

2023-2028 DRAFT NOISE ACTION PLAN



Executive Summary

This Noise Action Plan (NAP) is prepared to comply with the requirements of the European Noise Directive 2002/49/EC (END). This is the fourth cycle of the preparation of a NAP which is updated on 5 yearly cycles. This NAP will be effective for the period 2023 to 2028.

Unwanted sound (noise) contributes greatly to diminishing people's quality of life; having adverse effects on hearing, sleep, cardiovascular and metabolic function. Noise of sufficient intensity and duration can cause temporary and/or permanent hearing loss; interfere with speech communication and the transmission of other auditory signals. It can disturb sleep patterns thus resulting in higher risk of cardiovascular and psychophysiological effects, such as cognitive function; elevated blood pressure and catecholamine hormone secretion (WHO). Noise can act as a general source of annoyance or disturbance and interfere with performance and can result in altered social behaviour; the World Health Organisation has set guideline levels for annoyance at 55 dB(A) representing daytime levels below which a majority of the adult population will be protected from becoming moderately or seriously annoyed.

The END requires Action Planning Authorities to identify sources of emissions for various sources of noise from transportation. Noise mapping is prepared from sources above certain thresholds,

- agglomerations with more than 100,000 inhabitants
- major roads (more than 3 million vehicles a year)
- major railways (more than 30 000 trains a year)
- major airports (more than 50 000 take-offs or landings a year, including small aircrafts and helicopters)

In Tipperary, only certain sections of roads meet the above criteria and therefore this NAP concentrates on the impacts of noise emissions from major roads carrying more than 3,000,000 vehicles per year.

As per Article 6.2 of END, two noise level indicators are used in order to describe environmental noise, and in the preparation of noise maps and action plans, $dB_{L_{den}}$ and $dB_{L_{night}}$. These indicators correspond to periods **day**, **evening**, **night** and **night** as shown in the following table.

Table 1.1: Noise Mapping Indicators

L_{den}	<ul style="list-style-type: none"> • Day-evening-night noise indicator • Representative of 24hr period • 5 dB penalty applied to evening levels and 10 dB penalty to night levels to reflect people's extra sensitivity to noise during these periods • Noise indicator for overall annoyance
L_{night}	<ul style="list-style-type: none"> • Night-time equivalent sound level • Representative of night period (2300-0700 hr) • Noise indicator for sleep disturbance

Noise mapping for these major roads has been prepared that indicates the predicted noise arising from traffic and these are presented in contour bands of 5 dB for both L_{den} and L_{night}.

The Noise Maps, including those for Tipperary, may be viewed online at this link:

<https://www.tipperarycoco.ie/environment/noise-action-plan-consultation>

Transport-related environmental noise is the most significant contributor to environmental noise exposure in Europe, causing most annoyance, sleep disturbance and public health concerns. Road traffic noise is the most significant contributor to environmental noise, with the EEA estimating that approximately 113 million European Union (EU) citizens are regularly exposed to 55 dB L_{den} or more of road traffic noise.

The EPA guidelines recommend that the NAP adopt an assessment method using bands of 1dB increments where the following thresholds are exceeded for particular noise sources:

Road traffic noise: 53 dB L_{den}, 45 dB L_{night}

Railway noise: 54 dB L_{den}, 44 dB L_{night}

Aircraft noise: 45 dB L_{den}, 40 dB L_{night}

The NAP describes the criteria adopted for the identification of Priority Important Areas (PIA) that will be subject to further assessment for possible mitigation measures. Ten PIAs have been identified within County Tipperary.

Any proposed mitigations will be subject to the availability of resources and funding.

Contents

1 INTRODUCTION	1
1.1 Policy Objective	1
1.2 Purpose and Scope of the Noise Action Plan	2
1.3 Consultation	3
1.4 Noise Action Plan Timetable	3
1.5 Key Phases in Preparation of Fourth Round of Noise Action Plans	4
2 NOISE EFFECTS ON HEALTH AND QUALITY OF LIFE	5
2.1 Noise level Indicators	5
2.2 Effects on Health and Quality of Life	5
3 EU LEGAL AND POLICY FRAMEWORK	7
3.1 EU Directive	7
3.2 Zero Pollution Action Plan	8
3.3 EEA Reports	8
3.4 CNOSSOS-EU	11
3.5 EU Regulation 2019/1010 – Alignment of Environmental Reporting Obligations	12
4. NATIONAL LEGAL AND POLICY FRAMEWORK	13
4.1 National Policy and Guidance	13
4.2 National Legislation	14
4.3 Regional or Local Policy and Guidance	18
5.0 Review of 2018-2023 Tipperary NAP	21
5.1 Description of Action Planning Area	22
5.2 Preparation of Strategic Noise Maps	23
5.3 Harmful Effects	25
5.4 Priorities for Noise Management Activities	26
5.5 Quiet Areas	33



5.6 Noise Management Measures	33
5.7 Implementation Plan	34
6. Public Consultation	36
Appendix A: Glossary of Acoustic and Technical Terms	37
Appendix B: Bibliography and References	41



1 INTRODUCTION

1.1 Policy Objective

Tipperary County Council has drawn up a Noise Action Plan (NAP) under the Environmental Noise Directive 2002/49/EC (END); the regulations of which:

“provide a basis for developing and completing the existing set of Community measures concerning noise emitted by the major sources, in particular road and rail vehicles, and infrastructure, aircraft, outdoor and industrial equipment and mobile machinery, and for developing additional measures, in the short, medium and long term.” (Regulation)

Unwanted sound (noise) contributes greatly to diminishing people’s quality of life; having adverse effects on hearing, sleep, cardiovascular and metabolic function. Noise of sufficient intensity and duration can cause temporary and/or permanent hearing loss; interfere with speech communication and the transmission of other auditory signals. It can disturb sleep patterns thus resulting in higher risk of cardiovascular and psychophysiological effects, such as cognitive function; elevated blood pressure and catecholamine hormone secretion (WHO) Noise can act as a general source of annoyance or disturbance and interfere with performance and can result in altered social behaviour; the World Health Organisation has set guideline levels for annoyance at 55 dB(A) representing daytime levels below which a majority of the adult population will be protected from becoming moderately or seriously annoyed.

The Directive aims to establish a common EU approach to avoid, prevent or reduce the harmful effects of exposure to environmental noise. The Directive does not include a common noise reduction objective nor EU noise limits.

Tipperary County Council’s Action Plan identifies areas within the County that are experiencing noise levels significantly in excess of adopted thresholds. The Plan will further identify Priority Areas where mitigation measures may be adopted to reduce the harmful effects of that noise.

1.2 Purpose and Scope of the Noise Action Plan

This NAP has been prepared in accordance with the requirements of END. The Directive was transposed into Irish Law through the European Communities (Environmental Noise) Regulations 2018, S.I. No. 549 of 2018, and its amendment.

The Environmental Noise Directive is the main EU law to identify noise pollution levels and act on them. It focuses on four action areas

- determining exposure to environmental noise and assessing its health effects at single dwelling level
- ensuring that information on environmental noise and its effects is made available to the public
- preventing and reducing environmental noise
- preserving environmental noise quality in areas where it is good

The Directive requires EU countries to prepare and publish noise maps and noise management action plans every 5 years for:

- agglomerations with more than 100 000 inhabitants
- major roads (more than 3 million vehicles a year)
- major railways (more than 30 000 trains a year)
- major airports (more than 50 000 take-offs or landings a year, including small aircrafts and helicopters)

The NAP outlines the policy of Tipperary County Council and a description of how it will manage noise emissions from these sources.

The Regulations (Section 4(3)) also define the noise sources to which it does not apply:

(3) These Regulations shall not apply to noise—

- (a) caused by the person exposed to the noise;
- (b) noise from domestic activities;
- (c) noise created by neighbours;
- (d) noise at work places;
- (e) noise inside means of transport; or
- (f) noise due to military activities in military areas.

In County Tipperary the main relevant source of noise emissions arises from road traffic noise. There are no agglomerations or main airports within the County and the railways do not carry more than 30,000 trains per year.

There are sections of the road network that do carry in excess of 3,000,000 vehicles per year and these are the main noise sources that will be addressed under this NAP.

1.3 Consultation

This Draft NAP has been prepared following consultation between various sections of Tipperary County Council. The Draft NAP has been subject to a screening process to determine the requirement for an Appropriate Assessment or Strategic Environmental Assessment.

The Draft NAP will be subject to a public consultation process. The Draft NAP will be issued for Public Consultation and issued to all relevant stakeholders. The results of the public participation shall be taken into account in finalising the action plan.

The Consultation shall be advertised in the local press and shall be placed prominently on the Tipperary County Council website with a facility for receiving comments and submissions from interested parties. Copies of the Draft NAP shall be made available for public viewing at the Civic Offices within the County. The Draft NAP shall be available for viewing for a period of four weeks, with a further two weeks for the receipt of comments and submissions.

Following a review of any submissions and comments the Draft NAP shall be finalised and submitted for Executive approval of Tipperary County Council. Copies of the approved NAP shall be submitted to the EPA and made available to the public via the Council website.

1.4 Noise Action Plan Timetable

Regulation (EU) 2019/1010 on the alignment of report obligations postponed Round 4 noise action plans from 18 July 2023 to 18 July 2024 (Article 2 (2)). The five yearly cycles set out in Directive 2002/49/EC will then resume from Round 5.

Following a public consultation the Council shall consider any submissions made and make amendments or additions as appropriate. The NAP shall then be submitted for executive approval by the Council. Once approved the NAP shall be submitted to the EPA for forwarding to the EU.

DRAFT Noise Action Plan 2023-2028

1.5 Key Phases in Preparation of Fourth Round of Noise Action Plans

The key phases in meeting the requirements for the preparation of Action Plans are as set out below.

The phases of development of the NAP are:

- Preparation of Noise Mapping by Designated bodies;
- Prepare Draft NAP based on Noise Mapping;
- Environmental screening of NAP (Appropriate Assessment and Strategic Environmental Assessment);
- Public Consultation on NAP;
- Publication of Final NAP;
- Annual Reporting on implementation of NAP to the Environmental Protection Agency (EPA).

Once the Noise Mapping becomes available from the Designated Mapping Bodies, the Draft NAP is prepared by a collaborative working group within the Council.

2.1 Noise level Indicators

Various noise metrics can be used to recognise and manage environmental noise; there is no one specific metric which can assess, describe and communicate noise effects. For example, varying metrics are utilised for describing long term health effects, in comparison to other metrics applied to measure the noise produced from a small event, e.g. aircraft or train passing.

As per Article 6.2 of END, two noise level indicators are used in order to describe environmental noise, and in the preparation of noise maps and action plans.

Table 1.1: Noise Mapping Indicators

L_{den}	<ul style="list-style-type: none"> Day-evening-night noise indicator Representative of 24hr period 5 dB penalty applied to evening levels and 10 dB penalty to night levels to reflect people's extra sensitivity to noise during these periods Noise indicator for overall annoyance
L_{night}	<ul style="list-style-type: none"> Night-time equivalent sound level Representative of night period (2300-0700 hr) Noise indicator for sleep disturbance

Daily long-term annual average values can vary day to night. When compiling evidence of the assessments, penalties will be applied to L_{den} during the evening and night to show inconsistent noise levels for a 24hr period, as shown in table 1.1.

Table 1.2: Other Noise Level Indicators

L_{Amax}	<ul style="list-style-type: none"> Maximum sound level during measurement period
L_{Aeq, T}	<ul style="list-style-type: none"> Equivalent sound level of period of T hours Most common are L_{Aeq, 16hr}, L_{Aeq, 24hr} Most commonly used within planning and noise management decisions
SEL	<ul style="list-style-type: none"> Numerically equivalent to the total sound energy of an event normalised to 1-second

2.2 Effects on Health and Quality of Life

Noise is a health problem for at least 1 in 5 EU citizens. There is therefore a need to coordinate efforts at EU level to reduce this burden on the everyday life of millions of citizens. The Directive acts as the framework legislative tool linking all actions at international, EU and local level. Noise is a complex issue, so effective solutions come from coordinated EU and local actions.



DRAFT Noise Action Plan 2023-2028

Unwanted noise can cause considerably disruptive effects on daily life; thus, the introduction of Environmental Noise Regulations gave way to extensive studies on the links between environmental noise exposure and health. According to research from European Environment Agency (EEA) and World Health Organisation (WHO), the following health conditions are correlated to noise; cardiovascular disease, cognitive impairment, annoyance, sleep disturbance and over all wellbeing.

World Health Organisation Noise guidelines are as follows:

Day time	<ul style="list-style-type: none">• Noise above 65dB(A) has the potential to cause severe health conditions• Noise levels for cities: 60-70dB(A)• Noise levels for suburban/rural 56-60dB(A)• Noise level for annoyance is 53dB(A)
Nights	<ul style="list-style-type: none">• Nightly noise levels should not exceed 40dB(A)

Transport-related environmental noise is the most significant contributor to environmental noise exposure in Europe, causing most annoyance, sleep disturbance and public health concerns. Road traffic noise is the most significant contributor to environmental noise, with the EEA estimating that approximately 113 million European Union (EU) citizens are regularly exposed to 55 dB L_{den} or more of road traffic noise. The major contributors to road traffic noise are passenger cars and lorries, with minor contributions from buses and motorcycles.

3 EU LEGAL AND POLICY FRAMEWORK

3.1 EU Directive

The Environmental Noise Directive 2002/49/EC is the main EU law to identify noise pollution levels and act on them. It focuses on four action areas

- determining exposure to environmental noise and assessing its health effects at single dwelling level
- ensuring that information on environmental noise and its effects is made available to the public
- preventing and reducing environmental noise
- preserving environmental noise quality in areas where it is good

The Directive requires EU countries to prepare and publish noise maps and noise management action plans every 5 years for

- agglomerations with more than 100 000 inhabitants
- major roads (more than 3 million vehicles a year)
- major railways (more than 30 000 trains a year)
- major airports (more than 50 000 take-offs or landings a year, including small aircrafts and helicopters)

The Directive aims to establish a common EU approach to avoid, prevent or reduce the harmful effects of exposure to environmental noise. The Directive does not include a common noise reduction objective nor EU noise limits.

The Regulations designate noise mapping bodies and action planning authorities for the making of strategic noise maps and action plans. The Environmental Protection Agency (EPA) is the designated national authority whose role includes supervisory, advisory and coordination functions in relation to both noise mapping and action planning, as well as reporting requirements for the purpose of the Directive.

The 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 considered in finalising action plans or reviews of action plans.

3.2 Zero Pollution Action Plan

By 2050, the EU strive to reduce the pollution levels of air, water and soil to non-harmful levels, as to promote health and natural ecosystems. One of the targets for 2030 include “*reducing the share of people chronically disturbed by transport noise by 30%*”.

In order to achieve the target 30%, Zero Pollution Monitoring and Outlook Report published substantial and additional measures must be undertaken at national, regional and local level. The current estimated reduction by the report is at 19%, the Phenomena Project was introduced to find cost-effective mitigation measures to aid authorities to achieve the proposed targets of noise reduction.

3.3 EEA Reports

The European Environment Agency have published a number of reports on environmental noise. Following research it has become apparent that large populations within the EU are experiencing adverse impacts from noise and have identified road traffic noise as being the most dominant source. The Noise in Europe Report, (EEA 2014) reported that 125 million people in Europe are affected by noise levels greater than 55 dB L_{den} and that environmental noise contributed to at least 10,000 cases of premature deaths each year.

The EU Phenomenon Project (Assessment of Potential Health Benefits of Noise Abatement Measures in the EU, March 2021) provided policy options for the reduction of traffic noise. These include increased application of low noise road surfaces, quieter tyres through rolling sound limits, lower vehicle sound limits including increased electrification of road vehicles, speed reductions and access restrictions and use of noise barriers. The report conclusions recommend that increased coherence between noise policy and other various policy areas to enhance co-benefits (e.g. urban and mobility plans) should be explored to facilitate a more effective implementation of noise abatement measures.

The EEA publishes information on it's website on the number of people exposed to high levels of noise above the EU reporting thresholds for various environmental noise sources such as road, rail aviation and industry. This is based on the annual reports submitted to the EU under the END regulations.

Number of people exposed to high noise levels-Ireland

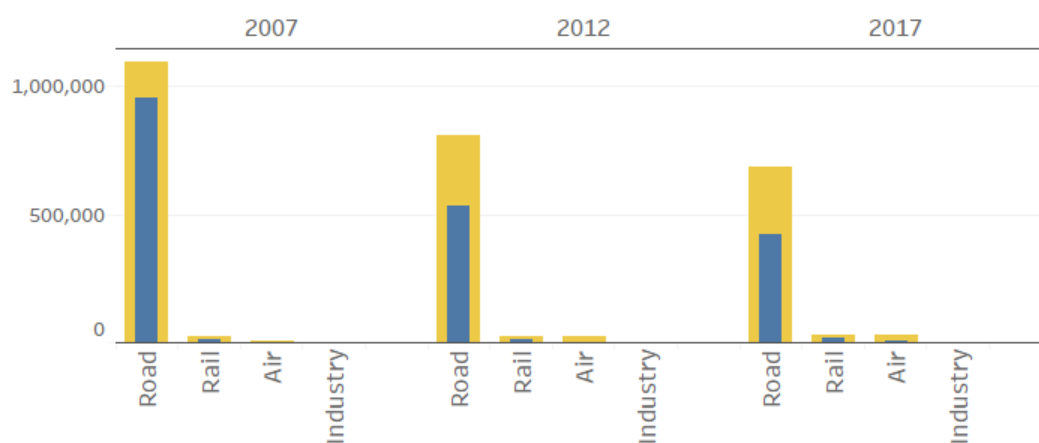
(<https://www.eea.europa.eu/themes/human/noise/noise-fact-sheets/noise-country-fact-sheets-2021/ireland>)

DRAFT Noise Action Plan 2023-2028

The information below shows the number of people exposed to high levels of noise above the EU reporting thresholds for various environmental noise sources such as road, rail, aviation and industry.

	Lden >= 55 dB			Lnight >=50 dB		
	2007	2012	2017	2007	2012	2017
Road	1,092,500	809,200	686,400	953,400	530,300	423,100
Rail	20,700	24,700	29,400	12,700	13,700	17,600
Air	3,100	21,400	28,500	0	1,400	6,600
Industry	0	-	-	0	-	-

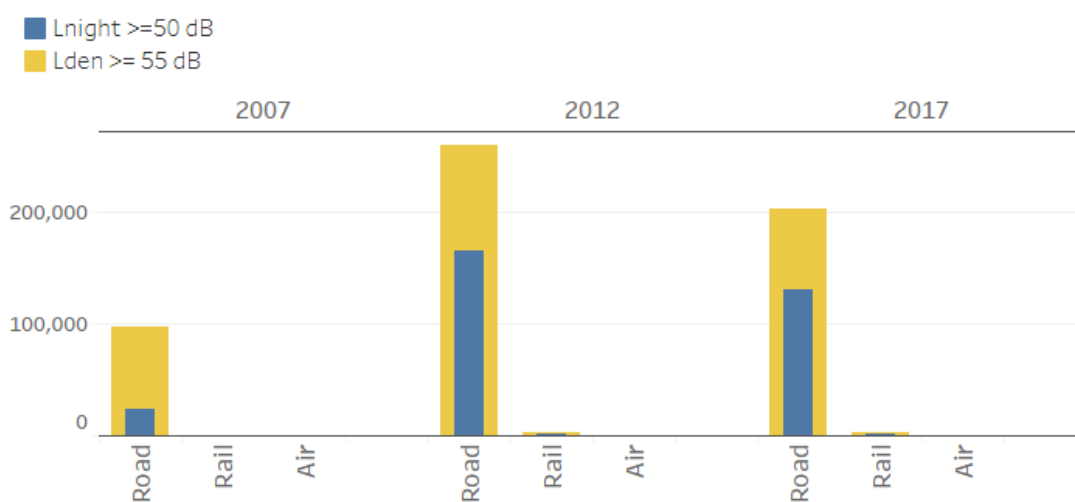
■ Lnight >=50 dB
■ Lden >= 55 dB



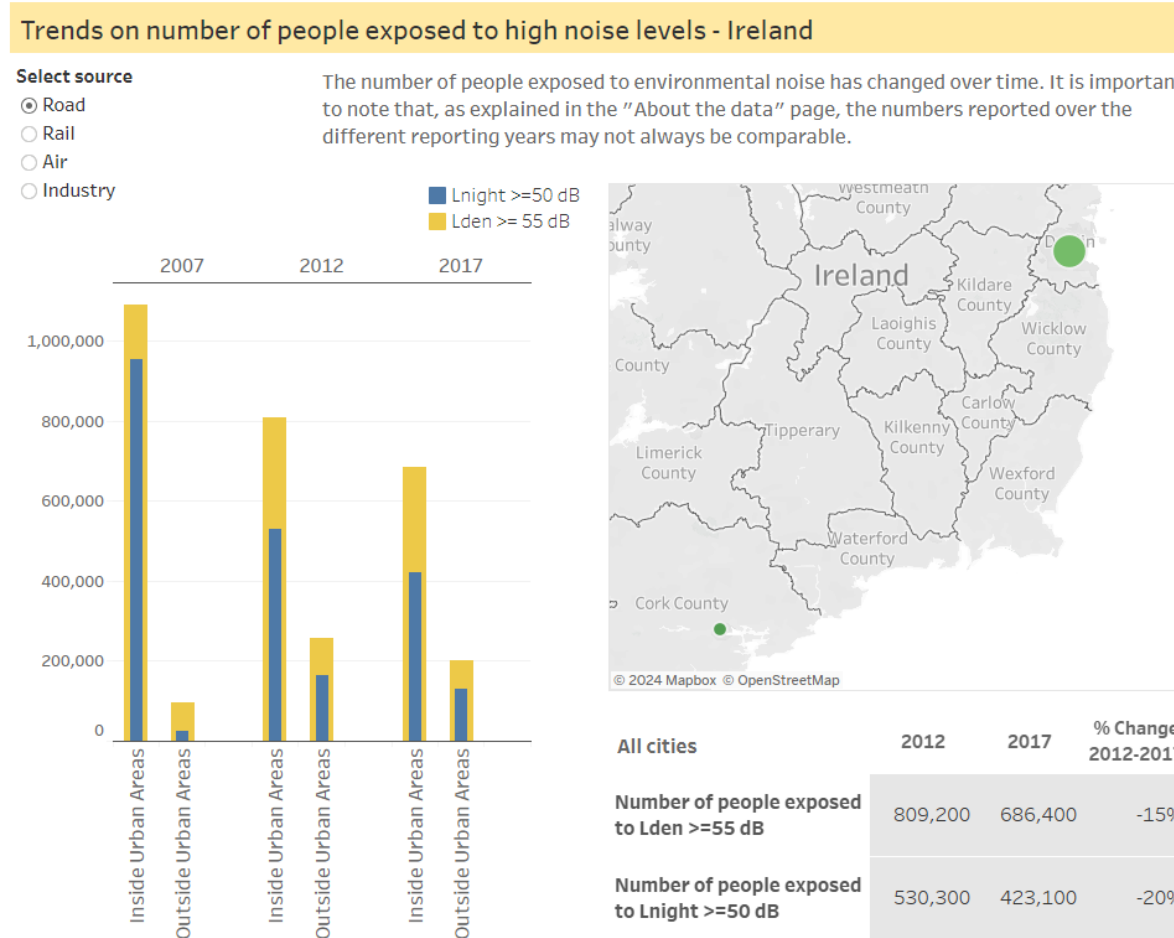
Inside Urban Areas

The information below shows the number of people exposed to high levels of noise above the EU reporting thresholds for various environmental noise sources such as road, rail, aviation and industry.

	Lden >= 55 dB			Lnight >=50 dB		
	2007	2012	2017	2007	2012	2017
Road	97,600	258,500	202,600	24,200	164,500	129,700
Rail	0	2,100	2,800	0	1,300	1,500
Air	0	0	500	0	0	0



Outside Urban Areas



Trends

Note that data across different rounds of noise mapping (every 5 years) is not always compatible due to several factors including, changing definitions within the END, the 2007 data refers to noise from urban areas of more than 250,000 inhabitants, major roads of more than 6 million vehicles per year and railways of more than 60,000 per year. The 2012 and 2017 data refer to urban areas of more than 100,000 inhabitants, major roads of more than 3 million vehicles per year and railways of more than 30,000 trains per year. However, it can be seen that the trend between 2012 and 2017 shows a reduction in numbers affected by noise since the introduction of the END.

3.4 CNOSSOS-EU

In July 2015 the Commission published Directive 2015/996 establishing common noise assessment methods according to Directive 2002/49/EC of the European Parliament and of the Council. This replaced Annex II of the END, removed the recommended Interim Methods, and established the common noise assessment methods.

The Directive sets out the noise calculation methods (CNOSSOS-EU) in the Annex, and some guidance on aircraft modelling, and database tables of input data for roads, railways and

DRAFT Noise Action Plan 2023-2028

aircraft in a series of Appendices. The Directive is an EC legal document which was to be transposed into law within each Member State by 31 December 2018. The CNOSSOS-EU methods set out within the Directive are to be used for strategic noise maps under the END from 31 December 2018.

The CNOSSOS-EU methodologies within Directive 2015/996 may be summarised as follows:

- Road traffic source
- Railway traffic source
- Industrial noise sources
- Propagation model for road, railway and industrial sources
- Aircraft
- Exposure assessment

European Communities (Environmental Noise) Regulations 2018¹ (S.I. 549/2018) transposed Commission Directive (EU) 2015/996 into Irish law. Further Corrigenda were published in 2018 correcting typographical errors in the original Directive.

A delegated Directive 2021/1226 provided further amendment to CNOSSOS-EU which incorporated research work across Europe particularly relating to calculation of aircraft noise.

3.5 EU Regulation 2019/1010 – Alignment of Environmental Reporting Obligations

Regulation 2019/1010² on alignment of reporting obligations in the field of legislation related to the environment, and amending Directive 2002/49/EC. EU Regulation 2019/1010 was given full effect in Ireland through European Communities (Environmental Noise) (Amendment) Regulations 2021.

END Annex VI Data to be Sent to the Commission sets out the mandatory reporting requirements. Prior to Round 4 (R4), reporting was undertaken through the European Environment Agency (EEA) Reportnet 2.0 system.

Regulation 2019/1010 establishes the European Environment Agency (EEA) as managers of a data repository and requires that a subsequent implementing act will establish a mandatory reporting mechanism for R4 in accordance with the INSPIRE Directive 2007/2/EC, and Directive 2003/4/EC on public access to environmental information.

¹ Available at: <https://www.irishstatutebook.ie/eli/2018/si/549/made/en/print> [Accessed December 2023]

² Available at: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A32019R1010> [Accessed December 2023]

4. NATIONAL LEGAL AND POLICY FRAMEWORK

4.1 National Policy and Guidance

4.1.1 National Policy Objective

Location of new residential properties or noise sensitive premises such as schools or hospitals, adjacent to existing roads, railways, or airports can result in significant noise management issues as can the development of mixed residential/commercial use buildings, and multi-part residential buildings.

Schools, hospitals, churches, funeral homes and other noise sensitive premises have particular requirements for low level noise environments in order to be able to function effectively. Noise levels in these noise sensitive locations must be managed to address external noise break-in, as well as room-to-room transmission.

4.1.2 EPA Guidance

The Environmental Protection Agency provides policy and technical guidance for the preparation of Noise Action Plans and disseminates information and research applicable to the objectives of the END.

4.1.3 Transport Infrastructure Ireland (TII)

Transport Infrastructure Ireland (TII) (previously the National Roads Authority) published "Guidelines for the Treatment of Noise and Vibration in National Road Schemes", 2004 which sets out the procedure to be followed in respect of "the planning and design of national road schemes". These Guidelines set out a design goal for noise for all national road schemes to meet a day-evening-night sound level of 60 dB L_{den} to be met both in the year of opening and in the design year.

To expand and supplement the advice in the guidelines, TII also issued the "Good Practice Guidance for the Treatment of Noise during the Planning of National Road Schemes" March 2014. These Guidelines include a Checklist for Noise Prediction for proposed road schemes which includes preparing noise models, checking planning permission for recently permitted residential developments in the area, proposing suitable road surface types etc. The aim of the guidance is to encourage and facilitate positive acoustic design of road schemes (noise amelioration) which minimise the need for local noise mitigation with acoustic fencing at a late stage in the design process.

4.2 National Legislation

4.2.1 *The European Communities (Environmental Noise) Regulations 2018 (S.I. No. 549/2018) and its amendment S.I. No. 663/2021 - European Communities (Environmental Noise) (Amendment) Regulations 2021.*

These regulations give effect to Directive 2002/49/EC relating to the assessment and management of environmental noise as amended by Commission Directive (EU) 2020/367 establishing assessment methods for harmful effects of environmental noise and Commission Delegated Directive (EU) 2021/1226 establishing common noise assessment methods and for the purposes of giving full effect to Directive 2002/49/EC as amended by EU Regulation 2019/1010 establishing alignment of reporting obligations in the field of legislation related to the environment

4.2.2 *Environmental Protection Agency Act 1992*

It should be noted that currently in Ireland there are no regulatory limits on environmental noise. The current legislation primarily deals with noise nuisance as set out in the regulations. Regulations under the EPA Act are designed to cover general neighbourhood type noise problems, such as continual noise from other houses, home workshops, local businesses etc. The Environmental Protection Agency Act 1992 (Noise) Regulations 1994 (S.I. No 179 of 1994) provide redress in the case of these types of problems. They are designed to allow straightforward access to the Courts by individuals or groups concerned about excessive noise.

Sections 106 to 108 of the Act are of direct relevance, and may be summarised as follows:

- **106** gives the relevant Minister certain powers to regulate noise that may give rise to a nuisance or be harmful to health or property, such as neighbourhood noise, noise from other houses, home workshops and local businesses;
- **107** gives powers to local authorities and the EPA to serve notice to take steps to control noise nuisance as described above;
- **108** sets out a process whereby noise nuisance issues may be taken to the District Court, which may make an order requiring that the person or body responsible for the noise takes steps to eliminate or ameliorate the noise in question.

4.2.3 *Planning & Development Acts (as amended) and Development Regulations 2001 (as amended)*

Whilst the Planning & Development Acts do not specifically include requirements relating to noise, they do regulate certain types of development that are of such nature as to require the preparation of an Environmental Impact Assessment Report (EIAR). These include developments such as road, rail and airports of a scale that are above thresholds defined in the Planning Regulations. A component of an EIAR is the assessment of potential harmful impacts on the environment and human beings, including noise impacts.

4.2.4 *Quarries and Ancillary Activities*

Section 261A of the Planning and Development Act, 2000, as amended introduced new legislative provisions in relation to the regulation of quarries. The legislative provisions relate to determining whether the requirements of the Environmental Impact Assessment (EIA) Directive and Habitats Directive were met in relation to the quarries.

In certain cases, there will be a requirement on quarry operators/owners “Substitute Consent” from An Bord Pleanála in respect of quarry development that were not subject to EIA or Appropriate Assessment (AA) where same was required. The applications for Substitute Consent can be accompanied by a remedial Environmental Impact Statement which will include an assessment of noise impacts from the quarry and mitigation measures to control same.

The Department of the Environment, Heritage and Local Government published guidelines for Planning Authorities for quarries and ancillary activities in April 2004, including recommended noise conditions for inclusion as part of registration or where a full planning permission was required. The Planning and Development Act (Amendment) Act 2010 included changes relevant to quarries in relation to development requiring environmental impact assessment.

4.2.5 *Wind Energy Development Guidelines 2006*

With specific regard to wind energy developments, this DEHLG document suggests a “*lower fixed limit of 45dB(A) or a maximum increase of 5dB(A) above background noise at nearby noise sensitive locations*”. The latter requirement may be relaxed in areas with low background levels. A fixed limit of 43dB(A) at night-time is deemed appropriate, as there is no requirement to protect external amenity. It should be noted that the Department of the Environment, Community and Local Government in conjunction with the Department of Communications, Energy and Natural Resources intends to undertake a technical update of the guidance on

noise (including separation distance) and shadow flicker in the Wind Energy Development Guidelines 2006.

This update is intended to ensure that the Wind Energy Guidelines are supported by a robust and up to date evidence base on these issues to support wind energy development in a manner which safeguards residential amenity consistent with EU and National Policy. Comments were invited on these aspects of the Guidelines only before February 15th, 2013. The updated guidelines to be issued thereafter considering the views expressed during the public consultation process. A Preferred Draft Approach was issued by the Government in June 2017. The applicable guidelines at this time are still the 2006 guidelines.

4.2.6 IPPC and 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 in Relation to Scheduled Activities*”, updated in 2016 to “*Guidance Note for Noise: Licence Applications, Surveys and Assessments in Relation to Scheduled Activities*”. The earlier edition contains suggested noise limits of 55 dB(A) $L_{Ar,T}$ 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. The 2016 revised guidance sets out clear methodologies for the derivation of appropriate noise criteria, which should be adopted in the case of all new licence applications.

4.2.7 National Planning Guidance

In 2018 the National Planning Framework 2040 set out policy objectives for creating cleaner environments for a healthy society incorporating:

- Noise Management and Action Planning to avoid and mitigate noise through strategic mapping, noise action plans and planning conditions;
- Noise, Amenity and Privacy through good acoustic design in new developments;
- Preservation of Quiet Areas to provide respite from high levels of urban noise and promote a positive impact on quality of life and health.

National Policy Objective 52 - The planning system will be responsive to our national environmental challenges and ensure that development occurs within environmental limits, having regard to the requirements of all relevant environmental legislation and the sustainable management of our natural capital.

National Policy Objective 65 - 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.

Aside from the NPF 2040, Regional Spatial and Economic Strategies, guidelines for wind energy developments and quarries and climate change, Tipperary 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.

4.2.8 *Building Regulations*

Technical Guidance Document (TGD) E Sound published by the Department of Environment, Community and Local Government sets out the standards in relation to sound to be applied for building construction in Ireland. The Building Regulations do not apply to buildings constructed prior to 1 June 1992, except where an extension to an existing building or material change of use applies. The key aspects of the new guidance may be summarised as follows:

- For the first time in Ireland, minimum standards of sound insulation performance have been used to define 'reasonable resistance to sound';
- Reverberation in common internal parts of buildings has been introduced as an issue requiring consideration, and;
- Mandatory pre-completion testing is required in order to demonstrate compliance with the requirements of the regulations.

It should be noted that Part E does not address environmental noise through the building facade from external sources such as aircraft, trains, road traffic or industry. The aim of Part E of the Second Schedule to the Building Regulations is to ensure that dwellings achieve reasonable levels of sound insulation from sound transmission emanating from adjoining buildings or differently occupied parts of the same building. However, notwithstanding this, the Building Regulations and Technical Guidance Document E pertaining to Sound represent a major improvement in terms of both performance standards and the guidance that is being provided. It is expected that these measures, along with the requirement for testing conducted by suitably qualified persons, will lead to a commensurate improvement in-situ performance.

4.2.9 *Guidelines for the Treatment of Noise and Vibration in National Road Schemes, 2004*
TII who hold responsibility for National Roads, have prepared guidelines in relation to the assessment of noise impacts from new National Road Developments, *Guidelines for the Treatment of Noise and Vibration in National Road Schemes, 2004*.

DRAFT Noise Action Plan 2023-2028

The current design goal is that all national road schemes should be designed, where feasible, to meet a day-evening-night sound level of 60 dB Lden (free-field residential façade criterion), to be met both in the year of opening and in the design year (15 years from date of opening). In order to achieve this design goal mitigation measures may be required where three conditions are met:

- (a) the combined expected maximum traffic noise level, i.e. the relevant noise level, from the proposed road scheme together with other traffic in the vicinity is greater than the design goal;
- (b) the relevant noise level is at least 1dB more than the expected traffic noise level without the proposed road scheme in place;
- (c) the contribution to the increase in the relevant noise level from the proposed road scheme is at least 1dB.

The Guidelines were subsequently reviewed and further publication *Good Practice Guidance for the Treatment of Noise during the Planning of National Road Schemes*, was published in March 2014.

4.2.10 Spatial Planning and National Roads, Guidelines for Planning Authorities January 2012

These guidelines set out planning policy considerations relating to development affecting national primary and secondary roads, including motorways and associated junctions, outside the 50-60 km/h speed limit zones for cities, towns and villages. The guidelines replace the document, Policy and Planning Framework for Roads, published by the Department in 1985, supplement other policy guidance on roads related matters in other Ministerial guidelines in relation to retail planning and sustainable rural housing and replace the National Roads Authority (now TII) policy statement on national roads published in May 2006. The guidelines will assist road and planning authorities, the TII, National Transport Authority (NTA) and providers of public transport in relation to their involvement in the overall planning process.

4.3 Regional or Local Policy and Guidance

4.3.1 Regional Spatial and Economic Strategy for the Southern Region (RSES)

The RSES contains objectives in relation to environmental noise

RPO131 states:

It is an objective to promote the pro-active management of noise where it is likely to have significant adverse impacts on health and the environment. It is also an objective to support the aims of the Environmental Noise Regulations through national planning guidance and Noise Action Plans for major urban centres as considered appropriate.

4.3.2 Tipperary County Development Plan 2022-2028

The Tipperary County Development Plan 2022-2028 (CDP) was adopted in July 2022. Section 11.8 of Volume 1 of the CDP references the END and the NAP. Policy 11-17 includes a statement that it will be the Ppolicy of Tipperary County Council to:

Ensure that new development does not result in significant noise disturbance and to ensure that all new developments are designed and constructed to minimise noise disturbance in accordance with the provisions of the Noise Action Plan.

Also, Objective 11-H of the same section states that the Council shall:

Apply the provisions of the Tipperary County Council Noise Action Plan 2018 – 2023 as it relates to Noise Action Areas in order to reduce disturbance from noise.

This objective will also apply to this NAP once finalised.

Appendix 6 of the CDP relates to Development Management Standards. This introduces the requirement for Noise Impact Assessments and appropriate mitigation measures for certain development applications made within the Action Planning Area covered by the NAP.

By extension, through the NAP, a document prepared by a sub-committee of Local Authority Noise Action Working Group, *the Draft Interim National Guidance for the Consideration of Transportation Noise in the Design of New Residential Development (2021)* is also used by the Planning Section when considering new developments within the Action Planning Area.

4.3.3 The Responsible Authority for Action Planning

For major roads, the local authority or local authorities within the functional area or areas the road is located are the designated Action Planning Authority. The Action Planning Authority for Tipperary is Tipperary County Council. The Council is responsible for making Action Plans following consultation with the EPA and the relevant noise mapping bodies. Such Action Plans must satisfy the minimum requirements as set out in the Fourth Schedule of the Regulations. Action Planning Authorities must produce Action Plans for the third round in 2018 and every five years thereafter. Action Plans must be produced based on the results of the noise mapping. It is also required to review and revise the noise maps if necessary from time to time and whenever a major development occurs affecting the existing noise situation.

4.3.4 Noise Mapping Bodies

Under the Regulations the following organisations have been designated as noise mapping bodies:

- For the agglomeration of Cork – Cork City and Cork County Councils;
- For the agglomeration of Dublin – the four Dublin Local Authorities;
- For major railways, Iarnród Éireann or the Railway Procurement Agency, as appropriate;
- For major roads, the TII for national roads and for non-national roads, the relevant road authority or authorities, as appropriate;
- For major airports, the relevant airport authority.

The Regulations require that the designated noise mapping bodies are required to make strategic noise maps or revised maps, as appropriate, for:

- Any agglomeration with a population greater than 100,000;
- Any major road with more than 3 million vehicle passages per year;
- Any major railway with more than 30,000 train passengers per year;
- Any major airport with more than 50,000 flights per annum.

4.3.5 Working Group

A Working Group was established within Tipperary County Council for the development and implementation of the NAP. The Working Group draws on the skills and knowledge of the relevant Directorates within the Council, these include, Environment, Planning, IT and Roads.

5.0 Review of 2018-2023 Tipperary NAP

The Tipperary County Council Noise Action Plan 2018-2023 was adopted in November 2019. The Plan proposed a number of management measures for its implementation. These proposals addressed existing locations and also protection measures for future improvements.

Over the life of the NAP 2018-2023 the following measures were implemented:

- Improvements have been made to road surfaces in several areas using low noise surfacing. These were introduced on the N24 at Clonmel, the N24 on Main Street Tipperary Town and the N24 through Carrick on Suir. Each of these were identified as areas of significant noise nuisance.
- In addition to the use of low noise surfacing, traffic calming measures were also incorporated to reduce traffic speeds which will further reduce noise emissions from vehicles.
- Active Travel measures have been included into Local Area Plans in Clonmel, Nenagh and Thurles. These measures will assist in the modal shift from vehicles to cycling and walking thus reducing noise emissions;
- The Preferred Route Corridors for the N24 Waterford to Cahir Scheme and the N24 Cahir to Limerick Junction Scheme were published. The implementation of these schemes will result in bypasses of Carrick on Suir and Tipperary Town as well as other smaller villages along the N24. At Clonmel the identified Preferred Corridor re-uses the existing N24, though new links will remove a significant level of traffic from the N24.
- The County Development Plan 2022-2028 has incorporated requirements for Acoustic Impact Assessments for new developments located within the Action Planning Area, as outlined in Section 3.6 of Appendix 6 (Development Management Standards) of the CDP.
- Assessment of new development applications is taking account of *Draft Planning Advice Note for Applicants, Consultants and Planners* prepared by a Noise Action Plan working group.
- An internal working group has been established with the Council with participants from Environment, Planning, GIS and Road Departments to develop the revised NAP. It is hoped to maintain this working group through the implementation stages.
- Green Routes and Blueways have been developed linking Clonmel to Carrick on Suir and further projects are in planning stages.
- The Council's plant fleet has begun a transition to electric vehicles under a pilot project and this will continue.

There have been challenges over the period of the NAP 2018-2023, including the restrictions arising from the Covid outbreak in 2019. This limited the ability of staff to carry out verifications of the predicted noise levels indicated in the Noise Maps. Resourcing and budgetary constraints also limited the ability of staff to engage in its implementation. Notwithstanding this, it is considered that there has been considerable progress made in reducing the environmental noise arising from traffic.

5.1 Description of Action Planning Area

The Action Planning Area is determined by the evaluation of noise emission sources. As noted previously, the END set the criteria for assessment impacts from noise source emissions, i.e.:

- agglomerations with more than 100 000 inhabitants
- major roads (more than 3 million vehicles a year)
- major railways (more than 30 000 trains a year)
- major airports (more than 50 000 take-offs or landings a year, including small aircrafts and helicopters)

County Tipperary does not have any agglomerations, railways or airports that meet the threshold criteria. Sections of the road network have been identified as meeting the major roads criteria.

In County Tipperary the Action Planning Area is identified from the Strategic Noise Maps that provide modelled noise levels emanating from road traffic. The major noise emitter is where traffic exceeds 3,000,000 vehicles per annum.

The Action Planning Area encompasses those areas where the modelled noise levels exceed the threshold of 55 dB L_{den} and 50 dB L_{night} . These areas encompass the following roads:

Road	Approximate Length	Location
M7 Motorway	63 km	Full length of M7 within County Tipperary
M8 Motorway	65 km	Full length of M8 within County Tipperary
N24	31.3 km	Most of the N24 from R697/N24 Junction, Carrick on Suir to N24/R640 Junction, Cahir.
N24	0.24 km	Main St from Kickham Place to Lower Church Street, Tipperary Town

DRAFT Noise Action Plan 2023-2028

N52	0.78 km	Borrisokane Road Roundabout to R493 Junction, Nenagh
R689	0.42 km	From N24 Fethard Rd Roundabout to Northview Close Estate, Clonmel
R688	0.9 km	From N24 Cashel Road Roundabout to L3604, Heywood Road, Clonmel
R707	2.2 km	From Moangarriff Roundabout to Junction with Dillon Street.
R707	2.4 km	From N24 Cahir Roundabout, along Western Road to Heywood Road Junction.

Noise Mapping was prepared for each of the above roads and forms the basis of assessment under this NAP.

5.2 Preparation of Strategic Noise Maps

The purpose of the strategic noise maps is to identify the areas affected by different levels of environmental noise along major roads. As stated previously, major roads are the only noise source in County Tipperary that meets the criteria for consideration under END. The maps are a visual representation of estimated noise contour bands within the action plan area which range from 55dB L_{den} to greater than 75dB L_{den} , in 5dB bands. The contours are derived from modelled predicted noise emissions from actual traffic volumes along the major roads.

Thematic map contour layers were generated for the following decibel bands:

L_{den} (dB)	L_{night} (dB)
➤ 55 to 59 (dB)	➤ 45 to 49 (dB)
➤ 60 to 64 (dB)	➤ 50 to 54 (dB)
➤ 65 to 69 (dB)	➤ 55 to 59 (dB)
➤ 70 to 74 (dB)	➤ 60 to 64 (dB)
➤ ≥ 75 (dB)	➤ 65 to 69 (dB)
	➤ ≥ 70(dB)

As a Designated Mapping Body, Transport Infrastructure Ireland (TII) prepared strategic noise maps for all major roads in Tipperary carrying more than 3 million vehicle passages per annum. The major roads were identified based on the most recent traffic data available

The maps have been linked to population data to estimate the numbers of people located in each environmental noise bands. This information is then used to develop the NAP which will endeavour to manage existing environmental noise and protect the future noise environment. Traffic volumes were recorded by Tipperary County Council during 2022 and 2023 and provided to the Roads Maintenance Office (RMO) who acted as a central depository for traffic counts by all Local Authorities. Having complied the data for all Local Authorities this was provided to TII who developed the Noise Maps. These were subsequently issued to the Local Authorities in order to prepare the individual NAPs.

These maps are available for viewing at the following link:

<https://www.tipperarycoco.ie/environment/noise-action-plan-consultation>

Noise Exposure (dB L _{den})	Estimated Number of people in Dwellings	Estimated Percentage of Total Population Exposed to Noise source
55-59	4,364	2.6%
60-64	1,647	1%
65-69	576	0.3%
70-74	135	0.08%
≥ 75	40	0.02%

Noise Exposure (dB L _{den})	Number of School Buildings	Number of Hospital Buildings
55-59	3	0
60-64	0	2
65-69	1	0
70-74	0	0
≥ 75	0	0

Noise Exposure (dB L _{night})	Estimated Number of people in Dwellings	Estimated Percentage of Total Population Exposed to Noise source
45-49	5,716	3.4%
50-54	2,172	1.3%
55-59	810	0.5%
60-64	195	0.2%
65-69	57	0.03%
≥ 70	0	0%

Noise Exposure (dB L _{night})	Number of School Buildings	Number of Hospital Buildings
45-49	4	0
50-54	1	2
55-59	1	0
60-64	0	0
65-69	0	0
≥ 70	0	0

It should be noted that the approach taken for the preparation of noise mapping has changed from the previous versions of the NAP.

In this NAP the methodology used for the assessment of traffic and subsequent modelling of predicted noise levels was changed in order to harmonise results across the EU. This creates consistency of the reports submitted to the EEA from different countries and allows direct comparisons to be made. As a result of the adoption of the new methodology, Common Noise Assessment Methods in Europe (CNOSSOS-EU), comparison between the previous noise maps and the current one will show different noise levels for the same locations. This difference arises in the different categorisation of vehicles and methods of predictive modelling.

5.3 Harmful Effects

The WHO guidelines 2018 were developed following an extensive review of scientific research on the effects of noise exposure on health, and they show that the onset of health effects occur at 40 to 45 dB L_{night}, and that health effects certainly occur above a range of 45 to 53 dB L_{den}, depending upon the noise source. The research underpinning the WHO guidelines also indicate that the impact on health increases as long-term exposure to environmental noise increases, and that significant adverse effects are likely to occur above approximately 53 dB L_{den} and 45dB L_{night} for road traffic noise.

Research has shown evidence supporting the association of environmental noise with some or all of the following health conditions:

- Cardiovascular disease - including hypertension, coronary heart disease (CHD), acute myocardial infraction (AMI) and stroke;
- Cognitive impairment – including the impact on children's reading and education;
- Sleep disturbance – i.e., interference with sleep and awakenings;
- Annoyance – i.e., becoming or increasingly disturbed or bothered by noise; and
- Wellbeing – i.e., impacts on quality of life and mental health.

The European Communities (Environmental Noise) (Amendment) Regulations 2021 (S.I. 663/2021) sets out the assessment methods for harmful effects, which considers ischemic heart disease (IHD), high annoyance (HA) and high sleep disturbance (HSD). The health



DRAFT Noise Action Plan 2023-2028

impacts to be assessed and reported are: number of people Highly Annoyed (HA) & number of people Highly Sleep Disturbed (HSD) for roads, railways and aircraft; and instances of Ischemic Heart Disease (IHD) for roads. The EPA guidelines recommend that the NAP adopt an assessment method using bands of 1dB increments where the following thresholds are exceeded for particular noise sources:

Road traffic noise: 53 dB L_{den} , 45 dB L_{night}

Railway noise: 54 dB L_{den} , 44 dB L_{night}

Aircraft noise: 45 dB L_{den} , 40 dB L_{night}

The regulations provide equations for use in the estimation of the numbers of people experiencing the harmful effects of High Annoyance (HA), High Sleep Disturbance (HSD) and Ischaemic Heart Disease (IHD) arising from noise sources meeting the required criteria. In the case of County Tipperary, the qualifying noise source are the major roads carrying in excess of 3,000,000 vehicles per annum that are identified in the Noise Maps.

The following numbers of people are estimated to be affected by noise levels above the guidelines:

	Road Traffic > 53 dB L_{den}	% of Propulation	Road Traffic > 45 dB L_{night}	% of Propulation
No of People in Dwellings exposed to Road Noise above Guideline Level	11,473	6.8%	10,921	6.5%

Based on a population of 167,895 (CSO 2022 Census).

5.4 Priorities for Noise Management Activities

The END requires that:

*“The measures within the plans are at the discretion of the competent authorities, but should notably **address priorities** which may be identified by the **exceeding of any relevant limit value or by other criteria** chosen by the Member States and **apply in particular to the most important areas** as established by strategic noise mapping.”*

Using the available information, a three step approach is recommended by the EPA Guidance which has been adopted for the identification of priorities in this NAP:

1. **Important Areas (IA)** – these are locations exposed to environmental noise which may be harmful to human health, such as high annoyance, as indicated by WHO guidance;
2. **Most Important Areas (MIA)** – 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 exposed to noise;

3. **Priority Important Areas (PIA)** – between 5 and 10 MIAs, or groups of similarly affected MIAs, which are identified as those which will be addressed during the implementation of the NAP.

Based on the results of the Round 4 strategic noise mapping, the IA, MIA and PIAs for Round 4 noise action plans have been identified. A centralised GIS process has been used to identify IAs and MIAs, which were then used to identify PIAs.

PIAs were selected from the MIAs through consideration of the following:

- Number of people exposed to noise, and the health effects
- Level of noise exposure
- Potential for grouping adjacent MIAs into a larger PIA
- 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
- Proposed noise reduction measures
- Options available for noise reduction measures, if available

Twenty MIAs were identified on the basis of 7.5 or more people per 100m² who are statistically predicted to experience high levels of health impact. The numbers of people estimated to be affected within the identified Most Important Areas (MIAs) are tabulated below.

Population per 100m ²	No. of Most Important Areas	Total Population	HA	HSD	IHD
7.5	12	1,570	271	88	0
10	7	486	97	32	0
15	1	24	4	1	0

Following further assessment, 10 PIAs were identified and are indicated in Figs 1 to 10. These PIAs will be the target areas for noise management activities under the lifetime of this NAP.

The table below indicates the numbers of people within the PIAs who are estimated to experience health effects from noise emissions from Major Roads based on the criteria outlined above.

	Estimated no of people	% of population
Highly Annoyed	87	0.05
Highly Sleep Disturbed	28	0.02
Ischaemic Heart Disease	<1	0

These estimates are based on mathematical models of traffic levels and noise emissions. The first step in managing the noise impacts is to confirm actual noise levels on the ground within the PIAs. This will be done by carrying out noise level recordings with dedicated equipment in accordance with ISO 1996:Acoustic Description and Measurement of Environmental Noise and comparing those with the threshold levels.



Fig. 1: TYC_01 – Ashgrove Court, Clonmel



Fig. 2: TYC_02, Dromard, Cashel Rd., Clonmel



Fig. 3: TYC_03 – Treacy Park, Carrick on Suir



Fig. 4: TYC_04 – Kickham St, Carrick on Suir



Fig. 5: TYC_05, Ard Gaoithe Drive, Clonmel



Fig. 6: TYC_06 – Honeyview Estate, Clonmel

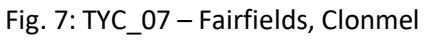




Fig. 9: TYC_09 – O'Mahoney Ave., Carrick on Suir



Fig. 10: TYC_10, Chestnut Ave., Clonmel

5.5 Quiet Areas

The Regulations provide for the protection of existing quiet areas in open country, near schools, near hospitals and near other noise sensitive areas. Regulation 10(2) states:

(2) An action planning authority may following consultation with the Agency and with the approval of the Minister delimit quiet areas in open country that are undisturbed by noise from traffic, industry or recreational activities.

It is considered that this type of protection is most appropriately applied in County Tipperary through the regulatory planning process where certain developments are subject to approval of an Environmental Impact Assessment Report or other licensing arrangement for certain activities. These approvals will include conditions on limits of noise emissions from such developments and shall take account of the existing background environment.

5.6 Noise Management Measures

Noise Management shall be applied through a combination of measures that are within the competency of Tipperary County Council, and are subject to the availability of funding and resources. These measures seek to:

- a) improve the noise environment within the selected PIAs where practicable;
- b) avoid increasing the numbers of people who become subject to noise nuisance resulting from future development exceeding the criteria contained within this NAP;
- c) protect the existing noise environment where it provides a quiet and tranquil area.

Given that the main noise source considered in this plan arises from road traffic, the use of engineering measures to reduce noise shall be incorporated into road maintenance and improvement schemes. These include:

- the use of low noise materials in construction,
- the introduction of traffic calming measures,
- encouraging modal shift from motor vehicles to Active Travel, and
- reduction of speed limits.

For new developments the County Development Plan, 2022-2028 requires a Noise Impact Assessment as follows:

- a) For new developments that are likely to generate noise nuisance or an unacceptable impact on sensitive receptors;
- b) For new developments proposed within the current Action Planning Area as set out in the Tipperary County Council Noise Action Plan, 2018; or
- c) For developments proposed near major roads (i.e. traffic volumes in excess of 3 million vehicles per annum or otherwise on a case by case basis).

Where developments are planned adjacent to major roads, the planning application shall incorporate acoustical planning into the development design e.g. designing the development so that the access road is adjacent to the major road noise source (subject to an analysis of the potential traffic safety implications). It may also involve the use of buffer zones and/or noise barriers and traffic calming measures.

In permitting new development outside of the Action Planning Areas identified in the Noise Action Plan, the Council will refer to the appropriate regulations and guidance in place, and where a proposed development may result in excessive noise levels or, by virtue of its proximity to a noise sensitive receptor may result in a loss of amenity to that receptor or result in general nuisance, a Noise Impact Assessment may be required. The Council may apply conditions at planning permission stage to manage noise emissions from new developments.

Prioritisation of specific measures shall be on the basis of potential effectiveness, the number of people who will benefit from a reduction in harmful effects and cost.

The process of prioritisation will include:

- On site measurements of actual noise in the PIAs. It should be noted that the PIAs identified in this NAP are done so on the basis of predictive modelling of noise. The actual noise levels must be verified in order to target any measures effectively.
- Identification of practical mitigation measures, if any, some of which have been described previously;
- Appraisal of the measures to determine those which provide the greatest overall benefit for the limited resources available;
- Seeking funding approval for the selected measure.

It should be noted that at the time of preparation of this NAP there is no dedicated funding identified for the implementation of specific mitigation measures. Once measures have been identified and assessed, Tipperary County Council will make an application for funding to the relevant funding authority. In some cases, the delivery of capital or maintenance projects under other programmes may include the benefits of noise mitigation whilst that not being their primary purpose.

For the PIAs indicated in Figs. 1 – 10 there have been recent improvements to the pavement completed since the original modelling was carried out. These include the N24 Carrick on Suir Pavement and Road Safety Improvement Scheme which was completed in 2024 and the N24 Clonmel Inner Relief Road Pavement Improvement Scheme, completed in 2022. The Carrick on Suir Scheme included the use of low noise surfacing and traffic calming measures. These measures impact sites TYC_03, 04 and 09 shown in Figs. 3, 4 and 9.

In Clonmel, Sites TYC_05, 06, 07 and 08 shown in Figs 5, 6, 7 and 8, will have benefited from the scheme completed in 2022 which also incorporated low noise surfacing.

On site noise measurements will indicate whether these measures have reduced the noise levels appreciably to below the threshold levels.

5.7 Implementation Plan

This NAP will be valid for the period 2024-2028. In 2028 the Plan will be reviewed and, if necessary, revised in accordance with the prevailing regulations at that time.

The table below gives an outline of the implementation of the finalised NAP.

DRAFT Noise Action Plan 2023-2028

Action	Timescale	Delivered by
Adoption of NAP	2024	TCC
Implementation of relevant Planning Procedures related to the NAP when considering Planning Referrals	Ongoing	TCC
Management of Noise Complaints	Ongoing	TCC
Submission of Annual Reports to EPA	Annually	TCC
Raise awareness of the NAP amongst all sections within TCC to develop a collaborative approach to project developments	Ongoing	TCC
Verification of PIAs	2024 - 2028	TCC
Identification of Practical Measures	2024 - 2028	TCC
Appraisal of Measures	2024 - 2028	TCC
Applications for funding	Dependant on relevant funding authority	TCC\Funding Authority
Implementation of Works	Dependant on relevant funding authority	TCC\Funding Authority

The implementation of the NAP shall be evaluated and reviewed by the TCC Working Group over the period of this NAP. The Working Group will report to the Senior management in TCC. Annual reports will be submitted to the EPA. The Working group shall meet at least twice per year, or more frequently if required. The programme of implementation is subject to the availability of finance and resources and may be revised dependant on these.

There will be a final review of this NAP as part of the preparation of the following NAP for 2028-2033.

6. Public Consultation

The outcome of the Public Consultation will be included in this section on completion of the period for receipt of submissions.

The Draft NAP and Strategic Mapping may be viewed at this link:

<https://www.tipperarycoco.ie/environment/noise-action-plan-consultation>

Screenings for an Appropriate Assessment and Strategic Environmental Assessment in accordance with the Habitats Directive (92/43/EEC) and the Planning and Development Act 2000, as amended, will also be available for public comment over the same period and are also available for viewing on the above link. These screenings will seek to establish whether the NAP is likely to have any significant effects on species or habitats protected under the Habitats Directive.

Any submissions received will be reviewed and the Draft NAP and screenings will be revised as considered necessary. The Final NAP and AA and SEA determinations will be made available for viewing and download from the Tipperary County Council website. The Final document shall be submitted to the EPA for forwarding to the European Commission.

Appendix A: Glossary of Acoustic and Technical Terms

Term	Definition
AA	Appropriate Assessment
Absolute quiet area	Where environmental noise levels are low and aim to be preserved.
Agglomeration	Major Continuous Urban Area as set out within the Regulations
AMI	Acute Myocardial Infraction
ANCA	Airport Noise Competent Authority
APA	Action Planning Authority
Attribute Data	A trait, quality, or property describing a geographical feature, e.g. vehicle flow or building height
CBA	Cost Benefit Analysis
CHD	Coronary Heart Disease
CNG	WHO Community Noise Guidelines 1999
CNOSSOS-EU	Common Noise Assessment Methods for Europe, Directive 996/2015
CQA	Candidate Quiet Area
Data	Data comprises information required to generate the outputs specified, and the results specified
dB	Decibel
DECC	Department
EC	European Commission
ECAC	European Civil Aviation Conference
EEA	European Environment Agency
END	Environmental Noise Directive (2002/49/EC)
ENG	WHO Environmental Noise Guidelines for the European Region 2018
EU	European Union
GIS	Geographic Information System
HA	High Annoyance; means a feeling of displeasure, nuisance, disturbance or irritation caused by a specific sound, and in the context of the WHO guidelines and END it refers to long-term (chronic) noise annoyance
IA	Important Areas

Term	Definition
ICAO	International Civil Aviation Organisation
IED	Industrial Emissions Directive 2010/75/EU on Industrial Emissions (Integrated Pollution Prevention and Control)
ISO	International Standards Organisation
LA	Local Authority
Metadata	Descriptive information summarising data
MIA	Most Important Areas
NAO	Noise Abatement Object
NAP	Noise Action Plan
NNG	WHO Night Noise Guidelines for Europe 2009
NMB	Noise Mapping Body
Noise Bands	<p>Areas lying between contours of the following levels (dB):</p> <p>L_{den} <55, 55 – 59, 60 – 64, 65 – 69, 70 – 74, ≥ 75</p> <p>L_d <55, 55 – 59, 60 – 64, 65 – 69, 70 – 74, ≥ 75</p> <p>L_e <55, 55 – 59, 60 – 64, 65 – 69, 70 – 74, ≥ 75</p> <p>L_n <45, 45-49, 50 – 54, 55 – 59, 60 – 64, 65 – 69, ≥ 70</p> <p>Notes:</p> <p>It is recommended that class boundaries be at .00, e.g. 55 to 59 is actually 55.00 to 59.99</p> <p>The assessment and reporting of the 45 – 49 dB band for L_{night} is optional under the Regulations</p>
Noise Levels	Free-field values of L_{den} , L_d , L_e , L_n , and $L_{Aeq,16h}$ at a height of 4m above local ground level
Noise Level - L_d - Daytime	L_d (or L_{day}) = $L_{Aeq,12h}$ (07:00 to 19:00)
Noise Level - L_e - Evening	L_e (or $L_{evening}$) = $L_{Aeq,4h}$ (19:00 to 23:00)
Noise Level - L_n - Night	L_n (or L_{night}) = $L_{Aeq,8h}$ (23:00 to 07:00)
Noise Level - L_{den} – Day/Evening/Night	<p>A combination of L_d, L_e and L_n as follows:</p> $L_{den} = 10 * \log 1/24 \{ 12 * 10^{((L_{day})/10)} + 4 * 10^{((L_{evening}+5)/10)} + 8 * 10^{((L_{night}+10)/10)} \}$
Noise Mapping (Input) Data	<p>Two broad categories:</p> <p>(1) Spatial (e.g. road centre lines, building outlines).</p> <p>(2) Attribute (e.g. vehicle flow, building height – assigned to specific spatial data)</p>

Term	Definition
Noise Mapping Software	Computer program that calculates required noise levels based on relevant input data
Noise Model	All the input data collated and held within a computer program to enable noise levels to be calculated.
Noise Model File	The (proprietary software specific) project file(s) comprising the noise model
NSAI	National Standards Authority of Ireland
NTA	National Transport Agency
OCQA	Other Candidate Quiet Area
ORM	Office of Radiation Protection and Environmental Monitoring
OSI	Ordnance Survey for Ireland (now under Tailte Eireann)
Output Data	The noise outputs generated by the noise model
PCQA	Potential Candidate Quiet Area
PIA	Priority Important Areas
Processing Data	Any form of manipulation, correction, adjustment factoring, or other adjustment of data to make it fit for purpose. (Includes operations sometimes referred to as 'cleaning' of data)
QA	Quiet Area
Raster Heat Map	A raster heat map shows the relative density of values at points using a colour scheme to indicate density value. In this case the value used is the number of people highly annoyed per 100m ² .
Relative Quiet Area	Where environmental noise levels are relatively low in comparison to levels of noise exposure within nearby residential areas
RESPF	Renewable Electricity Spatial Policy Framework
RMO	Road Management Office
RSA	Road Safety Authority

Term	Definition
SEA	Strategic Environmental Assessment
SMA	Stone mastic asphalt
SNM	Strategic Noise Map
Spatial (Input) Data	Information about the location, shape, and relationships among geographic features, for example road centre lines and buildings.
TAG	English Department for Transport, Transport Analysis Guidance
TII	Transport Infrastructure Ireland
UNECE	United Nations Economic Commission for Europe
WHO	World Health Organisation
ZPAP	Zero Pollution Action Plan

Appendix B: Bibliography and References

EU Legislation

Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora, 21 May 1992, as amended 1997, 2003, 2006 & 2013.

Directive 2001/42/EC on the assessment of the effects of certain plans and programmes on the environment, 27 June 2001.

Directive 2002/49/EC relating to the assessment and management of environmental noise, OJ L189/12-25, 18 July 2002.

Directive 2003/4/EC on public access to environmental information, 28 January 2003.

Directive 2006/93/EC on the regulation of the operation of aeroplanes covered by Part II, Chapter 3, Volume 1 of Annex 16 to the Convention on International Civil Aviation, second edition (1988), 12 December 2006.

Directive 2007/2/EC establishing an Infrastructure for Spatial Information in the European Community (INSPIRE), 14 March 2007.

Directive 2010/75/EU on industrial emissions (integrated pollution prevention and control), 24 November 2010.

Directive 2011/92/EU on the assessment of the effects of certain public and private projects on the environment, 13 December 2011, as amended by Directive 2014/52/EU, 16 April 2014.

Regulation (EU) No 168/2013 on the approval and market surveillance of two- or three-wheel vehicles and quadricycles, 15 January 2013.

Regulation (EU) No 167/2013 on the approval and market surveillance of agricultural and forestry vehicles, 5 February 2013.

Directive 2014/45/EU on periodic roadworthiness tests for motor vehicles and their trailers and repealing Directive 2009/40/EC, 3 April 2014.

Directive 2014/47/EU on the technical roadside inspection of the roadworthiness of commercial vehicles circulating in the Union and repealing Directive 2000/30/EC, 3 April 2014.

Regulation (EU) No 540/2014 on the sound level of motor vehicles and of replacement silencing systems, and amending Directive 2007/46/EC and repealing Directive 70/157/EEC, 16 April 2014.

Regulation (EU) No 598/2014 on the establishment of rules and procedures with regard to the introduction of noise-related operating restrictions at Union airports within a Balanced Approach and repealing Directive 2002/30/EC, 16 April 2014.

Directive (EU) 2015/996 of 19 May 2015 establishing common noise assessment methods according to Directive 2002/49/EC, OJ L168/1-823, 1 July 2015.

DRAFT Noise Action Plan 2023-2028

Regulation (EU) 2016/1628 on requirements relating to gaseous and particulate pollutant emission limits and type-approval for internal combustion engines for non-road mobile machinery, amending Regulations (EU) No 1024/2012 and (EU) No 167/2013, and amending and repealing Directive 97/68/EC, 14 September 2016.

Delegated Regulation (EU) 2017/1576 amending Regulation (EU) No 540/2014 of the European Parliament and of the Council as regards the Acoustic Vehicle Alerting System requirements for vehicle EU-type approval, 26 June 2017.

Corrigendum to Commission Directive (EU) 2015/996, OJ L5/35-46, 10 January 2018.

Regulation (EU) 2018/858 on the approval and market surveillance of motor vehicles and their trailers, and of systems, components and separate technical units intended for such vehicles, amending Regulations (EC), No 715/2007 and (EC) No 595/2009 and repealing Directive 2007/46/EC, 30 May 2018.

Delegated Regulation (EU) 2019/839 amending Regulation (EU) No 540/2014 of the European Parliament and of the Council on the sound level of motor vehicles and of replacement silencing systems, 7 March 2019

Regulation 2019/1010 on alignment of reporting obligations in the field of legislation related to the environment, and amending Directive 2002/49/EC, OJ L 170, of 25 June 2019.

Regulation (EU) 2019/2144 of the European Parliament and of the Council of 27 November 2019 on type-approval requirements for motor vehicles and their trailers, and systems, components and separate technical units intended for such vehicles, as regards their general safety and the protection of vehicle occupants and vulnerable road users, amending Regulation (EU) 2018/858 of the European Parliament and of the Council and repealing Regulations (EC) No 78/2009, (EC) No 79/2009 and (EC) No 661/2009 of the European Parliament and of the Council and Commission Regulations (EC) No 631/2009, (EU) No 406/2010, (EU) No 672/2010, (EU) No 1003/2010, (EU) No 1005/2010, (EU) No 1008/2010, (EU) No 1009/2010, (EU) No 19/2011, (EU) No 109/2011, (EU) No 458/2011, (EU) No 65/2012, (EU) No 130/2012, (EU) No 347/2012, (EU) No 351/2012, (EU) No 1230/2012 and (EU) 2015/166, OJ L 325, 16th December 2019.

Directive (EU) 2020/367 of 4 March 2020 amending Annex III to Directive 2002/49/EC of the European Parliament and of the Council as regards the establishment of assessment methods for harmful effects of environmental noise, OJ L 67, 5 March 2020.

Regulation (EU) 2020/740 on the labelling of tyres with respect to fuel efficiency and other parameters, amending Regulation (EU) 2017/1369 and repealing Regulation (EC) No 1222/2009, 25 May 2020.

Delegated Directive (EU) 2021/1226 amending, for the purpose of adapting to scientific and technical progress, Annex II of Directive 2002/49/EC of the European Parliament and the Council as regards common noise assessment methods, OJ L269/65-142 of 28th July 2021, 21 December 2020

Implementing Decision (EU) 2021/1967 setting up a mandatory data repository and a mandatory digital information exchange mechanism in accordance with Directive 2002/49/EC of the European Parliament and of the Council, 11 November 2021

Judgement of the Court (Eight Chamber). European Commission v Portuguese Republic. Case C-687/20, 31 March 2022.

Irish Legislation

Road Traffic Act 1961, Revised, Updated to 16 May 2023, Number 24 of 1961.

Environmental Protection Agency Act, 1992 (Noise) Regulations, 1994, S.I. No. 179/1994.

Environmental Protection Agency Act 1992, Revised, Updated to 18 April 2023, Number 7 of 1992.

European Communities (Environmental Assessment of Certain Plans and Programmes) Regulations 2004, S.I. No. 435 of 2004.

Planning and Development (Strategic Environmental Assessment) Regulations 2004, S.I. No. 436 of 2004.

European Communities (Access to Information on the Environment) Regulations 2007, S.I. No. 133 of 2007.

Planning and Development Regulation 2008, S.I. No. 235 of 2008.

European Communities (Environmental Assessment of Certain Plans and Programmes) (Amendment) Regulations 2011, S.I. No. 200 of 2011.

Planning and Development (Strategic Environmental assessment) (Amendment) Regulations 2011, S.I. No. 201 of 2011.

European Communities (Access to Information on the Environment) (Amendment) Regulations 2011, S.I. No. 662/2011.

European Union (Industrial Emissions) Regulations 2013, S.I. No. 138 of 2013.

European Communities (Access to Information on the Environment) (Amendment) Regulations 2014, S.I. No. 615/2014.

European Union (Two or Three Wheel Motor Vehicles and Quadricycles Type-approval) Regulations 2015, S.I. No. 614 of 2015.

European Union (Agricultural or Forestry Vehicle Type Approval and Entry into Service) Regulations 2017, S.I. No. 645 of 2017.

European Communities (Access to Information on the Environment) (Amendment) Regulations 2018, S.I. No. 309/2018.

European Communities (Environmental Noise) Regulations 2018, S.I. No. 549 of 2018.

Aircraft Noise (Dublin Airport) Regulation Act 2019, Number 12 of 2019.

European Union (National Car Test – EU Roadworthiness Certificates) Regulations 2020, S.I. No. 554 of 2020.

DRAFT Noise Action Plan 2023-2028

European Union (Road Vehicles: Type-approval and Market Surveillance) Regulations 2020, S.I. No. 556 of 2020.

European Union (Commercial Vehicle Roadworthiness) (Roadworthiness Certificate and Roadworthiness Test) Regulations 2021, S.I. No. 617 of 2021.

European Communities (Environmental Noise) (Amendment) Regulations 2021, S.I. No. 663 of 2021.

European Union (Internal Combustion Engines for Non-road mobile machinery) (Gaseous and Particulate Pollutant Emission Limits and Type-approval) Regulations 2021, S.I. No. 735 of 2021.

European Union (Tyre Labelling) (Energy Efficiency) Regulations 2022, S.I. No. 670 of 2022.

EC Publications

European Commission, *Future Noise Policy - European Commission Green Paper*, 1996.

European Environment Agency, *Good practice guide on quiet areas*, Technical report No 4/2014, April 2014.

European Environment Agency, *Quiet areas in Europe*, EEA Report No 14/2016, June 2016.

European Commission, *Managing Natura 2000 sites, The provisions of Article 6 of the 'Habitats' Directive 92/43/EEC*, Commission Notice C(2018) 7621 final, 21 November 2018.

European Environment Agency, *Healthy environment, healthy lives: how the environment influences health and well-being in Europe*, EEA Report No 21/2019, 2019.

EU Action Plan: *Towards Zero Pollution for Air, Water and Soil*, COM/2021/400, 2021.

European Commission, Directorate-General for Environment, Kantor, E., Klebba, M., Richer, C. et al., *Assessment of potential health benefits of noise abatement measures in the EU: Phenomena project*, Publications Office, 2021.

European Environment Agency, *Potential quiet areas in END agglomerations*, Eionet Report – ETC/ATNI 2021/4, November 2021.

Report from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, *First 'zero pollution' monitoring and outlook, 'Pathways towards cleaner air, water and soil for Europe'*, December 2022.

EPA Publications

Environmental Protection Agency, *Advice Notes on Current Practice (in the preparation of Environmental Impact Statements)*, 2003.

Environmental Protection Agency, *Synthesis Report on Developing a Strategic Environmental Assessment (SEA) Methodologies for Plans and Programmes in Ireland*, 2003.

DRAFT Noise Action Plan 2023-2028

Environmental Protection Agency, Office of Environmental Enforcement (OEE), *Guidance Note for Noise: Licence Applications, Surveys and Assessments in Relation to Scheduled Activities (NG4)*, January 2016.

Environmental Protection Agency, *Research 264: Green and Blue Spaces and Health: A Health-led Approach*, 2018.

Environmental Protection Agency, *Research 295: Research on Aspects of Ireland's Environment, Consumer Behaviour and Health: ESRI Environment Research Programme 2016–2018*, 2019.

Environmental Protection Agency, *Research 328: Eco-Health: Ecosystem Benefits of Greenspace for Health*, 2020.

Environmental Protection Agency, *Research 348 Toolkit: Connecting with Nature for Health and Wellbeing*, 2020.

Environmental Protection Agency, *Research 348: Nature and Environment to Attain and Restore Health (NEAR Health)*, 2020.

Environmental Protection Agency, *Good Practice Guidance on SEA Screening*, 2021

Environmental Protection Agency, *Round 4 Strategic Noise Mapping of Major Roads For the fourth round of the Environmental Noise Regulations 2018*, March 2021 (V2).

Environmental Protection Agency, *National Land Cover Map*, March 2023.