



**Roinn Cumarsáide, Gníomhaithe  
ar son na hAeráide & Comhshaoil**  
Department of Communications,  
Climate Action & Environment

## **THE NATIONAL LITTER POLLUTION MONITORING SYSTEM**

### **LITTER MONITORING BODY**

### **2017 AUDIT REPORT**

**Prepared for:**

The Department of Communications, Climate Action and Environment  
29-31 Adelaide Road  
Dublin 2  
D02 X285

**Prepared by:**

**The Litter Monitoring Body**  
TOBIN Consulting Engineers  
Block 10-4  
Blanchardstown Corporate Park  
Dublin 15  
D15 X98N



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## Table of Contents

<b>1. INTRODUCTION</b> .....	<b>1</b>
<b>2. FINDINGS</b> .....	<b>3</b>
2.1 LITTER GIS.....	3
2.2 LITTER QUANTIFICATION SURVEY METHODOLOGY.....	4
2.3 LITTER POLLUTION SURVEY METHODOLOGY .....	4
2.4 NUMBER OF LITTER QUANTIFICATION AND LITTER POLLUTION SURVEYS COMPLETED.	6
2.5 SUBMISSION OF SURVEY RESULTS.....	6
2.6 INFORMATION CIRCULATION .....	7
2.7 TRAINING OF STAFF.....	8
<b>3. RECOMMENDATIONS</b> .....	<b>9</b>
<b>4. CONCLUSIONS</b> .....	<b>12</b>
<b>5. ACKNOWLEDGEMENTS</b> .....	<b>12</b>



## 1. Introduction

The National Litter Pollution Monitoring System (the System) enables local authorities to monitor changes in the nature and extent of litter pollution in their functional areas over time, and to use this data to provide more effective litter management planning at a local level.

As a self-assessment mechanism, it is essential that local authorities properly implement the System and that their performance is audited by the Litter Monitoring Body (LMB) to ensure that the System is working as designed, and to identify any problems with its key elements.

In January and February 2018, the LMB audited the implementation of the system at five local authorities, as applied in 2017:

1. Cavan County Council;
2. Leitrim County Council;
3. Kilkenny County Council;
4. Offaly County Council; and
5. Clare County Council.

The LMB also carried out a number of spot-check audits on these five authorities and other local authorities, which included reviewing submitted survey forms and photographs.

The purpose of these audits was to determine how each local authority implements and operates the Litter Pollution Monitoring System.

During each audit, a number of elements of the System were assessed, including:

- the identification and mapping of Potential Litter Generators;
- the carrying out of Litter Quantification and Litter Pollution Surveys including the location and timing of surveys;
- the number of Litter Quantification and Litter Pollution Surveys completed;
- the collation/inputting of survey data into the relevant database for submission to the LMB;
- information circulation (Monitoring Manual, Reports etc.); and
- training of staff in the System.

Each of the above elements was examined to ensure that each component of the System is working as designed and is being properly implemented by each local authority.

During the course of the audit, the LMB reviewed all documentation, verified photographs and interviewed local authority staff to identify problems encountered during System implementation and operation. The LMB also reviewed the circulation of information regarding the System in each of the five audited local authorities. The purpose of this was to ensure that Systems information issued by the LMB (i.e. Systems reports etc.) over time has been circulated to all the relevant staff to ensure the proper implementation and operation of the System.

The audit allows the LMB to consult with those who are on the ground undertaking the litter surveys. This ensures that the LMB recognises if amendments are required to the System for the following years' surveys. This is discussed in more detail in Section 3 of this Report.



## 2. Findings

The LMB found that the five local authorities audited and those local authorities spot-checked were, for the most part, operating the System's methodologies correctly in accordance with the Monitoring Manual. However, the audits identified a small number of areas where remedial action was required to ensure that the System operates as designed. Details of these incidents are provided below:

### 2.1 Litter GIS

- In general, the GIS system is not utilised by all local authorities to produce Potential Litter Generator maps in order to determine survey locations.

It is suggested that those local authorities that do not have the resources to support the GIS system should implement the 40:40:20 rule to provide the most objective or balanced picture of the extent of litter pollution in their local authority area. Survey locations are chosen based on the following:

- 40% of survey locations should be chosen in litter black spot areas i.e. "high risk" locations in towns or city centres where the concentration of potential litter sources is greatest;
  - 40% of survey locations should be chosen in random potential litter generating areas. It may be useful to use a map of the local authority's functional area and randomly select survey locations. It may also be useful to allow personnel not working in the litter department to select these random locations; and
  - 20% of survey locations should be chosen by litter wardens, based on local knowledge of litter pollution.
- It was evident from the audits that the local authorities, for the most part, use the same survey areas each year with the addition of several new locations annually. New locations are either chosen in response to changing hot spot areas, chosen randomly or chosen by utilising the 20% of locations that are the choice of the local authority to target areas that are of interest.

## 2.2 Litter Quantification Survey Methodology

- There is a need to ensure that Litter Quantification Surveys are only carried out in 'high risk' areas, where numerous litter items are present. There is a risk that too small a sample size can skew data.
- The most important item to note in relation to the litter quantification survey forms is that the method of counting chewing gum is correct – only newly deposited chewing gum should be included in the survey. New chewing gum is defined as being white in colour and 3D in shape.

During spot checks of results, instances of low chewing gum levels (compared to 2016 levels) were noted. In each case the results were raised with the relevant local authority to confirm accuracy. In 2017, some local authorities implemented measures which may have influenced the level of gum litter recorded such as; receiving funding for gum cleaning, implementing educational measures and the introduction of new 'gum resistant' paving.

## 2.3 Litter Pollution Survey Methodology

- There is a need to ensure that all personnel carrying out the surveys are familiar with the area cleanliness rating photographs provided in the Monitoring Manual. It was evident during the audit process that most local authority employees involved in the system are familiar with the photographs with the majority of the surveyors assigning the correct area cleanliness ratings to the litter surveys.
- Some local authorities did not submit a photograph with every survey. There is a need to submit photographs so that the LMB can continually audit the system.

It should be noted that the Litter Pollution Index is calculated based on two criteria a) the presence or absence of Litter Indicator Items and b) the Area Cleanliness Rating. The combination of both criteria derive the Litter Pollution Index (LPI). The Area Cleanliness Rating is a score awarded based on a judgement by the surveyor of how 'visible' any indicator items

are, the levels are graded from 'Visible on Close Inspection' to 'Extremely Obvious'. An incorrect judgement on the visibility of key litter indicator items will result in a modified Litter Pollution Index rating. It is important that local authority's judgement on the visibility of key litter indicator items is accurate. The following criteria should be used:

**Visible on Close Inspection** - Objects should be assigned this rating if they are present within the survey stretch, but can be seen only when the surveyor is in very close proximity to the item of litter (i.e. if one can only distinguish the item of litter within one metre of it).

**Visible** - Objects should be assigned to this category if the litter items are visible within the survey stretch but not very obvious from outside the survey stretch.

**Obvious** - The indicator items should be assigned to this category if they are obviously visible within, and from a distance of approximately 10 metres, outside the survey stretch.

**Extremely Obvious** - This category should be marked if there are items of the particular litter indicator item present within the survey stretch and these are very visually intrusive from both within the survey stretch and at a considerable distance away from the survey stretch, approximately 10 metres or greater.

- During 2017, a small number of surveys were not assigned the correct area cleanliness rating. This was the case specifically in assigning an area as "unpolluted or litter free" (LPI 1) that should be considered "slightly polluted" (LPI 2). "Unpolluted or litter free" (LPI 1) means that there is no litter present within the survey stretch.
- It was evident from the audit, that surveys are being completed at different survey location types i.e. town centres, rural roads, approach roads etc. where possible. Survey locations should continue to be spread across a range of location types. This will give a more representative result for each local authority functional area.

- During the audits the LMB highlighted the usefulness of the Conclusion/Comment section. The completion of this section is important as it enables surveyors to provide feedback regarding specific causes and possible solutions to the litter problem in the surveyed areas.

#### **2.4 Number of Litter Quantification and Litter Pollution Surveys completed**

- The number of Litter Quantification and Litter Pollution Surveys to be carried out by each local authority varies, depending on the size and population density of each local authority area. The number of surveys required by any local authority is available on the website ([www.litter.ie](http://www.litter.ie)).
- A number of local authorities failed to carry out the minimum number of Litter Pollution and Litter Quantification Surveys required in 2017. Lack of resources was the most commonly stated cause of this. However, some local authorities carried out a greater number of surveys than the minimum required, particularly Litter Quantification Surveys. The LMB emphasises that Litter Quantification Surveys should only be undertaken in ‘hot spot’ areas and not necessarily at all of the Litter Pollution Survey locations.

#### **2.5 Submission of Survey Results**

- Survey results were submitted to the satisfaction of the LMB by each of the 5 local authorities audited.
- During the audit process, the immense time input required by this project in terms of data collection and recording by local authority staff was highlighted. It was requested that the project be modernised where possible, potentially using modern technology e.g. smart phones & Ipads/tablets. Some local authorities are already using tablets for other areas of work which have the potential to be useful for this project.
- It was noted by the LMB that several local authorities have now developed their own technology applications (Apps) for use on Ipads/tablets for completing the NLPMS surveys. This is resulting in the presentation of results received by the LMB varying and needing to be reorganised by the

LMB. It would be useful if a standard App could be developed for use across all local authorities to ensure consistency.

## 2.6 Information Circulation

- It was noted that the Litter Pollution and Litter Quantification Survey results for all five local authorities audited were circulated within each local authority. It would be beneficial if all results and photographs are uploaded to the local authority computer network to ensure that all data can be readily accessible and retrievable by any individual if required. It is further recommended to store copies of results in sections, divided by survey location. This will easily allow specific survey locations to be analysed and compared against each other throughout the year.
- It is apparent that the Results Report is being disseminated to all of the relevant staff. All local authorities should continue to disseminate the Results Report to all those involved in the Systems implementation, in particular litter wardens who are carrying out the litter pollution and litter quantification surveys.
- In most cases local authorities are using their results, although some more than others. Each local authority should capitalise on the benefits of their survey work by using their annual reports not only for future cleansing plans but also possibly for educational purposes in local schools or for future anti-litter initiatives to try and curb any year on year increase in a particular litter item. They could also be used to steer initiatives towards particular causative factors which have been identified in their results.
- It is important that all those involved in litter monitoring in the local authority, in particular the litter wardens and senior management, have access to [www.litter.ie](http://www.litter.ie). This website contains all relevant documentation relating to the System's implementation.
- There is a need to ensure that all personnel carrying out the surveys review the Monitoring Manual (available at [www.litter.ie](http://www.litter.ie)) each year to refresh themselves on the methodology required.

## 2.7 Training of Staff

- It is important that all surveyors should be properly trained in the System. During the 2017 surveys and audits, it became clear that in some local authorities, due to staff turnover and restructuring of job descriptions, some staff undertaking the surveys were new to the System and may not have been previously provided training by the LMB. In these cases, the litter wardens have been undertaking the surveys following internal instructions only. It is recommended that for the 2018 surveys, all local authorities provide names of new personnel involved in the System to the LMB so that guidance can be given to all surveyors undertaking the surveys to avoid confusion in the methodology and ensure accuracy in completing litter surveys. In addition, the LMB will continue to be available throughout 2018 to provide guidance to each of the local authorities. Refer to [www.litter.ie](http://www.litter.ie) for the LMB contact details.
- Training of staff should be extended to include staff involved in managing the project and administrative staff that assist in inputting the data, as well as surveyors on the ground.

### 3. Recommendations

The following are the key recommendations from the Audits:

1. Where resources are available, local authorities should use the litter GIS system to determine the survey locations for the annual round of litter pollution surveys.

It is suggested that those local authorities that do not have the resources to support the GIS system should implement the 40:40:20 rule, as described in Section 2.1 above.

2. It is recommended that survey locations be reviewed annually to include new locations in response to changing hot-spot areas, to potentially target new areas randomly or to utilise the 20% of locations that are the choice of the local authority, to target areas that are of interest.
3. It is suggested that the area cleanliness rating photographs and Monitoring Manual continue to be circulated to all Litter Monitoring Officers before the commencement of the 2018 surveys. The photographs illustrate examples of Area Cleanliness Ratings and are available on [www.litter.ie](http://www.litter.ie).
4. In addition, the LMB suggest for future year's surveys that local authorities continue to supply photographs to the LMB when submitting their results of Litter Pollution Surveys. The provision of photographs taken during a survey allows the LMB to continually audit the System. At least one photograph is required of each survey location. The provision of digital cameras to surveyors would be beneficial when undertaking the surveys.
5. Only newly deposited pieces of chewing gum are to be counted in the Litter Quantification Surveys.

A reminder to count only newly deposited chewing gum has been added to the Litter Quantification Survey forms.

6. There is a need to ensure that Litter Quantification Surveys are only carried out in 'High Risk' areas, where numerous litter items are present. There is a risk that too small a sample size can skew data.

7. It is essential to ensure that each section of the survey form is completed in full; the Conclusion/Comment sections are particularly relevant. This option is valuable as it enables the LMB to determine causative factors. This option is also useful to the local authority as it enables surveyors to provide feedback regarding possible solutions to the litter problem in the surveyed areas.
8. Future surveys should continue to be spread across a range of location types i.e. town centres, rural roads, approach roads etc. This will give a more representative result for each local authority functional area.
9. The use of application technology to modernise the process of collecting and recording the litter results should be considered. This will need to be a national approach so that all local authorities are using the same methodology and software.
10. The Litter Monitoring Body prioritises the promotion of participation of all Local Authorities annually and appreciates when surveys are submitted even when a local authority has indicated there is a lack of resources. It is however recommended that the minimum number of surveys be carried out by all local authorities, if possible.
11. It is important that all results and photographs are uploaded to the local authority computer networks to ensure that all data can be readily accessible and retrievable by any individual if required.
12. Survey results should continue to be disseminated to the cleansing teams (where these exist) and litter wardens, so that the results obtained can be analysed and incorporated into future cleansing plans.
13. Local authorities should gain the benefit of their survey work by using their annual results not only for future cleansing plans but also possibly for educational purposes to local schools or to address causative factors such as takeaways etc.
14. It is essential that all surveyors should be properly trained in the System. It is recommended that for the 2018 surveys, guidance be given by the LMB to



all new surveyors undertaking the surveys to avoid confusion in the methodology and ensure accuracy in completing litter surveys. In addition, the LMB will be available throughout 2018 to provide guidance to each of the local authorities. Refer to [www.litter.ie](http://www.litter.ie) for the LMB contact details.

15. It is recommended that local authorities undertake Internal Audits both before results are forwarded to the LMB, and throughout the surveying period. Internal audits are important to ensure the correct area cleanliness rating is being assigned and also in a few cases the percentage of chewing gum reported included all gum present i.e. new and old gum pieces as opposed to the requirement of just new gum pieces.

## **4. Conclusions**

The LMB found that the five local authorities audited and those local authorities spot-checked were, for the most part, implementing the key elements of the National Litter Pollution Monitoring System correctly. Furthermore, the local authorities concerned are committed to undertaking the necessary actions to resolve the operational issues identified in this report as soon as possible.

Overall, the five local authorities audited and those local authorities spot-checked are good models of the System's implementation. Their experiences, together with the recommendations in this report, can assist other local authorities to implement the System properly within their functional areas.

During the audit the LMB discussed the main points local authorities should keep in mind when surveying. A report on the audit was also prepared for all local authorities audited; this should ensure that any non-compliance with implementation of the System is rectified for future surveys.

This report should ensure that all local authorities will benefit from the findings of the System Audits carried out to date, as it is not possible to audit system implementation/operation in every local authority.

## **5. Acknowledgements**

The LMB wishes to thank the staff of Cavan County Council, Leitrim County Council, Kilkenny County Council, Offaly County Council, Clare County Council and all of the spot-checked local authorities for their help and co-operation during the course of these audits.

