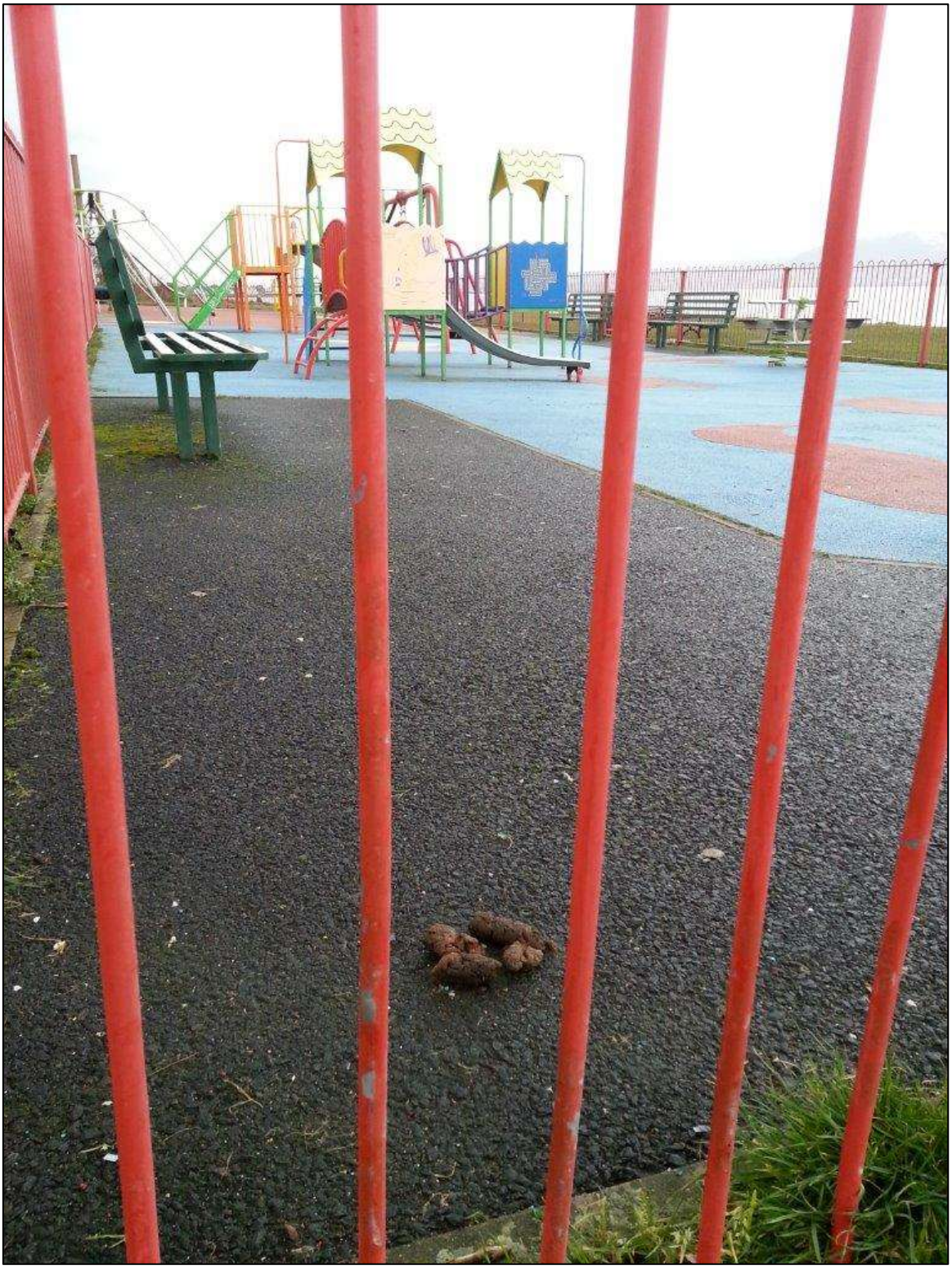
Northern Ireland Litter Survey 2014

KEEP NORTHERN IRELAND BEAUTIFUL



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FOREWORD

Welcome to this, the sixth annual litter survey report, which consists of data collected from all 26 local authorities during 2014. This is the most comprehensive survey of litter in Northern Ireland, covering 104km (2,080 individual 50m transects) of city and town centres, housing, country roads and recreational areas for a variety of litter types including cigarettes and dog fouling.

With one in every six transects failing to meet the required standard this is the worst result in a decade. It reflects the continuing criminal behaviour of too many of the people who live here; criminal behaviour that costs us in more ways than one. Our £40m annual street cleaning bill[1] is just the start. We lose an estimated £7m in coastal tourism alone due to repellent nature of litter[2] and we turn tourist businesses off because of litter. We lose as much as £100m more through vandalism and graffiti[3]. What we can be sure of is that if we changed the way people behaved we could save millions of pounds every year. Saving money is just one of the benefits we are seeking to achieve with the advent of Live Here Love Here.

We are not unique in having a 'litter problem'. It is estimated that we spend upwards of €10bn annually on street cleaning across Europe. The real difference here now is that the Department for the Environment, Northern Ireland Tourist Board and a dozen of our pre-RPA local Councils have come together with Keep Northern Ireland Beautiful to ask the public, businesses, community groups, elected representatives and schools to pledge their support for Live Here Love Here; a programme that is now beginning to build a sense of civic and community pride through a high profile mutli-media campaign and support for positive voluntary action. Resources provided by Councils to run a small grants scheme has also meant around 40 local communities have benefitted from funding to help grow local pride. With these crucial elements in place we believe Live Here Love Here is going to begin making a real difference to the quality of people's lives, whilst also reducing the incidence of littering.

Continuing to collect data on litter and dog fouling is essential if we are to monitor the progress of Live Here Love Here. But there are other reasons why this work is important right now. With the 11 new Councils being established this is an opportune time for everyone to introduce the same approach to measuring litter, dog fouling and graffiti. Having the measure of detritus levels would also enable performance monitoring of new street cleansing protocols.

Dr Ian Humphreys

Chief Executive, Keep Northern Ireland Beautiful

[1] Figures for 2013-14, part of the official return by councils to the Department of the Environment.
[2] Figure adapted pro rata from 'Exploring the indirect costs of litter in Scotland' by Eunomia, 2014.
[3] Cost of Crime in Northern Ireland; Research Branch Report No. 1, 2010.

EXECUTIVE SUMMARY

The Keep Northern Ireland Beautiful 2014 Litter Survey is a comprehensive examination of the state of streets and public areas in Northern Ireland: over 2000 places across the country were examined and graded.

The results indicate that 83% of streets and open spaces in Northern Ireland met or exceeded acceptable standards for visible litter, a 2% fall on the figure in 2013 which was itself a fall of 3% on the year before. This is the worst return since 2005.

The least littered areas were Low Density Housing areas such as more affluent estates and areas of semi-detached housing, where only 5% of transects failed. The most littered landuse was Rural areas, where 31% of transects failed.

Cigarette-related litter was the most common type, observed on 73% of transects, although it was down 8% from 2013. Confectionary (57%) and drinks related litter (46%) again the second and third most common. Other than cigarette-related litter, there was almost no change in the percentage of transects on which each type of litter was observed in 2013.

Cigarette-related litter was observed on 95% of retail areas but just 43% of rural areas, with the other land uses between these limits. Drinks litter was more common than cigarette litter in rural areas, while confectionary was most common in recreational areas.

Every type of litter was observed less frequently in low density residential areas than in high density residential areas, with around half as much takeaway-packaging, drinks and non-packaging litter in low density housing areas.

Broken glass was observed on 12% of the 287 recreational transects surveyed, indicating a significant risk of injury to people and animals.

Dog fouling was recorded on 10% of all transects, indicating almost no change in habits from the 11% in 2013, and was most common in high density housing and recreational areas. 17% of the transects which failed did so because of the amount of dog fouling.

Dog fouling was observed in 19% of public parks, 23% of sports pitches and 11% of children's play areas.

The Detritus Pollution Indicator, a measure of longer term coverage of cleansing routines, was 3%, and has remained at less than 5% of transects since the survey began.

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INTRODUCTION AND BACKGROUND

How can you produce an effective and efficient solution to a problem if you do not fully understand what the problem is? This is an issue that Northern Ireland has faced in its ongoing battle to combat litter. This survey, only the third with this level of detail, enables councils and government to formulate plans to solve the problem, while fully understanding issues which need to be addressed.

This survey, with over 2000 streets analysed for litter, helps to paint a detailed picture of the litter situation within the province, covering as it does all 26 council districts. That it covers a number of years also allows trends to be discerned.

Survey Structure

The objective of the survey was to obtain a survey sample that was representative of the range of conditions that are to be found throughout Northern Ireland, and would provide accurate information to determine the current extent of the litter problem. Within each of the 26 council districts 40 different streets were assessed, making a total of 1040 transects. This was done twice during the year, to give a total of 2080 transects. Each transect was randomly selected from within the council boundaries, either by council staff or by Keep Northern Ireland Beautiful. A transect on a street is normally 50m long, extended 2m from the backline to the gully on one side of the street. It includes footpaths, kerbs and gullies and may also include landscaped areas such as verges, grassed areas, shrubbed areas, planters, tree pits and the bases of hedges and fences that bound areas of relevant land.

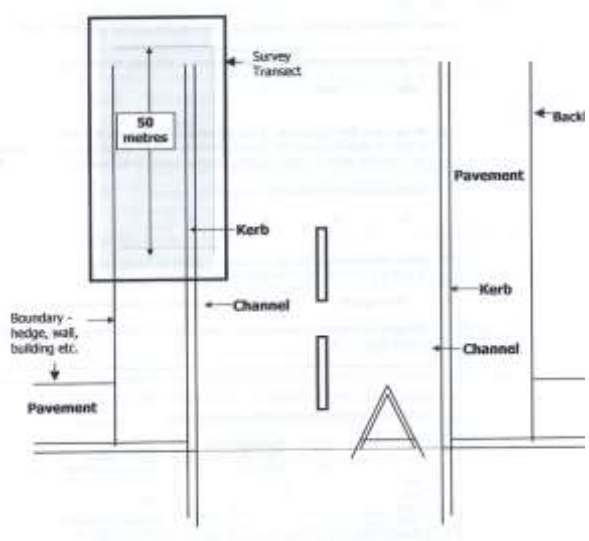

Figure 1: A typical urban transect is defined as shown in the diagram

Survey Coverage and Accuracy

In order to ensure we have a representative sample in the survey findings, we have set the confidence level at 95%, while the confidence interval with 1,040 transects is 3.04[4]. Since each survey of 1,040 transects is a distinct random sample and carried out at different times of the year, we cannot join the two datasets. This means that, providing the assumptions made in the survey structure are accurate; this survey will be a reflection of the average picture across Northern Ireland that is accurate to within 3.04% on 95% of occasions. A more detailed or regional breakdown cannot be provided with anything like the same accuracy. For example, in Belfast we would need to carry out over 1,000 surveys to reach the same level of confidence.

Transects have been located in a quasi-random manner which, following the structure of the survey, concentrates in areas with greater population. When the distribution is examined, transects have been placed in over 30% of all Census Output Areas in Northern Ireland[5]. This means that over 30% of the population can be said to live in an area the survey has covered.

Land Use Types

The selection of transects within each council district was broken down by land use type. Where possible the survey attempted to examine an equal number of each land use type, but given the differing make up of each council area this was not always possible. In cases where a land use type fell short of the required number, the total was made up of other land use types.

The eight different land use types are:

1. *Main Retail and Commercial Areas:* This Land Use Class includes the main town and city retail and commercial centres. Normally, there is also a range of public facilities, including libraries, and places of worship.
2. *Other Retail and Commercial Areas:* This Land Use Class covers retail and commercial areas located outside the main city and town retail and commercial centres (but excludes out-of town or edge-of-town 'retail park/retail shed' developments, which are included with landuse 8). Retail and Commercial Areas must contain a *minimum,* continuous retail or commercial frontage of 50 metres.
3. *Rural Roads:* This Class comprises all adopted highways that are located outside built up areas and which are not otherwise included in the Main Roads.

[4] *Calculated using population as a proxy for land coverage at 95% confidence level. Population data from NISRA*

[5] *This is calculated by combining NISRA population data and Land and Property Services mapping data, then using GIS to overlay survey data.*

4. *Main Roads:* This Class comprises 'A' roads: throughout rural areas (except where main roads run through larger settlements containing Main and Other Retail and Commercial Areas and High Obstruction Housing Areas); and in urban areas, except where main roads run through Main and Other Retail and Commercial Areas, or through High Obstruction Housing Areas.
5. *High Obstruction Housing Areas:* Housing areas are classified as 'High Obstruction Housing' if less than 50% of dwellings have purpose-made off-street parking/garaging facilities.
6. *Low Obstruction Housing Areas:* Housing areas are classified as 'Low Obstruction Housing' if more than 50% of dwellings have purpose-made off-street parking/garaging facilities.
7. *Recreation Areas:* This Land Use Class includes a wide range of open spaces that are freely accessible to the public and which are maintained by a local authority. Sites include parks, picnic sites, riversides; beaches; municipal cemeteries (but not churchyards) and cycle ways.
8. *Industry, Warehousing, Retail Sheds and Science Parks:* This Class includes industrial and warehousing developments; out-of-town retail parks (including food and non-food developments); and science parks (containing offices, laboratories and manufacturing processes), which contain land that is owned or managed by the local authority, and which is freely accessible to the public.

In some cases it was necessary to survey some land use types more frequently than others, Ensuring all landuses within a council district have been surveyed is an aim but this cannot be a strictly enforced criterion of the survey given the small sample sizes.

Litter Grading

The Litter (NI) Order 1994 states that litter is any refuse, filth, garbage or any other nauseous offensive or unsightly waste, or any waste which is likely to become nauseous, offensive or unsightly. For surveying a grading scale based on the definition in the Code of Practice for Litter and Refuse (issued under Section 89 of the (English) Environmental Protection Act 1990) was used, with an additional three intermediate scales as defined in National Indicator 195 (produced by Encams (the previous name for Keep Britain Tidy) on behalf of DEFRA) to allow surveyors to determine a more accurate assessment of cleanliness levels in their district. The seven-point scale has been used on a wide range of sites in the UK and elsewhere in Europe since 1993, and has proven itself to reflect standards more accurately from both service providers and customers perspectives. This is also the system used for grading streets within the Keep Northern Ireland Beautiful Borough Cleanliness Survey.

A transect that falls below a grade B is deemed to have failed. A transect graded either A, B+ or B is deemed to have reached acceptable standards of litter.

Each of the transects was graded to establish the amount of litter and detritus present. Any transect graded A, B+ or B was deemed to have met the required standards, but any transect graded B-, C, C- or D was deemed to have failed.

In compiling the results, each grade is assigned a value for use in calculations. The assigned values are as follows:

Table 1: The values associated with litter grades. These 'scores' allow averages and other calculations to be carried out on the survey data.

Grade	**A**	**B+**	**B**	**B-**	**C**	**C-**	**D**
Score	3	2.5	2	1.5	1	0.5	0

This allows averages and other descriptors to be calculated for the whole set of results. For example, if a set of 5 transects grades as A, B, B, B+ and B-, that would equate to scores of 3, 2, 2, 2.5 and 1.5, giving an average litter score of 2.2. The closer this litter score is to 3 the better the average grade that was achieved. In this example the average grade is between grades B and B+.

Grade A – No Litter

Grade B – Predominantly free of litter with some small items

Grade C - Widespread distribution of litter with minor accumulations

Grade D - Heavily littered with significant accumulations

Figure 2: Illustration of the grading system used in this survey. Greater detail on the survey methodology is available in the NI Borough Survey Guidance Manual, version 1.5, which is freely available by contacting Keep Northern Ireland Beautiful.

RESULTS

Litter Pollution Index

The Litter Pollution Index (LPI) is the standard measure of cleanliness, and was developed for use as a National Indicator, comparable across the UK. It is in essence a percentage of transects surveyed which failed to meet the standard for a B grading detailed above.

Table 2: The B grade was again the most common grade achieved in 2014, with nearly three out of five transects assessed at this grade. B+ was the next most common, with low numbers of other grades.

	2012	2013	2014
A	4	3	3
B+	23	23	24
B	62	59	56
B-	3	5	9
C	6	7	5
C-	0	1	1
D	2	2	2

Litter Pollution Index Trend

The results of this survey have been compared with the results of the less comprehensive Borough Cleanliness Surveys conducted in 2005 – 2008 and results of the NI Litter Survey from 2009 – 2013. It should be noted that the early Borough Cleanliness surveys only covered a small number of councils, while 2,080 transects across all 26 councils were visited in the 2014 survey.

Table 3: The trend in LPI since 2006. The score fell between 2006 and 2009, but has returned to an upwards trend since then. *NB Data provides a rough estimation of trends only; the total number of transects surveyed and the geographical extent varies between years.*

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Litter Pollution Index	19	15	11	11	8	14	11	11	15	17
Number of Transects	1120	1240	960	840	1040	520	1040	1040	2080	2080

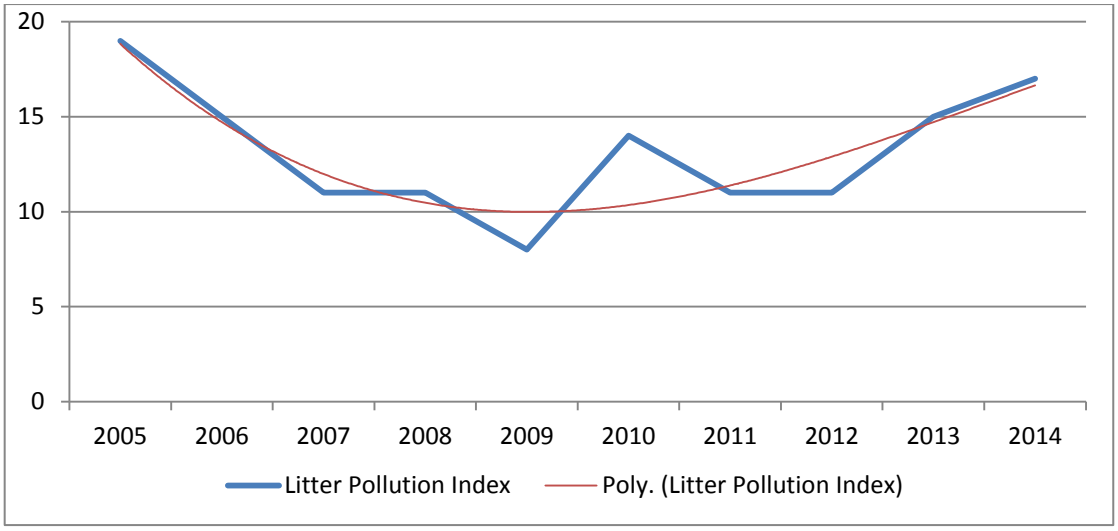

Figure 3: Illustration of the trend in LPI since 2005. The score fell between 2005 and 2009, but has returned to an upwards trend since then.

Litter Score by Land Use Type

Table 4: The average score achieved in each landuse type. The worst littering in 2014 was observed on rural roads and also in industry and retail areas. The least litter was observed in low obstruction residential. A score of less than 2 would indicate that a significant percentage of transects surveyed failed (B- or worse).

Landuse	Average grade in 2012	Average grade in 2013	Average grade in 2014
Main Retail	2.1	2.1	2.1
Other Retail	2.0	2.0	2.0
Rural Road	2.0	1.9	1.8
Main Road	2.2	2.0	2.0
High Obstruction Residential	2.1	2.0	2.0
Low Obstruction Residential	2.4	2.4	2.3
Recreational	2.2	2.1	2.0
Industry & Retail Sheds	2.0	2.0	1.8

Table 5: Litter Pollution Index for each landuse type. 9% of Main retail areas failed to meet the acceptable standard for litter. The landuse with the highest failure rate was rural areas, where almost a third of transects failed.

Landuse Types	number of transects surveyed	Number of failing transects	Percentage of transects which failed in 2014	For comparison, the percentage of transects which failed in 2013
Main Commercial/Retail	297	26	9	6
Other Retail/Commercial	189	33	17	15
Rural Area	238	73	31	26
Main Road	268	46	17	12
High Density Residential	296	49	17	17
Low Density Residential	314	15	5	6
Recreational Area	287	56	20	21
Industry, Warehousing and Retail Sheds	191	56	29	21

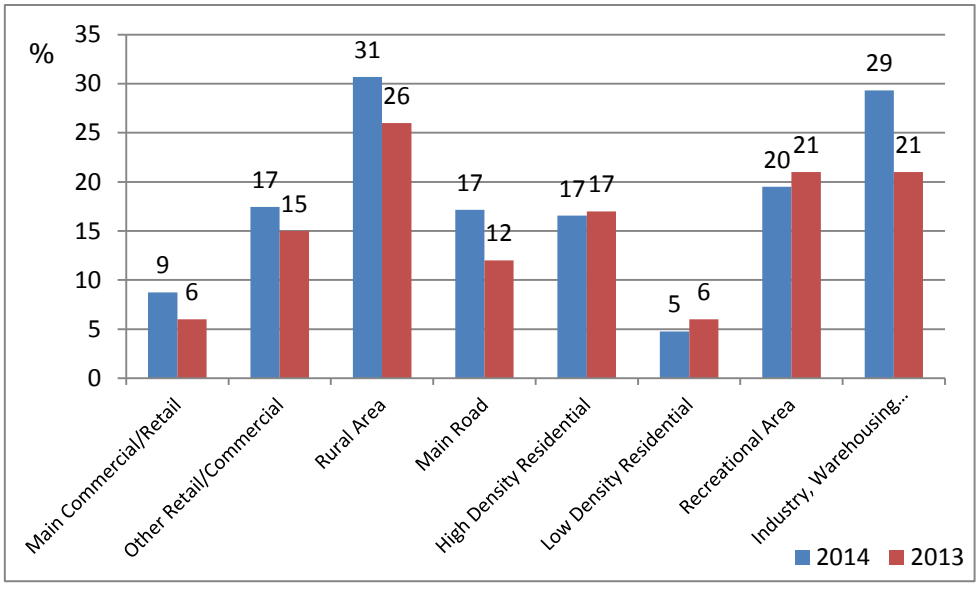

Figure 4: Illustration of Litter Pollution Index in each landuse type. Rural areas had the lowest LPI, and therefore can be said to have the worst littering observed, followed by recreational areas and industrial areas. Because different numbers of transects were sampled in each land use, the number of failures may not give a representative picture; the LPI is both constant and comparable between landuses, and serves to illustrate differences better.

Litter Types

Table 6: The percentage of transects where each type of litter was observed. Negative numbers indicate improvement. Cigarette litter was the most commonly observed litter type in 2014, observed on three out of four

transects, but 8% less than in 2013. Confectionary litter was observed on three out of five transects. More takeaway packaging litter was observed, but less food residues.

Type of Litter	% of transects in 2014	% of transects in 2013	% Change year-on-year
Cigarette Related	73	81	-8
Chewing Gum	15	15	0
Takeaway Packaging	24	22	2
Glass	11	10	1
Drinks	46	47	-1
Plastic Bags	8	9	-1
Confectionary Litter	57	59	-2
Business Litter	24	22	2
Non-packaging Litter	42	44	-2
Food Residues	1	4	-3
Dog Fouling	10	11	-1
Other	32	21	12

Type of Litter by Land Use

Table 7: The percentage observation rate for each litter type in each landuse in 2014. The number highlighted with the dark cell is the most common type of litter, medium shading the second most common and light shading third. In most landuses the most common types of litter is cigarette-related followed by confectionary, but on rural roads it is drinks followed by confectionary. Confectionary litter is the most common type in recreational areas.

	Cigarette related	Fresh chewing gum	Takeaway packaging	Glass	Drinks	Plastic bags	Confectionary	Business litter	Non-packaging	Food residue	Dog fouling	Other
Main Commercial/Retail	95	28	20	12	32	5	56	34	47	1	2	38
Other Commercial/Retail	94	26	23	11	40	8	68	35	50	2	11	38
Rural Area	43	1	46	3	70	17	61	8	42	0	8	32
Main Road	75	12	31	16	54	11	58	22	43	1	11	31
High Density Residential	84	20	21	13	48	3	58	24	41	0	13	27
Low Density Residential	63	11	7	6	28	3	34	21	29	0	6	26
Recreational Area	53	13	16	12	45	7	65	9	35	1	15	36
Industry, Warehousing and Retail	82	6	43	12	58	14	61	42	53	2	9	31
Average	73	15	26	11	47	9	58	25	43	1	9	32

Dog fouling

Dog fouling is noted in the survey as it is legally considered to be litter. Comparing scores with and without dog fouling gives an indication of the size of effect dog fouling has on the perception of litter.

Table 8: The percentage of each landuse on which dog fouling was observed

	% transects in 2014	% transects in 2013
Main Commercial/Retail	2	1
Other Commercial/Retail	11	7
Rural Area	8	4
Main Road	11	12
High Density Residential	17	17
Low Density Residential	6	12
Recreational Area	16	17
Industry, Warehousing and Retail	9	9
Average	9	11

Table 9: The average litter and anthropic litter index for each type of recreational area. A small number of beaches were surveyed during the bathing season. Grades in public parks improve when dog fouling is discounted, indicating that dog fouling is a problem that significantly impacts these areas. 11% of children's play areas in this survey had dog fouling in them.

	Number of transects surveyed	Percentage of transects with dog fouling	Average anthropic grade score	Average litter grade score
Beach	8	25	2.0	2.0
Children's play area	113	11	2.0	2.0
Public park	134	19	2.1	1.7
Sports pitch	31	23	2.1	2.1

Bin Availability

Table 10: The availability of bins. Bins marked for dog fouling are much less prevalent than standard litter bins, yet the public may still look for these rather than use an unmarked bin. The only landuse with significant percentage of dog fouling bins was Recreational Areas at 18%.

	Percentage of Transects with bins	Average number of bins per transect	Percentage overflowing bins	Percentage marked dog foul bins
Main Commercial/Retail	59%	0.9	4%	1%
Other Retail/Commercial	56%	0.9	10%	3%
Rural Area	3%	0.0	11%	0%
Main Road	17%	0.2	7%	3%
High Density Residential	3%	0.0	0%	1%
Low Density Residential	2%	0.0	0%	1%
Recreational Area	79%	1.4	3%	18%
Industry, Warehouse and Retail Sheds	4%	0.0	0%	2%
Average	28%	0.4	5%	4%

CONCLUSIONS

Litter Pollution

The rise in the LPI from 15 in 2013 to 17 in 2014 suggests that littering behaviours and the effect of cleansing are that their worst since 2006. An LPI of 17 indicates that nearly one in six transects has unacceptable levels of litter on it. Table 2 indicates that the percentage of transects assessed at A and B+ grades – those with almost no litter – have remained relatively constant, and that the fall in LPI is driven by B grades falling into the failing bracket. Because the survey is designed not to replicate a sample, we cannot determine if this indicates that transects which were previously generally a B grade have more litter present. We can simply say that generally, there are the same percentage of A and B+ grades, but that around one in ten of transects that would have graded B two years ago are now being assessed as having failed. Indeed, almost all of the change in grades since 2012 is across the pass/fail boundary.

This suggests that there has in fact been a relatively small shift in litter levels. The difference between B- and B can often be quite small – the operative term in the Litter Code of Practice is 'minor accumulations' – and consequently this deterioration may be relatively easy to reverse.

Land Use Type

The landuse types with the worst average grades were rural roads and industrial and retail sheds. These areas are both characterised by low residency, relatively high traffic and large areas of unmanaged land such as verges. By contrast, the best average grade was observed in low obstruction residential areas which are characterised by high residency, low traffic and carefully managed private grounds. An average of half a grade exists between these two extremes, and the gap in cleanliness standards has widened slightly since 2012.

Table 5 indicates the gap between carefully managed areas and those not subject to such a regime. Retail areas, although more frequently littered than in previous years, retain a low score. This is due to effective, intensive cleansing, as these areas also suffer high rates of littering. Taking the accepted margin of error of 3% for this survey, we see that the landuses which have become more littered are transport routes by a small margin and industrial areas by a significant margin. The most recent figures available (FY2013-14) indicate that £38.6 million was spent on cleaning the streets, parks and beaches of Northern Ireland. This figure does not include the cost to private land owners such as the National Trust, Roads Service, NI Environment Agency or NI Forest Service.

Litter Type

Cigarette related litter was the most common type of litter observed, as it has been in every year since this survey started. 73% of transects had cigarette litter on them, a drop of almost 8% over the figure in 2013 (Table 6). This is encouraging, although it must be set against the general increase in the number of failing transects. Comparing the general observation rate for each type of litter, it becomes apparent that the only type of litter other than cigarette-related to change markedly was Other Litter. This general category includes a wide variety of things that are rarely observed and do not fit within the other categories. Examples of items noted as other during the last year include items of clothing, toys, CDs and condoms. The largest constituent of this category however are items which cannot be definitively identified as part of another category. This suggests a reason for the increase in this category, as a significant proportion of the surveys were carried out by newly qualified surveyors, who rather than incorrectly categorise an ambiguous litter item, placed it in the Other category.

Confectionary litter was the second most common litter type, observed on more than half of all transects. Drinks related litter was third most common, observed on just under half of all transects.

Litter Pollution by Land Use Type

Table 7 indicates that Cigarette-related litter was the most commonly observed type in six of the eight landuses. Only in Rural areas did it fail to make the top three. This may be due to the different pattern of use of such areas – far fewer pedestrians and high rates of transitory use – or simply due to the difficulty of seeing cigarette butts in long grass.

Rural areas and Recreational areas were the only areas which did not follow the same pattern of litter as the others. Recreational areas were the only landuse to have confectionary litter as the most common type; unsurprising given the majority demographic of the users. Cigarette Litter was the most common litter type in the other six landuses, but only third most common in Recreational areas, and forth in Rural areas.

Drinks litter was almost 40% more common in Rural areas than it was on average in the other landuses (70% of transects as opposed to 44%). This is likely to be a result of infrequent cleansing and the persistent nature of the plastic most of this litter is made from. The ubiquity of this litter and the number and length of rural roads in Northern Ireland mean there is a considerable volume of recyclable material lost to careless littering each year, as it is either shredded when the verge is cut; washed into field drains or simply left where it is.

Dog Fouling

Dog fouling continues to be an issue in Northern Ireland, with an average of 10% of transects affected by this type of litter (Table 8). Dog fouling is most common in high density housing, where 17% of transects were affected. Recreational areas have been identified in previous surveys as a particular issue, and this is the first time that rates for dog fouling have been recorded as higher in another landuse. Note however that the margin of error for this survey is around 3%, so we cannot say with conviction that there has been any real change in the amount of dog fouling.

Dog fouling appears to be more than twice as prevalent in High-density Residential areas as it is in Low-density ones. It would require more resources to determine if this reflects simply the number of residents, or if the difference in transects blighted by fouling is larger or smaller than this. This is a significant increase in the difference between the landuses, which has been around 6% in the past, and it will be interesting to see if this is maintained in future surveys.

Dog fouling in recreational areas continues to be a problem, with fouling observed on a quarter of all beach transects, around a fifth of parks and sports pitches and one in ten children's playgrounds.

In public parks especially, dog fouling is causing a relatively high percentage of transects, which are otherwise quite clean, to fail (Table 9). A comparison of transects in public parks both including and excluding dog fouling indicates that the average grade increases from a B-grade (score of 1.7) to a B grade (score of 2.1) if dog fouling were removed from the scoring.

Bins

Table 10 indicates that bins are relatively common in retail and recreational areas, but are much less common in other landuses. On average, there was a bin every 55m in Retail areas. This falls to one bin in almost every 2km in Low Density Residential areas, yet there were no overflowing bins in Residential areas, either Low or High Density.

Only in Recreational areas are bins marked to receive dog fouling with any regularity. Excluding recreational areas, only 1.5% of all bins are marked to accept dog fouling. Significant resource has been put into educating and encouraging people to use 'any bag, any bin' for dog fouling, yet this continues to be something many dog owners do not realise. On average, across all of the transects surveyed across Northern Ireland, a bin was observed once every 115 meters.

Overflowing bins were very rare, with only around one in 20 three quarters full or more. The highest percentage of overflowing bins was in rural areas. However, this was based on a sample of just nine bins. The overall very low level of bin provision in this landuse effectively invalidates any analysis. The only landuse with significant numbers of bins and also significant numbers of overflowing bins was secondary retail. These areas are slightly biased toward

smaller town and village centres where the bins may not be lifted daily, but further investigation would be necessary before any pattern could be suggested.

RECOMMENDATIONS

This survey follows a well-established pattern in which the transects are chosen to, as closely as possible, provide five examples of each land use type. This format was developed in 2005 to ensure that all the landuses were represented, but as a result the survey significantly over-represents retail and industrial areas. These areas ideally contribute 37.5% of the transects for the survey, yet because they are a much smaller proportion of the actual landuse in Northern Ireland, many of the areas are repeatedly sampled, and the landuse in general is oversampled. In some local authority areas, there simply were not five suitable areas of a particular land use to survey, with the result that most of the councils have variable ratios of the landuses. It would be illuminating to carry out an analysis of this data in which weightings are used to equally represent the different landuses. It might further be interesting to continue this analysis by weighting the data to take into account the relative size of each council area, or to make the proportion of landuse more closely represent the actual proportion of landuse in Northern Ireland.

The Review of Public Administration will reframe the council areas and there will be significant upheaval in cleansing routines while new systems and routines are worked out. While the planning process is already underway, the need for independent monitoring of outcomes will be greater than ever during this time. Individual councils should be encouraged to put in place a robust system to monitor the effect of their cleansing routines and be ready to make changes as necessary or identified.

Keep Northern Ireland Beautiful believes that the Review of Public Administration presents an opportunity to reframe the nature of anti-littering efforts in Northern Ireland. By embracing novel ideas such as interactive bins or nudge theory with and the increased powers available to larger councils, a distinct change can be brought about within Northern Ireland. The relatively small population and low levels of mobility here can work to our advantage in correcting habits and behaviours that lead to anti-social behaviour. Pro-social behaviours can be introduced into and take hold in populations given the right environment. Support for Live Here Love Here is one practical way this could be achieved.

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