



Comhairle Contae Thiobraid Árann
Tipperary County Council

Tipperary County Council

Noise Action Plan

2018 - 2023

Municipal Districts:

Clonmel Borough

Carrick-on-Suir

Cashel-Tipperary

Templemore-Thurles

Nenagh

Tipperary County Council Noise Action Plan 2018 revises the previous Tipperary Local Authorities Joint Noise Action Plan 2013 (second round of the Environmental Noise Directive EC 2002/49/EC).

Tipperary County Council consists of 5 Municipal Districts established under the Local Government Reform Act 2014 and replaces the earlier sub county structure of Boroughs/Town Councils and Local Area Committees.

Tipperary County Council Municipal Districts are:

- Clonmel Borough
- Carrick on Suir
- Cashel – Tipperary
- Templemore – Thurles
- Nenagh

This replaced the previous South Tipperary Local Authority (previously consisting of South Tipperary County Council, Clonmel Borough Council and Carrick-on-Suir, Tipperary and Cashel Town Councils) and North Tipperary Local Authority (previously consisting of North Tipperary County Council, Nenagh, Thurles and Templemore Town Councils).

EXECUTIVE SUMMARY

This third round Noise Action Plan has been prepared by Tipperary County Council to address environmental noise from major roads in the county carrying more than three million vehicles per annum. The action planning area covers the following roads or qualifying sections of roads:

- M8 Motorway as it passes through Tipperary (64.8kms);
- M7 Motorway as it passes through Tipperary (57kms);
- N24 National Primary Road as it passes through Tipperary (69.8kms);
- N52 National Secondary Road , from M7 Interchange, (Junction26) to Ardcroney (13Kms);
- N62 National Secondary Road, from M8 Interchange, (Junction 6) to Thurles (8Kms);
- R688 (Cashel to Clonmel Road) for a distance of 1.3kms north from its junction with the N24 National Primary Road at the Cashel Road Roundabout, Clonmel;
- R689 (Urlingford to Clonmel Road) for a distance of 1km north from its junction with the N24 National Primary Road at the Fethard Road Roundabout, Clonmel.

The plan was prepared in accordance with the requirements of EU Directive 2002/49/EC (known as the Environmental Noise Directive, or “END”), which was transposed into Irish Law by the Environmental Noise Regulations 2006, SI No. 140 of 2006. These regulations were revoked in 2018 and the publication of updated regulations is due.

The aim of the Directive and the Regulations is to provide for the implementation of an EC common approach to avoid, prevent or reduce on a prioritized basis the harmful effects, including annoyance, due to exposure to environmental noise.

Environmental noise can be defined as unwanted or harmful outdoor sound created by human activities, including noise emitted by means of transport, road traffic, rail traffic, air traffic and noise in agglomerations over a specified size. Types of noise **not** included in the 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.

Noise Mapping Bodies and Action Planning Authorities were assigned responsibility under the Regulations to draw up a third round of noise maps and prepare action plans for noise from the following sources:

- Major railways with more than 30,000 trains per annum (not applicable to Tipperary)
- Major airports with more than 50,000 flights per annum (not applicable to Tipperary)
- Major Roads with more than 3 million vehicles per annum (applicable to the above roads)
- Agglomerations of greater than 100,000 habitants (not applicable to Tipperary)

In 2017 the Transport Infrastructure Ireland (TII), as the designated Noise Mapping Body for major national roads, prepared noise maps and population exposure assessments for the following national roads passing through the functional areas of County Tipperary which carry more than 3 million vehicles per annum: M7, M8 Motorway, N24 National Primary Road, N 52 National secondary (section from M7 Interchange, (Junction26) to Ardcroney) and N62 National Secondary (section from M8 Interchange, (Junction 6) to Thurles).

Tipperary County Council, as the designated Noise Mapping Body for County Tipperary for major non-national roads, engaged in a centralised approach with a number of other Local Authorities to commission the TII to prepare noise maps and population exposure assessments for the following major non-national roads carrying more than 3 million vehicles per annum:

- R688 (Cashel to Clonmel Road) for a distance of 1.5km north from its junction with the N24 National Primary Road at the Cashel Road Roundabout, Clonmel and
- R689 (Urlingford to Clonmel Road) for a distance of 1km north from its junction with the N24 National Primary Road at the Fethard Road Roundabout, Clonmel.

The results of the assessments have been presented as maps and summary tables of statistics showing the estimated area, approximate number of dwellings and estimated population exposed to long term traffic noise within the action planning area.

The purpose of the Noise Action Plan is to endeavour to manage the existing noise environment and protect the future noise environment within the action planning area. Management of the existing noise environment may be achieved by prioritizing areas for which further assessment and possible noise mitigation may be required. Protection of the future noise environment may be achieved through the planning process such as land-use planning, development planning, sound insulation measures, traffic planning and control of environmental noise sources.

Assessing and Prioritising Actions

The proposed onset levels for assessment of noise mitigation measures for noise due to road traffic will be:

- 70dB, L_{den} and
- 57dB, L_{night}

The proposed onset levels for assessment of noise level preservation for quiet areas, where the existing noise level is considered good are as follows:

- 55dB, L_{den} and
- 45dB, L_{night}

In order to focus resources on areas in most need of improvement, a decision matrix will be applied where the final matrix score is determined based on three variables:

1. The calculated environmental noise level (from the noise mapping data).
2. The type of location (e.g. town centre, commercial, residential).
3. The noise source (i.e. road, rail, airport, agglomeration).

The noise maps will be examined to identify any noise sensitive locations situated within the action planning area. Any noise sensitive locations identified will be tested against Matrix to establish whether mitigation measures need to be carried out to improve the existing noise situation.

Proposed Mitigation Measures

Residences located within the action planning area will be tested using the decision matrix and areas for which further assessment may be required will be identified.

Proposed mitigation measures to reduce noise impacts include:

1. Improved traffic management and smoothing traffic flows. Where relevant, Tipperary Local Authorities will investigate the feasibility of extending speed limit zones. For major national roads, this would be done in consultation with the TII.
2. Where appropriate, new traffic calming areas will be designated and existing traffic calming measures will be optimized.
3. Improvement or changes to road surfaces during routine road maintenance, where necessary, by using low-noise road surfaces where appropriate.
4. Tipperary County Council will strive to reduce traffic density on a countywide basis.
5. Tipperary County Council will ensure that council-owned fleet vehicles are maintained to an adequate level to minimise unnecessary noise generation.

Protection Measures for future improvement

Tipperary County Council will endeavour to utilise the planning process as necessary:

- To incorporate the aims of the present and future noise action plans into the County Development Plans, Town Development Plans and into relevant Local Area Plans, protecting larger areas from road noise. Special consideration should be given to zoning objectives, speed limits and established settlements within the area.
- Developers are encouraged (or required at the discretion of the Planning Authority) to produce a sound impact assessment and implement mitigation measures as follows:

For new developments proposed within the current action planning area

or

For developments proposed near major roads (i.e. traffic volumes in excess of 3 million vehicles per annum or otherwise on a case by case basis).

- Where developments are planned adjacent to major roads, to incorporate acoustical planning into the development design e.g. designing the development so that the access road is adjacent to the major road noise source. It may also involve the use of buffer zones and/or noise barriers and traffic calming measures.
- To ensure that all future developments are designed and constructed so as to minimise noise disturbance.

Tipperary County Council will consider the necessity to provide for a higher standard of façade and window insulation on the most exposed façades in new local authority housing developments located beside major roads. A pre-completion sound insulation test may be necessary prior to habitation.

The Planning Authorities in Tipperary will also consider requiring a higher standard of façade and window insulation for all new multiple residential developments and possibly single one-off housing applications located beside major roads, potentially with a pre-completion sound insulation test required prior to habitation.

Protection measures for future improvement may also include extending speed limit restrictions around built-up areas.

Noise Contour Maps

Strategic noise maps for the action planning area were prepared and the noise indicator contours shown on the noise maps for L_{den} and L_{night} .

Summary Exposure Statistics

Estimated day time and night time population exposure for each of the noise band contours was compiled by reference to geodirectory data within the spatial area of each of the noise band contours and is provided in tabular format below:

Table 1 Population Exposure Data, (Lden)

Decibel Level Contour	2012 Tipperary (North & South) Approximate Population Exposure	2017 Tipperary Approximate Population Exposure
55 – 59	3,591	3,265
60 – 64	2,034	2,010
65 – 69	1,622	1,436
70 – 74	422	220
> 75	0	3
Estimated Population Within Action Plan Area	7,669	6,934

Table 2 Population Exposure Data, (Lnight)

Decibel Level Contour	2012 Tipperary (North & South) Approximate Population Exposure	2017 Tipperary Approximate Population Exposure
50 – 54	2,276	2,163
55 – 59	1,903	1,722
60 – 64	529	296
65 – 69	3	3
> 70	0	0
Estimated Population Within Action Plan Area	4,711	4,184

ACTION PLAN POLICY STATEMENT

Tipperary County Council will seek to address environmental noise from major roads in the county, will endeavour to maintain satisfactory noise environments where they exist and will have regard to acoustical planning in the planning process (within the confines of the Planning and Development Act, 2000 as amended) to endeavour to ensure that future developments include provisions to protect the population from the effects of environmental noise in the interests of residential amenity and public health.

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1 INTRODUCTION

1.1 Background

This Tipperary County Council Noise Action Plan presents the actions that the five Municipal Districts in County Tipperary propose to undertake, to prevent and reduce environmental noise in their functional area, in compliance with the requirements of Environmental Noise Directive 2002/49/EC (END). This plan identifies the road lengths in County Tipperary which have traffic volumes in excess of 3 million vehicles per annum (classified as 'Major Roads' for the purposes of this noise action plan). Strategic Noise Maps for noise emanating from major roads within the functional areas of the Local Authority have been prepared by the TII through the use of a computer software model which calculates the predicted sound levels arising from traffic on the road. These predicted sound levels were then colour coded into 5db bands to produce 'Thematic Noise Maps'. There are no measurements of sound involved in the process. The outputs are all related to calculations produced by the predictive computer model. The regulations require that 'Strategic Noise Maps be reviewed and revised, if necessary, every 5 years'. The first round of maps, produced in June 2007, covered roads with traffic volumes in excess of six million vehicles per day and only applied to very short stretches of road near Clonmel and Nenagh. Due to the re-designation of the 'Major Road' category from 'roads with more than 6 million vehicle passages per year' to roads with '3 million vehicle passages per year', updated noise maps were prepared for the 2013 Plan to reflect this change. The same designation for Major Roads was utilized for the 2018 Maps.

1.2 Sound and Effects of Noise

Environmental noise is a frequent source of complaint regarding environmental issues, especially in densely populated urban areas and residential areas near roads, railways and airports (WHO, European office). Noise contributes greatly to diminishing people's quality of life. Unwanted sound (noise) of sufficient intensity and duration can cause temporary and/or permanent hearing loss. It can also interfere with speech communication, the transmission of other auditory signals, can disturb sleep and act as a general source of annoyance or disturbance and interfere with the performance of complicated tasks and the opportunity for privacy. In particular, exposure of people to day time noise levels above 65 dB(A) can cause severe health problems. The World Health Organisation has set guideline levels for annoyance at 55 dB(A) representing daytime levels below which a majority of the adult population will be protected from becoming moderately or seriously annoyed.

1.3 Purpose and Scope of the Environmental Noise Directive

EU Directive 2002/49/EC (known as the Environmental Noise Directive, or “END”) deals with 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 prioritized basis the harmful effects, including annoyance, due to exposure to environmental noise.”

The Directive requires that Member States:

1. Undertake strategic noise mapping to determine exposure to environmental noise;
2. Ensure information on environmental noise and its effects is made available to the public;
3. 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. Such Noise Action Plans must be reviewed or revised every five years.

1.4 Purpose and Scope of the Environmental Noise Regulations

- ▶ END was transposed into Irish Law by the Environmental Noise Regulations 2006, SI No. 140 of 2006. Whilst these regulations were revoked by the Supreme Court in 2018. In accordance with Article 6.2 of the Environmental Noise Directive 2002/49/EC (END), the European Commission developed Common NOise aSSessment methOdS (Commission Directive (EU) 2015/996 (CNOSSOS-EU) for road, railway, aircraft and industrial noise to be used after adoption by the Member States for the purpose of strategic noise mapping. The new regulation has been under section 3 of the European Communities Act 1972 (No. 27 of 1972) as this is the most usual vehicle for transposing EU law.

CNOSSOS-EU sets out a two-stage process for addressing environmental noise:

- Firstly, noise must be assessed through the preparation of strategic noise maps for areas and infrastructure falling within defined criteria, e.g. large agglomerations, major roads, railways and airports.
- Secondly, it requires the preparation of Noise Action Plans based on the results of the mapping process for each area concerned. The fundamental objective of action plans is the prevention and reduction of environmental noise.

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

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

1.5 Roles and Responsibilities of Designated Bodies

The EPA, being the designated national authority charged with overseeing the implementation of the Regulations, is responsible for reporting the results of the strategic noise mapping and action planning to the European Commission. The EPA is also required to provide advice and guidance to the relevant noise mapping bodies and action planning authorities.

1.5.1 Noise Mapping Bodies

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

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

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

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

1.5.2 Action Planning Authorities

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

1.6 Key Phases in Preparation of Third Round of Noise Action Plans

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

1.6.1 Review of First Round of STRATEGIC Noise Maps and Action Plans

A review of the strategic noise maps in relation to road traffic was carried out. Due to the re-designation of the 'Major Road' category from 'roads with more than 6 million vehicle passages per year' to roads with '3 million vehicle passages per year' a revision of the maps was required. There continues to be no noise mapping requirement with regard to large agglomerations, railways and major airports either due to their non-existence or being below the relevant threshold in the case of rail traffic.

1.6.2 Review of Second and Third Round of STRATEGIC Noise Maps and Action Plans

A review of the second and third round of strategic noise maps (2012 & 2018) in relation to road traffic was carried out. The designation of 'Major Road' category is unchanged at roads with '3 million vehicle passages per year' therefore the same roads were mapped in the third round as for previous round. There continues to be no noise mapping requirement with regard to large agglomerations, railways and major airports either due to their non-existence or being below the relevant threshold in the case of rail traffic.

1.6.3 Identification of Areas required to be Mapped

The Directive applies to environmental noise to which humans are exposed and in particular in built-up areas, in public parks or other quiet areas in an agglomeration, in quiet areas in open country, near schools, hospitals and other noise sensitive buildings and areas. It defines Major

Roads as meaning 'a regional, national or international road, designated by the Member State, which has more than three million vehicle passages a year.'

With respect to the Tipperary Local Authority, strategic noise maps and associated action plans need be prepared for major roads only. The requirements for noise maps relating to major railways, major airports or agglomerations of greater than 100,000 do not apply within the functional area of the local authority in Tipperary.

The TII has identified the following national roads within Tipperary Local Authority functional area as having more than three million vehicle passages a year and the respective local authority has identified the following non-national roads within the Tipperary County Council functional area as having more than three million vehicle passages a year:

- M8 Motorway as it passes through Tipperary (64.8kms);
- M7 Motorway as it passes through Tipperary (57kms);
- N24 National Primary Road as it passes through Tipperary (69.8kms);
- N62 National Secondary Road, from M8 Interchange (Junction 6) to Thurles (8Kms);
- N52 National Secondary Road, from M7 Interchange (Junction26) to Ardcroney (13kms);
- R688 (Cashel to Clonmel Road) for a distance of 1.3kms north from its junction with the N24 National Primary Road at the Cashel Road Roundabout, Clonmel;
- R689 (Urlingford to Clonmel Road) for a distance of 1km north from its junction with the N24 National Primary Road at the Fethard Road Roundabout, Clonmel.

1.6.3 Preparation of Strategic Noise Maps

The purpose of the strategic noise maps for Tipperary is to identify the areas affected by different levels of environmental noise from major roads. The maps are a visual representation of estimated noise contour bands within the action plan area from 55dB Lden to greater than 75dB Lden, in 5dB bands. The maps have been linked to population data to estimate the numbers of people located in each environmental noise bands. This information is then used to produce noise action plans, which will endeavour to manage existing environmental noise from the major sources and protect the future noise environment.

The TII prepared strategic noise maps for all major roads in Tipperary with more than 3 million vehicles passages per annum. The major roads were identified based on the most recent traffic data available. The TII ran the computerised noise modeling programme CRTN for the relevant roads and generated GIS grids of noise levels as an output of the noise modelling process. The Environmental Noise Regulations prescribes CRTN to be used for the assessment of sound emissions from road sources.

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

- 55-59
- 60-64
- 65-69
- 70-74
- ≥ 75

The resultant noise maps are a visual representation of the estimated noise level bands within each action plan area. This has highlighted areas along the mapped routes which experience high environmental noise levels and this plan proposes appropriate mitigation measures as required.

1.6.4 Development of the Noise Action Plan

The Action Plan is designed with the twin aims of avoiding significant adverse health impacts from noise and preserving environmental noise quality where it is good. The Regulations require Tipperary Local Authority as the Action Planning Authority for Tipperary to consult the public when drawing up and revising Action Plans. To comply with this requirement a formal public consultation exercise on the Draft Action Plan will be undertaken. The results of the public participation will be taken into account and the public informed of the decisions taken. Sufficient time will be provided for each stage of public participation process.

1.6.5 Implementation of the Noise Action Plan

Noise Action Plans are to be implemented within a five year time scale. The Regulations require planning authorities to review (and revise, if necessary) the Noise Action Plan every five years, or sooner where a material change in environmental noise in the area occurs.

2 EXISTING NOISE MANAGEMENT LEGISLATION AND GUIDANCE

2.1 National Legislation and Guidance

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

Schools, hospitals, churches, funeral homes and other noise sensitive premises have particular requirements for low level noise environments in order to be able to function effectively. Noise levels in these noise sensitive locations must be managed to address external noise break-in, as well as room-to-room transmission. There were no designated quiet area or noise sensitive locations identified within the second round Noise Action Plan.

2.1.1 Environmental Protection Agency Act 1992

The existing statutory provisions have primarily come about on foot of the Environmental Protection Agency Act of 1992. Sections 106 to 108 of the Act are of direct relevance, and may be summarised as follows:

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

2.1.2 IPPC and Waste Licensing

Noise conditions are routinely imposed as part of an IPPC licence. The relevant guidance is set out in the EPA publication “*Guidance Note for Noise in Relation to Scheduled Activities*”, updated in 2016 to “*Guidance Note for Noise: Licence Applications, Surveys and Assessments in Relation to Scheduled Activities*”. The earlier edition contains suggested noise limits of 55 dB(A) LAr,T for daytime and 45dB(A) LAeq,T for night-time; with said limits to be applied to “*sensitive locations*”. Whilst these limits have a very specific application, they have

appeared in many different contexts and often form the basis for conditions in planning permissions. Similar noise conditions are also imposed on waste-licensed facilities. The 2016 revised guidance sets out clear methodologies for the derivation of appropriate noise criteria, which should be adopted in the case of all new licence applications.

2.1.3 Waste Permitting

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

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

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

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

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

2.1.5 Wind Energy Development Guidelines 2006

With specific regard to wind energy developments, this DEHLG document suggests a *“lower fixed limit of 45dB(A) or a maximum increase of 5dB(A) above background noise at nearby noise sensitive locations”*. The latter requirement may be relaxed in areas with low

background levels. A fixed limit of 43dB(A) at nighttime is deemed appropriate, as there is no requirement to protect external amenity. It should be noted that the Department of the Environment, Community and Local Government in conjunction with the Department of Communications, Energy and Natural Resources intends to undertake a technical update of the guidance on noise (including separation distance) and shadow flicker in the Wind Energy Development Guidelines 2006.

“Good Practice for Wind Energy Development Guidelines” was issued by the Department of Communications, Climate Action and Environment in December 2016.

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

2.1.6 Quarries and Ancillary Activities

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

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

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

2.1.7 Building Regulations

The current Irish Building Regulations call for certain constructions to offer “reasonable resistance” to both airborne and impact sound. In the absence of any form of objective criterion, reference is often made to the guidance values put forward in the “Similar Construction” method described in Technical Guidance Document E. For buildings constructed in the vicinity of noise sources it would be appropriate for specific façade noise insulation values, based upon a target internal noise level, to be a stated requirement of the construction, potentially with a pre-completion sound insulation test required prior to habitation. This would help to ensure that the design targets of the construction are met in practice.

2.1.8 Transport Infrastructure Ireland (TII)

Transport Infrastructure Ireland (previously the National Roads Authority (NRA)) published "Guidelines for the Treatment of Noise and Vibration in National Road Schemes", which sets out the procedure to be followed in respect of "the planning and design of national road schemes".

2.1.9 Planning Guidance

Aside from the guidelines for spatial planning and national roads, wind energy developments and quarries there is currently no national policy or guidance to address noise issues as part of the planning process. Tipperary County Council will set conditions relating to noise as part of a planning permission where the planning authorities consider that excessive noise may result from the development.

The Department of the Environment, Community and Local Government (DECLG) has published the following documents relating to sustainable development in the urban environment (ref guidance document):

- Sustainable Urban Housing: Design Standards for New Apartments (Guidelines for Planning Authorities), September 2007;
- Sustainable Residential Development in Urban Areas: Consultation draft guidelines for Planning Authorities, May 2009; and
- Urban Design Manual: A best practice guide (A companion document to the Planning Guidelines on Sustainable Residential Development in Urban Areas), May 2009.

The Association of Acoustic Consultants Ireland (AACI) have published a document, Environmental Noise Guidance for Local Authority Planning & Enforcement Departments,

which provides advice for local authority officers involved in enforcement, assessment of noise reports, & drafting of noise conditions for planning permissions & permits.

2.2 Tipperary Local Authorities Planning Policy

The County Development Plans for South Tipperary and North Tipperary recognise the significance of addressing environmental nuisance in a planning context. North and South Tipperary County Councils were amalgamated to Tipperary County Council in 2014 and the North and South County Development Plans were republished following a variation process to incorporate consistent policies and objectives across the county.

- South Tipperary County Development Plan 2009, adopted in February 2009;
- North Tipperary County Development Plan 2010, adopted in July 2010.

Section 9.28 of South Tipperary County Development Plan 2009 – 2015 specifically refers to the Environmental Noise Directive (END) (2002/49/EC) and where planning applications are submitted in close proximity to the national road network (both proposed and existing) and would result in a breach of the TII's design goal for sensitive receptors exposed to road traffic noise, the developer shall identify and propose noise mitigation measures within the zone of influence. In this regard the developer should refer to the Environment Noise Regulations 2006. The cost of implementing mitigation measures shall be borne by the developer.

The North Tipperary County Development Plan 2010-2016, has incorporated the following policies to ensure that the impact of noise is fully considered in assessing development proposals:

Policy TRANS 6(a) Motorway Set Back

It is the policy of the Council to ensure that new developments are set back a minimum of 90m from motorways within the County, except in exceptional circumstances.

Policy ENV 43: Noise and Dust

It is the policy of the Council to seek to minimise the noise and dust through the planning process by ensuring that the design of future developments incorporates measures to prevent or mitigate the transmission of dust, noise and vibration where appropriate.

Where permissions are granted in County Tipperary conditions relating to siting, noise, landscape works, site restoration and other matters can be used to safeguard the environment

and amenity of the area and in the interests of the proper planning and sustainable development of the area.

Consideration of noise issues through the planning process are also addressed in Tipperary in the current Town and Local Area Development Plans:

Cashel and Environs Development Plan 2009;
Carrick on Suir Town Development Plan 2013;
Clonmel and Environs Development Plan 2013;
Tipperary Town and Environs Development Plan 2013;
Nenagh Town and Environs Development Plan 2013;
Thurles and Environs Development Plan 2009;
Templemore, Environs Development Plan, 2012;
Cahir Local Area Plan 2011;
Roscrea Local Area Plan 2012;
Holycross Local Area Plan 2006.

3 DESCRIPTION OF THE ACTION PLANNING AREA

3.1 Population Data

The major towns in the County are Clonmel, Carrick on Suir, Tipperary Town, Cahir and Cashel, Nenagh, Thurles, Roscrea and Templemore. There are no designated quiet areas in any of these towns.

Based on Census 2016 data the population figures for these towns are:

Settlement	Census 2016 Population
Clonmel Town	17,140
Nenagh Town	8,968
Thurles Town	7,940
Carrick-on-Suir Town	5,771
Roscrea	5,446
Tipperary Town	4,979
Cahir	3,593
Cashel Town	4,422
Templemore	1,939

3.2 Road Network

The administrative area of County Tipperary has a road network of 5,704 km made up as follows:-

Road Categories	South Length Km	North Length Km	Total Length Km	Km % of Total
National Primary	117	73	190	3.3%
National Secondary	41	104	145	2.5%
Regional Main	475	410	885	15.5%
Local Primary & Secondary	963	1677	3553	62.3%
Local Tertiary	467	464	931	16.3%
Total			5,704	

The National Primary Roads M8 (Dublin to Cork), M7 (Limerick to Dublin) and N24 (Limerick to Waterford) traverse the County, as do the National Secondary Roads N52, N62, N65, N74 N75, N76.

The National Primary Roads M8 and M7 form part of the strategic links between Dublin and Cork and Dublin and Limerick. The National Primary Road N24 forms the key east-west transport corridors for the region, linking the two 'Atlantic Gateway' cities of Waterford and Limerick via Carrick-on-Suir, Clonmel, Cahir, Tipperary and Limerick Junction.

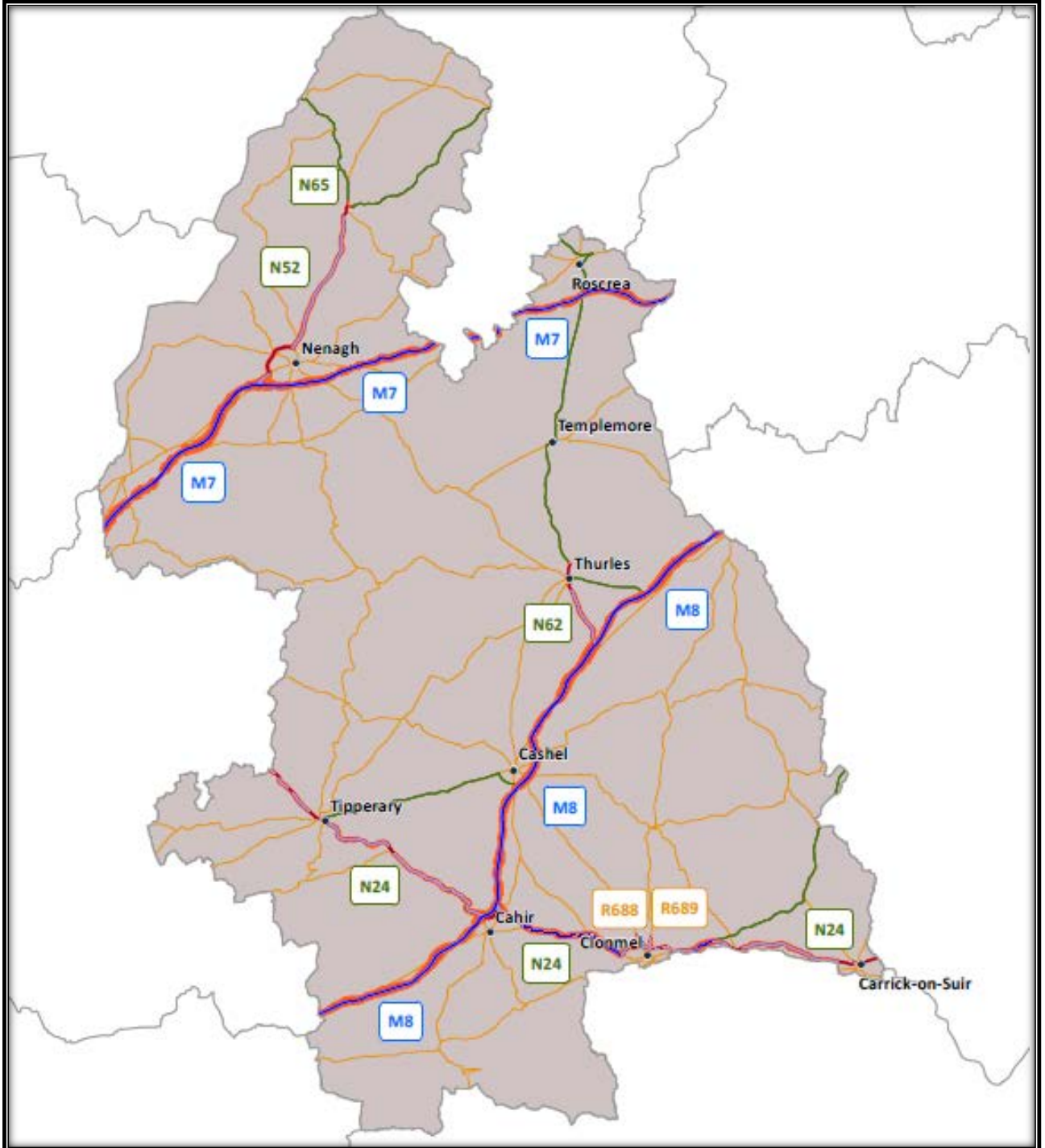
3.3 Extent of Action Planning Area

An overview of the Noise Action Planning Area in Tipperary is provided in Figure 1 and comprise of lands adjacent to following major roads in the County. The Action Planning Area is the area affected by noise from a major road carrying greater than 3 million vehicles per annum. Vehicle count data was obtained from Local Authority and TII road surveys. The exact action planning area presented in Appendix IV is a clearly defined area adjacent the following major roads

- M8 Motorway as it passes through Tipperary (64.8kms);
- M7 Motorway as it passes through Tipperary (57kms);
- N24 National Primary Road as it passes through Tipperary (69.8kms);
- N52 National Secondary Road, from M7 Interchange (Junction26) to Ardcroney (13kms);
- N62 National Secondary Road, from M8 Interchange (Junction 6) to Thurles (8kms);
- R688 (Cashel to Clonmel Road) for a distance of 1.3kms north from its junction with the N24 National Primary Road at the Cashel Road Roundabout, Clonmel;
- R689 (Urlingford to Clonmel Road) for a distance of 1km north from its junction with the N24 National Primary Road at the Fethard Road Roundabout, Clonmel.

The boundary of the lands is not defined by distance from the road but rather it is the land area defined by computer modelling to be affected by noise levels of greater than 45dB(A) Lnight and/or 55dB(A) Lden arising from traffic on the road.

Figure 1



Tipperary Functional Area Roads Included in Action Planning Area (Coloured Red)

4 RESPONSIBLE AUTHORITY FOR ACTION PLANNING

4.1 Name and Contact Details

This Noise Action Plan for County Tipperary has been prepared by:

- Tipperary County Council
Civic Offices
Emmet Street
Clonmel
County Tipperary
- Tipperary County Council
Civic Offices
Limerick Road
Nenagh
County Tipperary

4.2 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 (TII) will be involved in the implementation of any mitigation measures on the national routes.

4.3 Description of any Noise-Reduction Measures already in force within the Action Planning Area, or Projects in Preparation

Tipperary County Council has undertaken traffic calming measures to reduce traffic speed, and therefore reduce noise from road usage. Transport Infrastructure Ireland has incorporated noise reduction measures in the M7 and M8 motorway projects. The existing noise reduction measures are classed as physical mitigation measures and comprise low noise road surfacing, noise barriers, cuttings, earthen bunds and landscape planting.

5 SUMMARY OF NOISE MAPPING RESULTS

5.1 Overview of the Preparation of the Noise Map

Sections of the national road network within the functional areas of Tipperary County Council carrying greater than 3 million vehicles per annum were identified by the TII using the National Traffic Model. Sections of non-national roads within the functional areas of Tipperary County Council carrying greater than 3 million vehicles per annum were identified through vehicle count data collected by the Local Authority. Once the sections of the road network carrying greater than 3 million vehicles per annum were identified, the TII prepared strategic noise mapping for these qualifying sections of national and non-national roads using a computer model recommended by the European Commission's advisory group on environmental noise.

The model used was the UK national computation method "Calculation of road traffic noise (CRTN), Department of Transport, HMSO, London, 1988", adapted as set out in paragraph 2.1 of Annex II to the Directive. The model took account of information such as traffic flow, vehicle composition, traffic speed, road width, road gradient, roadside barriers and features which affect the spread of noise such as buildings and the shape of the ground (e.g. earth bunds), and whether the ground is acoustically absorbent (e.g. fields) or reflective (e.g. paved or water).

A more detailed description of the method used to produce the strategic noise maps is included in **Appendix II**.

5.2 Presentation of Results

5.2.1 Noise Contour Maps

The strategic noise map is attached in **Appendix IV**. Each map shows colour-coded contours of different noise bands, identifying areas that are relatively louder or quieter. The noise indicator contours shown on the noise maps are L_{den} and L_{night} . These are defined as follows (more detailed definitions can be found in Appendix I):

- L_{day} : The A weighted average sound level over the 12hr day period of 0700-1900 h;
- $L_{evening}$: The A weighted average sound level over the 4hr evening period of 1900-2300 h;
- L_{night} : The A-weighted average sound level over the 8hr night period of 2300-0700 h;
- L_{den} : The day, evening, night level. L_{den} is a logarithmic composite of the L_{day} , $L_{evening}$, and L_{night} levels but with a 5 dB(A) weighting added to the $L_{evening}$ value and a 10 dB(A) weighting added to the L_{night} value.

5.3 Limitations of the Noise Mapping Process

5.3.1 *Limitations of the Computer Modeling Method*

The data used to generate the noise maps was obtained from computer modeling rather than from actual noise measurement. This approach is in accordance with the Noise Regulations. The noise mapping method used does make it difficult to quantify the reduction in noise levels achieved by specific mitigation measures implemented at a local level. Without “before” and “after” noise monitoring results, improvements cannot be quantified. To address this limitation, Tipperary County Council propose that where specific situations are identified for which mitigation measures may be required, and subject to financial resources being made available, a limited amount of noise monitoring will be conducted to confirm that noise levels are unsatisfactory. Where mitigation measures are implemented, further monitoring will be carried out to quantify the effectiveness of the measures.

6 IDENTIFICATION OF AREAS TO BE SUBJECTED TO NOISE MANAGEMENT ACTIVITIES

6.1 Assessing and Prioritising Actions

There are no statutory limits in place in relation to environmental noise exposures at EU or national level. The EPA 'Guidance Note for Noise Action Planning' 2009, recommends that the proposed onset levels for assessment of noise mitigation measures for noise due to road traffic should be as follows:

- 70dB, L_{den}
- 57dB, L_{night}

In order to focus resources on areas in most need of improvement, a decision matrix will be applied, based on work carried out by the Dublin Agglomeration. The final matrix score is determined based on three variables:

1. The calculated environmental noise level (from the noise mapping data);
2. The type of location (e.g. town centre, commercial, residential);
3. The noise source (i.e. road, rail, airport, agglomeration).

1. Calculated environmental noise level

The score under this variable is assigned based on the calculated L_{den} and L_{night} levels for the location.

2. Type of location

This score is assigned based on the type of land use in the area and on the receptor. A higher score is assigned to open countryside on the basis of the expectation that residences in open countryside will have lower ambient noise levels than commercial areas and town centres. A higher score is also assigned to noise sensitive locations because of the requirement for low noise levels for them to function effectively (e.g. schools, churches, funeral homes, hospitals, nursing homes).

3. Noise Source

In Tipperary, the noise source is the same for all assessments (i.e. noise from major roads).

It has been suggested in EPA 'Guidance Note for Noise Action Planning' 2009, that each Action Planning Authority may impose an additional weighting factor to the matrix to include the number of residents at each address. However Tipperary County Council do not propose to impose this additional weighting for the following reasons:

- The number of residents at a particular location may change with change of ownership.
- While there may be only one or two residents at a particular address, their lifestyle habits may be such that they spend considerably more hours around the home than for example a large family where the adults are at work all day and children are at school.

Data obtained from the matrix tool will enable Tipperary County Council to prioritise actions. **A matrix assessment score of 19 or greater will be taken to indicate that the threshold levels may have been exceeded and that the location should be included in the shortlist for further assessment.**

6.2 Preservation of Noise Levels in Noise Sensitive Locations

A quiet area in open country is defined as an area delimited by the action planning authority following consultation with the Agency and approval by the Minister for the Environment, Community and Local Government, that is undisturbed by noise from traffic, industry or recreational activities. At present, there are no such areas identified within the Noise Action Plan Area in Tipperary.

Noise Sensitive Locations are locations for which a quieter noise environment is preferable for effectively carrying out the functions of the particular location. They include schools, libraries, hospitals, nursing homes, funeral homes, churches and other places of worship.

Decision support Matrix 'B' can be applied (Table 5) to identify noise sensitive locations, recreational open spaces or quiet areas for which mitigating measures may be required to preserve a good quality noise environment.

Table 4. Matrix A: Decision Support Matrix to identify and Prioritise Noisy Areas

Priority Matrix				
Location				
Decision Selection Criteria		Score Range Lden	Score Range Lnight	Sub Total
Noise Band	45-49	0	1	
	50-55	0	1	
	55-59	1	2	
	60-64	1	3	
	65-69	2	4	
	70-74	3	5	
	75-79	4	6	
	>/=80	5	7	
Type of Location	Town centre	1	1	
	Commercial	1	2	
	Residential	2	3	
	Noise Sensitive	3	3	
	Open countryside	3	3	
	Recreational open space	2	2	
Type of noise source	Air	3	4	
	Industry	2	3	
	Rail	2	3	
	Road	3	4	
		Total score		

Table 5. Matrix B: Decision Support Matrix to protect noise sensitive locations

Priority Matrix				
Location				
Decision Selection Criteria		Score Range	Score Range	Sub Total
		Lden	Lnight	
Noise Band	<45	0	0	
	45-49	1	2	
	50-54	2	3	
	55-59	3	4	
Type of Location	Noise Sensitive	3	3	
	Quiet area	3	3	
	Recreational open space	2	2	
Type of noise source	Air	3	4	
	Industry	2	3	
	Rail	2	3	
	Road	3	4	
		Total score		

The noise maps will be examined to identify any noise sensitive locations situated within the action planning area. Any noise sensitive locations identified will be tested against Matrix 'A' to establish whether mitigation measures need to be carried out to improve the existing noise situation. They will also be tested against Matrix 'B' to identify whether protective measures need to be taken to preserve the quiet environment at these locations.

7 MITIGATION AND PROTECTION MEASURES

7.1 The Source of Road Noise

The level of environmental noise generated by a particular road is dependent on a range of factors including the number and type of vehicles, the speed of the vehicles, the road surface and the incline. The extent to which the noise travels from the road is affected mainly by the following parameters: distance, weather, the presence of acoustic barriers, buildings, road width, road incline, nature of the topography and whether the ground is acoustically absorbent or reflective. The most significant factor in terms of noise generation is the noise produced by the vehicle. Vehicle noise arises from three sources:

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

Engine noise is the dominant source at lower speeds (under 30km/h for passenger cars/under 50km/h for lorries), tyre/road noise dominates above that and aerodynamic noise becomes louder as a function of the vehicle speed (European Federation for Transport and Environment).

Vehicle noise limits are set in EU legislation and address propulsion noise for new vehicles. Noise emissions are determined by means of a vehicle drive-by test, which measures the noise emitted as the vehicle drives by at 50km/h and accelerates in front of the microphone position. The current drive by test does not include provision for evaluating noise performance in typical urban stop-start traffic situations at lower speeds, where engine noise is the dominant source. Another failing is that the test parameters are set in such a way that vehicles can be designed to pass the test but are considerably louder when driven on the road. A new type of vehicle test has recently been introduced which corrects for these limitations.

The EU noise limits are a valuable tool for ensuring that noise emissions are minimized for new vehicles. However they only apply to new vehicles. As vehicles age, the level of noise produced by the engine increases with wear and tear on the parts but there is at present no requirement in Ireland to assess noise emissions from older vehicles. Another practical limitation to the noise emission limits is that while a newly purchased vehicle may comply with its emission limit, modifications to or removal of the vehicle silencer will result in an excessively noisy vehicle. Installation of a sports exhaust on a vehicle is not illegal at present and is a major contributor to nuisance noise from road vehicles.

Tyre rolling noise emissions have increased over time, predominantly due to the trend towards wider and heavier tyres. Tyre/road contact begins to dominate the noise emission above

The noise levels reflect an annual average 24-hour period. The L_{den} contours shown on the maps range from 55dB to 75dB in 5 contour bands. The L_{night} contours range from 50 dB to 75dB in 5 contour bands. Areas with noise levels of less than 55dB L_{den} and less than 45dB L_{night} are not mapped because these levels are below the threshold for inclusion under the legislation.

5.2.1 Summary Exposure Statistics

Estimated day time and night time population exposure for each of the noise band contours was compiled by reference to geodirectory data within the spatial area of each of the noise band contours compiled by TII and is provided in tabular format below:

Table 1 Population Exposure Data, (L_{den})

Decibel Level Contour	2012 Tipperary (North & South) Approximate Population Exposure	2017 Tipperary Approximate Population Exposure
55 – 59	3,591	3,265
60 – 64	2,034	2,010
65 – 69	1,622	1,436
70 – 74	422	220
> 75	0	3
Estimated Population Within Action Plan Area	7,669	6,934

Table 2 Population Exposure Data, (L_{night})

Decibel Level Contour	2012 Tipperary (North & South) Approximate Population Exposure	2017 Tipperary Approximate Population Exposure
50 – 54	2,276	2,163
55 – 59	1,903	1,722
60 – 64	529	296
65 – 69	3	3
> 70	0	0
Estimated Population Within Action Plan Area	4,711	4,184

30km/h for passenger cars and above 50km/h for lorries. For this reason, it was deemed necessary to regulate tyre/road noise separately at EU level. EC Directive 2001/43/EC complements the vehicle noise emission limits by setting a test procedure and noise limit values for tyre rolling noise. The directive stated that the limit values should be reviewed and revised by summer 2004 but this revision has not yet taken place. A report making recommendations for the revision of the limit values and other aspects of the directive was presented to the European Commission in 2006. The report outlined a proposal for two phases of stricter limit values for 2008 and 2012, for tyres for passenger cars and trucks. The recommendations of the report have not yet been implemented, although the report found that imposition of stricter tyre noise limits would have significant benefits in terms of road noise reduction. As vehicle tyres have a much shorter lifespan than the vehicles themselves, implementation and enforcement of tighter tyre rolling limits would also have a rapidly beneficial effect on road noise.

7.2 Measures To Reduce Noise from Major Roads

7.2.1 Existing Developments

There are a limited number of approaches that can be taken to reduce noise from major roads for *existing* dwellings:

- Traffic calming measures can be employed where the major road passes through a built-up area;
- Changes to the road surface, with the use of low noise road surfacing material in some instances;
- Improved insulation will reduce noise levels within dwellings but this is only effective when windows are kept closed.

7.2.2 Future Developments

The measures available for the protection of future developments from exposure to noise from major roads include acoustical planning measures in land use zoning and development layout, design and specifications, such as: locating residential developments away from major roads; using the lands around major roads feeding into towns for commercial/industrial development; incorporating noise issues into the design of housing developments by locating the access roads and green areas on the major road side of the development, thus increasing the separation distance between the houses and the roads; using a higher standard of insulation for new dwellings adjacent to major roads and also using higher standards of insulation for the

exposed façades of new dwellings. These are acoustical planning measures although not all are within the control of the Planning Authority.

7.3 Proposed Measures for Tipperary Action Planning Area

7.3.1 Mitigation Measures

Residences located within the action planning area will be tested using the decision matrix (Matrix A) to prioritise areas for which further assessment may be required.

- Improved traffic management and smoothing traffic flows. Where relevant, Tipperary Local Authority will investigate the feasibility of extending speed limit zones. For major national roads, this would be done in consultation with the TII;
- Where appropriate, new traffic calming areas will be designated and existing traffic calming measures will be optimized;
- Improvement or changes to road surfaces during routine road maintenance, where necessary, by using *low-noise road surfaces where appropriate*;
- Tipperary Local Authority will strive to reduce traffic density on a countywide basis;
- Tipperary Local Authority will ensure that council-owned fleet vehicles are maintained to an adequate level to minimise unnecessary noise generation.

7.3.2 Protection Measures for Future Improvement

Tipperary Local Authority will endeavour to utilise the planning process as necessary:

- To incorporate the aims of the present and future noise action plans into County and Town Development Plans and into relevant Local Area Plans, protecting larger areas from road noise. Special consideration will be given to zoning objectives, speed limits and established settlements within the area.
- Developers are encouraged (or required at the discretion of the Planning Authority) to produce a sound impact assessment and implement mitigation measures as follows:

For new developments proposed within the current action planning area

or

For developments proposed near major roads (i.e. traffic volumes in excess of 3 million vehicles per annum or otherwise on a case by case basis).

- Where developments are planned adjacent to major roads, to incorporate acoustical planning into the development design e.g. designing the development so that the access road is adjacent to the major road noise source. It may also involve the use of buffer zones and/or noise barriers and traffic calming measures.
- To ensure that all future developments are designed and constructed so as to minimise noise disturbance.
- Tipperary Local Authority will consider the necessity to provide for a higher standard of façade and window insulation on the most exposed façades in new local authority housing developments located beside major roads. A pre-completion sound insulation test may be necessary prior to habitation.
- Tipperary Planning Authority will also consider requiring a higher standard of façade and window insulation for all new multiple residential developments located beside major roads, potentially with a pre-completion sound insulation test required prior to habitation. Tipperary Planning Authority will consider requiring a higher standard of façade and window insulation for single one-off housing applications beside major roads.
- Protection measures for future improvement may also include extending speed limit restrictions around built-up areas.

7.3.3 Monitoring Measures

Data presented in the noise maps shown in **Appendix IV** is obtained from computer modelling and is reported as a mean annual noise level, Lden and Lnight. The model may overestimate the environmental noise levels resulting from major road traffic at a particular location. Where the decision matrix process identifies locations for further assessment, noise monitoring may be carried out subject to funds being available to confirm that levels of environmental noise are unsatisfactory and that mitigation measures may be required. The possibility of other noise sources contributing to the measured noise level must be taken into account in this assessment. Where mitigation measures can be implemented, further noise monitoring will be carried out after implementation in order to quantify the improvement achieved.

7.3.4 Consultative Measures

In areas where Tipperary Local Authority do not have a regulatory role, but where improvements in regulatory controls will effect a reduction in environmental noise from major roads, Tipperary Local Authority will consult and liaise with the relevant authorities.

These areas may include:

- i. Liaising with TII to extend speed restriction zones for national roads passing through built-up areas of relevance to the present and future action planning areas;
- ii. Liaising with TII to impose set back distances for permitted developments alongside national roads;
- iii. Consult with the Department of Housing, Planning and Local Government regarding present restrictions on Planning Authorities in relation to the imposition of planning measures to address noise in the assessment of applications.
- iv. Recommending that measures proposed in this action plan be included in the relevant County or Town Development Plans or Local Area Plans.
- v. Liaising with the EPA to establish limit values for community noise.

7.4 Noise Complaint Investigation and Control Procedures

Whilst the noise maps and the Environmental Noise Regulations are aimed at developing *strategic policy*, it is acknowledged that when most people complain about noise, it relates more to local issues such as neighbour, entertainment and construction noises. However, it is envisaged that the noise action plan should solely concentrate on strategic issues identified by the noise mapping as systems are already in place to deal with **noise nuisances**, including neighbour, entertainment and construction noises.

However for completeness the current approach adopted by Tipperary Local Authority in relation to noise complaint investigation and control is set out in **Appendix II** of this Plan. This approach is primarily governed by the current legislative requirements of the Environmental Protection Agency Act 1992 (EPA Act 1992), sections 107 and 108.

8 PUBLIC PARTICIPATION

8.1 Public Consultation

The Draft Noise Action Plan was made available for Public Consultation for a six week period commencing on 28th November, 2019. The Consultation was advertised in the local press, on the Tipperary County Council webpage as well as on social media platforms. Submissions could be made by post or directly via the electronic platforms. The Draft Plan and associated mapping were available for viewing online. Computers were made available at both Clonmel and Nenagh Council offices to allow members of the public to access these platforms and obtain any assistance that they may require.

Two submissions were received during the consultation period as follows:

1. A submission was received from Mr D Brosnan representing the Association of Acoustic Consultants of Ireland (AACI). The submission requested that Tipperary County Council give consideration to a document published by the AACI; Environmental Noise Guidance for Local Authority Planning & Enforcement Departments.

Response: The finalised NAP makes reference to this guidance document and highlights it as a useful reference for the County Council.

2. A submission was received from Councillor Annemarie Ryan (Shinner) on behalf of a group, March4Tipp. This submission described noise monitoring carried out by this group in Tipperary Town. The conclusion of the submission stated:

'Noise levels from traffic along the N24 route through Tipperary Town are far in excess of the World Health Organisation's guidelines and must be considered to be contributing to adverse health effects among the affected community.'

The submission also identified the proposed Ara River Walkway in Tipperary Town as a specific area where noise levels should be protected from increase in line with the policies contained within the Draft NAP.

Response: The submission reflects the findings of elevated noise levels along the N24 through Tipperary Town. The submission does not state what dB scale has been used in their measurements, and compares this with WHO standards stated in dB Lden. However the general point of elevated noise levels is taken. The measurements obtained through the Noise mapping exercise will be used to identify locations where further steps of investigation are required.

The specific comment regarding the ARA River is noted and this will be examined in the context of the NAP and the Tipperary County Development Plan.

Copies of the submissions received are contained in Appendix V of this document.

9 IMPLEMENTATION PLAN

9.1 Roles and Responsibilities

Under the Environmental Noise Regulations, 2006, Transport Infrastructure Ireland (TII) is the noise mapping body for major national roads in Tipperary. Tipperary County Council is the noise mapping body for major non-national roads in the county. Tipperary County Council is the Action Planning Authority for major roads in Tipperary and Tipperary Local Authority are responsible for preparation of this Noise Action Plan and implementing measures to improve existing noise levels at a local level (if appropriate) and identifying and implementing measures for the protection of the future environment from road noise.

9.2 Targets and Objectives

It is the aim of this action plan to manage environmental noise from major roads, to protect good satisfactory noise environments where they exist and to protect the quality of the future noise environment by acoustical planning.

9.3 Programme of Works

Year one (2018):

Apply the matrix assessment method described in Section 6.1 to identify from noise maps specific areas for which further assessment may be warranted (i.e. monitoring).

Year Two (2019):

Initiate monitoring in specific areas **if required**, to determine existing noise levels in dB(A). Identify appropriate mitigation measures for specific locations for which corrective measures are required. Undertake consultative measures outlined in 7.3.4 above.

Year three to four (2020 to 2021):

Commence implementation of the relevant actions as outlined in Section 7, where necessary. Ensure that adequate traffic flow data is collected for all roads in the county and that a sufficient number of locations are monitored to establish the full extent of major roads in the county with an excess of three million vehicles per annum.

Year Five (2022):

Commence preparation of revised noise action plan and preparation of new strategic noise maps if required as a result of review.

9.4 Evaluation, Review and Corrective Action Programmes

9.4.1 *Ongoing Review*

Progress will be reviewed against the programme of works on an annual basis. An annual interim summary report will be prepared. 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.

9.4.2 *End of programme review*

An end-of-programme review of the action plan will be prepared by December 2022. This review will summarise progress in implementing measures, identify the extended noise mapping/action planning area, highlight aspects of the original action plan which were modified, giving reasons for the modification and recommend measures for future improvement.

10 FINANCIAL PROVISIONS

10.1 Budgetary Provisions

Prior to 2018 financial provisions had not been made available at national level to fund any noise assessment measures, mitigation measures or additional noise mapping requirements resulting from implementation of this action plan. Staff resources have not been increased to assist in implementation of the plan. Because of the lack of these resources, any mitigation measures must be strictly prioritised. It is hoped that where mitigation measures are identified, their implementation will also be found to be of benefit to other local authority sections. In mid 2018 limited funding was made available from the Department of Communications, Climate Action and the Environment (DCCAE) for the purchase of sound level meters to assess noise issues for which Local Authorities could apply. Tipperary County Council has applied for this funding.

10.2 Cost Benefit Analysis

Evaluation of the impact of noise nuisance is complicated because noise nuisance is subjective, it is largely related to the type of noise, the source of the noise and whether it is welcome or unwelcome, and background noise levels in the environment. Responses to noise from the different transport sources can vary considerably. The impact of mitigation measures to address noise nuisance is further complicated because noise is measured on a logarithmic scale and human perception of loudness does not directly coincide with increased sound pressure levels (e.g. a 3dB increase in noise, which represents a doubling in sound pressure level, is the smallest statistically significant increase in loudness detectable by the human ear). To reduce the subjective “loudness” of a noise source by 50% would require a 10dB drop in noise level and may be very difficult to achieve without major investment in noise mitigation. Assigning a monetary cost to the noise nuisance can enable cost benefit analysis to be used as a decision support tool in determining what (if any) noise mitigation measure is to be implemented.

The position of the EC working group on health and socio-economic valuation of noise recommends the following in relation to road noise:

- *For road transport, the (interim) use of the median value change in noise perceived by households of €25 per dB (Lden), per household per year. The validity range of this*

interim value is between 50/55 Lden and 70/75 Lden and it should be adjusted as new research on the value of noise becomes available.

- *The estimate of the change should apply at all initial noise levels, and regardless of the size of any change brought about;*

As a preliminary step in carrying out cost benefit analysis on possible noise mitigation measures, Tipperary Local Authority propose to assign the monetary benefit to noise mitigation measures as recommended above (i.e. €25 per dB (Lden) per household per year). The number of households in the immediate area that would potentially benefit from a particular mitigation measure will also be factored into the analysis.

11 SUMMARY AND CONCLUSIONS

This Tipperary Local Authority Noise Action Plan addresses road noise arising from seven of the major roads in the County having a combined length of 215km. An overview of the roads involved is provided in Figure I for Tipperary (page 14). A more detailed map is provided in the **Appendix IV**. Noise mapping has indicated that the environmental noise levels may be 55dB_{Lden} or greater within this zone.

The aim of the action plan is to manage existing road noise within the plan area and to protect the future environmental noise environment within the plan area.

While no limits exist for environmental noise in Ireland, the EPA recommends that proposed onset levels for assessment of noise mitigation measures for noise due to road traffic are as follows:

- 70dB, L_{den} and
- 57dB, L_{night}

Noise maps were prepared for major roads in the country based on a road noise computation model run by the TII. These maps present calculated environmental noise levels from major roads in coloured noise contour bands from 55dB L_{den} and 50dB L_{night} , to greater than 75dB L_{den} and greater than 70dB L_{night} , in 5 dB bands.

The noise maps for Tipperary Local Authority were prepared based on the roads network in place in the county in 2017. Noise exposure analysis undertaken within the action planning area estimates that an approximate population of 6,934 individuals are resident within the noise mapping/action planning area.

In terms of management of *existing* road noise, the first action proposed under the current plan is to use a decision matrix to identify areas for possible further assessment. Where further assessment indicates that noise mitigation may be required, this will be carried out on a prioritized basis, applying cost benefit analysis to any proposed measures. The monetary benefit of noise mitigation will be calculated from the figure of €25 per dB (L_{den}), per household per year.

The effective management of *future* road noise can be addressed to some extent through the planning process (acoustical planning). It is recommended that developers address the impact

of road noise in assessment of new developments and design developments to minimize noise nuisance. For acoustical planning to be a useful tool, it can only be incorporated as a series of objectives into the relevant County, Town and Local Area Development Plans.

Appendix I

Glossary of Acoustic and Technical Terms

Glossary

Acoustical Planning: Controlling future noise by planned measures such as land-use planning, systems engineering for traffic, traffic planning, abatement by sound-insulation measures and control of noise sources.

Agglomeration: a dense urbanized area having a population of greater than 100,000 persons.

Decibel (dB): A unit of measurement of sound. When measuring environmental noise, an “A” weighting network is used (called dB(A)) which filters the frequency of the sound to mimic human hearing, which is most sensitive to frequencies between 500Hz and 5,000Hz. The decibel scale is logarithmic. If two noise sources emit the same sound level (eg 80dB(A)), the combined sound level from the two sources is 83dB(A) and not 160dB(A). The human perception of “loudness” is that a 10dB increase in sound level is perceived as being twice as loud. A 3dB increase, which is a doubling of the sound level, is perceived as a barely perceptible change in loudness. A decibel level of zero represents absolute silence. A level of 140dB(A) would cause ear pain.

The table below gives examples of the relationship between the subjective valuation of noise and the actual objective levels (taken from the END Briefing note of the 07/02/08):

Noise Level dB (A)	Description
120	Threshold of Pain
95	Pneumatic drill (at 7m distance)
83	Heavy diesel lorry (40km/h at 7m distance)
81	Modern twin-engine jet (at take-off at 152m distance)
70	Passenger car (60km/h at 7m distance)
60	Office environment
50	Ordinary conversation
40	Library
35	Quiet bedroom
0	Threshold of hearing

Daytime: Between the hours of 7am and 7pm

DB(Lin)_{max peak}: Instantaneous Maximum Peak sound pressure measured in decibels on a sound level meter, without the use of a frequency weighting system. Used to measure air overpressure levels from blasting.

Evening time: Between the hours of 7pm and 11pm

Environmental Noise: Shall mean 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 such as integrated pollution prevention and control licensed industries.

Hertz: Unit of frequency of sound.

IPPC Licence: Integrated Pollution Prevention and Control Licence (obtained from EPA).

L_{den}: (day-evening-night noise indicator) shall mean the noise indicator for overall annoyance. This comprises of adding the average value for the 12 hour day time period with the average value of the 4 hour evening period plus a 5 decibel weighting or penalty, and the average value for the 8 hour night time period with a 10 decibel weighting or penalty.

L_{day}: (day-noise indicator) shall mean the noise indicator for annoyance during the day period. This is the average value in decibels for the daytime period

L_{evening}: (evening-noise indicator) shall mean the noise indicator for annoyance during the evening period. This is the average value in decibels for the evening time period.

L_{night}: (night-time noise indicator) shall mean the noise indicator for sleep disturbance. This is the average value in decibels for the nighttime period

Major road: a national or regional road with more than 3 million vehicles per annum.

Major railway: A railway line, which has more than 30,000 train passages per year.

Major airport: A civil airport, which has more than 50,000 movements per year, excluding those movements purely for training purposes on light aircraft; in this context, a movement means a single take-off or landing of an aircraft.

Night time: Between the hours of 11pm and 7am

Noise annoyance: Noise annoyance is defined by the World Health Organisation (WHO) as 'a feeling of displeasure evoked by noise'. Ref UK DOT, Transport analysis guidance, Noise, TAG unit 3.3.2, November 2006.

Peak Particle Velocity (ppv): Peak particle velocity is a measure of vibration magnitude, which is the maximum rate of change of ground displacement with time, usually measured in mm/sec.

Appendix II

Summary of method used by Transport Infrastructure Ireland to prepare Strategic Noise Mapping and generate county-specific statistics of population exposed to noise from roads

Overview of the Preparation of the Noise Map

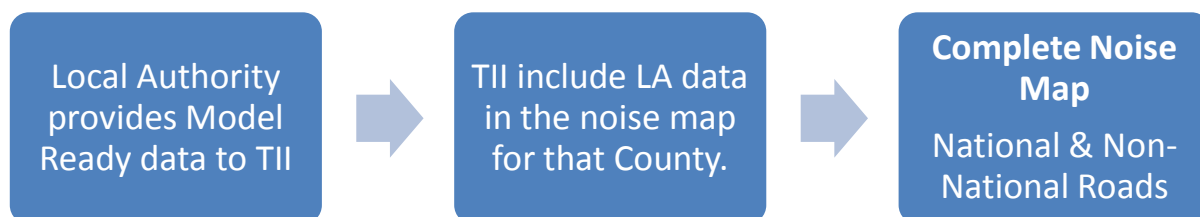
The content of this Appendix have been prepared by Transport Infrastructure Ireland (previously the NRA) and outlines the process involved in the development of the noise map by the TII, including the data sources, calculation methodology and authorities responsible.

1. Responsible Authorities

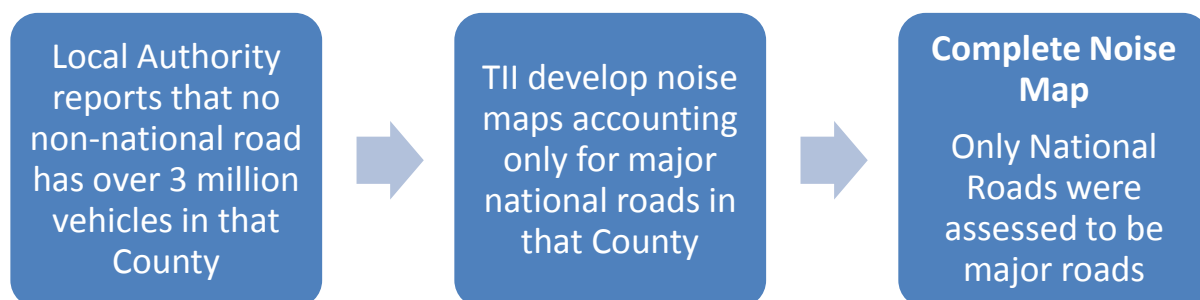
The Environmental Noise Regulations require the TII to develop noise maps for every major road classified as a national road while the responsibility of mapping non-national roads rests with the relevant Local Authority within whose functional area the road lies.

In January 2012, a centralised approach to the noise mapping of major roads outside agglomerations was adopted. Through this centralised approach, one central body, the NRA as TII was known at the time, developed strategic noise maps for all major roads outside agglomerations, encompassing both national and non-national roads. Non-national roads were mapped by the NRA on the behalf of the relevant Local Authority *provided* that authority participated in the centralised approach and provided 'model-ready' data to the central body for calculations.

All Local Authorities with major roads within their jurisdiction participated in this centralised approach.



CASE 1: Non-national roads are deemed to be a major road when carrying in excess of 3 million vehicles per year



CASE 2: No non-national road deemed to be a major road.

2. Noise Mapping Process

Figure 1 displays the overview of the noise mapping process as presented in the EPA's Guidance Note for Strategic Noise mapping¹. There are three main phases to the process:

¹ EPA Guidance Note for Strategic Noise Mapping (Version 2)

- 1) Preparation of datasets in the GIS Environment;
- 2) Noise calculations; and
- 3) Post Processing and Analysis.

Phase 1 was conducted separately for national and non-national roads while Phase 2 and Phase 3 merged datasets from national and non-national roads to form one complete model.

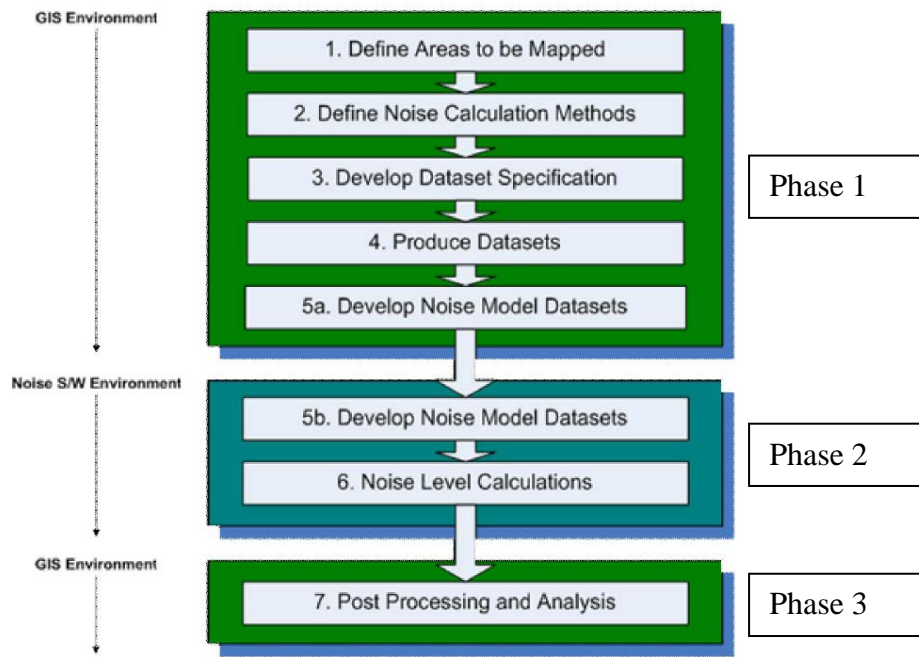


Figure 1: Overview of the noise mapping process

Population exposure assessments were then performed on a County by County basis.

3. Review of First Round (2007) Noise Maps

The EPA Guidance Note for Strategic Noise Mapping notes:

The Regulations introduce a continuing obligation on noise mapping bodies to review and, where necessary, revise each strategic noise map every 5 years, or sooner, as requested by the EPA, or when a material change in environmental noise in the area concerned triggers a revision of the relevant noise action plan. The EPA "Guidance Note for Noise Action Planning", July 2009, suggests that a noise action plan should be revised due to a material change if "it is known, or thought likely, that greater than 10% of the exposed population within the area of an action plan have experienced a change in the prevailing noise situation of greater than 3dB L_{den} or L_{night} .

Therefore, Noise Mapping Bodies who undertook strategic noise mapping for the first round in 2007 have an obligation to undertake a review of the strategic noise maps and, where necessary, revise them. For the basis of this review of Round 1 strategic noise maps ahead of Round 2, the NMBs should consider that a revision of the strategic noise maps is required if it is known, or thought likely, that greater than 10% of the exposed population within the area of an action plan have experienced a change in the prevailing noise situation of greater than 1dB(A) L_{den} or L_{night} .

Under the requirements of the second (2012) and third (2018) rounds of the Directive, the flow thresholds for major roads have been reduced in comparison to the first round (2007), i.e. for the first round all roads with an AADT in excess of approximately 16,000 vehicles had to be mapped, for the second and third phases this threshold was reduced to approximately 8,000 vehicles. This has resulted in a requirement to undertake strategic noise mapping for sections of roads and railways which were not included within the first round in 2007.

For the second and third phases, and irrespective of the approach to the first phase, the Regulations designate the Local Authorities as the Noise Mapping Bodies for non-national major roads, and each Local Authority has a statutory responsibility to ensure that strategic noise mapping of non-national major roads within their area is undertaken.

Due to the significant change in extents of roads to be mapped for the second and third phases, the TII decided the best course of action was to revise all noise maps developed during the first phase for the subsequent phases of noise mapping.

4. Calculation Methodology

The second schedule of the Regulations sets out the recommended interim computation methods which may be used for the assessment of noise. The methods are referred to as interim methods as they are to be used until such time as a common method of noise assessment is adopted across Europe. The recommended interim methods of assessment set out in the second schedule of the Regulations contain the four EC Recommended Interim Methods set out in Annex II of the Directive. The Directive also provides for Member States to use either the EC Recommended Interim Methods or methods based upon those laid down in their own legislation. As it is common practise for environmental impact assessments to be undertaken in Ireland for roads and railways using the UK national calculation methods, the second schedule of the Regulations also sets out the UK methods CRTN and CRN.

The UK national computation method 'Calculation of Road Traffic Noise' (CRTN) adapted for use under the Regulations is described within the following documents:

- Department of Transport publication, 'Calculation of Road Traffic Noise', HMSO, 1988
- Converting the UK Traffic Noise Index L_{10,18h} to EU Noise Indices for Noise Mapping, TRL Project report PR/SE/451/02, 2002; and
- Defra, Method for Converting the UK Road Traffic Noise Index LA_{10,18h} to the EU Noise Indices for Road Noise Mapping, st/05/91/AGG04442, 24th January 2006.

In their Guidance Note for Strategic Noise Mapping the EPA recommended that the UK CRTN methodology be used for the assessment of road traffic noise levels for the strategic noise mapping. It notes that the method should be used with particular reference to the following:

- The NANR 93 project report;
- DMRB Volume 11 Section 3 Part 7 HD 213/11 Annex 4,
- Additional advice to CRTN procedures;
- TRL Project report PR/SE/451/02, Converting the UK Traffic Noise Index L_{10,18h} to EU Noise Indices for Noise Mapping, 2002; using traffic count information, particularly for the night period, wherever practicable.

Thus CRTN, taking cognisance of the supplemental reports identified above, was used for all noise mapping calculations

5. Data Sources

In order to develop strategic noise maps the following data sources were utilised.

TII Traffic Model

The TII maintains a National Transport Model to support transport investment decisions, and facilitate good forecasts of traffic volumes on the road network for different future years, and economic conditions. The National Transport Model provides a comprehensive representation of base demand on the transport network, in addition to a series of future year transport forecasts. The Traffic Model was used to determine traffic quantities and composition.

Aerial LiDAR

In 2009, the TII published a notice for tender for an aerial LiDAR survey of approximately 3,019km of the Irish national road network. The survey corridor was 1,200m in width. The survey was completed in early 2011 and outputs included 1 metre contours for the entire survey area, building height information for buildings within the survey corridor and a digital terrain model (Figure 2).



Figure 2: Sample Point Cloud from Aerial LiDAR Survey

GeoDirectory

The GeoDirectory data products are developed by OSi and An Post to provide a single point location object for each building in Ireland. The GeoDirectory dataset provides the definitive address database for the country and is an essential component in calculating the population exposed to the various noise bands, information that is required to be submitted to the EU as part of this work.

Corine Database

The European Environment Agency's (EEA) CORINE Land Cover 2000 dataset is a European-wide vector land parcel product derived from satellite imagery R2V processing. The CORINE dataset was developed in the framework of the CORINE programme to establish a computerised inventory on land cover. The dataset was used for making environmental policy as well as for others such as regional development and agriculture policies. For noise calculation, the dataset can be used to provide information on the land cover distribution.

Ordnance Survey of Ireland (OSI)

OSI maintain a wide range of mapping products that are available for use within strategic noise mapping. Some datasets required additional licensing to be taken out. Some datasets included for analysis

- OSI Large Scale vector mapping:
 - 1:1,000 scale in urban areas;
 - 1:2,500 in suburban areas; and
 - 1:5,000 in rural areas.
- OSI Boundaries:
 - County, ED and Townlands boundaries.
 - OSI High Resolution Ortho Photography:

Central Statistics Office (CSO)

The CSO publish statistical information on population based upon Census returns. The most recent Census was held in 2016, and some of this information is now publically available. The information available on population is issued according to various political boundaries, namely Province or County, Province County or City, Regional Authority, Constituency or Electoral Division.

Roads Database

The TII’s Roads Database is a GIS repository that contains much of the data required to successfully undertake this noise modelling project. The Roads Database contains information on carriageway types, road widths, noise barriers, surface types, texture depths and speed limits. These datasets where relevant were used in developing noise models along with any supplementary data available.

As-Built Drawings

When new roads or road upgrades are complete the Contractor is required to submit as-built documentation including as-built drawings to the TII. These drawings indicate the position, type and height of noise barriers along the road scheme.

6. Software and Hardware

All datasets were prepared and collated in a GIS Environment prior to importing them to the noise mapping programme. All attributes were consistent through the datasets thus ensuring an efficient export.

Details of the noise mapping system are presented in Tables 1 - 3.

Modelling Hardware
Microsoft Windows Server 2003 R2
Standard x64 Edition
Intel Xeon CPU, X550 @2.67GHz with 15.9 GB of RAM

Table 1: Hardware Specifications

Modelling Software
Predictor V8.11
Predictor Calculation Client V8.10
Predictor Analyst V3.22

Table 2: Software Specifications

Calculation Settings

Fetching Radius 1,500m
Standard Tile Size 10km x 10km
Standard Tile Buffer 2,000m

Table 3: Calculation Settings

7. Population Exposure Estimates

Annex VI of the END requires that the estimated number of people living in dwellings exposed to various noise levels on the most exposed façade. In order to derive these results the following datasets were used

- Population data from the CSO
- Address data from the geo-directory
- Façade points output by the noise model (describing the noise level at the facade of every building),
- Building polygons, used by the noise model

The population data used was from Census 2016 and is using the ‘small areas’ geographies which are areas of between 50 and 200 dwellings, downloaded from the CSO website, as well as ED’s, and Administrative counties. Façade points were the outputs of noise modelling. For the noise mapping 2017 project a noise model was created with a 2km buffer on each county. By analysing all these datasets together it was possible to estimate the average number of people for each residence in the test area (the small area) and assign a noise level to that building. These estimates were collated to derive an overall exposure level for the County.

Appendix III

Noise Complaint, Investigation and Control

Noise Complaint, Investigation and Control.

Contact Details

Tipperary County Council
Environment Section
Civic Offices
Clonmel
County Tipperary
Customer Services: 0761 065000
National Complaints 24 Hour: 1850 365 121

Contact Details

Tipperary County Council
Environment Section
Civic Offices
Limerick Road
Nenagh
County Tipperary
Customer Services: 0761 065000
National Complaints 24 Hour: 1850 365 121

The Environment Section of the Local Authority will investigate complaints that fall within the remit of the EPA Act 1992. Set out below are the type of complaints investigated and the procedures that apply.

Complaint Investigation Protocol

Investigation and inspection

Noise Nuisance under the EPA Act 1992 is established by means of inspection and monitoring. If a nuisance is established the case officer will take action initially through verbal warnings and recommendations on mitigation measures. If the nuisance continues unabated, the officer may proceed by serving notice under Section 107 of the EPA Act 1992, legally requiring the offending party to abate the nuisance.

Re-inspection

When a Section.107 notice expires, the case officer will re-inspect the premises to determine compliance with the terms of the notice. If the terms of the notice have been addressed and the nuisance has abated, the case officer informs the complainant and closes the case. If the terms of the notice have not been addressed and the nuisance continues the case officer, may recommend prosecution proceedings to be undertaken.

Legal and Policy Parameters

Complaints arising from noise emanating from a public place and which may cause annoyance in a public place and/or subsequently in private premises are investigated by the Environment Section.

Complaints arising from noise emanating from private premises, other than the type of premises listed below in 3 below and which may cause annoyance in a public place and/or subsequently in a private premise are investigated by the Environment Section.

Complaints arising from noise emanating from a domestic premises (*other than from where a business is been carried on*), including a flat or apartment, **are not** investigated by the Environment Section. However there may be special circumstances such as intimidation or anti-social behaviour by the alleged offending party, or other circumstances, where it may be appropriate for the relevant local authority to take action for example liaise with An Garda Siochana.

It shall be a good defence, in a prosecution for a contravention of section 107 of the EPA Act 1992, in the case of noise caused in the course of a trade or business, for the accused to prove that he took all reasonable care to prevent or limit the noise to which the charge relates by: -

(a) providing, maintaining, using, operating and supervising facilities, or by employing practices or methods of operation, that, having regard to all the circumstances were suitable for the purposes of such prevention or limitation, or

(b) the noise is in accordance with -

(i) the terms of a licence under this act, or

(ii) regulations under section 106

It shall be a good defence, in the case of proceedings under subsection (1) of Section 108 of the EPA Act 1992 or in a prosecution for contravention of this section, in the case of noise caused in the course of a trade or business, for the accused to prove that-

(a) he took **all reasonable care** to prevent or limit the noise to which the complaint relates by providing, maintaining, using, operating and supervising facilities, or by employing

practices or methods of operation, that having regard to all the circumstances, were suitable for the purposes of such prevention or limitation, or

(b) the noise is in accordance with-

- (i) the terms of a licence under this Act, or
- (ii) regulations under section 106.

GUIDANCE USED IN ESTABLISHING NOISE NUISANCES

E.P.A. Act - Guidance Notes for Noise in Relation to Scheduled Activities. B.A.T.N.E.E.C.

Noise sensitive areas include domestic dwellings, hospitals, schools, places of worship, areas of leisure or high amenity.

L_{Ar}T <55 dB(A) daytime outside noise sensitive areas.

L_{Aeq}T <45 dB(A) night-time and preferably within the range 35 dB(A) to 40 dB(A).

Clearly audible and impulsive tones outside dwellings at night should be avoided irrespective of the noise level.

Appropriate levels of sound insulation should be provided.

Levels may be set for noise levels at boundary of the plant.

Restriction on times of operation may be imposed for some part of the plant. This must be balanced with regard to economic or practical impact on the plant. The noise parameter to be measured is the equivalent continuous sound pressure level L_{Aeq}T or the rated sound level L_{Ar}T - L_{Aeq} corrected for the tonal or impulsive character, where present.

Measurement time interval 1 hour – day and 15 minutes - night.

Monitoring in compliance with I.S.O.1996 - 2 Acoustics - Description and measurement of environmental noise. No measurement when wind speed >5metres/second.

5dB(A) is added to measured levels for tonal content or impulsiveness as assessed by 1/3 Octave band analysis, using Joint Nordic Method.

For compliance, the long term mean value of the criterion noise level should not be exceeded. Occasional durations of +3dB(A) are acceptable, but no relaxation of requirement that no pure tones be audible at night.

Scheduled activities include: Minerals Energy, Metals, Mineral Fibres and Glass, Chemicals, Intensive Agriculture, Food and Drink, Wood, Paper, Leather, Fossil Fuels, Cement, Waste, Surface Coatings, and other activities - all large scale activities.

Reference legislation:

E.C. (Protection of Workers) (Exposure to noise) Regulations 1990.

E.C. Construction (Plant and Equipment)(permissible Noise Levels) Regulations 1988.

British Standard: Noise Control on Construction and Open Sites.

B.S. 5228: Part 1 Code of Practice for basic information and procedures for noise control.

Noise Sensitive Premises: Any premises outside the site used as a dwelling, hospital, school, place of worship or for any other purpose likely to be affected by site noise.

Legislative Background

This Standard represents a standard of good practice. Compliance with it does not confer immunity from relevant legal requirements including those imposed by regulations, bye-laws and conditions attached to planning permissions.

L_{Aeq} - recommended description for sound level measurements noise. It can be useful to use a short period (e.g. 5 minutes) L_{Aeq} when describing noise from isolated incidents that may not always be apparent from a longer period L_{Aeq}.

Alternatively the maximum sound level L_{pAmax} or the one percentile level LA01 can be used.

When noise levels are set the evening limit may have to be as much as 10dB(A) below the Daytime limit. Very strict noise control targets should be applied to any site which is to operate at night. The periods when people are getting to sleep and just before they wake appear to be particularly sensitive.

Site noise expressed at L_{Aeq} over 1 hour at the facade of a noise sensitive premises may need to be as low as 40dB(A) to 45dB(A) to avoid sleep disturbance.

British Standard Method for Rating Industrial Noise Affecting Mixed Residential and Industrial Areas. B.S. 4142: 1990.

The standard is intended to meet the need for rating various noises of an industrial nature affecting persons living in the vicinity. It provides a method for determining a noise level, together with procedures for assessing whether the noise is likely to give rise to complaints.

It does not provide standards, which can be applied as planning requirements, but references from the document are of use in determining such requirements.

Reference time interval - a specified interval over which an equivalent continuous A weighted sound pressure level is determined. Use a reference time interval of 1 hour during the day and a reference time interval of 5 minutes during the night.

Note: the choice of day and night periods will depend on normal local circumstances.

It is intended that the night period should cover the times when the general adult population are preparing for sleep or are actually asleep. When predicting the noise level from a planned

new source due consideration to be given to the possible effects of weather conditions and ground conditions on the sound propagation in the planned location.

Procedure for Processing Complaints that fall outside the Environment Section Legal & Policy Parameters

Intruder Alarm Systems

Noise Nuisance Prevention Guidelines

Intruder alarm systems are an effective and often essential means of protecting property and deterring crime. However recurring or continuous false alarms not only reduce the effectiveness of the intruder alarm system, they can also cause noise nuisance and disturbance.

Prevention

The best way to avoid needless disturbance to the public from audible intruder alarms is by preventing false alarms. The system should be properly designed and installed, maintained in good order. Equipment which has proved unreliable or ineffective should be replaced. The intruder alarm system should be designed, installed and maintained in compliance with **Irish Standard 199: 1987 Standard Specification (Intruder Alarm Systems)**.

The Irish Standard EN 50131 – 1 2006 Intrusion and Hold Up Systems Part 1 System Requirements Section 8.6 states: “*Audible warning devices shall operate for a minimum of 90 seconds unless a shorter period is demanded by local or national regulations. The maximum operating period shall be 15 minutes unless a shorter period is demanded by local or national regulations.*”

This requirement shall generally not apply to internal audible alarms unless the noise generated by such alarms can cause distress to the occupants of the building or adjacent buildings. A cut out device can be supplemented with a flashing light, which should have a minimum duration of 60 minutes. In rural areas or in situations where security requirements demand, the above time limits may be subject to review.

At least 2 keyholders should be nominated and should be well versed in operating and silencing the alarm. The householder / property owner, or a security firm, can be nominated as keyholders. The response time of the keyholder should not exceed 60 minutes. The nominated keyholders should be telephone subscribers and, where necessary, have their own

means of transport. Where the alarm system is not connected to a monitoring centre e.g. Eircom or a security firm, it is recommended that the name and contact telephone number of the keyholders should be made known to a trusted neighbour(s) who may be affected by continuous sounding of the alarm if activated. Failure of a keyholder to respond to an activated audible intruder alarm within 60 minutes will be relevant to any consideration of whether a noise nuisance has occurred in any particular case of prolonged or recurring sounding of an alarm system.

Domestic Noise Complaints

- Complainant informed of Unit's policy with regard to domestic noise complaints.
- Log sheets and instructions as to how to fill them out correctly are forwarded to complainant(s).
- The Department of Environment Guide to the Noise Regulations, forwarded to complainant(s).

GUIDELINE ON NOISE LEVELS:

For use during investigation of noise complaints from **industrial, commercial or public leisure activities** only. *Not for domestic, transport or construction noises.*

The noise level outside any residence, at the boundary of any residential zoned area, any site for which residential development has a least outline approval, any hospital or any school shall:

1. Not contain and pure tones.
2. Not exceed the background level by 10dB(A) or more or exceed 65 dB(A) by day or 45 dB(A) by night, whichever is the lesser.

In the case of noise which will only last a short time (i.e. a few weeks) the above standards may be temporarily relaxed with the written permission of the local authority. In cases where it is impossible to measure the noise due, for example, to the interference of traffic noise, prediction methods should be used. The duration and frequency of noise events should be considered when assessing annoyance.

A correction for impulsive character of 5dB(A) shall be added to the measured or predicted level where appropriate.

If background levels cannot be measured on site due to the continuous presence of the noise under investigation then measurements at another site that approximates the conditions at the site of interest may be used. When an background is established in relation to a particular reception point all future noise sources affecting this point shall be assessed with respect to the originally established background.

It shall not be necessary to attain a standard below 45 dB(A) by day or 35 dB(A) by night where very low backgrounds exist. In the case of premises where frequent musical events occur e.g. discos, pub music, etc. no music shall be audible in any nearby noise sensitive premises.

Where specific guidelines have been drafted for assessing specific types of events e.g. concerts, they should be used instead of these proposals.

DEFINITIONS

- *Noise Level:* The Leq for worst hour by day or worst 15 minutes by night with impulsive correction.
- *Background Level:* The L95 at the appropriate time and under similar conditions.
 - *Day:* 08.00 - 22.00 Monday to Friday.
 - *Day:* 09.00 - 1700 Saturday.
- *Pure Tone:* An octave band that exceeds both adjacent octave bands by 3dB or more.
- *Measurement Location:* One meter from the facade.
- *Equipment Standards:* I.E.C. Type I as minimum.
- *Calibration:* Calibration shall be carried out before measurement in all cases and before an after measurement when the measurement period exceeds 24 hours.
- *Weather:* Measurements shall not be carried out where the windspeed is so high that it affects the accuracy of the readings and preferably when the windspeed does not exceed 5m/sec. The windspeed and direction should both be recorded.
- *Frequency Range:* 31.5 Hz - 16 KHz
- *Noise Rating Curve:* As defined by the International Standards Organisation.

GUIDELINES IN RELATION TO CONSTRUCTION AND DEMOLITION SITES

The guidelines are made based on the requirements of the Air Pollution Act 1987 and the Environmental Protection Agency Act 1992 (Noise) Regulations 1994.

MEASURES TO BE TAKEN TO PREVENT NUISANCE FROM NOISE AT CONSTRUCTION SITES

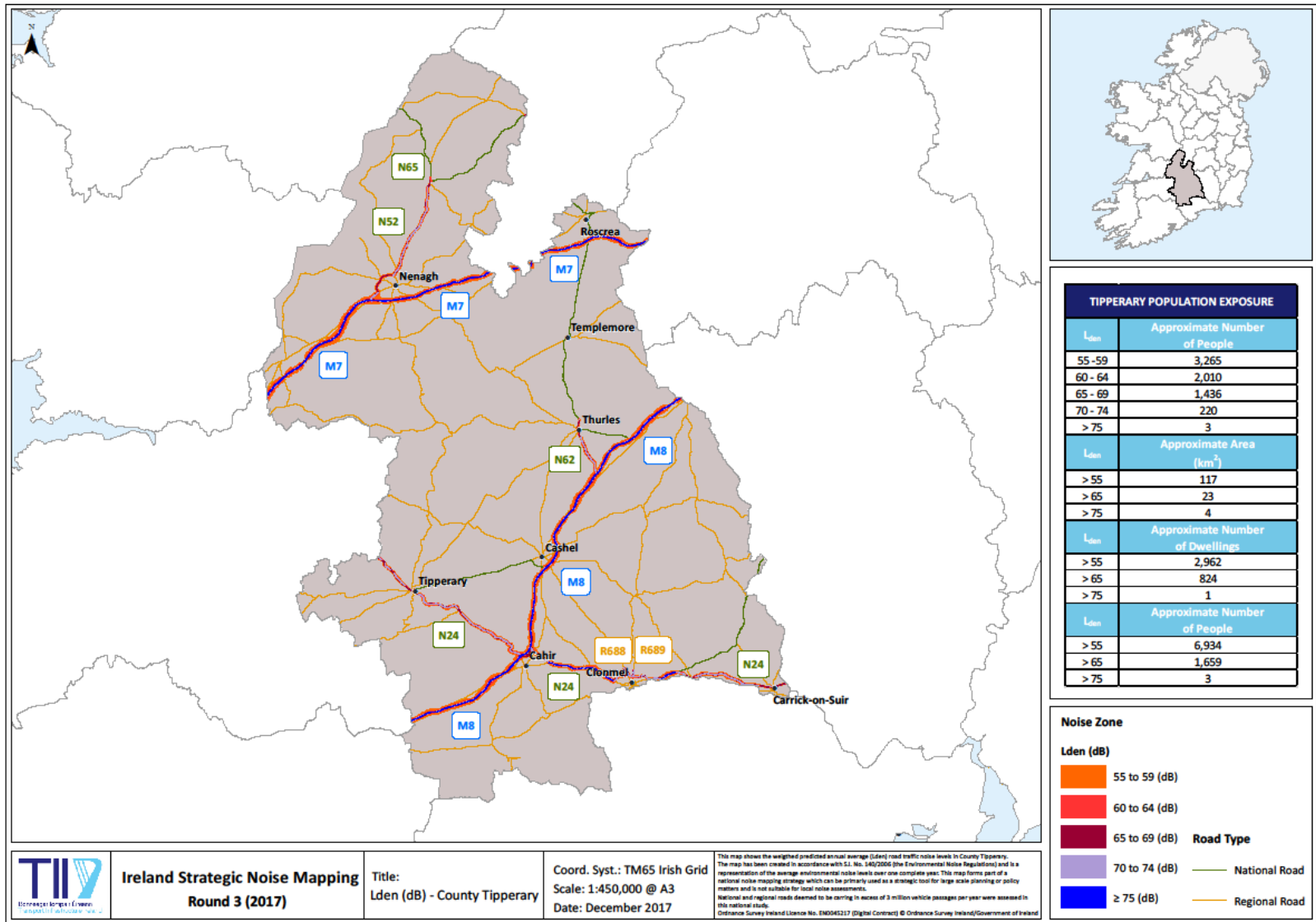
The hours of operation on all construction sites shall be restricted to 8.00a.m to 7.00p.m, Monday to Friday, and 8.00 a.m to 1.00p.m on Saturdays.

- 1) No activities shall take place in site on Sundays or Bank Holidays.
- 2) No activity, which would reasonably be expected to cause annoyance to residents in the vicinity, shall take place on site between the hours of 7.00p.m and 8.00a.m.
- 3) No deliveries of materials, plant or machinery shall take place before 8.00a.m in the morning or after 7.00p.m in the evening.
- 4) If there is any occasion when work must be carried on outside daytime hours, this department, local residents and businesses in areas which are likely to be affected by noise from the proposed works should be notified in advance e.g. in letter or leaflet or advertisement form, of:
 - Name, address and telephone number of company carrying out works
 - Nature of and reason for works
 - Likely duration and times of work

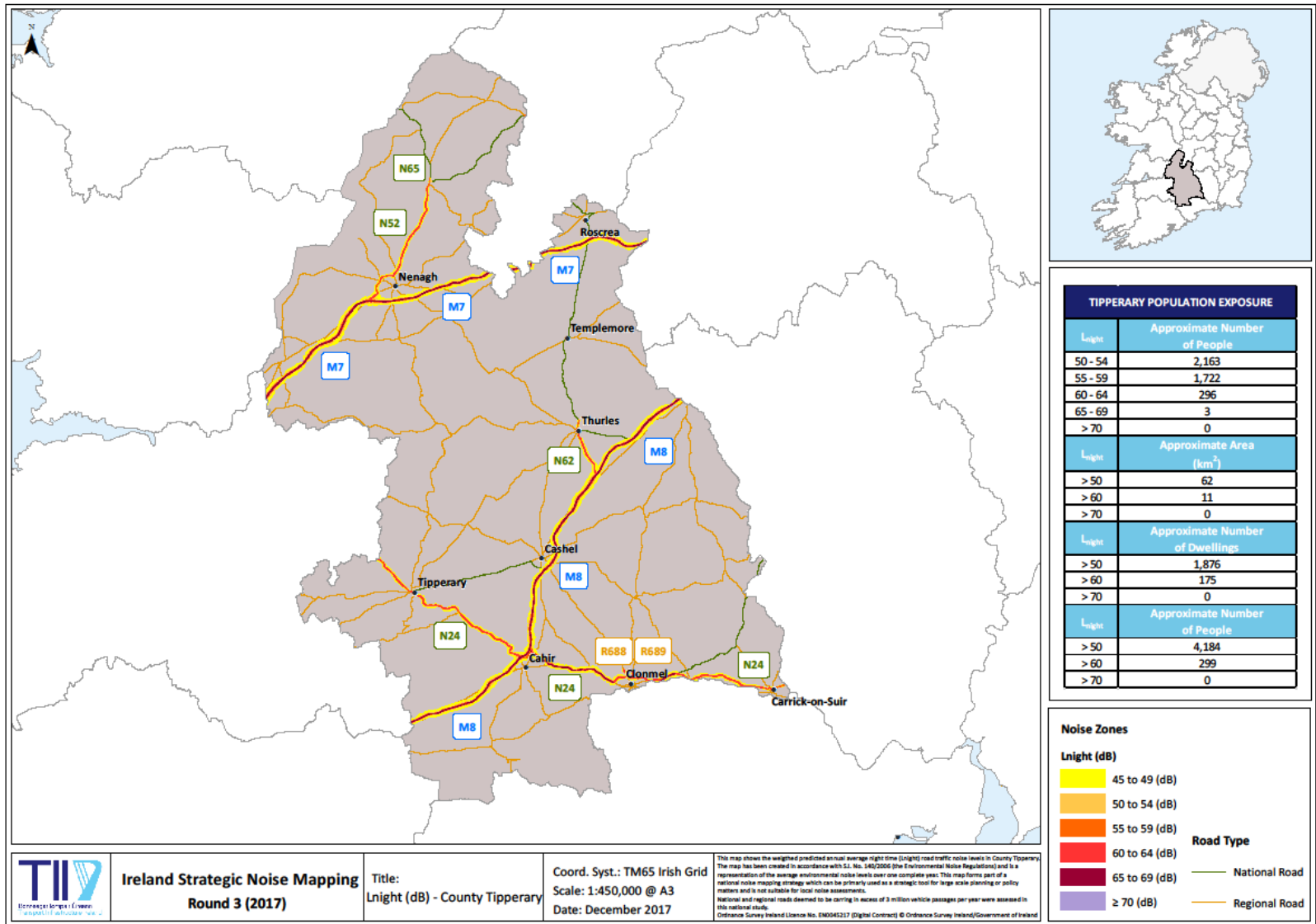
In the interests of both public health and the environment the above guidelines should be included in the work policy of those undertaking all large and small building projects. These details must be made known to all developers, contractors and sub-contractors.

Appendix IV

Summary Maps and Statistics of Population Exposed to Noise from Roads



Tipperary Local Authority Lden Noise Contours and Population Exposure Statistics



Tipperary Local Authority Lnight Noise Contours and Population Exposure Statistics

Appendix V

Details of Public Consultation

Submission No 1: Mr D Brosnan

-----Original Message-----

From: socialmedia@tipperarycoco.ie [<mailto:socialmedia@tipperarycoco.ie>]

Sent: 13 November 2019 09:47

To: Farrell, Louise

Subject: [External] Form submission from: Submission Form Draft Noise Action Plan 2018-2023

Submitted on Wednesday, 13 November, 2019 - 09:46 Submitted by anonymous user: [80.233.47.2] Submitted values are:

Name: Damian Brosnan

Address: Shronagreehy, Kealkil

Telephone: 0868131195

Email Address: damianbrosnan@gmail.com

Comment:

Hi

I represent the Association of Acoustic Consultants of Ireland. The AACI has produced a noise guidance document for local authority noise officers.

The document is available at

<http://scanmail.trustwave.com/?c=17268&d=jtHL3Xs11h8I3VTpT4TYVHCqGjyYvf3aorjCu2fNQ&s=392&u=http%3a%2f%2faaci%2eie%2findustry-publications%2f>

We would be grateful if TCC could give consideration to the document in the finalisation of the TCC noise action plan.

Kildare County Council has already included reference to the AACI document in their NAP.

Please contact me if you have any queries.

Thank you

Damian Brosnan

Submission No.2: March4Tipp

Draft Noise Action Plan

March4Tipp monitored noise levels in Tipperary Town and the results are laid out below:

Monitoring took place at 7 different locations, 5 along the normal N24 route through the town and two along N24 diversion routes due to the current Davitt St and Church St roadworks.

Noise Levels along the N24 Tipperary Town.

The World Health Organisation provides guidelines for maximum levels of average traffic noise. The WHO says that average noise levels above 53 decibels (dB) are associated with adverse health effects^[1]. It goes on to recommend reducing noise both at the source and on the route between the source and the affected population by **changes in infrastructure**.

Road traffic noise has previously been associated with sleep problems and increased blood pressure, but a study in the UK has shown a link with deaths and strokes^[2].

In Tipperary town the following **average** noise levels were measured: 70.73 dB (Main Street 29 June), 78.54 (Main Street 4 July), 68.92 (Davitt Street), 72.88 (Bank Place), 69.87 (O'Brien Street with N24 Diversion), 75.2 (Crosses Corner). These levels are up to 67% above the World Health Organisation guidelines.

The WHO, in its 2018 study, found stronger evidence of cardiovascular and metabolic effects of environmental noise^[3]. The main effects include secretion of stress hormones and blood pressure elevations. The study showed that 10 minute exposure to road traffic noise at 89 dB temporarily increased blood pressure among both men and women.

Noise levels measured in Tipperary Town regularly exceeded 89 dB, with a maximum being measured of 105.4 dB. This noise level is equivalent to the noise of a chainsaw. Noise levels above 85 dB are accepted as causing damage to human hearing. On one day alone, this level was exceeded 121 times.

Noise levels were measured every second over several hours on each day of monitoring. Over four whole days of measurement, the minimum level never went below the World Health Organisations maximum guideline, not for a single second. On that day, the noise levels were at the levels of "harmful to community health" 100% of the time. On another day, over a period of nine hours, the levels only fell below the WHO guideline for 3 seconds.

Conclusion: Noise levels from traffic along the N24 route through Tipperary Town are far in excess of the World Health Organisation's guidelines and must be considered to be contributing to adverse health effects among the affected community.

Sources

[1] http://www.euro.who.int/_data/assets/pdf_file/0009/383922/noise-guidelines-exec-sum-eng.pdf, page 5,

[2] <https://www.independent.co.uk/life-style/health-and-families/health-news/traffic-noise-could-make-your-life-shorter-and-increase-your-risk-of-stroke-10342121.html>

[3] <http://www.euro.who.int/en/health-topics/environment-and-health/noise/publications/2018/biological-mechanisms-related-to-cardiovascular-and-metabolic-effects-by-environmental-noise>

In 2020 work will begin on the Ara River Walkway in Tipperary Town, a recreational, educational and social amenity. This project will provide a quiet, recreational, educational and social amenity as well as improving biodiversity and water quality within the river. Page 24, point 6.2 (Preservation of Noise Levels in Quiet Areas in Open Country and Noise Sensitive Areas) of the Noise Action Plan states *‘During the implementation of the Action Plan it is proposed to identify locations in the vicinity of the major roads which have noise levels below these criteria and review their use. If appropriate or necessary, locations could be identified as quiet areas where the existing noise levels are to be preserved or reduced if possible. The types of public open spaces which could be considered appropriate to include within the assessment include areas such as:*

- Recreation areas;

‘ It is therefore feasible to expect the Ara River Walkway project will be protected from increased levels of noise and associated air pollution currently experienced in parts of Tipperary Town, in particular along the N24 route.

Appendix VI

Bibliography and References

Bibliography and References

- SI 140 of 2006, Environmental Noise Regulations 2006.
- Directive 2002/49/EC relating to the Assessment and Management of Environmental Noise.
- Environmental Protection Agency Act 1992.
- EPA Guidance Note for Noise Action Planning, EPA July 2009.
- CSO Census data 2016 www.cso.ie
- Noise Action Plan for Dublin Agglomeration 2008.
- Guidance Note for Noise: Licence Applications, Surveys and Assessments in Relation to Scheduled Activities, 2016.
- Quarries and Ancillary Activities: Guidelines for Planning Authorities, DOEHLG April 2004.
- Planning and Development (Amendment) Act 2010.
- NRA Guidelines for the Treatment of Noise and Vibration in National Road Schemes, 25th October 2004.
- South Tipperary County Development Plan 2009-2015 (as varied).
- North Tipperary County Development Plan 2010-2016 (as varied).
- Thurles and Environs Development Plan 2009.
- Cashel and Environs Development Plan 2009.
- Templemore and Environs Development Plan 2012.
- Nenagh Town and Environs Development Plan 2013.
- Clonmel and Environs Development Plan 2013.
- Carrick on Suir Town Development Plan 2013.
- Tipperary Town and Environs Development Plan 2013.
- END Briefing document 07/02/08.
- Valuation of Noise: Position Paper of the Working Group on Health and Socio Economic Aspects.

