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An Roinn Comhshaoil,
Aeráide agus Cumarsáide
Department of the Environment,
Climate and Communications

The National Litter Pollution Monitoring System

Litter Monitoring Manual

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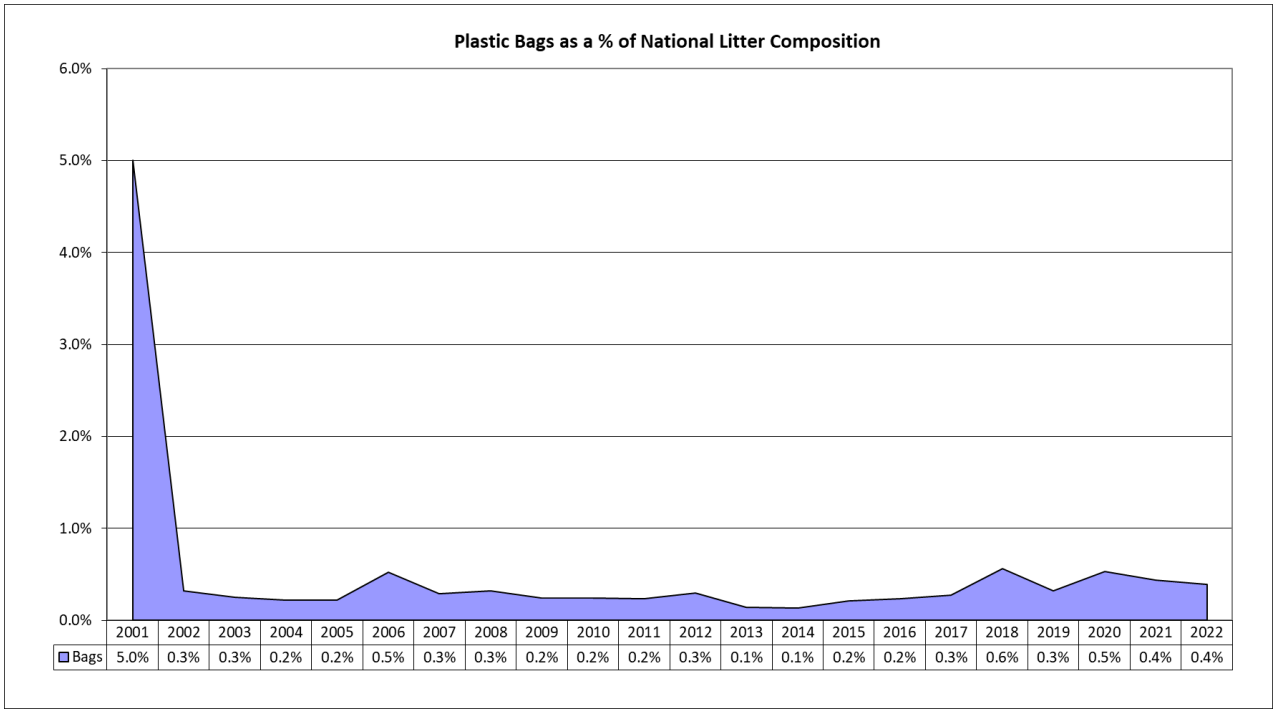
1. INTRODUCTION

The various elements of the National Litter Pollution Monitoring System (NLPMS) are presented in detail in this manual. Specifically, the exact methodology to be adopted during Litter Quantification Surveys and Litter Pollution Surveys is described. The general purpose of this Monitoring Manual is to describe the surveying responsibilities of the local authorities under the NLPMS.

1.1 THE NATIONAL POLLUTION MONITORING SYSTEM

The NLPMS is an environmental management tool that enables local authorities to tackle litter more effectively, by providing a framework for consistent and accurate self-assessment by local authorities – "if you can measure the litter problem, you can manage it". The NLPMS allows local authorities to self-monitor their litter cleaning systems and assists the monitoring of progress under the Litter Pollution Act, 1997. The System also assists national level monitoring of litter distribution and pollution. In the past the System has facilitated monitoring of national level litter policies such as the plastic bag levy introduced in 2002. Figure 1-1 below highlights the manner in which such policies can be monitored using the NLPMS.



	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Bags	5.0%	0.3%	0.3%	0.2%	0.2%	0.5%	0.3%	0.3%	0.2%	0.2%	0.2%	0.3%	0.1%	0.1%	0.2%	0.2%	0.3%	0.6%	0.3%	0.5%	0.4%	0.4%

Figure 1-1 Plastic Bags as a % of National Litter Composition, 2001-2022

The NLPMS system generates valuable and detailed statistics which will allow authorities to assess their anti-litter performance, to identify and prioritise their future anti-litter measures. In other words, the system has been designed to facilitate pro-active rather than reactive management of litter pollution by authorities.

There are a number of basic elements of the System which each local authority are required to deliver. These include; the completion of a pre-determined number of Litter Quantification Surveys and Litter Pollution Surveys – the aim of which is to identify and document the composition, distribution and origin of the litter pollution problem currently being experienced

in Ireland; and the reporting of the results of these litter surveys to the Litter Monitoring Body so that national summaries can be prepared for the Department of the Environment, Climate and Communications (DECC).

The statistics generated from the litter surveys relate to; the severity and extent of litter pollution across the country, the manner in which levels of litter change from location to location and the most likely causes of litter blackspots. They also detail the composition of the litter pollution.

1.1.1 The Aims and Objectives of the NLPMS

The objectives of the System are as follows:

- To allow local authorities to objectively assess litter pollution levels in their own areas. In other words, the NLPMS involves self-assessment;
- Indicate the locations and frequencies of local authority litter surveys;
- Identify the origin and type of litter pollutants;
- Identify the most likely cause of the litter observed; and
- Use a standard report format for the litter survey results obtained nation-wide.

The aims of the System are as follows:

- Function as a self-assessment tool for local authorities;
- Provide statistics relating to:
    - The extent and severity of litter pollution in authority functional areas;
    - The composition of that litter and its most likely source(s);
    - Changes in the cleanliness levels of functional areas from year to year;
    - The impact of new anti-litter measures (e.g., chewing gum.)
- Allow authorities to observe, collate, assess, analyse, and report information on the levels of litter pollution in their functional areas;
- Provide a national overview of the extent and distribution of litter pollution across the entire country; and
- Facilitate information dissemination between local authorities, the Litter Monitoring Body and The Department of Environment, Climate and Communications.

It is important to note that the NLPMS is a self-assessment tool and does not allow for the development of a ranking league table or a direct assessment of local authority cleansing system efficiency.

2. ROLES AND RESPONSIBILITIES

2.1 LOCAL AUTHORITIES

Under the System, local authorities will:

1. Survey – carry out a pre-defined number of litter surveys in their areas using a methodology developed by the Litter Monitoring Body. This methodology has been designed so as to ensure, as far as is practicable, a uniformity of approach amongst authorities. There are a number of activities which must first be completed by the authorities before any litter surveys can be undertaken. These include the identification of Potential Litter Generators[1] in each authority's area.
2. Two types of litter survey are required. The first, the Litter Quantification Survey, is undertaken annually and will identify the type and origin of litter pollution prevailing in a given area. The results of these surveys will allow authorities to target litter prevention and awareness priorities at the local level. For example, the proportion of litter pollution arising from fast-food outlets and shopping-related activities will be identified, and can be tracked over time. Each Litter Quantification Survey, which takes approximately 10-15 minutes to complete (excluding travel time), involves the counting of all of the litter items occurring within a 50m stretch of footpath or roadway.

   > *Litter Quantification Survey = a survey, involving a litter item counting exercise, which assesses the origin and type of litter pollution prevailing in a 50m stretch of an authority's area.*

   The results of the surveys will be logged on a standardised report form, and the national results analysed and reported upon by the Monitoring Body.

   The second type of survey, termed the Litter Pollution Survey, is a monitoring tool which allows authorities to determine the extent and severity of the litter prevailing at representative locations across their areas. The information obtained from these surveys will allow authorities to identify litter blackspots and track changes arising from altered litter management practices.

   > *Litter Pollution Survey = a visual inspection of a 50m stretch of footpath or other public area to determine the extent and severity of any litter pollution observed. Three types of area are assessed during the Litter Pollution Survey – namely a) High-risk Survey Areas; b) Random Survey Areas and c) locations which are felt by the authorities themselves to merit observation. undertaken by the urban authorities (and particularly the major cities).*

   The completion of these surveys will allow for the development of an accurate and detailed overview of national litter pollution levels, and will also allow changes in those pollution levels to be identified.

3. Report – each authority will complete a results database containing the results information from each litter survey undertaken and submit it to the Litter Monitoring Body for assessment by the end of December each year.

[1] Potential Litter Generator is the collective term given to premises, sites or activities which are likely to give rise to litter pollution. Examples include fast-food outlets, derelict land, tourist attractions and secondary schools.

4. Liaise – authorities must liaise regularly with the Litter Monitoring Body as it discharges its various functions.

2.2 The Role of the Litter Monitoring Body

In order to fulfil its responsibilities under the System, the Litter Monitoring Body will circulate to each local authority a standardised methodology for two types of litter surveys (i.e., Litter Quantification Surveys and Litter Pollution Surveys). This methodology includes the following:

1. Indications of the frequencies of the litter surveys to be carried out by the local authorities. Tables outlining the annual surveying requirements of each authority are presented in Sections 5 and 6 of this manual and at www.litter.ie[2]. When the project was initially developed the frequencies identified for the individual authorities were chosen on the basis of the specific characteristics of their functional areas (e.g., geographical size, land-use patterns, population levels and population density). These survey numbers continue to allow year on year comparisons. Additional surveys may be undertaken by individual local authorities if they wish.
2. Indications of the types of locations to be surveyed during Litter Pollution Surveys. There are three main types of location which will be surveyed in the NLPMS, namely:
    - Those which represent areas with the highest possible risk of being polluted. These survey locations are termed High Risk Survey Areas. They are chosen from where clusters of local litter-producing premises and situations are positioned (e.g., fast-food outlets, known litter blackspots and tourist attractions).
    - Random locations, termed Random Survey Areas – chosen by the local authority using GIS or manually (e.g., selecting random locations throughout their jurisdiction).
    - Locations which are chosen by the local authorities themselves as meriting observation. The freedom to monitor at locations of their own choice has been included in the sampling regime to ensure that the authorities are given the flexibility to use the System as a management tool which specifically meets the needs of their individual local conditions.
3. A scoring system to enable the authorities to rate the cleanliness of each location surveyed. The cleanliness of each survey site is expressed as a Litter Pollution Index which indicates the severity and extent of the littering observed at that location. The Index is calculated on the basis of the presence or absence of specific Key Indicator Litter Items (e.g., dog-fouling) which are assessed during the Litter Pollution Survey. A location with a Litter Pollution Index of 1 would be only slightly littered whereas an Index 5 area would be polluted to the extent expected after a major sporting or entertainment event. In light of the varied nature of the different types of locations to be surveyed, it is deemed inappropriate to attempt a cross-comparison between local authorities. Instead, the cleanliness of each authority functional area is compared only with the results of their previous surveys. Appendix A of this manual includes example photos of Area Cleanliness Ratings and these are also available at www.litter.ie.
4. A requirement that local authorities, as far as practicable, identify the factor(s) that cause litter pollution at different locations and the action(s) they propose to use to control and prevent such pollution. The customised questionnaire designed for the Litter Pollution Surveys requires surveyors to identify the most likely causes of the litter observed in a given area (for example, proximity of litter bins and litter-producing premises, available volume remaining in litter bins, weather conditions or evidence of

[2] Please note that for all references to litter.ie throughout this manual that the litter.ie website will be discontinued in the near future at which point all material will be available on gov.ie.

refuse collection activities). The questionnaire also prompts the surveyor to suggest possible solutions to the problems observed at littered locations.

5. A standard survey results report format to be used by local authorities when submitting survey results to the Litter Monitoring Body. These are to be electronically returned to the Litter Monitoring Body when surveys are completed and documented.

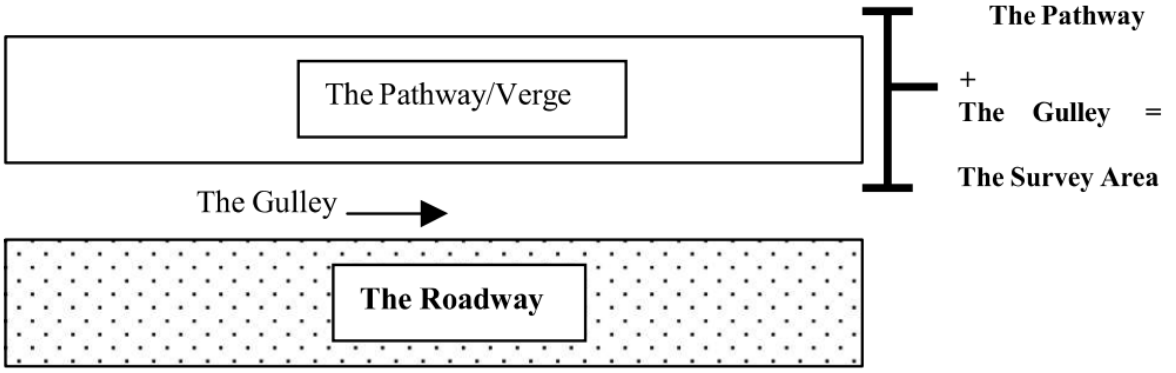
2.3 THE DEPARTMENT OF THE ENVIRONMENT, CLIMATE AND COMMUNICATIONS

The Department's role in the NLPMS is as follows:

1. Management of the contract with the Litter Monitoring Body;
2. Liaison with the Litter Monitoring Body;
3. Agreement of the work programme timetable for the Litter Monitoring Body; and
4. Provision of advice to local authorities on litter awareness action.

3. SURVEY AREA

The Litter Quantification and Litter Pollution survey areas are a 50m stretch. This can be the footpath or 1m of the verge closest to the road, as well as the gulley beside it.



N.B. All litter visible with 1m of the survey area should be considered. Private property should under no circumstance be entered. However, if litter is present on private property and may be counted easily as part of the LQS survey; it should be assessed. For example, litter which is visible behind a fence should be included for the purpose of this survey.

4. SURVEY TIME FRAME

Local Authorities can carry out their Litter Quantification and Litter Pollution Surveys from March to November each year. Surveys should be spread out throughout the year and results inputted into the databases following each survey. The survey results databases are to be returned to the Litter Monitoring Body by the end of December each year.

5. LITTER QUANTIFICATION SURVEY

The Litter Quantification Survey (LQS) gathers detailed data on the origin and composition of litter being deposited across the country. This information is obtained through the counting of litter items while they remain on the ground. The initial series of surveys to date has allowed local authorities to establish "benchmark" assessments of the extent and composition of litter pollution in their areas; comparison of future survey results with the benchmark surveys will allow progress to be measured. In this way, analysis of survey data will enable each local authority to assess the effectiveness of its own litter management strategies on an ongoing basis and ensure the optimum allocation of resources to tackle litter.

5.1 LITTER QUANTIFICATION SURVEYS METHODOLOGY

The LQS identifies the types of litter found in a given area and helps to identify the most likely origin of that litter. This type of survey involves the visual inspection and counting of the litter items contained within a given 50m area, without interfering with those items. It should be noted that it is vital that the largest possible sample size should be chosen for these areas i.e., areas with significant litter pollution in order to produce accurate results. Preferably these litter hotspots, as such, will be surveyed as long as possible after the last litter sweep.

5.1.1 Carrying out the Litter Quantification Surveys

The LQS surveys are carried out by surveyors, typically the litter wardens or administrative staff, technical staff, or students. They are undertaken annually by each local authority. Each survey, which takes approximately 10-15 minutes to complete (excluding travel time). The survey forms are printed out and completed on location. The survey forms are available at www.litter.ie to download.

A 50m stretch is measured and all litter visible with the 50m survey area should be counted. While private property should not be entered under any circumstances, if litter is present on private property and may be counted easily it should be assessed. For example, litter which is visible behind a fence should be included for the purpose of this survey. Each litter item within the survey area should be counted and marked on the survey sheet. You do not need to represent the items that do not appear in the survey area with a zero on the sheet. Only newly deposited chewing gum should be counted as part of the survey.

The data collected is then inputted into the LQS Database, which is available to download at www.litter.ie. It is important to note that when inputting data into the LQS database each survey will have a tab of its own. When more than 40 locations are surveyed another database should be downloaded and filled. It is important not to copy and paste the databases or edit the tabs as it will affect the links created within the databases. Should any local authority have any issues with the databases, the Litter Monitoring Body should be contacted.

When complete, the datasets are sent to the Litter Monitoring Body by the end of December.

The data obtained during the surveys is combined into statistics on several litter categories. This data can subsequently be analysed in greater detail to allow for the identification of the sources or origin of the different litter items. The Litter Monitoring Body then collates the data received and analyses the data with the use of graphs. The data obtained during the surveys is combined into statistics on several litter categories. This data can subsequently be analysed in greater detail to allow for the identification of the sources or origin of the different litter items. The data is then inputted into the National Systems Report and the individual Local Authority

Reports. In this way, the information obtained from the surveys carried out across the country will allow the authorities to identify the litter sources which are most important in their specific local context and to ascertain the effectiveness of their targeted anti-litter measures.

5.2 Litter Quantification Surveys Locations

A minimum of one survey must be done in each of the survey types e.g., urban centre, national route etc. If there is a popular beach present within the functional area this must also be surveyed at least once annually. For the larger local authorities, it is advised that the surveys be carried out evenly across the range of survey types.

The LQS surveys should be carried out in an area with the largest sample size possible i.e., an area that is heavily littered ' hot spot'. The exact survey locations can be chosen at the discretion of the local authority. Local knowledge regarding hotspots as such is highly useful in this regard. It is important however that a range of locations are surveyed, such as beaches, urban centres, and national routes. Upon choosing survey locations, the location should be surveyed as long as possible after the last sweep.

5.3 Number of Litter Quantification Surveys

Each local authority has a predetermined minimum number of LQS to undertaken annually, see Figure 5-1.

Figure 5-1 Number of Litter Quantification Surveys to be undertaken by Local Authorities

Local Authority	Minimum Number of Surveys
Carlow County Council	36
Cavan County Council	36
Clare County Council	60
Cork City Council	45
Cork County Council	117
Donegal County Council	66
Dublin City Council	45
Dún Laoghaire – Rathdown County Council	36
Fingal County Council	42
Galway City Council	39
Galway County Council	42
Kerry County Council	78
Kildare County Council	60
Kilkenny County Council	48
Laois County Council	24
Leitrim County Council	24
Limerick City and County Council	60
Longford County Council	42
Louth County Council	72
Mayo County Council	60
Meath County Council	66
Monaghan County Council	78
Offaly County Council	48
Roscommon County Council	24
Sligo County Council	48
South Dublin County Council	36
Tipperary County Council	132
Waterford City and County Council	78
Westmeath County Council	42
Wexford County Council	78
Wicklow County Council	66

5.4 2023 Updates to the Litter Quantification Surveys

In 2023 a number of new items were added to the LQS survey form. The Litter Monitoring Body liaised with the DECC and Local Authorities regarding updates to the LQS form. A number of litter items were added to the form and two new categories were added; Rubber and Vaping

Related Litter. Previously there were 13 categories within the LQS; Food residues, Sweet-related Litter, Takeaway Packaging, Glass Packaging, Metal Packaging, Paper Packaging, Plastic Packaging, Deleterious Litter Items, Large Litter Items, Paper Items (Non-Packaging), Plastic Items (non-Packaging), Cigarette Related Litter and Miscellaneous Litter Items.

An increase in the presence of vaping related litter has been noticed nationally in Ireland. To monitor this litter a new category, Vaping Related Litter has been added to the LQS form. This category includes E-cigarettes (cigalikes), pod vapes, vape pens, box vapes, vaping packaging – cardboard, vaping packaging – plastic, vaping packaging – metal, refill cartridge, battery and other (e.g., heating coil, mixed plastic contraptions, a nicotine liquid-soaked sponge).

In addition to this, with regard to the implementation of the Single Use Plastics Directive (EU) 2019/904 a number of items were added throughout the litter categories. Cold drink Cups and Hot Drink Cups (creating a differentiation from the previous Drink Cups line item), Disposable Cutlery – plastic, Disposable Cutlery – non-plastic, Food Containers – plastic, Food Containers – non-plastic, Plates – plastic, Plates – non-plastic, Straws – plastic and Straws – non-plastic.

Furthermore, as a result of discussions with local authorities a new rubber category was created to monitor Tyres and Rubber balloons. The remaining additions occurred across a number of categories and include; Nitrous Oxide Cannisters, Foil Balloons, Blister packs, Disposable Gloves, Wet Wipes, Fask Masks, Cotton Buds and Cigarette Papers and a new Rubber Category which tracks the number of Tyres and rubber balloons are monitored.

6. LITTER POLLUTION SURVEYS

The second strand of the NLPMS involves obtaining information on the distribution, extent, and severity of litter pollution nation-wide. The manner in which the requisite information will be obtained in the NLPMS involves the completion of a number of Litter Pollution Surveys (LPS). These surveys are effectively visual inspections of a given location to ascertain how polluted it is. A questionnaire survey form has been designed by the Litter Monitoring Body for the purposes of this survey. The LPI survey form is available to download at www.litter.ie. The information obtained from these surveys allow local authorities to identify litter black spots and track changes in pollution levels arising from altered litter management practices. The completion of these surveys allows for the development of an accurate and detailed overview of national litter pollution levels and will also allow changes in those pollution levels to be identified.

6.1 LITTER POLLUTION SURVEYS METHODOLOGY

The cleanliness of each survey site is expressed as a Litter Pollution Index (LPI) which indicates the severity and extent of littering observed at that location. The Index is calculated by assessing the amount of pollution of the ground and giving it a rating from 1-5. This value is determined using a visual inspection of the area and rating it according to prescribed standards (refer to photographs included in Appendix A of this manual). A location with a Litter Pollution Index of 1 would be free of litter pollution whereas an Index of 5 would be polluted to the extent expected after a major sporting or entertainment event. The five Litter Pollution Index categories are as follows; (LPI 1) Unpolluted, (LPI 2) slightly polluted, (LPI 3) moderately polluted, (LPI 4) significantly polluted, and (LPI 5) grossly polluted.

A list of most commonly observed litter generators has been complied. These include Passing Pedestrians, Gathering Point, Schools/School Children, Bank ATM, Construction Site, Bus/Train Station, Overflowing bins, Bus stop, Bring Bank, Retail Outlets, Places of Leisure/Entertainment, Fly-tipping/ Dumping, Fast-food Outlet, Refuse Collection/ Presentation, Major Entertainment Event, Weather Conditions, Passing Motorists, Other (please specify). The list is not exhaustive, the 'Other' category may be populated if a surveyor encounters a potential litter generator that does not appear on the list. This comment section can help local authorities identify potential litter generators in their area.

6.1.1 Carrying out the Litter Pollution Surveys

In a similar manner to the Litter Quantification Surveys, the LPS survey form should be printed out to be filled out at the survey location. The survey location should cover a 50m stretch. The surveyor should rate the location according to the Litter Pollution Index. At least one photograph is required of each survey location and can be forwarded to the Litter Monitoring Body with the survey results. The surveyor then ticks the boxes of the form which they believe to be contributing to litter pollution in the survey area. It is of note, if the survey area is litter free, then no causative factor should be noted on the survey form i.e., if there is no litter, then there is no cause.

Each local authority is asked to alter the time of the survey to give a true representation of litter pollution varying with time. That is surveys should be taken weekdays and weekends, at different times.

The LPS survey results are inputted to Microsoft Access by the local authority and returned to the Litter Monitoring Body. If any local authorities cannot use Microsoft Access alternative

Excel spreadsheets can be provided by the Litter Monitoring Body. The photographs taken at each survey location should be provided to the Litter Monitoring Body for each LPS area completed. This will allow the Litter Monitoring Body to continually audit the System.

6.2 Litter Pollution Survey Locations

A key feature of the LPS is its focus on monitoring in areas that are polluted or are likely to be polluted i.e., where potential sources of litter are located. To this end, local authorities determine the locations for their surveys using maps produced by specially designed Litter GIS software, as follows:

- 40% in "high risk" locations (e.g., in town or city centres) where the concentration of potential litter sources is greatest;
- 40% in random potential litter generating areas - chosen by the Litter GIS software (or manually random throughout the local authority jurisdiction if GIS is not available); and
- 20% in locations chosen by local authorities, based on local knowledge of litter pollution.

6.3 Number of Litter Pollution Surveys

The number of LPS to be completed annual is presented in Figure 6-1. The data collected is then inputted into the LPS Database, which is available to download at www.litter.ie and returned to the Litter Monitoring Body from where the results are collated.

Figure 6-1 Number of Litter Pollution Surveys to be Undertaken by Local Authorities

Local Authority	Minimum Number of Surveys
Carlow County Council	104
Cavan County Council	98
Clare County Council	194
Cork City Council	407
Cork County Council	636
Donegal County Council	275
Dublin City Council	560
Dún Laoghaire – Rathdown County Council	200
Fingal County Council	200
Galway City Council	115
Galway County Council	240
Kerry County Council	296
Kildare County Council	182
Kilkenny County Council	126
Laois County Council	62
Leitrim County Council	48
Limerick City and County Council	235
Longford County Council	72
Louth County Council	200
Mayo County Council	283
Meath County Council	194
Monaghan County Council	190
Offaly County Council	146
Roscommon County Council	82
Sligo County Council	123
South Dublin County Council	200
Tipperary County Council	444
Waterford City and County Council	194
Westmeath County Council	114
Wexford County Council	219
Wicklow County Council	234

APPENDIX A

LITTER POLLUTION INDEX PHOTO EXAMPLES

The National Litter Pollution Monitoring System

Area Cleanliness Rating Photographs

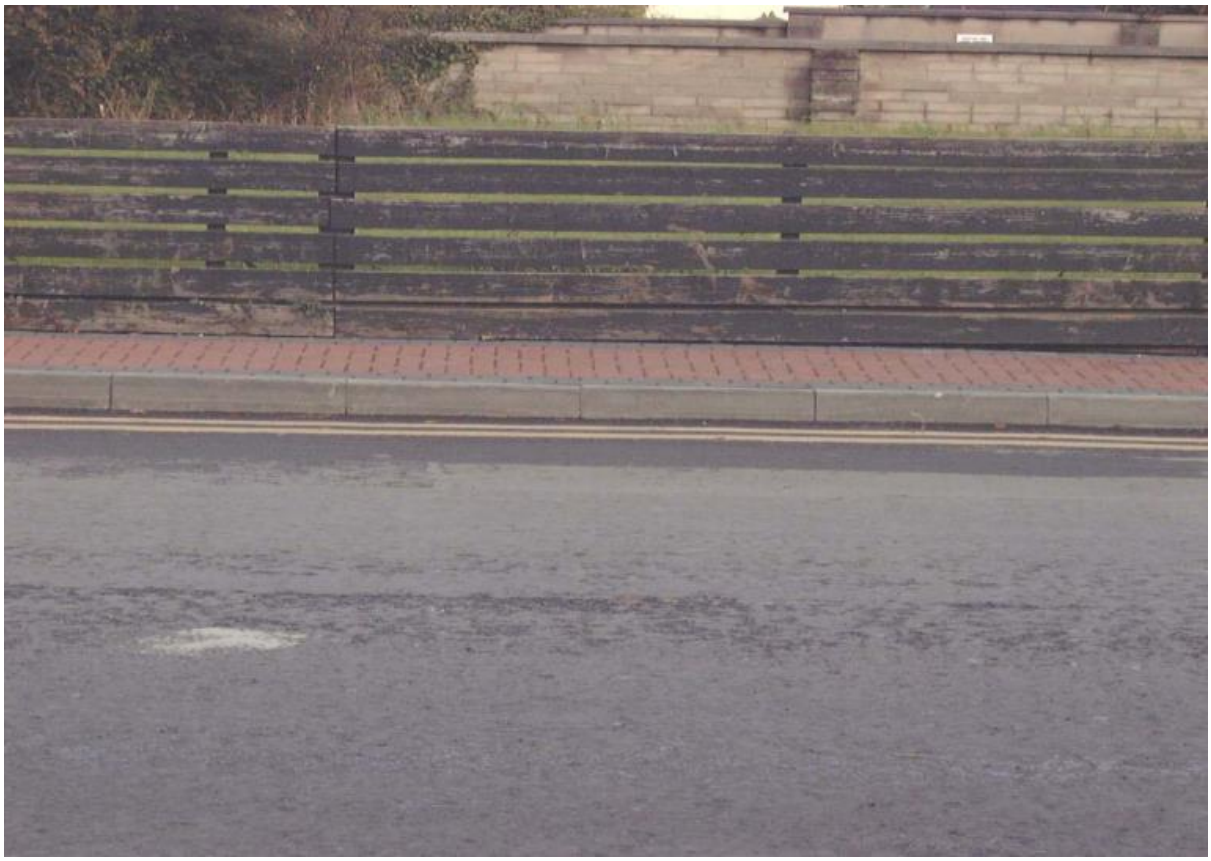
The Litter Pollution Index

The cleanliness of each survey site is expressed as a Litter Pollution Index (LPI) which indicates the severity and extent of littering observed at that location. The Index is calculated by assessing the amount of pollution of the ground and giving it a rating from 1-5. This value is determined using a visual inspection of the area and rating it according to prescribed standards (refer to photographs below). A location with a Litter Pollution Index of 1 would be free of litter pollution whereas an Index of 5 would be polluted to the extent expected after a major sporting or entertainment event. The five Litter Pollution Index categories are as follows; (LPI 1) Unpolluted, (LPI 2) slightly polluted, (LPI 3) moderately polluted, (LPI 4) significantly polluted, and (LPI 5) grossly polluted.

The Litter Cleanliness Photographs within this document highlight the five Litter Pollution Index categories.

Area Cleanliness Rating 1 (Unpolluted)

Footpath



Area Cleanliness Rating 1 (Unpolluted)

Footpath

Area Cleanliness Rating 2 (Slightly Polluted)

Footpath

Area Cleanliness Rating 2 (Slightly Polluted)

Footpath

Area Cleanliness Rating 2 (Slightly Polluted)

Footpath

Area Cleanliness Rating 2 (Slightly Polluted)

Grass Verge

Area Cleanliness Rating 2

Edge of Road

Area Cleanliness Rating 3

Gutter

Area Cleanliness Rating 3 (Moderately Polluted)

Gutter

Area Cleanliness Rating 3 (Moderately Polluted)

Pedestrian Way

Area Cleanliness Rating 3 (Moderately Polluted)

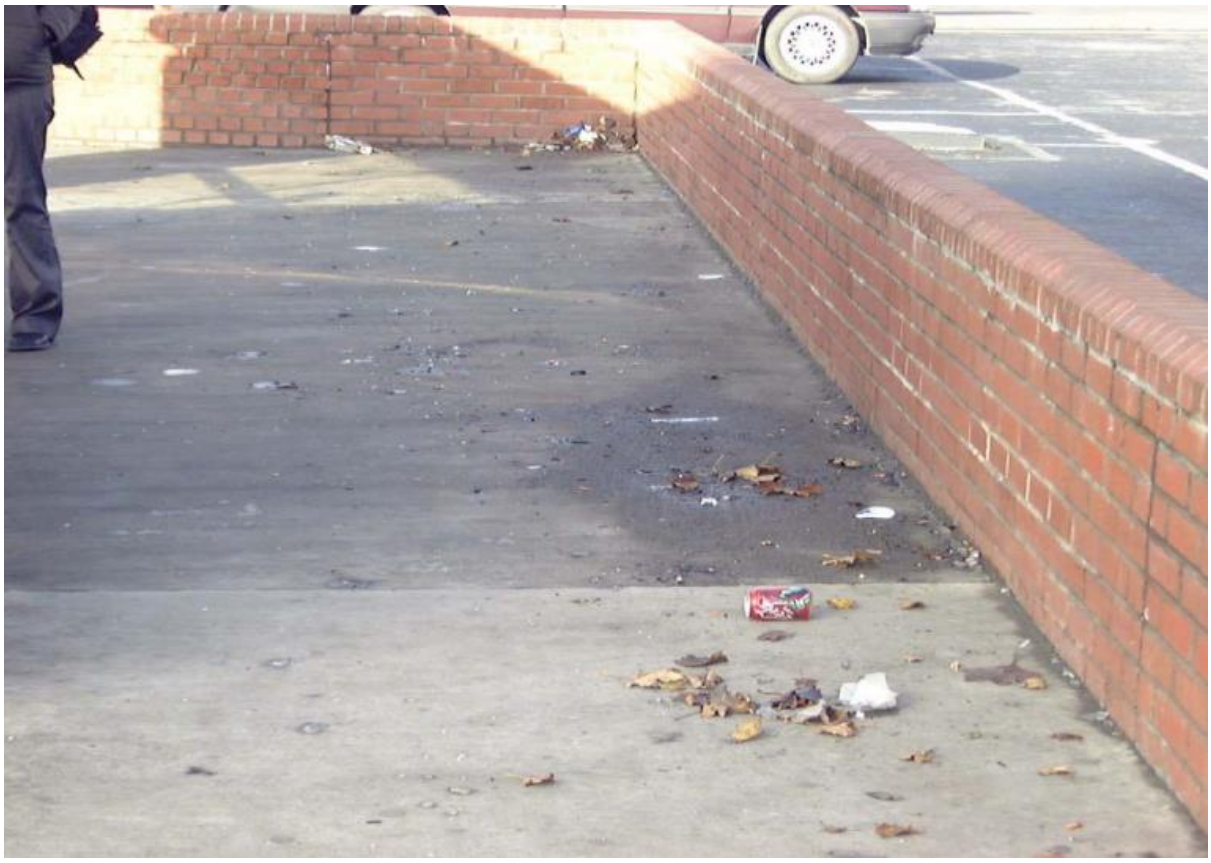
Footpath

Area Cleanliness Rating 3 (Moderately Polluted)

Footpath

Area Cleanliness Rating 3 (Moderately Polluted)

Footpath



Area Cleanliness Rating 3 (Moderately Polluted)

Street

Area Cleanliness Rating 4 (Significantly Polluted)

Footpath

Area Cleanliness Rating 4 (Significantly Polluted)

Footpath

Area Cleanliness Rating 4 (Significantly Polluted)

Footpath

Area Cleanliness Rating 4 (Significantly Polluted)

Gutter

Area Cleanliness Rating 4 (Significantly Polluted)

Housing Estate

Area Cleanliness Rating 5 (Grossly Polluted)

Grass Verge

Area Cleanliness Rating 5 (Grossly Polluted)

Dumping

Area Cleanliness Rating 5 (Grossly Polluted)

Street

Area Cleanliness Rating 5 (Grossly Polluted)

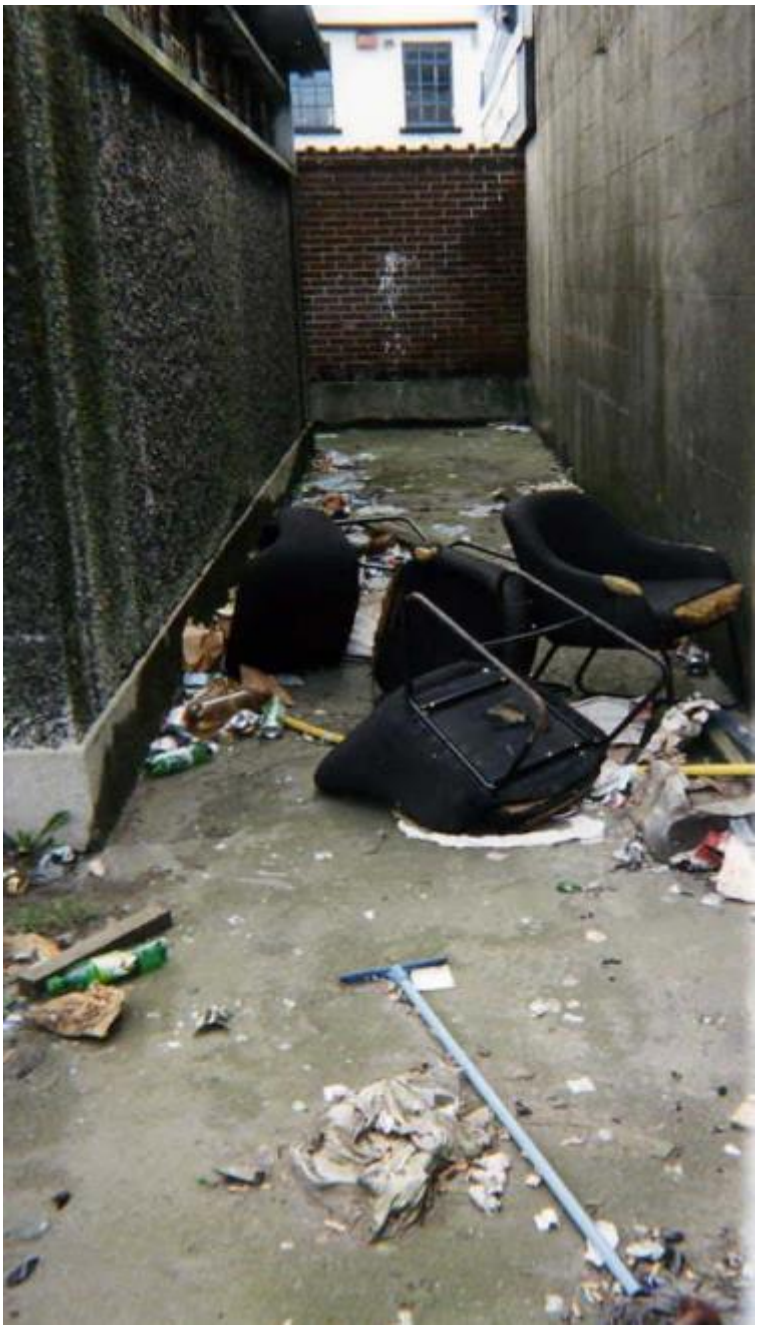
Footpath/Street

Area Cleanliness Rating 5 (Grossly Polluted)

Street/Gutter

Area Cleanliness Rating 5 (Grossly Polluted)

Dumping



Area Cleanliness Rating 5 (Grossly Polluted)

Dumping

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