

**LAOIS COUNTY COUNCIL**  
**COMHAIRLE CHONTAE LAOISE**



**NOISE ACTION PLAN**  
**2024 - 2028**

**June 2024**

## EXECUTIVE SUMMARY

This Noise Action Plan has been prepared by Laois County Council to address environmental noise from major roads which carry more than three million vehicles per annum. The action planning area covers the M7, M8, N80, N77 and sections of the R445. It also covers the major rail line between Hazelhatch and Portarlinton within the functional area of Laois.

Environmental noise is unwanted or harmful outdoor sound created by human activities, including noise emitted by means of transport, road traffic, rail traffic, air traffic and noise in agglomerations over a specified size. Types of noise not included are noise that is caused by the exposed person, noise from domestic activities, noise created by neighbours, noise at workplaces or noise inside means of transport or due to military activities in military areas.

The Environmental Noise Directive (“END”) (2002/49/EC) is the main European instrument which has been put in place to manage environmental noise and engage with the public. The END was transposed into Irish Law by the European Communities (Environmental Noise) Regulations 2006, being revised in 2018 and amended in 2021. The Regulations provide a common approach for Action Planning Authorities to avoid, prevent and reduce environmental noise and its harmful effects on a prioritised basis.

This is the fourth round of noise action planning, and this Noise Action Plan (2024-2028) reports the findings of the Strategic Noise Mapping for sections of major roads, above a flow threshold of 3 million vehicles per annum prepared in consultation with Transport Infrastructure Ireland and the Environmental Protection Agency (EPA).

The Noise Action Plan has been prepared in accordance with the Regulations and is aimed at the strategic long-term management of environmental noise from traffic-related sources. The proposed measures are based on the results of Strategic Noise Maps which have been assessed to estimate the population exposure and harmful effects of noise in the County. The results of the assessment have been used to identify areas that shall be subject to noise management activities during the implementation of the Plan. These areas are referred to as Priority Important Areas. Laois County Council is committed to reviewing the requirement for noise mitigation in the Priority Important Areas (PIAs) within the lifecycle of the Noise Action Plan, including cost-benefit analysis where necessary and determining the reduction in harmful effects where practicable.

The purpose of the Noise Action Plan is to endeavour to manage the existing noise environment and protect the future noise environment within the action planning area. Management of the existing noise environment will be achieved by verifying noise in the PIAs and undertaking a cost-benefit analysis for noise mitigation, where required. Protection of the future noise environment will be achieved through the planning process such as land-use planning, development planning, sound insulation measures, traffic planning and control of environmental noise sources.

The following key actions are proposed over the lifetime of the NAP:

- Conduct noise monitoring and validate noise model for all identified PIAs.
  - Review potential mitigation measures for all PIAs and cost benefit analysis.
  - If applicable seek funding and approval to implement mitigation measures.
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All proposals for development/works under the Noise Action Plan will be required to demonstrate compliance with the requirements of environmental and planning legislation and planning and licensing processes, including existing provisions of relevant land use plan(s) and policy documents such as the Laos County Development Plan 2021-2027.

#### **ACTION PLAN POLICY STATEMENT**

**Laos County Council aims to address environmental noise pollution from major roads in the county by:**

- **Maintaining satisfactory noise environments where they currently exist**
  - **Considering acoustical planning in the planning process to protect residents from noise pollution**
  - **Ensuring that future developments include measures to mitigate the effects of noise on residential amenity and public health, as per the Planning and Development Act 2000.**
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## 1.0 INTRODUCTION

### 1.1 Objective

The objective of the Noise Action Plan (NAP) is the long-term strategic management of environmental noise from traffic on major routes within the County, particularly where the noise exposure levels have the potential to induce harmful effects on public health.

In Ireland, it is recommended that the NAPs support Policy Objective 65 from the National Planning Framework 2040, which states:

“Promote the pro-active management of noise where it is likely to have significant adverse impacts on health and quality of life and support the aims of the Environmental Noise Regulations through national planning guidance and Noise Action Plans.”

Laois County Council’s NAP and its implementation is critical to ensuring that the Council achieves the aims and objectives of the Environmental Noise Directive (END), compliance with national policy and to address local environmental noise issues.

### 1.2 Purpose

The purpose of this Noise Action Plan is to comply with The EU Environmental Noise Directive (END), EC 2002/49/EC, transposed into Irish law under the European Communities (Environmental Noise) Regulations 2018 (S.I. No. 549/2018) and the European Communities (Environmental Noise) (Amendment) Regulations 2021 (S.I. No. 663/2021).

The aim of the Environmental Noise Directive (END) is to provide a common framework to avoid, prevent or reduce, on a prioritised basis, the harmful effects of exposure to environmental noise. The END requires member states to prepare and publish strategic noise maps and noise management action plans every five years.

### 1.3 Scope

The Council is responsible for the making and approval of this NAP, in consultation with the EPA and TII. NAPs must satisfy the minimum requirements set out in the Fourth Schedule of the Environmental Noise Regulations 2018. The Environmental Noise Regulations require the strategic noise mapping to be based upon the assessment year of 2021.

The Regulations define “environmental noise” as unwanted or harmful outdoor sound created by human activities, including noise emitted by means of transport, road traffic, rail traffic, air traffic and from sites of industrial activity. Types of noise not included within these Regulations are noise that is caused by the exposed person, noise from domestic activities, noise created by neighbours, noise at workplaces or noise inside means of transport or due to military activities in military areas. The Regulations apply to environmental noise to which people are exposed, in built up areas, in public parks or other quiet areas in an agglomeration, in quiet areas in open country, near schools, near hospitals,

and near other noise-sensitive buildings and areas. The Regulations set a threshold for roads, railways, agglomerations and airports falling under the scope of the Environmental Noise Regulations and strategic noise maps are prepared to display noise exposure levels in a given area, resulting from particular noise sources as follows:

<b>Major Roads</b>	>3 million vehicles/annum	Applicable
<b>Major Railways</b>	>30,000 trains/annum	Applicable
<b>Agglomerations</b>	>100,000 inhabitants	Not Applicable
<b>Airports</b>	>50,000 movements/annum	Not Applicable

**Table 1.1**

This Noise Acton Plan is prepared in line with the EPA DRAFT Version 2 (January 2024) - Guidance Note for Noise Action Planning for the European Communities (Environmental Noise) Regulations 2018. The EPA is the national authority for overseeing the implementation of the Environmental Noise Regulations and Monaghan County Council is the Action Planning Authority assigned with devising and implementing this Noise Action Plan. Strategic Noise Maps prepared for this Noise Action Plan were undertaken by Transport Infrastructure Ireland (TII), the designated Noise Mapping body.

#### **1.4 Noise Indicators**

The Environmental Noise Regulations specify two main noise indicators which must be used in the preparation of the Strategic Noise Maps:

<b>L<sub>den</sub></b>	The annual average noise level for the day, evening and night periods and is designed to indicate overall annoyance.
<b>L<sub>night</sub></b>	The annual average noise level for the night-time periods, from 23:00 – 07:00 hours, and is designed to indicate sleep disturbance.

**Table 1.2**

#### **1.5 Public Consultation**

As part of the consultation process noise action planning authorities are required to ensure that:

- the public are consulted on proposals included in the NAPs
- the public are given early and effective opportunities to participate in the preparation and review of NAPs
- the results of public participation are considered in finalising or reviews of the NAPs
- the public are informed of the decisions taken in relation to the NAPs; and
- reasonable timeframes are adopted to allow sufficient time for each stage of public participation.

#### **1.6 Noise Action Plan Timelines**

Under the Regulations, Laois County Council will publish the Noise Action Plan by the 18<sup>th</sup>

July 2024 and adhere to timelines indicated in Table 1.3.

Date	Task
Q2 2024	Prepare Draft Noise Action Plan & Public Consultation on NAP
18 <sup>th</sup> July 2024	Submit Noise Action Plan to the EPA
18 <sup>th</sup> August 2024	Publish Noise Action Plan
18 <sup>th</sup> August 2024	Summary of Noise Action Plan to be submitted to the EPA
January 2025	Summary off all Noise Action Plans to be reported by the EPA to the European Environmental Agency

**Table 1.3**

### 1.7 Strategic Environmental Assessment (SEA) Screening

Strategic Environmental Assessment (SEA) is a rigorous and systematic process that evaluates the potential significant environmental impacts of implementing a plan or program before making a decision to adopt it.

The SEA Directive, outlined in European Directive 2001/42/EC, sets out the requirement for SEA assessments for plans and programs. In Ireland, this directive is implemented through the Planning and Development (Strategic Environmental Assessment) Regulations, 2004 (S.I. 436/2006), which has been amended by the Planning and Development (Strategic Environmental Assessment) (Amendment) Regulations, 2011 (S.I. 201/2011). For non-land use plans, the SEA Directive is transposed into Irish law through European Communities (Environmental Assessment of Certain Plans and Programmes) Regulations, 2004 (S.I. 435/2004), as amended by European Communities (Environmental Assessment of Certain Plans and Programmes) (Amendment) Regulations, 2011 (S.I. 200/2011).

A pre-screening check was conducted under the Strategic Environmental Assessment (SEA) Directive, which concluded that the Noise Action Plan does not meet the conditions for mandatory SEA under S.I. 435/2004 and therefore does not require further SEA.

### 1.8 Appropriate Screening Assessment

The primary goal of the Habitats Directive (92/43/EEC) is to protect and conserve Europe's natural habitats, wild fauna, and flora. In Ireland, this directive has been incorporated into law through the European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. 477/2011).

The European Environment Agency has designated a network of protected areas, known as Natura 2000 sites, to safeguard Europe's most valuable and endangered species and habitats.

In Laois, an assessment has been conducted to determine if a proposed action requires an "Appropriate Assessment" under the Habitats Directive. The results of the screening assessment indicate that there is no likelihood of a significant impact on a Natura 2000



site, therefore, a Stage 2 Appropriate Assessment is not necessary in accordance with Article 6(3) of the Habitat Regulations.

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## 2.0 EXISTING NOISE MANAGEMENT LEGISLATION & GUIDANCE

### 2.1 Introduction

EPA Guidance provides support to the Action Planning Authorities for the preparation of NAPs. This guidance takes cognisance of existing international, European and national legislation and is reviewed below along with regional and local strategies, policies and objectives that support the development of the Round 4 Noise Action Plans.

### 2.2 Noise & Human Health

The World Health Organisation (WHO) published the "Environmental Noise Guidelines for the European Region 2018" (ENG), which provides recommendations for protecting human health from exposure to noise originating from various sources, including road traffic, railway, and aircraft. The guidelines recommend using  $L_{den}$  and  $L_{night}$  metrics to assess the onset of health effects. Specifically, the WHO recommends that policy-makers aim to reduce the population's exposure to road noise to levels below 53 dB  $L_{den}$  and 45 dB  $L_{night}$  above which the onset of health effects is observed.

### 2.3 National Legislation Provisions

The Environmental Protection Agency Act 1992 empowers the relevant Minister to regulate noise that poses a risk of nuisance or harm to human health or property. This Act also grants local authorities and the EPA the authority to serve notice to individuals or entities responsible for excessive noise, requiring them to take measures to control the noise.

Furthermore, the Act outlines a process by which noise-related issues can be addressed through the District Court, which may issue orders requiring the responsible party to take measures to prevent or mitigate the noise in question.

In addition, the Act requires certain industrial activities to obtain a license to operate under the Integrated Pollution Prevention Control (IPPC) Licensing regime, with the activities subject to licensing outlined in the First Schedule of the Act (as amended).

### 2.4 Noise & Transportation

Currently, there are no statutory noise limits or standards in Ireland governing road traffic noise for new or existing roads.

The National Roads Authority (NRA) issued the "Guidelines for the Treatment of Noise and Vibration in National Road Schemes" in 2004, with subsequent revisions by Transport Infrastructure Ireland (TII) in 2014. The guidelines outline design goals for noise reduction during both the construction and operational phases of new road schemes.

When proposing new road schemes, existing dwellings that may be affected must be taken into account. The TII guidelines provide a framework for minimising the adverse effects of noise from national road schemes, including measures such as alignment changes, barriers, and low-noise road pavements.

The responsibility for developing noise mitigation policies for proposed new developments near existing or planned road schemes lies with the relevant planning authority.

The National Speed Limit Review, led by the Department of Transport, was published in September 2023 as part of Ireland's Government Road Safety Strategy 2021-2030.

Although not its primary goal, the proposed recommendations could potentially contribute to reducing road noise levels. The review recommends introducing a default speed limit of 30 km/h in built-up and urban areas. This limit should apply to all urban centres, residential roads, and locations with significant presence of vulnerable or active road users. There are exceptions to this recommendation, including pedestrian zones and shared spaces with a speed limit of 20 km/h, and national, regional, and arterial roads with a speed limit of 50 km/h.

The review recommends maintaining the current default speed limits on rural roads, except for National Secondary Roads, where the default speed limit should be reduced from 100 km/h to 80 km/h, and local roads, where it should be reduced from 80 km/h to 60 km/h. The review provides specific recommendations for various circumstances, such as Cycle Streets, School Speed Zones, Urban Shared Spaces/Zones, Pedestrian Zones, Slow Zones, and Quiet Lanes.

The Department of Transport is reviewing existing guidelines for managing and setting speed limits, and it is expected that legislation will be introduced in 2024 to implement the recommended changes.

## 2.5 Noise & Residential Development

### National Planning Framework 2040

The Framework serves as the guiding document for current planning policy. Objective 65 specifically highlights the importance of noise management, stating that noise should be proactively managed when it is likely to have significant adverse impacts on health and quality of life. The framework aims to achieve this by:

- Supporting noise management and action planning through strategic noise mapping, noise action plans, and suitable planning conditions
- Encouraging good acoustic design in new developments, particularly residential projects, through various measures
- Preserving low sound levels or reducing unwanted noise levels in natural areas, with a focus on "Quiet Areas" that are considered environmentally valuable and have a positive impact on quality of life and health.

### Building Control

The Technical Guidance Document Part E (2014) of the Building Regulations does not impose specific requirements for the design and placement of new buildings, except in cases where existing major noise sources are present. The guidance primarily focuses on minimising sound transmission between dwellings and rooms within a building.

**Laois County Development Plan 2021-2027**

The protection of noise sensitive land uses such as residential uses are important in order to foster a good quality of life. Noise associated with construction works is considered to be temporary in nature and therefore is generally not a material consideration. However, the Council will strive to shape development throughout the County to minimise the harmful effects of noise pollution on the community of County Laois. The Development Plan can exert a significant influence on the exposure to environmental noise.

The Council is committed to consider this Noise Action Plan in any future review of the County Development Plan, or Local Area Plans. Furthermore, the Council will seek to incorporate the principals, aims and objectives of this Action Plan in all future County Development Plans and Local Area Plans and specifically the aim of the Directive to prevent or reduce the harmful effects due to exposure to environmental noise.

As part of this process, it is proposed that planned developments within the Noise Mapping Area will be critically reviewed with respect to the noise band level; the noise sensitivity of the development; appropriate mitigation measures such as building and window orientation and façade insulation measures.

The current Development Plan sets down noise policy standards/objectives (see table below):

<b>County Development Plan 2021-2027</b>	
<b>Transportation Development Management Standard</b>	
<b>DM TRANS 3</b>	Proposals for residential developments near busy roads in urban areas may be required to show how it is proposed that impacts of noise are mitigated. A Noise Impact Assessment along with noise screening measures such as facade insulation and noise barriers should form part of proposals, as appropriate.
<b>Local Road Policy Objectives</b>	
<b>TRANS 24</b>	<p>Ensure that the Council’s own development and those of other developers and agencies has regard to the Design Manual for Urban Roads and Streets (DTTS and DHPLG, 2019). Proposals shall:</p> <ul style="list-style-type: none"> <li>• Consider the needs of pedestrians, cyclists and public transport users ahead of the needs of private car drivers</li> <li>• Seek to create more attractive places on roads/streets which communities can understand and enjoy</li> <li>• Seek to ensure that the design of the road/street is influenced by its function and the contexts of the places that road/street passes through, and that permeable and legible street networks are promoted</li> <li>• Have regard to the detailed advice and standards within in the Manual including: <ul style="list-style-type: none"> <li>➤ Speed limits and traffic and congestion management</li> <li>➤ Street landscaping and active street edges</li> <li>➤ Control of traffic noise and pollution, Signage and line marking</li> <li>➤ Street furniture and lighting, Material and finishes</li> </ul> </li> </ul>

	<ul style="list-style-type: none"> <li>➤ Historical contexts</li> <li>➤ Pedestrianised and shared surface areas</li> </ul>
<b>Noise Pollution Policy Objectives</b>	
<b>ES 43</b>	Require an assessment of impact of the developments on noise levels, having regard to the provisions of the Environmental Protection Agency (EPA) Acts 1992 and 2003 and the EPA Noise Regulations 1994 when assessing planning applications.
<b>ES 44</b>	Support the implementation of the Noise Directive 2002/49/EC and associated Environmental Noise Regulations 2006.
<b>ES 45</b>	Ensure that relevant planning applications comply with the provisions of any Noise action Plan or noise maps relating to the area.
<b>ES 46</b>	Restrict development proposals causing noise pollution in excess of best practice standards.
<b>ES 47</b>	Regulate and control activities likely to give rise to excessive noise, other than those activities that are regulated by the EPA.
<b>ES 48</b>	Ensure new development does not cause an unacceptable increase in noise levels affecting noise sensitive properties. Proposals for new development with the potential to create excessive noise will be required to submit a construction and/or operation management plan to control such emissions.
<b>ES 49</b>	Require activities likely to give rise to excessive noise to install noise mitigation measures and monitors. The provision of a noise audit may be required where appropriate.

**Table 2.1 – County Development Plan Noise Policy/Standards**

## 2.6 IED/IPPC & Waste Licensing

Noise conditions are routinely imposed as part of an IPPC licence. The relevant guidance is set out in the EPA publication “Guidance Note for Noise: Licence Applications, Surveys and Assessments in relation to scheduled activities” published by EPA January 2016. This document contains suggested noise limits of 55 dB(A)  $L_{A,T}$  for daytime and 45dB(A)  $L_{Aeq,T}$  for night-time; with said limits to be applied to “sensitive locations”. Whilst these limits have a very specific application, they have appeared in many different contexts and often form the basis for conditions in planning permissions. Similar noise conditions are also imposed on waste-licensed facilities.

Lower noise limit criteria are suggested for areas of low background noise and quiet areas. Noise limits are generally set at nearby noise sensitive locations to the development and an annual noise survey is typically required by the licence holder.

## 2.7 Waste Permitting

Laois County Council imposes noise conditions on waste permitted facilities where noise is considered to be a potential issue. These conditions are similar to the EPA waste licence conditions referred to above.

## 2.8 Wind Energy Development Guidelines

With specific regard to wind energy developments, this Department of the Environment, Heritage and Local Government document suggests a “lower fixed limit of 45dB(A) or a maximum increase of 5dB(A) above background noise at nearby noise sensitive locations”. Separate noise limits should apply for day-time and for night-time. During the night the

protection of external amenity becomes less important, and the emphasis should be on preventing sleep disturbance. A fixed limit of 43dB(A) will protect sleep inside properties during the night.

Draft Revised Wind Energy Development Guidelines (December 2019) propose new robust noise restriction limits which are consistent with World Health Organisation (WHO) standards, proposing a relative rated noise limit of 5dB(A) above existing background noise within the range of 35 to 43dB(A) for both day and night, with 43dB(A) being the maximum noise limit permitted. The rated limit will take account of certain noise characteristics specific to wind turbines (e.g. tonal, low frequency and amplitude modulation) and where identified, the noise limit permitted will be further reduced to mitigate for these noise characteristics. The noise limits will apply to outdoor locations at any residential or noise sensitive properties. Local authorities will enforce the noise limits as conditioned in the planning permission, in conjunction with the Environmental Protection Agency who will provide independent noise monitoring of wind farms. It is proposed that where there is evidence of non-compliance with noise limits, wind turbines will be required to be turned off until compliance with the noise limits is proven.

## **2.9 Quarries & Ancillary Activities**

The Department of the Environment, Heritage and Local Government have published Guidelines for Planning Authorities on Quarries and Ancillary Activities (2004). This publication contains a discussion of the primary sources of noise associated with quarrying and offers guidance in relation to the correct approach to be followed in respect of assessment and mitigation.

Suggested noise limit values are 55 dB  $L_{Aeq,1hr}$  and 45 dB  $L_{Aeq,15min}$  for daytime and night-time respectively, although more onerous values may be appropriate in areas with low levels of pre-existing background noise.

## **2.10 Planning**

Other than the guidelines for quarries, there is currently no national policy or guidance to address noise issues as part of the planning process. Laois County Council will set conditions relating to noise as part of a planning permission where the planning authorities consider that excessive noise may result from the development.

The NRA (now TII) produced ‘Good Practice Guidance for the Treatment of Noise during the “Planning of National Road Schemes” in March 2014.

The Department of Housing, Planning and Local Government has published the following documents relating to sustainable development in the urban environment:

- Sustainable Urban Housing: Design Standards for New Apartments Guidelines for Planning Authorities (March 2018) Spatial Planning and National Roads – Guidelines for Planning Authorities January 2012
- Guidelines for Planning Authorities on Sustainable Residential Developments in Urban Areas (Cities, Towns, Villages) May 2009

- Design Manual for Urban Roads and Streets Dept of Transport, Tourism and Sport 2013.

The guidelines for **Sustainable Residential Development** highlight the need to “Deliver a quality-of-life which residents and visitors are entitled to expect, in terms of amenity, safety and convenience”. They go on to state: “Privacy is an important element of residential amenity”. Whilst they are not mentioned specifically, environmental noise and noise transfer between dwellings are both key considerations in respect of amenity and privacy.

**Spatial Planning and National Roads – Guidelines for Planning Authorities** states:

‘Planning authorities should engage with applicants and their agents to address, as an integral element of their development proposals, potential negative impacts arising from existing or planned national roads. This could include mitigating impacts through appropriate design of buildings, landscaping features and site layout as part of the development proposal.’

‘The Environmental Noise Regulations, 2006 (S.I. No. 140 of 2006) should be taken into account within the development plan and development management processes, as well as relevant noise maps and noise action plans prepared under the Regulations for specific roads.’

‘The Regulations apply to national and non-national roads with traffic volumes above a prescribed level. Accordingly, all proposals in respect to noise sensitive developments within the zone of influence of such existing or of planned new roads should identify and implement, where appropriate, mitigation measures in relation to noise and other effects listed above. The costs of implementing the mitigation measures concerned should be borne by the developer’

**The Design Manual for Urban Roads and Streets** states:

‘The main factors which determine the level of road noise and air pollution are traffic volume, speed, levels of congestion and the proportion of HGVs. Many of these issues may be substantially addressed by directing large volumes of traffic (and in particular HGVs) away from cities, towns and villages and by reducing speeds.

The creation of a permeable street network which promotes walking, cycling and public transport will also lead to reductions in vehicular traffic and less concentration of traffic and consequently of noise and air pollution’.

### **3.0 DESCRIPTION OF ACTION PLANNING AREA**

#### **3.1 County Laois**

County Laois is an inland county with an area of 1,720 square kilometres and a population of 91,877 (2022 census).

Laois is an inland County in the south midlands of Ireland covering an area of 171,990 hectares, which equates to 2.4% of the national landmass. Occupying a strategic position near the centre of the country, County Laois is land-locked and shares borders with five adjoining counties Carlow, Kildare, Kilkenny, Offaly and Tipperary.

Administratively, it is part of the four County Midland Region along with Counties Offaly, Westmeath and Longford. In terms of travel patterns Laois is under the influence of the Greater Dublin Area (GDA). At its nearest, County Laois is approximately 70 km from the Dublin metropolitan area. This relative proximity to the capital has had a major effect on both the nature and extent of development and the associated traffic movements, particularly in the northern and eastern parts of the County. The travel time between Laois and Dublin continues to decrease as a consequence of improved road and rail infrastructure between the two places.

In physical terms, the landmass of County Laois consists of a central plain containing most of the productive agricultural land, surrounded by a number of upland areas including the Slieve Bloom Mountains in the northwest, Killeslin Plateau in the South East and Cullahill Mountain in the south. Though not as extensive as in Counties Offaly and Kildare, there are significant cutaway peatlands in the County mainly situated between Portlaoise, Mountrath and Abbeyleix.

#### **3.2 Area of Coverage**

In County Laois, the Council is responsible for noise action planning relating to sections of major roads passing through its administrative area.

The sections of relevant roads which qualified for strategic noise mapping and, as such, are subject to consideration for noise action planning are the M7, M8, N80 and the N77.

#### **3.3 General Population Exposed to Traffic Noise**

The population of County Laois is approximately 91,877 based on the 2022 census. The main population centres exposed to transportation noise from major sections of roads for this Noise Action Plan lie within Portlaoise (N80), Mountmellick (N80), Abbeyleix (N77) and Ballybrittas (M7).

#### **3.4 Roles & Responsibilities**

The roles and responsibilities of the Council and the TII in County Laois are:



### **Laois County Council**

- Noise Mapping Body responsible for making and approving strategic noise maps for non-national major roads in County Laois (no non-national major roads were identified under Round 4 mapping).
- Action Planning Authority responsible for making and approving action plans, in consultation with NMBs.
- Detailed evaluation of Priority Important Areas, in consultation with Noise Mapping Bodies, including identification of noise mitigation measures and implementation of those measures within their areas of competence and responsibility, subject to resources and budget.

### **Transport Infrastructure Ireland (TII)**

- Noise Mapping Body responsible for making and approving strategic noise maps for major roads designated as national roads.
- Consultee during action planning, with consideration of issues resulting from the strategic noise maps within their area of responsibility including identification of priority important areas to be included within the Noise Action Plan.
- Consult and engage with the Council to identify and agree noise mitigation measures for locations within their areas of competence and responsibility and implementation of same subject to resources and budget.

## 4.0 SUMMARY OF RESULTS OF THE STRATEGIC NOISE MAPPING PROCESS

### 4.1 CNOSSOS-EU: 2020

The European Commission (EC) Directive 2015/99657 established common noise assessment methods meeting the requirements of the END. It replaced Annex II of the END now requires that Member States apply the Common Noise Assessment Methods for Europe (CNOSSOS-EU) for the noise modelling of road, rail, aircraft and industrial sources. The use of the CNOSSOS-EU method has been transposed into Irish Law via the European Communities (Environmental Noise) (Amendment) Regulations 2021 (S.I. 663/2021) and has been used to produce the Strategic Noise Maps and to calculate the noise exposure statistics and harmful effects (Sections 4.5 and 4.6) for sections of major roads in the NAP.

### 4.2 Noise Model Calculation Formats

Two result formats have been prepared for the noise indicators specified in the Regulations,  $L_{den}$  and  $L_{night}$ :

- A 10 metres grid format where the model outputs a result every 10 metres in a uniform grid. These results are used to produce the Strategic Noise Maps; and
- Façade receiver format - where the model outputs a result at receiver points digitised at the façades of residential, school and hospital buildings. These results are used to calculate the exposure statistics and harmful effects.

### 4.3 Regulatory Background to Noise Exposure & Harmful Effects

The Fifth Schedule of the Environmental Noise Regulations 2018 sets out the data which is to be sent to the European Commission. With respect to exposure statistics, it is required that the number of people are estimated within 5dB bands between 55dB to 75dB  $L_{den}$ , 50dB and 70dB  $L_{night}$  and above 75dB  $L_{den}$  and 70dB  $L_{night}$ , rounded to the nearest one hundred persons, based on the strategic noise maps.

The EC Environmental Noise (Amendment) Regulations, 2021, transposes the EC Delegated Directive (EU) 2021/122659 into Irish Law. It sets out the assessment methods for harmful effects, which considers ischaemic heart disease (IHD), high annoyance (HA) and high sleep disturbance (HSD). The exposure and harmful effects statistics are summarised in Sections 4.5 and 4.6, respectively.

### 4.4 Strategic Noise Mapping

The strategic noise maps comply with the requirements of the Environmental Noise Regulations of 2018.

These maps are contour maps that visually represent the distribution of noise levels across a geographical area. The colours used on the maps, as indicated in the legend, correspond to different noise exposure bands, with darker colours signifying higher noise levels.

Although the regulations do not establish specific noise limits, they do outline the noise exposure bands that must be reported, which is reflected in the strategic noise maps. In the absence of noise limits, it can be inferred that the closer a calculated noise level is to the highest noise exposure band, the more undesirable it may be. Conversely, the closer it is to the lowest noise exposure band, the more desirable it may be.

The Round 4 strategic noise mapping is available online at a national level through the EPA's website at <https://gis.epa.ie/EPAMaps/>. Please see on following page Table 4.0 showing a summary of the Major Roads Strategic Noise Maps Exposure Values:

id	ESTAT Unit Code	Road Id Identifier	exposureType	Noise Level	Exposed People	Exposed Area	Exposed Dwellings	Exposed Hospitals	Exposed Schools
1	LSC		Most Exposed Facade	Lden5559	3638	57.4925	1443	0	5
2	LSC		Most Exposed Facade	Lden6064	2039	27.8374	787	1	2
3	LSC		Most Exposed Facade	Lden6569	1230	11.4732	511	1	5
4	LSC		Most Exposed Facade	Lden7074	757	5.8985	349	0	1
5	LSC		Most Exposed Facade	Lden Greater Than 75	168	6.9623	86	0	2
6	LSC		Most Exposed Facade	Lnight4549	5137	68.5907	2058	0	7
7	LSC		Most Exposed Facade	Lnight5054	2503	37.9467	970	1	2
8	LSC		Most Exposed Facade	Lnight5559	1458	16.0628	577	1	5
9	LSC		Most Exposed Facade	Lnight6064	974	6.8986	449	0	1
10	LSC		Most Exposed Facade	Lnight6569	246	4.289	119	0	2
11	LSC		Most Exposed Facade	Lnight Greater Than 70	15	3.9801	11	0	0
12	LSC		Most Exposed Façade Including Agglomeration	Lden Equal Higher 55	7832	109.6639	3176	2	15
13	LSC		Most Exposed Facade Including Agglomeration	Lden Equal Higher 65	2156	24.334	947	1	8
14	LSC		Most Exposed Façade Including Agglomeration	Lden Equal Higher 75	168	6.9623	86	0	2

**Table 4.0 - Summary of the Major Roads Strategic Noise Maps Exposure Values:**

#### 4.5 Noise Exposure Assessment

Due to the methodological differences between the first three rounds of strategic noise mapping (CRTN 1988) and Round 4 (CNOSSOS-EU:2020), a direct comparison of the noise exposure statistics has not been carried out.

The results of the strategic noise mapping provide information on the assessed noise levels at all noise sensitive properties within the assessment area, along with an estimate of the number of inhabitants. These resultant datasets are then used to identify Important Areas (IAs), as required under the Regulations, where long term noise exposure to noise from infrastructure is likely to produce negative health effects on the exposed population.

Important Areas (IAs) are all areas exposed above the outdoor noise levels of:

- $L_{den} = 53\text{dBA}$
- $L_{night} = 45\text{dBA}$

A summary of the number of people in dwellings and number in noise sensitive receptors (schools and hospitals) in Laois, which experience environmental noise from major roads, above the guide levels is summarised in Table 4.1.

Guide Level (dBA)	No. of People In Dwellings	No. of School Buildings (& Hospital Buildings)
> 53dBA $L_{den}$	10,476	7(0)
> 45dBA $L_{night}$	10,352	14(2)

**Table 4.1**

According to the World Health Organisation (WHO) guidelines, environmental noise from road traffic can have adverse health effects, which need to be assessed using dose-effect relationships as required by the regulations. These guidelines indicate that exposure to noise from road traffic can lead to a range of harmful effects on human health, causing:

- High Annoyance (HA)
- High Sleep Disturbance (HSD) and
- Ischaemic Heart Disease (IHD).

According to SI No. 663, the harmful effects of environmental noise from road traffic are evaluated using Relative Risk (RR) and Absolute Risk (AR) calculations. For each noise-sensitive location within the  $L_{den}$  53dBA and  $L_{night}$  45dBA guideline values, the population exposure was assessed, along with the potential adverse health effects. This information was then used to identify Most Important Areas (MIAs), which are a subset of noise-sensitive locations where the health impacts are most significant. The MIAs are typically defined as areas where noise exposure levels are high and the number of people experiencing high annoyance is substantial, as discussed in the following section.

## 5.0 AREAS SUBJECTED TO NOISE MANAGEMENT ACTIVITIES

### 5.1 Identification of Areas

The Regulations require that Laois County Council as the Action Planning Authority address “priorities” and “the most important area or areas” with a view to identifying “measures” that will help “avoid, prevent or reduce” the “harmful effects, including annoyance, due to exposure to environmental noise”. The EPA Guidance sets out the following three-step approach to identifying priorities:

#### 1. Important Areas (IAs)

These are locations exposed to environmental noise which exceed the relevant noise guideline value, as discussed in the previous section.

#### 2. Most Important Areas (MIAs)

These locations are a sub-set of Important Areas where the health effects are highest, typically through a product of noise exposure levels and the number of people highly annoyed; and

#### 3. Priority Important Areas (PIAs)

Between 5 and 10 Most Important Areas or group of similarly affected Most Important Areas, identified, through a prioritisation process, as those which will be evaluated and addressed during the implementation of the NAP.

The identification of Important Areas has been used as a basis for identifying the Most Important Areas (MIAs), which was carried out by external consultants for local authorities outside the agglomeration areas. The process of identifying MIAs is outlined in the EPA Guidance and involves an automated process within GIS software that combines the results of strategic noise maps with population statistics for areas with noise exposure levels exceeding the Important Area guide levels.

The EPA Guidance also outlines the methodology for assigning population to calculated noise levels, as detailed in Annex II of the END (CNOSSOS-EU). The guidance states that the number of people Highly Annoyed (HA) is statistically assessed at specific locations, and a gridded "heatmap" is generated to represent the number of people per 100m<sup>2</sup>. The areas with higher concentrations of people HA are then identified and defined as digital polygons. The EPA Guidance sets specific density criteria for MIAs, with 15 people per 100m<sup>2</sup> being suitable for main urban areas, and lower criteria for edge-of-urban or rural areas.

It is essential to note that the approach to identifying MIAs is statistical in nature and applies to the entire population covered by the noise maps. This approach does not provide a precise assessment of harmful effects for individual buildings, nor are the boundaries of MIAs definitive. Instead, they serve as an indicator of areas where a relatively high number of people may be potentially highly annoyed due to noise exposure.

A summary of the Most Important Areas identified along the major routes using the EPA Guidance density criteria (Highly Annoyed Threshold) of 7.5, 10 and 15 or more people per 100m<sup>2</sup> is provided in Table 5.1 (Note numbers rounded to the nearest whole number).

Highly Annoyed (HA) Threshold/100m <sup>2</sup>	No. of MIAs near Major Roads	No. of People in MIA			
		Total Population	Highly Annoyed (HA)	Highly Sleep Disturbed (HSD)	Ischaemic Heart Disease (IHD)
7.5	14	1,455	285	95	0
10	9	673	128	42	0
15	2	280	51	17	0

**Table 5.1 – Summary of Most Important Areas (MIAs)**

The MIA calculation process identified 25 MIAs along major routes in the County. Nine of the MIA locations overlapped at various threshold levels, therefore a total of 16 MIA locations were available for consideration.

The next step involves prioritising the identified Most Important Areas (MIAs) and selecting the top 5 to 10 Priority Important Areas (PIAs). These PIAs will be subject to a detailed assessment of noise mitigation measures, which will be undertaken during the life cycle of the Noise Action Plan. The EPA Guidance requires consideration be given to the following aspects, where information is available:

- Number of people exposed to noise, and the harmful effects
- Level of noise exposure
- Potential for grouping adjacent Most Important Areas into a larger Priority Important Area
- The main source of transport noise
- Competent body to carry out any proposed mitigation measures
- History of complaints
- Planned road maintenance and resurfacing programme
- Planned speed or traffic calming measures
- Planned nearby developments
- Existing noise reduction measures

To inform the decision on the selection of Priority Important Areas, consistent with the requirements of the EPA Guidance, associated statistical information has been developed for each Most Important Area, including:

- Noise source identifying the Most Important Area, i.e., railways or roads
- Area (m<sup>2</sup>)
- Total population
- Number of people highly annoyed (HA)
- Number of people highly sleep disturbed (HSD)

- Population increased risk of ischaemic heart disease (IHD)
- Number of dwellings
- Population noise exposure above END threshold values for road traffic noise exposure in 5 dB bands ( $L_{den}$  55 - 75 dB,  $L_{night}$  50 - 70 dB)

External consultants identified and listed 10 Priority Important Areas (PIAs), which are summarised in Table 5.2. The table presents the results of the analysis, focusing on the Most Important Areas with the highest population density, as defined by the EPA Guidance threshold of 15, 10, or 7.5 people per 100m<sup>2</sup>.

PIA Reference No.	Location	Total Population in PIA	MIA Criterion – People HA/100m <sup>2</sup>	Area (m <sup>2</sup> )	No. of People		
					HA	HSD	IHD
PIA_1	Stradbrook Apartments, Stradbally Road, Portlaoise	196.69	15	6,800	25.57	8.08	0.02
PIA_2	Glenkeen, Mountmellick Road, Portlaoise	83.24	15	8,700	25.22	8.66	0.03
PIA_3	O’Moore Place/Lake Glen, Mountmellick Road, Portlaoise	123.50	10	16,400	25.82	8.82	0.03
PIA_4	Rossvale, Mountmellick Road, Portlaoise	55.70	10	9,100	9.44	3.07	0.01
PIA_5	The Avenue, Ballybrittas	21.13	10	3,900	3.48	1.16	0
PIA_6	Upper Main Street, Abbeyleix	17.36	10	2,200	5.41	1.86	0.01
PIA_7	Emmet Street, Mountmellick	9.21	10	1,200	2.73	0.96	0
PIA_8	Pearse Street, Mountmellick	9.09	10	500	3.45	1.21	0
PIA_9	The Village, Mountmellick Road, Portlaoise	8.06	10	1,500	2.01	0.69	0
PIA_10	Liogard, Mountmellick Road, Portlaoise	58.00	7.5	11,100	11.16	3.79	0.01

PIA – Priority Important Area, HA – Highly Annoyed, HSD – Highly Sleep Disturbed, IHD – Ischaemic Heart Disease

**Table 5.2 – Indicative List of Priority Important Areas (PIA) Summary from Major Roads**

Of the 10 PIAs identified, 9 are located within towns with the potential of using noise pathway control measures greatly reduced. Source control measures may be the only available option to reduce noise levels.

Laois County Council endeavour to undertake an assessment of noise mitigation measures for these areas, within the life cycle of the NAP.



## 5.2 Quiet Areas

A Quiet Area is defined as an area where environmental noise levels are considered to be of good quality. Specifically, this means that the noise exposure is below the following thresholds:  $L_{den} < 53\text{dBA}$  and  $L_{night} < 45\text{dBA}$ .

According to regulations, Quiet Areas should be designated within agglomerations, which are defined as areas with a population of over 100,000 people. As Laois does not meet this criterion, this requirement is not applicable.

Additionally, the regulations also require the designation of Quiet Areas in open country environments, which must be free from disturbance by noise from traffic, industry, or recreational activities. Unfortunately, the strategic noise mapping conducted by TII for this Noise Action Plan does not accommodate this requirement.

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## 6.0 MITIGATION, PREVENTION & PROTECTION MEASURES

### 6.1 Introduction

The Noise Action Plan for Laois outlines three approaches to reducing the impact of noise pollution on the population: mitigation, prevention, and protection.

Mitigation measures aim to reduce noise levels in areas where the public is exposed to harmful levels of noise. In areas with high noise levels, the council will identify and evaluate potential solutions to minimise the negative effects of noise exposure.

It's worth noting that there is no dedicated national funding available for implementing noise mitigation measures through the noise action planning process. Instead, the council will focus on incorporating noise-reducing measures into planned road improvement works whenever possible during the plan's duration.

Prevention measures aim to prevent new developments from exposing people to undesirable noise conditions. In Laois, this will involve incorporating noise considerations into planning policies for residential developments, noise-sensitive buildings like schools and hospitals, and public spaces near major roads. Additionally, the council will consider noise impacts in the development of new public spaces.

Protection measures focus on preserving quiet areas that provide tranquility and relaxation for citizens and communities. This involves identifying, investigating, and designating areas with low environmental noise levels as "Quiet Areas" for public enjoyment.

### 6.2 Source of Road Noise

The environmental noise generated by a road is influenced by a complex interplay of factors, including the number and type of vehicles, their speed, road surface, and gradient. The propagation of noise from the road is also affected by various parameters, such as distance, weather conditions, the presence of acoustic barriers, nearby buildings, road width, slope, topography, and whether the ground is absorbent or reflective.

However, it's clear that the primary contributor to noise generation is the noise produced by vehicles themselves. This noise can be attributed to three main sources:

- Propulsion noise (engine, powertrain, exhaust and intake systems).
- Tyre/road contact noise.
- Aerodynamic noise.

Notably, engine noise dominates at lower speeds (below 30 km/h for passenger cars and below 50 km/h for lorries), while tyre/road contact noise takes over above these speeds. Aerodynamic noise, on the other hand, becomes more prominent as vehicle speed increases.

### 6.3 Investigation of Priority Important Areas (PIAs)

Priority Important Areas will be investigated over the timeframe of this NAP (2024-2028).

This assessment will include:

- Noise monitoring
- Noise modelling calculations, and
- Cost-benefit analysis
- Recommendations for mitigation measures

#### 6.4 Confirmation of Noise Exposure Levels

For each PIA identified in Table 6.1, Laos County Council will:

- Undertake ambient noise monitoring at representative locations within the Priority Important Area; and
- Review and refine the noise model, where necessary, against the local situation at the Priority Important Area.

To validate the noise levels and models used in the Noise Action Plan, ambient noise monitoring will be conducted at strategically selected locations within the Priority Important Areas (PIAs). The measurements will be taken to confirm that the actual noise exposure matches the assessments made through strategic noise mapping and to validate the baseline scenario for evaluating potential mitigation measures.

The collected data will be reviewed and any anomalous noise events, periods of rain, or extreme wind speeds will be removed from the average levels. The long-term average noise levels ( $L_{day}$ ,  $L_{evening}$ ,  $L_{night}$ , and  $L_{den}$ ) will then be compared to the calculated results.

Additionally, where feasible, traffic flow data will be captured near the measurement locations during the survey period to further validate the noise model. Once the noise monitoring is complete, the Council will review the noise models for the PIAs, focusing on specific aspects such as:

- Road surface type
- Traffic speed
- Traffic volume and compositions
- Railhead roughness
- Location and height of any noise barriers; and
- Any other noise mitigation measures present on site

The noise modelling results will be compared to the actual noise levels measured during the ambient noise survey to identify any discrepancies. This process will help refine the models to ensure accuracy and establish a validated baseline model for future assessments.

Once a noise model is validated, it may be considered as the existing situation for the purpose of the Cost-Benefit Analysis (CBA). The update of current noise modelling to inform the cost benefit analysis of any future mitigation measures planned for a PIA will require co-operation from TII to coordinate information from the original model, to allow direct and realistic comparisons between model runs, if possible.

### 6.5 Review of Mitigation Measures

After verifying the existing noise exposure levels for a Priority Important Area (PIA), potential noise mitigation measures will be explored, and a cost-benefit analysis will be conducted for each option. The goal is to create a selection matrix that guides the decision-making process, ultimately recommending the most effective and efficient course of action to address noise pollution in the area.

10 PIAs have been identified for County Laois:

PIA Reference No.	Location	Road Number
PIA_1	Stradbrook Apartments, Stradbally Road, Portlaoise	N80
PIA_2	Glenkeen, Mountmellick Road, Portlaoise	N80
PIA_3	O'Moore Place/Lake Glen, Mountmellick Road, Portlaoise	N80
PIA_4	Rossvale, Mountmellick Road, Portlaoise	N80
PIA_5	The Avenue, Ballybrittas	M7
PIA_6	Upper Main Street, Abbeyleix	N77
PIA_7	Emmet Street, Mountmellick	N80
PIA_8	Pearse Street, Mountmellick	N80
PIA_9	The Village, Mountmellick Road, Portlaoise	N80
PIA_10	Liogard, Mountmellick Road, Portlaoise	N80

**Table 6.1 – Identified Priority Important Areas**

6 of the PIAs are located within Portlaoise town, 1 in Abbeyleix, 2 in Mountmellick and 1 in Ballybrittas.

Noise mitigation measures can be implemented on or directly alongside the sources (source control) and others may be in the region between the roads and the dwellings (pathway control) and others may be at the noise sensitive locations (receiver control).

9 of the 10 PIAs relate to dwellings/apartments located directly along busy transport routes (N77 & N80) within towns so the traditional options for road traffic noise mitigation via pathway control (barrier etc.) may be limited in these cases. 1 of the PIAs relates to a residential development in close proximity to the M7 motorway which may allow the use of a pathway control.

Table 6.2 below provides an indication of the types of mitigation measures which may be relevant to consider for noise sensitive locations exposed to noise from road sources.

Control Measure	Mitigation Measure
<p><b>Source Control</b></p>	<p><b>Technical Measures</b></p> <ul style="list-style-type: none"> <li>• Re-surface roads with 10mm stone mastic asphalt (SMA)</li> <li>• Re-surface roads with low noise road surfaces, or thin surface treatments</li> <li>• Road surface maintenance</li> </ul> <p><b>Traffic Planning</b></p> <ul style="list-style-type: none"> <li>• Vehicle speed management, or speed limit reductions</li> <li>• Speed bumps to reduce speed and deter vehicles from travelling on route</li> <li>• Traffic management – looking at routes and HGVs to reduce traffic volume</li> <li>• Bans on HGV’s/trucks</li> <li>• Redesigning junctions - roundabouts may create a steadier driving pattern</li> <li>• Co-ordinated signalisation at intersections for smoother driving</li> </ul> <p><b>Land Use Planning</b></p> <ul style="list-style-type: none"> <li>• New road construction (bypass)</li> <li>• Car-free zones – redesign of street space</li> <li>• Quiet Façade i.e. ensure dwelling have at least one quiet side e.g. (garden/balcony)</li> <li>• Safe cycle lanes along major routes</li> </ul> <p><b>Quieter Sources</b></p> <ul style="list-style-type: none"> <li>• Quieter tyres</li> <li>• Specific lower vehicle sound limits</li> <li>• Increased electrification of the road vehicle fleet</li> <li>• Low-noise waste collection vehicles</li> <li>• Low-noise night-time delivery</li> <li>• Check on noisy vehicles</li> </ul> <p><b>Local Organisational Measures</b></p> <ul style="list-style-type: none"> <li>• Liaise with residents in PIA’s regarding road traffic noise perceptions</li> <li>• Awareness raising campaign regarding driver behaviour in PIA’s</li> <li>• Increased signage in PIA’s relating to traffic noise or traffic speed</li> </ul> <p><b>National Measures</b></p> <ul style="list-style-type: none"> <li>• Regulatory measures to require the selection of quieter sources</li> <li>• Increase in EV charging stations</li> <li>• Economic measures and incentives to support the selection of quieter sources</li> <li>• Increase in public transport fleet</li> <li>• Enforcement of speed limits</li> </ul>
<p><b>Pathway Control</b></p>	<p><b>Reduction of Sound Transmission</b></p> <ul style="list-style-type: none"> <li>• Earthworks, such as earth bunds, mounds or cuttings</li> <li>• Roadside noise barriers and screening measures</li> <li>• Coverage, including baffles or tunnels</li> </ul>
<p><b>Receiver Location Control</b></p>	<p><b>Building Control Measures</b></p> <ul style="list-style-type: none"> <li>• Dwelling insulation, either new build or retrofit</li> <li>• Acoustic windows or secondary glazing</li> <li>• Acoustics ventilation, passive or active</li> <li>• Chimney caps and dampers</li> <li>• Specify building construction details for new developments exposed to environmental noise</li> </ul>

**Table 6.2 – Road Traffic Noise Mitigation Measures**

## 7.0 NOISE ACTION PLAN IMPLEMENTATION

### 7.1 Roles & Responsibilities

Laois County Council is the designated authority responsible for implementing the Noise Action Plan. The implementation of planning and licensing regulations falls under the jurisdiction of relevant statutory bodies, including Laois County Council, the Environmental Protection Agency (EPA), and An Bord Pleanála. Transport Infrastructure Ireland (TII) is the key external stakeholder during the implementation of this Action Plan. Review of the strategic noise maps will be carried out in consultation with TII and the EPA. TII also allocates and administers funding for the construction, maintenance and improvement of national roads. Non- national roads are solely the responsibility of the local authority and TII is not responsible for their upkeep

### 7.2 Targets & Objectives

The purpose of this Noise Action Plan is to proactively manage noise pollution from major roads, prioritising measures to mitigate and minimise the negative environmental impacts of noise based on a communal approach within the European Community.

### 7.3 Proposed Programme of Works

All measures identified in the programme of works are subject to funding and resources and cost benefit analysis.

Year	Works
2025	<ul style="list-style-type: none"> <li>• Conduct noise monitoring and validate noise model for PIAs</li> <li>• Collect traffic data for noise monitoring period</li> <li>• Review potential mitigation measures for investigated PIAs</li> <li>• Seek funding and approval to implement mitigation measures</li> <li>• Provide annual Noise Action Plan Report to the EPA</li> </ul>
2026	<ul style="list-style-type: none"> <li>• Conduct noise monitoring and validate noise model for PIAs</li> <li>• Collect traffic data for noise monitoring period</li> <li>• Review potential mitigation measures for investigated PIAs</li> <li>• Seek funding and approval to implement mitigation measures</li> <li>• Provide annual Noise Action Plan Report to the EPA</li> </ul>
2027	<ul style="list-style-type: none"> <li>• Conduct noise monitoring and validate noise model for PIAs</li> <li>• Collect traffic data for noise monitoring period</li> <li>• Review potential mitigation measures for investigated PIAs</li> <li>• Seek funding and approval to implement mitigation measures</li> <li>• Provide annual Noise Action Plan Report to the EPA</li> </ul>
2028	<ul style="list-style-type: none"> <li>• Conduct noise monitoring and validate noise model for PIAs</li> <li>• Collect traffic data for noise monitoring period</li> <li>• Review potential mitigation measures for investigated PIAs</li> <li>• Seek funding and approval to implement mitigation measures</li> <li>• Provide annual Noise Action Plan Report to the EPA</li> </ul>

**Table 7.1 – Proposed Programme of Works**

All proposals for development or works under the Action Plan must comply with environmental and planning legislation, as well as planning and licensing processes, including relevant land use plans and all relevant policy documents.

#### **7.4 Evaluation, Review & Corrective Action Programmes**

The Noise Action Plan 2024-2028 is supported by a four-year programme for implementation, with progress reported to the EPA on an annual basis.

A review of this Noise Action Plan will be carried out to assess progress against the programme of works.

An interim summary report will be prepared annually. This report will:

- Highlight progress in implementation of action plan measures.
- Will identify areas where corrective action is required or where the proposed measures must be modified for reasons unforeseen at present.

There are a number of risk factors associated with the delivery of this Noise Action Plan, particularly financial risks. Some critical elements of the Action Plan are outside the control of the Council and will require the approval of other statutory bodies. Also, the financial resources required to deliver the programme has yet to be determined and the delivery of the noise action plan will be contingent on adequate funding being available. In view of these uncertainties, it is important that the programme is subject to an ongoing review so as to alert all relevant parties to any change in circumstances.

In 2028 the Council will carry out a review of the program of works implemented under this action plan. Progress and results will be evaluated using information gathered through local assessment of environmental noise exposure. This will include “before and after” evaluations of any noise mitigation measures. A review of new noise maps will also be carried out by TII, giving an indication of the change in environmental noise levels and the numbers of people exposed.

## 8.0 PUBLIC PARTICIPATION

The Environmental Noise Directive and the Noise Regulations provide for strategic noise maps and action plans to be made available to the general public. They also provide for public consultation on proposed action plans and for the results of public consultation to be taken into account in finalising action plans.

The Council is responsible for the preparation and implementation of the NAP 2024- 2028 for all major roads in the County. The County Laois NAP 2024-2028 was made available for public consultation.

The Draft Plan was available for public inspection (excluding weekends and bank holidays) during normal opening hours from the 12<sup>th</sup> June 2024 to the 26<sup>th</sup> July 2024 at the Environment Section, Laois County Council, Áras an Chontae, James Fintan Lalor Avenue, Portlaoise.

In addition, the Draft Noise Action Plan 2024-2028 was available to view on Laois County Council's website: <https://laois.ie/>

Submissions were invited to be submitted by email to [environment@laoiscoco.ie](mailto:environment@laoiscoco.ie) or in writing to the **Senior Executive Engineer, Environment Section, Laois County Council, Áras an Chontae, James Fintan Lalor Avenue, Portlaoise and marked "Public Submission – Draft Noise Action Plan"** before 4.00pm on the 26<sup>th</sup> July 2024.

No submissions on the Draft Noise Action Plan were received by the Environment Section.



## 9.0 FINANCIAL PROVISIONS

### 9.1 Budgetary Provisions

Financial provisions have not yet been made available at national level to fund any noise assessment measures, mitigation measures or additional noise mapping requirements resulting from implementation of this action plan.

### 9.2 Cost Benefit Analysis

Evaluating the impact of noise nuisance is a complex task due to its subjective nature, which depends on factors such as the type of noise, its source, and whether it is considered welcome or unwelcome, as well as the background noise levels in the environment.

Responses to noise from different transportation sources can vary significantly. Moreover, assessing the effectiveness of measures to mitigate noise nuisance is further complicated by the fact that noise is measured on a logarithmic scale, and human perception of loudness does not directly correspond to increased sound pressure levels. For instance, a 3dB increase in noise, which represents a doubling in sound pressure level, is the smallest noticeable difference in loudness that can be detected by the human ear. Therefore, reducing the perceived loudness of a noise source by 50% would require a 10dB decrease in noise level, which may be challenging to achieve without significant investment in noise reduction measures. By assigning a monetary value to the noise nuisance, cost-benefit analysis can be used as a decision-making tool.

## 10.0 SUMMARY & CONCLUSIONS

The European Communities (Environmental Noise) Regulations 2018 and the European Communities (Environmental Noise) (Amendment) Regulations 2021 require that Noise Action Planning Authorities prepare Noise Action Plans for their respective areas, taking into account specific environmental noise sources. In County Laois, this plan focuses on traffic noise from major roads with over 3 million vehicles per year.

Transport Infrastructure Ireland (TII) conducted strategic noise mapping for these roads in 2021. Based on the results of this mapping, Laois County Council prepared this Noise Action Plan. The plan outlines the action planning area and responsible authorities, as well as existing noise management legislation and guidance.

The plan is relevant to areas where outdoor noise levels exceed 53dBA during the day ( $L_{den}$ ) and/or 45dBA at night ( $L_{night}$ ), which may cause adverse health effects and sleep disturbances. The plan assesses the potential harm caused by environmental noise in terms of people who are highly annoyed (HA), sleep disturbed (HSD), and instances of ischemic heart disease (IHD).

Based on the Strategic Noise Maps, Important Areas (IAs) were identified. From this list, the most critical areas were selected by Laois County Council, considering the highest population density. Ten areas were prioritised as Priority Important Areas (PIAs), which will receive a commitment from Laois County Council to conduct an assessment of noise mitigation measures within the lifespan of the Noise Action Plan. The PIAs identified are:

PIA Reference No.	Location	Road Number
PIA_1	Stradbrook Apartments, Stradbally Road, Portlaoise	N80
PIA_2	Glenkeen, Mountmellick Road, Portlaoise	N80
PIA_3	O'Moore Place/Lake Glen, Mountmellick Road, Portlaoise	N80
PIA_4	Rossvale, Mountmellick Road, Portlaoise	N80
PIA_5	The Avenue, Ballybrittas	M7
PIA_6	Upper Main Street, Abbeyleix	N77
PIA_7	Emmet Street, Mountmellick	N80
PIA_8	Pearse Street, Mountmellick	N80
PIA_9	The Village, Mountmellick Road, Portlaoise	N80
PIA_10	Liogard, Mountmellick Road, Portlaoise	N80

**Table 10.1 – Identified Priority Important Areas**

The proposed plan includes strategies to mitigate road traffic noise, which will be assessed and confirmed through monitoring data. Once the predicted noise levels in the Public Interest Areas (PIAs) are validated, a cost-benefit analysis will be conducted to evaluate potential mitigation measures.

This Noise Action Plan covers a four-year period starting in 2025 and will be reviewed every five years, with the next review scheduled for 2028.

The following key initiatives are planned throughout the lifetime of the plan:

- Conduct noise monitoring and validate noise model for all identified PIAs
- Collect traffic data for noise monitoring period
- Review potential mitigation measures for the PIAs and cost benefit analysis
- Seek funding and approval to implement mitigation measures.

All proposals for development and works under the Action Plan must comply with environmental and planning legislation, as well as relevant planning and licensing processes. This includes existing provisions in national and regional plans.

A pre-screening check was conducted in accordance with the Strategic Environmental Assessment (SEA) Directive, which concluded that the Noise Action Plan does not require further SEA as it does not satisfy the conditions for mandatory SEA. Additionally, a Statement of Screening for Appropriate Assessment (AA) was conducted, which determined that the proposed development will not have a significant impact on any European sites individually or in combination with other plans or projects.

However, further screening for Appropriate Assessment (AA) will be conducted for any actions required under the Noise Action Plan to determine whether any project over the 4-year period of the plan could have significant effects on a Natura 2000 site, considering the site's conservation objectives.

**APPENDIX – A: GLOSSARY**

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Noise is generally considered to be any unwanted sound. The human ear is capable of detecting sound waves within a specific frequency range, from 20 Hz (deep bass) to 20,000 Hz (high treble). The ear's sensitivity to sound varies across this range, with mid-frequencies being more noticeable than lower or higher frequencies. To better reflect how humans perceive noise, a weighting mechanism is used to reduce the importance of lower and higher frequencies.

The 'A' weighting scale is widely used for environmental noise measurement and is denoted as dB(A). The decibel scale is logarithmic, meaning that a 3 dB increase in sound level represents a doubling of the sound energy. A general guideline for sound perception is that a 10 dB(A) increase corresponds to a doubling of loudness, while a 3 dB(A) increase is typically needed to perceive a change in sound under normal listening conditions. Table A.1 provides an overview of the range of common sound levels found in the environment.

Sound Pressure Level, dB(A)	Location
0	Threshold of hearing
20 to 30	Quiet bedroom at night
30 to 40	Living room during the day
40 to 50	Typical office
50 to 60	Inside a car
60 to 70	Typical high street
70 to 90	Inside factory
100 to 110	Burglar alarm at 1m away
110 to 130	Jet aircraft on take off
140	Threshold of pain

**Table A.1. Typical sound levels found in the environment.**

The human response to a noise is influenced by more than just the sound pressure level and frequency; intermittency also plays a significant role. Various metrics have been developed to link annoyance to noise level and fluctuations. The metrics and parameters used in this report are defined below.

Term	Definition
<b>A-Weighting</b>	A frequency weighting applied to measured or predicted sound levels in order to compensate for the non-linearity of human hearing.
<b>Acoustic Environment</b>	Sound at the receiver from all sources of sound as modified by the environment, as defined in ISO 12913-1:2014.
<b>CNOSSOS-EU: 2020</b>	The common noise assessment method according to the END.
<b>dB (decibel)</b>	The unit of sound pressure level, calculated as a logarithm of the intensity of sound. 0 dB is the threshold of hearing, 120 dB is the threshold of pain. Under normal circumstances, a change in sound level of 3 dB is just perceptible. A change of 1 or 2 dB is detectable only under laboratory conditions. A change of 10 dB corresponds approximately to halving or doubling the loudness of sound.
<b>EEA</b>	European Environment Agency.
<b>END</b>	Environmental Noise Directive.
<b>EPA</b>	Environmental Protection Agency.
<b>IPPC Licence:</b>	Integrated Pollution Prevention and Control Licence (obtained from EPA).

Term	Definition
<b>L<sub>eq,T</sub></b>	The equivalent continuous sound level - the sound level of a steady sound having the same energy as a fluctuating sound over a specified measuring period T.
<b>L<sub>den</sub></b>	The day-evening-night composite noise indicator adopted by the EU for the purposes of assessing overall annoyance. Equation below: $L_{den} = 10 \lg \frac{1}{24} \left( 12 * 10^{\frac{L_{day}}{10}} + 4 * 10^{\frac{L_{evening}+5}{10}} + 8 * 10^{\frac{L_{night}+10}{10}} \right)$
<b>L<sub>day</sub></b>	The A-weighted long term average sound level as defined in ISO1996- 2: 2007, determined over all the day periods over a long-term period (e.g. a year).
<b>L<sub>evening</sub></b>	The A-weighted long term average sound level as defined in ISO1996- 2: 2007, determined over all the evening periods over a long-term period (e.g. a year).
<b>L<sub>night</sub></b>	The A-weighted long term average sound level as defined in ISO1996- 2: 2007, determined over all the night periods over a long-term period (e.g. a year).
<b>NAP</b>	Noise Action Plan
<b>TII</b>	Transport Infrastructure Ireland

**APPENDIX – B: STRATEGIC NOISE MAPS**

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