



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

THE NATIONAL LITTER POLLUTION MONITORING SYSTEM

LITTER MONITORING BODY

2016 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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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 February 2017, the LMB audited the implementation of the system at five local authorities, as applied in 2016:

1. Louth County Council;
2. Cork City Council;
3. Limerick City and County Council;
4. Donegal County Council; and
5. Sligo 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. manuals, 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 audit that some local authorities are not reviewing the survey locations annually but are instead surveying the same locations year on year. Survey locations should be reviewed annually to re-allocate surveys 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.

2.2 Litter Quantification Survey Methodology

- There is a need to ensure that Litter Quantification Surveys are only carried out in 'high risk', 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, numerous instances of high chewing gum levels were noted, indicating that perhaps all chewing gum present was being counted. In each case the results were raised with the relevant local authority who confirmed the correct number of 'new' chewing gum pieces present. In numerous cases, the figure stated was correct.

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 there are two values for the Litter Pollution Index a) the presence or absence of Litter Indicator Items and b) the Area Cleanliness Rating; the combination of both derive the Litter Pollution Index (LPI). Therefore 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.

Note the Following:

Indicator items require an assessment of the presence or absence of a number of key litter indicator items. The surveyor is asked to judge 'how visible' these are within the survey stretch. The levels are graded from 'Visible on Close Inspection' to 'Extremely Obvious'.

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. Also a small number of surveys were incorrectly assigned an area cleanliness rating higher than it should have been e.g. an area may have been assigned "moderately polluted" (LPI 3) that should be considered "slightly polluted" (LPI 2).
- It should be noted that leaves do not constitute as litter and should therefore not affect the LPI score awarded to an area.

- 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 importance of filling out the Conclusion/Comment section comprehensively to those involved in litter surveying. This option is useful 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).
- A number of local authorities failed to carry out the minimum number of Litter Pollution and Litter Quantification Surveys required in 2016. Lack of resources was the most commonly stated cause of this.

2.5 Submission of Survey Results

- Survey results were submitted to the satisfaction of the LMB by each of the 5 local authorities audited.
- It was noted that Cork City Council utilised technology for the purposes of carrying out and submitting their 2016 surveys. This has proven successful in providing results to the National Litter Monitoring System and in significantly reducing the time input required for data collation.
- 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 by all local authorities. It was requested that the project be modernised where possible, potentially using modern technology e.g. smart phones. Some local authorities indicated that there may be funding

available that could be put towards implementing the technology if it was available. Means of sharing of the technology developed by Cork City Council, and others, should be promoted.

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. 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) 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 2016 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 2017 surveys, all local authorities provide names of new personnel involved in the System to the LMB so that training and 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 2017 to provide guidance to each of the local authorities. Refer to 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.

2.8 Other Items of Note

- Internal audits of Litter Pollution and Litter Quantification Databases, prior to submission to the LMB, would be beneficial. Items of note during these audits would include if chewing gum is unusually high, as it may indicate that the surveyor has counted both new and old chewing gum. In this instance, a query should be raised with the surveyor to confirm that only new chewing gum was counted.

The LMB will continue to audit the System through spot checks and interviews.

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 re-allocate surveys 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 2017 surveys. The photographs illustrate examples of area cleanliness ratings and are available on 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. It is recommended that the Litter Monitoring Officer (LMO) should ensure that only newly deposited pieces of chewing gum are 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. It is 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.
13. 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.

14. 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.

15. It is essential that all surveyors should be properly trained in the System. It is recommended that for the 2017 surveys, training and 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. Training may also raise the awareness and profile of the project once again within local authorities and promote utilisation of the results. In addition, the LMB will be available throughout 2017 to provide guidance to each of the local authorities. Refer to www.litter.ie for the LMB contact details.

16. It is recommended that local authorities undertake Internal Audits both before results are forwarded to the LMB, and throughout the surveying period. The importance of internal audits was revealed this year as a number of surveys were not assigned the correct area cleanliness rating 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 Louth County Council, Cork City Council, Limerick City and County Council, Donegal County Council, Sligo County Council and all of the spot-checked local authorities for their help and co-operation during the course of these audits.