



Offaly County Noise Action Plan Round 4 2024-2028



Comhairle Chontae Uíbh Fhailí
Offaly County Council



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NOISE ACTION PLAN 2024- 2028 ROUND 4 (R4)

Offaly County Council

[Abstract](#)

The following document forms the basis for noise action planning for County Offaly 2024-2028.
The roads to be included have greater than three million car journeys per year.

Executive Summary

Environmental noise is the second biggest environmental cause of health problems in the EU, according to the World Health Organisation (WHO), and the European Environment Agency (EEA). Prolonged exposure to noise can lead to serious illnesses including: cardiovascular diseases; reduced cognitive performance in children; severe annoyance, which is a form of stress; and sleep disturbance.

The Environmental Noise Directive (“END”) (2002/49/EC) aims to put in place a European wide system for identifying sources of environmental noise, informing the public about relevant noise data and taking the necessary steps to avoid, prevent or reduce noise exposure.

All member states are required to prepare strategic noise maps to identify populations exposed to environmental noise emanating from transport (road, rail and air traffic) and industrial activities. These maps will be the basis for illustrating to the public such information and as a tool to prepare Noise Action Plans by the responsible authorities.

The END was transposed into Irish Law by the Environmental Noise Regulations 2006 (S.I. 140/2006) (the “Regulations”). The Regulations were revised by the European Communities (Environmental Noise) Regulations 2018 (S.I. 549/2018) and amended through the European Communities (Environmental Noise) (Amendment) Regulations 2021 (S.I. 663/2021).

The Environmental Protection Agency is designated as the National Competent Authority responsible for overseeing the implementation of the Environmental Noise Regulations. The EPA’s 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 Directive 2002/49/EC relating to the assessment and management of environmental noise.

Under the Regulations, Local Authorities, Transport Infrastructure Ireland (TII), Irish Rail and DAA, are designated as the Noise-Mapping Bodies (NMBs), for the purpose of making and approving strategic noise maps associated with their respective infrastructure.

This plan has been prepared by Offaly County Council hereinafter to be known as the “Council” for major roads within their respective functional area. The actions detailed herein have been drawn up to assess noise exposure in priority areas, as indicated by strategic noise mapping located on the identified routes within the respective functional areas of the Council. It is envisaged that noise action planning should concentrate on planning strategic issues identified by the noise mapping process as provisions already exist to deal with noise nuisances, including neighbour, entertainment and construction noises.

A two-stage approach to the assessment and management of environmental noise is provided for in the Regulations. Firstly, the preparation of **strategic noise maps** for areas and infrastructure falling within defined criteria, e.g. major roads, railways and airports. *Secondly, based on the results of the mapping process, the Regulations require the preparation of noise action plans for each area concerned.*

The fundamental objective of action plans is the prevention and reduction of environmental noise. This Noise Action Plan represents an update to a plan previously prepared in 2018 (2018 - 2023) and has been prepared by Offaly County Council in accordance with the requirements of the Environmental Noise Regulations 2006, Statutory Instrument No. 140 of 2006. These Regulations give effect to the EU Directive 2002/49/EC relating to the assessment and management of environmental noise.

The objectives of the Offaly County Council Noise Action Plan is to avoid, prevent and reduce, where necessary, on a prioritised basis, the harmful effects, including annoyance, due to long term exposure to environmental noise. This will be achieved by taking a strategic approach to managing environmental noise.

This approach promotes action on environmental noise through three avenues, these being noise reduction at source, land use planning adapted to noise goals and procedures to reduce noise impact.

This Noise Action Plan (Round 4) (R4) primarily considers the long-term environmental noise impact from road traffic sources and sets out an approach to review noise impact levels near to the major sources assessed during the strategic noise mapping in 2021 with a view to identifying locations where noise reduction is deemed necessary in the first instance. This version of the Noise Action plan is Round 4 which is the fourth edition of the NAP (2024-2028) and 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).

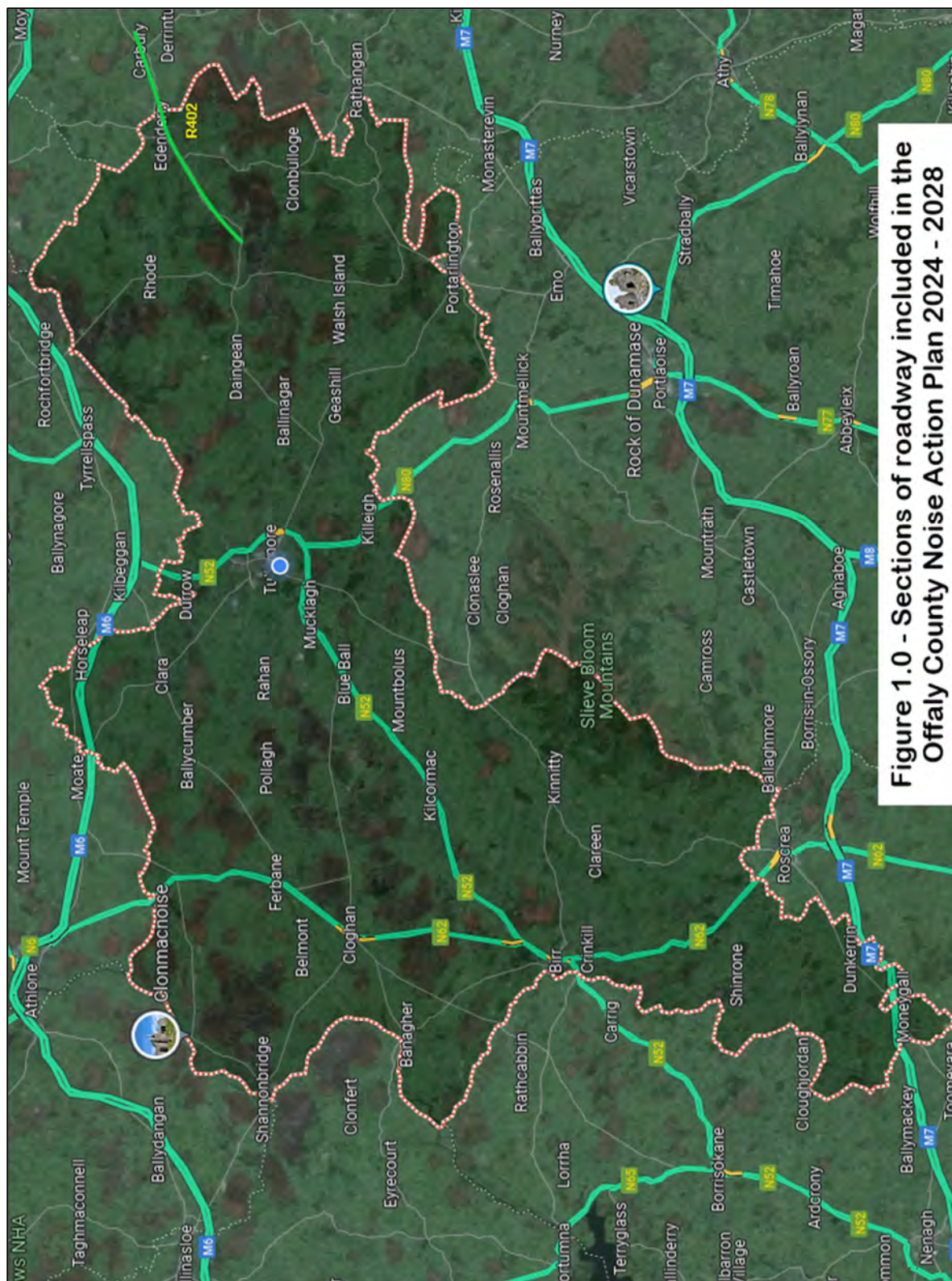
The results of this assessment have been presented as maps and summary tables of statistics showing the estimated area, number of dwellings and people exposed to long term road traffic noise within the area covered by the noise maps.

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

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1 Introduction

1.1 Policy Objective

Environmental noise is the second biggest environmental cause of health problems in the EU, after air pollution (the fine particulate matter in air), according to the World Health Organisation (WHO), and the European Environment Agency (EEA). Prolonged exposure to noise can lead to serious illnesses including: cardiovascular diseases; reduced cognitive performance in children; severe annoyance, which is a form of stress; and sleep disturbance.

The European Community Directive 2002/49/EC, which relates to the assessment and management of environmental noise was adopted in 2002. This directive is commonly referred to as the Environmental Noise Directive or END. Within the framework of the END, and the context of sustainable development, the overall aim of managing environmental noise is to avoid, prevent and reduce the harmful effects due to long term exposure to environmental noise, which would in turn promote good health and a good quality of life.

Environmental noise is defined as ‘unwanted or harmful outdoor sound’ arising from all areas of human activity. Although noise is a product of many human activities - including neighbourhood noise, industrial/commercial activities, and entertainment noise - the most widespread sources of noise pollution and exposure in Ireland are from various forms of transport.

The aim of the Directive is to define and implement a common arrangement for which member states shall identify sources of environmental noise pollution, inform the public about the relevant noise data and take the necessary steps to avoid, prevent or reduce on a prioritised basis the harmful effects, including annoyance, due to exposure to environmental noise.

The Directive requires Member States to prepare and publish, every 4-5 years, strategic noise maps and noise management action plans for transport noise sources (i.e. roads, railways and airports) and industry.

While the Environmental Protection Agency is the national competent authority, the Regulations include significant functions for Local Authorities in relation to the preparation, development and implementation of Noise Action Plans under the Regulations.

Additionally, from a national perspective it is recommended that noise action plans 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.”

The noise actions plans are to be drawn up based on the results of the strategic noise mapping for road, railway, aircraft and industrial noise sources. The strategic noise maps provide graphical and statistical data on the exposure of people, dwellings and areas to noise.

The Regulations require that “priorities” and “the most important area or areas” are to be addressed. A three-step approach was implemented to identify the highest priority areas for attention and inclusion in the Round 4 NAP.

1. Firstly, the **Important Areas (AI’s)** were identified across the county based on the exposure to environmental noise which may be harmful to human health, as indicated by WHO guidance (see Section 1.1 and Section 2.2);
2. Following the identification of the Important Areas, a sub-set of **Most Important Areas (MIA)** – where the health effects are highest, typically through a product of noise exposure levels and the number of people exposed to noise (see Section 9.4.1);
3. Finally, the **Priority Important Areas (PIA)** – were identified by Offaly County Council following a review of the MIA’s and these are included in Noise Action Plan (NAP) as primary areas of attention during the lifetime of the plan as outlined in section 9.4.2.

1.2 Purpose and scope

This NAP has been prepared as required by these END Regulations. The NAP is aimed at strategic long-term management of environmental noise from transport systems i.e. roads, rail and industry and to meet the aim of the END Directive of preventing, and reducing where necessary, environmental noise through the adoption of the action plan.

Strategic noise maps have been created by the Transport Infrastructure Ireland (TII) for major roads, railways, airports and agglomerations, using harmonised noise indicators **Lden** (day-evening-night equivalent level) and **Lnight** (night equivalent level). These maps have identified populations particularly exposed to environmental noise. These maps have been used as the basis for illustrating the location of noise sensitive areas adversely affected by noise and are an integral tool for the preparation of county Offaly’s Round 4 NAP.

1.3 Consultation

The Round 4 NAP has been developed by Offaly County Council with regard to the Regulations and the EPA document “Guidance Note for Strategic Noise Action Planning for the EC (Environmental Noise Regulations) 2006”, Version 2, March 2024.

Under the Regulations European Communities (Environmental Assessment of Certain Plans and Programmes) Regulations 2004, Offaly County Council have a responsibility to make,

review and, where necessary, revision of action plans, in consultation with the EPA and relevant noise mapping bodies.

As such, a formal public consultation exercise will be undertaken following the preparation of the NAP. Offaly County Council will allow for 6 weeks for consultation, and a further 2 weeks for submissions, for the general public to have adequate time to participate in this process.

1.4 Noise Action Plan Timetable.

Table 1.1 below sets out the key phases as outlined in European Communities (Environmental Noise) Regulations 2018 (S.I. No. 549 of 2018), in relation to the strategic noise mapping and the noise action plan processes:

Table 1.1: Indicative timelines for Round 4 Noise Action Plan

Activity	Round 4
Noise Action Plan to be submitted to the EPA for review.	Q1 2024
Natura 2000 Appropriate Assessment Screening	Q2 2024
Public consultation (6 weeks) on Noise Action Plan.	Q2 2024
Noise Action Plan to be updated following EPA comments.	Q3 2024
Final Noise Action Plan (4 th round) to be submitted to the EPA for final review.	Q3 2024
Final Noise Action Plan (4 th round) to be reported to the EC by the EPA.	Q1 2025
Final Noise Action Plan in consultation with relevant stakeholders to be published by the competent authorities.	Q2 2025

2. Noise and Effects on Health and Quality of life

2.1 Noise Level Indicators

There are a range of noise metrics that can be used to describe and manage environmental noise. In order to standardise noise measurements and assessment methods a common noise indicator is required.

Article 6.2 of the END specifies the use of two noise level indicators when preparing environmental noise maps and action plans, the L_{den} and L_{night} . The L_{den} is a noise rating indicator, rather than a noise level, based upon the day, evening and nighttime noise levels, with weightings applied for the different periods. L_{night} is typically used to assess sleep disturbance.

Table 2.1: Noise level indicators used for Noise Maps

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

The long-term, annual average, day, evening and night values are determined and then combined to provide the indicated L_{den} yearly average. Penalties are applied to evening and night time periods during the assessment of L_{den} to take into account evidence showing that response to noise levels is not uniform throughout the 24-hour period. For example, a given indicated level of noise during the day may be deemed acceptable by the majority of people. However, that same level of noise at night may be deemed less acceptable. Other metrics relevant to environmental noise, all expressed in terms of dB, are listed in Table 2.2 below.

Table 2.2: Other noise level indicators relevant to environmental noise

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 $L_{Aeq, 16hr}$, $L_{Aeq, 24hr}$
SEL	<ul style="list-style-type: none"> Numerically equivalent to the total sound energy of an event normalised to 1-second

The $L_{Aeq, 16hr}$ noise metric has been used in planning and noise management decisions as a representation of the overall daytime noise level, alongside the L_{night} level which is a $L_{Aeq, 8hr}$ noise level.

2.2 Effects on health and quality of life

Noise can have a significant and disruptive effect on everyday life. Since the implementation of the Environmental Noise Regulations, there have been extensive studies conducted on the links between environmental noise exposure and health. These studies have taken

transportation noise sources including road, rail and aircraft into consideration, with responses differing depending on the source. This research has resulted in organisations such as the European Environment Agency and the World Health Organisation (WHO) developing guidelines and advice based on reviews and meta-analysis of the available research, 'Burden of Disease from Environmental Noise' (2011). This 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 infarction (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.

Research indicates that exposure of people to daytime noise levels above 65 dB(A) can cause severe health problems. In general, noise levels in cities can range between 60-70 dB(A), with suburban levels between 50-60 dB(A). The WHO has set guideline levels for annoyance at 53 dB(A), representing daytime levels below which a majority of the adult population will be protected from noise becoming a moderate or serious annoyance.

In 2009 the WHO European Regional Office published the 'Night Noise Guidelines for Europe' (2009). It presented evidence proving the damage to human health due to long-term night-time noise exposure and recommended threshold values that, if breached at night, would threaten health. An annual average night-time exposure not exceeding 40 dB(A) outdoors is recommended in the guidelines. It is recommended that this level should be the target for night-time noise guidelines to protect the public, including the most vulnerable groups such as children, the chronically ill and the elderly. A night-time level of 55 dB(A) is recommended as an interim target for countries that cannot meet these night-time noise guidelines in the short term for various reasons, and where policymakers choose to adopt a stepwise approach.

In October 2018, the World Health Organisation published "Environmental Noise Guidelines for the European Region". The main purpose of the guidelines is to provide recommendations for protecting human health from exposure to environmental noise originating from various sources: transportation (road traffic, railway and aircraft) noise, wind turbine noise and leisure noise. They provide public health advice underpinned by evidence, which is essential to drive policy action that will protect communities from the adverse effects of noise. The 2018 guidelines reviewed the necessary literature required to incorporate significant research undertaken within the area of environmental noise and health since the previous community noise guidelines and night noise guidelines for Europe were issued.

A summary of the WHO guideline levels is shown in Table 2.3 below.

Table 2.3: Summary of WHO Guideline Values

Level of effect	Source	Level	WHO Guidelines
No effects on sleep are observed	Any	below 30 dB L_{night} , inside below 42 dB L_{Amax} , inside	NNG 2009
Lowest observed adverse effect level (LOAEL) for night noise	Any	40 dB L_{night} , outside	NNG 2009
Noise above these levels is associated with adverse health effects and adverse effects on sleep	Aircraft	45 dB L_{den} , outside 40 dB L_{night} , outside	ENG 2018
	Railways	54 dB L_{den} , outside 44 dB L_{night} , outside	ENG 2018
	Roads	53 dB L_{den} , outside 45 dB L_{night} , outside	ENG 2018
	Wind Turbines	45 dB L_{den} , outside	ENG 2018

The WHO guidelines are intended to serve as the basis for a policy making process in which policy options are considered.

The WHO guidelines scientifically 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.

Transport-related environmental noise is the most significant contributor to community noise, causing most annoyance, sleep disturbance and public health concerns. Road traffic noise is the most significant contributor to environmental noise, with the CE Delft report ‘Traffic noise reduction in Europe – Health effects, social costs and technical and policy options to reduce road and rail traffic noise’ (2007) estimating that approximately 210 million European Union (EU) citizens are regularly exposed to 55 dB(A) 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.

Most of the evidence gathered by researchers over the past 10 years appears to indicate that people are becoming more annoyed by environmental noise and that the health effects of environmental noise occur at lower levels of exposure than previously thought. Research is ongoing, and it is expected that further guidelines from WHO will be issued during the course of this Noise Action Plan.

3. EU Legal and Policy Framework

3.1 EU Policy and Guidance

The legal and policy framework relating to the management and control of environmental noise is enacted through International, European, National and local legislation, regulation and guidance. European Union directives and regulations seek to define common policies across Europe. Those which are most relevant to noise are set out below. European Directives need to be implemented in each Member State via national primary legislation. EU Regulations are directly applicable in all Member States without the need for national primary legislation, however there will often need to be a related piece of national legislation to establish or designate the relevant competent authorities and assign any powers necessary to the role.

3.1.1 Zero Pollution Action Plan

In May 2021 the EU launched the Zero Pollution Action Plan (ZPAP) with a vision for 2050 that air, water and soil pollution is reduced to levels no longer harmful to health and natural ecosystems. The targets by 2030 include “reducing the share of people chronically disturbed by transport noise by 30%”, compared to 2017.

The first integrated Zero Pollution Monitoring and Outlook Report from the Commission to the European Parliament was published in December 2022, and estimated that the number of people chronically disturbed by road transport noise is unlikely to decline by more than 19% by 2030 (i.e. well below the 30% reduction target set in the zero pollution action plan) unless a substantial set of additional measures is taken at national, regional and local level and unless reinforced EU action across relevant sectors delivers significant further reduction in noise pollution.

In support of ZPAP, the PHENOMENA project was undertaken to identify cost-effective noise mitigation measures which may help competent authorities to achieve noise reductions across large parts of the exposed population. The previous version of the EPA guidance on noise action planning focused noise mitigation measures on locations exposed to high levels of noise, however in the context of the ZPAP it was recommended that identifying Priority Important Areas (PIAs) and focussing actions to reduce noise in these areas would better support the aspirations of ZPAP.

3.1.2 EEA Reports

The END stipulates that member states prepare a 4-year Noise Action Plan and report on works carried out to achieve noise mitigation and reduction targets. Such reports are submitted to the EPA annually. The EPA is then responsible for reporting to the European Commission the information relating to strategic noise mapping and action planning in accordance and annual progress reports under Regulation 2019/1010 Alignment of reporting obligations in the field of legislation related to the environment. The final completed Noise Action Plan will be submitted to the EEA in quarter 1 of 2025 and annual progress reports will be submitted in quarter 1, annually over the 4-year term of the NAP.

3.2 EU Regulations and Directive

3.2.1 Environmental Noise Directive 2002/49/EC

The Environmental Noise Directive 2002/49/EC of the European Parliament and of the Council relates to the assessment and management of environmental noise. The aim of the Directive is:

“To define a common approach intended to avoid, prevent or reduce on a prioritised basis the harmful effects, including annoyance, due to exposure to environmental noise”.

And to that end an integrated noise management process is set out in three stages:

- Undertake strategic noise mapping to determine exposure to environmental noise.
- Ensure information on environmental noise and its effects is made available to the public.
- Adopt action plans, based upon the noise-mapping results, with a view to preventing and reducing environmental noise where necessary and particularly where exposure levels can induce harmful effects on human health and to preserving environmental noise quality where it is good.

The Directive defines noise mapping, strategic noise maps and action plans as:

- *‘Noise mapping’ shall mean the presentation of data on an existing or predicted noise situation in terms of a noise indicator, indicating breaches of any relevant limit value in force, the number of people affected in a certain area, or the number of dwellings exposed to certain values of a noise indicator in a certain area;*
- *‘Strategic noise map’ shall mean a map designed for the global assessment of noise exposure in a given area due to different noise sources or for overall predictions for such an area;*
- *‘Action plans’ shall mean plans designed to manage noise issues and effects, including noise reduction if necessary.*

The END requires Member States to conduct the three stages of the process each 4-5 years. This Noise Action Plan 2024 – 2028 has been developed with the integrated noise management process referred to above.

3.2.2 EU Directive 2015/996

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) and is the method 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

4. National Legal and Policy Framework

4.1 National Policy & Guidance

The legal and policy framework relating to the management and control of environmental noise is enacted through International, European, national and local legislation, regulation and guidance.

4.1.1 Project Ireland 2040 – National Planning Framework, 2017

In 2018, the Government issued the National Planning Framework 2040¹, which includes - Policy Objective 65 to:

“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.”

The top level national spatial plans in Ireland will essentially guide where population increase and economic growth is to be focused. The National Planning Framework and the three Regional Spatial and Economic Strategies (currently being prepared) should be considered by the LAs when developing their noise action plans.

The NPF has a stated objective of developing national planning guidance relating to environmental noise.

4.1.2 Planning

In general, there are no national mandatory noise limits in force in Ireland, and no obligatory sector-specific limits. Two notable exceptions are:

- those referenced in the Planning and Development Regulations 2008, S.I. No. 235/2008¹, which specifies a 43 dB noise limit in relation to small scale energy production sources such as boilers, wind turbines, heat pumps and CHP plants, and
- by-laws issued in relation to busking.

Other than IED/IPPC facilities regulated by the EPA, most facilities are controlled by Local Authorities, through planning permission and permits. Where limits attached to such consents have been proven to be breached a Local Authority may use the Planning & Development Acts 2000-2020 and/or the EPA Act as described above.

4.1.3 Environmental Protection Agency Guidance

- Noise Guidelines
- Noise Legislation

The EPA is the national authority for overseeing the implementation of the Environmental Noise Regulations.

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 (irishstatutebook.ie)** both revise and revoke the Environmental Noise Regulations 2006.

4.1.4 Noise Guidelines

In its Environmental Noise Guidelines 2018, the World Health Organization (WHO) sets out how noise pollution in European towns and cities is increasing. The guidelines set out how excessive noise, particularly from transport sources (road traffic, railway and aircraft), has negative impacts on our health and wellbeing.

The WHO study has shown that noise is affecting sleep and cardiovascular and metabolic function. Reducing noise is one of the targets of the EU's Zero Pollution Action Plan and the Environmental Noise Directive.

The implementation of the WHO guidelines is currently being negotiated at EU level. The development of any future National Noise policy in Ireland will be influenced by the outcome of this process. The Department of Environment, Climate Action and Communications will be the lead authority for this policy area.

For more information, see the **WHO Environmental Noise Guidelines Table 2.3**.

4.1.5 Noise Legislation

The **EU Environmental Noise Directive (END)**, EC 2002/49/EC, is transposed into Irish law as Statutory Instruments: **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 (irishstatutebook.ie)**

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

In 2018, the WHO published guidance to policymakers on noise levels above which it considers that adverse effects on health and sleep occur. These WHO guidance levels are below the Environmental Noise Directive (END) mandatory noise level reporting thresholds of 55 dB (Lden) and 50 dB (Lnight).

4.1.6 Noise Limits

Although the END includes a requirement to report and publicise any noise limit values in place, it neither introduces noise limit values nor requires noise limits to be introduced within member states or by competent authorities. The recent publication of the amended Annex III of the END, establishing assessment methods for harmful effects of environmental noise, did not change this approach.

In view of the 2018 WHO guidance and the flexibility afforded by the END to allow countries to report noise levels below the mandatory reporting requirements, due consideration of feasibility, costs and preferences should be given before guidance on values or noise limits is introduced (by the relevant department). These considerations are acknowledged in the WHO guidelines.

In the absence of Irish planning guidance local authorities in 2021 prepared Interim National Guidance for the Consideration of Transportation Noise in the Design of New Residential Development under a subgroup of the NIECE National Local Authority Noise Working Group. This guidance includes an overarching aspiration that good acoustic design should be implemented from the outset of the design of new residential developments and recommends the use of the ProPG approach to bringing people to noise and cognisance of BS 8233:2014 and the AVO guidelines.

The aim of NPO 65 feeds into regional and local strategies and plans to support the development of strategic noise mapping and pro-active management of noise through noise action planning, including highlighting the importance of quiet areas for communities.

The LDP identifies that the dominant source of noise in the Offaly as being road traffic-related and consideration is given in Chapter 7: Sustainable Mobility and Transport and Chapter 11: Development Management Standards with respect to bringing noise to people and bringing people to noise.

Traffic related noise objectives, TR O53 (Noise and Transportation) and TR O54 (Noise Sensitive Development) include consideration of the requirement to identify appropriate mitigation measures to reduce traffic noise where levels are potentially harmful to human health and that proposed noise sensitive developments near major roads should be designed and constructed to minimise noise disturbance following good acoustic design process in accordance with ProPG and based on recommendations of the WHO.

Requirements are presented in the Development Management Standards that outline that developments along different categories of roads shall have a minimum set-back distance in order to curtail noise disturbance. A shorter distance may be acceptable if measures are taken to limit noise to acceptable levels and good acoustic design is taken into account.

4.1.7 Transport Infrastructure Ireland Guidance

The National Roads Authority (NRA) published the 'Guidelines for the Treatment of Noise and Vibration in National Road Schemes' (2004, revised by TII in 2014). The guidelines provide design goals for noise related to both the construction and operational stages of new road schemes. For the operational stage there is a recommended design goal of $L_{den} \leq 60$ dB free field value.

Any proposed new road scheme must take into account the design goal for any existing dwellings likely to be affected. The TII guidelines present an approach to mitigating the adverse effects of noise from national road schemes in so far as possible using measures such

as alignment changes, barriers, use of low noise road pavements. The responsibility for developing noise mitigation policies relating to any proposed new noise sensitive developments near existing or planned road schemes lies with the relevant planning authority.

National Roads 2040 (NR2040) is TII's long-term strategy for planning, operating, and maintaining the National Roads network. The strategy has been developed to support the delivery of National Planning Framework 2040 objectives and to align with the Department of Transport's National Investment Framework for Transport in Ireland. One of the key visions in the strategy is that the national road network should be environmentally sustainable:

"Environmental sustainability is the bedrock for social and economic sustainability in Ireland; avoiding and where unavoidable mitigating environmental impacts including climate change, air quality and noise as well as biodiversity impacts of National Roads."

Many of the issues in the strategy surround decarbonisation and the need to reduce greenhouse gas and carbon emissions, as set out in the Climate Action Plan 2023 and provide potential opportunities for mutual gains for noise reduction (e.g. through active travel, integrated mobility, maintenance and improvement works on the national road network, switch towards electric private vehicles). However, while there is general support for the mitigation of transport-related noise in NR2040 there is no national funding mechanism available to implement abatement measures where they might be recommended through NAPs.

The National Speed Limit Review, led by the Department of Transport, was published in September 2023, in accordance with Ireland's Government Road Safety Strategy, 2021 - 2030. Any introduction of the proposed recommendations - although not its primary goal - might have the effect of reducing road noise levels.

The key recommendation is that for built-up and urban areas that a default speed limit of 30 km/h be introduced. A 30 km/h limit should apply, for all urban centres, residential roads and locations where there is a significant presence of vulnerable/active road users. There are exceptions to the recommendation (e.g. pedestrian zones and shared spaces/zones where a speed limit of 20 km/h would apply, 50 km/h for national, regional, arterial roads and key public transport routes etc.). It is recommended that default speed limits remain the same on the rural road network except for National Secondary Roads where it is recommended that the default Speed Limit be reduced from 100 km/h to 80 km/h and local roads where it is recommended that the default speed limit be reduced from 80 km/h to 60 km/h.

There are a number of specific recommendations on the applications of speed limits for particular circumstances such as Cycle Streets (Urban), School Speed Zones, Urban Shared Spaces/Zones, Pedestrian Zones, Slow Zones, Quiet Lanes etc. Work has commenced by the Department of Transport to review the existing guidelines for managing and setting speed limits and it is envisaged that legislation to implement recommendations shall be introduced in 2024.

4.2 National Legislation

4.2.1 Environmental Noise Regulations 2018

The END is transposed into law separately in each Member state of the EU. In Ireland, this Directive is transposed by the European Communities (Environmental Noise) Regulations 2018 (as amended), S.I. No. 549 of 2018 (Regulations). These Regulations provide for the implementation in Ireland of a common approach within the European Union intended to avoid, prevent or reduce on a prioritised basis the harmful effects, including annoyance, due to exposure to environmental noise. The Regulations shall apply to environmental noise to which people are exposed, in particular 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 both revise and revoke the Environmental Noise Regulations 2006, S.I. 140/2006, & transpose Directive 2015/996. The 2018 Noise Regulations include the main explanatory text as well as:

- 1st Schedule - Noise Indicators;
- 2nd Schedule - Assessment Methods for Harmful Effects;
- 3rd Schedule - Min. Requirements for Strategic Noise Mapping;
- 4th Schedule - Min. Requirements for Action Plans;
- 5th Schedule - Data to Be Sent to The Commission; &
- 6th Schedule - Agglomerations.

4.2.2 Environmental Protection Agency Act 1992

In Ireland, statutory provisions relating to environmental noise pollution come primarily from the Environmental Protection Agency Act (1992).

The Act identifies noise as a form of environmental pollution and contains provisions for dealing with noise deemed 'a nuisance or would endanger human health or damage property or harm the environment'. Sections 106 to 108 of the Act are of direct relevance, and may be summarised as follows:

- Section 106 gives the relevant Minister certain powers to regulate noise that may give rise to a nuisance or be harmful to health or property;
- Section 107 sets out the powers prescribed by the Act to a local authority or the Agency to prevent or limit noise. It typically relates to noise from sites regulated by the Agency or a local authority. This allows local authorities or the Agency to serve notices on premises/sites where prevention or limitation of noise is required. The Environmental Protection Agency Act 1992 (Noise) Regulations 1994 provide for a prosecution where there is a failure to comply with the requirements of the issued notice, and;
- Section 108 describes the provisions for complaints regarding noise nuisance to be taken to the District Court by any person or agency. It allows for any person, local authority or the Agency to make a complaint to the District Court where noise levels are considered to be generating a reasonable cause for annoyance. Where the court finds in favour of a noise nuisance complaint, the person or body responsible for the noise must reduce it to a specific level, to limit it or cease it altogether.

4.2.3 IED/IPPC Licensing

Certain activities that are required to be licensed under the IED/IPPC regulations may be subject to noise conditions. The relevant guidance is set out in the EPA publication *Guidance Note for Noise in Relation to Scheduled Activities (NG4)*.

4.3 Regional and Local Policy

4.3.1 Regional Planning Guidelines for the Midlands

The Regional Planning Guidelines for the Midlands 2010 – 2022 outlined strategic goals for the region in particular to develop and market a distinct and unique image and identify for the region that will attract investment and economic activity to the region. The guiding principle was to develop the image of the region as the heart of Ireland, an area with high quality of life in a relatively unspoilt environment, which relies on the continued protection and enhancement of valuable natural resources – agricultural land, lakes, rivers, canals, bogs and uplands; and the built heritage of the region. The preservation of the environmental integrity, water and air quality and the visual environment play an important role in maintaining this image which is vital for the attraction of investment and population growth.

4.3.2 Spatial Planning and National Roads Guidelines for Planning Authorities

The Regional Spatial and Economic Strategy (RSES) has identified the Eastern and Midland region's key strategic assets, opportunities and challenges and sets out policy responses to ensure that people's needs, such as access to housing, jobs, ease of travel and overall well-being are met, up to 2030 and beyond. It includes a spatial strategy for the future location of employment, housing and retail development along with supporting infrastructure and services, in a way that enhances the potential of our cities and towns.

Figure 2: Existing Noise Management Legislation and Guidance

International	WHO Environmental Noise Guidelines for the European Region (2018)			
European Union	Directive 2002/49/EC (END)		Directive 2015/996	
	Directive 2020/367		ECZero Pollution Action Plan	
	EU Phenonena Project - 2021		EEA Environmental Noise in Europe - 2020	
National	EC (Environmental Noise) Regulations, S.I. 549/2018		EC (Environmental Noise) Regulations, S.I. 663/2021	
	Environmental Protection Agency Act 1992	Irish Roads Act 1993 (Revised 2023)		Integrated Polution Prevention Control (IPPC) Licencing
	Project Ireland 2040 - National Planning Framework	National Development Plan (NDP) 2021 - 2030	Climate Action Plan - 2024	National Roads - 2040
	TII Guidelines - 2014	Draft Interim National Guidance for the Consideration of Transportation Noise in the Design of New Residentail Development		EPA Noise Action Planning Guidance 2024
	Legislation in R4 NAP			Policy/Strategy in R4 NAP
	Research Evident supporting R4 NAP			Guidance in R4 NAP

5. Responsible Authority for Action Planning

5.1 Offaly County Council is responsible for the production and implementation of the Noise Action Plan for County Offaly.

Name and Contact Details:

Offaly County Council
Áras an Chontae,
Charleville Rd,
Spollanstown,
Tullamore,
Co. Offaly,
R35 F893

For enquiries, please contact the Environment Department Offaly County Council
(057) 9347403 or Email: environment@offalycoco.ie

5.2 Description of other bodies of relevance

The Environmental Protection Agency (EPA) has responsibility for submitting summaries of the action plans to the European Commission. Transport Infrastructure Ireland are responsible for producing the Strategic Noise Maps used to implement the Round 4 NAP and are directly involved in the implementation of any mitigation measures on the national routes.

5.3 Review of previous noise action plan

Offaly County Council has reviewed the Round 3 Noise Action Plan annually and submitted the annual reviews to the EPA.

The following is a summary of noise mitigation measures applied during the 2018 – 2023 NAP and a review of the outcome of these measures.

5.3.1 Measures Undertaken

Among the listed actions in the 2018 - 2023 Noise Action Plan was the incorporation of action planning measures and best practice noise policy into the County Development Plan (2021-2027). The consideration of environmental noise at the planning stage of developments allows for significant improvement in the acoustic quality of existing and future developments

by providing planners with the tools necessary to assess and control the potential noise impact in sensitive areas. The County Development Plan includes noise considerations based on the 2018-2023 Noise Action Plan. This is considered to be an important step in the ongoing implementation of the Council's Noise Action Plan aimed at protecting the population from the harmful effects of environmental noise.

Due to limited resources a number of actions outlined in the Programme of Works for the Noise Action Plan 2018 -2023 were not completed during its lifetime.

Some measures that have been undertaken which will assist in management of environmental noise these are:

- A new orbital route to the north of Edenderry was completed in 2023 along with noise barriers screening and bunding, which has reduced the traffic flow through the town and therefore traffic noise levels. This in turn has been beneficial to the residents and commercial users along the R402 by reducing the noise levels by an estimated reduction of 2 – 5dB. The R402 was designated as a priority in Noise Action Plan 2018-2023.
- Noise control and management is incorporated into County Development Plan 2021-2027, Birr Area Local Plan 2023-2029, Edenderry Local Area Plan 2023-2029 and Portllington Local Area Plan 2024 – these plans were adopted in 2023 in addition to supporting Local Transport Plans.

Road resurfacing: Road surfaces is considered a significant factor in production of traffic noise. Taking that factor into consideration the following works were carried out by Roads Department in 2022.

- 1Km of N52 at Killooly was resurfaced with Stone Mastic Asphalt
- Anti-skid surface on N80 at Clonminch, using Stone Mastic Asphalt

It is estimated that the resurfacing works reduced noise levels in these areas by 2dB – 5dB.

- Local Area Plans 2023 – 2027: Noise control and management was incorporated into Tullamore, Birr and Edenderry Local Plans – these plans were adopted in 2023.

-
- Within the planning process potential effects of noise for proposed developments such as industrial, commercial and leisure projects that impact on residential or noise sensitive areas is considered. This demonstrates a commitment to the outcomes of the Round 3 NAP and while this measure did not result in noise reductions in these areas, it is concluded that it prevented the potential increase of noise in residential or noise sensitive areas.
 - As part of a new planning application, a noise impact assessment has been requested for new developments with potential noise impacts i.e. wind farms, solar farms, medical facilities, educational developments, roads, quarries, power generation & storage, new commercial operations and industrial developments. Planning conditions relating to noise levels have also been included to limit noise during both Construction and operation of a development.
 - A recent healthcare development which received planning permission had noise conditions attached due to its location on the noise maps. This was to ensure users of the building were not subjected to additional adverse effects of noise pollution. These conditions included external faced upgrade and noise reduction barriers along the external boundary with the N52.
 - A number of M6 & M4 motorway sections traverse County Offaly. A project of replacement and upgrade to the noise reduction barriers and road surfaces was undertaken in 2023. Acoustic barriers were extended and damaged panels replaced.
 - A number of cycle lanes have been provided or upgraded for greater accessibility and safety for pedestrians and cyclists at Spollanstown and Tullamore town centre.
 - Noise bunds were constructed at various locations along the N52 Tullamore bypass to protect noise sensitive buildings identified as part of the prioritization 2018 – 2023 decision support matrix. The estimated reduction in noise associated with transport was between 5dB - 10dB in these areas.
 - The County Development Plan now makes specific reference to the Noise Action Plan and relevant noise management guidelines.

The measures outlined above have resulted in some improvements identified in the current round of noise maps as opposed to the previous round.

6. Description of the Action Plan Area

6.1. Description of County Offaly

Offaly is an inland county in the Province of Leinster. It borders with the counties of Westmeath, Meath, Kildare, Laois, Tipperary, Galway, and Roscommon. Offaly covers approximately 493,985 acres, one fifth of the county comprises of peatland and the majority of the land is used for agriculture and forestry purposes.

6.2 Description of topography/geographical area

Offaly consists of relatively flat undulating lands, one fifth of which is peatland. The Slieve Bloom Mountains are located in the southwest, and in centre running to the north west of the county there is a comprehensive organisation of eskers. Other significant landscape features are the River Shannon which is located in the western boundary, and the Grand Canal which transverses the county.

6.3 Population Data

Offaly's population is 83,150 based on 2022 Census figures, this is an increase of 7% since 2016 Census. The population growth recorded within the county is illustrated in the Table 3.1 below. 49% of the population resides within the larger urban areas such as Tullamore, Portarlinton, Edenderry, Clara and Birr. 5% of the population reside within rural towns and villages with population densities of less than 2,000, while the remaining 46% of the people reside in open countryside.

Table 3.1 Population Densities per each Offaly Town

Town – Urban Area	Population 2022 Census	% Change 2016 - 2022
Tullamore	15,598	6
Edenderry	7,888	7
Birr	4,726	8
Clara	3,403	2
Portarlinton	9,288	11
Banagher	1,907	8
Ferbane	1,324	11
Daingean	1,223	13

6.4 Description of the Action Planning Area

Offaly County Council is responsible for Noise Action Planning relating to Major Roads carrying greater than 3 million vehicles per annum through the county. The major roads identified in Offaly are shown in Figures A and B. Vehicle count data was provided by the local authority and correlated by Transport Infrastructure Ireland.

This Action plan was not concerned with the possible sources of environmental noise listed below; such circumstances are not applicable to County Offaly:

- Agglomerations of 100,000 or more inhabitants
- Major railways with 30,000 or more rail passages per year
- Major airports with 50,000 or more movements per year

6.5 Area of Concern within Offaly County

The 1st cycle of the Noise Action Plan in 2008 was concerned with Agglomerations for Dublin City, Major Roads with 6 million vehicles per year, major railway with 60,000 train passengers per year, and Dublin airport. These Plans were adopted in 2008 by the relevant Action Planning Authorities; none of the situations listed were relevant to County Offaly.

The criteria for the second phase of Action Planning in 2013 had reduced thresholds resulting in strategic mapping of Agglomerations for major cities, Major Roads with 3 million vehicles passages per year, and major railway with 30,000 train passages per annum.

For the third round of Noise Action Plans in 2018 the TII developed strategic noise maps from all major roads outside agglomerations encompassing both national and non-national roads and as a result a number of roads were identified by the strategic Noise Mapping within Offaly's jurisdiction.

For the fourth Round of Noise Action Plans 2023, Non-national roads were mapped by TII on behalf of the Local Authorities and is based on statistical data provided by the Local Authority from traffic counts carried out on the high-volume traffic routes around the county.

Noise mapping results show that the average distance at which noise levels drop to below 55dB is approximately 500metres from the centre of the carriage way. Accordingly, a band of 1Km centred on the carriage way is designated as being "Near" the road. Properties within this band will be included in the assessment stage of the noise action plan. The boundary area will not be maintained where sections of the roads pass through developed or densely populated urban areas, this will result in

reducing the exposure distance, therefore only buildings in the immediate vicinity of the road may be designated as being near the source.

6.6 General population exposed to traffic noise within Offaly County

There are 3 main population clusters within Offaly County which may be exposed to environmental noise from major roads, specifically Tullamore, Edenderry and Birr towns, located along the N52, N80, R420 and R402 routes.

There are some rural settlements along the M6 and M7 which experience environmental noise from traffic, however mitigating measures have been incorporated during the construction of the motorways, as outlined in the Environmental Impact Assessment and Route Selection stages of the motorway planning process, such as earthen embankments, landscaping, timber barriers, and low noise road surfaces. These measures have been repaired or replaced during the 2018-2023 Noise Action Plan lifespan. The measures include repair of acoustic barriers, low noise surfacing and landscaping noise attenuation measures.

6.7 Location of Noise Sensitive Buildings

In accordance with this guidance and in line with the action plan coverage area the following buildings are designated as being noise sensitive locations and are assessed in the overall strategy for long term management of noise pollution.

Certain locations and building types are considered to be more sensitive to noise pollution than others. The main priority of the END is to reduce noise exposure in residential areas, but it is also recommended that educational and health care facilities be designated as noise sensitive buildings.

- St. Colmcille's Church, Durrow (N52 County Boundary-ByPass),
- St Coleman's Church, Mucklagh (N52 Mucklagh – Blueball),
- St. Brendan's Church of Ireland, Birr, Co. Offaly (N52, Birr),
- St.Brendan's Roman Catholic Church, Birr (N52 Birr),
- Birr Methodist Church, Birr (N52 Birr),
- Killeigh Community Preschool (Maria Montessori) Killeigh (N80),
- Tullamore Hospital and Health Centres, Arden, Co. Offaly (R421)
- Residential properties N52, N80, R421 and R402, M6 and M7.

7. Description of transport infrastructure within Offaly

7.1 Road Network

County Offaly currently comprises of approximately 2,000km of road network which are categorised as follows;

- 18 km of National Primary Roads M6 and M7
- 123 km of National Secondary Roads comprising of
 - i. N52 (Nenagh to Dundalk)
 - ii. N62 (Horse and Jockey to Athlone)
 - iii. N80 (Enniscorthy to Moate)
- 344 km of Regional Roads
- 1524 Km of County Roads

7.2 Rail Network

County Offaly is centrally located along the National Interconnecting Rail Corridors for Galway, Mayo and Midlands. The future plan for Iarnród Éireann is to increase the frequency of services on the main line by providing a second line between Portarlinton and Galway, strengthening the public transport links in the Midlands Gateway, and providing rail links between Clara and Mullingar, and Enfield to Edenderry.

7.3 Bus Transport

Public bus services in the county are operated by Bus Éireann and private operators. It is divided into the following categories:

- Bus Éireann Expressway Services.
- School bus services operated by both Bus Éireann and Private Operators on behalf of the Department of Department of Education and Science.
- Private Bus Services.
- Rural Transport servicing West Offaly and Offaly/Kildare Region operated by private operators.

8. Summary of the Results of Noise Mapping

8.1 Strategic Noise Mapping.

The strategic noise maps estimate the populations exposed to noise. Input data primarily consists of information related to annual traffic flow with respect to road, rail and aircraft, as well as vehicle type and speed, road surface and rail type, and stationary or mobile sources with respect to industry.

Other input data relate to building dimension, including height, terrain geometry and ground cover, and to barriers and bridges. The TII generated GIS grids of noise levels as an output of the noise modelling process and produced maps showing the noise contour bands in 5dB contours from 55dB to >75dB for Lden and from 45dB to >70dB Lnight.

The results of the strategic noise mapping are used in the development of Noise Action Plans (NAPs), by informing action planning strategies aimed at mitigating noise at problem hotspots and identifying and conserving quiet area locations within agglomerations.

The primary purposes of the strategic noise mapping process are:

- to provide the European Commission with a strategic estimation of the extent of population exposure to levels of noise from transport sources across the EU in order to inform the development of future noise policy in Europe;
- to provide information to the general public and decision-makers on the level of population exposure to noise locally, nationally and internationally;
- to develop noise action plan strategies informed by the estimation of population exposure statistics in order to mitigate environmental noise where required, and where levels of exposure are deemed likely to incur negative health impacts on the affected population;
- to identify and preserve the integrity of quiet areas within agglomerations.

In the context of major roads with more than 3 million passages per annum, the responsible authorities in relation to the strategic noise mapping process are:

- TII for classified national roads;
- local authorities for non-national roads. – CNOSSOS-EU)

8.1.1 Methodology for developing Strategic Noise Maps:

A standardised CNOSSOS-EU methodology was applied for the fourth round of strategic noise mapping in 2022. The CNOSSOS-EU method presents a standardised framework for the strategic noise mapping process through the establishment of noise emission terms for road and rail, aircraft, and industrial sources; terms for the assessment of attenuation due to propagation; and terms for the assessment of population exposure. The CNOSSOS-EU method itself represents the calculation of noise in a frequency band from 125Hz to 4kHz for road and rail sources, from 63Hz to 4kHz for industrial noise.

In general, the CNOSSOS-EU model functions by dividing physical noise sources into corresponding point sources, determining the applicable path of propagation between the point source and the receiver, and generating point-to-point estimations for each path of propagation.

8.1.2 Vehicle Classifications:

The NAPs in Offaly area based on noise associated with road traffic, therefore vehicle classifications were an important consideration as different vehicle types will produce different levels of noise. The UK CRTN 1998 methodology used for strategic noise mapping in Ireland from 2007 to 2017 applied two vehicle categories: one for light vehicles and one for HVs. By way of contrast, the CNOSSOS-EU methodology applies five vehicle categories. The fifth vehicle classification is prospective, as the proportion of hybrid or electric vehicles on European roads is currently insignificant. The five vehicle classifications under CNOSSOS-EU are as follows:

1. light motor vehicles – passenger cars, delivery vans <3.5 tonnes, sport utility vehicles, multipurpose vehicles, trailers and caravans;
2. Medium-heavy vehicles – delivery vans >3.5 tonnes, buses, touring cars, etc., and vehicles with two axles and twin tyre mounting on rear axle;
3. HVs – heavy-duty vehicles, touring cars, buses and vehicles with three or more axles;
4. powered two-wheelers – (1) mopeds, tricycles or quads 50cc;
5. open category – the development of vehicles using electric traction (either hybrid electric vehicles or totally electric). Currently there are no data available for such vehicles in Europe.

In addition to the vehicle classifications, the current road surface type is also included in the primary data collection requirements for road sources including:

- annual traffic flow;

-
- vehicle classification under CNOSSOS-EU;
 - average speed per vehicle class;
 - road centreline;
 - road surface type.

8.1.3 Data sources:

The Important Areas, Most Important Areas and an indicative list of Priority Important areas have been identified with respect to noise from major roads, and major railways, where applicable.

The TII assessed noise levels for road traffic on major roads. Two main noise indicators which much be used in the preparation of the strategic noise maps:

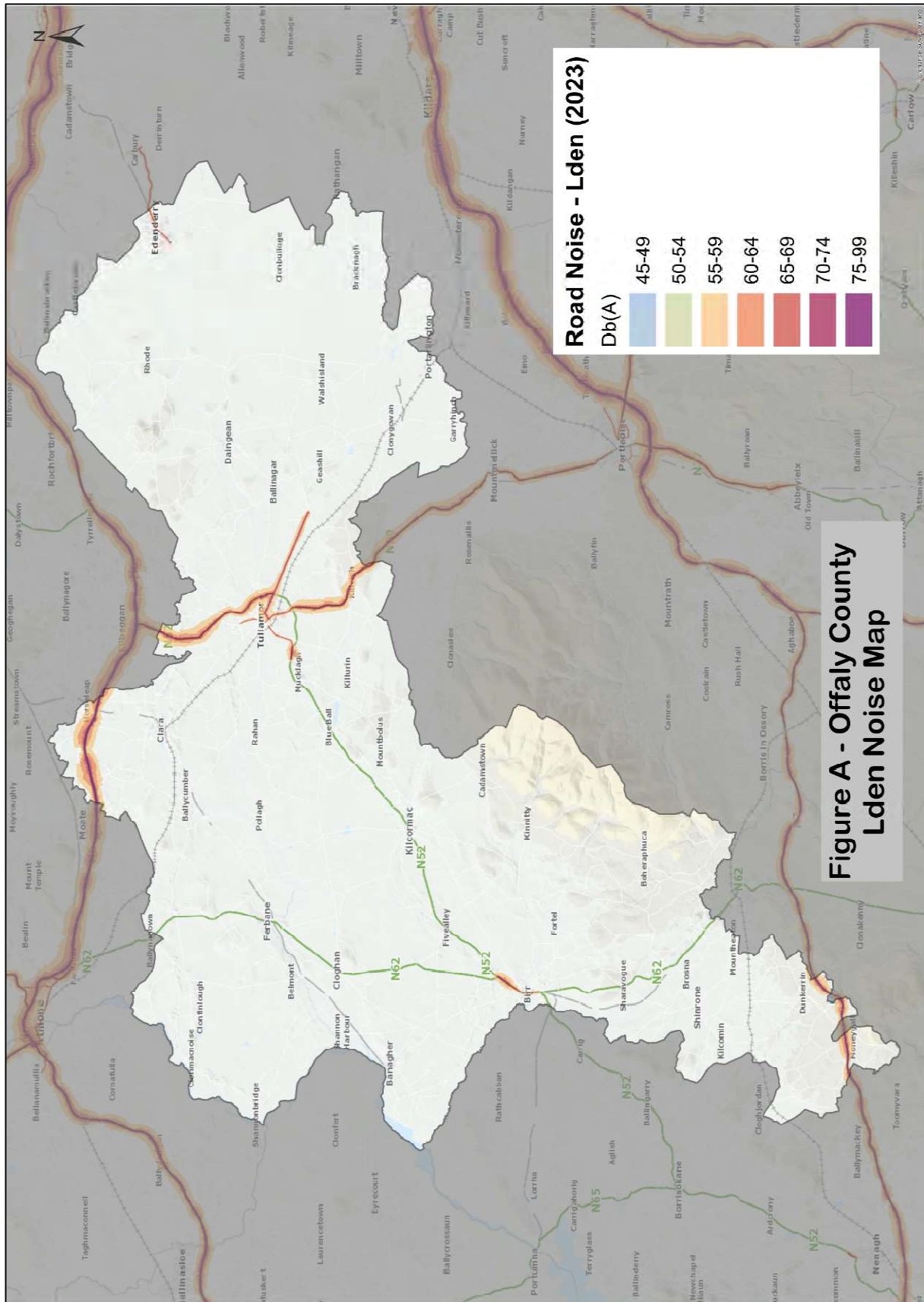
- *L_{den}* – the annual average noise level for the day, evening and night periods and is designed to indicate overall annoyance; and
- *L_{night}* – the annual average noise level for the night-time periods, from 23:00 – 07:00 hours, and is designed to indicate sleep disturbance.

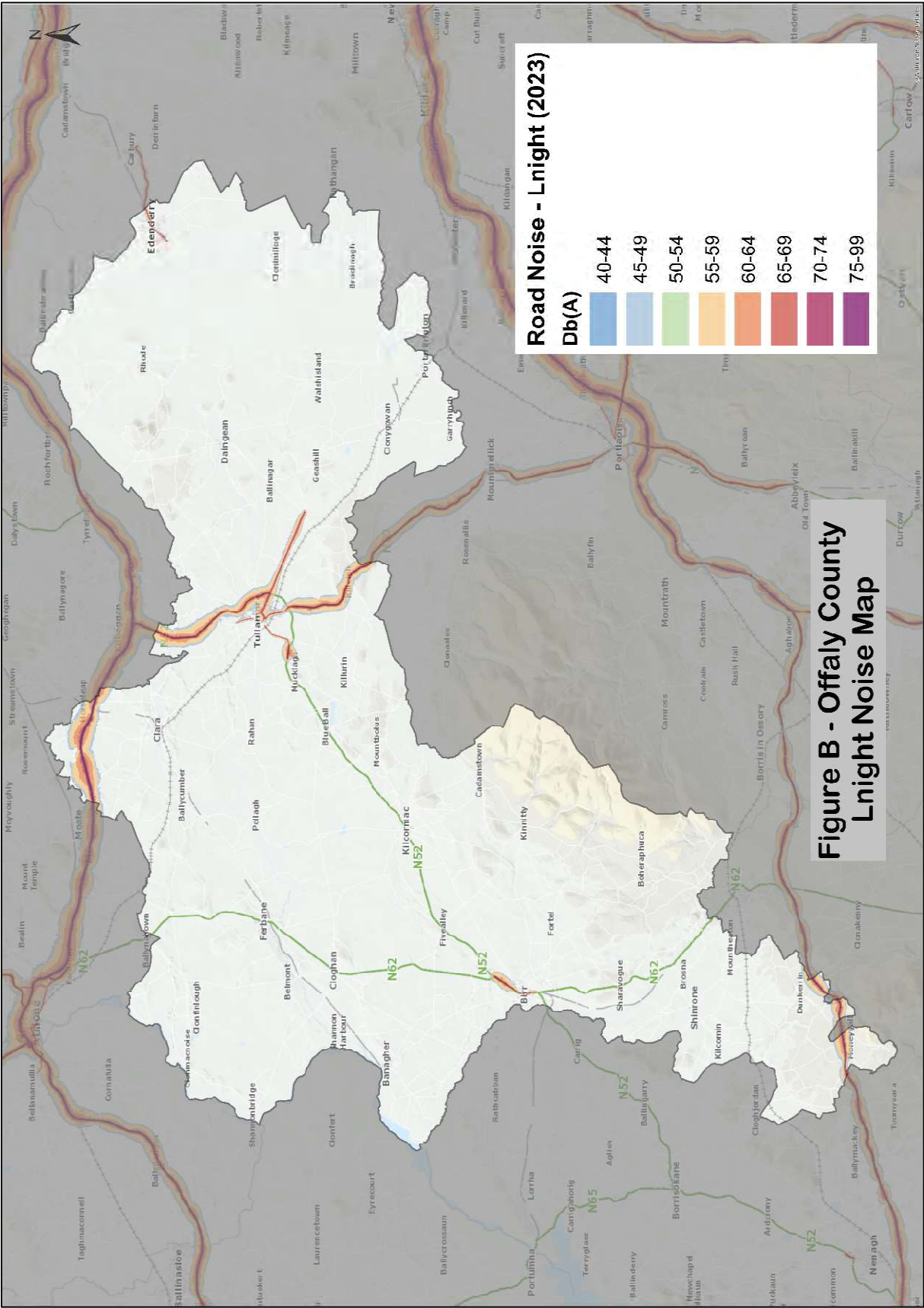
The noise maps incorporate sections of road with a flow threshold of 3,000,000 vehicle passages per year; and Rail traffic and major sections of rail line with a flow threshold of 30,000 train passages per year. The noise sources were assessed in 2021 and the data was compiled and analysed to produce the Strategic Noise Maps for Round 4 of the Noise Action Plan.

An indicative list of suggested Priority Important Areas was provided to OCC. This was reviewed in the context of local issues and priorities.

The Regulations require that APA's address "priority areas" for attention 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.

Figures A & B below indicates highlight the areas where noise is considered a significant nuisance these are roads with greater than 3 million car journey per year. The extent of the noise propagation shown by contours of 5 Db per interval. There are four roads primarily affected these are: N52, N80, R420 and R402 routes.





8.2 Summary of the Results of the Noise Mapping Process

8.2.1 Noise Contour Maps

The strategic noise maps are attached in the Appendix C of this document. Each map includes colour coded grids for each noise band, illustrating areas of relatively loud to quiet. The noise contours reflect an annual average 24-hour period. The L_{den} contours range between 55dB and 75dB, in 5dB bandwidths. The L_{night} contours range from 50dB to 70dB in 5 dB bandwidths. The L_{den} and L_{night} are defined as follows:

- L_{day} – The A weighted average sound level over the 12 hour day period of 07.00 – 19.00
- $L_{evening}$ – The A weighted average sound level over 4 hour evening period of 19.00 – 23.00
- L_{night} – The A weighted average sound level over the 8 hour night period of 23.00 – 07.00
- L_{den} – The day, evening, night sound level. L_{den} is a logarithmic composite of the L_{day} , $L_{evening}$, and L_{night} levels, with 5 dB(A) weighting added to the $L_{evening}$ value and 10 dB (A) weighting added to L_{night} value.
- Areas with noise levels of less than 55 dB L_{den} and less than 45 dB L_{night} are not mapped; these levels are below the threshold for inclusion in accordance with the legislation.

8.2.3 Summary Exposure Statistics for Action Planning Area

The number of people, exposed to traffic noise pollution, at each 5db band; were estimated by TII within the county using the methods outlined in Section 8 and illustrated in Table 2 below.

The results show that the number of people exposed to noise levels of >55 dB and 65 dB L_{den} respectively has increased. However, the number exposed to the higher level of >75 dB L_{den} has now reduced. The numbers exposed to L_{night} levels of >50 dB and 60 dB have also increased however the number exposed to the higher L_{night} level of >70 has remained at 0.

8.3 Limitations of the Noise Maps and Results

Computer modelling generated the noise results that were used to produce these maps, rather than field survey monitoring of noise within the vicinity of the major roads. Due to the impracticality of field survey monitoring and the resources involved in completing this body of work, the computer modelling method was selected as the most appropriate method of gathering data. This modelling approach conforms to the Environmental Noise Regulations, 2006.

The strategic maps are based on parameters which are averaged datasets, providing estimated noise levels within a specific environment. They are based on a single predominant source of noise: traffic on major roads; the maps are not representative of other circumstances influencing environmental noise, such as traffic on minor roads, industrial activities within the area, and wind profiles. The maps are not relevant to the assessment of quiet areas in open country. By definition these areas are undisturbed by noise from traffic, industry or recreational activity. The maps do not represent the noise levels attributed from lesser used carriageways that may contribute significantly to the overall noise levels.

8.3.3 Appropriate Screening Assessment

The primary purpose of the Directive 92/43/EEC (“Habitats Directive”) is to promote the conservation of natural habitats and wild fauna and flora across the European Union. The Habitats Directive is transposed into Irish law by the European Communities (Birds and Natural Habitats) Regulations, 2011 (S. I. 477/2011) (“Habitats Regulations”).

The European Environment Agency has designated a network of protected areas (“Natura 2000” sites) covering Europe’s most valuable and threatened species and habitats.

The County Offaly NAP has been assessed to determine if it is required to be subject to an ‘Appropriate Assessment’ (“AA”) under the Habitats Directive. The screening assessment has determined that there is no likelihood of a significant impact on a Natura 2000 site.

8.3.4 Strategic Environmental Assessment (SEA) Screening

Strategic Environmental Assessment (SEA) is a formal and systematic process designed to assess the potential significant environmental impacts of implementing a plan or program before deciding to adopt it.

The requirement for SEA for plans and programs is outlined in European Directive 2001/42/EC (“SEA Directive”). In the context of specific land-use plans, this directive is implemented in Irish law through the Planning and Development (Strategic Environmental Assessment) Regulations, 2004 (S. I. 436/2006). This legislation has been amended by the Planning and Development (Strategic Environmental Assessment) (Amendment) Regulations 2011 (S.I. 201/ 2011). For all other sectorial plans, the SEA Directive is transposed into Irish law by 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).

9. Identification of areas to be subjected to noise management activities

9.1 Regulatory Background

The Environmental Noise Regulations require that the Action Planning Authorities 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 provides further guidance on these concepts, and sets out a recommended approach following a three-step approach to identifying priorities:

1. **Important Areas (IAs)** – these are locations exposed to environmental noise which may be harmful to human health, as indicated by international guidance;
2. **Most Important Areas (MIAs)** – these locations are a subset of the IAs where the health effects are highest, typically through a product of noise exposure levels and the number of people exposed to noise; and
3. **Priority Important Areas (PIAs)** – between 5 and 10 MIAs or group of similarly affected MIAs, identified as those which will be addressed during the implementation of the NAP.

9.2 Overview of Process

The process of identifying Important Areas (IAs), Most Important Areas (MIAs) and Priority Important Areas (PIAs) within the Offaly Agglomeration is Stage 1 of a two-stage process for the identification of areas to be subject to noise management activities.

The process of identifying IAs within the county involves using the results of the strategic noise mapping to identify noise sensitive residential buildings and the estimated number of people exposed to L_{den} levels above the guideline values set by the EPA Guidance which are in line with the 2018 WHO *Environmental Noise Guidelines for the European Region* (WHO ENG 2018). This is followed by an automated process within Geographic Information System (GIS) software to identify areas with the highest concentrations of people highly annoyed, referred to as the MIAs. The MIAs that are to be addressed during the implementation of the NAP 2024-2028 are referred to as PIAs.

It is important to emphasise that the approach to identifying MIAs is of a statistical nature and pertains to the entire population encompassed by the noise maps. It should not be construed as a precise assessment of harmful effects for specific buildings, nor are the extents of the MIAs definitive. Instead, they are indicative for the identification of areas with a relatively high number of people highly annoyed due to noise.

9.3 Description of approach to identifying IA's, MIA's and PIA's

The process of identifying Important Areas, Most Important Areas and the indicative list of Priority Important Areas within Offaly is Stage 1 of a two-stage process for the identification of areas to be subject to noise management activities.

Stage 1 includes using the results of the strategic noise maps to identify the number of people and noise sensitive properties exposed to levels above the limits set by the EPA Guidance which are in line with the 2018 WHO *Environmental Noise Guidelines for the European Region* (WHO ENG 2018).

The findings of the Important Area process are then used to inform an automated process within Geographic Information System (GIS) software to generate heatmaps of the relative number of people highly annoyed due to noise in a given area, referred to as **Most Important Areas**.

OCC have reviewed the Most Important Areas and selected priority areas to focus on over the Round 4 Noise Action Plan, referred to as **Priority Important Areas**.

Stage 2 of the process takes place during the implementation of the NAP, focussing on undertaking an assessment of noise mitigation measures for each of the identified Priority Important Areas.
(See Section 10)

An overview of the two-stage process is set out in stages below: Outside Agglomeration – Identification of Most Important Areas.

Stage 1 Within Noise Action Plan

- Review results of strategic noise maps
- Identify Important Areas (AI) and Most Important Areas (MIA)
- Select 5 to 10 Priority Important Areas (PIA)

Stage2 During NAP Implementation 2024-2028

- Assessment of cost-effective mitigation measures
- Noise Measurements
- Review and assess possible mitigation measures
- Cost-benefit analysis
- Recommendations for mitigation measures

9.4 Important Areas (IAs)

The WHO ENG 2018 guidelines in setting guideline noise levels for identifying Important Areas, namely:

- Road traffic noise: 53 dB Lden and 45 dB Lnight.

The guideline noise levels are relevant for the reduction of harmful effects from environmental noise on human health, and a summary of the number of people and number of noise sensitive receptors (schools and hospitals) in OCC which experience environmental noise from major roads and rail, where present, above these levels is summarised in **Table 2** and **Table 3**, respectively.

The Strategic Noise Maps highlight these locations across County Offaly, refer to Figures A & B (Noise Maps, All Offaly, highlighting Important Areas and possible split down to Birr, Tullamore and Edenderry).

Table 2: Important Areas - Number of People in Offaly Dwellings Exposed to Level Above Guideline Level

Road Traffic	Road Traffic	Railway	Railway
53 dB Lden	45 dB L _{night}	54 dB Lden	44 dB L _{night}
9,320	8,811	N/A	N/A

Table 3: Important Areas - Number of School Buildings (& Hospital Buildings). Number of People in Dwellings Exposed to Level Above Guideline Level

Road Traffic	Road Traffic	Railway	Railway
53 dB Lden	45 dB L _{night}	54 dB Lden	44 dB L _{night}
7 (0)	9 (1)	N/A	N/A

9.4.1 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. A summary of the Most Important Areas identified in Offaly using the EPA Guidance density criterions ('HA Threshold') of 7.5, 10 and 15 or more people per 100m² is given in **Table 4**.

Table 4: Most Important Areas - Summary.**Number of People in Dwellings Exposed to Level Above Guideline Level**

HA Threshold	Number of Road MIAs	Number of Rail MIAs	Total Population	HA	HSD	IHD
7.5	14	0	1,655	281	87	0
10	11	0	552	109	35	0
15	1	0	10	2	1	0

Number of people highly annoyed (HA), Number of people highly sleep disturbed (HSD), Population increased risk of ischaemic heart disease (IHD).

9.4.2 Priority Important Areas (PIAs) –

The statistical results presented in this report for each Most Important Areas have been used to identify an indicative list of suggested Priority Important Areas. OCC has reviewed these in the context of local issues and priorities and have included these 10 priority areas in the Round 4 Noise Action Plan. The Priority Important Areas established within Offaly County Council are summarised below in Table 5. And indicated on Maps 1.8a – 3.4b below and in Appendix C.

Table 5: Indicative List of Priority Areas (PIA) Summary.**Number of People in Dwellings Exposed to Level Above Guideline Level**

Map Ref	Total Population	Source	MIA Criterion (People HA per 100m ²)	Area	Number of people			Number of people above IA Guideline Level	
					HA	HSD	IHD	Road 53dB Lden	Road 45dB L _{night}

OYC_1	10.39	Road	15	700	1.62	0.5	0	10.39	10.39
OYC_2	118.06	Road	10	10,000	11.86	3.31	0	108.35	101.57
OYC_3	117.9	Road	10	21,500	28.68	9.19	0.03	117.9	117.9
OYC_4	48.46	Road	10	6,200	13.62	4.62	0.02	48.46	48.46
OYC_5	39.41	Road	10	1,600	10.11	3.31	0.01	39.41	39.41
OYC_6	30.69	Road	10	5,700	8.77	2.93	0.01	30.69	30.69
OYC_7	24.84	Road	10	3,500	8.49	2.99	0.01	24.84	24.84
OYC_8	20.12	Road	10	1,500	2.94	0.88	0	20.12	20.12
OYC_9	18.88	Road	10	1,400	1.68	0.48	0	15.73	15.73
OYC_10	11.5	Road	10	1,900	1.68	0.51	0	11.5	11.5

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

For each Priority Important Area, the relevant noise management measure will be identified and evaluated using processes such as cost-benefit analysis and quantification of health benefits. The evaluation of the Priority Important Areas will be undertaken post Noise Action Plan, as part of the implementation of the Plan.

9.4.3 Most Important Areas (MIAs)

The results of the Important Areas have been used to inform the identification of Most Important Areas. The process of identifying the Most Important Areas is an automated process within GIS software which uses the results of the strategic noise maps assigned to population statistics in areas with exposures greater than the Important Area guideline noise levels.

Following this method, the harmful effects due to noise are statistically assessed at geographically specific locations.

The number of people Highly Annoyed (HA) is calculated to generate a gridded “heatmap” of values which represent (approximately) the number of people highly annoyed per 100m².

Using the heatmap, the areas of higher concentrations of people highly annoyed (HA) are identified and delineated as a digital polygon. A density criterion of 15 or more people per 100m² as being the most appropriate for Most Important Areas in main urban areas, with lower criteria of 10 and 7.5 people per 100m² appropriate on the edge of urban or in rural areas.

The approach of identifying Most Important Areas is of a statistical nature and pertains to the entire population encompassed by the noise maps. It should not be construed as a precise assessment of harmful effects for specific buildings, nor are the extents of the Most Important Areas definitive. Instead, they are indicative in identifying areas with a relatively high number of people who may be potentially highly annoyed due to noise.

A summary of the Most Important Areas identified in Offaly is given in **Table 4 (above)**.

9.4.4 Indicative Priority Important Areas (PIAs)

An indicative list of suggested Priority Important Areas is summarised in Table 5 and is based upon those Most Important Areas with the highest total population within the Most Important Areas that have been generated using the EPA Guidance density criterion ('HA Threshold') Outside Agglomeration – Identification of Most Important Areas.

Where multiple Most Important Areas have been identified, a process is required to identify which should be considered a priority (Priority Important Area), where there will be a commitment to undertake an assessment of noise mitigation measures within the life cycle of the NAP.

The identification of the Priority Important Areas was undertaken by OCC and relevant stakeholders. Consideration was given to the following range of 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

9.4.5 Priority Important Areas (PIAs)

The Most Important Areas established within Offaly County are summarised in Table 4.

Where multiple Most Important Areas have been identified, a process is required to identify which should be considered a priority (Priority Important Area), where there would be a commitment to undertake an assessment of noise mitigation measures within the life cycle of the NAP.

The identification of the Priority Important Areas should be undertaken by the APA in consultation with NMBs and relevant stakeholders. The EPA Guidance requires consideration be given to the following a range of 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 APA decisions 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., roads
- Area (m²)
- 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
- road traffic noise exposure in 5 dB bands (Lden 55 → 75 dB, Lnight 50 → 70 dB)
- railway noise exposure in 5 dB bands (Lden 55 → 75 dB, Lnight 50 → 70 dB)

An indicative list of suggested Priority Important Areas are summarised in Table 5 and are based upon those Most Important Areas with the highest total population within the Most Important Areas that have been generated using the EPA Guidance density criterion ('HA Threshold') 15 or more people per 100m². Where required, this is extended down to the 10 and/or 7.5 HA Threshold density criterion. Within Offaly there are 10 PIA's to be investigated. These are located in Tullamore and Edenderry areas as shown in figures 1.8a, 1.8b, 3.4a & 3.4b. There are no PIA's in Birr for this round 4 of the Noise Action Plan Figures 2.1a & 2.2a. The relevant Tables and Figures are also contained in Appendix C. These areas can be described as residential and commercial areas within or close to an urban centres. A brief analysis of the possible mitigation measures which are possible are outlined in section 10 can be completed during the lifespan of the NAP 2024 – 2028.

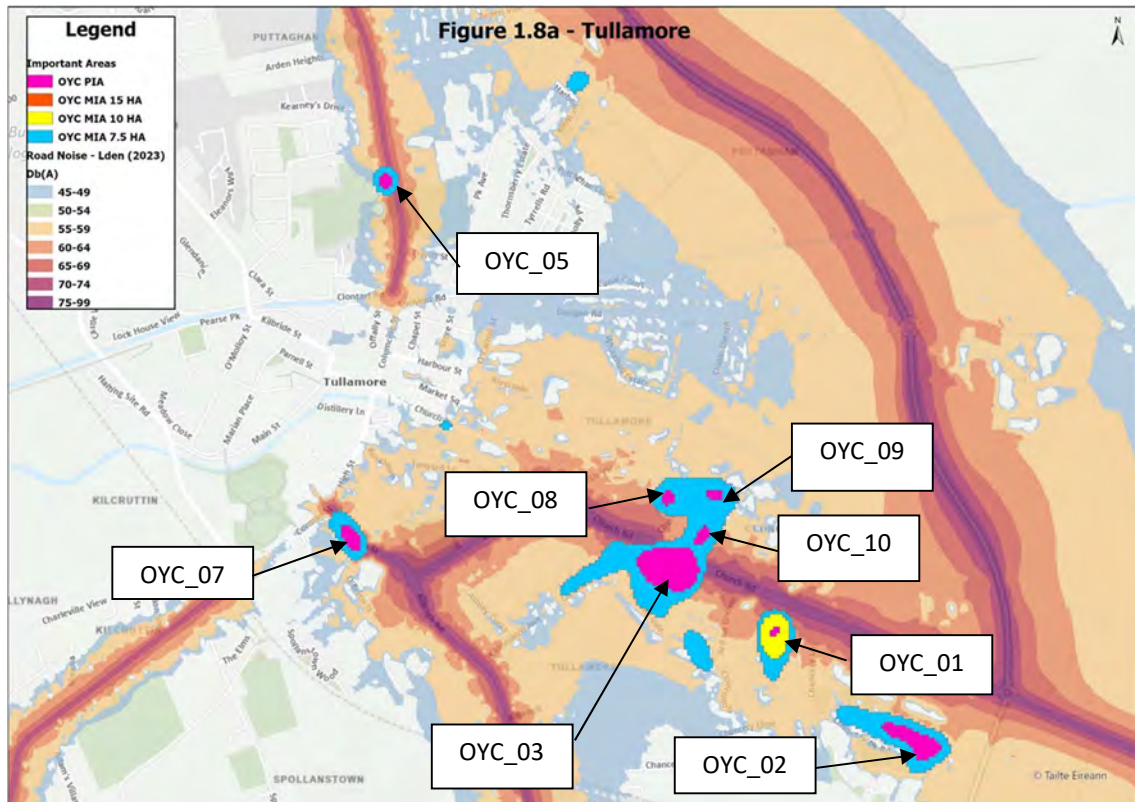


Figure 1.8a – Tullamore Lden Noise Map

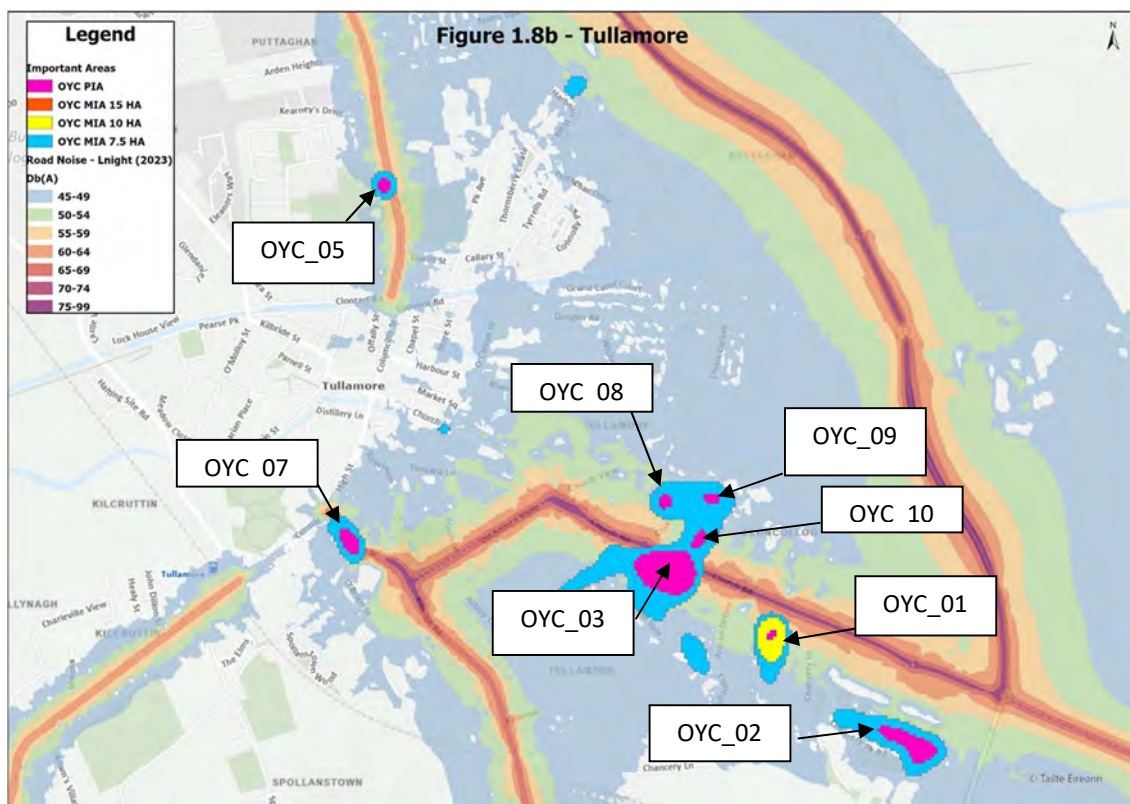


Figure 1.8b – Tullamore Lnight Noise Map

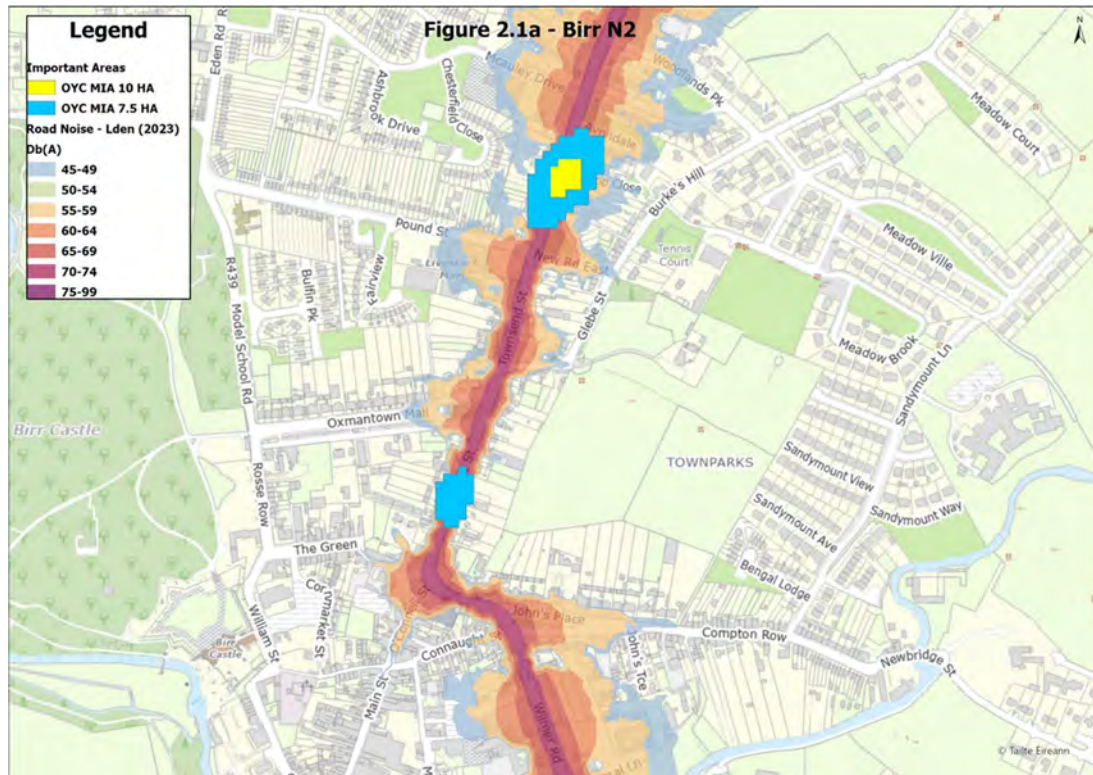


Figure 2.1a – Birr Lden Noise Map

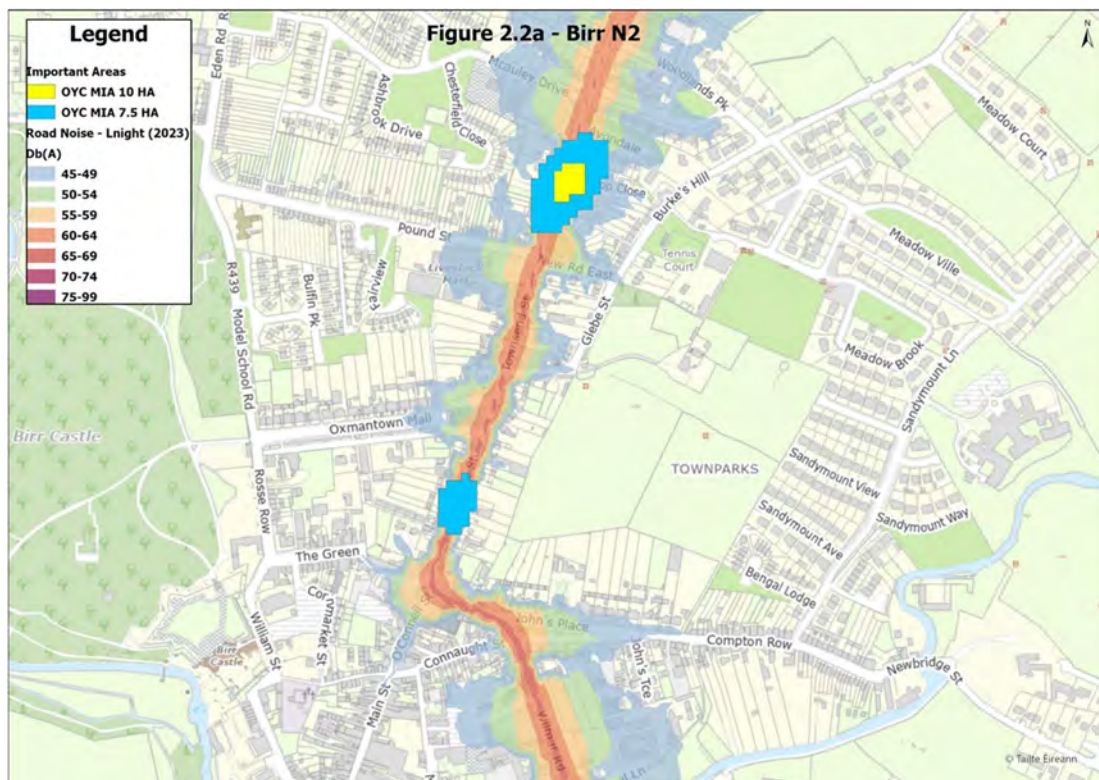


Figure 2.2a – Birr Lnight Noise Map

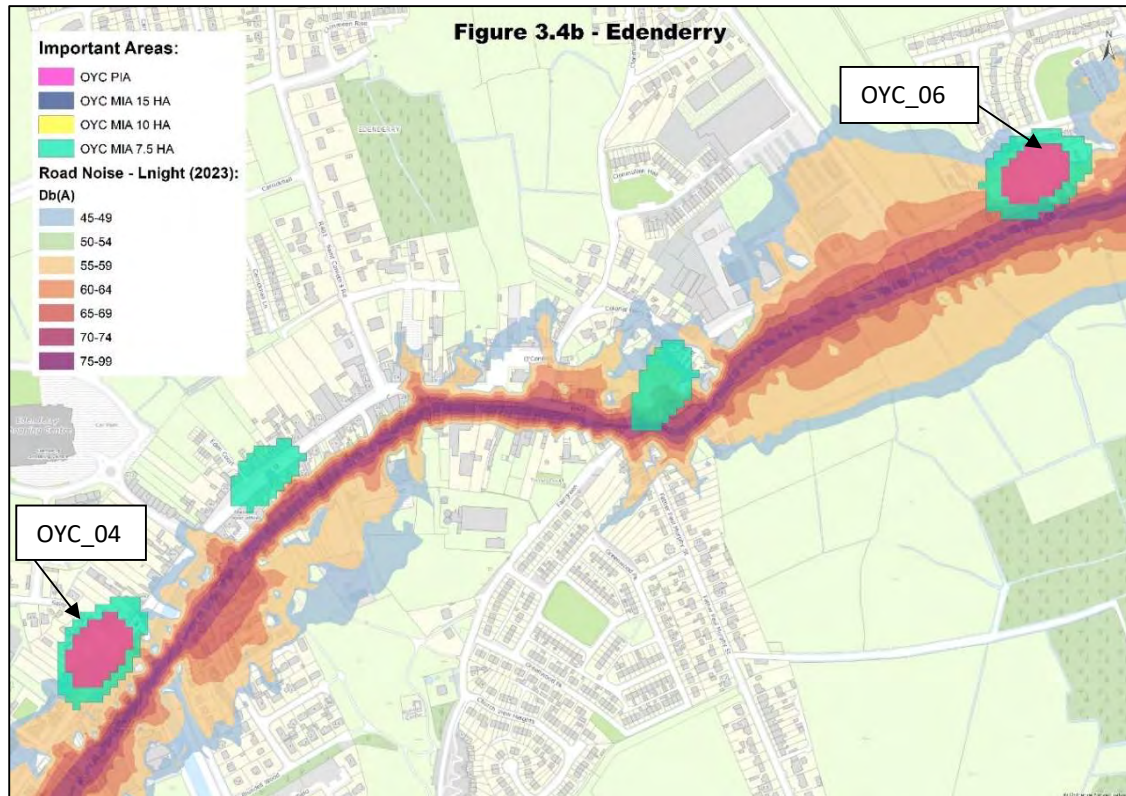


Figure 3.4a – Edenderry Lden Noise Map

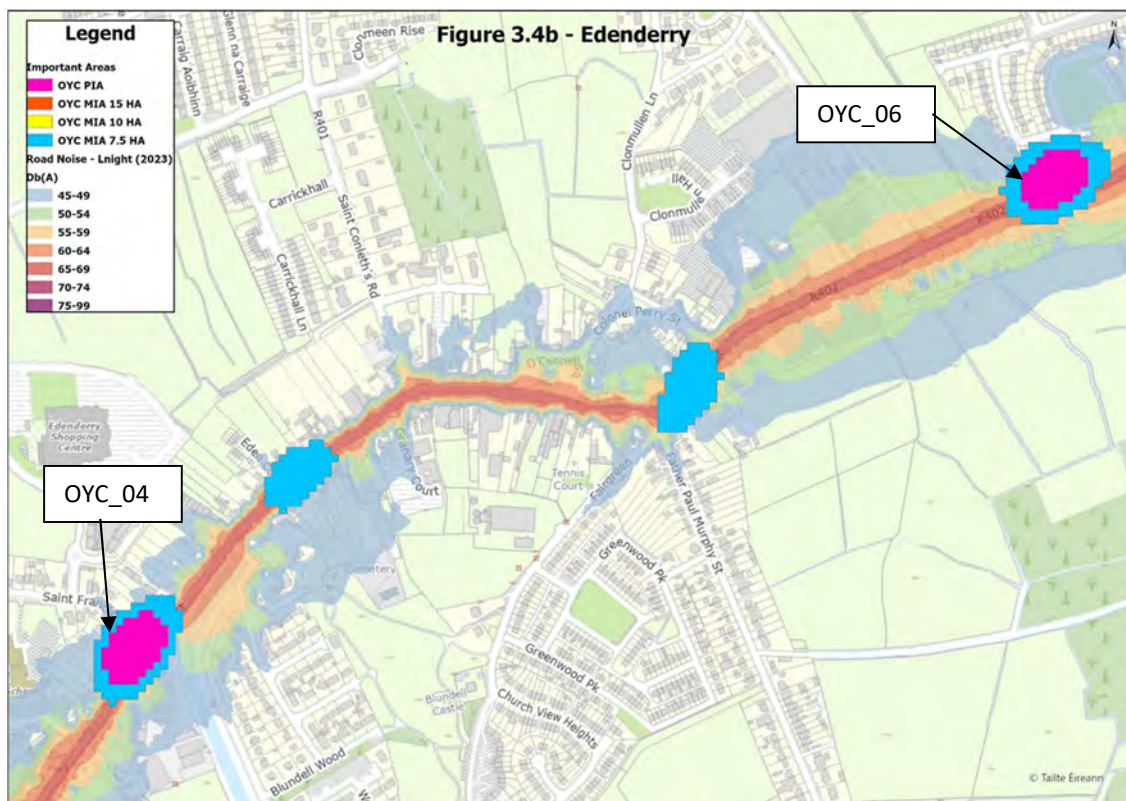


Figure 3.4b – Edenderry Lden Noise Map

9.5 Results of Modelling identifying Priority Areas

Listed below are the locations of PIA's resulting of the TII model for each section of road identified in the Strategic Noise Maps.

<i>Priority Important Area's</i>	<i>L_{den} contour Band</i>	<i>L_{night} Contour band</i>	<i>Area</i>	<i>Action to be considered</i>
OYC_01	55-70	60-64	Residential and Commercial properties, Cloncollig, Tullamore R420	Area to be assessed under 2024-2028 NAP and mitigation measures put in place.
OYC_02	50 - 64	45-49	Residential and Commercial properties, Cloncollig, Tullamore R420	Area to be assessed under 2024-2028 NAP and mitigation measures put in place
OYC_03	55 - 74	55 - 69	Residential and Commercial properties, Cloncollig, Tullamore R420	Area to be assessed under 2024-2028 NAP and mitigation measures put in place
OYC_04	50- 64	45 - 59	Residential, educational and Commercial properties, Edenderry R402	Area to be assessed under 2024-2028 NAP and mitigation measures put in place
OYC_05	50-64	45-59	Residential, healthcare and Commercial properties, Tullamore R402.	Area to be assessed under 2024-2028 NAP and mitigation measures put in place
OYC_06	60 -64	50-54	Residential and Commercial properties, Edenderry R402	Area to be assessed under 2024-2028 NAP and mitigation measures put in place
OYC_07	55-59	45-49	Residential and Commercial properties, Spollanstown, Tullamore R443.	Area to be assessed under 2024-2028 NAP and mitigation measures put in place
OYC_08	55-69	40-49	Residential and Religious properties, Cloncollig, Tullamore R420	Area to be assessed under 2024-2028 NAP and mitigation measures put in place

OYC_09	55-59	45-49	Residential properties, Cloncollig, Tullamore R420	Area to be assessed under 2024-2028 NAP and mitigation measures put in place
OYC_10	55-59	45-49	Residential and Commercial properties, Cloncollig, Tullamore R420	Area to be assessed under 2024-2028 NAP and mitigation measures put in place

The results of the noise mapping showing the noise contour bands are used to identify areas that are above the onset criteria for mitigation for Lden and Lnight on the major roads and require further assessment under the round 4 noise action plan proposals.

9.6 Description of how candidate Quiet Areas will be identified.

The Regulations require the Planning Authority to delimit quiet areas within agglomerations, however there are no qualifying agglomerations in Offaly County functional areas. However, areas of high amenity have been identified in County Offaly and these are considered during the planning process.

The areas listed in Table 9.1 below, are classified as high sensitivity and high amenity in Offaly's County Development Plan 2021 – 2027 – confirm this. These areas are described in the plan as "Identified features or areas of natural beauty or interest which have extremely low capacity to absorb new development. Areas included within this class are designated Areas of High Amenity."

It is Offaly's intention to take cognisance of these areas when considering locations for planning approval to designate locations as quiet areas in open countryside, to preserve them from the effects of environmental noise. These areas are identified in the planning process by applying specific conditions regarding type, scale and environmental effect of a proposed project on the local area.

Table 9.5. County Development Plan high sensitivity and high amenity areas

Waterways, Wetlands	River Shannon, Grand Canal, Lough Boora Parklands, Pallas & Finnamore Lake.
Upland Areas	Sliabh Bloom Mountains, Croghan Hill
Peatlands	Clara Bog, Raheenmore Bog
Eskers	Eiscir Riada, Clara Eskers, Other Eskers

Archaeological and Historical	Clonmacnoise, Durrow Monastic Site and Demesne
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With the focus on mitigation of noise for the exposed residents, and preserving noise effects on high amenity areas, there is a possibility that a number of residents, located between the thresholds may not be taken into account with the action planning process.

It is envisaged to protect this element of the population within the areas of concern. The planning process will play a key role in the prevention and control of future exposure to detrimental levels of noise, without placing unreasonable restrictions on development.

The noise contour bands identify areas that are above the onset criteria for mitigation for L_{den} and L_{night} on the major roads and require further assessment under the round 4 noise action plan proposals. These Noise maps will be available to the public via the Council planning portal for evaluation of a site prior to making an application.

When assessing the noise maps identified areas as quiet by cross referencing the areas of the noise maps below 55 dB L_{den} and 45 dB L_{night} with a dataset of high amenity areas. Below are a number of high amenity areas within County Offaly which are list in the County Development Plan 2021 - 2027:



Figure 9.1. Clonmacnoise, Monastic site, Co Offaly

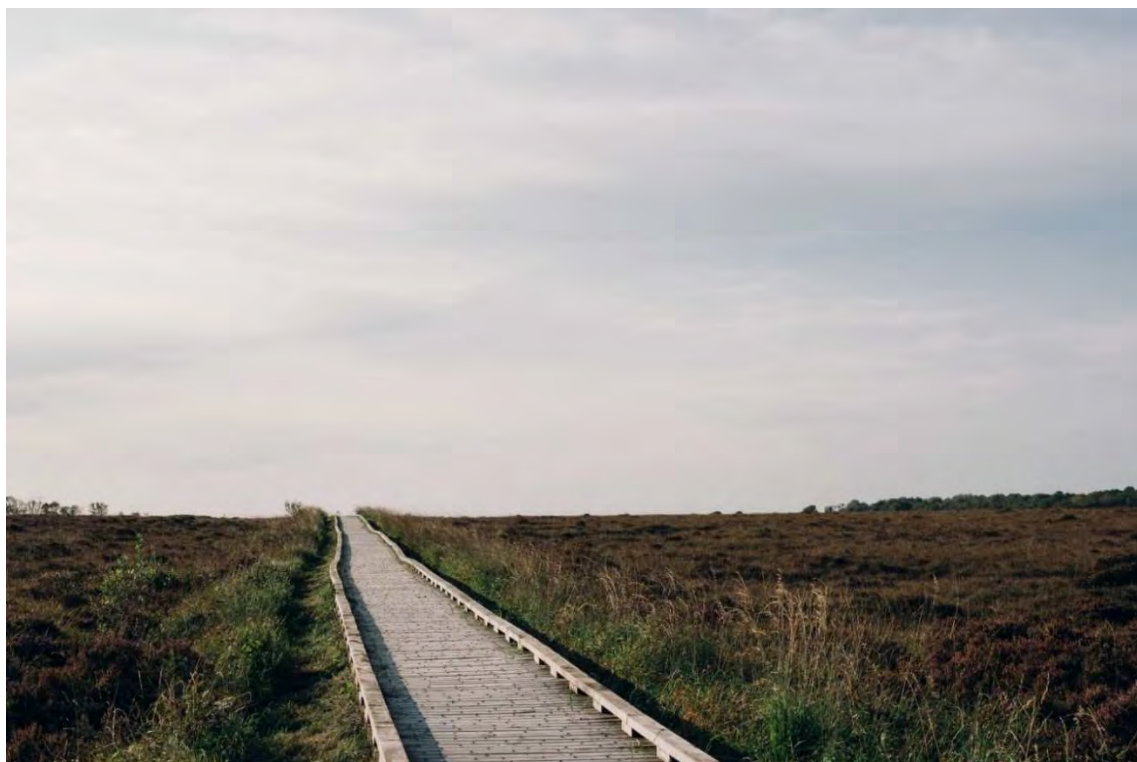


Figure 9.2. Clara Bog walkway, Clara, Co Offaly



Figure 9.1. Grand Canal Greenway, Co Offaly



Figure 9.1. Finnermore Lake, Co Offaly



Figure 9.1. Slieve Bloom Mountains, Co Offaly



Figure 9.1. Lough Boora Discovery Park, Co Offaly

10. Noise mitigation measures.

There are a range of actions which may be feasible, some may need to be implemented on or directly alongside the sources, others may be in the region between the roads and the dwellings, and others may be at the noise sensitive locations. The management of noise within the APA adopts three approaches:

- **Prevention** – measures which seek to avoid additional members of the community being exposed to undesirable noise conditions. In the Agglomeration, preventative measures consist of planning policy in respect of not locating residential developments and other noise sensitive buildings in potentially noisy environments and in particular adjacent to transportation infrastructure.
- **Protection** – relates to the preservation of environmental noise quality through the identification of Candidate Quiet Areas, and the processes of investigating Candidate Quiet Areas for delimitation as Quiet Areas; and
- **Mitigation Measures** – relates to the identification and prioritisation of appropriate mitigation measures to reduce and/or mitigate noise levels in areas where they are potentially harmful to human health.

The following are an indication of the types of measures which may be relevant to consider for noise sensitive locations exposed to noise from road sources:

- Earthworks, such as earth bunds, mounds or cuttings
- Coverage, including baffles or tunnels
- Acoustic windows or secondary glazing
- Acoustics ventilation, passive or active; and
- Chimney caps and dampers
- Acoustic roadside barriers
- Landscaping and planting

10.1 Description of how PIAs mitigation measures will be investigated.

Following the selection of Priority Important Areas completed during the preparation of this plan, the potential noise mitigations measures will be investigated, and a cost benefit analysis undertaken for each, with the aim of developing a selection matrix which leads towards a recommendation for action.

The PIAs have been identified as locations for which noise mitigation measures will be considered. A fair approach must be taken to sustainably manage the interests of the residents, while achieving the aims and objectives of the Noise Action Plan.

There is a wide range of potential traffic noise mitigation measures available to the local authority, examples of which are listed in Table 10.1 below.

Table 10.1 Noise Mitigation Measures available to Offaly County Council

Authority	Potential Measure
European Commission	Vehicle Noise Emission Directive Tyre Noise Directive
Department of Environment Local Government	National Planning Guidance for Environmental Noise Mitigation & Preservation. Noise Regulations to include threshold limits
Department of Transport	Improve public transport with a view of reducing reliance on car travel, by increasing and improving bus and rail corridors.
TII and Roads Departments	Traffic Management – Routes, HGVs, and Speed Management Speed limit review nationally New roads Constructions – By Pass Maintenance of Road surfaces; ensure smoothness of surfaces and include low noise surfaces. Noise Screening measures
Planning Authorities	Require Façade Insulation – secondary and triple glazing. Limit noise emissions within the environs of New Developments by specifying Noise Limits as part of the Planning Conditions

	<p>Define Planning Zones by considering the potential risk to residential properties located near or close to potential environmental noise sources.</p> <p>Specify Noise Barriers for new developments</p>
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It is evident from the list above that noise mitigation is not a single solution, but rather a range of measures, each of which provides incremental improvement to the issue. With all Authorities focusing on reducing environmental noise, improved conditions should result.

There are essentially two routes to noise abatement. The first route is to control the noise emission at-source by limiting vehicle noise emissions, requiring vehicles to be fitted with rolling noise tyres, construction of low noise road surfaces and traffic management. The second route is to reduce environmental noise from the exposed population by means of insulation such as noise barriers and sound proofing buildings and to increase the distance between the source of the noise and the recipients.

10.1.1 Vehicle Noise Emissions Directive – 2007/734/EC

All vehicles bought and sold within the EU must meet specific technical requirements; the EC Directive 1970/157 and its subsequent amendments, the latest is EC 2007/34; specifies maximum sound levels for each class of vehicle. Unfortunately, these limits have not changed since the 1992 amendment, for example the noise limit for passenger cars is 74 dB, Heavy Goods Vehicles range between 77 dB and 80 dB depending on size.

It is expected that future amendments to Vehicle Noise Emission Directive will focus on reducing the noise limit on all classes of new Vehicles.

10.1.2 Labelling of Tyres with respect to Fuel Efficiency and other Essential Parameters

The purpose of this EC Regulation is for tyres to have performance labels with the aim of encouraging people to purchase tyres with superior environmental and safety performance. It also encourages tyre manufacturers to produce tyres whose performance exceeds the minimum requirements specified in EU Regulations.

Regulation (EU) 2020/740 sets out requirements through labelling of tyres to allow end-users to make an informed choice when purchasing tyres, for the purpose of increasing safety, the protection of

health, and the economic and environmental efficiency of road transport, by promoting fuel-efficient, long-lasting and safe tyres with low noise levels.

This Regulation applies to tyres produced from May 2021, for passenger cars (C1 tyres), buses and coaches, light and heavy goods vehicles, and light and heavy trailers (C2 and C3 tyres). However, this Regulation does not apply to a certain specialised category of tyres, such as those for off-road professional use, vehicles first registered before 1st October 1990 or second-hand tyres, unless imported from a non-EU country.

Figure 3 shows the required format for the tyre label, which must include certain aspects of the tyre performance such as:

- the fuel efficiency class,
- the wet grip class,
- the external rolling noise class and the measured value,
- the snow grip symbol (only if the tyre satisfies the minimum snow grip index values set out in UNECE Regulation No 117), and
- the ice grip symbol (only if the tyre satisfies the relevant minimum ice grip index values).

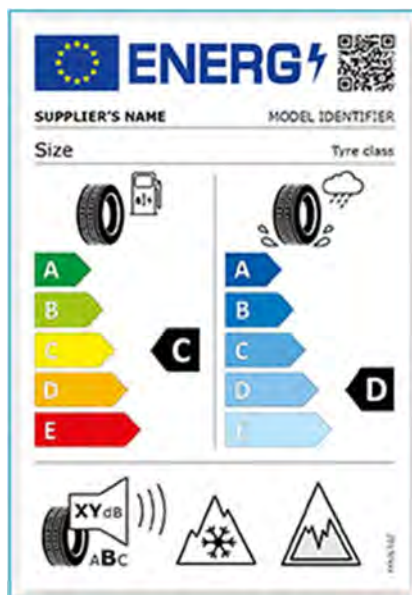


Figure 3. Labelling of new tyres indicating a tyre's exterior rolling noise rating

Using the same design as used for familiar energy labelling such as those on fridges, washing machines, and lights, the tyre label shows the tyre's fuel efficiency and wet grip classes on sliding scales from A (best) to E (worst).

In the bottom part of the label, the external noise level relates to the noise produced by the tyre when the vehicle passes by and is measured in decibels (dB). The range of external rolling noise classes (A to C) have the following interpretation:

- Class 'A' shows that the tyre's noise level is 3dB or more, better than the European limit.
- Class 'B' shows that the tyre's noise level is between the European Limit and up to 3dB better than the European limit.
- Class 'C' shows that the tyre's noise level is worse than the European limit.

As an EU Regulation, Regulation (EU) 2020/740 is directly applicable in all Member States and is given effect in Irish Legislation through European Union (Tyre Labelling) (Energy Efficiency) Regulations 2022, S.I. No. 670 or 2022.

10.1.3 Low Noise Road Surfaces

Road surface is an important parameter regarding traffic noise production. Numerous studies have concluded that at greater traffic speeds the quietest passage was on 2-layer porous asphalt surface compared to a concrete surface. The variation in noise levels between the different surfaces ranged from 8 dB at low speeds to about 12 dB at high speeds. The porous surfaces showed evidence of acoustic absorption, curbing the effect on tyre noise and propulsion noise, making such surfaces effective for motorways.

10.1.4 Traffic Management

The traffic noise is influenced by speed and flow, limiting traffic speed reduces noise especially between 50 – 80 km/h. Traffic management measures have positive impact on noise emission, air quality and road safety. Reduction in traffic can be achieved by promoting public transport, encouraging cycling and walking, parking management, HGV bans, speed limits, route designation, road bypasses, while smart tuning of traffic lights reduces the stop and go traffic which produces significant levels of noise in urban areas.

10.1.5 Anti-propagation Measures (Noise barriers, insulation)

On average, noise barriers reduce noise levels by 3 – 6 dB(A) depending on their design and height. Roadside barriers are only acceptable for motorways or bypass routes; they are often not suitable for urban areas but there are occasions where they may be suitable.

Where noise barriers or at-source measures are inadequate, sound insulation of the building must be considered for instance soundproof windows and insulated walls. Passive or active

acoustic ventilation may also be installed which meets Part F of Building Regulations, without the need to open the windows.

Alternatively, the planning process has a potential to be a significant influence on the future exposure to environment noise by separating noise emitting activities such as roads from noise sensitive receptors such as residential buildings, hospitals, places of worship and educational facilities. This may not be applicable in areas of landscape constraints, however with a focus on acoustical management then clever arrangement of such infrastructure will generate an attractive acoustic climate for everyone.

10.1.6 Noise and Health

According to the World Health Organisation 2011 Environmental noise leads to a disease burden that is second in magnitude only to that from air pollution, among environmental factors in Europe. A 2014 study for DG Environment on the Health implication of road, railway and aircraft noise in the European Union (EU) found that exposure to noise in Europe contributes to a high number of cases of hypertension, premature deaths due to heart disease and stroke and a high number of hospital admissions yearly. The report shows that the health and wellbeing of populations are affected by exposure to substantial noise leading to adverse effects shown in increased stress levels, changes in sleep patterns and insomnia. These in turn can increase risk factors such as blood pressure and cardiovascular disease and potentially lead to premature death.

The above information must be taken into account when moving forward with noise action planning. Details available on health assessments undertaken in relation to noise may need to be referred to in future rounds of noise action plans.

10.1.7 Protection Measures

Offaly County Council will undertake to protect sensitive areas from environmental noise by utilising the planning process.

- The Council as the Planning Authority, exercise control over pollution and nuisances primarily through the development management process. The Council will take into account these considerations relating to planning applications that are likely to give rise to unacceptable levels of pollution or nuisance and will adopt a precautionary approach where scientific knowledge is inconclusive.

-
- To incorporate the aims of the present and future noise action plans into County, Town and Local Area Development Plans by consider acoustical planning when designing Zones, incorporating traffic management measures with a focus to protecting existing settlements from environmental noise.
 - Planning applicants will be encouraged to produce a sound impact assessment and implement noise abatement in the major new developments or refurbishing of properties within the vicinity of major roads.
 - The Councils planning process will consider noise from new developments or extensions of existing industrial, commercial, leisure, or other uses that produce significant and unacceptable levels of noise and/or vibration at site boundaries or within adjacent sensitive areas, especially residential areas.
 - The Council will endeavour to manage exposure to environmental noise, using the most appropriate measures. These measures will aim to prevent, reduce, relocate noise in order to minimise the number of people affected by traffic noise emissions. The actions taken will be strategic in nature and represent a practical approach to environmental mitigation and the limitation of exposure to environmental noise.

10.1.8 Prevention measures and Steps to be undertaken

Among the measures the Noise Action Plan 2024-2028 will incorporate action planning measures and best practice noise policy from the County Development Plan (2021-2027). The consideration of environmental noise at the planning stage of developments will allow for significant improvement in the acoustic quality of existing and future developments by providing planners with greater tools to assess and control the potential noise impact in sensitive areas.

The County Development Plan includes noise considerations based on the 2013-2018 Noise Action Plan. This was considered to be an important step in the ongoing implementation of the Council's Noise Action Plan aimed at protecting the population from the harmful effects of environmental noise. The noise maps produced by TII will also be available on the Council website. This will inform the public if there are noise considerations local to the area where a proposed planning is been sought. This allows for noise attenuation measures to be included in the design of the project and create a healthier environment for occupants.

10.2 Mitigation measures

10.2.1. Road Resurfacing

Each year the Council carries out a significant amount of road resurfacing primarily on the roads in the City and County. The Council uses SMA surfacing materials in speed restricted areas as the preferred wearing course. These surfaces produce less road noise (specifically tyre/rolling noise) at low traffic speeds than the traditional ones thus leading to less local noise pollution. HRA is still used at locations where there are significant heavy goods vehicles turning movements. Other noise reduction measures include; Noise Reviews, Active Travel Projects, green routes and the Offaly Draft Road Plan.

10.2.2. Electric Vehicle Charging Points

The Council in association with ESB e-cars has made electric vehicle charging points available on the public roads in County Offaly. This will encourage the use of electric cars which emit less road noise at low speeds though urban areas. The current locations of the electric car charge points in County Offaly are at: Offaly County Council Depot - Tullamore; Service Station M7 - Moneygall; Mountlucas Training centre - Mountlucas; N62 - Ferbane; Offaly County Council Offices - Tullamore, 6 Cornmarket Street, Birr; 19 Moorpark Street – Birr.

10.3.3. Traffic Calming

The Council each year invests in significant traffic calming measures such as speed cushions, speed ramps, table top junctions, segregated pedestrian and cyclist facilities, driver feed-back signage, general signage and pedestrian crossings that aim to reduce.

10.3.4. Green Routes and Active Travel Projects

During NAP R3 a number of greenways were completed and provide an alternative transport route into Tullamore and Edenderry. This infrastructure will attract users over time and reduce car journeys at peak times. The reduction in car journeys would then reduce noise levels, which would have an effect and residential and commercial properties in these effected areas. There is approximately 32km of greenway completed in County Offaly and this will increase to 74km over the lifetime of NAP4. The outstanding 43km have been design in 2023 and due for completion in the in 2024. Below in **Table 10.2** is a list of projects complete, under construction and in design.

Table 10.2 - list of Offaly County Council Active Travel projects/locations

Project NTA Code	Scheme / Location	Items / Metrics Delivered	Status	Completed
OY/21/0002	Tullamore Cycle Network Phase 1	2.6km of Footpath Upgrades / Cycle Network Provision To Tullamore (Areas North of Grand Canal Greenway)	Proposed	N/A
OY/21/0003	AT Footpath Improvements : Birr & Crinkill	Military Rd Birr Upgrade 360m of Path. Boherdeel Rd = Upgrade 435m & Provide 275m of New Footpaths.	Under Construction	N/A
OY/21/0004	AT Footpath Improvements : Clara	Upgrade Works To Footpaths = 188m of New Path Along Badgers Lane + 242m New Path Along Heather Grove + 34m of New Path & Pedestrian Crossing At Westwood Grove.	Completed	Q3 2023
OY/21/0005	Edenderry - Hare's Lane	300m of New Footpath & Cycle Track Provided.	Completed	Q3 2022
OY/21/0006	AT Footpath Improvements : Cloghan	Proposal For Upgrades To 750m of Footpaths & Provision of New Pedestrian Crossing.	Proposed	N/A
OY/21/0007	Tullamore - Spollenstown Road	822m of Path Upgraded & 88m of New Path Provided. Pedestrian Priority Ramps & 2No. New Crossings.	Under Construction	N/A
OY/21/0008	Countywide Pedestrian Crossings	Upgraded Pedestrian Crossing Works In Tullamore (3No.) & Geashill & Rath National School + New Crossing To Cuba Avenue, Banagher & St. Francis Street, Edenderry.	Completed	Q2 2023
OY/21/0009	Portarlinton Active Travel Scheme	320m of New Footpath Over Bridge To Graveyard/Houses	Completed	Q3 2022
OY/21/0010	SRTS Frederick Street Clara	Upgrade / Provided 70m of Footpath For SRTS & Upgraded Set Down Area / Junction Tightening / Pedestrian Crossing	Completed	Q4 2021
OY/21/0011	Junction Tightening Edenderry	Junction Tightening & Pedestrian Crossing Installed.	Under Construction	N/A
OY/21/0012	Light Segregation Cycling Scheme Edenderry	Footpath Upgrades / Junction Tightening & Provision of 460m of Segregated Cycle Track & 615m of Cycle Lane	Completed	Q3 2022
OY/21/0013	Tullamore Urban Greenway Project (URDF)	800m of Shared Path/Cycle Track Along Grand Canal	Proposed	N/A
OY/22/0001	Edenderry R402-1 Junction Upgrade	Installation of Traffic Lights Including 3No. Pedestrian Crossings & Upgrades To 298m of Footpath & Provision of 90 of NEW Footpath & 236m of Segregated Cycle Track.	Completed	Q3 2023
OY/22/0002	Tullamore Collins Lane Junction	Installation of Traffic Lights / Protected Junction Including 4No. Pedestrian Crossings & Upgrades / Provision of 319m of Footpath & 264m of Segregated Cycle Track.	Completed	Q3 2023
OY/22/0003	Birr - Riverside Walk Upgrade Links	Upgrades To 500m of Pedestrian Links Within Birr Along Riverside Walk Incl. Paths & 2 New Pedestrian Crossings	Proposed	N/A
OY/22/0004	Rhode - Pedestrian Crossings & Footpath	Upgrades / Provision of 400m of Footpaths & Junction Tightening & Upgrades/Provision of Pedestrian Crossings	Under Construction	N/A
OY/22/0005	Mucklagh - Brocca Rd - Junction/Footpath	Junction Improvement & Upgrades To 122m of Footpath & Provision of 300m of NEW Path & Pedestrian Crossing	Completed	Q1 2023
OY/22/0006	Shinrone - Cloughjordan Road	240m of Upgrades To Footpath Along Road/Across Bridge	Under Construction	N/A
OY/22/0007	Ballycumber Active Travel Elements	Upgrades To 574m of Path & Provision of 232m of NEW Footpath & Traffic Calming & NEW Pedestrian Crossing.	Completed	Q4 2023
OY/23/0004	Edenderry Active Travel Elements	Phase 1 - Installation of Traffic Lights/Pedestrian Crossings Phase 2 - Path Upgrades/Provision & Pedestrian Crossing	Proposed	N/A
OY/24/0001	Kilcormac Village - Kinnitty Road	Upgrades To 230m of Footpath & Provision of 60m of New Footpath & New Pedestrian Crossing At School.	Proposed	N/A
OY/24/0002	Edenderry Harbour & Grand Canal Link	1.5km of Shared Path/Cycleway Along Grand Canal	Proposed	N/A
OY/24/0003	Cox's Bridge Clara Rd Tullamore	Footpath Upgrades/Junction Tightening/ 2 New Crossings	Proposed	N/A

There are also 20 **Cycleway Pathfinder Projects** in Offaly under construction or in design which will link many of the town and villages to the Grand Canal greenway. These will allow users of the greenways to easily access the amenities of each town while traversing the county. It is envisaged that residents close to the Greenway use the cycleway rather than a car.

There are also **Safe Route to School Projects** been developed in a number of towns in Offaly. The design work for these was progressed in 2023, with some projects due on-site in early 2024. These routes will provide safer walking and cycling routes for students and parents and also reduce the number of drop off's at each school.

Other initiatives which have been adopted in County Offaly under **Climate Action** to reduce car journeys are:

- Working from home policies (this has reduced car journeys to urban areas)
- Increase in number of Electric charge points in the county to promote uptake of EV's
- Bike for Work Scheme
- Promotions to encourage walking rather than driving for short journeys (Marchathon and Walktober).

During the preceding year 2023, initiatives were completed, or design undertaken to provide additional greenways and cycle paths. This new infrastructure will provide alternative travel routes of travel for commuters to and from Edenderry and Tullamore for the future NAP's.

Othe projects undertaken included junction realignment to provide safer/easier use for pedestrians. These works were carried out in Birr, Tullamore and Edenderry and Rhode. There are also a number these projects started this year with further one planned throughout 2024.

Each department has been working together to provide the infrastructure to reduce the number of car journeys being made. The department involved are Environment, Roads, Climate Action and Active Travel. By working in co-operation, a more overall approach is being followed.

10.3.5. National Speed Limit Review (2023)

The Council will consider the adoption of any recommendations arising from the National Speed Limit Review and implement any changes required by legislation. Guidance is awaited from the Department of Transport.

10.3 Discuss how noise reduction effects of potential measures will be assessed

10.3.1 Assessment of Options – Cost Benefit Analysis

In order to undertake an assessment of feasibility and develop a prioritised list of actions, a cost benefit analysis will be undertaken to maximise value for money and deliver a return on investment.

The cost benefit analysis will address construction and maintenance costs against noise reduction benefit. Assessment of noise benefit involves the use of the strategic noise models to determine estimates of noise reduction from identified design options.

Measures to reduce noise at-source are considered more cost effective than those to restrict its propagation, because the benefits achieved will dramatically exceed their costs. KPMG 2005 reported that, tightening the limits to noise emission from tyres and vehicles will cause very little additional cost to the automotive industry. Also costs will be borne by the car user.

Alternatively, a householder may soundproof their property to reduce the penetration of environmental noise into noise sensitive rooms such as the bedroom, the benefit in noise reduction maybe small scale at significant cost to the owner while the source of the noise continues.

Financial provisions have not been made available at national level to fund staffing, noise assessment measures, mitigation measures or additional noise mapping requirements resulting from implementation of this plan. Due to the lack of such resources, mitigation measures will be strictly prioritised. It is envisaged that mitigation measures taken by Offaly Local Authorities will be found to benefit both the community and the local authority.

10.3.2 How outcomes will be assessed and reported

The process of identifying Important Areas, Most Important Areas and the indicative list of Priority Important Areas within the 21 Local Authority areas is Stage 1 of a two-stage process for the identification of areas to be subject to noise management activities.

Stage 1 includes using the results of the strategic noise maps to identify the number of people and noise sensitive properties exposed to levels above the limits set by the EPA Guidance which are in line with the 2018 WHO Environmental Noise Guidelines for the European Region (WHO ENG 2018). These limits for road and rail traffic are set out in Section 3 of that document.

The findings of the Important Area process are then used to inform an automated process within Geographic Information System (GIS) software to generate rater heatmaps of the relative number of people highly annoyed due to noise in a given area, referred to as Most Important Areas.

11. Implementation of Noise Action Plan.

The proposed approach for the implementation of this Noise Action Plan is set out below.

11.1 Roles and Responsibilities

Offaly County Council is the designated Action Planning Authority for the development, implementation and review of this Noise Action Plan.

Transport Infrastructure Ireland is considered a key stakeholder to Offaly County Council during the implementation of the action plan, they develop and retain the strategic noise mapping and they are the body responsible for the planning and supervision of construction and maintenance of national roads, and motorways.

TII are the noise mapping body for 'Major' national roads. Local Authorities are the noise mapping body for 'Major' non-national roads. For phase 4 mapping, TII prepared strategic noise maps for County Offaly incorporating both national and non-national 'Major Roads' following implementation of the centralised approach.

11.2 Objectives

It is Offaly's goal to adopt a strategic approach to the management of environmental noise with a view of preventing and reducing, where necessary, and in particular, where exposure levels can induce harmful effects on human health, and to promote a high level of environmental protection.

11.3 Programme of works

The Noise Action Plan is to be implemented through a staged process over a period of 4 years as set out in the Table 9.3.1 below.

Table 9.3.1	
Timeframe	Programme of Works <i>Subject to cost benefit analysis and availability of funding.</i>
Year 1	Identify priority areas for possible noise mitigation and preservation, based on the

	results of the strategic noise maps and liaise with interested parties and other stakeholders.
Year 2	Evaluate the actual noise impact at creche buildings or locations identified in NAP4.
Year 3	Commence implementation of appropriate noise management actions, where necessary. Ensure adoption of action planning measures and best practice noise policy outlined County Development Plan.
Year 4	Continue with implementation of appropriate noise management actions. Evaluate effectiveness of any noise reduction measures and review impact and success of action plan Continue to Incorporate action planning measures and best practice noise policy in any new County Development Plans. Undertake traffic counts on Regional Roads around Offaly to help support the R5 strategic noise mapping in 2028

11.4 Evaluation, review and corrective action programme

Offaly County Council will review the effectiveness of noise action planning activities on an ongoing basis. This will be done by annual review and reporting to the EPA on the progress made in relation to the programme of works. If necessary, adjustments may be made to the schedule and the nature of planned activities to achieve better success of the goals of the action plan.

Offaly will conduct a review of the programme of works implemented, in the final year 2028. Progress and results will be evaluated using information gathered through local assessment of noise exposure. This will include “before and after” evaluations of any noise mitigation or preservation measures.

A review of new noise maps will be carried out, where they may indicate changes in noise levels and the number of people exposed. From guidance document TOC:

- An evaluation of the outputs of the measures taken and any corrective actions/changes to the original programme to be undertaken as a result of the evaluation.
- And who the responsible bodies are for this end of Program review.
- A description of how the progress and results of the Action Plan will be evaluated and measured in 2028 when the fifth-round action plan is drawn up.

11.4.1. Noise Action Plan Commitments

It is the goal of the Council to adopt a strategic approach to the management of environmental noise with a view to preventing and reducing environmental noise where practicable, particularly where exposure levels may induce harmful effects on human health. The Council will also aim to preserve desirable noise environments where these are of amenity value to the public.

The NAP 2024-2028 is supported by a four-year programme for implementation, with progress reported to the EPA on an annual basis. The NAP is underpinned by a set of overarching noise policy principles outlined in the Noise Policy Statement. These noise policy principles are supported in Offaly Development Plan 2021-2027 and a series of commitments below (Implementation Actions).

11.4.2 Noise Policy Statement

Offaly County Council will adopt a strategic approach to managing environmental noise, within its administrative area, and will aim to adopt the following:

- **Mitigation** – identify appropriate mitigation measures to reduce noise levels where they are potentially harmful to the health of communities.
- **Prevention** - prevent additional members of the community being exposed to undesirable noise levels where it is likely to have a significant adverse impact on health and quality of life, and where practicable, improve or maintain the quality of sound in the public realm.
- **Protection** - protect areas which are desirably quiet, or which offer a sense of tranquility through a process of identification and validation followed by formal designation of “Quiet Areas”.

9.7 Implementation Action Strategy

The implementation of the NAP spans a four-year time frame, beginning in 2024. Offaly County Council continue to implementation a series of actions during current and future noise action planning. The environmental noise management measures within the framework are presented across the three policy principal categories covered by the Noise Policy Statement, together with a fourth supporting 'General' category as follows:

- General – Noise Management Measures;
- Mitigation – Noise Management Measures
- Prevention – Noise Management Measures;
- Protection – Noise Management Measures

relevant stakeholders with influence to implement them. Prevention measures relate to activities to support planning where noise from major road sources is a material consideration. When considering the broader framework of measures and actions aimed at mitigating exposure to environmental noise from the roads, it is important to emphasise that Offaly County Council, in some instances, does not have exclusive ownership or influence over certain noise sources, areas, and the measures presented in this NAP.

Many of the measures and actions will require input, collaboration, and execution by other authorities with responsibility for infrastructure, along with support from government departments and bodies through relevant legislation and funding.

In addition to third-party collaboration, the successful implementation of this NAP will also depend on the availability of adequate resources to execute the proposed measures and actions. In some instances, measures do not necessarily stand in isolation and may be relevant, or overlap, with other categories.

12. Summary and Conclusions

This Noise Action Plan is prepared as a requirement of Environmental Noise Regulations, 2006. Its aim is to avoid, prevent and reduce, on a prioritised basis the harmful effects, including annoyance, due to long term exposure to environmental noise. This will be achieved by taking a strategic approach to managing environmental noise in the context of sustainable development.

12.1 General – Noise Management Measures

General noise management measures cover a range of activities to support the implementation of the Noise Action Plan, these include Protection, Prevention and Mitigation measures.

In some instances, measures do not necessarily stand in isolation and may be relevant for, or overlap, with other Departments i.e., Planning, Roads and Climate Action.

Many of the measures and actions will require input, collaboration, and execution by other infrastructure owners, along with support from government departments and bodies through relevant legislation and funding.

In addition to third-party collaboration, the successful implementation of this Noise Action Plan will also depend on the availability of adequate resources to execute the proposed measures and actions.

12.2 Protection Measures

Offaly County Council intends to incorporate noise management into the planning process with the view of reducing and preventing possible increases in environmental noise on sensitive locations or buildings from sources such as roads. The following course of actions will take place:

- Review County Development Plan to include noise control and management.
- Include Noise Assessment and Control in the County Planning Guidance.
- New Developments; within the active noise map contours, may require noise impact assessment.
- New Developments of Noise Sensitive Buildings within the vicinity of a significant noise source will be required to include noise insulation and control measures.

Noise reduction of long-term environmental noise from existing sources, where necessary, will be considered within the area of concern as highlighted in noise maps included in Appendix C.

- The preservation of relatively quiet areas in the vicinity of major noise sources, and quiet areas in the open countryside, will be considered and reviewed as part of the implementation of the Noise Action Plan.
- An overview of the general prevention, protection and mitigation measures that could be considered for the management of noise are outlined in Sections 10.

12.3 Mitigation Measures

There are a number of existing plans, projects and strategies which aim to deliver more sustainable infrastructure and services for the County of Offaly and its surrounding areas. The successful implementation of NAP 4 2024-2028 will depend in part on the following:

- Support national policy relating specifically to noise other than specific objectives set out within a range of national plans and strategies such Policy Objective 65 from the National Planning Framework 2040. Furthermore, there is no adopted consistent approach for Local Authorities to apply in the evaluation of noise issues at the planning application stage. Some have developed their own guidelines, and many apply the approach which is used within the UK.
- In addition to specific national policy and guidance relating to noise, other national policy and guidance can have an indirect impact on noise related issues. An example includes the National Speed Limit Review lead by the Department of Transport and published in September 2023.
- Offaly County Council will actively support and engage with the development of national policy and guidance on the subject of noise and all related policy.
- Offaly County Council will support the establishment of relevant noise working groups both within Offaly County Council to co-ordinate the activities and actions from the Noise Action Plan and with Offaly City Council as part of the wider agglomeration to co-ordinate and collaborate with the relevant Noise Mapping Bodies [Transport Infrastructure Ireland & Iarnród Éireann] in respect of noise management issues in general and mitigation measures at a Priority Important Area level.

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- Offaly County Council will prepare an annual report for the EPA setting out progress made in respect of the implementation of the Noise Action Plan. Offaly County Council will liaise with relevant third-party infrastructure owners in respect of progress made by them with implementing actions that may be relevant for them and their infrastructure.
 - Offaly County Council's Environment Section investigates complaints under the provisions of the Environmental Protection Agency Act 1992 (Noise) Regulations 1994. The Unit has regard to best international best practice guidelines and standards.
 - A key requirement in the development of the strategic noise maps and Noise Action Plan is that the information is made available to the public in a clear, comprehensible, and accessible manner. Furthermore, the public should be consulted on the preparation of the Noise Action Plan, provided with the opportunity to participate and comment on the Noise Action Plan, and the feedback from public engagement should be considered when finalizing the Plans. The strategic noise maps, together with background information, will be published on the Offaly County Council website and a period of formal public consultation held on the Noise Action Plan. Furthermore, engagement will be on-going through the elected representatives of Offaly County Council through the relevant Strategic Policy Committee and Local Area Committee meetings.

12.4 Prevention Measures

- Offaly County Council's Environment Section consults directly with the Planning Department advising on planning applications and enforcement of planning conditions in relation to noise emissions and have standard planning conditions in relation to the construction and operation stages of development for this purpose.
- In reviewing and advising on planning applications the Environment Section will give due consideration to the existing strategic noise maps and this Noise Action Plan and in particular any Areas of high amenity.
- implementation of these will bring indirect benefits for noise reduction through encouraging more sustainable modes of transport in combination with reduced traffic volumes. Key examples with noise benefit synergies are outlined in the Offaly County Climate Action Plan 2024-2029.

Appendix A: Glossary of Acoustic and Technical Terms

Term	Definition
AA	Appropriate Assessment
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
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
IA	Important Areas
ICAO	International Civil Aviation Organisation
IED	Industrial Emissions Directive 2010/75/EU on Industrial Emissions (Integrated Pollution Prevention and Control)

Term	Definition
ISO	International Standards Organisation
LA	Local Authority
OCC	Offaly County Council
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> $L_{den} = 10 * \log \frac{1}{24} \{ 12 * 10^{((L_{day})/10)} + 4 * 10^{((L_{evening}+5)/10)} + 8 * 10^{((L_{night}+10)/10)} \}$

Term	Definition
Noise Mapping (Input) Data	Two broad categories: (1) Spatial (e.g. road centre lines, building outlines). (2) Attribute (e.g. vehicle flow, building height – assigned to specific spatial data)
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
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
RESPF	Renewable Electricity Spatial Policy Framework
RMO	Road Management Office
RSA	Road Safety Authority
SEA	Strategic Environmental Assessment
SMA	Stone mastic asphalt
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

Term	Definition
WHO	World Health Organisation
ZPAP	Zero Pollution Action Plan

Appendix B: Bibliography and references

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Appendix C: Strategic Noise Maps

Noise Maps Priority Important Areas

Figure 1.8a – Tullamore (Priority Important Area Lden)

Figure 1.8b – Tullamore (Priority Important Area Lnight)

Figure 2.1a – Birr (Priority Important Area Lden)

Figure 2.2a – (Birr Priority Important Area Lnight)

Figure 3.4a – Edenderry (Priority Important Area Lden)

Figure 3.4b – Edenderry (Priority Important Area Lnight)

Noise Maps Offaly County APA

Figure 1a – County Boundary – Bypass Lden

Figure 1b – County Boundary – Bypass Lnight

Figure 1.1a – Tullamore Bypass Lden

Figure 1.1b – Tullamore Bypass Lnight

Figure 1.2a – Charleville Road Lden

Figure 1.2b – Charleville Road Lnight

Figure 1.3a – Tullamore Bypass – County Boundary R443 Lden

Figure 1.3b – Tullamore Bypass – County Boundary R443 Lnight

Figure 1.4a – Church Road R420 Lden

Figure 1.4b – Church Road R420 Lnight

Figure 1.5a – Bachelors Walk Lden

Figure 1.5b – Bachelors Walk Lnight

Figure 1.6a – Clonminch R443 Lden

Figure 1.6b – Clonminch R443 Lnight

Figure 1.7a – Tullamore Bypass – Geashill R420 Lden

Figure 1.7b – Tullamore Bypass – Geashill R420 Lnight

Figure 1.8c – Arden Road Lden

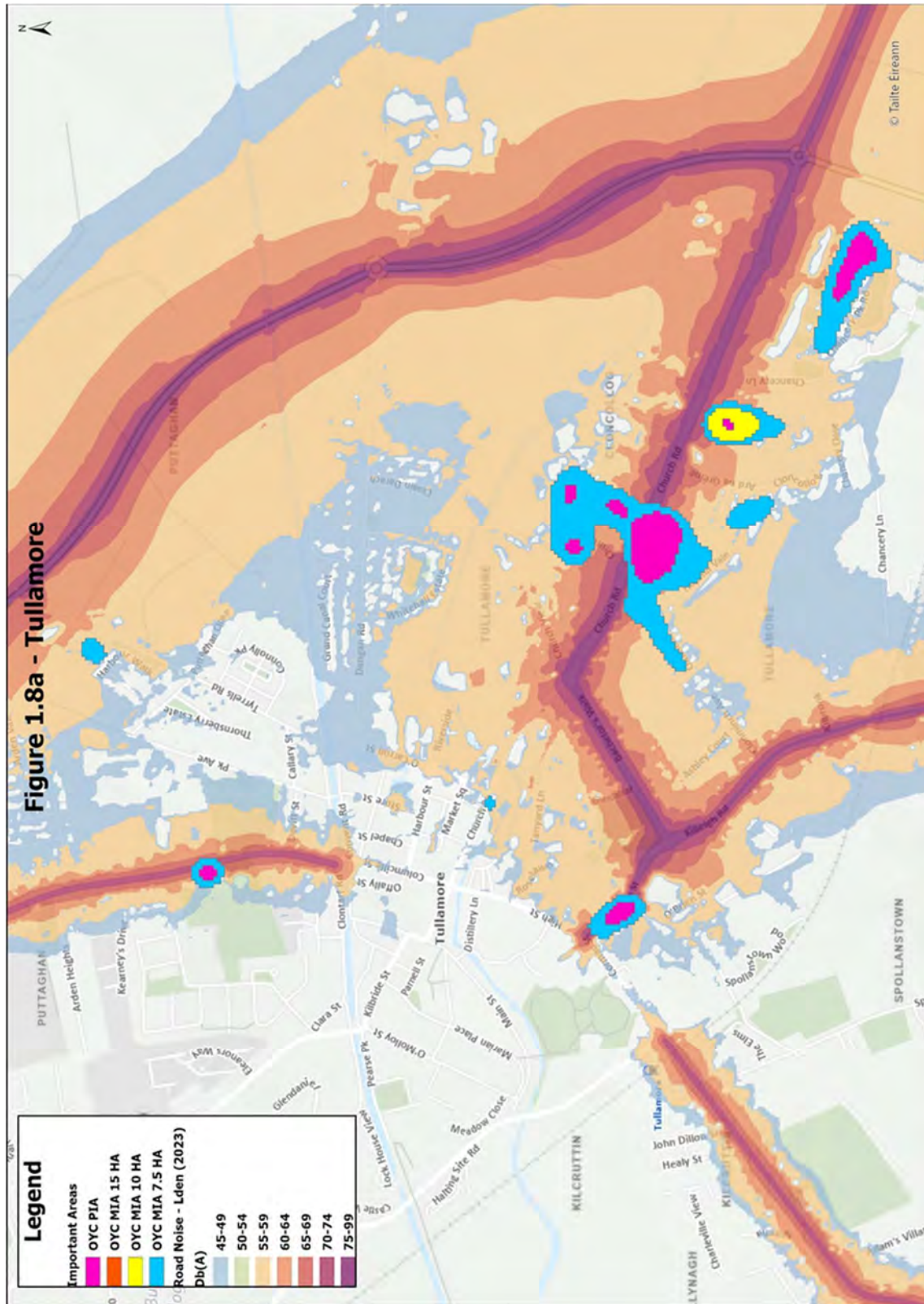
Figure 1.8d – Arden Road Lnight

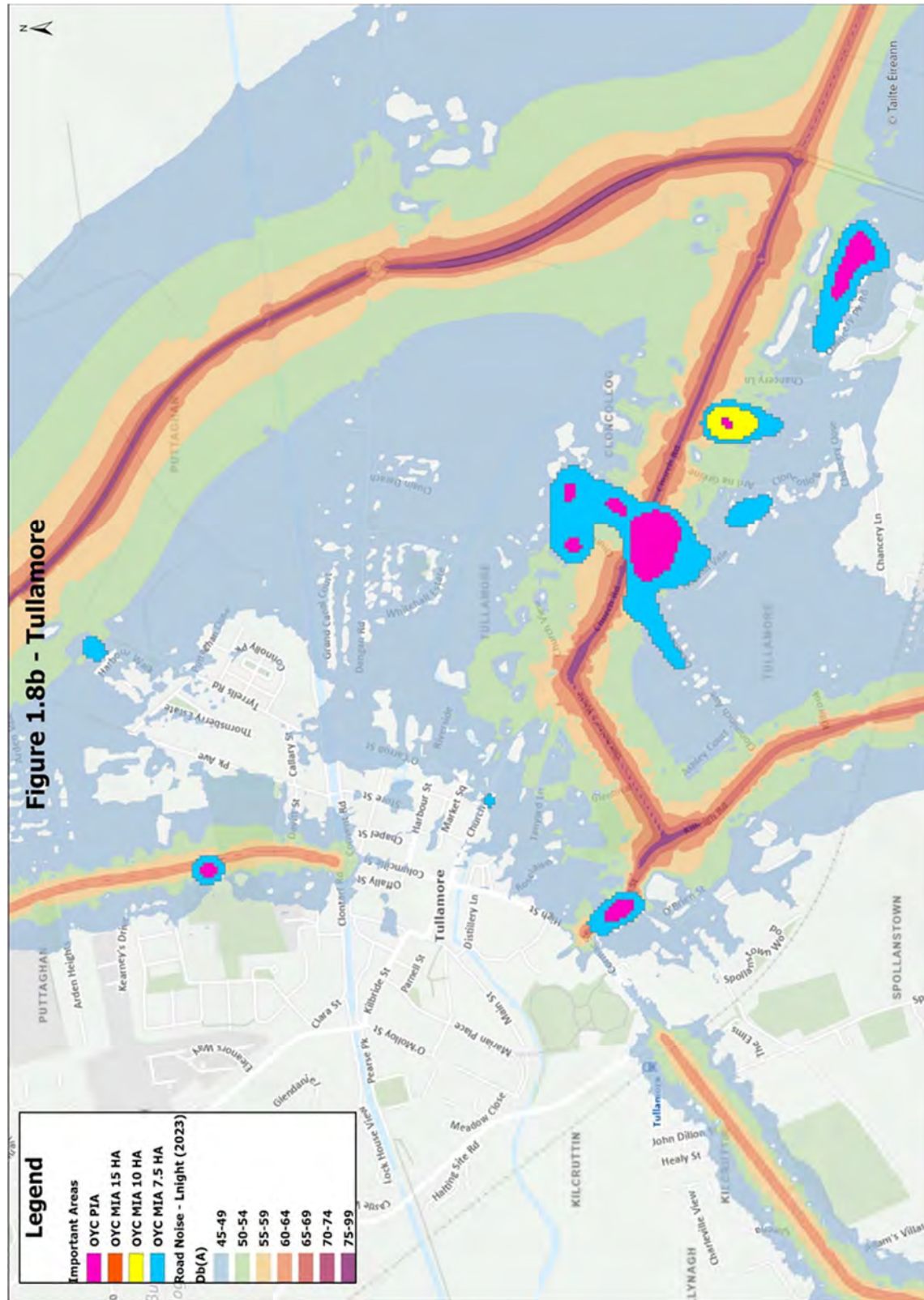
Figure 2a – Birr N2 Lden

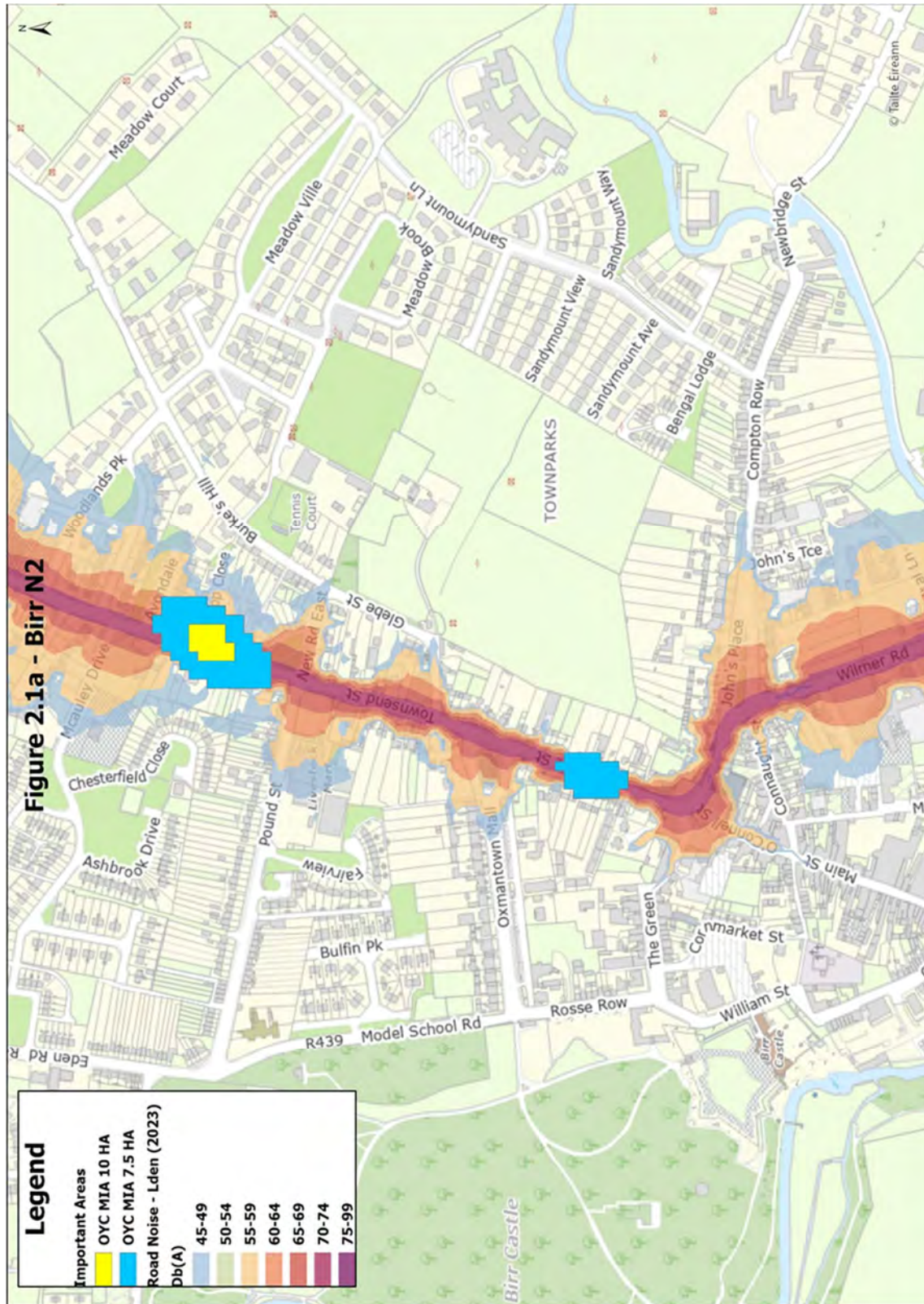
Figure 2b – Birr N2 Lnight

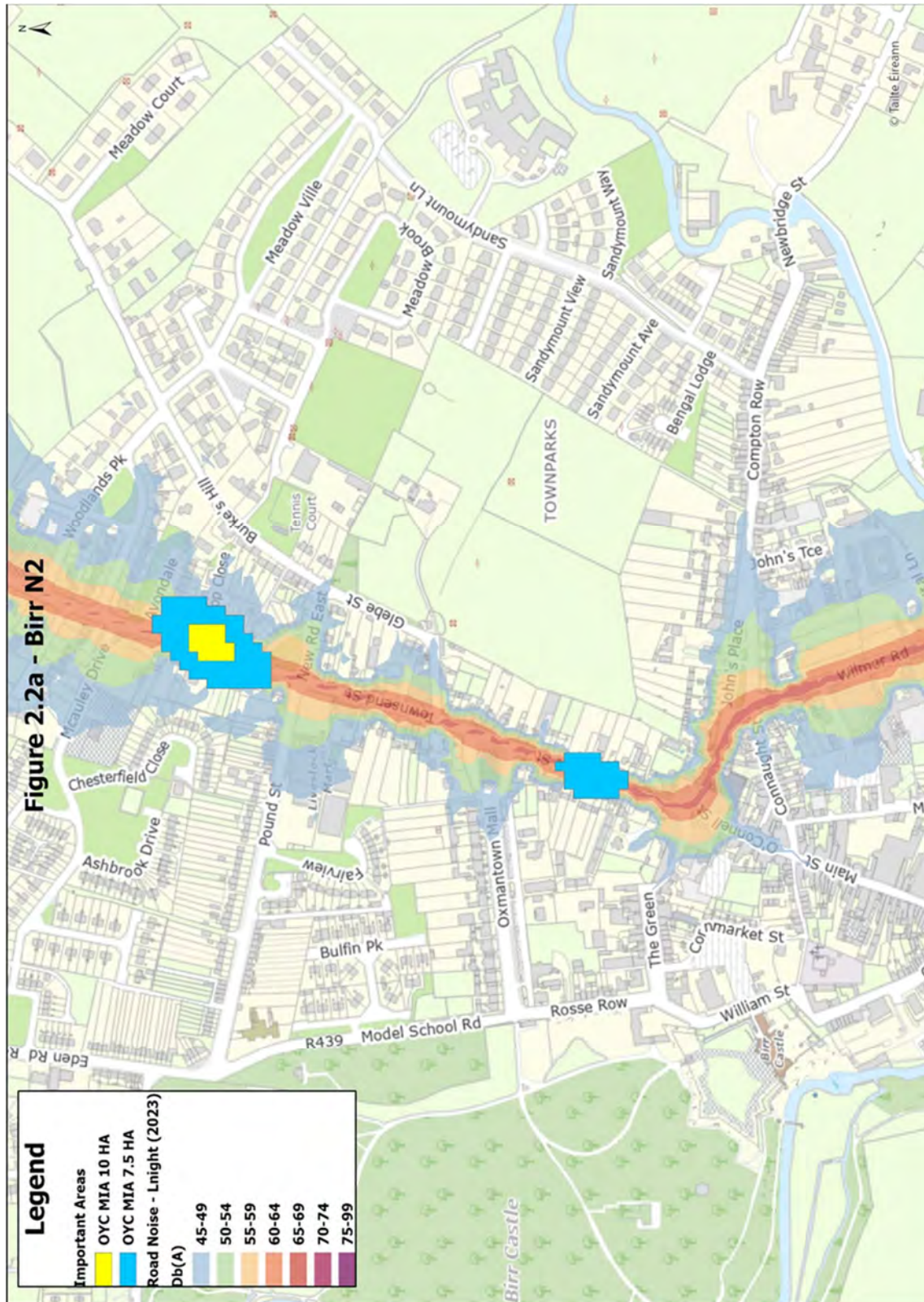
Figure 4a – M6 Motorway Lden

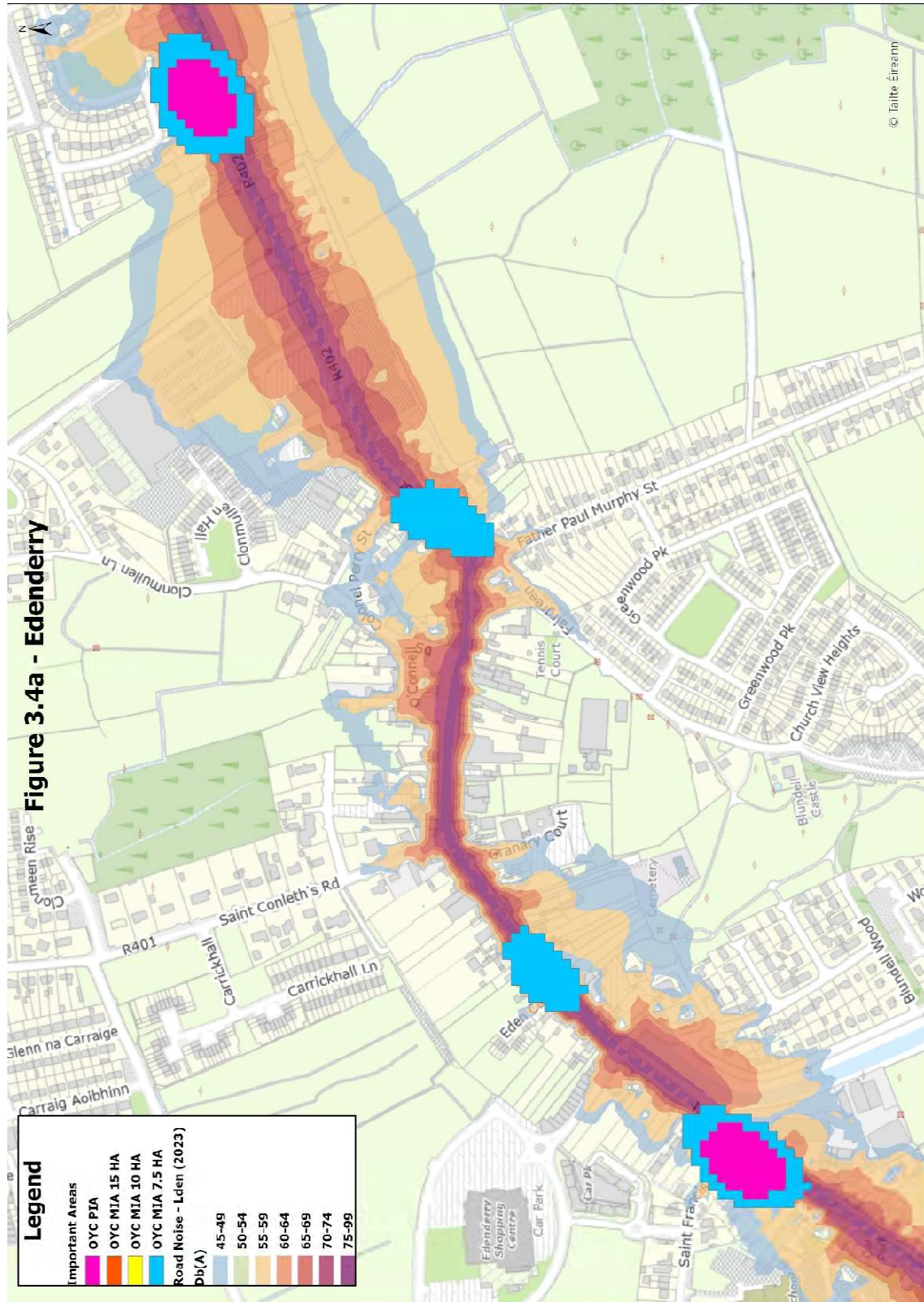
Figure 4b – M6 Motorway Lnight



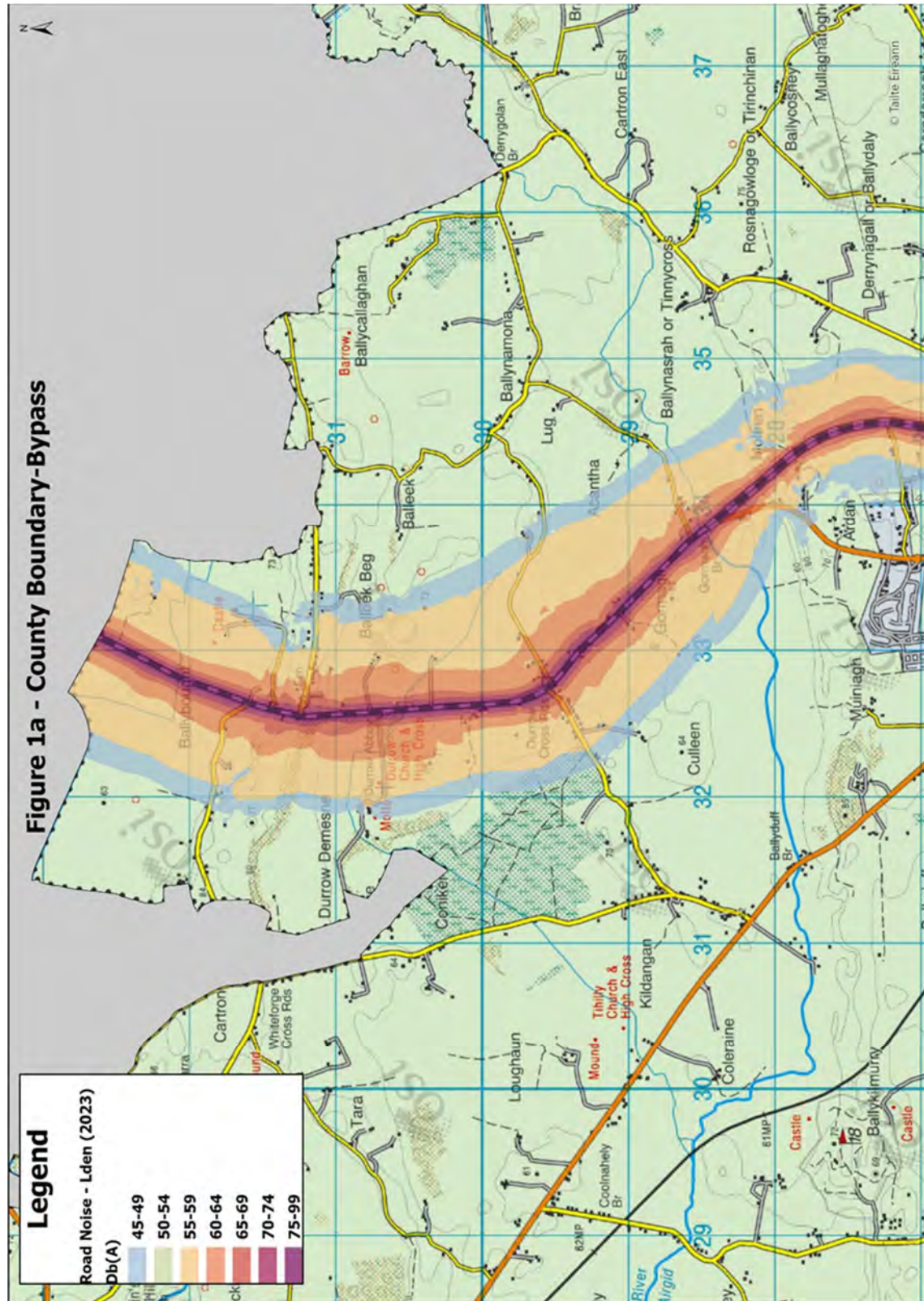


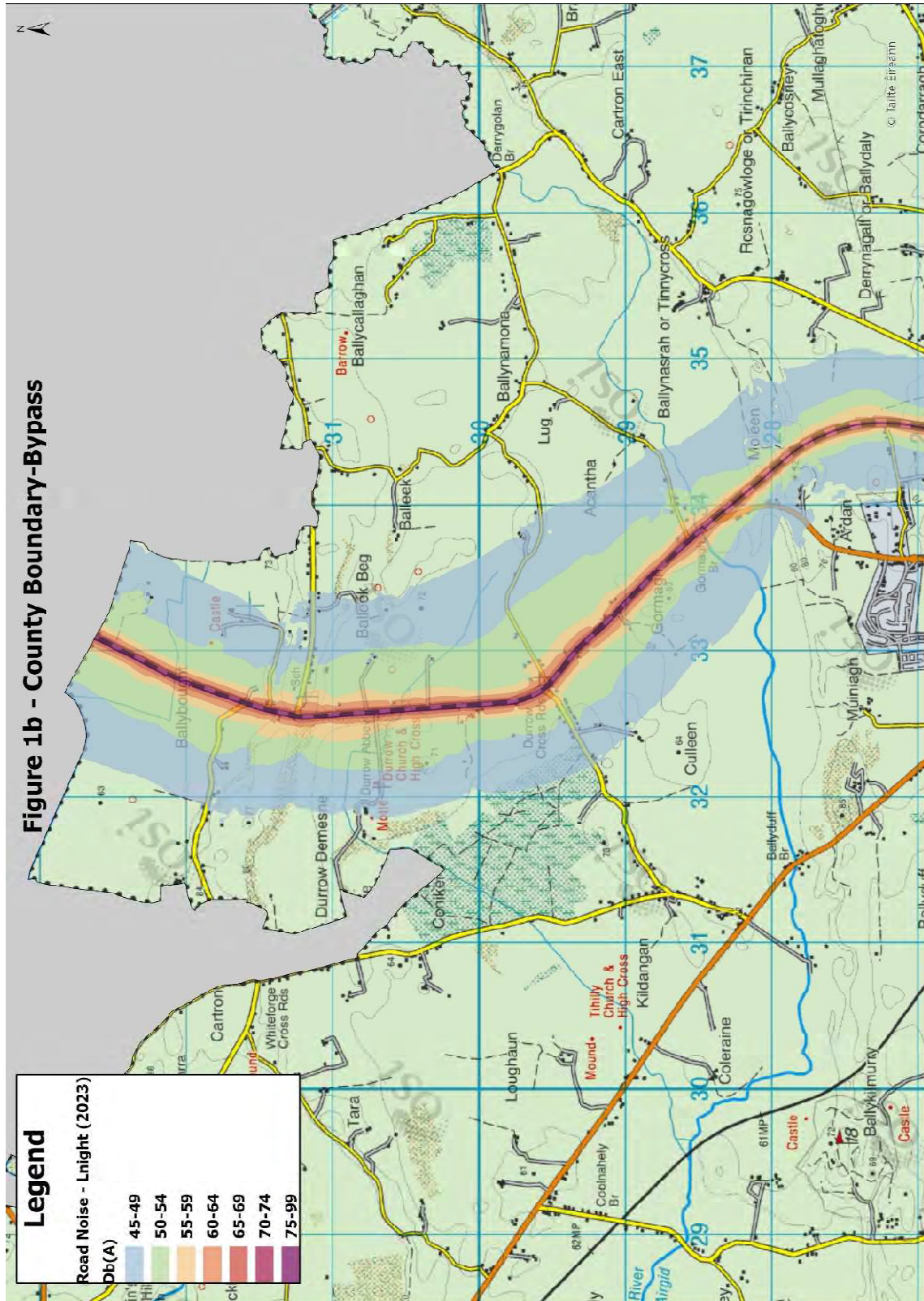


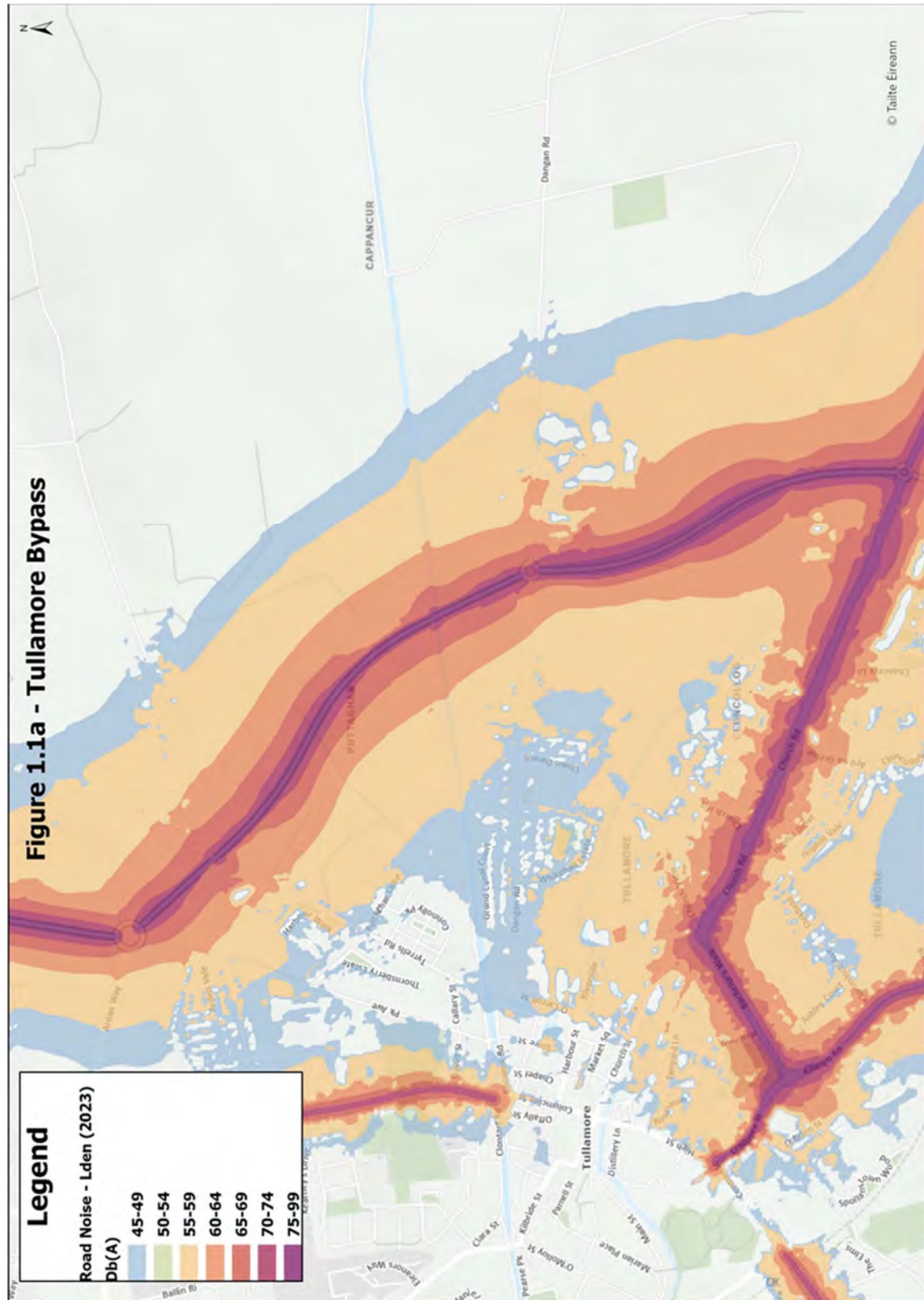


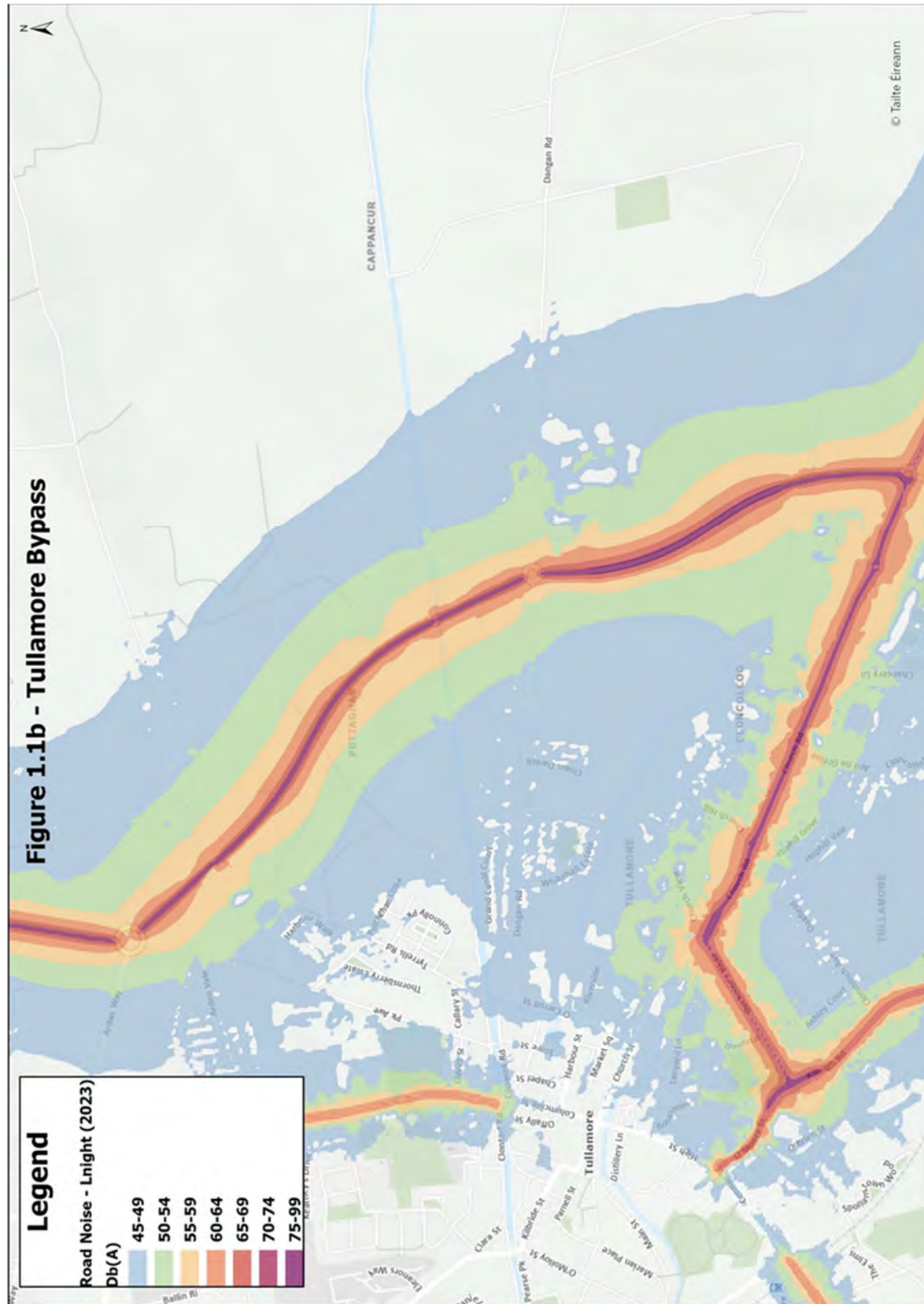


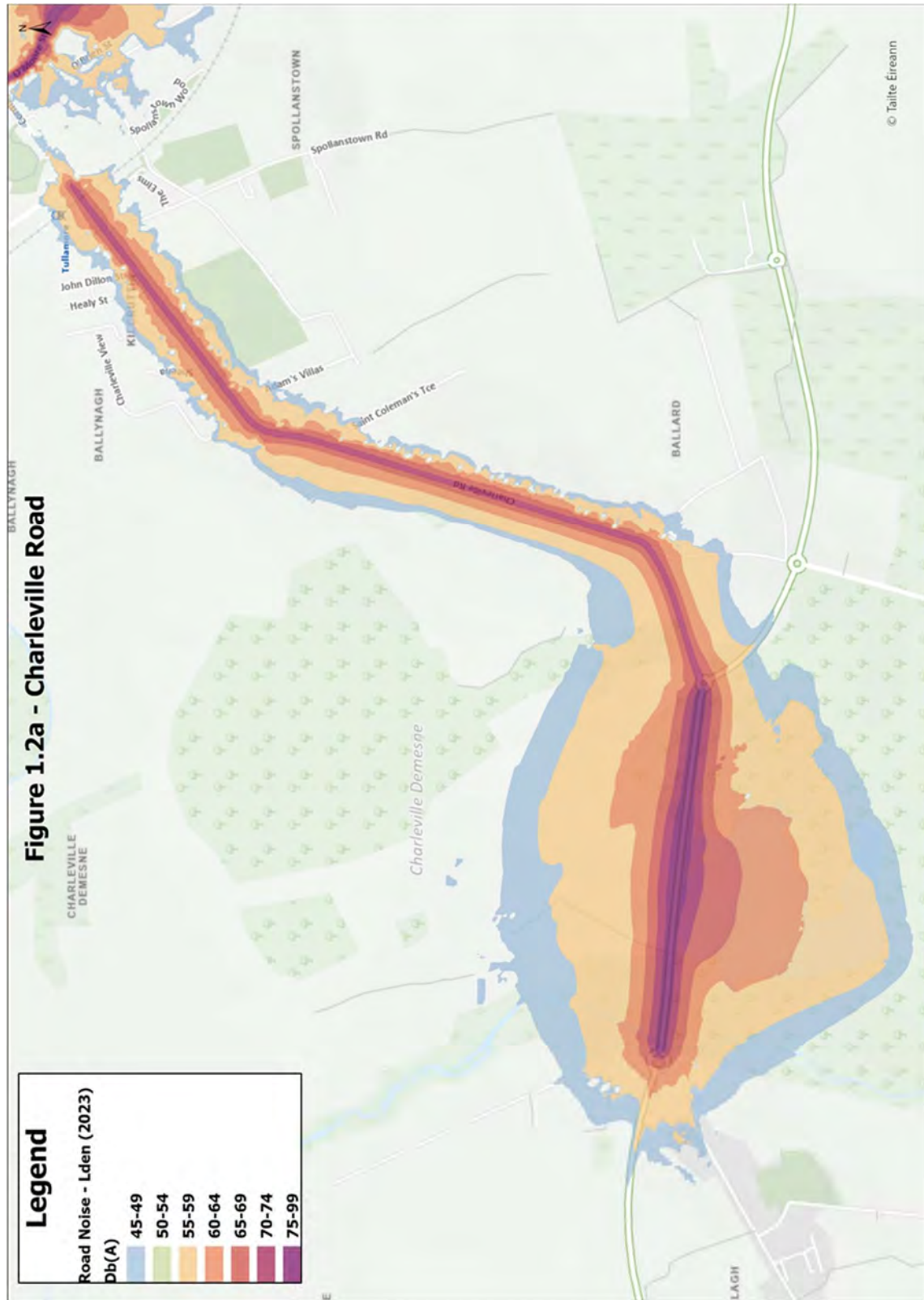


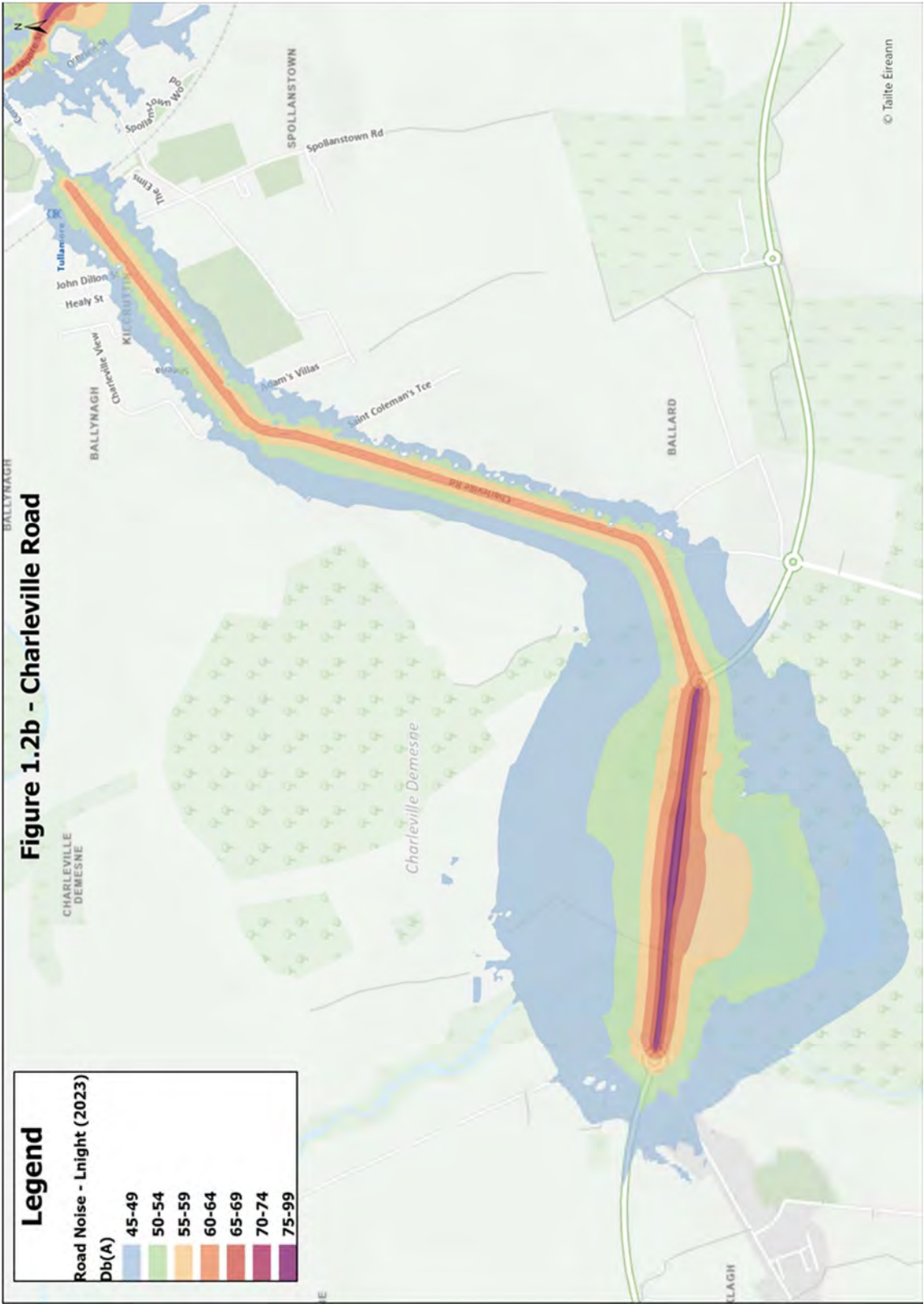


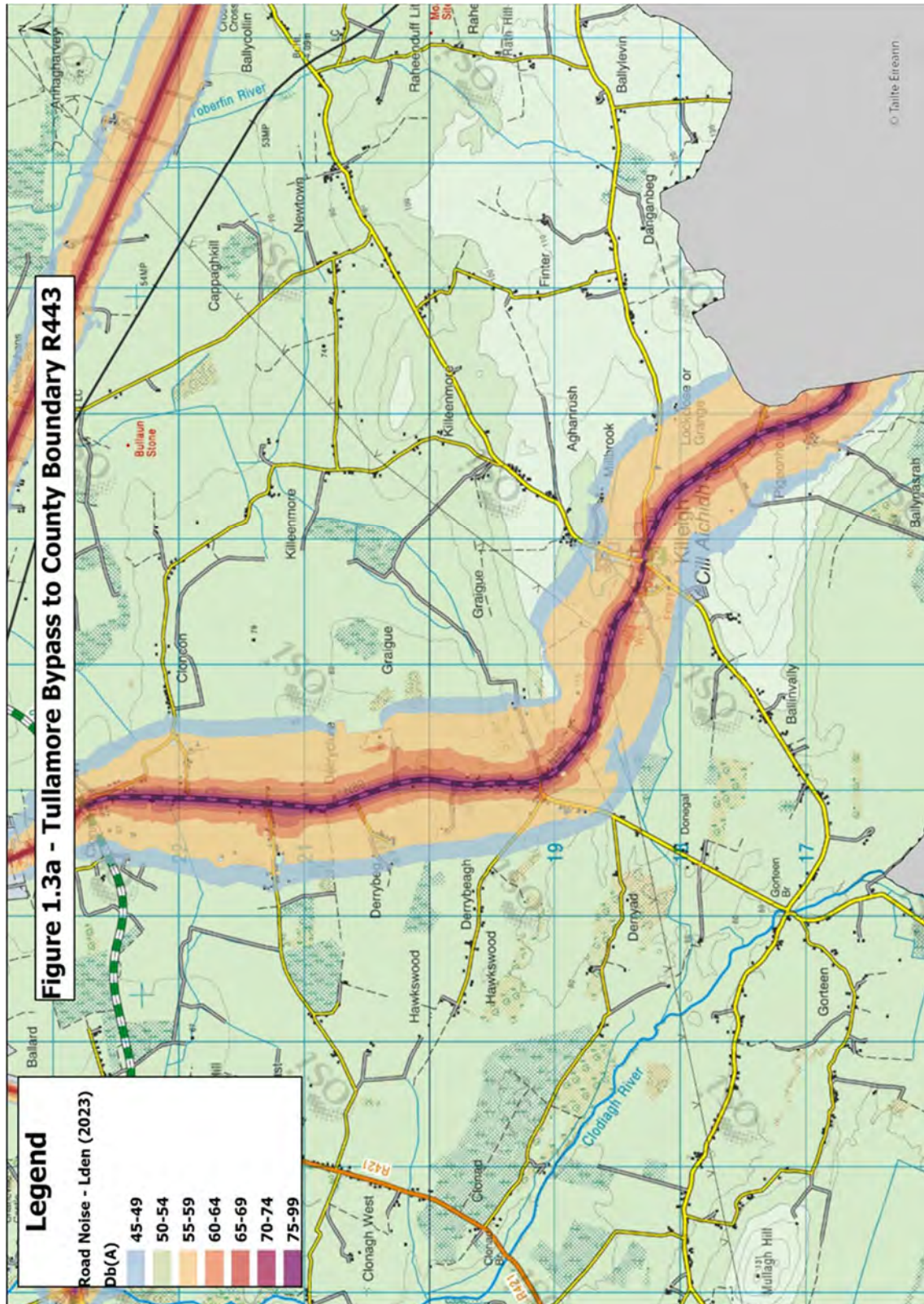


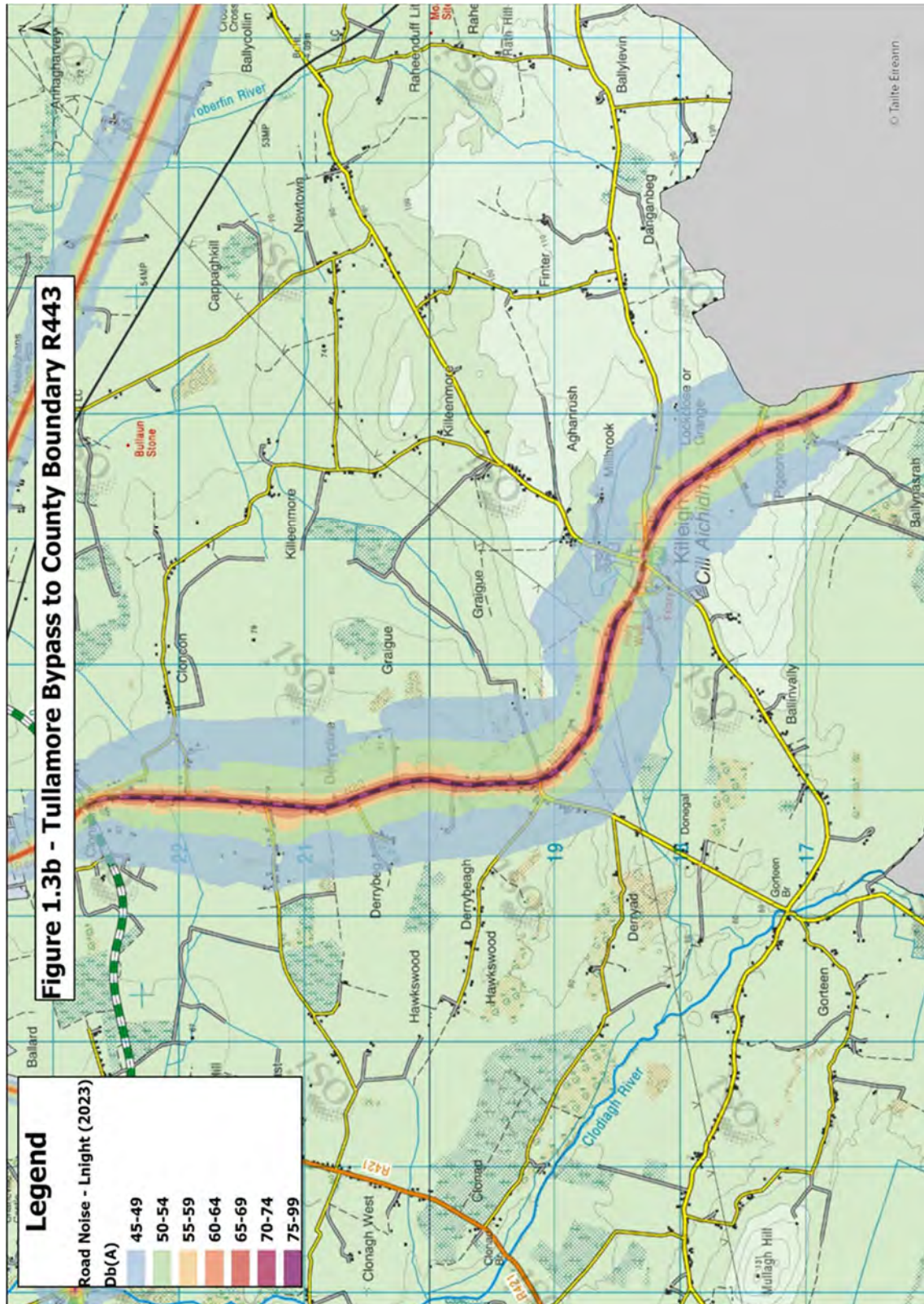


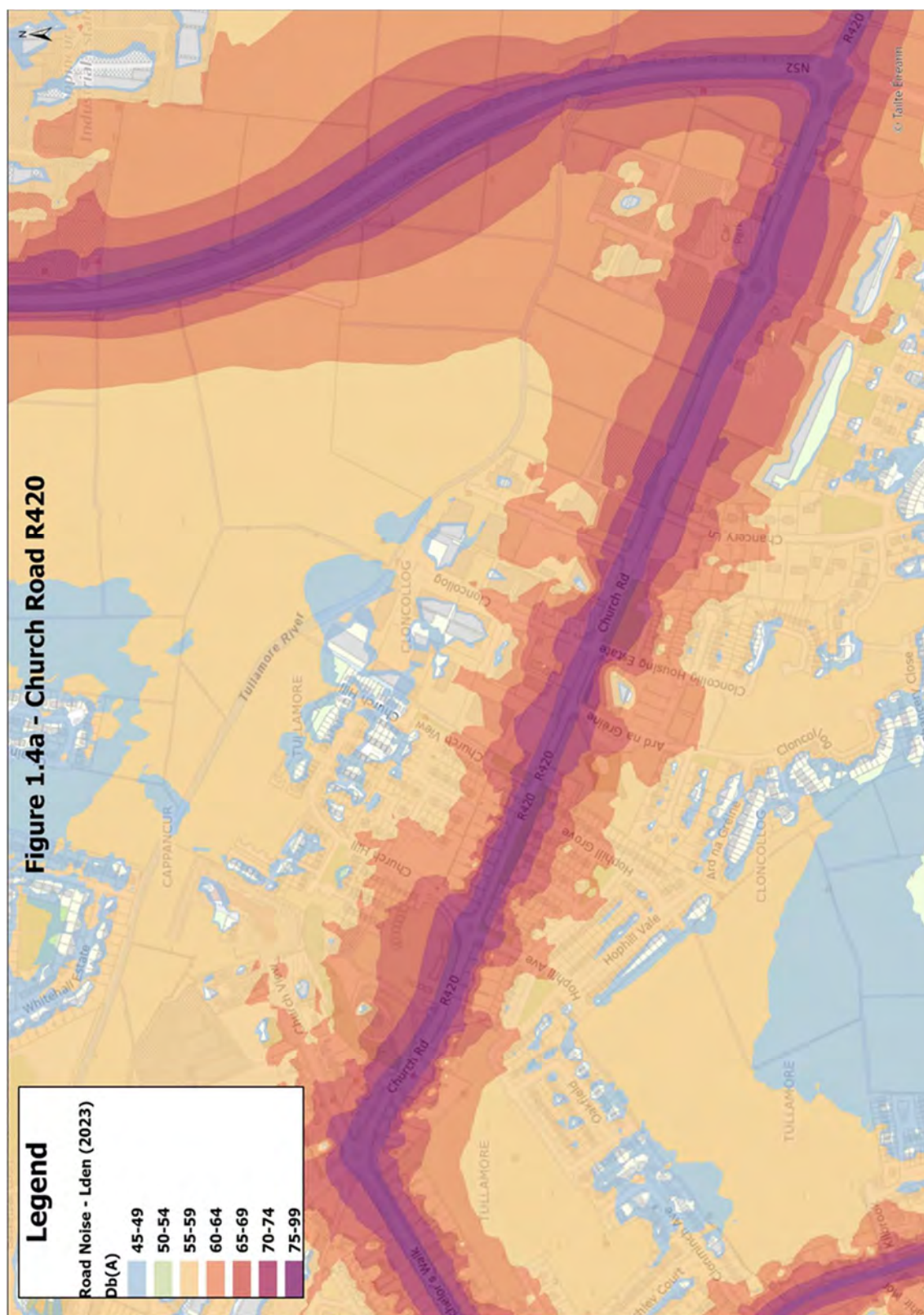


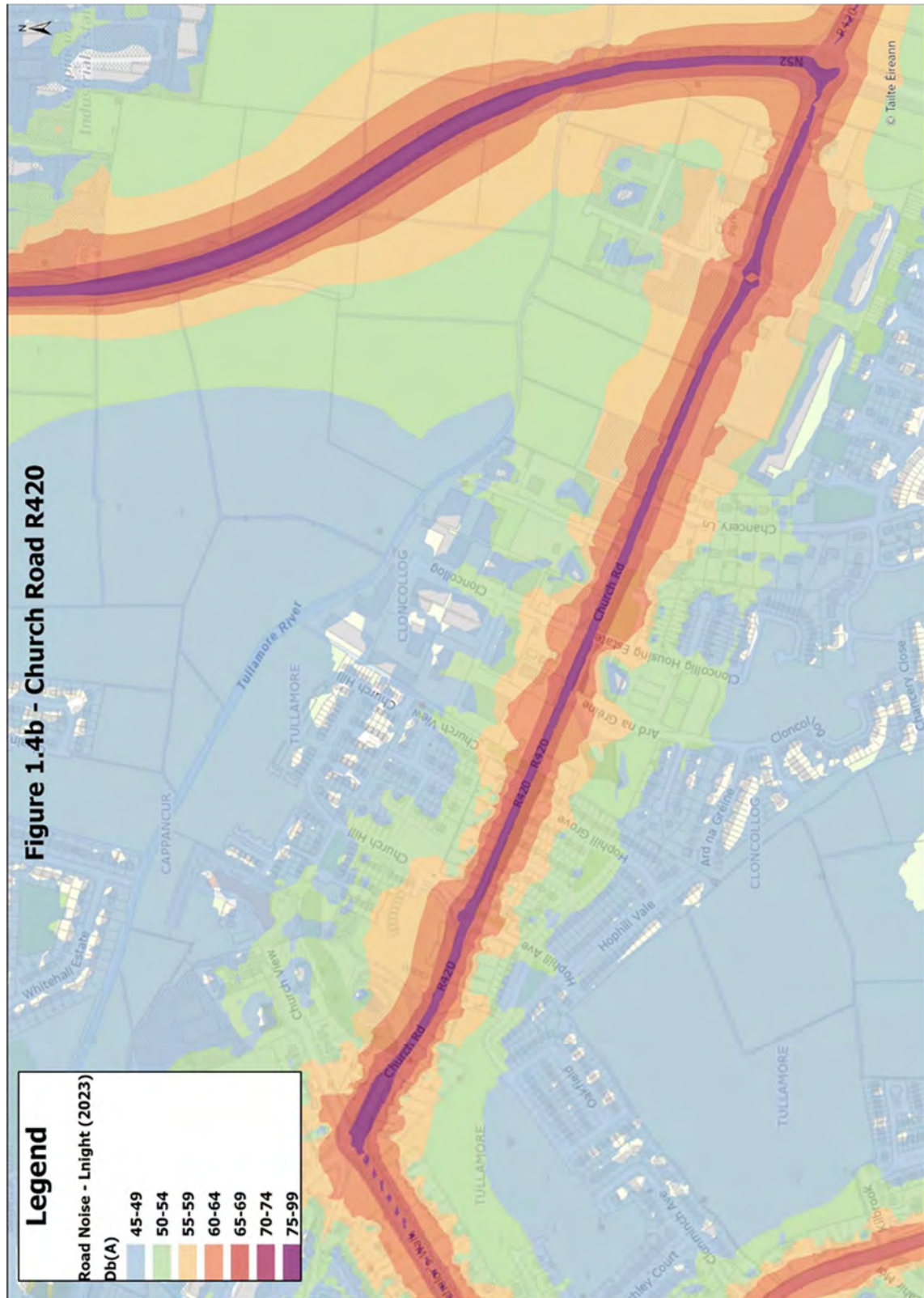


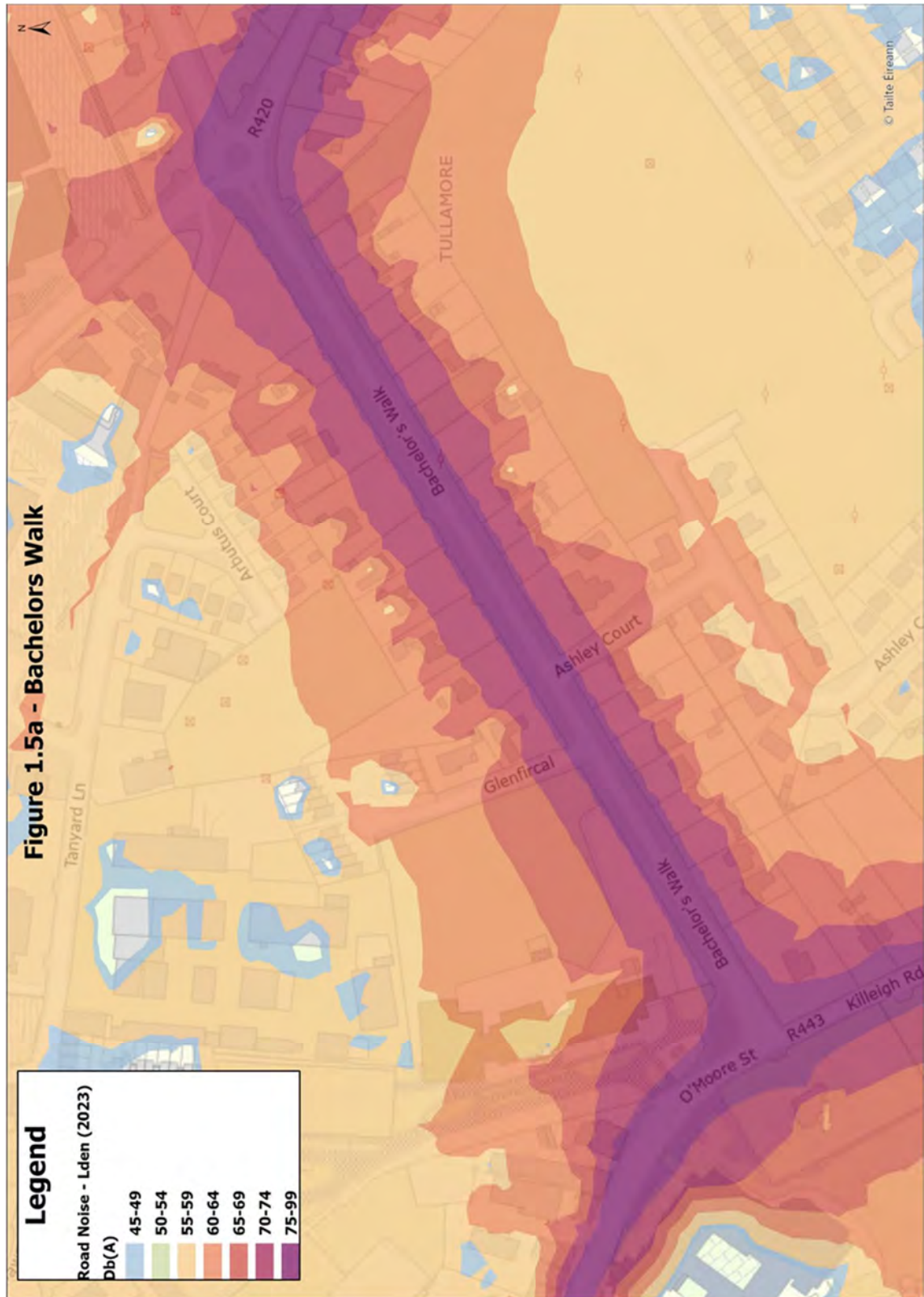


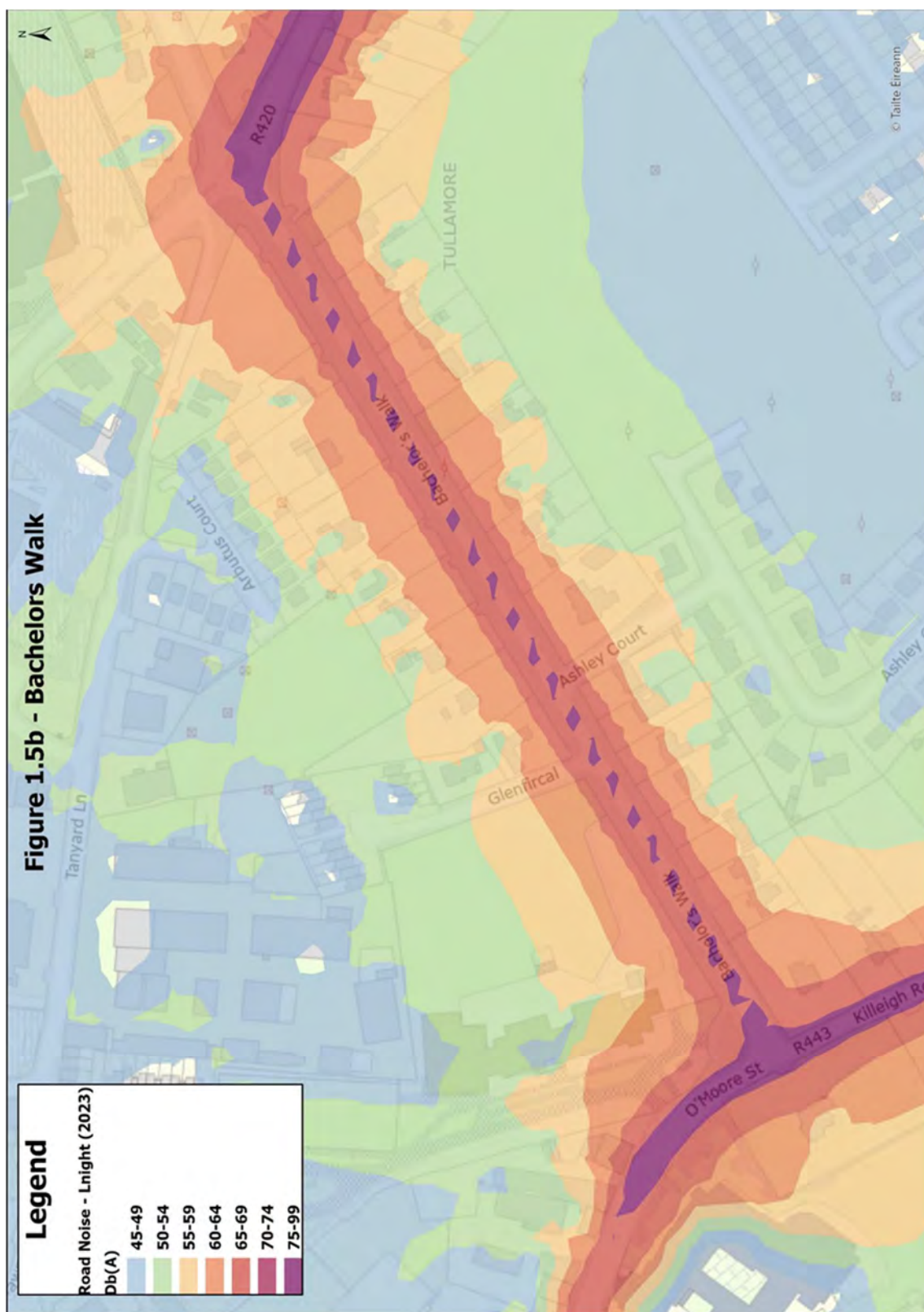


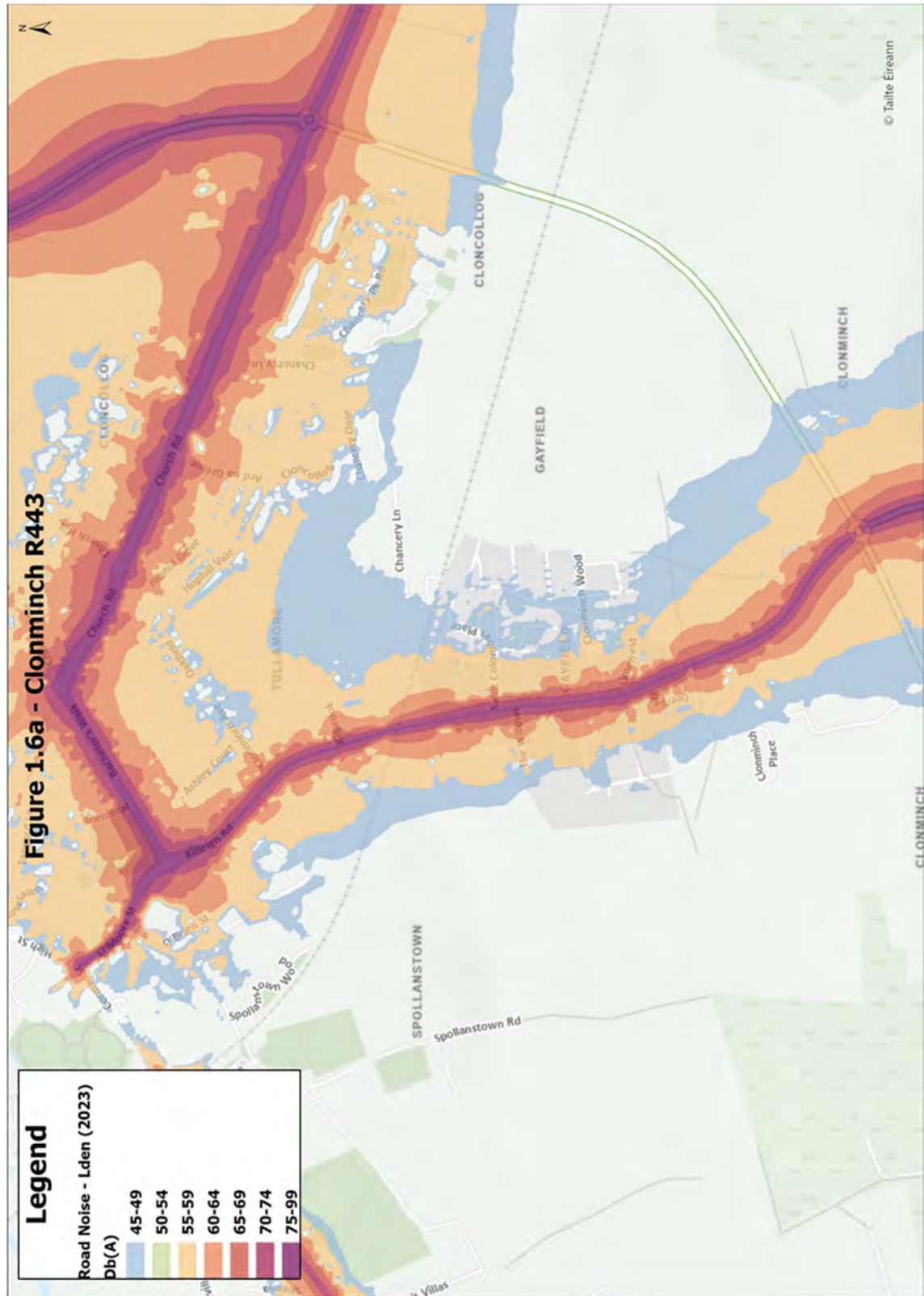




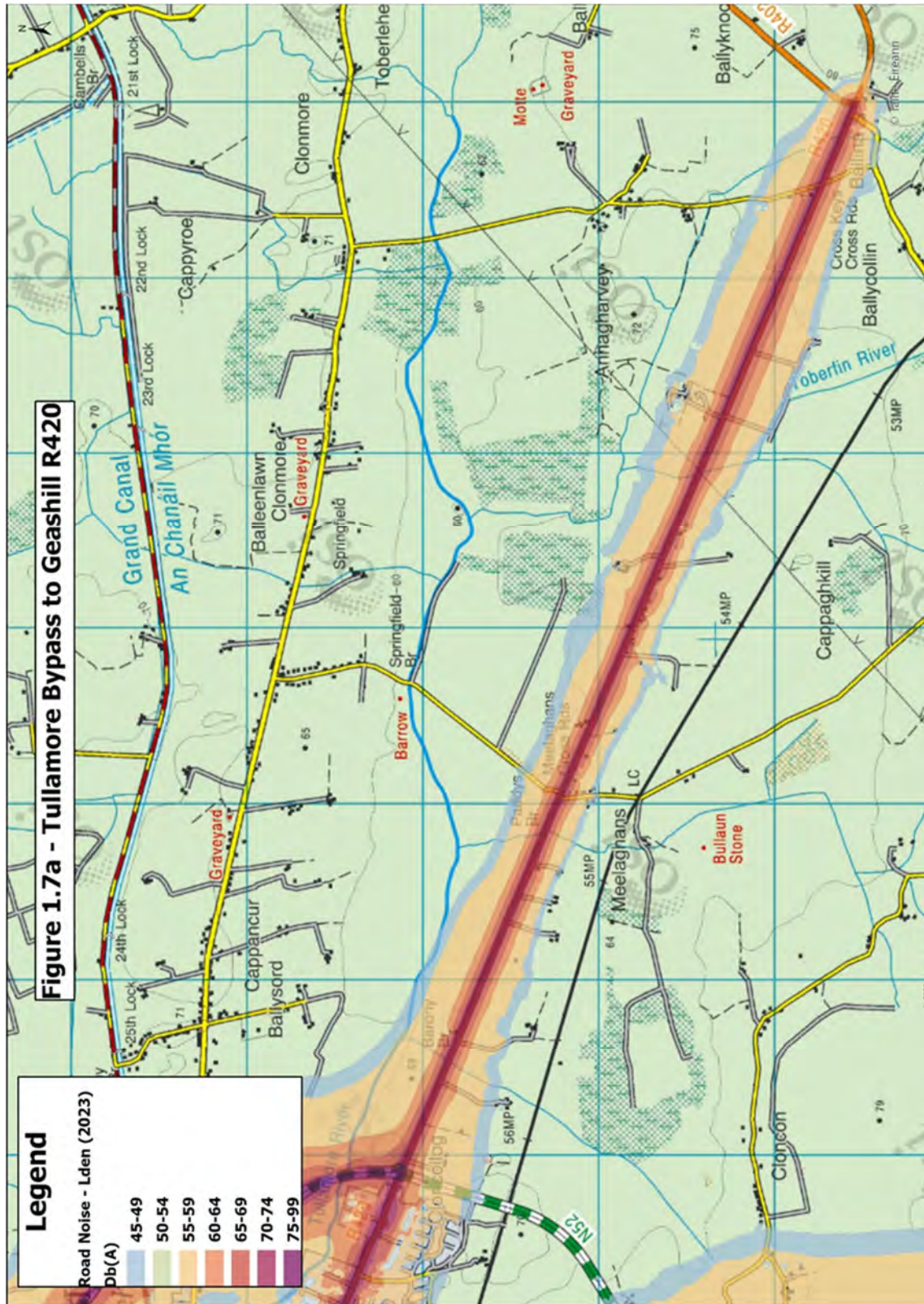


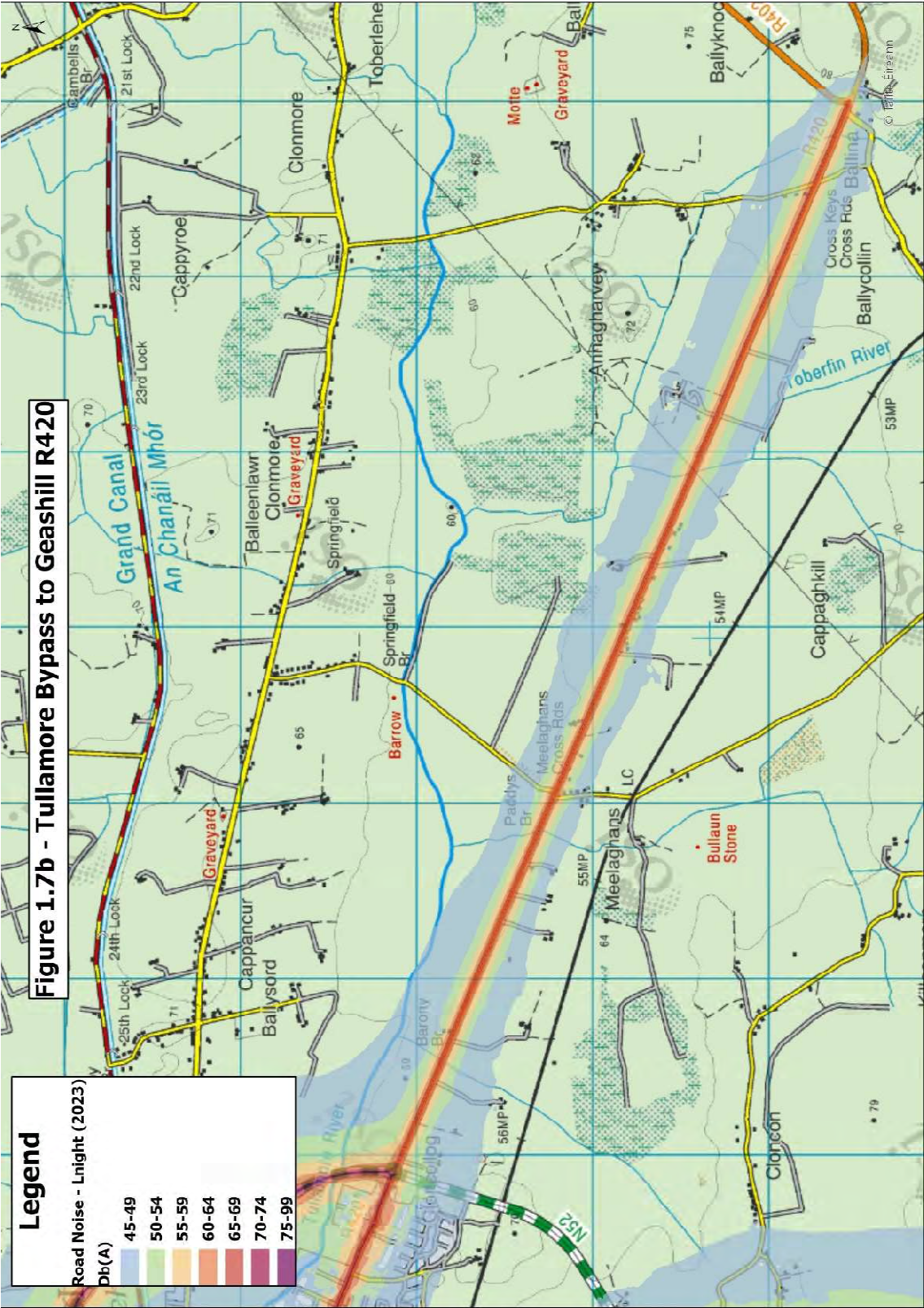


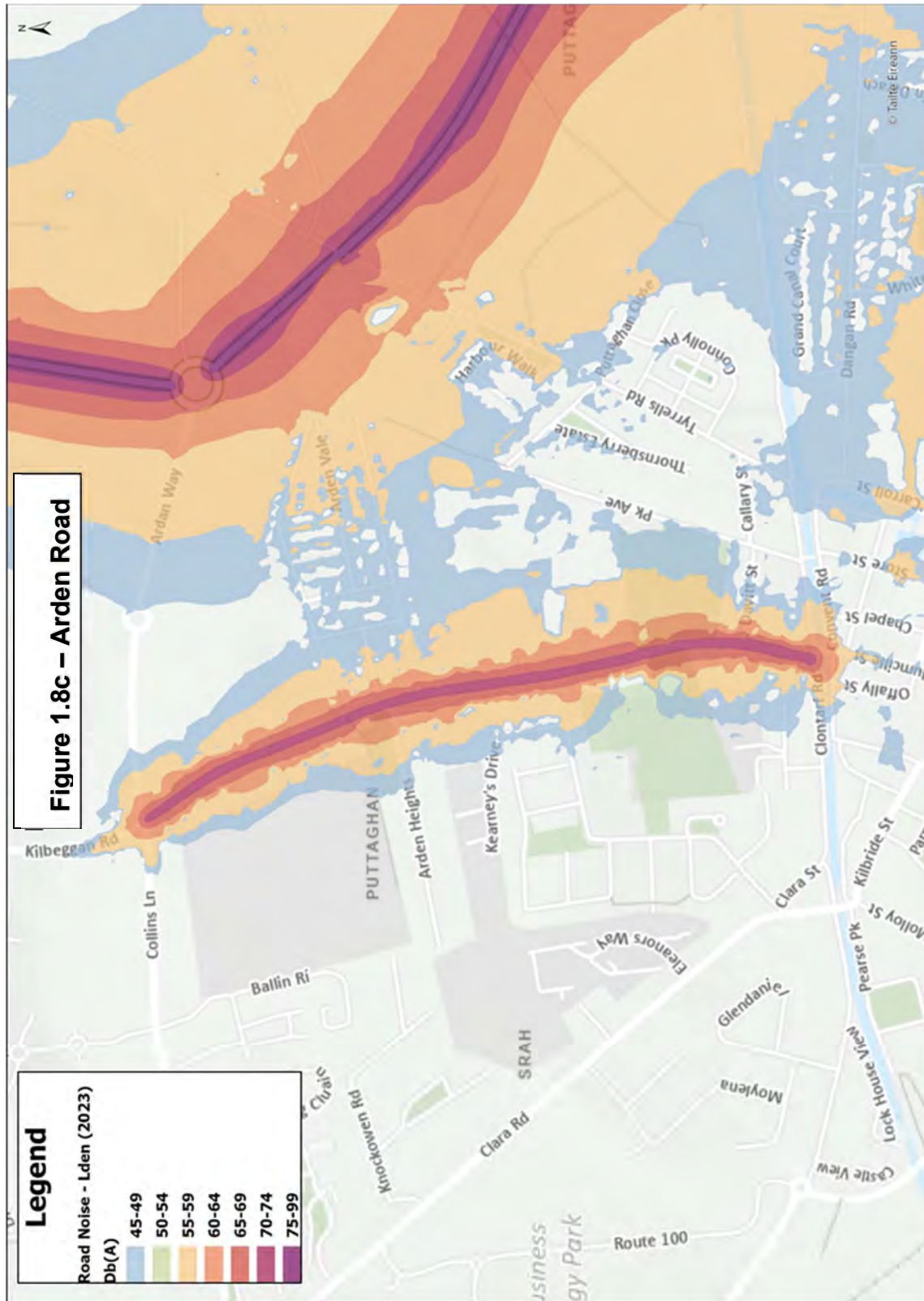


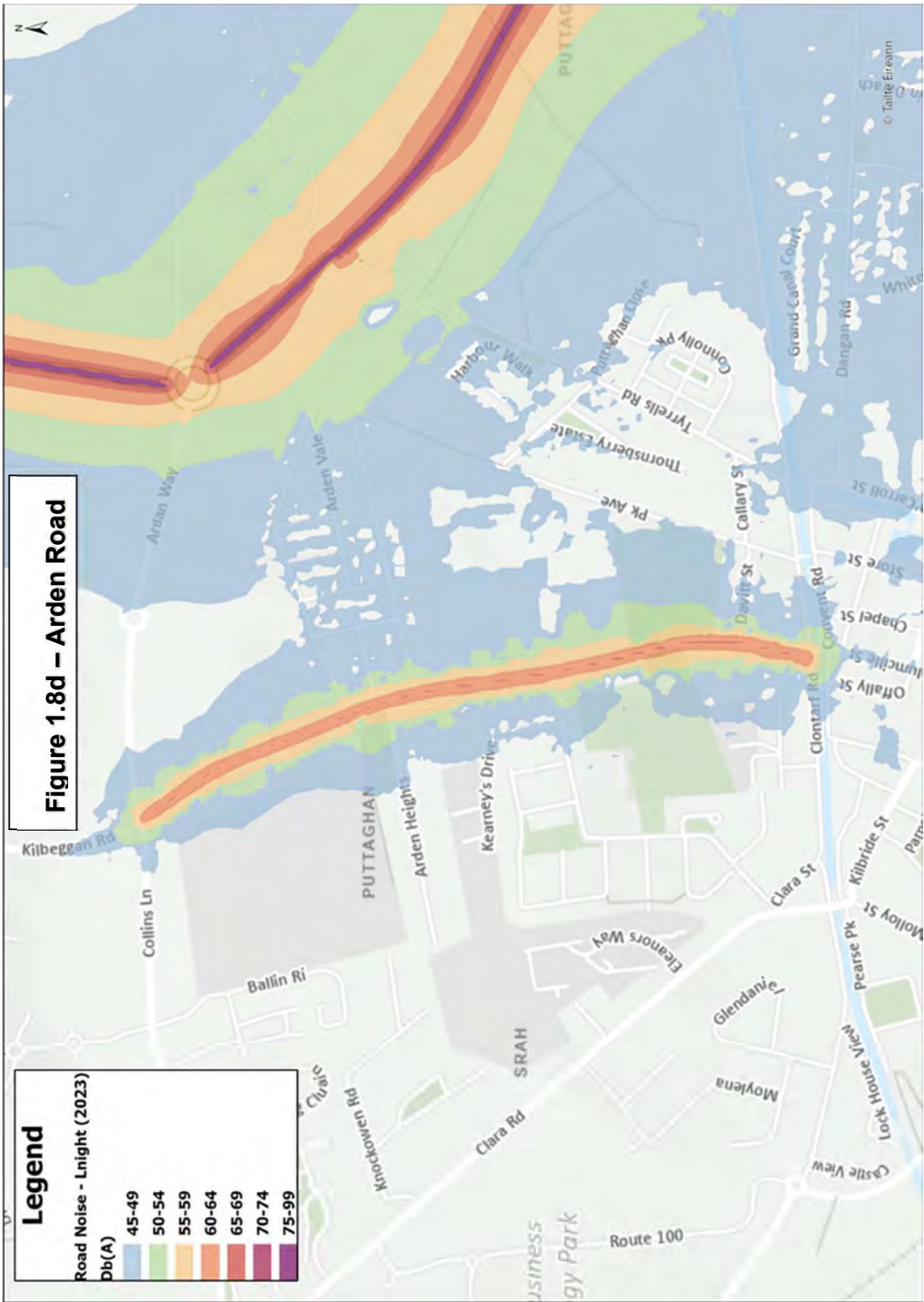


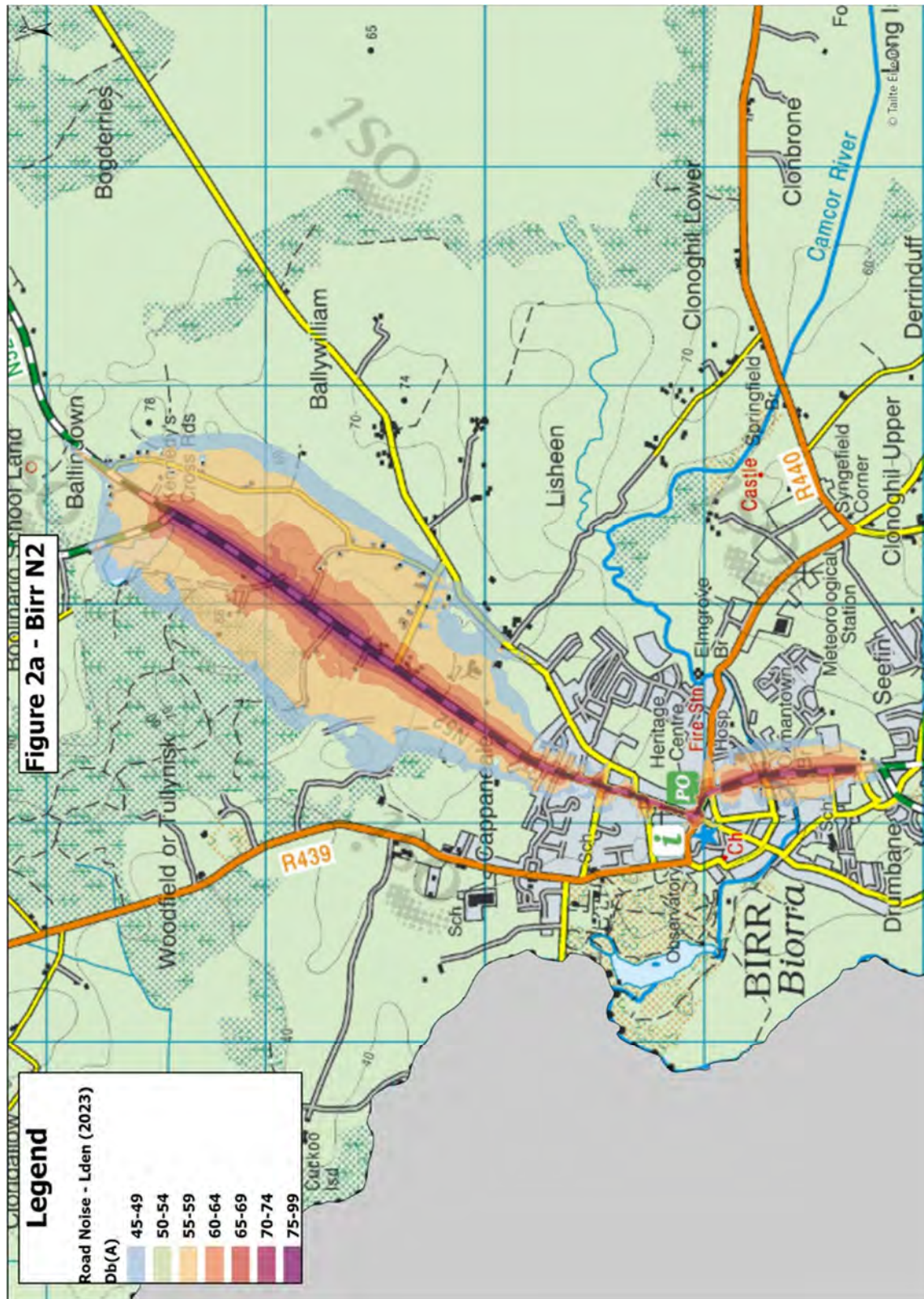


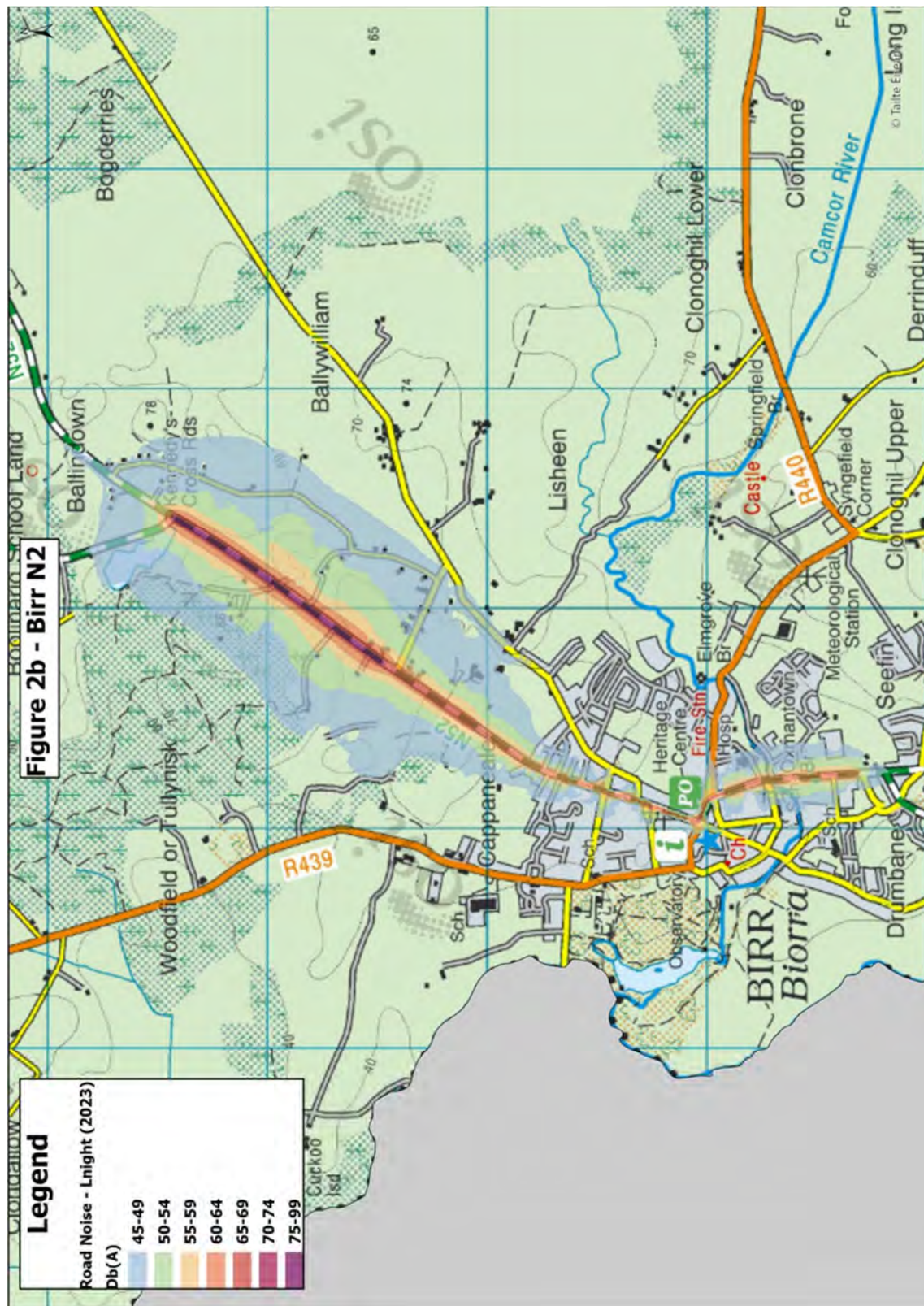


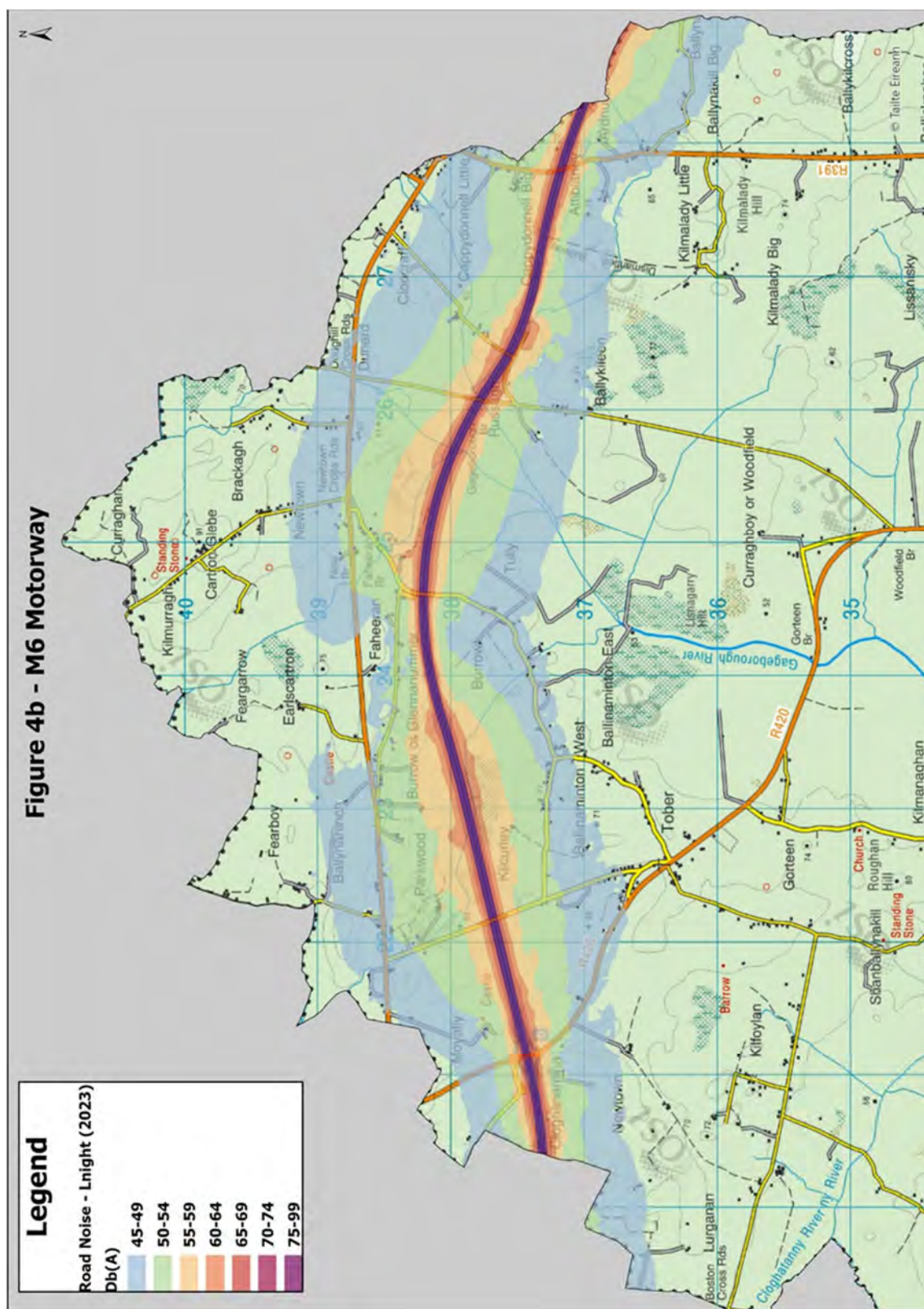












Appendix D: Public Consultation:

Offaly County Council have prepared a Noise Action Plan for implementation from 2024-2028 for all major roads in the County.

The public consultation phase will be open from 9 a.m. Friday 24th of May to the 5th of July 2024 with the plan available for inspection at the following locations:

- Offaly County Council, Áras an Chontae, Charleville Road, Tullamore
(Mon-Fri, 9.30a.m.-4p.m.).
- Birr Town Council, Civic Offices & Library, Wilmer Road, Birr,
(Mon-Fri, 9.30a.m.-4p.m.).
- Edenderry Town Council, Market Square, Edenderry
(Mon-Fri, 9.30a.m.-4p.m.).

Notice of the public consultation will be advertised in the Offaly Express and Offaly Topic for two consecutive weeks.

In addition, the plan may be accessed online at <https://www.offaly.ie/noise-action-plan-2024-2028>

Submissions relating to the administrative area of Offaly County Council can be by email to noiseplan@offalycoco.ie or in writing to:

Mr. Tom Shanahan, Director of Services for Environment
Noise Action Plan submission,
Environmental, Climate Action & Rural Water,
Offaly County Council,
Áras an Chontae,
Charleville Road,
Tullamore
Co. Offaly, R35 F893

Other contact details:

Tel: +353 57 9357403

Email: customerservices@offalycoco.ie

The closing date for submissions or observations on the plan is 4 p.m. Friday 5th July 2024.

Appendix E: Recommended colour scheme for presentation of noise level bands

Summary Exposure Statistics for Action Planning Area

The number of people, exposed to traffic noise pollution, at each 5db band; were estimated by TII within the county using the methods outlined in Section 8.0 and illustrated in Table E-1 below.

Table E-1: Recommended colour bands for presentation of noise contour results

Band	Sample	Colour	R	G	B	C	M	Y	K	Hex
30 – 34		dark blue-green	130	166	173	53	23	28	4	#82A6AD
35 – 39		blue-green	160	186	191	42	18	21	2	#A0BABF
40 – 44		light blue-green	184	214	209	33	6	19	0	#B8D6D1
45 – 49		light green	206	228	204	24	1	25	0	#CEE4CC
50 – 54		yellowish green	226	242	191	16	0	33	0	#E2F2BF
55 – 59		light orange	243	198	131	5	26	54	0	#F3C683
60 – 64		orange	232	126	77	3	61	71	0	#E87E4D
65 – 69		dark orange	205	70	62	15	84	74	3	#CD463E
70 – 74		magenta	161	26	77	32	98	47	14	#A11A4D
75 – 79		purple	117	8	92	58	100	26	17	#75085C
80 - 99		dark purple	67	10	74	79	100	37	39	#430A4A

The model took account of information such as traffic flow data, vehicle type data, traffic speed, road barriers and features which affect the spread of noise such as buildings and the shape of the ground (e.g. earth mounds), and whether the ground is acoustically absorbent (e.g. fields) or reflective (e.g. concrete or water).

Appendix F: Indicative List of Priority Important Area (PIA) Summary – Offaly County APA

An indicative list of the Priority Important Areas is summarised in Table F1 below and are based upon those Most Important Areas with the highest total population within the Most Important Areas that have been generated using the EPA Guidance density criterion ('HA Threshold') 15 or more people per 100m². Where required, this is extended down to the 10 and/or 7.5 HA Threshold density criterion. The location of the PIA's are shown in Table F1 below.

Table F1 : Indicative List of Priority Important Area (PIA) Summary – Offaly County Council

PIA	Total Population in PIA	Source	MIA Criterion (people HA per 100m ²)	Area (m ²)	Number of People			Road 53dB L _{den}	Road 45dB L _{night}
					HA	HSD	IHD		
OYC_1	10.39	ROAD	15	700	1.62	0.5	0	10.39	10.39
OYC_2	118.06	ROAD	10	10,000	11.86	3.31	0	108.35	101.57
OYC_3	117.9	ROAD	10	21,500	28.68	9.19	0.03	117.9	117.9
OYC_4	48.46	ROAD	10	6,200	13.62	4.62	0.02	48.46	48.46
OYC_5	39.41	ROAD	10	1,600	10.11	3.31	0.01	39.41	39.41
OYC_6	30.69	ROAD	10	5,700	8.77	2.93	0.01	30.69	30.69
OYC_7	24.84	ROAD	10	3,500	8.49	2.99	0.01	24.84	24.84
OYC_8	20.12	ROAD	10	1,500	2.94	0.88	0	20.12	20.12
OYC_9	18.88	ROAD	10	1,400	1.68	0.48	0	15.73	15.73
OYC_10	11.5	ROAD	10	1,900	1.68	0.51	0	11.5	11.5

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

Table F2: MIA & PIA: Dataset Schema**Attribute****Description**

ID	MIA identification number
HA_THRSHLD	The threshold value used to generate the MIA/PIA polygon from the highly annoyed heatmap
SOURCE	Details whether the MIA/PIA is based on the highly annoyed statistics from the results of the road traffic noise model ('ROAD') or railway noise model ('RAIL')
RANK_POP	Ranks the MIA in terms of total population within the MIAs
TOT_POP	The total population within the MIA
RANK_HA_N	Ranks the MIA in terms of total number of people highly annoyed within the MIAs
TOT_HA_N	The total number of people highly annoyed as a result of road traffic or railway noise (as detailed within the SOURCE attribute) within the MIA
RANK_HSD_N	Ranks the MIA in terms of total number of people highly sleep disturbed within the MIAs
TOT_HSD_N	The total number of people highly sleep disturbed within the MIA as a result of road traffic or railway noise (as detailed within the SOURCE attribute)
RANK_IHD_N	Ranks the MIA in terms of total number of people at risk of ischemic heart disease within the MIAs
TOT_IHD_N	The total number of people at risk of ischemic heart disease as a result of road traffic noise (note – IHD is not calculated for railway noise) within the MIA
RD_LDN5559	The total number of people within the MIA exposed to road traffic noise of 55-59 dB L_{den}
RD_LDN6064	The total number of people within the MIA exposed to road traffic noise of 60-64 dB L_{den}
RD_LDN6569	The total number of people within the MIA exposed to road traffic noise of 65-69 dB L_{den}
RD_LDN7074	The total number of people within the MIA exposed to road traffic noise of 70-74 dB L_{den}
RD_LDN75+	The total number of people within the MIA exposed to road traffic noise of ≥ 75 dB L_{den}
RD_LNT5054	The total number of people within the MIA exposed to road traffic noise of 50-54 dB L_{night}
RD_LNT5559	The total number of people within the MIA exposed to road traffic noise of 55-59 dB L_{night}
RD_LNT6064	The total number of people within the MIA exposed to road traffic noise of 60-64 dB L_{night}
RD_LNT6569	The total number of people within the MIA exposed to road traffic noise of 65-69 dB L_{night}
RD_LNT70+	The total number of people within the MIA exposed to road traffic noise of ≥ 70 dB L_{night}
NAT_RD_300	Indicates whether the MIA is within 300m of a national road
PIA_ID	For the MIA that have been selected as a potential PIA, a unique PIA identifier is provided

