MARCH 2018

KEEP NEW ZEALAND BEAUTIFUL

National Litter Behaviour Research

Keep New Zealand Beautiful (KNZB) commissioned Sunshine Yates Consulting (SYC) in association with Community Change (CC) to undertake this research. The content in this report is as it was written by Sunshine Yates in Draft 0.3 and distributed to KNZB on March 28 2018. The final report is due for distribution by 30 April 2018. All questions regarding this report are to be directed to Keep New Zealand Beautiful by emailing: info@knzb.org.nz.

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Executive Summary

This Littering Behaviour Study (LBS) was undertaken to provide a baseline on littering behaviour, and to better understand attitudes towards litter in New Zealand.

The project involved 32 days of observing people disposing of items, to bins or as litter, and interviewing the public about litter, in the Auckland, Wellington and Canterbury regions.

The results of this research show that New Zealand has a high score on the Disposal Behaviour Index (a score of 6 out of 7), indicating that binning greatly exceeds littering and appropriate bin use occurs most of the time. The highest score was in Wellington, a score of 7 - minimal littering with prominent and appropriate bin use. Auckland and Christchurch both had scores of 6.

New Zealand has a litter rate of 16%, which means that of all observations of disposal acts, 16% were littering while 84% of people did the right thing when disposing of items.

The items that were observed being disposed of most frequently (to a bin or as litter) were 'Takeaway packaging/ wrappers' (25% of items), followed by 'Cigarette and accessories' (cigarette butts) (23% of items).

The items most likely to be littered were cigarette butts. These account for 78% of all littered items nationally.

On average, a person walked 4.2 metres to use a bin, and the average distance between a litterer and a bin, when they littered, was 8.4 metres.

A survey was conducted with 765 people across the three regions. According to the survey, 66% of New Zealanders believe that people litter because they are lazy and don't care.

Respondents thought that the best way to stop people from littering would be by providing more bins (33%), or by providing more signage (21%).

Ninety-three per cent of survey respondents thought that it was very or extremely important that people did not litter, and 99% of respondents thought that it was very or extremely important that New Zealand maintain its Clean Green image.

There was limited awareness of litter prevention campaigns, with 74% of respondents not aware of any campaigns.

When survey respondents were asked when they had last littered, 13% admitted to having littered within the past week. When asked why they had littered, they said that they had littered either because there were no bins (27%) or because they are lazy, don't care, or were too busy (27%).

Of the people who were observed littering and were subsequently interviewed, 53% admitted to having littered. Forty-two per cent of the people who had been observed littering claimed to have never littered – all of these people had littered cigarette butts.

Of the people observed littering, 53% were male. A quarter of the people observed littering were aged between 25 and 34. A further 23% were aged between 35 and 44. Sixty-six per cent of those who self-reported having littered in the past week were in full or part-time employment. Education levels appeared to have limited influence on the likelihood of a person littering.

Compared to Australia in 2004, New Zealand has a higher DBI - 6 in New Zealand and 5 in Australia. In all cases the New Zealand results equal or exceed the Australian DBI levels in 2004 for comparison cities, and for most comparison site types, with the exception of Public buildings.

It is recommended that New Zealand's baseline DBI be championed as a success story across the country. New Zealanders are not frequent litterers and celebrating successes and recognising achievements as well as identifying opportunities for improvement should guide any national campaigns.

It is also recommended that cigarette butt disposal be a major focus of future litter awareness and littering behaviour change prevention campaigns. There is potential to impact smokers' disposal actions with a powerful, cigarette butt-focused litter prevention campaign.

1. Introduction

This Littering Behaviour Study (LBS) is a benchmarking project to measure and monitor littering behaviour in a variety of locations throughout New Zealand.

In September 2017, Keep New Zealand Beautiful Society Inc. (KNZB) commissioned Sunshine Yates Consulting Limited (SYCL) to undertake this project. The objectives of the project were to "Reveal insights and attitudes to litter amongst New Zealanders to inform future KNZB communications, programmes and interventions".

KNZB requested that the project achieve the following three goals:

1. To serve as a platform for the next generation of litter prevention activities
2. To develop a valid and reliable set of methodologies that will be replicated over time and in different locations
3. To use a multi-method approach, including both self-report and behavioural observations, in ways that allow for conclusions about litter at a national level.

A methodology that meets all of the above criteria had previously been developed and extensively trialled in Australia by the consultancy Community Change (CC).

SYCL entered into a Working Together agreement with CC to deliver on the project, and a licence to use the methodology was purchased from CC. CC were contracted to provide training and expertise in litter behaviour change, measurement, and evaluation.

The methodology used in the LBS – the Observational Approach (OA) – was used across Australia from 1997 to 2004 and forms the most valid and reliable research tool for tracking levels of littering behaviour throughout Australia. In Australia the LBS provided systematic monitoring of the effectiveness of a range of government and related agencies' anti-littering and pro-environmental initiatives in changing people's behaviour. As well as being used to assess littering behaviour, it also includes indicators of environmentally desirable behaviours such as binning. Behaviour is characterised using the Disposal Behaviour Index (DBI), developed as a categorical representation of both positive and negative behaviour.

The New Zealand OA research outlined in this project was undertaken using the same Australia methodology as a foundation, adapted through trials to suit the New Zealand context.

Fieldwork in New Zealand covered areas from the greater Auckland region, from Orewa to Pukekohe, as well as the Wellington region, including Porirua and Lower Hutt, in the North Island and Canterbury, including Christchurch, Rangiora, Oxford and Akaroa in the South Island.

The methodology includes the use of observations of people disposing of items of litter, and surveys with members of the public, some of whom were observed disposing of items. The methodology is focussed on the behaviour of New Zealanders in public places.

This project does not report on littering outside of public places, in public places that do not have litter bins, litter disposed of at night, or litter discarded from vehicles.

2. Methodology

2.1 Observational Approach

The LBS is based on an observational method that accurately reflects the many disposal actions executed by individuals in public places where:

- In the one location an individual person may engage in a variety of disposal behaviours (pocketing, littering, binning), potentially displaying each type of disposal action associated with a different item.
- Littering is relatively rare, and most litter is the result of the behaviour of a comparatively small proportion of people in a location. Observers are trained to be vigilant and scan the entire location while recording data to ensure that the low frequency behaviour is accurately captured.

A naturalistic approach to behaviour measurement - the Observational Approach (OA) - is used to gather information by recording details of disposal behaviour in public places as it happens. The overall aim of the OA is to provide a systematic and direct method of measuring behaviour in the actual context in which it occurs. In the LBS, data collection teams use recording instruments capable of distinguishing hundreds of combinations of variables related to public place disposal behaviour.

The Observational Approach can be used in a variety of locations to gather details on disposal behaviour as it really happens. It reduces some of the variability associated with measures that count litter on the ground which are influenced by factors like weather, frequency of cleaning and uses of a site over time. It also attempts to control some of the social desirability and subjectivity associated with reliance on self-report measures alone.

The OA team consists of two people, one an observer and the other an interviewer. Observers are trained in ethnographic data gathering techniques and the inconspicuous observation of people as they dispose of items in public. They are trained to be aware and to try to control their own stereotypes or biases. Observers are taught to become part of the situation and to follow research and sampling protocols aimed at maximising objectivity while recording actions as they occur.

After observing someone completing a disposal behaviour either by littering or using a bin, observers direct the interviewer to that person using their cell phone (and headphones). Interviewers are not told about the person's disposal behaviour in order to reduce any potential bias when they approach the person and during the survey.

Interviewers administer a standard survey to gather information on people's awareness of their own behaviour, as well as their attitudes about litter, anti-littering measures, and other waste minimisation initiatives designed for public places. Where possible, survey responses are linked to behavioural observations of the individual in order to examine the connection between what people said 'they did' and how they 'actually' behaved. A major asset of the OA is its ability to control some of the social desirability associated with self-report surveys and other judgements about littering behaviour.

The OA is intended to gather information to help understand current attitudes and disposal behaviours without impacting or influencing the characteristics of a location or site type.

Using the OA, benchmarks of littering behaviour are collected in a consistent and standardised way in a variety of site types located within a city or town. Target sites include public areas where people congregate. In the LBS a 'core' grouping of sites is assessed to provide comparability between cities and towns and to enable assessments on return visits to provide time series information about disposal behaviour in the same location over time to update the national benchmark.

Core sites can be identified for most cities and towns and are defined in Appendix 1. Each type of site is also studied to identify the characteristic disposal behaviours shown by people using those sites across NZ.

The OA is based on gathering information from sites where people congregate, to allow for observations of disposal activities, consequently domestic neighbourhoods, rural areas and disposal activities (littering) from vehicles have not been included in the New Zealand benchmark study.

For reasons of Health and Safety and practicality, observations and interviews are only undertaken in daylight hours.

2.2 Disposal Behaviour

Collecting observational information in exactly the same manner enables the Disposal Behaviour Index (DBI) levels for the same site type to be compared under different conditions. Once sufficient numbers of observations have been made in a site type, information representing the disposal behaviours typical of that site type can be interpreted.

Similarly, the combination of 'core' site type data enables a picture of the overall health of disposal behaviours in different geographical centres and across New Zealand.

The DBI level for a site is a numerical representation of environmentally undesirable behaviours, such as littering, as well as the positive behaviours, such as bin use, that occur in a site. Table 1 summarises the descriptions of disposal behaviours typically found at each of seven levels of the DBI.

Table 1 - Disposal Behaviour Index

	DBI Level	Description of Disposal Behaviours in a Site for Each Level of DBI
1	Low	Little use of bins, clear majority of people littering. Area is a litter "hot spot" requiring urgent attention and a priority for clean-up.
2	Base	High proportion of people littering with base level of bin use. Prompt action is required to bring litter rates down and to increase binning.
3	High Base	Binning is greater than littering. Action is needed to create opportunities for effective binning and to reduce littering expected behaviours.
4	Mid Range	Bins used twice as much as people litter but there is potential for improved behaviour as littering can be reduced and bin use improved.
5	High Mid	Sites where people clearly were doing the right thing but where littering or inappropriate use of bins remains an issue to be addressed.
6	High	Binning greatly exceeds littering and appropriate bin use occurs most of the time. Minimal action required to recover resources to prevent litter and keep places clean.
7	Peak	Minimal littering with prominent and appropriate bin use and good potential to recover resources. Little maintenance required for keeping area clean and largely litter free.

The higher the categorical level recorded for the DBI in a location, the more positive the behaviours - people litter less, use bins more, and place the right items into the correct bins. In contrast, the lower the DBI, the greater the amount of littering, and the lower the level of bin use for that site.

In sites with peak DBI levels, people seem to respond to the cleanliness of the location by taking more care with their disposal actions compared to other areas.

In contrast, low-level DBI scores are found in sites that are highly littered. Many people who typically do not litter may find themselves doing so in low DBI sites because they seem to get caught up in herd behaviour. Low-level DBI sites often become litter hot spots and appear to attract further littering. In these sites, immediate clean-up operations are required as a priority action.

A snapshot of community disposal behaviour is also provided by calculating the littering rate for a location or city. Where sufficient observations have been collected it provides a percentage score based on total positive and negative disposals observed. It shows how much littering occurs compared to bin use.

2.3 New Zealand fieldwork

The fieldwork was undertaken between 23 November and 13 December 2017, with 16 days of fieldwork undertaken by two separate teams, resulting in a total of 32 days of research. Each team comprised an observer, trained by CC, and an interviewer.

Seven days of fieldwork were undertaken in the greater Auckland region, from Orewa to Pukekohe, four days in the Wellington region, including Porirua and Lower Hutt, and five days in Canterbury, in Christchurch, Rangiora, Oxford, and Akaroa.

Each team worked eight hours per day, which included 45 to 50 minutes at a site, plus travel time between sites. On most days seven or eight sites were surveyed, depending on the travel time required to move between sites. On days where more travel was required, fewer sites were able to be surveyed. All fieldwork was undertaken between 7 am and 6 pm.

To maximise comparability of results, the sites where the observations and surveys were undertaken were selected to fit into one of seven core sites or one speciality site. These sites are listed in Table 2. A description of sites types is provided in Appendix 1. A full list of sites is provided in Appendix 2.

Speciality sites (Beaches) were not available in every city or regional site.

Table 2 - Site Types

Core Sites
Shopping Streets
Parks
Transport Hubs
Public Buildings
Public Squares
Markets
Waterfronts
Speciality Sites
Beaches

2.4 Maori perspective

Para Kore is an organisation with a kaupapa based on whakapapa to Papatūānuku". Para Kore have a skilled and experienced team who work regionally to deliver the Para Kore programme to marae and Māori communities. The Para Kore whānau are passionate about, and committed to, achieving zero waste Aotearoa.

Before the fieldwork began for this project, consultation was undertaken with Para Kore to determine whether there were potential links between this project and the work of Para Kore.

At this time, litter is not a key element of Para Kore's programmes, though there is potential for litter education to become more prominent in their educational programmes in the future. Litter fits within the key concepts that are used in the rest of their education – concepts of Kaitiakitanga. Para Kore provides inspirational educational materials, such as posters and signage, in Maori, encouraging positive disposal behaviours. There is potential for educational materials to be developed by Para Kore to include litter prevention messaging.

While it was decided not to target sites that were considered to be specifically Maori sites, as this study does not include any analysis of cultural differences, two sites of significance to Maori were selected, in case these were of interest for future Maori-centric research. The summit of the volcanoes Maungawhau and Maungakiekie, in Auckland, were included in the fieldwork. There were too few observations at these two sites to allow for the data to be analysed separately. A minimum of 30 observations are required at a location or site type to provide robust indicators.

3. Results

Over the 32 days of fieldwork, 1,705 disposal observations were made (that is, observers recorded over 1,700 items being disposed by people in public places either into bins or littered).

3.1 National DBI

New Zealand's national DBI score is calculated by combining all disposal observations from around the country, to generate a numerical representation summarising the environmentally undesirable behaviours such as littering as well as the positive behaviours such as bin use.

When all observations are combined, New Zealand's national DBI score is 6, which is a 'High' DBI score. This means that overall, at all surveyed sites combined, "binning greatly exceeds littering and appropriate bin use occurs most of the time. Minimal action required to recover resources to prevent litter and keep places clean."

This indicates a very strong sense of people doing the right thing with used items and an indication of a very high level of environmental awareness and responsibility in relation to disposal of used items.

3.2 Regional DBI

Research was undertaken in the Auckland, Wellington and Canterbury regions. In each of these regions observations were undertaken at core sites within the main cities (Auckland, Wellington and Christchurch) and at a small sample of locations outside of the main cities. These other locations included a mixture of location types, from smaller cities (Porirua, Lower Hutt), to towns (Akaroa, Rangiora, Oxford, Pukekohe, Orewa). These locations were selected to represent potential differences in disposal actions outside of major city settings and all are located within easy driving distance to the main cities to increase data gathering efficiency.

Figure 1, provides the DBI for each region, all locations combined.

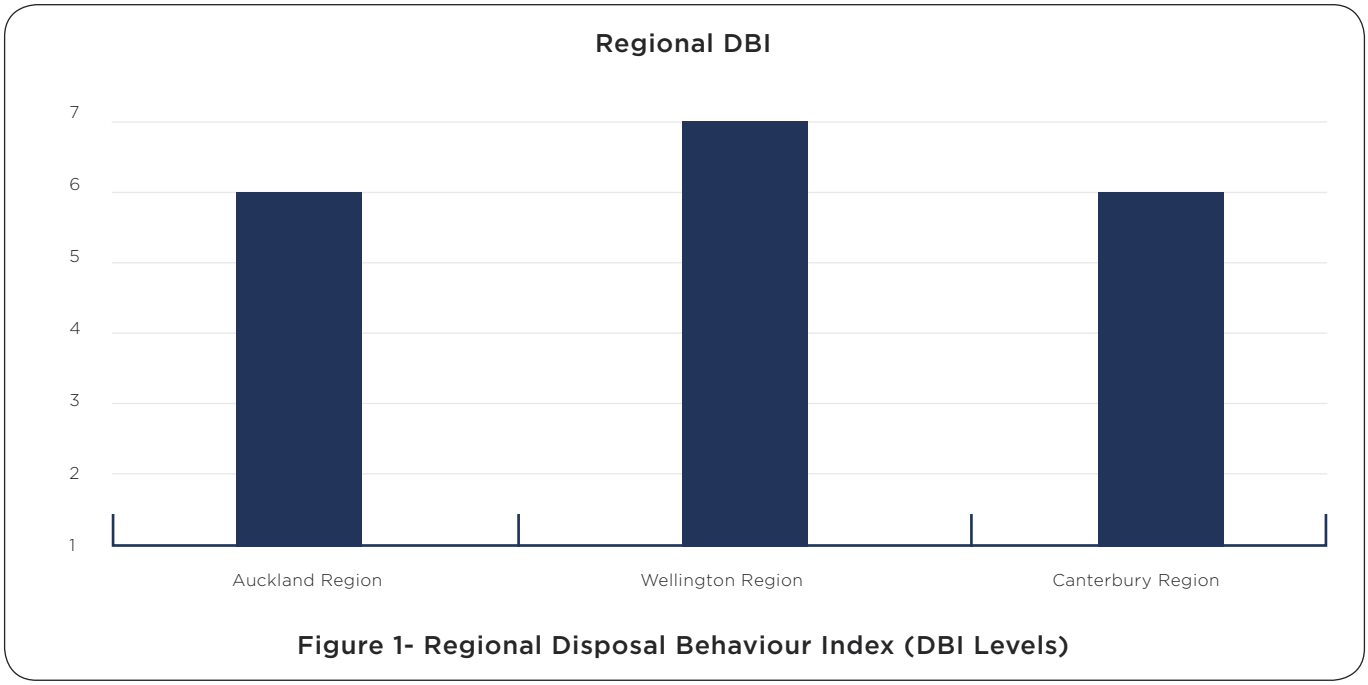


Figure 1- Regional Disposal Behaviour Index (DBI Levels)

Wellington has a top result with a score of 7 (Peak score: Minimal littering with prominent and appropriate bin use and good potential to recover resources. Little maintenance required for keeping area clean and largely litter free).

Auckland and Canterbury both score 6 on the Disposal Behaviour Index (High score: Binning greatly exceeds littering and appropriate bin use occurs most of the time. Minimal action required to recover resources to prevent litter and keep places clean).

There is insufficient data from each of the locations outside of Auckland, Wellington and Christchurch to calculate a DBI for each individually. However, when the data from the locations are combined, regionally, a 'regional centre' DBI, can be calculated. These DBI are presented in Figure 2, alongside the DBI for each city (excluding 'regional centre' data). This provides a comparison of DBI in cities and in surrounding locations.

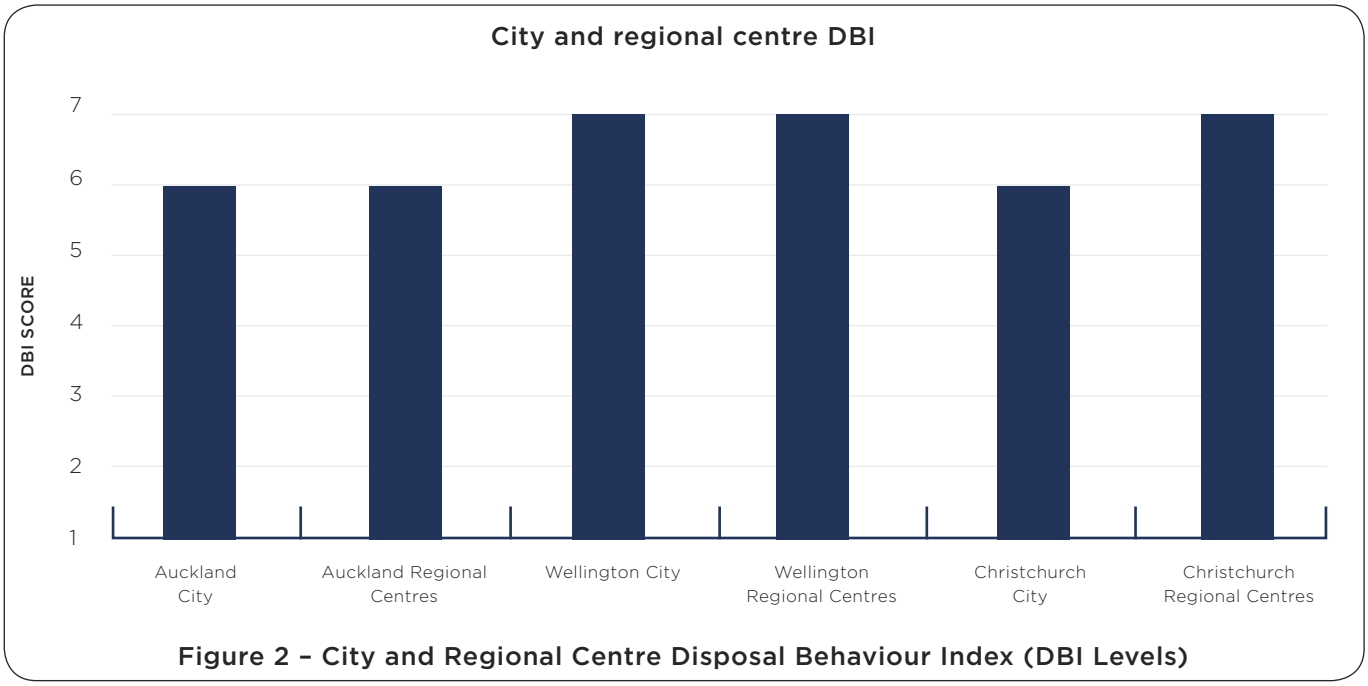


Figure 2 – City and Regional Centre Disposal Behaviour Index (DBI Levels)

The highest DBI level was found in Wellington city, the Wellington regional centres and the Canterbury regional centres. There was consistency for Auckland city and the associated regional areas where the DBI was at a very high level but below that of Wellington. Christchurch city had the same DBI as Auckland.

3.3 Site Types

AO information was collected at different types of sites in each region. Most data were collected in the seven core site types and where possible in one special site type.

The DBI results for core site types for the country as a whole are presented in Figure 3.

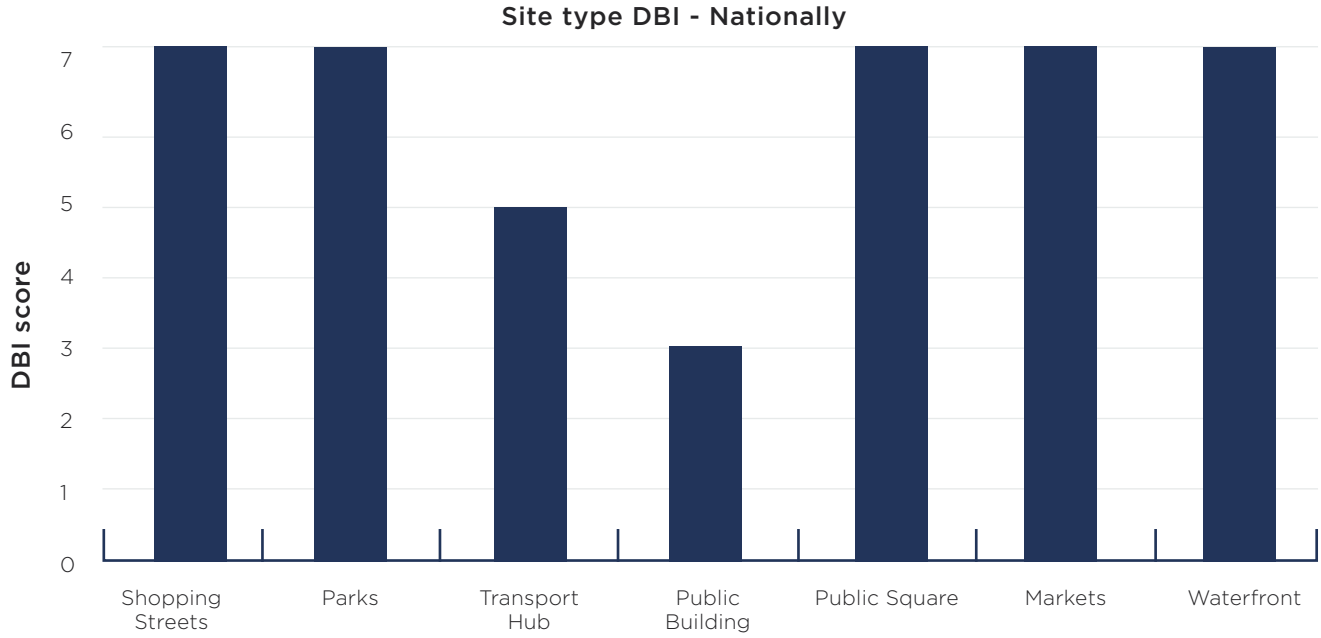


Figure 3 – Site Type Disposal Behaviour Index (DBI Levels) - Nationally

Five of the seven core site types score 7 on the DBI index (Peak score: Minimal littering with prominent and appropriate bin use and good potential to recover resources. Little maintenance required for clean and largely litter free area). This shows in many of the different sites in New Zealand people are doing the right thing consistently with used items.

Outcomes for the two remaining site types were less consistent and indicate that some areas require further investigation to bring disposal actions up to the same standard as shown elsewhere.

Transport hubs score 5 (High-mid score: Sites where people clearly were doing the right thing but where littering or inappropriate use of bins remains an issue to be addressed).

Public buildings scored 3 (High-base score: Binning is greater than littering. Action is needed to create opportunities for effective binning and to reduce littering expected behaviours). It is of concern that these community buildings and assets were associated with the higher rates of littering in many locations around the country.

There were insufficient disposal observations at all combined special site types (beaches) to calculate a DBI score (a minimal sample of 30 observations is required).

The following sections present the site type results per region.

3.3.1 Auckland region site types

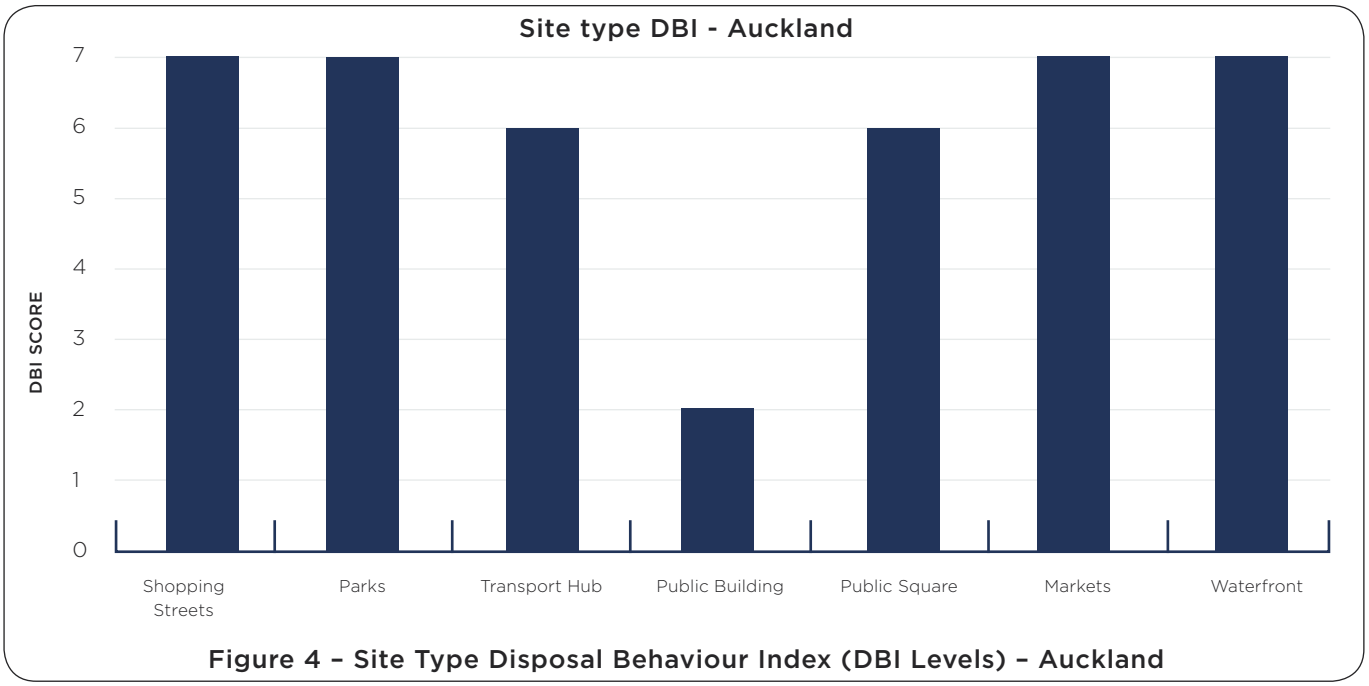


Figure 4 – Site Type Disposal Behaviour Index (DBI Levels) – Auckland

In Auckland four of the site types have a DBI of 7 (Peak score: Minimal littering with prominent and appropriate bin use and good potential to recover resources. Little maintenance required for clean and largely litter free area).

Public squares and Transport hubs have a DBI score of 6 (High score: Binning greatly exceeds littering and appropriate bin use occurs most of the time. Minimal action required to recover resources to prevent litter and keep places clean).

Public buildings have a DBI of 2 (Base score: High proportion of people littering with base level of bin use. Prompt action is required to bring litter rates down and to increase binning). Public buildings in Auckland included public libraries, public pools, district courts, and hospitals.

There were insufficient disposal observations at beaches in Auckland to calculate a DBI score (a minimal sample of 30 observations is required).

3.3.2 Wellington region sites types

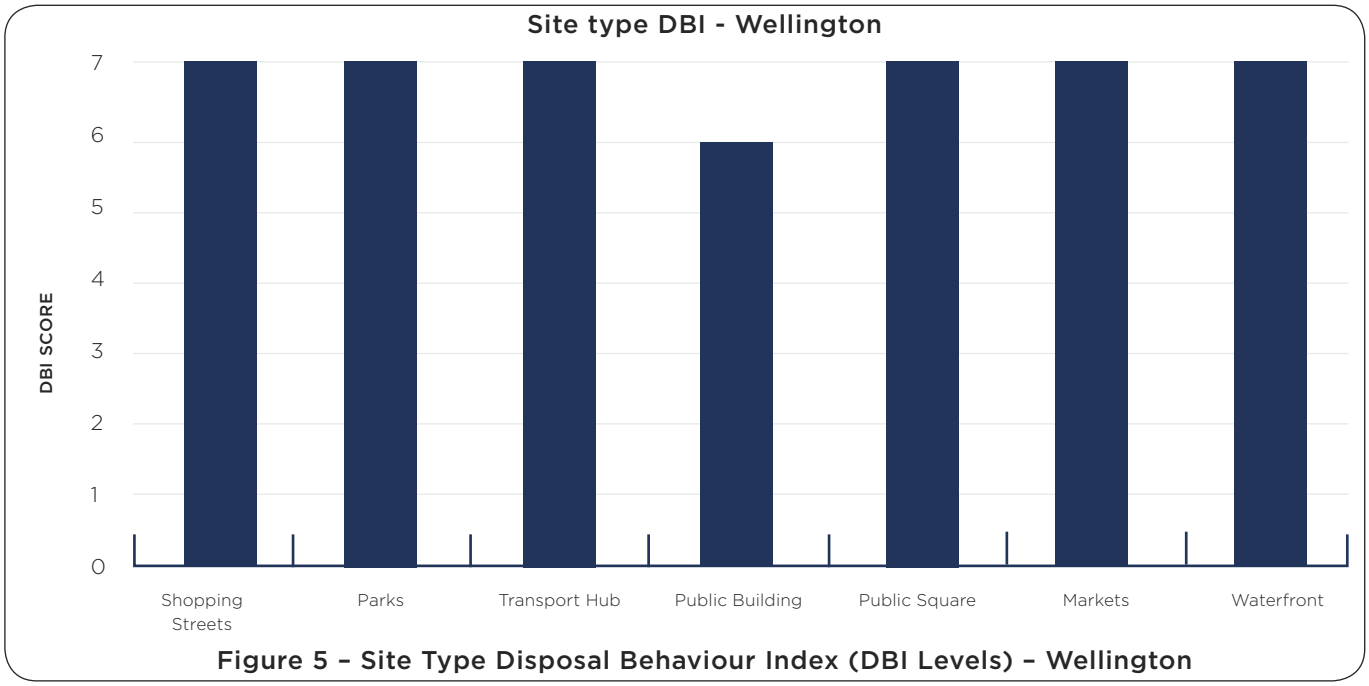


Figure 5 – Site Type Disposal Behaviour Index (DBI Levels) – Wellington

In Wellington, six sites had DBI scores of 7 (Peak score: Minimal littering with prominent and appropriate bin use and good potential to recover resources. Little maintenance is required in these areas for sustaining clean and largely litter free locations).

Public buildings in Wellington included libraries, galleries, hospitals, Wellington Zoo, and the Beehive and had a DBI of 6 (High score: Binning greatly exceeds littering and appropriate bin use occurs most of the time. Minimal action required to recover resources to prevent litter and keep places clean).

There were insufficient disposal observations at beaches in Wellington to calculate a DBI score (a minimal sample of 30 observations is required).

3.3.3 Canterbury region sites types

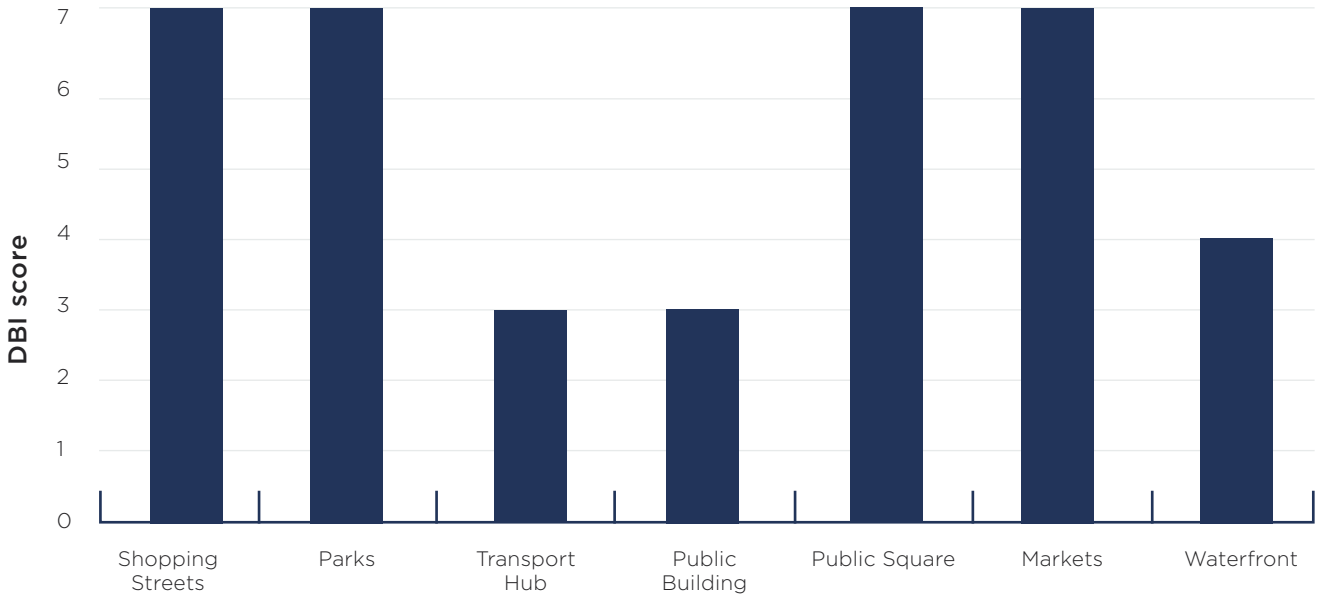


Figure 6 – Site Type Disposal Behaviour Index (DBI Levels) – Canterbury

In Canterbury there were substantial differences in outcomes for different core site types.

Four site types had a DBI of 7 (Peak score: Minimal littering with prominent and appropriate bin use and good potential to recover resources. Little maintenance required for clean and largely litter free area).

Waterfront sites included inner city sites adjacent to the Avon river, Akaroa wharf and New Brighton Pier that had a DBI of 4 (Mid-range score: Bins used twice as much as people litter but there is potential for improved behaviour as littering can be reduced and bin use improved).

Both Transport Hubs and Public buildings had a DBI of 3 (High base score: Binning is greater than littering. Action is needed to create opportunities for effective binning and to reduce littering expected behaviours).

The Transport hub sites included an inner-city bus exchange and a large suburban bus stop in the suburb of Linwood.

The Public buildings included museums, galleries, and libraries.

There were insufficient disposal observations at beaches in Canterbury to calculate a DBI score (a minimal sample of 30 observations is required).

3.4 Litter rate

Litter rates are provided in Table 3,, for each city and for the regional centres in each region. Litter rates are calculated as a percentage of the observed disposal acts that were littering.

Nationally, the litter rate was 16% - of all observations of disposal acts, 16% were littering while 84% of people did the right thing when disposing of items.

Table 3 - Litter rates for each region

Locations	Litter Rate
Auckland City	18%
Auckland Regional Centres	19%
Wellington City	9%
Wellington Regional Centres	13%
Christchurch City	22%
Canterbury Regional Centres	8%
Nationally	**16%**

The lowest litter rate (8% litter rate) was in the Canterbury regional centres (Akaroa, Rangiora and Oxford). This was followed closely by Wellington city (9% litter rate). The highest litter rate was in Christchurch city (22% litter rate). Auckland's city and regional rates were 18% and 19% respectively.

The litter rate includes unintentional acts of littering, where an item is dropped my mistake, and unnoticed, or where, for example, a serviette blows away while a parent has their attention on their children.

New Zealand has a very low baseline level of littering in this first national study of littering behaviour. Based on this data the expectation is for the country to be relatively litter free and clean. Litter in public places is likely be the result of a range of factors, from a small percentage of people who do litter, to people who only litter in the evening (potentially once alcohol and/or a group mentality or herd behaviour is involved), to litter being disposed of from cars, blowing out of bins, being disposed of beside full bins, and litter potentially caused by waste and recycling collections.

Of the 16% of disposal acts that were littering, nationally, 78% were of cigarette butts. Only 4% of the 1,705 disposal acts observed during the research were littering of something other than a cigarette butt.

Of all of the cigarette butts observed being disposed of during the project:

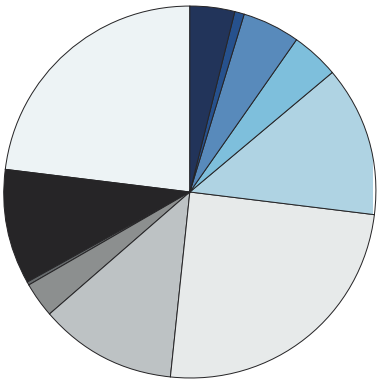
3.5 Items most likely to be disposed

Each time a person in a location was observed in a disposal act, the observer would record the type of item that was disposed and the associated disposal action. In 84% of observed disposal acts, the item was binned.

Nationally, the items disposed of most frequently, to a bin or as litter, were 'Takeaway packaging/ wrappers' (25% of items), followed by 'Cigarette and accessories' (cigarette butts) (23% of items). Figure 7 shows which items were most likely to be disposed of around New Zealand.

Take-away coffee cups were categorised as 'Glass/ cup/ plate' and accounted for most of the items in that category. 'Beverage containers' included glass and plastic bottles and aluminium cans.

Items disposed of nationally



Paper **4%** Chewing Gum **1%** Food **5%** Other **4%**
Beverage Container **13%** Takeaway Packaging, Wrapper **25%**
Glass/Cup/Plate **12%** Utensil **3%** Lid **0.2%**
Accessories (serviette,straw) **10%** Cigarette & Accessory **23%**

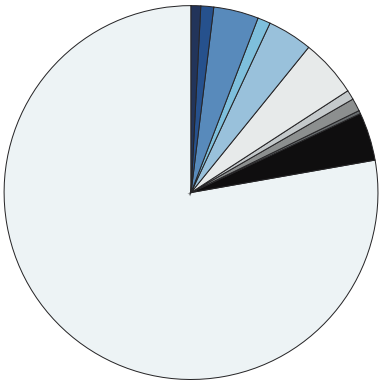
Figure 7 – Items observed being disposed of (to a bin or as litter)

3.6 Items most likely to be littered

An analysis of the types of items that were littered is provided, in Figures 8 to 11, for New Zealand overall, and for each region, all site types.

The item most likely to be littered nationally, and in each region, is cigarette butts ('Cigarettes and accessories'). These account for 78% of all items littered nationally.

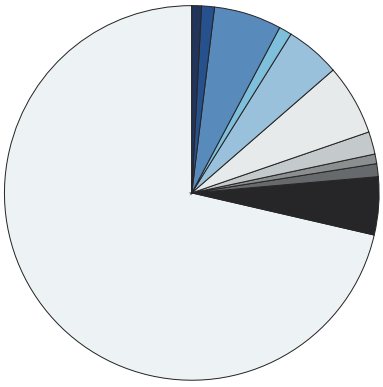
Items Littered - Nationally



Paper **1%** Chewing Gum **1%** Food **4%** Other **1%**
Beverage Container **4%** Takeaway Packaging, Wrapper **5%**
Glass/Cup/Plate **1%** Utensil **1%** Lid **0.4%**
Accessories (serviette,straw) **4%** Cigarette & Accessory **78%**

Figure 8 – Items littered nationally

Items Littered in Auckland



Paper **1%** Chewing Gum **1%** Food **6%** Other **1%**
Beverage Container **5%** Takeaway Packaging, Wrapper **6%**
Glass/Cup/Plate **2%** Utensil **1%** Lid **1%**
Accessories (serviette,straw) **5%** Cigarette & Accessory **72%**

Figure 9 – Items littered in Auckland

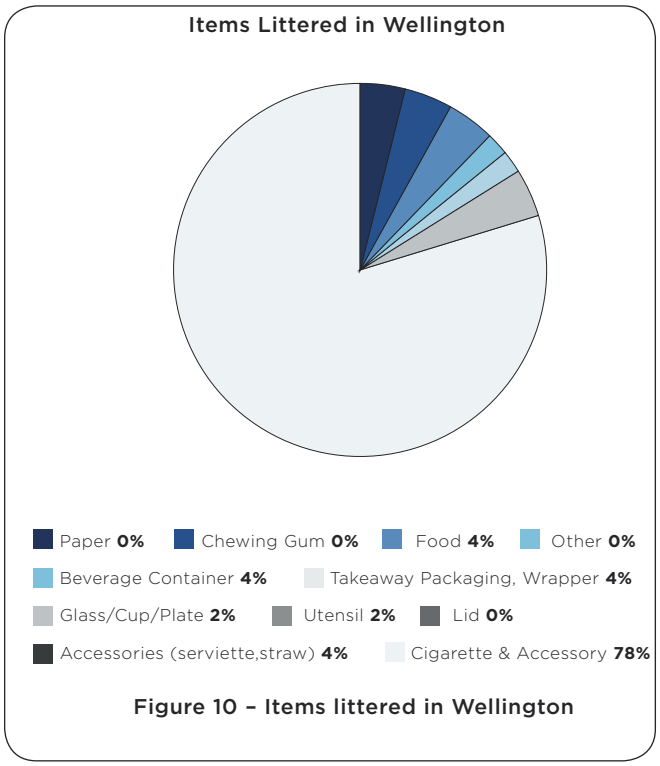


Figure 10 – Items littered in Wellington

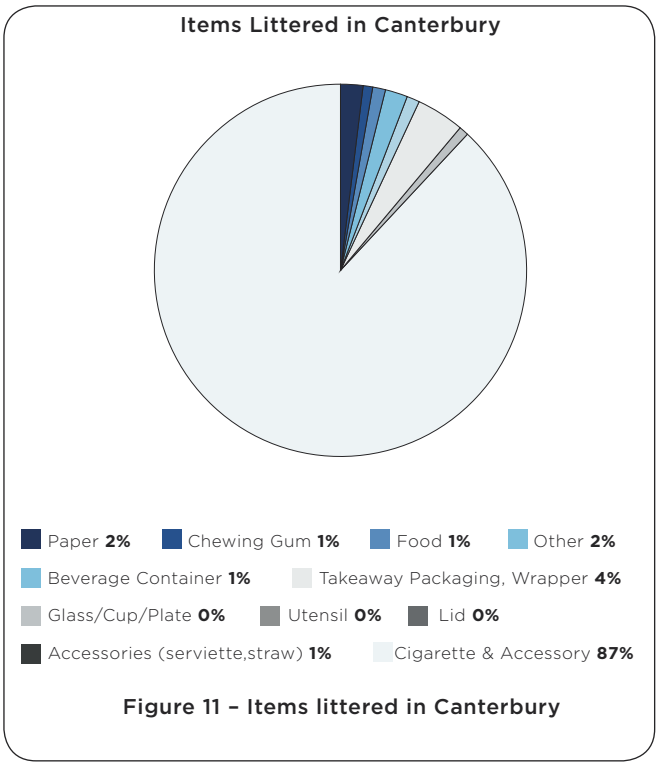


Figure 11 – Items littered in Canterbury

'Cigarettes' were the most commonly littered item in each region, accounting for 78% of items observed being littered nationally.

The second most common item to be littered was 'Takeaway packaging and wrappers', accounting for 5% of all littered items nationally.

An analysis of items littered by site type is provided in Figures 12 to 18. Beaches have not been included as there was only one observation of a littering act on a beach (a cigarette butt).

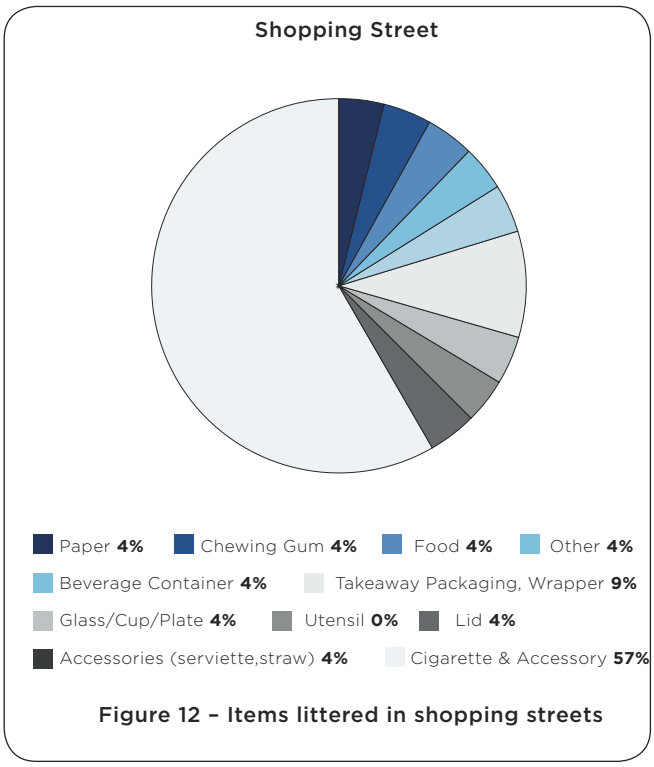


Figure 12 – Items littered in shopping streets

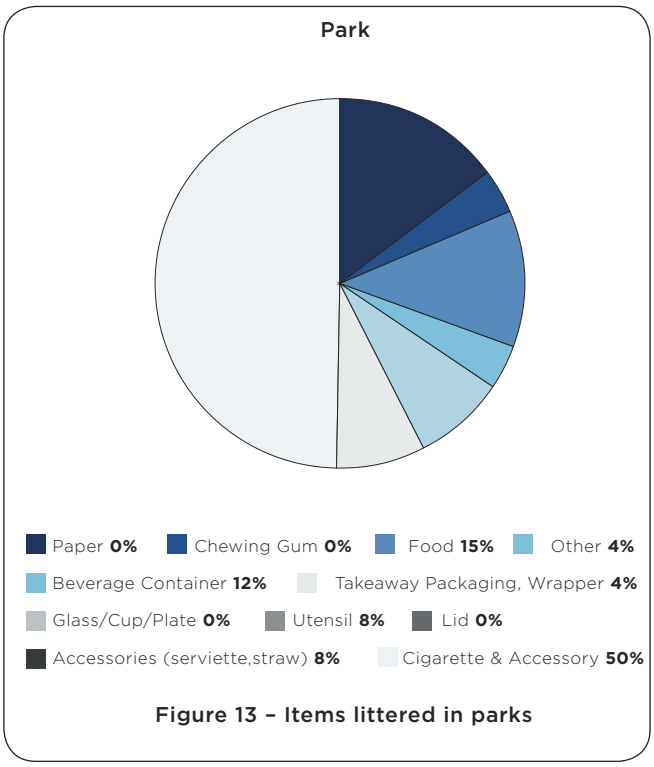
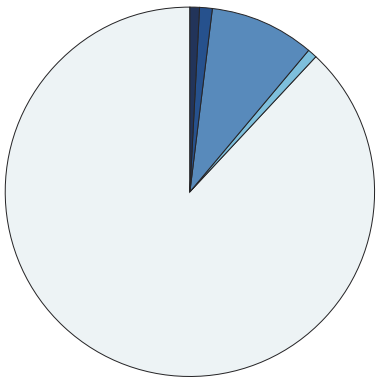


Figure 13 – Items littered in parks

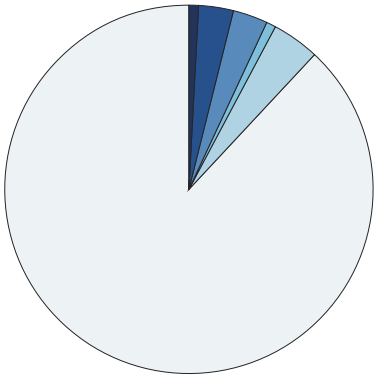
Transport hub



Paper **0%** Chewing Gum **1%** Food **0%** Other **1%**
Beverage Container **0%** Takeaway Packaging, Wrapper **9%**
Glass/Cup/Plate **0%** Utensil **0%** Lid **0%**
Accessories (serviette,straw) **1%** Cigarette & Accessory **87%**

Figure 14 - Items littered in transport hubs

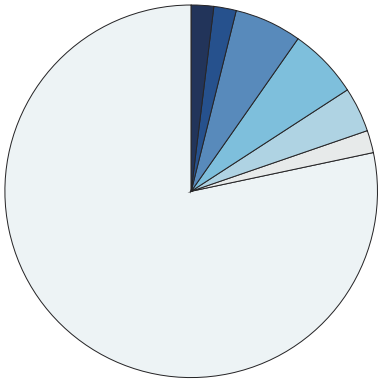
Public Building



Paper **1%** Chewing Gum **0%** Food **3%** Other **0%**
Beverage Container **3%** Takeaway Packaging, Wrapper **1%**
Glass/Cup/Plate **0%** Utensil **0%** Lid **0%**
Accessories (serviette,straw) **4%** Cigarette & Accessory **88%**

Figure 15 Items littered in public buildings

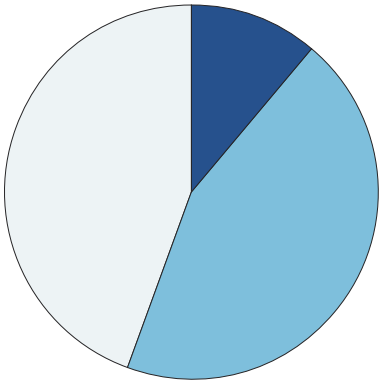
Public Square



Paper **2%** Chewing Gum **0%** Food **0%** Other **2%**
Beverage Container **6%** Takeaway Packaging, Wrapper **6%**
Glass/Cup/Plate **4%** Utensil **0%** Lid **0%**
Accessories (serviette,straw) **2%** Cigarette & Accessory **79%**

Figure 16 - Items littered in public squares

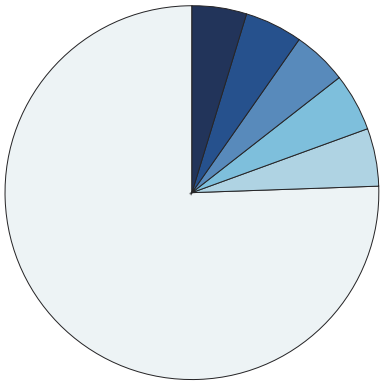
Markets



Paper **0%** Chewing Gum **0%** Food **44%** Other **0%**
Beverage Container **0%** Takeaway Packaging, Wrapper **0%**
Glass/Cup/Plate **0%** Utensil **0%** Lid **0%**
Accessories (serviette,straw) **11%** Cigarette & Accessory **44%**

Figure 17 - Items littered in markets

Waterfront



Paper **0%** Chewing Gum **0%** Food **5%** Other **0%**
Beverage Container **5%** Takeaway Packaging, Wrapper **5%**
Glass/Cup/Plate **5%** Utensil **0%** Lid **0%**
Accessories (serviette,straw) **5%** Cigarette & Accessory **77%**

Figure 18 - Items littered in waterfront areas

'Cigarettes and accessories' was the largest category of littered items at all sites, except for markets, where it was the highest equal (with 'Food').

The differences in littering behaviour associated with site types reflect the major activities of people in the locations.

3.7 Littered versus binned

The following Figure 19, provides a national overview for each type of item disposed of, and indicates the ratio of bin use relative to littering.

Overall, cigarettes were the only item that was more likely to be littered rather than being binned.

There were slight variations in the disposal of items in each region. The following Figures 20 to 22 provide an overview of the disposal patterns observed in each region, across all sites.

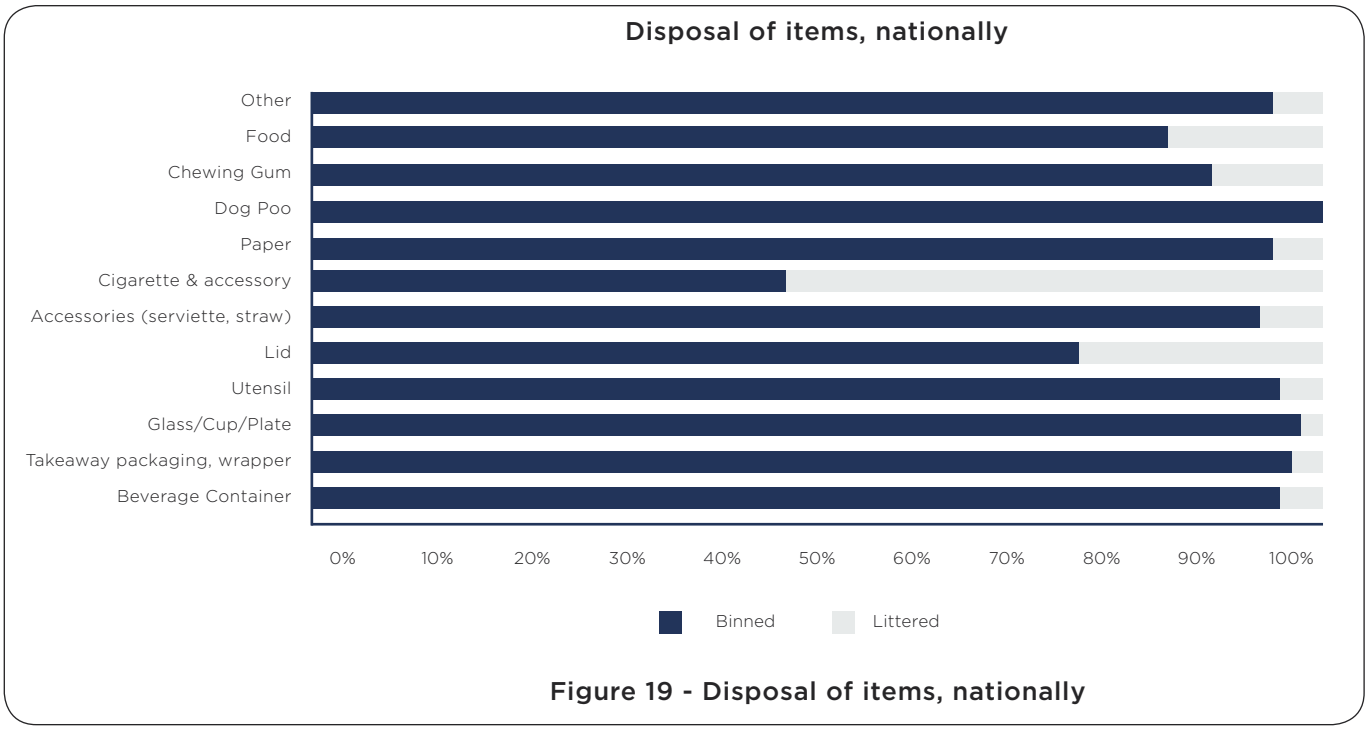


Figure 19 - Disposal of items, nationally

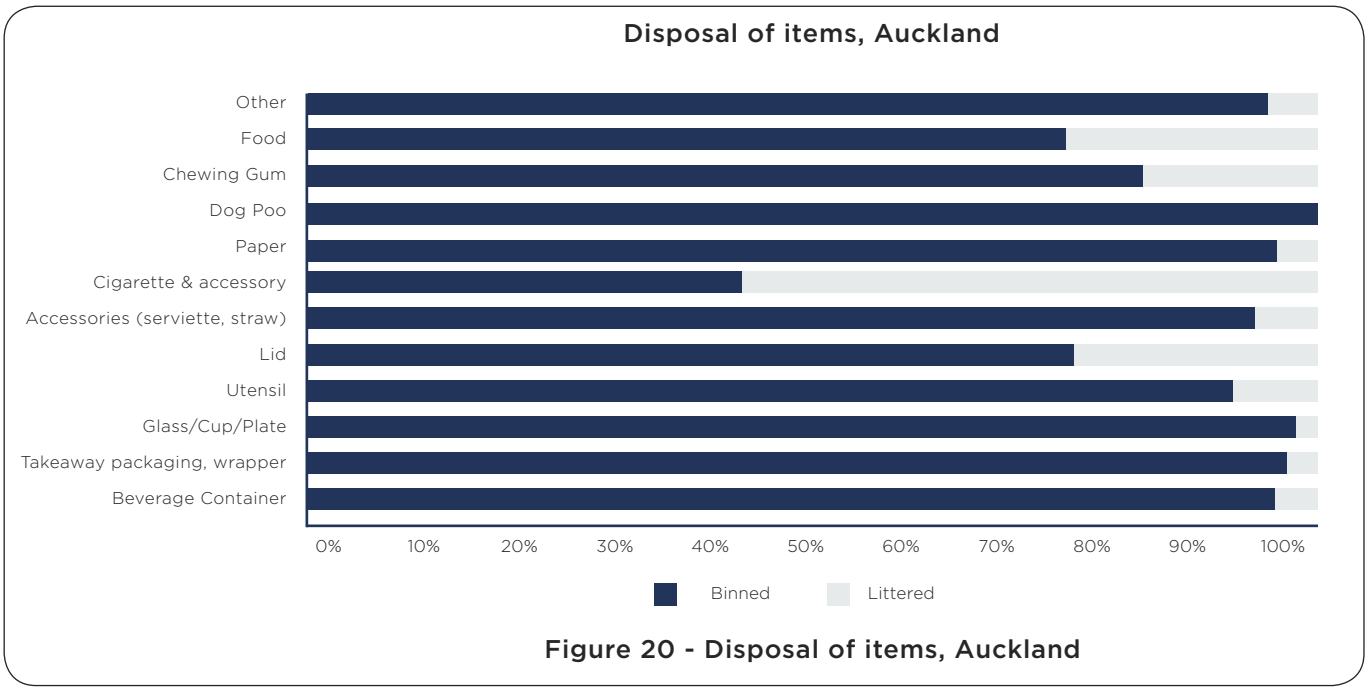


Figure 20 - Disposal of items, Auckland

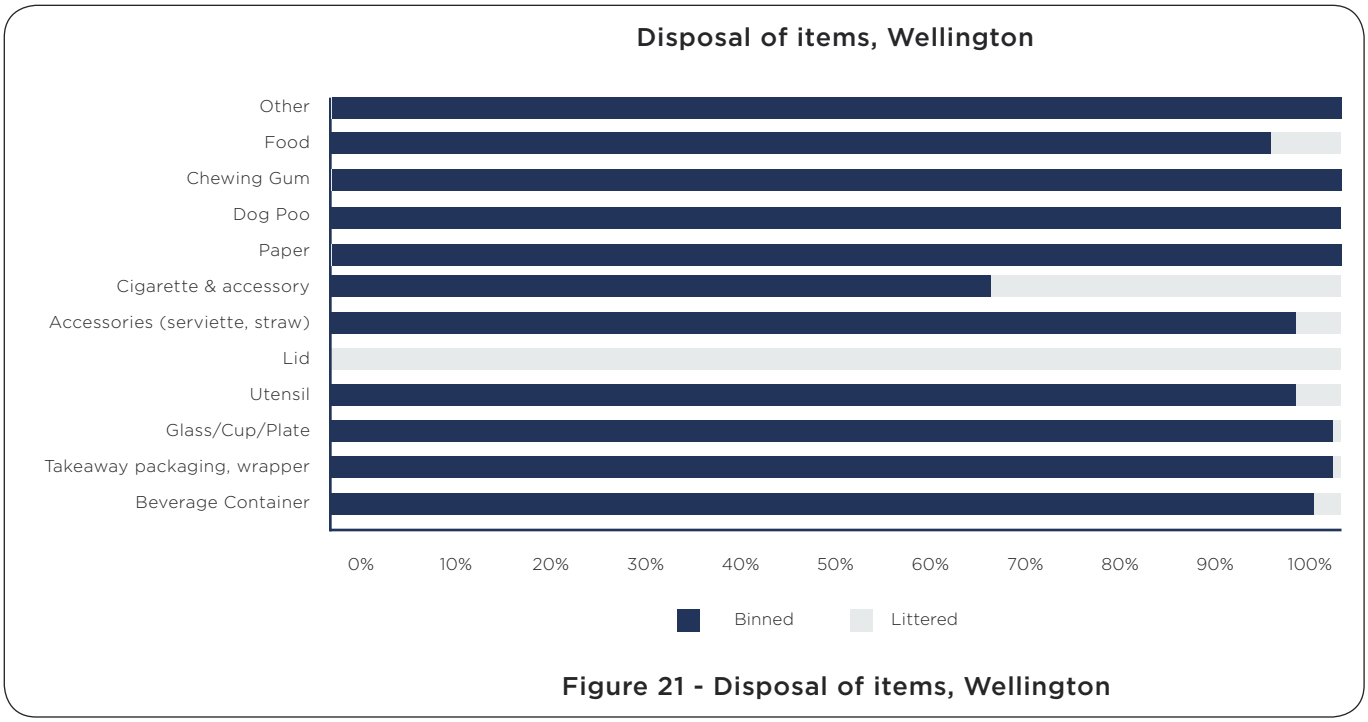


Figure 21 - Disposal of items, Wellington

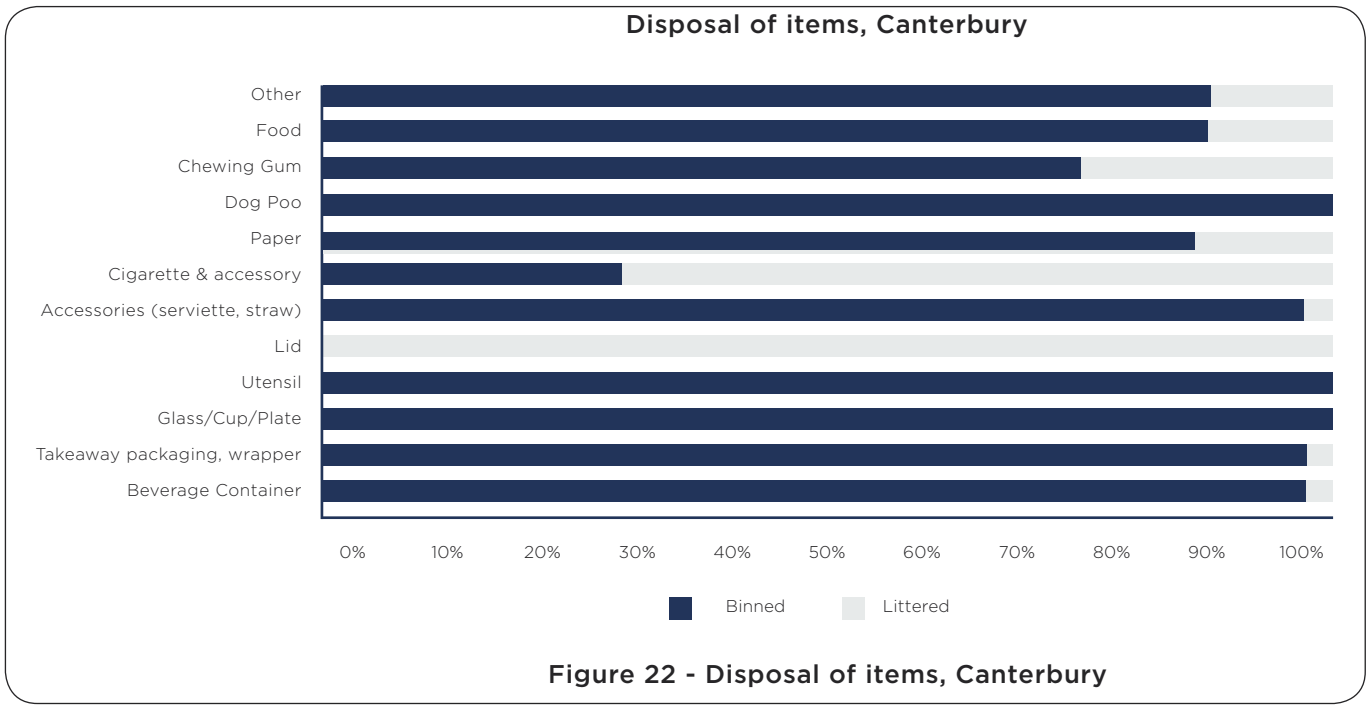
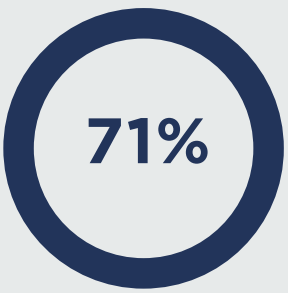


Figure 22 - Disposal of items, Canterbury

- In Auckland, 59% of cigarette butts observed being disposed were littered.
- In Wellington 39% of cigarette butts observed being disposed were litttered.

In Canterbury



of cigarette butts observed being disposed of were littered.

3.8 Bin distances

Each time a person was observed disposing of an item to a bin, the distance they walked to reach the bin was recorded. When they disposed of an item to a bin as they walked past the bin, this was recorded as 0.5 metres.

When a person was observed littering, the distance to the closest bin was recorded.

On average, the distance travelled by a bin user to use the bin was 4.2 metres. This includes many occasions when people dispose of items as they walk past a bin, thus reducing the average. The average distance walked by a bin user when they were not walking past a bin, was 8.1 metres.

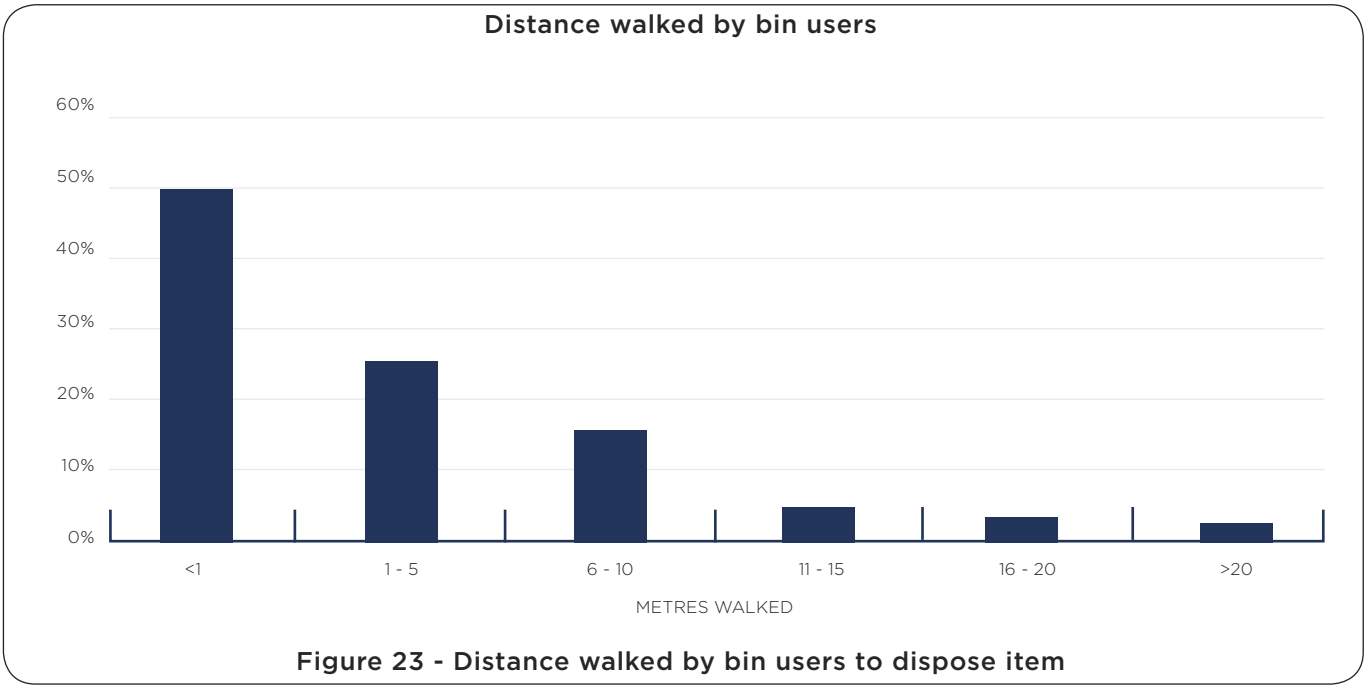


Figure 23 - Distance walked by bin users to dispose item

The average distance between a litterer and a bin, when they littered an item, was 8.4 metres. As shown in Figure 24, 44% of litterers were within 5 metres of a bin when they littered.

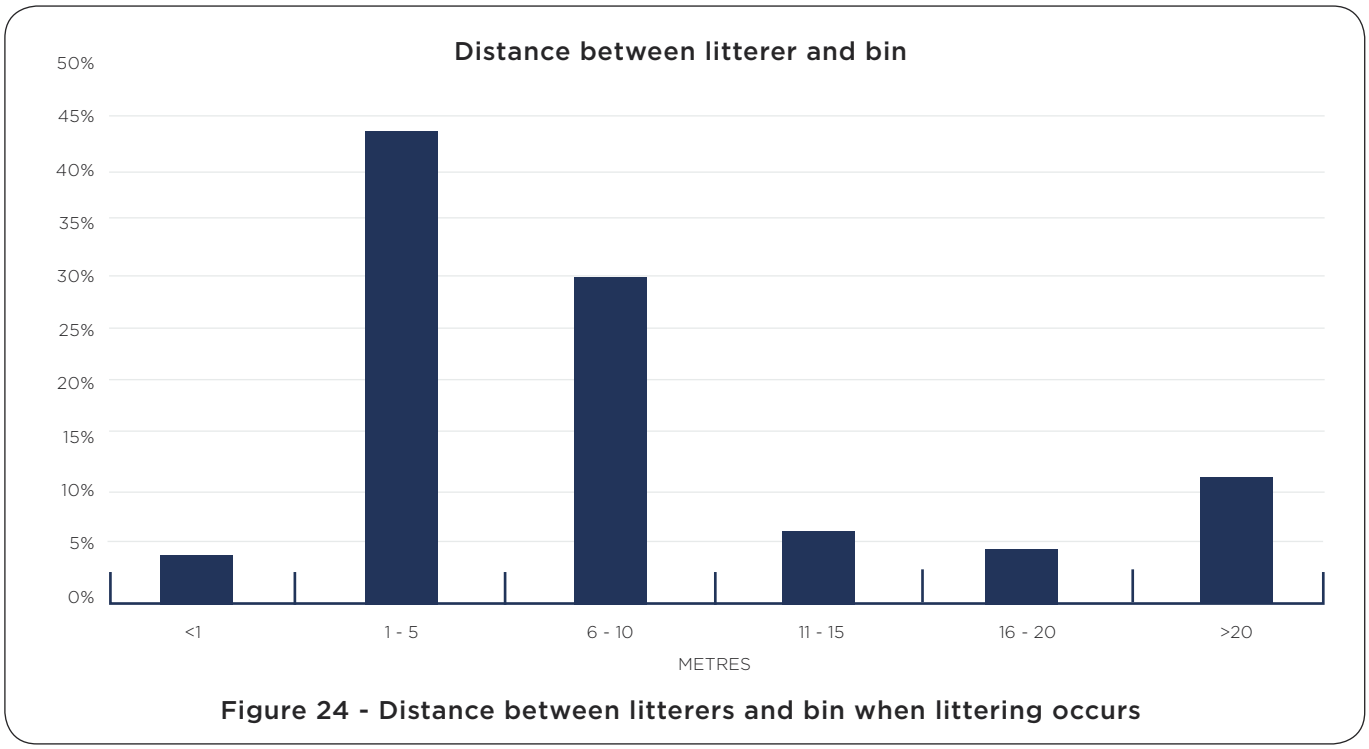


Figure 24 - Distance between litterers and bin when littering occurs

3.9 Attitudes and disposal behaviour

While the observer was watching people dispose of items, the interviewer surveyed people. Surveys were undertaken with general members of the public, who were observed binning or littering items, as well as, with members of the public who were not seen disposing of items.

The observer would direct the interviewer to a person who had been witnessed completing a disposal behaviour either by littering or using a bin, using their phone (and headphones). Interviewers were not told about the person's disposal behaviour in order to reduce bias when they approach the person and during the survey.

It was not possible to interview all people who were observed disposing of an item. The interviewer was often already part-way through an interview when the observer witnessed a new disposal act. Sometimes a person who disposed of an item left the area immediately, before the surveyor could reach them, and some people refused to complete a survey. While the refusal rate was not measured, there did not appear to be a higher rate of refusal among those that had been observed littering.

The surveys gather data on people's attitudes towards litter, as well as providing the basis for an objective comparison between what people say they do with their litter in public places and what they actually do with it. The results enable comparison of the extent to which people are aware of their behaviour and the congruence of behaviour with their espoused attitudes.

Overall, 765 surveys were undertaken as part of this research, 269 (or 35%) of which were linked to an observation. The following sections provide an analysis of the survey answers, for all surveys, including the surveys of people observed disposing of an item, and people not observed disposing of an item.

All results are for New Zealand as a whole, unless otherwise specified.

3.10 Community opinions about litter

The survey started by asking respondents "What do you think gets littered in this area?"

The item most commonly stated as being littered in the area was 'Take-away packaging/food wrappers' (31% of responses), followed by 'Cigarettes and accessories' (18%) and 'Drink bottles' (15%).

This matches with the top three items observed being littered during the research.

The survey then asked respondents "Why do people litter here?"

Sixty-six per cent of respondents' put forward that people litter in that location because people are lazy or don't care. A further 19% of responses stated that it was because there was a lack of bins.

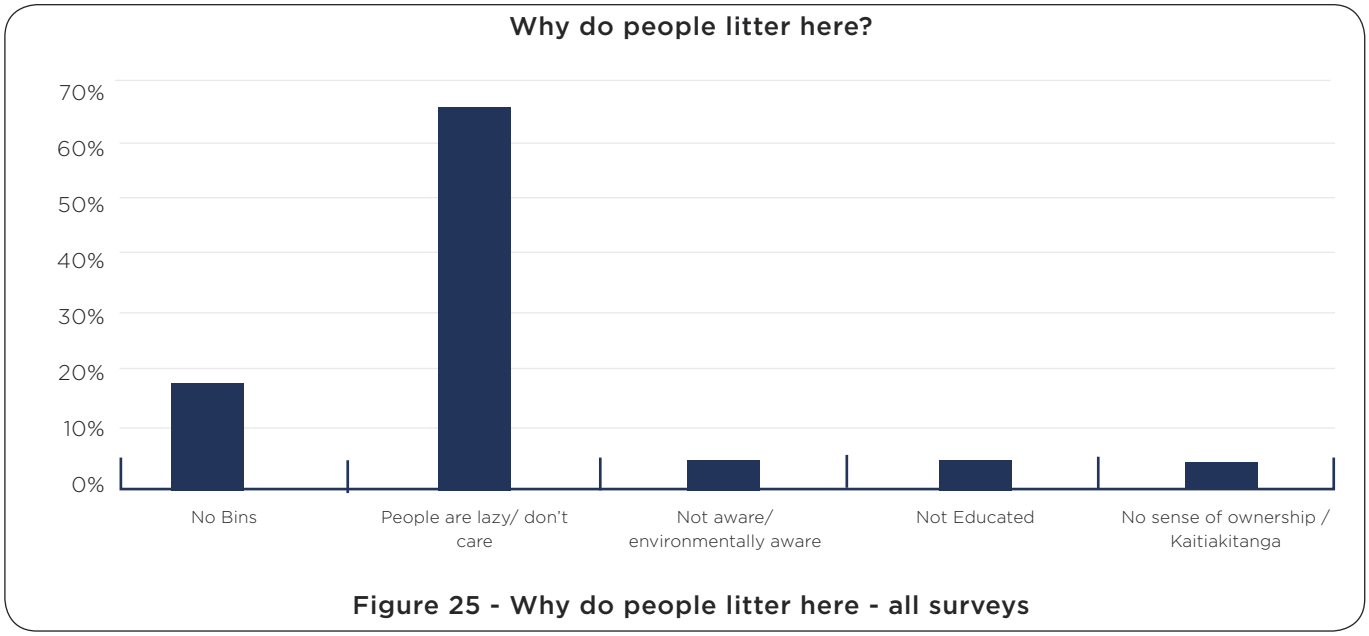


Figure 25 - Why do people litter here - all surveys

When respondents were asked "How would you stop people littering here?", answers were relatively evenly spread. Thirty-three per cent thought more bins were necessary, 21% suggested more signage, 16% suggested fines or other types of punitive measures, and 17% suggested education or advertising. A further 20% had other ideas, including having more visible bins, using social media, installing surveillance or monitoring, and telling people not to litter.

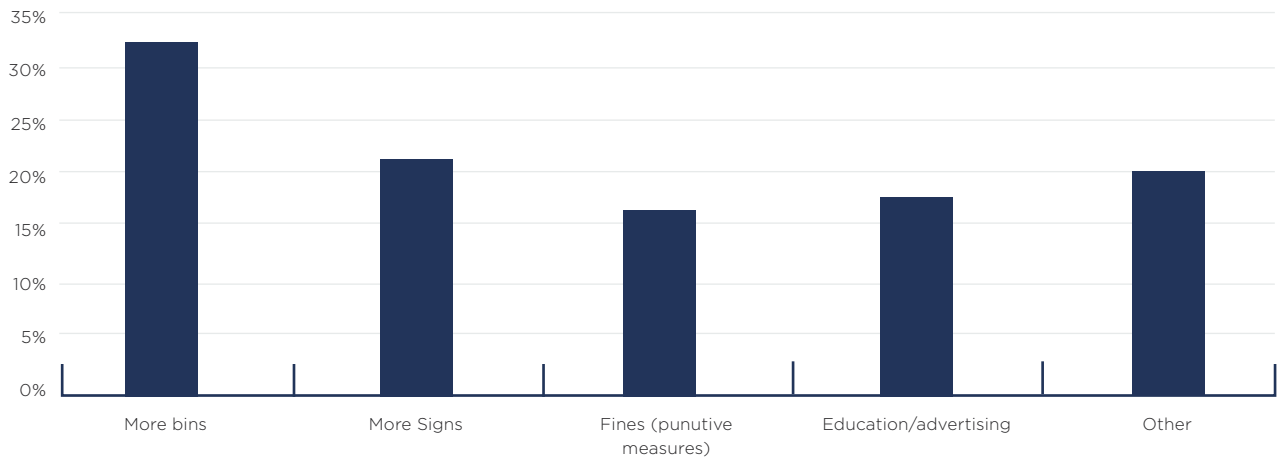


Figure 26 - How would you stop people littering here? All surveys

The survey asked respondents to rate three questions, on a scale of 1 to 5, where 1 is not at all important, 2 is slightly important, 3 is moderately important, 4 is very important, and 5 is extremely important.

These questions were:

"How important is it to you that:

1. This area is clean?
2. That people do not litter here?
3. That we maintain our Clean Green NZ image?"

When asked "How important is it to you that this area is clean", 72% of respondents indicated that it was extremely important, and a further 21% said it was very important.

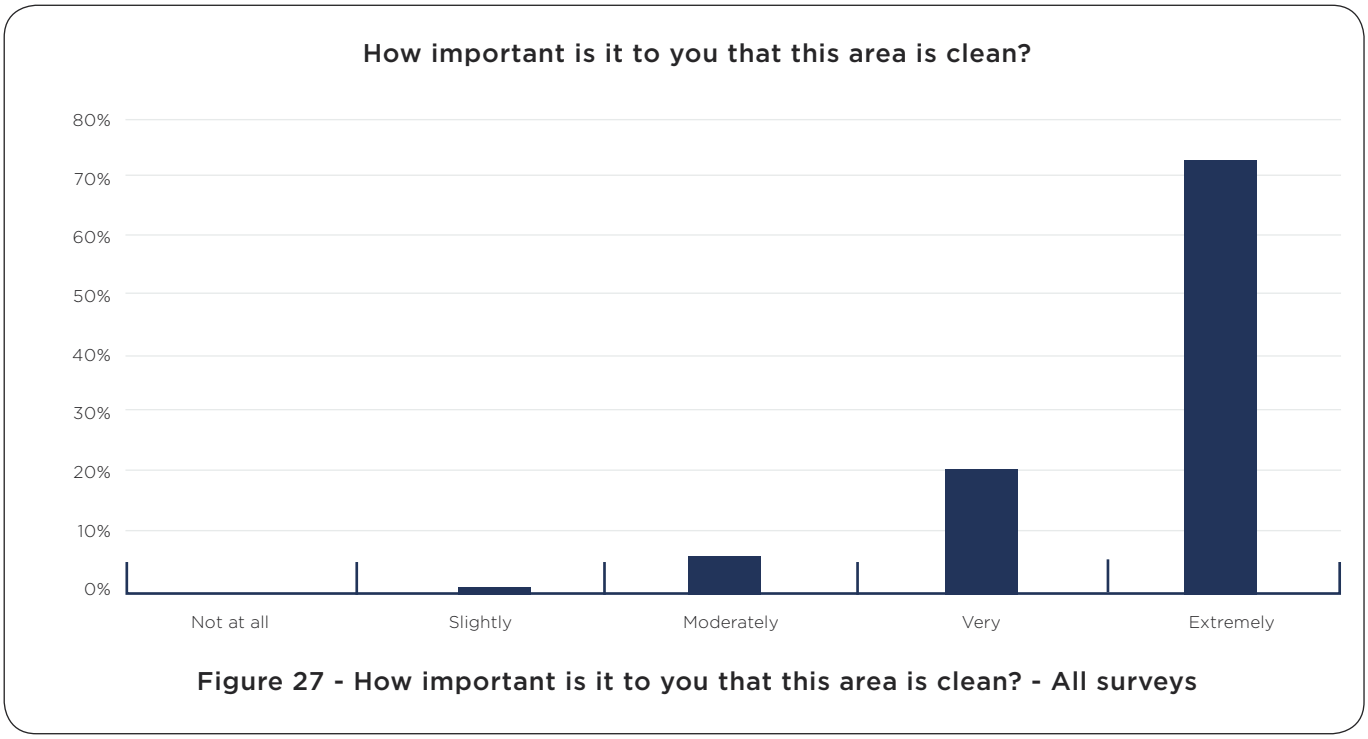
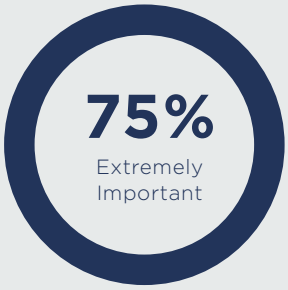


Figure 27 - How important is it to you that this area is clean? - All surveys

When respondents were asked how important it was to them that people do not litter here, 75% stated that it was extremely important, an 18% said it was very important.



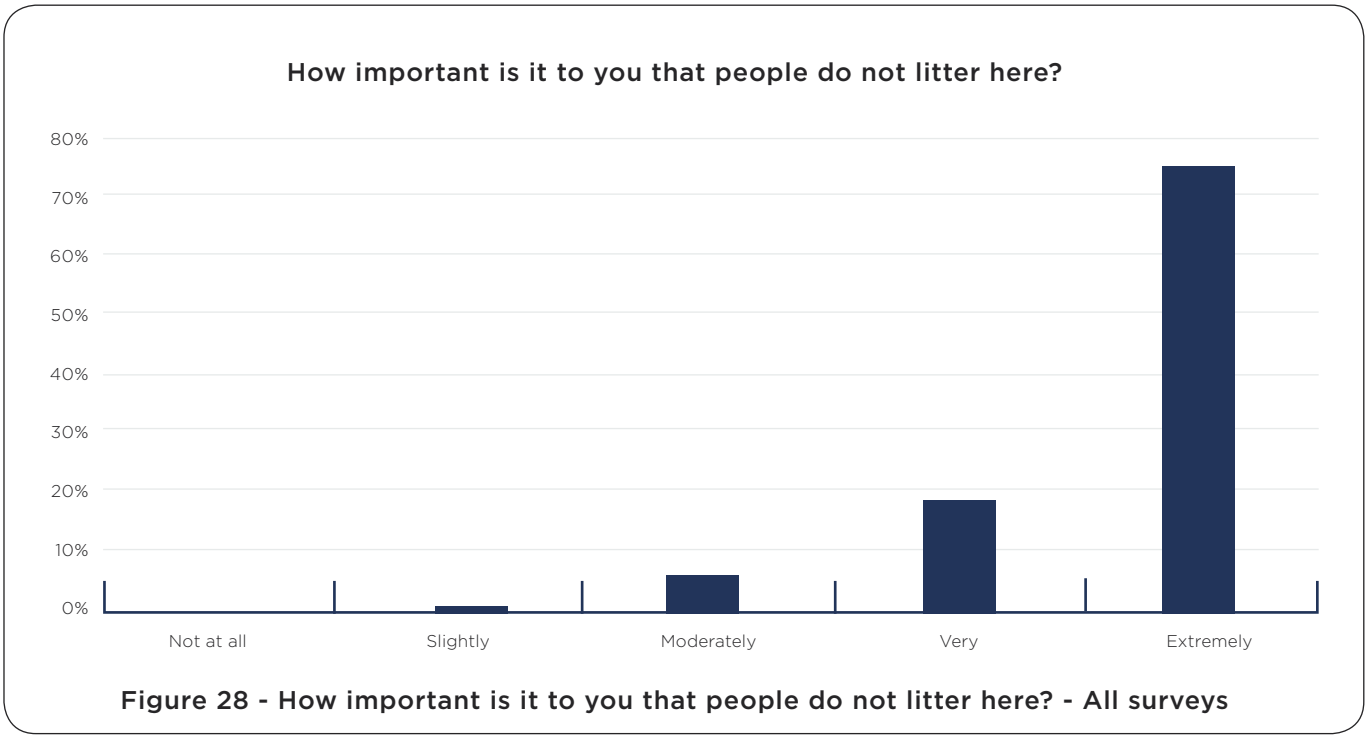


Figure 28 - How important is it to you that people do not litter here? - All surveys

Eighty-nine per cent of respondents thought that it was extremely important that we maintain our Clean Green NZ image, and further 10% thought it was very important.

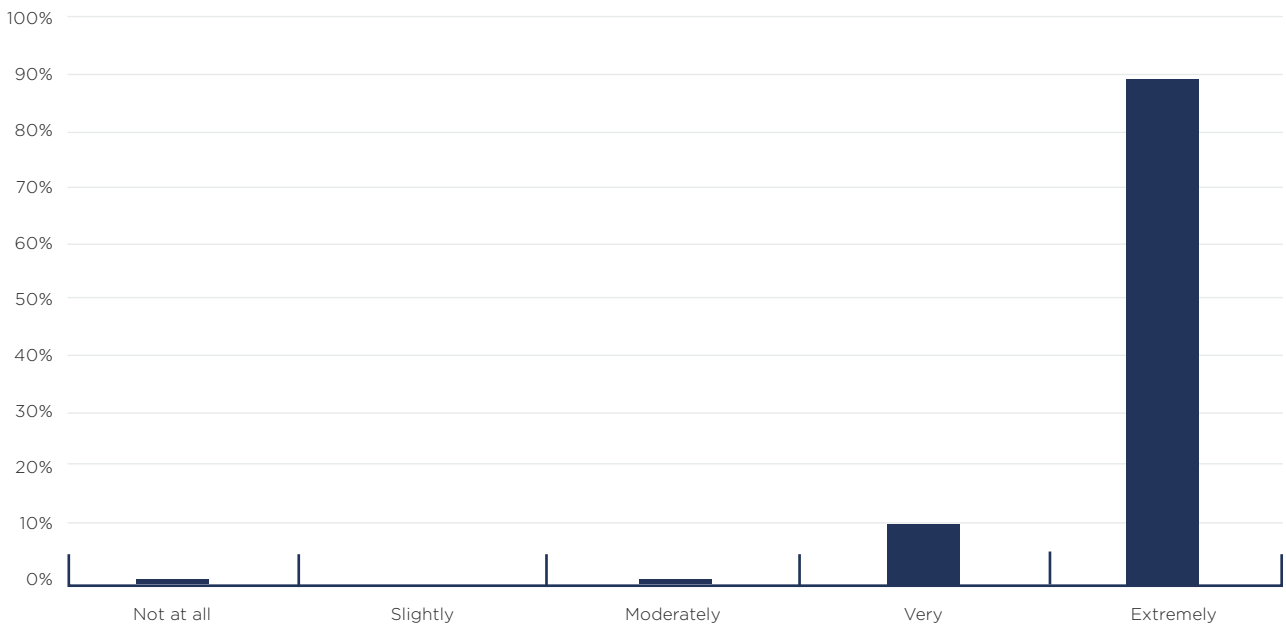


Figure 29 - How important is it to you that we maintain our Clean Green NZ image? - All surveys

When asked "If that bin was overflowing, would it be okay to put your rubbish next to it?", 70% of people said that it would not be okay. People who said it was okay often backed that up by saying that it was better than the alternative. Or that it was okay as long as it wasn't going to blow away.

Photo 1 - Example of a clean park with an overflowing bin

3.11 Community awareness of litter prevention campaigns

The survey asked respondents "What litter prevention campaigns are you aware of?" They were not prompted with possible answers.

Figure 30 provides an overview of the campaigns that were mentioned by the respondents. Some respondents mentioned more than one campaign.

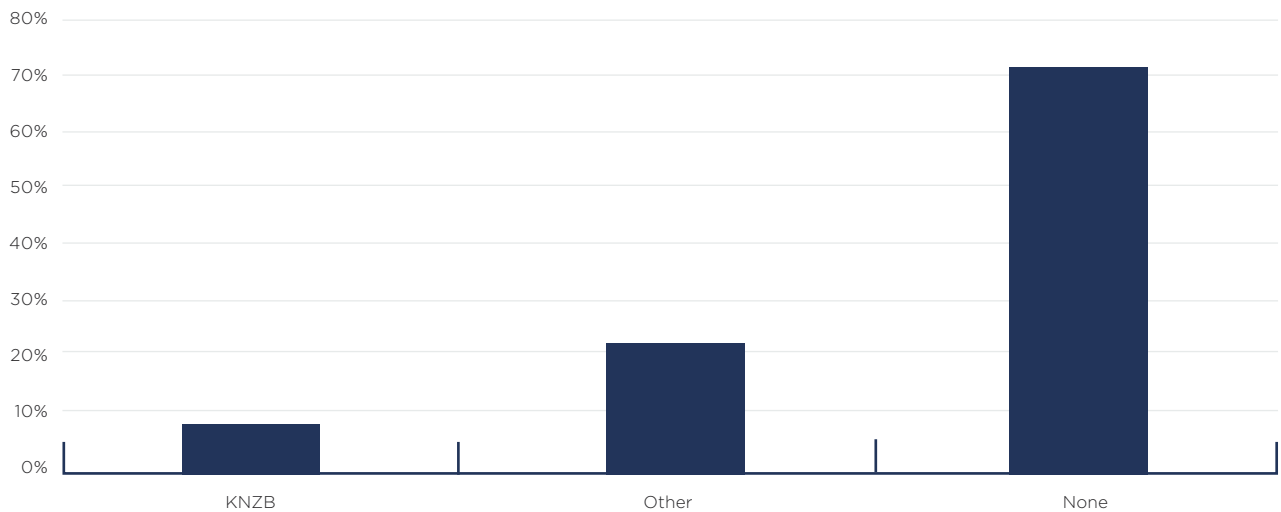


Figure 30 - What litter prevention campaigns are you aware of? - All survey

Seventy-one per cent of respondents were not aware of any litter prevention campaigns. Keep New Zealand Beautiful and Do the Right Thing were mentioned by 8% of respondents, a further 21% were classified as 'Other'. These respondents listed a variety of campaigns or organisations, including unspecified TV campaigns, plastic bag awareness, council campaigns, beach clean ups, DOC, Be A Tidy Kiwi, EnviroSchools, Greenpeace, Keep NZ Green, supermarket campaigns, ocean clean ups, Sea Shepherds, school projects and others.

3.12 Self-awareness and frankness about littering

3.12.1 All respondents

All survey respondents were asked "When was the last time you littered?". Six per cent of respondents said that they had littered today. A further 7% said that they had littered within the last week. Forty-five per cent of respondent claimed to have never littered, and 42% had not littered for 'ages'.

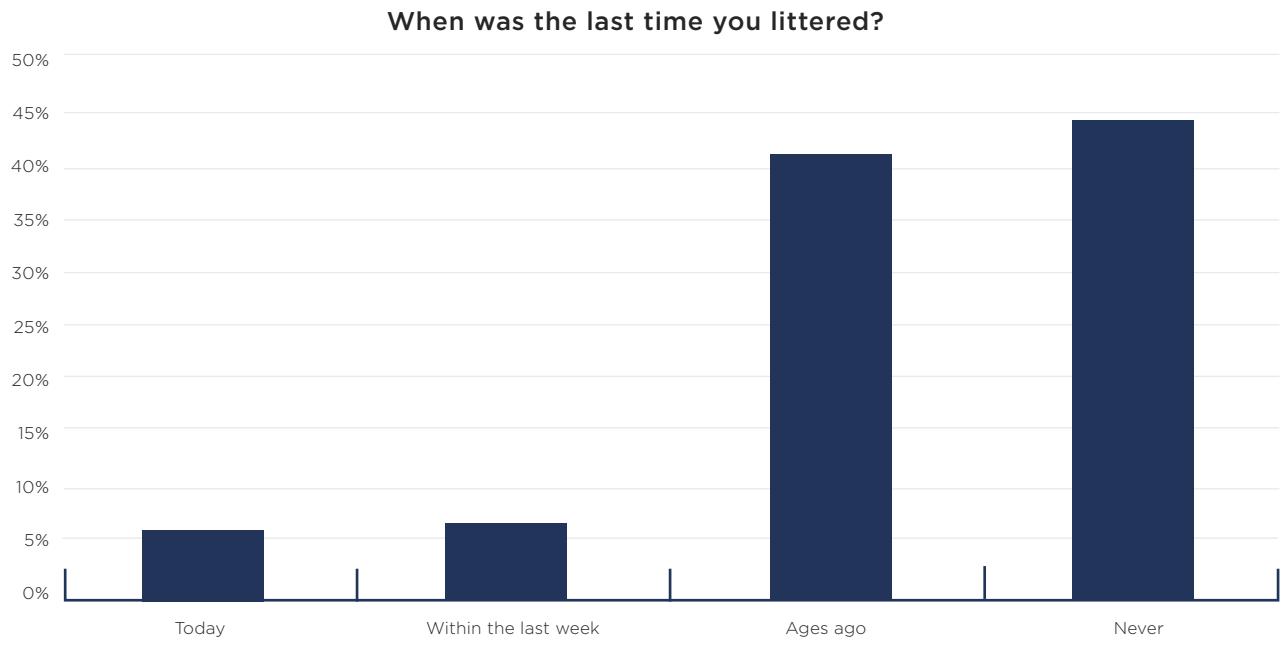


Figure 31 - When was the last time you littered? - All surveys

Respondents that had littered in the area in which the survey was taking place, on that day or within the past week, were asked "Why did you litter here?". Some respondents provided multiple answers.

Over half of the respondents said that they had littered there either because there were no bins (27%) or they are lazy, don't care, or were too busy (27%). A further 15% said that they had littered there because the item was only small or compostable. While the interviewer did not ask them what type of item had been littered, over half of these respondents admitted that the item they had littered was a cigarette butt.

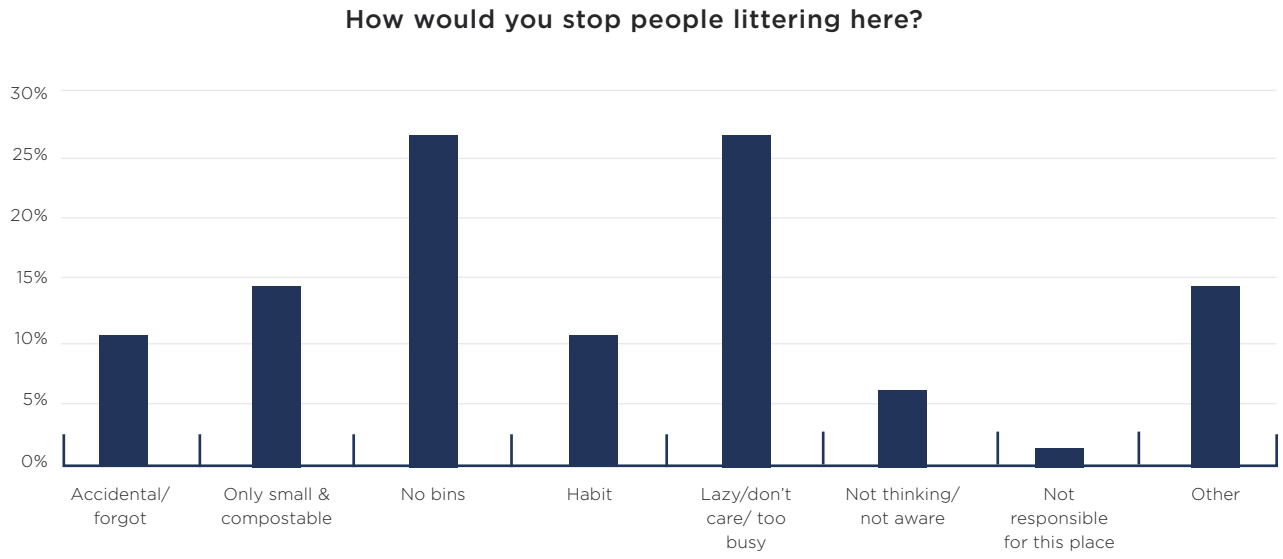


Figure 32 - Why did you litter here? - All surveys

3.12.2 Respondents observed littering

A subset of the people who were surveyed had also been observed littering an item prior to being approached by the interviewer.

When these people were asked "When was the last time you littered?", 53% replied that they had littered today.

Of the 42% of respondents observed littering who had replied that they "Never" littered, or had last littered "Ages ago", all had been observed littering cigarette butts.

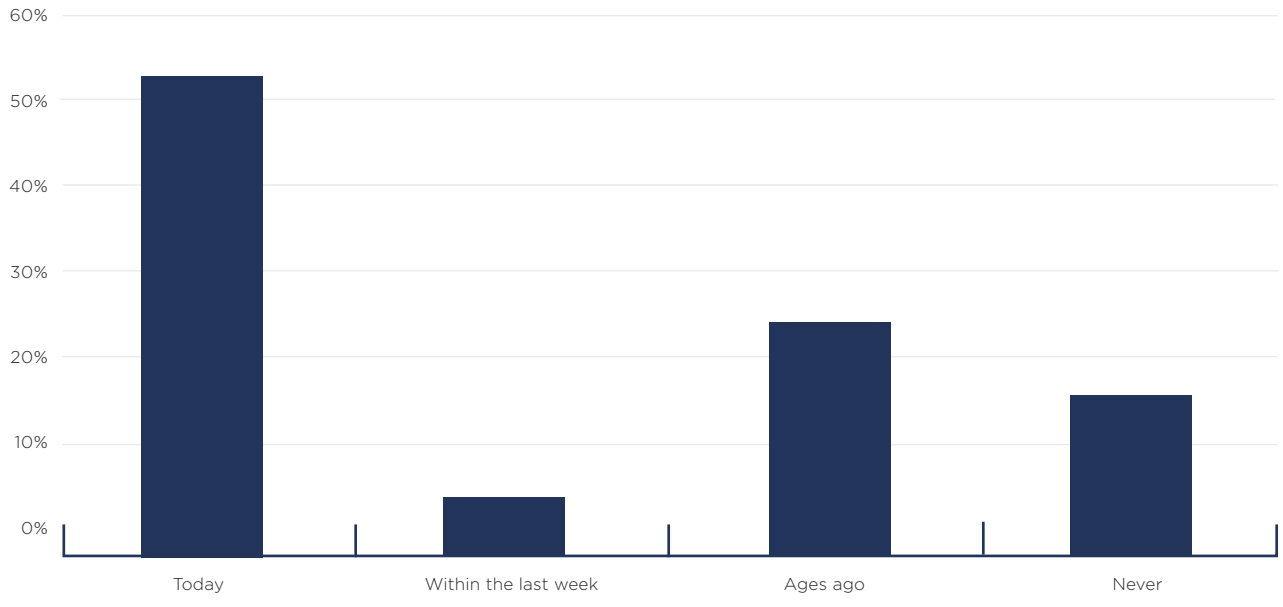


Figure 33 - When was the last time you littered? - Respondents that were observed littering and surveyed

Of the people who were observed littering and admitted having littered that day, 44% said that it was because there were no bins, and 25% said that it was habit. Other reasons given were that they didn't want to set the rubbish bin alight by disposing of a cigarette butt, or because there was no ashtray. These results are provided in Figure 34.

Smokers also made comments that infer that they don't relate to cigarette butts as litter, such as "I never litter, well, apart from cigarette butts, but they're not really litter", or stating that it is okay to litter cigarette butts as they are biodegradable. Others appeared to litter through habit or laziness.

Some respondents gave more than one answer.

Photo 2 - Example of cigarette butts littered beside a litter bin

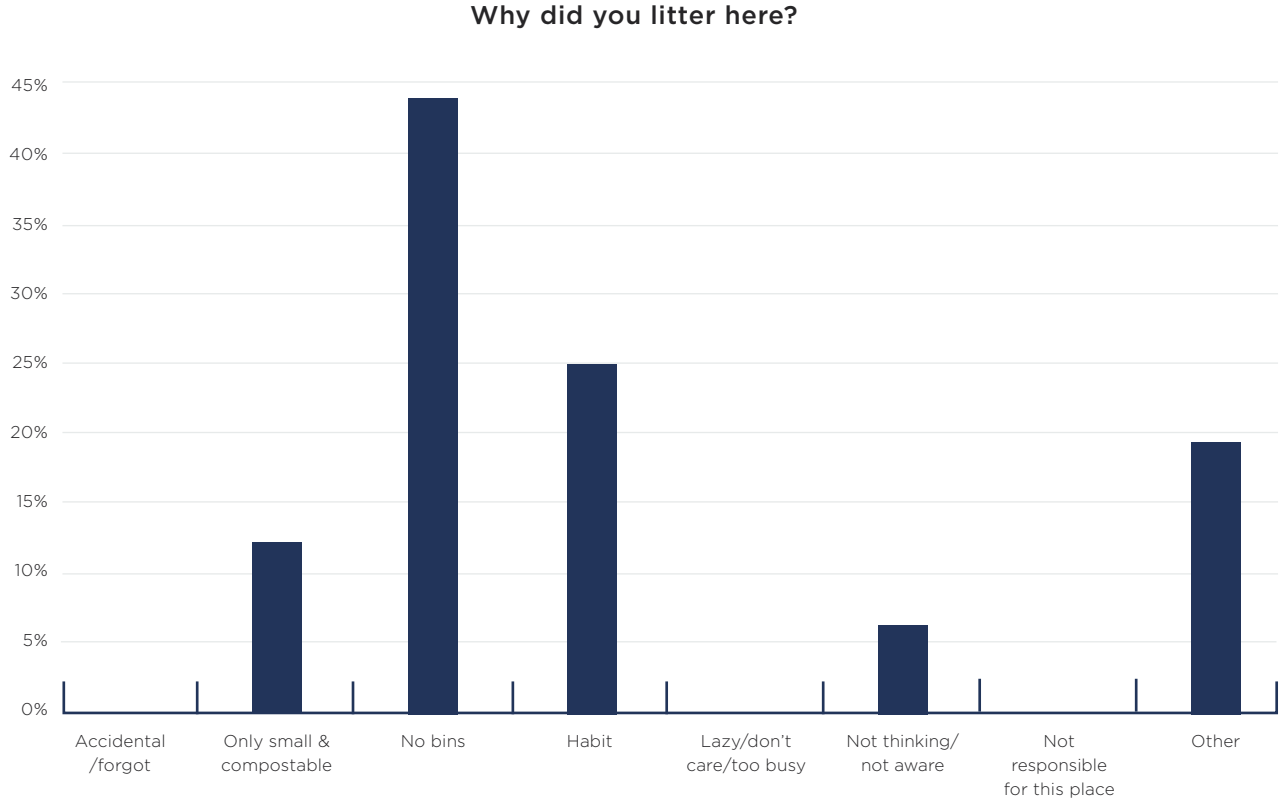


Figure 34 - Why did you litter here?
- respondents that were observed littering and surveyed

Anecdotal evidence from the survey suggests that there was a disconnect for some smokers between their attitude towards littering and the environment, and what they did with their cigarette butts.

One man was observed dropping his cigarette butt on the banks of the Avon. When surveyed he enthusiastically told the interviewer about the importance of the Avon river and of keeping our waterways clean.

Another woman was observed standing with a smoking friend in a park, while eating a mandarin. When she finished the mandarin, she walked 15 metres to a bin to dispose of the peel. She then returned to her friend, lit up a cigarette, and on finishing it dropped the butt into the grass. They then both walked past the bin on their way back to work.

3.13 Demographics

Overall, 55% of observations (of people disposing of items to bins or littering) were of males, and 45% were of females.

The average age of all of the people observed was 38 (based on the observers' estimates of peoples' ages).

3.13.1 Littering by gender

Of the people observed littering, 53% were men and 47% were women. Of all people surveyed, and self-reporting that they had littered within the last week, 62.5% were men and 37.5% were women. Although it appears that men litter slightly less than women, based on the overall demographic of 55% of observations being of males, the difference is very slight.

3.13.2 Littering by age

Of the people observed littering, 25% were aged between 25 and 34. A further 23% were aged between 35 and 44. Those that were least observed littering were people aged 65 plus (5%) and people under 18 (7%). The age of people observed littering is based on the observers' best judgement at the time of the observation.

Figure 35 compares the age of those observed littering with the age of all people observed disposing of an item (to a bin or as litter).

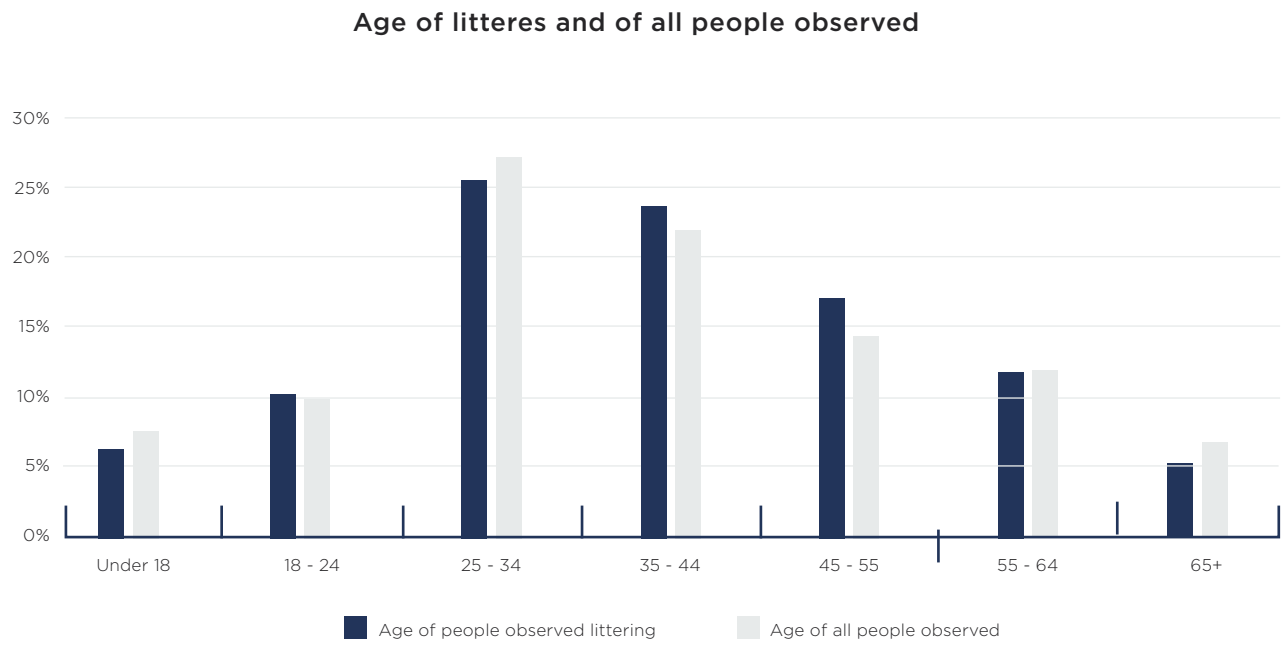


Figure 35 - Age of people observed littering and of all people observed

Twenty-five per cent of the people who self-reported having littered within the last week were aged between 25 and 34. A further 24% were aged between 18 and 24.

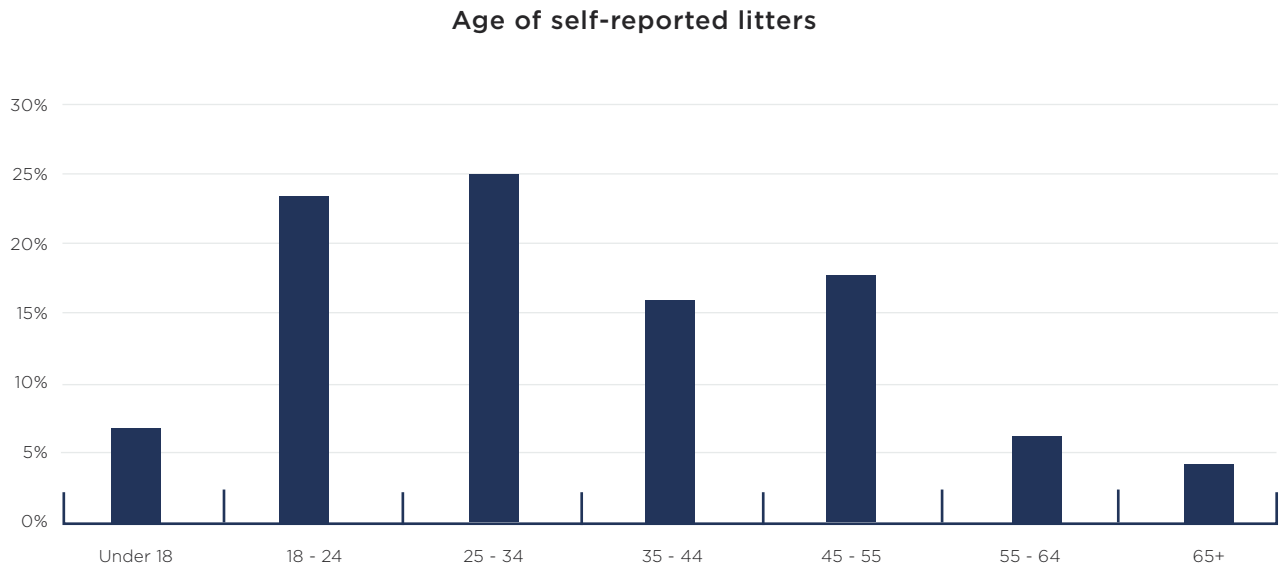


Figure 36 - Age of people who self-report littering in the last week

A much higher proportion of people under 24 admit to littering, than were observed littering. This corresponds to the findings of research described in the book 'Litter-ology: Understanding Littering and the Secrets to Clean Public Places' written by the founders of Community Change. The research noted that people under 25 are just as likely to litter as anyone else, but are more likely to admit it.

3.13.3 Littering by employment status

Of the people who self-reported having littered in the last week, 66% were in full or part-time employment.

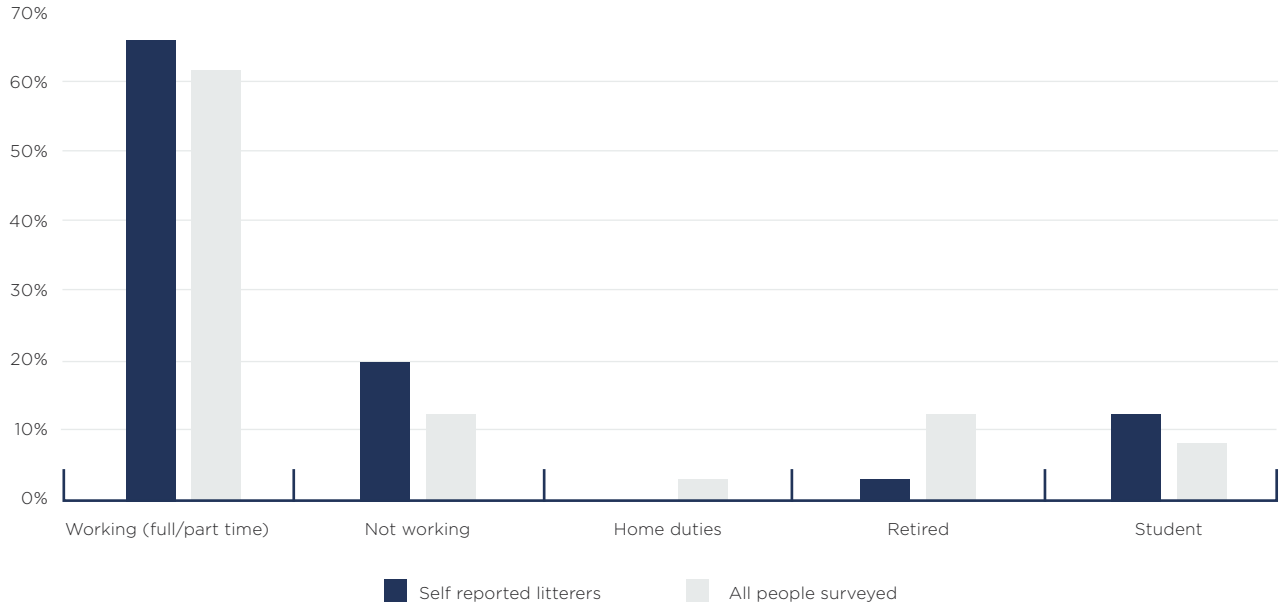


Figure 37 - Employment status of people who self-report littering in last week and of all people surveyed

As a proportion of the overall sample, few retired people self-report littering, and more people that are not working self-report littering.

As the employment status of people observed littering, but not surveyed, is unknown, the employment status of all people observed littering is not available.

[2] Spehr & Curnow. (2015). Litter-ology: Understanding Littering and the Secrets to Clean Public Places, Australia: Environment Books.

3.13.4 Likelihood of littering by education level

The highest education level of the self-reported litterers is shown in Figure 38, alongside the level of education of all people surveyed.

Approximately the same proportion of people who self-reported littering had degrees, trade/diploma/apprenticeships, or a secondary education. However, when compared to the overall sample of people surveyed, fewer people with degrees, and slightly more people with a trade/diploma or apprenticeship self-reported littering.

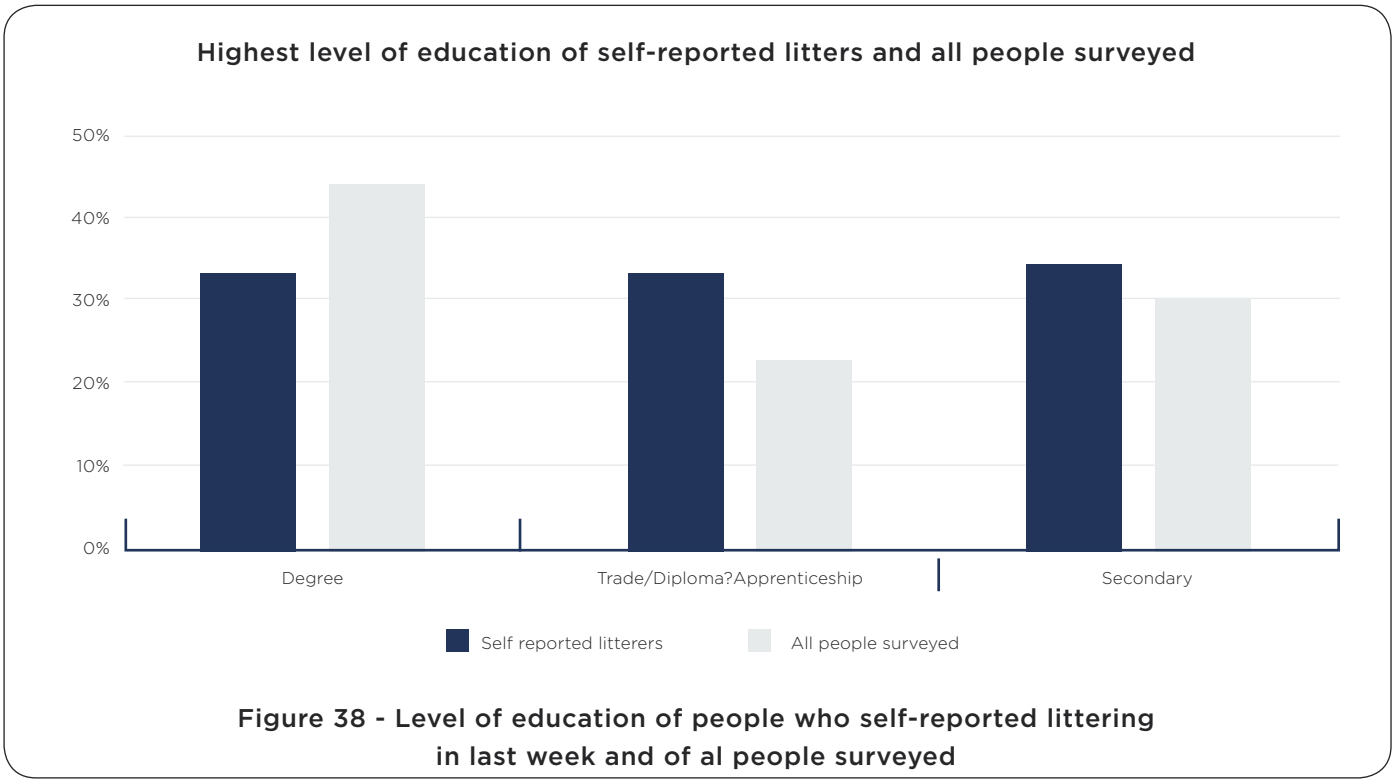


Figure 38 - Level of education of people who self-reported littering in last week and of al people surveyed

As the highest education of people observed littering, but not surveyed, is unknown, the highest education of all people observed littering is not available.

3.14 Reasons why New Zealanders litter

Cigarettes were the most frequently observed item littered during the survey, and many smokers did not appear to relate to cigarette butts as litter, with comments such as "It was just a cigarette butt" or "There were no ashtrays". There was also a concern among some smokers about placing cigarette butts into litter bins, in case they set the bin on fire: "They might catch bins on fire. Seen bins on fire about three times".

Photo 3 – Example of cigarette butts around public bench beside Avon river

As shown in Section 3.12.1, of the people who self-reported having littered in the past week, the most common reasons given for littering were that there were no bins (27% of respondents), or that they were 'lazy, didn't care or were too busy' (27% of respondents).

All of the sites that were surveyed included at least one litter bin. Therefore, one could conclude that some of the respondents who said that they littered due to a lack of bin had not put much effort into finding a bin or were not telling the truth.

In areas where there was a shortage of bins, there did appear to be an increase in litter, as seen in the following photo. This area, adjacent to a public building in Wellington, only had one litter bin to service a large area of seating used by the public and construction workers. It also had the highest levels of litter in the area.

Photo 4 – Litter in area with lack of litter bins

When the responses to the survey questions about how important it is to keep areas clean, to not litter, and to maintain our Clean Green New Zealand image are compared, the proportion of respondents for whom it is very or extremely important that New Zealand maintain its Clean Green image is only marginally lower for those that self-report littering. However, there is a more distinct difference when asked how important it is that people do not litter here or that the area is kept clean. Ninety-four per cent of all respondents think that it is very or extremely important that people do not litter here, versus 86% of respondents who self-report having littered.

Figure 39 provides an analysis of the responses to these questions for all survey respondents, and for the survey respondents who self-report having littered in the last week.

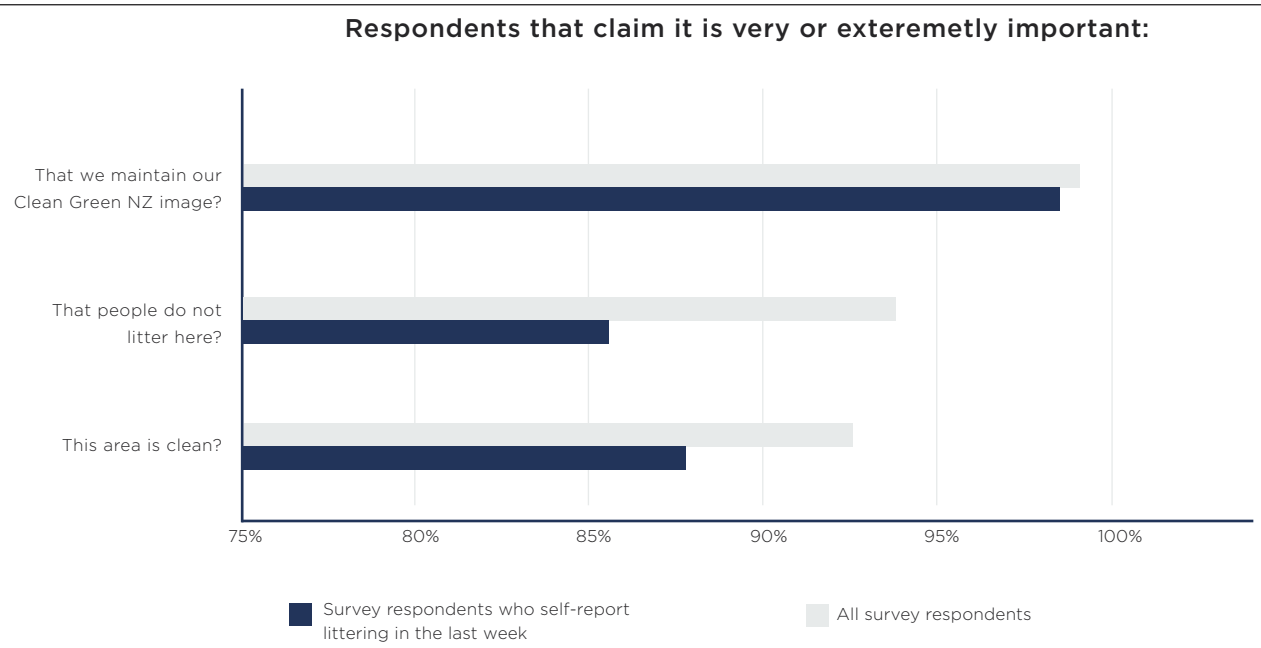


Figure 39 - Difference in responses between all respondents and respondents that self-report littering

The questions about the importance of maintaining NZ's Clean Green image, that people do not litter here, and that the area is kept clean were asked before the respondent was asked when they had last littered. The answers to these questions should therefore not have been influenced by the respondents' acknowledgement of having littered.

Forty-six per cent of the survey respondents that self-reported littering in the last week, answered the question "How would you stop people littering" by stating that more bins were required. Eighteen per cent said more signs were required, and another 16% thought that there should be fines or other punitive measures. Some respondents gave multiple answers.

3.15 Environments that encourage littering and those that discourage

The DBI results show that the most littered site types are Public buildings and Transport hubs. The increase in littering at these sites seemed to be associated with an increase in smoking activity in those sites compared to other sites. People may tend to have a cigarette immediately before or after getting onto a bus or train and may step outside of a public building to have a cigarette. In Canterbury, the waterfront areas had lower DBI results with one waterfront location close to the hospital where staff congregated to smoke. The higher likelihood of littering cigarette butts explains the lower DBI at waterfront sites in Canterbury.

In Auckland and Wellington, the sites with the least littering (and therefore the highest DBI), were waterfront sites and markets. Markets had the highest DBI in Christchurch too. It appears from observations made during the survey that people in these site types took appropriate action to do the right thing.

3.16 Where does litter come from?

While this research has shown that most New Zealanders do not litter, there is no argument that there is still litter accumulating throughout our cities and regions. So where is this litter generated?

There are likely to be a range of sources. While the following list is not meant to be exhaustive, it points to areas that may want to be investigated.

- A small proportion of New Zealanders do litter in public places.
- A higher proportion of New Zealanders may litter when there are no bins present, or when they are not in a public area (this was outside the scope of this research)
- Higher rates of litter may be generated at night, when a different group mentality, and alcohol, are likely to be present.
- Litter may be created by materials blowing out of bins, or from materials placed beside bins (30% of people surveyed thought that it was okay to place items beside a bin).
- Higher rates of litter may be disposed of from vehicles.
- Litter may be generated during refuse collections – during the placement of refuse receptacles at the kerb, or the collection, and transport of refuse. The use of open crates for recycling is likely to result in the generation of litter.

4. Comparison with Australia

Adopting the Australian methodology created by CC for use in establishing a national behavioural benchmark for New Zealand has provided the opportunity to compare disposal actions with Australia. While some minor adaptations were made to the methodology to meet KNZB's requirements, these did not alter the methodology significantly. The structure for calculating results is the same, ensuring comparison of outcomes.

The main changes to the methodology were in the selection of questions in the survey, and slight differences to the naming of core sites types. The Australian research also included more beaches than the New Zealand research.

National Australian DBI results from 2004 provide the most recent basis for comparison of litter prevention actions in the two countries. While the national comparison is useful, the variability of results across Australia suggests that more matched comparisons for the Eastern seaboard provide a more meaningful analysis.

4.1 DBI scores

At the height of the Do the Right Thing campaign in Australia, after the campaign had been operating for over 10 years, the national DBI result was at the higher end of the mid-range 5, where littering remained a major issue of concern.

In New Zealand, a high DBI level of six was found across the country showing bin use greatly exceeded littering as a baseline indicator.

Comparison of the results for cities in Australia and New Zealand are shown below. Australian results are shown for the baseline year (1997), and for the most recent research in 2004.

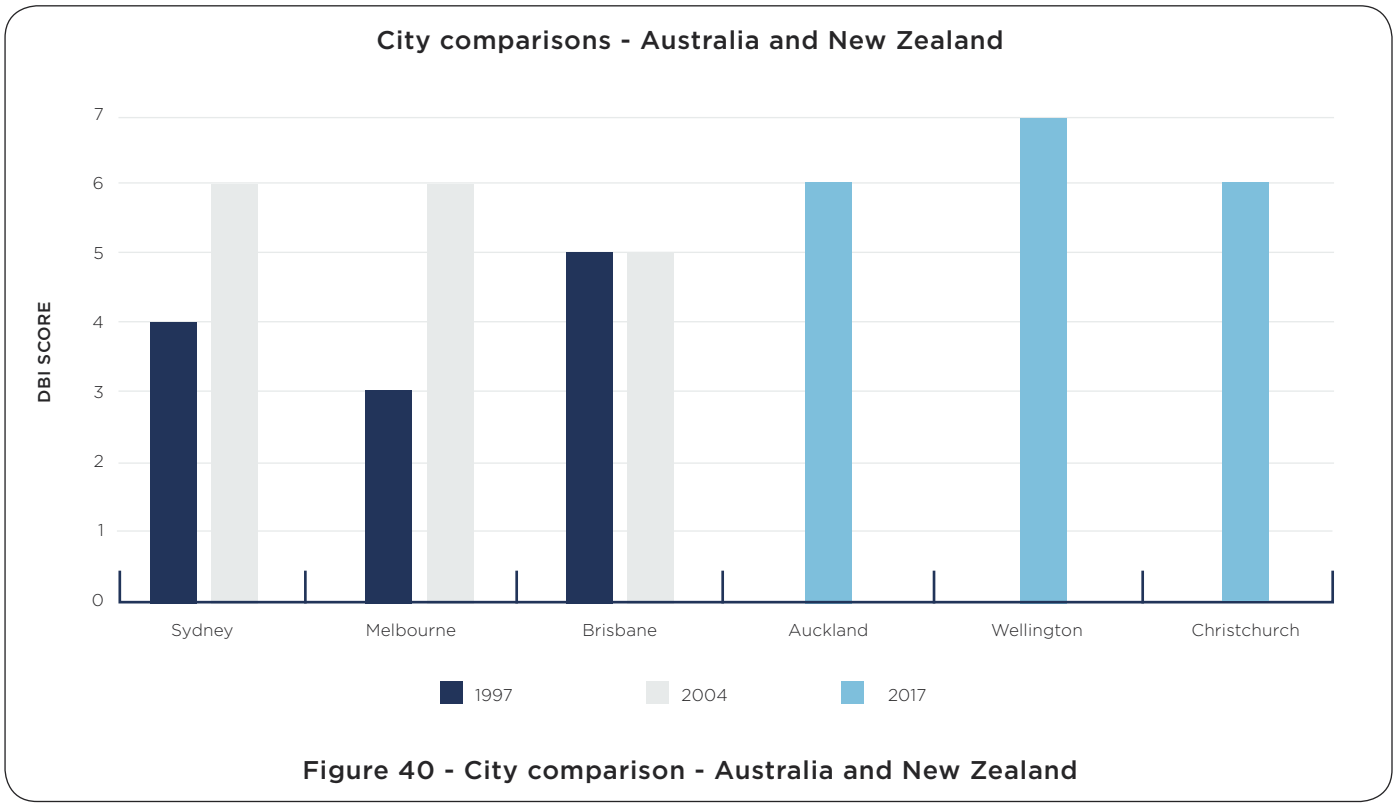


Figure 40 - City comparison - Australia and New Zealand

In all cases the New Zealand results equal or exceed the Australian DBI levels in 2004. In New Zealand, cities' disposal behaviour in the first national study was at a high level.

A comparison of DBIs for Australia and New Zealand in matched site types is shown in Figure 41..

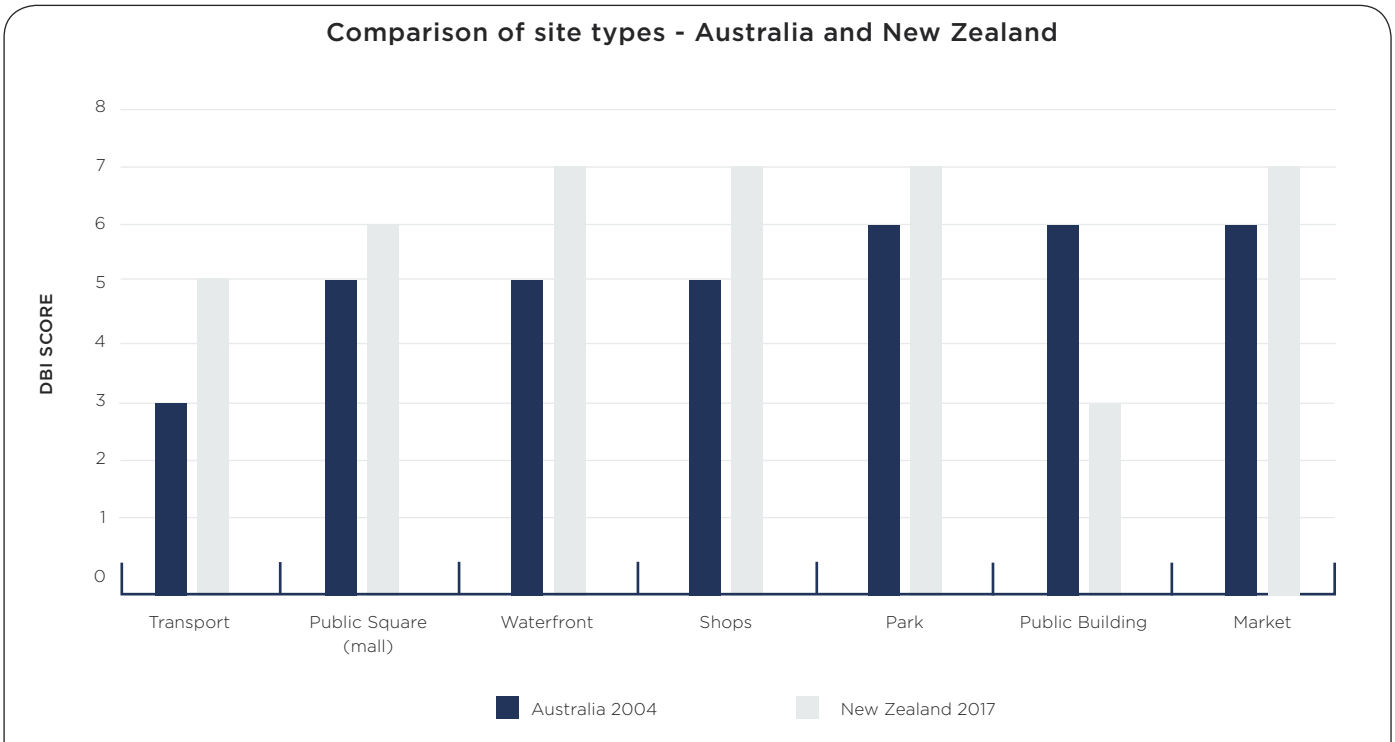


Figure 41 - Comparison of site types - Australia and New Zealand

The DBI results for site types in New Zealand exceed the 2004 national DBI results for Australia, except for the areas in front of Public buildings where littering activities were greater in New Zealand than in Australia.

4.2 Bin distance

The average distance bin users were from a bin when they moved to use it in New Zealand was 4.2 metres. The average distance all litter was from a bin when they littered in New Zealand was double that of bin users at 8.4 metres.

The results for bin distance for Australian cities in 2004 showed a similar pattern with bin users being 4.2 metres from a bin while litterers were on average 9.6 metres from the nearest bin.

4.3 International comparison of key survey finding

In Australia, most people who had littered in public places were unable to remember whether they had littered or were unwilling to admit it. In 2004, 61% of litterers claimed not to have littered. In contrast in New Zealand only 42% of people were unaware that they had littered or were unwilling to admit it.

The solution to preventing people from littering most often suggested by survey respondents in New Zealand was to put in more bins (33%) because people were lazy (66%). In Australia nearly half (46%) of respondents suggested to put in more bins because people were lazy (35%).

Awareness of advertising campaigns about prevention and littering was at low levels in both Australia (57% were unaware of any campaigns) and in New Zealand 75%. It appears that recall of advertising about litter prevention was not a major factor in the low levels of littering and highly responsible disposal behaviour of New Zealanders in public places.

5. Recommendations

5.1 Success story

New Zealand baseline DBI results need to be explained and championed as a success story across the country. New Zealanders are not frequent litterers and the evidence shows that disposal behaviour alone ought not be the focus of future campaigns. Celebrating successes and recognising achievements as well as identifying opportunities for improvement should guide any national campaigns.

5.2 Cigarette butts

It is recommended that cigarette butt disposal be a major focus of future litter awareness and littering behaviour change prevention campaigns. Nationally, 16% of disposal acts were littering. Of these littering acts, 78% were cigarette butts (i.e. 12% of all disposal acts involved the littering of cigarette butts). Only 4% of the 1,705 disposal acts observed during the research were littering something other than a cigarette butt.

There is potential to impact smokers' disposal actions with a powerful, cigarette butt-focused litter prevention campaign. Further research could provide more detailed insight into why so many smokers litter their cigarette butts and could be used to guide targeted interventions.

From the observations and surveys, it became apparent that there is a disconnect for many smokers between what they state – most thought that it was very important that people do not litter and that we maintain our Clean Green New Zealand image – and what they do with their cigarette butts.

5.3 Regional differences

Further research could be undertaken to investigate the reasons for disposal actions not being at the same standard across New Zealand. Has there been more litter prevention education in Wellington than in the other regions? Do Wellingtonians have more civic pride? Does the wind and the proximately to the sea influence people's behaviour?

Other factors that may influence littering in each region could include different litter bins, more visible collection services, and better maintained public spaces.

Christchurch had the highest litter rate (20%). This could be linked to the general disruption experienced in Christchurch since the 2011 earthquake, including losses or changes to infrastructure, difficulty re-establishing services and collection routines. It could also be due to the dislocation of residents' sense of place and disruption to community identity.

Tools like the Clean Communities Assessment Tool could be used to investigate and explain the differences in the features of locations to guide improvement strategies and facilitate improvements in disposal actions.

5.4 Litter prevention campaign awareness

74% of survey respondents were not aware of any litter prevention campaigns.

This shows that there is a powerful opportunity for a major national litter prevention campaign, potentially focused on cigarette butts, to build on the 99% of respondents that believe that it is very important or extremely important that New Zealand maintains its Clean Green NZ image.

5.5 Where is litter generated?

There is an obvious disconnect between what was observed being littered during this research, and the litter that is being collected by local authorities from cities and towns around New Zealand. This research does not answer the question of how this litter accumulates.

This research focuses on public areas, with litter bins, where people congregate. Of the people using these areas, very few people litter anything other than cigarette butts.

It is recommended that further research be undertaken to determine what other activities are generating litter.

Furthermore, collaboration between KNZB and local agencies can facilitate the identification of accumulation points and streamline interventions to assist agencies in reducing the build-up of litter.

Appendix 1 – Site types

Site types were labels used to summarise the characteristics of public places where people congregated. Sites usually contained at least one bin, seating areas, pedestrian access, and an expectation of personal responsibility for disposing of used items in an environmentally desirable manner.

Core Sites

Core sites were commonly found in the three regional centres included in the project and provide a basis for comparing disposal actions.

Shopping streets – Areas selling goods or services, often with a vehicular thoroughfare in the middle, with wide footpaths and places for people to sit.

Parks – Grassy sites with shrubbery or garden beds, children's play equipment, and seats and tables used for picnicking and recreation.

Transport hubs – Transport terminals or waiting and transit areas with pedestrian traffic going to and from public transport and often with space for parking and manoeuvring vehicles.

Public buildings – An area around a public building open to the public, which often includes places for people to sit.

Public squares – A public area, generally without vehicular access that provides public seating.

Markets – Open spaces where merchandise and food stalls provide fresh produce and a range of goods to the public, which often include seating and eating areas.

Waterfronts – Areas next to bodies of water (e.g. river, lake, or sea) often with seats or a grassy area used by the public for recreation.

Special sites

Special sites were sites that could not be systematically accessed in every city. Currently there is insufficient data to provide a basis for solid comparison on a regional basis.

Beaches – The sandy area between the water and a boundary or border that clearly marks areas for recreation.

Appendix 2 – List of sites

Auckland Region - Auckland City

Shopping Streets

- Hunters Corner, Papatoetoe
- Hurstmere Road, Takapuna
- Mangere Town Centre Mall
- Manukau Mall
- Newmarket shops outside 277
- Gt South Road, Papatoetoe
- Queen St & Wellesley St Corner
- St Georges Road, Papatoetoe
- Takapuna by Hurstmere Green

Transport Hubs

- Britomart
- Bus stops, Railside Ave
- Devonport Ferry Terminal
- Fullers Ferry Terminal
- Henderson Bus Station
- Henderson Train Station
- Otahuhu Bus Station
- Papatoetoe Train Station

Public Squares

- Aotea Square
- Freyburg Place
- Henderson Square
- Khartoum Place
- Mangere Bridge
- Mangere Town Centre Mall
- West City Mall

Markets

- Otara Market
- Parnel Market
- Takapuna Markets

Parks

- Allenby Playground
- Cornwall Park
- Devonport Waterfront Playground
- Maungawhai/Mount Eden
- Mission Bay Playground
- Myers Park
- Rose Gardens, Takapuna
- Maungakiekie/One Tree Hill
- Takapuna Beach Playground
- Takapuna Boating Club

Public Buildings

- Auckland Central Library
- Auckland Hospital
- Auckland Museum
- Henderson Library
- Henderson Library/Unitec
- Waitakere District Court
- Westwave Pool, Henderson

Waterfronts

- The Cloud
- Mangere Bridge
- Mission Bay
- Quay Street
- Takapuna Waterfront
- Viaduct
- Viaduct bridge by Wynyard Quarter
- Waterfront by Fullers

Beaches

- Takapuna Beach

Auckland Region - Pukekohe

Shopping Streets
Cnr Edinburgh/King, Pukekohe

Parks
Bledisloe Park, Pukekohe

Transport Hubs
Pukekohe Train Station

Public Buildings
Library/Art Gallery, Pukekohe

Public Squares
King St, Pukekohe

Auckland Region - Orewa

Shopping Streets
Cnr Hibiscus Coast Hwy/Tamariki Ave, Orewa
Moana Ave, Orewa

Parks
Orewa Playground by Beach
Stanmore Bay Beach Park

Public Squares
Orewa Mall

Public Buildings
Whangaparoa Library

Wellington Region – Wellington City

Shopping Streets
Cuba Mall Fountain
Johnsonville Mall entrance
Lower Cuba Mall
Riddiford Street, Newtown
Wellington corner Willis/Lambton

Parks
Glover Park
Katherine Mansfield Memorial Park
Midland Park, Lambton Quay
Waterfront Playground

Transport Hubs
Bus stop, Lambton Quay/Balance St
Waterloo Station
Wellington Bus Exchange
Wellington Train Station
Wellington Train Station at taxi stand

Public Buildings
Beehive Grounds
National Library
Newtown Library
Wellington Hospital
Wellington Zoo
Wellington City Library

Wellington Region – Wellington City Continued...

Public Squares
Cnr Lambton Quay and Bowen street
Courtney Place
Lambton Quay opposite Cable Car
Civic Square
Mount Vic Lookout
TSB Square

Waterfronts
Behind Te Papa
Gelati Corner
Oriental Bay
Oriental Bay beach entrance

Markets
Harbourside Market
Johnsonville Market
Newtown Market

Wellington Region – Porirua

Shopping Streets
Entrance to North City Mall, Porirua

Transport Hubs
Littleton Ave, Porirua
Porirua Train Station

Public Buildings
Library/Art Gallery, Pataka Porirua

Public Squares
Cobham Court

Markets
Porirua Market

Wellington Region – Lower Hutt

Shopping Streets
Jackson St, Petone

Transport Hubs
Queensgate bus interchange

Public Buildings
Dowse Gallery

Waterfronts
Petone Foreshore

Beaches
Days Bay

Canterbury Region - Christchurch City

Shopping Streets
Cashel St/Fitzgerald St
City Mall (Cashel/Columbo St)
City Mall (Cashel/High St)
Corner of Edgeware and Colombo
Linwood Mall front entrance
Linwood, Corner Buckley and Aldwins Rd
Outside Shirley Mall
Riccarton Rd
Rotterham St
Woolston

Public Buildings
Art Centre
Art Gallery
Canterbury Museum
New Brighton Library

Markets
Riccarton Bush Markets

Parks
Botanic Gardens near fountain
Hagley Park Playground
Margaret Mahy Playground
Middleton Park

Transport Hubs
Bus Interchange, Chch
Bus stop outside Linwood Mall

Public Squares
Brighton Mall
Cashel Street City Mall
Cathedral Square
Container Mall Food Court

Waterfronts
Avon River by Remembrance Bridge
Hospital/Punting in Park
New Brighton Pier

Canterbury Region – Akaroa

Shopping Streets
Beach Road
Rue de Lavard

Public Squares
Akaroa Square

Parks
Akaroa - Jubilee Park

Waterfronts
Akaroa Main Wharf

Canterbury Region – Rangiora and Oxford

Shopping Streets
High Street, Rangiora

Markets
Oxford Markets

Parks
Oxford Park, Oxford
Victoria Park, Rangiora

Appendix 3 – References

Curnow, R.C., Saunderson, H., Donohue, I., & Spehr, K.L. (2013). Building Collaborative Approaches to Change Disposal Behaviour. A Keep New Zealand Beautiful & Community Change joint paper presented at WasteMinz Focus on the Future Conference, Rotorua, New Zealand.

Curnow, R.C. & Spehr, K.L. (2013). Litter Prevention in Porirua: Understanding Littering Behaviour, the Social Compact and Clean Communities. Key stakeholders workshop presented with City of Porirua, New Zealand.,

Curnow, R.C., & Spehr, K.L. (2005a). Littering Behaviour Studies 7: National Benchmark 2004 using the Observational Approach. A Community Change report to the Packaging Stewardship Forum, NSW

Curnow, R.C., Spehr, K.L. & Creswell, J. (2005b). Benchmarking Locations for the Manukau City Council Using the Clean Communities Assessment Tool. A report to GHD for Manukau Council Litter Prevention Strategy, New Zealand.

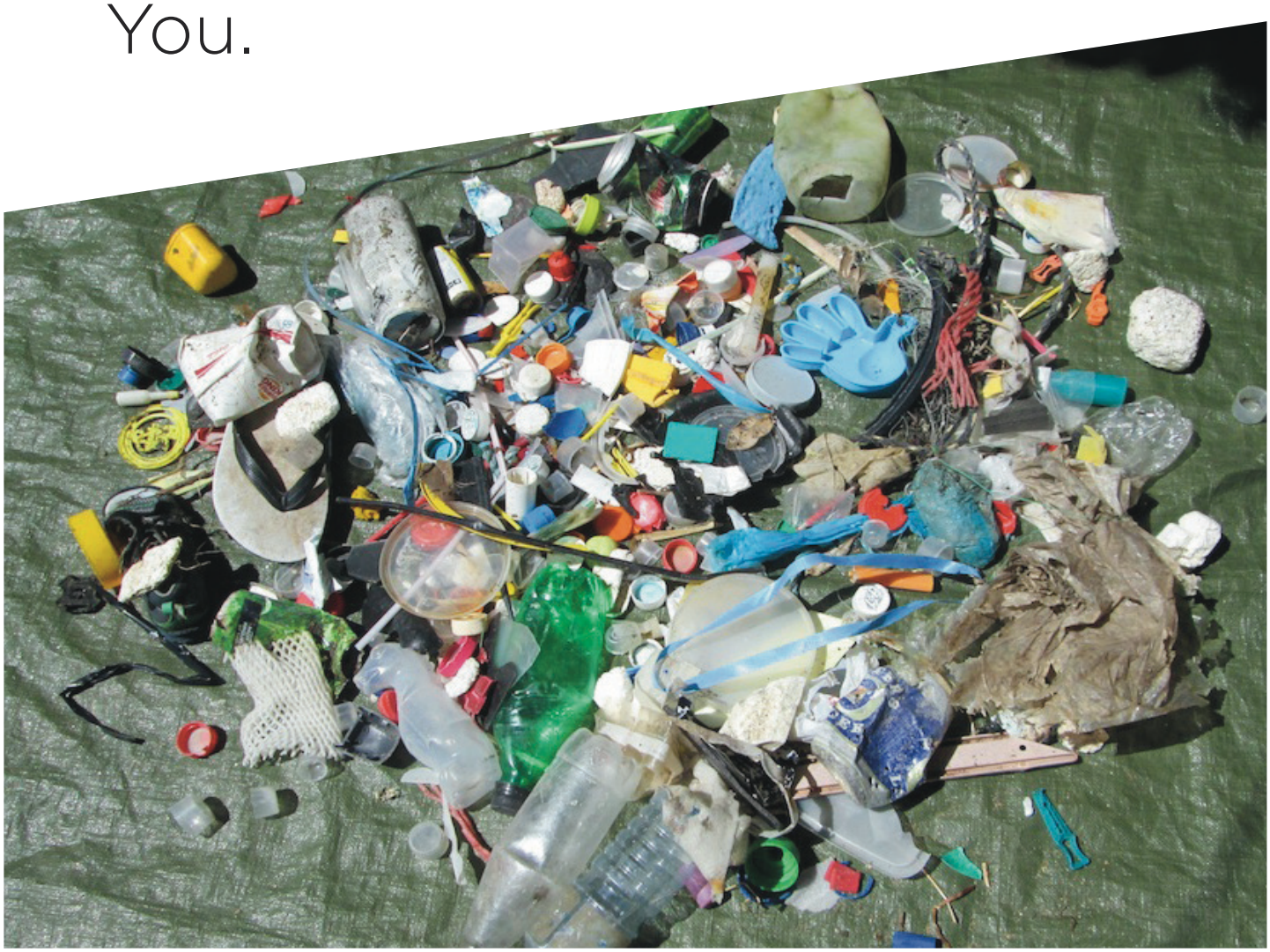
Curnow R.C., Copeland, H. & Love, E. (2012). Litter Prevention & Waste Minimisation Workshop. In Proceedings of Waste 2012 Real Issues: Creative Ideas: Practical Solutions. Coffs Harbour.

Appendix 4 – Document Quality Control

Version	Date	Written By	Reviewed by	Distributed to
Draft 0.1	07 March 2018	Sunshine Yates	Rob Curnow (Community Change) Bruce Middleton (Waste Not Consulting)	Heather Saunderson
Draft 0.2	22 March 2018	Sunshine Yates		Heather Saunderson Jodie Stuart
Draft 0.3	28 March 2018	Sunshine Yates		Heather Saunderson Jodie Stuart

KEEP NEW ZEALAND BEAUTIFUL

Thank You.



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