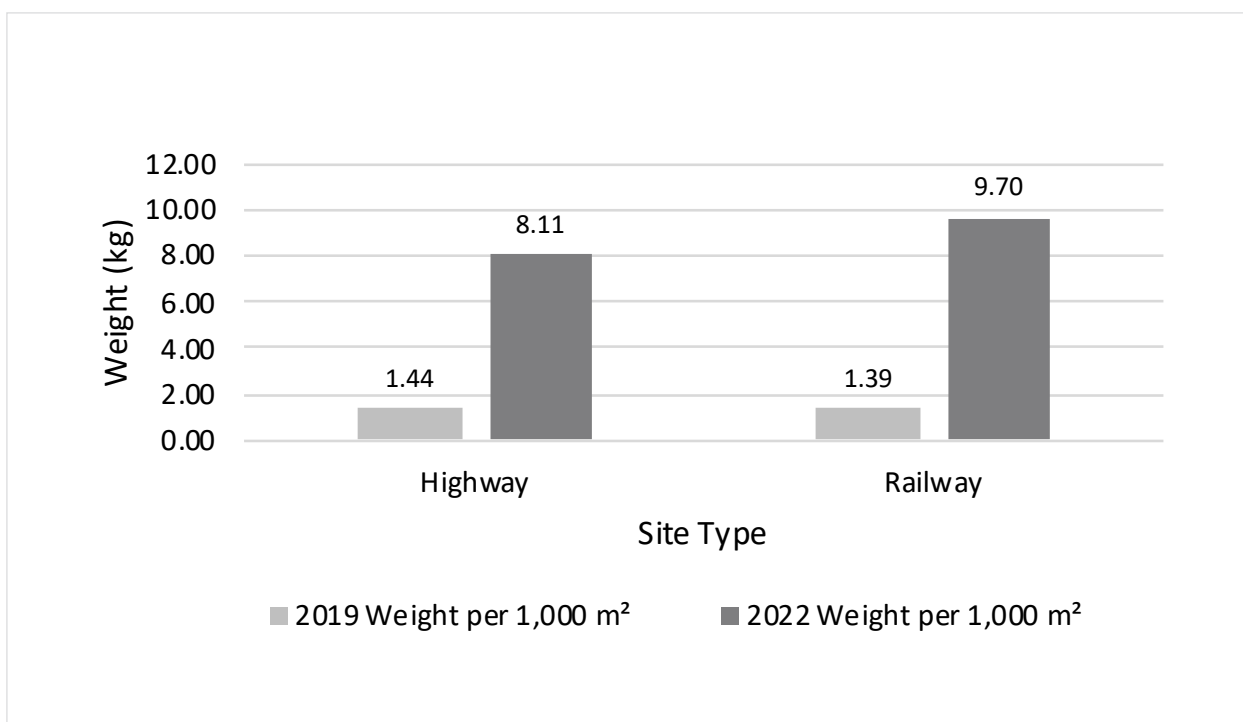
Figure 396: Taranaki Highways and Railways, Volume per 1,000 m² by Site Type: Comparison Over Time
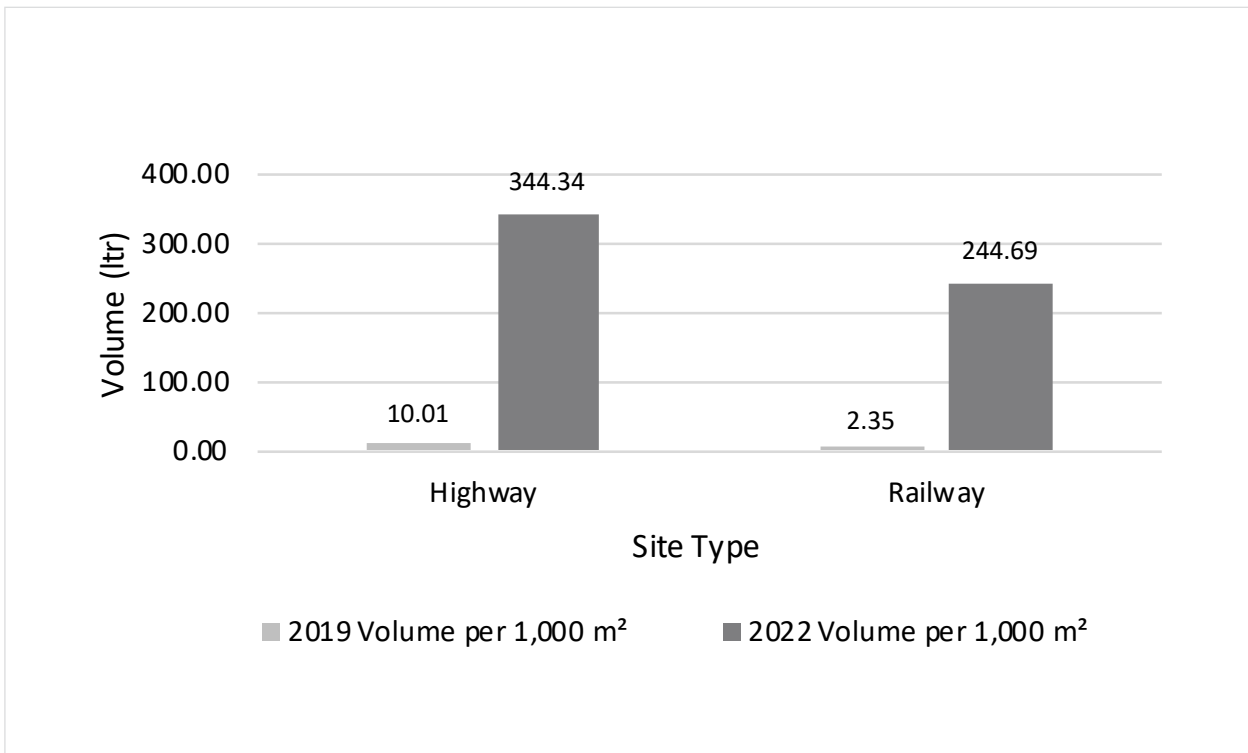
Figure 397: Taranaki Highways, Items per 1,000 m² by Main Material Type: Comparison Over Time
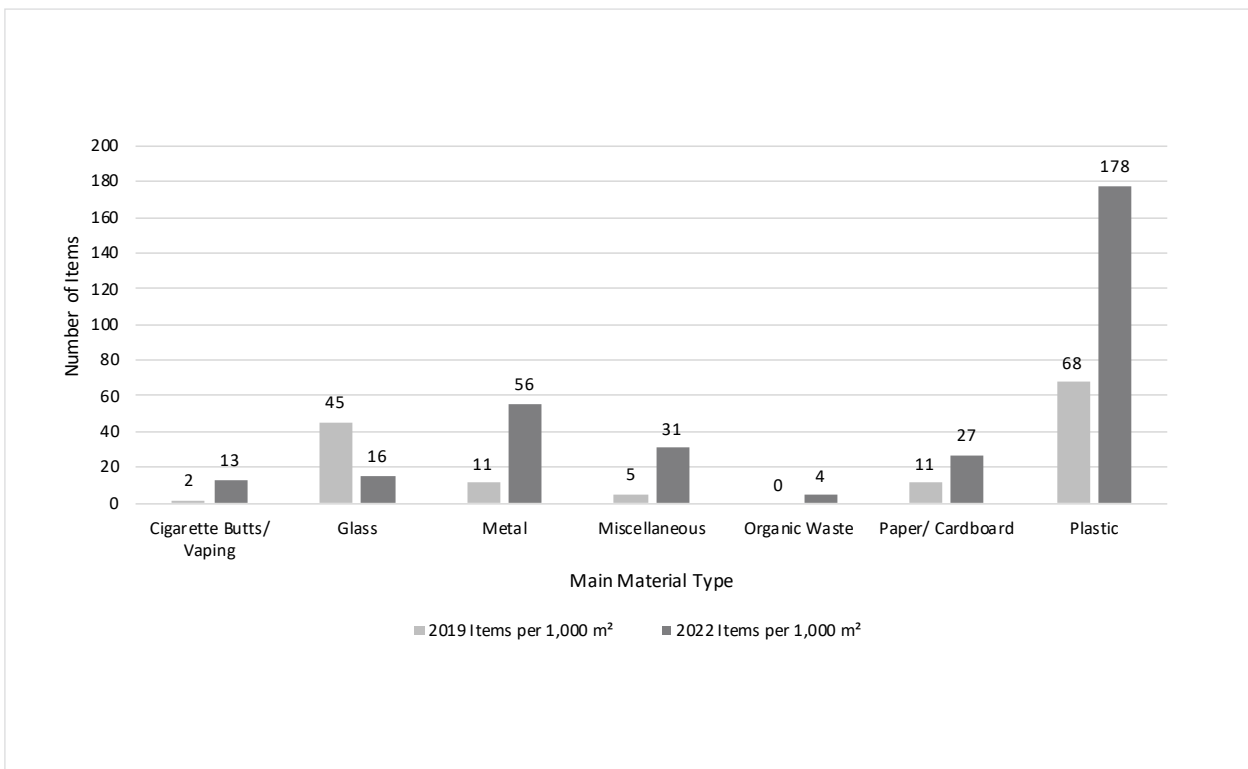
Figure 398: Taranaki Highways, Weight per 1,000 m² by Main Material Type: Comparison Over Time
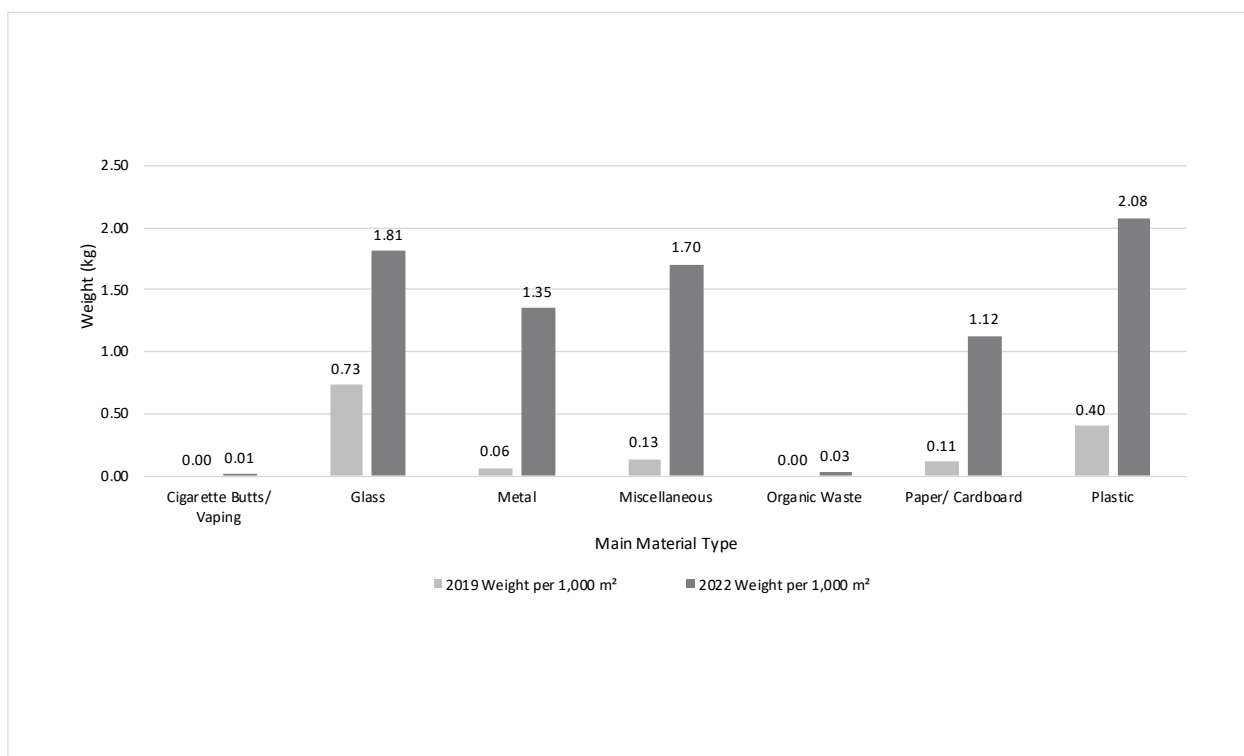
Figure 399: Taranaki Highways, Volume per 1,000 m² by Main Material Type: Comparison Over Time
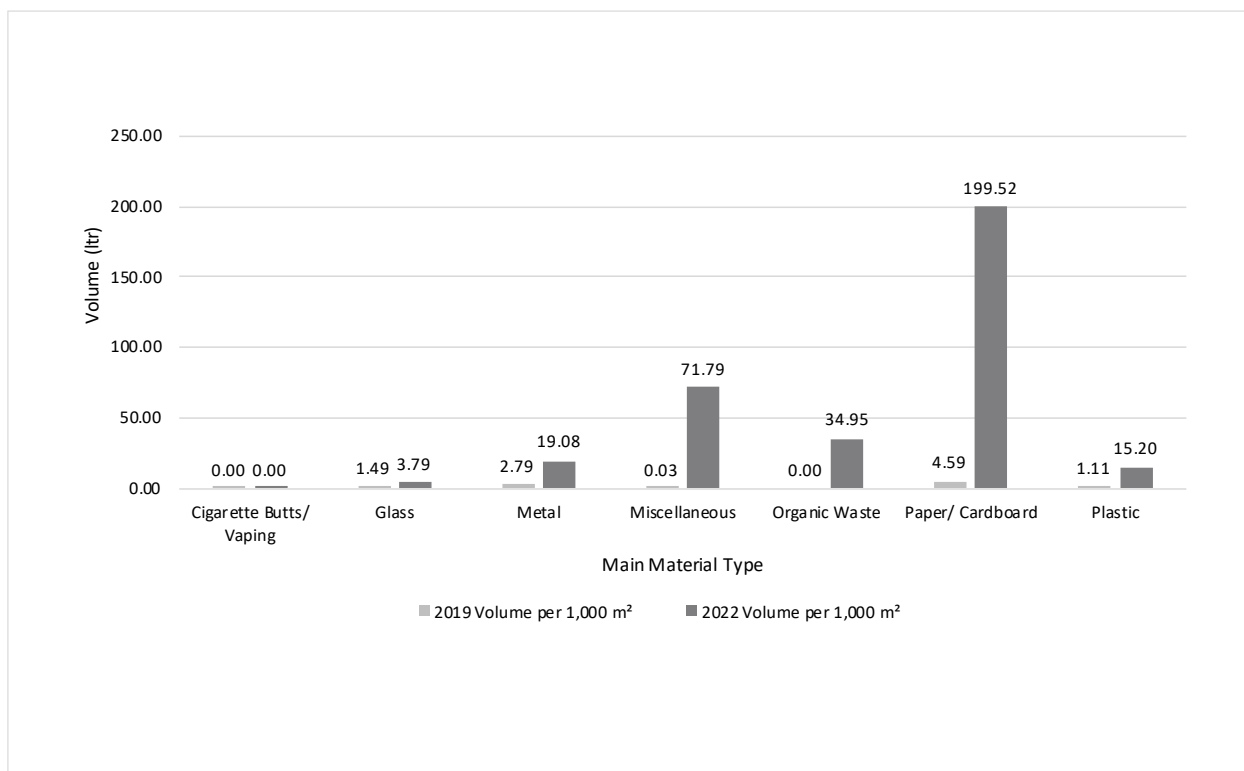
Figure 400: Taranaki Railways, Items per 1,000 m² by Main Material Type: Comparison Over Time
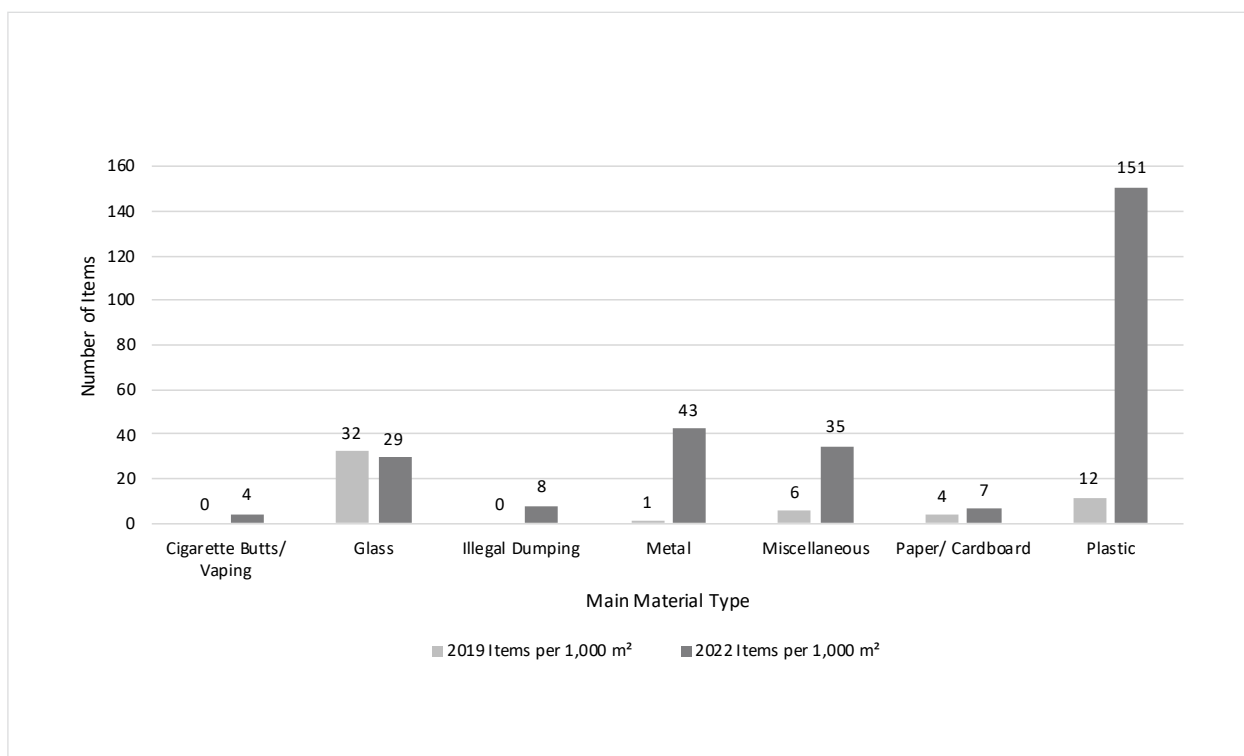
Figure 401: Taranaki Railways, Weight per 1,000 m² by Main Material Type: Comparison Over Time
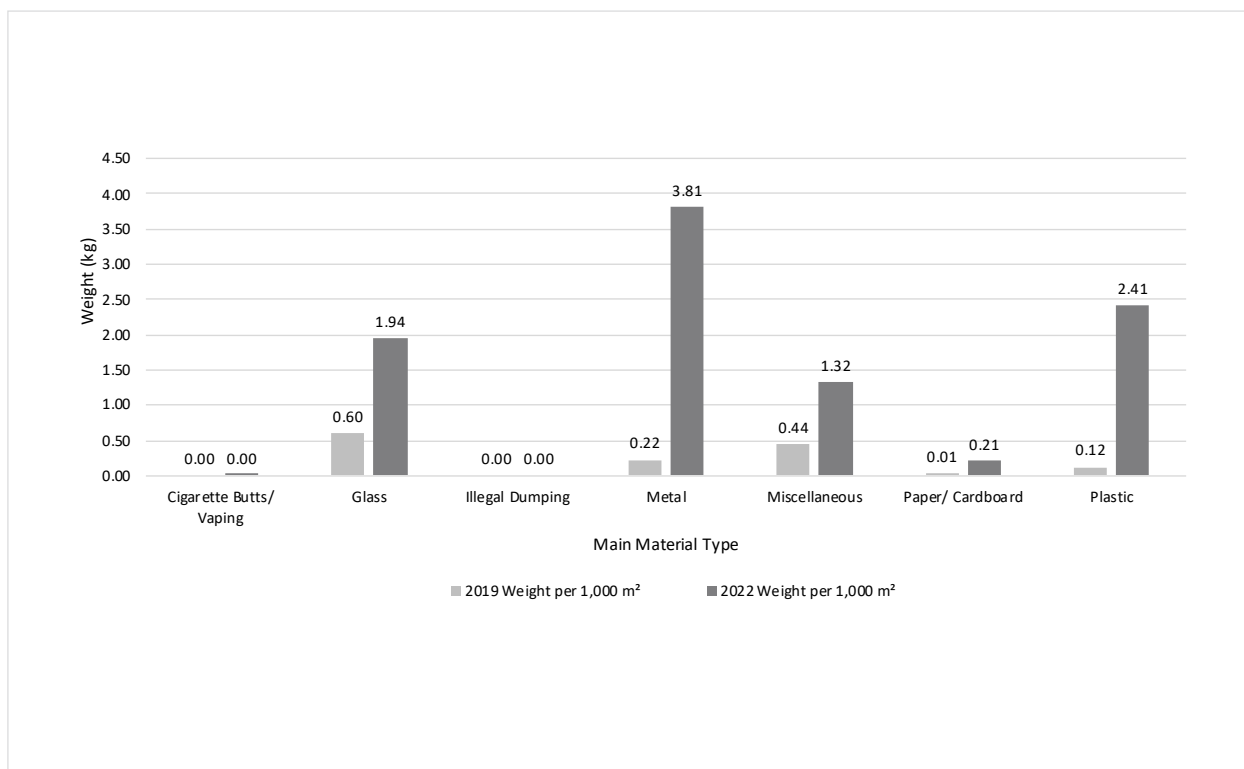
Figure 402: Taranaki Railways, Volume per 1,000 m² by Main Material Type: Comparison Over Time
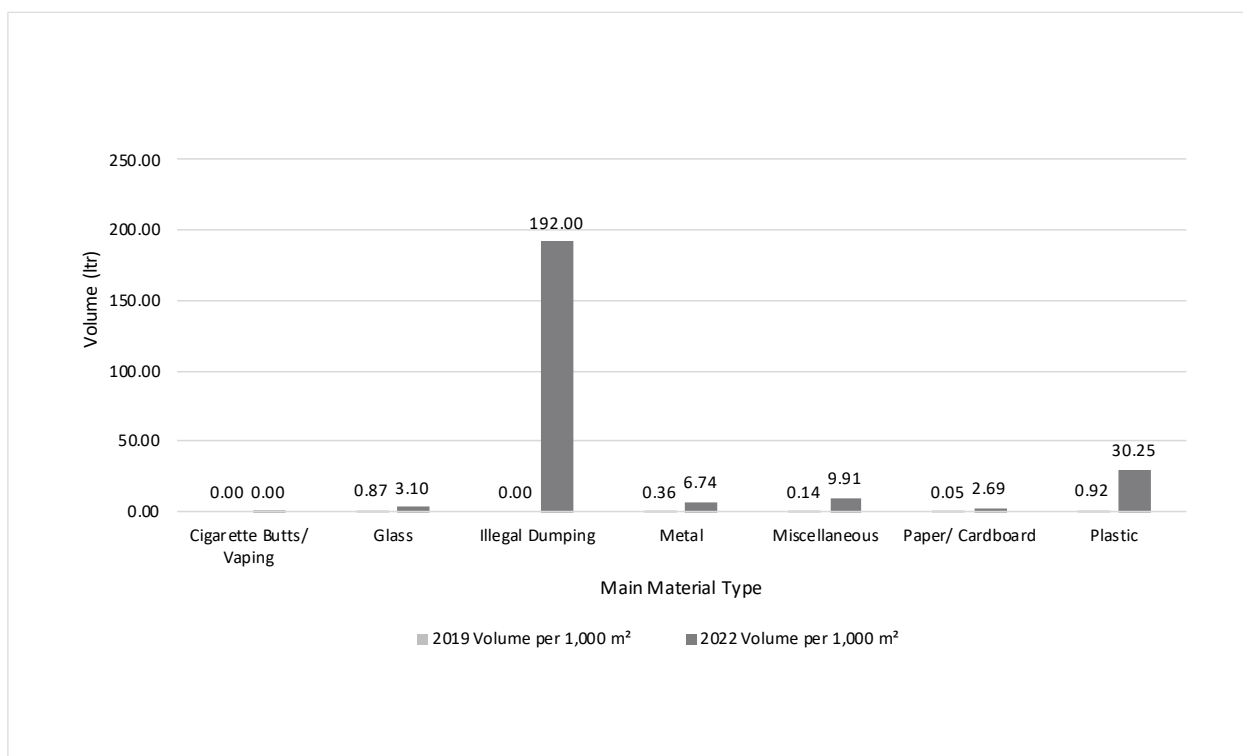
Figure 403: Taranaki Highways, Dirty Dozen, Items per 1,000 m², Material Subcategories: Comparison Over Time
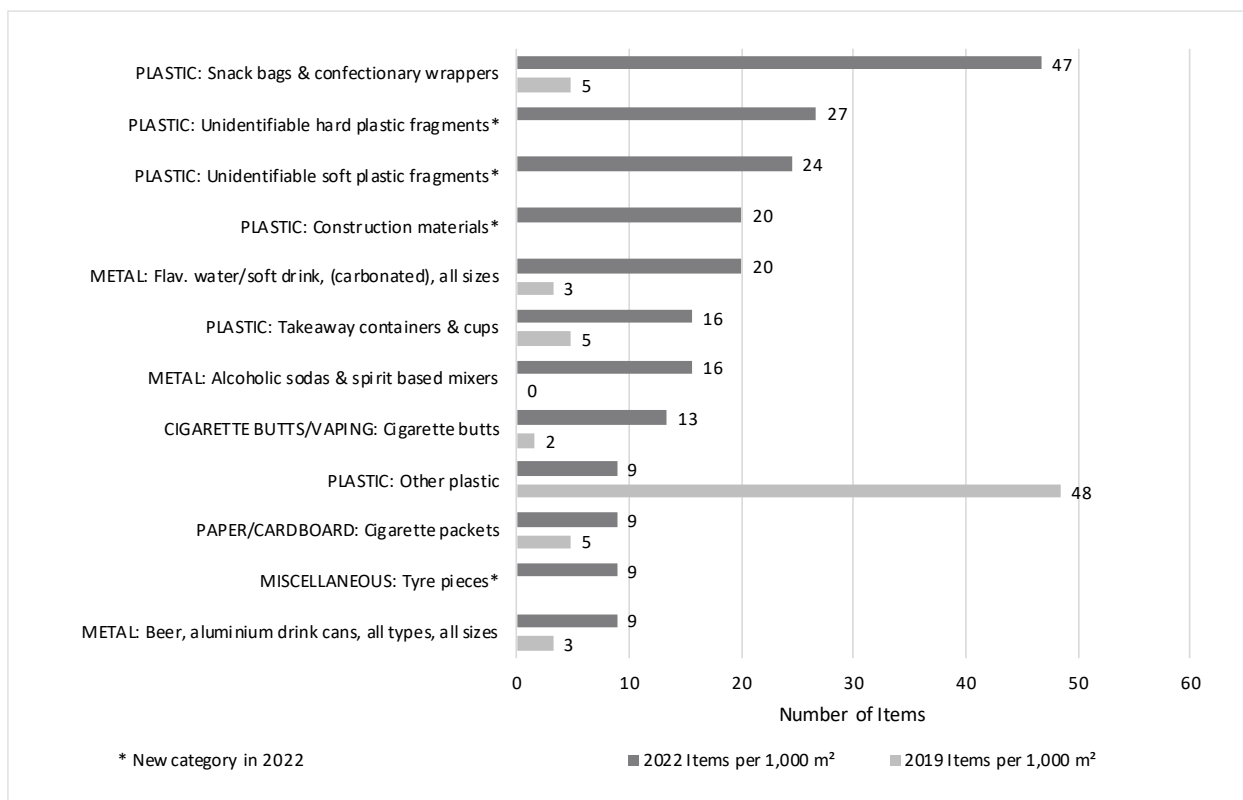
Figure 404: Taranaki Highways, Dirty Dozen, Weight per 1,000 m², Material Subcategories: Comparison Over Time

	2022 Weight per 1,000 m²	2019 Weight per 1,000 m²
MISCELLANEOUS: Tyre pieces*	0.98	
PAPER/CARDBOARD: Cardboard boxes*	0.74	
METAL: Flav. water/soft drink, (carbonated), all sizes	0.66	0.06
GLASS: Beer, < 750 ml, all colours of glass	0.65	0.00
GLASS: Alcoholic sodas/spirit based mixers, all sizes	0.63	0.00
PLASTIC: Construction materials*	0.53	
PLASTIC: Snack bags & confectionary wrappers	0.50	0.02
GLASS: Flav. water/soft drink (carbonated), <1 litre	0.46	0.35
MISCELLANEOUS: Other cloth*	0.32	
METAL: Alcoholic sodas & spirit based mixers	0.31	0.00
PLASTIC: Flav. water/soft drink (carbonated), <1 litre	0.30	0.00
MISCELLANEOUS: Gloves - disposable*	0.25	

Weight (kg)

* New category in 2022

Figure 405: Taranaki Highways, Dirty Dozen, Volume per 1,000 m², Material Subcategories: Comparison Over Time

	2022 Volume per 1,000 m²	2019 Volume per 1,000 m²
PAPER/CARDBOARD: Cardboard boxes*	191.96	
MISCELLANEOUS: Tyre pieces*	71.11	
ORGANIC WASTE: Compostable packaging*	34.95	
METAL: Flav. water/soft drink, (carbonated), all sizes	8.51	1.37
METAL: Alcoholic sodas & spirit based mixers	6.71	0.00
PAPER/CARDBOARD: Cups, food trays, food wrappers, takeaway containers & drink containers	4.86	3.53
PLASTIC: Polystyrene insulation*	4.17	
PLASTIC: Flav. water/soft drink (carbonated), <1 litre	4.15	0.00
METAL: Beer, aluminium drink cans, all types, all sizes	3.83	1.39
PLASTIC: Takeaway containers & cups	3.22	1.00
GLASS: Beer, < 750 ml, all colours of glass	2.06	0.00
PAPER/CARDBOARD: Cigarette packets	1.94	0.00

Volume (ltr)

* New category in 2022

Figure 406: Taranaki Railways, Dirty Dozen, Items per 1,000 m², Material Subcategories: Comparison Over Time

	2022 Items per 1,000 m²	2019 Items per 1,000 m²
PLASTIC: Unidentifiable hard plastic fragments*	45	
PLASTIC: Unidentifiable soft plastic fragments*	25	
GLASS: Unidentifiable glass fragments*	21	
PLASTIC: Snack bags & confectionary wrappers	16	1.05
METAL: Construction materials*	15	
MISCELLANEOUS: Construction materials	13	0.00
PLASTIC: Other plastic	12	7.91
METAL: Metal pieces/fragments	12	0.00
PLASTIC: Cable/zip ties*	8	
ILLEGAL DUMPING: Itemised description	8	0.00
PLASTIC: Polystyrene insulation*	7	
PLASTIC: Construction materials*	7	

* New category in 2022

Figure 407: Taranaki Railways, Dirty Dozen, Weight per 1,000 m², Material Subcategories: Comparison Over Time

	2022 Weight per 1,000 m²	2019 Weight per 1,000 m²
METAL: Metal pieces/fragments	1.69	0.00
GLASS: Beer, < 750 ml, all colours of glass	1.35	0.10
METAL: Construction materials*	0.94	
MISCELLANEOUS: Construction materials	0.86	0.00
METAL: Vehicle parts*	0.65	
PLASTIC: Other plastic	0.51	0.08
PLASTIC: Unidentifiable hard plastic fragments*	0.49	
PLASTIC: Construction materials*	0.34	
GLASS: Unidentifiable glass fragments*	0.30	
PLASTIC: Flav. water/soft drink (carbonated), <1 litre	0.30	0.00
GLASS: Flav. water/soft drink (carbonated), <1 litre	0.28	0.00
PLASTIC: Sacks, sheeting & other bags	0.24	0.00

* New category in 2022

Figure 408: Taranaki Railways, Dirty Dozen, Volume per 1,000 m², Material Subcategories: Comparison Over Time

Category	Value
ILLEGAL DUMPING: Itemised description	192.00 / 0.00
PLASTIC: Polystyrene insulation*	12.50
PLASTIC: Containers, domestic type	11.10 / 0.00
MISCELLANEOUS: Construction materials	4.80 / 0.00
PLASTIC: Flav. water/soft drink (carbonated), <1 litre	3.32 / 0.00
GLASS: Beer, < 750 ml, all colours of glass	2.47 / 0.24
MISCELLANEOUS: Clothing, towels & linen*	2.41
METAL: Flav. water/soft drink, (carbonated), all sizes	2.27 / 0.00
MISCELLANEOUS: Footwear*	2.11
PAPER/CARDBOARD: Cups, food trays, food wrappers, takeaway containers & drink containers	1.94 / 0.00
METAL: Alcoholic sodas & spirit based mixers	1.73 / 0.00
METAL: Aerosols/pressure packs	0.91 / 0.36

Volume (ltr)

* New category in 2022

■ 2022 Volume per 1,000 m²   ■ 2019 Volume per 1,000 m²

TASMAN, NELSON AND MARLBOROUGH REGIONS

AT A GLANCE

The overall average number of items per 1,000 m² across the 15 sites audited in the Tasman, Nelson and Marlborough regions were 95 items, the overall average estimated volume of litter items per 1,000 m² was 13.83 ltr and the overall average litter weight per 1,000 m² was 0.59 kg.

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

Plastic was the most frequently identified material type per 1,000 m² in the Tasman, Nelson and Marlborough regions but only contributed moderately high to weights and moderately to volumes of litter to the regional litter stream. Cigarette Butts/Vaping was associated with the second most frequently identified material type but contributed the smallest volumes and weights of litter to the regional litter stream.

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

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

Note:

- *New material subcategories were added in 2022 and so not all material subcategories are comparable between 2019 and 2022.*

- *A weight measure was not recorded for any items of Illegal Dumping identified during the audit, and therefore has not been included in the analysis.*

- *Not all regions were audited for Highway and/or Railway sites, and so these site types have been separated out and specifics for each region given at the end of the relevant chapter. The Tasman, Nelson and Marlborough regions were audited for one Railway site.*

COMPARISONS BY SITE TYPES

The highest numbers of litter items per 1,000 m² collected at the sites audited in the Tasman, Nelson and Marlborough regions were at Retail (294 items) and Industrial (273 items) sites. Moderate to high numbers of litter items were associated with Residential sites (144 items) whilst lower numbers of litter items were collected at Car Park sites (72 items) and Public Recreational spaces (5 items).

High estimated volumes per 1,000 m² of litter items were associated with Retail (47.76 ltr), Residential (45.70 ltr)

and Industrial (41.15 ltr) sites. Car Park sites (3.08 ltr) and Public Recreational Spaces (0.27 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 (2.01 kg) and Residential (1.74 kg) sites. Moderate to high litter weights were recorded at Retail sites (1.37 kg), whilst lower litter weights were associated with Car Park sites (0.33 kg) and Public Recreational Spaces (0.01 kg) per 1,000 m².

Figure 409: Tasman, Nelson and Marlborough 2022, Items and Volume per 1,000 m² by Site Type
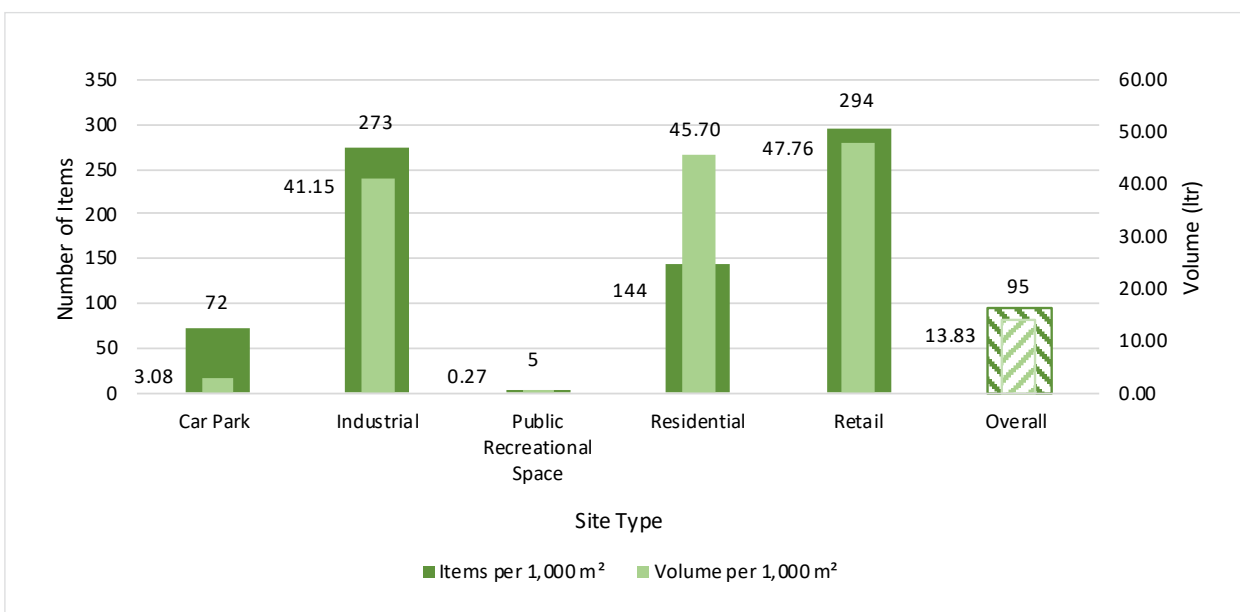
Figure 410: Tasman, Nelson and Marlborough 2022, Items and Weight per 1,000 m² by Site Type
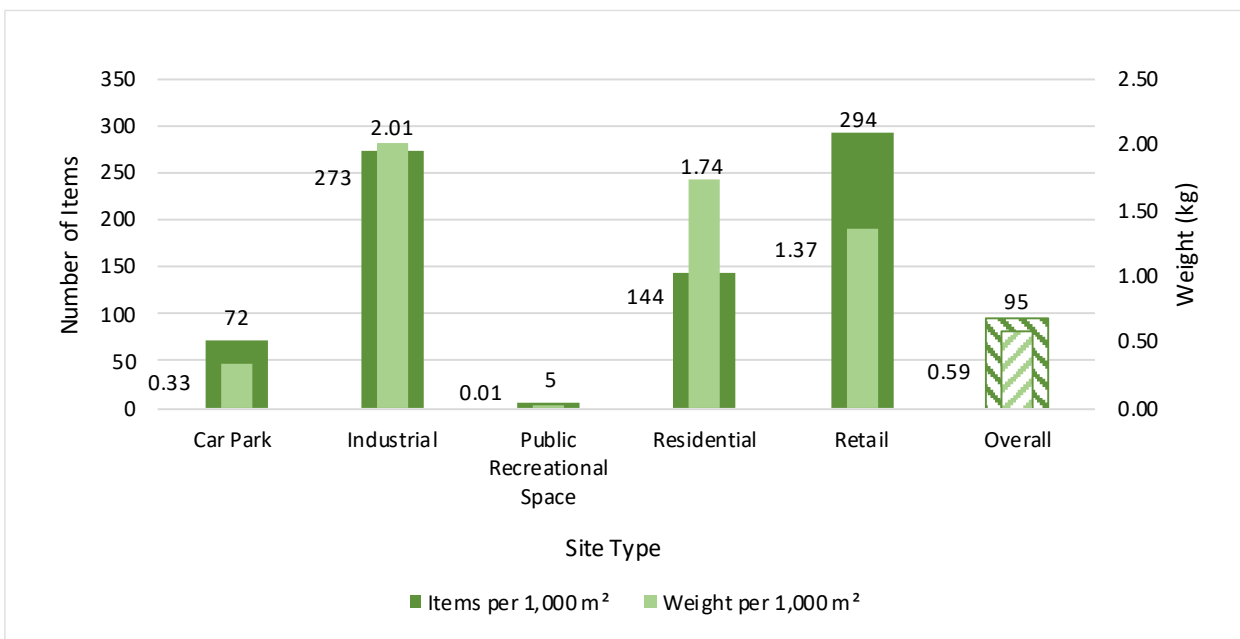
SITE CHARACTERISTICS

The following site characteristics across all site types (excluding Highway and Railway sites) were identified for litter items and volume per 1,000 m² in the Tasman, Nelson and Marlborough Region regions:

- Industrial and Retail sites contributed to high numbers of litter items and large litter volumes.

- Residential sites contributed moderate to high numbers of litter items and high litter volumes.

- Car Park sites were associated with low to moderate numbers of litter items and low litter volumes.

- Public Recreational Spaces were associated with low numbers of litter items and small litter volumes.

Figure 411: Tasman, Nelson and Marlborough 2022, Items and Volume per 1,000 m² by Site Type
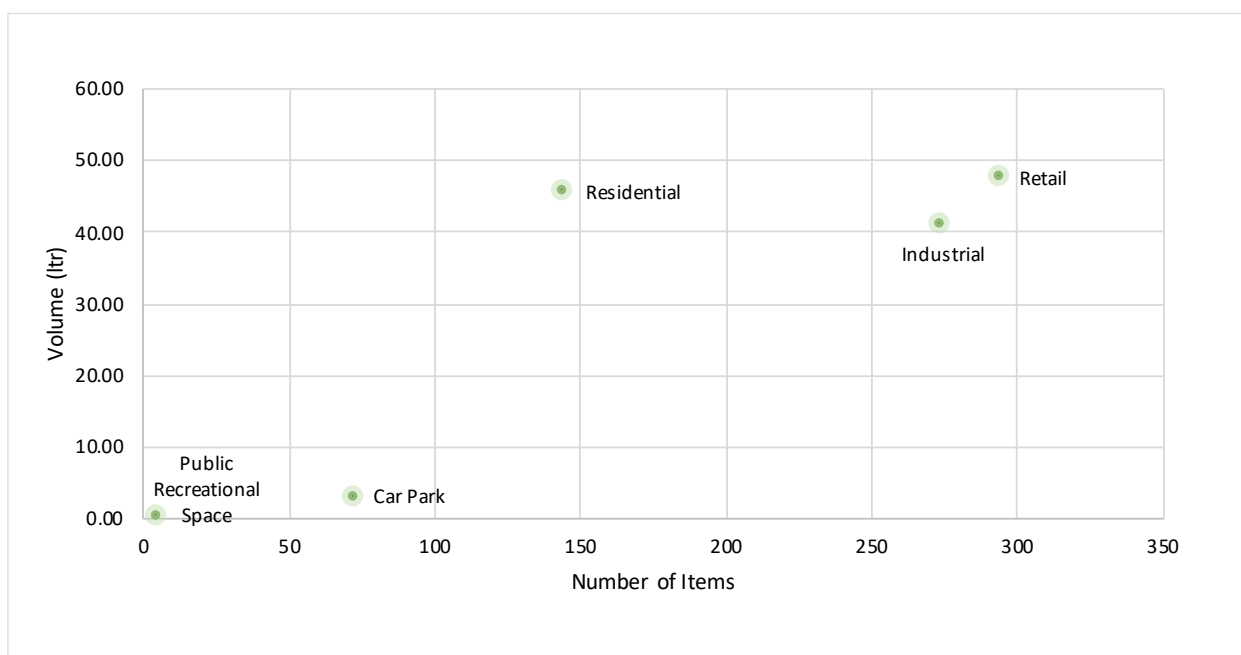
The following site characteristics across all site types (excluding Highway and Railway sites) were identified for litter items and weight per 1,000 m² in the Tasman, Nelson and Marlborough Region:

- Industrial sites were associated with high numbers of litter items and litter weights

- Retail sites contributed high numbers of litter items and moderate to high litter weights.

- Residential sites were associated with moderate to high numbers of litter items and high litter weights.

- Car Park sites contributed low to moderate numbers of litter items and small to moderate litter weights.

- Public Recreational Spaces were associated with d low numbers of litter items. and small litter weights.

Figure 412: Tasman, Nelson and Marlborough 2022, Items and Weight per 1,000 m² by Site Type
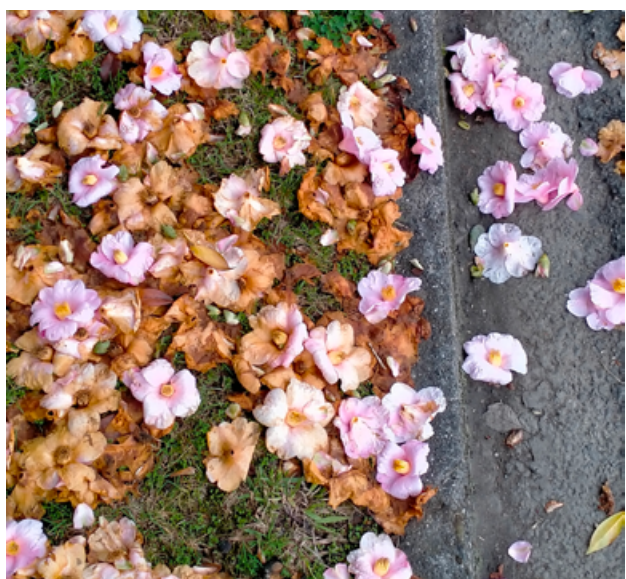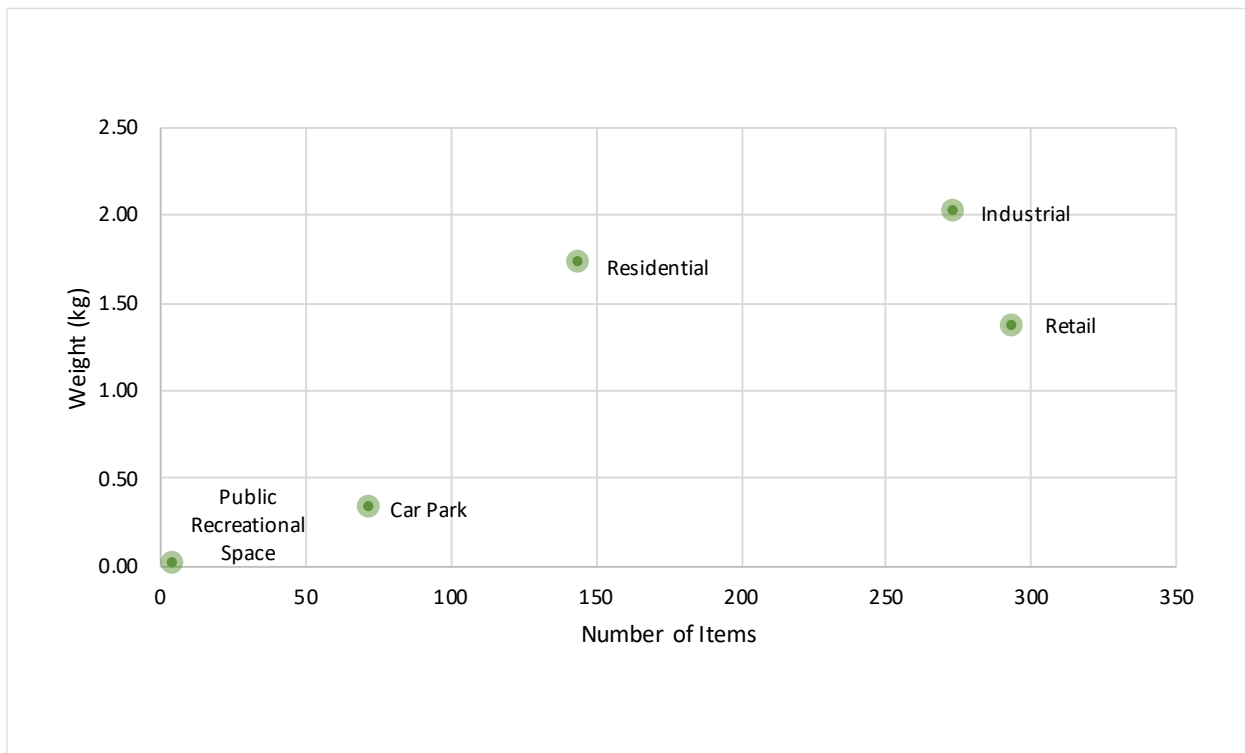
COMPARISON BY SITE TYPE OVER TIME

Since 2019, there have been increases in the estimated volume and weight of litter per 1,000 m² in the Tasman, Nelson and Marlborough regions, whilst the number of litter items per 1,000 m² has decreased.

ITEMS PER 1,000 M²

The number of litter items collected in the Tasman, Nelson and Marlborough regions has decreased from 2019 (95 items vs. 143 items per 1,000 m² in 2019). As shown in the graphs below there has been a decrease in the number of items at almost all site types except for Residential sites (144 items vs. 132 items per 1,000 m² in 2019) which has seen an increase since 2019.

Figure 413: Tasman, Nelson and Marlborough, Items per 1,000 m² by Site Type: Comparison Over Time
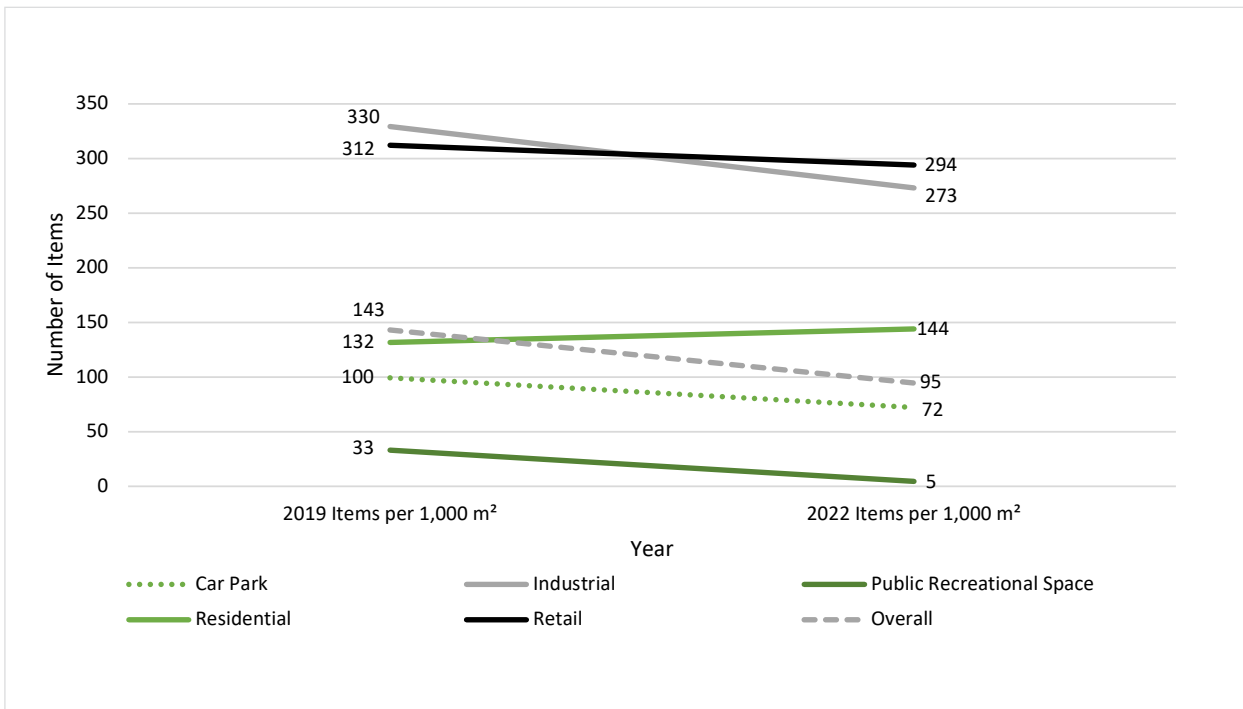
Figure 414: Tasman, Nelson and Marlborough, Items per 1,000 m² by Site Type: Comparison Over Time
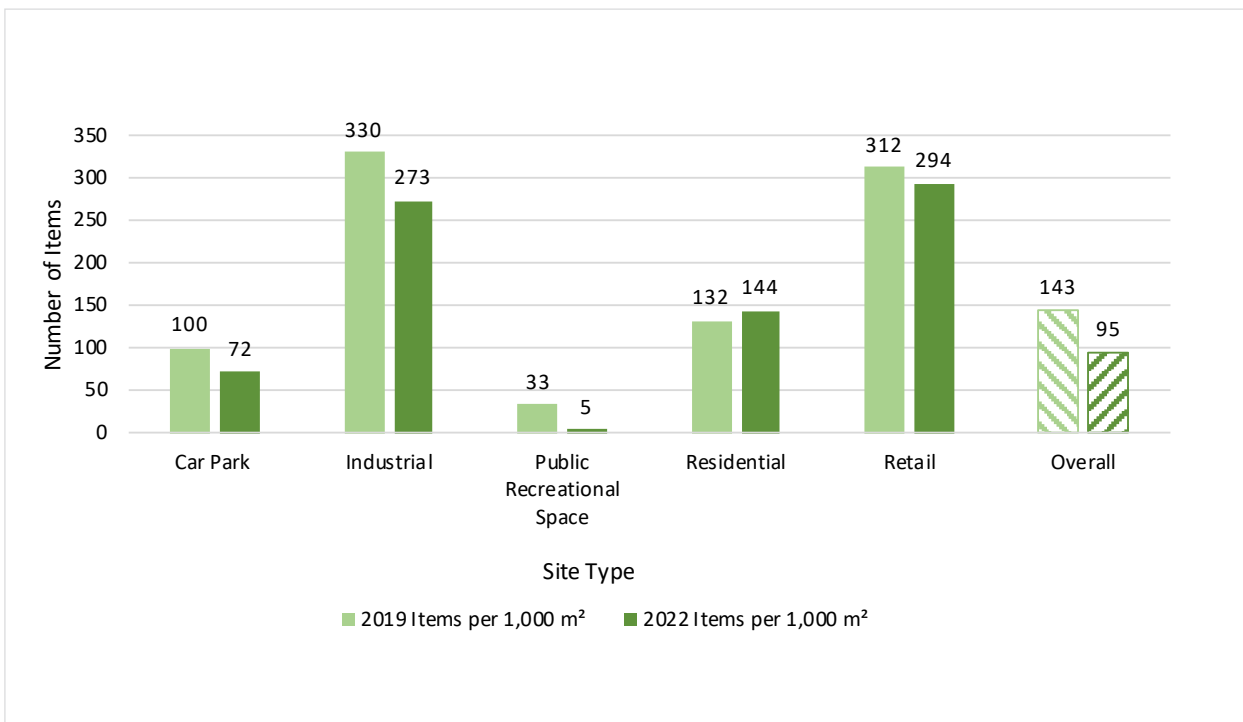
VOLUME PER 1,000 M²

Overall, litter volumes per 1,000 m² in the Tasman, Nelson and Marlborough regions have increased by 9.11 ltr since 2019. As shown in the graphs below, this increase per 1,000 m² is consistent across Retail (47.76 ltr vs. 4.72 ltr in 2019), Residential (45.70 ltr vs. 7.33 ltr in 2019) and

Industrial (41.5 ltr vs. 11.25 ltr in 2019) sites. Litter volumes for Car Park sites and Public Recreational Spaces have remained consistent with 2019.

Figure 415: Tasman, Nelson and Marlborough, Volume per 1,000 m² by Site Type: Comparison Over Time
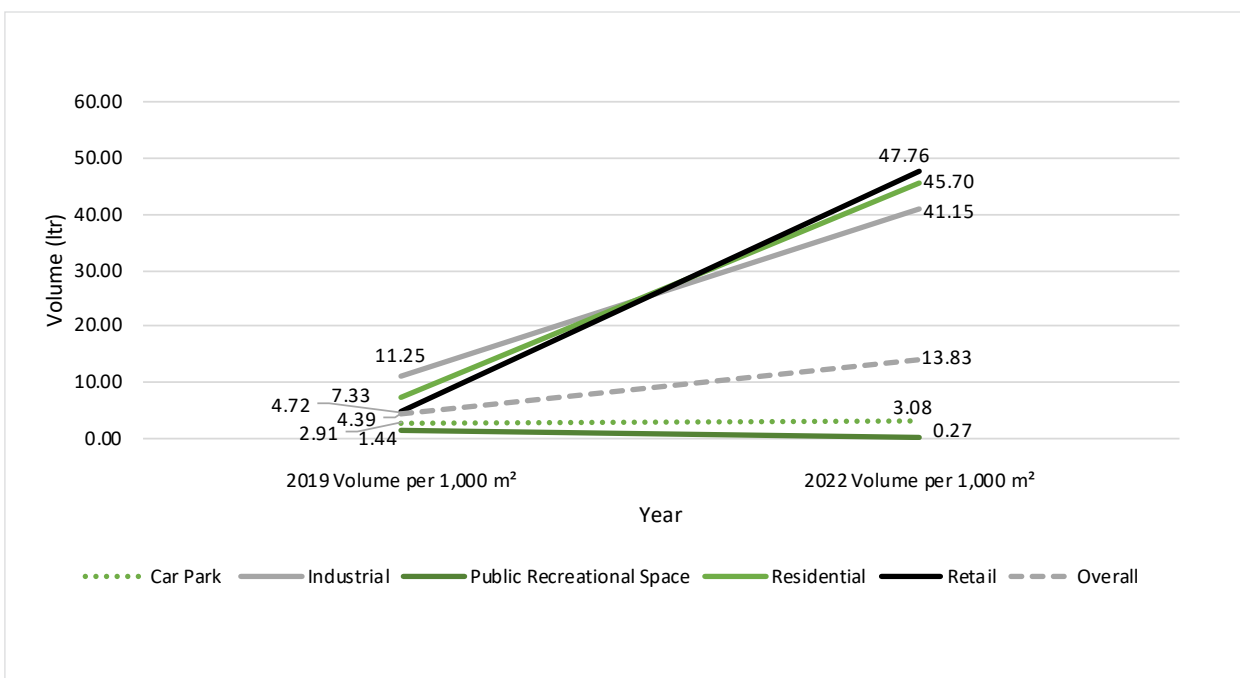
Figure 416: Tasman, Nelson and Marlborough, Volume per 1,000 m² by Site Type: Comparison Over Time
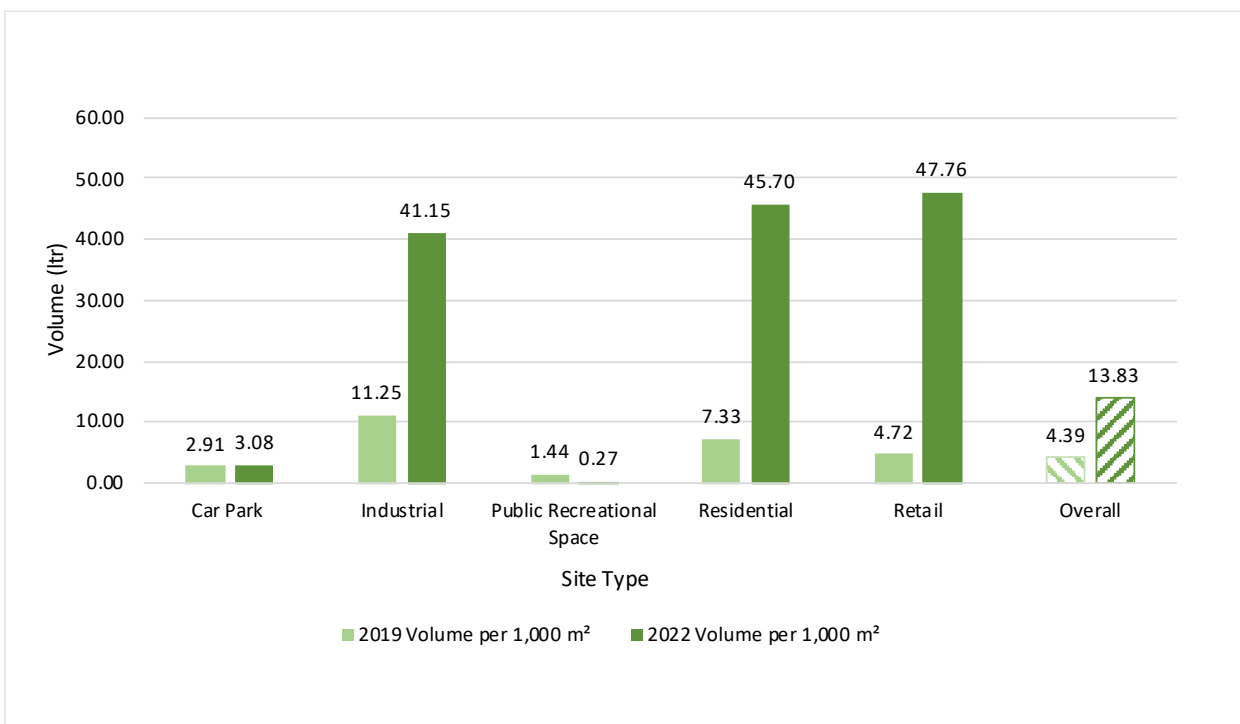
WEIGHT PER 1,000 M²

Overall, the litter weight per 1,000 m² in the Tasman, Nelson and Marlborough regions have increased slightly since 2019 (0.59 kg vs. 0.37 kg in 2019). As shown in the graphs below the site types with the biggest increase in litter weights per 1,000 m² are Industrial (2.01 kg vs. 1.19 kg in 2019), Residential (1.74 kg vs. 0.50 kg in 2019) and Retail (1.37 kg vs. 0.45 kg in 2019) sites. Public Recreational Spaces have seen a decrease in weights per 1,000 m² since 2019.

Figure 417: Tasman, Nelson and Marlborough, Weight per 1,000 m² by Site Type: Comparison Over Time
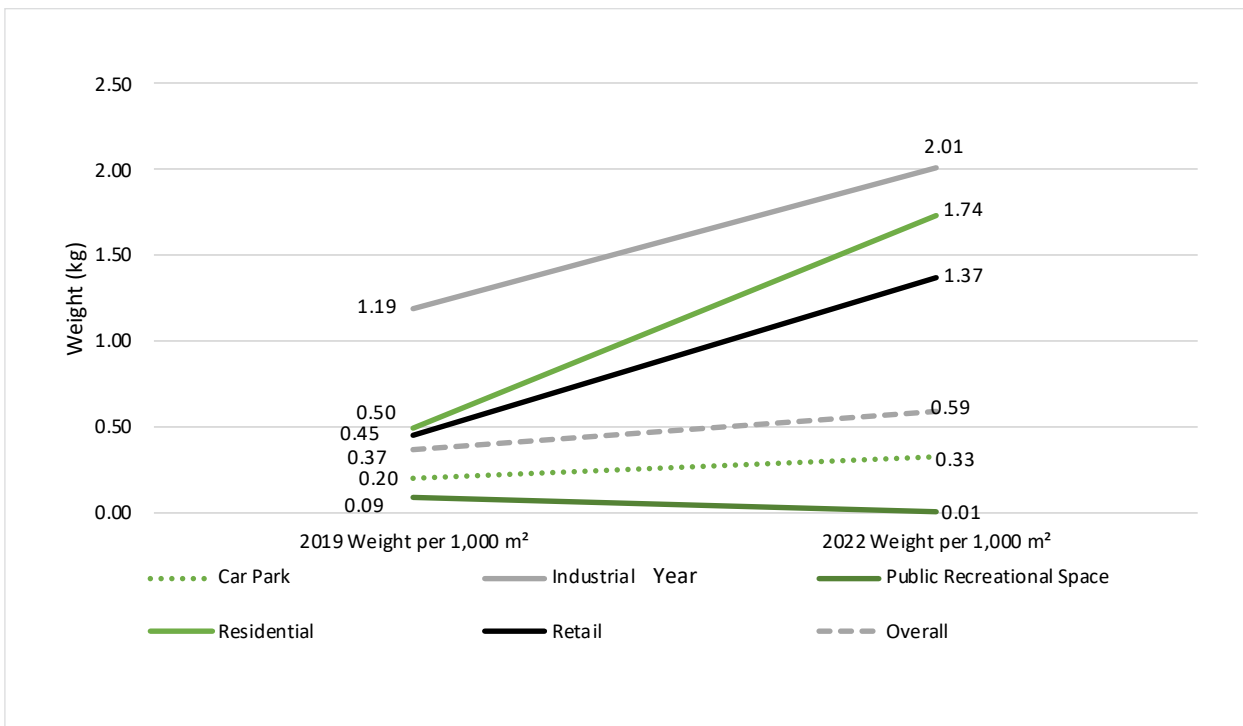
Figure 418: Tasman, Nelson and Marlborough, Weight per 1,000 m² by Site Type: Comparison Over Time
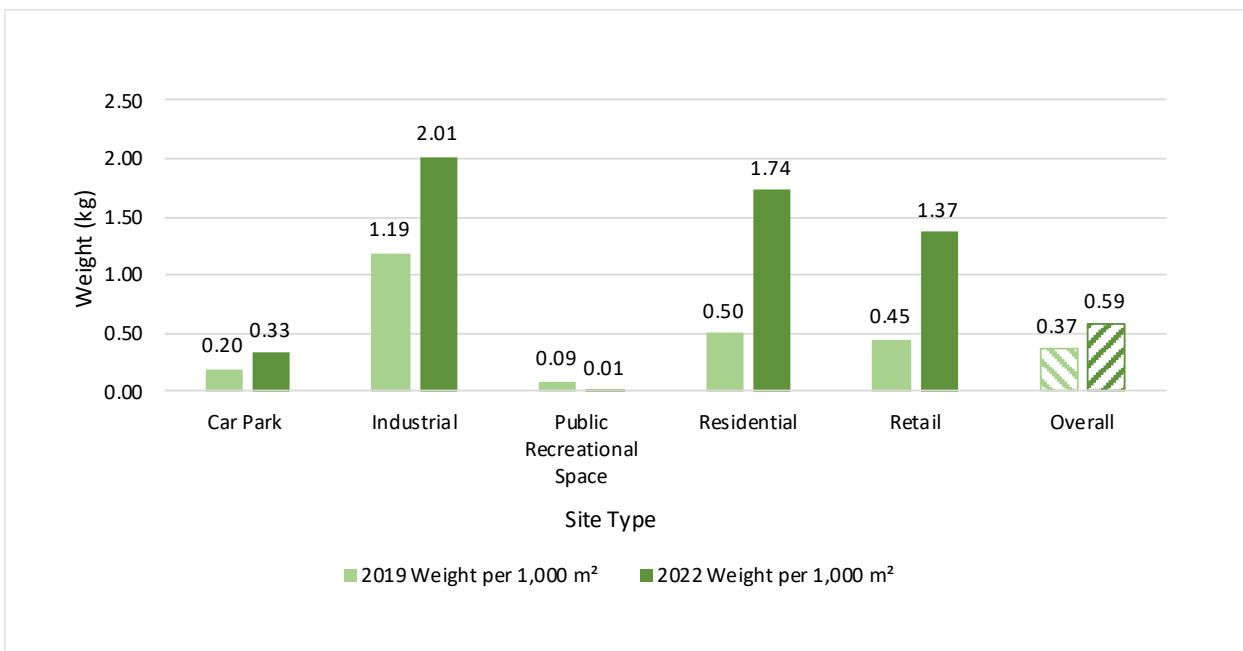
COMPARISON BY MAIN MATERIAL TYPES

Plastic was the most frequently identified main material type per 1,000 m² within the Tasman, Nelson and Marlborough regions (32 items) whilst Cigarette Butts/Vaping (28 items) was the second most frequently identified item.

Moderate numbers of litter items per 1,000 m² were recorded for Paper/Cardboard (13 items) and Metal (11 items), whilst smaller numbers of items were associated with Miscellaneous (8 items), Glass (2 items), Organic Waste (1 item) and Illegal Dumping (less than 1 item).

Paper/Cardboard contributed the largest amount of volume per 1,000 m² to the litter stream (6.51 ltr). Moderate litter volumes were associated with Plastic (2.30 ltr), Miscellaneous (1.81 ltr) and Illegal Dumping (1.61 ltr). Smaller volumes were recorded for Metal (0.79 ltr), Organic Waste (0.55 ltr) and Glass (0.24 ltr).

Cigarette Butts/Vaping items were associated with the smallest proportion of the overall litter volume (0.02 ltr) per 1,000 m².

The largest amount of litter weight per 1,000 m² collected in the region was associated with Paper/Cardboard (0.14 kg), whilst Glass (0.13 kg) also contributed significantly to the overall regional litter weight per 1,000 m². Moderate to high litter weights were recorded for Metal, Plastic and Miscellaneous (all 0.09 kg) and smaller weights were associated with Organic Waste (0.03 kg), and Cigarette Butts/Vaping (0.02 kg).

Figure 419: Tasman, Nelson and Marlborough 2022, Items and Volume per 1,000 m^2 by Main Material Type
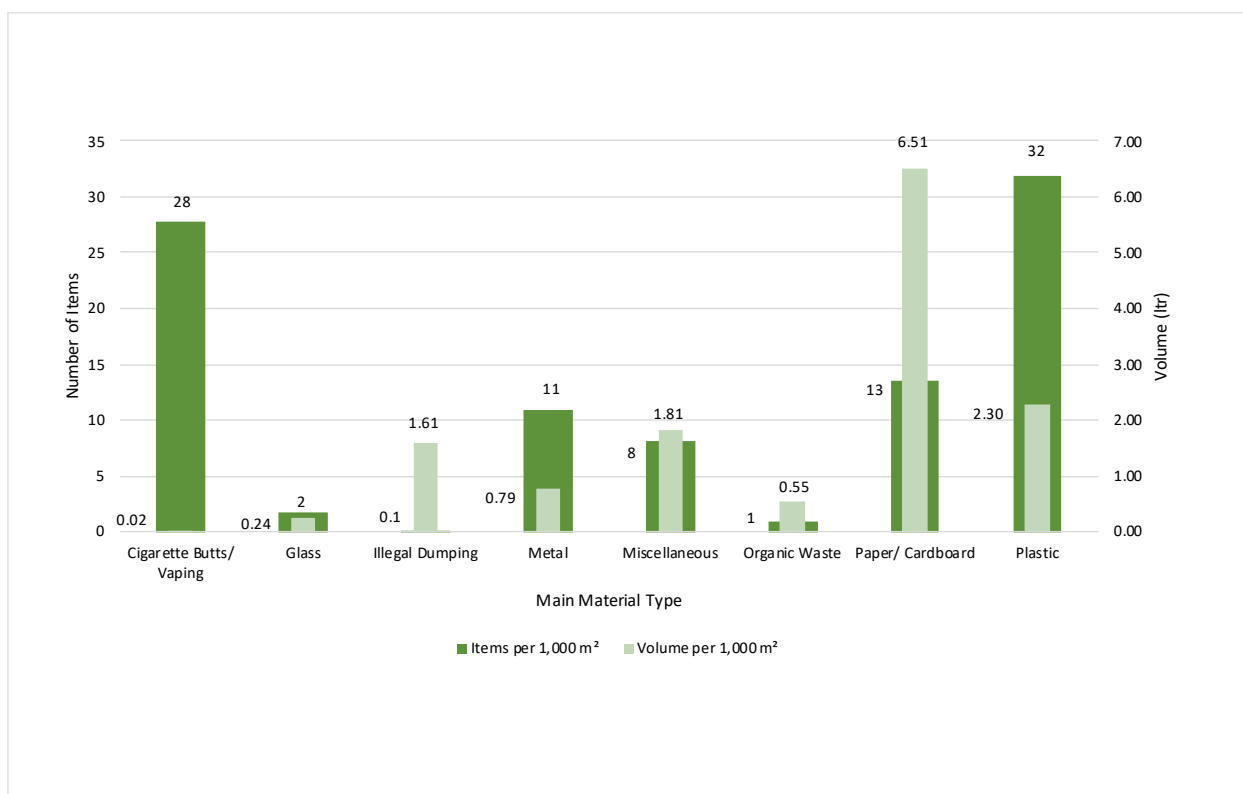
Figure 420: Tasman, Nelson and Marlborough 2022, Items and Weight per 1,000 m^2 by Main Material Type
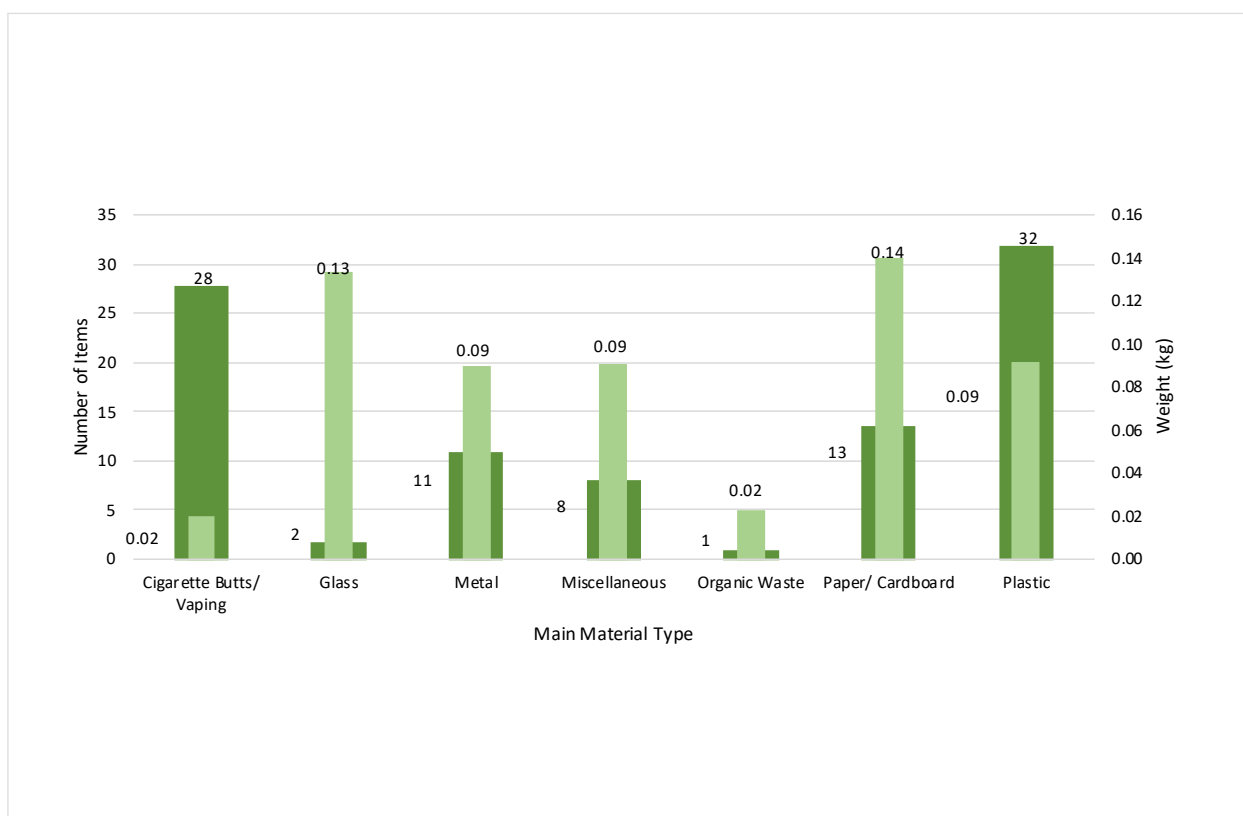
MAIN MATERIAL CHARACTERISTICS

The following material type characteristics were identified for litter items and volume per 1,000 m² in the Tasman, Nelson and Marlborough regions (excluding Highway and Railway sites):

- Cigarette Butts/Vaping were associated with a high number of litter items and low litter volumes.
- Paper/Cardboard contributed moderate numbers of litter items, but large volumes of litter.
- Plastic contributed high numbers of litter items and moderate litter volumes.
- Glass and Organic Waste were associated with low numbers of litter items and small litter volumes.

- Miscellaneous items contributed low to moderate numbers of litter items and moderate litter volumes.
- Metal contributed moderate numbers of litter items and small litter volumes.
- Illegal Dumping was associated with low numbers of litter items and moderate litter volumes.

Figure 421: Tasman, Nelson and Marlborough 2022, Items and Volume per 1,000 m² by Main Material Type
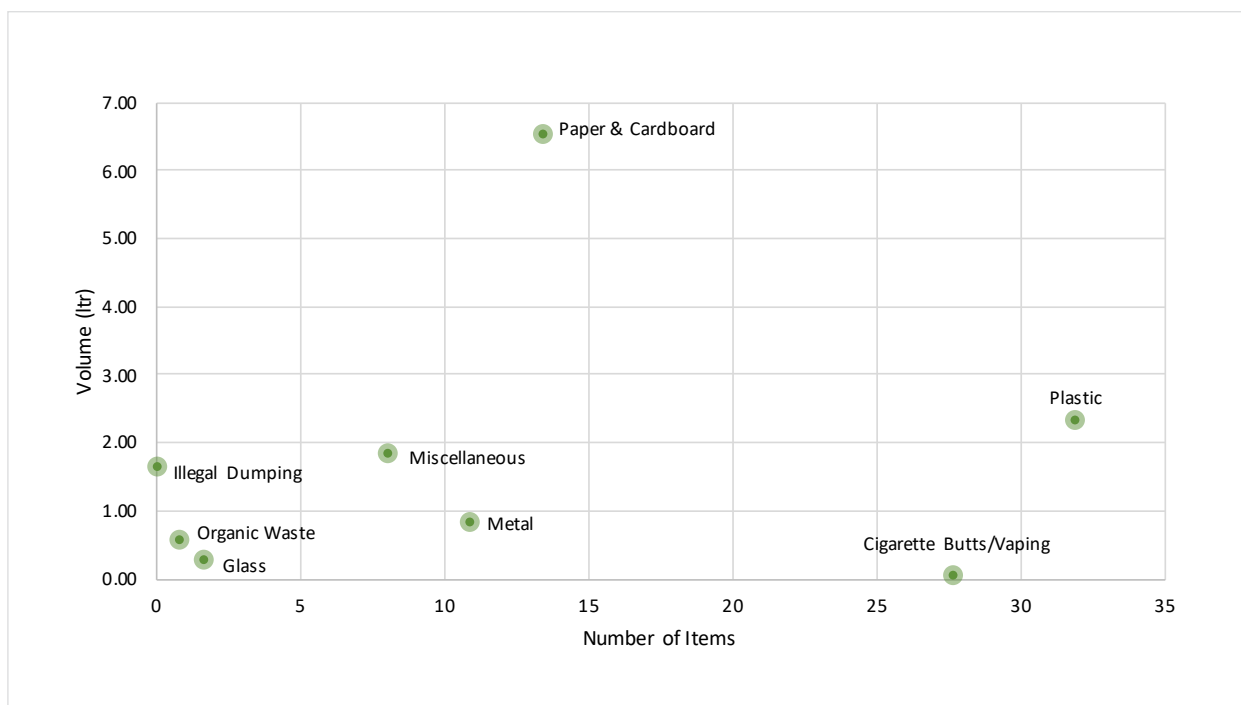
The following material type characteristics were identified for litter items and volume per 1,000 m² in the Tasman, Nelson and Marlborough regions (excluding Highway and Railway sites):

- Glass items were associated with low numbers of litter items and large litter weights.
- Paper/Cardboard contributed moderate numbers of litter items and large litter weights.
- Plastic contributed high numbers of litter items and moderate to large litter weights.
- Metal items were associated with moderate numbers of litter items and moderate to large litter weights.

- Organic Waste contributed low numbers of litter items and small litter weights.
- Miscellaneous items contributed low to moderate numbers of litter items and large litter weights.
- Cigarette Butts/Vaping items were associated with high numbers of litter items, but small litter weights.

Figure 422: Tasman, Nelson and Marlborough 2022, Items and Weight per 1,000 m^2 by Main Material Type
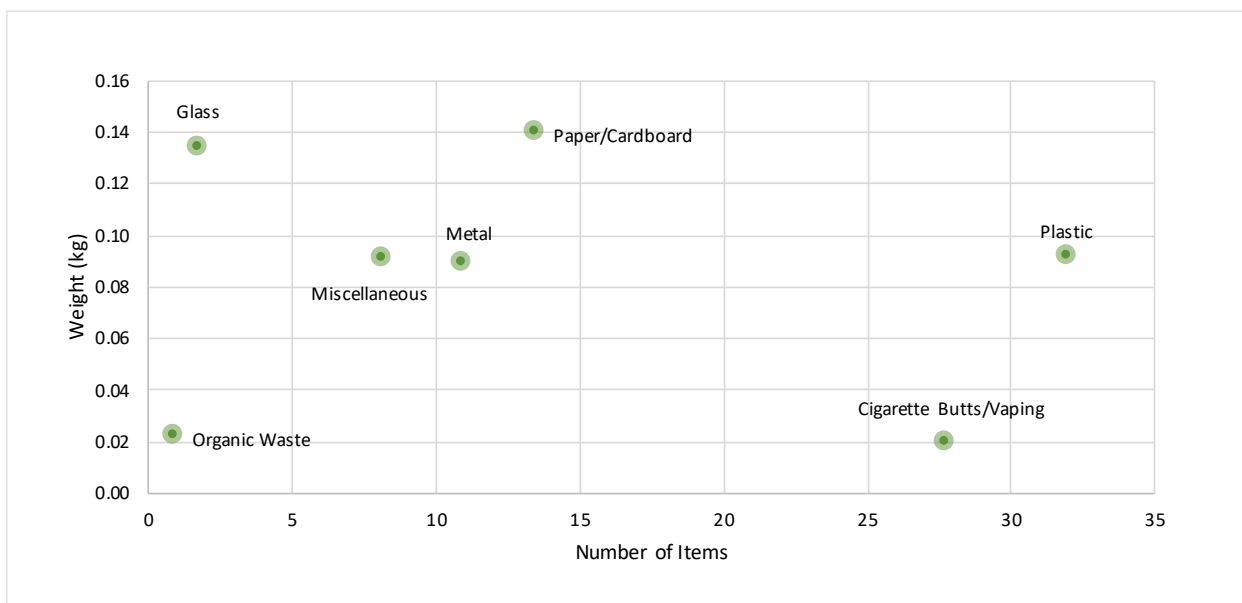
COMPARISONS BY MAIN MATERIAL TYPE OVER TIME

Compared with 2019, the material type, Paper/Cardboard, has seen an increase across two measures; litter volume, and weight. Conversely, the main material type Glass has seen a decline in litter volume and the number of litter items since 2019. Whilst the litter weight and volume remain much the same, the number of items for Cigarette Butts/Vaping has decreased by 31 items per 1,000 m² since 2019.

ITEMS PER 1,000 M²

Since 2019, there has been a decline in the Tasman, Nelson and Marlborough regions in the number of litter items per 1,000 m² classified under Cigarette Butts/Vaping (28 items vs. 59 items in 2019) and Glass (2 items vs. 16 items in 2019), whilst all other material types remained relatively consistent.

Figure 423: Tasman, Nelson and Marlborough, Items per 1,000 m^2 by Main Material Type: Comparison Over Time
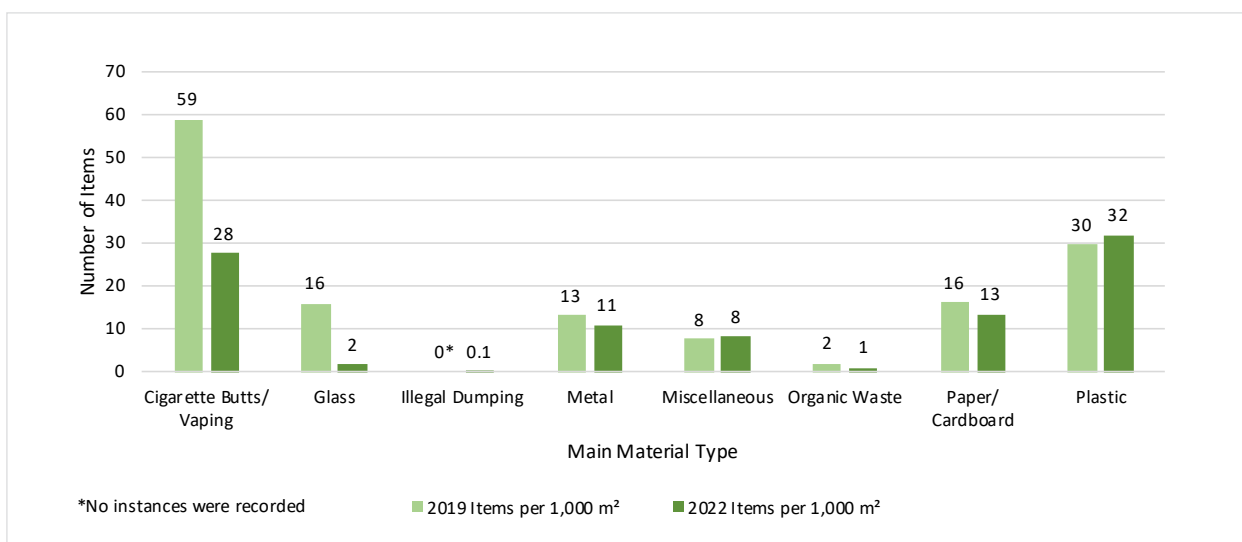
VOLUME PER 1,000 M²

Since 2019, there has been an increase in the volume of most material types per 1,000 m² in the Tasman, Nelson and Marlborough regions. There has been a decrease in the volume of Glass collected per 1,000 m² (0.24 ltr vs. 0.64 ltr in 2019), whilst Cigarette Butts/Vaping has remained consistent with 2019.

Figure 424: Tasman, Nelson and Marlborough, Volume per 1,000 m² by Main Material Type: Comparison Over Time

*No instances were recorded

■ 2019 Volume per 1,000 m²   ■ 2022 Volume per 1,000 m²
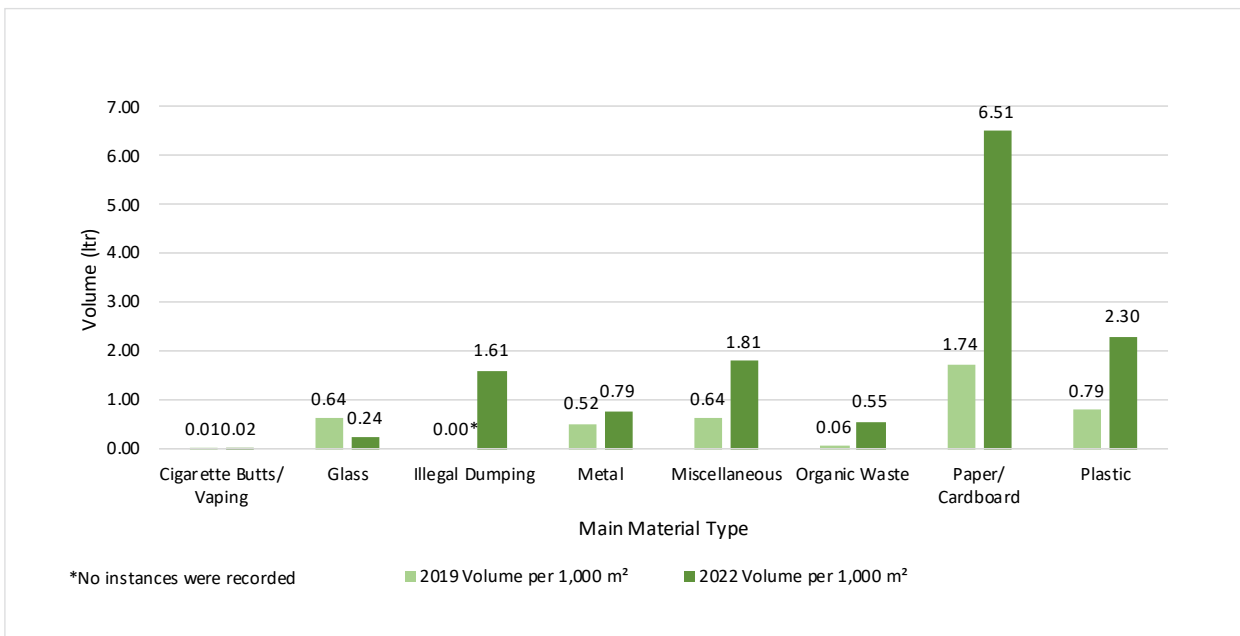
WEIGHT PER 1,000 M²

Compared with 2019, there have been increases in the litter weight of items classified under Metal, Miscellaneous items and Paper/Cardboard, with Paper/Cardboard seeing the biggest increase per 1,000m² in the Tasman, Nelson and Marlborough regions (0.14 kg vs. 0.03 kg in 2019).

Figure 425: Tasman, Nelson and Marlborough, Weight per 1,000 m² by Main Material Type: Comparison Over Time

■ 2019 Weight per 1,000 m²   ■ 2022 Weight per 1,000 m²
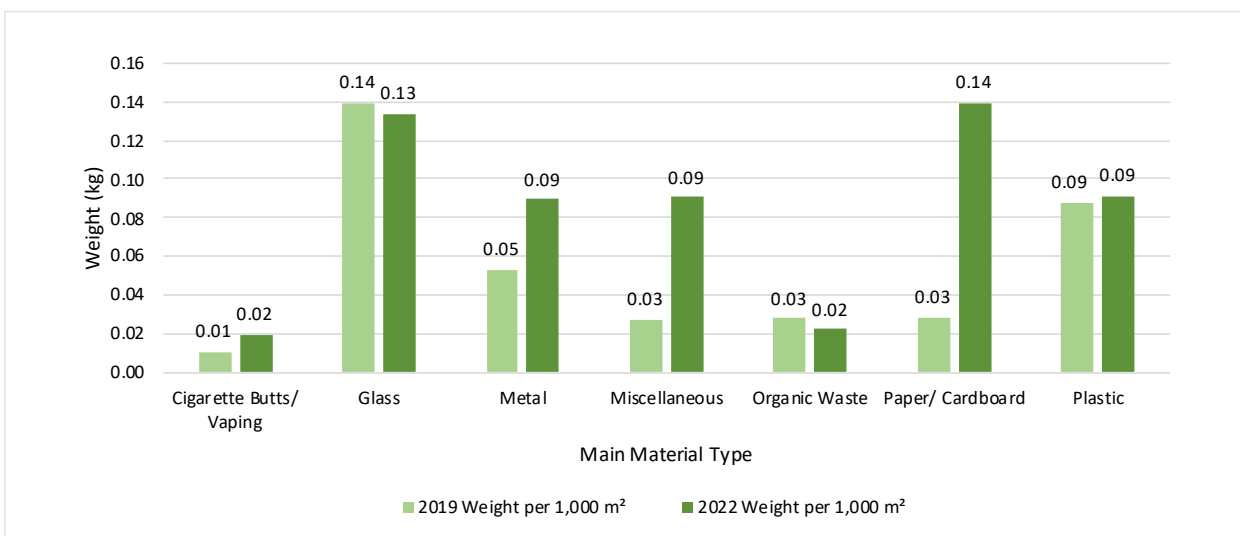
SITE TYPES BY MAIN MATERIAL TYPE

In the Tasman, Nelson and Marlborough regions, the number of material type litter items found per 1,000 m2 at the different site types (excluding Highway and Railway sites) was as follows:

- Car Park sites: Cigarette Butts/Vaping (25 items), Plastic (22 items), Metal (9 items), Miscellaneous (8 items), Paper/Cardboard (5 items), Glass (2 items), Organic Waste (1 item) and Illegal Dumping (0 items).

- Industrial sites: Plastic (113 items), Cigarette Butts/Vaping (68 items), Paper/Cardboard (36 items), Metal (34 items), Miscellaneous (16 items), Glass (4 items), Organic Waste (3 items) and Illegal Dumping (0 items).

- Public Recreational Spaces: Plastic (2 items), Paper/Cardboard (1 item), Miscellaneous (1 item), Cigarette Butts/Vaping (0 items), Metal (0 items), Organic Waste (0 items), Glass (0 items) and Illegal Dumping (0 items).

- Residential sites: Plastic (63 items), Paper/Cardboard (29 items), Metal (22 items), Cigarette Butts/Vaping (17 items), Miscellaneous (11 items), Glass (1 item), Illegal Dumping (1 item), Organic Waste (1 item).

- Retail sites: Cigarette Butts/Vaping (105 items), Plastic (76 items), Paper/Cardboard (53 items), Miscellaneous (26 items), Metal (25 items), Glass (5 items), Organic Waste (3 items) and Illegal Dumping (0 items).

Figure 426: Tasman, Nelson and Marlborough 2022, Sites by Main Material Type: Items per 1,000 m²
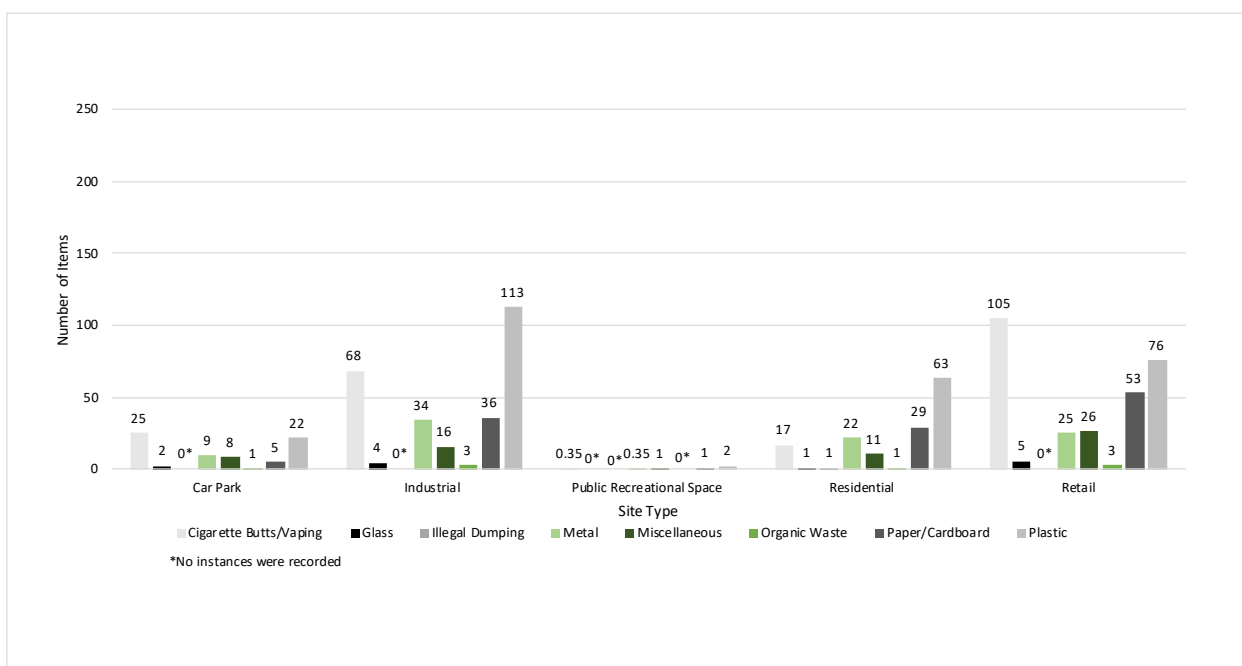
THE DIRTY DOZEN

Cigarette/Vaping: Cigarette butts were the largest contributing material subcategory to the litter items within the Tasman, Nelson and Marlborough regions, with 28 butts per 1,000 m² identified across the sites audited.

Other material subcategories which were associated with large numbers of littered items included:

- Plastic: Unidentifiable soft plastic fragments (10 items per 1,000 m²)
- Plastic: Unidentifiable hard plastic fragments (8 items per 1,000 m²)
- Plastic: Snack bags & confectionary wrappers (5 items per 1,000 m²)

- Paper & Cardboard: Cups, food trays, food wrappers, takeaway containers, & drink containers (4 items per 1,000 m²)

Not all material subcategories were comparable to the 2019 NLA due to the addition of new subcategories in 2022.

Whilst several categories in the Dirty Dozen were new this year, amongst comparable material subcategories, there was a decrease in the number of Cigarette Butt/Vaping: Cigarette butts collected per 1,000 m² in Tasman, Nelson and Marlborough regions saw a large decrease since 2019 (28 items vs. 59 items in 2019). The number of Metal: Bottle caps, lids & pull tabs also decreased (3 items vs. 7 items in 2019).

Figure 427: Tasman, Nelson and Marlborough, Dirty Dozen, Items per 1,000 m², Material Subcategories: Comparison Over Time
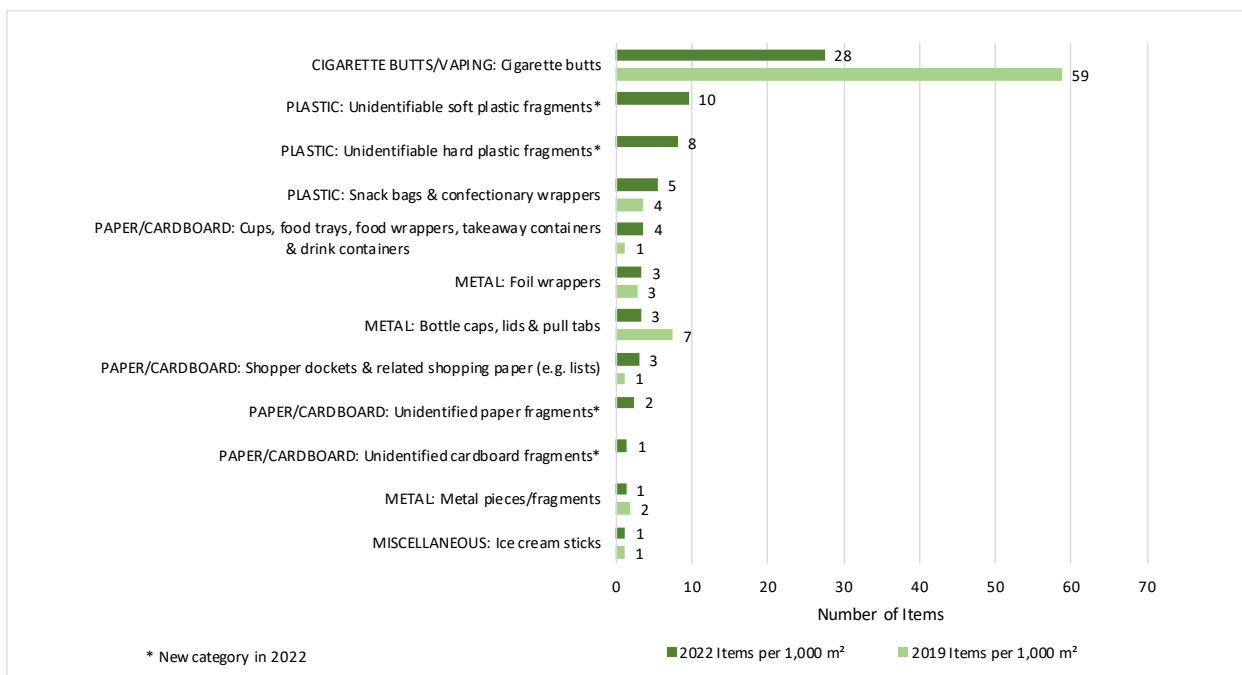
Paper/Cardboard: Cardboard boxes represented the largest contribution to estimated litter volumes per 1,000 m² in the Tasman, Nelson and Marlborough regions (2.90 ltr per 1,000 m²).

Other material subcategories which recorded large, volumes per 1,000 m² throughout the region included:

- Paper/Cardboard: Cups, food trays, food wrappers, takeaway containers & drink containers (2.64 ltr per 1,000 m²)
- Plastic: Polystyrene insulation (1.26 ltr per 1,000 m²)
- Miscellaneous: Clothing, towels & linen (0.97 ltr per 1,000 m²)

- Paper/Cardboard: Newspapers & magazines (0.55 ltr per 1,000 m²)

Not all material subcategories were comparable to the 2019 NLA due to the addition of new subcategories in 2022.

Whilst most of the categories featured in Tasman, Nelson and Marlborough's Dirty Dozen are new this year, amongst comparable material subcategories there has been a large increase in the volume of Paper/Cardboard: Cups, food trays, food wrappers, takeaway containers & drink containers which has increased by 1.74 ltr per 1,000 m² since 2019.

Figure 428: Tasman, Nelson and Marlborough, Dirty Dozen, Volume per 1,000 m², Material Subcategories: Comparison Over Time
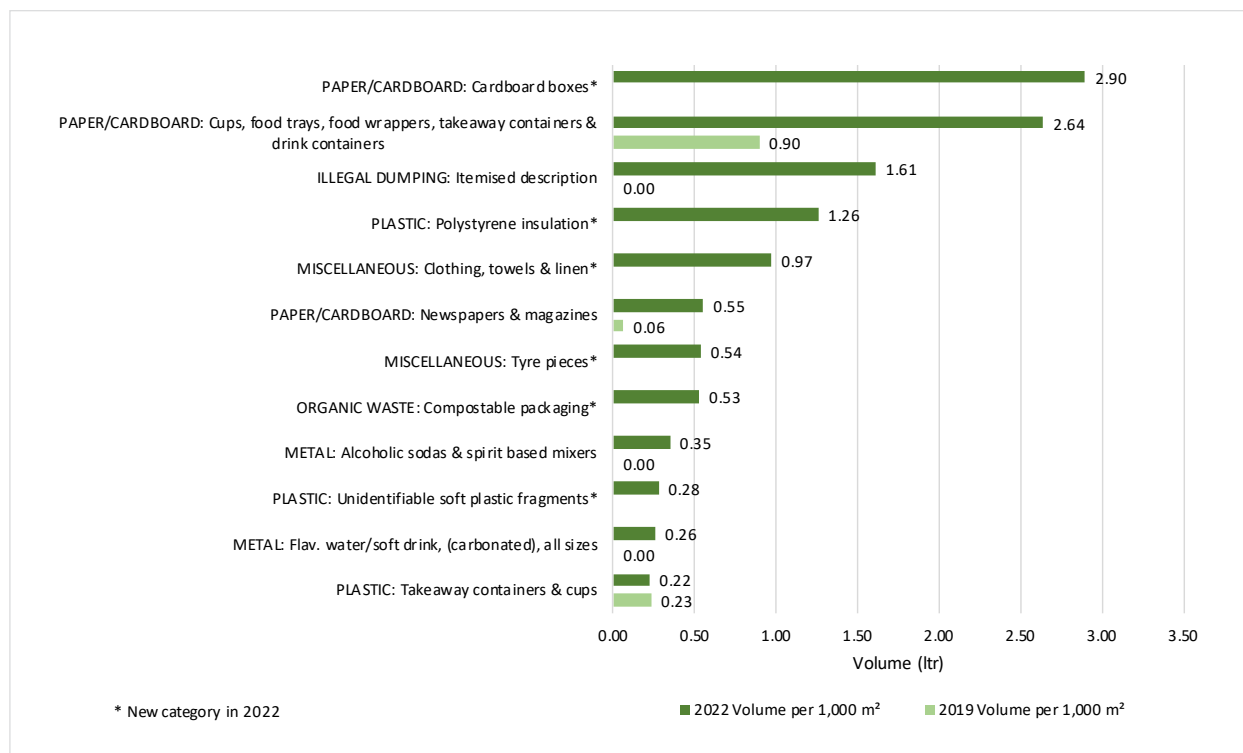
Glass: Beer bottles < 750 ml, all colours contributed the largest litter weights per 1,000 m² across the region, with an average weight of 0.07 kg per 1,000 m².

Other material subcategories which were associated with large litter weights included:

- Paper/Cardboard: Junk mail/free circulars (0.04 kg per 1,000 m²)
- Miscellaneous: Clothing, towels & linen (0.04 kg per 1,000 m²)
- Paper/Cardboard: Cups, food trays, food wrappers, takeaway containers & drink containers (0.03 kg per 1,000 m²).

Not all material subcategories were comparable to the 2019 NLA due to the addition of new subcategories in 2022.

Amongst comparable material subcategories, most of the litter weights for Tasman, Nelson and Marlborough's Dirty Dozen remain consistent with 2019, however, Glass: Glass (other) has seen a decrease from 2019 (0.03 kg vs. 0.07 kg in 2019).

Figure 429: Tasman, Nelson and Marlborough, Dirty Dozen, Weight per 1,000 m², Material Subcategories: Comparison Over Time

Category	2022 Weight per 1,000 m²	2019 Weight per 1,000 m²
GLASS: Beer, < 750 ml, all colours of glass	0.07	0.06
PAPER/CARDBOARD: Junk mail/free circulars	0.04	0.00
MISCELLANEOUS: Clothing, towels & linen*	0.04	
PAPER/CARDBOARD: Cups, food trays, food wrappers, takeaway containers & drink containers	0.03	0.01
PAPER/CARDBOARD: Newspapers & magazines	0.03	0.00
GLASS: Other glass	0.03	0.07
METAL: Other metal	0.03	0.00
PLASTIC: Flav. water/fruit/sports drinks (non-carb.), <1 litre	0.03	0.00
GLASS: Alcoholic sodas/spirit based mixers, all sizes	0.03	0.00
MISCELLANEOUS: Rubber pieces (not tyres)	0.03	0.02
ORGANIC WASTE: Food waste	0.02	0.03
CIGARETTE BUTTS/ VAPING: Cigarette butts	0.02	0.01

Weight (kg)

* New category in 2022

TERRITORIAL 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 three Territorial Authorities 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 Spaces) were audited in the Tasman, Nelson and Marlborough regions with a minimum of five sites audited from each territory.

Extract from Table 5, 2022 Territory Data: Tasman, Nelson and Marlborough Regions (Excluding Railways)

Territory	Total Area Audited (m²)	Items per 1,000 m²	Weight (kg) per 1,000 m²	Volume (ltr) per 1,000 m²
TASMAN, NELSON AND MARLBOROUGH REGIONS				
Marlborough District	6,500	97	0.76	15.12
Nelson City	4,200	107	0.43	11.49
Tasman District	4,200	80	0.49	14.19
Tasman, Nelson and Marlborough Regions Overall	**14,900**	**95**	**0.59**	**13.83**

SITE GRADINGS

All sites were assigned gradings in four 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 Tasman, Nelson and Marlborough regions.

Extract from Table 3, Risk and Litter Distribution: Tasman, Nelson and Marlborough (Excluding Railways)

	Risk Present		Litter Distribution	
Tasman, Nelson and Marlborough	Moderate hazard or risk	Significant hazard or risk	Widespread	Clustered
	100%	0%	93%	7%

Figure 430: Tasman, Nelson and Marlborough 2022, Grading: Visual Site Ratings (Excluding Railways)
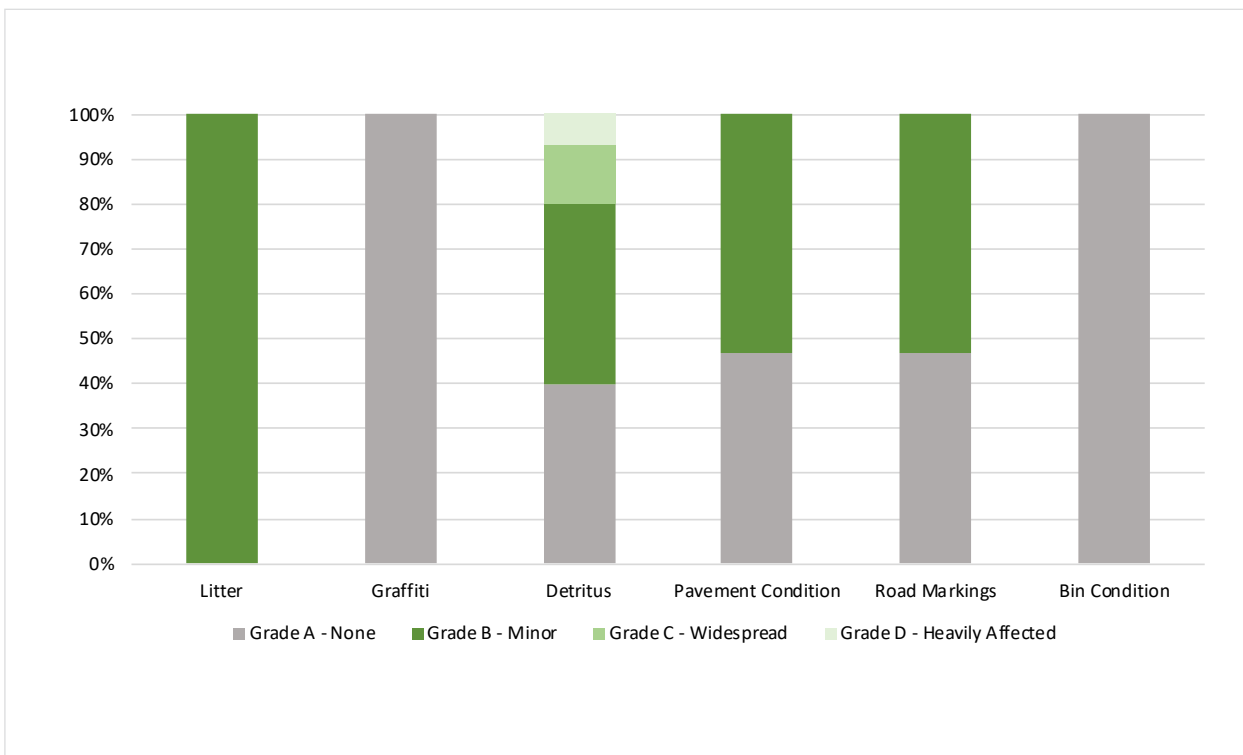
Figure 431: Tasman, Nelson and Marlborough 2022, Grading: Site Litter Hotshots Ratings (Excluding Railways)
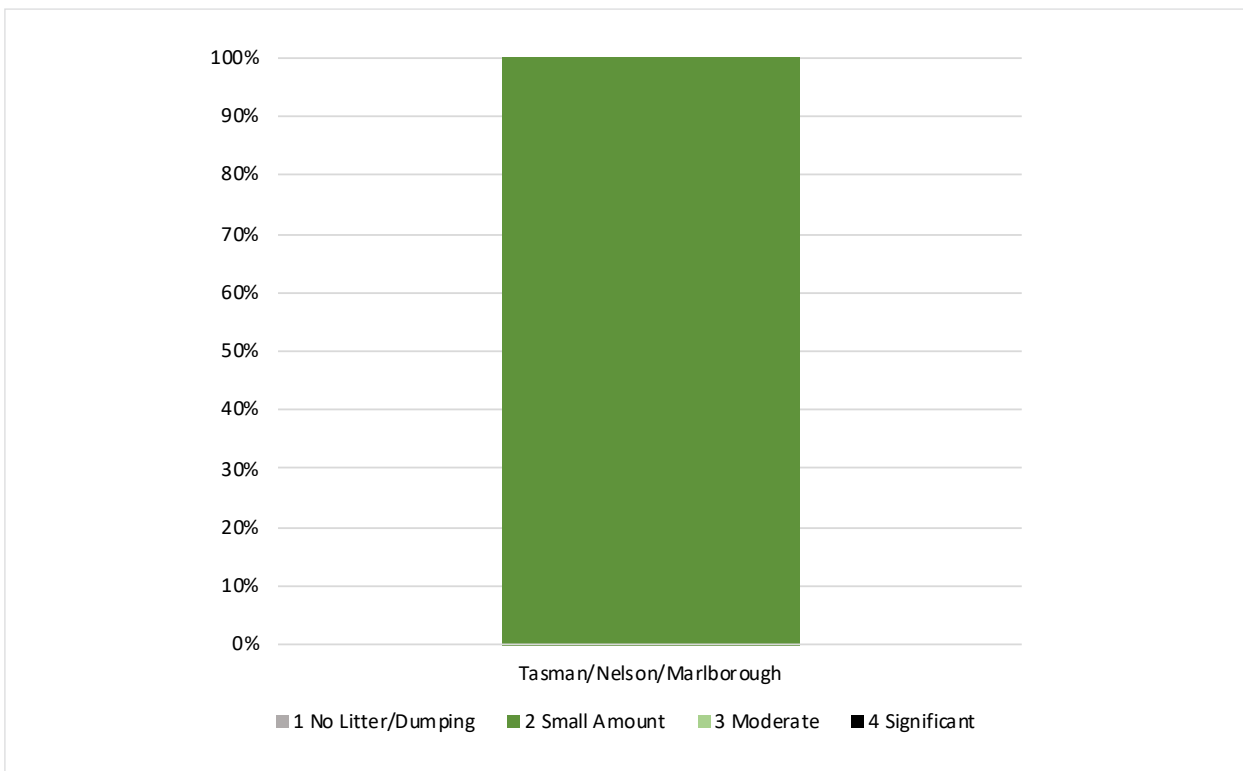
RAILWAYS

The following section shows the results for Railways in the Tasman, Nelson and Marlborough regions. In the Tasman, Nelson and Marlborough regions there were no Highway sites and one Railway site audited.

Figure 432: Tasman, Nelson and Marlborough Railways, Items per 1,000 m^2 by Site Type: Comparison Over Time
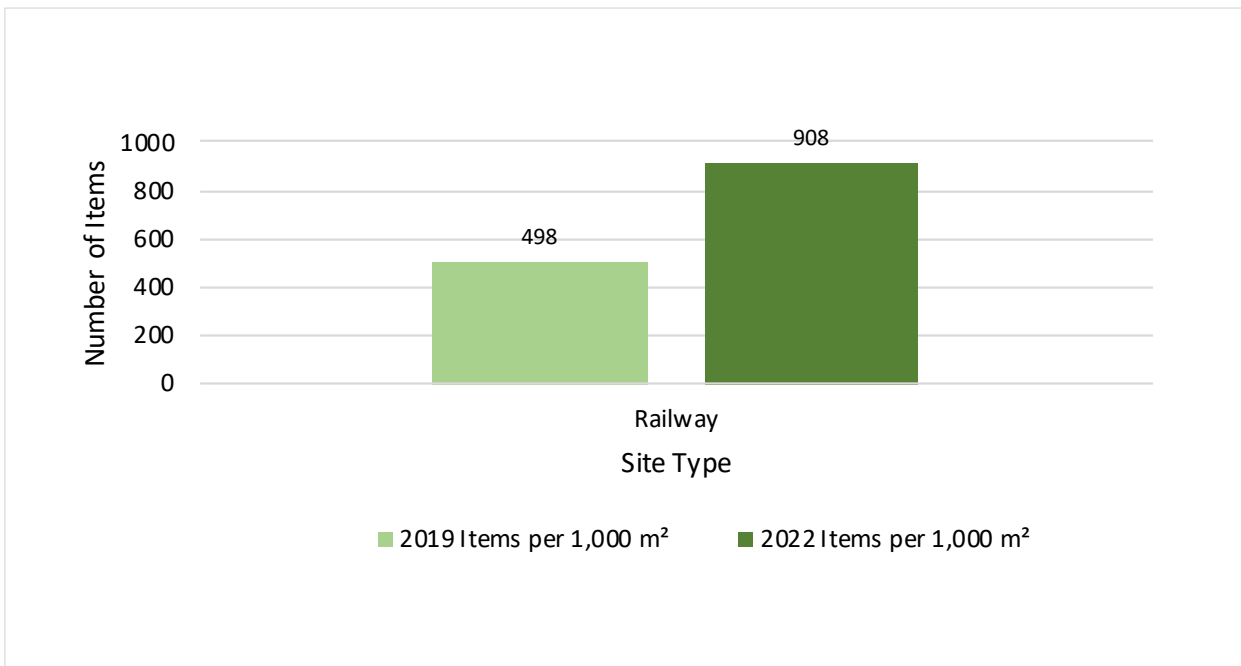
Figure 433: Tasman, Nelson and Marlborough Railways, Weight per 1,000 m^2 by Site Type: Comparison Over Time
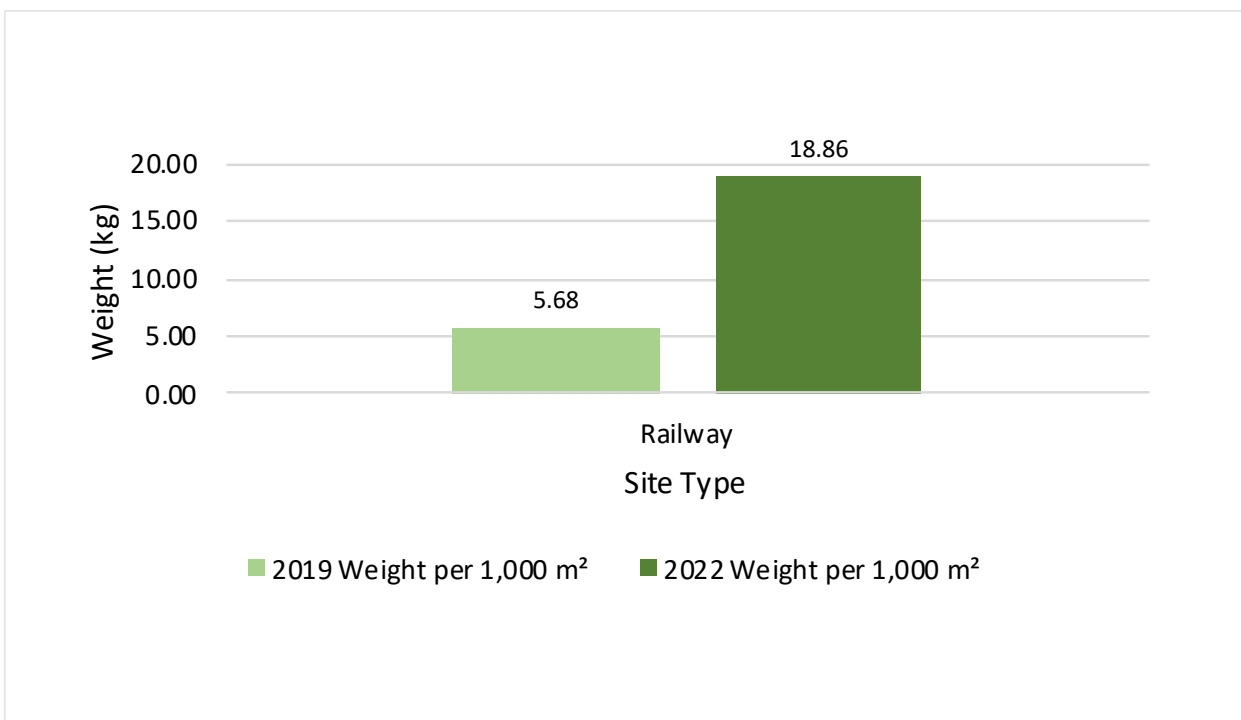
Figure 434: Tasman, Nelson and Marlborough Railways, Volume per 1,000 m^2 by Site Type: Comparison Over Time
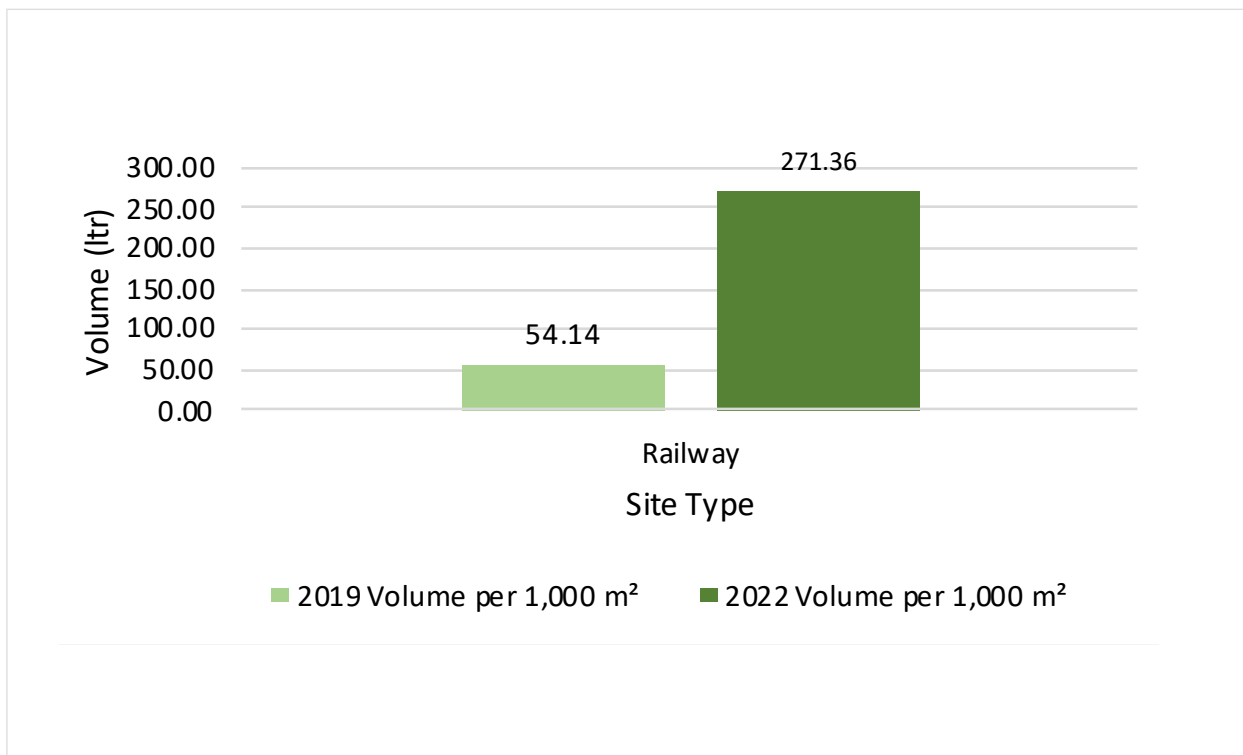
Figure 435: Tasman, Nelson and Marlborough Railways, Items per 1,000 m^2 by Main Material Type: Comparison Over Time
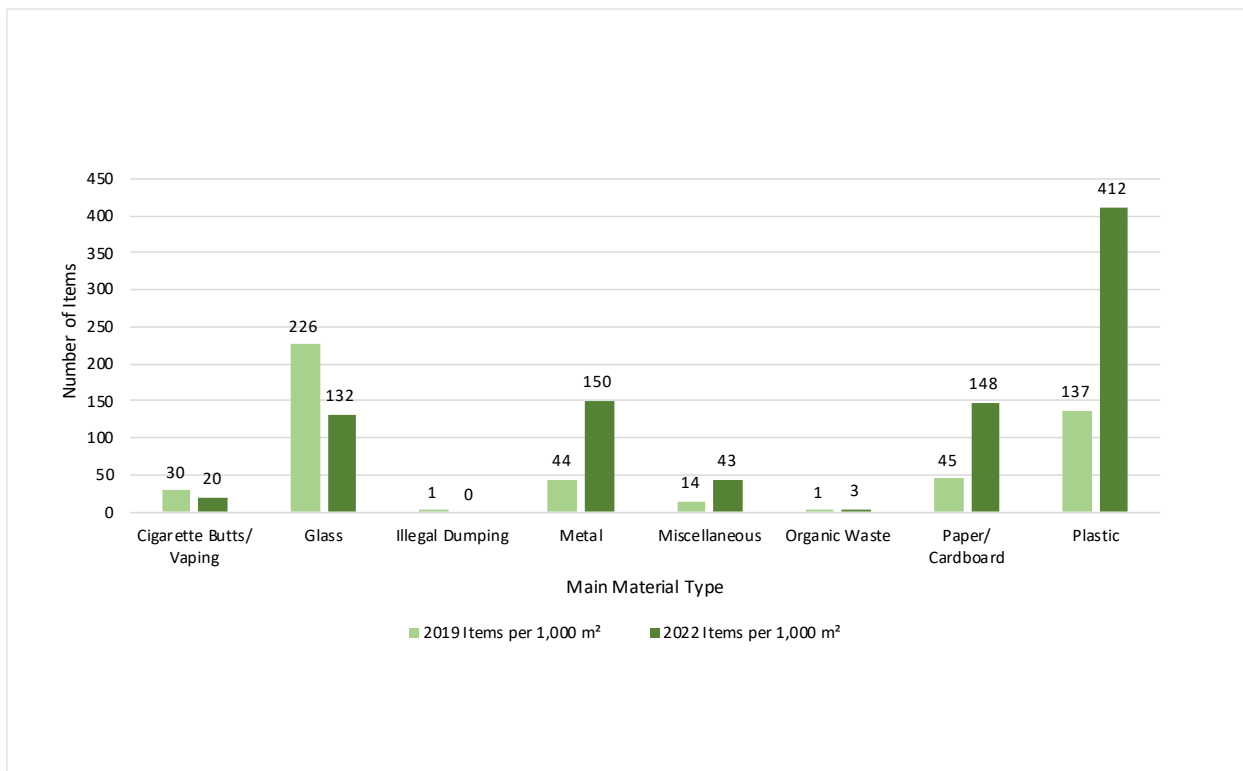
Figure 436: Tasman, Nelson and Marlborough Railways, Weight per 1,000 m² by Main Material Type: Comparison Over Time
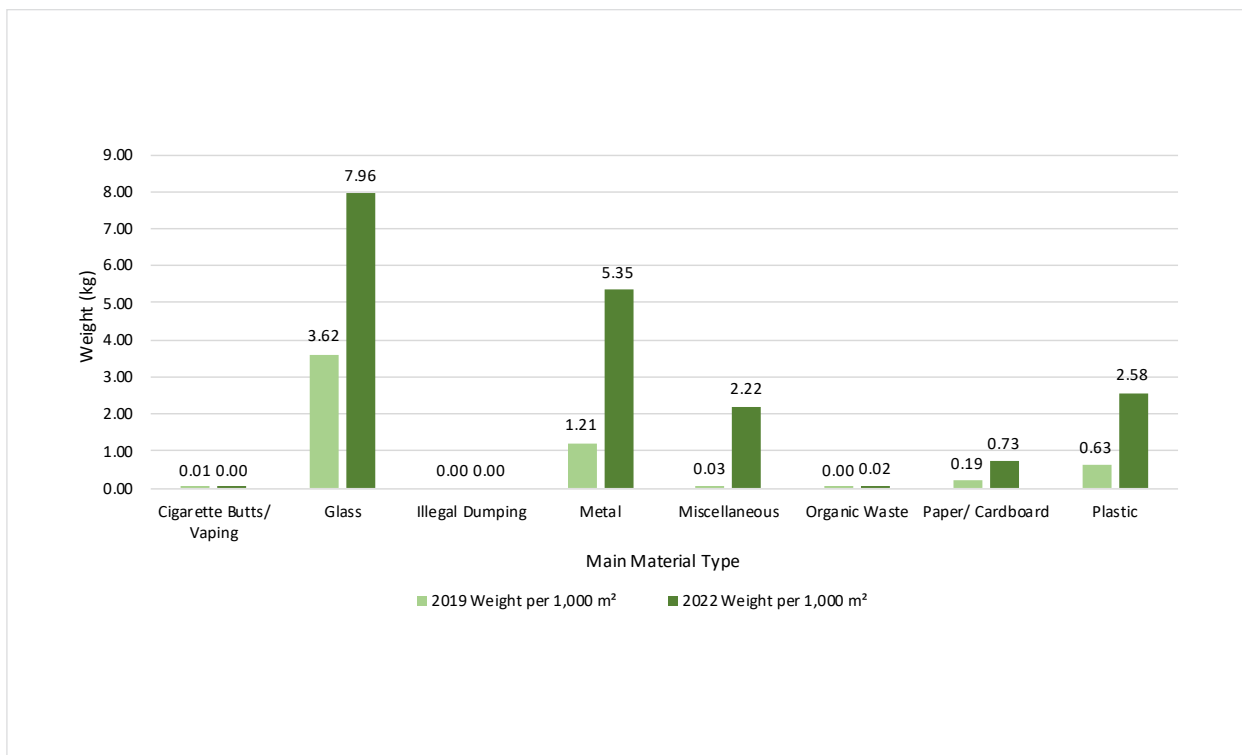
Figure 437: Tasman, Nelson and Marlborough Railways, Volume per 1,000 m² by Main Material Type: Comparison Over Time

Figure 438: Tasman, Nelson and Marlborough Railways, Dirty Dozen, Items per 1,000 m², Material Subcategories: Comparison Over Time

Number of Items

PLASTIC: Unidentifiable soft plastic fragments* — 112
GLASS: Unidentifiable glass fragments* — 95
PLASTIC: Snack bags & confectionary wrappers — 80 / 19
PAPER/CARDBOARD: Unidentified paper fragments* — 75
METAL: Foil wrappers — 62 / 11
PLASTIC: Takeaway containers & cups — 57 / 11
PLASTIC: Bottle seals — 33 / 0
METAL: Bottle caps, lids & pull tabs — 28 / 14
PLASTIC: Unidentifiable hard plastic fragments* — 22
GLASS: Beer, < 750 ml, all colours of glass — 20 / 4
CIGARETTE BUTTS/VAPING: Cigarette butts — 20 / 30
PAPER/CARDBOARD: Cups, food trays, food wrappers, takeaway containers & drink containers — 18 / 7

* New category in 2022

■ 2022 Items per 1,000 m²   ■ 2019 Items per 1,000 m²

Figure 439: Tasman, Nelson and Marlborough Railways, Dirty Dozen, Weight per 1,000 m², Material Subcategories: Comparison Over Time

Weight (kg)

GLASS: Beer, < 750 ml, all colours of glass — 4.64 / 0.99
METAL: Metal pieces/fragments — 1.67 / 0.97
GLASS: Unidentifiable glass fragments* — 1.48
GLASS: Alcoholic sodas/spirit based mixers, all sizes — 1.33 / 0.00
MISCELLANEOUS: Footwear* — 1.18
METAL: Other metal — 1.06 / 0.00
METAL: Construction materials* — 1.03
METAL: Vehicle parts* — 0.79
MISCELLANEOUS: Other cloth* — 0.67
PLASTIC: Takeaway containers & cups — 0.65 / 0.08
GLASS: Flav. water/soft drink (carbonated), <1 litre — 0.50 / 0.00
PLASTIC: Flav. water/soft drink (carbonated), 1 litre + — 0.43 / 0.06

* New category in 2022

■ 2022 Weight per 1,000 m²   ■ 2019 Weight per 1,000 m²

Figure 440: Tasman, Nelson and Marlborough Railways, Dirty Dozen, Volume per 1,000 m², Material Subcategories: Comparison Over Time

Chart data:

Category	2022 Volume per 1,000 m²	2019 Volume per 1,000 m²
PAPER/CARDBOARD: Cardboard boxes*	143.97	
PLASTIC: Polystyrene insulation*	21.88	
PAPER/CARDBOARD: Cups, food trays, food wrappers, takeaway containers & drink containers	13.36	4.80
ORGANIC WASTE: Compostable packaging*	13.11	
PLASTIC: Takeaway containers & cups	11.73	2.27
MISCELLANEOUS: Footwear*	10.57	
GLASS: Beer, < 750 ml, all colours of glass	9.26	2.03
PLASTIC: Flav. water/soft drink (carbonated), 1 litre +	8.27	0.00
METAL: Flav. water/soft drink, (carbonated), all sizes	7.09	0.00
GLASS: Alcoholic sodas/spirit based mixers, all sizes	4.99	0.00
METAL: Alcoholic sodas & spirit based mixers	4.31	0.00
PLASTIC: Flav. water/soft drink (carbonated), <1 litre	4.15	0.00

Volume (ltr)

* New category in 2022

WAIKATO
REGION

AT A GLANCE

The overall average number of litter items per 1,000 m² across all the 51 sites audited in the Waikato region was 85 items, the overall average estimated volume of litter items per 1,000 m² was 12.77 ltr and the overall average litter weight per 1,000 m² was 0.50 kg.

Retail sites within the region were associated with high numbers of litter items and volumes, and moderate to large litter weights, whilst Industrial sites contributed large litter volumes and weights and moderate to high numbers of litter items. Residential sites were recorded as having large litter volumes, and moderate to high numbers of litter items and weights, whilst Car Park sites and Public Recreational Spaces contributed to lower numbers of litter items, volumes and weights per 1,000 m².

Plastic was the most frequently identified material type, whilst also recording the second largest volume and weight per 1,000 m². Litter that was classified under Cigarette Butts/Vaping was the second most frequently identified litter item per 1,000 m² but was associated with the smallest volumes and weights recorded in the region.

Miscellaneous items contributed significantly larger weights per 1,000 m² than any other material type in the Waikato region but recorded low to moderate numbers of litter items and small litter volumes.

Paper/Cardboard items contributed the largest volume per 1,000 m² to the overall regional litter stream and recorded moderate to high litter weights, however, this category was associated with small to moderate numbers of litter items.

Note:

- *New material subcategories were added in 2022 and so not all material subcategories are comparable between 2019 and 2022.*

- *A weight measure was not recorded for any items of Illegal Dumping identified during the audit, and therefore has not been included in the analysis.*

- *Not all regions were audited for Highway and/or Railway sites, and so these site types have been separated out and specifics for each region given at the end of the relevant chapter. The Waikato region was audited for five Highway sites and nine Railway sites.*

COMPARISONS BY SITE TYPES

The highest numbers of litter items per 1,000 m² collected at the sites audited in the Waikato region were from Retail (307 items) and Industrial (186 items) sites. Residential sites (149 items) were also significant contributors to the regional litter stream. Car Park sites (40 items) and Public Recreational Spaces (19 items) recorded lower litter items.

High estimated litter volumes per 1,000 m² were associated with Industrial (44.18 ltr), Residential (32.67 ltr) and Retail (29.99 ltr) sites. Smaller volumes of

litter were associated with Car Park sites (2.25 ltr) and Public Recreational Spaces (1.69 ltr).

Industrial sites (1.87 kg) contributed to the highest litter weights per 1,000 m² in the Waikato region. Moderate to high litter weights were associated with Retail (1.03 kg) and Residential (0.94 kg) sites. Car Park sites (0.26 kg) recorded small to moderate litter weights, whilst Public Recreational Spaces (0.04 kg) contributed to the lowest litter weights per 1,000 m².

Figure 441: Waikato 2022, Items and Volume per 1,000 m² by Site Type
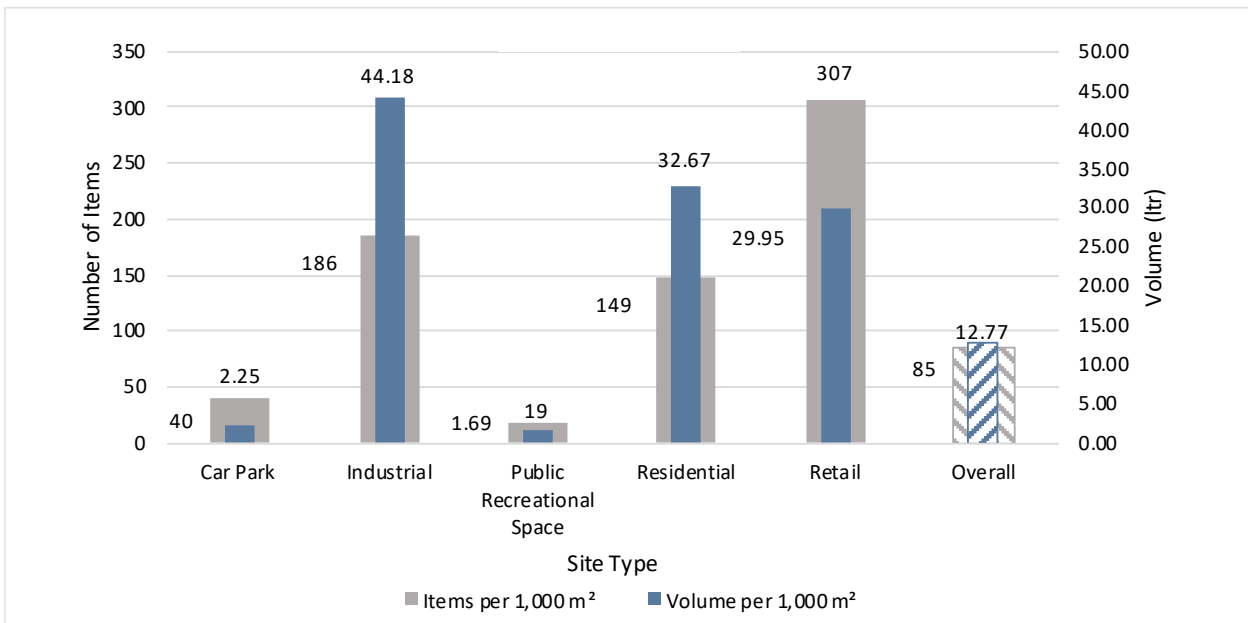
Figure 442: Waikato 2022, Items and Weight per 1,000 m² by Site Type
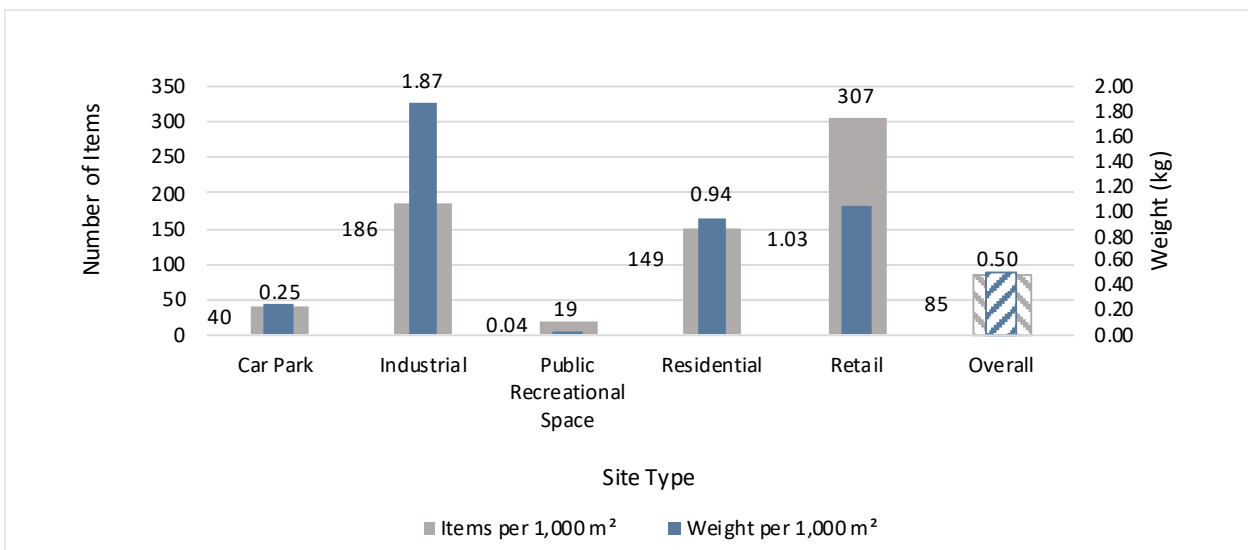
SITE CHARACTERISTICS

The following site characteristics across all site types (excluding Highway and Railway sites) were identified for litter items and volume per 1,000 m² in the Waikato region:

- Industrial sites contributed moderate to high numbers of litter items and large litter volumes.

- Retail sites were associated with high numbers of litter items and large litter volumes.

- Residential sites contributed moderate to high numbers of litter items and large litter volumes.

- Car Park sites and Public Recreational Spaces were associated with small numbers of litter items and low litter volumes.

Figure 443: Waikato 2022, Items and Volume per 1,000 m² by Site Type
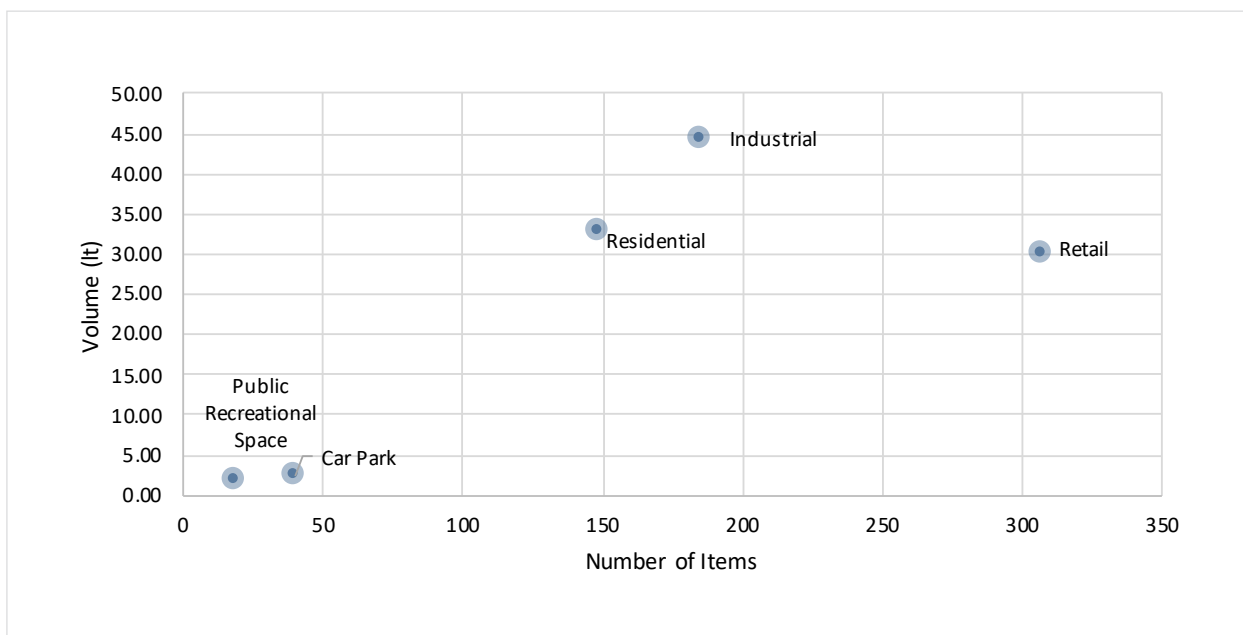
The following site characteristics across all site types (excluding Highway and Railway sites) were identified for litter items and weight per 1,000 m² in the Waikato region:

- Industrial sites contributed moderate to high numbers of litter items and large litter weights.

- Residential sites contributed moderate numbers of litter items and moderate to high litter weights.

- Retail sites contributed high numbers of litter items and moderate to high litter weights.

- Car Park sites were associated with low numbers of litter items and small to moderate litter weights.

- Public Recreational Spaces contributed low numbers of litter items and small litter weights.

Figure 444: Waikato 2022, Items and Weight per 1,000 m² by Site Type
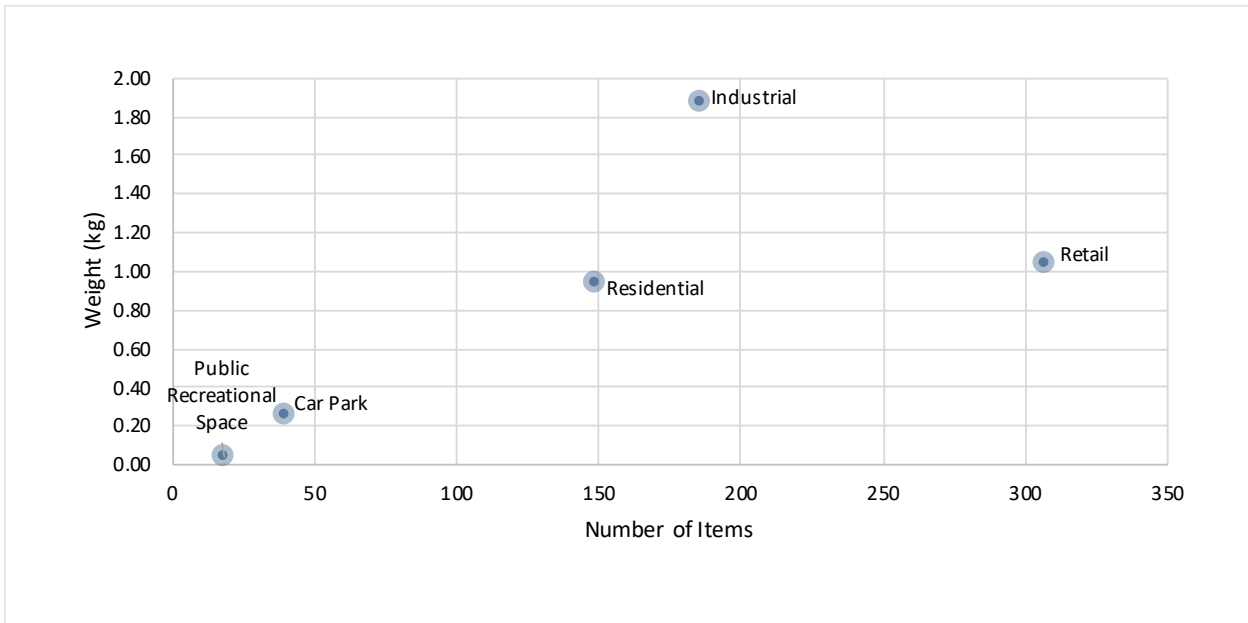
COMPARISON BY SITE TYPE OVER TIME

Since 2019, there has been an increase in the estimated volume of litter per 1,000 m² in the Waikato region, whilst the weight per 1,000m² has remained comparatively the same. The number of litter items per 1,000 m² has decreased since 2019.

ITEMS PER 1,000 M²

The number of litter items collected in the Waikato region has decreased since 2019 (85 items vs. 113 per 1,000 m² in 2019). As shown in the graphs below, per 1,000 m² there has been decreases in Industrial (186 items vs. 248 items in 2019) and Car Park (40 items vs. 108 items in 2019) sites, and increases in Retail (307 items vs. 232 items in 2019) and Residential (149 items vs. 109 items in 2019) sites.

Figure 445: Waikato, Items per 1,000 m² by Site Type: Comparison Over Time
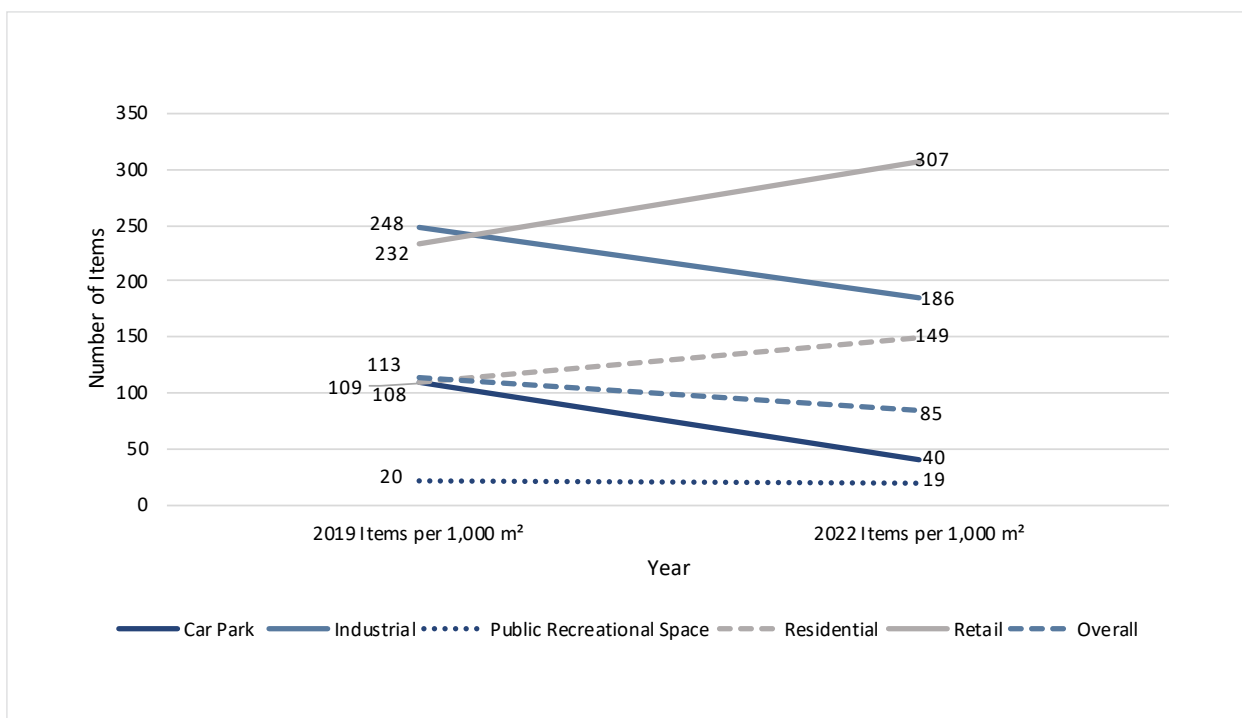
Figure 446: Waikato, Items per 1,000 m² by Site Type: Comparison Over Time
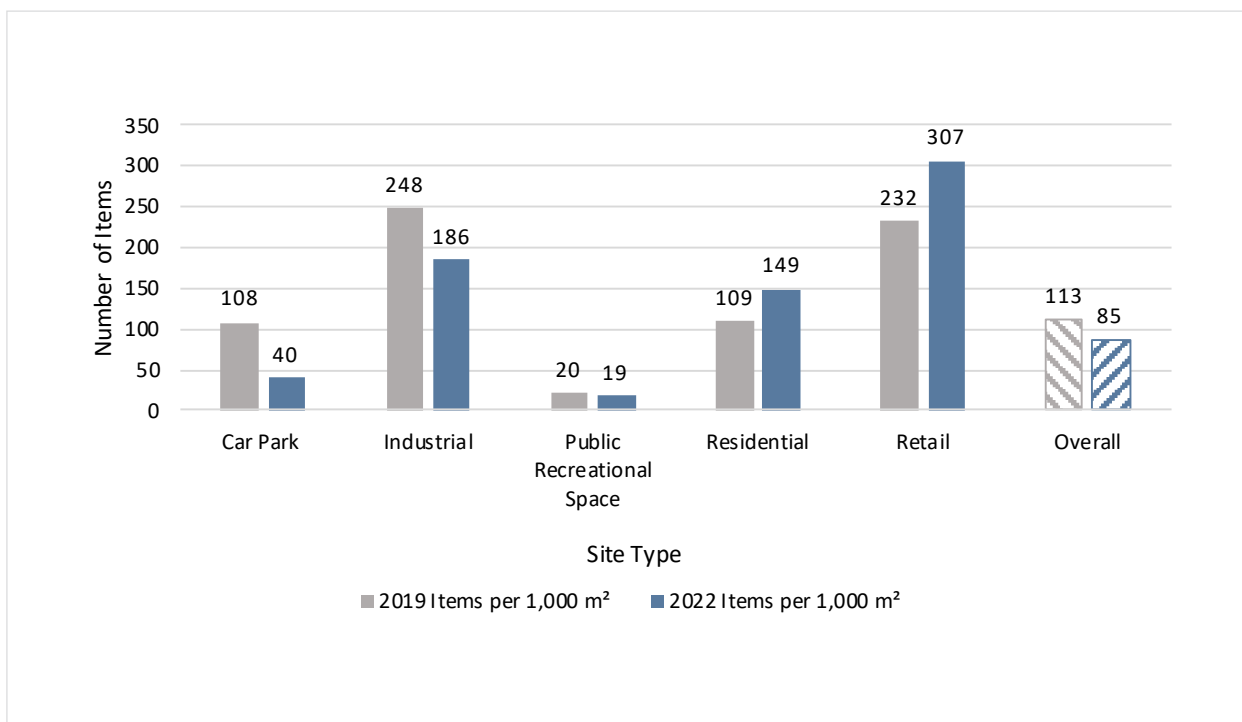
VOLUME PER 1,000 M²

Overall, litter volumes per 1,000 m² in the Waikato region have increased by 7.09 ltr since 2019. As shown in the graphs below, this increase is consistent across most site types, with increases per 1,000 m² being seen in Industrial (44.18 ltr vs. 13.01 ltr in 2019), Retail (29.95 ltr vs. 8.08 ltr in 2019) and Residential (32.67 ltr vs. 10.46 ltr in 2019) sites.

Figure 447: Waikato, Volume per 1,000 m² by Site Type: Comparison Over Time
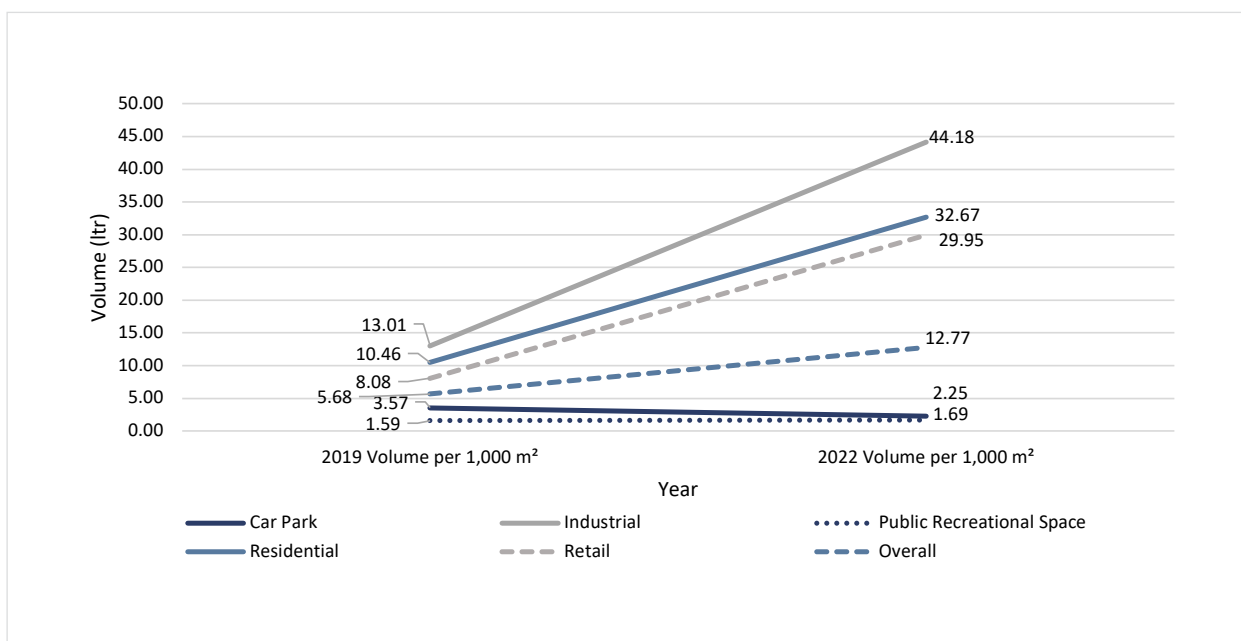
Figure 448: Waikato, Volume per 1,000 m² by Site Type: Comparison Over Time
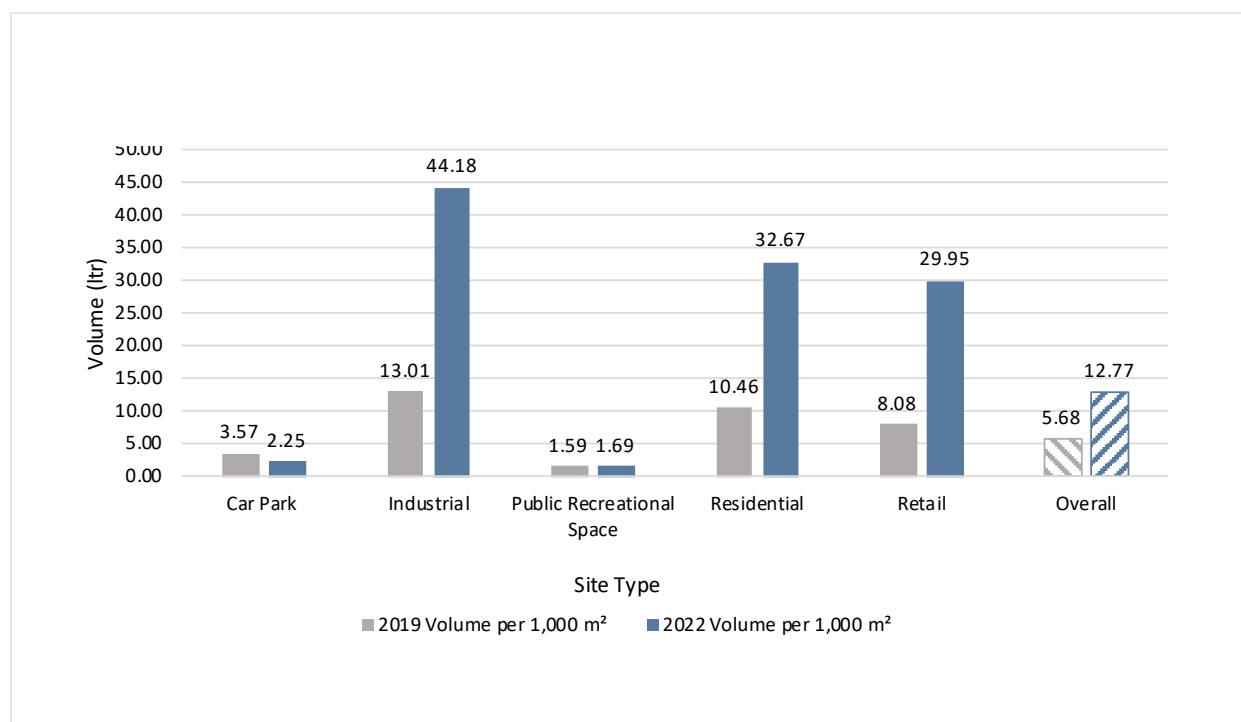
WEIGHT PER 1,000 M²

Overall, the litter weight per 1,000 m² in the Waikato region has remained relatively consistent since 2019 (0.50 kg vs. 0.43 kg in 2019). As shown in the graphs below, the site type with the biggest increase in litter weight per 1,000 m² is Retail sites (1.03 kg vs. 0.43 kg in 2019). Car Park sites have recorded slightly decreased litter weights per 1,000 m² since 2019.

Figure 449: Waikato, Weight per 1,000 m² by Site Type: Comparison Over Time
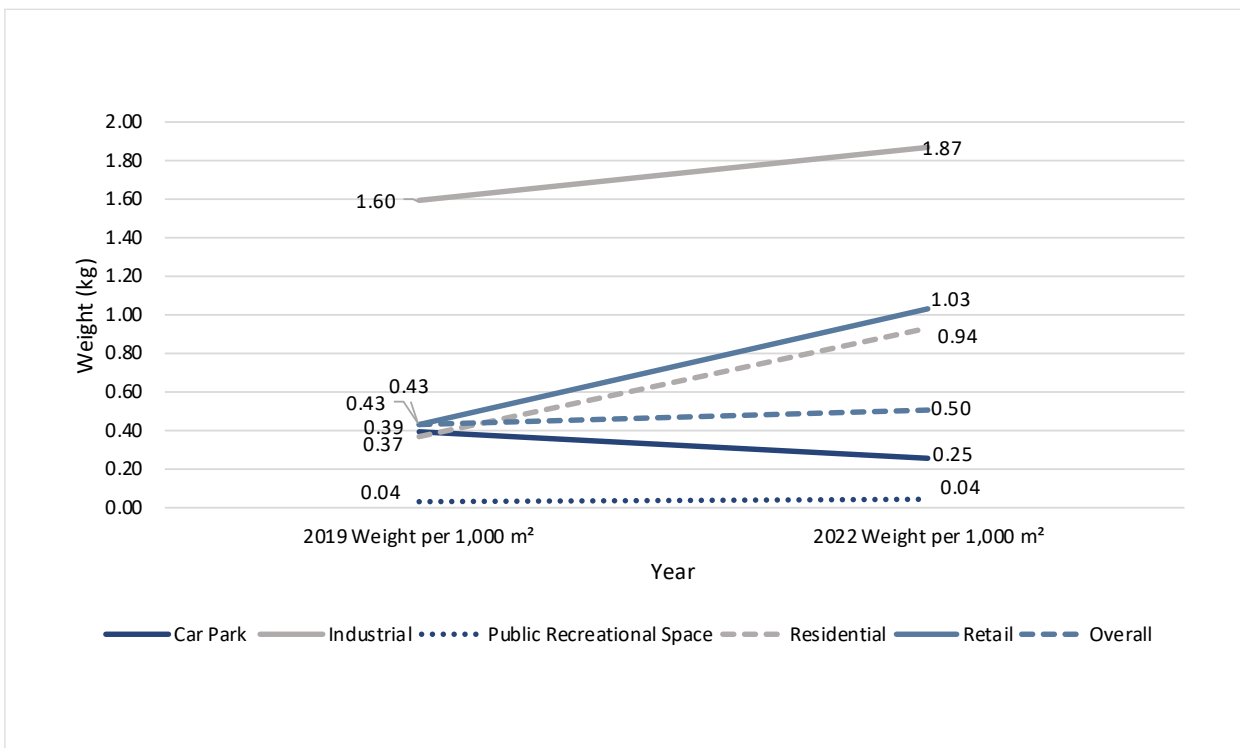
Figure 450: Waikato, Weight per 1,000 m² by Site Type: Comparison Over Time
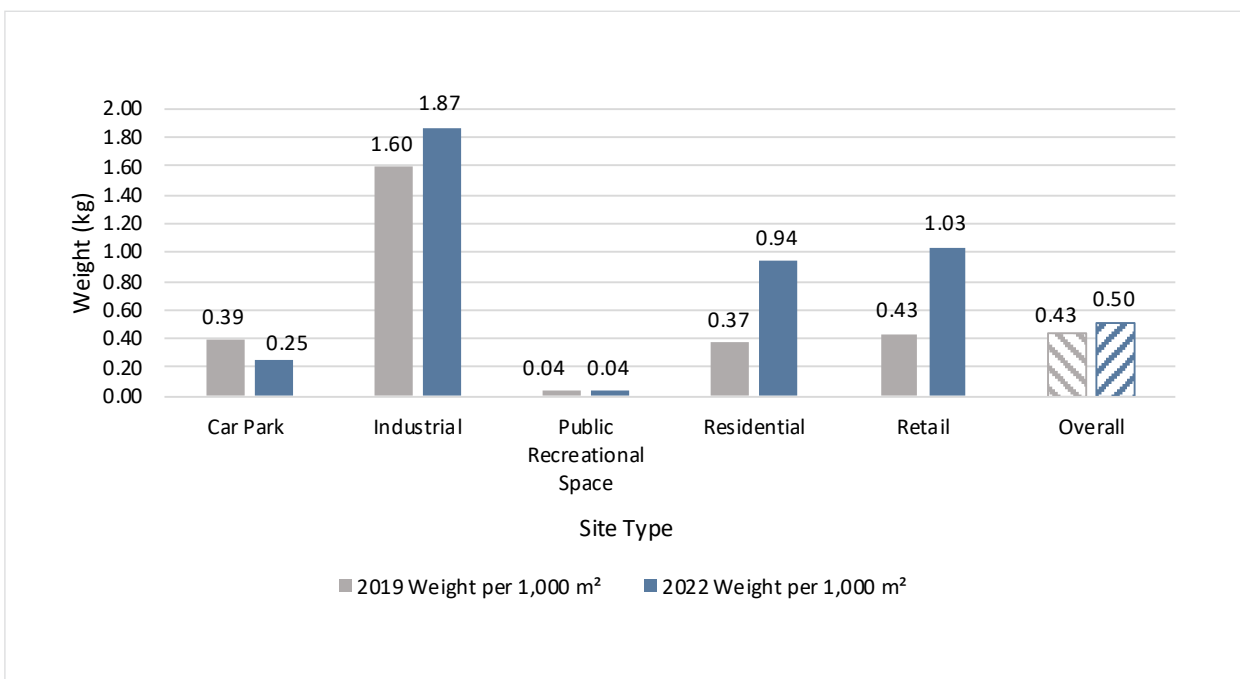
COMPARISON BY MAIN MATERIAL TYPE

Plastic was the most frequently identified material type per 1,000 m² within the Waikato region (32 items) whilst Cigarette Butts/Vaping (20 items) were the second highest identified material type.

Moderate numbers of litter items were recorded for Metal (13 items), whilst low to moderate numbers of items per 1,000 m² were recorded for Paper/Cardboard (9 items) and Miscellaneous (9 items). Glass (2 items), Organic Waste (1 item) and Illegal Dumping (less than 1 item) contributed the lowest number of items to the regional litter stream.

Paper/Cardboard items contributed the largest amount of volume per 1,000 m² to the litter stream (6.88 ltr), with the second largest volume associated with Plastic (2.12 ltr). Smaller litter volumes were recorded for Miscellaneous (1.36 ltr), Metal (0.89 ltr), Organic Waste (0.81 ltr), Illegal Dumping (0.47 ltr) and Glass (0.26 ltr).

Cigarette Butts/Vaping items were associated with the smallest proportion of the overall litter volume (0.02 ltr) per 1,000 m².

Miscellaneous items were associated with the largest litter weights per 1,000 m² recorded in the region (0.13 kg), whilst Plastic (0.11 kg) contributed the second highest weights to the regional litter stream. Moderate to high litter weights per 1,000 m² were associated with Metal (0.08 kg) and Paper/Cardboard (0.08 kg), whilst more moderate weights were identified for Glass items (0.06 kg). Organic Waste (0.02 kg) and Cigarette Butts/Vaping (0.01 kg) contributed the smallest litter weights per 1,000 m² in the region.

Figure 451: Waikato 2022, Items and Volume per 1,000 m² by Main Material Type
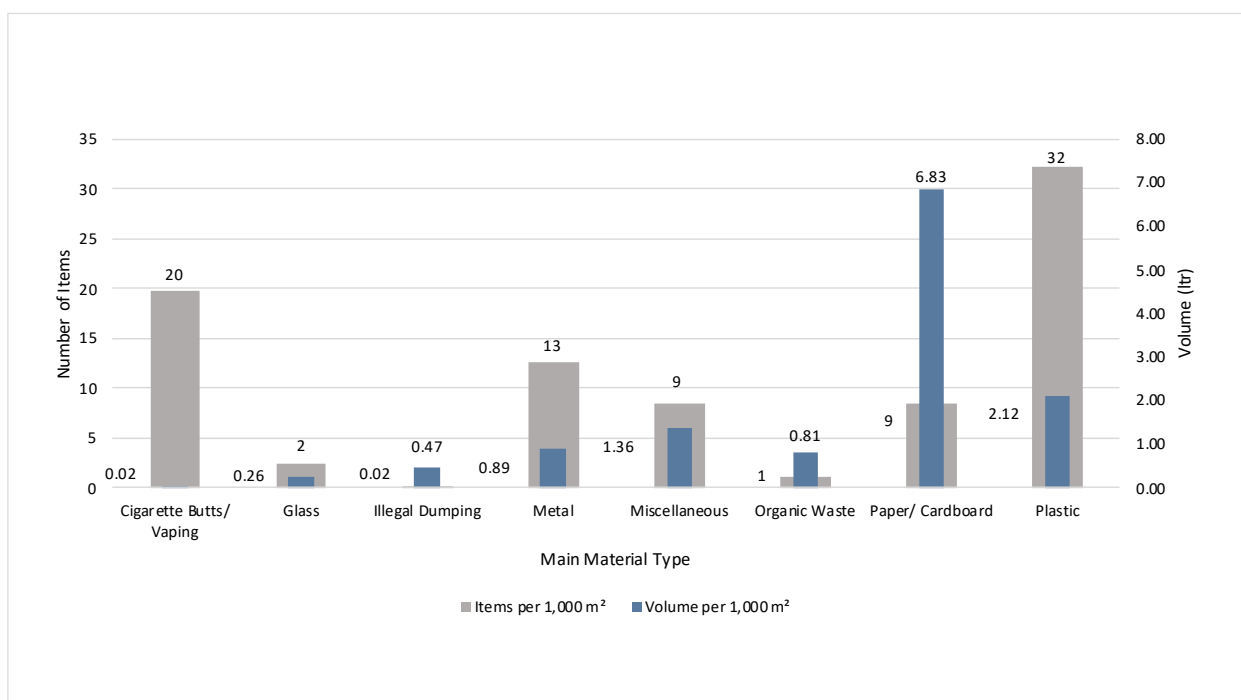
Figure 452: Waikato 2022, Items and Weight per 1,000 m² by Main Material Type

MAIN MATERIAL CHARACTERISTICS

The following material type characteristics were identified for litter items and volume per 1,000 m² in the Waikato region (excluding Highway and Railway sites):

- Cigarette Butts/Vaping were associated with a moderate to high number of litter items, but contributed only low litter volumes.

- Miscellaneous items contributed small to moderate numbers of litter items and moderate litter volumes.

- Plastic contributed high numbers of litter items and moderate litter volumes.

- Paper/Cardboard contributed low to moderate numbers of litter items and large litter volumes.

- Metal was associated with moderate numbers of litter items and small litter volumes.

- Illegal Dumping, Glass and Organic Waste contributed low numbers of litter items and small litter volumes.

Figure 453: Waikato 2022, Items and Volume per 1,000 m² by Main Material Type

The following material type characteristics were identified for litter items and weight per 1,000 m² in the Waikato region (excluding Highway and Railway sites):

- Glass was associated with low numbers of litter items, but moderate litter weights.

- Plastic contributed high numbers of litter items and weights.

- Cigarette Butts/Vaping was associated with moderate to high numbers of litter items, but small litter weights.

- Paper/Cardboard contributed moderate litter items and moderate to high litter weights.

- Metal was associated with moderate numbers of litter items and moderate to high litter weights.

- Miscellaneous items were associated with low to moderate numbers of litter items and high litter weights.

- Organic Waste was associated with low numbers of litter items and small litter weights.

Figure 454: Waikato 2022, Items and Weight per 1,000 m² by Main Material Type
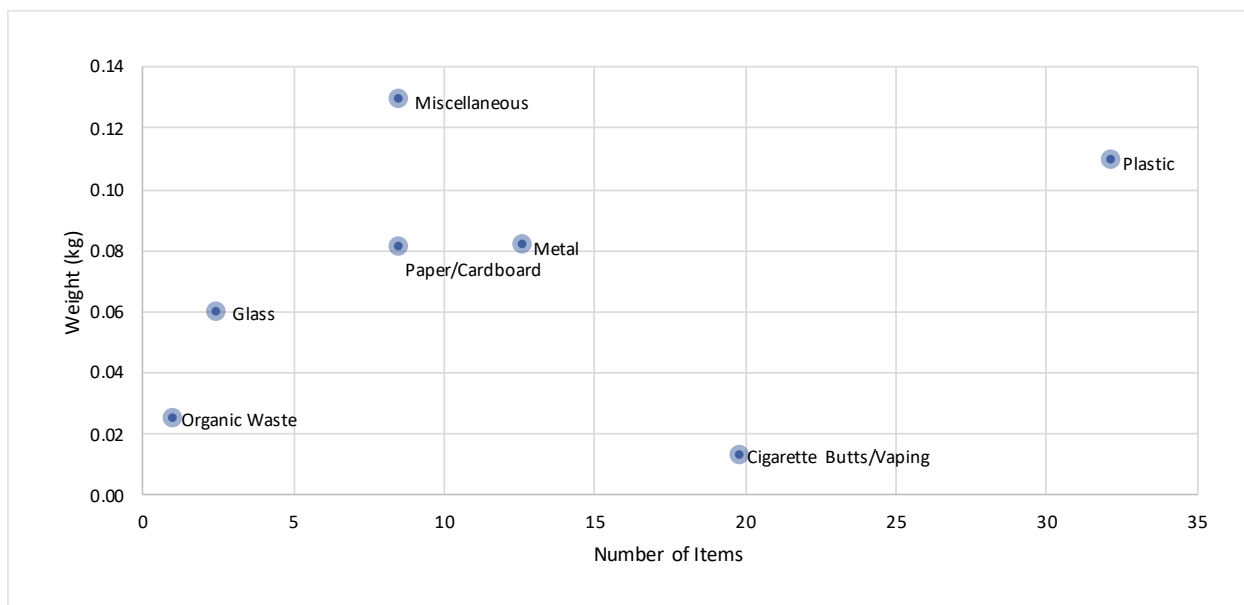
COMPARISONS BY MAIN MATERIAL TYPE OVER TIME

Compared with 2019, the material type, Plastic, has seen an increase across two measures of estimated litter volume and weight, with the number of litter items per

1,000 m² remaining consistent. Conversely, the material type, Glass, has seen a decline across all three measures since 2019.

ITEMS PER 1,000 M²

Since 2019, many of the material type litter items per 1,000 m² in the Waikato region have remained consistent. Three exceptions to this are litter items categorised

under Cigarette Butts/Vaping, Glass and Paper/ Cardboard, which have all declined since 2019.

Figure 455: Waikato, Items per 1,000 m² by Main Material Type: Comparison Over Time
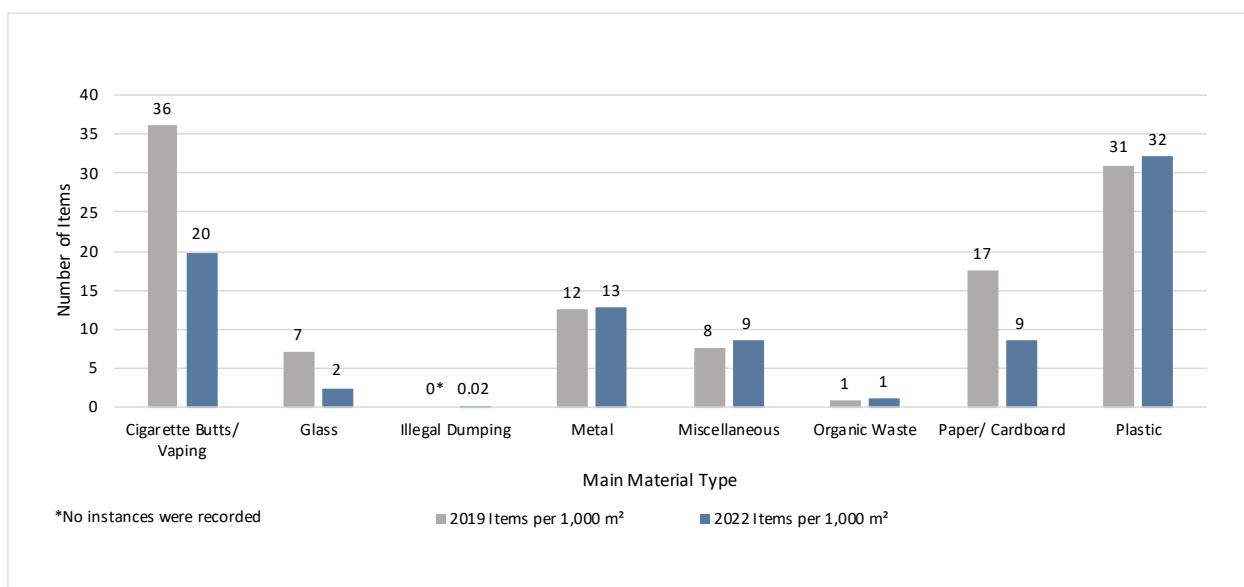
VOLUME PER 1,000 M²

Since 2019, the biggest increase in the litter volume of material types per 1,000 m² in Waikato region can be seen in Paper/Cardboard (6.83 ltr vs. 1.31 ltr in 2019).

There has also been a decrease in the litter volume of Miscellaneous items collected per 1,000 m² (1.36 ltr vs. 2.31 ltr in 2019).

Figure 456: Waikato, Volume per 1,000 m² by Main Material Type: Comparison Over Time
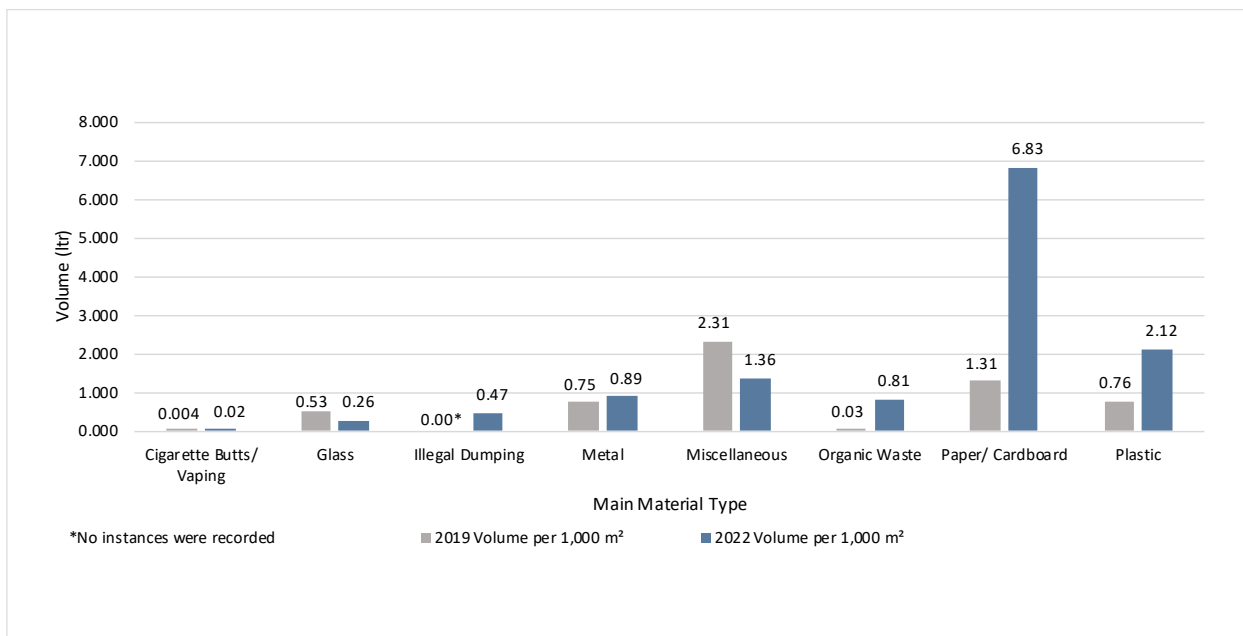
WEIGHT PER 1,000 M²

Compared with 2019, there have been an increase across most main material litter weights per 1,000 m² in the Waikato region, with the highest increase seen in

Miscellaneous items (0.13 kg vs. 0.03 kg in 2019). The weight of items classified under Glass has decreased since 2019 (0.06 kg vs. 0.20 kg per 1,000 m² in 2019).

Figure 457: Waikato, Weight per 1,000 m² by Main Material Type: Comparison Over Time
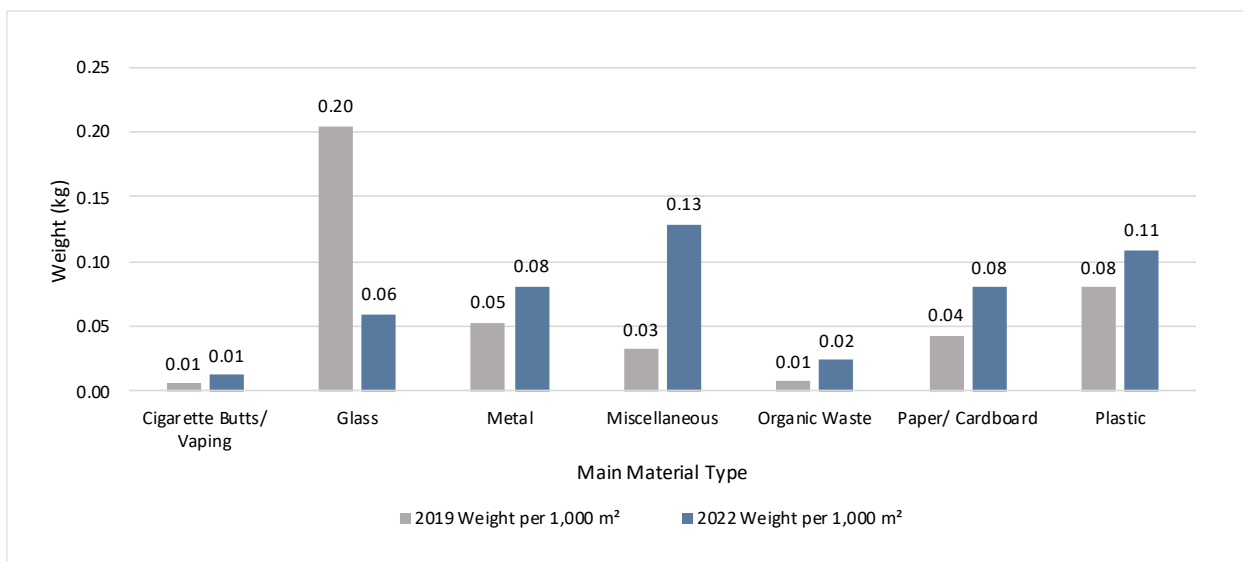
SITE TYPES BY MATERIAL TYPE

In the Waikato region, the number of material type litter items found per 1,000 m² at the different site types (excluding Highway and Railway sites) was as follows:

- Car Park sites: Plastic (16 items), Metal (8 items), Cigarette Butts/Vaping (6 items), Miscellaneous (6 items), Paper/Cardboard (2 items), Glass (1 item), Organic Waste (0 items) and Illegal Dumping (0 items).

- Industrial sites: Plastic (86 items), Cigarette Butts/ Vaping (35 items), Metal (25 items), Miscellaneous (16 items), Paper/Cardboard (16 items), Glass (5 items), Organic Waste (3 items) and Illegal Dumping (less than 1 item).

- Public Recreational Spaces: Plastic (10 items), Paper/ Cardboard (3 items), Metal (2 items), Miscellaneous (2 items), Cigarette Butts/Vaping (1 item), Glass (0 items), Organic Waste (0 items) and Illegal Dumping (0 items).

- Residential sites: Plastic (50 items), Metal (31 items), Cigarette Butts/Vaping (28 items), Paper/Cardboard (14 items), Miscellaneous (13 items), Glass (10 items), Organic Waste (3 items) and Illegal Dumping (0 items).

- Retail sites: Cigarette Butts/Vaping (111 items), Plastic (94 items), Paper/Cardboard (35 items), Metal (35 items), Miscellaneous (28 items), Organic Waste (3 items), Glass (2 items) and Illegal Dumping (0 items).

Figure 458: Waikato 2022, Sites by Main Material Type: Items per 1,000 m²
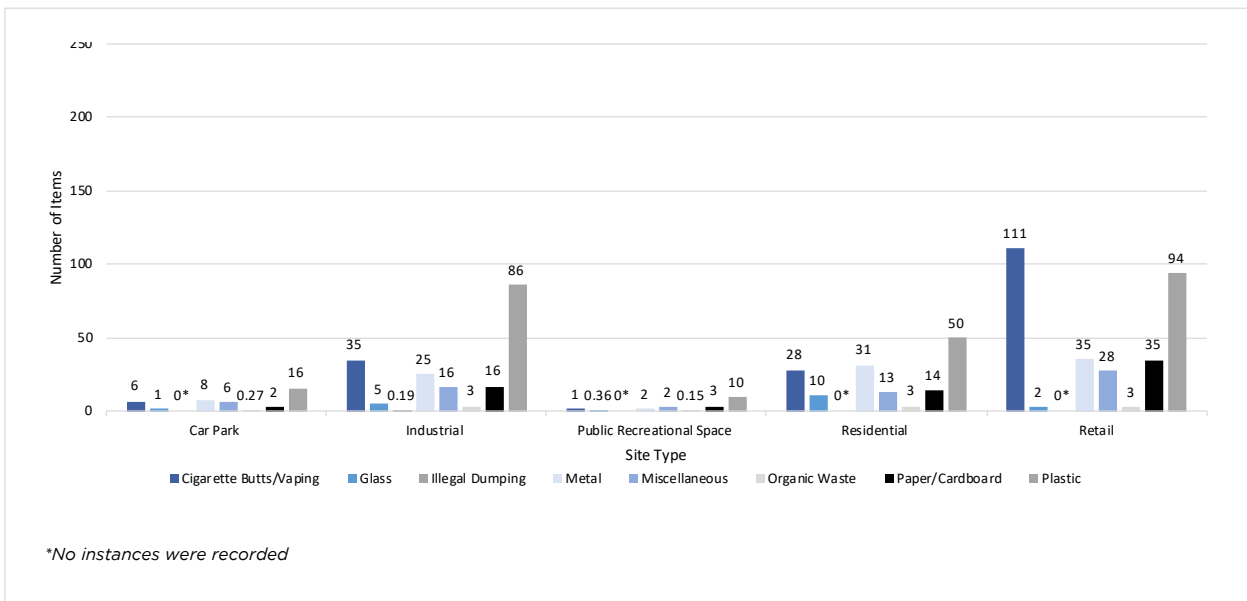
No instances were recorded

THE DIRTY DOZEN

Cigarette Butts/Vaping: Cigarette butts were the largest contributing material subcategory to the litter items within the Waikato region, with 20 butts per 1,000 m² identified on average across the sites audited.

Other material subcategories which were associated with large numbers of litter items included:

• Plastic: Unidentifiable soft plastic fragments (9 items per 1,000 m²)

• Plastic: Unidentifiable hard plastic fragments (7 items per 1,000 m²)

• Plastic: Snack bags & confectionary wrappers (6 items per 1,000 m²)

• Metal: Bottle caps, lids & pull tabs (5 items per 1,000 m²)

Not all material subcategories were comparable to the 2019 NLA due to the addition of new subcategories in 2022.

Whilst a number of categories are new to the Waikato's Dirty Dozen this year, amongst comparable material subcategories, there has been a decrease in the number of Cigarette Butts/Vaping: Cigarette butts (20 items vs. 36 items in 2019) and Plastic: Plastic (other) litter items (1 item vs. 13 items in 2019) collected per 1,000 m².

Figure 459: Waikato, Dirty Dozen, Items per 1,000 m², Material Subcategories: Comparison Over Time
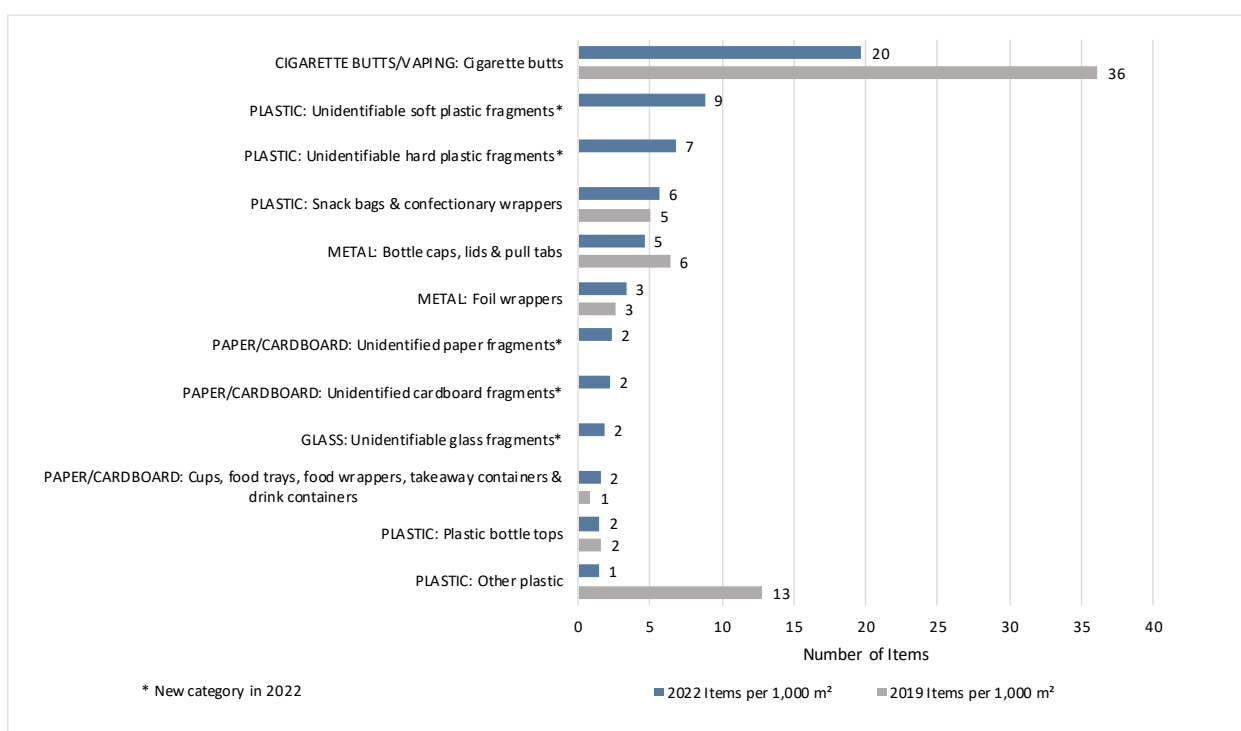
The largest contributor to litter volume in the Waikato region was Paper/Cardboard: Cardboard boxes (5.13 ltr) per 1,000 m².

Other material subcategories which were associated with large litter volumes per 1,000 m² included:

• Paper/Cardboard: Cups, food trays, food wrappers, takeaway & drink containers (1.11 ltr per 1,000 m²)

• Miscellaneous: Clothing, towels & linen (0.86 ltr per 1,000 m²)

• Organic Waste: Compostable packaging (0.78 ltr per 1,000 m²)

• Plastic: Polystyrene insulation (0.74 ltr per 1,000 m²).

Not all material subcategories were comparable to the 2019 NLA due to the addition of new subcategories in 2022.

Whilst there are several new material subcategories in the Waikato region's Dirty Dozen this year, amongst comparable material subcategories, there has been an increase in the litter volume of Paper/Cardboard: Cups, food trays, food wrappers, takeaway containers and drink containers (1.11 ltr vs. 0.64 ltr in 2019), Metal: Flavoured Water/soft drink (carbonated, all sizes) (0.42 ltr vs. 0.28 ltr in 2019) and Metal: Alcoholic sodas and spirit-based mixers (0.26 ltr vs. 0.07 ltr in 2019).

Figure 460: Waikato, Dirty Dozen, Volume per 1,000 m², Material Subcategories: Comparison Over Time
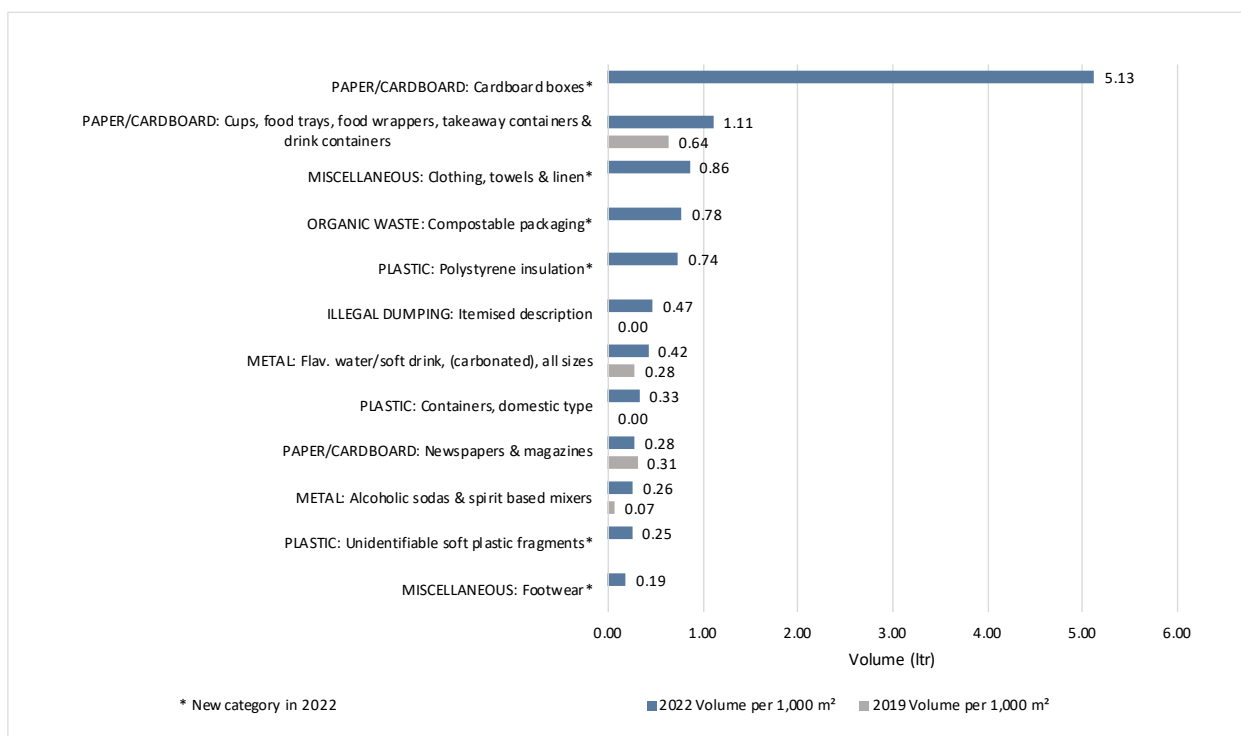
The largest contributor to litter weights in the Waikato region was Miscellaneous: Clothing, towels & linen (0.05 kg). per 1,000 m².

Other material subcategories which were associated with large litter weights per 1,000 m² included:

- Glass: Beer bottles < 750 ml, all colours (0.04 kg per 1,000 m²)

- Paper/Cardboard: Cardboard boxes (0.02 kg per 1,000 m²)

- Miscellaneous: Footwear (0.02 kg per 1,000 m²)

- Plastic: Unidentifiable hard plastic fragments (0.02 kg per 1,000 m²)

- Plastic: Unidentifiable soft plastic fragments (0.02 kg per 1,000 m²).

Not all material subcategories were comparable to the 2019 NLA due to the addition of new subcategories in 2022.

Although many of the material subcategories in the Waikato region's weight this year, amongst comparable material subcategories, there has been a significant decrease in the litter weight of Glass: Beer bottles < 750 ml, all colours (0.04 kg vs. 0.13 kg in 2019).

Figure 461: Waikato, Dirty Dozen, Weight per 1,000 m², Material Subcategories: Comparison Over Time

Category	2022	2019
MISCELLANEOUS: Clothing, towels & linen*	0.05	
GLASS: Beer, < 750 ml, all colours of glass	0.04	0.13
PAPER/CARDBOARD: Cardboard boxes*	0.02	
MISCELLANEOUS: Footwear*	0.02	
PLASTIC: Unidentifiable hard plastic fragments*	0.02	
PLASTIC: Unidentifiable soft plastic fragments*	0.02	
METAL: Metal pieces/fragments	0.02	0.02
PAPER/CARDBOARD: Newspapers & magazines	0.02	0.00
METAL: Flav. water/soft drink, (carbonated), all sizes	0.02	0.01
MISCELLANEOUS: Construction materials*	0.01	
METAL: Construction materials*	0.01	
ORGANIC WASTE: Dog faeces	0.01	0.00

* New category in 2022

■ 2022 Weight per 1,000 m² ■ 2019 Weight per 1,000 m²

TERRITORIAL SUMMARIES

There are 10 Territorial Authorities which fall within the Waikato region:

- Hamilton City
- Hauraki District
- Matamata-Piako District
- Ōtorohanga District
- South Waikato District
- Taupō District

- Thames-Coromandel District
- Waikato District
- Waipa District
- Waitomo District

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

Extract from Table 5, 2022 Territory Data: Waikato Region (Excluding Highway and Railway Sites)

Territory	Total Area Audited (m²)	Items per 1,000 m²	Weight (kg) per 1,000 m²	Volume (ltr) per 1,000 m²
WAIKATO REGION				
Hamilton District	5,750	87	0.93	18.45
Hauraki District	6,150	71	0.21	4.77
Matamata-Piako District	5,350	83	0.25	5.67
Ōtorohanga District	4,550	65	0.32	9.97
South Waikato District	4,081	81	0.33	8.33
Taupō District	4,148	176	0.35	11.36
Thames-Coromandel District	4,500	94	0.45	4.52
Waikato District	6,395	66	1.11	43.41
Waipa District	6,094	74	0.30	6.25
Waitomo District	3,520	82	0.54	4.80
Waikato Region Overall	**50,538**	**85**	**0.50**	**12.77**

SITE GRADINGS

All sites were assigned gradings in four 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 Waikato region.

Extract from Table 3, Risk and Litter Distribution: Waikato (Excluding Highway and Railway Sites)

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

Figure 462: Waikato 2022, Grading: Visual Site Ratings (Excluding Railway and Highway Sites)
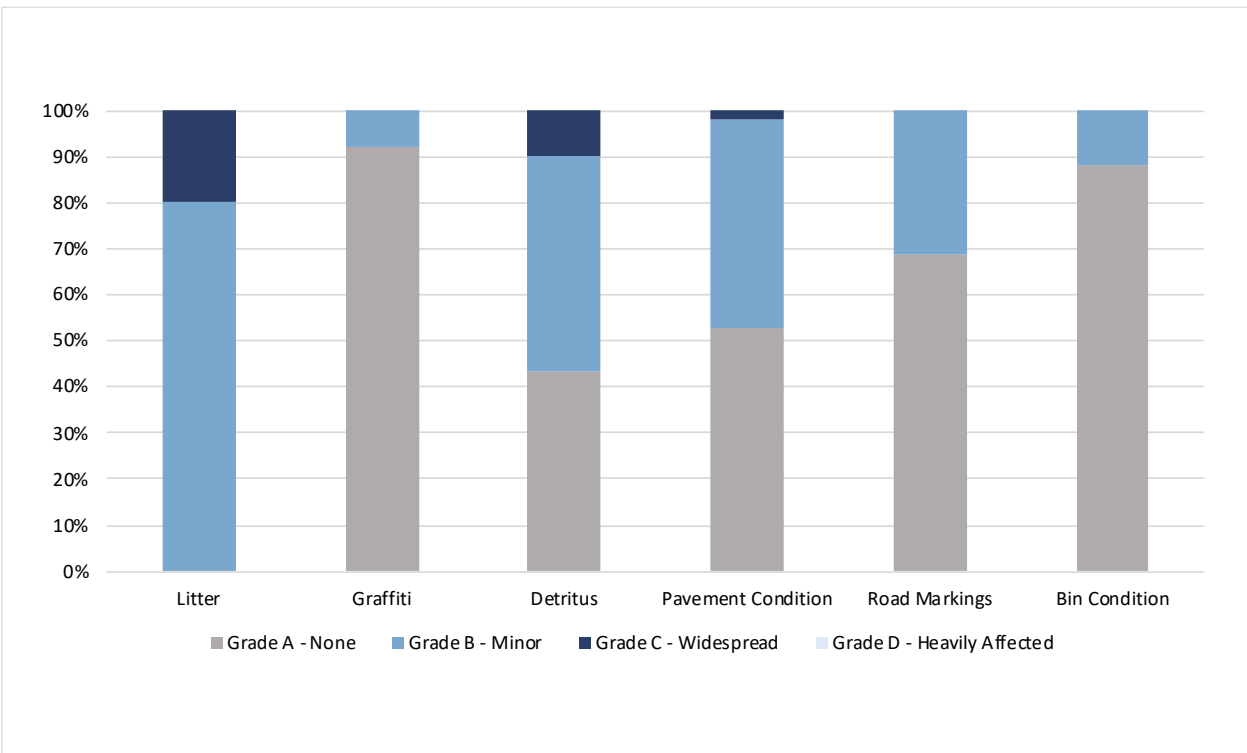
Figure 463: Waikato 2022, Grading: Site Litter Hotshots Ratings (Excluding Railway and Highway Sites)
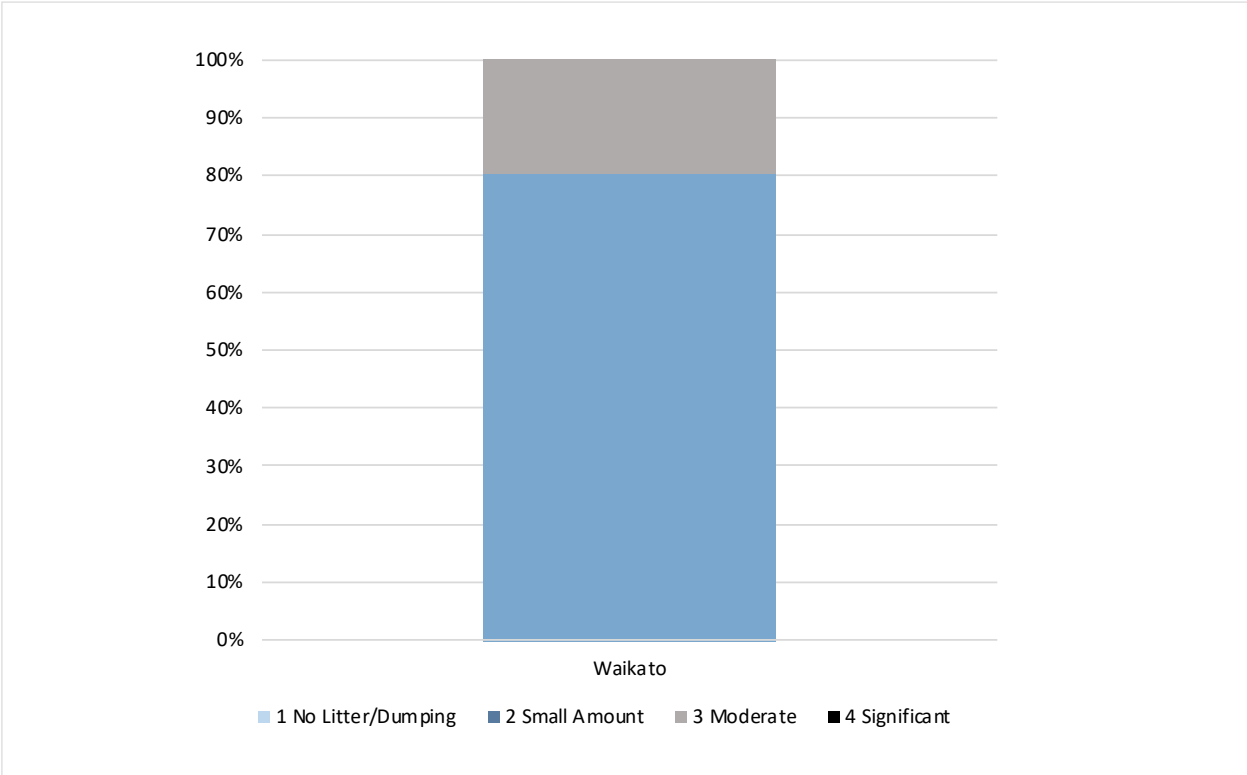
HIGHWAYS AND RAILWAYS

The following section shows the results for Highways and Railways in the Waikato region. In the Waikato region five Highway sites and nine Railway sites were audited.

Figure 464: Waikato Highways and Railways, Items per 1,000 m² by Site Type: Comparison Over Time
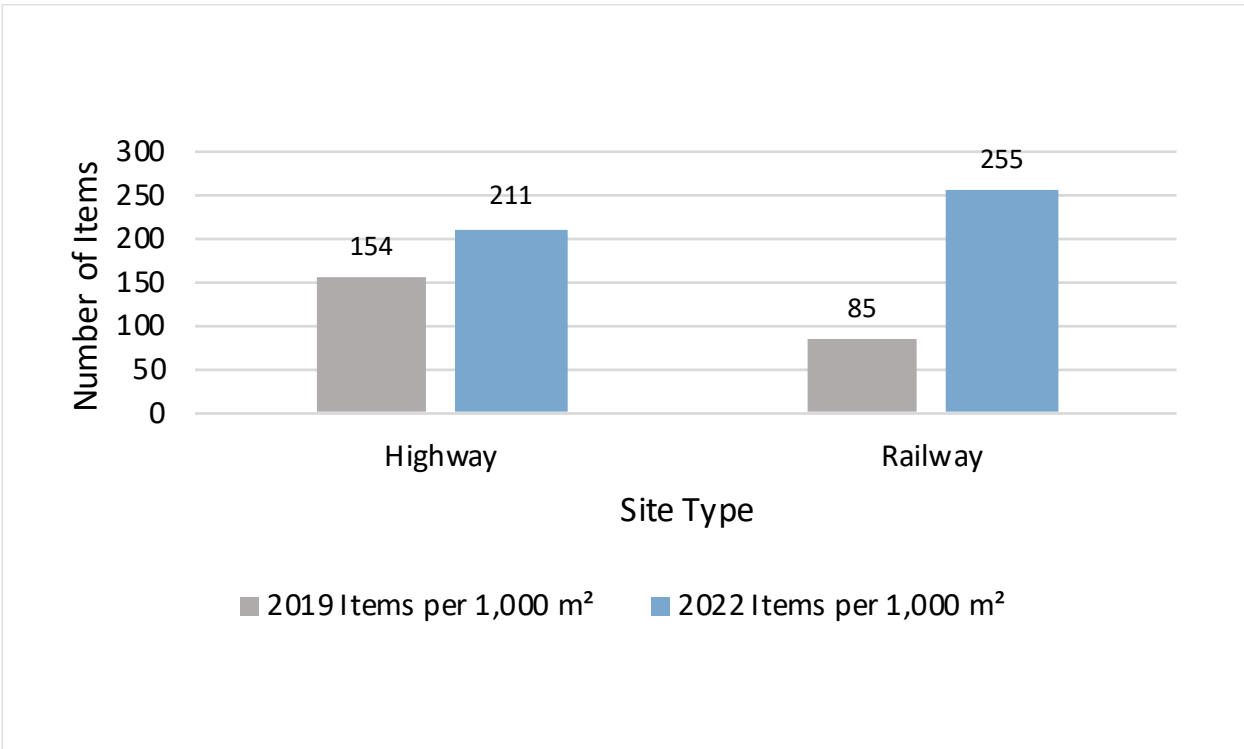
Figure 465: Waikato Highways and Railways, Weight per 1,000 m² by Site Type: Comparison Over Time
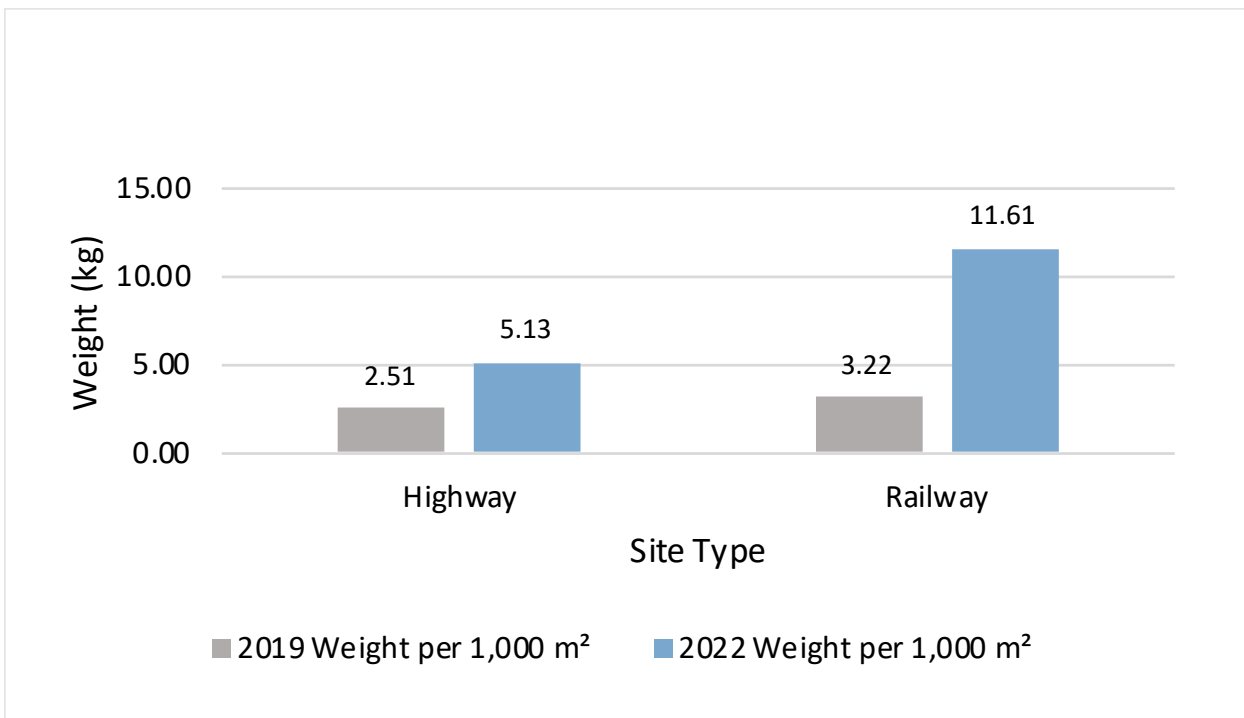
Figure 466: Waikato Highways and Railways, Volume per 1,000 m² by Site Type: Comparison Over Time
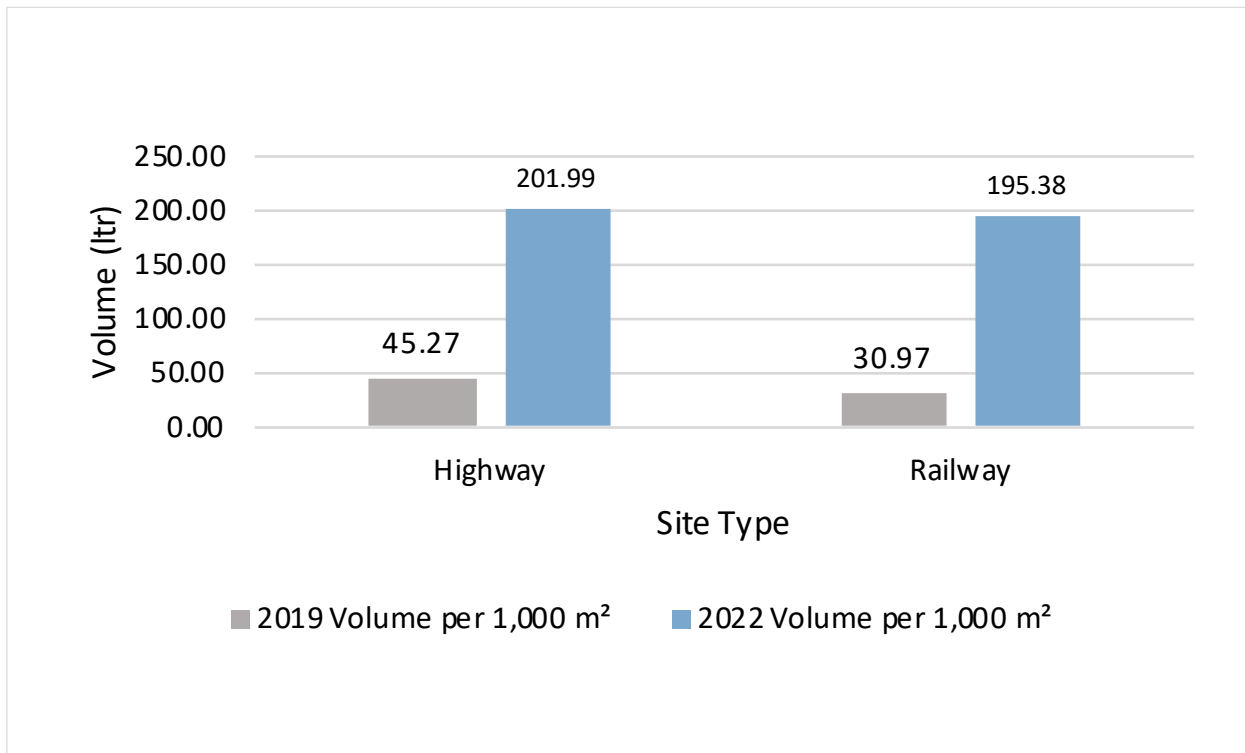
Figure 467: Waikato Highways, Items per 1,000 m² by Main Material Type: Comparison Over Time
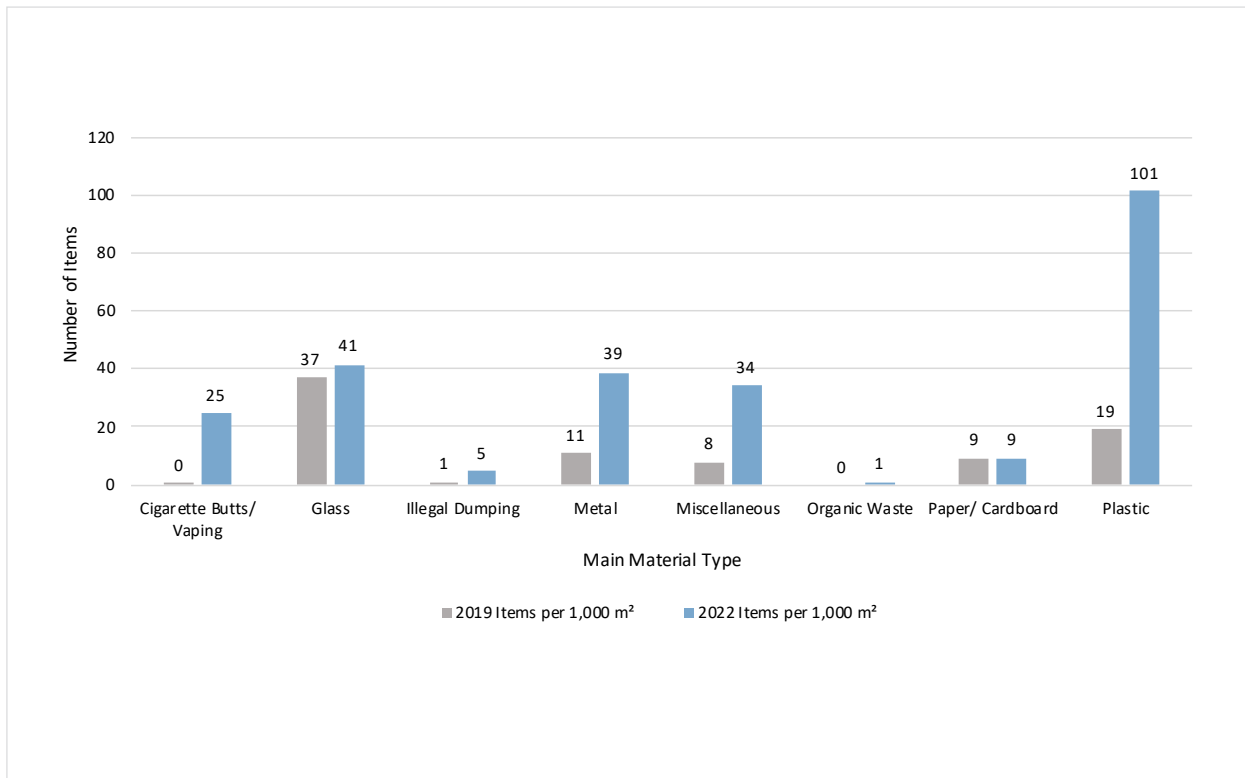
Figure 468: Waikato Highways, Weight per 1,000 m² by Main Material Type: Comparison Over Time
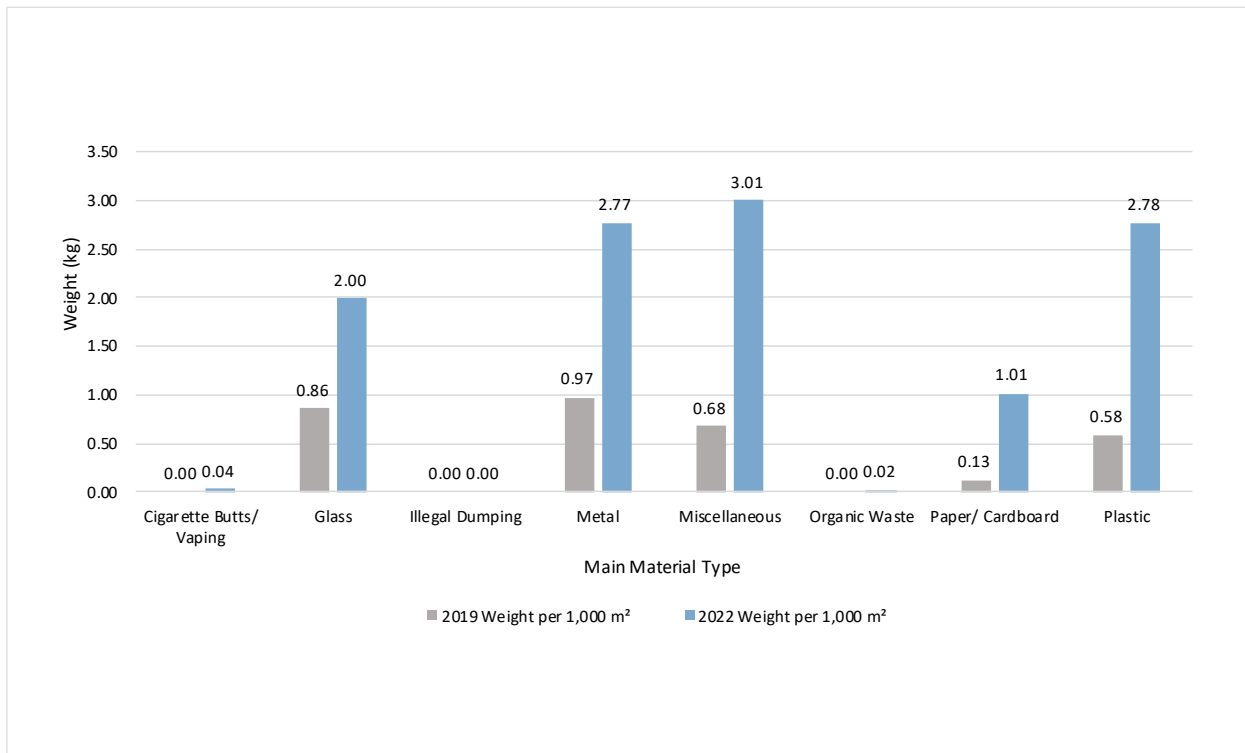
Figure 469: Waikato Highways, Volume per 1,000 m² by Main Material Type: Comparison Over Time
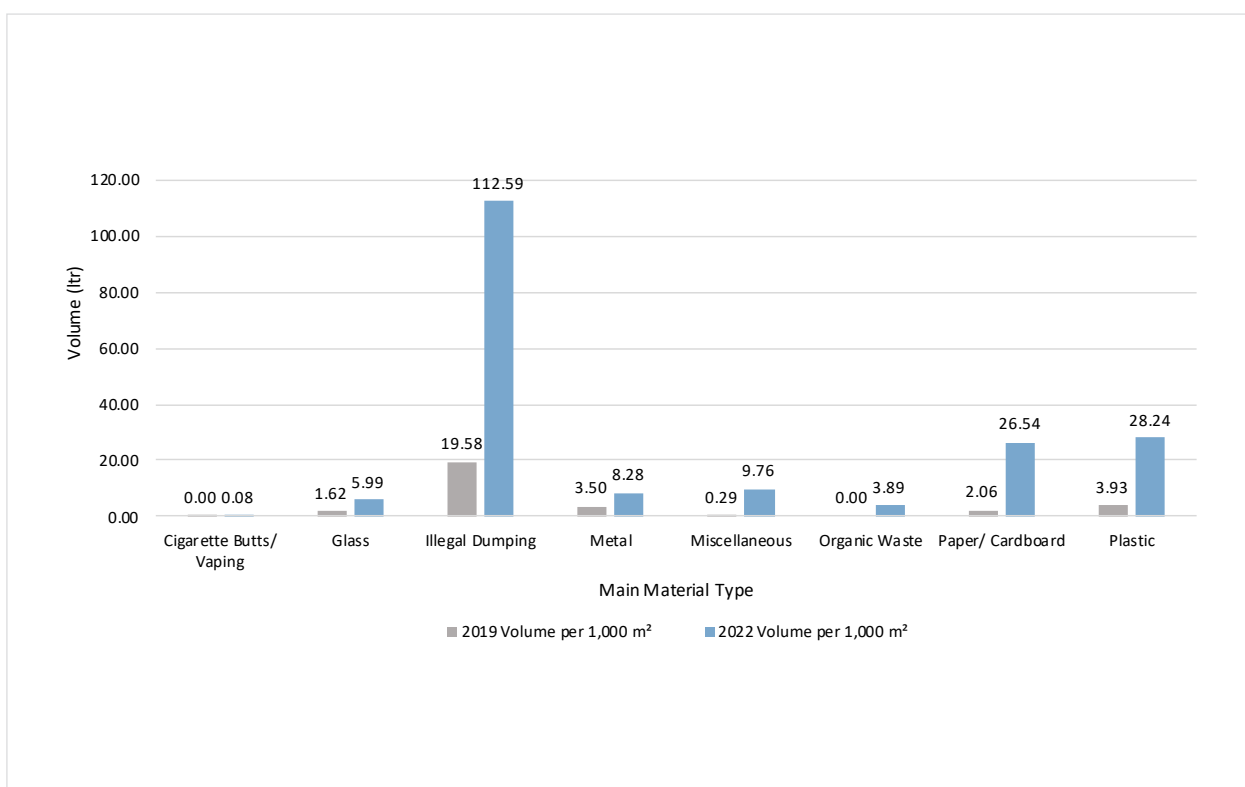
Figure 470: Waikato Railways, Items per 1,000 m² by Main Material Type: Comparison Over Time
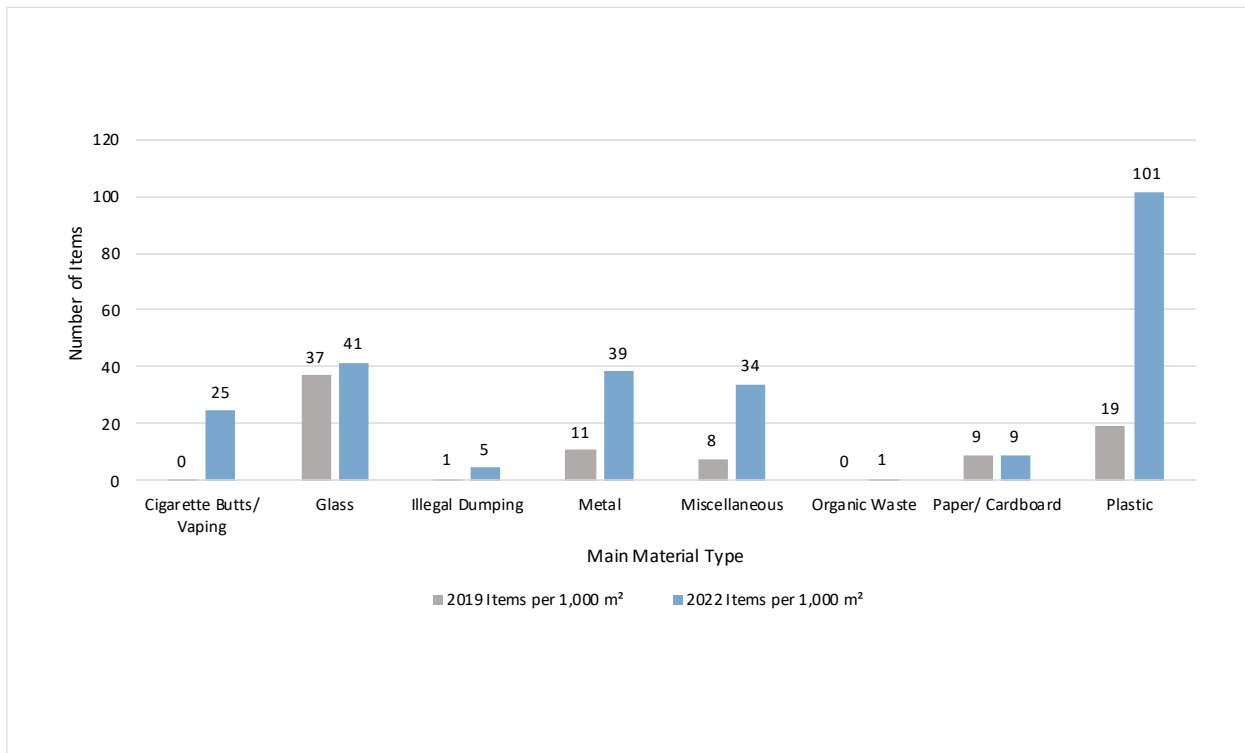
Figure 471: Waikato Railways, Weight per 1,000 m² by Main Material Type: Comparison Over Time
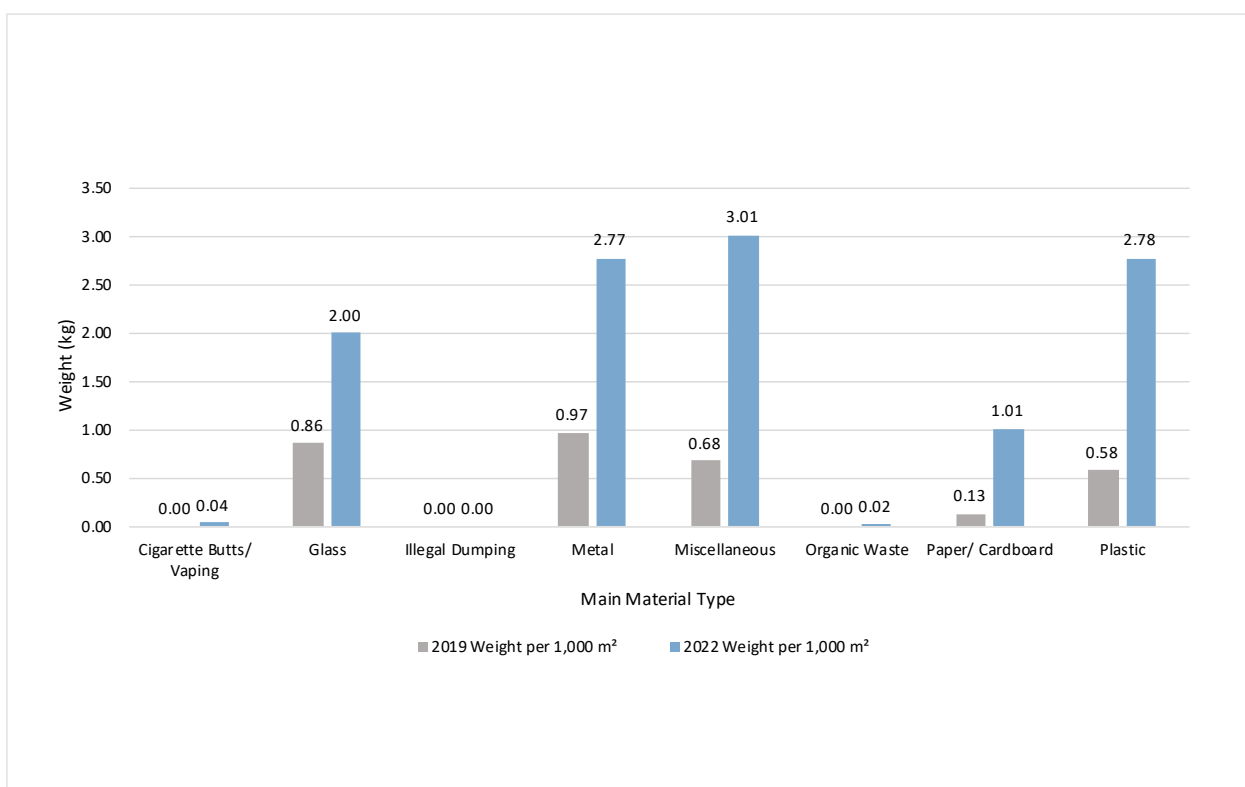
Figure 472: Waikato Railways, Volume per 1,000 m² by Main Material Type: Comparison Over Time
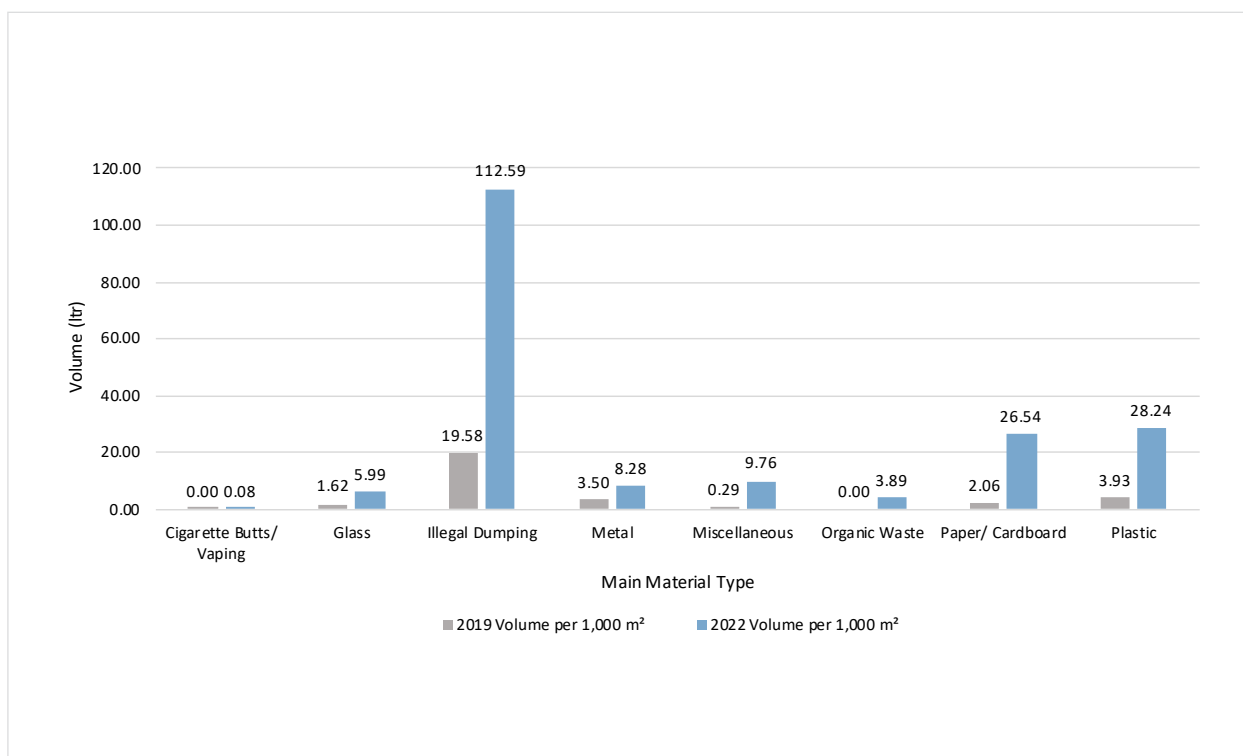
Figure 473: Waikato Highways, Dirty Dozen, Items per 1,000 m², Material Subcategories: Comparison Over Time
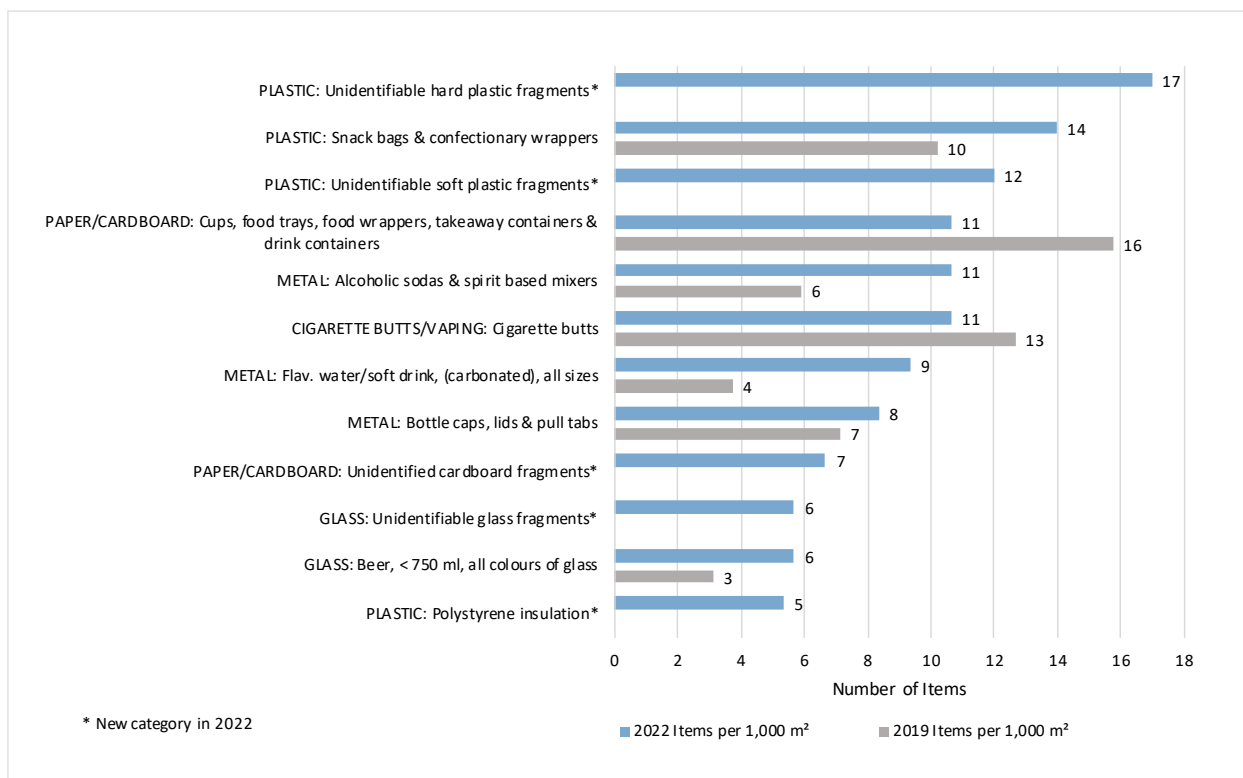
Figure 474: Waikato Highways, Dirty Dozen, Weight per 1,000 m², Material Subcategories: Comparison Over Time

Chart — 2022 Weight per 1,000 m² vs 2019 Weight per 1,000 m²:

- GLASS: Beer, < 750 ml, all colours of glass — 1.02 (2022), 0.66 (2019)
- PAPER/CARDBOARD: Cardboard boxes* — 0.44
- METAL: Metal pieces/fragments — 0.37 (2022), 0.01 (2019)
- MISCELLANEOUS: Clothing, towels & linen* — 0.33
- GLASS: Alcoholic sodas/spirit based mixers, all sizes — 0.28 (2022), 0.11 (2019)
- GLASS: Flav. water/soft drink (carbonated), <1 litre — 0.22 (2022), 0.06 (2019)
- METAL: Vehicle parts* — 0.21
- METAL: Flav. water/soft drink, (carbonated), all sizes — 0.16 (2022), 0.05 (2019)
- METAL: Alcoholic sodas & spirit based mixers — 0.15 (2022), 0.07 (2019)
- MISCELLANEOUS: Other cloth* — 0.14
- PLASTIC: Unidentifiable hard plastic fragments* — 0.14
- PAPER/CARDBOARD: Cups, food trays, food wrappers, takeaway containers & drink containers — 0.13 (2022), 0.12 (2019)

Weight (kg)

* New category in 2022

Figure 475: Waikato Highways, Dirty Dozen, Volume per 1,000 m², Material Subcategories: Comparison Over Time

Chart — 2022 Volume per 1,000 m² vs 2019 Volume per 1,000 m²:

- PAPER/CARDBOARD: Cardboard boxes* — 100.78
- ORGANIC WASTE: Compostable packaging* — 26.22
- MISCELLANEOUS: Tyre pieces* — 18.67
- PLASTIC: Polystyrene insulation* — 10.00
- PAPER/CARDBOARD: Cups, food trays, food wrappers, takeaway containers & drink containers — 7.78 (2022), 11.50 (2019)
- METAL: Alcoholic sodas & spirit based mixers — 4.60 (2022), 2.54 (2019)
- MISCELLANEOUS: Clothing, towels & linen* — 4.22
- METAL: Flav. water/soft drink, (carbonated), all sizes — 3.97 (2022), 1.58 (2019)
- PLASTIC: Containers, domestic type — 2.77 (2022), 0.00 (2019)
- PLASTIC: Flav. water/soft drink (carbonated), 1 litre + — 2.76 (2022), 3.07 (2019)
- GLASS: Beer, < 750 ml, all colours of glass — 2.62 (2022), 1.43 (2019)
- PLASTIC: White milk, all sizes — 2.14 (2022), 0.00 (2019)

Volume (ltr)

* New category in 2022

Figure 476: Waikato Railways, Dirty Dozen, Items per 1,000 m², Material Subcategories: Comparison Over Time
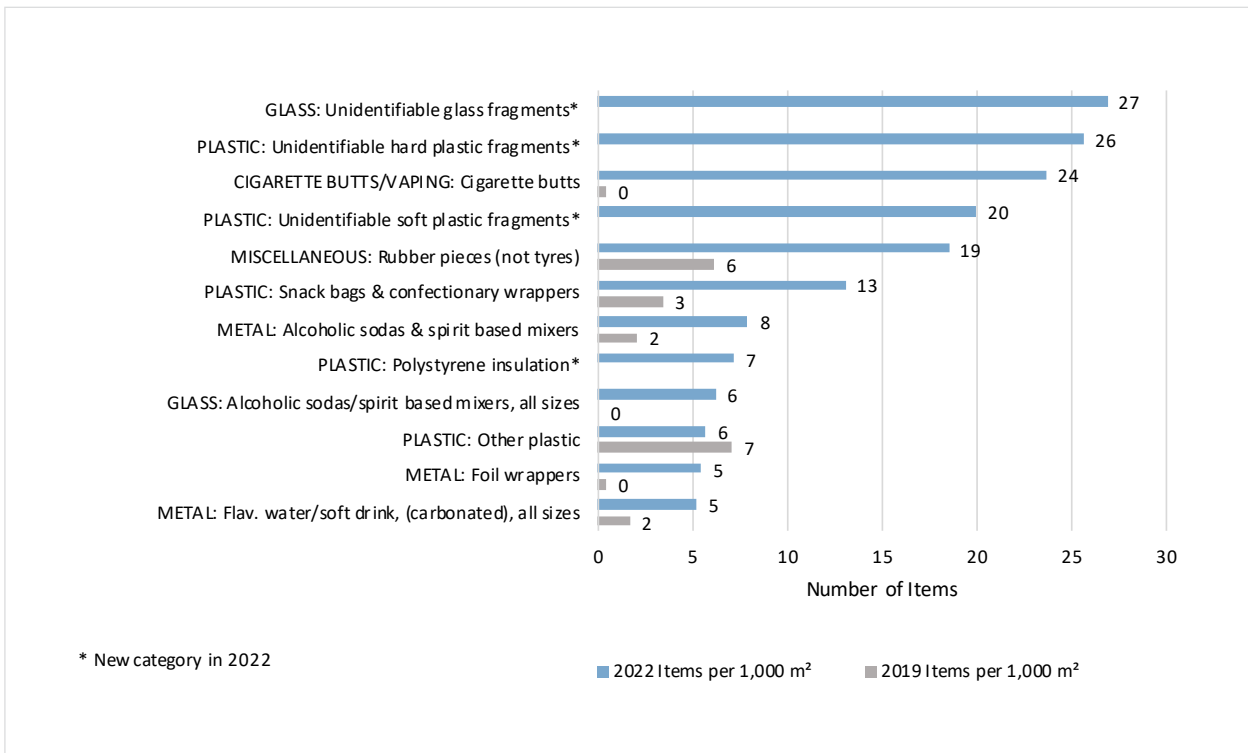
Figure 477: Waikato Railways, Dirty Dozen, Weight per 1,000 m², Material Subcategories: Comparison Over Time
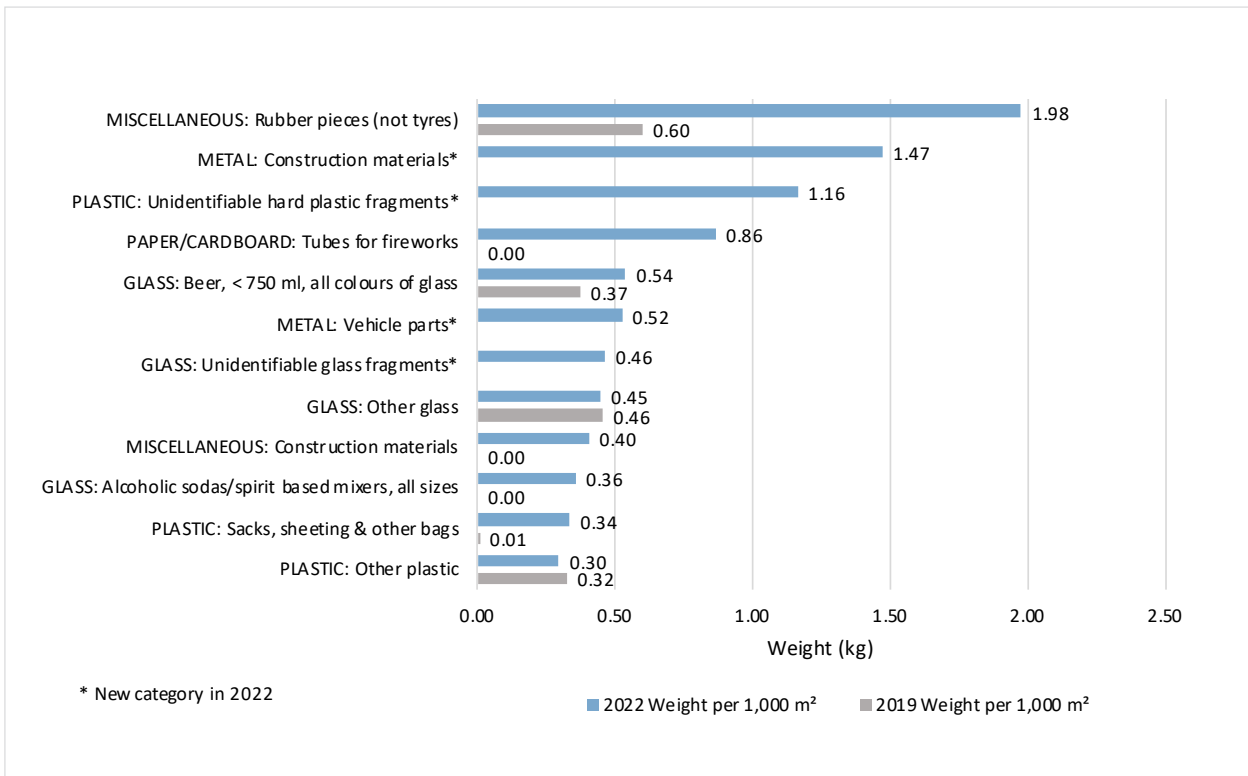
Figure 478: Waikato Railways, Dirty Dozen, Volume per 1,000 m², Material Subcategories: Comparison Over Time

Chart data (2022 Volume per 1,000 m² / 2019 Volume per 1,000 m²):

Category	2022	2019
ILLEGAL DUMPING: Itemised description	112.59	19.58
PAPER/CARDBOARD: Cardboard boxes*	21.33	
PLASTIC: Polystyrene insulation*	13.43	
MISCELLANEOUS: Tyre pieces*3	5.93	
PLASTIC: Containers, domestic type	4.11	0.00
ORGANIC WASTE: Compostable packaging*	3.88	
PAPER/CARDBOARD: Tubes for fireworks	3.75	0.00
METAL: Alcoholic sodas & spirit based mixers	3.41	0.88
PLASTIC: Flav. water/soft drink (carbonated), 1 litre +	3.27	1.35
GLASS: Alcoholic sodas/spirit based mixers, all sizes	2.31	0.00
METAL: Flav. water/soft drink, (carbonated), all sizes	2.21	0.69
GLASS: Beer, < 750 ml, all colours of glass	2.06	0.88

Volume (ltr)

* New category in 2022

■ 2022 Volume per 1,000 m²   ■ 2019 Volume per 1,000 m²

WELLINGTON
REGION

AT A GLANCE

The overall average number of items per 1,000 m² across the 40 sites audited in the Wellington region was 144 items, the overall average estimated volume of litter items per 1,000 m² was 19.99 ltr and the overall average litter weight per 1,000 m² was 0.73 kg.

Industrial sites were associated with the highest litter weights and volumes, and the second highest number of litter items. Retail sites were recorded as having the highest numbers of litter items and volumes, and moderate to high litter weights. Residential sites contributed moderate litter weights and items, recording low to moderate litter volumes, whilst Car Park sites were associated with low to moderate numbers of items, volumes and weights. Public Recreational Spaces contributed the lowest numbers of litter items, volumes and weights per 1,000 m² to the regional litter stream.

Cigarette Butts/Vaping was the most frequently identified material type per 1,000 m² but was associated with the smallest litter weight and second smallest volume recorded in the region, whilst Plastic was associated with the second highest identified item, second largest weight and the third largest volume.

Miscellaneous items were the largest contributor to litter weight per 1,000 m² in the regional litter, however this material type was associated with small to moderate numbers of items and volumes.

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

Note:

- *New material subcategories were added in 2022 and so not all material subcategories are comparable between 2019 and 2022.*

- *A weight measure was not recorded for any items of Illegal Dumping identified during the audit, and therefore has not been included in the analysis. There were no instances of Illegal Dumping at the sites audited in the Wellington region.*

- *Not all regions were audited for Highway and/or Railway sites, and so these site types have been separated out and specifics for each region given at the end of the relevant chapter. The Wellington region was audited for one Highway site and one Railway site.*

COMPARISON BY SITE TYPES

The highest numbers of litter items per 1,000 m² collected at the sites audited in the Wellington region were Retail (590 items) and Industrial (251 items) sites. Moderate numbers of litter items were collected at Residential sites (138 items) whilst Car Park sites (91 items) were associated with low to moderate numbers of litter items. Public Recreational Spaces (28 items) contributed to low numbers of litter items per 1,000 m².

High estimated volumes per 1,000 m² of the litter items were associated with Industrial (71.29 ltr) and Retail (58.09 ltr) sites, whilst small to moderate volumes per 1,000 m² were associated with Residential (12.09 ltr) and Car Park (9.08 ltr) sites. Public Recreational Spaces (2.81 ltr) contributed to the smallest litter volumes per 1,000 m² within the region.

The largest litter weights per 1,000 m² of litter items were associated with Industrial (2.91 kg) and Retail (1.44 kg) sites.

Moderate litter weights were recorded at Residential sites (0.85 kg), whilst smaller litter weights were identified at Car Park sites (0.41 kg) and Public Recreational Spaces (0.06 kg).

Figure 479: Wellington 2022, Items and Volume per 1,000 m² by Site Type
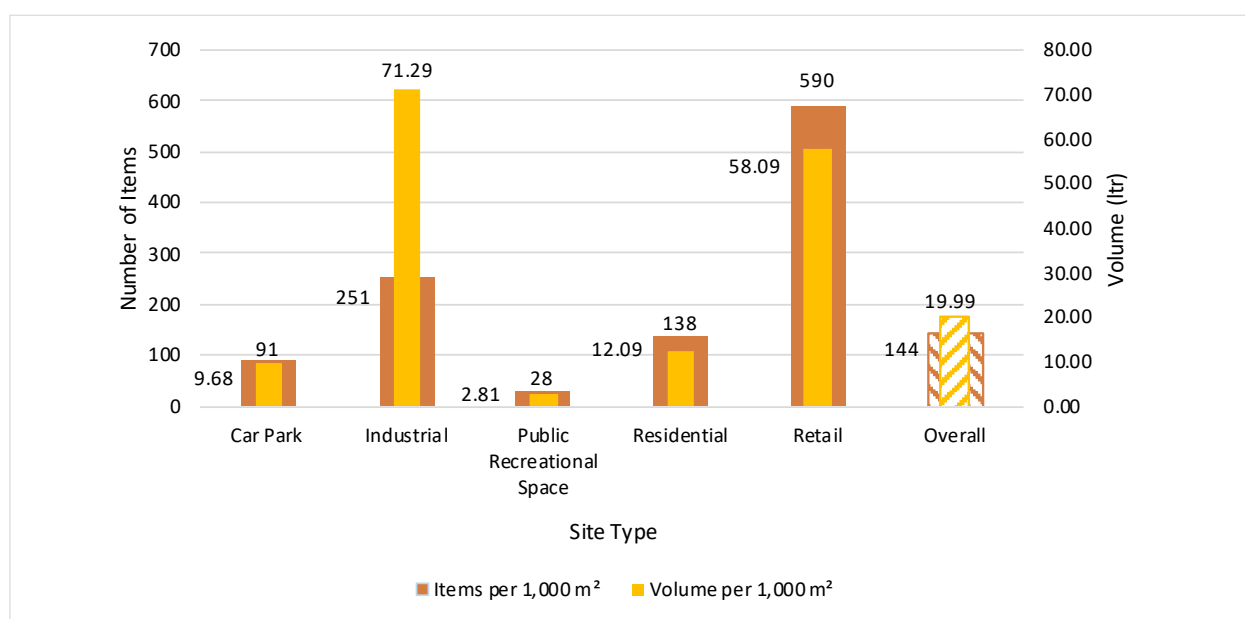
Figure 480: Wellington 2022, Items and Weight per 1,000 m² by Site Type
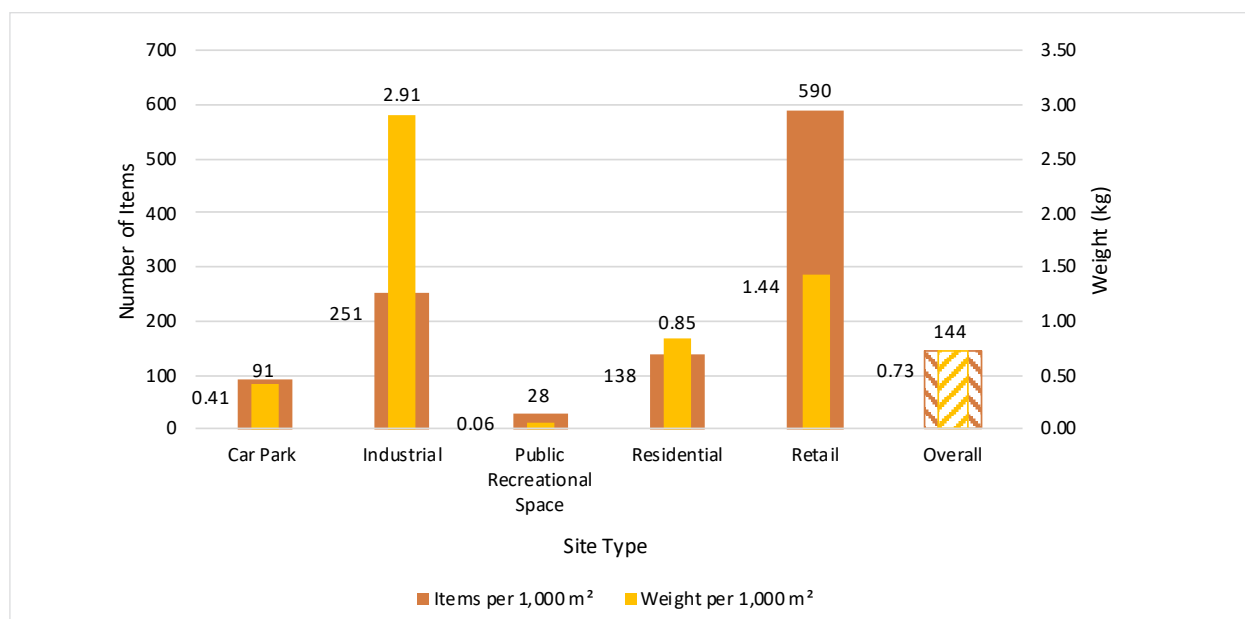
SITE CHARACTERISTICS

The following site characteristics across all site types (excluding Highway and Railway sites) were identified for litter items and volume per 1,000 m² in the Wellington region:

- Industrial sites were associated with moderate to high numbers of litter items and high volumes.

- Retail sites contributed high numbers of litter items and litter volumes.

- Car Park sites were associated with low to moderate numbers of litter items and small to moderate litter volumes.

- Residential sites were associated with moderate numbers of litter items and small to moderate litter volumes.

- Public Recreational Spaces contributed low numbers of litter items and small litter volumes.

Figure 481: Wellington 2022, Items and Volume per 1,000 m² by Site Type
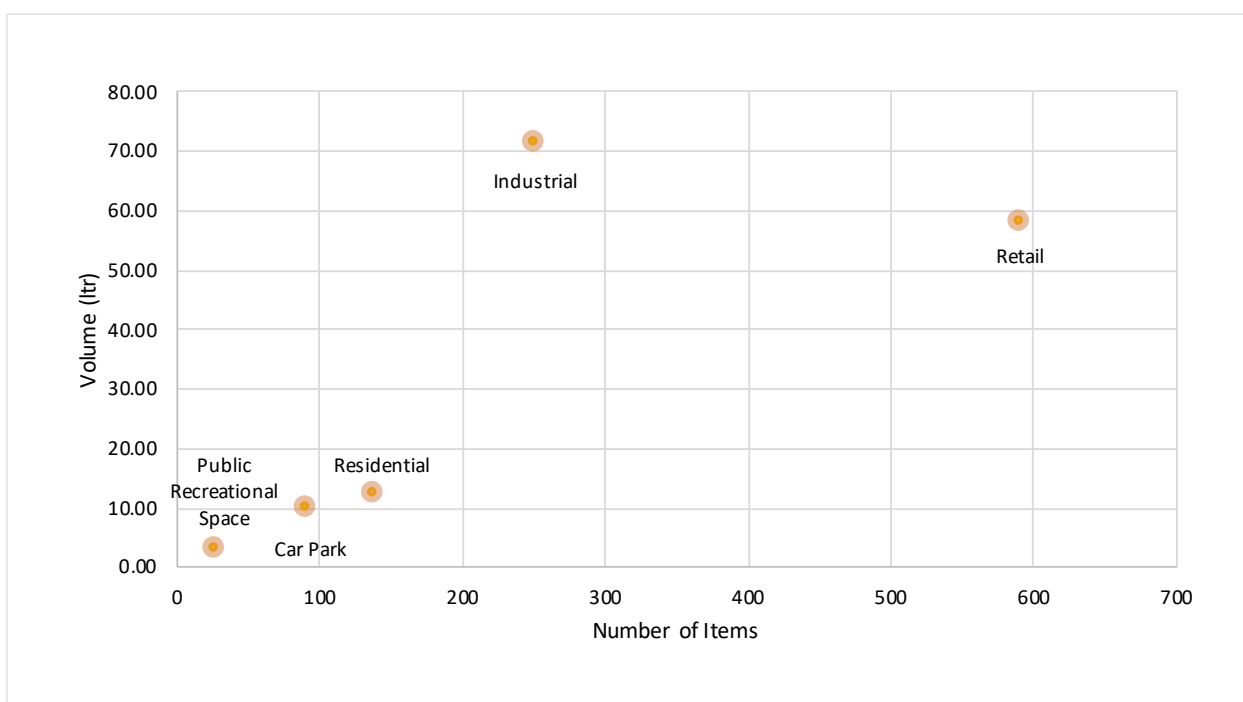
The following site characteristics across all site types (excluding Highway and Railway sites) were identified for litter items and weight per 1,000 m² in the Wellington region:

- Industrial sites were associated with moderate to high numbers of litter items and large litter weights.

- Retail sites contributed high numbers of litter items and were associated with moderate to large litter weights.

- Car Park sites were associated with low to moderate numbers of litter items and small to moderate litter weights.

- Residential sites were associated with moderate litter numbers of litter items and moderate weights.

- Public Recreational Spaces were associated with low numbers of litter items and small litter weights.

Figure 482: Wellington 2022, Items and Weight per 1,000 m² by Site Type
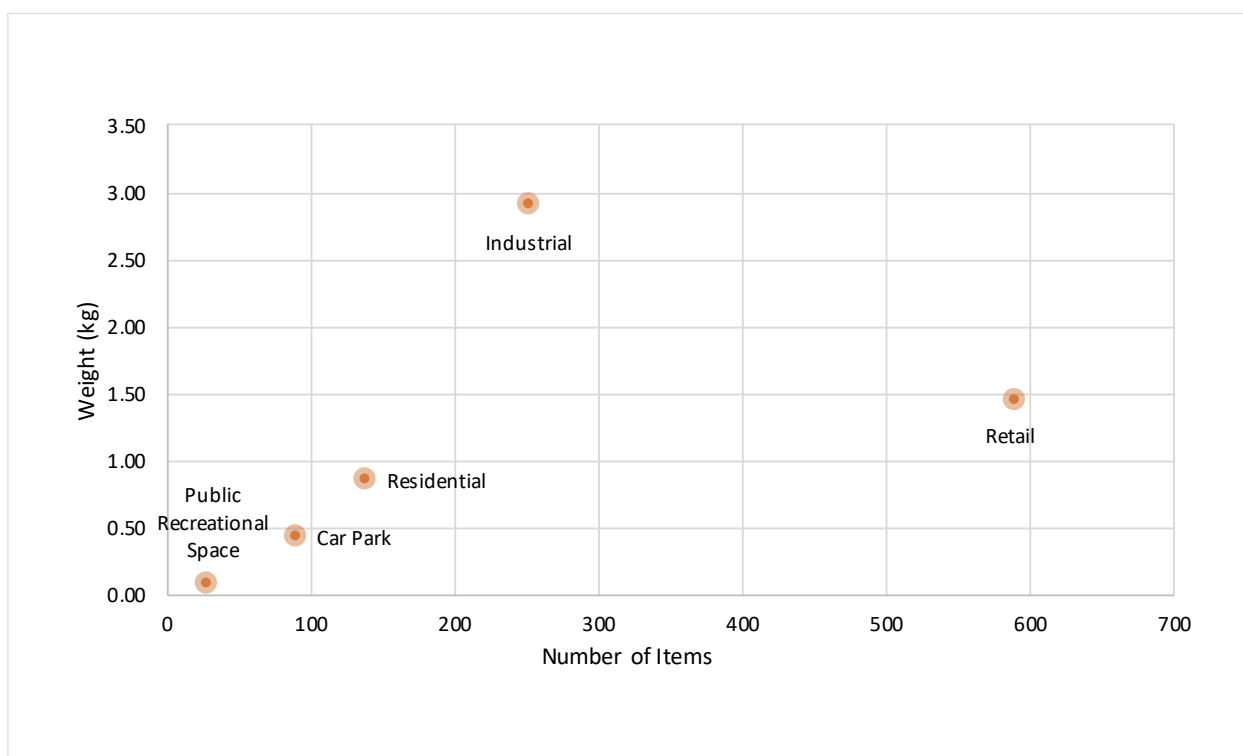
COMPARISON BY SITE TYPE OVER TIME

Since 2019, there have been increases across all three measures, including number of litter items, estimated volume and weight per 1,000 m² in the Wellington region.

ITEMS PER 1,000 M²

The number of litter items collected in the Wellington region has increased slightly (144 items vs. 129 items per 1,000 m² in 2019). As shown in the graphs below, the biggest increase can be seen at Retail sites (590 items vs. 262 items per 1,000 m² in 2019).

Figure 483: Wellington, Items per 1,000 m² by Site Type: Comparison Over Time
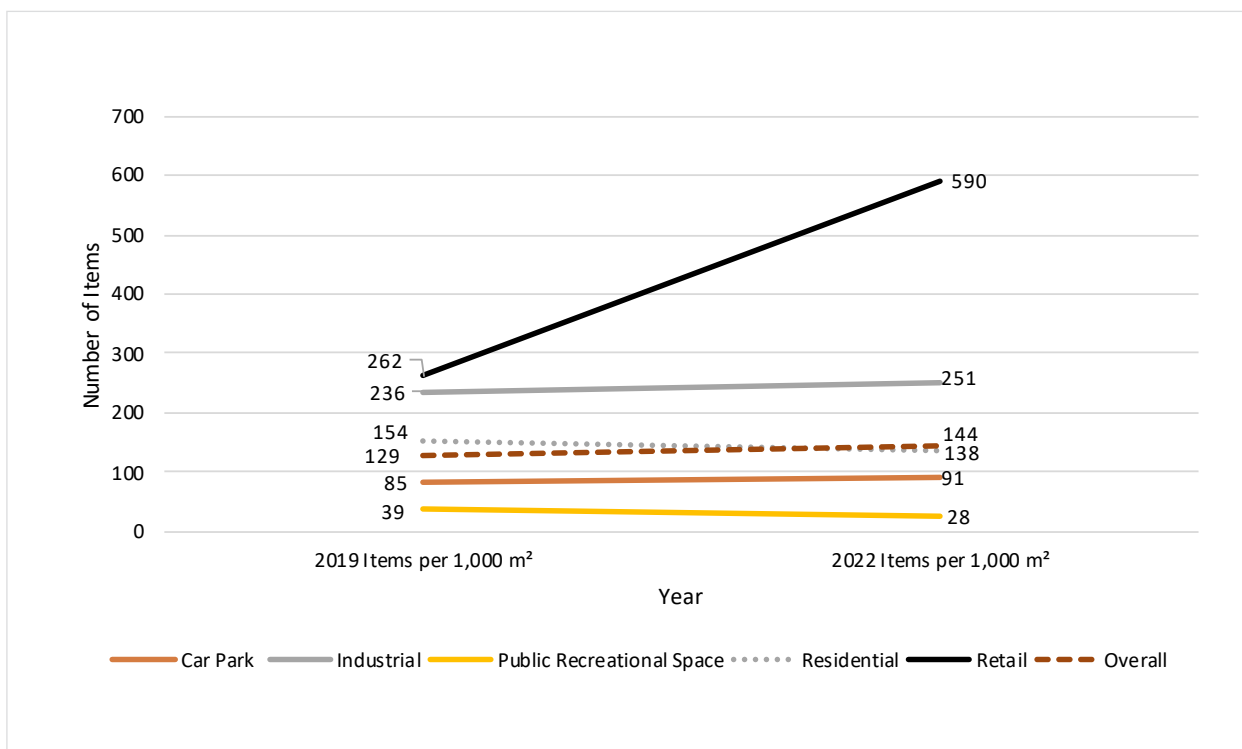
Figure 484: Wellington, Items per 1,000 m² by Site Type: Comparison Over Time
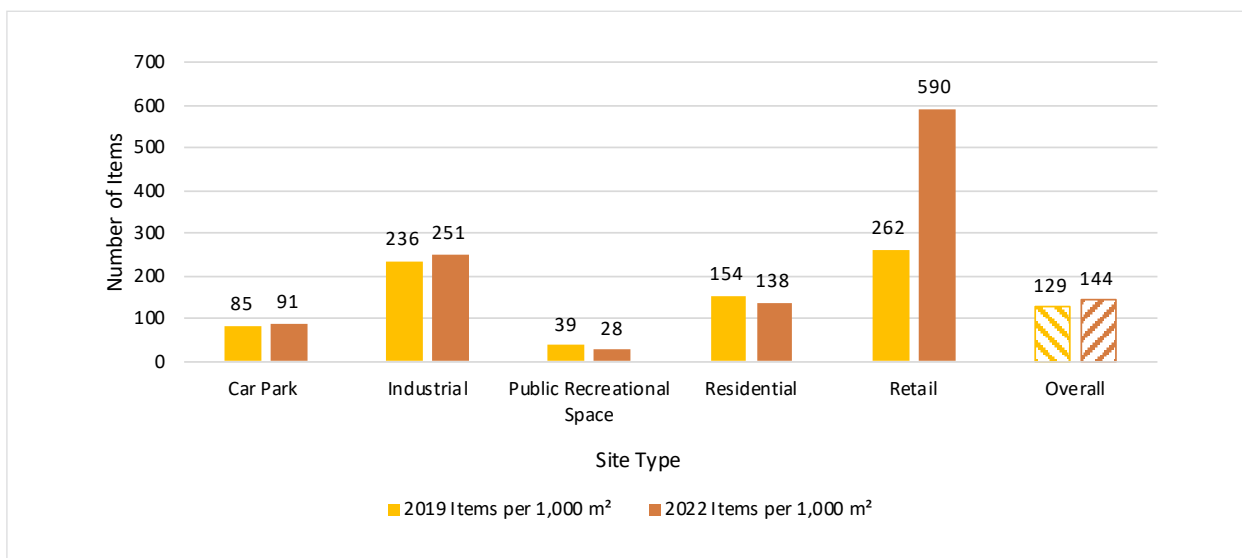
VOLUME PER 1,000 M²

Overall, litter volumes per 1,000 m² in the Wellington region have increased by 13.33 ltr since 2019. As shown in the graphs below, this increase is consistent across most site types, with the largest litter volumes seen in Industrial (71.29 ltr vs. 15.08 ltr per 1,000 m² in 2019) and Retail (58.09 ltr vs. 3.88 ltr per 1,000 m² in 2019) sites.

Figure 485: Wellington, Volume per 1,000 m² by Site Type: Comparison Over Time
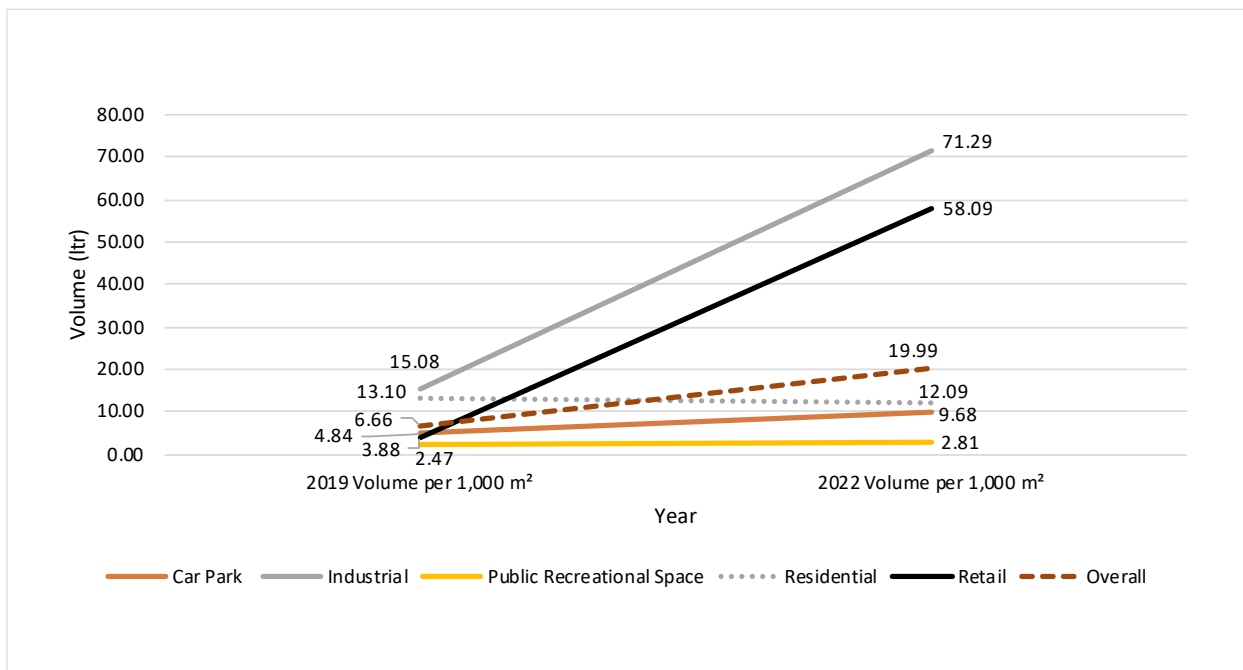
Figure 486: Wellington, Volume per 1,000 m² by Site Type: Comparison Over Time
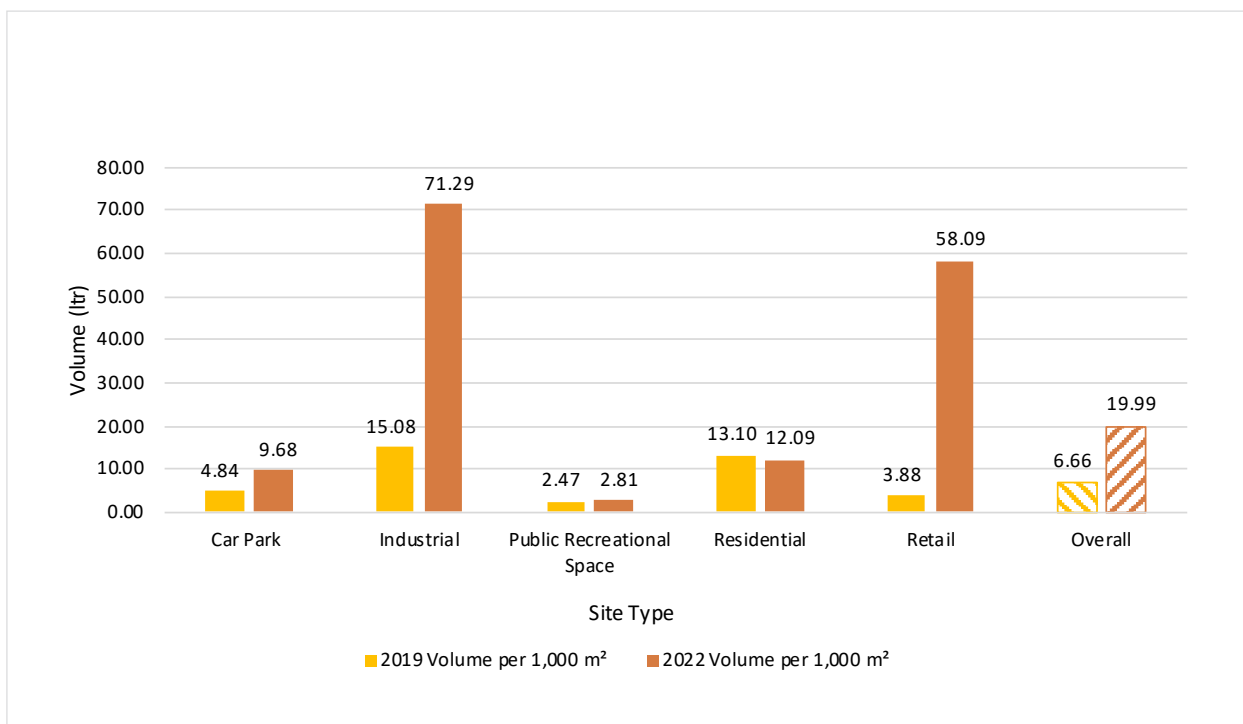
WEIGHT PER 1,000 M²

Overall, the litter weight in the Wellington region has increased since 2019 (0.73 kg vs. 0.44 kg per 1,000 m² in 2019). As shown in the graphs below, the site types with the biggest increases in litter weight per 1,000 m² are at Industrial (2.91 kg vs. 1.11 kg in 2019) and Retail (1.44 kg vs. 0.19 kg in 2019) sites.

Figure 487: Wellington, Weight per 1,000 m² by Site Type: Comparison Over Time
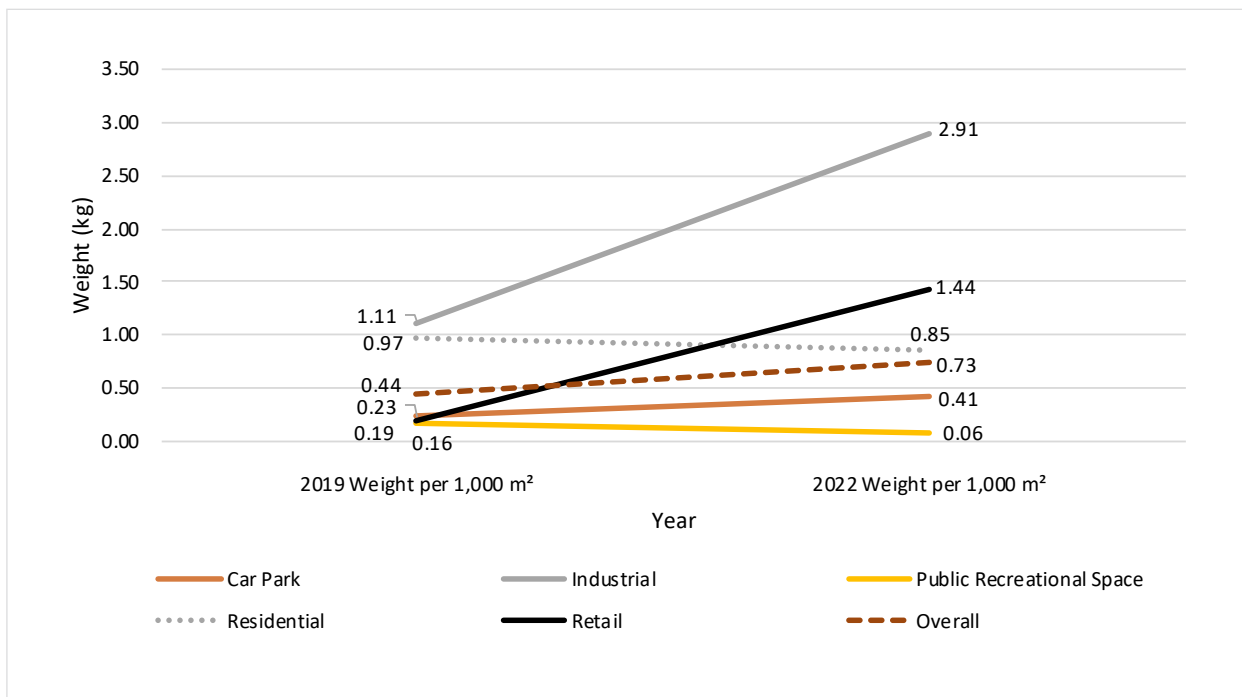
Figure 488: Wellington, Weight per 1,000 m² by Site Type: Comparison Over Time
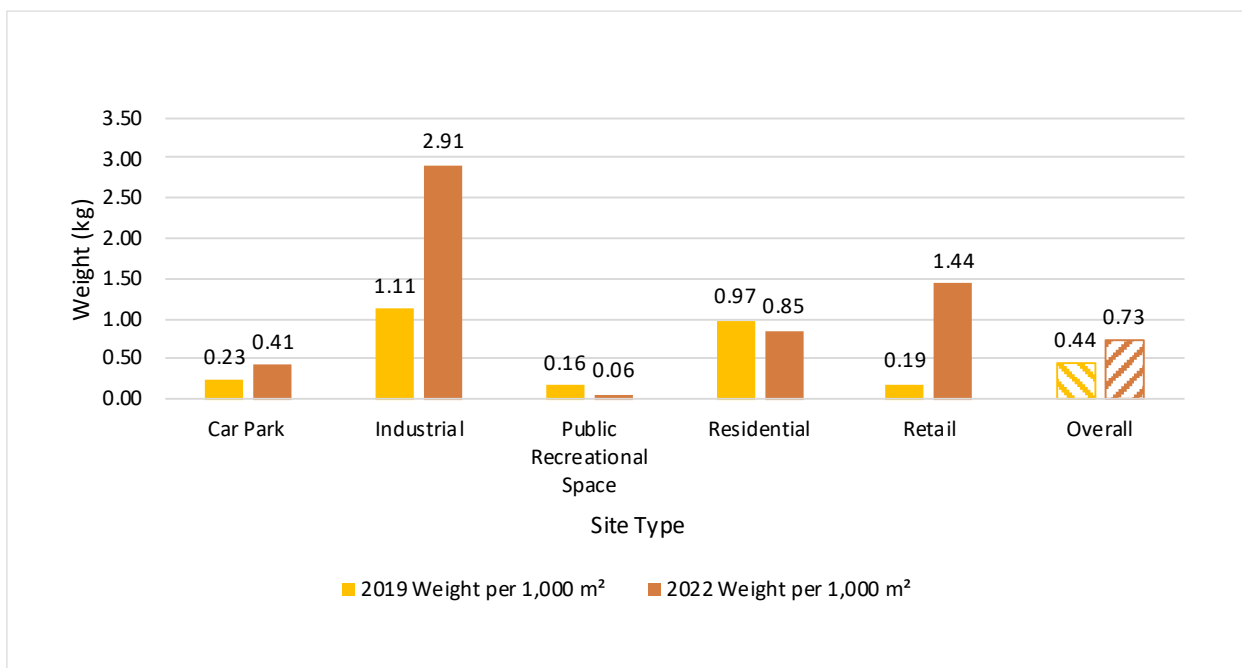
COMPARISON BY MAIN MATERIAL TYPES

Cigarette Butts/Vaping was the most frequently identified material type per 1,000 m² in the Wellington region (53 items), whilst Plastic (41 items) contributed to the second highest identified material type.

Smaller numbers of litter items per 1,000 m² were recorded for Metal (16 items), Paper/Cardboard (15 items), Miscellaneous (14 items), Glass (4 items), and Organic Waste (1 item).

Paper/Cardboard contributed the largest amount of volume per 1,000 m² to the litter stream (10.50 ltr), with the second largest volumes associated with Plastic (4.78 ltr). Small to moderate litter volumes were recorded for Miscellaneous items (2.06 ltr), whilst smaller volumes were associated with Organic Waste (1.42 ltr), Metal (0.81 ltr) and Glass (0.34 ltr) per 1,000 m²

Cigarette Butts/Vaping items were associated with the smallest proportion of the overall litter volume (0.06 ltr) per 1,000 m²

Miscellaneous (0.17 kg), Plastic (0.14 kg) and Glass (0.14 kg) were associated with the largest litter weights per 1,000 m² in the Wellington region, whilst moderate to high litter weights were recorded for Metal (0.12 kg) and Paper/Cardboard (0.11 kg). The smallest litter weights in the region were recorded for Cigarette Butts/Vaping (0.03 kg) and Organic Waste (0.01 kg).

Figure 489: Wellington 2022, Items and Volume per 1,000 m² by Main Material Type

*No instances were recorded
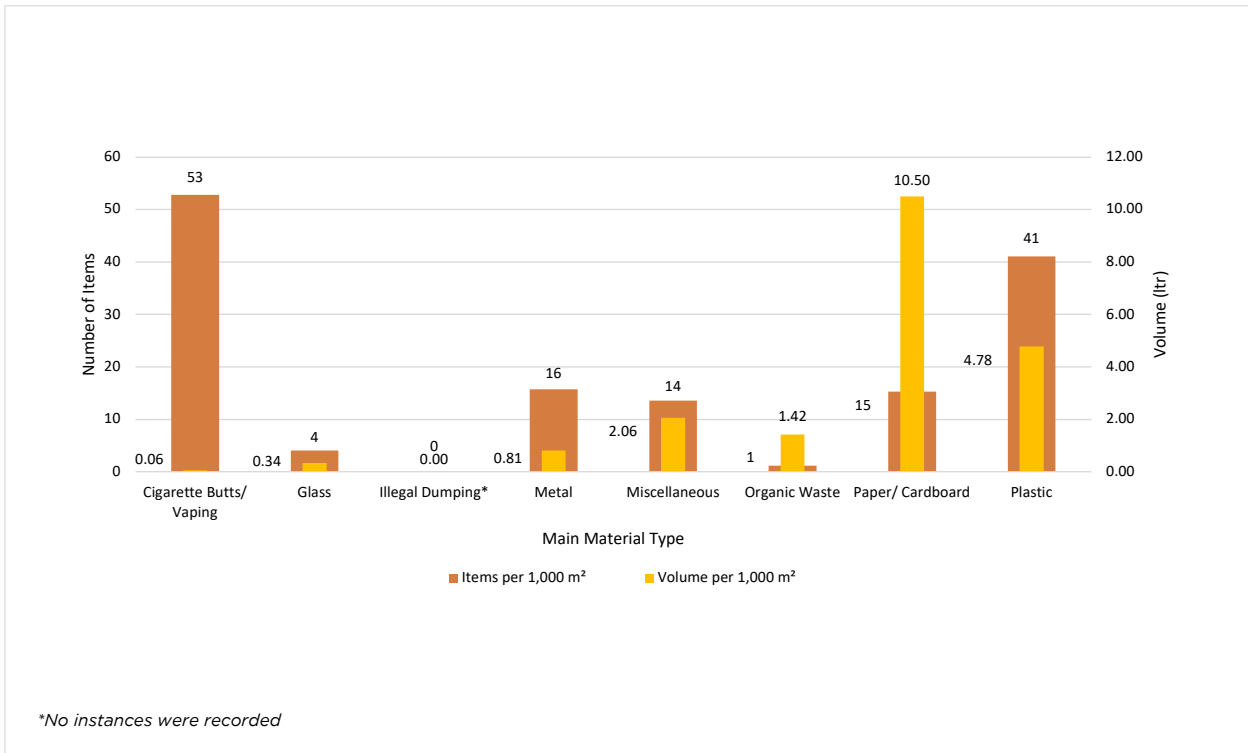
Figure 490: Wellington 2022, Items and Weight per 1,000 m² by Main Material Type
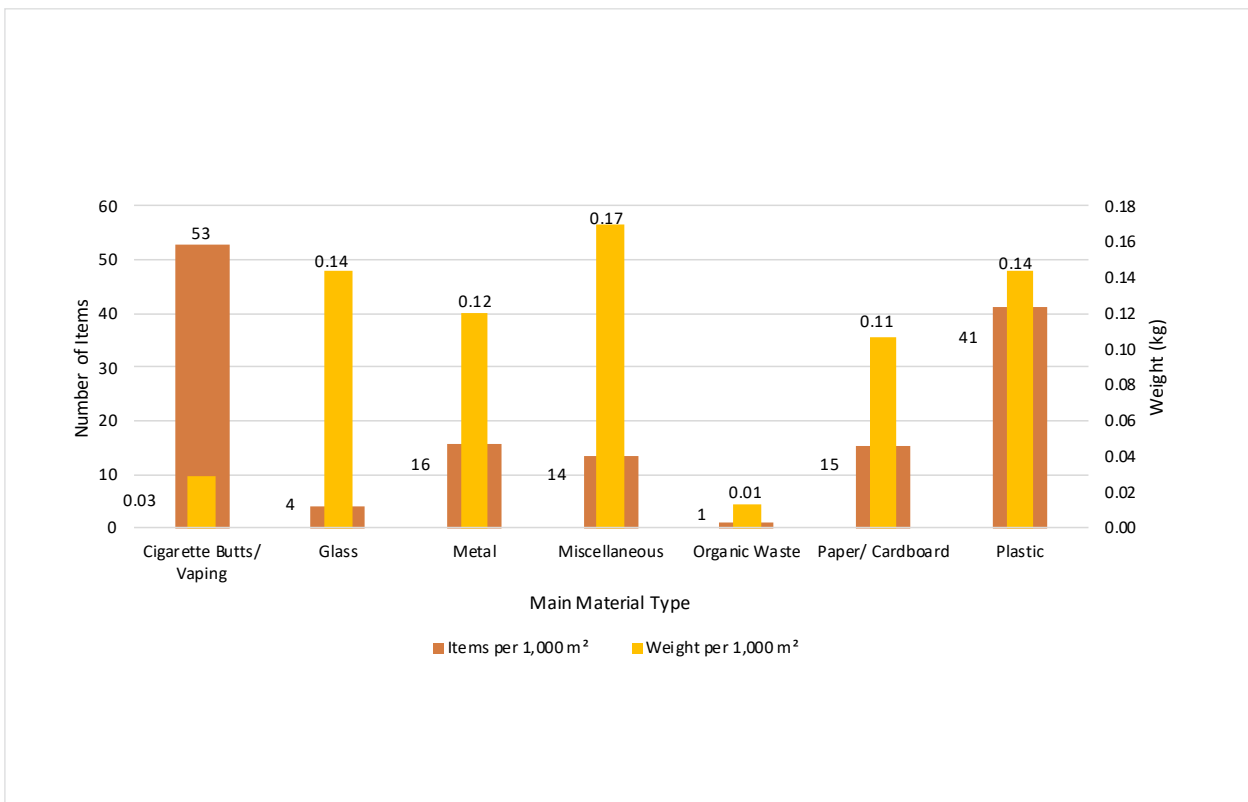
MAIN MATERIAL CHARACTERISTICS

The following material type characteristics were identified for litter items and volume per 1,000 m² in the Wellington region (excluding Highway and Railway sites):

- Cigarette Butts/Vaping were associated with a high number of litter items, but low litter volumes.

- Miscellaneous items contributed low to moderate numbers of litter items and litter volumes.

- Plastic contributed large numbers of litter items and moderate litter volumes.

- Paper/Cardboard contributed low to moderate numbers of litter items and large litter volumes.

- Metal was associated with low to moderate numbers of litter items and small litter volumes.

- Glass and Organic Waste contributed to low numbers of litter items and small litter volumes.

Figure 491: Wellington 2022, Items and Volume per 1,000 m² by Main Material Type
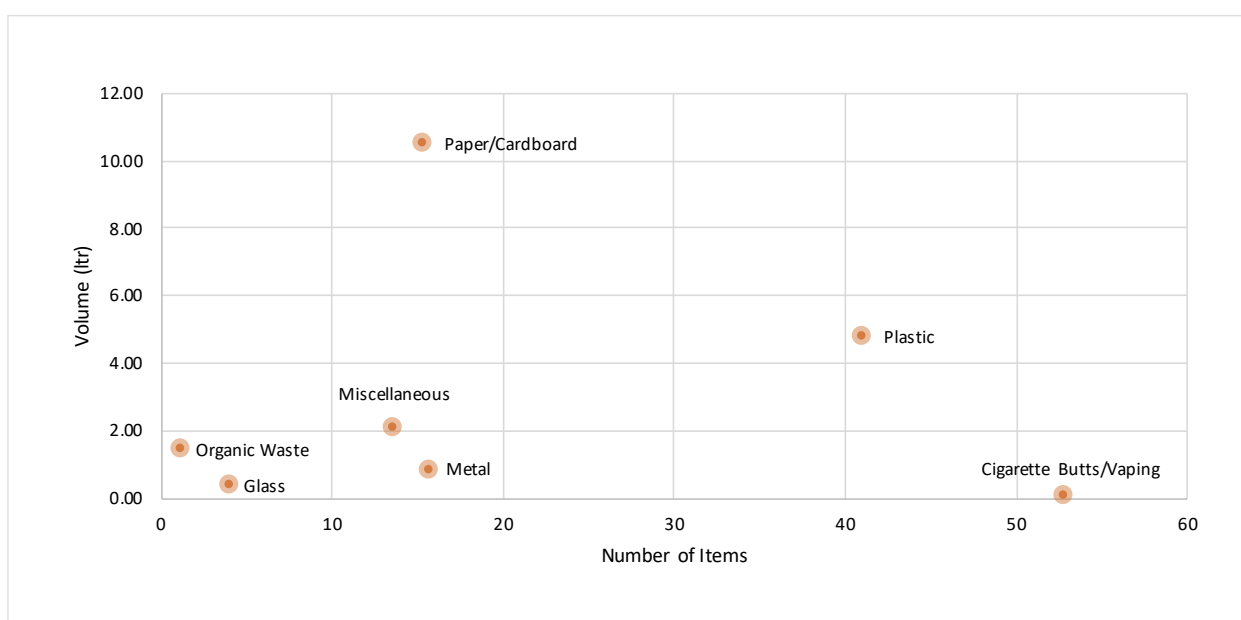
The following material type characteristics were identified for litter items and weight per 1,000 m² in the Wellington region (excluding Highway and Railway sites):

- Glass was associated with low numbers of litter items and large litter weights.

- Plastic contributed to high numbers of litter items and large litter weights.

- Metal and Paper/Cardboard items were associated with low to moderate numbers of litter items and moderate to high litter weights.

- Miscellaneous items contributed low to moderate numbers of litter items and large litter weights.

- Organic Waste contributed low numbers of littered items and small litter weights.

- Cigarette Butts/Vaping items were associated with high numbers of littered items, but contributed small litter weights.

Figure 492: Wellington 2022, Items and Weight per 1,000 m² by Main Material Type
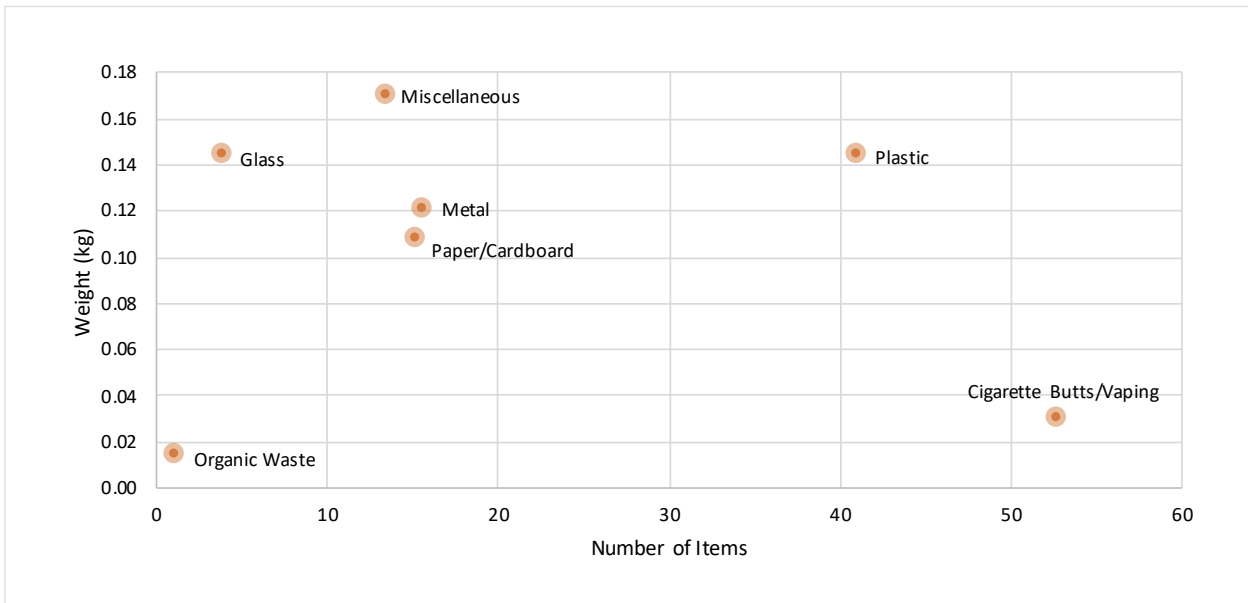
COMPARISONS BY MAIN MATERIAL TYPE OVER TIME

Compared with 2019, the material type, Plastic, has seen an increases across all three measures, including number of litter items, estimated volume and weight per 1,000 m². Whilst the litter volume Metal and Miscellaneous has remained much the same, the litter weight and number of items classified has increased since 2019.

ITEMS PER 1,000 M²

Since 2019, there has been a decline in the number of litter items per 1,000 m² found classified under Glass (4 items vs. 9 items in 2019), whilst Cigarette Butts/Vaping, Paper/Cardboard and Organic Waste have all remained relatively consistent. The number litter items classified under Plastic has seen the biggest increase since 2019 (41 items vs. 32 items in 2019) per 1,000 m².

Figure 493: Wellington, Items per 1,000 m² by Main Material Type: Comparison Over Time
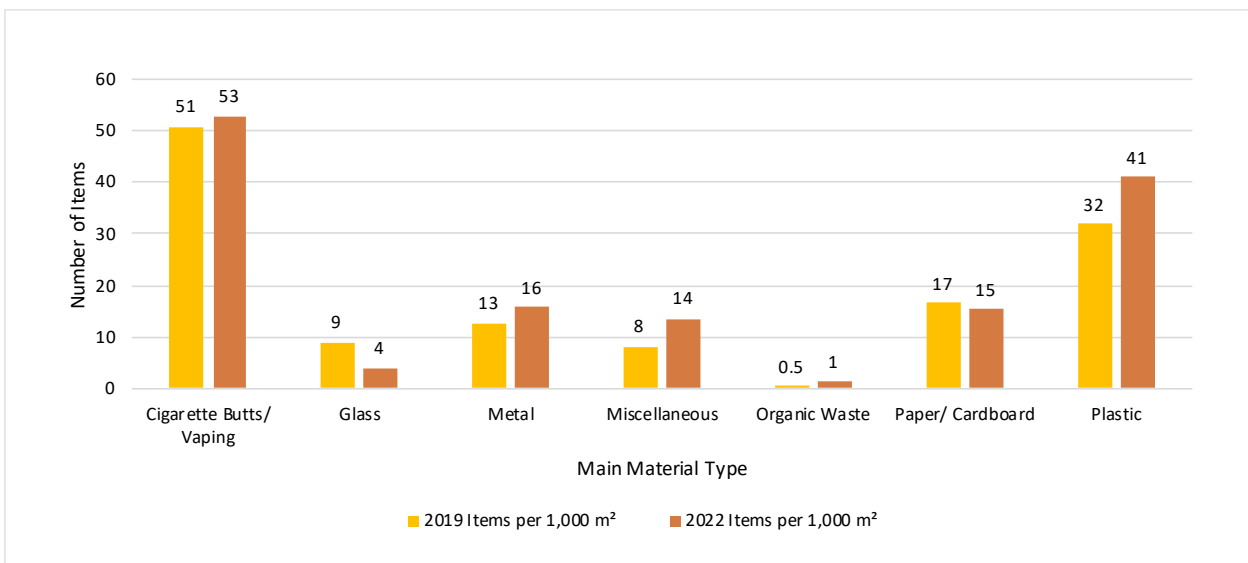
VOLUME PER 1,000 M²

Since 2019, the biggest increases in the litter volume of material types in the Wellington region per 1,000 m² can be seen in Paper/Cardboard (10.50 ltr vs. 1.52 ltr in 2019), Plastic (4.78 ltr vs. 1.41 ltr in 2019) and Organic Waste (1.42 ltr vs. 0.01 ltr in 2019).

Figure 494: Wellington, Volume per 1,000 m² by Main Material Type: Comparison Over Time
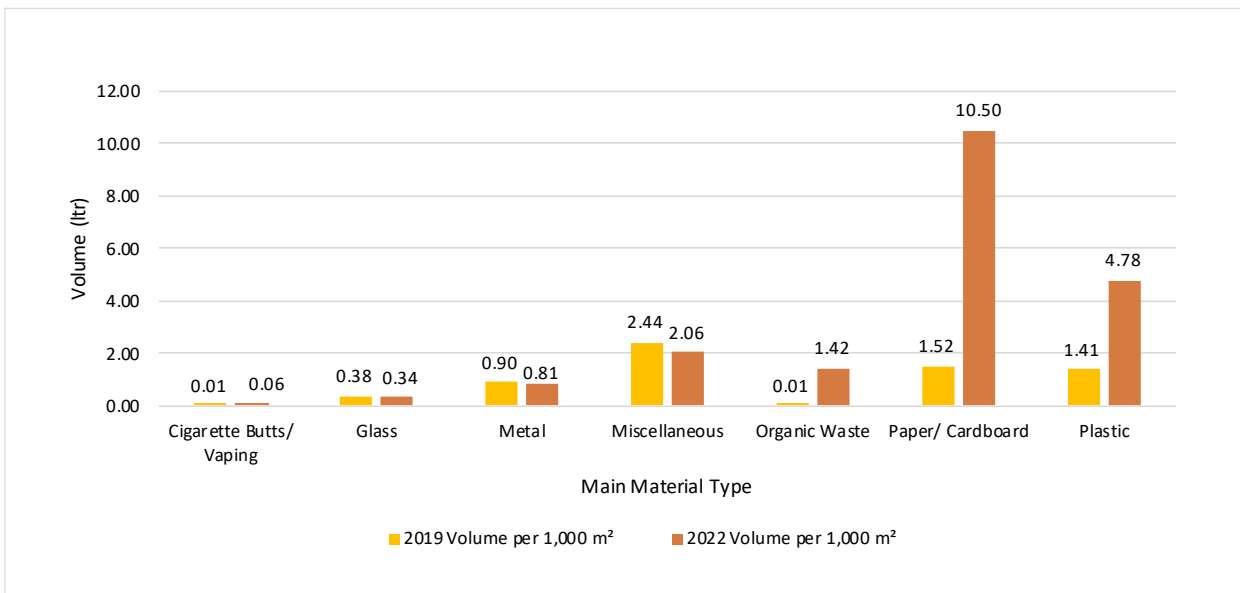
WEIGHT PER 1,000 M²

Since 2019, there has been an increase across most material types per 1,000 m² in the Wellington region, with the high increase seen in the weight of Miscellaneous items (0.17 kg vs. 0.03 kg in 2019).

Figure 495: Wellington, Weight per 1,000 m² by Main Material Type: Comparison Over Time
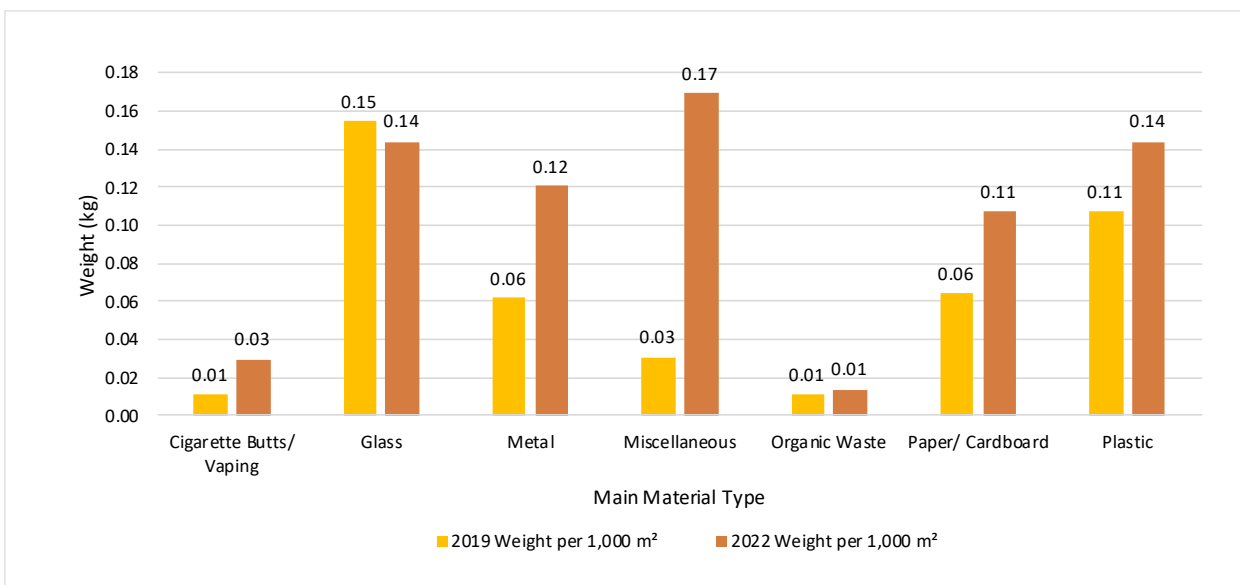
SITE TYPES BY MATERIAL TYPE

In the Wellington region, the number of material type litter items found per 1,000 m² at the different site types (excluding Highway and Railway sites) was as follows:

- Car Park sites: Cigarette Butts/Vaping (28 items), Plastic (25 items), Metal (14 items), Miscellaneous (10 items), Paper/Cardboard (8 items), Glass (3 items), Organic Waste (1 item) and Illegal Dumping (0 items).

- Industrial sites: Plastic (111 items), Cigarette Butts/Vaping (38 items), Paper/Cardboard (34 items), Metal (33 items), Miscellaneous (24 items), Glass (9 items), Organic Waste (2 items) and Illegal Dumping (0 items).

- Public Recreational Spaces: Plastic (11 items), Cigarette Butts/Vaping (4 items), Paper/Cardboard (4 items), Metal (3 items), Miscellaneous (3 items), Glass (1 item), Organic Waste (0 items) and Illegal Dumping (0 items).

- Residential sites: Plastic (63 items), Cigarette Butts/Vaping (23 items), Metal (18 items), Miscellaneous (16 items), Paper/Cardboard (14 items), Glass (3 items), Organic Waste (1 item) and Illegal Dumping (0 items).

- Retail sites: Cigarette Butts/Vaping (333 items), Plastic (97 items), Paper/Cardboard (54 items), Miscellaneous (46 items), Metal (45 items), Glass (11 items), Organic Waste (3 items) and Illegal Dumping (0 items).

Figure 496: Wellington 2022, Sites by Main Material Type: Items per 1,000 m²
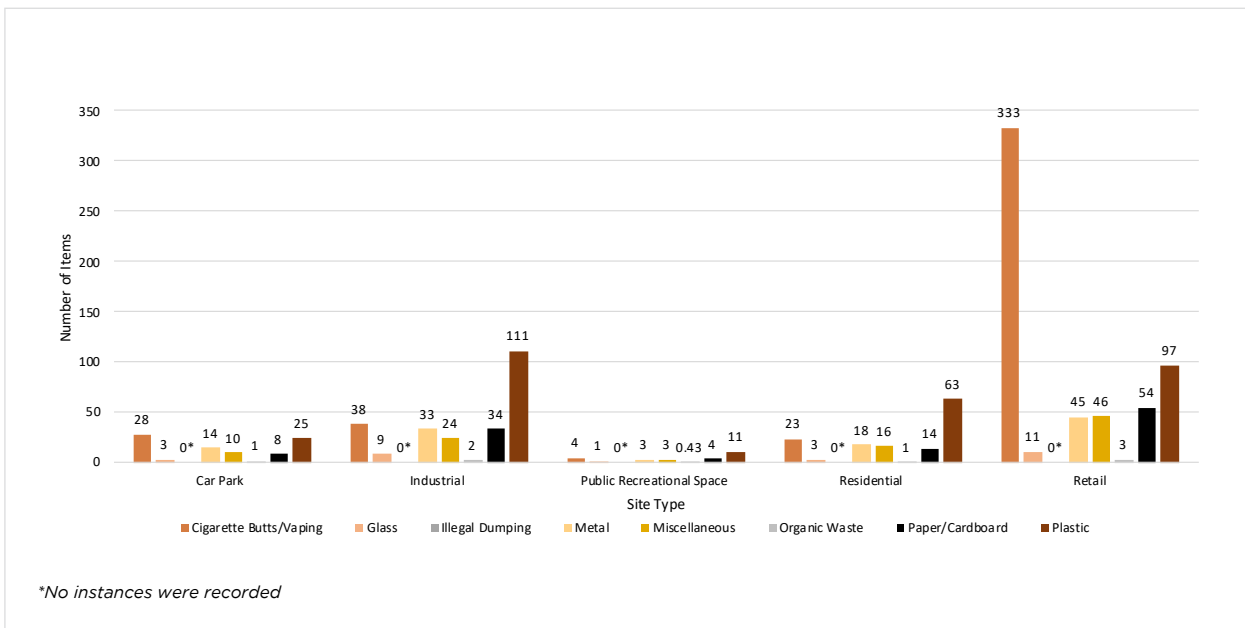
*No instances were recorded

THE DIRTY DOZEN

Cigarette Butts/Vaping: Cigarette butts were the largest contributing material subcategory to the litter items collected within the Wellington region, with 52 butts per 1,000 m² identified on average across the sites audited.

Other material subcategories which were associated with large numbers of litter items included:

- Plastic: Unidentifiable soft plastic fragments (12 items per 1,000 m²)

- Plastic: Unidentifiable hard plastic fragments (9 items per 1,000 m²)

- Plastic: Snack bags & confectionary wrappers (7 items per 1,000 m²).

Not all material subcategories were comparable to the 2019 NLA due to the addition of new subcategories in 2022.

Whilst many of the material subcategories in Wellington's Dirty Dozen by items are new this year, amongst comparable material subcategories, most litter items in the Wellington region's Dirty Dozen have recorded consistent numbers of items per 1,000 m²compared with 2022.

Figure 497: Wellington, Dirty Dozen, Items per 1,000 m², Material Subcategories: Comparison Over Time
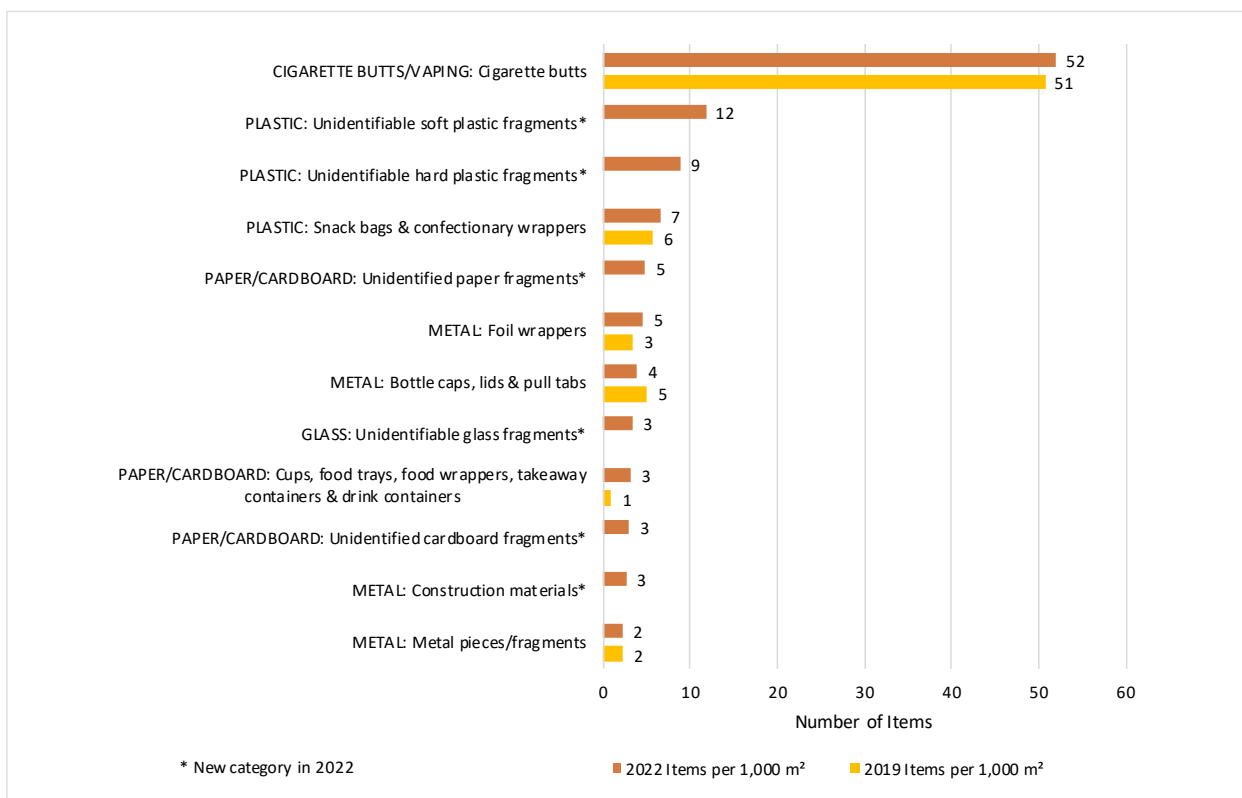
There were high estimated litter volumes of Paper/Cardboard: Cardboard boxes at the audited sites in the Wellington region (7.59 ltr of volume) per 1,000 m².

Other material subcategories associated with large litter volume included:

- Plastic: Polystyrene insulation (3.30 ltr per 1,000m²)

- Paper/Cardboard: Cups, food trays, food wrappers, takeaway & drink containers (2.29 ltr per 1,000 m²)

- Organic Waste: Compostable packaging (1.38 ltr per 1,000 m²)

- Miscellaneous: Clothing, towels & linen (1.38 ltr per 1,000 m²).

Not all material subcategories were comparable to the 2019 NLA due to the addition of new subcategories in 2022.

Whilst a number of the categories for Wellington's Dirty Dozen by volume are new this year, amongst comparable material subcategories there has been an increase in the litter volume of Paper/Cardboard: Cups, food trays, food wrappers, takeaway & drink containers (2.29 ltr vs. 0.69 ltr in 2019).

Figure 498: Wellington, Dirty Dozen, Volume per 1,000 m², Material Subcategories: Comparison Over Time
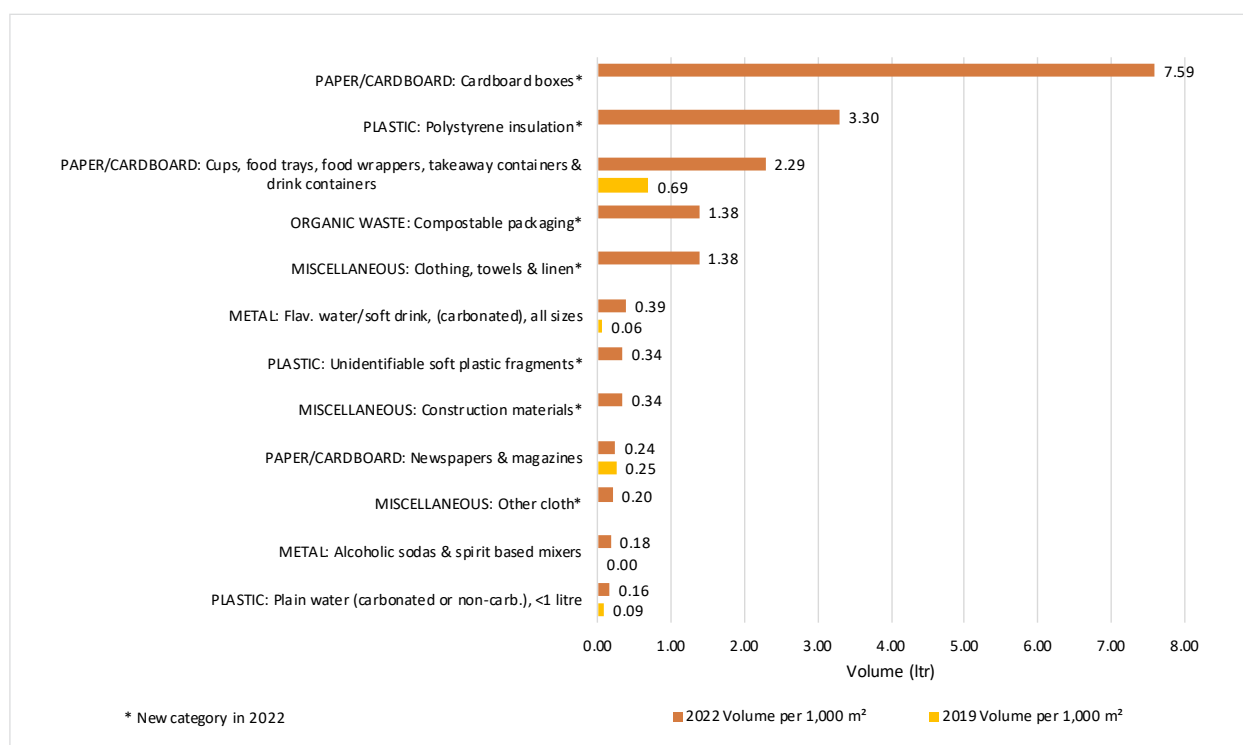
The largest contributor to litter weight per 1,000 m² in the Wellington region was Miscellaneous: Clothing towels & linen (0.06 kg).

Other material subcategories which were associated with large litter weights included:

- Glass: Unidentifiable glass fragments (0.04 kg per 1,000 m²)

- Glass: Beer bottles < 750 ml, all colours (0.03 kg per 1,000 m²)

- Glass: Alcoholic sodas, spirit based mixers, all sizes (0.03 kg per 1,000 m²)

- Miscellaneous: Construction materials (0.03 kg per 1,000 m²)

- Metal: Vehicle parts (0.03 kg per 1,000 m²).

Not all material subcategories were comparable to the 2019 NLA due to the addition of new subcategories in 2022.

Whilst a number of the material subcategories for the Wellington region's Dirty Dozen by weight are new this year, amongst comparable material subcategories, there has been a decrease in the weight of Glass: Beer bottles < 750 ml, all colours (0.03 kg vs. 0.06 kg in 2019) per 1,000 m².

Figure 499: Wellington, Dirty Dozen, Weight per 1,000 m², Material Subcategories: Comparison Over Time

* New category in 2022

■ 2022 Weight per 1,000 m²　■ 2019 Weight per 1,000 m²
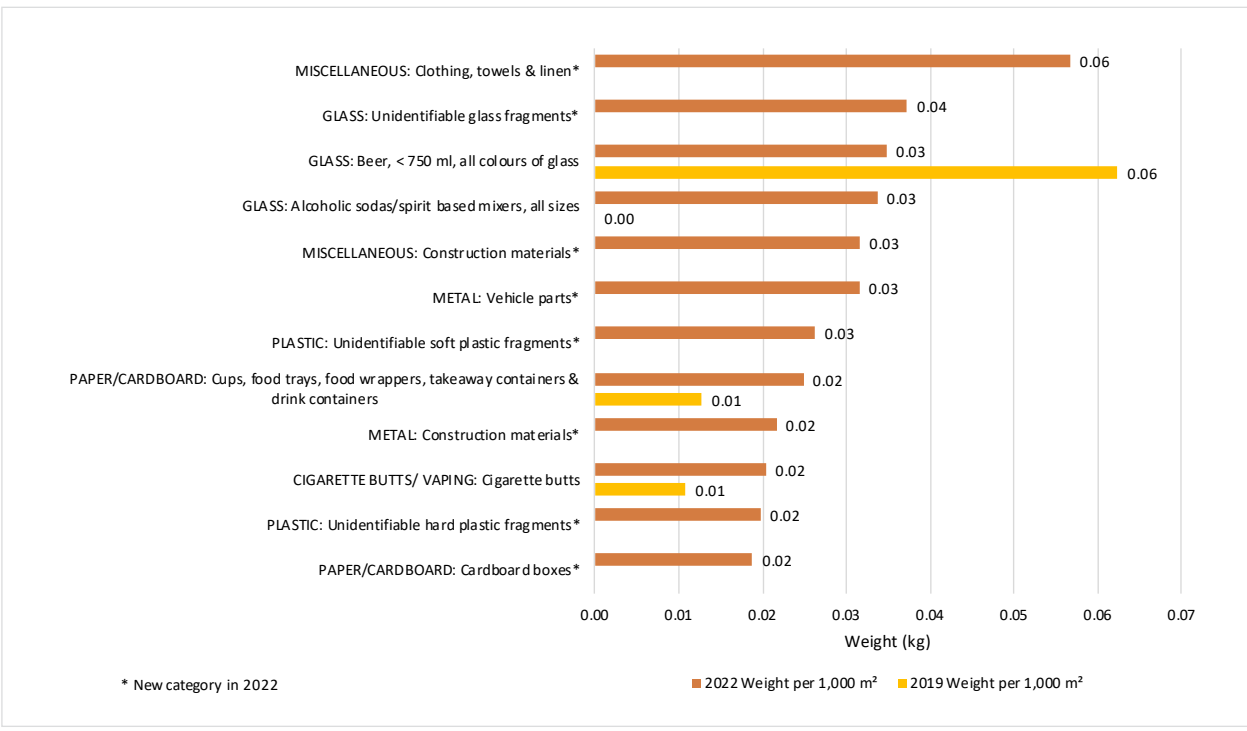
TERRITORIAL SUMMARIES

There are eight Territorial Authorities which fall within the Wellington egion:

- 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 Spaces) were audited in the Wellington region with a minimum of five sites audited from each territory.

The results are summarised below.

Extract from Table 5, 2022 Territory Data: Wellington Region (Excluding Highway and Railway Sites)

Territory	Total Area Audited (m²)	Items per 1,000 m²	Weight (kg) per 1,000 m²	Volume (ltr) per 1,000 m²
WELLINGTON REGION				
Carterton District	4,350	75	0.33	3.49
Kāpiti Coast District	3,450	189	0.91	22.15
Lower Hutt City	4,300	142	0.44	10.05
Masterton District	4,500	122	0.77	11.12
Porirua City	4,897	145	0.92	16.92
South Wairarapa District	4,020	84	0.58	20.28
Upper Hutt City	4,044	263	1.25	28.41
Wellington City	4,560	145	0.66	47.78
Wellington Region Overall	**34121**	**144**	**0.73**	**19.99**

SITE GRADINGS

All sites were assigned gradings in four 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 Wellington region.

Extract from Table 3, Risk and Litter Distribution: Wellington (Excluding Highway and Railway Sites)

Wellington	Risk Present		Litter Distribution	
	Moderate hazard or risk	Significant hazard or risk	Widespread	Clustered
	100%	0%	63%	38%

Figure 500: Wellington 2022, Grading: Visual Site Ratings (Excluding Highway and Railway Sites)

Legend: Grade A - None, Grade B - Minor, Grade C - Widespread, Grade D - Heavily Affected
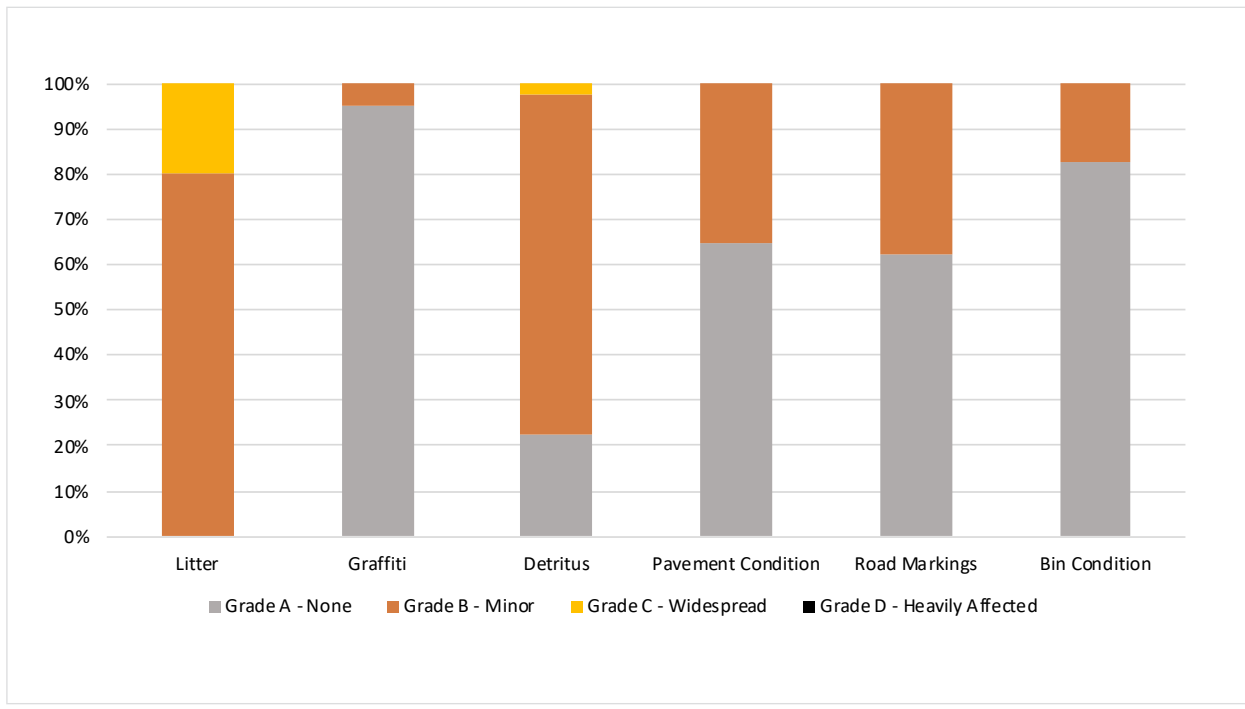
Figure 501: Wellington 2022, Grading: Site Litter Hotshots Ratings (Excluding Highway and Railway Sites)
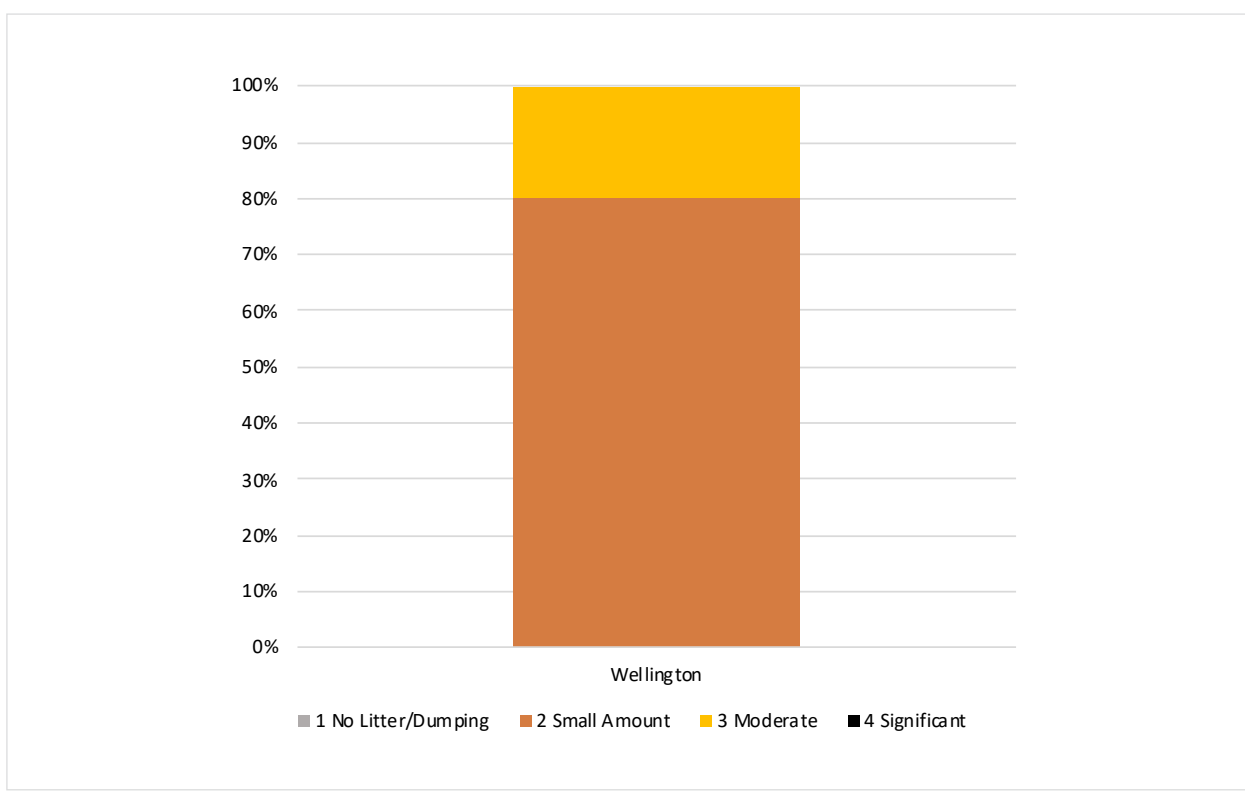
Legend: 1 No Litter/Dumping, 2 Small Amount, 3 Moderate, 4 Significant

HIGHWAYS AND RAILWAYS

The following section shows the results for Highways and Railways in the Wellington region. In the Wellington region one Highway site and one Railway site was audited.

Figure 502: Wellington Highways and Railways, Items per 1,000 m² by Site Type: Comparison Over Time
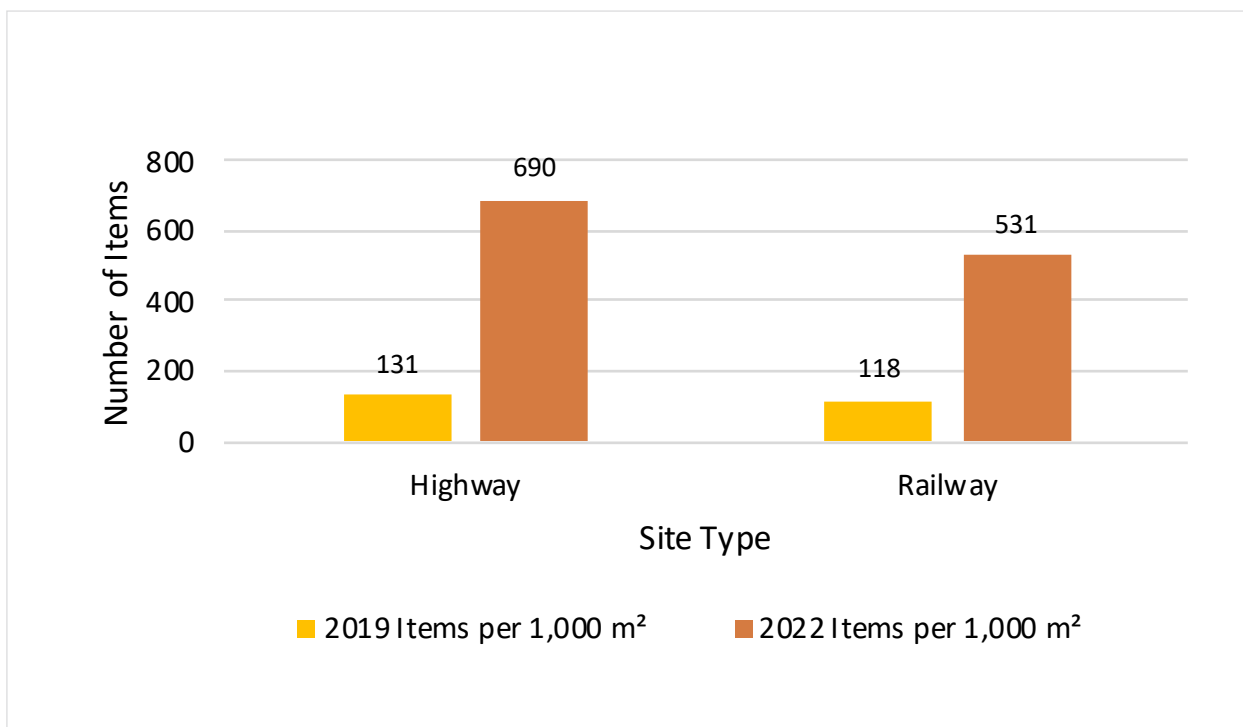
Figure 503: Wellington Highways and Railways, Weight per 1,000 m² by Site Type: Comparison Over Time
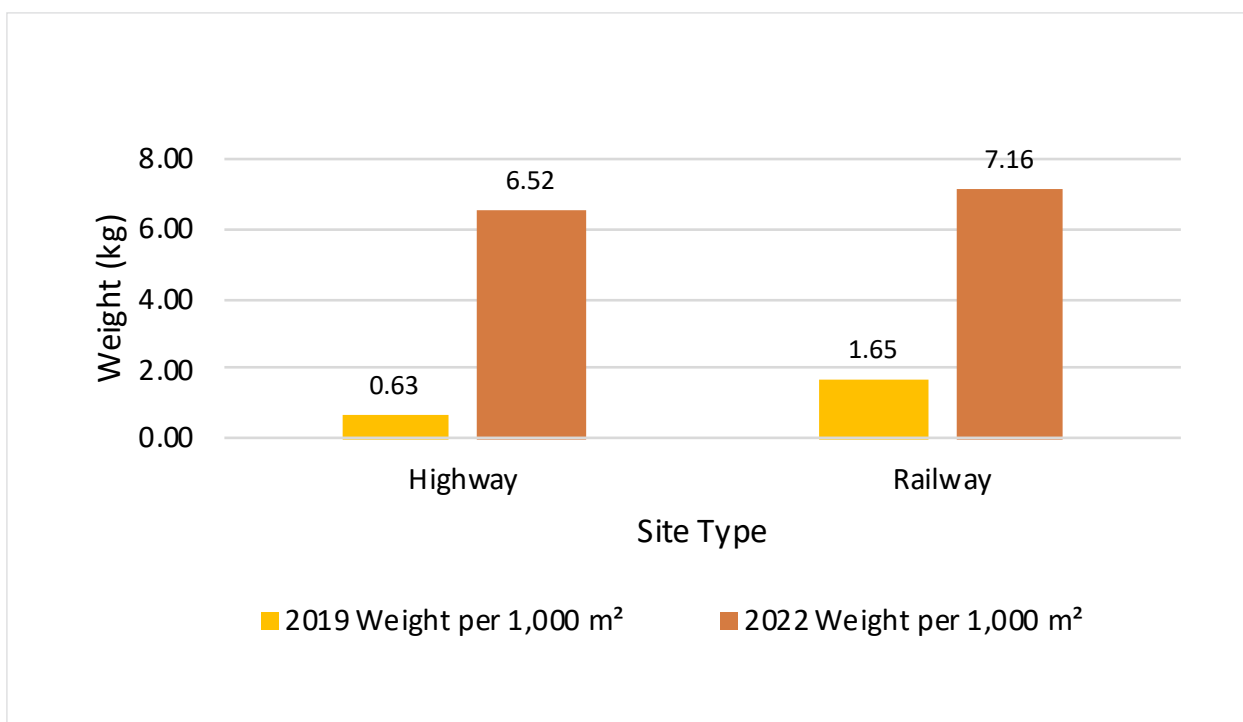
Figure 504: Wellington Highways and Railways, Volume per 1,000 m² by Site Type: Comparison Over Time
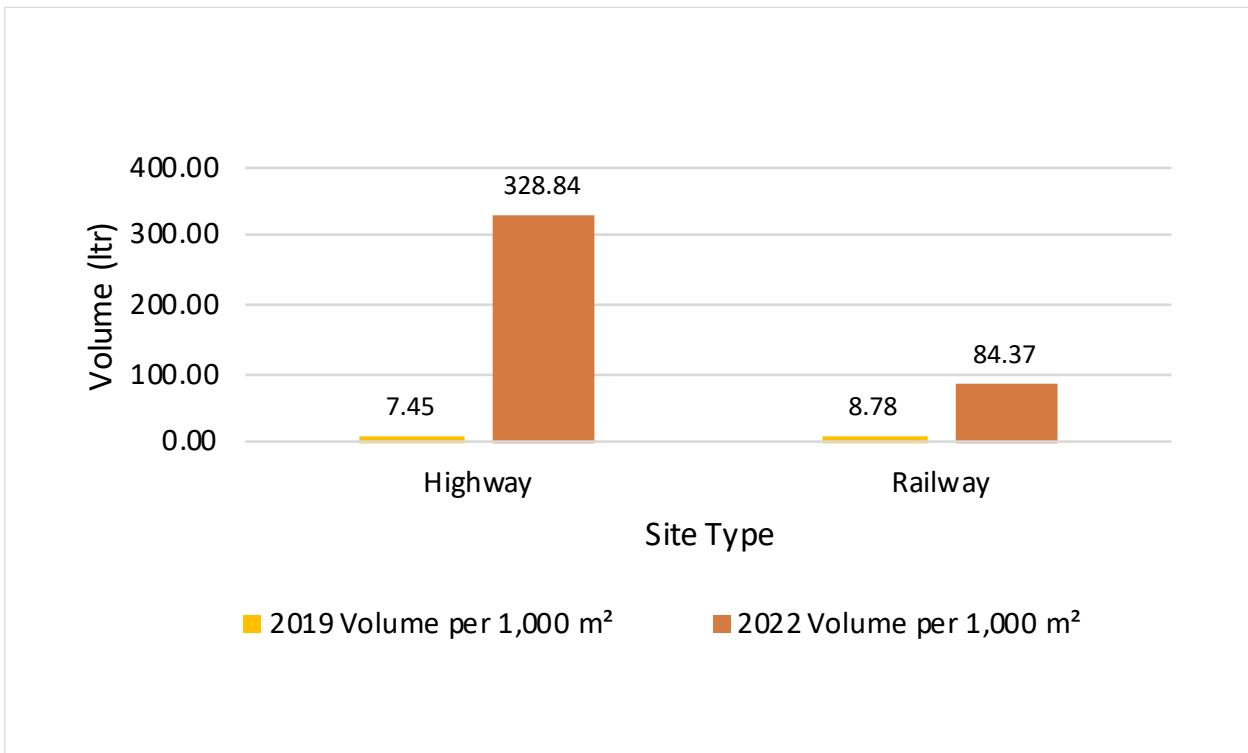
Figure 505: Wellington Highways, Items per 1,000 m² by Main Material Type: Comparison Over Time
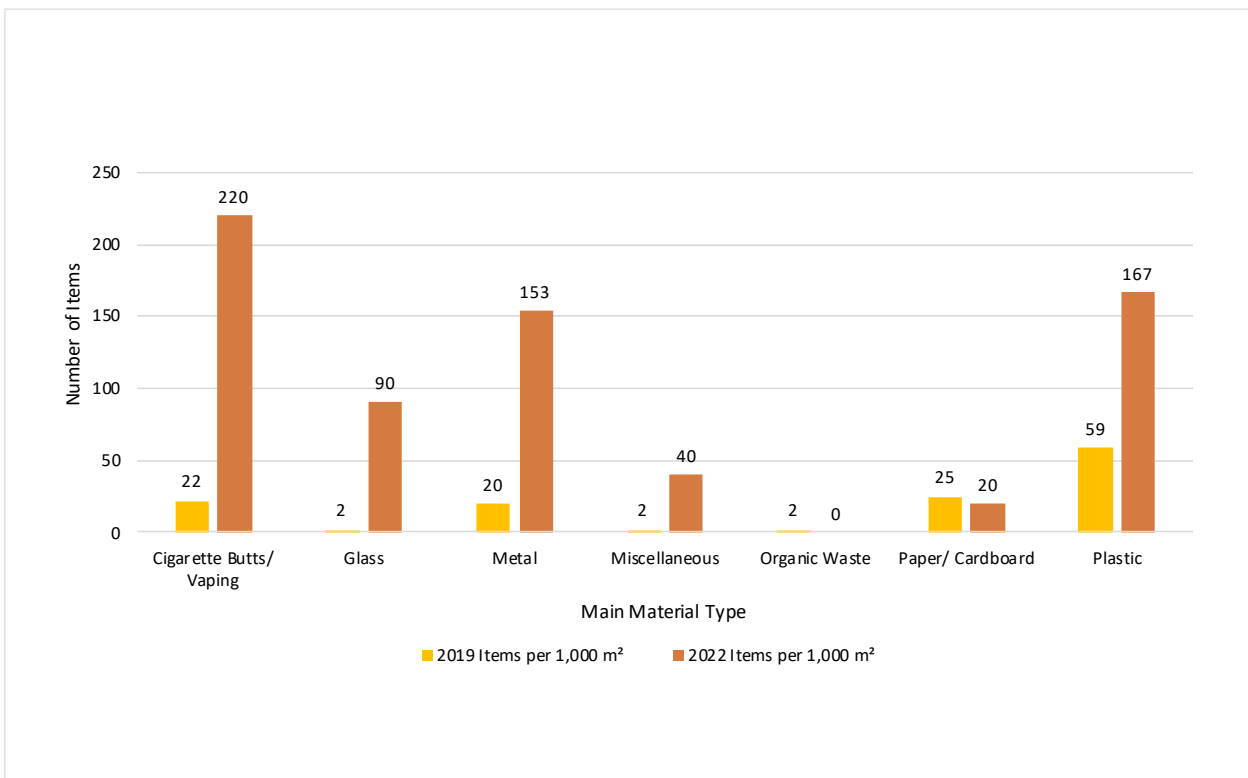
Figure 506: Wellington Highways, Weight per 1,000 m² by Main Material Type: Comparison Over Time
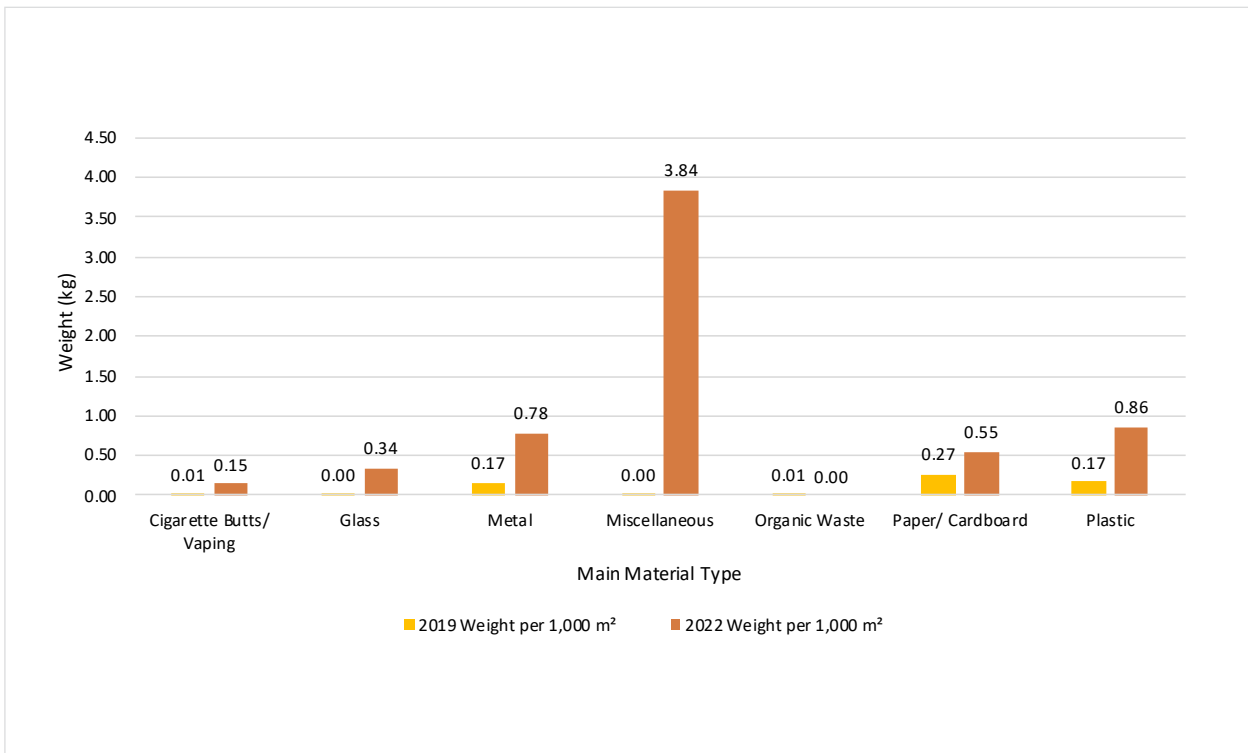
Figure 507: Wellington Highways, Volume per 1,000 m² by Main Material Type: Comparison Over Time
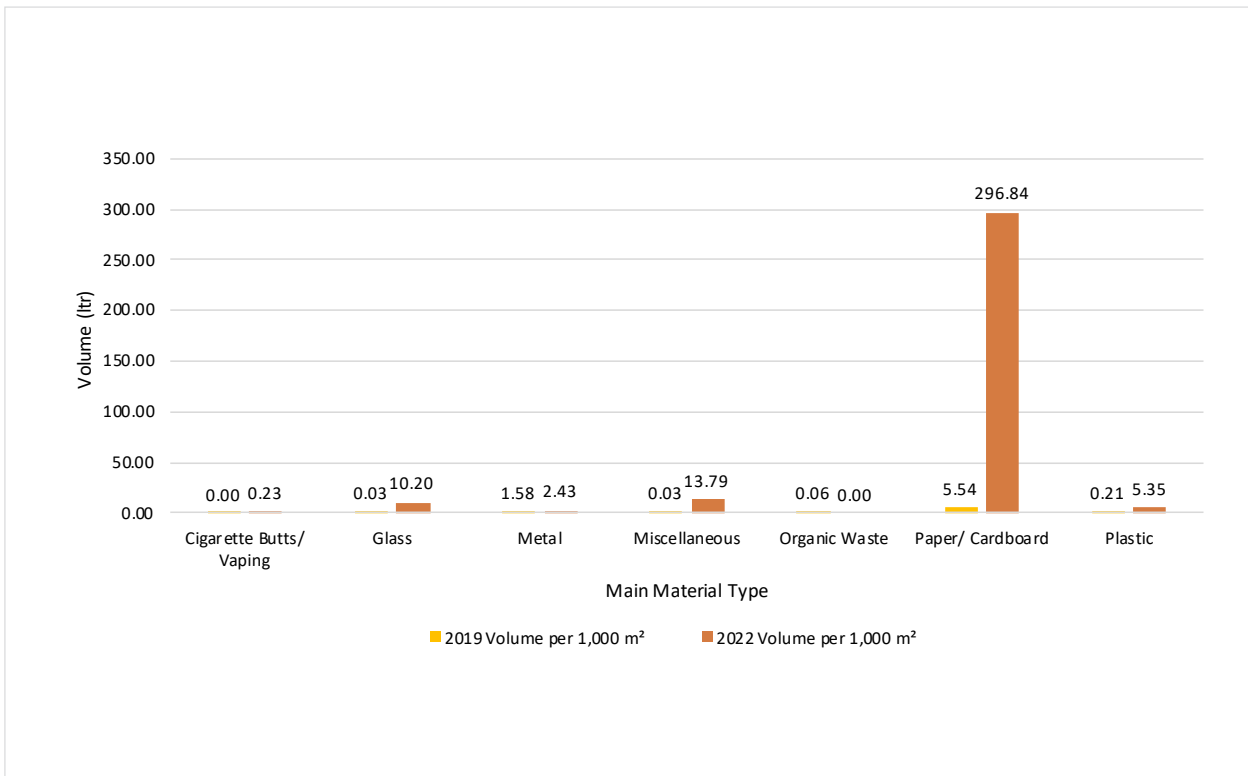
Figure 508: Wellington Railways, Items per 1,000 m² by Main Material Type: Comparison Over Time
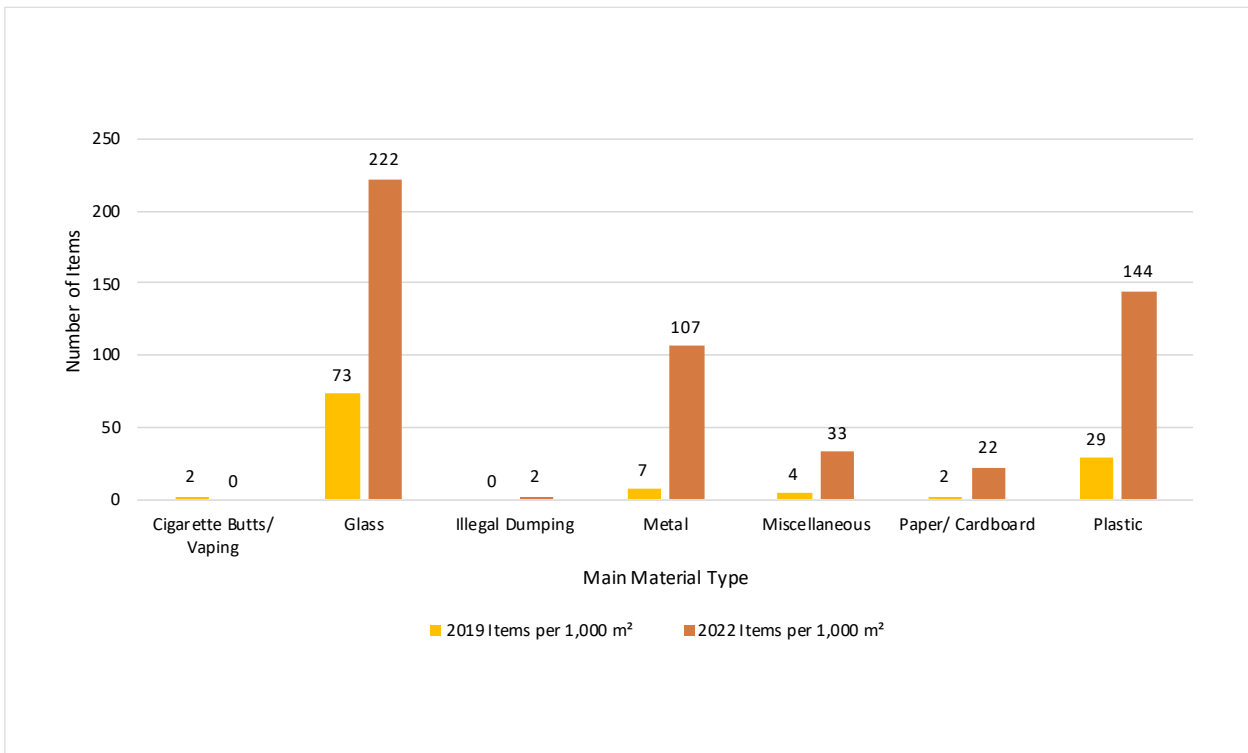
Figure 509: Wellington Railways, Weight per 1,000 m² by Main Material Type: Comparison Over Time
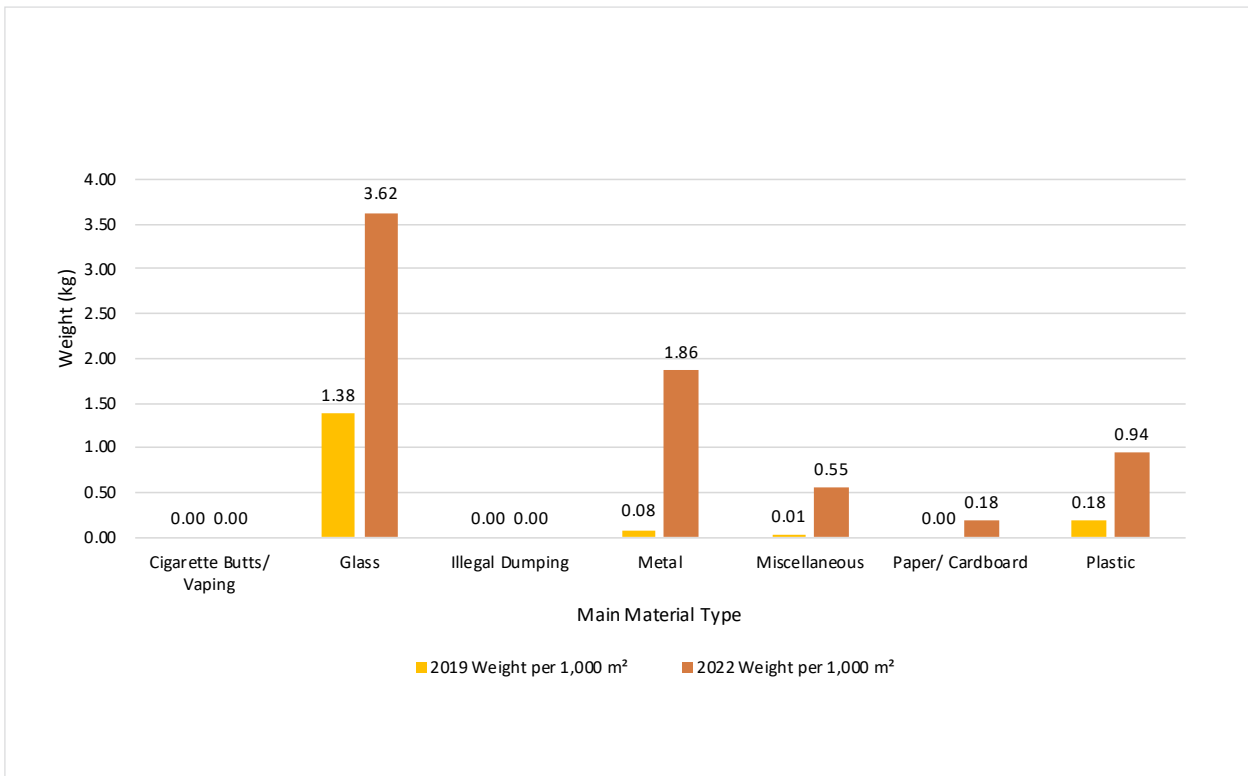
Figure 510: Wellington Railways, Volume per 1,000 m² by Main Material Type: Comparison Over Time
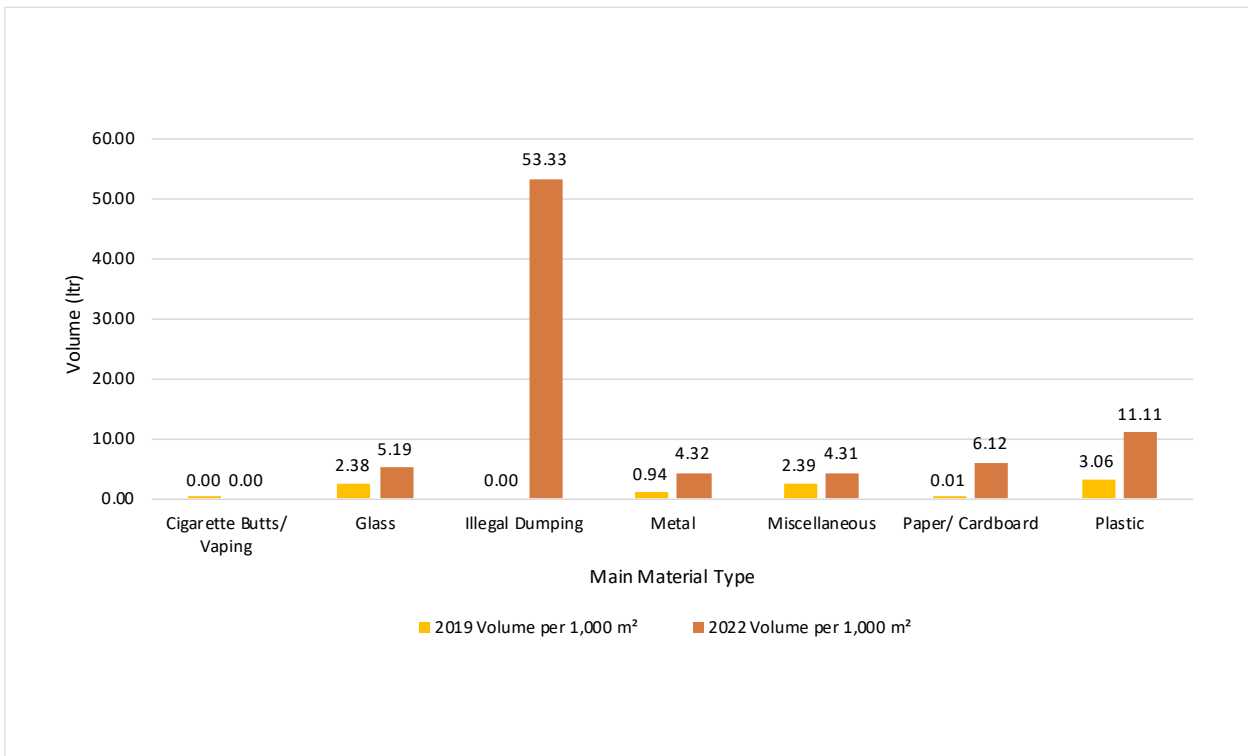
Figure 511: Wellington Highways, Dirty Dozen, Items per 1,000 m², Material Subcategories: Comparison Over Time
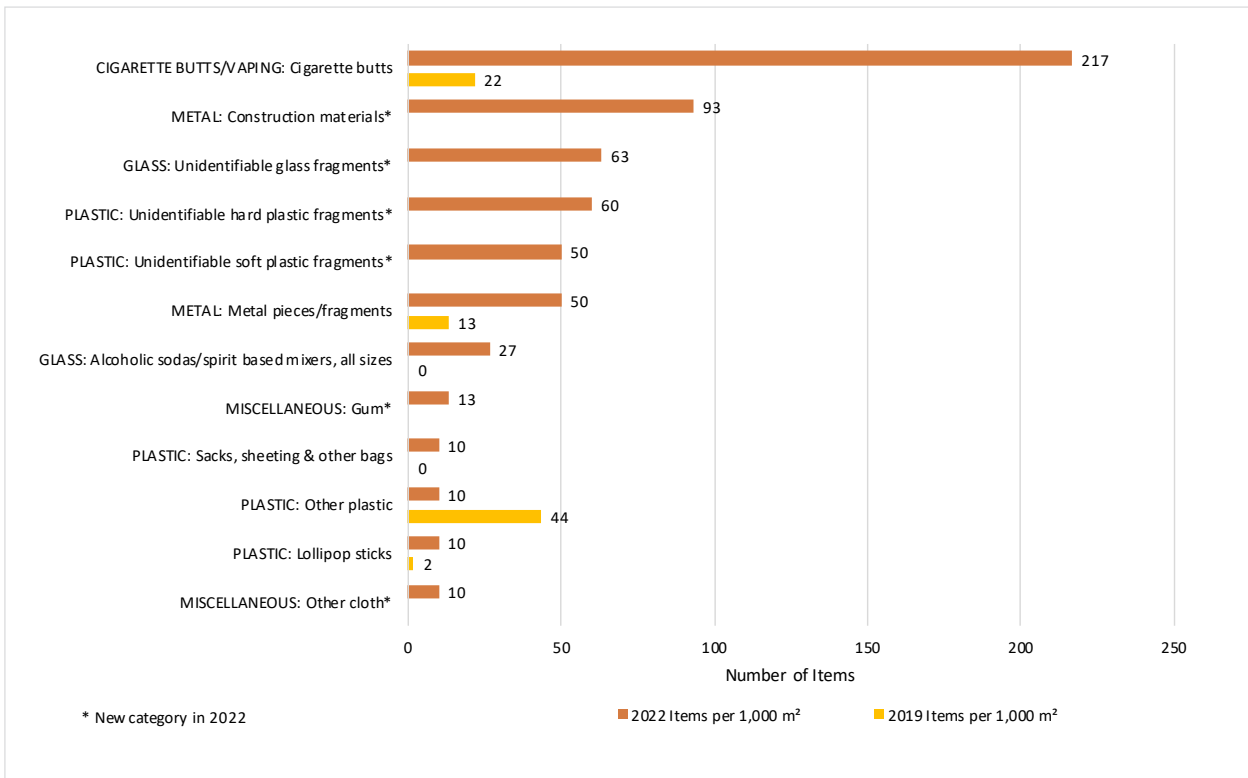
Figure 512: Wellington Highways, Dirty Dozen, Weight per 1,000 m², Material Subcategories: Comparison Over Time

Category	Value
MISCELLANEOUS: Other cloth*	2.26
MISCELLANEOUS: Construction materials	1.12 / 0.00
PLASTIC: Unidentifiable hard plastic fragments*	0.50
METAL: Construction materials*	0.37
PAPER/CARDBOARD: Cardboard boxes*	0.35
METAL: Metal pieces/fragments	0.33 / 0.15
PLASTIC: Unidentifiable soft plastic fragments*	0.21
MISCELLANEOUS: Footwear*	0.18
MISCELLANEOUS: Clothing, towels & linen*	0.17
GLASS: Alcoholic sodas/spirit based mixers, all sizes	0.17 / 0.00
GLASS: Unidentifiable glass fragments*	0.17
PAPER/CARDBOARD: Cups, food trays, food wrappers, takeaway containers & drink containers	0.13 / 0.09

Weight (kg)

* New category in 2022   ■ 2022 Weight per 1,000 m²   ■ 2019 Weight per 1,000 m²

Figure 513: Wellington Highways, Dirty Dozen, Volume per 1,000 m², Material Subcategories: Comparison Over Time

Category	Value
PAPER/CARDBOARD: Cardboard boxes*	287.93
GLASS: Alcoholic sodas/spirit based mixers, all sizes	9.98 / 0.00
MISCELLANEOUS: Clothing, towels & linen*	6.03
MISCELLANEOUS: Footwear*	5.29
PAPER/CARDBOARD: Cups, food trays, food wrappers, takeaway containers & drink containers	4.86 / 4.89
PAPER/CARDBOARD: Newspapers & magazines	3.93 / 0.00
PLASTIC: Plain water (carbonated or non-carb.), <1 litre	2.63 / 0.00
METAL: Food cans (including pet food)	1.55 / 0.00
PLASTIC: Unidentifiable soft plastic fragments*	1.44
MISCELLANEOUS: Construction materials	1.20 / 0.00
MISCELLANEOUS: Other cloth*	1.20
PLASTIC: Unidentifiable hard plastic fragments*	0.96

Volume (ltr)

* New category in 2022   ■ 2022 Volume per 1,000 m²   ■ 2019 Volume per 1,000 m²

Figure 514: Wellington Railways, Dirty Dozen, Items per 1,000 m², Material Subcategories: Comparison Over Time

* New category in 2022

■ 2022 Items per 1,000 m² ■ 2019 Items per 1,000 m²
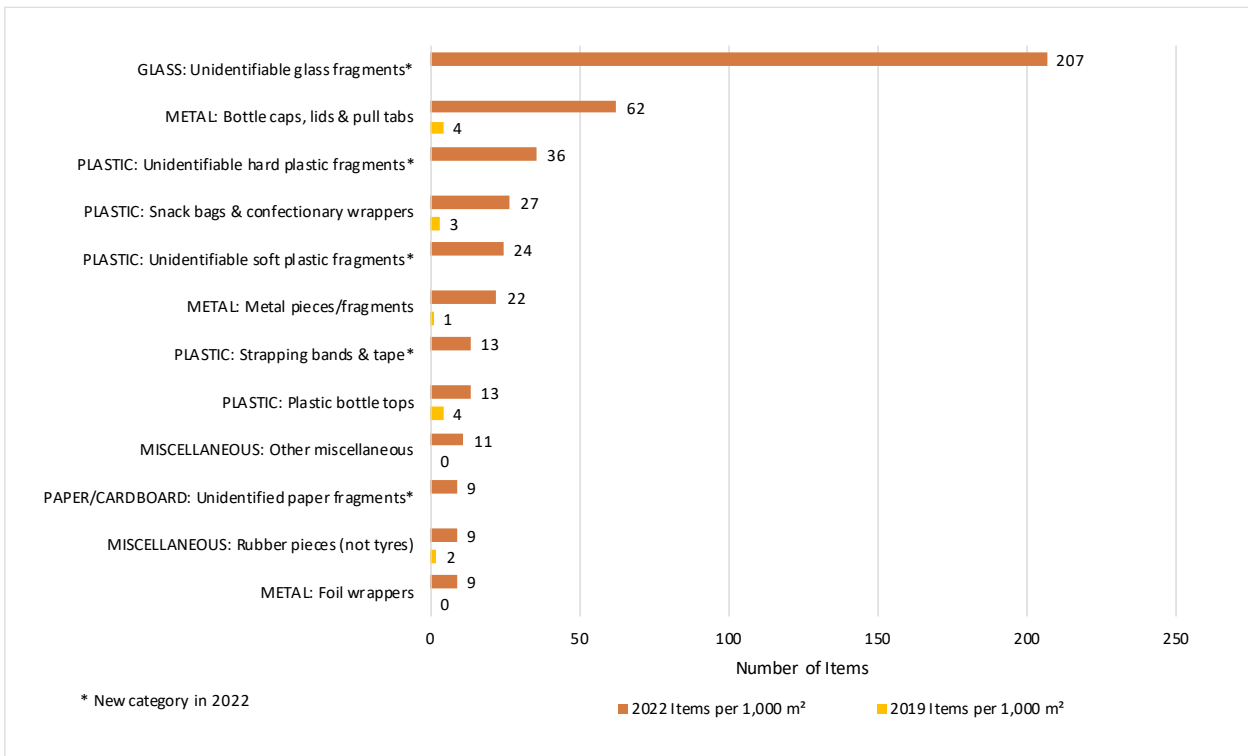
Figure 515: Wellington Railways, Dirty Dozen, Weight per 1,000 m², Material Subcategories: Comparison Over Time

* New category in 2022

■ 2022 Weight per 1,000 m² ■ 2019 Weight per 1,000 m²
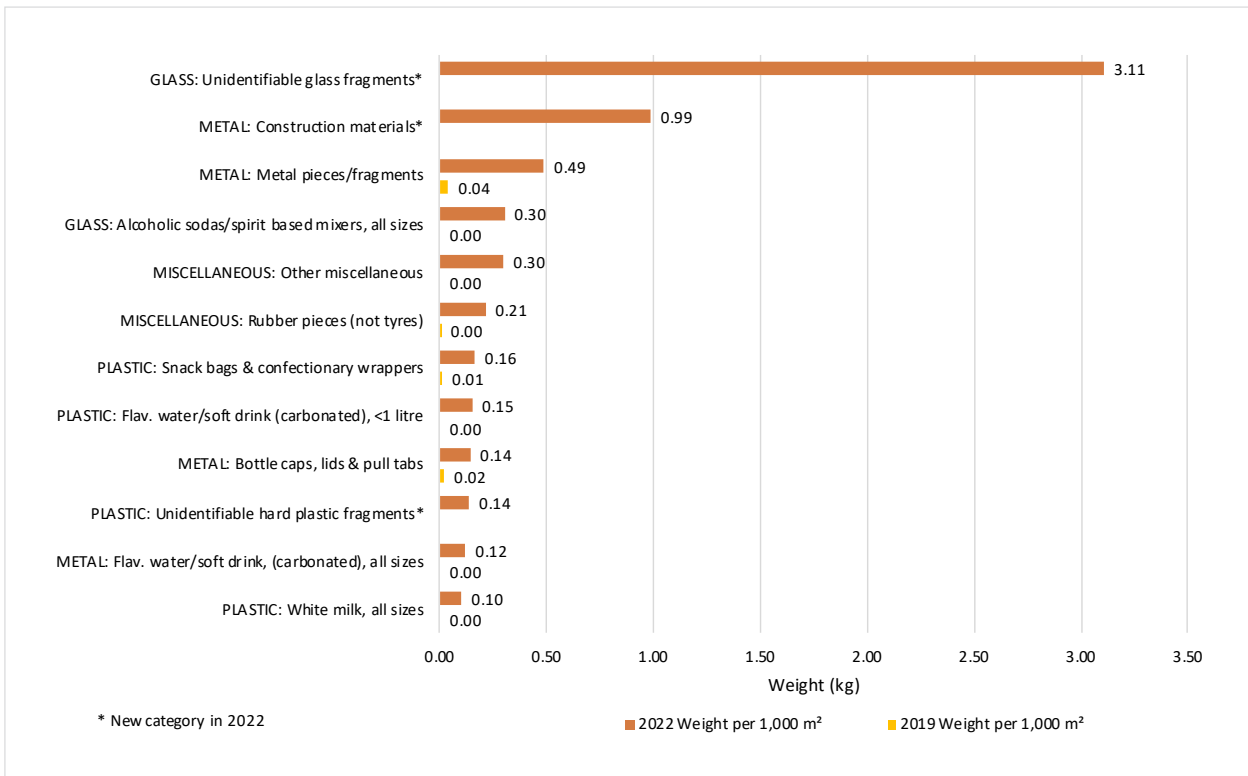
Figure 516: Wellington Railways, Dirty Dozen, Volume per 1,000 m², Material Subcategories: Comparison Over Time

* New category in 2022   ■ 2022 Volume per 1,000 m²   ■ 2019 Volume per 1,000 m²
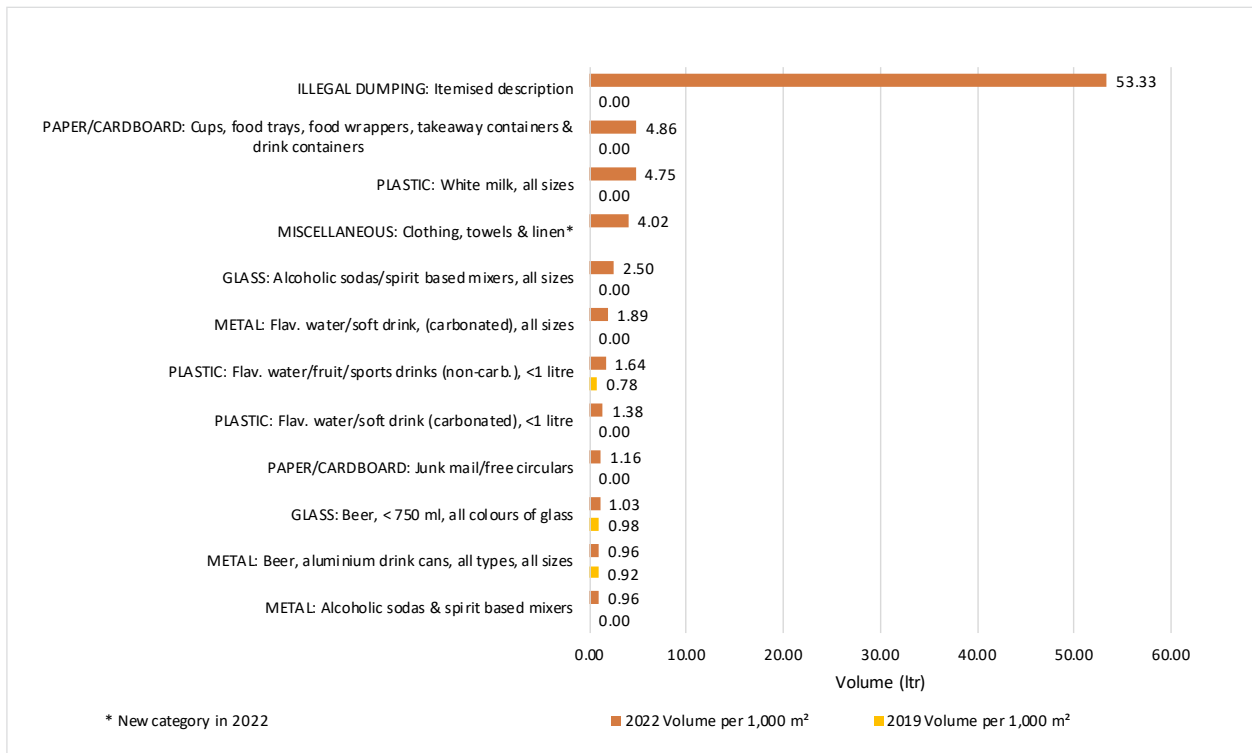
WEST COAST
REGION

AT A GLANCE

The overall average number of litter items per 1,000 m² across the 15 sites audited in the West Coast region was 102 items, the overall average estimated volume of litter items per 1,000 m² was 14.20 ltr and the overall average litter weight per 1,000 m² was 0.65 kg.

High numbers of litter items, volumes and weights per 1,000 m² were associated with Industrial sites within the West Coast region. Retail sites also recorded high numbers of litter items, whilst contributing moderate litter volumes and weights. Car Park sites contributed moderate numbers of litter items, and small litter volumes and weights.

Residential sites were associated with moderate numbers of litter items and weights, and high volumes. Public Recreational Spaces contributed low numbers of litter items, volumes and weights per 1,000 m² to the overall regional litter stream.

The three main contributors to the overall volume collected per 1,000 m² in the region were Plastic, Paper/Cardboard and Miscellaneous items.

Plastic was the most frequently identified material type per 1,000 m² and was associated with the highest volumes and second highest weights recorded in the region. Cigarette Butts/Vaping were the second highest identified material type, but recorded the smallest volumes and weights.

Miscellaneous items were associated with the largest weights per 1,000 m² but contributed more moderate numbers of litter items and litter volumes.

Note:

- *New material subcategories were added in 2022 and so not all material subcategories are comparable between 2019 and 2022.*

- *A weight measure was not recorded for any items of Illegal Dumping identified during the audit, and therefore has not been included in the analysis.*

- *Not all regions were audited for Railway and/or Highway sites, and so these site types have been separated out and specifics for each region given at the end of the relevant chapter. The West Coast region was audited for and one Railway site.*

COMPARISONS BY SITE TYPES

The highest numbers of litter items per 1,000 m² collected at the sites audited in the West Coast region were Retail (259 items) and Industrial (223 items) sites. More moderate numbers of litter items were collected at Residential (102 items) and Car Park (101 items) sites. Public Recreational Spaces (7 items) contributed the lowest numbers of litter items per 1,000 m² in the region.

High estimated volumes per 1,000 m² were associated with Industrial (51.28 ltr) and Residential (35.00 ltr) sites, whilst more moderate litter volumes were recorded at Retail sites (21.02 ltr). Car Park sites (4.76 ltr) contributed smaller litter volumes whilst Public Recreational Spaces (0.81 ltr) were associated with the lowest litter volumes per 1,000 m² within the region.

The highest litter weights per 1,000 m² in the West Coast region were recorded at Industrial sites (3.17 kg). More moderate litter weights were associated with Residential (0.95 kg) and Retail (0.78 kg) sites. The lowest weights per 1,000 m² within the region were recorded at Car Park sites (0.20 kg) and Public Recreational Spaces (0.03 kg).

Figure 517: West Coast 2022, Items and Volume per 1,000 m² by Site Type
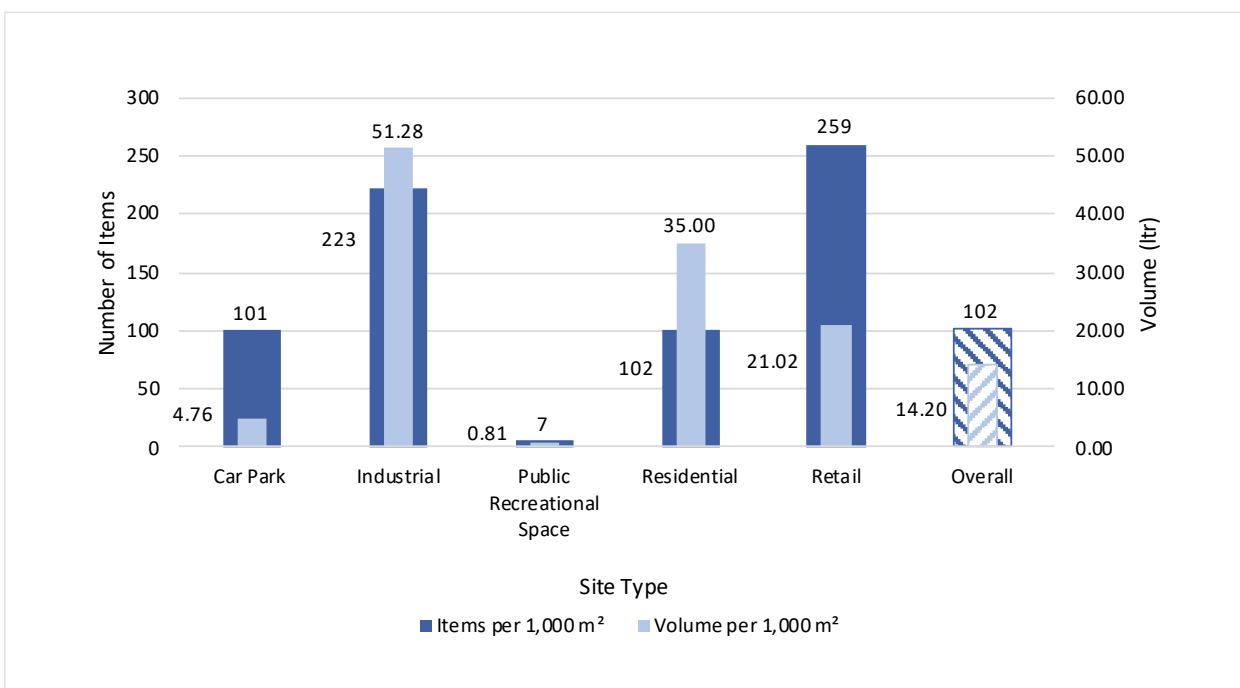
Figure 518: West Coast 2022, Items and Weight per 1,000 m² by Site Type
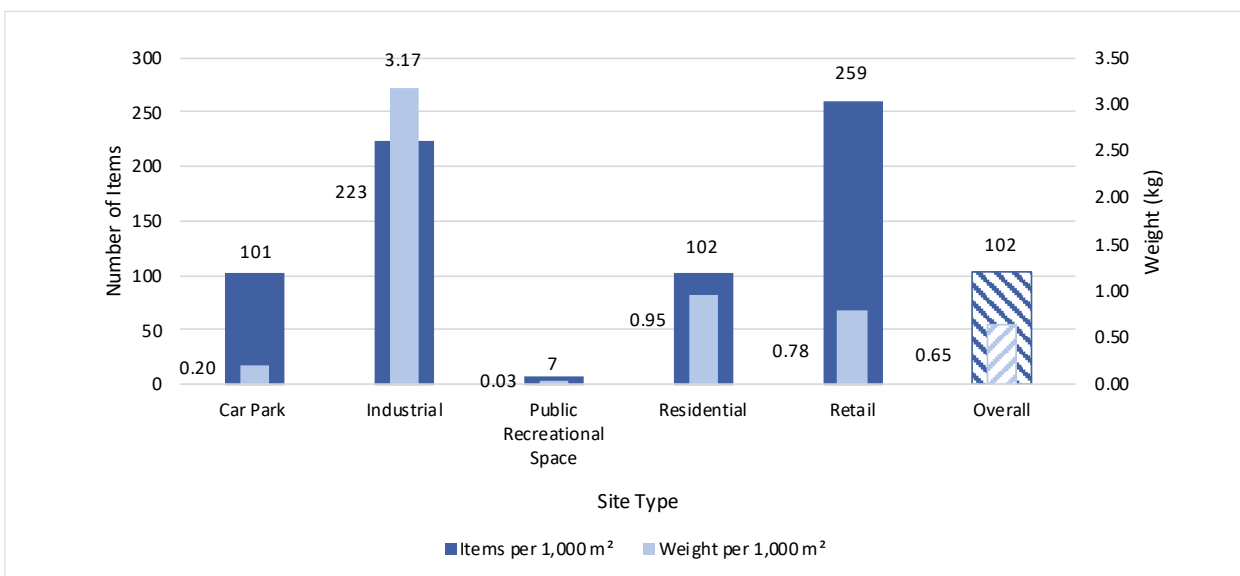
SITE CHARACTERISTICS

The following site characteristics across all site types (excluding Highway and Railway sites) were identified for litter items and volume per 1,000 m² in the West Coast region:

- Industrial sites were associated with high numbers of litter items and volumes.

- Retail sites contributed 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 moderate numbers of litter items and large litter volumes.

- Public Recreational Spaces contributed to low numbers of litter items and small litter volumes.

Figure 519: West Coast 2022, Items and Volume per 1,000 m² by Site Type
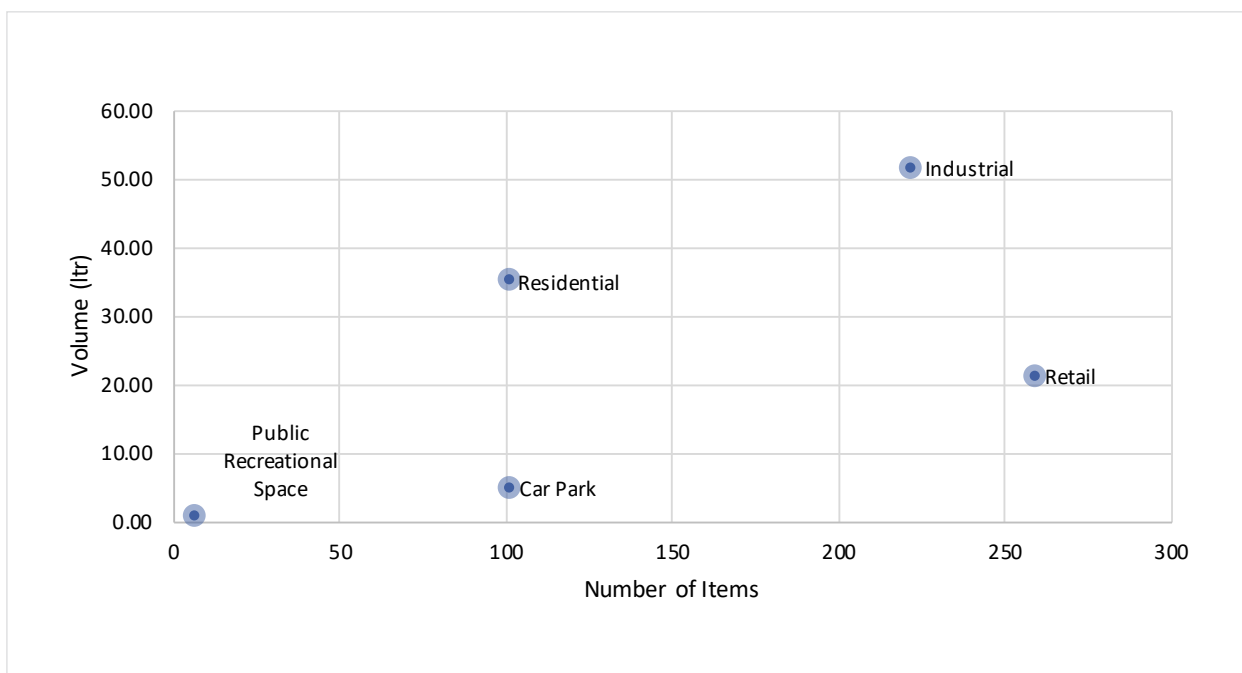
The following site characteristics across all site types (excluding Highway and Railway sites) were identified for litter items and weight per 1,000 m² in the West Coast region:

- Industrial sites were associated with high numbers of litter items and large litter weights.

- Retail sites were associated with high numbers of litter items and moderate litter weights.

- Car Park sites contributed moderate numbers of litter items and small litter weights.

- Residential sites contributed moderate numbers of litter items and weights.

- Public Recreational Spaces contributed low numbers of litter items and small litter weights to the regional litter stream.

Figure 520: West Coast 2022, Items and Weight per 1,000 m² by Site Type
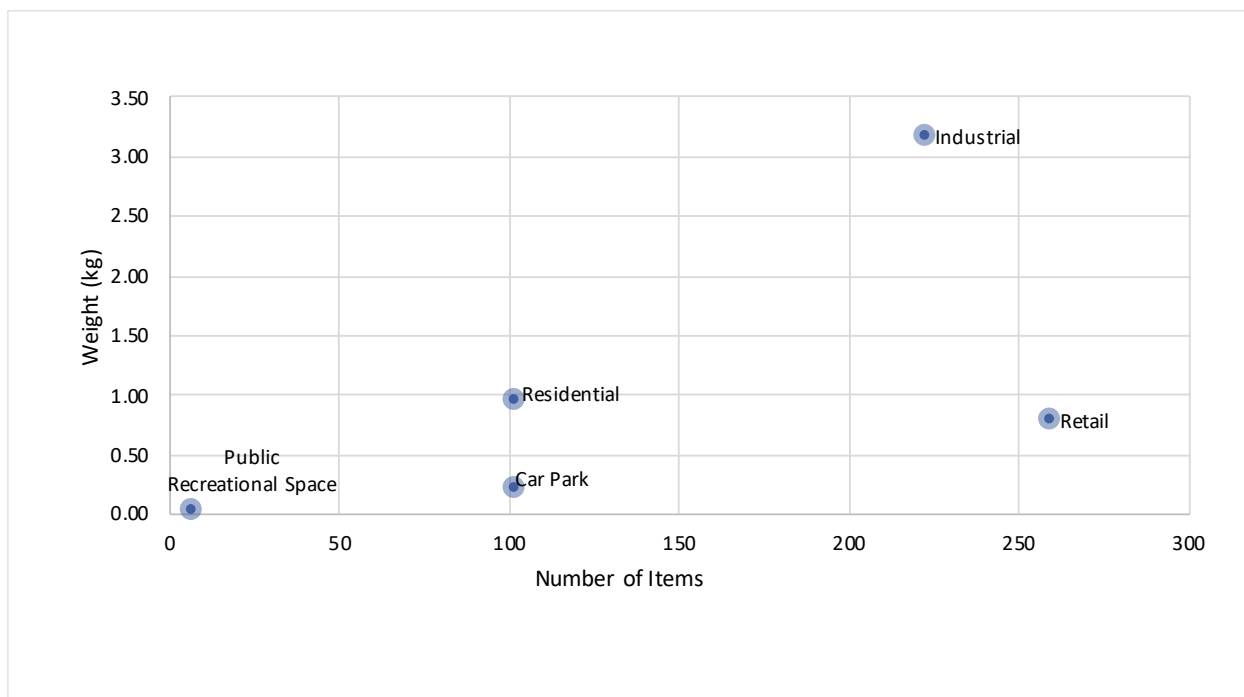
COMPARISON BY SITE TYPE OVER TIME

Since 2019, there has been an increase in the estimated volume and weight of litter per 1,000 m² in the West Coast region, whilst the average number of litter items per 1,000 m² has remained roughly the same.

ITEMS PER 1,000 M²

The number of litter items collected in the West Coast region has remained relatively consistent with 2019 (102 items vs. 114 items per 1,000 m² in 2019). As shown in the graphs below, there has been a decline per 1,000 m² in the number of litter items at Car Park sites (101 items vs. 140 items in 2019) and Public Recreational Spaces (7 items vs. 11 items in 2019), whilst there has been an increase in the number of litter items at Residential sites (102 items vs. 81 items per 1,000 m² in 2019).

Figure 521: West Coast, Items per 1,000 m² by Site Type: Comparison Over Time
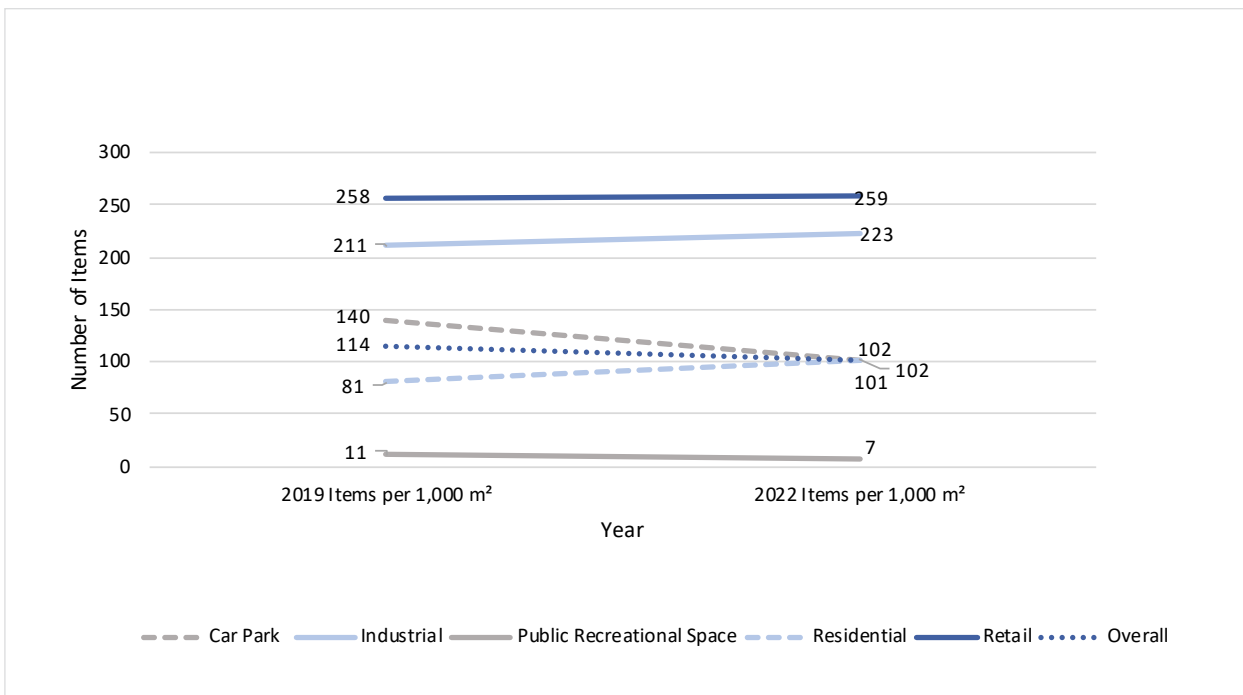
Figure 522: West Coast, Items per 1,000 m² by Site Type: Comparison Over Time
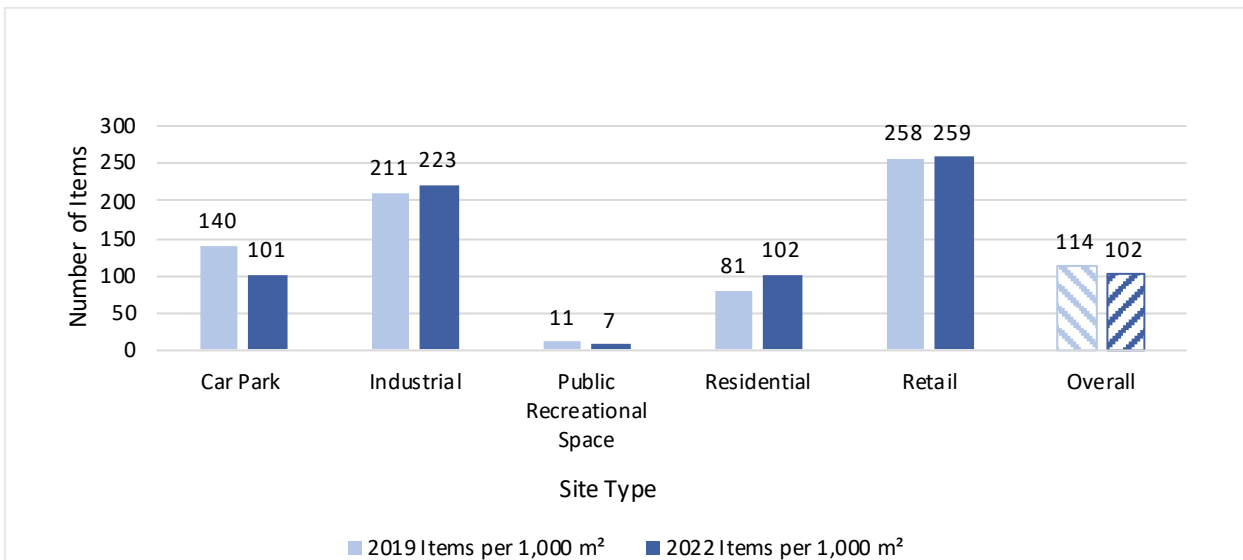
VOLUME PER 1,000 M²

Overall, litter volumes per 1,000 m² in the West Coast region have increased by 8.75 ltr since 2019. As shown in the graphs below, this increase is consistent across most site types, with the biggest increases being seen at Industrial (51.28 ltr vs. 18.16 l in 2019) and Residential (35.00 ltr vs. 4.57 Items in 2019) sites per 1,000 m².

Figure 523: West Coast, Volume per 1,000 m² by Site Type: Comparison Over Time
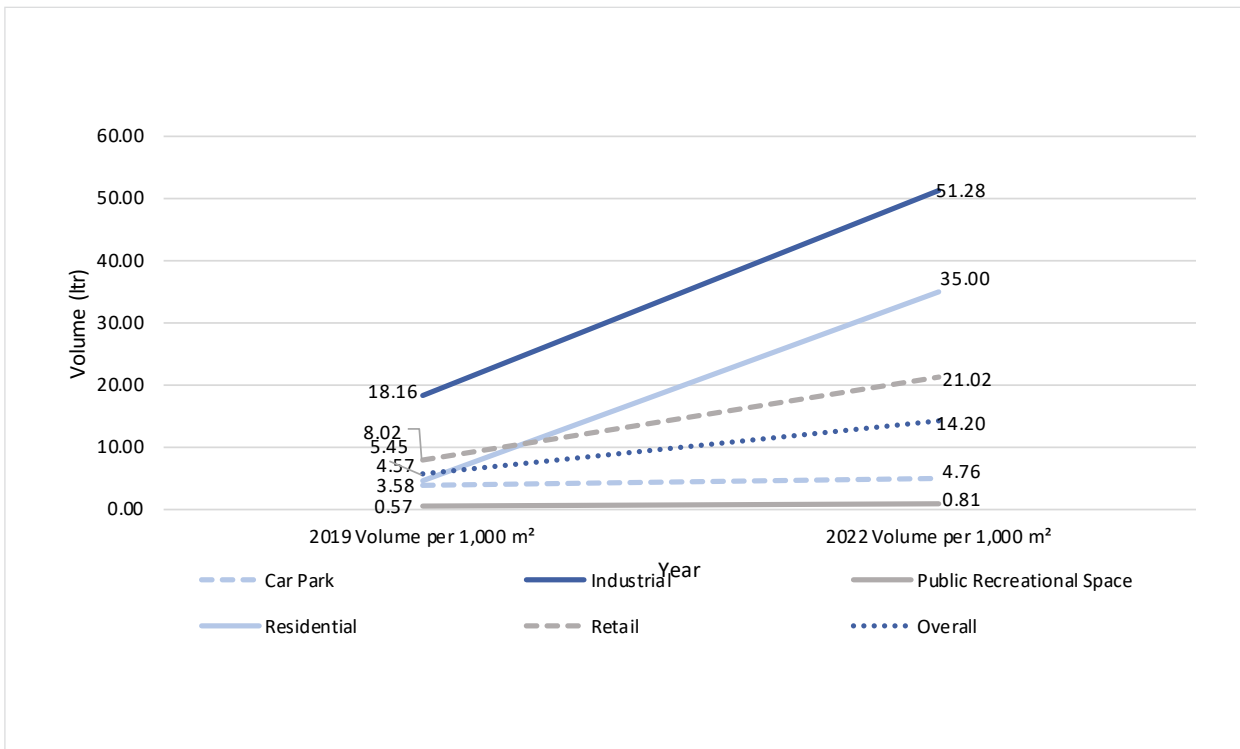
Figure 524: West Coast, Volume per 1,000 m² by Site Type: Comparison Over Time
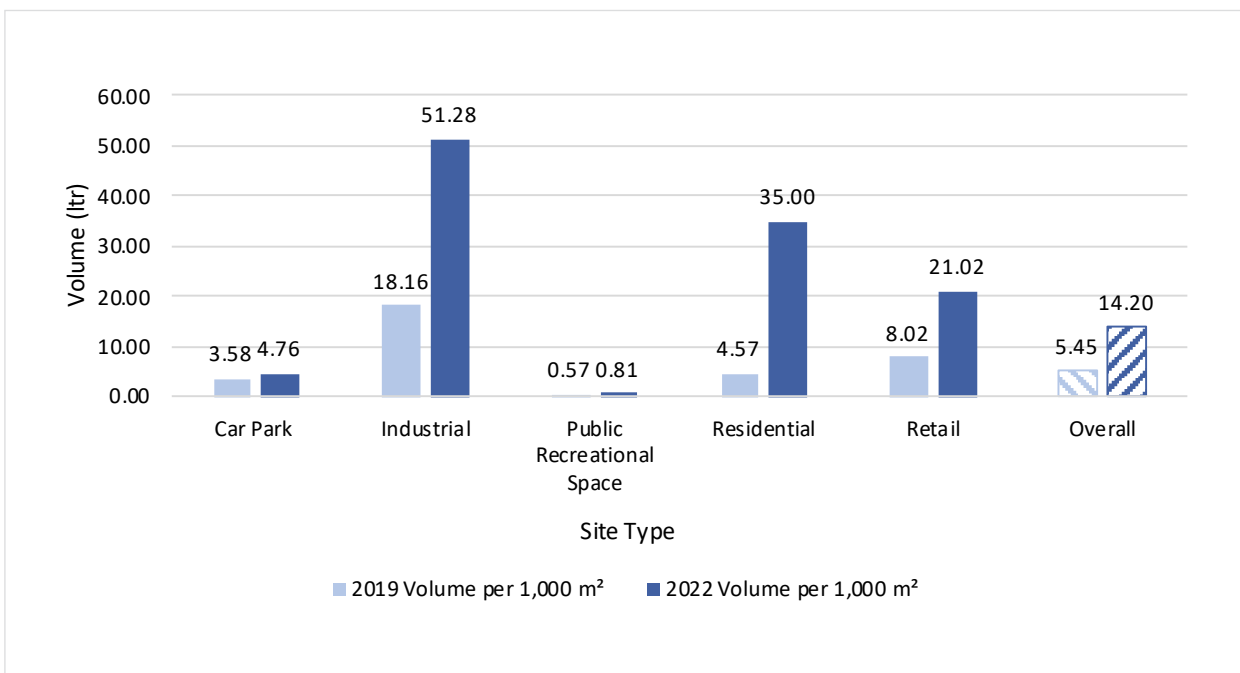
WEIGHT PER 1,000 M²

Overall, the litter weight in the West Coast region has increased since 2019 (0.65 kg vs. 0.42 kg per 1,000 m² in 2019). As shown in the graphs below, the site type with the biggest increase in litter weight per 1,000 m² was

Industrial sites (3.17 kg vs. 1.24 kg per 1,000 m² in 2019). Public Recreational Spaces litter weights have slightly decreased per 1,000 m² since 2019.

Figure 525: West Coast, Weight per 1,000 m² by Site Type: Comparison Over Time
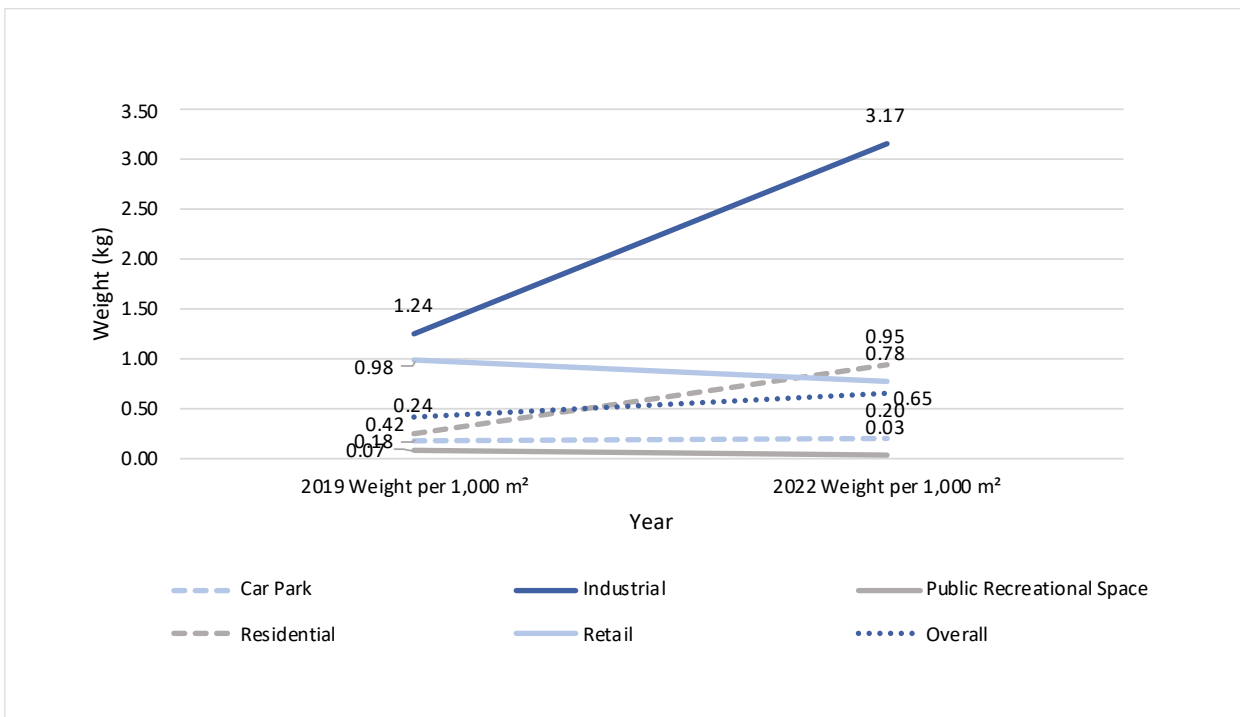
Figure 526: West Coast, Weight per 1,000 m² by Site Type: Comparison Over Time
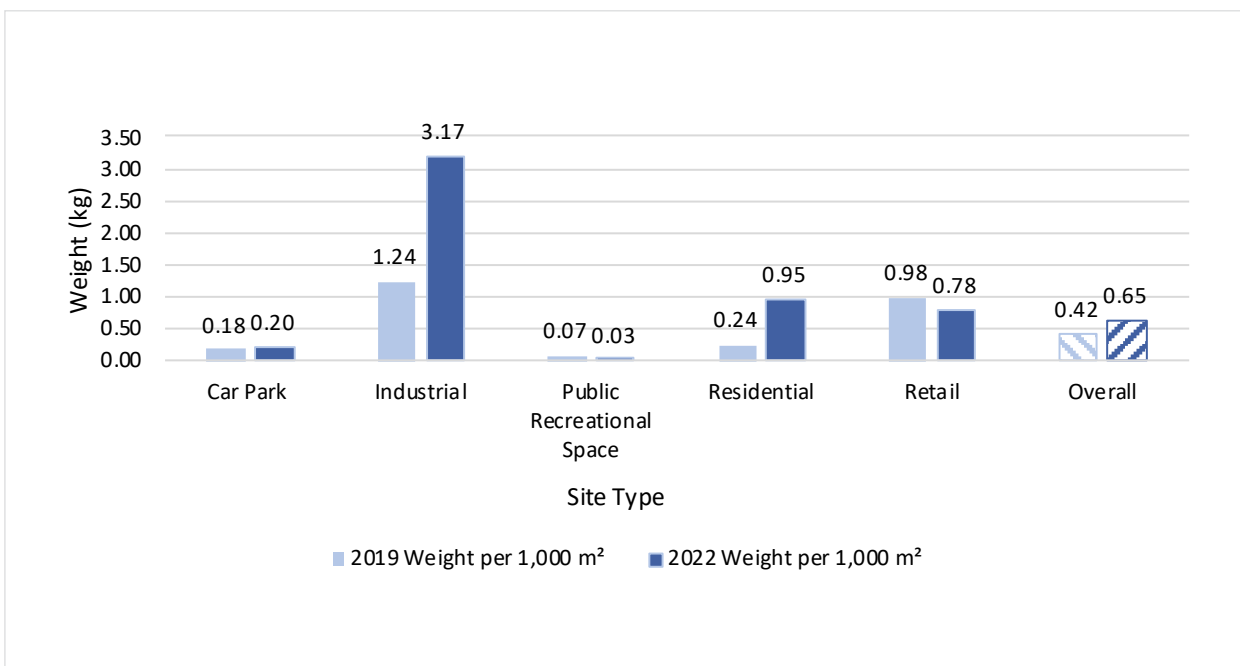
COMPARISON BY MAIN MATERIAL TYPES

Plastic was the most frequently identified material type per 1,000 m² in the West Coast region (33 items), whilst Cigarette Butts/Vaping (29 items) were the second highest identified material type..

More moderate numbers of litter items per 1,000 m² were recorded for Metal (13 items), Miscellaneous (12 items) and Paper/Cardboard (10 items). The lowest numbers of litter items identified in the region were associated with Glass (3 items), Organic Waste (1 item) and Illegal Dumping (less than 1 item).

Plastic (4.44 ltr) and Paper/Cardboard (4.24 ltr) contributed the largest amounts of estimated volume per 1,000 m² to the West Coast region's litter stream, with the third largest volumes associated with Miscellaneous (2.58 ltr). Small to moderate litter volumes were recorded for Illegal Dumping (1.49 ltr), whilst small volumes were recorded for Metal (0.76 ltr), Organic Waste (0.51 ltr) and Glass (0.16 ltr). Cigarette Butts/Vaping items were associated with the smallest proportion of the overall litter volume (0.02 ltr) per 1,000 m².

The highest proportion of litter weight per 1,000 m² in the West Coast region included Miscellaneous (0.19 kg), Plastic (0.17 kg) and Metal (0.14 kg), whilst smaller litter weights were associated with Paper/Cardboard (0.05 kg), Glass (0.05 kg), Organic Waste (0.03 kg) and Cigarette Butts/Vaping (0.02 kg).

Figure 527: West Coast 2022, Items and Volume per 1,000 m² by Main Material Type
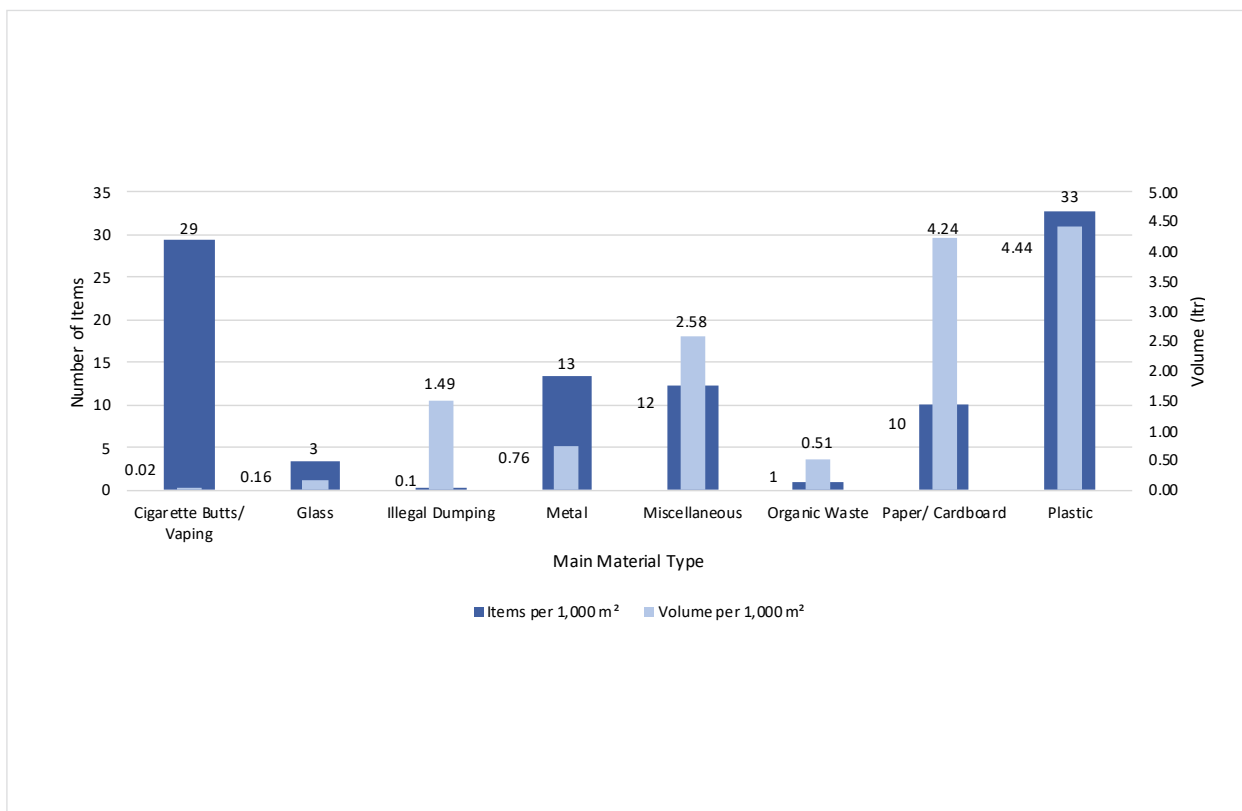
Figure 528: West Coast 2022, Items and Weight per 1,000 m² by Main Material Type

MAIN MATERIAL CHARACTERISTICS

The following material type characteristics were identified for litter items and volume per 1,000 m² in the West Coast region (excluding Highway and Railway sites):

- Cigarette Butts/Vaping were associated with high numbers of litter items, but contributed low litter volumes.

- Miscellaneous items contributed moderate numbers of litter items and volumes.

- Plastic contributed high numbers of litter items and volumes.

- Paper/Cardboard contributed moderate numbers of litter items and large litter volumes.

- Metal was associated with moderate numbers of litter items and small litter volumes.

- Glass and Organic Waste contributed low numbers of litter items and small litter volumes.

- Illegal Dumping was associated with low numbers of litter items and small to moderate litter volumes.

Figure 529: West Coast 2022, Items and Volume per 1,000 m² by Main Material Type
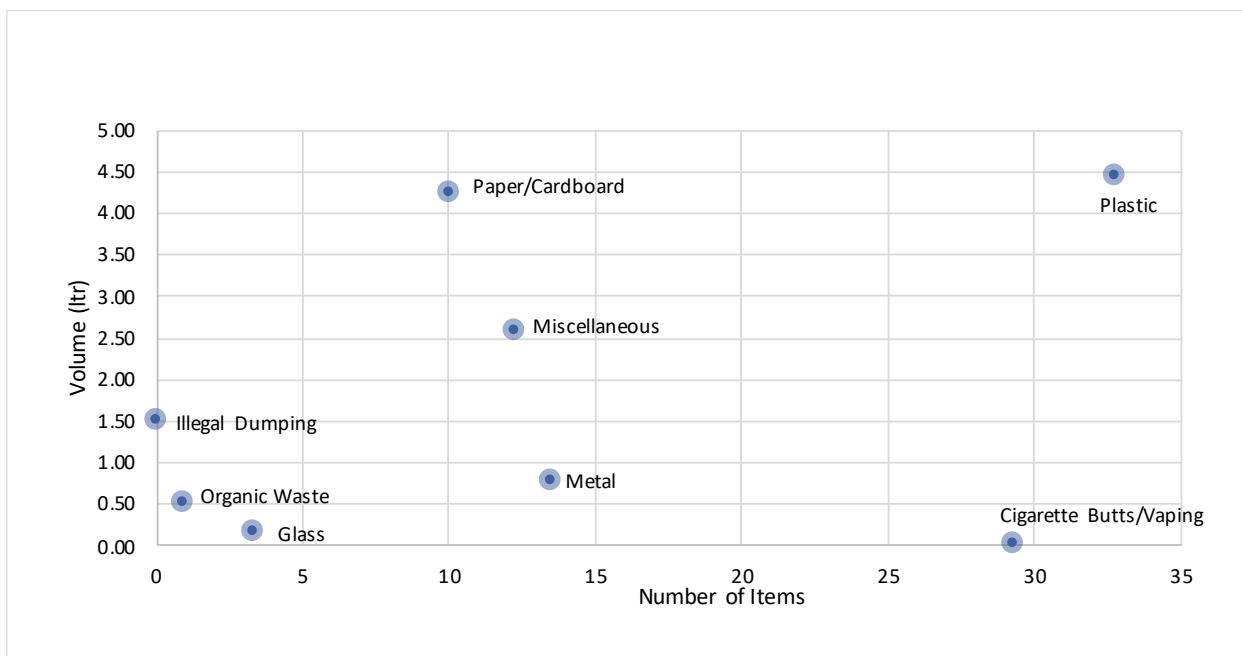
The following material type characteristics were identified for litter items and weight per 1,000 m² in the Auckland region (excluding Highway and Railway sites):

- Glass was associated with low numbers of litter items and small to moderate litter weights.

- Metal was associated with moderate numbers of litter items and high litter weights.

- Plastic was associated with high numbers of litter items and weights.

- Cigarette Butts/Vaping was associated with high numbers of litter items, but contributed to small litter weights.

- Paper/Cardboard was associated with moderate numbers of litter items and small to moderate litter weights.

- Miscellaneous items contributed moderate numbers of litter items and large litter weights.

- Organic Waste contributed low numbers of littered items and small litter weights.

Figure 530: West Coast 2022, Items and Weight per 1,000 m² by Main Material Type
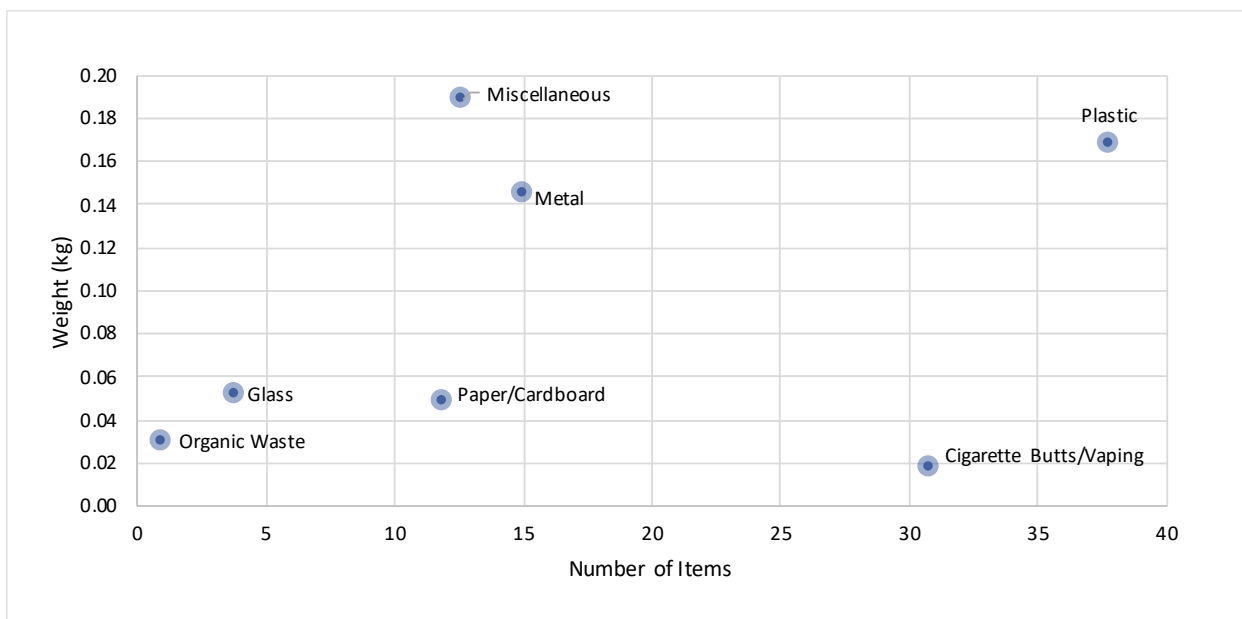
COMPARISONS BY MAIN MATERIAL TYPE OVER TIME

Compared with 2019, the material type, Miscellaneous, has seen an increase across all three measures, including number of litter items, estimated volume and weight per 1,000 m². Conversely, the material type, Glass, has seen a decline in litter volume and weight whilst the number of litter items has remained relatively consistent since 2019.

ITEMS PER 1,000 M²

Since 2019, there has been a decline in the West Coast region in the number litter items classified under Paper/Cardboard (10 items vs. 18 items per 1,000 m² in 2019) and Cigarette Butts/Vaping (29 items vs. 37 items per 1,000 m² in 2019), whilst Plastic, Organic Waste, Metal and Glass have remained relatively consistent. There has been an increase in the number of items per 1,000 m² classified as Miscellaneous since 2019.

Figure 531: West Coast, Items per 1,000 m² by Main Material Type: Comparison Over Time
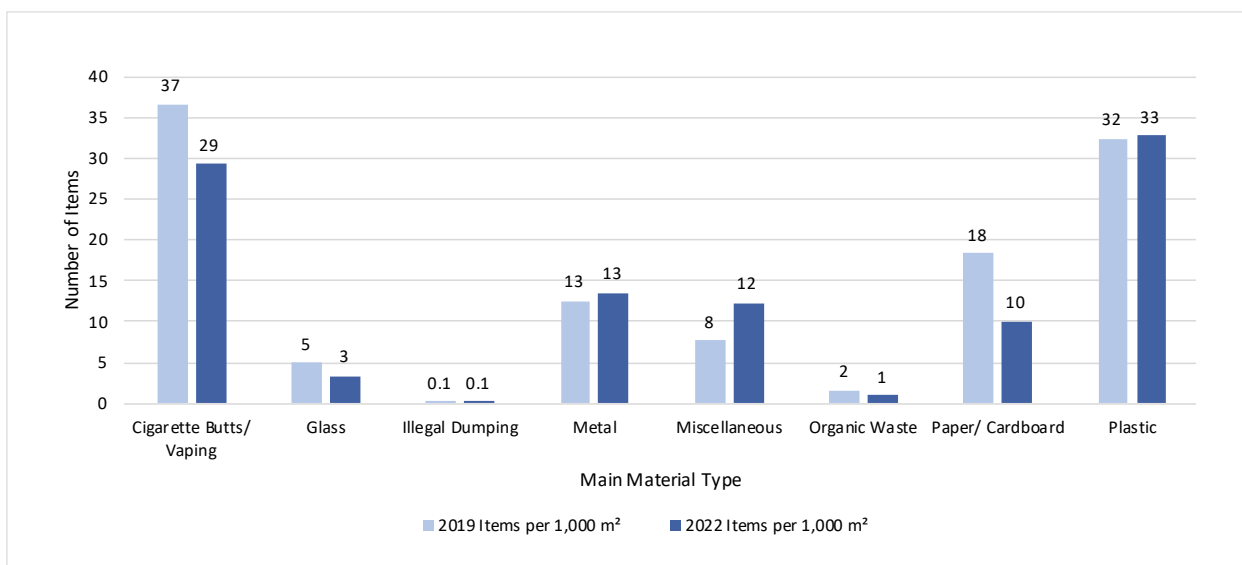
VOLUME PER 1,000 M²

Since 2019, the biggest increase in the litter volume of main material types per 1,000 m² in the West Coast region can be seen in Plastic (4.44 ltr vs. 0.84 ltr in 2019).

There has also been an increase in the litter volume of Paper/Cardboard collected per 1,000 m².

Figure 532: West Coast, Volume per 1,000 m² by Main Material Type: Comparison Over Time
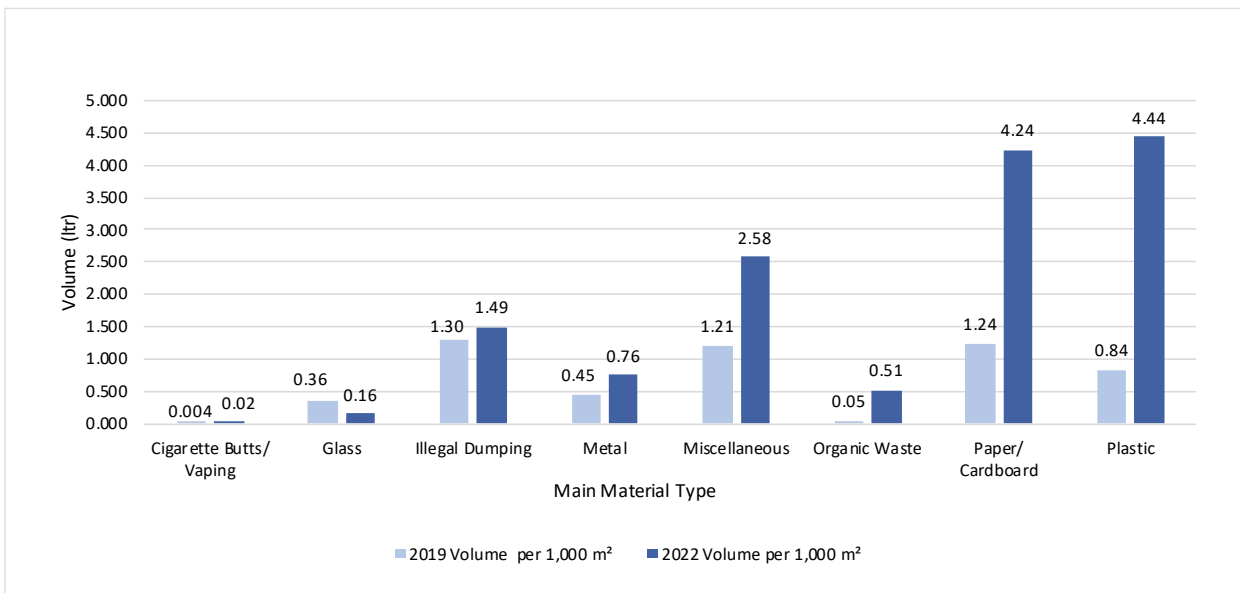
WEIGHT PER 1,000 M²

Compared with 2019, there has been an increase across most material litter weights per 1,000 m² in the West Coast region. The highest increase was in Miscellaneous

(0.19 kg vs. 0.03 kg in 2019). The litter weight of items classified under Glass per 1,000 m² has decreased significantly since 2019 (0.05 kg vs. 0.16 kg in 2019).

Figure 533: West Coast, Weight per 1,000 m² by Main Material Type: Comparison Over Time
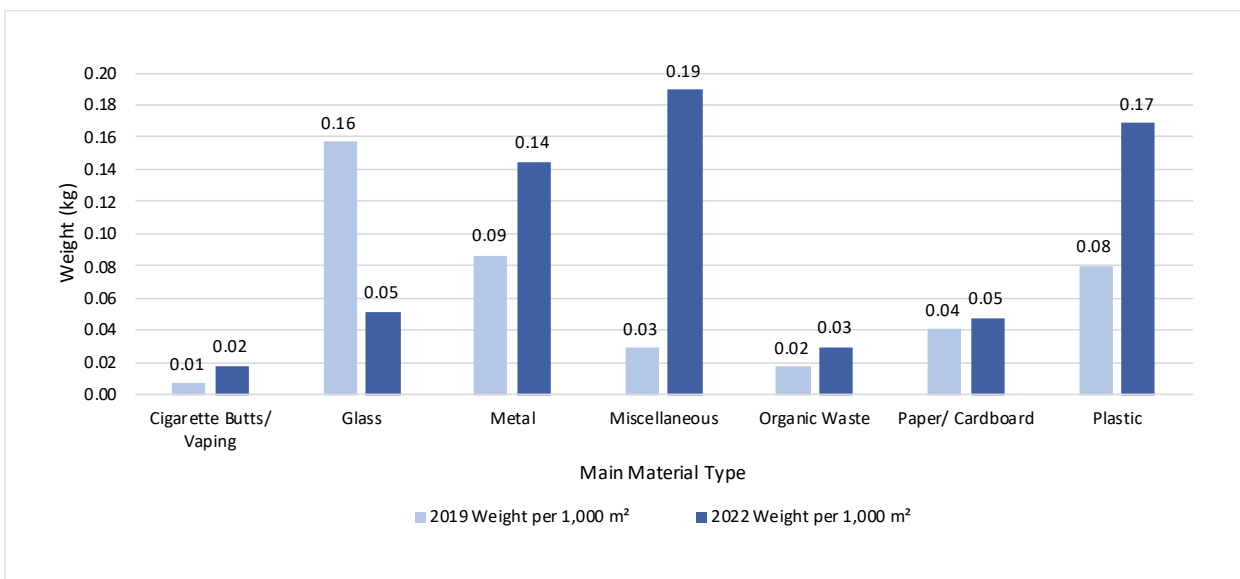
SITE TYPES BY MAIN MATERIAL TYPE

In the West Coast region, the number of material type litter items found per 1,000 m² at the different site types (excluding Highway and Railway sites) was as follows:

- Car Park sites: Cigarette Butts/Vaping (46 items), Plastic (20 items), Metal (12 items), Miscellaneous (12 items), Paper/Cardboard (10 items), Organic Waste (1 item), Glass (0 items) and Illegal Dumping (0 items).

- Industrial sites: Plastic (99 items), Metal (41 items), Miscellaneous (35 items), Cigarette Butts/Vaping |(24 items), Paper/Cardboard (13 items), Glass (11 items), Organic Waste (0 items) and Illegal Dumping (0 items).

- Public Recreational Spaces: Plastic (4 items), Paper/Cardboard (2 items), Metal (1 item), Glass (0 items), Cigarette Butts/Vaping (0 items), Miscellaneous (0 items), Organic Waste (0 items) and Illegal Dumping (0 items).

- Residential sites: Plastic (41 items), Cigarette Butts/Vaping (14 items), Metal (13 items), Paper/Cardboard (10 items), Glass (10 items), Miscellaneous (9 items), Organic Waste (4 items) and Illegal Dumping (1 item).

- Retail sites: Cigarette butts (86 items), Plastic (78 items), Paper/Cardboard (33 items), Metal (28 items), Miscellaneous (27 items), Glass (7 items), Organic Waste (1 item) and Illegal Dumping (0 items).

Figure 534: West Coast 2022, Sites by Main Material Type: Items per 1,000 m²
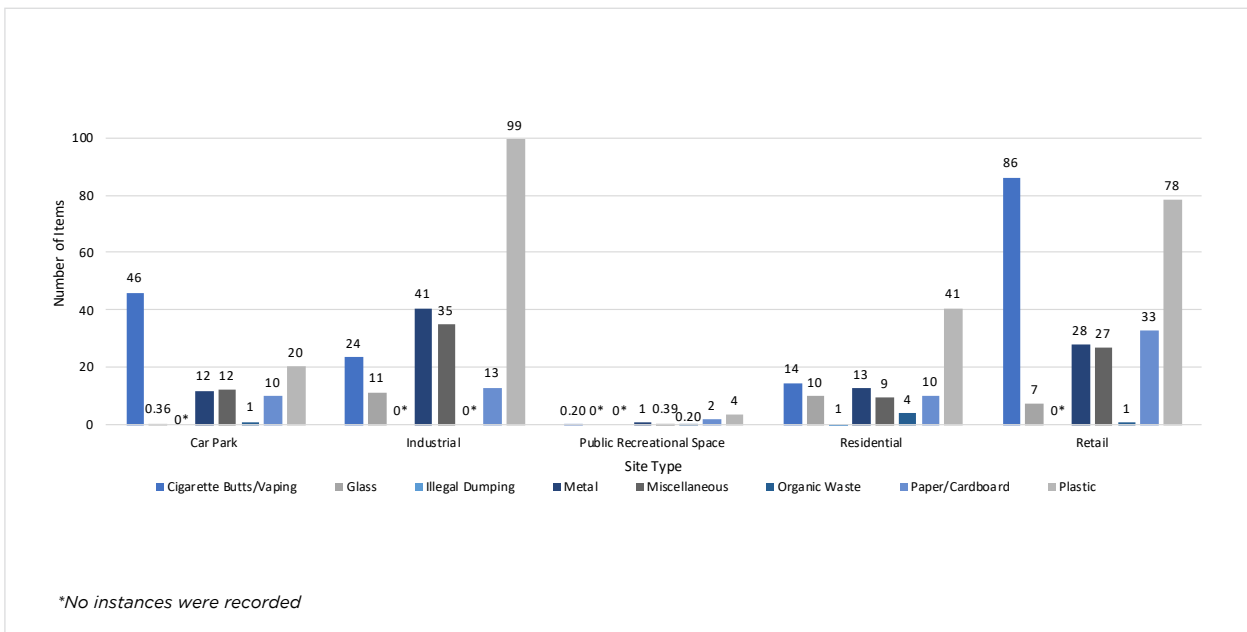
*No instances were recorded

THE DIRTY DOZEN

Cigarette/Vaping: Cigarette butts were the most frequently identified litter item in the West Coast region, with 29 butts recorded per 1,000 m² across the sites audited.

Other frequently identified material subcategories in the West Coast region included:

- Plastic: Unidentifiable soft plastic fragments (9 items per 1,000 m²)
- Plastic: Unidentifiable hard plastic fragments (6 items per 1,000 m²)
- Plastic: Snack bags & confectionary wrappers (5 items per 1,000 m²)

Not all material subcategories were comparable to the 2019 NLA due to the addition of new subcategories in 2022.

Whilst several categories in the West Coast's Dirty Dozen by items are new this year, amongst comparable material subcategories, there has been a decrease in the number of Cigarette Butts collected per 1,000 m² since 2019 (29 items vs. 37 items in 2019).

Figure 535: West Coast, Dirty Dozen, Items per 1,000 m², Material Subcategories: Comparison Over Time
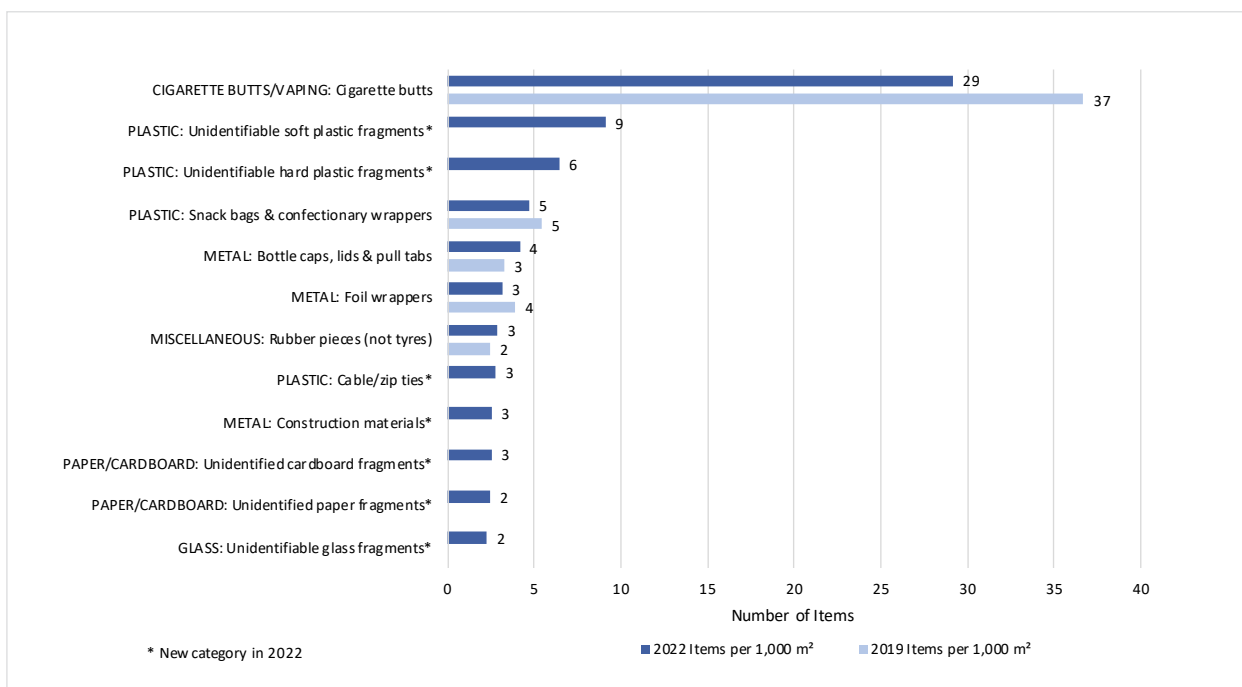
The largest contributor to the estimated litter volume per 1,000 m² in the West Coast region was Paper/Cardboard: Cardboard boxes (2.68 ltr) per 1,000 m².

Other material subcategories which were associated with large litter volumes per 1,000 m² included:

- Plastic: Polystyrene insulation (1.86 ltr per 1,000 m²)
- Illegal Dumping: Illegal dumping (1.49 ltr per 1,000 m²)
- Miscellaneous: Tyre pieces (1.49 ltr per 1,000 m²)

- Plastic: Containers, domestic type (1.03 lt. per 1,000 m²).

Not all material subcategories were comparable to the 2019 NLA due to the addition of new subcategories in 2022.

Whilst several categories in the West Coast's Dirty Dozen by volume are new this year, amongst comparable material subcategories, there has been a small increase in the litter volume of Paper/Cardboard: Cups, food trays, food wrappers, takeaway containers and drink containers (0.77 ltr vs. 0.51 ltr in 2019), and Illegal Dumping (1.49 ltr vs. 1.30 ltr in 2019).

Figure 536: West Coast, Dirty Dozen, Volume per 1,000 m², Material Subcategories: Comparison Over Time
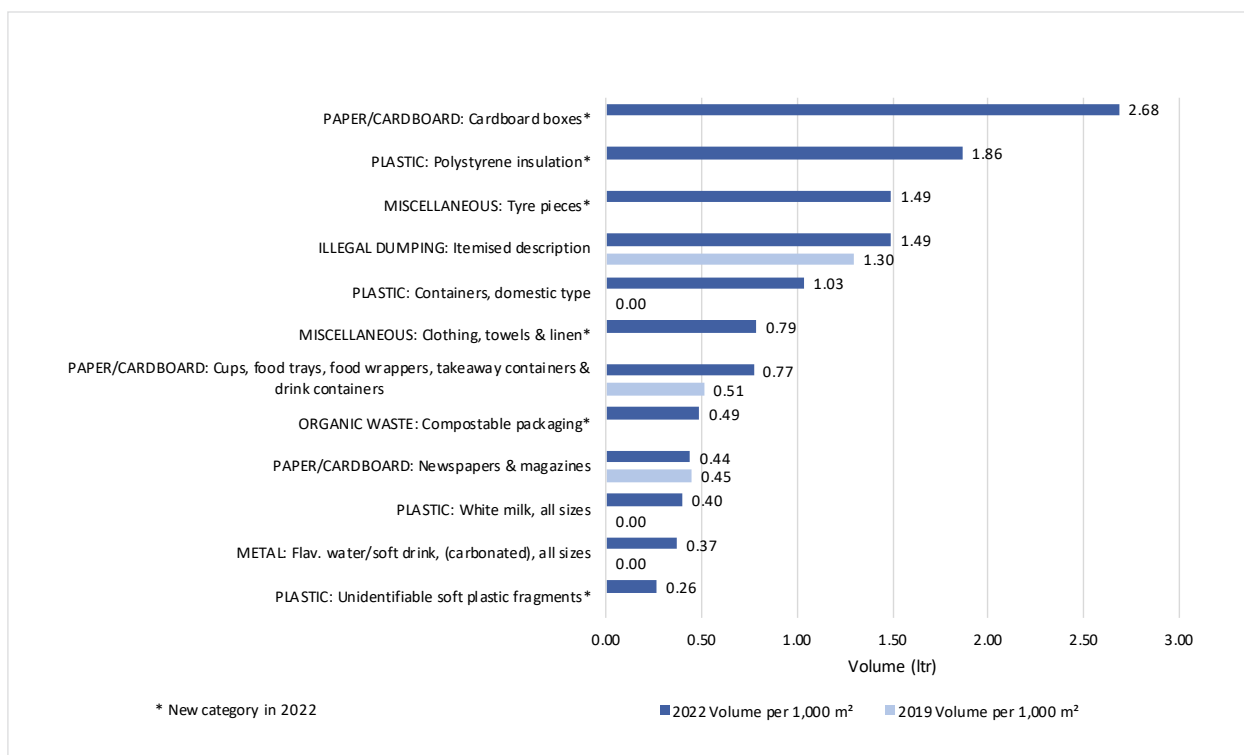
Miscellaneous: Clothing, towels & linen contributed the largest proportion to the overall litter weight in the West Coast region, with a weight of 0.11 kg per 1,000 m².

Other material subcategories with significant weights per 1,000 m² included:

- Metal: Other metal
  (0.06 kg per 1,000 m²)

- Glass: Beer bottles < 750 ml, all colours
  (0.04 kg per 1,000 m²)

- Plastic: White milk, all sizes
  (0.03 kg per 1,000 m²).

Not all material subcategories were comparable to the 2019 NLA due to the addition of new subcategories in 2022.

Whilst several categories in the West Coast's Dirty Dozen by weight are new this year, amongst comparable material subcategories, there has been a reduction in the litter weight of Glass: Beer bottles < 750 ml, all colours (0.04 kg vs. 0.12 kg in 2019) and Metal: Metal pieces/ fragments (0.02 kg vs. 0.07 kg in 2019) since 2019.

Figure 537: West Coast, Dirty Dozen, Weight per 1,000 m², Material Subcategories: Comparison Over Time

MISCELLANEOUS: Clothing, towels & linen* — 0.11
METAL: Other metal — 0.06 / 0.00
GLASS: Beer, < 750 ml, all colours of glass — 0.04 / 0.12
PLASTIC: White milk, all sizes — 0.03 / 0.00
PLASTIC: Unidentifiable hard plastic fragments* — 0.03
PLASTIC: Fruit juice, <1 litre — 0.02 / 0.00
PLASTIC: Unidentifiable soft plastic fragments* — 0.02
MISCELLANEOUS: Construction materials* — 0.02
MISCELLANEOUS: Face masks - disposable* — 0.02
METAL: Metal pieces/fragments — 0.02 / 0.07
MISCELLANEOUS: Rubber pieces (not tyres) — 0.02 / 0.01
METAL: Construction materials* — 0.02 / 0.00

Weight (kg)

* New category in 2022

■ 2022 Weight per 1,000 m²   ■ 2019 Weight per 1,000 m²

TERRITORIAL SUMMARIES

The West Coast region is comprised of three Territorial Authorities:

- Buller District
- Grey District
- Westland District

A total of 15 sites (from Industrial, Retail, Residential, Car Park and Public Recreational Spaces) were audited in the West Coast region with a minimum of five sites audited from each territory.

The results are summarised below.

Extract from Table 5, 2022 Territory Data: West Coast Region (Excluding Railways)

Territory	Total Area Audited (m²)	Items per 1,000 m²	Weight (kg) per 1,000 m²	Volume (ltr) per 1,000 m²
WEST COAST REGION				
Buller District	5,800	94	1.15	15.42
Grey District	5,541	120	0.52	18.63
Westland District	4,750	91	0.19	7.54
West Coast Overall	**16,091**	**102**	**0.65**	**14.20**

SITE GRADINGS

All sites were assigned gradings in four 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 West Coast region.

Extract from Table 3, Risk and Litter Distribution: West Coast (Excluding Railways)

	Risk Present		Litter Distribution	
West Coast	Moderate hazard or risk	Significant hazard or risk	Widespread	Clustered
	100%	0%	93%	7%

Figure 538: West Coast 2022, Grading: Visual Site Ratings (Excluding Railways)
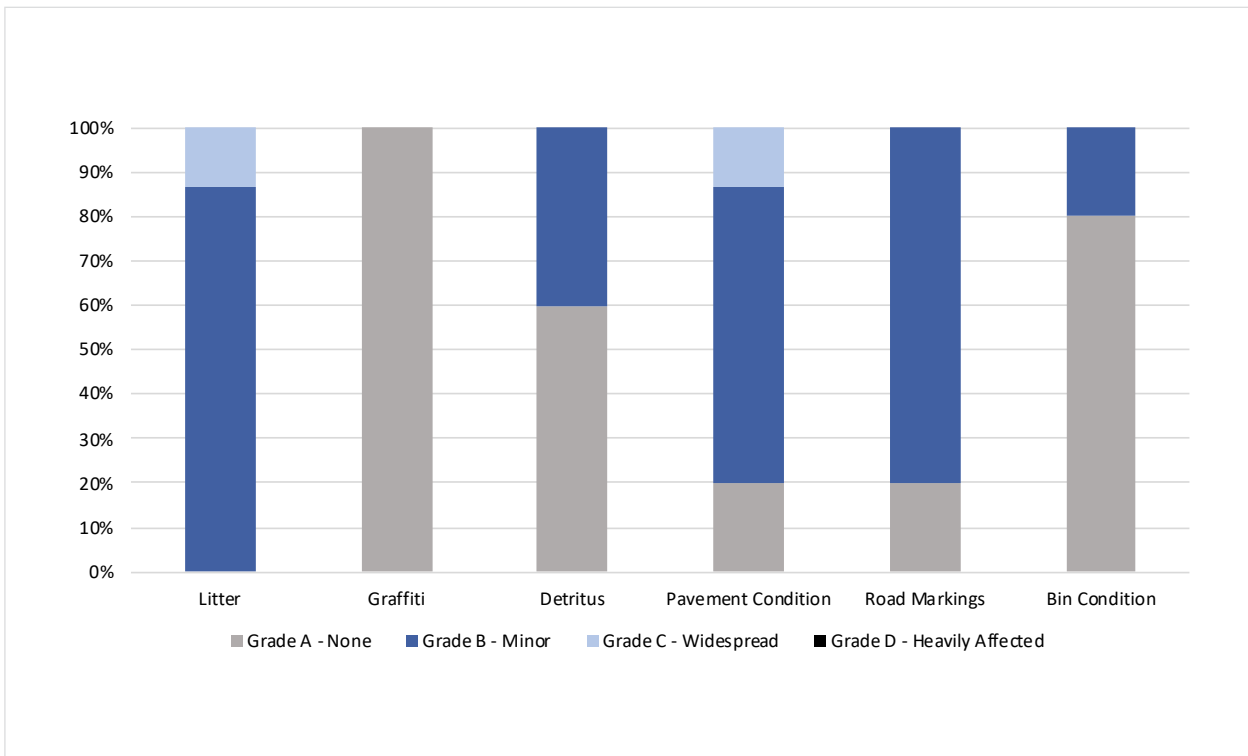
Figure 539: West Coast 2022, Grading: Site Litter Hotshots Ratings (Excluding Railways)
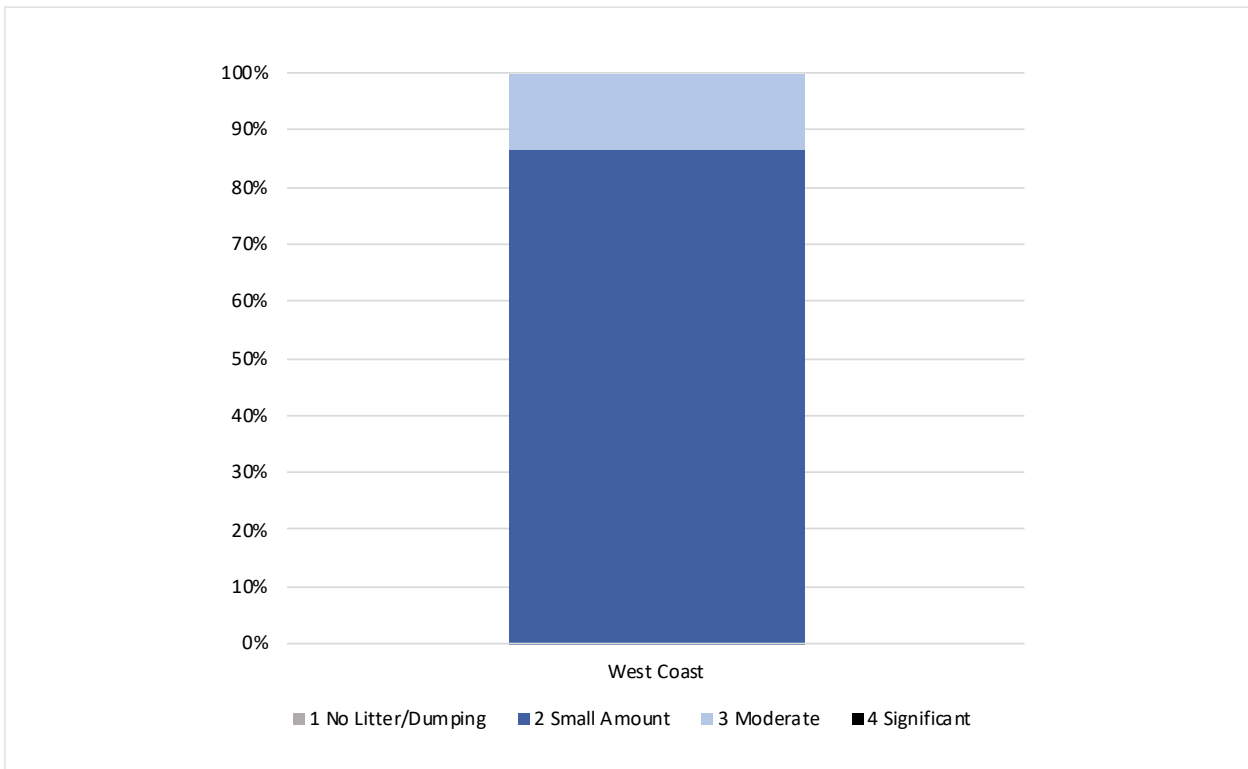
RAILWAYS

The following section shows the results for Railways in the West Coast region. In the West Coast region there were no Highway sites and one Railway site audited.

Figure 540: West Coast Railways, Items per 1,000 m^2 by Site Type: Comparison Over Time
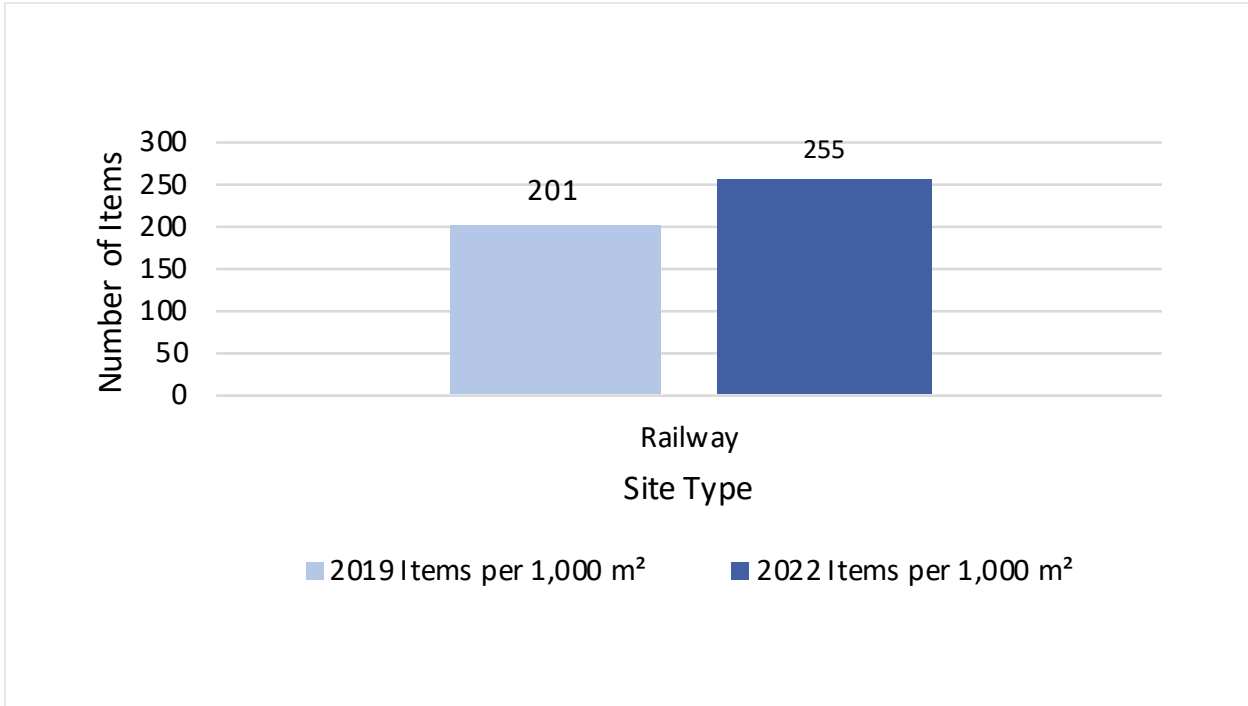
Figure 541: West Coast Railways, Weight per 1,000 m^2 by Site Type: Comparison Over Time
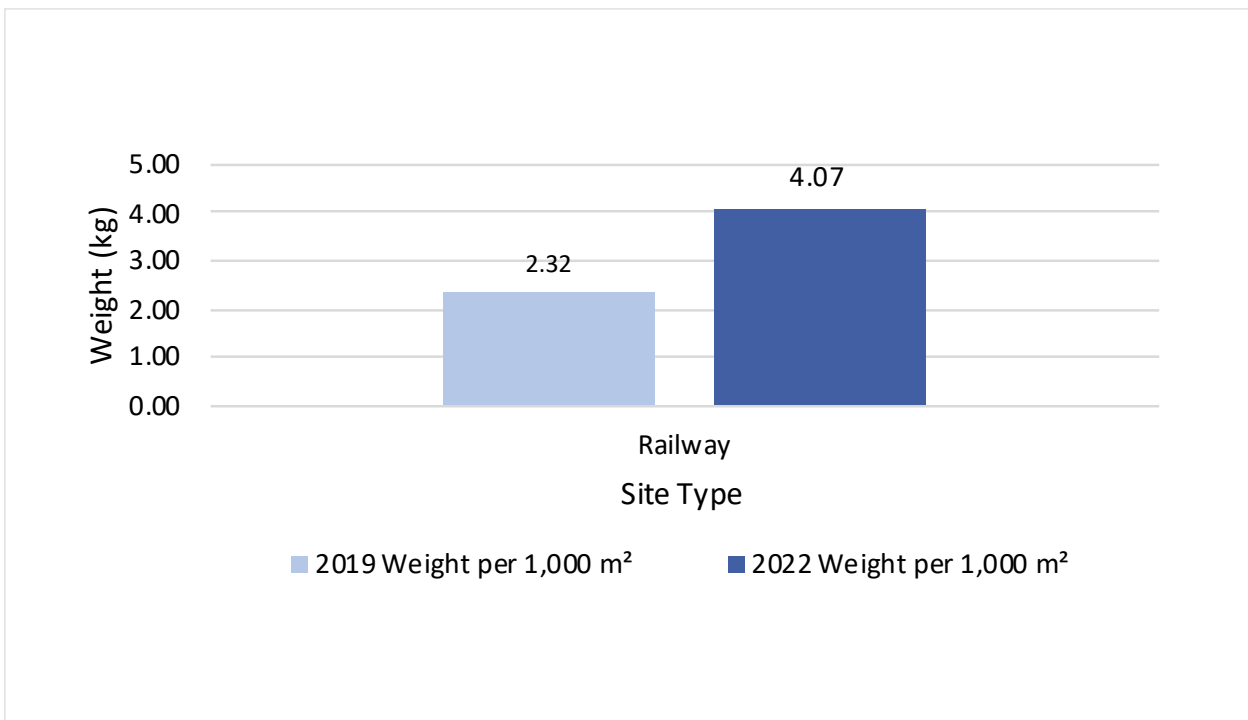
Figure 542: West Coast Railways, Volume per 1,000 m^2 by Site Type: Comparison Over Time
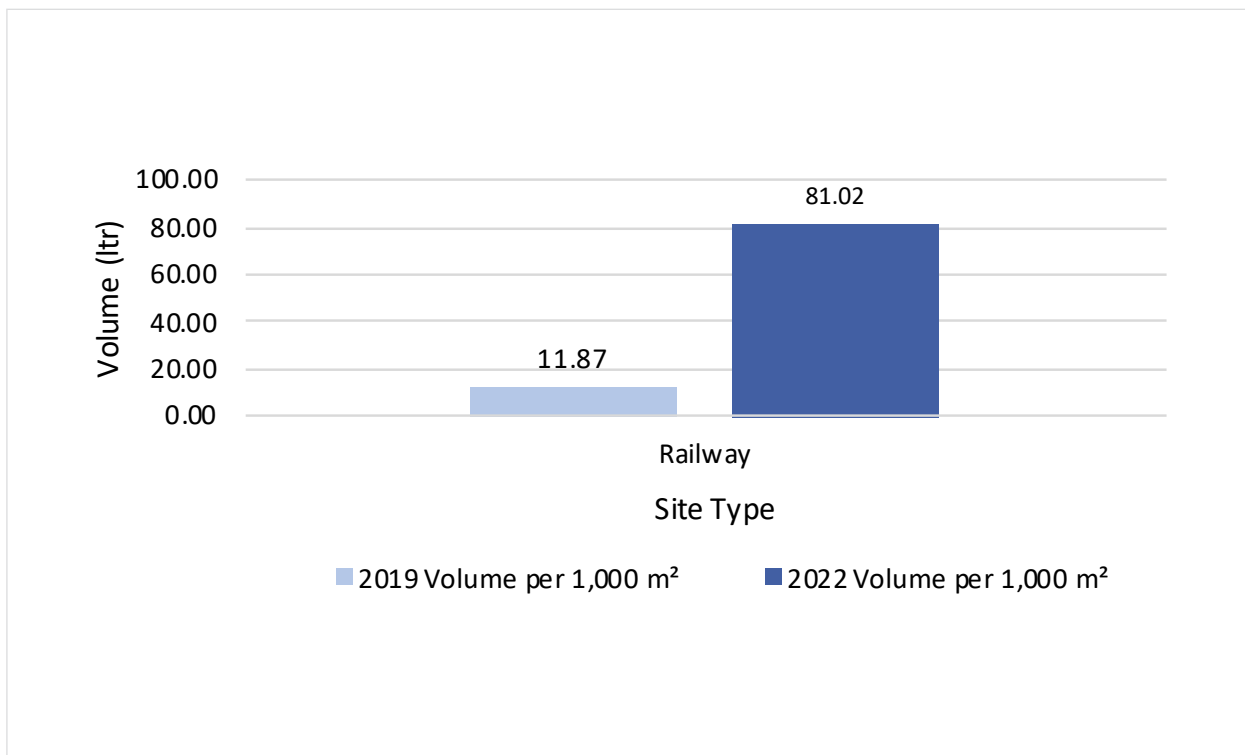
Figure 543: West Coast Railways, Items per 1,000 m^2 by Main Material Type: Comparison Over Time

Figure 544: West Coast Railways, Weight per 1,000 m² by Main Material Type: Comparison Over Time

Figure 545: West Coast Railways, Volume per 1,000 m² by Main Material Type: Comparison Over Time

Figure 546: West Coast Railways, Dirty Dozen, Items per 1,000 m², Material Subcategories: Comparison Over Time

CIGARETTE BUTTS/VAPING: Cigarette butts — 2022: 39, 2019: 2
PLASTIC: Snack bags & confectionary wrappers — 2022: 23, 2019: 0
PLASTIC: Unidentifiable soft plastic fragments* — 2022: 17
PAPER/CARDBOARD: Cups, food trays, food wrappers, takeaway containers & drink containers — 2022: 16, 2019: 1
METAL: Flav. water/soft drink, (carbonated), all sizes — 2022: 13, 2019: 0
METAL: Foil wrappers — 2022: 12, 2019: 4
PLASTIC: Unidentifiable hard plastic fragments* — 2022: 11
PAPER/CARDBOARD: Cigarette packets — 2022: 9, 2019: 0
METAL: Alcoholic sodas & spirit based mixers — 2022: 9, 2019: 0
PLASTIC: Strapping bands & tape* — 2022: 8
PLASTIC: Polystyrene insulation* — 2022: 8
PAPER/CARDBOARD: Unidentified cardboard fragments* — 2022: 7

Number of litter items

*New category in 2022

■ 2022 Items per 1,000 m² ■ 2019 Items per 1,000 m²

Figure 547: West Coast Railways, Dirty Dozen, Weight per 1,000 m², Material Subcategories: Comparison Over Time

GLASS: Beer, < 750 ml, all colours of glass — 2022: 0.58, 2019: 0.22
PAPER/CARDBOARD: Newspapers & magazines — 2022: 0.53, 2019: 0.02
GLASS: Alcoholic sodas/spirit based mixers, all sizes — 2022: 0.50, 2019: 0.00
METAL: Metal pieces/fragments — 2022: 0.43, 2019: 0.12
METAL: Flav. water/soft drink, (carbonated), all sizes — 2022: 0.30, 2019: 0.00
PLASTIC: Plain water (carbonated or non-carb.), 1 litre + — 2022: 0.24, 2019: 0.00
PAPER/CARDBOARD: Cups, food trays, food wrappers, takeaway containers & drink containers — 2022: 0.22, 2019: 0.01
PLASTIC: Unidentifiable hard plastic fragments* — 2022: 0.19
PLASTIC: Flav. milk, <1 litre — 2022: 0.13, 2019: 0.03
METAL: Alcoholic sodas & spirit based mixers — 2022: 0.13, 2019: 0.00
PAPER/CARDBOARD: Cigarette packets — 2022: 0.07, 2019: 0.00
ORGANIC WASTE: Food waste — 2022: 0.07, 2019: 0.00

Weight (kg)

*New category in 2022

■ 2022 Weight per 1,000 m² ■ 2019 Weight per 1,000 m²

Figure 548: West Coast Railways, Dirty Dozen, Volume per 1,000 m², Material Subcategories: Comparison Over Time

PLASTIC: Containers, domestic type — 22.20 / 0.00
PLASTIC: Polystyrene insulation* — 15.00
PAPER/CARDBOARD: Cups, food trays, food wrappers, takeaway containers & drink containers — 11.66 / 0.79
METAL: Flav. water/soft drink, (carbonated), all sizes — 5.67 / 0.00
METAL: Alcoholic sodas & spirit based mixers — 4.03 / 0.00
MISCELLANEOUS: Clothing, towels & linen* — 2.41
PLASTIC: Flav. milk, <1 litre — 2.13 / 0.58
PLASTIC: Plain water (carbonated or non-carb.), 1 litre + — 2.06 / 0.00
PAPER/CARDBOARD: Cigarette packets — 2.03 / 0.00
GLASS: Alcoholic sodas/spirit based mixers, all sizes — 2.00 / 0.00
PAPER/CARDBOARD: Cartons, flavoured milk, <1 litre — 1.79 / 0.00
PAPER/CARDBOARD: Cartons, fruit juice, <1 litre — 1.67 / 1.35

Volume (ltr)

*New category in 2022

■ 2022 Volume per 1,000 m²   ■ 2019 Volume per 1,000 m²

BRANDED
LITTER

BRANDED LITTER

For the purpose of auditing branded litter, 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 item was grouped under the brand owner's name.

INDUSTRY CATEGORIES – OVERALL

Snack Wrappers and Packets represented the largest proportion of branded litter items counted across the 2022 NLA (34.21%). This replaced 2019's top industry which was Alcoholic Beverage Containers and Packaging.

Other industry categories that were associated with large proportions of the branded litter recorded nationally included:

- Alcoholic Beverage Containers and Packaging (28.40%)
- Non-alcoholic Beverage Containers and Packaging (12.82%)
- Takeaway Food, Drink Container and Packaging (8.90%).

Figure 549: National 2022, Branded Litter by Industry Category

Legend:
- Alcoholic beverage containers and packaging
- Milk beverage containers and packaging
- Non-alcoholic beverage containers and packaging
- Other litter
- Retail brands and packaging
- Snacks wrappers and packets
- Takeaway food, drink containers and packaging
- Tobacco
- Vaping*

*New Industry Cateogry in 2022
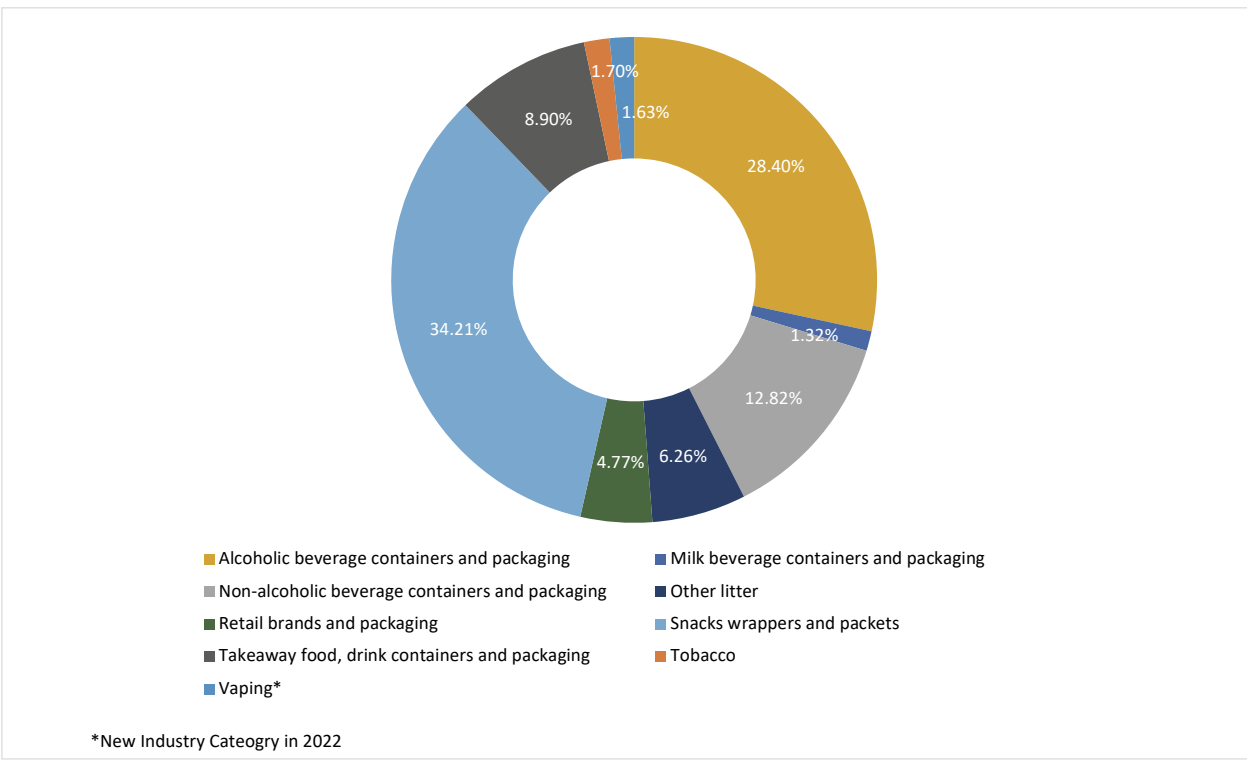
Figure 550: National, Branded Litter by Industry Category: Comparison Over Time
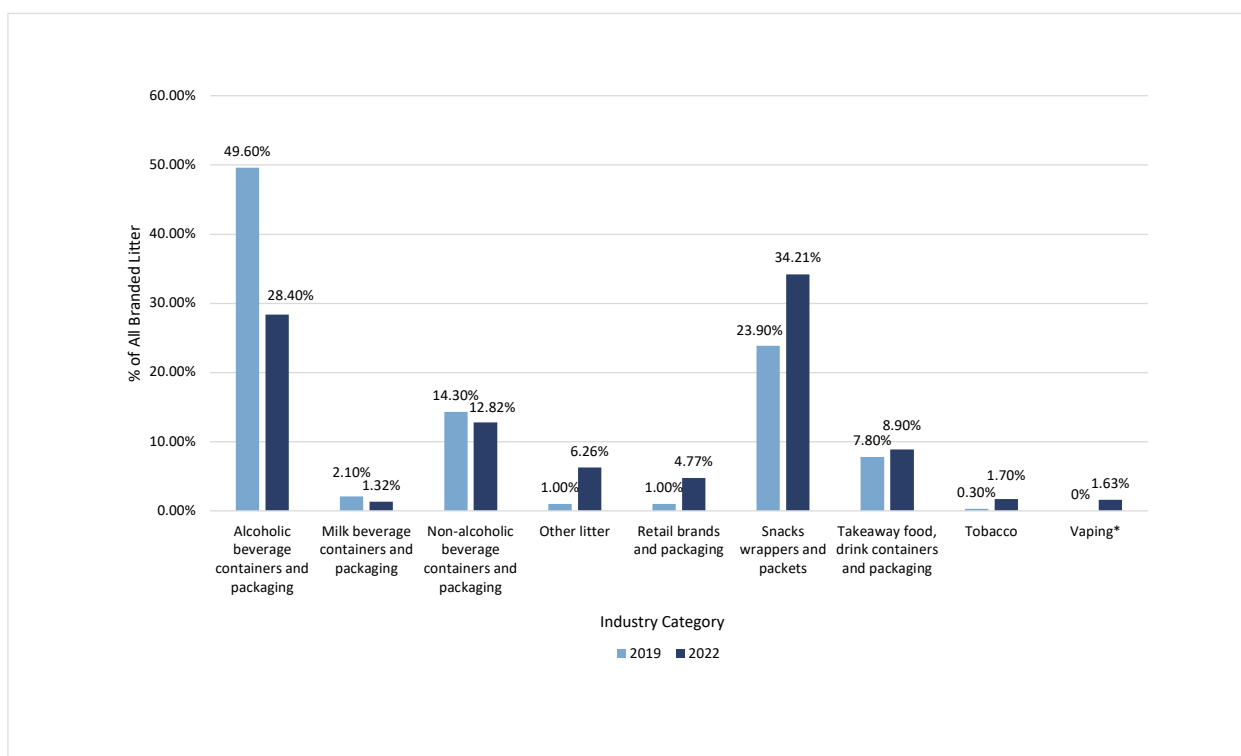
MOST PREVALENT BRANDS

The overall number of branded litter items identified across all sites nationally in 2022 was 7,135 items, an increase from the 3,146 items identified in 2019.

When evaluated proportionally against the overall branded litter count, McDonalds was identified as the most frequently identified brand, accounting for 5.03% of all branded litter items recorded in 2022. This is a similar proportion to 2019.

Notable differences in the proportion of branded litter collected compared with 2019 can be seen in Speights (3.01% vs. 5.44% in 2019), Corona (2.03% vs. 3.85% in 2019), Steinlager (1.96% vs. 4.55% in 2019), Heinekin (1.50% vs. 3.75% in 2019), Tui (0.91% vs. 2.96% in 2019) and DB (0.88% vs. 4.93% in 2019).

This is likely due to the reduced proportion of alcoholic beverage containers and packaging collected in 2022.

Other brands which recorded high levels of litter as a percentage of the overall branded litter count in 2022 included:

- Cadbury (3.64%)
- Extra (3.45%)
- Long White (3.38%)
- Speights (3.01%)
- Coca-Cola (2.73%)
- Woodstock (2.31%)
- V Energy (2.21%)
- Corona (2.03%).

Figure 551: National, Most 50 Prevalent Brands as % of All Branded Litter: Comparison Over Time
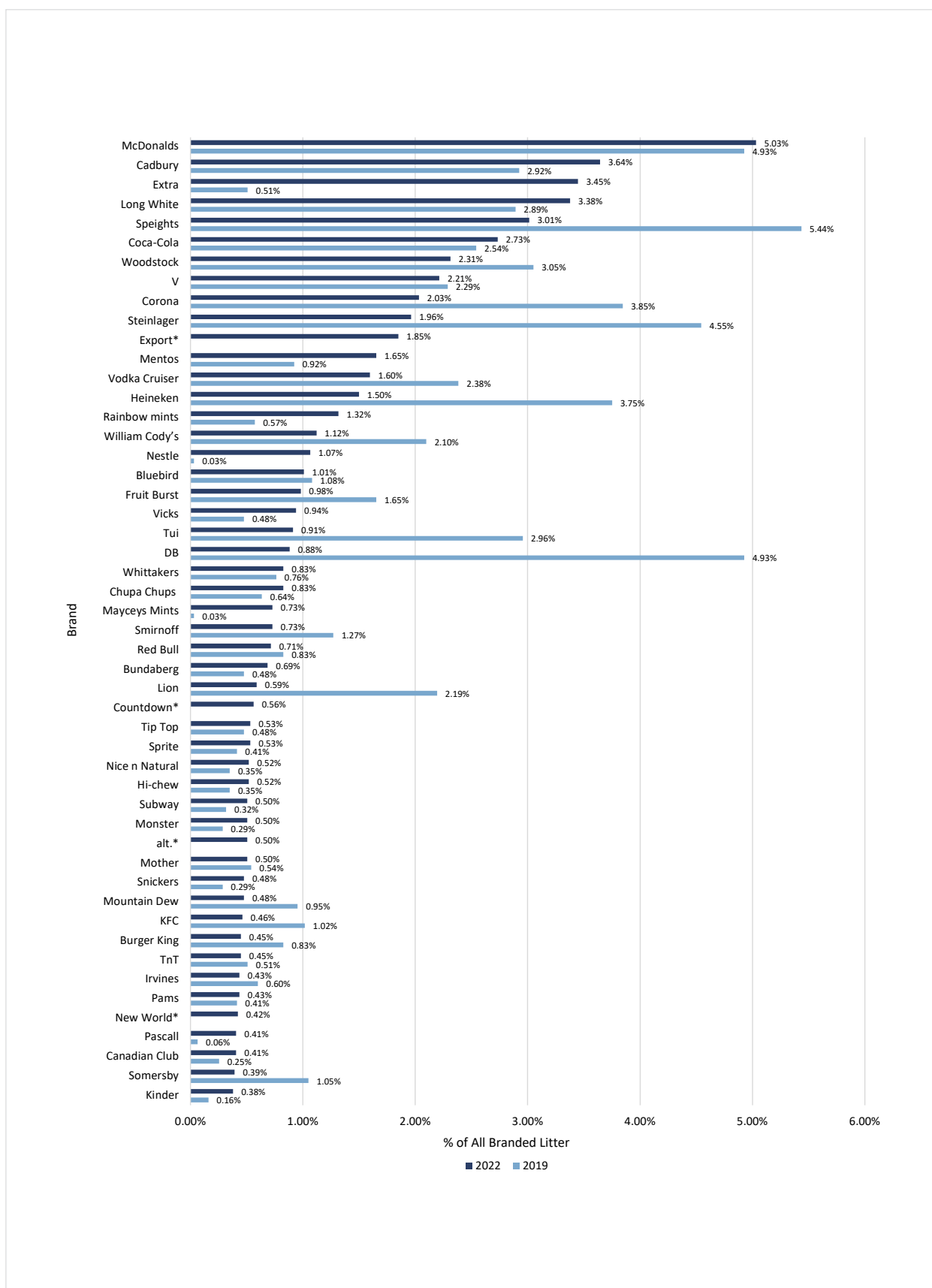
INDUSTRY CATEGORIES – ANALYSIS

ALCOHOLIC BEVERAGE CONTAINERS AND PACKAGING

A total of 2,026 branded litter items were counted within the Alcoholic Beverage Containers and Packaging category, across all sites audited nationally in 2022.

Within this industry category, the highest contributor to branded litter items was Long White, which represented 11.90% of all branded alcoholic beverage containers and packaging. This is large increase from 2019 (5.80% in 2019).

Other frequently identified brands included:

- Speights (10.61%)
- Woodstock (8.14%)
- Corona (7.16%)
- Steinlager (6.91%)
- Export (6.56%).

Figure 552: National, Alcoholic Beverage Containers and Packaging, % of Branded Litter in Industry Category, Main Brands Identified: Comparison Over Time

*New Brand Identified in 2022
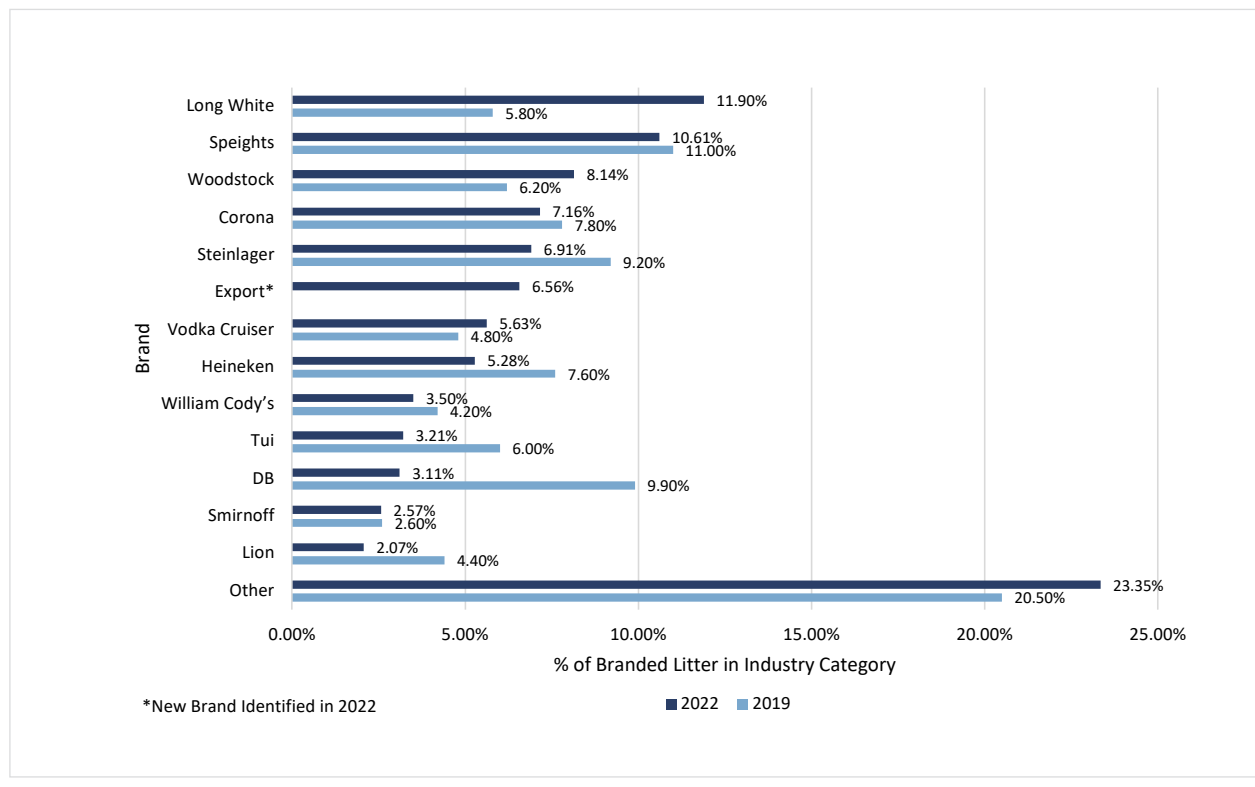
The largest proportion of brands within the Alcoholic Beverage Containers and Packaging Brand Owners category belonged to Asahi, which was the brand owner associated with 34.3% of the most frequently identified brands in 2022. This is an increase of 9% compared with 2019 (25.30% in 2019).

Other significant brand owner contributors counted as a proportion of the brands within this category included:

- Lion (32.63%)
- DB Breweries (16.34%).

Figure 553: National, Alcoholic Beverage Containers and Packaging, % of Branded Litter in Industry Category, Brand Owners: Comparison Over Time
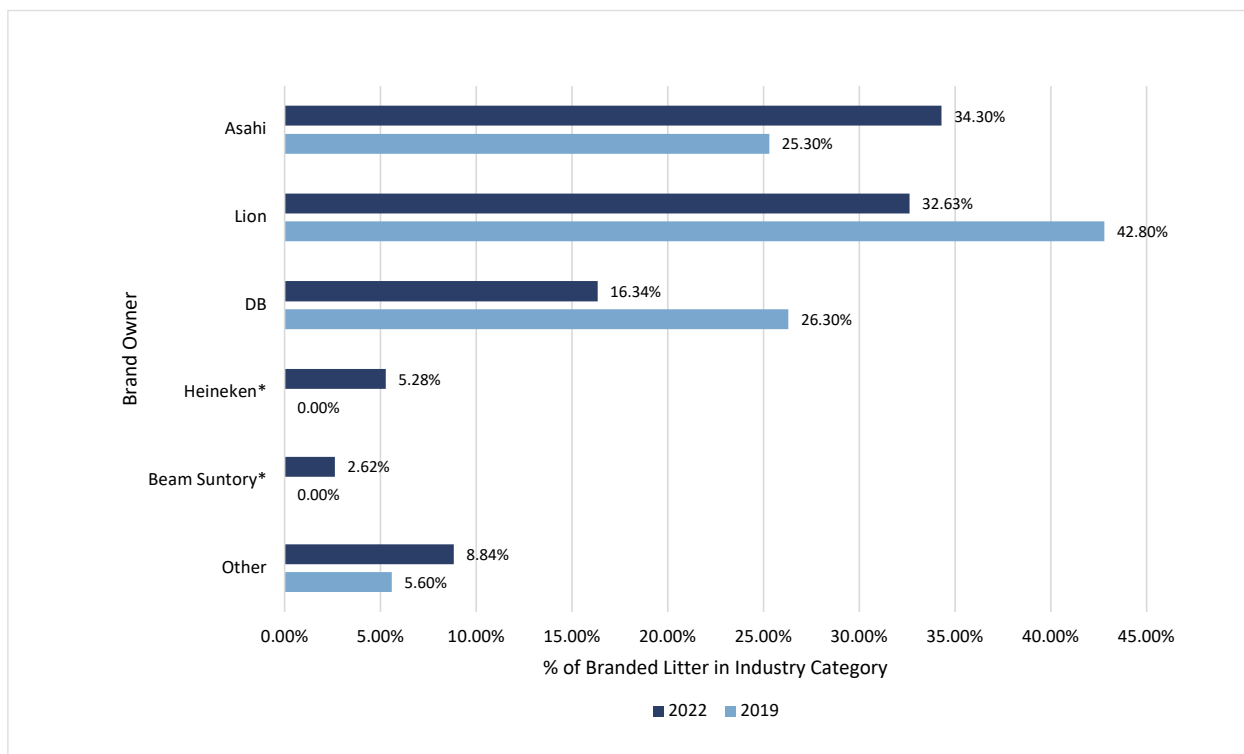
SNACKS WRAPPERS AND PACKETS

A total of 2,441 branded litter items were recorded within the Snacks Wrappers and Packets category for 2022.

Similar to 2019, the highest contributor to branded litter items (within this industry category) was Cadbury, which represented 10.65% of all branded Snacks Wrappers and Packets. This was followed closely by Extra, which saw a large increase in items collected since 2019 (10.08% vs. 2.12% in 2019).

Other frequently identified brands included:

• Mentos (4.83%)

• Rainbow mints (3.85%)

• Nestle (3.11%)

• Bluebird (2.95%).

Figure 554: National, Snack Wrappers and Packets: % of Branded Litter in Industry Category, Main Brands Identified: Comparison Over Time
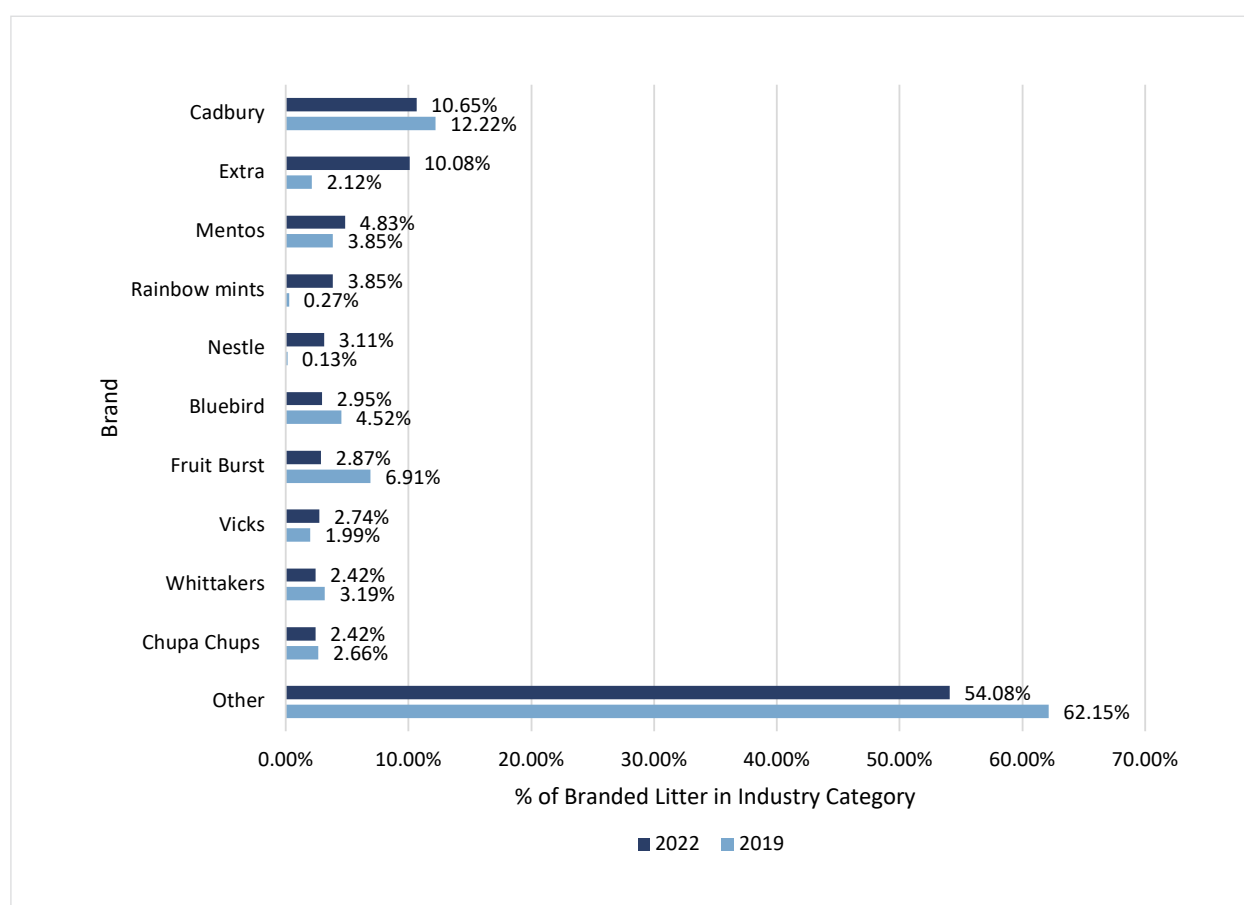
Similar to 2019, the largest proportion of brands within the Snack Wrappers and Packets Brand Owners category belonged to Cadbury, the brand owner associated with 11.27% of the most frequently identified Snack Wrappers and Packets brands in 2022.

Compared with 2019, there has been a slight reduction in the proportion of Snack Wrappers and Packets associated with Pascall (5.00% vs. 7.60% in 2019) and Bluebird (3.52% vs. 5.80% in 2019).

Other significant brand owner contributors counted as a proportion of the brands within this category included:

- Pascall (5.00%)

- Mentos (4.83%)

- Nestle (3.97%)

- Rainbow confectionery (3.89%)

- Bluebird (3.52%).

Figure 555: National, Snack Wrappers and Packets, % of Branded Litter in Industry Category, Brand Owners: Comparison Over Time
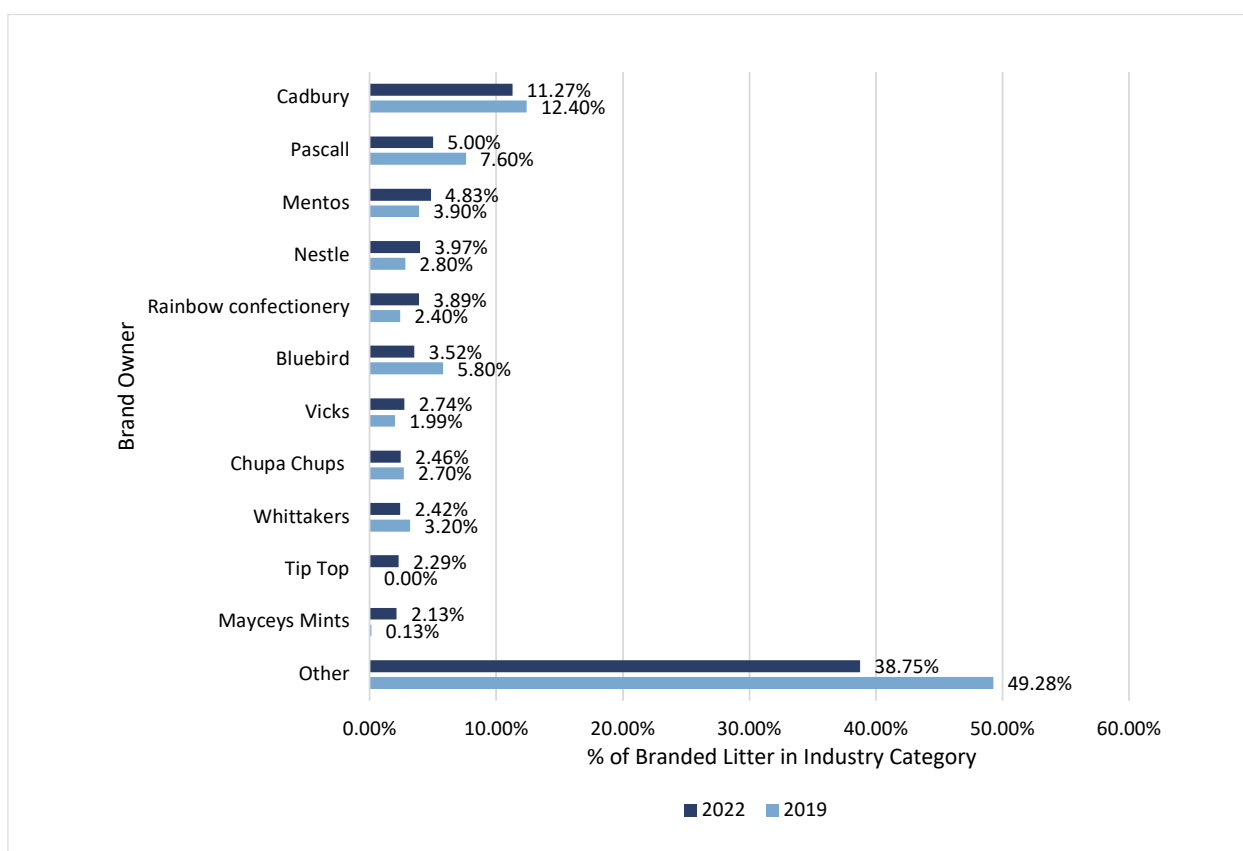
NON-ALCOHOLIC BEVERAGE CONTAINERS AND PACKAGING

A total of 915 branded litter items were counted within the Non-Alcoholic Beverage Containers and Packaging category, across all sites audited nationally in 2022.

Similar to 2019, within this industry category, the highest contributor to branded litter items was Coca-Cola, which represented more than a fifth (21.09%) of all branded non-alcoholic beverage containers and packaging.

Most brands within this category had similar proportions of litter compared with 2019. However, there was an increase in the proportion of Coca-Cola (21.09% vs. 17.80% in 2019), Bundaberg (5.36% vs. 3.30% in 2019) and Monster (3.93% vs. 2.0% in 2019) collected. There was also a reduction in the proportion of Mountain Dew litter collected compared with 2019 (3.72% vs. 6.70% in 2019).

Other frequently identified brands included:

- V (16.61%)
- Red Bull (5.57%)
- Bundaberg (5.36%)
- Sprite (4.15%)
- Monster (3.93%)
- Mother (3.93%).

Figure 556: National, Non-Alcoholic Beverage Containers and Packaging, % of Branded Litter in Industry Category, Main Brands Identified: Comparison Over Time
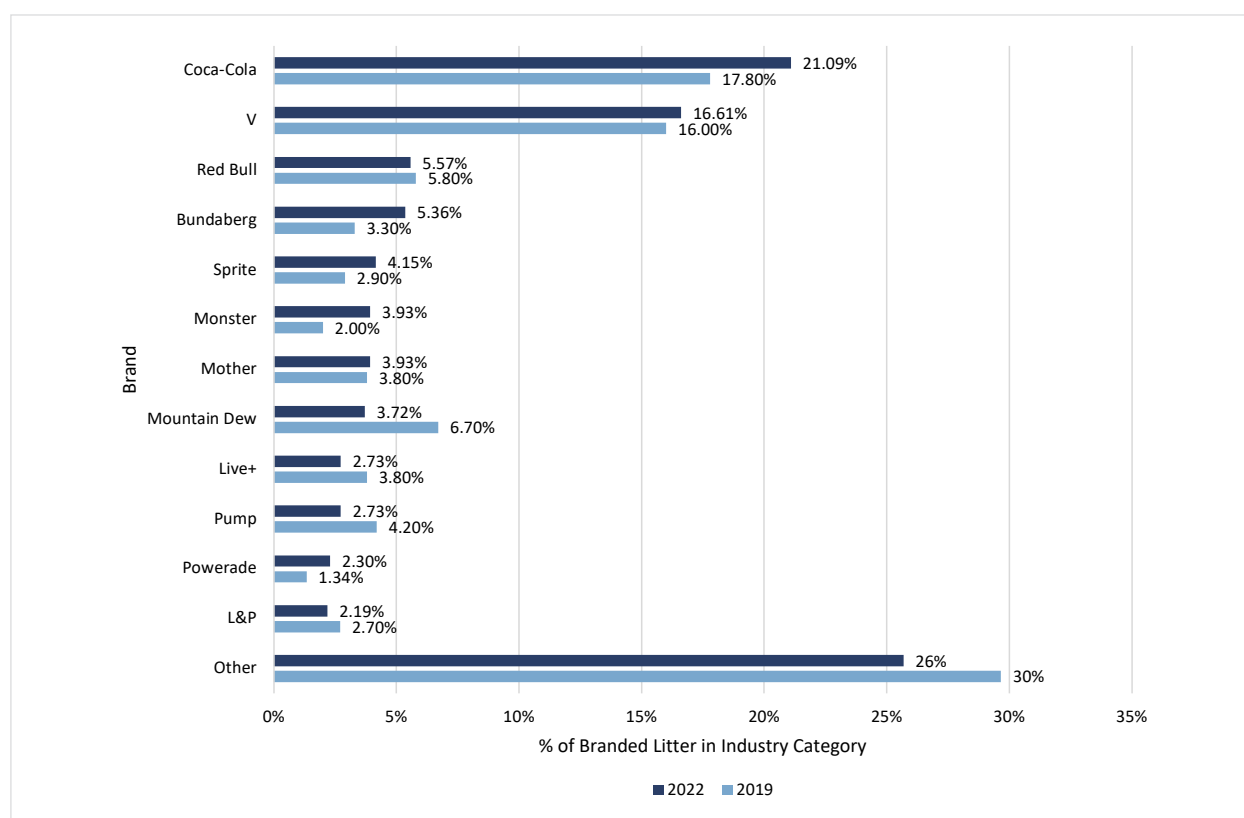
Consistent with 2019, the largest proportion of brands within the Non- Alcoholic Beverage Containers and Packaging Brand Owners category belonged to Coca-Cola Amatil, the brand owner associated with 48.63% of the most frequently identified brands in 2022.

Most results for brand owners are consistent with 2019, with the exception of Frucor Suntory, which has seen a small decrease (27.21% vs. 31.18% in 2019).

Other significant brand owner contributors counted as a proportion of the brands within this category included:

- Frucor Suntory (27.21%)

- Red Bull (5.57%)

- Bundaberg (5.36%).

Figure 557: National, Non Alcoholic Beverage Containers and Packaging, % of Branded Litter in Industry Category, Brand Owners: Comparison Over Time
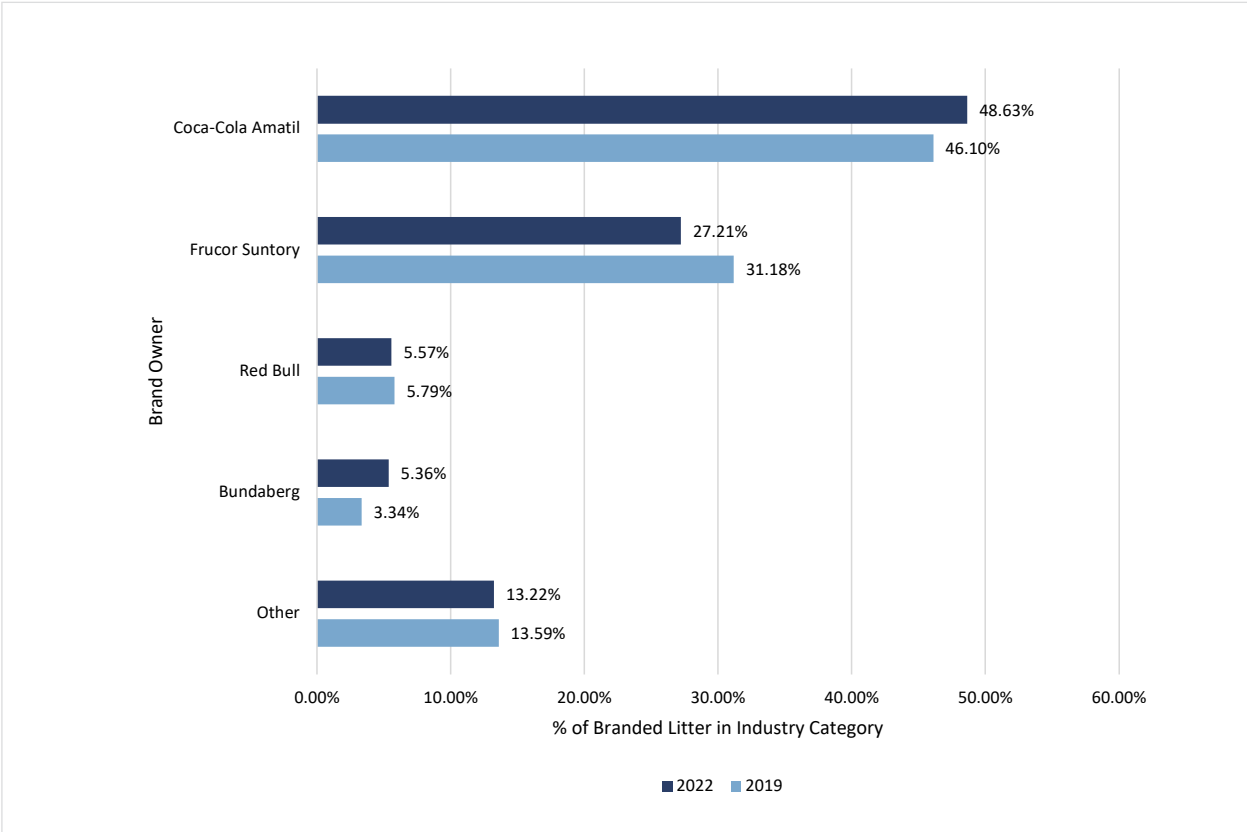
TAKEAWAY FOOD, DRINK CONTAINERS AND PACKAGING

A total of 635 branded litter items were counted within the Takeaway Food, Drink Containers and Packaging category, across all sites audited nationally in 2022.

Similar to 2019, the highest contributor to branded litter items (within this industry category) was McDonalds, which represented 56.54% of all branded Takeaway Food, Drink Containers and Packaging. However, the proportion of McDonalds litter items collected has decreased from 2019 (63.01% in 2019).

The proportion of items collected for KFC (5.20% vs. 13.01% in 2019) and Burger King (5.04% vs. 10.57% in 2019) have also decreased since 2019. There has been an increase in the proportion of Wild Bean items collected compared with 2019 (4.09% vs. 0.41% in 2019).

Other frequently identified brands included:

• Subway (5.67%)

• KFC (5.20%)

• Burger King (5.04%)

• Wild Bean (4.09%).

Figure 558: National, Takeaway Food and Drink Containers, % of Branded Litter in Industry Category, Main Brands Identified: Comparison Over Time
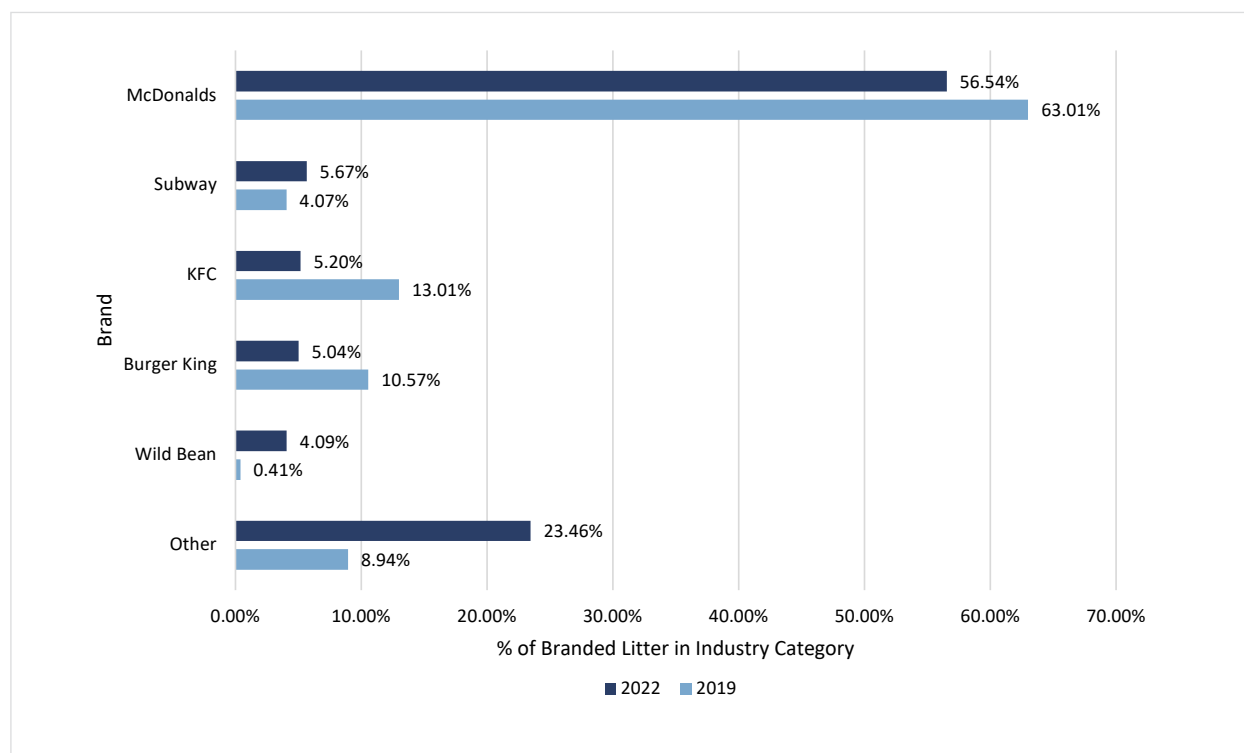
Consistent with 2019, the largest proportion of brands within the Takeaway Food, Drink Containers and Packaging Brand Owners category belonged to the brand owner McDonalds, which was associated with 56.54% of the most frequently identified brands in 2022.

Brand owners, Restaurant Brand (5.83% vs. 14.60% in 2019) and Burger King (5.04% vs. 10.60% in 2019), both saw a decline in the proportion of litter collected compared with 2019.

Other significant brand owner contributors counted as a proportion of the brands within this category included:

• Restaurant Brand (5.83%)

• Subway (5.67%)

• Burger King (5.04%)

• Wild Bean (4.09%).

Figure 559: National, Takeaway Food and Drink Containers, % of Branded Litter in Industry Category, Brand Owners: Comparison Over Time
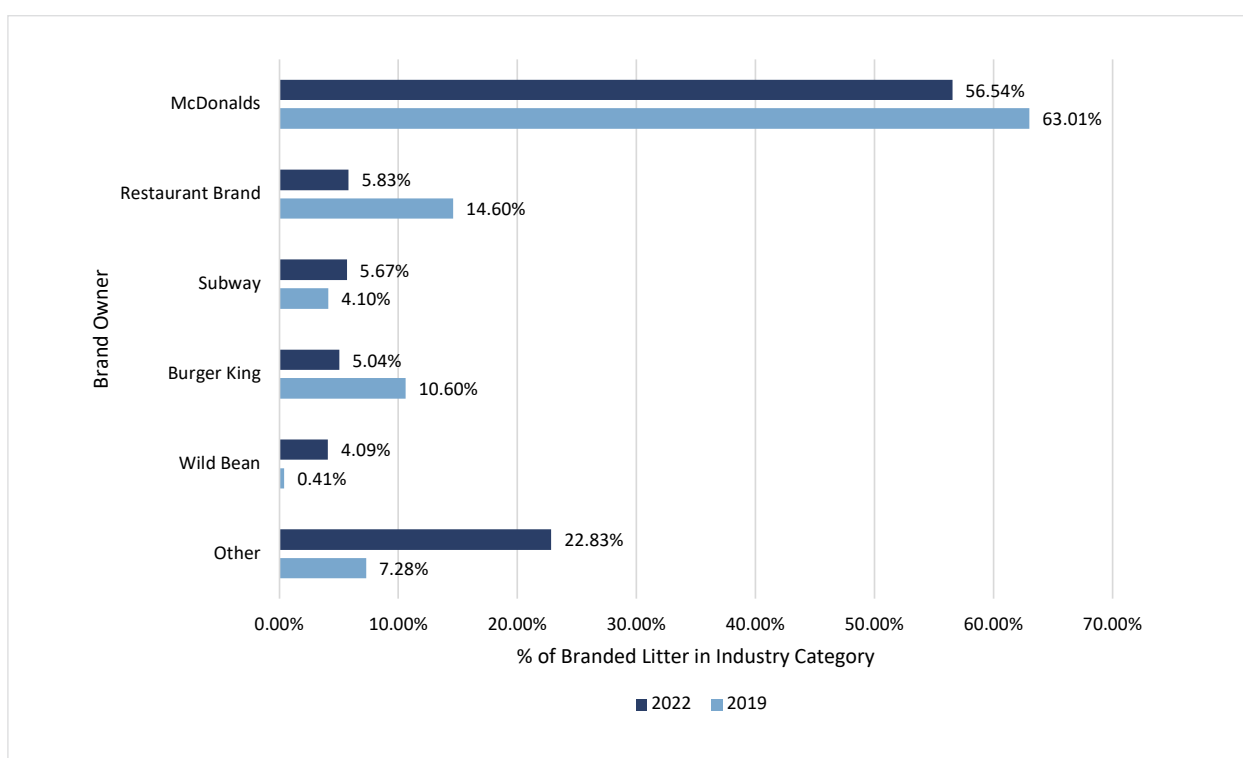
MILK BEVERAGE CONTAINERS AND PACKAGING

A total of 94 branded litter items were counted within the Milk Beverage Containers and Packaging category, across all sites audited nationally in 2022.

Consistent with 2019, the highest contributor to branded litter items (within this industry category) was Sanitarium Up & Go, which represented 31.91% of all branded Milk Beverage Containers and Packaging. However, the proportion of Sanitarium Up & Go litter items collected has decreased slightly since 2019 (33.80% in 2019).

Compared with 2019, there have been increases in the proportion of items from Meadow Fresh (11.70% vs 6.20% in 2019) and Nescafe (7.45% vs. 3.08% in 2019) collected, and a decrease in the proportion of items collected from Primo (3.19% vs. 9.20% in 2019) collected.

Other frequently identified brands included:

- Meadow Fresh (11.70%)
- Anchor (8.51%)
- Nescafe (7.45%)
- Fresh n Fruity (3.19%)
- Primo (3.19%).

Figure 560: National, Milk Beverage Containers and Packaging, % of Branded Litter in Industry Category, Main Brands Identified: Comparison Over Time
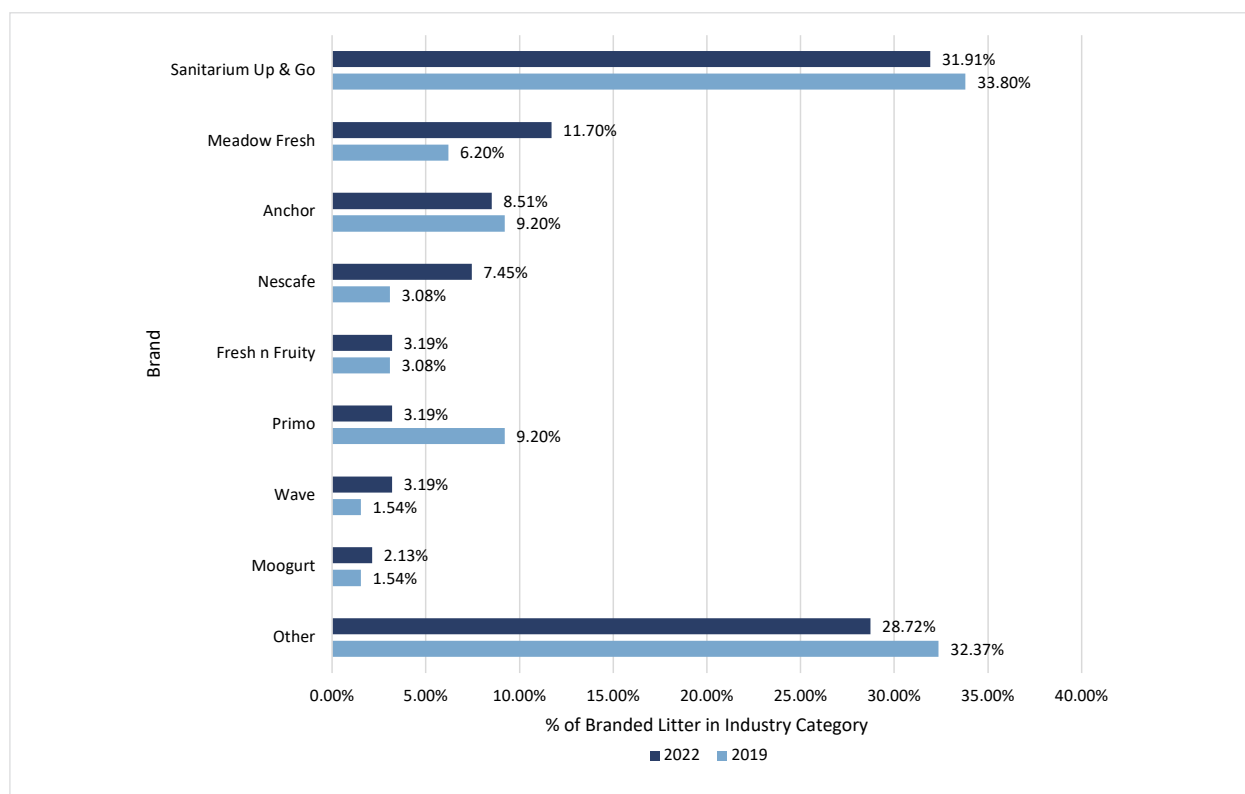
Consistent with 2019, the largest proportion of brands within the Milk Beverage Containers and Packaging Brand Owners category belonged to Frucor Suntory, the brand owner associated with 37.23% of the most frequently identified brands in 2022 (within this category).

Compared with 2019, there has been an increase in the proportion of items collected that fall under Fonterra (25.53% vs. 21.50% in 2019) and Nestle (7.45% vs. 4.60% in 2019). Conversely, the brand owner Goodman Fielder has seen a decline in the proportion of litter collected compared with 2019 (11.70% vs. 15.40% in 2019).

Other significant brand owner contributors counted as a proportion of the brands within this category included:

• Fonterra (25.53%)

• Goodman Fielder (11.70%)

• Nestle (7.45%).

Figure 561: National, Milk Beverage Containers and Packaging, % of Branded Litter in Industry Category, Brand Owners: Comparison Over Time
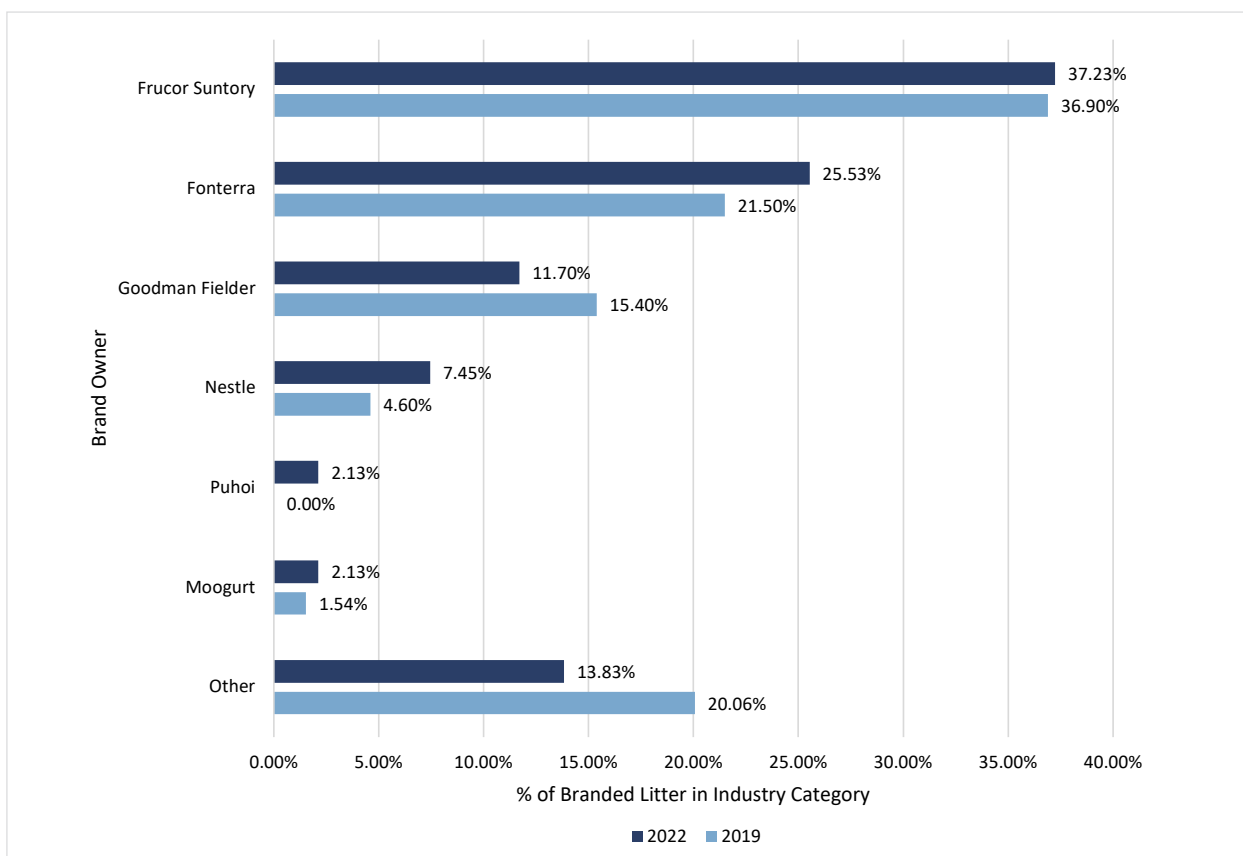
OTHER LITTER

A total of 447 branded litter items were counted within the Other Litter category, across all sites audited nationally in 2022, which represented 6.20% of all branded litter identified.

Within this industry category, the highest contributor to branded litter items was Master Foods, which represented 5.59% of all branded Other Litter. Whilst this proportion is lower than 2019, there was a much smaller number of items in this category (n=32 in 2019).

Figure 562: National, % of Branded Litter in Industry Category, Main Brands Identified: Comparison Over Time

*New Brand Identified in 2022
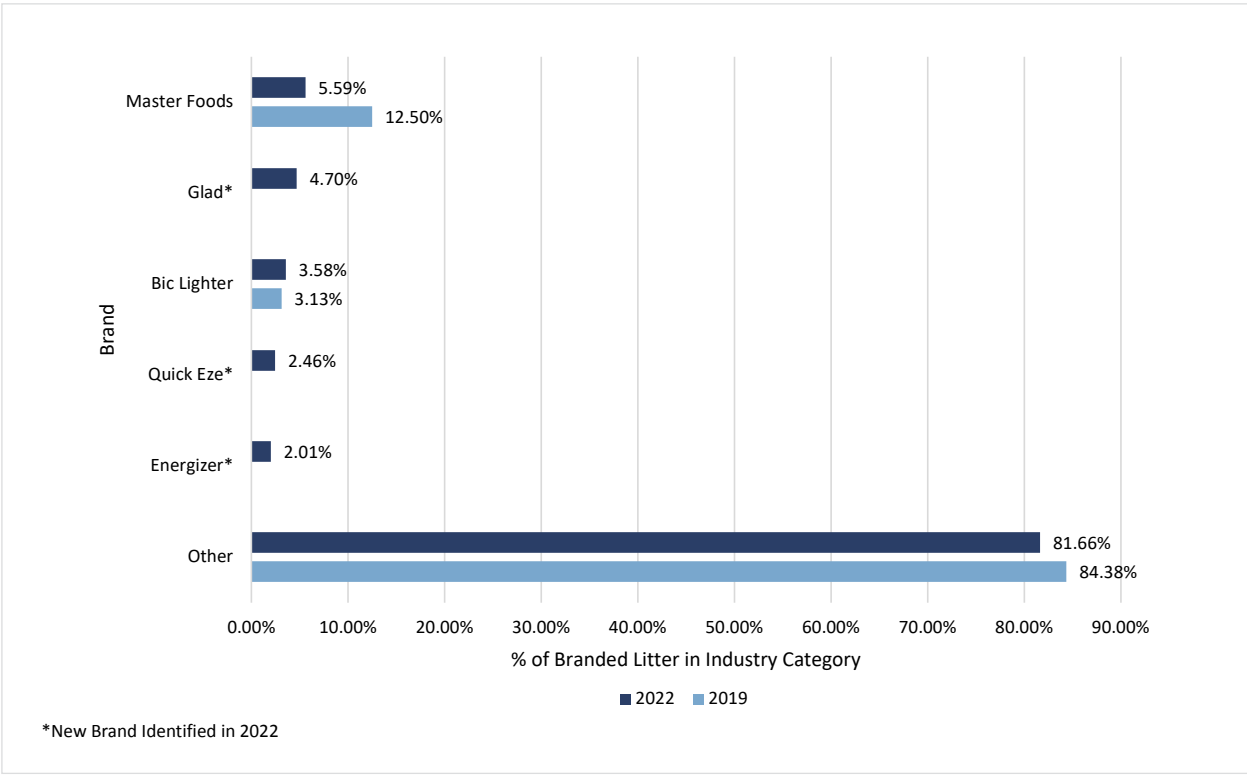
The largest proportion of brands within the Other Litter Brand Owners category also belonged to Master Foods, the brand owner associated with 5.59% of the most frequently identified brands in 2022.

Figure 563: National, Other Litter, % of Branded Litter in Industry Category, Brand Owners: Comparison Over Time
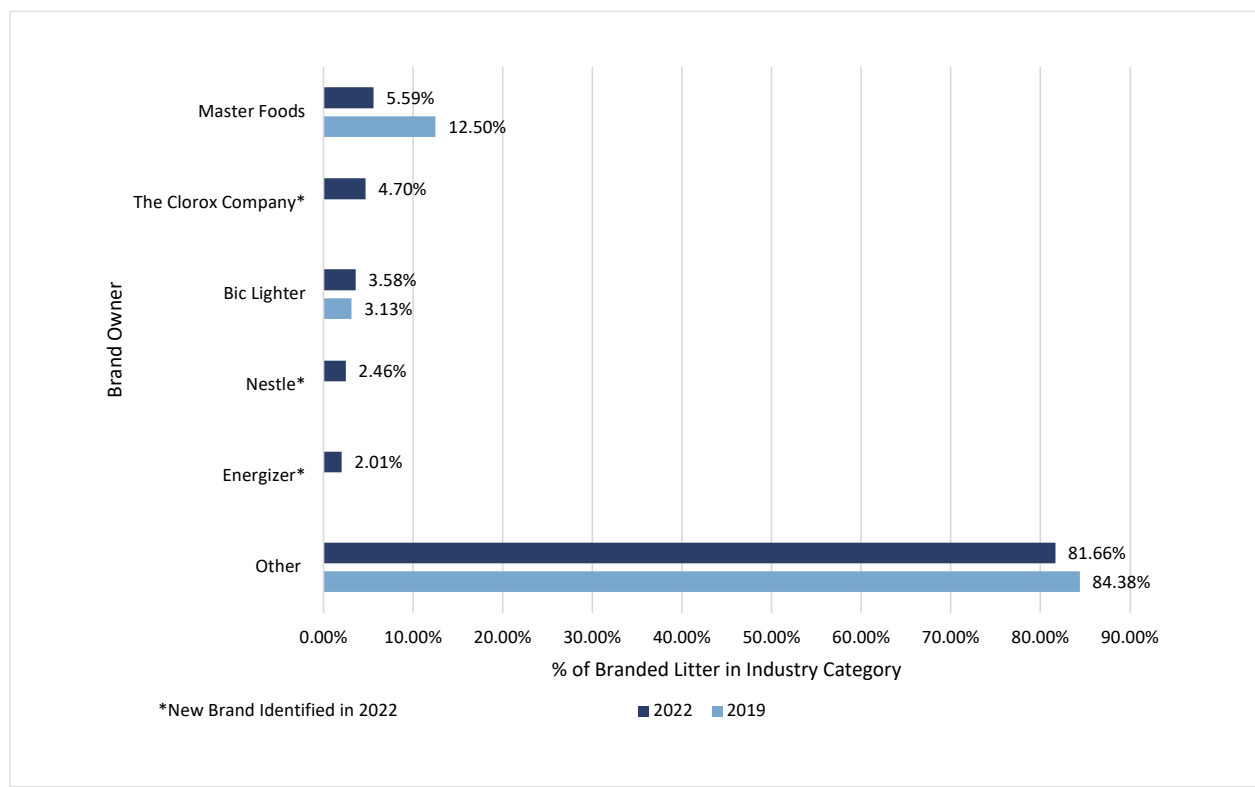
RETAIL BRANDS AND PACKAGING

A total of 340 branded litter items were counted within the Retail Brands and Packaging category, across all sites audited nationally in 2022.

Within this industry category, the highest contributor to branded litter items was Countdown (a brand identified for the first time in 2022), which represented 11.76% of all retail brands and packaging.

Compared with 2019 there has been a large decrease in the proportion of litter items collected classified under Pams (9.12% vs. 41.90% in 2019).

Other frequently identified brands included:

* Pams (9.12%)
* New World (8.82%)
* BNZ (3.82%)
* The Warehouse (3.82%).

Figure 564: National, Retail Brands and Packaging, % of Branded Litter in Industry Category, Main Brands Identified: Comparison Over Time

*New Brand Identified in 2022
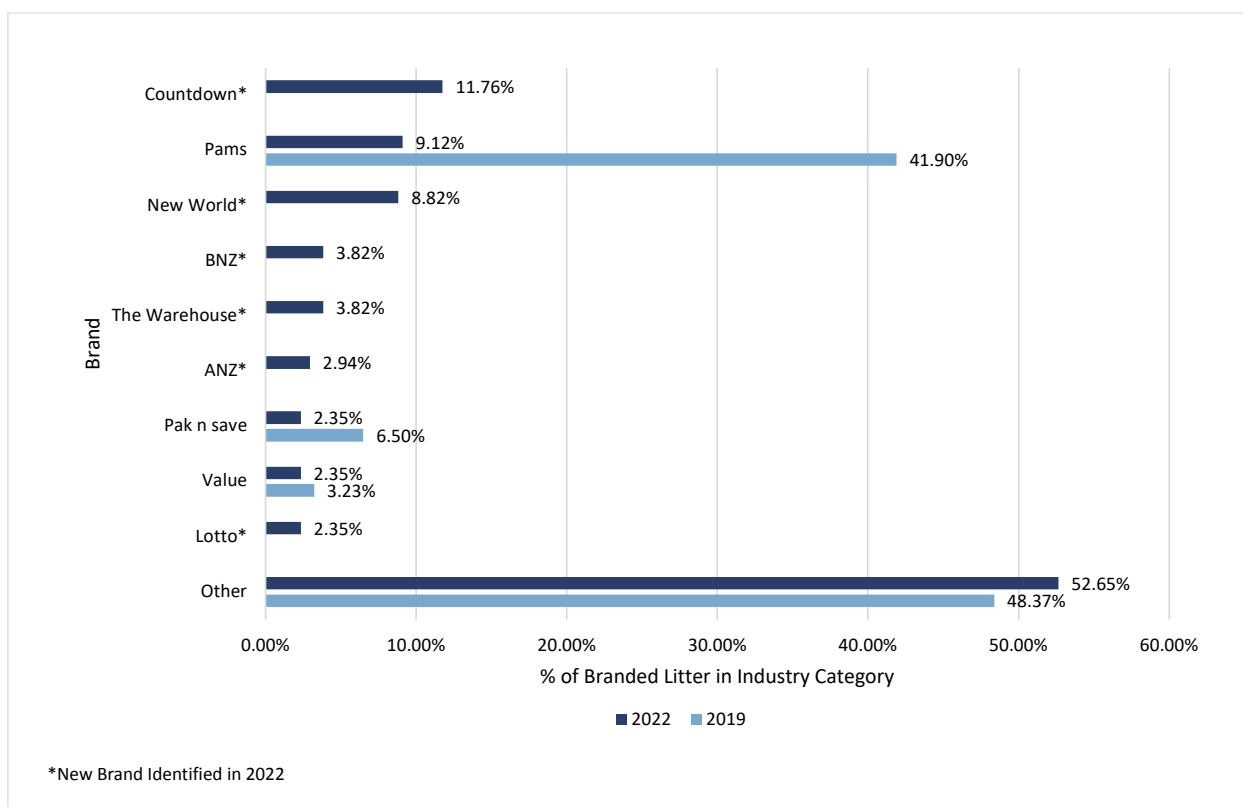
The largest proportion of brands within the Retail Brands and Packaging Brand Owners category belonged to Foodstuffs, which was the brand owner associated with 22.65% of the most frequently identified brands in 2022. However, compared with 2019 there has been a large decrease in the proportion of items found classified under Foodstuffs (48.40% in 2019).

Other significant brand owner contributors counted as a proportion of the brands within this category included:

- Woolworths (11.76%)
- National Australia Bank (3.82%)
- The Warehouse Group (3.82%).

Figure 565: National, Retail Brands and Packaging, % of Branded Litter in Industry Category, Brand Owners: Comparison Over Time
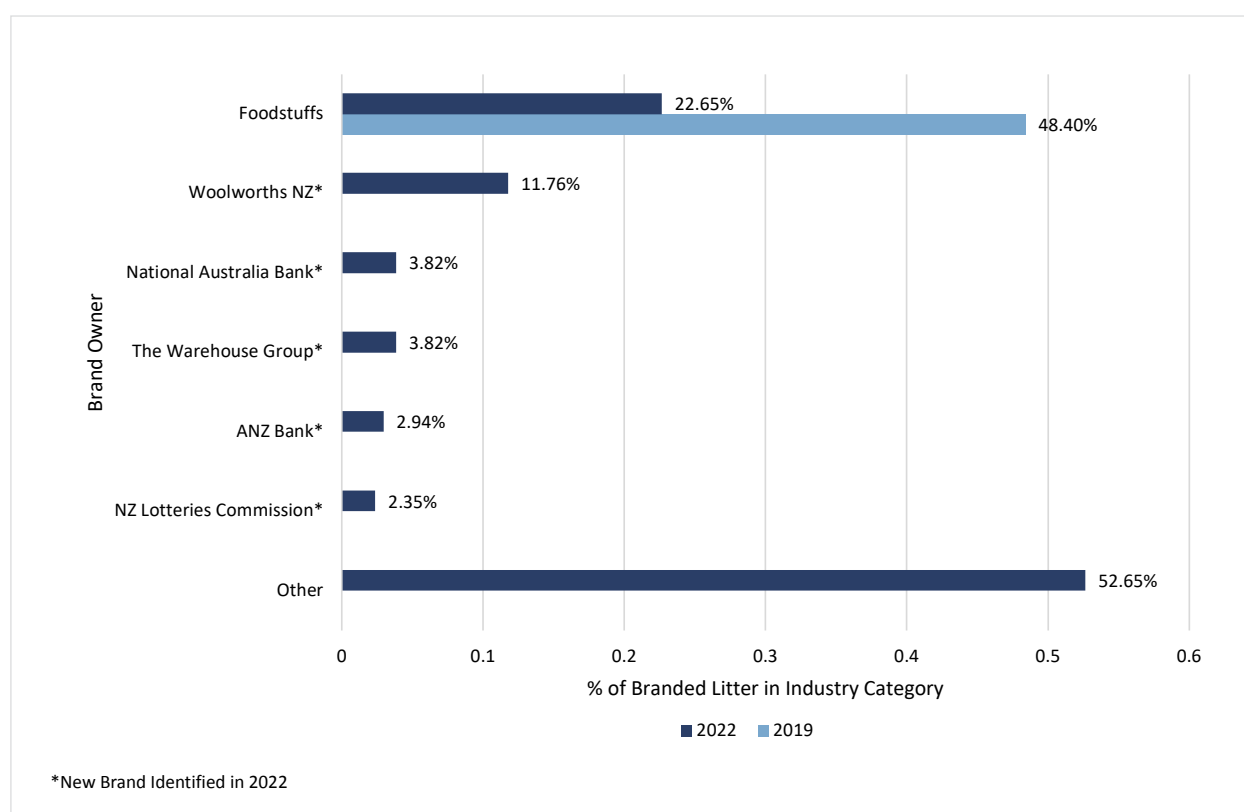
TOBACCO

A total of 121 branded litter items were counted within the Tobacco category, across all sites audited nationally in 2022. However, it is important to note that cigarette butts are not branded so are therefore not included in this analysis.

Within this industry category, the highest contributor to branded litter items was Chesterfield (a brand added in 2022), which represented 16.53% of all Tobacco litter collected.

Due to a small sample size (n=10) in 2019, comparisons for brands against 2019 results are only indicative.

Other frequently identified brands included:

- JPS (14.05%)
- Rothmans (13.22%)
- Winfield Select (9.09%).

Figure 566: National, Tobacco, % of Branded Litter in Industry Category, Main Brands Identified: Comparison Over Time

*New Brand Identified in 2022
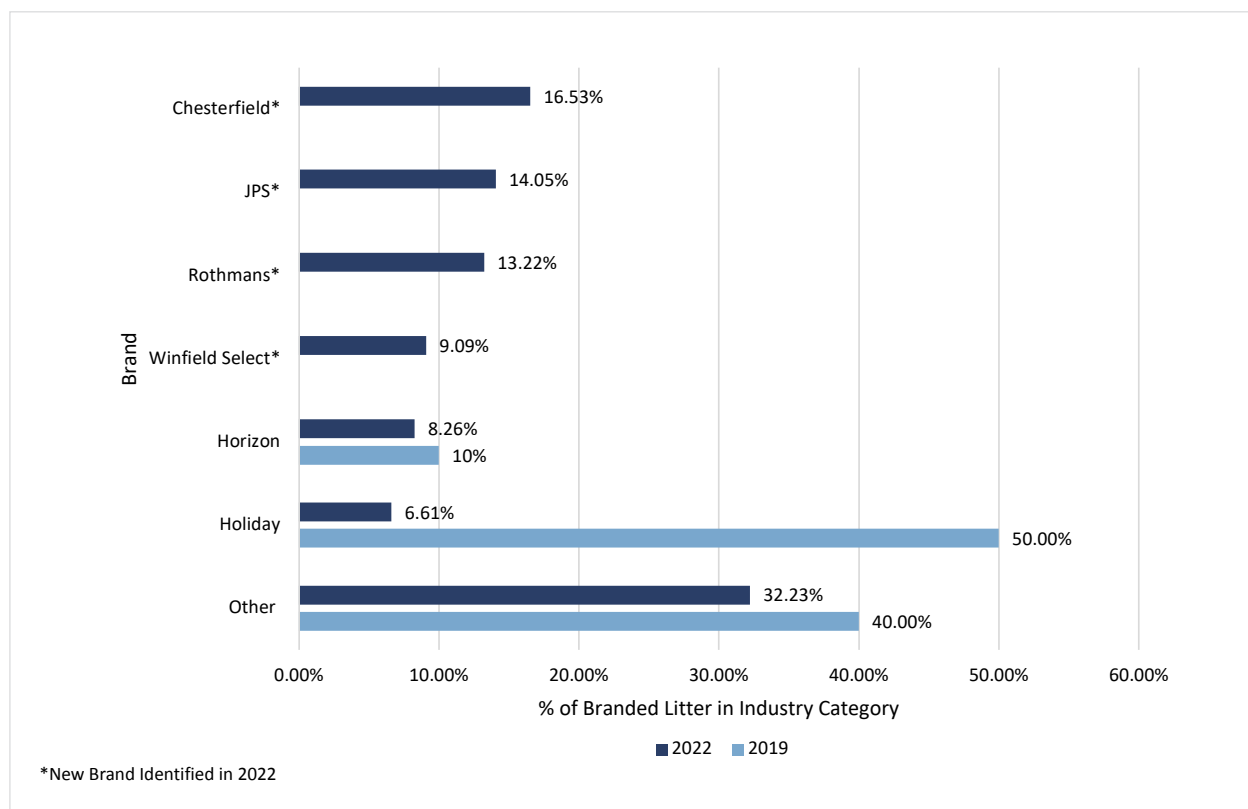
The largest proportion of brands within the Tobacco Brand Owners category belonged to Altria, which was the brand owner associated with 16.53% of the most frequently identified brands in 2022.

Other frequently identified brand owners included:

- Imperial Brands (14.05%)
- Philip Morris International (13.22%)
- Winfield (9.09%).

Figure 567: National 2022, Tobacco, % of Branded Litter in Industry Category: Brand Owners Identified: Comparison Over Time
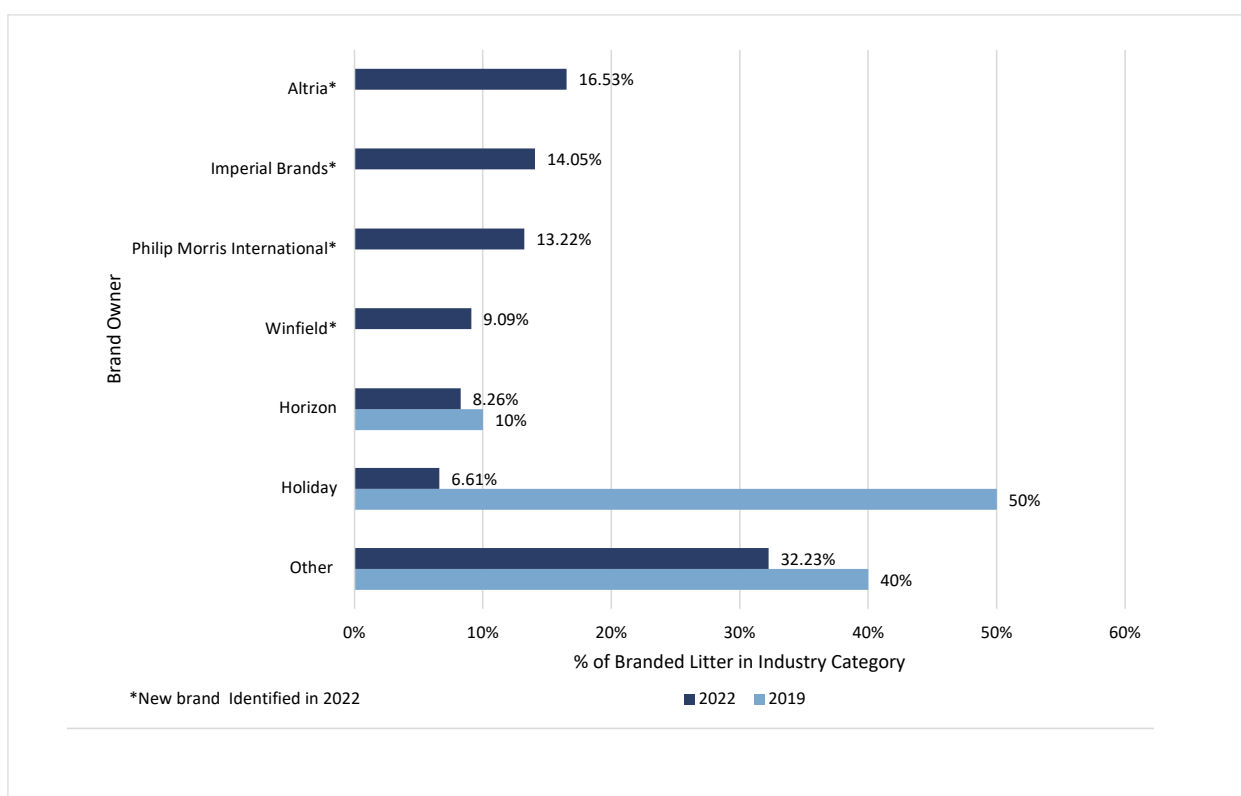
VAPING

A total of 116 branded litter items were counted within the Vaping category, across all sites audited nationally in 2022. Within this industry category, the highest contributor to branded litter items was alt. which represented 31.03% of all vaping litter collected.

Other frequently identified brands included:

- AirsPops (13.79%)
- Vuse (12.07%).

Note: As vaping devices and refills are new material subcategories in 2022, there is no comparative data from 2019.

Figure 568: National 2022, Vaping, % of Branded Litter in Industry Category: Main Brands Identified
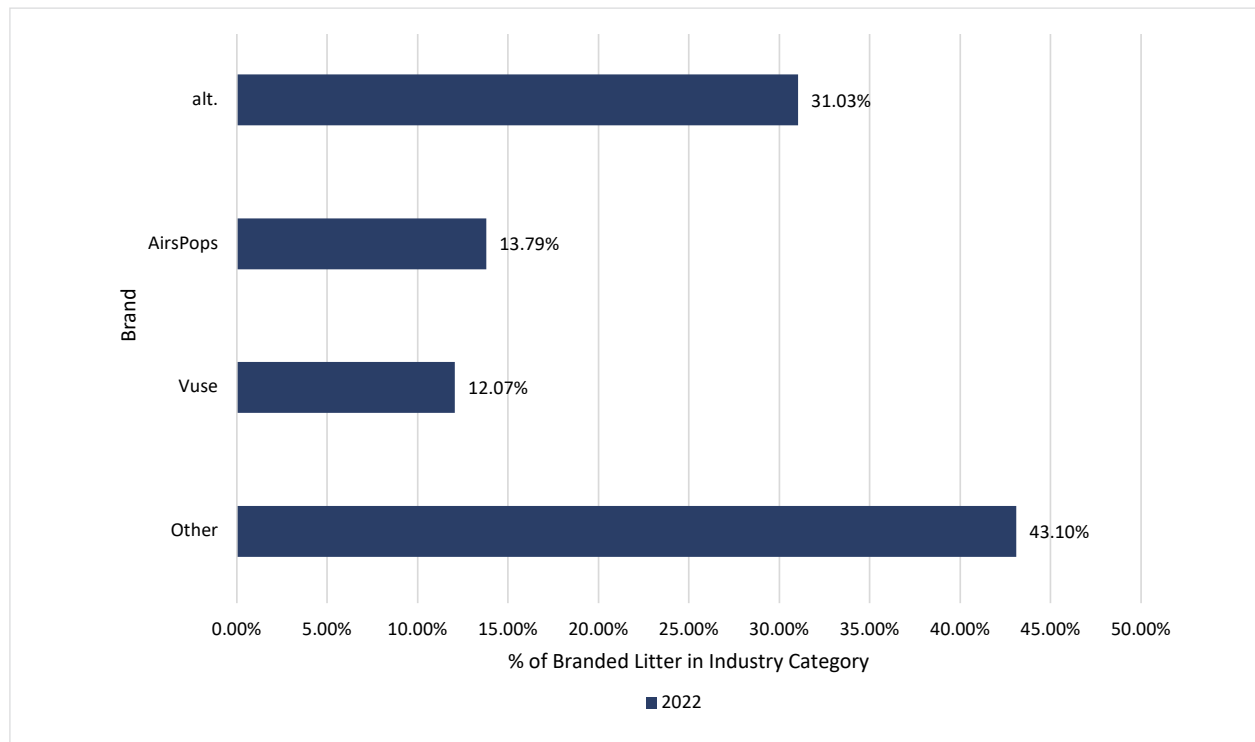
The largest proportion of brands within the Vaping Brand Owners category belonged to alt., which was the brand owner associated with 31.03% of the most frequently identified brands in 2022.

Other frequently identified brand owners included:

* AIRSCREAM (13.79%)
* RJ Reynolds Vapor Company (12.07%).

Figure 569: National 2022 – Vaping - % of Branded Litter in Industry Category: Brand Owners Identified
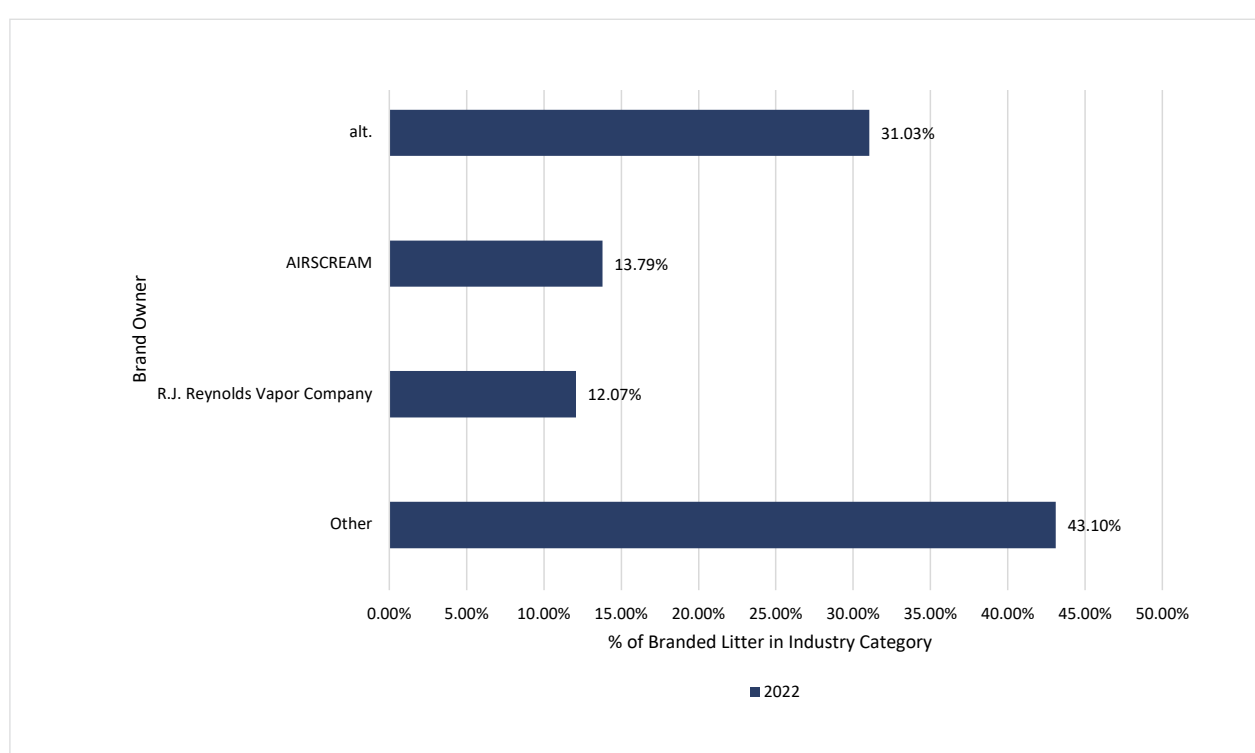
APPENDICES

APPENDIX 1

RISK AND LITTER DISTRIBUTION

Table 3: Risk and Litter Distribution - National and Regional breakdown (2019 and 2022)

		Risk Present		Litter Distribution	
		Moderate Hazard or Risk	**Significant Hazard or Risk**	**Widespread**	**Clustered**
National	2022	100%	0%	86%	14%
	2019	91%	9%	97%	3%
Auckland	2022	100%	0%	78%	22%
	2019	100%	0%	100%	0%
Bay of Plenty	2022	100%	0%	93%	7%
	2019	100%	0%	100%	0%
Canterbury	2022	100%	0%	96%	4%
	2019	96%	4%	98%	2%
Chatham Islands	2022	100%	0%	100%	0%
	2019	100%	0%	100%	0%
Gisborne and Hawke's Bay	2022	100%	0%	88%	12%
	2019	100%	0%	100%	0%
Manawatū-Whanganui	2022	100%	0%	71%	29%
	2019	97%	3%	94%	6%
Northland	2022	100%	0%	69%	31%
	2019	94%	6%	100%	0%
Otago	2022	100%	0%	100%	0%
	2019	100%	0%	95%	5%
Southland	2022	100%	0%	100%	0%
	2019	93%	7%	87%	13%
Taranaki	2022	100%	0%	60%	40%
	2019	100%	0%	100%	0%
Tasman, Nelson and Marlborough	2022	100%	0%	93%	7%
	2019	87%	13%	93%	7%
Waikato	2022	100%	0%	98%	2%
	2019	100%	0%	100%	0%
Wellington	2022	100%	0%	63%	38%
	2019	100%	0%	98%	2%
West Coast	2022	100%	0%	93%	7%
	2019	100%	0%	87%	13%

Table 4: Risk and Litter Distribution by Site Type (2019 and 2022)

		Risk Present		Litter Distribution	
		Moderate Hazard or Risk	**Significant Hazard or Risk**	**Widespread**	**Clustered**
Highways	2022	100%	0%	95%	5%
	2019	24%	76%	95%	5%
Railways	2022	100%	0%	91%	9%
	2019	32%	68%	100%	0%
Car Parks	2022	100%	0%	85%	15%
	2019	100%	0%	96%	4%
Industrial	2022	100%	0%	80%	20%
	2019	94%	6%	98%	2%
Public Recreational Spaces	2022	100%	0%	92%	8%
	2019	100%	0%	97%	3%
Residential	2022	100%	0%	83%	17%
	2019	100%	0%	99%	1%
Retail	2022	100%	0%	86%	14%
	2019	96%	4%	96%	4%

Note: Risk refers to the personal health and safety risks present for the field researchers at the audit sites.

TERRITORIAL DATA

Table 5: 2022 Territory Data (Total Area, Items, Weight and Volume per 1000 m²)

Territory	Total Area Audited (m²)	Items per 1,000 m²	Weight (kg) per 1,000 m²	Volume (ltr) per 1,000 m²
AUCKLAND REGION				
Auckland City	5,210	354	1.72	34.08
Franklin District	4,232	71	0.36	24.63
Manukau District	5,550	84	0.88	13.23
North Shore District	5,950	125	1.67	76.57
Papakura District	4,150	138	1.12	25.77
Rodney District	6,100	84	1.32	99.13
Waitākere District	4,000	71	0.85	41.40
Auckland Region Overall	**35,192**	**134**	**1.18**	**47.97**
BAY OF PLENTY REGION				
Kawerau District	4,520	221	0.45	21.42
Ōpōtiki District	4,700	157	0.66	12.30
Rotorua District	5,150	90	0.39	6.94
Tauranga City	4,900	94	0.50	8.49
Western Bay of Plenty District	4,879	61	0.29	4.23
Whakatāne District	4,070	151	0.50	5.84
Bay of Plenty Region Overall	**28,219**	**127**	**0.46**	**9.79**
CANTERBURY REGION				
Ashburton District	5,500	196	0.55	9.07
Christchurch City	4,850	168	0.77	22.18
Hurunui District	3,450	116	0.58	8.99
Kaikōura District	4,700	145	0.84	7.30
Mackenzie District	4,200	81	0.32	6.85
Selwyn District	3,600	209	0.28	16.72
Timaru District	5,300	98	1.78	44.21
Waimakariri District	4,350	185	1.77	46.67
Waimate District	5,850	72	0.16	11.38
Waitaki District	5,150	297	1.00	26.57
Canterbury Region Overall	**46,950**	**156**	**0.82**	**20.29**
CHATHAM ISLANDS TERRITORY				
Chatham Islands Territory	3,850	29	0.83	64.15
Chatham Islands Territory Overall	**3,850**	**29**	**0.83**	**64.15**

GISBORNE AND HAWKE'S BAY REGIONS				
Gisborne Region	5,300	168	0.37	12.91
Central Hawke's Bay District	4,400	121	0.68	10.35
Hastings District	4,850	72	0.52	8.80
Napier City	4,700	108	0.26	3.22
Wairoa District	4,700	90	0.39	4.05
Gisborne and Hawke's Bay Regions Overall	**23,950**	**113**	**0.44**	**7.97**
MANAWATŪ-WHANGANUI REGION				
Horowhenua District	4,050	198	0.83	34.52
Manawatū District	4,850	98	0.51	6.01
Masterton District	5,200	135	0.64	18.07
Rangitikei District	4,000	165	0.79	17.18
Ruapehu District	5,750	109	0.61	11.86
Tararua District	4,650	75	0.26	12.84
Whanganui District	5,050	166	1.50	38.40
Manawatū-Whanganui Regions Overall	**33,550**	**132**	**0.74**	**19.24**
NORTHLAND REGION				
Far North District	5,440	79	1.56	6.12
Kaipara District	5,100	114	0.57	9.69
Whangarei District	5,724	69	0.23	11.70
Northland Region Overall	**16,264**	**86**	**0.78**	**9.20**
OTAGO REGION				
Central Otago District	6,180	162	0.40	11.73
Clutha District	4,450	189	0.62	14.09
Dunedin City	3,450	331	1.34	21.11
Queenstown-Lakes District	3,350	163	1.14	20.89
Otago Region Overall	**17,430**	**202**	**0.78**	**15.95**
SOUTHLAND REGION				
Gore District	4,850	204	0.44	21.58
Invercargill City	6,000	300	1.68	44.25
Southland District	4,500	76	0.28	10.09
Southland Region Overall	**15,350**	**204**	**0.88**	**27.08**

TARANAKI REGION				
New Plymouth District	5,100	65	0.75	7.66
South Taranaki District	4,802	159	1.32	26.51
Stratford District	4,650	113	0.55	9.95
Taranaki Region Overall	**14,552**	**111**	**0.87**	**14.61**
TASMAN, NELSON AND MARLBOROUGH REGIONS				
Marlborough District	6,500	97	0.76	15.12
Nelson City	4,200	107	0.43	11.49
Tasman District	4,200	80	0.49	14.19
Tasman, Nelson and Marlborough Regions Overall	**14,900**	**95**	**0.59**	**13.83**
WAIKATO REGION				
Hamilton City	5,750	87	0.93	18.45
Hauraki District	6,150	71	0.21	4.77
Matamata-Piako District	5,350	83	0.25	5.67
Ōtorohanga District	4,550	65	0.32	9.97
South Waikato District	4,018	81	0.33	8.33
Taupō District	4,148	176	0.35	11.36
Thames-Coromandel District	4,500	94	0.45	4.52
Waikato District	6,395	66	1.11	43.41
Waipa District	6,094	74	0.30	6.25
Waitomo District	3,520	82	0.54	4.80
Waikato Region Overall	**50,538**	**85**	**0.50**	**12.77**
WELLINGTON REGION				
Carterton District	4,350	75	0.33	3.49
Kāpiti Coast District	3,450	189	0.91	22.15
Lower Hutt City	4,300	142	0.44	10.05
Masterton District	4,500	122	0.77	11.12
Porirua City	4,897	145	0.92	16.92
South Wairarapa District	4,020	84	0.58	20.28
Upper Hutt City	4,044	263	1.25	28.41
Wellington City	4,560	145	0.66	47.78
Wellington Region Overall	**34,121**	**144**	**0.73**	**19.99**
WEST COAST REGION				
Buller District	5,800	94	1.15	15.42
Grey District	5,541	120	0.52	18.63
Westland District	4,750	91	0.19	7.54
West Coast Overall	**16,091**	**102**	**0.65**	**14.20**

Table 6: 2022 Areas Audited (m²)

SITE TYPE		NORTHLAND	AUCKLAND	WAIKATO	BAY OF PLENTY	TARANAKI	MANAWATŪ-WHANGANUI	GISBORNE AND HAWKE'S BAY	WELLINGTON	TASMAN, NELSON AND MARLBOROUGH	WEST COAST	CANTERBURY	CHATHAM ISLANDS	OTAGO	SOUTHLAND	NATIONAL
Car Park	Number of Sites Audited	3	7	11	6	3	7	5	8	3	3	10	1	4	3	74
	Average Site Area - m²	1,988	1,299	1,337	1580	1217	1,220	1,420	1,152	1,667	1,867	1,430	800	1,125	1,833	1,398
	Total Area - m²	5,964	9,092	14,708	9,479	3,652	8,540	7,100	9,213	5,000	5,600	14,300	800	4,500	5,500	103,448
Industrial	Number of Sites Audited	1	7	9	6	3	5	5	8	3	3	8		4	2	64
	Average Site Area - m²	450	643	583	425	450	450	450	525	450	650	506		563	600	525
	Total Area - m²	450	4,500	5,250	2,550	1,350	2,250	2,250	4,200	1,350	1,950	4,050		2,250	1,200	33,600
Public Recreational	Number of Sites Audited	3	8	11	6	3	7	5	8	3	3	10	1	4	3	75
	Average Site Area - m²	2,133	1,556	1,778	1,773	2,133	2,314	2,080	1,745	1,900	1,697	1,750	2,000	1,525	1,633	1,831
	Total Area - m²	6,400	12,450	19,555	10,640	6,400	16,200	10,400	13,958	5,700	5,091	17,500	2,000	61,00	4900	137,294
Residential	Number of Sites Audited	4	8	11	6	3	9	5	8	3	3	12	2	4	4	82
	Average Site Area - m²	375	600	566	475	500	412	360	375	400	600	513	375	450	450	474
	Total Area - m²	1,500	4,800	6,225	2,850	1,500	3,710	1,800	3,000	1,200	1,800	6,150	750	1,800	1,800	38,885
Retail	Number of Sites Audited	5	7	9	6	3	7	5	8	3	3	10	1	4	3	74
	Average Site Area - m²	390	621	533	450	550	407	480	469	550	550	495	300	695	650	510
	Total Area - m²	1,950	4,350	4,800	2,700	1,650	2,850	2,400	3,750	1,650	1,650	4,950	300	2,780	1,950	37,730
Highways	Number of Sites Audited		1	5	4	1	1	3	1			3	1		1	21
	Average Site Area - m²		900	600	488	450	450	550	300			700	450		600	564
	Total Area - m²		900	3,000	1,950	450	450	1,650	300			2,100	450		600	11,850
Railways	Number of Sites Audited		2	9	1	2	3	1	1	1	1	1			1	23
	Average Site Area - m²		450	450	600	375	400	450	450	600	750	900			900	502
	Total Area - m²		900	4,050	600	750	1,200	450	450	600	750	900			900	11,550
Total Number of Sites		16	40	65	35	18	39	29	42	16	16	54	6	20	17	413
Average Area Across All Sites (m²)		1,017	36,992	886	879	875	903	898	830	969	1,053	925	717	872	991	906
TOTAL AREA AUDITED (M²)		16,264	36,992	57,588	30,769	15,752	35,200	26,050	34,871	15,500	16,841	49,950	4,300	17,430	16,850	374357

APPENDIX 2

DATA COLLECTION FORM

Table 7: 2022 Data Collection Form (Material Type Collected)

MATERIAL TYPE	2022 SUM OF ITEMS	2022 SUM OF WEIGHT (KG)	2022 SUM OF ESTIMATED VOLUME (LTR)	2022 ITEMS PER 1,000 M²	2022 WEIGHT (KG) PER 1,000 M²	2022 VOLUME (LTR) PER 1,000 M²
CIGARETTE BUTTS/VAPING						
Cigarette butts	12,289	5.458	1.413	34.0	0.015	0.004
Vaping device	94	1.496	5.782	0.3	0.004	0.016
Vaping refill	67	0.394	7.532	0.2	0.001	0.021
Cigarette Butts/Vaping - Total	**12450**	**7.348**	**14.727**	**34.5**	**0.020**	**0.041**
GLASS						
Alcoholic sodas/sprit based mixers, all sizes	193	16.808	72.240	0.5	0.047	0.200
Beer, < 750 ml, all colours of glass	242	32.166	112.028	0.7	0.089	0.310
Beer, all colours of glass, 750ml+	2	0.996	1.815	0.0	0.003	0.005
Cider/fruit based, etc.	20	0.562	9.157	0.1	0.002	0.025
Construction materials	31	0.418	0.240	0.1	0.001	0.001
Flav. water/fruit drink/sports drink (non-carb), <1 litre	2	0.444	1.109	0.0	0.001	0.003
Flav. water/soft drink (carbonated), <1 litre	53	3.872	20.980	0.1	0.011	0.058
Other glass	20	3.116	0.393	0.1	0.009	0.001
Spirits, all sizes	9	0.652	6.998	0.0	0.002	0.019
Unidentifiable glass fragments	3,152	15.612	11.000	8.7	0.043	0.030
Wine, all sizes	4	1.193	2.813	0.0	0.003	0.008
Glass - Total	**3,728**	**75.839**	**238.771**	**10.3**	**0.210**	**0.661**
ILLEGAL DUMPING						
Illegal dumping	67	Not Recorded	1608.000	0.2	Not Recorded	4.451
Illegal Dumping - Total	**67**	Not Recorded	**1608.000**	**0.2**	**Not Recorded**	**4.451**
METAL						
Aerosols - pressure packs	11	0.946	7.527	0.0	0.003	0.021
Alcoholic sodas & spirit based mixers	359	6.232	154.873	1.0	0.017	0.429
Beer, aluminium drink cans, all types, all sizes	105	2.546	45.297	0.3	0.007	0.125
Bottle caps, lids & pull tabs	2,134	5.682	8.536	5.9	0.016	0.024
Construction materials	1,057	22.982	3.770	2.9	0.064	0.010
Flav. water/soft drink, (carbonated), all sizes	520	9.38	221.278	1.4	0.026	0.612

MATERIAL TYPE	2022 SUM OF ITEMS	2022 SUM OF WEIGHT (KG)	2022 SUM OF ESTIMATED VOLUME (LTR)	2022 ITEMS PER 1,000 M²	2022 WEIGHT (KG) PER 1,000 M²	2022 VOLUME (LTR) PER 1,000 M²
Flav. water/soft drink, (non-carbonated), all sizes	1	0.044	0.382	0.0	0.000	0.001
Foil wrappers	1,587	1.228	2.476	4.4	0.003	0.007
Food cans (including pet food)	44	0.626	20.407	0.1	0.002	0.056
Industrial cans, <4 litres	1	0.268	1.625	0.0	0.001	0.004
Metal pieces/fragments	887	16.653	9.402	2.5	0.046	0.026
Other metal	303	5.515	0.473	0.8	0.015	0.001
Vehicle parts	42	7.778	14.471	0.1	0.022	0.040
Metal - Total	**7,051**	**79.88**	**7.527**	**490.516**	**0.221**	**1.358**
MISC.						
Batteries	42	0.512	0.924	0.1	0.001	0.003
Clothing, towels & linen	215	21.318	388.644	0.6	0.059	1.076
Condoms	13	0.032	0.004	0.0	0.000	0.000
Construction materials	334	10.172	120.240	0.9	0.028	0.333
Corks (non plastic)	10	0.022	0.436	0.0	0.000	0.001
Cosmetics & medical items (non plastic)	174	0.452	1.142	0.5	0.001	0.003
Cutlery (non plastic)	94	0.234	0.378	0.3	0.001	0.001
Face masks - disposable	403	3.79	2.026	1.1	0.010	0.006
Footwear	29	2.984	45.997	0.1	0.008	0.127
Gloves - disposable	45	0.632	0.905	0.1	0.002	0.003
Gum	479	0.65	2.028	1.3	0.002	0.006
Ice cream sticks	208	0.374	0.191	0.6	0.001	0.001
Nappies - disposable	4	1.454	4.500	0.0	0.004	0.012
Other cloth	591	7.99	70.920	1.6	0.022	0.196
Other miscellaneous	171	9.124	2.309	0.5	0.025	0.006
Personal care items	339	0.988	1.353	0.9	0.003	0.004
Rubber bands	201	0.074	0.191	0.6	0.000	0.001
Rubber inner tubes & rubber sheets	4	0.028	0.038	0.0	0.000	0.000
Rubber pieces (not tyres)	679	15.362	0.112	1.9	0.043	0.000
Sanitary products	565	5.172	6.356	1.6	0.014	0.018
Small appliances/ electronics	26	1.054	0.271	0.1	0.003	0.001
Sports & recreation/toys	236	1.754	1.748	0.7	0.005	0.005
Tyre pieces	75	4.81	600.000	0.2	0.013	1.661
Tyres (whole)	1	6.5	40.000	0.0	0.018	0.111
Miscellaneous - Total	**4,938**	**95.482**	**1290.711**	**13.7**	**0.264**	**3.572**
ORGANIC WASTE						
Compostable packaging	82	0.51	644.914	0.2	0.001	1.785
Dog faeces	72	4.184	1.307	0.2	0.012	0.004
Food waste	421	5.434	14.103	1.2	0.015	0.039
Other organic waste	7	0.04	0.234	0.0	0.000	0.001
Organic Waste - Total	**582**	**10.168**	**660.558**	**1.6**	**0.028**	**1.828**

MATERIAL TYPE	2022 SUM OF ITEMS	2022 SUM OF WEIGHT (KG)	2022 SUM OF ESTIMATED VOLUME (LTR)	2022 ITEMS PER 1,000 M²	2022 WEIGHT (KG) PER 1,000 M²	2022 VOLUME (LTR) PER 1,000 M²
PAPER AND CARDBOARD						
Bread bag tags	34	0.01	0.002	0.1	0.000	0.000
Cardboard boxes	78	12.734	3368.818	0.2	0.035	9.324
Cartons, flavoured milk, <1 litre	46	0.898	30.934	0.1	0.002	0.086
Cartons, fruit juice, <1 litre	14	0.24	8.747	0.0	0.001	0.024
Cartons, milk, plain (white), all sizes	1	0.008	1.013	0.0	0.000	0.003
Cigarette packets	151	1.886	32.898	0.4	0.005	0.091
Cups, food trays, food wrappers, takeaway containers & drink containers	984	8.867	717.287	2.7	0.025	1.985
Ice cream wrappers	31	0.124	0.074	0.1	0.000	0.000
Junk mail/free circulars	93	2.196	16.182	0.3	0.006	0.045
Lollipop sticks	58	0.04	0.058	0.2	0.000	0.000
Newspapers & magazines	107	3.6	126.260	0.3	0.010	0.349
Other paper & cardboard	274	2.627	0.926	0.8	0.007	0.003
Paper bags	24	0.844	0.254	0.1	0.002	0.001
Shopper dockets & related shopping paper (e.g. lists)	445	1.124	0.903	1.2	0.003	0.003
Takeaway coffee cups	106	2.215	35.987	0.3	0.006	0.100
Tickets, e.g. bus, ATM, vending machine etc.	80	0.126	0.070	0.2	0.000	0.000
Tubes for fireworks	15	3.502	15.190	0.0	0.010	0.042
Unidentified cardboard fragments	979	5.33	32.679	2.7	0.015	0.090
Unidentified paper fragments	1,631	3.644	17.647	4.5	0.010	0.049
Paper and Cardboard - Total	**5,151**	**50.015**	**4405.929**	**14.3**	**0.138**	**12.195**
PLASTIC						
Bags - heavier glossy typically branded carry bags	9	0.674	0.788	0.0	0.002	0.002
Bags - supermarket type light weight carry bags	55	1.096	1.867	0.2	0.003	0.005
Bottle neck rings	67	0.028	0.015	0.2	0.000	0.000
Bottle seals	142	0.034	0.096	0.4	0.000	0.000
Bread bag tags	34	0.004	0.008	0.1	0.000	0.000
Cable/zip ties	522	0.778	1.232	1.4	0.002	0.003
Cider/fruit based, etc.	2	0.11	2.500	0.0	0.000	0.007
Cigarette lighters	31	0.372	1.596	0.1	0.001	0.004
Clothes pegs	13	0.04	0.327	0.0	0.000	0.001
Coffee cup lids	57	0.24	6.582	0.2	0.001	0.018
Construction materials	84	4.5	6.667	0.2	0.012	0.018
Containers, domestic type	46	1.855	382.904	0.1	0.005	1.060
Containers, industrial e.g. oil, <2 litre	1	0.41	1.625	0.0	0.001	0.004
Cosmetics & medical packaging	235	0.54	27.382	0.7	0.001	0.076

MATERIAL TYPE	2022 SUM OF ITEMS	2022 SUM OF WEIGHT (KG)	2022 SUM OF ESTIMATED VOLUME (LTR)	2022 ITEMS PER 1,000 M²	2022 WEIGHT (KG) PER 1,000 M²	2022 VOLUME (LTR) PER 1,000 M²
Cotton buds	19	0.006	0.007	0.1	0.000	0.000
Cutlery	68	0.144	0.653	0.2	0.000	0.002
Drink package rings, six pack rings & ring carriers	1	0.004	0.002	0.0	0.000	0.000
Drink pouches	29	0.214	2.501	0.1	0.001	0.007
Flav. milk, <1 litre	33	1.509	17.579	0.1	0.004	0.049
Flav. milk, 1 litre +	2	0.246	4.273	0.0	0.001	0.012
Flav. water/fruit/sports drinks (non-carb.), <1 litre	53	3.397	39.094	0.1	0.009	0.108
Flav. water/fruit/sports drinks (non-carb.), 1 litre +	13	1.15	15.614	0.0	0.003	0.043
Flav. water/soft drink (carbonated), <1 litre	80	3.664	49.769	0.2	0.010	0.138
Flav. water/soft drink (carbonated), 1 litre +	39	3.554	64.506	0.1	0.010	0.179
Fruit juice, <1 litre	16	0.894	6.401	0.0	0.002	0.018
Fruit juice, 1 litre +	5	0.308	10.683	0.0	0.001	0.030
Hangers & retail packaging	212	0.398	16.553	0.6	0.001	0.046
Ice cream wrappers	66	0.21	2.710	0.2	0.001	0.008
Lollipop sticks	428	0.166	0.227	1.2	0.000	0.001
Other plastic	665	8.125	0.831	1.8	0.022	0.002
Pens & stationery	168	0.678	11.103	0.5	0.002	0.031
Plain water (carbonated or non-carb.), <1 litre	63	3.108	49.638	0.2	0.009	0.137
Plain water (carbonated or non-carb.), 1 litre +	24	4.056	36.998	0.1	0.011	0.102
Plastic bottle tops	606	7.612	4.851	1.7	0.021	0.013
Polystyrene insulation	807	2.16	1513.125	2.2	0.006	4.188
Reusable bags	14	0.406	218.598	0.0	0.001	0.605
Sacks, sheeting & other bags	150	4.286	0.047	0.4	0.012	0.000
Shotgun wadding & shells	1	0.008	0.002	0.0	0.000	0.000
Snack bags & confectionary wrappers	2,478	4.376	19.403	6.9	0.012	0.054
Strapping bands & tape	589	1.754	6.922	1.6	0.005	0.019
Straws	221	0.206	0.912	0.6	0.001	0.003
Styrene foam boxes, sheets, etc.	109	0.252	4.088	0.3	0.001	0.011
Takeaway containers & cups	420	3.244	86.948	1.2	0.009	0.241
Unidentifiable hard plastic fragments	4,747	22.018	75.999	13.1	0.061	0.210
Unidentifiable soft plastic fragments	4,548	9.069	131.205	12.6	0.025	0.363
White milk, all sizes	18	1.128	38.460	0.0	0.003	0.106
Wine cask/ bladders	1	0.002	0.460	0.0	0.000	0.001
Ziplock/sandwich bags	140	0.568	1.321	0.4	0.002	0.004
Plastic - Total	**18,131**	**99.601**	**2,865.072**	**50.2**	**0.276**	**7.930**
Grand Total	**52,098**	**418.333**	**11,574.284**	**144.2**	**1.158**	**32.036**

APPENDIX 3

DETAILED METHODOLOGY

The methodology presented here is based on a global review undertaken by Keep New Zealand Beautiful, from the following organisations:

- UNEP/IOC
- Clean European Network
- Keep America Beautiful
- Keep Britain Tidy

- Keep Florida Beautiful
- Keep Hawaii Beautiful
- Keep Scotland Beautiful

MATERIAL TYPE CLASSIFICATION

Material type classifications were modelled on Keep Australia Beautiful's material classification system.

All litter items were incorporated within eight material type categories. The litter classification system, comprised of a two-level hierarchy that identified litter by material type (e.g. Plastic vs. Glass vs. Metal, etc.) and then by material subcategory, being a discrete type of litter (e.g. Food waste vs. Plastic bottle tops vs. Cigarette butts etc.), distinguished by litter codes.

To refine data collection in 2022, some of the existing litter material subcategories from the 2019 NLA were broken down further to create more specific litter material subcategories in the 2022 Material Classifications Index. The need for this refinement was identified when doing the data analysis of the 2019 NLA, as certain litter items that had featured significantly

within a generalised litter material subcategory in 2019 (e.g. Gum within the Miscellaneous/other litter material subcategory) were collected frequently enough to warrant assigned them their own specific subcategory in 2022.

Additionally, due to a number of various social and health related changes in New Zealand since the 2019 NLA, new litter items relating to the Covid-19 pandemic (masks, gloves etc.) and vaping items (devices and refills) were identified as likely to be collected more more frequently, also warranting their own separate litter material subcategory in 2022.

To ensure concordance with litter type data comparisons across the three-year span, each new litter material subcategory was coded to ensure it could be mapped to its original 'parent' 2019 subcategory.

Table 8: Keep New Zealand Beautiful Litter Material Type Classifications
(This is comparable with most international litter studies)

MATERIAL TYPE	2022 MATERIAL SUBCATEGORIES
KEEP NEW ZEALAND BEAUTIFUL MATERIAL CLASSIFICATIONS	
Cigarette Butts/Vaping	Cigarette butts, vaping devices, vaping refills.
Organic Waste	Food waste, compostable packaging, lawn clippings, human faeces, dog faeces, other faeces, other organic waste.
Glass	Wine, spirits, alcoholic sodas/spirit based mixers, beer, cider/fruit based, flavoured water/soft drinks (carb), flavoured water/fruit/sports drinks (non carb), fruit juice, plain water (carb or non carb), construction materials, unidentifiable glass fragments, other glass.

MATERIAL TYPE	2022 MATERIAL SUBCATEGORIES
Metal	Wine, alcoholic sodas/spirit based mixers, beer, cider/fruit based, flavoured water/soft drinks (carb or non carb), bottle caps/lids/pull tabs, food/pet food cans, foil wrappers, aerosols/pressure packs, industrial cans, vehicle parts, construction materials, metal pieces/fragments, other metal.
Miscellaneous	Clothing/towels/linen, footwear, cloth other, condoms, nappies (disposable), sanitary products, personal care items, cosmetics/medical items (non-plastic), face masks (disposable), gloves (disposable), syringes, gum, ice cream sticks, cutlery (non-plastic), corks (non-plastic), tyres (whole), tyre pieces, rubber pieces (not tyres), rubber bands, rubber inner tubes/sheets, sports/recreation/toys, batteries, small appliances/electronics, construction materials, misc. other.
Paper and Cardboard	Cartons/flavoured milk, cartons/milk plain, flavoured water/fruit/sports drink (non carb), cartons/fruit juice, cartons/food/drink other, ice cream wrappers, bread bag tags, lollipop sticks, cigarette packets, cups/food trays/food wrappers/take away containers/drink containers, takeaway coffee cups, cardboard boxes, newspapers/magazines, junk mail/free circulars, paper bags, shopper dockets/related shopping paper, tickets, tubes for fireworks, unidentified paper fragments, unidentified cardboard fragments, paper/cardboard other.
Plastic	Wine cask bladders, cider/fruit based, flavoured milk, white milk, flavoured water/fruit/sports drink (non carb), flavoured water/soft drink (carb), fruit juice, plain water (carb or non carb), drink pouches, plastic bottle tops, bottle seals, bottle neck rings, drink package rings/six pack rings/ring carriers, bags/heavier glossy type typically branded carry, plastic bags/supermarket type light weight carry, reusable bags, snack bags/confectionary wrappers, ziplock/sandwich bags, sacks/sheeting/other bags, ice cream wrappers, bread bag tags, lollipop sticks, takeaway containers/cups, coffee cup lids, cutlery, straws, styrene foam boxes/sheets, polystyrene insulation, containers/industrial, containers domestic, cable/zip ties, clothes pegs, pens/stationery, hangers/retail packaging, cosmetics/medical packaging, cotton buds, strapping bands/tape, cigarette lighters, shotgun wadding/shells, construction materials, unidentifiable hard plastic fragments, unidentifiable soft plastic fragments, plastic other.
* Illegal Dumping	Total/itemised description.

Note: This is comparable with most international litter studies.

*Illegal dumping is the dumping of waste illegally instead of using an authorised method such as kerbside collection or using an authorised landfill. It is the illegal deposit of any waste onto land, including waste dumped or tipped on a site with no license to accept waste. Illegal dumping is typically distinguished from littering by the type and amount of material and/or the manner in which it is discarded. An example of littering could be throwing a cigarette butt on the ground. However, disposing of more than two black rubbish bags or larger items (such as a fridge or a couch) with no permission in a public or private area can be classified as Illegal Dumping.

BACKGROUND OF METHODOLOGY

Litter Collection Sites

- Sites are representative of the wider environment.
- Sites are statistically independent.
- Sites are selected by stratified random sampling to capture key characteristics of land-based litter across different environment site types.

Advantages of Using This Methodology

- This method is amenable to implementation in representative land types throughout New Zealand.
- Gives reliable indicators of standing stock litter.
- Can be used in long term monitoring.
- Requires only basic equipment.
- Removes litter from the areas (as opposed to standing stock surveys which leave litter at the transects).
- Processing can be done either in the field when litter is collected, or collections can be processed later.
- Methods are internationally comparable so that comparisons with sites outside New Zealand are also possible.
- Sampling is easily repeatable over time.
- The method is amenable to the collection of covariate data regarding the physical environment and likely sources of litter.

Requirements for the Litter Collection Work

- It is time consuming to weigh items, process and record all information.
- Litter identification may require expert knowledge.

Considerations

- The methodology does not explicitly sample small (e.g., microplastics) or buried litter items.
- Only standing stock can be calculated from the initial removal of litter from the area.
- Uncontrolled study sites mean there is a (small) risk that informal community clean ups could potentially compromise the interpretation of data.
- The method could be expensive to employ, with costs likely to be predominantly determined by the number of hours required to process litter and carry-out the fieldwork.

Suitability for Inventory

- This method is suitable for inventories of the type and quantities of litter contributing to litter change.
- Inventories of the standing stock of litter at individual sites is possible at time zero when sites are first cleaned; however, the methodology is not suitable for long term inventory of the standing stock of litter due to the removal of litter from sites during audits.

Suitability for Monitoring

- This method is suitable for initial audits of standing stock and ongoing monitoring of litter change.

Using the Data

- Changes in litter type and the accumulation/ depreciation of litter can be used to assess the effectiveness of management strategies, identify sources and activities leading to the production of land litter and to determine threats to ecosystems.

CONDUCTING THE AUDIT - PEOPLE REQUIREMENTS

Skills

• Litter identification skills are a major determinant to perform these audits.

• Good fitness is needed as access to some sites and may require walking considerable distances carrying equipment and litter.

• Analytical, ability to follow protocol, accuracy in data collection and recording.

Personnel

• Two full time Field Researchers contracted, with fieldwork and reporting experience, a tertiary degree and training.

Training

• All audits are carried out professionally and efficiently.

• Planning involves ensuring that the timings and logistics are confirmed in advance.

• Field Researchers are trained to carefully analyse the litter to ensure that it is properly identified before recording it on the Data Collection Form.

• The Keep New Zealand Beautiful team to provide two days of comprehensive audit training to ensure that the Field Researchers are well versed in all aspects of the methodology.

Resources

• Two Field Researchers contracted and all relevant resource materials sourced in advance of their appointments.

• The same two Field Researchers to audit each site.

FIELDWORK

Fieldwork

The audit work required both Field Researchers to form a skirmish line for transect surveys, widen the skirmish line, and begin sorting collected litter. Items that were deemed to be illegally dumped were reported to council, i.e. heavy litter items.

Field equipment included:

• Handheld PDA's (Personal Digital Assistant)

• Comprehensive first-aid kit

• Communications (cell-phone or handheld radio)

• Protective gloves

• Appropriate clothing and footwear, including hat, wet weather gear and warm items of clothing

• Sunscreen and insect repellent

• Food and water

• Battery powered electronic balances with an operating range of 0-10 kg

• Spring balance with a weight rating of up to 50 kg

• Rubbish bags

• Digital camera

• Electronic device (iPad) for note-taking and sample recording

• Two measuring tapes (at least 100 m long for measuring out site extent)

• GPS unit and map for site location

• Stakes and flagging

• Calculator

• Knife or shears for cutting away entangled litter

• Vehicle for removing litter

• An appropriate disposal area

Site Rejection Criteria

The allowable reasons for a Field Researcher to reject a site are termed "site rejection criteria". Once at the site, any of the following factors can cause the site as described in the original directions either to be rejected or moved to an alternate location. The new sites are allocated via a computerised method of obtaining random numbers to select sites.

Sites are able to be rejected for the following reasons:

- Field Researcher's have security concerns or determine the site is unsafe to audit due to dangers posed by traffic or other factors.
- There are bags of collected litter on or within one kilometer of the site, indicating a clean up has just occurred.
- A change in the function of the site; e.g. what was previously a residential site type has become a commercial site such as a shopping mall.
- The site no longer exists or operates as originally described; e.g. a landfill may have been closed and turned into recreational area or left as vacant land.
- The site is no longer accessible to the public (temporarily or permanently); e.g. the footpath outside a commercial site may be closed due to roadwork being carried out and access may be restricted.
- Key features associated with the site have changed; e.g. the road has been widened changing the boundaries and taking up some of the area included in the original site.

Safety

It is the policy of Keep New Zealand Beautiful, so far as is reasonably practicable, to protect the health, safety and welfare of all workers, volunteers, interns, and people on site; and to act in compliance with the Society's legal obligations, including New Zealand standards and codes of practice (as relevant). Within the general policy, Keep New Zealand Beautiful aims to effectively manage hazards and risks arising from its facilities or activities.

Safety is paramount during any auditing activity. The field research leader requires an understanding of all risks associated with the activity, and must always use caution. For the purposes of the 2022 NLA, a standard Safety Plan for the auditing activity and location was developed by Securo (Keep New Zealand Beautiful's provider of health and safety training) conforming to the Health and Safety Act. Securo provided training to the research team. Keep New Zealand Beautiful reviewed the Risk Safety Plan and conducted spot checks during fieldwork. All risks were captured on the Litter Collection Forms.

DATA

Data variables are described as consistent recording and measurement of the following attributes, which is critical for the implementation of the method. Depending on the research question(s), other attributes may be required. To this end, in 2019 we employed a part time IT specialist to build a database to meet our specifications.

Reporting

Reporting is largely governed by the duration of the monitoring and data collection. If data collection is ongoing, regular reports should be submitted in 3-year intervals, whereas for short-term (<2 years in duration) data collection, reports should be submitted within several months of the final data collection.

Land Litter Audit Database

The below outlines the key fields required in the database:

- Organisation (name of organisation responsible for collecting data)
- Researcher's name (name of the Field Researcher/s)
- Phone number (phone contact for Field Researcher/s)
- Number of persons (number of persons collecting litter)
- Date (date of this update to the data)
- Site ID (unique identity code for the site)
- Site name (name by which the site is commonly known)
- Site landscape (road, highway, urban/rural, etc.)
- Region name (name for the region)
- Nearest town (name of nearest town)
- Nearest town distance (distance to the nearest town, km)
- Nearest town direction (direction to the nearest town, degrees)
- Latitude/longitude start (recorded as nnn.nnnnn degrees at the end of the sample – indicate NSEW)
- Latitude/longitude end (recorded as nnn.nnnnn degrees at the end of the sample – indicate NSEW)
- Coordinate system (datum and coordinate system used to record lat and long data)
- Time start/end (time taken to complete the audit)
- Season (Spring, Summer, Autumn, Winter)
- Date of last audit (date on which the site was last cleaned either by the Field Researchers or community groups, etc.)
- Storm activity (has there been any significant storm activity, since the last audit)
- Length of sites being audited (length of transect along the site)
- Width of site (width of site at the time of audit)
- Illegally dumped items (number of large items, each to be added to the data field)
- Litter code (for each litter material subcategory).
- Litter brands (brand and/or brand owner of litter)
- Description (description of items within each material type)
- Count (number of litter items within each material subcategory). For numerous small items (e.g., 1,000's of small plastic beads) counts may not be possible, in which case only weight is captured
- Weight (weight of items within each material subcategory, kg)
- Visual rating of the site (A-D)
- Total length (length measured along the midpoint of the site, km)
- Location and site usage (urban, rural, conservation, highway, railway)
- Access (vehicular (can drive on site), pedestrian (must walk), isolated (i.e. need alternative transport))

Data Storage

It is essential that all raw data fields are completed, digitised and backed up on external hard drives. Raw data and associated metadata should be entered into databases/spreadsheets in a standardised format (CSV). This should include site metadata stored in a separate sheet, and a sheet containing sampling data collected during the audit stored in one 'brick' of data that can be continually updated as future audits are carried out.

The form should be arranged such that each row represents an individual litter material type with the corresponding metadata (e.g. Field Researcher/s, date, location) and data (e.g. litter material subcategories quantities, weights) for each litter material type arranged into columns (as shown in Table 9). Site metadata should provide the geographical metadata of sampling sites and any other information pertaining to the sites that remains consistent.

Table 9: Dataset Column Headings After Collection and Analysis

DATE	SITE ID	SITE NAME	SITE LANDSCAPE	REGION NAME	LAT START	LONG START	LAT END	LONG END	COORDINATE SYSTEM	TIME START/END	SEASON	STORM ACTIVITY	WIND	ORS	SITE TYEP	LENGTH OF SITE (M)	WIDTH OF SITE (M)	LITTER CODE	MATERIAL CLASS	LITTER FORM	DESCRIPTION	COUNT	WEIGHT	VISUAL RATING
NOV-17	81028	PARNELL	HIGHWAY	AUCKLAND	-36.854065	174.77988	-37.854065	175.77988	DMS	9.08AM	SPRING	N/A	1	HMKD	URBAN	150	150	CB01	CIG.A.ETTE BUTTS	CIG.A.ETTE BUTTS	CIG.A.ETTE BUTTS	12	0.02	C

Data Quality Criteria

Table 10: 2022 Data Quality Criteria

CRITERION	STANDARD DESCRIPTOR	APPLICABILITY TO ENVIRONMENT
Relevance	How much the statistical product meets customer needs in coverage, content, and detail.	Issues include: the extent of geographic coverage, fit to topic, and coherence with the pressure-state-impact framework.
Accuracy	How much the information correctly describes the phenomena it was designed to measure.	Lack of consistent use of definitions. Many sources of uncertainty, including that of model selection.
Timeliness	Whether data produced is up-to-date, published frequently, and delivered to schedule.	Many collections are ad hoc or on a one-off basis; data may be collected at different frequencies.
Accessibility	How easily customers can access and understand the statistical data and its supporting information.	Extensive use of modelling, for which the input data are often not readily available or understood. The underlying lowest-frequency or untransformed data is often not available.
Coherence/ Consistency	Whether statistical information can be successfully brought together with other statistical information – within a broad analytical framework and over time.	International statistical standards still being finalised.
Interpretability	The availability of supplementary information and metadata that is necessary to interpret and use the statistics effectively.	Ability to make national inferences from non- random samples.

The classification of measures relates to the data quality framework for environment reporting. The relevance and accuracy of the data are the main data quality criteria for determining robustness and fitness for purpose.

Analysis, Interpretation and Reporting

Ideally, statistical advice should be sought prior to any data collection to ensure that the design of the data collection is robust and suitable for answering the question at hand. For quality control, the data should be checked for unlikely abundances or weights of litter, and errors in data entry.

Initial Standing Stock

To calculate litter change rates, an initial clearance to remove all accumulated litter was undertaken in 2019. This provided a clean slate against which future samples can be assessed. Although data from this initial clearance will not form a component of the general change 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 material type of litter, or as an overall value across all litter material types. When standing stock is calculated at multiple sites, averages should be reported with associated error (e.g. standard error or standard deviation).

Litter Change

Change rates can only be determined by measuring the amount of litter that appears over a fixed period. By making an initial clearance, the litter load is set to zero. A future audit can then estimate the litter load (e.g., g m-2) and, because the time interval since the land type was cleared is known, then this value can be transformed to a change rate (e.g., g m^{-2} d^{-1}).

Litter change is calculated as the rate at which litter accumulates (i.e. the amount of litter arriving on a given site transect over a given period, expressed as unit quantity of litter per unit length of the site per unit time). This is equivalent to net litter change, which accounts for debris deposition and removal from the site. Net litter change can be calculated for each type of litter, or as an overall value across all litter material types.

Visual Grading

A visual rating is taken by the Field Researchers who rate the site for its cleanliness, aesthetic appeal and record 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 is commonly used to assess the aesthetic quality of a site according to the Visual Grading Guide. Data from the visual rating will feed into Keep New Zealand Beautiful's environmental education and programming.

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 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 an overall level, may be the case. However, some kinds of litter will be more aesthetically unappealing than others and the rating provides information that is primarily useful in determining the impact of litter upon users of the site. Rating assessments are not resource intensive.

Photographs are taken at the same time as the full-scale audit. To minimise observer error, all photographs are independantly moderated to assess site ratings. This allows for consistency and ensures quality assurance.

The Field Researchers are instructed to assign a visual grading according to the site's overall appearance before conducting the visual audit. This enables data to be collected that provides a comparison of the visual grading of a site, to the number and type of litter items found in the actual count. The Field Researches are instructed to assign a visual grading according to the site's overall appearance before measuring or auditing the site. Element grades will be used from A to D (a four-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 four-point scale rates the site through a modular process then circulates through the relevant local environmental elements, including:

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

Keep New Zealand Beautiful has developed a photo guide for the visual grading of audit sites to help mitigate observer bias/subjectivity when undertaking this portion of the audit, and then moderate the visual ratings to ensure consistency.

Figure 570: Visual Grading Guide

Grade A: No litter present

Grade B: Predominantly free with some minor instances

Grade C: Widespread with some accumulations

Grade D: Heavily affected

FULL DETAILS OF TECHNIQUE AND BEST PRACTICE

This section presents the full technique for land litter audits, including considerations for design, steps to undertake during sampling, and how to process samples, the timing of audits, health and safety considerations, and the quality assurance of data.

Auditing preparation

- Identification of auditing objectives.
- Statement of clear outcomes of the audis and how they relate to the original objectives.
- Developing a robust audit design including prior consultation with experts/statisticians to ensure design meets the requirements to answer the research question. This could include consultation/ creation of maps to identify areas that are likely to experience high amounts of litter deposition.

Design

- Audit design includes the consideration of which sites to include in the audit and the frequency at which they should be audited. The Data Collection Form was modelled off Keep Australia Beautiful's and modified by Keep New Zealand Beautiful in collaboration with the Department of Conservation, Ministry for the Environment and Stats NZ.

Site selection criteria

- In 2019, sites were selected by a stratified random sampling based on Stats NZ's 2013 census data (the most recent census data available at that time), of where the most densely populated locations were in each Territorial Authority, Subject to change, sites were pre-selected with mapping tools available at that time, enabling an accurate assessment of the proposed site in terms of health and safety considerations for carrying out the audit. In 2022, the same sites were audited, however, there were six rejected sites. New site ID codes were allocated for the six new sites.

- Five sites (one per site specification) under each Territorial Authority was identified to ensure findings are representative of the area and in line with the research questions. In addition to these five sites, a minimum of 20 highways and 20 railway lines were included.

- The sites were allocated via a computerised method of obtaining random numbers to select sites. This method provides a consistent and statistically useful random sample and will be followed for any new sites in subsequent audits. Principle 11 of the Privacy Act 2020 prohibits us from disclosing the coordinates of the sites selected.

- Ideally the site should not be subject to any other litter collection activities, although it is recognised that in some areas cleaning is carried out periodically (e.g. council or community clean ups); in such cases the timing of non-related cleaning must be known to determine litter change rates (the amount of litter accumulation per unit time). See sampling frequency below.

- Audit activities should be conducted so as to not impact any endangered or protected species.

- Site specifications will vary from 500 m² to 3,000 m², with a mix of urban and rural.

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

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

- Each site identified below is audited under each Territorial Authority

  Public Recreational Space – An area of approximately 40 m 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 area should be within a frequently visited recreational area.

  Car Park – An area of approximately 30 m by 50 m in an open air 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 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:

Railways – A railway track at least a kilometre away from any railway stations. The count area commences from the area beginning at the edge of the track and extends out from the track to the nearest adjacent property, or up to a distance of 10 m out from the track side (f no such property exists). Litter is collected from each side of the track, over an area approximated 150 m long and 1 m wide.

Highways – An open major roadway 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 extends out from the road to the nearest fence/ boundary or up to a distance of 10 m out from the roadside (if no such fence/ boundary exists).

Table 11: Example Site Selection Requirements for Urban, Rural and Number of Sites Required

SITE TYPE	URBAN	RURAL	NUMBER OF SITES
Retail	X		At least 1 per LTA
Industrial	X		At least 1 per LTA
Car Park	X	X	At least 1 per LTA
Public Recreational Space	X	X	At least 1 per LTA
Residential	X	X	At least 1 per LTA
Highway	X	X	Minimum 20 samples in total
Railway	X	X	Minimum 20 samples in total

SAMPLING PROCEDURE

During the audit, data is collected from the sites on a Data Collection Form. Generic information is recorded in order to uniquely identify the data record. Samples vary in size dependent upon the site, however site sizes will be unified, e.g. litter volume and weight per square meter to have comparability across various sample areas. If quantities of litter are low, longer sampling units may be required to ensure a minimum of ten litter items are collected to allow good estimates of litter loads. Smaller sampling sub-units may also be employed for ubiquitous items such as cigarette butts. Typically, these sub-units should be 10 m wide, positioned at the start and end point of each transect where they are easily GPS referenced.

Large immoveable objects (abandoned cars, refrigerators, baulks of timber etc.) that cannot be moved by the Field Researchers are recorded as Illegally Dumped items, with information collected on the nature and location (GPS fixed where possible) for each large item. Large or illegally dumped items are reported to the local councils for removal, if they occur within an accessible area.

A tyypical sampling procedure is as follows.
Field Researchers:

- Complete data field tables for the site. This information is collated the first time each site is audited. In subsequent audits, this information is re-verified to ensure that is its still correct (e.g. the back of the highway hasn't changed due to the construction).
- Establish the sampling unit, which includes the entire area along the transect.
- Temporally mark the ends of the transect with stakes and/or flagging tape.
- GPS the start and ends of the transect, recording the coordinate system along with the datum.
- Starting at the back of the site, the Field Researchers form a skirmish line and move along the site collecting all litter larger than 2.5 cm that is visible on the surface of the site (i.e. not underneath soil or boulders etc.)
- Each time the Field Researcher's skirmish line completes a pass of the transect, they progressively move down the site, running additional passes to ensure that the entire transect is audited.
- Any items that are unable to be removed are recorded in the data field as Illegally Dumped items.
- Once all litter items larger than 2.5 cm is collected, smaller
  10 m wide sub-units from the transect lines, positioned at the start and end point of each transect, are established and marked with stakes and/or flagging tape
- All litter items smaller than 2.5 cm are collected from these areas, and are kept separate from the wider litter collections.
- Within each sub-unit, the Field Researchers form skirmish lines and run multiple passes to ensure that the entire sub-unit is audited and all of the litter is collected.
- Any other details or covariate data deemed relevant to the audit is also recorded. This might include:
  o Data on events that may not directly relate to the site (i.e. activities that may result in litter accumulating, such as festivals, car races, competitions etc.).
  o Conditions at the time of the audit that might affect the litter collection (e.g. cold, hot, rain, snow, high winds).

Processing of samples

Following collection, all litter items are grouped according to Keep New Zealand Beautiful's classification system - firstly by material type (e.g.,Plastic, Glass, Paper and Cardboard etc.) and then by the material subcatergory (e.g., Bottle top, Cigarette butts etc.) This is done separately for the litter collected from the wider sampling unit, and the litter from the sub-units, which can be pooled. Table 8 outlines the different material types and discrete material subcategories. For each litter material subcategory, both counts and weights (reported as kg) are recorded.

Counts of litter

Counts are relatively easy to make, do not require any specialised equipment and provide a quantitative indicator of relative importance. However, for numerous small items (e.g., 1,000s of small plastic beads) counts may not be possible, in which case they litter items is aggregated and weighed.

Weights of litter

Litter weights are relatively easy to obtain. By aggregating items within a class and measuring the weight, it is possible to rapidly deal with broken or fragmented material (e.g., glass bottles or plastic bags). In some cases, the weight is affected by whether the material is wet or dry, and this is a source of error that is recorded. Where possible, all items are weighed dry using scales. For the 2022 NL:A the MPB Precision Balance Scale was used, which contains a readability of .002.

Recording of information

Litter codes are used to record information about the amount and weight of each litter item collected in data field. For each litter material subcategory, the number of items, their combined weight and a short description of the items collected is recorded in the data field (e.g. if an audit results in the collection of 20 small plastic bottles, 2 cans, 3 plastic bags and 3 pieces of processed timber.) Digital photos are taken of unknown, interesting items so that they can be identified at a later date, as well as to help assess the overall visual rating of the site. Once recorded, the data is entered digitally, using Fastfields Forms.

On completion, of the audit all litter is disposed of appropriately (e.g. recycled).

Data

An electronic Data Collection Form was developed as part of the project scope to undertake comprehensive land litter assessments: **Land Litter data field** was used to record information on the depositional nature of the environment and proximity to local litter sources. This information was collated the first time a site was audited in 2019. In the 2022 subsequent audit, this information has been re-verified to ensure that it is still correct. It is also used to record specific data including categorisation and measurement of litter.

Timing

The field research for the 2022 NLA was completed over a seven-month span, commending in April 2022, and with a completion date of November 2022. The 2019 NLA commenced in February 2019 and concluded in July 2019. The main aim and concern for all litter s is accuracy and reproducibility. Accuracy refers to the recording of every item of litter on a site that matches selection criteria. Reproducibility on the other hand means that the audit occurs under exactly the same conditions of time and location over the lifetime of the site. This demands that the Field Researchers are exact when aligning the site audited with the site characteristics as originally identified on maps, site descriptions and in photographs.

It is important for the purpose of comparability that consistency be maintained across all temporal parameters for site visits. If a site was initially visited in 2019 on a Saturday, then subsequent audits where possible are also held on a Saturday. Over several years, the closest day/date combination consistent with maintaining the same day of the week is used.

This is because the weekly cycle centered around a working week and weekend, means that a litter audit carried out in the weekend has the potential to produce a different outcome than one carried out during the working week.

The extent of the variation differs depending on the site type being audited and the type of litter present. Highly mobile litter such as paper, is likely to be heavily concentrated around some recreational venues over the weekend but then substantially reduce by mid-week.

Likewise, if a site was initially visited in 2019 during the morning, then a similar time of day is used for subsequent audits.

In general, the timing of the audit within the day will affect the outcome when any of the factors that lead to the loss of litter (e.g. waste collection, weather, traffic etc.) or those contributing to the accumulation of litter (e.g. occupation, human activity, movement due to weather or traffic etc.) are tied to daily activity.

Industrial and commercial sites are likely to be more heavily littered at the end of the working day than at the beginning following the operation of waste collection services.

The importance of satisfying the conditions of accuracy and reproducibility cannot be over emphasised when examining the value of litter statistics. In general, visits on unusual days, such as, public holidays were avoided.

Weather

Significant storm weather is defined as torrential rainfall, flooding, hurricanes or tornados having happened within a week of the Field Researchers visiting an audit site. The strength of wind is recorded on a three-point scale:

0 - no or very little wind, unlikely to move pieces of paper

1 - a breeze blowing sufficient to move smaller pieces of paper, but not strong enough to move heavier pieces of litter

2 - a stronger breeze and windy conditions sufficient to move most pieces of litter including heavier pieces of litter such as tin cans

Information on the wind and rain records can be found in the dataset itself.

Health and Safety

Spot-check audits were carried to ensure robust quality controls were in place. Safety Plans were created and included information about resources (e.g. equipment, vehicles, communication, support, personal protective equipment), environmental hazards or considerations (e.g. remoteness), personnel (e.g. experience, training, physical and mental fitness), weather and mission complexity. The Field Researchers read and then signed the Safety Plan. Specifically:

- A minimum of two people to undertake the audit.
- Dangerous or suspicious looking items, such as ammunition and chemicals should not be removed. Instead, inform the police (111) or authorities responsible and report the item with as much information as possible. Do not touch the item or attempt to remove it.
- Large, heavy objects should be left in place. Do not attempt to lift heavy litter objects as they may have additional water weight and lifting them could result in injury.
- Medicine should be handled with caution. Needles should be placed within a sharp's container.
- When in doubt, do not pick the litter up

The Field Researchers adhered to Keep New Zealand Beautiful's Health and Safety policies. Both researchers worked and travelled together during the course of the audit, under the direction of the lead researcher, who was responsible for the progress of the audit at all times.

Quality assurance

Quality assurance assess 10% of the total number of transects sampled per site type, over the course of the audit. Quality assurance involves the site being immediately re-audited by a second researcher, following the scheduled clearance to determine if any litter has been missed.

Differences of greater than 5% in the numbers of pieces of each type of litter being counted is checked to determine where the errors occurred.

- Three photographs or photogrammetric snapshots were taken prior to the implementation of the audit.
- The research lead or will review the initial findings, and their team member will recheck the sampling results.

Additionally, 10% of the total number of Data Collection Forms were reviewed independent of the Field Researchers by Keep New Zealand Beautiful's Research Director. The margin of human error for data input of the 2022 NLA was 0.17%. A breakdown of this error rate can be seen in Tables 12 and 13 below.

Table 12: 2022 Quality Assurance Tracker

SITE CODE	WHO ENTERED IT?	WHO QA'D IT?	DATE QA'D	NO. OF ERRORS	ERRORS/ NOTES	ERROR RECTIFIED IN FASTFIELDS
111	XX	YY	19/10/2022	0		
119	XX	YY	19/10/2022	1	Initials of person conducting audit should just be BB (rather than AA/BB)	Yes
124	XX	YY	19/10/2022	1	Suburb in the form is 'VV' not 'WW'	Yes
140	XX	YY	19/10/2022	0		
143	XX	YY	19/10/2022	0		
156	XX	YY	19/10/2022	0		
161	XX	YY	19/10/2022	0		
200	XX	YY	19/10/2022	0		
206	XX	YY	19/10/2022	0		
212	XX	YY	19/10/2022	0		
214	XX	YY	19/10/2022	1	Should be 'Light rain' under the 'Rain' column	Yes
227	XX	YY	19/10/2022	0		
238	XX	YY	19/10/2022	0		
239	XX	YY	19/10/2022	0		
242	XX	YY	19/10/2022	0		

SITE CODE	WHO ENTERED IT?	WHO QA'D IT?	DATE QA'D	NO. OF ERRORS	ERRORS/ NOTES	ERROR RECTIFIED IN FASTFIELDS
268	XX	YY	20/10/2022	0		
269	XX	YY	20/10/2022	0		
279	XX	YY	20/10/2022	0		
281	XX	YY	20/10/2022	0		
305	XX	YY	20/10/2022	0		
340	XX	YY	20/10/2022	0		
364	XX	YY	20/10/2022	0		
368	XX	YY	20/10/2022	0		
371	XX	YY	20/10/2022	1	MI01.01 (Clothing, towels & linen) - count should be 1 not 3	Yes
401	XX	YY	20/10/2022	0		
409	XX	YY	20/10/2022	0		
437	XX	YY	20/10/2022	0		
445	XX	YY	20/10/2022	0		
457	XX	YY	20/10/2022	0		
466	XX	YY	20/10/2022	0		
472	XX	YY	20/10/2022	0		
473	XX	YY	20/10/2022	0		
507	XX	YY	20/10/2022	0		
528	XX	YY	20/10/2022	0		
138	XX	YY	20/10/2022	0		
309	ZZ	XX	19/10/2022	0		
333	ZZ	XX	19/10/2022	0		
369	ZZ	XX	19/10/2022	0		
290	BB	XX	19/10/2022	1	Noted illegal dumping in comments but didn't input it in material classification fields	Yes
254	BB	XX	19/10/2022	0		
288	BB	XX	20/10/2022	0		

SITE CODE	WHO ENTERED IT?	WHO QA'D IT?	DATE QA'D	NO. OF ERRORS	ERRORS/ NOTES	ERROR RECTIFIED IN FASTFIELDS
292	BB	XX	20/10/2022	0		
260	BB	XX	20/10/2022	0		
253	AA	XX	19/10/2022	0		
273	AA	XX	19/10/2022	1	ME02 Bottle caps - Count of '1' entered as '11'	Yes
271	AA	XX	20/10/2022	0		
274	AA	XX	20/10/2022	0		
497	AA	XX	20/10/2022	0		
Total no. of errors identified				**6**		

Table 13: Error Rate Calculation from Quality Assurance Check

NO. FORMS QA CHECKED	ESTIMATED NO. OF FIELDS CHECKED	NO. OF ERRORS IDENTIFIED	DATA ENTRY ERROR RATE %
48	3585	6	**0.17%**

APPENDIX 4

REJECTED SITES 2022

Table 14: 2022 Rejected Sites

DATE OF LITTER COLLECTION	SITE CODE	LOCATION TYPE	REJECTION REASON	URBAN OR RURAL
16/08/2022	159	Public Recreational Space	Construction	Urban
23/06/2022	205	Public Recreational Space	Not a public space anymore - under construction	Urban
20/07/2022	316	Car Park	Construction	Urban
11/07/2022	493	Car Park	Authorized Personnel Only/ No Public access	Rural
14/07/2022	513	Retail	Construction blocking half the road	Urban
11/07/2022	526	Public Recreational Space	Construction site	Urban

APPENDIX 5

LITTER VOLUME CONVERSION CHART

Table 15: 2022 Litter Volume Conversion Chart

LITTER ITEM (MATERIAL SUBCATEGORY + ITEM)	VOLUME (M³)
CIGARETTE BUTTS/VAPING - Cigarette butts	.00000012
CIGARETTE BUTTS/VAPING - Vaping device	.00006151
CIGARETTE BUTTS/VAPING - Vaping refill	.00011242
GLASS - Alcoholic sodas/spirit based mixers, all sizes	.00037430
GLASS - Beer, < 750 ml, all colours of glass	.00046292
GLASS - Beer, all colours of glass, 750ml+	.00090729
GLASS - Cider/fruit based, etc.	.00045785
GLASS - Construction materials	.00000776
GLASS - Flav. water/fruit j. drink/sports drink (non-carb), <1 litre	.00055429
GLASS - Flav. water/fruit j. drink/sports drink (non-carb), 1 litre+	.00127725
GLASS - Flav. water/soft drink (carbonated), <1 litre	.00039584
GLASS - Flav. water/soft drink (carbonated), 1 litre+	.00127725
GLASS - Fruit juice, <1 litre	.00042412
GLASS - Fruit juice, 1 litre+	.00111049
GLASS - Other glass	.00001964
GLASS - Plain water (carbonated or non-carb), <1 litre	.00058107
GLASS - Plain water (carbonated or non-carb), 1 litre+	.00105925
GLASS - Spirits, all sizes	.00077750
GLASS - Unidenitifiable glass fragments	.00000349
GLASS - Wine, all sizes	.00070313
METAL - Aerosols/pressure packs	.00068424
METAL - Alcoholic sodas & spirit based mixers	.00043140
METAL - Beer, aluminium drink cans, all types, all sizes	.00043140
METAL - Cider/fruit based etc.	.00043140

LITTER ITEM (MATERIAL SUBCATEGORY + ITEM)	VOLUME (M³)
METAL - Construction materials	.00000357
METAL - Flav. water/soft drink, (carbonated), all sizes	.00042554
METAL - Flav. water/soft drink, (non-carb), all sizes	.00038160
METAL - Foil take away	.00046238
METAL - Food cans (including pet food)	.00046380
METAL - Industrial cans, <4 litres	.00162500
METAL - Industrial cans, 4 litres+	.00454000
METAL - Bottle caps, lids & pull tabs	.00000400
METAL - Metal pieces/fragments	.00001060
METAL - Other metal	.00000156
METAL - Vehicle parts	.00034454
METAL - Wine cans, all sizes	.00026000
MISCELLANEOUS - Batteries	.00002201
MISCELLANEOUS - Clothing, towels & linen	.00180765
MISCELLANEOUS - Condoms	.00000032
MISCELLANEOUS - Construction materials	.00036000
MISCELLANEOUS - Corks (non plastic)	.00004363
MISCELLANEOUS - Cosmetics & medical items (non plastic)	.00000656
MISCELLANEOUS - Nappies - disposable	.00112500
MISCELLANEOUS - Face masks - Disposable	.00000503
MISCELLANEOUS - Footwear	.00158610
MISCELLANEOUS - Gloves - Disposable	.00002011
MISCELLANEOUS - Gum	.00000423
MISCELLANEOUS - Ice cream sticks	.00000092
MISCELLANEOUS - Illegal dumping	.02400000
MISCELLANEOUS - Other cloth	.00012000
MISCELLANEOUS - Other miscellaneous	.00001350
MISCELLANEOUS - Personal care items	.00000399
MISCELLANEOUS - Rubber bands	.00000095
MISCELLANEOUS - Rubber inner tubes & rubber sheets	.00000952

LITTER ITEM (MATERIAL SUBCATEGORY + ITEM)	VOLUME (M³)
MISCELLANEOUS - Rubber pieces (not tyres)	.00000016
MISCELLANEOUS - Small appliances/ electronics	.00001040
MISCELLANEOUS - Cutlery (non plastic)	.00000402
MISCELLANEOUS - Sanitary products	.00001125
MISCELLANEOUS - Sports & recreation/toys	.00000741
MISCELLANEOUS - Syringes	.00000226
MISCELLANEOUS - Tyre pieces	.00800000
MISCELLANEOUS - Tyres (whole)	.04000000
ORGANIC WASTE - Compostable packaging	.00786480
ORGANIC WASTE - Dog faeces	.00001815
ORGANIC WASTE - Food waste	.00003350
ORGANIC WASTE - Human faeces	.00001815
ORGANIC WASTE - Other faeces	.00001815
ORGANIC WASTE - Other organic waste	.00003350
PAPER AND CARDBOARD - Bread bag tags	.00000005
PAPER AND CARDBOARD - Cardboard boxes	.04318997
PAPER AND CARDBOARD - Cartons, flavoured milk, <1 litre	.00067248
PAPER AND CARDBOARD - Cartons, flavoured milk, 1 litre+	.00101266
PAPER AND CARDBOARD - Cartons, food & drink (other)	.00080000
PAPER AND CARDBOARD - Cartons, fruit juice, <1 litre	.00062475
PAPER AND CARDBOARD - Cartons, fruit juice, 1 litre+	.00207000
PAPER AND CARDBOARD - Cartons, milk, plain (white), all sizes	.00101266
PAPER AND CARDBOARD - Cigarette packets	.00021787
PAPER AND CARDBOARD - Coffee cups	.00049003
PAPER AND CARDBOARD - Flav. water/fruit j. drink/sports drink (non-carb), <1 litre	.00030240
PAPER AND CARDBOARD - Flav. water/fruit j. drink/sports drink (non-carb), 1 litre+	.00207000
PAPER AND CARDBOARD - Ice cream wrappers	.00000240
PAPER AND CARDBOARD - Junk mail/free circulars	.00017400
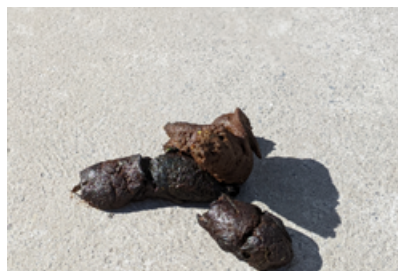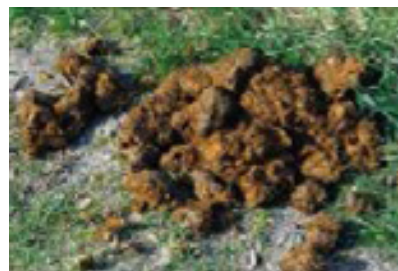
LITTER ITEM (MATERIAL SUBCATEGORY + ITEM)	VOLUME (M³)
PAPER AND CARDBOARD - Lollipop sticks	.00000101
PAPER AND CARDBOARD - Newspapers & magazines	.00118000
PAPER AND CARDBOARD - Paper bags	.00001058
PAPER AND CARDBOARD - Shopper dockets & related shopping paper (e.g. lists)	.00000203
PAPER AND CARDBOARD - Takeaway coffee cups	.00033950
PAPER AND CARDBOARD - Tickets, e.g. bus, ATM, vending machine etc.	.00000088
PAPER AND CARDBOARD - Unidentified cardboard fragments	.00003338
PAPER AND CARDBOARD - Unidentified paper fragments	.00001082
PLASTIC - Drink package rings, six pack rings & ring carriers	.00000150
PLASTIC - Bags - heavier glossy typically branded carry bags	.00008760
PLASTIC - Bags - supermarket type light weight carry bags	.00003394
PLASTIC - Bottle neck rings	.00000023
PLASTIC - Bottle seals	.00000068
PLASTIC - Bread bag tags	.00000023
PLASTIC - Cable/zip ties	.00000236
PLASTIC - Cider/fruit based, etc.	.00125000
PLASTIC - Cigarette lighters	.00005148
PLASTIC - Clothes pegs	.00002517
PLASTIC - Coffee cup lids	.00011548
PLASTIC - Construction materials	.00007937
PLASTIC - Containers, domestic type	.00832400
PLASTIC - Containers, industrial e.g. oil, <2 litre	.00162500
PLASTIC - Containers, industrial e.g. oil, 2 litre+	.00350000
PLASTIC - Cosmetics & medical packaging	.00011652
PLASTIC - Cotton buds	.00000035
PLASTIC - Drink pouches	.00008625
PLASTIC - Flav. milk, <1 litre	.00053270
PLASTIC - Flav. milk, 1 litre +	.00213669
PLASTIC - Flav. water/fruit j. drink/sports drink (non-carb), <1 litre	.00073762

LITTER ITEM (MATERIAL SUBCATEGORY + ITEM)	VOLUME (M³)
PLASTIC - Flav. water/fruit j. drink/sports drink (non-carb), 1 litre+	.00120110
PLASTIC - Flav. water/soft drink (carbonated), <1 litre	.00062211
PLASTIC - Flav. water/soft drink (carbonated), 1 litre+	.00165400
PLASTIC - Fruit juice, <1 litre	.00040005
PLASTIC - Fruit juice, 1 litre +	.00213669
PLASTIC - Hangers & retail packaging	.00007808
PLASTIC - Ice cream wrappers	.00004106
PLASTIC - Lollipop sticks	.00000053
PLASTIC - Other plastic	.00000125
PLASTIC - Packing tape & straps	.00000027
PLASTIC - Pens & stationery	.00006609
PLASTIC - Plain water (carbonated or non-carb), <1 litre	.00078790
PLASTIC - Plain water (carbonated or non-carb), 1 litre+	.00154157
PLASTIC - Plastic bottle tops	.00000801
PLASTIC - Polystyrene insulation	.00187500
PLASTIC - Reusable bags	.01561413
PLASTIC - Sacks - sheeting - other bags	.00000032
PLASTIC - Shotgun wadding & shells	.00000171
PLASTIC - Snack bags & confectionery wrappers	.00000783
PLASTIC - Spoons/cutlery	.00000960
PLASTIC - Strapping bands and tape	.00001175
PLASTIC - Straws	.00000413
PLASTIC - Styrene foam boxes, sheets, etc.	.00003750
PLASTIC - Take away & cups	.00020702
PLASTIC - Unidentifiable hard plastic fragments	.00001601
PLASTIC - Unidentifiable soft plastic fragments	.00002885
PLASTIC - White milk, all sizes	.00213669
PLASTIC - Wine cask/ bladders	.00046000
PLASTIC - Ziplock, sandwich bags	.00000944

APPENDIX 6

LITTER CLASSIFICATION SYSTEM PHOTO GUIDE

Table 16: Photo Guide for the Litter Classification System

CIGARETTE BUTTS/VAPING

CB01 - Cigarette butts

CB03 - Vaping devices

CB04 - Vaping refills

ORGANIC WASTE

OW01 - Food waste

OW07 - Compostable packaging

OW02 - Lawn clippings

OW03 - Human faeces

OW04 - Dog faeces

OW05 - Other faeces

OW06 - Other organic waste

GLASS

GL13.01 - Wine, all sizes

GL13.02 - Spirits, all sizes

GL01 - Alcoholic sodas/spirit based mixers, all sizes

GL02 - Beer, < 750 ml, all colours of glass

GL03 - Beer, 750 ml +, all colours of glass

GL04 - Cider/fruit based, etc.

GL05 - Flav. water/soft drink (carbonated), <1 litre

GL06 - Flav. water/soft drink (carbonated), 1 litre +

GL07 - Flav. water/fruit/sports drink (non-carb.), <1 litre

GL08 - Flav. water/fruit/sports drink (non-carb.), 1 litre +

GL09 - Fruit juice, <1 litre

GL10 - Fruit juice, 1 litre +

GL11 - Plain water (carbonated or non-carb.), <1 litre

GL12 - Plain water (carbonated or non-carb.), 1 litre +

GL15.01 - Unidentifiable glass fragments

MI03.01 - Construction materials

GL15 - Glass, other (specify)

METAL

ME12.01 - Wine cans, all sizes

ME04 - Alcoholic sodas & spirit based mixers

ME03 - Beer, aluminium drink cans, all types, all sizes

ME09 - Cider/fruit based, etc.

ME10 - Flav. water/soft drink, (carbonated), all sizes

ME11 - Flav. water/soft drink, (non-carb.), all sizes

ME02 - Bottle caps, lids & pull tabs

ME05 - Food/pet food cans

ME06 - Foil wrappers

ME01 - Aerosols/pressure packs

ME07.01 - Industrial cans, <4 litre

ME07.02 - Industrial cans, 4 litre +

ME12.02 - Vehicle parts

MI03.02 - Construction materials

ME08 - Metal pieces/fragments

ME12 - Metal, other (specify)

MISC

MI01.01 - Clothing, towels & linen

MI01.02 - Footwear

MI01.03 - Cloth, other (specify)

MI02 - Condoms

MI04 - Nappies, disposable

MI05 - Sanitary products
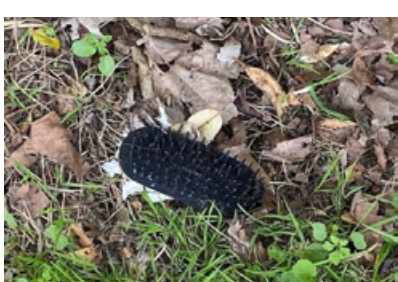
MI10.08 - Personal care items

MI10.09 - Cosmetic & medical items (non plastic)

MI10.03 - Face masks, disposable

MI10.02 - Gloves - disposable

MI07 - Syringes
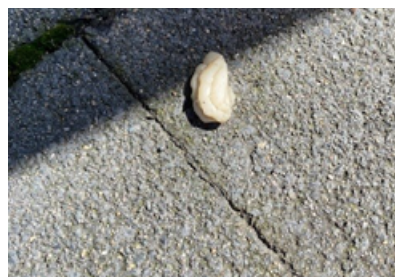
MI10.01 - Gum

MI06 - Ice cream sticks

MI10.04 - Cutlery (non plastic)

MI10.05 - Corks (non plastic)
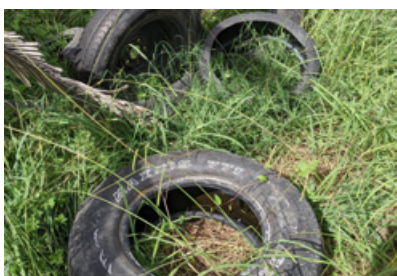
MI08.01 - Tyres (whole)

MI08.02 - Tyre pieces
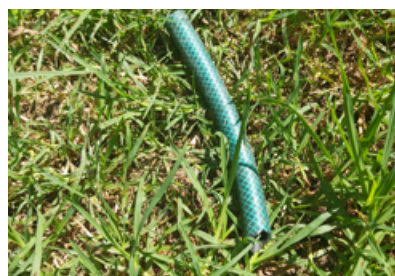
MI09 - Rubber pieces (not tyres)

MI09.01 - Rubber bands
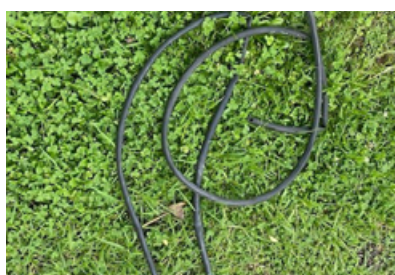
MI09.02 - Rubber inner tubes & rubber sheets

MI10.07 - Sports & recreation/ toys

MI10.06 - Batteries

MI10.10 - Small appliances/ electronics

MI03 - Construction materials

MI10 - Misc., other (specify)

PAPER & CARDBOARD

PC01 - Cartons, flavoured milk, <1 litre

PC02 - Cartons, flavoured milk, 1 litre +

PC05 - Cartons, milk, plain (white), all sizes

PC08 - Flav. water/fruit/sports drinks (non-carb.), <1 litre

PC09 - Flav. water/fruit/sports drinks (non-carb.), 1 litre +

PC03 - Cartons, fruit juice, <1 litre

PC04 - Cartons, fruit juice, 1 litre +
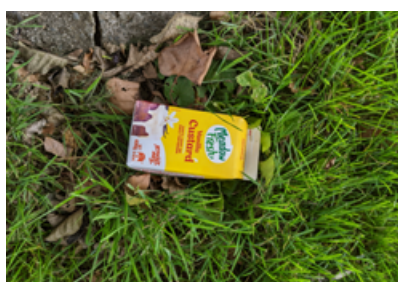
PC19.03 - Cartons, food & drink (other)

PC10 - Ice cream wrappers

PC17.01 - Bread bag tags

PC17.02 - Lollipop sticks

PC06 - Cigarette packets

PC20 - Cups, food trays, food wrappers, takeaway, containers & drink containers

PC20.01 - Takeaway coffee cups

PC19.01 - Cardboard boxes

PC11 - Newspapers & magazines

PC12 - Junk mail/free circulars

PC14 - Paper bags

PC15 - Shopper dockets & related shopping paper

PC16 - Tickets

PC21 - Tubes for fireworks

PC17.03 - Unidentified paper fragments

PC19.02 - Unidentified cardboard fragments

PC17 - Paper/cardboard, other (specify)

PLASTIC

PL27 - Wine cask/bladders

PL28.12 - Cider/fruit based, etc.

PL08 - Flav. milk, <1 litre

PL09 - Flav. milk, 1 litre +

PL26 - White milk, all sizes

PL10 - Flav. water/fruit/sports drinks (non-carb.), <1 litre

PL11 - Flav. water/fruit/sports drinks (non-carb.), 1 litre +

PL12 - Flav. water/soft drink (carbonated), <1 litre

PL13 - Flav. water/soft drink (carbonated), 1 litre +

PL14 - Fruit juice, <1 litre

PL15 - Fruit juice, 1 litre +

PL18 - Plain water (carbonated or non-carb.), <1 litre

PL19 - Plain water (carbonated or non-carb.), 1 litre +

PL04 - Drink pouches

PL20 - Plastic bottle tops

PL20.01 - Bottle seals

PL20.02 - Bottle neck rings
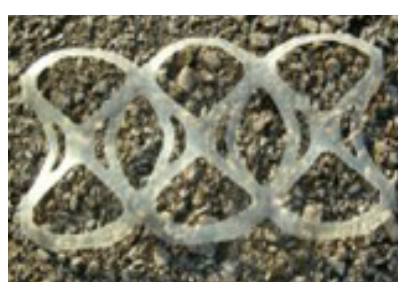
PL05 - Drink package rings, six pack rings & ring carriers

PL01 - Bags, heavier glossy type typically branded carry

PL07 - Plastic bags, supermarket type light weight carry

PL17.01 - Reusable bags

PL21 - Snack bags & confectionary wrappers

PL21.01 - Ziplock/sandwich bags

PL17 - Sacks, sheeting & other bags

PL21.02 - Ice cream wrappers

PL02 - Bread bag tags

PL16 - Lollipop sticks

PL25 - Takeaway containers & cups

PL25.01 - Coffee cup lids

PL22 - Cutlery

PL23 - Straws

PL24 - Polystyrene boxes & sheets

PL24.01 - Polystyrene insulation

PL03.01 - Containers, industrial e.g. oil, <2 litre

PL03.02 - Containers, industrial e.g. oil, 2 litre +

PL06 - Containers, domestic

PL28.03 - Cable/zip ties

PL28.04 - Clothes pegs

PL28.05 - Pens & stationery

PL28.06 - Hangers & retail packaging

PL28.07 - Cosmetics & medical packaging

PL28.08 - Cotton buds

PL28.09 - Strapping bands & tape

PL28.10 - Cigarette lighters

PL28.11 - Shotgun wadding & shells

MI03.03- Construction materials

PL28.01 - Unidentifiable hard plastic fragments

PL28.02 - Unidentifiable soft plastic fragments

PL28 - Plastic, other (specify)

PLASTIC ILLEGAL DUMPING

ID01 - Itemised description

APPENDIX 7

SPOT AUDIT CHECK TEMPLATE

SITE INFORMATION

Date	dd/mm/yyyy	Time		Location type

Spot check completed by

Field Reaserachers

Site ID	Site Name (if applicable)

Region/District	Suburb/town

Street Number/Name

AT THE AUDIT SITE

	☐ Yes	☐ No	If 'No' provide a description
Site marked out in accordance with coordinates recorded			
Photos of site taken			
Litter collected in accordance with methodology			
Quality Control Auditor to conduct a sweep of the site after Field Researchers have completed audit. Were all litter materials collected?			

FORM COMPLETION ACCURACY

Quality Control Auditor to independently complete the 1st page of the NLA Audit form (Site information) and check against Field Researchers form)

	☐ Yes	☐ No	If 'No' provide a description
Location Type correct			
Site width/length correct			
Location information and coordinates correct			
Weather details correct			
Visual Rating correct			
Litter hotshots rating correct			
Risk rating correct			
Litter distribution rating correct			

MATERIAL SORTING AND CLASSIFICATION

	☐ Yes	☐ No	If 'No' provide a description
Litter recorded within correct material classifications			
Counts per classification correct			
Weights per classification correct			

Additional Comments

APPENDIX 8

LITTER COLLECTION FORM TEMPLATE

Date	dd/mm/yyyy	Name or initials	
Time	Start/finish	Site rejected	☐ Yes ☐ No
Season	e.g. Summer/winter	Rejection rationale	

LOCATION TYPE

☐ Urban	☐ **Public Recreational Space (40x50 meters)**	☐ **Car Park (30x50 meters)**	☐ **Industrial (150 x variable metres)**	☐ **Highways (150 x variable metres)**
☐ Rural	Width (m) _x Length (m) _	Width (m) _x Length (m) _	Width (m) _x Length (m) _	Width (m) _x Length (m) _
	☐ **Residential (150 x variable metres)**	☐ **Retail (150 x variable metres)**	☐ **Railway (150 x variable metres)**	
	Width (m) _x Length (m) _	Width (m) _x Length (m) _	Width (m) _x Length (m) _	

LOCATION INFORMATION

2019 NLA Site ID	Suburb/town	Street number/name		Reigion/District
Site name (if applicable)	GPS coordinates			
	Start _ lat	_long	Start _lat	_long
_____	Finish _lat	_long	Finish _lat	_long

WEATHER DETAILS

☐ No rain - 0	☐ Light rain - 1	☐ Heavy rain - 2	Recent storm	☐ Yes ☐ No
☐ No wind - 0	☐ Light wind - 1	☐ Heavy wind - 2		

VISUAL SITE GRADING

	Grade A - None	Grade B - Minor	Grade C - Moderately affected	Grade D - Heavily affected	N/A
Litter	☐	☐	☐	☐	
Detritus	☐	☐	☐	☐	
Grafitti	☐	☐	☐	☐	
Pavement condition	☐	☐	☐	☐	☐
Road markings	☐	☐	☐	☐	☐
Bin condition	☐	☐	☐	☐	☐

LITTER HOTSHOTS RATING

☐ 1 No litter/dumping	☐ 2 Small amount	☐ 3 Moderate	☐ 4 Significant	☐ 5 Very significant

RISK PRESENT

☐ Moderate hazard or risk ☐ Significant hazard or risk

LITTER DISTRIBUTION

☐ **Widespread** ☐ **Clustered**

NOTES

_____

_____

Class	Litter Code	Material type/class and subcatergory/form	Count	Weight	Brand/s (with count)	Description	Key Words
CIGARETTE BUTTS/VAPING							
1	CB01	Cigarette butts					Butts, filters
2	CB03	Vaping devices					
3	CB04	Vaping refills					
ORGANIC WASTE							
4	OW01	Food waste					
5	OW07	Compostable packaging					Compostable courier bags, compostable lunch bags, compostable coffee cup lids, compostable picnicware
6	OW02	Lawn clippings					Plant clippings, green waste
7	OW03	Human faeces					
8	OW04	Dog faeces					
9	OW05	Other faeces					
10	OW06	Other organic waste					
GLASS							
11	GL13.01	Wine, all sizes					Still wine, sparkling wine
12	GL13.02	Spirits, all sizes					Vodka, gin, whisky, brandy, rum
13	GL01	Alcoholic sodas/spirit based mixers, all sizes					RTDs
14	GL02	Beer, < 750 ml, all colours of glass					
15	GL03	Beer, 750 ml +, all colours of glass					
16	GL04	Cider/fruit based, etc.					
17	GL05	Flav. water/soft drink (carbonated), <1 litre					
18	GL06	Flav. water/soft drink (carbonated), 1 litre +					
19	GL07	Flav. water/fruit/sports drink (non-carb.), <1 litre					
20	GL08	Flav. water/fruit/sports drink (non-carb.), 1 litre +					
21	GL09	Fruit juice, <1 litre					
22	GL10	Fruit juice, 1 litre +					
23	GL11	Plain water (carbonated or non-carb.), <1 litre					

Class	Litter Code	Material type/class and subcatergory/form	Count	Weight	Brand/s (with count)	Description	Key Words
GLASS							
24	GL12	Plain water (carbonated or non-carb.), 1 litre +					
25	GL15.01	Unidentifiable glass fragments					
26	MI03.01	Construction materials					Window glass
27	GL15	Glass, other (specify)					Jar, sauce bottle
METAL							
28	ME12.01	Wine cans, all sizes					
29	ME04	Alcoholic sodas & spirit based mixers					RTDs
30	ME03	Beer, aluminium drink cans, all types, all sizes					
31	ME09	Cider/fruit based, etc.					
32	ME10	Flav. water/soft drink, (carbonated), all sizes					
33	ME11	Flav. water/soft drink, (non-carb.), all sizes					
34	ME02	Bottle caps, lids & pull tabs					
35	ME05	Food/pet food cans					Tinned food, pet food
36	ME06	Foil wrappers					Tin foil, aluminium foil. Excluding foil lined plastic wrappers
37	ME01	Aerosols/pressure packs					Paint spray cans, air freshener, hairspray cans
38	ME07.01	Industrial cans, <4 litre					
39	ME07.02	Industrial cans, 4 litre +					
40	ME12.02	Vehicle parts					Spark plugs, wheel rims
41	MI03.02	Construction materials					Fencing wire, electrical wiring, fencing wires, electrical wires, nails, screws, staples, wires, wire mesh, barbed wire, bolts, nuts, waratah, rivet, bearing, tools
42	ME08	Metal pieces/fragments					
43	ME12	Metal, other (specify)					Coins, sparklers, bullets, bullet shells, stationery items, key ring, key, ring, jewellery, button, watch, thumbtack, drawing pin, push pin, twist ties

Class	Litter Code	Material type/class and subcatergory/form	Count	Weight	Brand/s (with count)	Description	Key Words
MISC							
44	MI01.01	Clothing, towels & linen					Bracelets, fashion accessories, clothing tags, socks, duvet, pillow, underwear, panties, pants, jersey, polyester, polypropylene, buttons, clips, buckles, clothing, hats, gloves, masks, towels
45	MI01.02	Footwear					
46	MI01.03	Cloth, other (specify)					Rags, leather, dog collars, velcro, vinyl, poyester/dacron stuffing
47	MI02	Condoms					
48	MI04	Nappies - disposable					
49	MI05	Sanitary products					Tampons, tampon applicators, tissues, toilet paper, liners, pads, wet wipes
50	MI10.08	Personal care items					Hair ties, hair brush, hairbrush, hair brushes, hairbrushes, combs, toothbrushes, nail file, emery board, hair clip, hair pin, bobby pin,
51	MI10.09	Cosmetics & medical items (non plastic)					Bandages, plasters, sports tape, cotton buds, q-tips
52	MI10.03	Face masks - disposable					Disposable masks
53	MI10.02	Gloves - disposable					Rubber gloves, latex gloves
54	MI07	Syringes					Hypodermic needles
55	MI10.01	Gum					
56	MI06	Ice cream sticks					
57	MI10.04	Cutlery (non plastic)					Bamboo & wooden chopsticks, toothpicks, knife, knives, forks, spoons, stirrers. Excluding plastic cutlery
58	MI10.05	Corks (non plastic)					Excluding plastic corks
59	MI08.01	Tyres (whole)					
41	MI03.02	Construction materials					Fencing wire, electrical wiring, fencing wires, electrical wires, nails, screws, staples, wires, wire mesh, barbed wire, bolts, nuts, waratah, rivet, bearing, tools

Class	Litter Code	Material type/class and subcatergory/form	Count	Weight	Brand/s (with count)	Description	Key Words
MISC							
60	MI08.02	Tyre pieces					
61	MI09	Rubber pieces (not tyres)					
62	MI09.01	Rubber bands					
63	MI09.02	Rubber inner tubes & rubber sheets					
64	MI10.07	Sports & recreation/toys					Party poppers, sunglasses, goggles, dive masks, balls, golf clubs, raquets, fake flowers, beads, garland, fake leaves, wreath, lei, lego, tinsel, decorations, balloons
65	MI10.06	Batteries					Household batteries, vehicle batteries
66	MI10.10	Small appliances/electronics					All appliance/electronic items smaller than a microwave (otherwise classed as illegal dumping), plugs, electric cords, phones
67	MI03	Construction materials					Bricks, cement, pipes, concrete, asphalt, rubber plumbling seals/rings, Processed timber & pallet crates, particle board, fence post, tanalised, MDF, custom wood, insulation (excluding polystyrene)
68	MI10	Misc., other (specify)					Items of worship
PAPER AND CARDBOARD							
69	PC01	Cartons, flavoured milk, <1 litre					
70	PC02	Cartons, flavoured milk, 1 litre +					
71	PC05	Cartons, milk, plain (white), all sizes					
72	PC08	Flav. water/fruit/sports drinks (non-carb.), <1 litre					
73	PC09	Flav. water/fruit/sports drinks (non-carb.), 1 litre +					
74	PC03	Cartons, fruit juice, <1 litre					
75	PC04	Cartons, fruit juice, 1 litre +					
76	PC19.03	Cartons, food & drink (other)					Custard, yoghurt, gravy, soup

Class	Litter Code	Material type/class and subcatergory/form	Count	Weight	Brand/s (with count)	Description	Key Words
PAPER AND CARDBOARD							
77	PC10	Ice cream wrappers					
78	PC17.01	Bread bag tags					
79	PC17.02	Lollipop sticks					
80	PC06	Cigarette packets					Tobacco pouches
81	PC20	Cups, food trays, food wrappers, takeaway containers & drink containers					(Excluding coffee cups), cup holder trays, fast food bags, paper straws
82	PC20.01	Takeaway coffee cups					Excluding compostable lids
83	PC19.01	Cardboard boxes					
84	PC11	Newspapers & magazines					
85	PC12	Junk mail/free circulars					
86	PC14	Paper bags					lunch bags, store carry bags. Excluding fast food bags
87	PC15	Shopper dockets & related shopping paper					
88	PC16	Tickets					Bus, ATM, parking or traffic infringement, vending, event tickets
89	PC21	Tubes for fireworks					
90	PC17.03	Unidentified paper fragments					
91	PC19.02	Unidentified cardboard fragments					
92	PC17	Paper/cardboard, other (specify)					Serviette, Napkin
PLASTIC							
93	PL27	Wine cask/bladders					
94	PL28.12	Cider/fruit based, etc.					
95	PL08	Flav. milk, <1 litre					
96	PL09	Flav. milk, 1 litre +					
97	PL26	White milk, all sizes					
98	PL10	Flav. water/fruit/sports drinks (non-carb.), <1 litre					
99	PL11	Flav. water/fruit/sports drinks (non-carb.), 1 litre +					

Class	Litter Code	Material type/class and subcatergory/form	Count	Weight	Brand/s (with count)	Description	Key Words
PLASTIC							
100	PL12	Flav. water/soft drink (carbonated), <1 litre					
101	PL13	Flav. water/soft drink (carbonated), 1 litre +					
102	PL14	Fruit juice, <1 litre					
103	PL15	Fruit juice, 1 litre +					
104	PL18	Plain water (carbonated or non-carb.), <1 litre					
105	PL19	Plain water (carbonated or non-carb.), 1 litre +					
106	PL04	Drink pouches					Yoghurt pouches, baby food pouches, fruit pulp pouches
107	PL20	Plastic bottle tops					Toothpaste caps, nozzles, tops, plastic corks
108	PL20.01	Bottle seals					
109	PL20.02	Bottle neck rings					Milk bottle rings, juice bottle rings, water bottle rings
110	PL05	Drink package rings, six pack rings & ring carriers					
111	PL01	Bags, heavier glossy type typically branded carry					40+ microns
112	PL07	Plastic bags, supermarket type light weight carry					< 40 microns, Produce bags, old style supermarket bags
113	PL17.01	Reusable bags					Branded tote bags, woven bags. recycled plastic bags
114	PL21	Snack bags & confectionary wrappers					Candy wrappers, muesli bars, lolly wrappers, chocolate wrappers, fruit sticker, family size packs, biscuit wrappers, biscuit trays
115	PL21.01	Ziplock/sandwich bags					
116	PL17	Sacks, sheeting & other bags					Tarpaulins, pallet wrap, weed matting, silage wrap, sacks, baleage wrap, haylage wrap
117	PL21.02	Ice cream wrappers					Ice block
118	PL02	Bread bag tags					

Class	Litter Code	Material type/class and subcatergory/form	Count	Weight	Brand/s (with count)	Description	Key Words
PLASTIC							
119	PL16	Lollipop sticks					
120	PL25	Takeaway containers & cups					Plastic takeaway trays, meat trays, plastic cups. Excluding coffee cups and compostable coffee lids
121	PL25.01	Coffee cup lids					Excluding compostable
122	PL22	Cutlery					Plastic chopsticks, toothpicks, knives, forks, spoons, stirrers. Excluding wooden & bamboo cutlery
123	PL23	Straws					
124	PL24	Styrene foam boxes & sheets					Packaging, bean bag beads, ploystyrene chillybins, meat & produce trays
125	PL24.01	Polystyrene insulation					
126	PL03.01	Containers, industrial e.g. oil, <2 litre					Petrol
127	PL03.02	Containers, industrial e.g. oil, 2 litre +					Petrol
128	PL06	Containers, domestic					Cleaning products
129	PL28.03	Cable/zip ties					Cable ties, zip ties
130	PL28.04	Clothes pegs					
131	PL28.05	Pens & stationery					Plastic pencils, glue sticks, binders, folders, laminating sheets, clips, vivids
132	PL28.06	Hangers & retail packaging					Retail packets, coat hangers, barcodes, tags, RFID tags, hooks, labels, silica pouches, gel sachets
133	PL28.07	Cosmetics & medical packaging					Inhalers, cosmetics, pill packets, condom wrappers, chapstick, shampoo, bottle, conditioner, sunblock, sunscreen sun block, sun screen, cream, lotion, toothpaste tube
134	PL28.08	Cotton buds					Cotton bud, ear buds, q tip

Class	Litter Code	Material type/class and subcatergory/form	Count	Weight	Brand/s (with count)	Description	Key Words
PLASTIC							
135	PL28.09	Strapping bands & tape					Packaging tape, insulation tape, packing tape, electrical tape, Sellotape, caution tape
136	PL28.10	Cigarette lighters					
137	PL28.11	Shotgun wadding & shells					
138	MI03.03	Construction materials					Road cones, safety mesh, barrier arms, plumbing, pipes, conduits, curtain hooks, tile spacers, sealant tubes, caulking, PVC, broom bristles, tubes, dustpan, builder's bog. Excluding polystyrene insulation.
139	PL28.01	Unidentifiable hard plastic fragments					
140	PL28.02	Unidentifiable soft plastic fragments					Plastic packet wrap, bubble wrap, clingfilm
141	PL28	Plastic, other (specify)					Castors, wheels, plastic funnel, corflute, signage, sign, property sign
ILLEGAL DUMPING							
142	ID01	Itemised description					

Thank You

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environment before
printing this document