



# National Litter Survey 2014-2015

## Summary of Results

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WasteNot Consulting



## Prepared by

Waste Not Consulting Ltd  
PO Box 78372  
Grey Lynn, Auckland

[www.wastenot.co.nz](http://www.wastenot.co.nz)

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# Executive Summary

The National Litter Survey litter field count involved the counting and classifying of loose litter, in situ, at 300 transects in eight urban areas – Auckland, Blenheim, Christchurch, Dunedin, Gisborne, New Plymouth, Taupo, and Wellington. These eight urban areas include 52% of the population of New Zealand.

A total of 18,620 items of visible and bulky litter were counted in an area estimated to be 581,764m<sup>2</sup> of public places. The survey found an average of 32 items of litter per 1,000m<sup>2</sup> surveyed.

Overall, it is estimated from the survey results that 56%-62% of visible and larger, bulky litter items were packaging. This is equivalent to 18.0-19.8 packaging items per 1,000m<sup>2</sup> of public place surveyed.

Food packaging represented the largest proportion of packaging items (37%) followed by drinks packaging (34%).

In addition to the actual counting of visible and bulky litter during the National Litter Survey, a subjective assessment was made of the overall transect cleanliness, based on the number and visual intrusiveness of the litter items that were present. Out of the 300 transects, 87% were assessed as being virtually free of visible litter or mostly free of visible litter.

The 300 transects included public places adjoining nine different types of land use. Industrial areas and arterial roads contained the highest number of litter items whereas car parks and waterway walkways contained the fewest.

A separate count of small litter items, such as glass pieces, cigarette butts and chewing gum, was also undertaken in smaller, subsample areas. When adjusted to include small litter items, there were an estimated 914 pieces of litter per 1,000m<sup>2</sup>.

Incorporating the small litter count into the overall results shows that small litter comprised 96.5% of all litter items, visible litter 3.5%, and bulky litter 0.05%.

*An average of 32  
items of litter per  
1000m<sup>2</sup> surveyed*



# Introduction

The Packaging Forum (the Forum) owns and manages the Public Place Recycling Product Stewardship Scheme, accredited under the Waste Minimisation Act 2008. The scheme has key performance indicators and several initiatives to increase recycling and abate loose litter. To provide baseline data for monitoring the initiatives, the Forum commissioned the National Litter Survey to collect loose litter-related data. The results of the first National Litter Survey, conducted from November 2014 to February 2015, are summarised in this report.

*The survey provides a snapshot of visually intrusive litter in eight urban areas representing 52% of the population*



# Methodology

The National Litter Survey litter field count involved the counting and classifying of loose litter, in situ, at 300 transects in eight urban areas — Auckland, Blenheim, Christchurch, Dunedin, Gisborne, New Plymouth, Taupo, and Wellington. These eight urban areas include 52% of the population of New Zealand.

Each of the transects covered about 2,000 square metres (m<sup>2</sup>) of public place. The transects included public places adjoining a range of land uses, such as residential and industrial areas, rural roadways, and central business districts. As a result of the selection of urban areas and the range of transects included in the survey, the results of the litter field count are considered to provide a “snapshot” of how much visually intrusive litter was present as the survey was conducted.

Litter in a public place can be caused by either wilful or careless mishandling of any material or the intentional disposal of solid waste in an improper place. For the purposes of the National Litter Survey, **“litter” is defined as material that has been improperly disposed of, either intentionally or unintentionally, in a public place.**

For the purposes of the National Litter Survey, three classes of litter have been identified, two of which were counted for the litter field count:

**Visible litter** is any item of litter that is larger than approximately six square centimetres in any dimension (the size of a beer bottle cap) and small enough to fit through the standard litter bin aperture, a hole with a 20 centimetre diameter.

**Bulky litter** is litter that is too large to fit through the standard litter bin aperture, a 20 centimetre diameter hole. Bulky litter is likely to be the result, in most instances, of the intentional improper disposal of materials, such as the illegal dumping of bagged domestic waste.

**Small litter** is the third class of litter. Small litter was quantified using a separate methodology to that used for visible and bulky litter.

Using a well-defined set of protocols, visible and bulky litter at the 300 transects was counted and categorised into one of 33 classifications. These classifications are described in Appendix 1. Thirty of the classifications were used for visible litter and three for bulky litter. The visible litter classifications differentiated between items of litter that could be positively identified as “packaging” and items that were identified as “non-packaging”. Two of the non-packaging classifications were used as “default” classifications. These classifications included both items that could be positively identified as non-packaging and items that could not be positively identified as packaging.



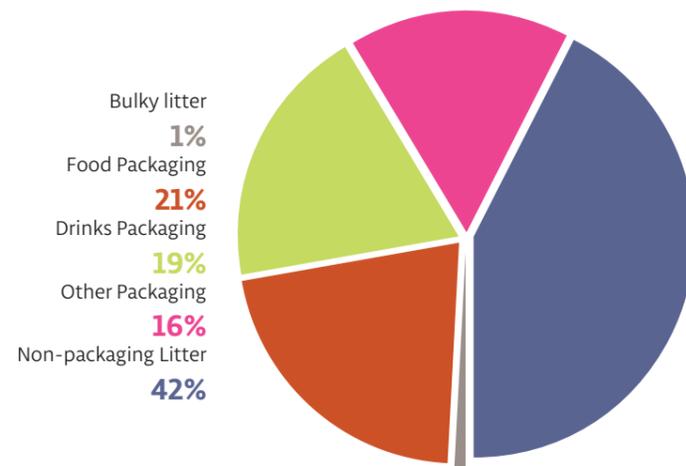
# Survey Results

## Results by Material Type

	% of all litter items	items per 1000m <sup>2</sup>
food packaging	20.8	6.7
drinks packaging	19.4	6.2
other packaging	16.0	5.1
non-packaging litter <sup>1</sup>	42.4	13.6
bulky litter	1.4	0.5
<b>TOTAL</b>	<b>100</b>	<b>32.0</b>

The National Litter Survey included 300 transects in eight urban areas. During the survey, a total of 18,620 items of visible and bulky litter were counted in an area estimated to be 581,764m<sup>2</sup>. The table to the left shows the overall results of the survey, with the 33 classifications aggregated into five material types.

Nationwide, there was an average of 32.0 items of litter per 1,000m<sup>2</sup> surveyed. Non-packaging litter was the most frequently recorded type of litter. Non-packaging litter, which was likely to have included items that could not be positively identified as packaging, comprised 42% of all litter, or 13.6 items per 1,000m<sup>2</sup>. Food packaging was the second most common type of litter, contributing 21% of the total (6.7 items per 1,000m<sup>2</sup>), and drinks packaging the third, representing 19% of all litter (6.2 items per 1,000m<sup>2</sup>). Bulky litter was the least frequently recorded type of litter. Bulky litter (litter that would not fit through a 20cm opening in a litter bin) comprised 1% of all litter, or 0.5 items per 1,000m<sup>2</sup>.



<sup>1</sup> Likely to contain packaging items that could not be positively identified as such.

## Proportion of Packaging in Litter

While the data shows that 56.2% of all litter items could be positively identified as packaging materials (food packaging, drink packaging, and other packaging), a significant number of items could not be positively identified as either packaging or non-packaging. These items were recorded as being in one of two “non-packaging” default classifications. If it is assumed that up to 25% of these default classifications could have been packaging items, the estimated proportion of packaging and non-packaging items is as shown in the table to the right.

Overall, it is estimated from the survey results that 56%-62% of visible and bulky litter items are packaging. This is equivalent to 18.0-19.8 packaging items per 1,000m<sup>2</sup> of public places.

	% of all litter items	items per 1000m <sup>2</sup>
packaging litter	56-62	18.0-19.8
non-packaging litter	38-44	12.2-14.0



# Survey Results

## Top Ten Litter Items

	% of all litter items	items per 1000m <sup>2</sup>
paper - other	14.4	4.6
snack food packaging	13.0	4.2
unclassified packaging	10.8	3.5
other items	8.3	2.7
other home items	4.8	1.5
disposable cup (hot & cold)	4.7	1.5
sanitary items (eg tissues)	4.3	1.4
all other drink packaging	3.3	1.1
other fast food packaging	3.2	1.0
drink container (alcoholic) glass	3.2	1.0
<b>TOTAL</b>	<b>70</b>	<b>22.4</b>

The top ten litter classification accounted for 70% of all litter items in the National Litter Survey. Paper - Other was the most frequently counted classification of litter, with 14.4% of all litter items (4.6 items per 1,000m<sup>2</sup>) in this classification. Paper - Other included both paper items that could be identified as non-packaging and paper items that could not be positively identified as packaging. Snack food packaging was the second largest classification and represented 13.0% of all litter items (4.2 items per 1,000m<sup>2</sup>).

Unclassified packaging was the third largest classification (10.8% or 3.5 items per 1,000m<sup>2</sup>) and Other items the fourth (8.3% or 2.7 items per 1,000m<sup>2</sup>).

Three of the four most frequently-occurring classifications of litter are of a general nature. These classifications acted frequently as 'default' classifications for those items that could not be readily identified as belonging to one of the more specific categories.

*87% of transects were graded as having virtually no visible litter or as mostly free of visible litter*

## Grading of Transect Cleanliness

In addition to the actual counting of visible and bulky litter during the National Litter Survey, a subjective assessment was made of the overall transect cleanliness, based on the number and visual intrusiveness of the litter items that were present. A four-grade system was used, with Grade A being the cleanest and Grade D transects having the greatest quantity of litter present. Descriptions of the grading system for overall cleanliness and the results of the survey are shown right.

Over half of all transects were considered to be Grade A for cleanliness, with virtually no litter items being seen along the transect. Only 3% were considered to be Grade D, the lowest grade.

**Grade A** - Virtually no visible litter items can be seen along the transect. A small number of small litter items may be present. There are no accumulations of litter.

**51% of all transects**



**Grade B** - Mostly free of visible litter but a few items can be seen scattered throughout the transect. Small litter items may be present in several locations. There are no accumulations of litter.

**36% of all transects**



**Grade C** - Items of visible litter are common throughout the transect or some accumulations of visible litter items may be present. Small litter items are common and may be accumulating in several places.

**10% of all transects**



**Grade D** - Visible litter is present in many places in the transect with accumulations of both visible litter and small litter in several places.

**3% of all transects**



# Survey Results

## Results by Type of Transect

	ALL ITEMS per 1000m <sup>2</sup>	% food packaging	% drinks packaging	% other packaging	% non-packaging litter	% bulky litter	TOTAL %
arterial roadways	51.0	24	18	13	44	1	100
car park	15.4	21	18	14	47	1	100
central business districts	31.3	12	28	14	46	1	100
industrial areas	51.8	14	16	23	45	2	100
local shops & shopping centres	42.0	24	20	13	42	2	100
parks, playgrounds, sportsfields	25.7	33	13	16	38	0	100
residential roads	22.4	20	18	14	46	1	100
rural roadway	34.1	21	23	18	37	2	100
waterside walkway	12.9	30	15	16	38	1	100
<b>ALL TYPES OF TRANSECTS COMBINED</b>	<b>32.0</b>	<b>21</b>	<b>19</b>	<b>16</b>	<b>42</b>	<b>1</b>	<b>100</b>

The litter densities for the nine types of transect included in the National Litter Survey are shown in the table to the left. The results are shown (in the left-hand column of figures) in terms of litter items per 1,000 per m<sup>2</sup> for all material types of litter combined. The other columns show the percentage of each of the five litter material types.

The types of transects with the greatest density of litter were industrial areas and arterial roadways, with 51.8 and 51.0 items per 1,000m<sup>2</sup>, respectively.

Car parks and waterside walkways were found to have the lowest densities of litter, with densities of 15.4 and 12.9 items per 1,000m<sup>2</sup>, respectively.

Litter in the parks, playgrounds, and sports fields transects and in waterside walkways contained more food packaging and less drinks packaging than the average for the other types of transects.

*The greatest density of litter was found in industrial areas and arterial roadways*

## Small Litter

As well as the field count of visible and bulky litter, a separate field count of small litter was undertaken at 106 of the 300 transects. For the purposes of the National Litter Survey, "small litter" is defined as "any item of litter that is less than approximately six square centimetres, about the size of a beer bottle cap, in all dimensions". Small litter included cigarette butts, chewing gum, and small pieces of glass, plastic, metal, tyres, and paper.

In each of the 106 transects, small litter was counted in three sub-sample areas, each measuring five square metres. Small litter was counted and recorded as being in one of ten classifications, based on different materials. Extrapolating the results of the small litter count, and combining those results with the visible and bulky litter field counts, provides the data shown in the table to the right.

Combining the results of the surveys shows that small litter represented a very high percentage of all litter, 96.5%. Visible litter comprised 3.5% of litter and bulky litter 0.05%. In total, there are an estimated 914 pieces of litter per 1,000m<sup>2</sup>.

	% of all litter items	items per 1000m <sup>2</sup>
small litter	96.5	882.4
visible litter	3.45	31.6
bulky litter	0.05	0.5
<b>TOTAL</b>	<b>100</b>	<b>914.4</b>



Appendix 1

# Visible & Bulky Litter Classifications

Material Type	Primary Category	Secondary Category	Description
FOOD PACKAGING	Paper fast food packaging	None	Paper items used to serve fast-food that require some preparation before sale, such as heating or cooking. Originate from take-away shops, lunch bars, dairies, restaurants, pubs, food stalls, the fast food section of supermarkets, and other such establishments. Examples include paper plates, bowls, wrappings, individual serving condiment packages, napkins, pizza boxes, fish and chip wrapping, pie bags, and paper bags known to be from such establishments. Both food contact and non-contact items are included. Cups are not included.
	Other fast food packaging	None	Plastic and multimaterial Items used to serve fast-food that requires some preparation before sale, such as heating or cooking. Originate from take-away shops, lunch bars, dairies, restaurants, pubs, food stalls, the fast food section of supermarkets, and other such establishments. Examples include straws, cutlery, plates, bowls, wrappings, individual serving condiment packages and plastic bags known to be from such establishments. Both food contact (such as pie bags) and non-contact items are included. Cups are not included.
	Snack food packaging	None	Items used for packaging snack foods and confectionery, which require no preparation before sale and are associated with eating 'on the go'. Typically originate from dairies, supermarkets, service stations. Examples include packaging from chocolate bars, gum, chips, biscuits and cling film, such as used for sandwiches, with a label.
	Home food packaging	None	Food packaging items that are usually associated with the preparation and consumption of food at home, rather than 'on the go'. Includes items like cereal boxes, cling film (with no label), bread and vegetable bags, butter wrapping, ziplock bags.
DRINKS PACKAGING	Disposable cup (hot and cold)	None	Disposable cups made of any material, including paper, expanded polystyrene, and plastic, such as coffee cups, straws, cup lids, milkshake cups, and soft drinks.
	Drink container (non-alcoholic)	PET	Clear #1 plastic drink bottles, such as those used for soft drinks and bottled water.
	Drink container (non-alcoholic)	HDPE	#2 plastic drink containers, such as those used for milk products.
	Drink container (non-alcoholic)	Aluminium Cans	Soft drink and juice cans.
	Drink container (non-alcoholic)	Glass	Glass bottles such as used for soft drinks and juices.
	Drink container (non-alcoholic)	Aseptic and gable-top	Tetra Pak-type packaging boxes for drinks that do not require refrigeration, such as juices, and coated cardboard cartons for drinks that do require refrigeration, such as milk.
	Drink container (alcoholic)	PET	#1 plastic alcohol bottles, including some beer, wine, spirits, and cider bottles.
	Drink container (alcoholic)	Aluminium Cans	Primarily beer or RTD cans.

Material Type	Primary Category	Secondary Category	Description
OTHER PACKAGING	Drink container (alcoholic)	Glass	Beer, wine, spirit bottles etc
	Drink container (alcoholic)	Multimaterial/ other	Any alcohol container made of another material (such as ceramics) or more than one material.
	Other drink packaging	All materials	Includes beer boxes, six-pack rings, cup and beverage holders, foil bottle seals, bottles tops, and other items that do not contain the drink itself.
	Shopping bags	None	All plastic and paper shopping bags not used for food or drink packaging. Includes supermarket carry bags, shopping bags, retail bags, etc. that are not in direct contact with food.
OTHER PACKAGING	Tobacco product packaging	None	Cigarette packs, cigarette paper packs, tobacco pouches.
	Cardboard/ paperboard boxes	None	Any box made from kraft not used for food or drink direct packaging.
	Uncategorised packaging	None	Any packaging not covered by the other categories, such as paper bags not used for food or drink packaging, plastic bags which are not used for shopping, foam packaging, packaging tape.
NON-PACKAGING LITTER	Paper	Junk mail	All unaddressed mail, including advertising material, community newspapers, circulars, leaflets, brochures, or flyers.
	Paper	Newspapers	Newspapers that are not delivered for free to households.
	Paper	Sanitary items	Includes tissues, paper towels, nappies, female sanitary items.
	Paper	Other	Any item made of paper that is not covered by one of the other, more specific, categories such as ATM receipts, shop receipts, office paper, addressed mail, photographs, building paper.
	Vehicle debris	None	Vehicle mouldings, light covers, exhaust pipes, pieces of tyres, window glass, etc.
	Food and organic items	None	Organic items, excluding animal faeces, that have been transported to the site.
	Other home items	None	Any item that is not packaging and is more likely to be associated with residential activity.
	Other commercial items	None	Any item that is not packaging and is more likely to be associated with commercial activity than residential activity.
Other construction items	None	Any item that is not packaging and was more likely to be generated by construction or demolition activity.	
Other items	None	Any item that is not packaging not covered by one of the more specific categories or can not be identified as being from home, commercial, or construction activity.	



Material Type	Primary Category	Secondary Category	Description
BULKY LITTER	Bulky home items	None	Any large item more likely to be associated with residential activity than commercial activity, such as bagged refuse and large vehicle debris.
	Bulky commercial items	None	Any large item more likely to be associated with commercial activity than residential activity.
	Bulky construction items	None	Any large item generated by construction or demolition activity.

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