



Cavan

Comhairle Contae an Chabháin
Cavan County Council

Cavan County Council Noise Action Plan 2024-2028

***Relates to major roads carrying more than
3 million vehicles per annum in County Cavan***

Executive Summary

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.

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).

Under the Regulations, Transport Infrastructure Ireland (TII) are designated as the Noise-Mapping Bodies (NMBs) for national roads classified as Major Roads, for the purpose of making and approving strategic noise maps for County Cavan. Cavan County Council are also designed as Action Planning Authorities (APAs), responsible for preparing a Noise Action Plan for County Cavan.

This is the fourth round of noise action planning for County Cavan, and this Noise Action Plan reports the findings of the strategic noise mapping prepared in consultation with Transport Infrastructure Ireland (TII) and the Environment Protection Agency (EPA), and in respect of the calendar year 2021 for noise from Road traffic.

This Noise Action Plan has been prepared in accordance with the Regulations and is aimed at strategic long-term management of environmental noise from transport systems and is based on the results of the strategic noise maps which informed assessments of population exposure and harmful effects of noise.

The results have been used to identify areas within County Cavan, to be subject to noise management activities during the implementation of the Noise Action Plan. These are referred to as Priority Important Areas.

The APAs will, subject to relevant collaboration with the Noise Mapping Bodies (NMBs), resources and funding, assess these Priority Important Areas and confirm the relevant noise management measures for each Priority Important Area, including processing of cost-benefit analysis and health benefits.

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

Noise Policy Statement

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

- **Prevention** – manage the risk of additional members of the community being exposed to undesirable noise levels where it is likely to have significant adverse impact on health and quality of life.
- **Protection** - protect areas which are desirably quiet, or which offer a sense of tranquillity through a process of identification and validation followed by formal designation of 'Quiet Areas'.
- **Mitigation** – identify and prioritise appropriate mitigation measures to reduce noise levels where they are potentially harmful.

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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. Road traffic being the biggest source of Noise pollution. This Noise Action Plan has been prepared for Cavan County Council, to meet the requirements of the statutory Noise Regulations currently in force, namely the:

- Environmental Noise Directive (END) 2002/49/EC and
- Environmental Noise Regulations, S.I. No. 140 of 2006
- European Communities Environmental Noise Regulations, S.I. No. 549/2018
- European Communities Environmental Noise (Amendment) Regulations, S.I. No. 663/2021.

The Noise Action Plan was undertaken in line with the EPA “DRAFT Guidance Note for Noise Action Planning”, January 2024. This Noise Action Plan, in line with the Regulations and Guidelines identifies the population exposed to excessive road noise (along part of the N3, part of the N55 and part of the R212)). It informs the public about the relevant noise data and provides an action plan to avoid, prevent or reduce, on a prioritised basis, environmental noise exposure along the main roads within the County. This is a 4-year plan, but will be reviewed, if necessary, if noise conditions change within this period.

A glossary of acoustic and technical terms used throughout this report is provided in Appendix A.

1.2 Purpose

The Environmental Noise Directive (‘END’) (2002/49/EC) is a European Union legal instrument vital for protecting public health and the environment by addressing the adverse effects of environmental noise.

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 END does not set any limit values or prescribe noise management measures to fulfil its aims. Through the establishment of noise regulations, the execution of strategic noise maps and implementation of Noise Action Plans, the END strives to raise public awareness, prevent and reduce environmental noise, and preserve environmental noise quality in areas where it is good.

In Ireland, it is recommended that the 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.”

This Noise Action Plan, and its subsequent implementation, is critical to ensuring Cavan County Council achieve the aims and objectives of the END, compliance with national policy and to address local environmental noise issues.

1.3 Scope of the Regulations

The Regulations define “environmental noise” as unwanted or harmful outdoor sound created by human activities, including noise emitted by means of transport, road traffic, rail traffic, air traffic and from sites of industrial activity.

The Regulations apply to “environmental noise” to which people are exposed, in built up areas, in public parks or other quiet areas in an agglomeration, in quiet areas in open country, near schools, near hospitals, and near other noise-sensitive buildings and areas.

Types of noise **not included** within these Regulations are noise that is caused by the exposed person, noise from domestic activities, noise created by neighbours, noise at workplaces or noise inside means of transport or due to military activities in military areas.

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

The Regulations require the Noise Action Plan, identifies the priority important areas based on the results from the strategic noise maps. The identified priority important areas shall be addressed during the implementation of the Noise Action Plan Round 4.

1.4 Consultation

A Period of public consultation was completed on the draft Noise Action Plan. This allows the general public and relevant stakeholders an opportunity to review and participate in the formulation of strategic noise policy, with a view to preventing and reducing, where necessary, exposure to environmental noise. The public consultation for the Noise Action Plan was for a duration of 6 weeks minimum and a further 2 weeks for submissions, which gave the general public adequate time to participate in this process.

On 22nd July 2024, as part of the public consultation process, the following documents were published on the consult.cavancoco.ie platform and advertised in the Anglo Celt for public comment, with a deadline for submissions on 2nd September 2024:

- Draft Noise Action Plan 2024 - 2028
- Strategic Environmental Assessment Screening Report
- Appropriate Assessment Screening Statement

Simultaneously, consultation was conducted with relevant environmental authorities regarding the SEA screening. No submissions were received during the consultation period.

1.5 Noise Action Plan Timetable

Under the Regulations, Cavan County Council are required to make a fourth-round noise action plan. Within one month of the noise action plan being made, Cavan County Council made the noise action plan available to the public on its website, and submitted the Noise Action Plan to the EPA.

Once the Draft Noise Action Plan was prepared, public consultation of the Draft Noise Action Plan was undertaken. Cavan County Council allowed a minimum of 6 weeks for consultation, and a further 2 weeks for submissions, for the public to have adequate time to participate in this process.

2 Noise and effects on Health and Quality of Life

Noise can be characterised as “unwanted sound” or “sound that is loud, unpleasant or unexpected” and can eventually cause disturbance, impairment, or damage to health.

The aims and objectives of the Environmental Noise Directive state that the adoption of action plans should be concerned with:

“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.”

In this Noise Action Plan, the term 'noise' will generally be used when describing the quantification, control, or prediction of emissions from environmental pollution sources, such as transport and industry.

2.1 Noise Level Indicators

A common noise indicator is required, to standardise noise measurements and assessment methods. Various statistical indicators exist to define noise levels depending on the manner and duration of the noise in question.

The END specifies two noise indicators to be used when preparing environmental noise maps and Noise Action Plans, the Lden and Lnight. The Lden 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. Lnight is typically used to assess sleep disturbance.

Table 1: Noise level indicators used for Noise Maps

Lden	<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
Lnight	<ul style="list-style-type: none">• Night-time equivalent sound level• Representative of night period (2300-0700 hr)• Noise indicator for sleep disturbance

2.2 Effects on Health and Quality of Life

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 causing 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 (EEA) and the World Health Organisation (WHO) developing guidelines and advice based on reviews and meta-analysis of the available research. 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
- Wellbeing – i.e., impacts on quality of life and mental health

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.

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 noise.

3 EU Legal and Policy Framework

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 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.

Existing international, European Union and national noise management legislation and guidance is shown in **Table 2**, with brief summaries provided in **Section 3.1 & 3.2**

Table 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 20020/367		EC Zero Pollution Action Plan	
	EU Phenomena 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 Pollution Control (IPPC) Licensing	
	Project Ireland 2040 - National Planning Framework - 2017	National Development Plan (NDP) 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 Residential Development, 2021		EPA Noise Action Planning Guidance, 2024
	Legislation in R4 NAP			
	Policy / Strategy in R4 NAP			
	Research / evidence supporting R4 NAP			
	Guidance in R4 NAP			

3.1 EU Policy and Guidance

3.1.1 Zero Pollution Action Plan (ZPAP)

The European Commission Zero Pollution Action Plan (ZPAP) was adopted in 2021. The vision for 2050 under the ZPAP is for air (including noise), water and soil pollution to be reduced to levels no longer considered harmful to health and natural ecosystems. This is translated into key 2030 targets to speed up reducing pollution at source.

The target for noise includes reducing the share of people chronically disturbed by transport noise by 30%. This target has not been transposed into Irish legislation, however, may be in the future, and therefore should be considered in future iterations of Noise Action Plans.

3.1.2 European Environment Agency (EEA) Reports

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

The EEA has now developed Reportnet 3 which includes the R4 mandatory reporting templates and the final reporting formats. There are cross-checks between DF4_8 (noise sources) dataflow and DF1_5 (noise maps).

The report summarises the many reviews of evidence on the relationship between environmental noise and specific health effects, including cardiovascular disease, cognitive impairment, sleep disturbance, tinnitus and annoyance.

3.2 EU Regulations and Directive

3.2.1 EC Directive 2002/49/EC – Environmental Noise Directive

The Environmental Noise Directive ('END') (2002/49/EC) relates to the assessment and management of environmental noise. It is the main instrument of the EU to quantify noise pollution levels and trigger actions within Member States.

The aim of the END is to:

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

3.2.2 Commission Directive (EU) 2015/996

Commission Directive EU 2015/996 replaces Annex II of the END and describes the common assessment methods for road, rail and air traffic noise and industrial noise sources, developed within the CNOSSOS-EU project.

Shortly after the publication of Directive 2015/996, some formatting and typographical errors were identified which were addressed in the Corrigendum¹⁴ which was published in 2018

3.2.3 Commission Directive (EU) 2020/367

Commission Directive EU 2020/367 replaces Annex III of Directive 2002/49/EC in describing the assessment of health effects under END.

The Directive adopts the exposure response functions published within the WHO Environmental Noise Guidance, 2018 for the number of people highly annoyed (HA) and highly sleep disturbed (HSD) from road, rail and aircraft noise. The Directive also adopts the calculation of Ischaemic Heart Disease (IHD) with respect to road traffic noise.

3.2.4 European Commission Assessment of Potential Health Benefits of Noise Abatement Measures in the EU (Phenomena project), 2021

In 2021 the findings of the EU Phenomena project were published. The study aimed to define the potential of measures capable of delivering significant reductions (20%-50%) of health burden arising from the environmental noise of roads, railways and aircraft, and to assess how relevant noise related legislation could increase the implementation of the most effective measures, while considering the constraints and specificities of each transport mode.

The project relied on a combination of policy research, consultation, health economics and environmental assessment. Individual noise abatement measures were examined and their health impact quantified leading to a shortlist of the most effective combinations of measures for each transport mode.

For roads noise, the measures considered included low noise road pavements, low noise zones (speed reductions) and new legislation at an EU level for a low noise tyre fleet. For rail noise, the noise abatement solutions included smooth tracks, quieter vehicles, smooth wheels and quieter tracks.

The analysis found that combination of the road noise abatement measures could achieve health burden reduction by 2030 in the range 18-24%. For rail noise, health burden reductions by 2030 were in the range 37-52%.

4 National Legal and Policy Framework

4.1 National Policy and Guidance

4.1.1 Project Ireland 2040 – National Planning Framework, 2017

The National Planning Framework (NPF) is a high-level strategic plan to guide development and investment over the coming years. In addition to setting aims associated with infrastructure and investment, targets are also set around social outcomes.

Project Ireland 2040 – National Planning Framework recognises the importance of noise management which is implemented through the following objectives 52 and 65:

National Policy Objective 52

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

National Policy Objective 65

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

4.1.2 Environmental Protection Agency Noise Action Planning Guidance, 2024

The EPA’s guidance for strategic noise mapping for Round 4 using the CNOSSOS-EU assessment methods is published in five parts:

- Part 1: Requirements
- Part 2: Calculation Methodology & Noise Modelling
- Part 3: Noise Exposure Assessment
- Part 4: Publication and Reporting
- Part 5: Harmful Effects Assessment

The EPA has also published guidance on noise action planning. These documents are referred to collectively as the ‘EPA Guidance’.

4.1.3 Transport Infrastructure Ireland (TII) Guidelines, 2014

Transport Infrastructure Ireland (TII) published the ‘Guidelines for the Treatment of Noise and Vibration in National Road Schemes.’ These guidelines propose design goals for noise related to both the construction and operational stages of new road schemes.

Following a review of similar guidelines in the UK and adapting methodologies in line with the requirements of the END, the NRA proposed an operational design goal of $L_{den} \leq 60$ dB free field value. Essentially what this means is that for any new road scheme the Environmental Impact Assessment Report must take this target into account about any existing sensitive residential property likely to be affected by the road scheme.

The guidelines present an approach to mitigating the adverse effects of road construction in so far as possible using measures such as alignment changes, barrier construction e.g., earth mounds, and the use of low noise road surfaces. The responsibility for noise mitigation policy relating to any proposed new sensitive properties in the vicinity of the road scheme lies with the relevant Planning Authority.

4.1.4 National Development Plan (NDP) 2021 – 2030

An investment strategy and budget that aims to transform Ireland and support the largest public housing program in the history of the state.

The plan sets out the broad direction for investment priorities over the coming decade and pledges to allocate public investment of €165 billion across all sectors and regions of Ireland. The plan aims to prepare Ireland for population growth of approximately 1 million between 2016 and 2040.

4.1.5 Climate Action Plan, 2024

The Climate Action Plan (CAP24) is the third update to Ireland's Climate Action Plan. It sets out a roadmap for actions to halve emissions by 2030 and reach net zero no later than 2050.

CAP24 implements carbon budgets and sectoral emissions ceiling with a view to accelerating the actions required to respond to the climate crisis, putting climate solutions at the centre of Ireland's social and economic development.

4.2 National Legislation

4.2.1 Environmental Noise Regulations

The END was transposed into Irish Law by the Environmental Noise Regulations 2006 (S.I. 140/2006) (the 'Regulations'), establishing a unified framework for mitigating and minimising the adverse consequences of environmental noise exposure. They identify organisations responsible for noise mapping and the development of strategic noise maps and noise action plans.

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). A summary of these Regulations is presented in the following sections.

4.2.2 European Communities (Environmental Noise) Regulations, 2018 (S. I. 549/2018)

These Regulations replace the Environmental Noise Regulations 2006 (S.I. No. 140 of 2006) and provide for the implementation in Ireland of a common approach within the European Community to avoid, prevent or reduce, on a prioritised basis, the harmful effects, including annoyance, due to exposure to environmental noise.

The Regulations designate the Environmental Protection Agency (EPA) as the National Authority for the purposes of the Regulations. The Agency'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 the Directive.

4.2.3 European Communities (Environmental Noise) (Amendment) Regulations, 2021 (S. I. 663/2021)

This Regulation amends the European Communities (Environmental Noise) Regulations 2018 (S.I. 549/2018), setting out methods for harmful effects, considering ischaemic heart disease (IHD), high annoyance (HA) and high sleep disturbance (HSD) and requiring each NMB to report details of these harmful effects as part of the noise mapping work.

The Regulations also amended the boundaries of the existing Dublin and Cork agglomerations and defined a new Limerick agglomeration.

4.2.4 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’.

With regards to noise, Section 106-107 is most relevant:

- 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 gives power to local authorities or the Agency to serve notice requiring measures to be taken to prevent or limit noise from any premises, processes or works; and
- Section 108 sets out a process whereby noise issues may be taken to District County, which may make any order requiring that the person or body responsible for the noise to take measures for the prevention or limitation of the noise in question.

There is no clear official or statutory guidance which could help promote the effectiveness or clarity of the provisions within the Act; however, within the framework of the Regulations the EPA may consider it appropriate to develop such guidance in the future.

4.2.5 Integrated Pollution Prevention Control (IPPC) Licensing

The EPA’s Integrated Pollution Prevention Control Licensing terms require that certain bodies must limit environmental pollution caused by industrial activities to obtain a license to operate. The criteria relating to noise pollution are outlined in the EPA publication “*Guidance Note for Noise: Licence Applications, Surveys and Assessment in Relation to Scheduled Activities (NG4)*”- 2016. This document recommends a “Best Available Technique” approach to the assessment and mitigation of noise pollution. The document contains typical limit values for daytime (55 dB LAr,T22), evening (50 dB LAr,T) and nighttime (45 dB LAr,T) noise, at sensitive locations, from licensed facilities. Alternative limit values are provided for quiet areas and areas of low background noise.

4.2.6 Roads Act, 1993 (Revised 2023)

In Ireland, the Roads Act, 1993 (revised 2023), outlines the responsibilities of the road’s authorities for the maintenance and construction of public roads. Under section 77 of the Roads Act 1993, power had been given to the Minister to make regulations requiring relevant road authorities to take measures to mitigate the effects of road traffic noise and to specify limits for road traffic noise which, if exceeded, would require mitigating action from the road authorities. However, Section 77 was repealed under the Public Transport Regulation Act, 2009. There are no Irish statutory noise limits or standards governing road traffic noise for new or existing roads.

4.2.1 National Roads 2040

National Roads 2040 (NR2040) is Transport Infrastructure Ireland’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 for 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.”

While 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, there are potentially opportunities for mutual gains for noise reduction (e.g., through active travel, integrated mobility, maintenance and improvement works on the existing national road network).

4.2.2 Building Regulations

Technical Guidance Document Part E (2014) of the Building Regulations does not provide any requirements for the type and location of new buildings besides existing major noise sources i.e. bringing people to noise. The guidance only relates to the mitigation of sound transfer between dwellings and rooms within a building.

4.3 Regional and Local policy and guidance.

4.3.1 Cavan County Development Plan 2022-2028

The Cavan County Development Plan including a Local Area Plan for Cavan Town area sets out the Councils proposed policies and objectives for the development of the County over the Plan period. The Development Plan seeks to develop and improve, in a sustainable manner, the social, economic, environmental and cultural assets of the County.

The Cavan County Development Plan provides a positive vision for Cavan which will enable the county to continue to make Cavan a place where people can have a good quality of life; a better place to live, work and make a contribution to national economic growth by promoting sustainable development and facilitating stable economic growth thus delivering long term benefits for the citizens of the County.

To preserve and maintain noise quality in County Cavan in accordance with good practice and relevant legislation a number of strategic measures which relate to noise mitigation have been incorporated into the Cavan County Development Plan 2022-2028. The policy statements and objectives are reproduced below.

- **N01**

Support the implementation of the Noise Directive 2002/49/EC and all associated Environmental Noise Regulations 2006.

- **N02**

Require all developments to be designed and operated in a manner that will minimise and contain noise levels having regard to relevant national guidelines and in the absence of national guidelines, to relevant international standards, where appropriate. Seek identification and implementation of noise mitigation measures, where warranted, for developments proposed in the vicinity of existing or proposed national roads.

4.3.2 Cavan County Council Corporate Plan 2020-2024

The Cavan County Council Corporate Plan for 2020-2024 provides a strategic framework for the Councils vision for the County, it's goals for the next five years and the core values which will guide the Councils work over the lifetime of the Plan.

4.3.3 Cavan County Council Climate Action Plan 2024-2029

The Cavan County Council Climate Action Plan includes a range of actions which are aimed at helping the city achieve a 51% reduction in greenhouse gas emissions by 2030 while striving for neutrality by 2050. The Plan recognises that the measure of climate action success can also be measured through monitoring of other key vitals which include noise levels across the county. In this regard, it is evident that many of the actions that will help achieve climate mitigation and resilience will also contribute to mitigating environmental noise and preserving quiet areas for the future.

5 The Responsible Authority for Action Planning

5.1 Name and contact details for the Responsible Authority

In County Cavan, the primary noise source to be considered by the Action Planning Authorities relates to major roads in excess of 3 million vehicles per annum. The functional area of Cavan County Council is affected by road traffic noise under this Noise Action Plan. Therefore, the local authority is considered the designated action planning authority.

The contact details are;

Responsible Authority: Cavan County Council,
Cavan Courthouse, Farnham St, Cavan,
H12 R6V2
Tel: 049 437 8300
Email: info@cavancoco.ie

The Roads Department of Cavan County Council is responsible for this Noise Action Plan
Telephone: 049-4378300
Email: roads@cavancoco.ie

5.2 Description of other bodies of relevance

The Environmental Protection Agency (EPA) is the designated national authority responsible for overseeing the implementation of the Regulations. The EPA is required to provide advice and guidance to the relevant noise mapping bodies and action planning authorities and is responsible for reporting information to the European Commission. Further details can be found at:

<https://www.epa.ie/our-services/monitoring--assessment/noise/noise-mapping-and-action-plans/>

Transport Infrastructure Ireland (TII) is a designated noise mapping body for the development of strategic noise maps for all major national roads carrying in excess of 3 million vehicles a year and for light rail lines. Up to date noise maps can be accessed at: <https://www.tii.ie/technical-services/environment/noise-maps/>

The TII has overall responsibility for the national road network and provides funding to the Council for the maintenance and improvement of the national roads within the county. Cavan County Council Roads Department is responsible for the planning, design, improvement, and upkeep of the road network within the county. Non-national roads are funded through the Department of Transport and from the Council's own resources.

5.3 Review of previous Round 3 Noise Action Plan (2019-2023)

As in previous plans, the Round 3 Noise Action Plan primarily centres on road traffic noise, identified as the major noise source in the Cavan County Council Area based on the strategic noise maps.

The current and past policies, as well as the direction regarding the principles of avoidance, prevention, and reduction, where necessary, on a prioritised basis of harmful effects, including annoyance, due to long-term exposure to environmental noise, will continue to guide the implementation of the actions.

A summary of the actions undertaken over the course of the Round 3 Noise Action Plan are set out below;

- **Completion of Round 4 strategic noise mapping**

The collection of AADT data for Round 4 Noise Mapping for the county was completed in 2022 and submitted to the RMO for processing.

- **Noise Assessments**

Assessments carried out in 2019 on the N3 indicated some excessive noise levels at 3 locations affecting a number of residents. The authority has been unsuccessful to date in securing funding.

- **Main Street Cavan Town R-901-0**

Resurfacing of Cavan Town main street was completed during the year 2022 with SMA to reduce surface noise emission and existing utility covers were renewed/reset to reduce traffic impact noise.

- **Active Travel Team**

An active travel team was established in the county in 2022 to identify and deliver a 5-year programme of active travel projects to provide the necessary infrastructure to allow for a modal shift away from the use of private cars to walking, cycling and public transport. It is hoped that the development of these projects will reduce car dependence for short journeys within urban areas leading to a reduction in noise levels.

- **Road re-surfacing and repairs**

- **Progress on cycle routes, local link, bike share schemes and the EV fleet expanded.**

6 Description of the Action Planning Area

6.1 Extent of the Noise Action Plan area

In County Cavan, the primary noise source to be considered by the Action Planning Authority relates to major roads carrying >3 million vehicles per year, as defined in the Regulations. There are two national primary roads within the county; the N3 & N16 and three national secondary roads; N54, N55 and N87. The N3, N55 and the R212-3 and R212-4 have been included in the strategic noise map undertaken by the National Roads Authority.

An overview map of all areas modelled within the County is provided in Appendix C.

The strategic noise maps prepared in 2022/2023 are based on road traffic movements for Q3 and Q4 2021.

The Strategic Noise Maps present noise contours for the following two noise indicators in line with the requirements of the Regulations;

- Lden - The day - evening - night level is a noise indicator for overall annoyance based upon annual average A-weighted long-term sound over 24 hours with a 5dB(A) penalty for evening noise (19:00 – 23:00) and a 10 dB(A) penalty for nighttime noise (23:00 – 07:00). Lden noise levels above the threshold of 55dB are required to be reported to the European Commission.
- Lnight – The night level is a noise indicator for sleep disturbance based upon annual average A-weighted long-term sound over the night period (23:00 – 07:00). Lnight noise levels above the threshold of 50dB are required to be reported to the European Commission.

Noise levels that are at or above the noise indicator thresholds set out above are presented at 5 dB contours, i.e. there are no contours representing values below the required reporting thresholds included on the maps.

The noise contours are not based on measurements but have been prepared using computer modelling in-line with a common noise assessment methodology adopted by the European Commission in line with Article 6.2 of the EC Directive 2002/49/EC and brought into effect through Commission Directive (EU) 2015/996.

The new common methodology is called CNOSSOS – EU and further details can be found at <https://publications.jrc.ec.europa.eu/repository/handle/JRC72550>.

This new common assessment methodology has been used for the first time in Round 4. Strategic noise maps for Round's 1 to 3 were produced using a different recognised methodology available at that time. This change should be considered when making any direct comparisons between the Round 4 maps and maps for previous Rounds as the modelling methodologies as well as input data sets will have changed.

6.2 County Cavan topography and geographical location.

Cavan is located in the Border Region on the M3 (N3) north of Dublin. It borders six counties-Leitrim, Fermanagh, Monaghan, Meath, Longford and Westmeath.

The administrative area of the County covers 1,932km² and is a central inland county. It sits within two of the Failte Irelands Tourism Region Brands, '*Ireland's Ancient East*' covers the east of the County from Cavan town eastwards and '*Ireland's Hidden Heartlands*' incorporates Cavan town westwards.

The County has a varied landscape with the highlands of western Cavan including the UNESCO Global Geopark which covers Cavan town westwards, taking in the towns of Killeshandra, Milntown, Belturbet, Ballyconnell, Swanlinbar, Glangevlin and Blacklion. The

River Shannon rises in West Cavan at the Shannon Pot. The Eastern parts of the county include the Lakeland areas of Lough Oughter and the Southeast of the County has the predominately drumlin landscape with highlands around Bailieborough and Kingscourt. The River Erne also rises in Gowra and flows through Belturbet.

6.3 County Cavan Population

County Cavan has a population of 81,704 (2022 census). Cavan town has the highest population with 11,741 persons. Four towns have populations in excess of 2,000 persons; Virginia, Kingscourt, Ballyjamesduff and Bailieborough. Four towns have populations in excess of 1,000 persons; Cootehill, Mullagh, Belturbet and Ballyconnell.

The housing types within the county are predominantly single dwelling with multi-unit development generally confined to larger towns and some villages.

6.4 Location of noise sensitive groups

For the purposes of this Noise Action Plan, the following locations are considered noise sensitive areas. The grounds around; places of worship, Hospitals, including nursing and convalescence homes, Educational institutions and Childcare\crèche facilities.

6.5 Description of the main infrastructure/services.

Two national primary routes pass through the county, The N3 road and the N16 road. The N3 is the longest route in Cavan, crossing the county for 60 km from the Meath border at Whitegate near Virginia and through Belturbet into Fermanagh. This route links Dublin to Enniskillen in Northern Ireland via the A32 and A4. The N16 begins in Sligo and ends at Blacklion in the far northwestern tip of Cavan, it crosses the county for roughly 7km.

Three national secondary routes pass through the county. The N87 road begins in Belturbet and passes through Ballyconnell and Swanlinbar before crossing into County Fermanagh where it becomes the A32. The N54 route from Monaghan and Clones joins the N3 at Butlers Bridge. The N55 links Cavan to the large town of Athlone via Ballinagh and Granard.

There are no airports or rail lines in Cavan relevant to this Noise Action Plan.

7 Existing Noise Management Framework

7.1 Roads

Cavan town (N3 & N55) and Belturbet town (N3) heading North are by-passed, which diverted traffic (hence noise) away from towns and concentrate it in less built up areas.

Noise barriers are in place in parts of the N3 & N55 on some sections of road near houses. Noise Impact Assessments are undertaken for all major road upgrades in the County of Cavan.

In addition, a Noise Impact Assessment is requested for all major planning developments in the County, particularly those along major routes that may be impacted by existing noise levels. The current Planning and Licensing system will manage potential development within the Cavan area, where noise impact of developments is required to be assessed before planning is granted.

No other noise-reduction measures are planned or in preparation in the action planning area.

7.2 Licensed Industrial Facilities

This Noise Action Plan for County Cavan identifies three licensed industrial facilities along the N3 major route. These facilities have been evaluated and found not to significantly contribute to environmental noise levels in the area.

The three industrial facilities are licensed and managed by the EPA and noise management conditions are set in the relevant licence for the site. <https://gis.epa.ie/EPAMaps/>

8 Summary of the results of the noise mapping

8.1 Overview of the preparation of the noise map

The EU Directive 2002/49/EC, implemented into Irish legislation through the European Communities (Environmental Noise) Regulations from 2018 to 2021, mandates the creation of strategic noise maps and noise action plans for significant roads, railways, airports, and urban areas.

A strategic noise map illustrates the anticipated noise conditions within a specific area and from specific noise sources, utilising various colours to depict different decibel levels [dB(A)]. These maps are created through noise modelling, which involves synthesising multiple digital datasets. Round 4 (2022) strategic noise maps have been developed to portray the average annual noise situation for the year 2021.

TII is assigned as the official entity responsible for creating strategic noise maps for all significant national roads with over 3 million vehicles annually and for light rail routes.

To provide a standardised approach to the description of long-term environmental noise, the END specifies the use of two noise level indicators when preparing environmental noise maps and action plans, the Lden and Lnight:

Table 3: Noise level indicators used for Noise Maps

Lden	<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
Lnight	<ul style="list-style-type: none">• Night-time equivalent sound level• Representative of night period (2300 - 0700 hr)• Noise indicator for sleep disturbance

Noise levels that are at or above the noise indicator thresholds set out above are presented at 5 dB contours, i.e. there are no contours representing values below the required reporting thresholds included on the maps.

The noise contours are not based on measurements but have been prepared using computer modelling in-line with a common noise assessment methodology adopted by the European Commission in line with Article 6.2 of the EC Directive 2002/49/EC and brought into effect through Commission Directive (EU) 2015/996.

The new common methodology is called CNOSSOS.

The CNOSSOS-EU road traffic noise emission model calculates rolling and propulsion noise for different vehicle categories as a function of speed and frequency.

CNOSSOS-EU aims at improving the reliability, consistency and comparability of noise assessment results across the EU Member States which are performed on the basis of the data becoming available through the consecutive rounds of noise mapping in Europe.

8.2 Presentation of results

The Round 4 strategic noise maps for County Cavan, are shown in Figures 1 and 2 for the two noise indicators specified in the Regulations, Lden and Lnight, respectively. The strategic noise maps are presented at a more detailed local scale in Appendix C. The Round 4 strategic noise mapping is also available online, on a national basis, at the following website: <https://gis.epa.ie/EPAMaps/>.

Figure 1: The Round 4 (R4) Lden strategic noise map for County Cavan

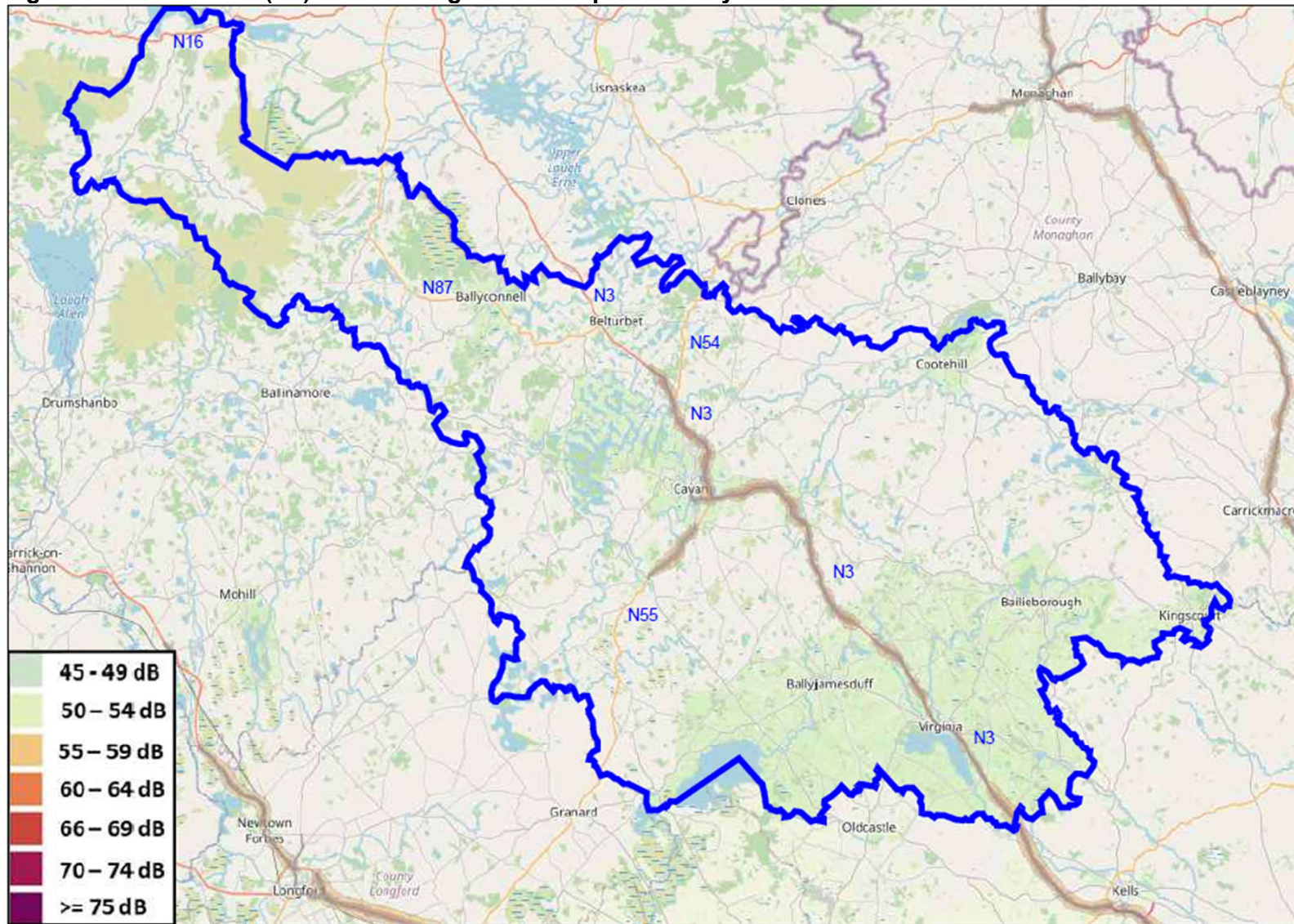
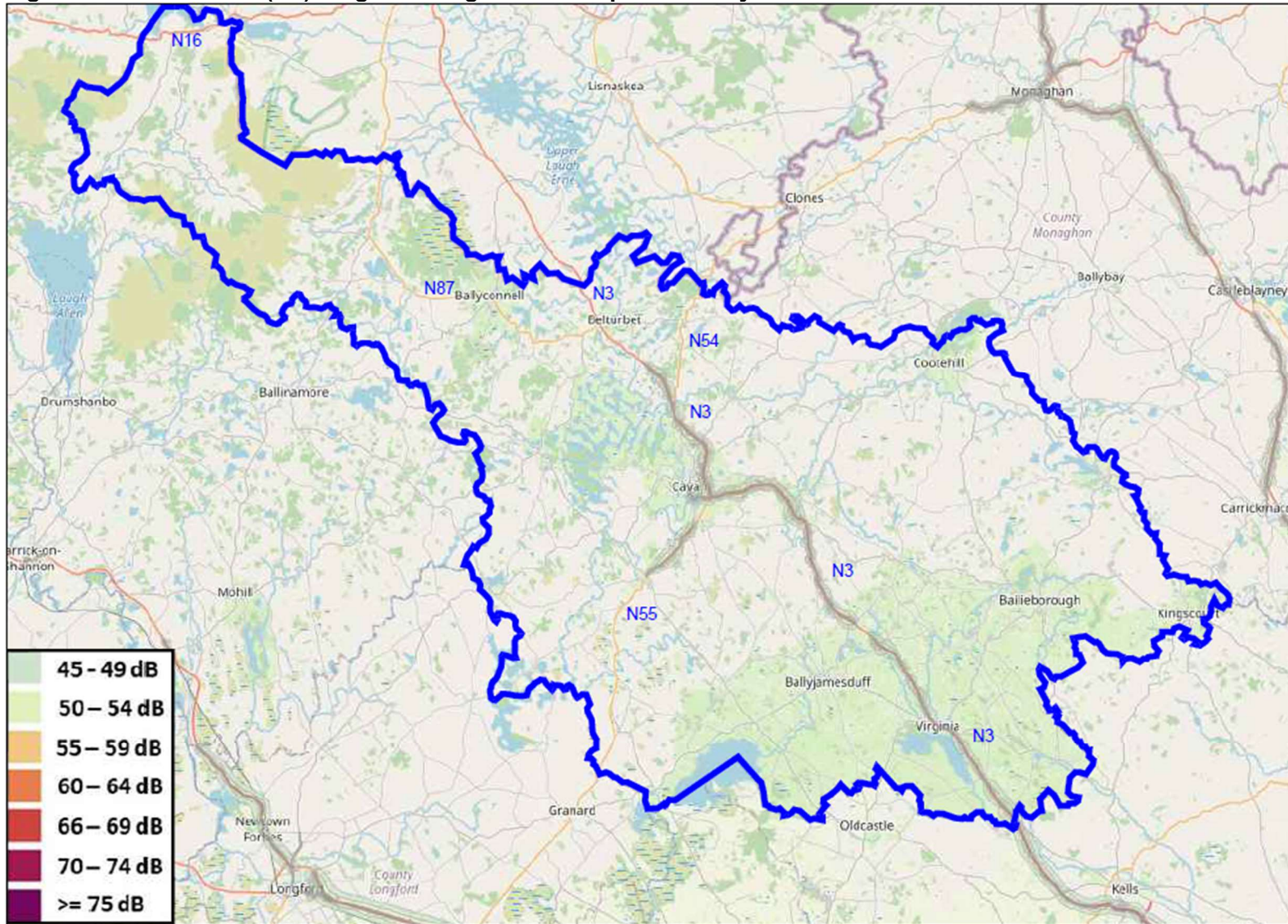


Figure 2: The Round 4 (R4) Lnight strategic noise map for County Cavan



8.3 Noise Exposure Assessment

It has not been attempted to directly compare the noise exposure numbers from Round 4 with those from the prior three rounds due to methodological complexity and potential for error. This is due to a shift in the computational process used in Round 4 (CNOSSOS-EU:2020) of strategic noise mapping compared to the prior three rounds (CRTN 1988).

The Round 4 noise exposure statistics for the County of Cavan are presented in Tables 4 to 7 and rounded to the nearest 100 as required under the regulations.

Table 4: Number of people in dwellings exposed to L_{den} from major roads.

Noise Exposure L_{den} (dB)	Major Roads Number of People in Dwellings
55-59	2200
60-64	1400
65-69	800
70-74	700
≥ 75	300

Table 5: Number of people in dwellings exposed to L_{night} from major roads.

Noise Exposure L_{night} (dB)	Major Roads Number of People in Dwellings
55-59	1700
60-64	1000
65-69	800
70-74	500
≥ 75	200

Table 6: Percentage of population exposed to L_{den} from major roads.

Noise Exposure L_{den} (dB)	Major Roads % of Total Population exposed
55-59	9%
60-64	6%
65-69	3%
70-74	3%
≥ 75	1%

Table 7: Percentage of people in dwellings exposed to L_{night} from major roads.

Noise Exposure L_{night} (dB)	Major Roads % of Total Population exposed
55-59	7%
60-64	4%
65-69	3%
70-74	2%
≥ 75	1%

8.3.1 Harmful Effects

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

For road traffic noise the calculations for harmful effects should be undertaken in 1 dB assessment bands and should be undertaken above the following thresholds:

- 53 dB Lden;
- 45 dB Lnight.

Harmful effects have therefore been calculated from population exposure statistics in 1 dB bands for the noise level thresholds set out above using the calculation methodology set out in the Regulations.

Table 8: Calculated harmful effects in the case of road traffic noise

Total number of cases of IHD	1
% of population with IHD	0.00%
Total number of People HA	1,103
% of population HA	4.61%
Total number of People HSD	366
% of population HSD	1.53%

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

9.1 Description of approach to identify IAs, MIAs and PIAs

The Regulations require that Cavan County Council as the Action Planning Authority address “priorities” and “the most important area or areas” with a view to identifying “measures” that will help “avoid, prevent or reduce” the “harmful effects, including annoyance, due to exposure to environmental noise.”

The EPA Guidance provides further guidance on these concepts, and sets out a recommended approach to identifying priorities:

1. **Important Areas (IAs)** – these are locations exposed to environmental noise which exceed “any relevant noise limit” as established by the EPA in their guidance.
2. **Most Important Areas (MIAs)** – these locations are a sub-set of Important Areas where the health effects are highest, typically through a product of noise exposure levels and the number of people highly annoyed.
3. **Priority Important Areas (PIAs)** – between 5 and 10 Most Important Areas or group of similarly affected Most Important Areas, identified, through a prioritisation process, as those which will be evaluated and addressed during the implementation of the Noise Action Plan.

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

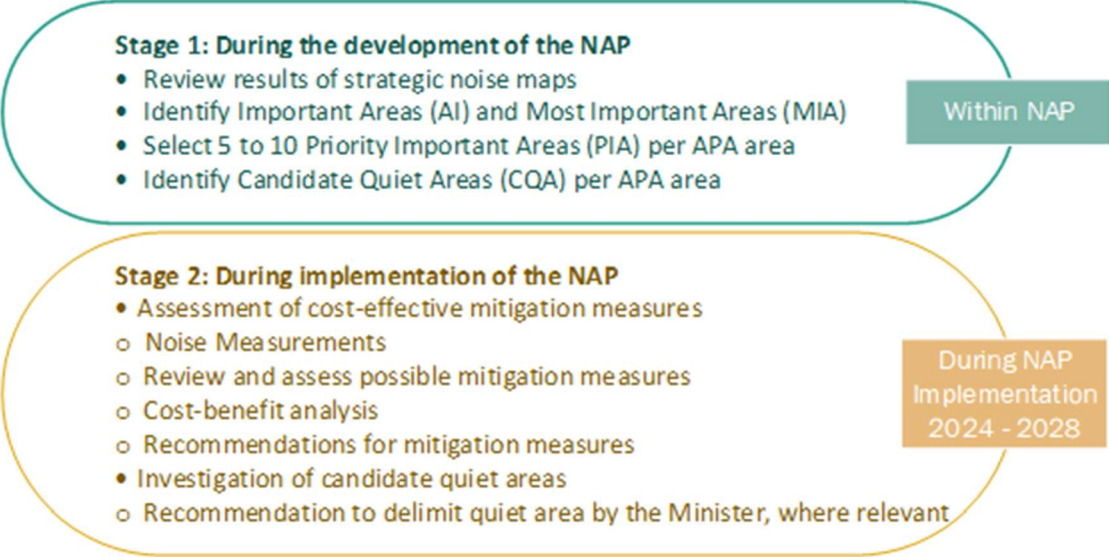
Stage 1 includes using the results of the strategic noise maps to identify the number of people and noise sensitive properties exposed to levels above the limits set by the EPA Guidance which are in line with the 2018 WHO Environmental Noise Guidelines for the European Region (WHO ENG 2018). These limits for Road traffic noise: 53 dB L_{den} and 45 dB L_{night} .

The findings of the Important Area process are then used to inform an automated process within Geographic Information System (GIS) software to generate raster heatmaps of the relative number of people highly annoyed due to noise in a given area, referred to as Most Important Areas. The APA, in consultation with the Noise Mapping Bodies (NMBs), are to prioritise the Most Important Areas to identify which are to be addressed during the implementation of the NAP, 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.

An overview of the two-stage process is set out diagrammatically in **Figure 3**.

Figure 3: Overview of Recommended Approach to Determine Actions to be Undertaken, and Quiet Areas to Delimit



9.1.1 Identified Most Important Areas (MIAs) and Selected Priority Important Areas (PIAs)

The Priority Important Areas established within the Cavan County Council are summarised in **Table 9**. Given the number of Most Important Areas identified, a process has been undertaken to identify which should be considered a priority (Priority Important Area), for which an assessment of noise mitigation measures will be undertaken within the life cycle of the Noise Action Plan and those deemed justified implemented subject to funding and resources.

The identification of the Priority Important Areas has been undertaken by the APA.

Five MIAs have been identified along roads for the towns of Ballinagh, Cavan and Virginia based on a criterion of 7.5 or more people expected to be highly annoyed per 100 m² (**Figures 4 to 8**).

These towns have been selected as PIAs for the NAP 2024-2028, with actions to be identified to reduce noise from the roads that pass through or adjacent to them. The MIAs represent where the harmful effects on the population are likely to be most concentrated and not where there is likely to be the most harmful effects caused.

Table 9: Indicative List of Priority Important Area (PIA) Summary – Cavan County Council

PIA	Total Population in PIA	Source	MIA Criterion (people HA per 100m ²)	Area (m ²)	Number of People			Number of People Above IA Guideline Level	
					HA	HSD	IHD	Road 53dB L _{den}	Road 45dB L _{night}
CNC_1	89.26	ROAD	15	8,500	29.01	9.89	0.03	85.31	85.31
CNC_2	23.71	ROAD	15	3,200	4.36	1.41	0.01	23.71	23.71
CNC_3	84.84	ROAD	10	11,700	18.29	6.94	0.02	84.84	84.84
CNC_4	75.71	ROAD	10	10,700	18.97	7.38	0.02	75.71	75.71
CNC_5	66.07	ROAD	10	4,700	12.65	4.17	0.01	61.66	61.66
CNC_6	39.49	ROAD	10	4,400	7.58	2.9	0.01	39.49	39.49
CNC_7	25.76	ROAD	10	1,100	2.81	0.9	0	19.32	19.32
CNC_8	34.9	ROAD	7.5	5,200	6.01	1.91	0.01	34.9	34.9
CNC_9	4.58	ROAD	7.5	1,500	0.66	0.21	0	4.58	4.58

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

Table 10: List of Approved Priority Important Area (PIA) 2024-2028 – Cavan County Council

Approved PIA (NAP R4)	PIA	Location
PIA_1	CNC_1	N55 Ballinagh Junction at R154
PIA_2	CNC_2 CNC_8	N3 North Cavan Town Bypass – Rocklands Estate N3 North Cavan Town Bypass – Carraig Beag Estate
PIA_3	CNC_4 CNC_6	R212 Cavan Town – Owen Roe Terrace, St Brigids Terrace R212 Cavan Town – Tullacmongan
PIA_4	CNC_3	R212 Cavan Town – Laragh Crescent Estate
PIA_5	CNC_5	N3 North Virginia Town - Lakelands apartment

Figure 4: PIA_1 (CNC_1)

Ballinagh PIA with MIA identified along the national road qualifying for strategic noise mapping (N55).

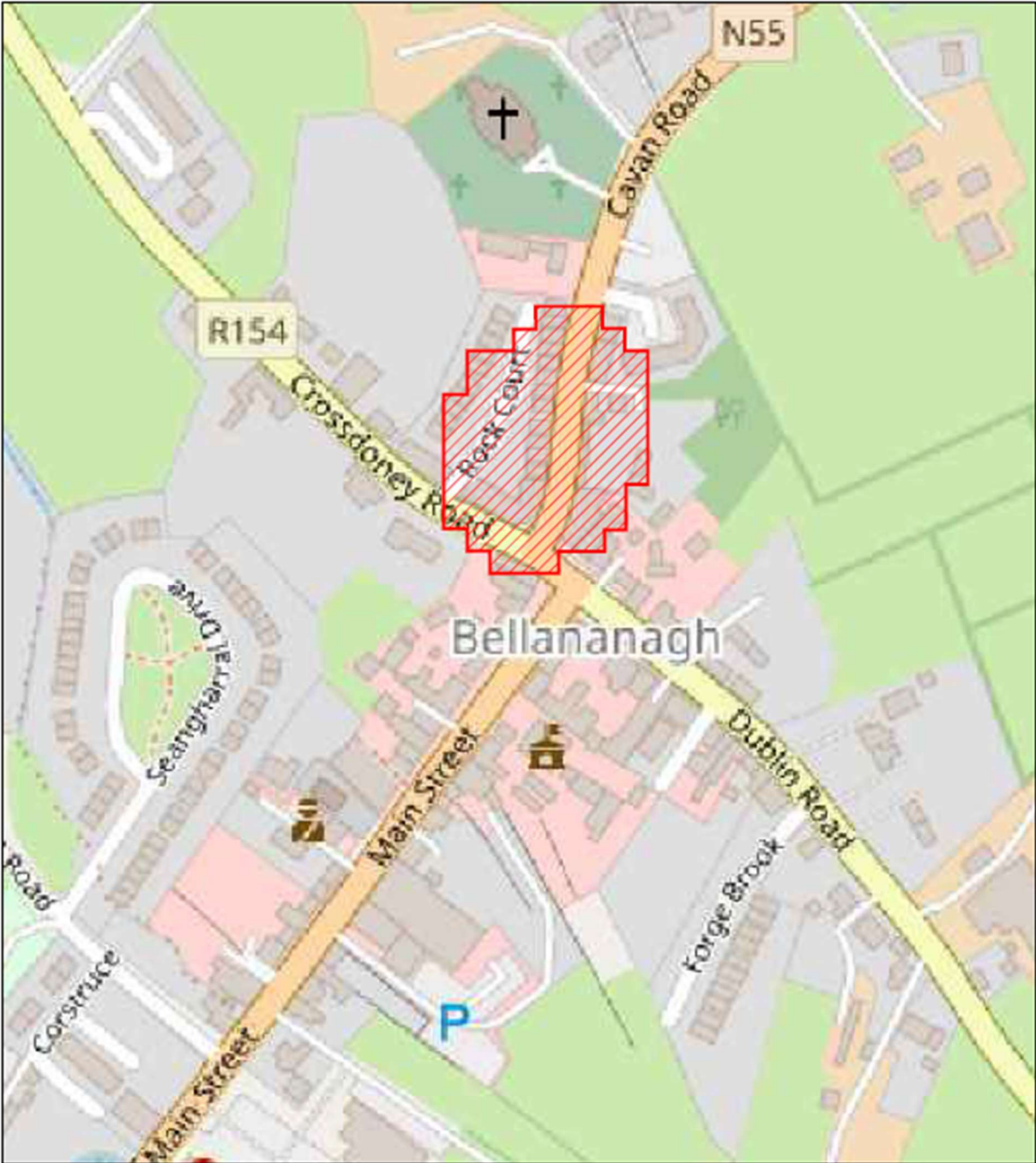


Figure 5: PIA_2 (CNC_2 & CNC_8)

Rocklands Estate and Carraig Beag Estate PIA with MIA identified along the national road qualifying for strategic noise mapping (N3).

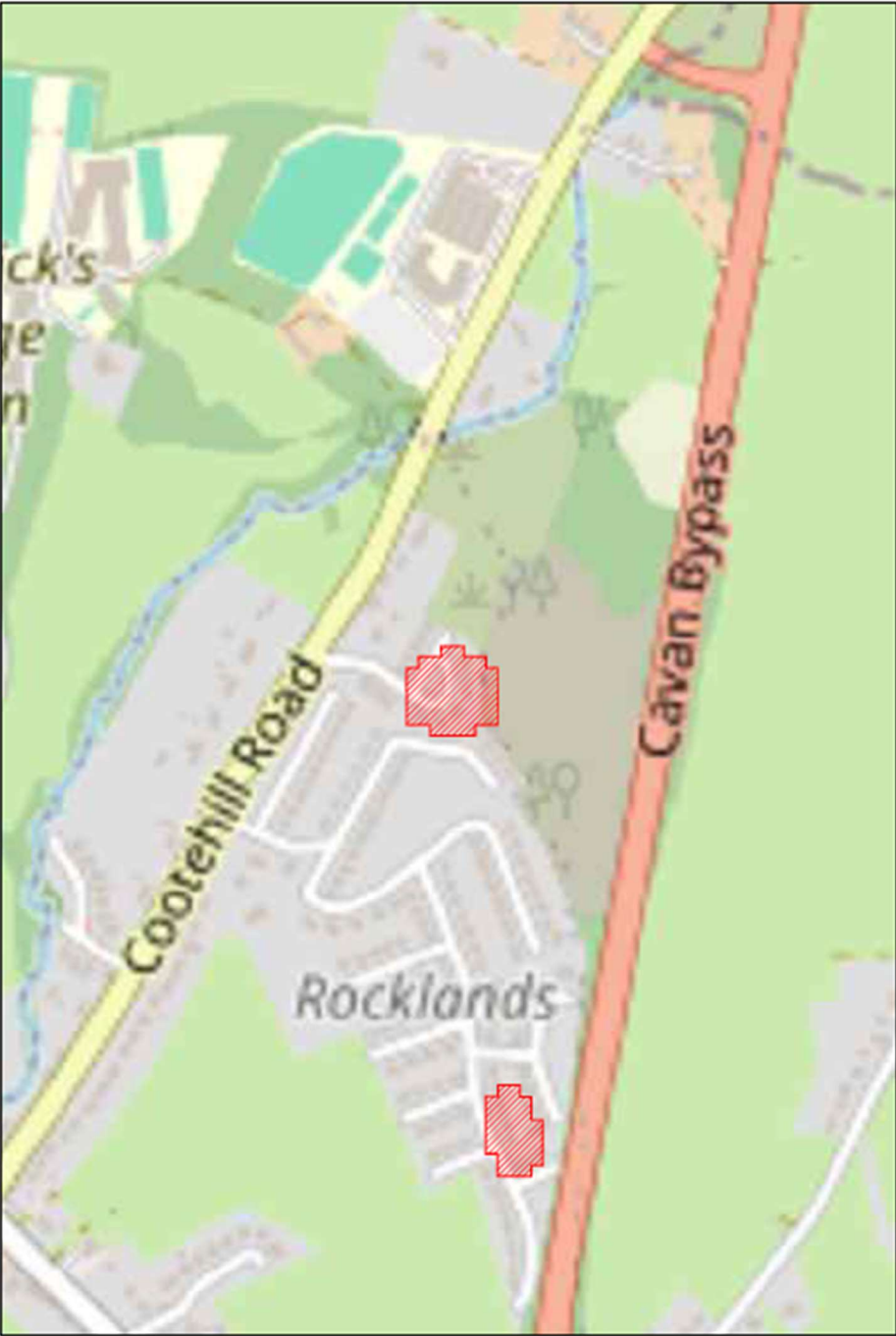


Figure 6: PIA_3 (CNC_4 & CNC_6)

Owen Roe Terrace, St Brigids terrace and Tullacmongan PIA with MIA identified along the regional road qualifying for strategic noise mapping (R212).

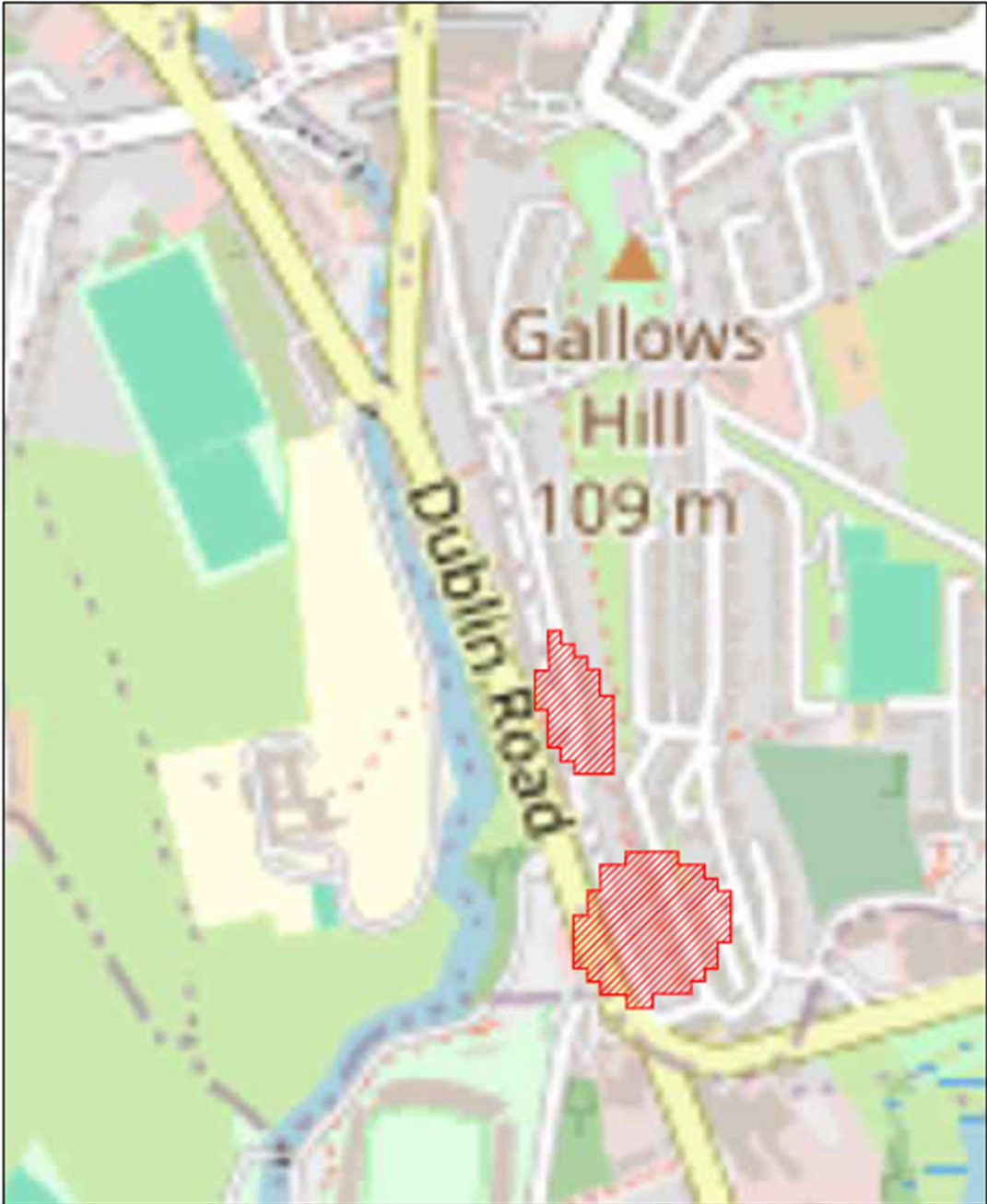


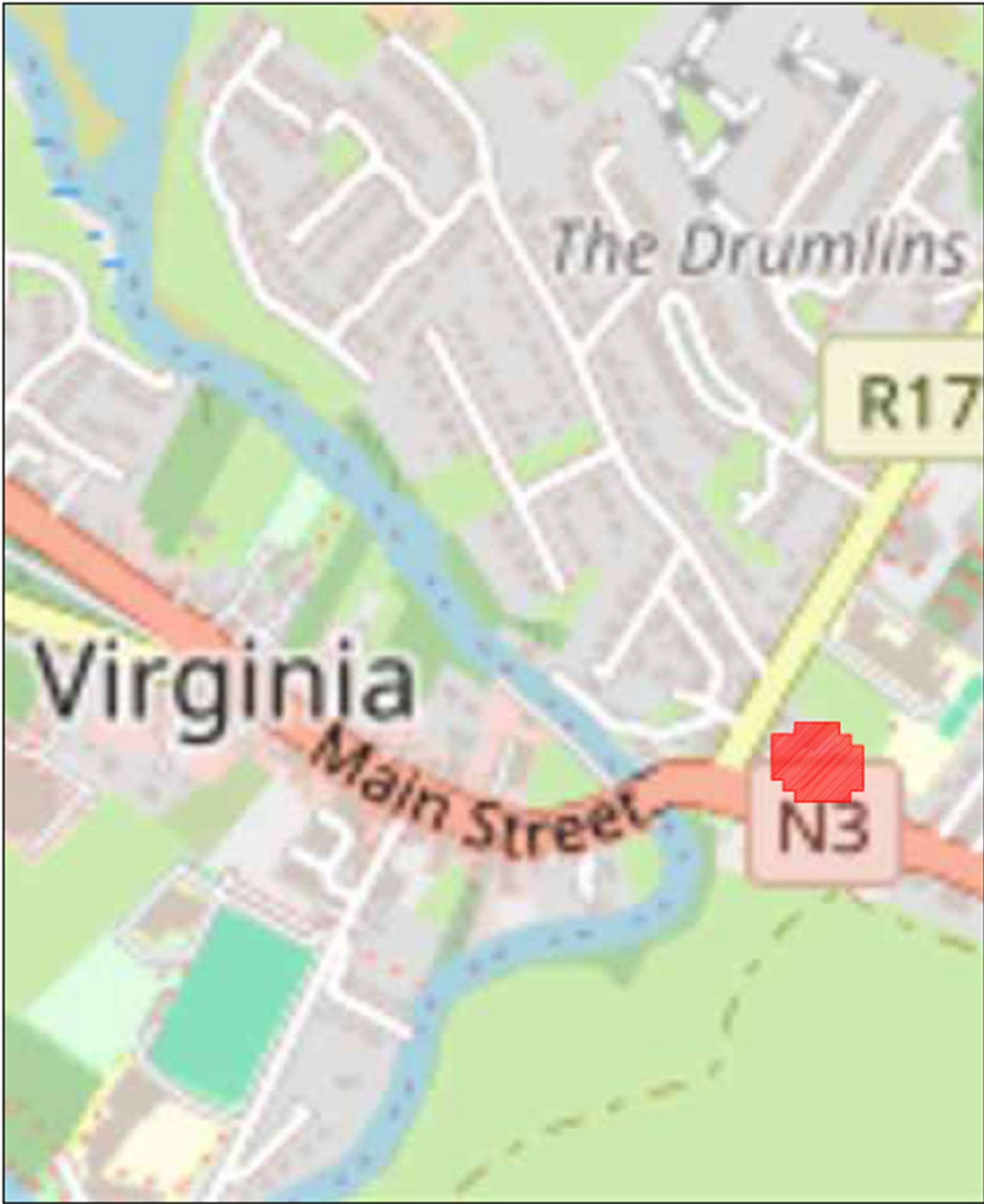
Figure 7: PIA_4 (CNC_3)

Laragh Crescent Estate PIA with MIA identified along the regional road qualifying for strategic noise mapping (R212).



Figure 8: PIA_5 (CNC_5)

Lakelands apartment block PIA with MIA identified along the national road qualifying for strategic noise mapping (N3).



9.2 Description of approach to identify Quiet Areas

The Fourth Schedule of the European Communities (Environmental Noise) Regulations 2018 (S.I. 549/2018) requires APAs to set out actions in relation to measures to preserve Quiet Areas.

At present there is no universally accepted definition by EU Member States of what constitutes a Quiet Area; however, they are regarded as areas where environmental noise levels are deemed to be good and therefore protection should be considered in the context of new development.

Under the Regulations APAs may delimit quiet areas in the open country. The requirement for such an area is that it is “*undisturbed by noise from traffic, industry or recreational activities*”.

In the context of the scope of the Regulations it can be seen that the strategic noise mapping under the Regulations will not provide a resource which may be extensively used to help identify quiet areas in open country. This is partially due to the nature of the assessed noise sources, which do not include recreational activities, and partially due to the area of coverage of the strategic noise mapping, which is near to major sources, and therefore they are not locations which will be undisturbed by them.

Whilst the results of the strategic noise mapping may not provide a clear indication of the location of areas which would be usefully designated as quiet areas in open country, it is recommended as a useful provision within the Regulations for APAs who wish to offer a level of protection for undisturbed areas which provide public amenity.

According to the latest TII noise maps, there is insufficient data available regarding the acoustic environment, to identify Candidate Quiet Areas within the County of Cavan. Cavan County Council Planning Department may utilise the Environmental Protection Agency (EPA) Quiet Area Screening Method for future developments.

10 Mitigation and protection measures

10.1 Description of how PIAs will be investigated.

Priority Important Areas, (see Section 9.1.1), have been identified within County Cavan as those where noise management activities are to be considered during the implementation of the Noise Action Plan. As noted in Section 9.1.1, the Priority Important Areas have been identified with respect to noise from roads only.

Considering the multitude and diversity of noise management options, choosing a noise mitigation measure necessitates evaluating its potential effectiveness in reducing noise exposure and adverse effects, while also considering its associated costs. The general steps in this process, which will be considered by Cavan County Council in consultation and collaboration with the Transport Infrastructure Ireland (TII) during the implementation of the Noise Action Plan, are:

1. Noise measurements at Priority Important Areas.
2. Review of the assumptions used to identify the Priority Important Areas
3. Re-evaluation and confirmation of Priority Important Areas
4. Identification of practical noise mitigation measures
5. Appraisal of noise mitigation measures monetised benefits to health
6. Financial assessment of noise mitigation measures
7. Cost-benefit analysis
8. Recommendation of noise mitigation measure(s)

Each of these steps is further elaborated upon in the subsequent sections. The appraisal of the noise mitigation measures shall be undertaken during the implementation of the plan.

1. Noise measurements at Priority Important Areas

The assessment of Priority Important Areas is guided by an initial undertaking of noise measurements at locations representative of the area identified. The surveys will be conducted by the relevant Local Authority, and/ or other pertinent infrastructure owners.

The primary objective of the noise survey is to verify that the measured noise exposures accurately correspond to the results obtained from the strategic noise maps. The results of the noise measurements will service to authenticate the strategic noise models, providing a basis upon which the noise mitigation measures can be evaluated.

2. Review of the assumptions used to identify the Priority Important Areas

If disparities arise between the noise measurements and the results obtained from the strategic noise maps, investigations will be conducted into factors such as road surface, traffic speeds, traffic counts, presence of barriers etc, and these findings will be compared against the assumptions within the noise models utilised for development the strategic noise maps.

3. Re-evaluation of Priority Important Areas

A re-evaluation of the identified Priority Important Area to ensure the analysis is representative of the 2021 assessment year, and appropriate amendments to the model parameters have been incorporated. This is likely to be informed by consultation between the Cavan County Council and Transport Infrastructure Ireland (TII) and may include re-running the adjusted noise model and/or a review of any noise measurements.

4. Identification of practical noise mitigation measures

The APAs, in consultation with NMBs will identify and agree on practical noise mitigation measures in relation to the Priority Important Areas that remain following steps 1-3 (above). The practicality of the measures will take into consideration its potential impact in terms of **Figure 9. Road Traffic Noise Management Framework for noise mitigation measures.** noise exposure and harmful effects reduction, planning, land-use, cost and available

technology.

The noise mitigation measures are collectively described as a noise management framework, and can be considered both in isolation, and in combination. Consideration will also be given to measures that may result from existing road management and traffic works programmes.

Examples of noise management frameworks for road traffic noise are displayed in figure 9

5. Appraisal of noise mitigation measures monetised benefits to health

An assessment of the identified practical noise mitigation measures, which will likely include testing of the measures using the revised CNOSSOS-EU (or other appropriate methodology) detailed computational noise model to determine the noise exposure and health benefits of the measures.

In Ireland there is no recommended method for monetising the health benefits of noise mitigation measures. In the absence of an Irish method, the EPA Guidance recommends that appraisals use the UK environmental impact appraisal methodology within the English Department for Transport, Transport Analysis Guidance (WebTAG) to inform a cost benefit assessment.

WebTAG provides guidelines and tools for translating the expected benefits of road, rail and aviation mitigation measures into monetary terms. WebTAG is informed by noise calculation results for a year during the implementation of the plan (2024-2028) and a future year, (typically 15 years ahead), with and without the noise mitigation measure(s) in place. The WebTAG noise workbook calculates the monetary value of long-term effects on sleep disturbance, amenity (annoyance), AMI (acute myocardial infarction), stroke, and dementia during the daytime, and sleep disturbance at night.

The WebTAG outcomes provide the net present value of the noise level change resulting from the assessed mitigation scheme in Pounds Sterling. This value will require conversion to Euros using the prevailing exchange rate, enabling a comparison with the estimated implementation costs.

6. Financial assessment of noise mitigation measures

The estimated cost of implementing mitigation measure(s) will be determined, considering costs over the measure's lifetime, encompassing construction and maintenance expenses. The selection of specific mitigation measure(s) will result from an appraisal of their benefits to health, monetised accordingly.

Many measures are likely to involve road re-surfacing, either in addressing road traffic noise independently or in combination with other measures.

7. Cost-benefit analysis

A comparison of benefits to health versus the cost of the noise mitigation measure. This is presented as a cost-benefit ratio (the ratio of costs over benefit).

Cost-benefit ratios of less than 1.0 indicate the benefits to health outweigh the costs.

8. Recommendation of noise mitigation measure(s)

The final step in the process, which allows all of the noise mitigation scenarios to be compared through the outcomes of the cost-benefit analysis.

The most cost-effective noise mitigation measures will be proposed in collaboration with NMBs and appropriate authorities and will (subject to resources and funding) seek to be implemented.

Figure 9: Road Traffic Noise Management Framework for noise mitigation measures.



10.2 Description of how candidate Quiet Areas will be investigated.

The Fourth Schedule of the European Communities (Environmental Noise) Regulations 2018 (S.I. 549/2018) requires APAs to set out actions in relation to measures to preserve Quiet Areas.

At present there is no universally accepted definition by EU Member States of what constitutes a Quiet Area; however, they are regarded as areas where environmental noise levels are deemed to be good and therefore protection should be considered in the context of new development.

Under the Regulations APAs may delimit quiet areas in the open country. The requirement for such an area is that it is “*undisturbed by noise from traffic, industry or recreational activities*”.

In the context of the scope of the Regulations it can be seen that the strategic noise mapping under the Regulations will not provide a resource which may be extensively used to help identify quiet areas in open country. This is partially due to the nature of the assessed noise sources, which do not include recreational activities, and partially due to the area of coverage of the strategic noise mapping, which is near to major sources, and therefore they are not locations which will be undisturbed by them.

Whilst the results of the strategic noise mapping may not provide a clear indication of the location of areas which would be usefully designated as quiet areas in open country, it is recommended as a useful provision within the Regulations for APAs who wish to offer a level of protection for undisturbed areas which provide public amenity.

According to the latest TII noise maps, there is insufficient data available regarding the acoustic environment, to identify Candidate Quiet Areas within the County of Cavan. Cavan County Council Planning Department may utilise the Environmental Protection Agency (EPA) Quiet Area Screening Method for future developments.

10.3 Future Infrastructure Developments.

Several major road infrastructure projects will progress for County Cavan during the period of the NAP. While not their primary purpose, they may influence the acoustic environment for communities.

10.3.1 N3 Virginia Bypass

Cavan County Council, in partnership with Meath County Council and in association with Transport Infrastructure Ireland (TII), is progressing the development of the N3 Virginia Bypass scheme to deliver a sustainable transportation solution for transportation problems identified along the N3 through Virginia Town and environs. The scheme is currently at Phase 3 (Design and Environmental Evaluation) of TII's Project Management Guidelines. The purpose of this phase is to develop the design of the Preferred Transport Solution and undertake an environmental evaluation of the design prior to advancing the project through the statutory processes of planning (Phase 4). Enabling and procurement, construction and implementation of the project (Phases 5, 6 & 7) will be subject to approval by An Bord Pleanála and ongoing funding and approvals by TII.

10.3.2 N55 Ballinagh Relief Road

The Council is working in partnership with TII to develop a traffic relief scheme for Ballinagh Town which is located on the N55 National Secondary Route connecting Cavan Town and Athlone.

Cavan County Council is currently procuring the provision of Technical Consultancy Services for the development of the project through Phases 1 to 4 (inclusive) of TII's Project Management Guidelines. Enabling and procurement, construction and implementation of the project will be subject to ongoing funding, planning approval for the project and approvals by TII to proceed through the life cycle phases.

10.4 Review of possible mitigation measures.

A number of infrastructural changes have occurred that have had an impact on the noise environment during the life of the NAP. These are summarised below.

10.4.1 Road Resurfacing

Each year the Council carries out a significant amount of road resurfacing primarily on the roads in the County. The Council uses Stone Mastic Asphalt 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. However, Hot Rolled Asphalt is still used at locations where there are significant heavy goods vehicles turning movements.

10.4.2 Traffic Calming

The Council each year invests in significant traffic calming measures such as speed cushions, speed ramps, tabletop junctions, segregated pedestrian and cyclist facilities, general signage and pedestrian crossings that aim to reduce traffic speeds in residential areas thus making them safer for pedestrians and cyclists. Reduced speeds also potentially reduce road noise.

10.4.3 Electric Vehicle Charging Points

The Council in association with ESB ecars has made electric vehicle charging points available on the public roads. This will encourage the use of electric cars which emit less road noise at low speeds through urban areas. The current locations of the electric car charge points in County Cavan are at:

- Cavan Town
 - Dublin Road (between Hard Boiled Egg and Breffni Park)
 - Off Farnham Street (Courthouse Carpark)
- Ballyjamesduff
 - Dublin Street (at entrance to The Grove)
- Bailieborough
 - Main Street (beside Pets and Vets)
 - Tesco Carpark (at shop entrance)

10.4.4 Green Routes

The Council have the following greenway projects in County Cavan that are at various stages of design, prior to planning, to create walking and cycling trails:

- Cavan Leitrim Railway Greenway
- Belturbet to Cloverhill Railway Greenway
- Cavan to Clones Railway Greenway
- Cavan to Mullingar Railway Greenway
- Crossdoney to Killeshandra Railway Greenway
- Boyne Valley to Lakeland County Railway Greenway
- Kingscourt to Carlingford Railway Greenway
- Ulster Canal Greenway
- Sligo to Leitrim North Counties Railway Greenway
- Killykeen to Cavan Cycling Trail

These projects will integrate and enhance the existing natural and built features, help support the economic development of local communities and promote the health and wellbeing of citizens in Cavan.

11 Implementation Plan

11.1 Timetable

The Round 4 noise action plan timetable is set out in **Section 1.5**, with the deadline for the submission of the Noise Action Plan to the European Environment Agency (EEA) on 18th January 2025.

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

Specific dates relating to Round 5 Noise Action Plans are to be determined, but are expected to be:

- 18 July 2028: Deadline for noise action plans
- 18 August 2028: Deadline for publishing noise action plans
- 18 August 2028: Summaries of noise action plans submitted to the EPA
- 18 January 2029: Noise actions plans to be reported to the EEA by the EPA

11.2 Roles and Responsibilities.

The Noise Action Plan is underpinned by a set of overarching noise policy principles outlined in the **Noise Policy Statement**.

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

- **Prevention** – manage the risk of additional members of the community being exposed to undesirable noise levels where it is likely to have significant adverse impact on health and quality of life.
- **Protection** - protect areas which are desirably quiet, or which offer a sense of tranquillity through a process of identification and validation followed by formal designation of 'Quiet Areas'.
- **Mitigation** – identify and prioritise appropriate mitigation measures to reduce noise levels where they are potentially harmful.

11.3 Programme of Works

All measures identified in the programme of works shall be subject to funding and resources.

11.3.1 Year 1 - 2025

- Start assessing roads identified in Section 9.
- Identify the budget for external noise consultants and begin the verification process on the PIA's regarding noise exposure. This will entail re-checking the noise model and verification of the model by on-site noise measurements.
- Where required, conduct a feasibility study to identify possible mitigation measures.
- Identify funding sources and the potential budget available for these works, including a timetable for implementation.
- Ensure that accurate traffic data is being collected from major roads for future requirements.
- Provide NAP annual report to EPA

11.3.2 Year 2 - 2026

- Continue assessing roads identified in Section 9.
- Continue with the verification process on the PIA's regarding noise exposure.
- Continue to identify funding sources and the potential budget available for these works.
- Continue to ensure that accurate traffic data is being collected from major roads for future requirements.
- Provide NAP annual report to EPA

11.3.3 Year 3 - 2027

- Continue to identify funding sources and the potential budget available for these works.
- Continue to ensure that accurate traffic data is being collected from major roads for future requirements.
- Provide NAP annual report to EPA

11.3.4 Year 4 - 2028

- Continue to ensure that accurate traffic data is being collected from major roads for future requirements.
- Undertake full cost benefit analysis for identified PIA's.
- Participate in review process for R5 NAP
- Provide NAP annual report to EPA
- Review the progress of the 2025 – 2028 action plan
- Develop and publish new Noise Action Plan

11.4 Evaluation, Review and Corrective Action Programmes

A review of the progress of this Noise Action Plan will be carried out annually by Cavan County Council to assess progress against any programme of works. An interim summary report will be prepared when deemed necessary. This report will highlight progress in implementation of action plan measures and will also identify areas where corrective action is required or where the proposed measures must be modified for reasons unforeseen at present.

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

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

Appendix A: Glossary

APA	Action Planning Authority - This is the Authority responsible for implementing the Noise Action Plan. Cavan County Council is responsible for the implementation of this Noise Action Plan.
A-weighting	A frequency weighting applied to measured or predicted sound levels in order to compensate for the non-linearity of human hearing.
Acoustic environment	Sound at the receiver from all sources of sound as modified by the environment, as defined in ISO 12913-1:2014.
CNOSSOS-EU: 2020	The common noise assessment method according to the END.
CRTN 1988	The noise calculation method Calculation of Road Traffic Noise 1988.
CQA	Candidate Quiet Area.
CCC	Cavan County Council
dB (decibel)	The unit of sound pressure level, calculated as a logarithm of the intensity of sound. 0 dB is the threshold of hearing, 120 dB is the threshold of pain. Under normal circumstances, a change in sound level of 3 dB is just perceptible. A change of 1 or 2 dB is detectable only under laboratory conditions. A change of 10 dB corresponds approximately to halving or doubling the loudness of sound.
Design Goal	A target limit for noise or vibration adopted during the early design stages of a project, not necessarily having a statutory basis but based on current best practice and the particular circumstances of a given scheme.
Do Minimum	Describes a scenario under which a road scheme that is under consideration does not proceed (sometimes referred to as "Do Nothing").
Do Something	Describes a scenario under which a road scheme that is under consideration proceeds.
EEA	European Environment Agency.
END	Environmental Noise Directive.
EPA	Environmental Protection Agency.
Free Field	Free field noise levels are measured or predicted such that there is no contribution made up of reflections from nearby building façades.
Leq,T	The equivalent continuous sound level - the sound level of a steady sound having the same energy as a fluctuating sound over a specified measuring period T.

L_{den}	The day-evening-night composite noise indicator adopted by the EU for the purposes of assessing overall annoyance. Equation below. $L_{den} = 10 \lg \frac{1}{24} \left(12 * 10^{\frac{L_{day}}{10}} + 4 * 10^{\frac{L_{evening}+5}{10}} + 8 * 10^{\frac{L_{night}+10}{10}} \right)$
L_{day}	The A-weighted long term average sound level as defined in ISO1996-2: 2007, determined over all the day periods over a long-term period (e.g. a year).
L_{evening}	The A-weighted long term average sound level as defined in ISO1996-2: 2007, determined over all the evening periods over a long-term period (e.g. a year).
L_{night}	The A-weighted long term average sound level as defined in ISO1996-2: 2007, determined over all the night periods over a long-term period (e.g. a year).
NAP	Noise Action Plan.
NMB	Noise Mapping Body - Transport Infrastructure Ireland (TII) is the Noise Mapping Body for this Noise Action Plan and they have prepared the strategic noise maps for this purpose.
NPO	National Policy Objective in the National Development Plan.
NRA	National Roads Authority.
NTA	National Transport Authority.
PCQA	Potential Candidate Quiet Area.
Soundscape	The acoustic environment as perceived or experienced and/or understood by a person or people, in context, as defined in ISO 12913-1:2014.
Soundwalk	A walk with a focus on the listening environment.
TII	Transport Infrastructure Ireland.
WebTAG	Transport analysis guidance tool for the proposal of policies and interventions to ensure a consistent approach in transport appraisal.

Appendix B: Bibliography and References

The Environmental Noise Directive ('END') (2002/49/EC)

<https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32002L0049>

The Environmental Noise Regulations 2006 (S.I. 140/2006) (the 'Regulations')

<https://www.irishstatutebook.ie/eli/2006/si/140/made/en/print>

The European Communities (Environmental Noise) Regulations 2018 (S.I. 549/2018)

<https://www.irishstatutebook.ie/eli/2018/si/549/made/en/print>

The European Communities (Environmental Noise) (Amendment) Regulations 2021 (S.I. 663/2021)

<https://www.irishstatutebook.ie/eli/2021/si/663/made/en/print>

WHO 'Environmental noise guidelines for the European Region'

<https://www.who.int/europe/publications/i/item/9789289053563>

The National Planning Framework 2040

<http://www.gov.ie/en/project-ireland-2040/>

European Communities (Environmental Assessment of Certain Plans and Programmes) Regulations, 2004 (S. I. 435/2004)

<https://www.irishstatutebook.ie/eli/2004/si/435/made/en/print>

European Communities (Birds and Natural Habitats) Regulations, 2011 (S. I. 477/2011) ('Habitats Regulations')

<https://www.irishstatutebook.ie/eli/2011/si/477/made/en/print>

Central Statistics Office

<https://www.cso.ie/en/>

Zero Pollution Action Plan (ZPAP)

https://environment.ec.europa.eu/strategy/zero-pollution-action-plan_en

UK Department of Transport's WebTAG workbooks

<https://www.gov.uk/government/publications/tag-environmental-impacts-worksheets>

Environmental Protection Agency 'DRAFT Guidance Note for Noise Action Planning'

<https://www.epa.ie/our-services/monitoring--assessment/noise/>

Environmental Protection Agency 'Noise mapping and action plans'

<https://www.epa.ie/our-services/monitoring--assessment/noise/noise-mapping-and-action-plans/>

EU Regulation 2019/1010 – Alignment of Environmental Reporting Obligations

<https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A32019R1010>

EEA Reportnet

<https://reportnet.europa.eu/>

EU Directive 2020/367 – Assessment Methods for Harmful Effects of Environmental Noise

<https://eur-lex.europa.eu/eli/dir/2020/367/oj>

Commission Delegated Directive (EU) 2021/1226 – Amending CNOSSOS-EU
<https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32021L1226>

EPA Maps
<https://gis.epa.ie/EPAMaps/>

TII Strategic Noise Mapping
<https://experience.arcgis.com/experience/411d8841d56a43e5ab9b885eb4680e2e>

Appendix C: Strategic Noise Maps

The Round 4 strategic noise maps for County Cavan, are shown with the two noise indicators specified in the Regulations, Lden and Lnight, respectively. The Round 4 strategic noise mapping is also available online, on a national basis, at the following website:

<https://gis.epa.ie/EPAMaps/>.

Table 11: Colour bands of noise contour results

Band	Colour
30 – 34	dark blue-green
35 – 39	blue-green
40 – 44	light blue-green
45 – 49	light green
50 – 54	yellowish green
55 – 59	light orange
60 – 64	orange
65 – 69	dark orange
70 – 74	magenta
75 – 79	purple
80 - 99	dark purple

Figure 10: Lden: N3 Belturbet Bypass to N3 Cavan Bypass

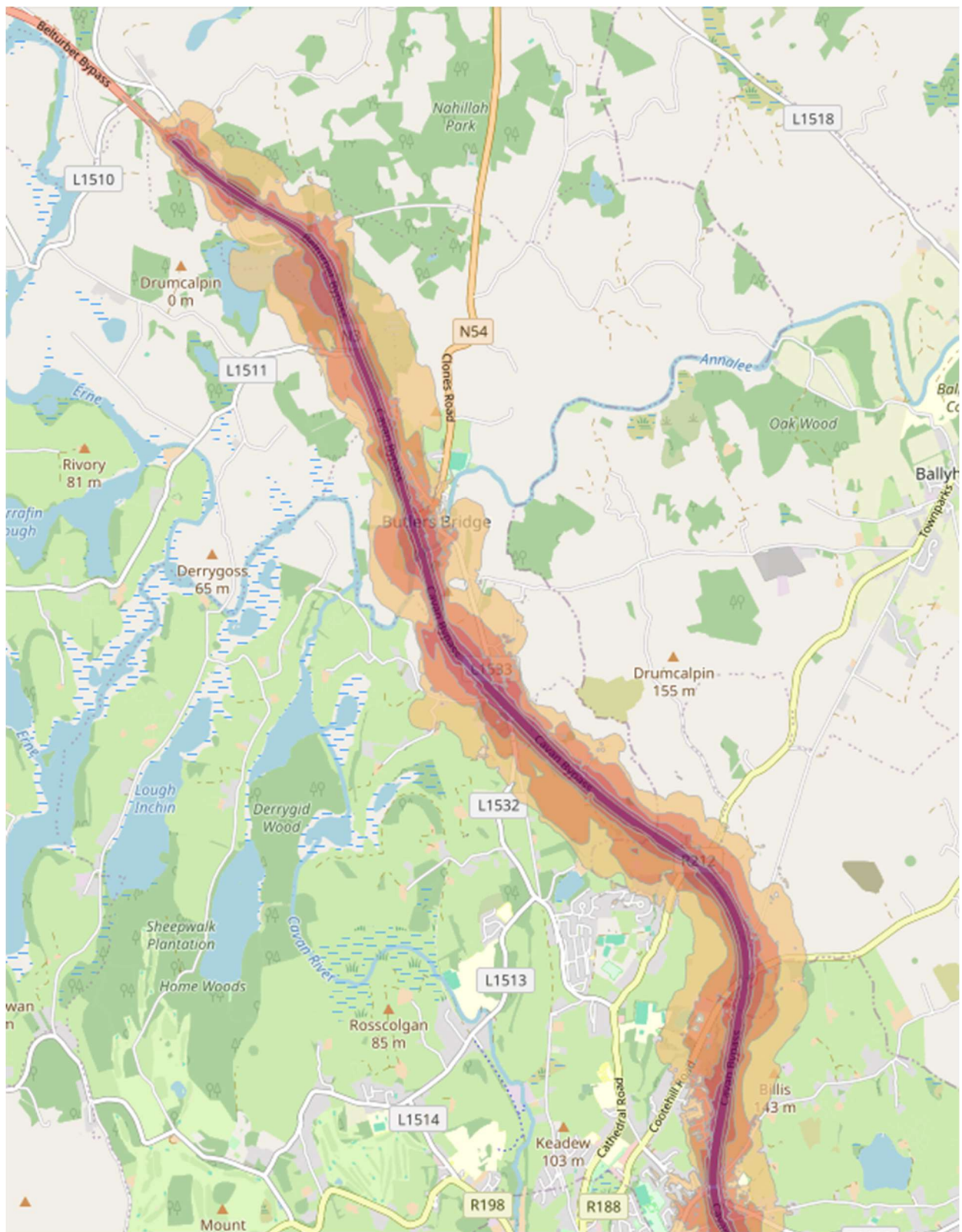


Figure 11: Lden: N3 Cavan Bypass to N55 Ballinagh Town including R212 Cavan Town

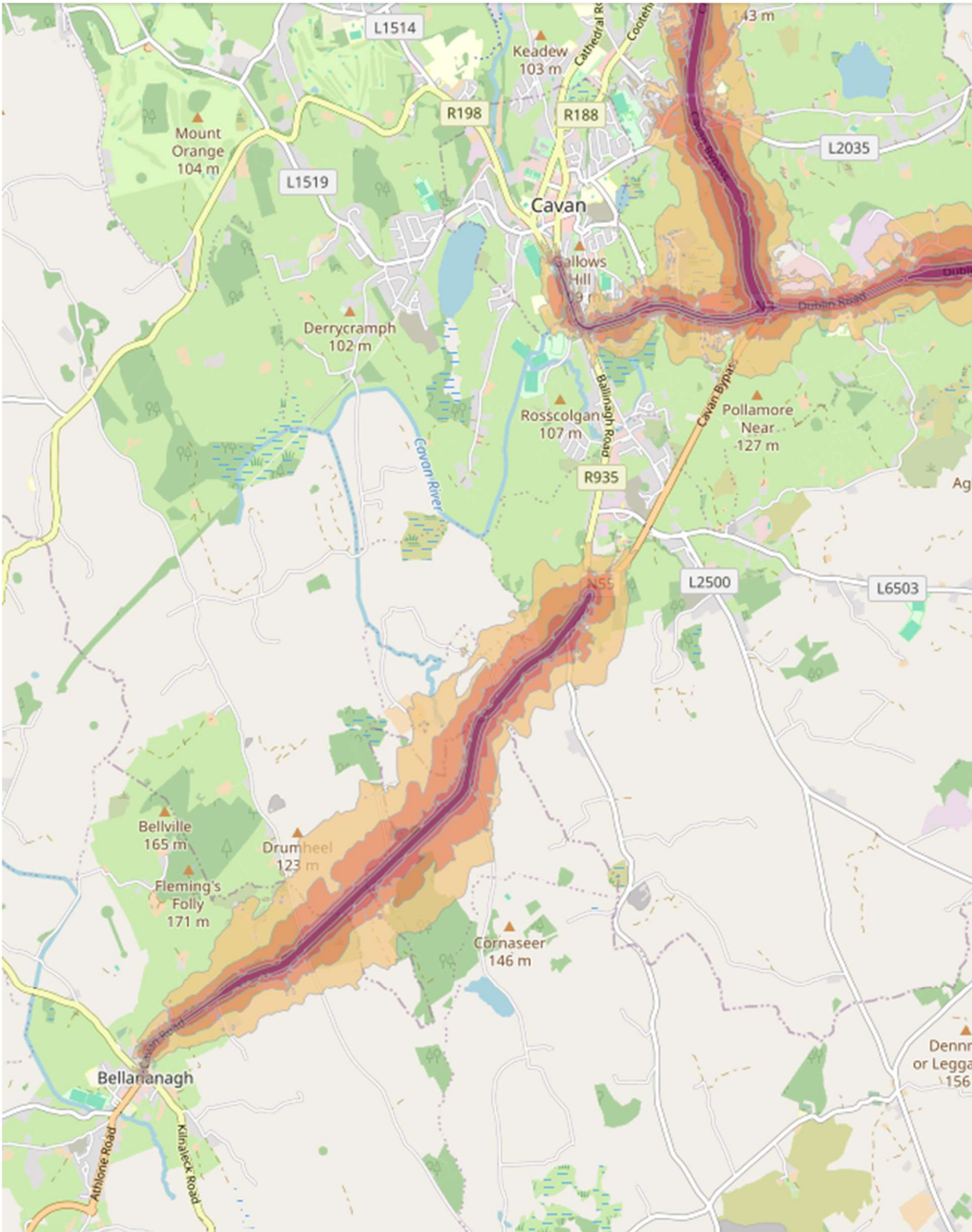


Figure 12: Lden: N3 Cavan Bypass Roundabout to N3 Lavey

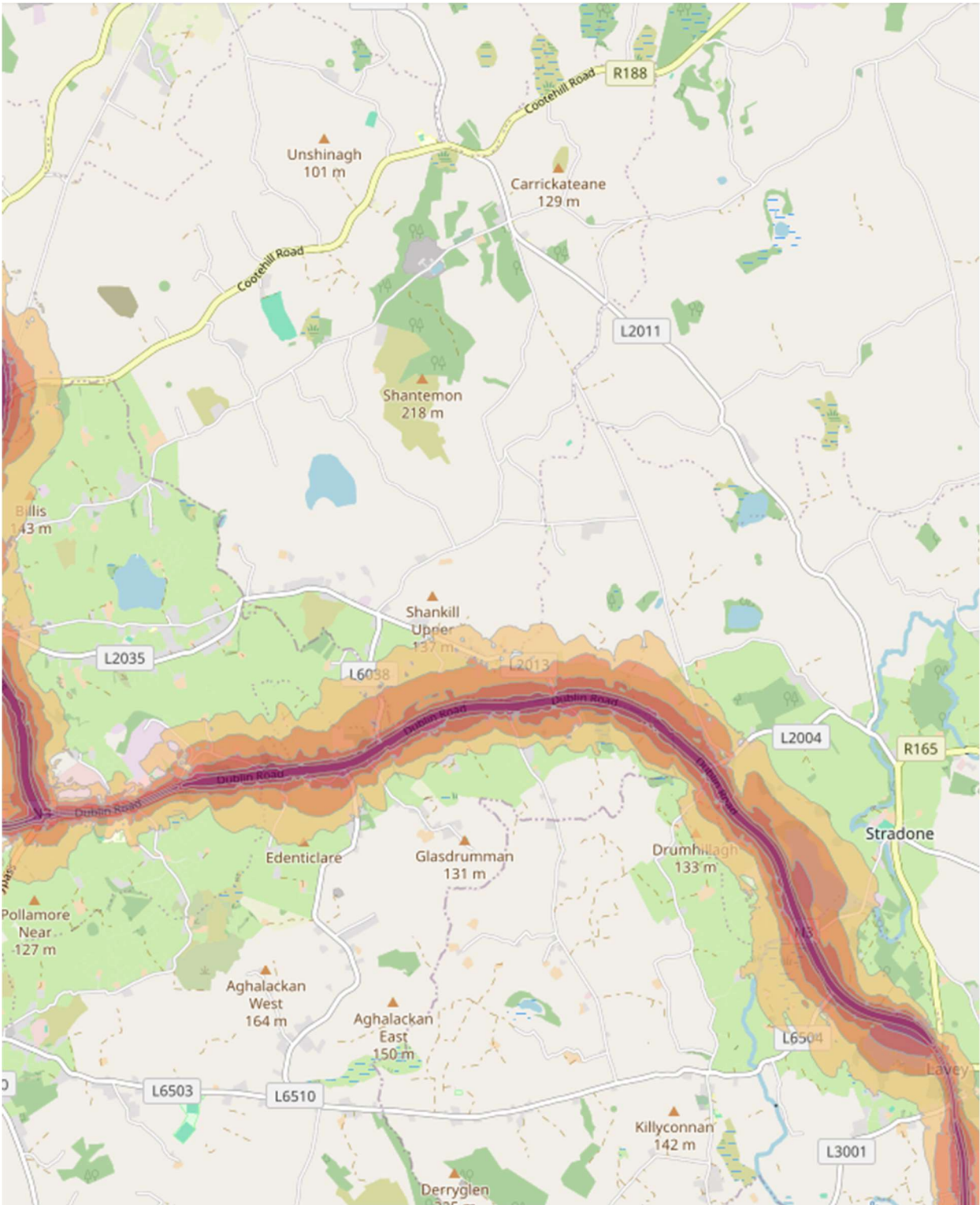


Figure 13: Lden: N3 Lavey to N3 New Inn's

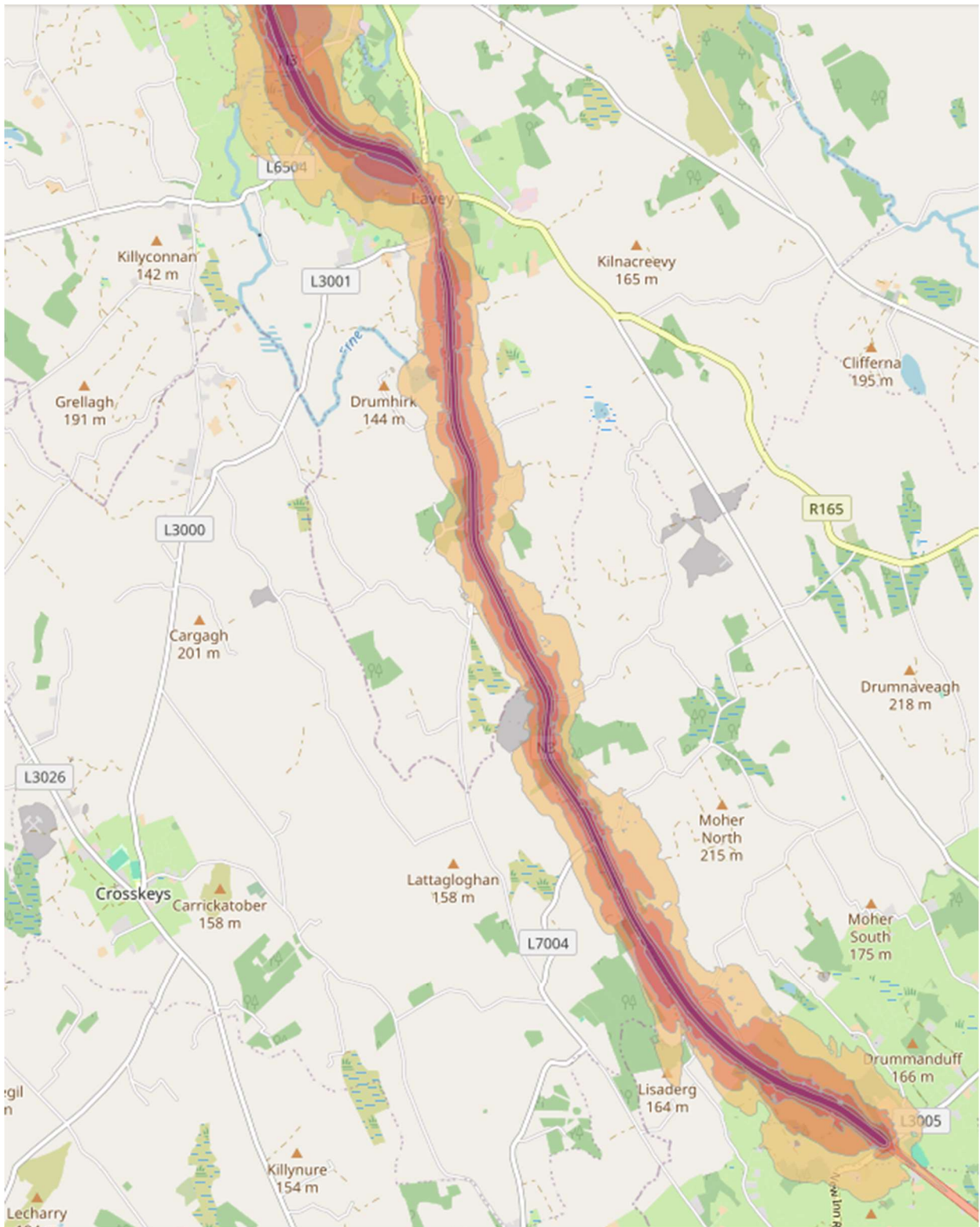


Figure 14: Lden: N3 New Inn's to N3 Virginia Town

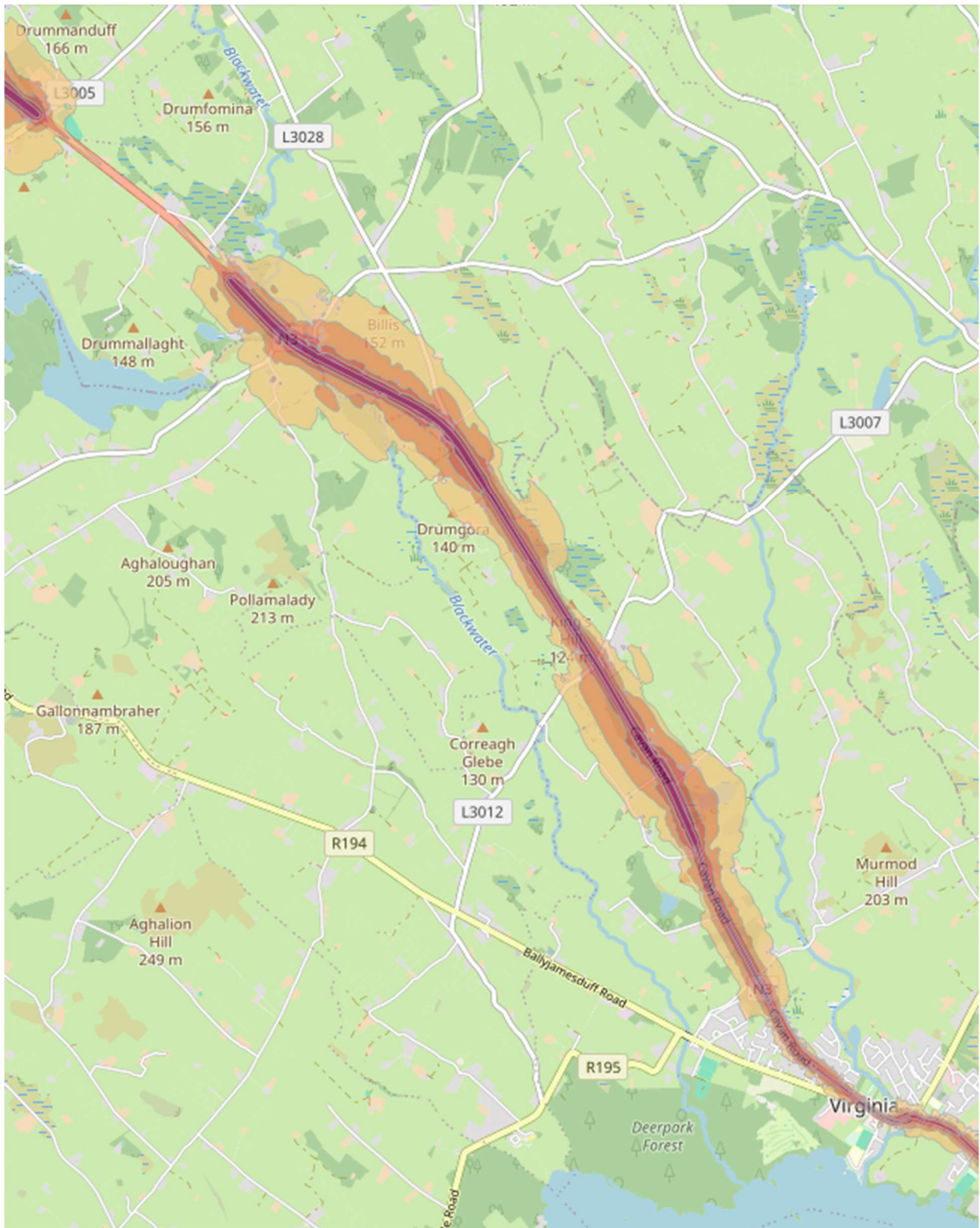


Figure 15: Lden: N3 Virginia Town to N3 Maghera Cavan/Meath Border

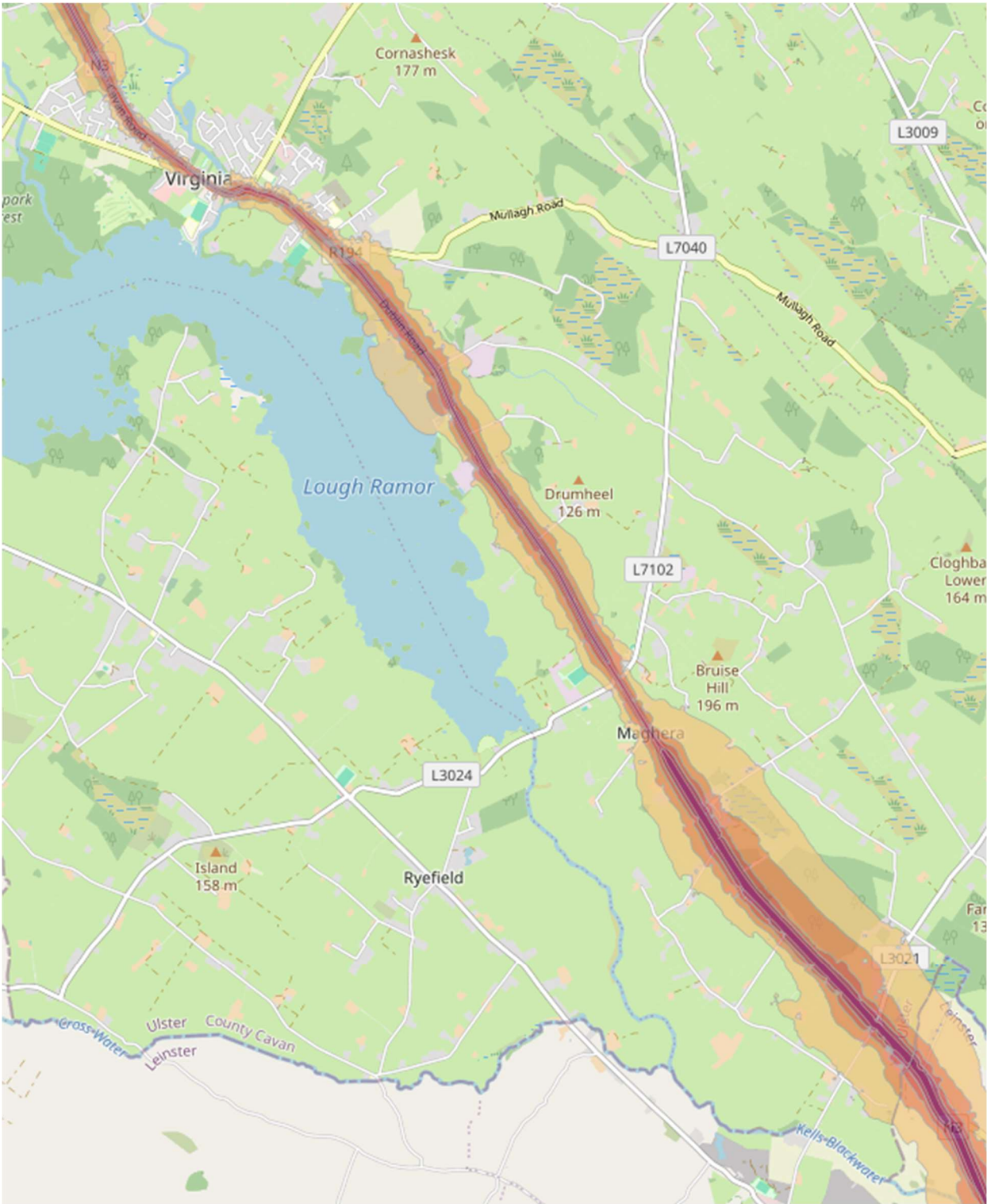


Figure 16: Lnight: N3 Belturbet Bypass to N3 Cavan Bypass

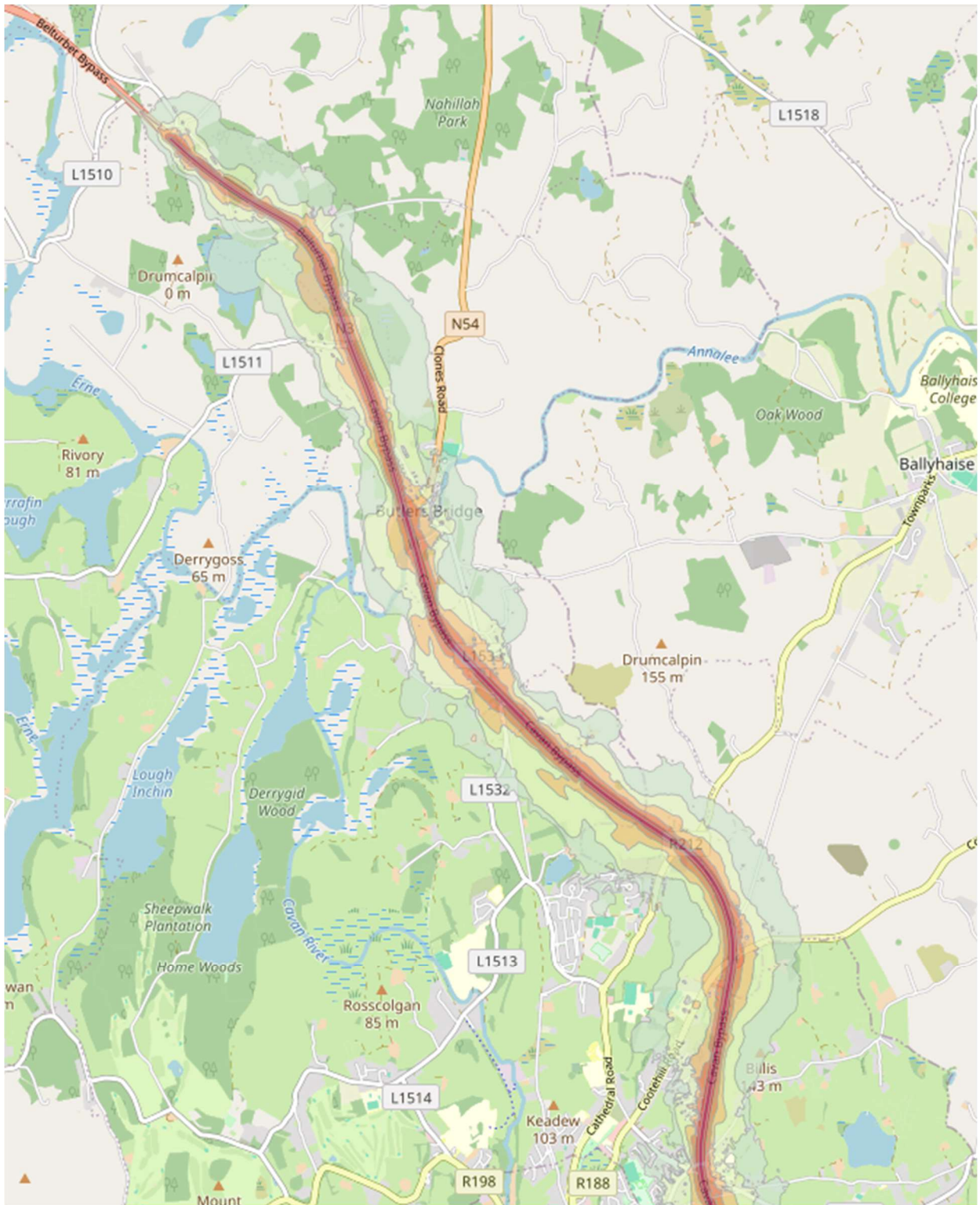


Figure 17: Lnight: N3 Cavan Bypass to N55 Ballinagh Town including R212 Cavan Town

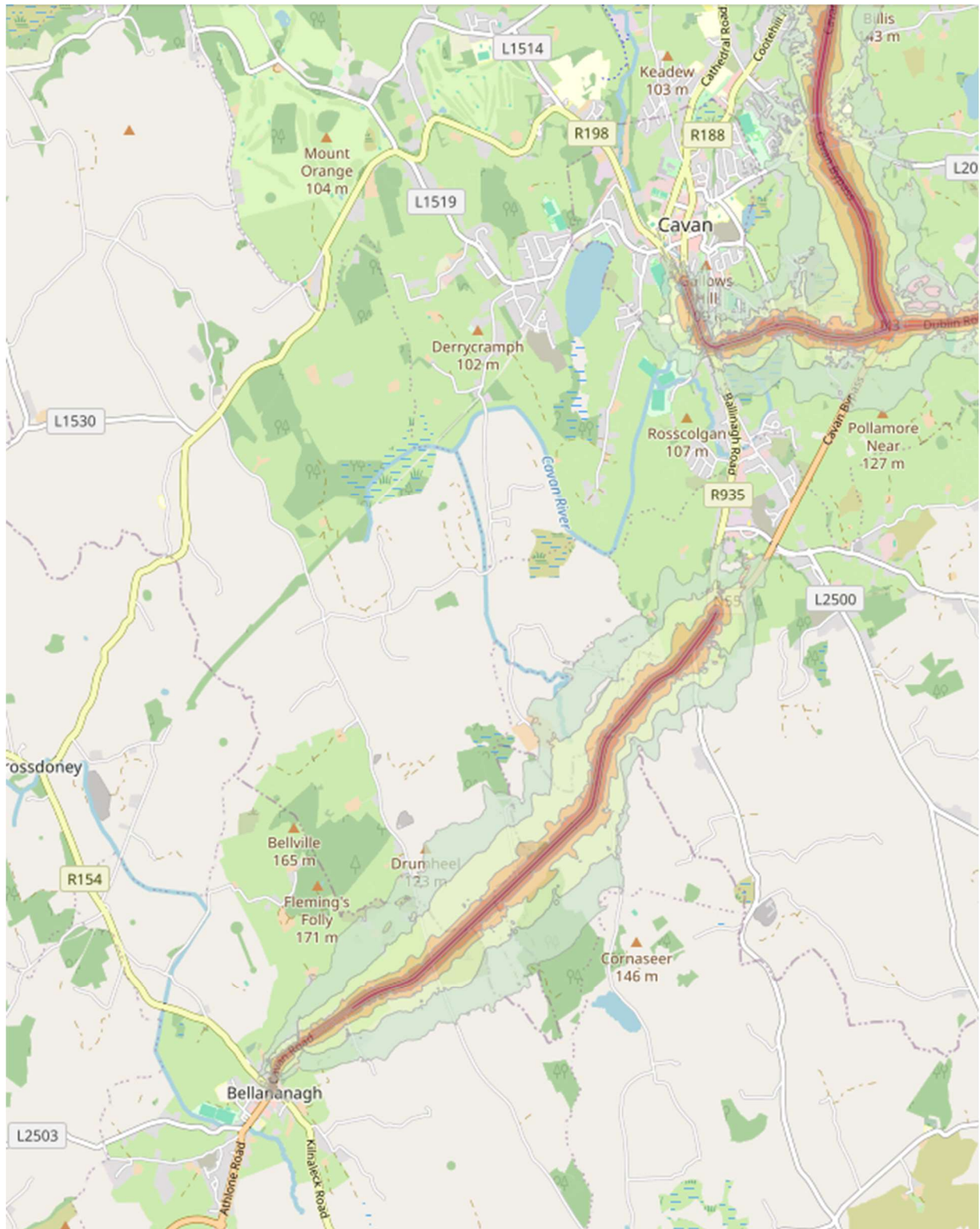


Figure 18: Lnight: N3 Cavan Bypass Roundabout to N3 Lavey

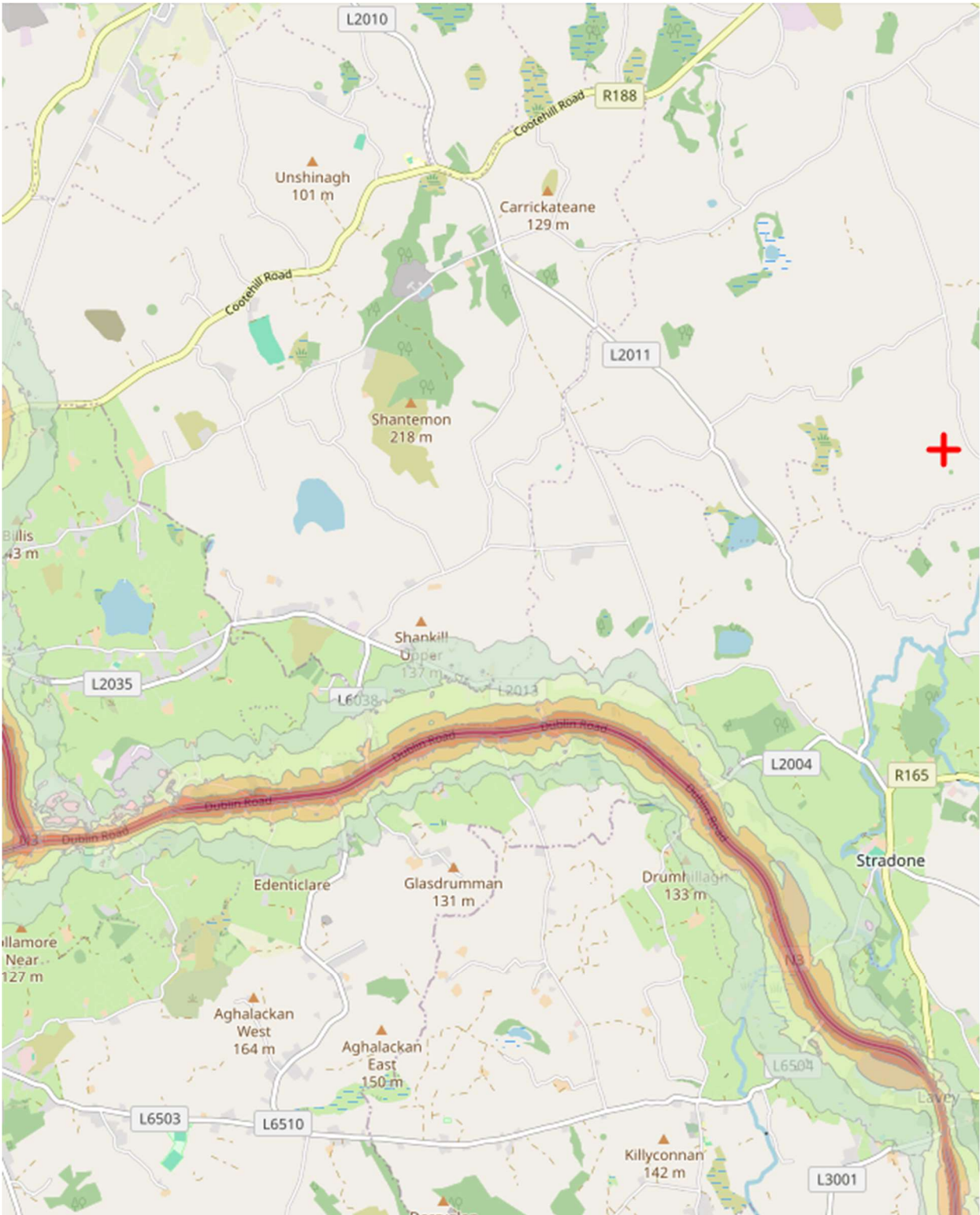


Figure 19: Lnight: N3 Lavey to N3 New Inn's

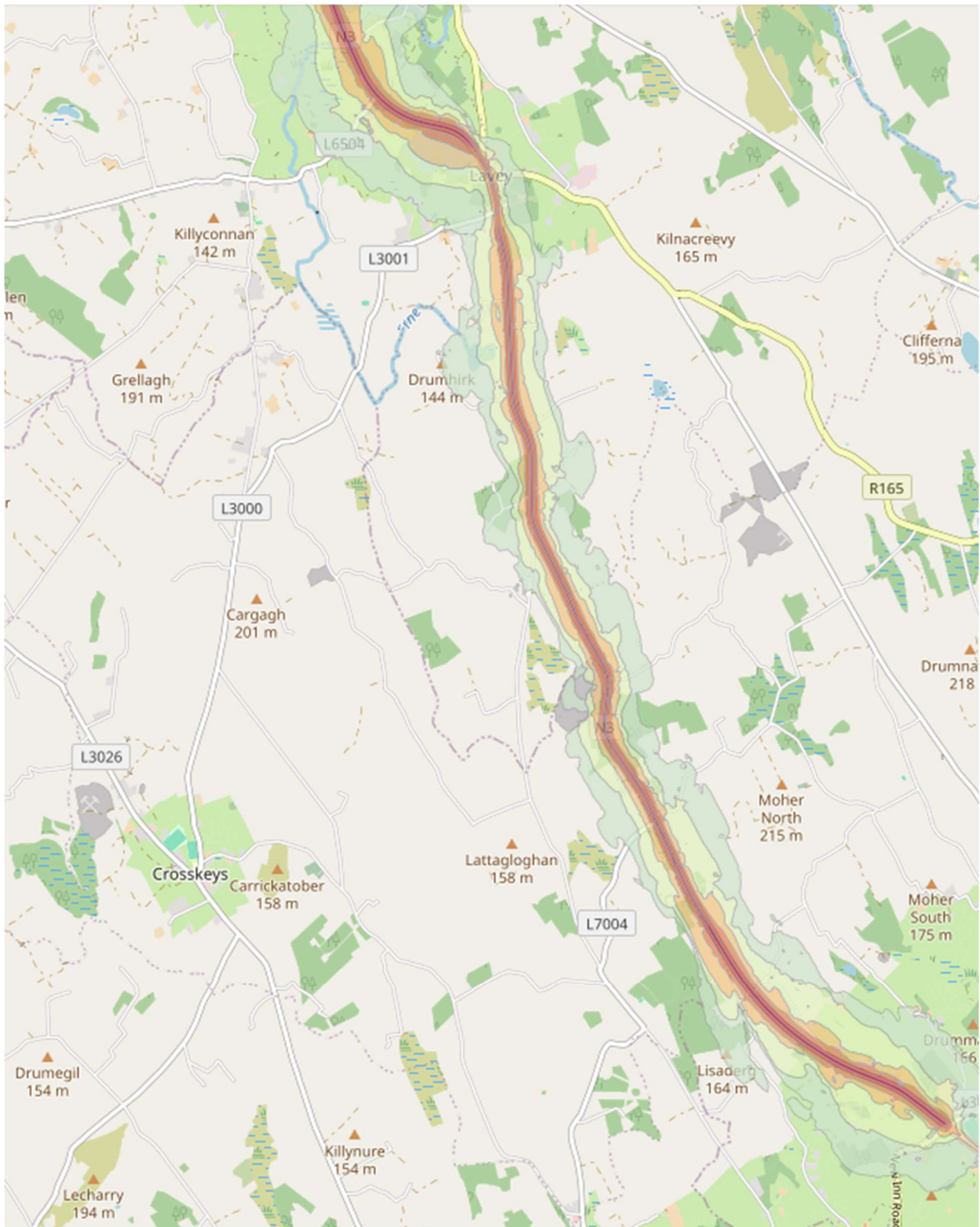


Figure 20: Lnight: N3 New Inn's to N3 Virginia Town

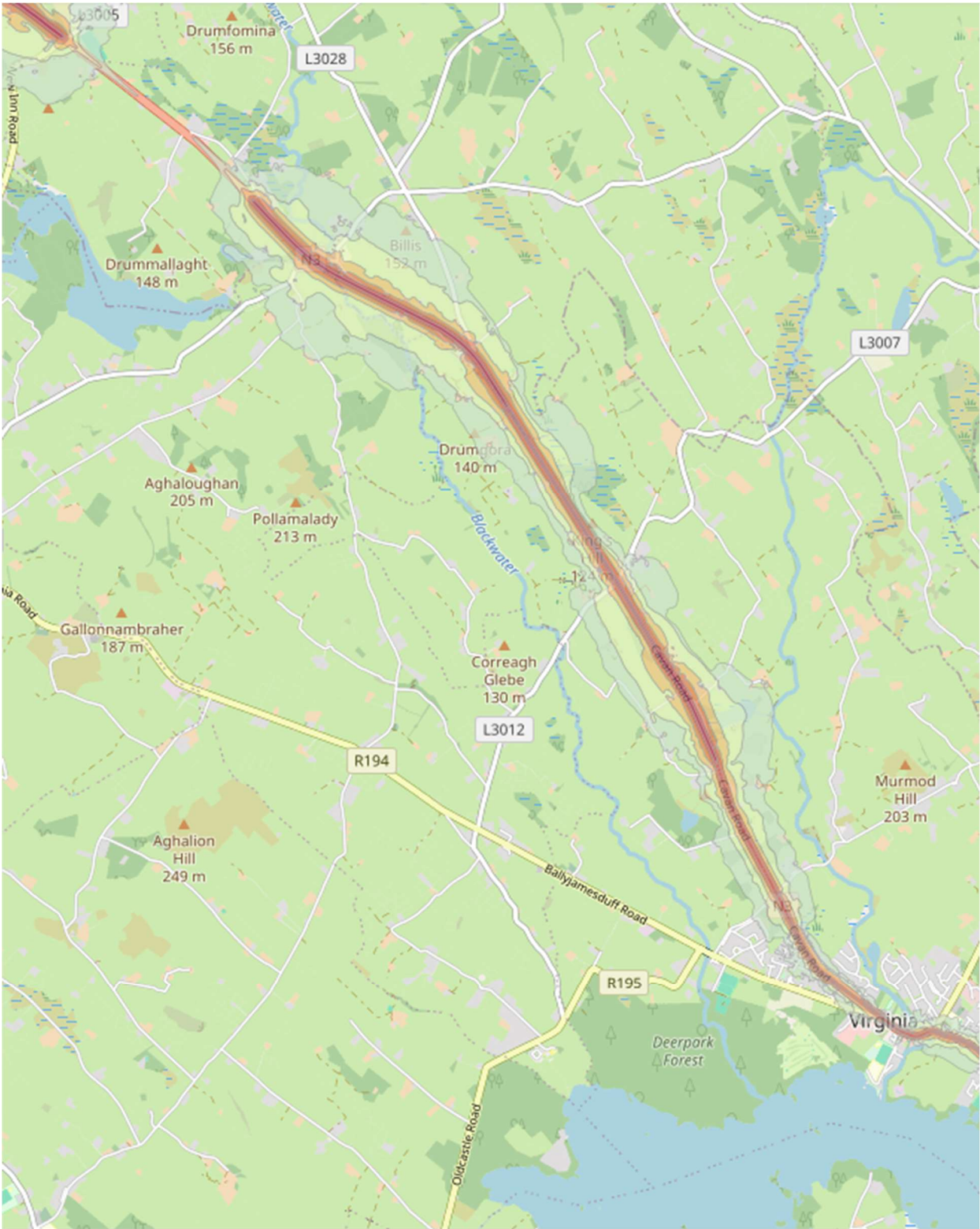


Figure 21: Lnight: N3 Virginia Town to N3 Maghera Cavan/Meath Border

