Dublin Agglomeration

Environmental Noise Action Plan
December 2018 – July 2023

VOLUME 4 | SOUTH DUBLIN COUNTY COUNCIL






December 2018

Comhairle Cathrach Bhaile Átha Cliath
Dublin City Council

dlr
Comhairle Contae County Council

Comhairle Contae Fhine Gall
Fingal County Council

Comhairle Contae Átha Cliath Theas
South Dublin County Council

Comhairle Contae
Átha Cliath Theas
South Dublin County Council

Dublin Agglomeration Action Plan Relating to The Assessment and Management of Environmental Noise December 2018 – November 2023 (Noise Action Plan)

Volume 4
South Dublin County Council

Comhairle Contae
Átha Cliath Theas
South Dublin County Council

Executive Summary

Introduction

The key objective of the South Dublin County Council (SDCC) Noise Action Plan 2018-2023 is to avoid, prevent and reduce, where necessary, on a prioritised basis the harmful effects, including annoyance, arising from long term exposure to environmental noise from road traffic and rail. This will be achieved by taking a strategic approach to managing environmental noise and undertaking a balanced approach in the context of sustainable development.

Legal Context

This Noise Action Plan has been prepared in accordance with the requirements of the Environmental Noise Regulations 2006, Statutory Instrument 140 of 2006. These Regulations give effect to the EU Directive 2002/49/EC relating to the assessment and management of environmental noise. This Directive sets out a process for managing environmental noise in a consistent manner across the EU and the Noise Regulations set out the approach to meeting the requirements of the Directive in Ireland.

Description of the Area

SDCC varies substantially throughout the County from busy urban centres to rural landscapes and developing suburban residential developments. It is bounded by Dun Laoghaire-Rathdown County Council to the south of the County, Fingal County Council to the north, Dublin City Council to the east and by the Wicklow Mountains in the South east of the County. The area of the County is approximately 224km^2.

Noise Mapping

The Regulations set out a requirement for the assessment of environmental noise through the development of strategic noise maps. The strategic noise maps were developed using Predictor noise mapping software. Within the SDCC administrative area, strategic noise maps were developed for noise emanating from road traffic, rail and light rail (LUAS) sources. The noise mapping for rail and light rail sources were undertaken by Irish Rail and Transport Infrastructure Ireland (TII) respectively, whilst the noise mapping for road traffic noise was undertaken directly by SDCC.

With regard to road traffic noise mapping, approximately 460 km of road was input into the models with 49% being designated as Major Roads i.e. carrying more than 8,220 vehicles per 24 hours. The area modelled was slightly larger than the area mapped as a two kilometre buffer outside the County boundary was included in the noise model in order to take into consideration the influence of traffic outside of the area to be mapped.

Desirable and Undesirable Sound Levels

In line with the previous noise action plan, the following are the target values for desirable low and undesirable high sound levels in the Noise Action Plan 2018-2023:

Desirable Low Sound levels
< 50 dB(A) Lnight
< 55 dB(A) Lday

Undesirable High Sound levels
> 55 dB(A) Lnight
> 70 dB(A) Lday

Also, it is proposed to use the following absolute values as a criterion for defining a Quiet Area:
< 45 dB(A) Lnight
< 55 dB(A) Lday
< 55 dB(A) Lden

During the implementation of the noise action plan, it is proposed to identify locations that have noise levels below these criteria and review their use. If appropriate or necessary, locations will be identified as quiet areas where the existing noise levels are to be preserved or reduced if possible.

Summary of Actions

The key actions that will be implemented under the new Noise Action Plan 2018-2023 area listed under the following headings:

- Identify priority action areas;
- Develop Traffic Noise reduction and prevention measures;
- Include Noise in the Planning Process;
- Protecting “Quiet Areas“;
- Review existing Sound Monitoring Network
- Noise Complaint Investigation.

The Noise Action Plan 2018-2023 will be implemented through a staged process over 5 years, subject to resources being made available.

In 2021, SDCC will carry out a review of the actions implemented and polices developed under this action plan. Progress and results will be evaluated using information gathered through local assessment of environmental noise exposure. A review of new noise maps will also be carried out, giving an indication of the change in environmental noise levels and the numbers of people exposed.

Both a pre-screening SEA and AA were carried out. It was determined that neither a strategic environmental assessment nor an Appropriate Assessment was required to be carried out. The pre-screening reports are included in Appendix C and D of this draft Action Plan.

1. Introduction

1.1 Background

This Environmental Noise Action Plan has been developed jointly by South Dublin County Council in their role as designated Action Planning Authorities under Article 7 of the Environmental Noise Regulations 2006, Statutory Instrument Number 140 of 2006 (the Regulations).

The Action Plan is aimed at managing Environmental Noise and excludes noise from domestic activities, noise created by neighbours, noise at work places or construction noise as these can be dealt with under existing legislation such as the Environmental Protection Agency Act 1992 and Health & Safety legislation.

The aim of the this document is to provide an overview of the regulations, to review the results of the latest strategic noise maps for the South Dublin and to set out an approach to the strategic management and control of environmental noise over the next five years. It also provides the basis for feedback and input from the statutory authorities and the public to help inform the Noise Action Plan for SDCC.

1.2 Strategic Environmental Assessment (SEA) Pre-screening

The SEA Directive requires that assessment of the effects of certain plans and programmes on the environment be carried out. The purpose of the SEA process is to provide for a high level of protection of the environment and to contribute to the integration of environmental considerations into the preparation and adoption of plans and programmes with a view to promoting sustainable development.

Article 3 of the Directive states that an environment assessment shall be carried out for all plans and programmes, (a) which are prepared for agriculture, forestry, fisheries, energy, industry, **transport**, waste management, water management, telecommunications, tourism, **town and country planning** or **land use** and which set the framework for future development consent of projects listed in Annex I and II to Directive 85/337/EEC (the EIA Directive) or (b) which, in view of the likely effect on sites, have been determined to require an assessment pursuant to Article 6 or 7 of Directive 92/43/EEC (the Habitats Directive).

Article 2 of the Directive states that 'plans and programmes' shall mean plans and programmes, including those co-financed by the European Community, as well as any modification to them:

- Which are subject to preparation and/or adoption by an authority at national, regional or local level or which are prepared by an authority for adoption, through a legislative procedure by parliament or Government, and
- Which are required by legislative, regulatory or administrative provisions;

The SEA process includes provisions for formal screening, scoping and assessment, where relevant. The SEA Directive is implemented in Ireland through the following Regulations: SI 436 of 2004 (as amended by SI 201 of 2011) for specified land use plans such as development plans, local area plans etc., and SI 435 of 2004 (as amended by SI 200 of 2011) for all other sectorial plans listed in Article 3(a) of the SEA Directive, including Town and Country of Land Use Plans not listed in SI 436. It is noted that Action Plans for the Assessment Management of Environmental Noise are a form of 'Transport' sectorial plan. Therefore, if an SEA is required for an Action Plan, it would fall under the remit of SI 435.

Having regard to the above, a SEA pre-screening check was carried out for the Draft South Dublin County Council Action Plan following the process as outlined in Task 1.1 of the EPA report Development of *Strategic Environmental Assessment (SEA) Methodologies for Plans and Programmes in Ireland (2001-DS-EEP-2/5)*' *– Synthesis Report* (Appendix B; SEA Checklist). This pre-screening, that there was no need to proceed to a further full screening, applying environmental significant criteria. The SEA pre-screening report can be found in Appendix C and forms part of this draft Action Plan which will go on public display during consultation period for the Action Plan.

1.3 Appropriate Screening Assessment

Appropriate Screening Assessment In Accordance With the Requirements of Article 6(3) Of the EU Habitats Directive

The proposed draft Action Plan Relating to The Assessment & Management of Environmental Noise does not significantly alter any policy or objective of the South Dublin County Council Development Plans or any other plans adopted by South Dublin County Council. However, in line with the precautionary principal, it was considered appropriate to undertake an Appropriate Assessment Screening.

Stage 1 screening indicates that implementation of the proposed draft Action Plan is not directly connected with, or necessary to the conservation management of any Natura 2000 site in the assessment area. The implementation of the Action Plan will not have a direct impact on the Natura 2000 sites considered in the assessment. The Action Plan, alone or in combination with other Action Plans, is not likely to have a significant effect on the Natura 2000 Sites considered in the assessment and will not have any significant cumulative, direct or indirect impacts upon any of the Natura 2000 sites.

It was concluded that there is no possibility of there being a significant effect on a Natura 2000 site and hence there is no requirement for a 'Stage 2 AA' to be carried out for the purpose of Article 6(3). Therefore it was not considered necessary to undertake any further stages of the Appropriate Assessment process. The Appropriate Screening Assessment report can be found in Appendix D and forms part of this Action Plan which will go on public display in the public consultation period for the Action Plan.

1.4 Sound and Effects of Noise

Noise can be characterised as “unwanted sound” or “sound that is loud, unpleasant or unexpected” (Future Noise Policy - European Commission Green Paper 1996) and that can eventually cause disturbance, impairment or damage to health. Sound levels are expressed in decibels (dB) on a logarithmic scale, where 0 dB is nominally the "threshold of hearing" and 120 dB is nominally the "threshold of pain". One effect of using the decibel scale is that a doubling of the sound energy results in a 3 dB increase in the sound level.

Figure 1.1 provides an overview of common sound levels on the dB (A) scale as outlined in the NRA Guidelines for the Treatment of Noise and Vibration in National Road Schemes, 2004. From this we can see that the sound in a bedroom is about 35 dB(A) and the sound in a busy office is about 60 dB(A).

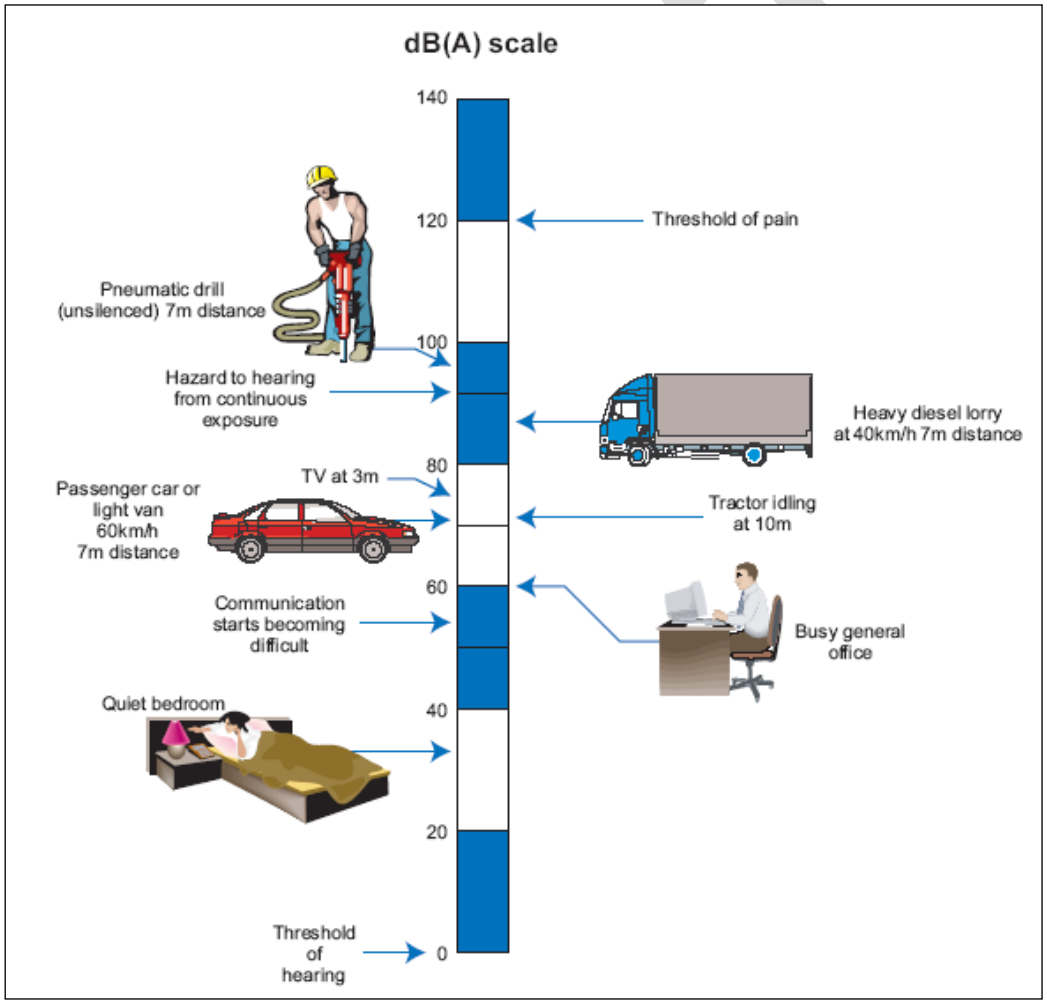


Figure 1.1 Levels of Typical Common Sounds on the dB(A) Scale (NRA, 2004)

Environmental noise, commonly called noise pollution, is among the most frequent sources of complaint regarding environmental issues in Europe, especially in densely populated urban areas and residential areas near highways, railways and airports, (WHO, European office). People are exposed to different sources of noise, including:

- Transport (road traffic, rail traffic, air traffic);
- Construction and industry;
- Community sources (neighbours, radio, TV, bars, restaurants);
- Social and leisure sources (portable music players, Mobile Phones with head headphones etc.);
- Indoor noise sources (ventilation systems, office machines, home appliances and neighbours).

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. In general, sound levels in cities can range between 60-70 dB(A), with suburban levels between 50-60 dB(A). 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 a moderate or serious annoyance.

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

In 2011 the European Regional Office of the World Health Organisation published a document entitled 'Burden of Disease from Environmental Noise'. It suggests that there is overwhelming evidence that exposure to environmental noise has adverse effects on the health of the population. The publication provides an evidence base for the future development of suitable guidelines on noise by the World Health Organisation (WHO). It supports the recommendations as set out in the 'Night Noise Guidelines for Europe' publication and supports this view based on a review of evidence based assessments of the impact of noise on health.

Noise pollution remains a major environmental health problem in Europe, with the transport sector being a major cause. According to the European Environment Agency (EEA) report titled „Managing exposure to noise in Europe", Road traffic noise is the dominant source affecting human exposure above the EU"s threshold of 55 decibels (dB) for daily exposure and 50 dB for night

exposure. Also in the report, it is stated that around 100 million people are exposed to road traffic noise above 55 dB in the 33 member countries of the EEA. Of these, 32 million are exposed to very high noise levels (above 65 dB). Railways are the second largest source, with 19 million people exposed above 55 dB. Aircraft noise, close to major airports, is the third main source, with more than 4.1 million people exposed, followed by industrial noise within urban areas, with 1.0 million people exposed.

1.5 Purpose and Scope of the Environmental Noise Directive

In 2004 the European Community adopted Directive 2002/49/EC, which relates to the assessment and management of environmental noise. This directive is commonly referred to as the Environmental Noise Directive.

The aim of the Environmental Noise Directive is to identify a European Union common approach aimed at avoiding, preventing or reducing the negative and harmful effects due to exposure to environmental noise. In the light of the Directive's provisions, environmental noise is defined as 'unwanted or harmful outdoor sound created by human activity, such as noise emitted by means of transport, road traffic, rail traffic, air traffic and industrial activity'. The Directive indicates a number of actions that need to be progressively implemented by Member States in order to achieve the objectives of the Directive. These actions relate to four main principles:

- **Monitoring of environmental noise** – Member States must develop strategic noise maps, using a common methodology, in order to determine the exposure to environmental noise in priority areas in their territories;
- **Managing environmental noise issues** – on the basis of the developed strategic noise maps, Member States have to adopt action plans containing measures designed to address noise issues, including noise prevention/reduction and preserving environmental noise quality where it is good;
- **Public information and consultation** – strategic noise maps, action plans and relevant information about noise exposure, its effects and measures to be considered to address environmental noise issues should be made available to the public or developed in consultation with the public;
- **Development of European Union long-term strategy** – with a view to reduce noise emitted by the major sources (in particular road and rail vehicles and infrastructure, aircraft, outdoor and industrial equipment), the EU and Member States should cooperate in order to provide a framework for EU policies addressing environmental noise issues.

The Directive applies to environmental noise to which humans are exposed, particularly in industrial or build-up areas, public parks and in other quiet areas in agglomerations and in open country, near schools, hospitals, etc. However, the Directive does not apply to noise caused by the exposed person, noise created by domestic activities or neighbours, noise at work place or inside

means of transportation due to military activities. Member States are obliged to designate competent national authorities responsible for the implementation of the Directive.

The Environmental Noise Directive requires all European Union (EU) Member States to produce strategic noise maps for the main sources of environmental noise, i.e. major roads, major railways, major airports and all sources within agglomerations with a population of more than 250,000 persons in 2007, and those with a population of more than 100,000 persons in 2012 and subsequent rounds.

One of the objectives of the Directive is to establish a common approach to assess the exposure to environmental noise throughout the European Union. Article 6.2 empowers the European Commission to establish common assessment methods for the determination of the noise indicators Lden (day-evening-night equivalent level) and Lnight (night equivalent level). Article 6.2 of the Directive foresees the development of a harmonised methodological framework for noise assessment and, in 2009, the Commission decided to develop CNOSSOS_EU (Common Noise aSSessment MethOdS) for noise mapping of road traffic, railway traffic, aircraft and industrial noise.

On the 19th May 2015 European Commission Directive (EU) 2015/996 was published. This Directive sets out common data requirements and a common assessment method for determining the values of Lden and Lnight by computation. Member States are required to use these methods from 31 December 2018 onwards. This methodology will be adopted for the 4th Round of Noise Mapping.

1.6 Purpose and Scope of the Noise Regulations

The purpose and scope of the regulations are set out in the statutory instrument S.I No. 140 of 2006, which transposes EU Directive 2002/49/EC relating to the assessment and management of environmental noise. It states that for the purposes of these Regulations, environmental noise means unwanted or harmful outdoor sound created by human activities, including noise emitted by means of transport, road traffic, rail traffic, air traffic, and from sites of industrial activity.

The Regulations set out to provide an implementation in Ireland of a common approach within the European Community intended to avoid, prevent or reduce on a prioritised basis the harmful effects, including annoyance, due to exposure to environmental noise. This is to be done through a two-stage process. 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, based on the results of the mapping process, the Regulations require the preparation of noise action plans for each area concerned. The fundamental objective of action plans is the prevention and reduction of environmental noise.

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

1.7 Role and Responsibilities of Designated Bodies

The Regulations designate the Environmental Protection Agency as the national authority for the purposes of the Regulations. The role of the Agency 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 designate noise-mapping bodies and action planning authorities for the making of strategic noise maps and action plans. Primary responsibility for both noise mapping and action planning is assigned to local authorities. While a number of other bodies also have noise mapping functions, these bodies will carry out their functions on behalf of the local authorities concerned.

1.7.1 Noise Mapping Bodies

A strategic noise map is defined within the Environmental Noise Directive as 'a map designed for the global assessment of noise exposure in a given area due to different noise sources for overall predictions for such an area' (EU, 2002).

The roles of the Irish noise mapping bodies are set out in the Environmental Noise Regulations 2006. Table 1.1 outlines the organisations that have been designated as noise-mapping bodies under the regulations:

Table 1.1 Designated Noise Mapping Bodies

For the agglomeration of Dublin	Dublin City Council and the County Councils of Dún Laoghaire/Rathdown, Fingal and South Dublin
For the agglomeration of Cork	Cork City Council and Cork County Council
For major railways -	Iarnród Éireann (Irish Rail) or Transport Infrastructure Ireland (TII), as appropriate;
For major roads	The Transport Infrastructure Ireland (TII) , for national roads classified in accordance with Section 10 of the Roads Act 1993 (No.14 of 1993), and the relevant road authority, or authorities, for major roads not classified as national roads
For major airports	The relevant airport authority.

Following the second round of noise mapping in 2012, each designated noise mapping body was required to make a strategic noise map during 2017, for each of the following areas in respect of data from 2016:

- An agglomeration with more than 100,000 inhabitants;

- Any major road with more than 3 million vehicle passages per year (approximately 8,220 per day);
- Any major railway with more than 30,000 train passages per year (approximately 82 per day); and
- Any major airport with more than 50,000 aircraft take-off or landing movements per year (approximately 137 per day).

A key element in the production of maps is that they are sufficiently accurate and detailed to satisfy any public appraisals as public engagement is a central objective of the Environmental Noise Directive.

1.7.2 Noise Action Planning Bodies

Action planning authorities are responsible for the making and approving of Noise Action Plans, in consultation with the EPA and the noise mapping body for the relevant noise map. Under the Regulations the following organisations have been designated as action planning bodies:

Table 1.2 Designated Noise Action Planning Bodies	
For the agglomeration of Dublin	Dublin City Council and the County Councils of Dún Laoghaire/Rathdown, Fingal and South Dublin
For the agglomeration of Cork	Cork City Council and Cork County Council
For major railways	The local authority or local authorities within whose functional area or areas the railway is located;
For major roads	The relevant local authority or local authorities within whose functional area or areas the road is located; and
For major airports	The local authority or local authorities within whose functional area the airport is located;

Accordingly, SDCC is designated as the Noise Action Planning Authority for all roads (including major roads**) major railways, major airports and major industry within its administrative area. SDCC are also required to contribute to an overall Dublin Agglomeration Noise Action Plan.

*** Major Roads are defined as roads which experience a volume of traffic greater than 3 million vehicle passages per year.*

The public are consulted on proposals for noise action plans;

- The public are given early and effective opportunities to participate in the preparation and review of action plans;

- The results of public participation are taken into account in finalising action plans or reviews of action plans;
- The public are informed of the decisions taken in relation to action plans;
- Reasonable time-frames are adopted to allow sufficient time for each stage of public participation.

1.8 Key Phases

The Environmental Noise Directive sets out a process for managing environmental noise in a consistent manner across the EU and the Regulations set out the approach to meeting the requirements of the Directive in Ireland. Responsibility for undertaking the phases of work required under the Regulations is shared between the noise mapping bodies and the action planning authorities.

Noise Action plans are required to be reviewed and revised every five years. The third round of mapping for SDCC is due to be completed in December 2018. The following timetable applies with regard to Action Plans for the second round:

- November 2018: Action Planning Authorities to submit their Draft Noise Action Plans to the EPA for review;
- November to December 2018: Public consolation on Draft Action Plan;
- December 2018: Draft Action Plans (including comments) are to be "drawn up" prior to this date;
- December 2018: Action Plans to be submitted to the EPA for final review;
- 18 January 2019: Details of noise control programs and measures to be reported to the EC by the EPA for 3rd round – ENDRM DF9; and
- 18 January 2019: Summary Noise Action Plans to be reported to the EC by the EPA for 3rd round – ENDRM DF10.

2. Existing Noise Management Legislation and Guidance

2.1 National and Local Legislation, Regulations and Guidance

In addition to EC Directives and regulations, there is national, regional and local legislation, regulations and guidance that relate to the management and control of environmental noise. The following provides an overview of the relevant literature.

2.2 Environmental Protection Agency Act 1992

The existing statutory provisions have primarily come about from the Environmental Protection Agency Act of 1992. The Act identifies noise as a form of environmental pollution and contains provisions for dealing with noise 'which is a nuisance, or would endanger human health or damage property or harm the environment'. Sections 106 to 108 of the Act are of direct relevance to noise, and can be summarised as follows:

- Section 106 gives the relevant Minister certain powers to regulate noise that may give rise to a nuisance or be harmful to health or property.
- Section 107 gives powers to local authorities and the EPA to serve notice to take steps to control noise from any premises, process or work;
- Section 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.

The powers set out within the EPA Act 1992 largely relate to the control of noise nuisance, and therefore may be applicable to neighbourhood noise, music, industry or other such activities. Arising from the Act, South Dublin County Council has developed policy statements dealing with issues arising from the provisions with the 1992 Act that can be found on the following link: https://www.sdcc.ie/en/services/environment/environmental-health/air-and-noise/

2.3 Good Practice Guidance for the Treatment of Noise during the Planning of National Road Schemes

This guide document was issued by Transport Infrastructure Ireland (formerly the NRA) in 2014 titled. The new Good Practice Guidance for the Treatment of Noise during the Planning of National Road Schemes is based on the lessons learned from post EIA noise evaluations studies and research undertaken on the design of noise barriers. It provides advice and information for use by acousticians and it is also relevant for traffic, motorway and pavement engineers. The advice supplements the original noise guidelines and it should be read in conjunction with that document. The TII intends publishing new standards documents relating to noise and vibration in the context of planning and construction of (proposed) national roads in 2019.

The guidelines indicate that all new national road schemes should be designed, where feasible‟ to meet a day-evening-night sound level of 60 dB Lden in the opening year and design years. Essentially what this means is that for any new road scheme the Environmental Impact Statement must take this target into account with regard to any existing sensitive residential property likely to be affected by the road scheme.

2.4 Irish Planning Guidance

Local Authorities can set conditions relating to noise as part of a planning permission. However, there is currently no national policy or guidance that addresses the issue of noise during planning leading to inconsistencies in relation to both the assessment and conditioning of planning applications.

On 16 February 2018, the Government launched *Project Ireland 2040* comprising the National Development Plan 2018-2027 (NDP) and the National Planning Framework (NPF). The former is designed to commit significant Exchequer funding over the next decade to help support the spatial planning objectives of the NPF. Under Chapter 9 of the NPF, Policy Objective 65 relates to noise as follows:

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

Three Regional Spatial and Economic Strategies that are currently being prepared and will include new Metropolitan Area Strategic Plans for the cities of Dublin, Cork, Limerick, Galway and Waterford will guide where population increase and economic growth is to be focused.

2.4.1 Planning Design Guidance

The following lists a number of documents relating to sustainable development in the urban environment:

- Design Manual for Urban Road and Streets, April 2013;
- Our Sustainable Future, A Framework for Sustainable Development in Ireland, June 2012;
- Sustainable Urban Housing: Design Standards for New Apartments (Guidelines for Planning Authorities), March 2018;
- Sustainable Residential Development in Urban Areas: Guidelines for Planning Authorities, May 2009;
- Urban Design Manual: A best practice guide. A companion document to the Draft Planning Guidelines on Sustainable Residential Development in Urban Areas, May 2009.

The Guidelines for Sustainable Residential Development highlight the need to ‘Deliver a quality of life which residents and visitors are entitled to expect, in terms of amenity, safety and convenience’. They go on to state that ‘Privacy is an important element of residential amenity’. Whilst they are not

mentioned specifically, it is appropriate to consider environmental noise and noise transfer between dwellings in respect of amenity and privacy.

The Urban Design Manual lists Privacy & Amenity as one of twelve key issues, with specific reference to the need to prevent sound transmission in homes by way of appropriate acoustic insulation or layout. There is some comment in relation to the use of appropriate building materials and also the zoning of dwellings to minimize the potential for excessive noise transfer.

2.5 IPPC Licensing

Certain activities that are required to be licensed may be subject to controls relating to sound emissions. The relevant guidance is set out in the EPA document, „*Guidance Note for Noise: Licence Applications, Surveys and Assessments in Relation to Scheduled Activities (NG4)*" was originally published in April 2012 and was updated in 2016. This revised Noise Guidance Note (NG4) is intended to assist licensed sites with the assessment of their potential and actual noise impact on the local environment. It recommends a "Best Available Technique" approach to the assessment and mitigation of noise pollution.

2.7 Quarries and Ancillary Activities

EPA Guidance on Quarries and Ancillary Activities contain a discussion of the primary sources of noise associated with quarrying and offers guidance in relation to the correct approach to be followed in respect of assessment and mitigation. Suggested noise limit values are 55dB $L_{Aeq,1hr}$ and 45dB $L_{Aeq,15min}$ for daytime and night-time respectively, although it suggests that more onerous values may be considered appropriate in areas with low levels of pre-existing background noise. EPA guidance also states that that *'blasting should not give rise to air overpressure values at the nearest occupied dwelling in excess of 125 dB(Lin) maximum peak with a 95% confidence limit'*.

2.8 Building Regulations 1997 – 2012

The design and construction of buildings is regulated under the Building Control Acts 1990 to 2014, in order to ensure the safety of people within the built environment. 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 criteria, reference is often made to the guidance values put forward in the *"Similar Construction"* method described in Technical Guidance Document E.

The Regulations apply to the transmission of sound between adjoining residential dwellings, such as within apartment blocks, or semi-detached properties, they do not relate to the transmission of sound from the outside environment into the living accommodation.

The Department of Housing, Environment, Community and Local Government (DoHECLG) published new Building Regulations pertaining to sound in December 2014. An updated and

enhanced Technical Guidance Document (TGD) E Sound followed in January 2015. The key aspects of the new guidance may be summarised as follows:

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

2.9 Regional or Local Legislation or Guidance

This document is a Noise Action Plan for Environmental Noise generated mainly by road traffic in the Dublin Area. Currently there is no regional or local legislation relating to noise. However, there are a number of guidance documents that are relevant in the in the context of noise action planning:

2.9.1 Regional Planning Guidelines

The Regional Planning Guidelines for the Greater Dublin Area 2010-2022 set out the planned direction for growth within the Greater Dublin Area up to 2022 by giving regional effect to national planning policy under the National Spatial Strategy (NSS). In this, it is stated that, ‘*Planning policies need to consider the added health burden from the effects of air and noise pollution, road traffic accidents, sedentary lifestyles, lack of safe community space or spaces with poor access*……..’. Reference is also made to noise mitigation in the design of Green infrastructure. Section 2.4 of this noise action plan also makes reference to noise in the Draft National Planning Framework 2040.

2.9.2 Development Plans and Local Area Plans

Transportation, environment and development control policies and objectives that aim to reducing the negative and harmful effects due to exposure to environmental noise are contained in the Development Plans and Local Area Plans of each of four Dublin Local Authorities, with details of policies shown on the respective websites.

2.9.3 Transportation Policy for the Greater Dublin Area

In addition, there are on-going sustainability policies being implemented at a local level that aim to increase the mode share of sustainable travel modes in the Dublin region with resultant reduction in noise and air pollution levels arising from less car traffic on the roads: These are as follows:

- **Transport strategy for the Greater Dublin Area, 2016 to 2035**.
  This transport strategy provides a framework for the planning and delivery of transport infrastructure and services in the Greater Dublin Area (GDA) over the next two decades. It also provides a transport planning policy around which other agencies involved in land use

planning, environmental protection, and delivery of other infrastructure such as housing, water and power, can align their investment priorities. Little reference is made on noise in this document.

- **Smarter Travel – *A Sustainable Transport Future 2009-2020*.**
  This sets out a broad vision for the future and establishes objectives and targets for transportation. It also supports greater integration between spatial planning and transport policy and sets a target to reduce car based commuting from 65% to 45% by 2020.

- **National Cycle Policy Framework 2009-2020.**
  This sets out actions to deliver a new culture of cycling in Ireland by 2020, with 10% of all trips to work being made by bicycle by 2020.

2.9.4 County Development Plan

Policies were included in the county development plan 2016 -2022 in particular Policy 7 Environmental Quality, IE7 Objective 4, to ensure noise was considered so that future developments are designed and constructed to minimise noise disturbance.

3. Description of the Action Planning Area

3.1 Introduction

Under the Environmental Noise Regulations 2006, the four Local Authorities within the 'Agglomeration of Dublin' are designated as the noise-mapping and action planning bodies for the purpose of making and approving strategic noise maps and action plans.

Before producing and implementing the Noise Action Plan, the Local Authorities must consult with the Environmental Protection Agency and the noise-mapping body for the noise-map involved, i.e. Transport Infrastructure Ireland, Iarnród Éireann, and Dublin Airport Authority. Local Authorities are also responsible for consulting with members of the public and are required under the Directive to demonstrate how they have done so.

Noise Maps and action plans are required to be developed for agglomerations with more than 250,000 inhabitants, but also for places near major roads, which have more than three million vehicles passages a year, major railways which have more than 30,000 train passages per year and major airports which have more than 50,000 movements per year. Noise maps have been produced for all roads, major roads, heavy rail (Irish Rail) and light rail (TII) in the South Dublin County Council area. These maps cover the long term average periods for daytime (Lday), night time (Lnight) and 24 hours (Lden).

3.2 Description of Topography

South Dublin County extends from the River Liffey to the Dublin Mountains and borders the administrative areas of Dublin City, Fingal, Dun Laoghaire Rathdown, Wicklow and Kildare. The character of use of land\property within the SDCC varies substantially from busy local towns to rural landscapes, and developing suburban residential developments. The area of the county is approximately 223 sq. kilometres in extent.

3.3 Extent of Action Planning Area

Figure 3.1 shows a map of South Dublin County Council. Based on the 2016 Census data, the population of the County now stands at 287,341, an increase of 5.1% since the last census in 2011. The An Post Geodirectory database indicates there are approximately 98,320 habitable dwellings, which are predominantly made up of two story semi-detached buildings.

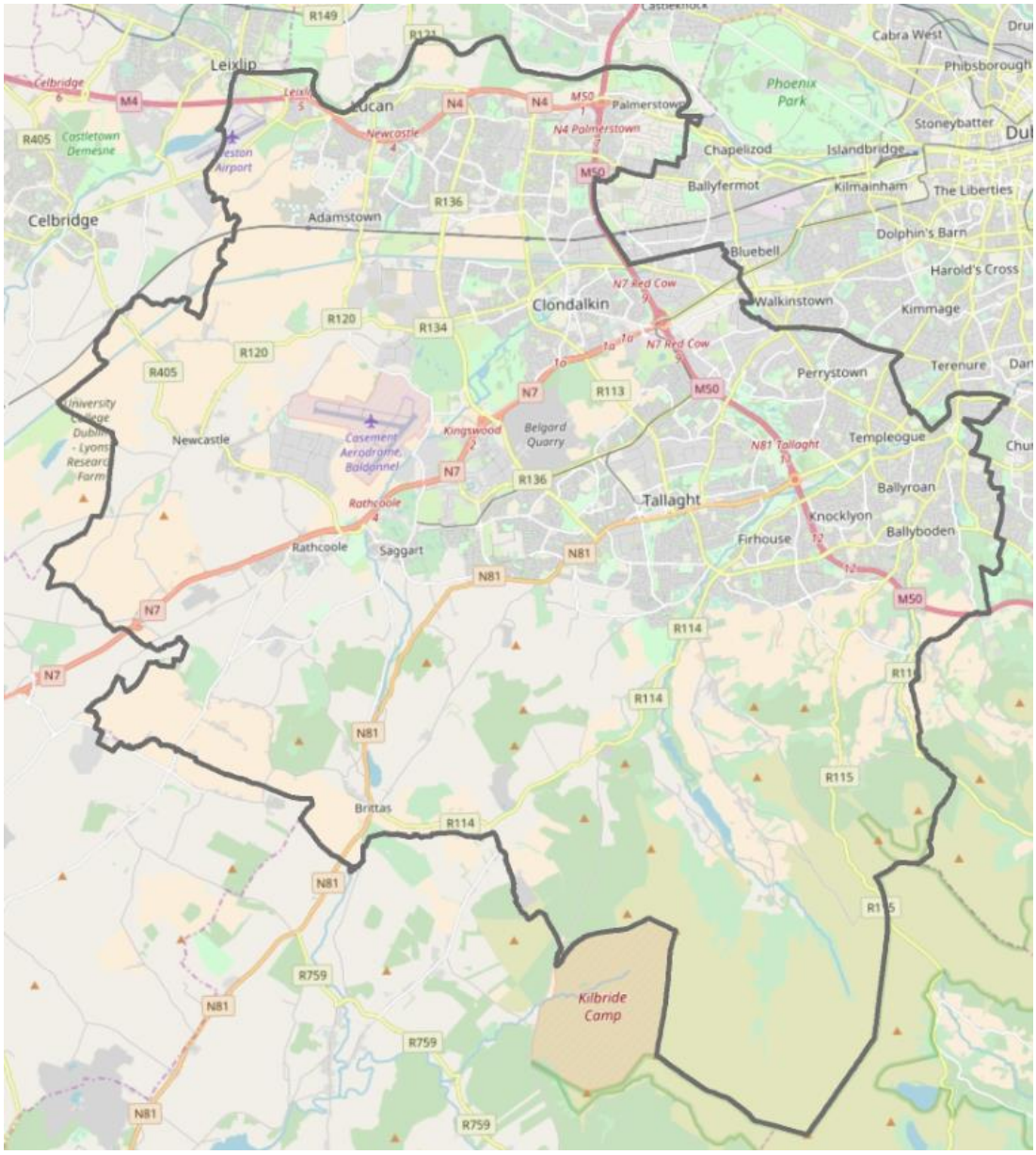


Figure 3.1 Map of South Dublin County Council

3.3.1 Road & Rail Extents

Approximately 880Km of road was inputted into the SDCC noise model. This was slightly higher from the length of road modelled in the previous plan. Of this approximately 317Km was designated as Major Roads, i.e. carrying more than 8,219 vehicles per 24 hour period.

Table 3.1 shows number of licensed vehicles in Dublin City and County over the period 2010 to 2016, the latest data available.

Table 3.3 Number of licensed Vehicles in Dublin and Nationally

Year	Dublin City and County	Goods Vehicles	Nationally
2010	595,322	59,512	2,416,387
2011	595,033	58,215	2,425,156
2012	592,841	56,570	2,403,223
2013	596,418	57,203	2,482,557
2014	605,546	57,766	2,515,322
2015	620,469	61,724	2,570,294
2016	637,297	66,621	2,624,958
2010 to 2016 – diff	41,975	7,109	208,571
2010 to 2016 - %	7.1%	11.9%	8.6%
2014 to 2016 - %	5.2%	15.3%	4.4%

Irish Bulletin of Vehicle and Driver statistics 2010 to 2016, DoEHLG / DTTaS

From Table 3.1, we can see that over the period 2010 to 2016, there has been an increasing trend in the number of licensed vehicles in Dublin City and County and nationally with a higher increase in Goods Vehicles in the Dublin area.

Table 3.2 outlines the trend in traffic flows on the main national roads in the County over the period 2014 to 2017. We can see that there has been a significant increase in traffic volumes on the M50, N7 and N4.

Table 3.2 Traffic Flows on SDCC National Roads 2014 to 2017

TII Traffic Flows AADT	2017	2016	2015	2014	2014 to 2017
M50 - Jn11 Tallaght & Jn12 Firhouse	113157	110213	106338	101635	11%
M50 - Jn10 Ballymount & Jn11 - Tymon	121605	118638	114481	108647	12%
M50 Jn09 N07/M50 Red Cow & Jn10 Ballymount	131999	128661	122910	113013	17%
M50 - Jn07 N4/M50 & Jn09 N07/M50 Red Cow	144664	139526	132839	124479	16%
N4 - Jn03 Newcastle & Jn04 Lucan	83061	81435	79251	78034	6%
N7 - Jn01a Newlands Cross & Jn02 Kingswood	99689	95926	89797	72669	37%
N81 - Tallaght to junction of M50	30112	30209	29823	30951	-3%

Source: www.nratrafficdata.ie

In August 2017, the Central Statistics Office (CSO) published Census 2016 *Profile 6 Commuting in Ireland*. The report shows that in April 2016 the number of people nationally travelling to work, school or college stood at 2,962,550, an increase of 9.3% on the 2011 figure.

Table 3.3 outlines the trend in travel mode share in SDCC for those travelling to work, school or college. From this we see that there has been an increase in the percentage of people using sustainable travel modes to travel to work or education.

Table 3.3 SDCC Travel Mode Share			
Means of Travel	**2016**	**2011**	**% Change**
On foot	28,708	27,590	4%
Bicycle	6,922	5,000	38%
Bus, minibus or coach	25,837	22,990	12%
Train, DART or LUAS	4,732	3,139	51%
Motorcycle or scooter	1,119	1,249	-10%
Car driver	71,789	68,878	4%
Car passenger	27,613	24,454	13%
Van	5,708	5,124	11%
Other (incl. lorry)	253	307	-18%
Total excl. 'working at home' and 'not stated'	172,681	158,424	
Source: CSO Census 2011 & 2016 - Trips to work, school and college			

There are approximately 7.6km of Irish Rail track and approximately 11.1km of Luas track within the SDCC area. The entire rail track within the SDCC area is designated as major rail and runs from the boundary with Dublin City Council at the M50 to the boundary with Kildare County with stops in Clondalkin and Adamstown. The light electric rail (Luas) provides access from SDCC to Dublin City Centre. There is a double track spur at Cookstown and the lines then terminate in Tallaght and Saggart. There are 11 stops on the line.

3.3.3 Location of Noise Sensitive groups

Certain locations and building uses are considered to be more sensitive to environmental noise pollution than others. The main priority of the Directive is to manage environmental noise exposure where it is high and preserve environmental sound quality where it is within acceptable limits.

The Directive, Regulations and EPA guidance all indicate that the Action Planning Authority should take due consideration of the locations which will be considered to be noise sensitive, if any, in addition to residential dwellings. For the purposes of the assessment of potential noise mitigation measures under the Action Plan, the following locations are considered noise sensitive:

- Hospitals, including nursing and convalescence homes;
- Educational institutions;
- Childcare\crèche facilities;
- Places of worship;

4. Responsible Authority for Action Planning

4.1 Name and contact details for the Responsible Authority

Dublin City Council and the County Councils of Dún Laoghaire-Rathdown, Fingal and South Dublin are the designated Action Planning Authorities under the noise regulations and are responsible for the preparation and implementation of the Noise Action Plan for the Dublin Agglomeration. This plan has been prepared by SDCC with support, assistance and information by the EPA and neighbouring County Councils.

The address for SDCC in relation to strategic noise mapping and action planning is as follows:

1. South Dublin County Council – Environmental Health Section, County Hall, Tallaght, Dublin 24.

4.2 Description of existing noise reduction measures

4.2.1 Noise Limit Values

There are no specific noise limit values currently in place within each Local Authority except for those in the guidelines outlined in Chapter 2. In general, Local Authorities can only specify advisory levels. This plan sets out desirable/undesirable sound levels which are primarily based on the 'WHO Night Noise Guidelines for Europe (2009)' and 'WHO Guidelines for Community Noise 1999'

4.3 Review of Dublin Noise Plan 2013-2018

This is the 2nd review and third production of a noise action plan for the assessment and management of SDCC environmental noise. The first was produced in 2008, which was reviewed and a new plan produced in 2013 for a five year period, finishing in November 2018. Broad objectives were set were set out in both the previous Action Plans with detailed sub objectives. These outlined proposed measures to prevent environmental noise and reduce, avoid or relocate the various types of noise source and were mainly based on road traffic sound emissions, as the 2013 noise maps showed it to be the dominant sound source within the region. In addition, many of the objectives of the plan were addressed through the implementation of various transportation and environmental policies for SDCC even though the noise action plan may not have been the main driving force. For instance many traffic related policies such as encouraging model shift to cycling, walking and the use of public transport have a direct positive acoustical benefit by reducing the growth in traffic noise sources. Therefore this draft action plan mirrors many of the aims in the first and second Noise Action Plans. The following sections provide an overview of the main actions implemented within the SDCC area as part of the Action Plan 2013 to 2018.

4.3.1 Noise Monitoring Network

As part of the Noise Plan 2008-2013, an objective was set to review the Action Plan at the end of the five year period. To support this review, a permanent ambient sound monitoring network was established with units set up in SDCC. The units are designed to operate continuously, recording sound levels and statistical information to allow analysis of trends in noise emissions. The units are equipped with a Class 2 microphone, specifically designed for long term outdoor use. Application areas include traffic noise level monitoring, industrial noise emission measurement, rail and air travel monitoring.

The noise monitoring network in **South Dublin County Council** measures outdoor ambient sound levels, at sites which are representative of typical sound levels to which citizens are being exposed. The first three noise monitoring units were installed in 2009 with an additional seven locations provided in recent years. The locations are spread throughout the County and cover all 4 representative local areas, with the locations as follows:

- County Hall, Tallaght
- Tallaght Leisure Centre
- Deansrath Depot
- Esker Parks Depot
- St. Columcilles school
- Saggart Parks Depot
- Cheeverstown Centre
- Tymon Park
- Palmerstown Court
- Moy Glas Way

SDCC noise monitors are real time monitors and can be viewed at the following link: http://www.sdccnoise.sonitussystems.com/ the link also provides historic noise data and noise charts.

4.3.2 Traffic Noise reduction and prevention measures

As part of the Noise Action Plan 2007-2012 and 2013 - 2018 an objective was set to reduce traffic density, to reduce traffic speeds and to reduce volumes of HGV's on city and town streets. During the period of the previous Noise Action plan 2008-2013, all Local Authorities in Dublin area implemented a number of transportation polices and projects, in line with 'Smarter Travel, A Sustainable Travel Future', the National Transport Policy 2009 – 2020 that positively contributes to the reduction in sound levels. These included the following;

- Construction of a new grade separated interchange at the N7 Newlands Cross which removed remove the last set of traffic signals between Cork, Limerick and Waterford.
- Adamstown Road R120 Improvement Scheme, which involves the construction of 3.8km of

new road on the R120 and R136, incorporating footpaths and cycle tracks.

- Implementation of bus priority measures
- Introduction of 30kph zones and traffic calmed areas
- Improved Urban Road network through improved traffic signal efficient allowing a smoothing of traffic flows on key strategic routes
- A greater focus on the delivery of goods during certain hours and restrictions at certain times (night time delivery restrictions or limits)

Development of sustainable travel (walking and cycling) infrastructure. A number of schemes in the last 5 years have been completed or are under construction, namely:

- Willsbrook Road 1.8km cycle track 2 way
- Main Street Tallaght to pedestrian/cycle over pass at M50 2km
- Wellington Lane at Spawell
- Monastery Rd Phase 1.1km

The following schemes are under construction.

- Scholarstown Rd under construction
- Fortunestown lane junction improvements under construction

4.3.3 County Development Plan

During the period of the Noise Plan 2013-2018, SDCC introduced a new development plan for their area running until 2022.

Transportation, environment and development control policies and objectives that aim to reduce the negative and harmful effects due to exposure to environmental noise are contained in the Development Plan. There is particular reference to environmental noise in Policy 7 Environmental Quality, IE7 Objective 4, to ensure noise was considered so that future developments are designed and constructed to minimise noise disturbance.

Noise is also referenced in the Development plan under Section 11.3.6 Environmental Hazard Management. "*The Planning Authority will have regard to the Dublin Agglomeration Environmental Noise Action Plan 2013 – 2018, Dublin Local Authorities (2013) when assessing development proposals along major road and rail transport corridors, with a view to reducing noise from new sources and to identify and protect areas of low sound levels.*

Development proposals with the potential to give rise to significant noise impacts may require a Noise Impact Assessment and mitigation plan to minimise noise disturbances and protect the amenities of the area.

The Planning Authority will carefully consider the location of noise sensitive developments so as to ensure they are protected from major noise sources where practical. Furthermore, the provision of appropriate mitigation measures for existing areas adjacent to major noise sources is supported

and will be considered having regard to the visual amenity and the proper planning and sustainable development of the area.

Where development sites adjoin residential properties, the Planning Authority will generally attach a condition to grants of planning permission restricting the operation of equipment or machinery (to include pneumatic drills, construction vehicles, generators, etc.) on or adjacent to the site before 7.00 hours on weekdays and 9.00 hours on Saturdays, after 19.00 hours on weekdays and 13.00 hours on Saturdays and at any time on Sundays, Bank Holidays or Public Holidays."

4.3.4 'Quiet Area'

As part of the Dublin Agglomeration Noise Action Plan 2008 to 2013, an action was included to identify Quiet Areas and preparation of submissions for approval by the Minister for the Environment, Community and Local Government for delimiting as Quiet Areas.

4.3.5 Rail

As part of the previous Noise Plan 2013-2018, there was an objective for rail operators to produce a sound impact assessment and apply mitigation measures, as appropriate, for any new rail infrastructure or ancillary developments or any major intensification on any existing rail infrastructure or ancillary developments within the Dublin Agglomeration. This was carried out as part of the Environment Impact statement for the major rail projects carried out in the Dublin Area.

4.3.6 Dublin Airport

Responsibility for noise abatement operational procedures at Dublin Airport is shared by the Airport itself, the Irish Aviation Authority (IAA) and the airlines operating at the Airport. In recognition of its own responsibilities in this area, Dublin Airport has introduced and continues to evaluate a number of initiatives to monitor aircraft noise levels and to mitigate their impact.

A flight tracking system is now operated that allow aircraft movements to be analysed and respond to any complaints relating to aircraft noise. The primary objective of the Noise & Flight Track Department of the Dublin Airport Authority is to gather information on aircraft approach and departure routes and resultant noise levels at a number of key locations.

Dublin Airport Stakeholders Forum set-up an Environmental Working Group that works closely with Fingal County Council. This forum provides an effective forum for the discussion of all matters concerning the development and operation of the airport that have an impact on users, customers of the airport and on people living and working in the surrounding communities.

The purpose of the group is:

- To understand the legislative / regulatory background for Noise and Flight Track monitoring as well as the monitoring of Air & Water Quality at Dublin Airport.

- To consider possible noise reduction measures as well as possible environmental measures to manage and control emissions.
- To consider how Noise Monitoring Data can be made available to the wider public.
- To make recommendations to Dublin Airport Stakeholders Forum on all issues in relation to Noise & Flight Track Monitoring.

The Working group has on going role in contributing to Dublin Airport Stakeholders Forum discussions and interests and has built up a consensus and strong working relationship between all parties over the years and continues to meet on a quarterly basis.

5. Summary of the results of the Noise Mapping

5.1 Introduction

Under EU Directive 2002/49/EC relating to The Assessment and Management of Environmental Noise, the four local authorities, within the agglomeration of Dublin, are required to review and revise, if necessary, 'Strategic Noise Maps' every 5 years. The first sets of maps were produced in June 2007 and the second in June 2012. A review was carried out by the four local authorities within the 'Agglomeration of Dublin' and this found that overall traffic volumes have reduced since 2007. However, due to the re-designation of the 'Major Roads' from more than 6 million vehicle passages per year to more than 3 million vehicle passages per year (from approx. 16,438 to 8,219 per day), a decision was made to revise the 2007 road source noise maps in order to produce maps for June 2012.

5.2 Noise Map Preparation

Preparation of strategic noise maps is mainly a technical process requiring an array of different input datasets across large geographical areas. The strategic noise mapping process results in grids of calculated noise levels at 20m intervals and the output from the mapping process allows the determination of the location and magnitude of noise levels within an area using 5 dB(A) noise bands. This gives an indication of the number of people and households exposed to different levels of environmental noise.

Dublin City Council acted as the lead co-ordinator in relation to developing the traffic source maps for the Agglomeration of Dublin in 2007 and in 2012, with support and information from the other County Councils. It calculated the noise models on behalf of the three Dublin local authorities along with the population and household exposures to noise, the collation of the maps and tables of statistics. The latest set of maps for the agglomeration were submitted to the EPA in a report titled 'Report on the Dublin Agglomeration Noise Mapping Project 2012' dated June 2012. Strategic noise mapping was also undertaken by the Dublin Airport Authority, the Railway Procurement Agency and Irish Rail. Indicative map for the Dublin Agglomeration can be seen in Appendix D with links to the mapping for each Local Authority and for the relevant agency shown in Appendix E.

5.3 Sound Calculation method

5.3.1 Method of Assessment

The Environmental Noise Regulations prescribes two methods that can be used for the assessment of noise from road sources. These are CRTN and the 'Interim Method' as described in the Environmental Noise Directive.

In the interest of consistency with the Round 1 Noise mapping, it was decided to use the adapted version of the UK CRTN methodology for the assessment of road traffic sound levels. Within this assessment procedure, Method 3 was used for conversion of 18Hr AADT to L_{den} and L_{night}.

5.3.2 Dataset Specification

Noise mapping entails the calculation or measurement of sound levels at a number of receiver/receptor points. These values are then used to draw colour contour 'noise maps', which visually represent the levels of 'noise' throughout the area being mapped. In general, the calculation of sound levels takes place in two stages within the 'noise mapping' software:

a) The assessment of the level of sound emitted from a source,- the "source noise emission";
b) The assessment of the attenuation of the emitted sound en-route from the point of emission to the receptor, - the "propagation attenuation".

After the assessment of sound levels across the area of the strategic noise mapping is performed, it is then necessary to undertake statistical analysis to determine the area, dwelling and population exposure data required to be reported to the EC.

Following this concept, the input dataset required can be classified into:

- Source input data which defines the position and characteristics of the noise sources;
- 3D model pathway input data which defines the environment within which propagation occurs;
- Population input data which defines the location of the population exposed to the long term environmental noise sources.

5.3.3 Noise Model Data Sources

Noise maps are developed by inputting data into 'noise mapping' software. The information required for the source emission model for the road traffic is specific to each method of assessment. The following CRTN (Calculation of Road Traffic Noise) input information is required for each road section for an assessment of road noise using the adapted UK CRTN method:

- Road centrelines and Traffic Data (Traffic volume, %HGV's, and mean vehicle speed, Direction of vehicle flow, Road width, Road surface type, Texture depth, Road gradient. Road classification.
- Ground region and Surface contours (10m spacing)
- Barriers/Screening – Heights and locations
- Buildings – Heights and locations

The model infrastructure data sets for Buildings, Road Centre lines, Contours and Green areas were supplied by OSI under license and dated 2010. SDCC traffic counts are from two different sources:

a) Automatic counters are in place for 2 or 3 days and the total then reduced to a daily average which is factored further to an AADT.

b) 12 hours counts (both manual and automatic) which are factored into AADT's.

HGV's are assessed on length of wheelbase and number of axels.

5.4 Noise Exposure Data Sources

The Noise Directive requires information on the total number of dwellings exposed to noise from all roads and major roads within the agglomeration. It also requires information on the estimated number of people living in dwellings that are exposed to noise for the various scenarios mapped:

The type of information used for the agglomeration of Dublin was:-

- GeoDirectory 'Buildings' table; 'Address Point' Table.
- CSO census data – Population of each electoral division.
- Geo referenced DED object layer attributed with CSO data to Ordnance Survey Ireland (OSI) Electoral Divisions (ED).

The Environmental Noise Directive requires that data should not be more than 3 years old. All data sets used in the model were less than a year old with the most up-to-date data set being the 'Geodirectory' containing address point and building use information.

5.5 Noise Level Calculations

The Predictor\Lima software suite, version 11.2 was used in the processing of the noise maps. The default settings for CRTN were used for computation, except for the setting of the fetching radius, which was set to 1000m. The grid spacing's were set to 10m spacing's. The models were subdivided automatically (tiled) into 1Km^2 grids with 1Km^2 buffers to improve calculation efficiency. This resulted in each model being 9Km^2 in size. For the area near the boundaries of each local authority, a buffer region of 2Km was used. These smaller models were then recombined automatically on export into the GIS environment.

5.6 Noise levels Indicators and exposure levels

To provide a standardised approach to the description of long term environmental noise, Article 6.2 of the Directive specifies the use of two noise level indicators when preparing environmental noise maps and action plans, the Lden and Lnight. The Lden is a noise rating indicator, rather than a sound level, and is based upon the day, evening and night time noise levels, with weightings applied for the different periods. Lnight is typically used to assess sleep disturbance.

- Lnight is the A-weighted long-term average sound level between 23.00 and 07.00
- Lden is the 24 hour noise rating level determined by the averaging of the Lday with the Levening plus a 5 dB penalty, and the Lnight plus a 10 dB penalty

The long term, annual average, day, evening and night values are determined and then combined to provide the indicated Lden yearly average, as seen in Appendix A. The penalties are applied to the evening and night time periods during the assessment of Lden to take into account evidence that response to noise levels is not uniform throughout the 24 hour period. For example, a given

indicated level of noise during the day may be deemed acceptable by the majority of people. However that same level of noise at night may be deemed less acceptable.

There are currently no national criteria in relation to noise limit values. In 2009, the EPA issued guidance notes on the development of noise action plans. The guidance on sound values where and action should be invoked, are in terms of average night time and 24hour values. In the current action plan they are expressed as average day and night time values. The EPA guidance suggests a desirable night time level of 45dB (A) whereas the existing Dublin Noise Action Plan sets it at 50dB (A).

In 2009, the World Health Organisation's European Office has published guidance in relation to night time sound levels (Night Noise Guidelines for Europe). In this it stated that, 'considering the scientific evidence on the thresholds of night noise exposure indicated by Lnight, outside, as defined in the Environmental Noise Directive (2002/49/EC), an Lnight, outside of 40 dB should be the target of the night noise guideline (NNG) to protect the public, including the most vulnerable groups such as children, the chronically ill and the elderly.

Lnight, outside value of 55 dB is recommended as an interim target for the countries where the Night Noise Guideline cannot be achieved in the short term for various reasons, and where policy-makers choose to adopt a stepwise approach'. For this reason, it is proposed to use an Lnight desirable level of 50dB (A) and undesirable level of 55dB (A) for the new Noise Plan that are in line with the recommended interim target. In addition, daytime noise levels greater than 70 decibels are considered to be undesirable

5.7 Summary of Noise exposure levels

5.7.1 Noise exposure levels – SDCC

Tables 5.1 and 5.2 set out the population exposure to sound from traffic sources on all roads in the South Dublin County Council Area. For the purpose of the Noise Action Plan, targets are set out as to what sound emissions are desirable and undesirable. These targets indicate that a night time level greater than 55 decibels and a daytime level greater than 70 decibels are undesirable. It should be noted that rounding up or down to the nearest '100' is a requirement of the Environmental Noise Directive and the 'error' is not considered significant.

Table 5.1 Noise exposure levels from all roads – SDCC 2017				
Decibels dB(A)	**Lden number people Exposed 2017**	**Lden % people Exposed 2017**	**Lden number people Exposed 2012**	**Lden % people Exposed 2012**
<55	142800	51%	67900	26%
55-59	81500	29%	86100	32%
60-64	34700	13%	58900	22%
65-69	16400	6%	27800	10%
70-74	3200	1%	18300	7%
>75	200	0%	6300	2%
	278800		265300	

Table 5.2 Lnight exposure levels from all roads – SDCC 2017				
Decibels dB(A)	**Lnight number people Exposed 2017**	**Lnight % people Exposed 2017**	**Lnight number people Exposed 2012**	**Lnight % people Exposed 2012**
<50	194600	70%	110000	41%
50-55	51300	18%	76900	29%
55-59	27100	10%	43800	16%
60-65	4900	2%	20900	8%
65-69	900	0%	11900	4%
>70	0	0%	1800	1%
	278800	100%	265300	100%

The following can be observed from Table 5.1 and 5.2;

- Of the 278,800 people living in the SDCC Area in 2017, 30% of people are exposed to noise levels greater than 55 dB(A) Lden, reducing from 58% in 2012.
- The percentage of people exposed to the desirable night time nose levels has been found to be 70% in 2017, which represents an improvement from 41% in 2012.
- The number of people exposed to undesirable night time levels of above 55dB(A) has reduced from 29% in 2012 to 12% in 2017.
- There were no persons exposed to night time sound levels above 70 dB(A).

There are a number of factors that may have contributed towards these reductions including improved source input data and the use of amended calculation methods in the noise model.

5.7.2 Noise exposure levels – Luas

Tables 5.3 and 5.4 provide details of the population exposures to sound from the Luas in the South Dublin County Council Area.

Table 5.3 Lden Noise exposure levels from major rail – Luas (TII)

Decibels dB(A)	Lden number people Exposed	Lden % people Exposed 2017	Lden % people Exposed 2012
<50	272300	97.7%	98.3%
50-54	3300	1.2%	0.9%
55-59	1600	0.6%	0.6%
60-64	1500	0.5%	0.2%
65-69	100	0%	0%
>70	0	0%	0%
	278800	100%	100%

Table 5.4 Lnight Noise exposure levels from major rail – Luas (TII)

Decibels dB(A)	Lnight number people Exposed	Lnight % people Exposed 2017	Lnight % people Exposed 2012
<50	276800	99.3%	99.5%
50-54	1700	0.6%	0.3%
55-59	300	0.1%	0.1%
60-64	0	0%	0%
65-69	0	0%	0%
>70	0	0%	0%
	278800	100%	100%

From Tables 5.3 and 5.4, we can see that the noise exposure levels from the Luas in SDCC are low. In Table 5.4, we can see that the number of people exposed to the undesirable night time levels above 55 dB(A) from the Luas is 300, i.e. 0.1% of the total population.

5.7.3 Noise exposure levels – All Heavy Rail

Tables 5.5 and 5.6 provide details of the population exposures to sound from the Heavy Rail (Dart and Mainline Rail) in the Dublin Agglomeration Area. No breakdown of data was available in the Irish Rail report for SDCC.

Table 5.5 Lden Noise exposure levels from major rail – Heavy Rail*

Decibels dB(A)	Lden number people Exposed	Lden % people Exposed 2017	Lden % people Exposed 2012
<50	1,318,720	98%	99%
50-54	12,900	1%	1%
55-59	80,00	1%	0%
60-64	6,400	0%	0%
65-69	1,300	0%	0%
70-74	100	0%	0%
>75	0	0%	0%

* See the full Table in Appendix C

Table 5.6 Lnight Noise exposure levels from major rail – Heavy Rail

Decibels dB(A)	Lden number people Exposed	Lden % people Exposed 2017	Lden % people Exposed 2012
<50	1,339,420	99.4%	99%
50-54	5,600	0.4%	1%
55-59	2,100	0.2%	0%
60-64	300	0.0%	0%
65-69	0	0.0%	0%
70-74	0	0.0%	0%
>75	0	0.0%	0%

* See the full Table in Appendix C

From Tables 5.5 and 5.6, we can see that the noise exposure levels from the Heavy Rail in the Dublin area are low. In Table 5.4, we can see that the number of people exposed to the

undesirable night time levels above 55 dB(A) from the Heavy Rail is 2600, i.e. 0.2% of the total population.

5.7.4 Noise exposure levels – Airport

Weston Executive Airport falls within the SDCC area. The first round of noise mapping in 2007 examined the need to produce noise maps for the airport. A study was conducted and the following is an extract from the TEC Ltd Environmental and Management Review Report:

> *"The noise impact assessment undertaken as part of the EIS produced by Bord Na Mona Environmental Consultancy Service indicated that the predicted noise levels associated with ground, taxiing and on-site vehicle movement operations at the three closest noise sensitive locations to the site would not be greater that the proposed criterion of 46 dBL aeq.16hours. The study concluded that mitigation measures are therefore not necessary to comply with the proposed criterion and that the noise impact is not significant."*

This report, along with estimated sound levels at the boundary of the airfield, provided evidence that noise modelling was not required for Weston Executive Airport for the third round of noise monitoring.

6. Noise Management Areas Identification

6.1 Introduction

Low environmental sound levels contribute significantly to the good health and quality of life for the population in the Dublin Agglomeration. Co-ordinated and sustained effort is required to protect those areas that have low environmental sound levels and to improve areas that are deemed to have undesirable high levels. It can be more cost effective to adopt an approach of prevention through good management and planning rather than having to retrofit existing situations to try and improve the quality of life for citizens. The use and enjoyment of many natural resources, such as our green spaces can be further enhanced through the preservation of low sound levels or the reduction in undesirably high levels, thus providing respite from the noisy 'hustle and bustle' often experienced in the busy urban environment.

6.2 Confirmation of onset of Assessment Thresholds

The results of the strategic noise maps provide an indication of the extent of environmental noise exposure in an area. However, they do not necessarily indicate where noise mitigation measures are required or where they would be cost effective. For this reason it is necessary to set out an approach which seeks to identify locations where noise mitigation measures are necessary and cost effective. Initially, some form of noise level needs to be identified for the onset of the process for the assessment of need. The following section outlines the proposed levels for the assessment of noise mitigation measures due to noise from all road traffic in SDCC.

6.2.1 Sound levels

a) Undesirable High Sound Levels.

Following a review of existing guidance as outlined in Chapter 2 and of the levels set out in the previous noise action plan, the following are the proposed threshold for undesirable high sound levels:

- > 55 dB(A) L night
- > 70 dB(A) L day

b) Desirable Low Sound Levels

Again, following the same criteria as above, the following are the proposed threshold levels for desirable sound levels

- < 50 dB(A) Lnight
- < 55 dB(A) Lday

6.2.2 Protection Thresholds for Quiet Areas

The Environmental Noise Regulations defines a **'Quiet Area in an agglomeration'** as an area, delimited by an action planning authority following consultation with the Agency and approval by the Minister, where particular requirements on exposure to environmental noise shall apply.

A Quiet Area could be an area with low sound levels or an area, which should not be exposed to high sound levels due to the type of area or the nature of the activities that take place within it. An area may also be perceived to be quiet although the sound levels may be relatively high. However, in general, natural sounds can be soothing regardless of their level. For instance sound levels in some of our large public parks such as Tymon Park and Corkagh Park can often have high daytime noise levels at the boundaries. However, large numbers of people would still visit and use these parks regularly for exercise and leisure, and to enjoy nature and a break from the hustle and bustle of urban life.

In this Noise Action Plan, it is proposed to use the following absolute values as one criterion for defining a Quiet Area.

- < 45 dB(A) Lnight
- < 55 dB(A) Lday
- < 55 dB(A) Lden

A second criterion to cover what are perceived as Relatively Quiet Areas is also proposed. These types of locations will be defined by their proximity to areas of high sound levels, and which provide a perceived area of tranquillity. Both quantitative and qualitative assessments will be used to identify these types of locations.

During the implementation of the noise action plan, it is proposed to identify locations that have noise levels below these criteria and review their use. If appropriate or necessary, locations could be identified as quiet areas or relatively quiet areas where the existing noise levels are to be preserved or reduced if possible.

6.3 Application of the Decision/Selection Criteria matrix

Having identified locations where the threshold has been exceeded, it is necessary to develop a ranking that seeks to identify locations where noise mitigation measures are necessary, feasible and will be cost effective. To do this, a Noise Decision Support Matrix will be used, as shown in Table 6.1.

A decision support matrix is a chart which enables identification, analysis and rating of the strength of relationships between various sets of information. It enables a number of different factors to be examined, such as the noise exposure level, the type of noise receptor, the type of noise source and the number of people affected. It also facilitates assessing the relative importance of each.

For this Action Plan it is proposed that the higher the number achieved in the decision matrix process, the higher the priority for action. **A value of 17 or more is suggested as the point where priority action should be considered either to reduce excessive sound levels or to preserve low sound levels where they exist.** For example a residential address, which falls within the Sound levels of 65-69dB in the day (2) and 60-64dB at night (3), in a noise sensitive area for day and night (3+3) and exposed to sound from traffic day and night, (2+3) will give an overall total of 16 as can be seen in Table 6.1.

Table 6.1 Noise Decision Support Matrix

Decision Selection Criteria		Score Range day	Score Range Night	Subtotal
Noise Band dB(A)	<55	3	4	
	55-59	2	2	
	60-64	1	**3**	**3**
	65-69	**2**	4	**2**
	70-74	3	5	
	>=75	4	6	
Type of location	City Centre	1	1	
	Commercial	1	2	
	Residential	2	3	
	Noise Sensitive Location	**3**	**3**	**6**
	Quiet Area	3	2	
	Recreational open space	2		
Type of Noise	Road	**2**	**3**	**5**
	Rail	3	4	
			Total	**16**

The following sections outline the results of the application of the decision support matrix analysis in the Dublin agglomeration.

6.4 Results from the Matrix analysis - Residential

Arising from the mapping, it is possible to identify the number of residential properties exposed to the various bands of sound levels. Although not defined as noise sensitive locations (e.g. hospitals, nursing homes, schools churches etc.), residential properties are ranked just 1 point below them in the decision matrix. Therefore it is essential to know the sound exposure level at each property. The following sections outline noise exposure data for residential dwelling in the South Dublin County Council region with the number of households exposed rounded up or down to the nearest 100 properties.

6.4.1 Residential Areas – SDCC Noise Exposure

Table 6.2 provides details of noise exposure levels for various bands arising from all traffic for the 97,900 residential dwellings in the South Dublin County Council Area.

Table 6.2 Household Noise exposure levels – SDCC				
Decibels dB(A)	**Lden Number dwellings exposed 2017**	**Lden % dwellings exposed 2017**	**Lnight Number dwellings exposed 2012**	**Lnight % dwellings exposed 2012**
<55	85,900	88%	48,500	51%
55-59	9700	10%	29,700	30%
60-64	1900	2%	12,200	12%
65-69	400	0.4%	6,100	6%
70-74	6	0%	1,300	1%
>75	0	0%	100	0%

Analysis of the noise decision matrix for the South Dublin County Council Area shows the following:

- In total, 53% (52,061) of residential properties have been identified as having a score of 17 or greater thus suggesting priority action should be considered. The equivalent percentage in the Noise action Plan 2013 to 2018 was 51.5% (49,920).
- The 53% can be further broken down to show that 52,014 properties are in areas with exposure to low sound levels.
- 0.04% (47) properties are in areas exposed to high sound levels. Applying this to the population statistics equates to potential annoyance from high sound levels for approximately 133 people. A reduction of 2094 residential dwellings and 5835 people, on the previous plan.

The areas exposed to low sound values and therefore prioritised for preservation of the good environmental sound quality, can be identified from the Lden and Lnight noise maps in Appendix E, where the colour contours are transparent in both maps i.e. below 45dB(A) at night and below 55dB(A) during the day. Similar areas to be prioritised for action to be taken to reduce high sound levels, can be identified from the Lden and Lnight noise maps where the colour contours range above 65dB(A) for Night time and 70dB(A) for daytime.

7. Noise Mitigation and Protection Measures

7.1 Principles for deciding on action

As part of this noise action plan, a strategic approach will be undertaken to manage environmental noise. In line with previous Noise Action Plans it is proposed that the following principles will be adhered to when deciding on the appropriate actions to reduce sound levels and to maintain noise levels where they are considered satisfactory.

- As the noise maps were developed for strategic use only, it is proposed that the basis of the Action Plan should be strategic in nature also and shall not include proposals in relation to noise from domestic activity, noise created by neighbours, demolition or construction noise or noise in work places.
- It is proposed to include actions to manage environmental noise only, primarily from road traffic as this is the dominant sound source.
- Mitigation measures will be prioritised using a Noise Score Decision matrix. For this decision support matrix. For this Action Plan it is proposed that the higher number achieved the higher the priority for action. A value of 17 or more has been proposed as the point where priority action should be considered.
- The plan shall address priorities that have been identified by the relevant noise limit value being exceeded or other relevant criteria established by the Environmental Protection Agency and shall in the first instance, address the most important areas established by the strategic mapping process. The following are the proposed limits
    - Desirable low sound levels are defined in areas with a night time level less than 50 decibels and\or a daytime level less than 55 decibels.
    - Undesirable high sound levels are defined areas with a night time level greater than 55 decibels and a daytime level greater than 70 decibels.
    - Quiet Area, is classified as a public space, park or area where people feel that can retreat to for some peace and quietness and get away from the normal urban environment. Defined as aspiring to have a daytime noise level of below 55 dB(A), a night time noise level of below 45 decibels time and an overall Lden of 55 dB(A).
    - A second criterion for defining for perceived or ‘Relatively Quiet’ areas will be defined by their proximity to areas of high sound levels, such as major roads, but which may not attain the above noise levels but still provide a perceived area of tranquillity.
- There will be earlier involvement and integration of noise abatement planning into the planning process and certain transportation schemes.

7.2 General Principles for deciding on action to mitigate Noise Nuisances

SDCC will follow the guidance as set out in the 'National Protocol for Dealing with Noise Complaints for Local Authorities'. The purpose of this guidance is to provide a structured, consistent process for Local Authorities to follow when they are engaging with complaints from noise pollution. The aim is that the process described will be a model of best practice for Local Authorities in this often difficult area of complaint management. Details of the guidance can be found on the following link: http://noisecomplaint.ie/2018/05/09/national-protocol-for-dealing-with-noise-complaints-for-local-authorities/

7.3 South Dublin County Councils Noise Nuisance Policy

South Dublin County Council's Environmental Health Department deal with noise complaints from members of the public. These mainly relate to complaints about commercial enterprise. It also has an advisory role to a number of other departments within SDCC.

7.4 Noise and the Planning and Development Process

The Planning system has the potential to have a major influence on the control of future exposure to environmental noise. The appropriate use of the planning system can help avoid, or minimise, the adverse impact of noise without placing unreasonable restrictions on development. The scope exists within planning and development management process to manage increased levels of noise arising from new development where exposure level can be harmful to health. Set out in the following paragraphs are how SDCC has integrated actions on noise into the planning and development process.

7.4.1 General Principals for deciding on action in relation to Planning & Development Planning Policy and Noise Mitigation

The vision for planning and development in SDCC is contained in the county development plan 2016 – 2022. The main objectives in the Development Plan are to encourage the development of sustainable communities and to ensure a high quality environment. At the heart of the new County Development Plan are issues such as: Quality of Life, Prosperity, Sustainability, Health & Wellbeing, Social Inclusion and Climate Change. The development plan also aims to create sustainable and attractive places, in ensuring health and well-being and in safeguarding the environment.

Noise is specifically referenced under section 11.6.3 under Environmental Hazard Management. In the development plan it states the Planning Authority will have regard to the Dublin Agglomeration Environmental Noise Action Plan 2013 – 2018, Dublin Local Authorities (2013) when assessing development proposals along major road and rail transport corridors, with a view to reducing noise from new sources and to identify and protect areas of low sound levels.

Development proposals with the potential to give rise to significant noise impacts may require a Noise Impact Assessment and mitigation plan to minimise noise disturbances and protect the amenities of the area.

The Planning Authority will carefully consider the location of noise sensitive developments so as to ensure they are protected from major noise sources where practical. Furthermore, the provision of appropriate mitigation measures for existing areas adjacent to major noise sources is supported and will be considered having regard to the visual amenity and the proper planning and sustainable development of the area.

Where development sites adjoin residential properties, the Planning Authority will generally attach a condition to grants of planning permission restricting the operation of equipment or machinery (to include pneumatic drills, construction vehicles, generators, etc.) on or adjacent to the site before 7.00 hours on weekdays and 9.00 hours on Saturdays, after 19.00 hours on weekdays and 13.00 hours on Saturdays and at any time on Sundays, Bank Holidays or Public Holidays.

7.4.1.1 When considering planning applications the following will be taken into account for both Community Infrastructure and Land Uses.

- Places of Worship (3.6.0)

South Dublin County Council recognises the importance of places of worship and multi-faith centres in meeting the diverse religious and cultural needs of the County's population. Given the potential noise and traffic impacts associated with the use of a building as a place of public worship or religious instruction it is important that places of worship and associated uses are suitably located.

- Burial Grounds (3.8.0)

To facilitate the development of new or extended burial grounds and crematoria at suitable locations in the County, subject to appropriate safeguards with regard to environmental, noise and traffic impacts.

- Early Childhood Care and Education (3.10.0)

To support the provision of small scale childcare facilities in residential areas subject to appropriate safeguards to protect the amenities of the area, having regard to noise pollution and traffic management.

- Dwelling Sub-Division And Upper Floors (11.3.2)

Dwelling sub-division and 'over the shop' accommodation should accord with the relevant guidelines and standards contained in this Development Plan relating to apartments and contribute positively to the established character and amenities of the area. The design of 'over the shop' housing should include mitigation measures to address possible sources of external noise.

- Retail Development Restrictions on Uses (11.3.6)

The Planning Authority will seek to ensure that the quantum of off-licence and betting offices, particularly within smaller centres, is not disproportionate to the overall size and character of the

area and that the development would not have a negative impact on the amenity of the area due to noise, general disturbance, hours of operation and litter.

- Fast Food/Takeaway Outlets (11.3.6 iii)

Fast food outlets have the potential to cause disturbance, nuisance and detract from the amenities of an area and as such, proposals for new or extended outlets will be carefully considered. Development proposals for fast food/takeaway outlets will be strictly controlled and all such proposals are required to address the following: The potential effect and the proximity of fast food outlets or take away outlets to vulnerable uses, such as schools or parks, the cumulative effect of fast food outlets on the amenities of an area, the effect of the proposed development on the existing mix of land uses and activities in an area, opening/operational hours of the facility, the location of vents and other external services and their impact on adjoining amenities in terms of noise/smell/visual impact.

- Motor Fuel Stations (11.3.6 iv)

Petrol stations, while necessary, have the potential to cause disturbance, nuisance and detract from the amenities of an area and as such, proposals for new or extended outlets will be carefully considered. Motor fuel stations will not generally be encouraged within the core retail area of urban centres or in rural areas. Development proposals for motor fuel stations should address the following:

Development proposals will be required to demonstrated that noise, traffic, visual obtrusion, fumes and smells will not detract unduly from the amenities of the area and in particular from sensitive land uses such as residential development.

- Extractive Industry (11.3.8)

The development, intensification or diversification of activities relating to the extractive industry will be assessed in doing so the Council will take into consideration any visual impacts, noise, vibrations, dust prevention, protection of rivers, lakes, Natura 2000 sites, water sources, impact on residential and other amenities, impact on the road network, issues of road safety, phasing, re-instatement and/or re-use, and landscaping of worked sites.

- Home Based Economic Activity (11.3.10)

Development proposals for small scale home based economic activities will be considered where the applicant is the resident of the house and can demonstrate that the proposed activity is subordinate to the main residential use of the dwelling. Proposals that adversely impact on the existing residential amenity of the area by way of increased traffic, noise, fumes, vibration, smoke, dust or odour will not generally be favourably considered.

- Pigeon Lofts (11.3.15)

Pigeon lofts have the potential to cause disturbance, nuisance and detract from the amenities of an area and as such, proposals for new or extended pigeon lofts will be carefully considered. Pigeon lofts shall be sited and designed to avoid undue impact on existing visual and residential amenities, particularly with regard to odours, noise and hygiene.

7.4.1.2 Traffic Management

Increasing volumes of traffic affect air quality and the acoustic environment. The challenge is how to manage demand for limited road space and thus minimise traffic congestion, where possible, resulting in improved air quality and reduced noise emissions. The aim is to manage these issues through specific transport measures, as outlined in chapter 6.0 Transport and Mobility.

Traffic can have environmental and safety impacts which need to be address and minimised through measures such as traffic calming, layout/road re-design, and through monitoring of polluting emissions such as noise. The launch of the Design Manual for Urban Roads and Streets (DMURS) jointly by the Department of Environment, Community and Local Government and Department of Transport, Tourism and Sport places a new focus on the role of streets in sustainable place-making and encourages layouts that are suited to all users. It is the policy of SDCC to support the sustainable principals set out in the DMURS.

7.6 Noise and Pre Planning Guidance

SDCC Planning Department has prepared a series of Pre-Planning Guidance Documents for some of the common planning application issues. One of these documents relates specifically to noise as a public health issue. The document provides current U.K. recommended internal LAeq target levels for overall noise in the design of new buildings that could be considered. The guidance document can be found on the following link: https://www.sdcc.ie/en/services/planning/planning-applications/pre-planning-guidance-and-consultation/14-sdcc-noise-control-pre-planning-guidance.pdf and can also be found in Appendix H.

7.7 Processing areas above the onset of assessment criteria

Following the prioritisation exercise based upon the results of the strategic noise mapping and the decision support matrix, an ordered shortlist of areas will be drawn up which will proceed to the next stage in the process. The aim of this stage is to confirm that the noise levels assessed by the strategic noise mapping are experienced by population and residential dwellings within the areas being addressed.

Prior to the review of potential noise mitigation measures, and any subsequent commitment of budget to undertake any necessary actions, it is considered appropriate to confirm that the noise levels indicated by the strategic noise maps are being experienced by the population within the Dublin agglomeration.

This will be undertaken in two ways. Firstly, by undertaking a review of the strategic noise models and refining them, if appropriate, and secondly by undertaking field survey work and using SDCC noise monitoring network to measure noise levels prior to the commencement of any works.

The review and possible refinement of the strategic noise model may help to reduce the uncertainty in the calculated noise levels within the area under review, and will benefit any subsequent use of the model to assess the potential level of noise reduction benefit which may be delivered to the residents by potential mitigation measures. Field survey work would help with calibration of the strategic noise map, as well as provide information on whether the properties being assessed had noise sensitive rooms exposed on the most exposed facades, or whether noise mitigation measures were already present which may not be indicated within the calculation model.

Once the extent of the existing noise impact has been confirmed for the locations under review, the potential noise mitigation measures would then be investigated, and a cost benefit analysis undertaken for each, with the aim of developing a selection matrix which leads towards a recommendation for action.
This staged approach helps to ensure that any work undertaken is cost effective, will deliver genuine benefit to the residents, and has been undertaken in a prioritised manner which is objectively based.

7.8 Preservation of areas below threshold

Where areas are identified as being below the onset of 'desirable' threshold, they will be considered for review in the context of the review for quiet areas. In addition to this, if the locations identified have amenity value then the planning process may then be used to help preserve the nature and level of the existing sound environment.

7.9 Management of Areas between the Thresholds

Careful consideration of environmental noise pollution when planning for new developments will be a key factor in the management of the noise environment in the interest of sustainable development. Setting out clear planning policy relating to noise, and incorporating environmental mitigation noise strategies into the development, planning and local area planning processes will help to ensure that the existing noise climate is preserved where appropriate.

With the twin focus on mitigation of noise for the most exposed residents, and preservation through designated quiet areas of the least exposed areas, there is a risk that the majority of households, which sit between these two categories, are not provided for within the action planning process. It is acknowledged that the action plan needs to provide a means of preventing and avoiding detrimental levels of long term noise exposure, and the development of planning guidance plays a key role in support of this target.

7.10 Possible Noise mitigation measures

There are a wide range of potential noise mitigation measures, some of which may act at a national or regional level, others which may be purely localised. Likewise there are a number of levels of authority which may be capable of making actions. A non-exhaustive list of measures includes the following:

- European Union Vehicle noise emissions and tyre noise regulations.
- National planning guidance or noise regulations would be set at national level.
- Transport policy objectives may be set at regional level;
    - Improved public transport;
    - Getting people out of cars; and
    - Increasing bus, train, bicycle journeys.
- At local authority level there are powers to act as follows:
    - Replace diesel vehicles with Compressed natural gas / electric;
    - Truck routes;
    - Night time delivery restrictions or limits;
    - Planning permissions;
    - Enforcement of speed limits;
    - Road closures / traffic routing;
    - Road re-surfacing;
    - Planning zones;
    - Façade insulation requirements;
    - Noise barriers;
    - Public liaison groups; and
    - Long term targets.
- Roads authorities could undertake the following:
    - Traffic management – routes and HGV's;
    - New road construction (bypass);
    - Re-surface roads;
    - Vehicle speed management;
    - Noise screening measures; and
    - Façade insulation measures.

7.10.1 Possible Noise mitigation Measures Specific to SDCC

The general principles of noise mitigation apply in relation to noise action planning. These are:

- Mitigate the source;
- Mitigate the receiver; or
- Mitigate the noise pathway.

For example, treating the noise path between receiver and source by inserting a barrier could mitigate noise from traffic on a roadway. By reducing the traffic numbers on the road, the source noise levels could be reduced. A house façade\exposed to high noise levels could be treated with dual glazing or a new house could be located further away from the source.

7.10.1.1 Screening Noise

Noise barriers can reduce the impact of noise if the average sound level is reduced by at least 4 dB (A)[1]. The design of noise barriers is very important to their acceptance by residents. Road side noise barriers maybe considered for new construction projects and schemes that are located close to major roads. In such instances they would need to be constructed in consultation with the TII and follow the TII Guidelines for the Treatment of Noise and Vibration in National Road Schemes.

7.10.1.2 Planning and Development

When new developments are being constructed it is important that both houses and apartments are designed, orientated and located in such a way so as to limit the impacts of noise from traffic. All new applications for residential developments will be assessed and where there is the likelihood of an adverse noise impact the applicant will be required to produce a noise impact assessment carried out by appropriately qualified acousticians and competent persons[2]. The noise impact assessment should demonstrate that all facets of the UK *"Professional Practice Guidance on Planning & Noise"* (2017) (ProPG) have been followed.

7.10.1.3 Changing Road Surfaces

Renewing Road Surfaces or replacing rough paving with more smooth or low noise surfaces is an action that can be considered, in order to reduce sound levels and noise impacts. This option may not be suitable in all cases, depending on the nature of traffic on the road. Therefore each situation will have to be assessed as to whether the option is suited to the circumstances under consideration. For new schemes, low noise surfaces will be considered as part of the overall design and in keeping with current design guidelines.

[1] SMILE Project – Guidelines for Road Traffic Noise Abatement

[2] The Council's definition of competent persons is based on the EPA's interpretation in their Guidance Note for Noise in Relation to Scheduled Facilities.

7.11 Assessment of Options and Cost Benefit Analysis

In general, no one design intervention can provide a solution in an area and often a range of measures will be needed. In general the best way to minimise the costs of noise prevention and noise reduction is as follows:

- In the case of existing noise sources or sensitive buildings affected by noise, noise mitigation can be coordinated with scheduled maintenance, renewal and modernisation activities insofar as the funding and lands available will allow.
- Where new noise sources are being created in the vicinity of existing sensitive buildings, or vice versa the most cost effective mitigation is to take it into account from the very beginning of the planning process.
- Where a new noise source is being created, consideration should be given as to whether it is absolutely necessary, and whether the benefits really outweigh the disadvantages. If this is the case then consideration should be given to the location of the noise source so that it causes the minimum possible disturbance.

For the locations where noise has been identified as being an issue, a list of potential noise mitigation actions will be drawn up. In order to undertake an assessment of feasibility and develop a prioritised list of actions, a cost-benefit analysis will be undertaken in order to maximise value for money and deliver benefit from investment. The cost-benefit analysis will address lifetime construction and maintenance cost against noise reduction benefit.

The benefit of noise reduction may be viewed in terms of decibels / people / time, and may be considered using an assessment of changes in estimated levels of annoyance or sleep disturbance, or could be monetised to fully process the analysis. Monetisation of noise is becoming increasing common. The monetary assessment of noise levels tends to take two differing approaches;

(i) impact upon property market value and

(ii) willingness to pay by residents exposed to noise to produce a reduction.

As may be expected these tend to lead to somewhat differing suggested levels of financial benefit. The best information available at present comes from an European Commission working group position paper from December 2003 *"Working Group on Health and Socio-Economic Valuation of Noise"* which proposes a median value in noise perceived by households from road traffic of €25 per dB Lden per household, per year based upon the noise level change compared to the initial situation. The validity range of this interim value is between 50/55 Lden and 70/75 Lden, to be adjusted as new research on the value of noise becomes available.

Applying this data to the priority residential properties arising from the matrix analysis, we can estimate that moving from the priority action status to a lower status equates to a positive benefit.

8. Noise Implementation Plan

8.1 Objective of the Noise Plan

The key objective of the Noise Action Plan 2018-2023 is to avoid, prevent and reduce, where necessary, on a prioritised basis the harmful effects, including annoyance, due to long term exposure to environmental noise. This will be achieved by taking a strategic approach to managing environmental noise and undertaking a balanced approach in the context of sustainable development.

It is proposed that the Noise Action Plan will be implemented through a staged process over 5 years with SDCC endeavouring to follow the time frame set out below in relation to the programme of works and to the implementation of the Action Plan.

8.2 Proposed Action Plan measures

A number of measures are proposed as part of this plan to prevent noise and reduce, avoid or relocate the various types of noise source. As per the previous plan, these measures focus mainly on road traffic sound emissions. These measures will be the primary measures considered when deciding on action to prevent, reduce avoid or relocate sources of high sound levels.

8.2.1 Identify Priority Areas

The initial stage of the management of areas, which are indicated to be above the threshold where noise mitigation measures are deemed necessary, is to conduct a review of existing noise mapping. The review shall identify the order of priority of potential areas for subsequent treatment. On completion of the initial assessment, a field survey of actual noise levels shall be carried out to verify the initial findings and confirm the order of priority for treatment. As part of the establishment of the order of priority, the most appropriate and cost effective mitigation measures shall be identified to optimise the return from the mitigation process.
A decision support matrix as outlined in Section 6.3 will be generated to facilitate this process. On implementation of the noise mitigation measures, the areas in question shall be resurveyed to establish the effectiveness and extent of the mitigation measures.

Prior to the review of potential noise mitigation measures, and any subsequent commitment of budget to undertake any necessary actions, the noise levels assessed by the strategic noise mapping will be validated to ensure they are being experienced by population and residential dwellings within the areas being addressed. Environmental Health Department in consultation with Land Use, Planning and Transport Department will work out a strategy of verification to prioritise such areas.

8.2.2 Traffic noise reduction and prevention measures

Under the county development plan significant road/cycle infrastructure schemes are being progressed. Further development of the cycle, bus and rail network is essential to cater for a growing population and increased demand for multi-modal travel options.

As part of the plan, the following strategic measures will be introduced in the coming years over each year of the Noise Action Plan:

8.2.2.1 Strategic Cycle Plan

South Dublin County Council worked in close consultation with the NTA to develop a County-wide cycling network, which is incorporated into the National Transport Authority's Greater Dublin Area Strategic Cycle Network. The county development plan has identified a hierarchy of routes for the Greater Dublin Area as follows:

Primary Routes: These provide links to Dublin City Centre from major urban centres such as Clondalkin, Lucan, Tallaght and Rathfarnham. An orbital route from Liffey Valley to Dun Laoghaire (via Tallaght) is also proposed.

Secondary Routes: These provide direct links to Primary Routes and between key urban destinations such as Adamstown, Citywest, Clondalkin, Lucan, Liffey Valley, Rathfarnham, Tallaght and Walkinstown.

Green Routes: These provide tourist, recreational and leisure routes through amenity areas and along water courses including the Dodder Valley, Grand Canal, Griffeen Valley, Liffey Valley and Tymon Park.

Feeder Routes: These provide routes through neighbourhoods to link to Primary and Secondary routes.

Minor Greenways: These provide links through parks and open lands to link with Green Routes.

Inter Urban Routes: These provide links between rural towns and villages and through the Dublin Mountains.

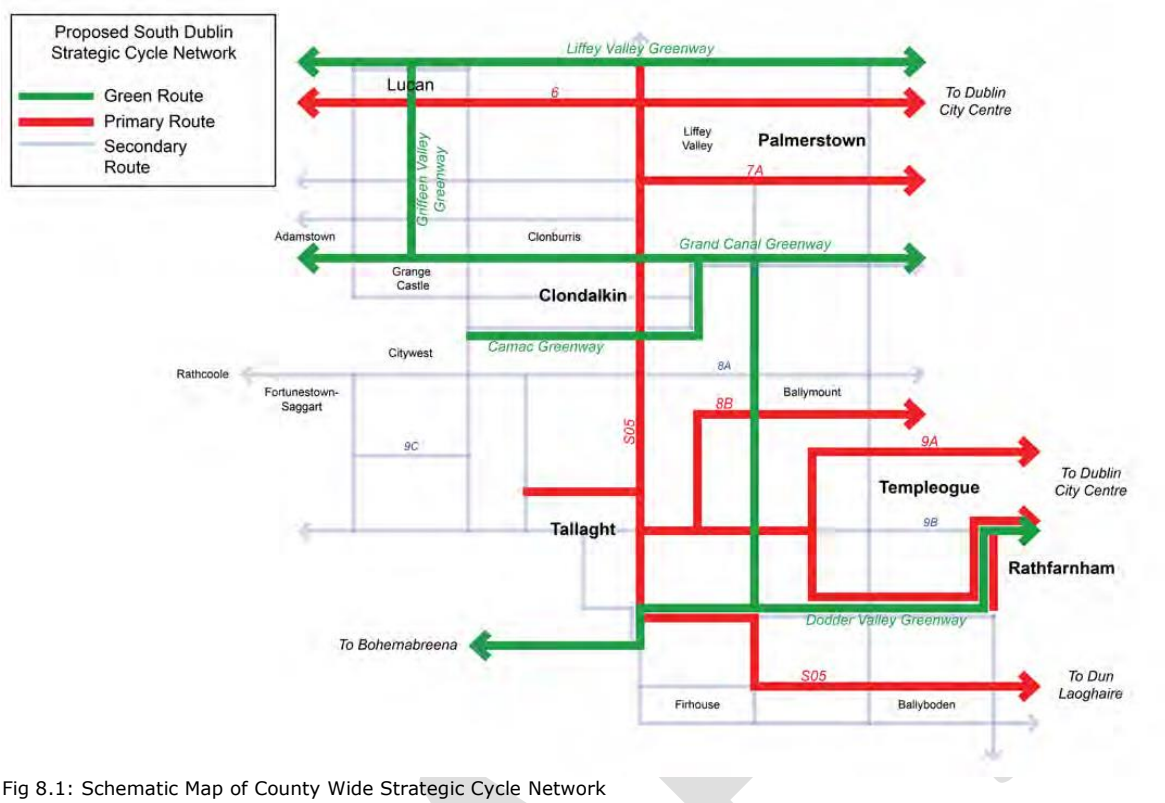


Fig 8.1: Schematic Map of County Wide Strategic Cycle Network

8.2.2.2 Public Transport

Levels of public transport use vary across the County. Trips to Dublin City Centre are reasonably well catered for and used, a significant proportion of the County's workforce live and work in outer suburbs, which are served by fewer orbital routes. The use of public transport is particularly low in areas where it is difficult to reach services by foot and where services are infrequent.

In order to address these issues, the Council work with the National Transport Authority, the statutory authority responsible for long term strategic transport planning in the Greater Dublin Area, to focus on the delivery of:

- Orbital public transport services to link major centres and areas of employment such as Tallaght, Clondalkin and Liffey Valley.
- Additional and extended public transport routes to service newly developed areas, and existing areas where gaps in services exist.
- Transport hubs, to connect services (such as between orbital and radial routes and/or core and feeder routes) and form a 'web' like network.
- Improved access to public transport stops and services.

Improved integration between higher density forms of development and public transport nodes.

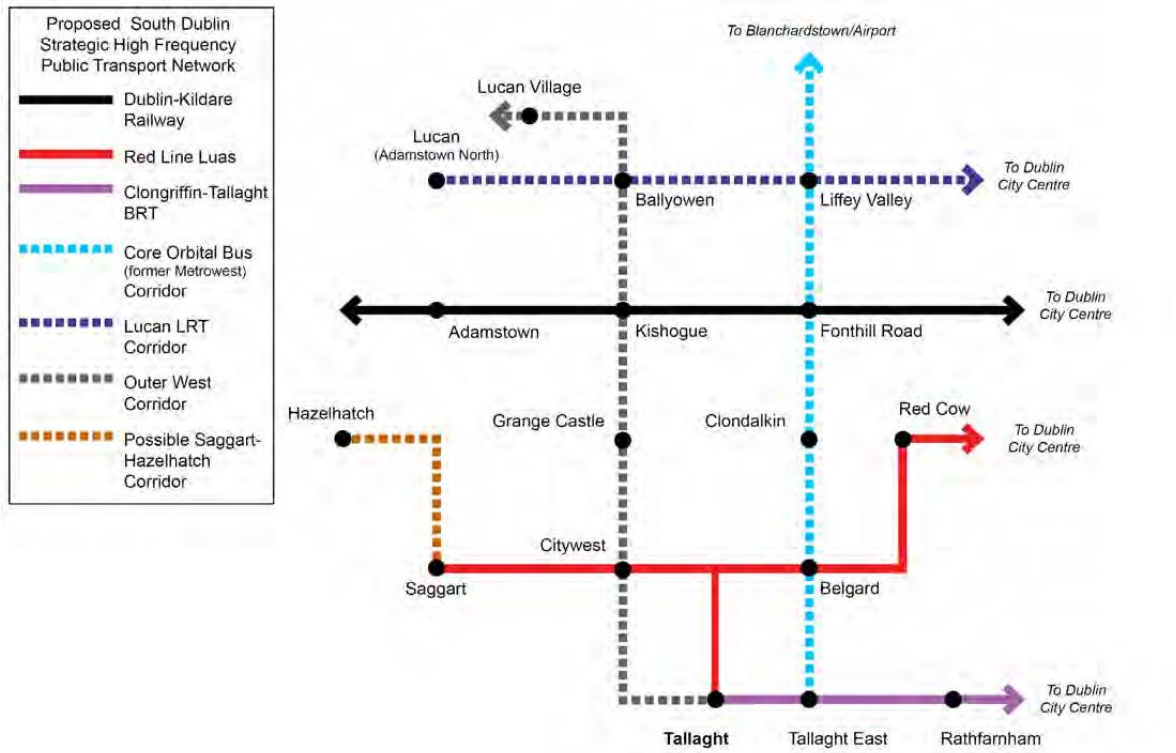


Fig 8.2: Schematic of County Wide Higher Capacity Public Transport Network

8.2.3 Noise in the Planning Process

As outlined in section 7.4 the Planning system has the potential to have a major influence on the control of future exposure to environmental noise. SDCC planning department already has in place measures to address potential noise issues in the planning process and guidance documents to aid planning applications in relation to noise. There is however scope to develop this further with particular emphasis on new developments where exposure levels can be harmful to health.

The pre planning process provides for developers to liaise with the local authority in advance of submitting residential developments to provide for measures that will limit the impacts of noise from nearby roads. These measures would include overall site configuration and layout, density and height of buildings, internal design of residences and site boundary treatment, all amalgamated to prevent or reduce the impact of transport noise from motor traffic.

In the scenario where new residential development or other noise sensitive development is proposed in an area with an existing climate of environmental noise, there is currently no clear national guidance on appropriate noise exposure levels. The EPA has suggested that in the interim that Action Planning Authorities should examine the planning policy guidance notes issued in England titled, ‘ProPG Planning and Noise: Professional Practice Guidance on Planning and Noise’. This has been produced to provide practitioners with guidance on a recommended approach to the management of noise within the planning system in England.

In advance of any national guidance relating to noise in the Planning Process, the following actions relating to planning and development will be considered for implementation:
a) To review existing guidelines and policy relating to Noise in the County Development Plan and to ensure noise is a consideration in Local Area Plans and Part 8s and enhanced in the next County Development Plan.

b) To require developers to produce a sound impact assessment and mitigation plans, where necessary, for any new development where the Planning Authority considers that any new development will impact negatively on pre-existing environmental sound levels within their Council area.

d) To ensure that future developments are designed and constructed in accordance with best Irish practice to minimise noise disturbances through good acoustic design and take into account the multi-function uses of street (e.g. movement, recreation).

8.2.4 Protecting 'Quiet Areas'

Quiet areas offer many opportunities for public recreation. They are thus not only of value to their residents, but can also improve the quality of life of people living in adjacent but noisy roads, by affording opportunities for peaceful recreation from time to time. Hence, it is very important that existing quiet areas be preserved, and that new ones be created where possible. While one aim of the action plan is to reduce human exposure to high sound levels, another important goal is to preserve areas, which are still 'tranquil' or quiet. As part of the plan, there will be an on-going process of identifying Quiet Areas and forwarding them to the Minister for the Environment, Community and local Government for delimiting as Quiet Areas.

8.2.5 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. Local noise issues will be dealt with by each Local Authority as required by the Environmental Protection Agency Act 1992 (EPA Act 1992) with details of each local authority approach being outlined on their respective websites.

Complaints relating to noise associated with major roads, which are located in SDCC i.e. N4, N7 and M50, which are all under the management of the TII will be dealt with collaboratively by the TII and SDCC. The initial noise complaint will be investigated by SDCC and if necessary additional noise monitoring will be carried out. TII would initially be informed of the complaint and subsequently the outcome of the investigation. It would be proposed that where it is deemed

necessary noise mitigation measure, as agreed by both the TII and SDCC, would be implemented. The procedure will be trialled in the early part of this Noise Action Plan and will be amended where necessary to ensure the best available option is pursued based on availability of finance at the time.

8.3 Programme of Works:

8.3.1 Objectives

The objectives of the Noise Action Plan are to avoid, prevent and reduce, where necessary, on a prioritised basis the harmful effects, including annoyance, due to long term exposure to environmental noise. This will be achieved by taking a strategic approach to managing environmental noise and undertaking a balanced approach in the context of sustainable development.

It is proposed that the Noise Action Plan will be implemented through a staged process over 5 years with SDCC endeavouring to follow the minimum time frame set out below in relation to the implementation of the Noise Action Plan. It should be noted that the implementation of the actions in the plan is dependent on resources (e.g. funding, people etc.) being made available to SDCC.

First year of Plan (2019):

- Identify from noise maps where priority action is required at a local level.
- Make a list of priority areas for noise mitigation review
- Carry out noise assessment to support noise mapping levels in priority areas.
- Review planning guidance regarding noise assessment and control and develop a programme of action to meet any shortfalls.

Second Year of Plan (2020):

- On-going identification of Quiet Areas and prepare submissions for approval by the Minister
- Identify a list of possible noise mitigation measures and examine their feasibility based on an estimated costing.
- Prepare a list of cost effective interventions.
- Form an implantation group to prepare planning guidance on noise assessment and control.

Third Year of Plan (2021):

- Commence implementation of the relevant cost effective interventions on a prioritised basis.

Fourth Year of Plan (2022):

- Commence capture of date for the new noise plans.
- Produce new noise maps for the Dublin Agglomeration in accordance with EPA guidance.

Fifth Year of Action Plan (2023):

- Review impact of Action Plan and amend where appropriate to prepare the Noise Plan for 2023 in accordance with EPA guidance.

8.4 Evaluation, Review and Corrective Action Programme.

The council will review the effectiveness of noise action planning activates on an on-going basis. This will be done by performing an annual review of the progress made in relation to planned activities. The effectiveness of these measures at combating local environmental noise exposure will be considered. If necessary, adjustments may be made to the schedule.

In 2022, the council will carry out a review of the actions implemented under this action plan. Progress and results will be evaluated using information gathered through local assessment of environmental noise exposure. This will include “before and after” evaluations of any noise mitigation measures. A review of new noise maps will also be carried out, giving an indication of the change in environmental noise levels and the numbers of people exposed.

9 Public Consultation

In preparing and revising Noise Action Plans, Action Planning Authorities must ensure the following:

- The public is consulted about proposals for Action Plans;
- The public is given early and effective opportunities to participate in the preparation and review of the Action Plans;
- The results of the public participation are taken into account;
- The public is informed of the decisions taken; and
- Reasonable time frames are provided allowing sufficient time for each stage of public participation.

In accordance with the Environmental Noise Regulations, a Draft Noise Action Plan has been prepared for the South Dublin County Council Area and feedback is being sought from noise mapping bodies and the general public.

Adverts will be placed in the Irish Times and Irish Independent. The draft Noise Action Plan will be made available on the South Dublin County Council website. The draft Action Plan will also be presented to South Dublin County Council Special Policy Committee on Environment for comment and feedback.

The following Bodies\Agencies have been notified of the public consultation process:-

- Department of Communications, Climate Action and Environment
- Department of Transport, Tourism and Sport
- National Transport Authority
- Environmental Protection Agency
- Health Service Executive
- Iarnród Éireann
- Transport Infrastructure Ireland

9.1 Reponses to the Public Consultation

A total of nineteen (19) Submissions were received by South Dublin County Council during the six weeks Public Consultation Period which commenced on 7th November 2018 and concluded on 19th December 2018. Seventeen (17) of these submissions were received via the on line portal, and a further 2 were postal submissions. Eighteen of the total submissions concerned road traffic noise, with the final one from Transport Infrastructure Ireland (TII) was formatting in nature and content. The Kingswood/Brownswood section of N7 major road received the highest number of submissions, with a total of 13.

Other major roads that received submission were the N4 at Lucan which received two submissions and the N81 at Tallaght which received one. The remaining two submissions were from non-major roads and they concerned Kennelsfort Road in Palmerstown and The Newcastle Road in Lucan.

All of these submissions will be considered in the finalisation of noise action plan for the county of South Dublin. These will promote the pro-active management of noise when it is likely to have a significant impact on health and quality of life. This action will be genuine, meaningful, timely, balanced and with the ultimate objective of leading to better outcomes. The proposed measures in all cases will not be the same. In some cases, an individual measure will apply and in others, a combination of measures maybe more applicable and beneficial, South Dublin will endeavour to resolve issues for non-major roads where possible, and will interact to an agreed fashion with Transport Infrastructure Ireland on major roads where they have responsibility.

9.2 Next steps

Following the Public Consultation process and the comments and replies received as outlined above, no significant amendments were deemed necessary to be made to the South Dublin County Council portion of the Action Plan (Volume4). The finalised Action Plan and maps will now be placed before the full Council for noting and placed on the South Dublin County Council website.

10. Summary and Conclusions

This Noise Action Plan has been prepared as required by the Environmental Noise Regulations 2006, Statutory Instrument 140 of 2006. These Regulations give effect to EU Directive 2002/49/EC relating to the assessment and management of environmental noise.

The objective of the Dublin Agglomeration Local Authorities noise action plan is to avoid, prevent and reduce, where necessary, on a prioritised basis the harmful effects, including annoyance, due to long term exposure to environmental noise. This will be achieved by taking a strategic approach to managing environmental noise and following a balanced approach which promotes in the context of sustainable development.

This Noise Action Plan primarily considers the long term environmental noise impact from road traffic noise sources, and sets out an approach to review noise impact levels near to the major sources assessed during the strategic noise mapping in 2017. In the interests of equality and promotion of best practice the action plan also sets out a number of proposals for the prevention and avoidance of environmental noise levels detrimental to human health to be implemented through the planning process.

Appendix A: Glossary of Acoustic and Technical Terms

Agglomeration: 'Agglomeration' shall mean part of a territory, delimited by the Member State, having a population in excess of 100,000 persons and a population density such that the Member State considers it to be an urbanised area.

Agglomeration of Dublin: 'Agglomeration of Dublin' means the county borough of Dublin, the administrative county of Dun Laoghaire/Rathdown other than those areas excluded in the First Schedule to the Air Pollution Act 1987 (Marketing, Sale and Distribution of Fuels) Regulations 1998 (S.I. No. 118 of 1998), and the administrative counties of Fingal and South Dublin;

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. Noise is sometimes defined as unwanted sound.

Decibel dB(A) : A unit of measurement of sound.

Lden: (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. Lden is calculated as follows:
Lden = 10 * log 1/24 {12*10 10^((Lday)/10) + 4^10((Levening+5)/10 + 8*`10^((Lnight+10)/10)}

Daytime: Between the hours of 7am and 7pm

Lday: (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

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

Levening: (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.

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

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

'Major intensification': An Action(s) that is likely to lead to a breach of any statutory sound limit, or national guide value or standard, or an action(s) that leads to an increase in sound levels above the undesirable sound levels' or likely to increase the pre-existing annual Lden by more than 5dB

Noise Indicator: Method used to measure or quantify sound, in decibels, in order to equate it with what might be perceived as noise.

Appendix B: Bibliography and References

Legislation

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

European Communities (Noise Emission by Equipment for Use Outdoors) (Amendment) Regulations 2006, (S.I. No. 241 of 2006).

Environmental Noise Regulations 2006, (S.I. No. 140 of 2006).

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

Environmental Protection Agency Acts 1992 and 2003.

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

First Schedule to the Air Pollution Act 1987 (Marketing, Sale and Distribution of Fuels) Regulations 1998 (S.I. No. 118 of 1998).

European Commission (2003). Directive 2003/4/EC of the European Parliament and of the Council of 28 January 2003 on public access to environmental information. OJ L 41, 14/02/2003, Luxemburg 2003.

European Commission (2002). Directive 2002/49/EC of the European Parliament and of the Council of 25 June 2002 relating to the assessment and management of environmental noise. OJ L 189, 18/07/2002, Luxemburg 2002.

Irish Publications

Department of the Environment, Heritage and Local Government, Sustainable Residential Development in Urban Areas - Consultation draft guidelines for planning authorities, May 2009.

Department of the Environment, Heritage and Local Government, Urban Design Manual: A best practice guide. A companion document to the Planning Guidelines on Sustainable Residential Development in Urban Areas, May 2009.

Department of the Environment, Heritage and Local Government, Sustainable Urban Housing: Design Standards for New Apartments - Guidelines for Planning Authorities, March 2018.

Department of the Environment, Heritage and Local Government, European Communities (Access to Information on the Environment) Regulations 2007 (S.I. No. 133 of 2007) - Guidance for Public Authorities and others in relation to implementation of the Regulations, 2007.

Department of the Environment, Heritage and Local Government, Quarries and Ancillary Activities – Guidelines for Planning Authorities, April 2004.

Department of the Environment, Heritage and Local Government, Building Regulations 2014, Technical Guidance Document E – Sound, 2014.

TII, Guidelines for the Treatment of Noise and Vibration in National Road Schemes, Revision 1, October 2004.

TII, Good Practice Guidance for the Treatment of Noise during the Planning of National Road Schemes, March 2014.

EPA Publications

Environmental Protection Agency, Guidance Note for Strategic Noise Mapping for the Environmental Noise Regulations 2006, Version 2.0 August 2011

Environmental Protection Agency, Guidance Note for Noise in relation to Scheduled Activities, 2016.

Environmental Protection Agency, Environmental Quality Objectives – Noise in Quiet Areas (2000-MS-14-M1), Environmental RTDI Programme 2000 – 2006. (Authors Waugh, D., Durucan, et. al.), 2003.

Appendix C: Strategic Environmental Assessment (SEA) Screening

Screening Statement

The purpose of this report is to establish whether or not a Strategic Environmental Assessment (SEA) should be carried out on the South Dublin County Council 'Draft Action Plan for the Assessment and Management of Environmental Noise'. It is recommended by the EPA that an SEA pre-screening of the Action Plan and associated consultation with relevant environmental authorities is carried out as part of the public consultation process. This SEA pre-screening determines whether the Round 3 Action Plans could potentially give rise to some significant negative environmental effects.

Purpose of the Plan

The purpose of the draft Action Plan is to develop a clear and integrated set of actions providing for the assessment of environmental noise but which notably address priorities based upon 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 acoustic quality where it is good. The focus of the draft action plan is to set down actions at a strategic level, to manage noise issues and effects, including noise reduction if necessary.

Background to the Draft Action Plans for the Assessment and Management of Environmental Noise 2018-2023

This draft Action Plan will replace the current Action Plan 2013-2018. The plan provides an overview of regulation reviews the results of the latest strategic noise maps for South Dublin County Council and sets out an approach to the strategic management and control of environmental noise over the next five years. As there is no provision in legislation upon which the actions outlined in the Plan can be enforced, reliance will be made on various other plans and policies such as the Dublin Development Plan, the Draft National Planning Framework 2040 and the Planning Acts, for their implementation. This draft plan also provides the basis for feedback and input from statutory authorities and the public to help inform this draft Action Plan in relation to the assessment and management of environmental noise.

Policy Context

The draft South Dublin County Council Action Plan relates to the South Dublin County Council region. As required by the EU Directive 2002/49/EC relating to The Assessment and Management of Environmental Noise, (known as the 'END' Directive) which was transposed into Irish law by the Environmental Noise Regulations, SI number 140 of 2006, this draft Action Plan is aimed at managing 'Environmental Noise'. South Dublin County Council has prepared this draft plan for the South Dublin County Council region which will form part of a combined plan for the Dublin Agglomeration i.e. the region covered by South Dublin County Council, Dublin City Council, Fingal

County Council, and Dún Laoghaire-Rathdown County Council, who are the designated action planning authorities under article 7 of the Environmental Noise Regulations 2006. It is proposed that this plan will be in place on the expiration of the current plan in November 2018 and will cover the period between December 2018 and November 2023.

A SEA pre-screening was carried out to determine whether the *Draft South Dublin County Council Action Plan Relating to the Assessment and Management of Environmental Noise* required a full SEA. The type of pre-screening checks that were completed are outlined in the EPA report '*Development of Strategic Environmental Assessment (SEA) Methodologies for Plans and Programmes in Ireland'*. (Appendix B; SEA Checklist)[3]. The screening is based on a systematic evaluation of the criteria in Annex II of the SEA Directive (Schedule 1 of the SEA Regs).

Task 1.1 Apply pre-screening check using decision-tree

The pre-screening check is based on questions of an administrative nature, which can be rapidly checked by the authority to determine whether the P/P should be taken to the second screening stage. It allows rapid screening-out of those P/Ps that are clearly not going to have any environmental impact and screening-in of those that definitely do require SEA.

A "decision-tree" or flowchart is provided which simplifies the complex wording of the SEA Directive into a systematic and logical series of questions. This is shown in Fig. 1.

The decision-tree uses the criteria set out in the SEA Directive to decide if SEA is required or not. Unlike the environmental significance screening criteria, which are used in Task 1.2, the questions in the decision-tree are more "administrative" in nature and are based upon the status of the P/P in question.

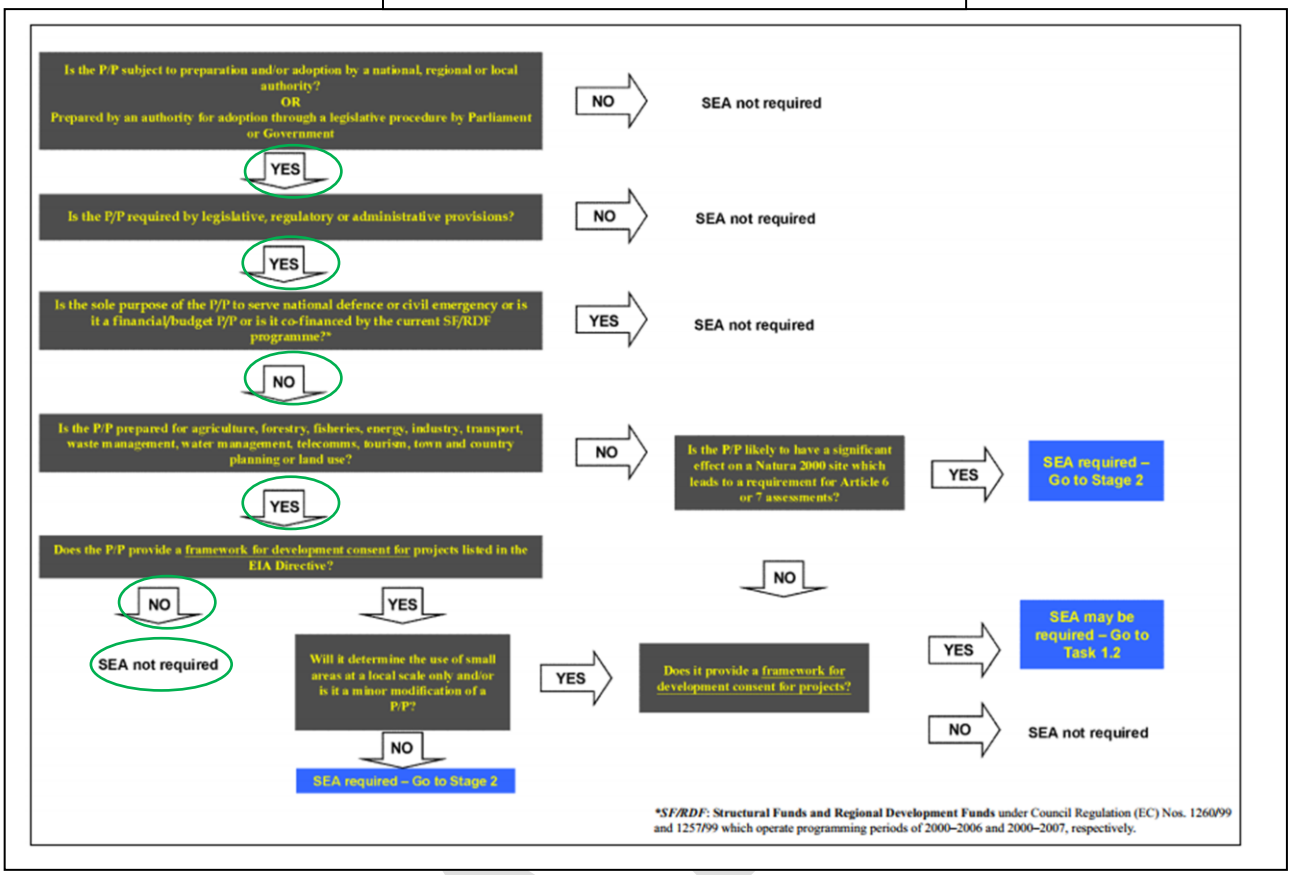
As a result of this Task, the following possible outcomes could arise:

1. P/P applies to one or more of the 11 sectors quoted in the SEA Directive and provides a framework for development consent of projects requiring EIA. It should, therefore, be taken forward to Stage 2.
2. P/P will significantly affect a Natura 2000 site and, therefore, requires an assessment under the Habitats Directive. It can be moved forward to Stage 2.
3. The P/P does not fall into any of the sectors covered by the Directive, it will not significantly affect a Natura 2000 site nor does it provide a framework for development consent. It is, therefore, screened-out by the pre-screening check and no further consideration of its possible impacts is required. Under such circumstances, a note, highlighting the screening criteria applied and the decisions taken, would be kept on all relevant files.
4. The P/P is not screened-out and may require more detailed checks to be undertaken (this will apply to a small scale P/P or minor modifications of a P/P). This may involve the application of "Environmental Significance Screening Criteria" as described below

Extract from 'Development of SEA methodologies for plans and programmes in Ireland'- EPA

[2] Can refer to the 'Development of Strategic Environmental Assessment (SEA) Methodologies for Plans and Programmes in Ireland (2001-DS-EEP-2/5)' - Synthesis Report https://www.epa.ie/pubs/advice/ea/EPA_development_methodology_SEA_synthesis_report.pdf

Fig.1 EPA SEA Pre-Screening Guidance



The Pre-screening Statement, which presents the results of the required task 1.1, are set out below

Stage 1 – SEA Pre-Screening of Plans and Programmes (P/P) - decision-tree

Is the P/P subject to preparation and/or adoption by a national, regional or local authority? OR Prepared by an authority for adoption through a legislative procedure by Parliament or Government	**Yes.** The Action Plan is required to be made or revised every 5 years for the Agglomeration of Dublin under Directive 2002/49/EC and S.I. No. 140 of 2006, Environmental Noise Regulations and required to be adopted by South Dublin County Council, being an Action Planning Authority as prescribed by S.I No. 140 of 2006
Is the P/P required by legislative, regulatory or administrative provisions?	**Yes.** The Action Plan is required to be made or revised every 5 years for the Agglomeration of Dublin under Directive 2002/49/EC and S.I. No. 140 of 2006, Environmental Noise Regulations
Is the sole purpose of the P/P to serve national defence or civil emergency or is it a financial/budget P/P or is it co-financed by the current SF/RDF programme	**No**
Is the P/P prepared for agriculture, forestry, fisheries, energy, industry, transport, waste management, water management, telecoms, tourism, town and country planning or land use?	**Yes.** The draft Action Plan mainly relates to the management of Transport and Land Use.
Does the P/P provide a framework for the development consent for projects listed in the EIA Directive?	**No.** The plan does not the set the framework for projects and other activities listed in the EIA Directive and attached to the end of this pre-screening report for completeness. As the Noise Mapping stage has excluded major industries as listed in the EIA Directive, Annex I&II from assessment, and as this draft Action Plan will primarily base its actions on the outputs of the noise mapping process and as the control of major industry and major projects are managed and controlled by other legislation, it is not proposed that the draft Action Plan will cover such major industry or projects.

	The draft Action Plan informs how South Dublin County Council fulfils its obligations under the Environmental Noise Directive 2002/49/EC which provides the objective of assessing and managing environmental noise. The draft South Dublin County Council Action Plan is relevant for other plans and programmes that will influence the assessment and management of noise. Therefore the draft Action Plan will be in line with programmes such as:- • The South Dublin County Council Development Plan. • The Draft National Planning Framework 2040. • Local Area Plans. • Transport strategy for the Greater Dublin Area, 2016 to 2030. • Smarter Travel – A Sustainable Transport Future 2009-2020 • National Cycle Policy Framework 2009-2020. The draft Action Plan will have a positive impact on the environment with respect to the assessment and management of environmental noise and no environmental problems are envisaged as result of the plan. For the most part actions proposed under this draft Action Plan will rely on various other planning frameworks and policies, such as the Dublin Development Plan, the Draft National Planning Framework 2040 and the Planning Acts, for their progression and implementation.
Is the P/P likely to have a significant effect on a Natura 2000 site which leads to a requirement for Article 6 or 7 assessments?	**No.** Appropriate Assessment Screening was carried out and based on the 'Screening Matrix' and 'Finding of No Significant Effects Matrix' it was concluded that there will be no direct, indirect or cumulative impact on any Natura 2000 site on implementation of the draft Action Plan. Accordingly, it has been determined that an Appropriate Assessment (AA) is not required. The AA Screening is attached to the Draft Action Plan in Appendix D.

Task 1.1 establishes whether the relevant P/P must undergo an SEA. It uses a series of procedural tasks, firstly to consider the overall characteristics of the P/P to see if it falls within the requirements of the SEA Directive. Task 1.2 requires the potential environmental significance of implementing the proposed P/P to be gauged according to a series of significance criteria. As the pre-screening indicated that the Action Plan did not provide a framework for development consent for projects listed in the EIA Directive and therefore does not require a full SEA, this second task was not proceeded with and it was therefore not considered necessary to undertake any further stages of the SEA process. The SEA Directive requires that the results of the screening process, as required by Article 3(5) and including the reasons for not requiring an SEA are made publicly available.

ANNEX I PROJECTS REFERRED TO IN ARTICLE 4(1) EIA Directive

1. Crude-oil refineries (excluding undertakings manufacturing only lubricants from crude oil) and installations for the gasification and liquefaction of 500 tonnes or more of coal or bituminous shale per day.

2. (a) Thermal power stations and other combustion installations with a heat output of 300 megawatts or more; (b) Nuclear power stations and other nuclear reactors including the dismantling or decommissioning of such power stations or reactors [1] (except research installations for the production and conversion of fissionable and fertile materials, whose maximum power does not exceed 1 kilowatt continuous thermal load).

3. (a) Installations for the reprocessing of irradiated nuclear fuel; (b) Installations designed: (i) for the production or enrichment of nuclear fuel; (ii) for the processing of irradiated nuclear fuel or high-level radioactive waste; (iii) for the final disposal of irradiated nuclear fuel; (iv) solely for the final disposal of radioactive waste; (v) solely for the storage (planned for more than 10 years) of irradiated nuclear fuels or radioactive waste in a different site than the production site.

4. (a) Integrated works for the initial smelting of cast iron and steel; (b) Installations for the production of non-ferrous crude metals from ore, concentrates or secondary raw materials by metallurgical, chemical or electrolytic processes.

5. Installations for the extraction of asbestos and for the processing and transformation of asbestos and products containing asbestos: for asbestos-cement products, with an annual production of more than 20000 tonnes of finished products, for friction material, with an annual production of more than 50 tonnes of finished products, and for other uses of asbestos, utilisation of more than 200 tonnes per year.

6. Integrated chemical installations, i.e. those installations for the manufacture on an industrial scale of substances using chemical conversion processes, in which several units are juxtaposed and are functionally linked to one another and which are: (a) for the production of basic organic chemicals; (b) for the production of basic inorganic chemicals; (c) for the production of phosphorous-, nitrogen- or potassium-based fertilisers (simple or compound fertilisers); (d) for the production of basic plant health products and of biocides; (e) for the production of basic pharmaceutical products using a chemical or biological process; (f) for the production of explosives.

7. (a) Construction of lines for long-distance railway traffic and of airports [2] with a basic runway length of 2100 m or more; (a) Construction of motorways and express roads [3]; (b) Construction of a new road of four or more lanes, or realignment and/or widening of an existing road of two lanes or less so as to provide four or more lanes, where such new road or realigned and/or widened section of road would be 10 km or more in a continuous length.

8. (a) Inland waterways and ports for inland-waterway traffic which permit the passage of vessels of over 1350 tonnes; (a) Trading ports, piers for loading and unloading connected to land and outside ports (excluding ferry piers) which can take vessels of over 1350 tonnes.

9. Waste disposal installations for the incineration, chemical treatment as defined in Annex I to Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste [4] under heading D9, or landfill of hazardous waste, as defined in point 2 of Article 3 of that Directive.

10. Waste disposal installations for the incineration or chemical treatment as defined in Annex I to Directive 2008/98/EC under heading D9 of non-hazardous waste with a capacity exceeding 100 tonnes per day.

11. Groundwater abstraction or artificial groundwater recharge schemes where the annual volume of water abstracted or recharged is equivalent to or exceeds 10 million cubic metres.

12. (a) Works for the transfer of water resources between river basins where that transfer aims at preventing possible shortages of water and where the amount of water transferred exceeds 100 million cubic metres/year; (b) In all other cases, works for the transfer of water resources between river basins where the multi-annual average flow of the basin of abstraction exceeds 2000 million cubic metres/year and where the amount of water transferred exceeds 5 % of that flow. In both cases transfers of piped drinking water are excluded.

13. Waste water treatment plants with a capacity exceeding 150000 population equivalent as defined in point 6 of Article 2 of Council Directive 91/271/EEC of 21 May 1991 concerning urban waste-water treatment [5].

14. Extraction of petroleum and natural gas for commercial purposes where the amount extracted exceeds 500 tonnes/day in the case of petroleum and 500000 cubic metres/day in the case of gas.
15. Dams and other installations designed for the holding back or permanent storage of water, where a new or additional amount of water held back or stored exceeds 10 million cubic metres.
16. Pipelines with a diameter of more than 800 mm and a length of more than 40 km: (a) for the transport of gas, oil, chemicals; (b) for the transport of carbon dioxide (CO2) streams for the purposes of geological storage, including associated booster stations.

17. Installations for the intensive rearing of poultry or pigs with more than: (a) 85000 places for broilers, 60000 places for hens; (b) 3000 places for production pigs (over 30 kg); or (c) 900 places for sows.

18. Industrial plants for the production of: (a) pulp from timber or similar fibrous materials; (b) paper and board with a production capacity exceeding 200 tonnes per day.

19. Quarries and open-cast mining where the surface of the site exceeds 25 hectares, or peat extraction, where the surface of the site exceeds 150 hectares.

20. Construction of overhead electrical power lines with a voltage of 220 kV or more and a length of more than 15 km.

21. Installations for storage of petroleum, petrochemical, or chemical products with a capacity of 200000 tonnes or more.

22. Storage sites pursuant to Directive 2009/31/EC of the European Parliament and of the Council of 23 April 2009 on the geological storage of carbon dioxide [6].

23. Installations for the capture of CO2 streams for the purposes of geological storage pursuant to Directive 2009/31/EC from installations covered by this Annex, or where the total yearly capture of CO2 is 1,5 megatons or more.

24. Any change to or extension of projects listed in this Annex where such a change or extension in itself meets the thresholds, if any, set out in this Annex. [1] Nuclear power stations and other nuclear reactors cease to be such an installation when all nuclear fuel and other radioactively contaminated elements have been removed permanently from the installation site. [2] For the purposes of this Directive, "airport" means an airport which complies with the definition in the 1944 Chicago Convention setting up the International Civil Aviation Organisation (Annex 14). [3] For the purposes of this Directive, "express road" means a road which complies with the definition in the European Agreement on Main International Traffic Arteries of 15 November 1975.

ANNEX II PROJECTS REFERRED TO IN ARTICLE 4(2) EIA Directive

1. AGRICULTURE, SILVICULTURE AND AQUACULTURE (a) Projects for the restructuring of rural land holdings; (b) Projects for the use of uncultivated land or semi-natural areas for intensive agricultural purposes; (c) Water management projects for agriculture, including irrigation and land drainage projects; (d) Initial afforestation and deforestation for the purposes of conversion to another type of land use; (e) Intensive livestock installations (projects not included in Annex I); (f) Intensive fish farming; (g) Reclamation of land from the sea.

2. EXTRACTIVE INDUSTRY (a) Quarries, open-cast mining and peat extraction (projects not included in Annex I); (b) Underground mining; (c) Extraction of minerals by marine or fluvial dredging; (d) Deep drillings, in particular: (i) geothermal drilling; (ii) drilling for the storage of nuclear waste material; (iii) drilling for water supplies; with the exception of drillings for investigating the stability of the soil; (e) Surface industrial installations for the extraction of coal, petroleum, natural gas and ores, as well as bituminous shale.

3. ENERGY INDUSTRY (a) Industrial installations for the production of electricity, steam and hot water (projects not included in Annex I); (b) Industrial installations for carrying gas, steam and hot water; transmission of electrical energy by overhead cables (projects not included in Annex I); (c) Surface storage of natural gas; (d) Underground storage of combustible gases; (e) Surface storage of fossil fuels; (f) Industrial briquetting of coal and lignite; (g) Installations for the processing and storage of radioactive waste (unless included in Annex I); (h) Installations for hydroelectric energy production; (i) Installations for the harnessing of wind power for energy production (wind farms); (j) Installations for the capture of CO2 streams for the purposes of geological storage pursuant to Directive 2009/31/EC from installations not covered by Annex I to this Directive.

4. PRODUCTION AND PROCESSING OF METALS (a) Installations for the production of pig iron or steel (primary or secondary fusion) including continuous casting; (b) Installations for the processing of ferrous metals: (i) hot-rolling mills; (ii) smitheries with hammers; (iii) application of protective fused metal coats; (c) Ferrous metal foundries; (d) Installations for the smelting, including the alloyage, of non-ferrous metals, excluding precious metals, including recovered products (refining, foundry casting, etc.); (e) Installations for surface treatment of metals and plastic materials using an electrolytic or chemical process; (f) Manufacture and assembly of motor vehicles and manufacture of motor-vehicle engines; (g) Shipyards; (h) Installations for the construction and repair of aircraft; (i) Manufacture of railway equipment; (j) Swaging by explosives; (k) Installations for the roasting and sintering of metallic ores.

5. MINERAL INDUSTRY (a) Coke ovens (dry coal distillation); (b) Installations for the manufacture of cement; (c) Installations for the production of asbestos and the manufacture of asbestos products (projects not included in Annex I); (d) Installations for the manufacture of glass including glass fibre; (e) Installations for smelting mineral substances including the production of mineral fibres; (f) Manufacture of ceramic products by burning, in particular roofing tiles, bricks, refractory bricks, tiles, stoneware or porcelain.

6. CHEMICAL INDUSTRY (PROJECTS NOT INCLUDED IN ANNEX I) (a) Treatment of intermediate products and production of chemicals; (b) Production of pesticides and pharmaceutical products, paint and varnishes, elastomers and peroxides; (c) Storage facilities for petroleum, petrochemical and chemical products.

7. FOOD INDUSTRY (a) Manufacture of vegetable and animal oils and fats; (b) Packing and canning of animal and vegetable products; (c) Manufacture of dairy products; (d) Brewing and malting; (e) Confectionery and syrup manufacture; (f) Installations for the slaughter of animals; (g) Industrial starch manufacturing installations; (h) Fish-meal and fish-oil factories; (i) Sugar factories.
8. TEXTILE, LEATHER, WOOD AND PAPER INDUSTRIES (a) Industrial plants for the production of paper and board (projects not included in Annex I); (b) Plants for the pre-treatment (operations such as washing, bleaching, mercerisation) or dyeing of fibres or textiles; (c) Plants for the tanning of hides and skins; (d) Cellulose-processing and production installations.

9. RUBBER INDUSTRY Manufacture and treatment of elastomer-based products.

10. NFRASTRUCTURE PROJECTS (a) Industrial estate development projects; (b) Urban development projects, including the construction of shopping centres and car parks; (c) Construction of railways and intermodal transhipment facilities, and of intermodal terminals (projects not included in Annex I); (d) Construction of airfields (projects not included in Annex I); (e) Construction of roads, harbours and port installations, including fishing harbours (projects not included in Annex I); (f) Inland-waterway construction not included in Annex I, canalisation and flood-relief works; (g) Dams and other installations designed to hold water or store it on a long-term basis (projects not included in Annex I); (h) Tramways, elevated and underground railways, suspended lines or similar lines of a particular type, used exclusively or mainly for passenger transport; (i) Oil and gas pipeline installations and pipelines for the transport of CO2 streams for the purposes of geological storage (projects not included in Annex I); (j) Installations of long-distance aqueducts; (k) Coastal work to combat erosion and maritime works capable of altering the coast through the construction, for example, of dykes, moles, jetties and other sea defence works, excluding the maintenance and reconstruction of such works; (l) Groundwater abstraction and artificial groundwater recharge schemes not included in Annex I; (m) Works for the transfer of water resources between river basins not included in Annex I.

11. OTHER PROJECTS (a) Permanent racing and test tracks for motorised vehicles; (b) Installations for the disposal of waste (projects not included in Annex I); (c) Waste-water treatment plants (projects not included in Annex I); (d) Sludge-deposition sites; (e) Storage of scrap iron, including scrap vehicles; (f) Test benches for engines, turbines or reactors; (g) Installations for the manufacture of artificial mineral fibres; (h) Installations for the recovery or destruction of explosive substances; (i) Knackers' yards.

12. TOURISM AND LEISURE (a) Ski runs, ski lifts and cable cars and associated developments; (b) Marinas; (c) Holiday villages and hotel complexes outside urban areas and associated developments; (d) Permanent campsites and caravan sites; (e) Theme parks.

13. (a) Any change or extension of projects listed in Annex I or this Annex, already authorised, executed or in the process of being executed, which may have significant adverse effects on the environment (change or extension not included in Annex I); (b) Projects in Annex I, undertaken exclusively or mainly for the development and testing of new methods or products and not used for more than two years.

Appendix D: Appropriate Assessment Screening

In Accordance With The Requirements Of

ARTICLE 6(3)

Of The

EU HABITATS DIRECTIVE

For The

Draft Action Plan relating to The Assessment & Management of Environmental Noise

Introduction

This is an Appropriate Assessment Screening of the proposed **Draft Action Plan relating to The Assessment & Management of Environmental Noise**

The proposed draft Action Plan has been assessed to ascertain if it is required to be subject to an 'Appropriate Assessment' under the EU Habitats Directive. Based on the 'Methodological guidance on the provision of Article 6(3) and (4) of the Habitats Directive 92/43/EEC, a 'Screening Matrix' and a 'Finding of No Significant Effects Matrix' have been completed.

The principal trigger for undertaking an 'Appropriate Assessment' would be if the proposed draft Action Plan is likely to have significant effects on a Natura 2000 site. For the purposes of Article 6 Assessments, Natura 2000 sites are those identified as Sites of Community Importance under the Habitats Directive (normally called Special Areas of Conservation) or classified as Special Protection Areas under the Birds Directive (79/409/EEC).

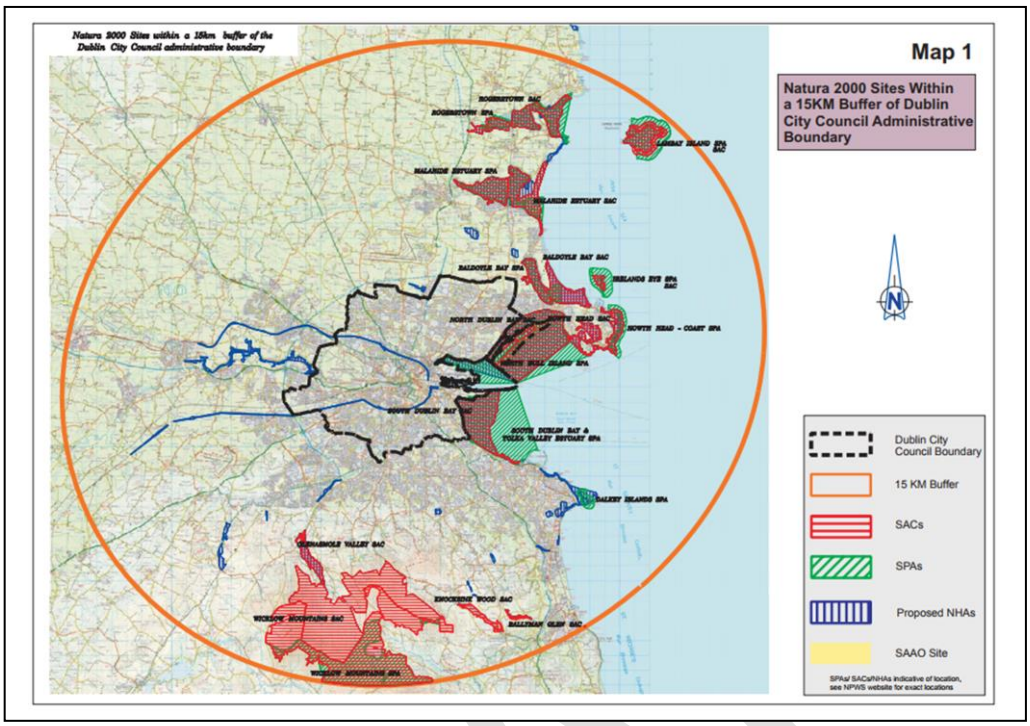
There are no Natura 2000 sites specifically linked to the proposed draft Action Plan.

The Natura 2000 sites within or close to the area covered by the Draft Action Plans and within the Dublin region are as follows:-

1. North Dublin Bay cSAC (IE000206)
2. South Dublin Bay cSAC (IE000210)
3. North Bull Island SPA (IE00406)
4. South Dublin Bay & River Tolka Estuary SPA (IE004024)
5. Howth Head Coast SPA (IE004113)
6. Baldoyle Bay SPA (IE004116)
7. Baldoyle Bay cSAC (IE000199)
8. Howth Head cSAC (IE000202) Irelands Eye cSAC (IE002193)
9. Irelands Eye SPA (IE004117)
10. Malahide Estuary cSAC (IE000205
11. Malahide Estuary SPA (IE004025)
12. Glenasmole Valley cSAC (IE001209)
13. Wicklow Mountains cSAC (IE002122) Dalkey Island SPA (IE004172)
14. Rockabill to Dalkey Islands cSAC (IE003000)

Figure 1 below illustrates all of the designated sites in the wider vicinity of the region covered by the draft Action Plan

Fig. 1



Proposal

It is proposed that this draft Action Plan will replace the current Action Plan 2013-2018. The Plan will provide an overview of regulation, review the results of the latest strategic noise maps for South Dublin County Council and set out an approach to the strategic management and control of environmental noise over the next five years. As there is no provision in legislation upon which the actions outlined in the Plan can be enforced, reliance will be made on various other plans and policies such as the Dublin Development Plan, the Draft National Planning Framework 2040 and the Planning Acts, for their implementation. This draft plan will also provide the basis for feedback and input from statutory authorities and the public to help inform this Action Plan in relation to the assessment and management of environmental noise.

Policy Context

The draft South Dublin County Council Action Plans relates to the South Dublin County Council region. As required by the EU Directive 2002/49/EC relating to The Assessment and Management of Environmental Noise, (known as the 'END' Directive) which was transposed into Irish law by the Environmental Noise Regulations, SI number 140 of 2006, this draft Action Plan is aimed at managing 'Environmental Noise'. South Dublin County Council has prepared this draft plan for the South Dublin County Council region which will form part of a combined plan for the Dublin Agglomeration i.e. the region covered by South Dublin County Council, Dublin City Council, Fingal County Council and Dún Laoghaire-Rathdown County Council, who are the designated action

planning authorities under article 7 of the Environmental Noise Regulations 2006. It is proposed that this plan will be in place on the expiration of the current plan in November 2018 and will cover the period between December 2018 and November 2023.

Screening Matrix

Brief Description of Project or Plan
It is proposed that this draft Action Plan will replace the current Action Plan 2013-2018. The Plan will provide an overview of regulation, review the results of the latest strategic noise maps for South Dublin County Council and set out an approach to the strategic management and control of environmental noise over the next five years.

Brief description of the Natura 2000 sites
The proposed draft Action Plan does not directly affect any Natura 2000 sites. The closest Natura 2000 sites are located within Dublin Bay and include a wide variety of inter-tidal, marine and coastal zoned habitats supporting a range of species including Annex 1 bird species.

Assessment Criteria
Describe any likely direct, indirect or secondary impacts of the project (either alone or in combination with other plans or projects) on the Natura 2000 site by virtue of: The draft Action Plan does not directly affect any Natura 2000 sites. There are no likely direct impacts on any Natura 2000 sites as a result of the proposed plan. **Size and scale;** Any relevant future new actions under the Action Plan will be in line with established plans and policies such as the Dublin Development Plan, the Draft National Planning Framework 2040 and the Planning Acts, for their implementation and is not predicted to have any likely impact on the conservation function of any Natura 2000 site in respect to size or scale. **Land-take;** Not applicable **Distance from Natura 2000 site or key features of the site;** The Draft Action Plan is not predicted to have any likely impact on the key features or the conservation function of any Natura 2000 sites. **Resource requirements (water abstraction etc);** Not applicable.
Emission (disposal to land, water or air); No predicted likely direct impact on the conservation function of any Natura 2000 site is

predicted as a result of the implementation of the proposed draft Action Plan. **Excavation requirements;** Not Applicable. **Transportation requirements;** Not Applicable. **Duration of construction, operation, decommissioning, etc;** Not Applicable. **Other** None
Describe any likely changes to the site arising as a result of: **Reduction of habitat area:** Not applicable **Disturbance to key species;** Not Applicable **Habitat or species fragmentation;** Not applicable **Reduction in species density;** Not Applicable **Changes in key indicators of conservation value** Not Applicable

Climate change: Not Applicable
Describe any likely impacts on the Natura 2000 site as a whole in terms of: **Interference with the key relationships that define the structure of the site;** No predicted likely impact on the conservation functions of any Natura 2000 sites. **Interference with key relationships that define the function of the site;** No predicted likely impact on the conservation functions of any Natura 2000 sites.
Provide indicators of significance as a result of the identification of effects set out above in terms of: **Loss;** Not applicable **Fragmentation;** Not applicable. **Disruption;** Not applicable. **Disturbance;** Not applicable. **Change to key elements of the site (e.g. water quality etc);** Not applicable
Describe from the above those elements of the project or plan, or combination of elements, where the above impacts are likely to be significant or where the scale or magnitude of impacts are not known. No predicted likely impact on the conservation functions of any Natura 2000 sites.

Finding Of No Significant Effects Matrix

Name of Project or Plan:	The implementation of the proposed draft Action Plan relating to The Assessment & Management of Environmental Noise 2018-2023, will provide an overview of regulation, review the results of the latest strategic noise maps for South Dublin County Council and set out an approach to the strategic management and control of environmental noise over the next five years
Name and location of Natura 2000 sites:	Natura 2000 sites within the Action Plans area and in the wider vicinity are provided in the 'Introduction' above.
Description of the Project or Plan	As provided in the screening matrix above.
Is the Project or Plan directly connected with or necessary to the management of the site (provide details)?	No.
Are there other projects or plans that together with the project or plan being assessed could affect the site (provide details)?	The proposed draft Action Plan provides for sustainable development in accordance with the South Dublin County Council Development Plan 2016-2022 and the principles of proper planning and development. The South Dublin County Council draft Action Plan will form part of the Dublin Agglomeration Plan which will be an amalgamation of individual action plans for the 4 local authorities in the Dublin region. It is not considered that the amalgamation of the four action plans which individually have no impact on any Natura 2000 site will in combination have any negative impact on any Natura 2000 site. Therefore it is not predicted that that the proposal will have any impact on the conservation function of any Natura 2000 site.

The Assessment of Significance of Effects	
Describe how the project or plan (alone or in combination) is likely to affect the Natura 2000 sites:	No predicted likely impact on the conservation functions of any Natura 2000 sites.
Explain why these effects are not considered significant:	The draft Action Plan provides for the sustainable development in accordance with the South Dublin County Council Development Plan 2016-2022 and the principles of proper planning and development. It is not predicted that that the proposal will have any potential impact on the conservation function of any Natura 2000 site.
List of Agencies Consulted: Provide contact name and telephone or email address:	
Response to Consultation	

Data Collected to Carry out the Assessment	
Who carried out the Assessment?	Environmental Health Section, South Dublin County Council
Sources of Data	Existing Data
Level of Assessment Completed	Desktop Study
Where can the full results of the assessment be accessed and viewed	This document contains the full results of the Appropriate Assessment Screening exercise and will be placed on display in the Appendix of the draft Action Plan during the public consultation period for the draft Action Plan.

Overall Conclusion	The proposed draft Action Plan Relating to The Assessment & Management of Environmental Noise does not significantly alter any policy or objective of the South Dublin County Council Development Plan or any other plans adopted by South Dublin County Council. However, in line with the precautionary principle, it is considered appropriate to undertake an appropriate assessment screening. Stage 1 screening indicates that implementing the proposed draft Action Plan is not directly connected with, or necessary to the conservation management of the Natura 2000 in the assessment; The implementation of the Action Plant will not have a direct impact on the Natura 2000 sites considered in the assessment; The project, alone or in combination with other projects or plans, is not likely to have a significant effect on the Natura Sites considered in the assessment in view of their conservation objectives and will not have any significant cumulative, direct or indirect impacts upon any of the Natura 2000 sites. Therefore it is not considered necessary to undertake any further stages of the Appropriate Assessment process.

Appendix – E SDCC – Noise Exposure Tables and Maps

Element	Data	ALL ROAD	MAJOR ROAD		ALL ROAD	MAJOR ROAD
Lden<55	Number of people in dwellings Lden <55dB	142800	**172500**			
Lden5559	Number of people in dwellings Lden 55-59dB	81500	**55300**	**People>55**	136000	**104700**
Lden6064	Number of people in dwellings Lden 60-64dB	34700	**29900**			
Lden6569	Number of people in dwellings Lden 65-69dB	16400	**16100**	**People>65**	19800	**19500**
Lden7074	Number of people in dwellings Lden 70-74dB	3200	**3200**			
Lden75	Number of people in dwellings Lden >75dB	200	**200**	**People>75**	200	**200**
Lnight<50	Number of people in dwellings Lnight 50-54dB	194600	**199600**			
Lnight5054	Number of people in dwellings Lnight 50-54dB	51300	**45800**	**People>50**	84200	**77600**
Lnight5559	Number of people in dwellings Lnight 55-59dB	27100	**26100**			
Lnight6064	Number of people in dwellings Lnight 60-64dB	4900	**4800**	**People>60**	5800	**5700**
Lnight6569	Number of people in dwellings Lnight 65-69dB	900	**900**			
Lnight70	Number of people in dwellings Lnight >70dB	0	**0**	**People>70**	0	**0**
AreaLden<55	Area in km2 Lden <55dB	135	**149**			
AreaLden5559	Area in km2 Lden 55-59dB	45	**35**	**Area>55**	88	**74**
AreaLden6064	Area in km2 Lden 60-64dB	23	**20**			
AreaLden6569	Area in km2 Lden 65-69dB	11	**10**	**Area>65**	20	**19**
AreaLden7074	Area in km2 Lden 70-74dB	5	**5**			
AreaLden75	Area in km2 Lden >75dB	4	**4**	**Area>75**	4	**4**
DwellingsLden<55	Number of dwellings Lden <55dB	48500	**60300**			
DwellingsLden5559	Number of dwellings Lden 55-59dB	29700	**19800**	**Dwellings>55**	49400	**37600**
DwellingsLden6064	Number of dwellings Lden 60-64dB	12200	**10500**			
DwellingsLden6569	Number of dwellings Lden 65-69dB	6100	**5900**	**Dwellings>65**	7500	**7300**
DwellingsLden7074	Number of dwellings Lden 70-74dB	1300	**1300**			
DwellingsLden75	Number of dwellings Lden >75dB	100	**100**	**Dwellings>75**	100	**100**

Table C: Sound Emissions from All Roads and Major Roads within SDCC

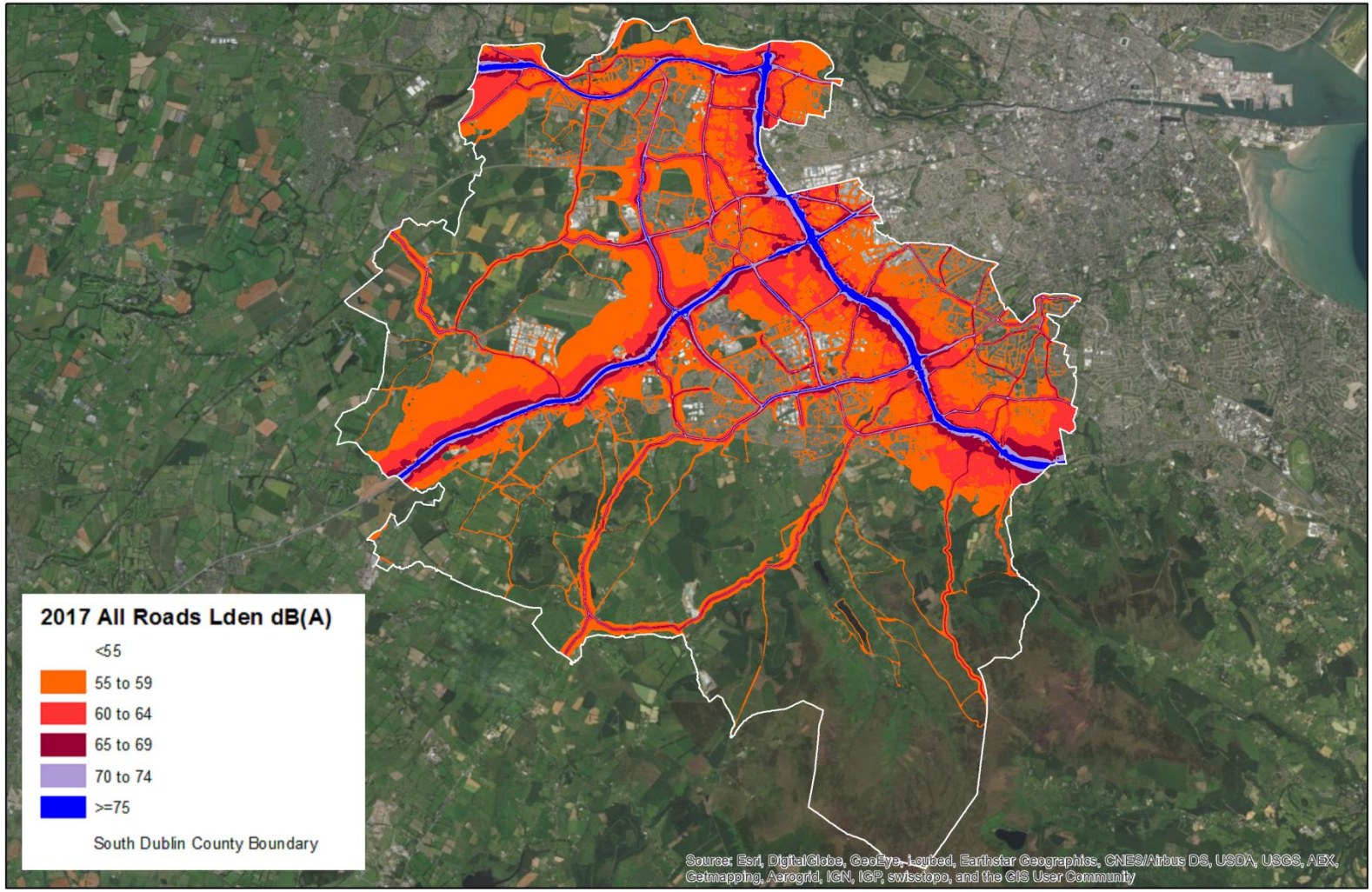
Irish Rail – Noise Exposure Tables

Table 2.0: Sound Emissions from Iarnród Éireann Major Heavy Rail within Dublin Agglomeration Area

dB	LDEN IÉ Major Rail	LD IÉ Major Rail	LE IÉ Major Rail	LN IÉ Major Rail	No. of Quiet Facades (QFs)	No. of people with Quiet Facades (LDEN)	No. of people with Quiet Facades (LNIGHT)	Area Exposed (LDEN) km2	No. Of Dwellings Exposed (LDEN)
0-44	1312120	1315720	1320220	1334320	4100	9400	16400	0	519493
45-49	13100	12300	11000	6700	1300	2900	3600	0	5500
50-54	9300	8200	7200	4400	1800	4100	3200	0	4100
55-59	6400	6900	5800	1700	1500	3300	1200	0	2800
60-64	5400	3900	3000	300	1600	4100	300	0	2100
65-69	1100	400	200	0	300	900	0	0	500
70-74	100	0	0	0	0	0	0	0	0
>=75	0	0	0	0	0	0	0	0	0
Total	1347500	1347400	1347400	1347400	10600	24700	24700	6	534500

Table 3.0: Sound Emissions from Iarnród Éireann All Heavy Rail within Dublin Agglomeration Area

dB	LDEN IÉ All Rail	LDay IÉ All Rail	LEvening IÉ All Rail	LNight IÉ All Rail	No. of Quiet Facades (QFs)	No. of people with Quiet Facades (LDEN)	No. of people with Quiet Facades (LNIGHT)	Area Exposed (LDEN) km2	No. Of Dwellings Exposed (LDEN)
0-44	1300920	1307120	1313420	1330720	4100	9600	17200	0	514893
45-49	17800	16100	14500	8700	1400	3200	3700	0	7500
50-54	12900	10800	9100	5600	2000	4700	3900	0	5400
55-59	8000	8200	6700	2100	1600	3700	1300	0	3500
60-64	6400	4600	3400	300	1700	4200	400	0	2600
65-69	1300	600	300	0	400	1100	0	0	600
70-74	100	0	0	0	0	0	0	0	0
>=75	0	0	0	0	0	0	0	0	0
Total	1347400	1347400	1347400	1347400	11200	26500	26500	13	534500

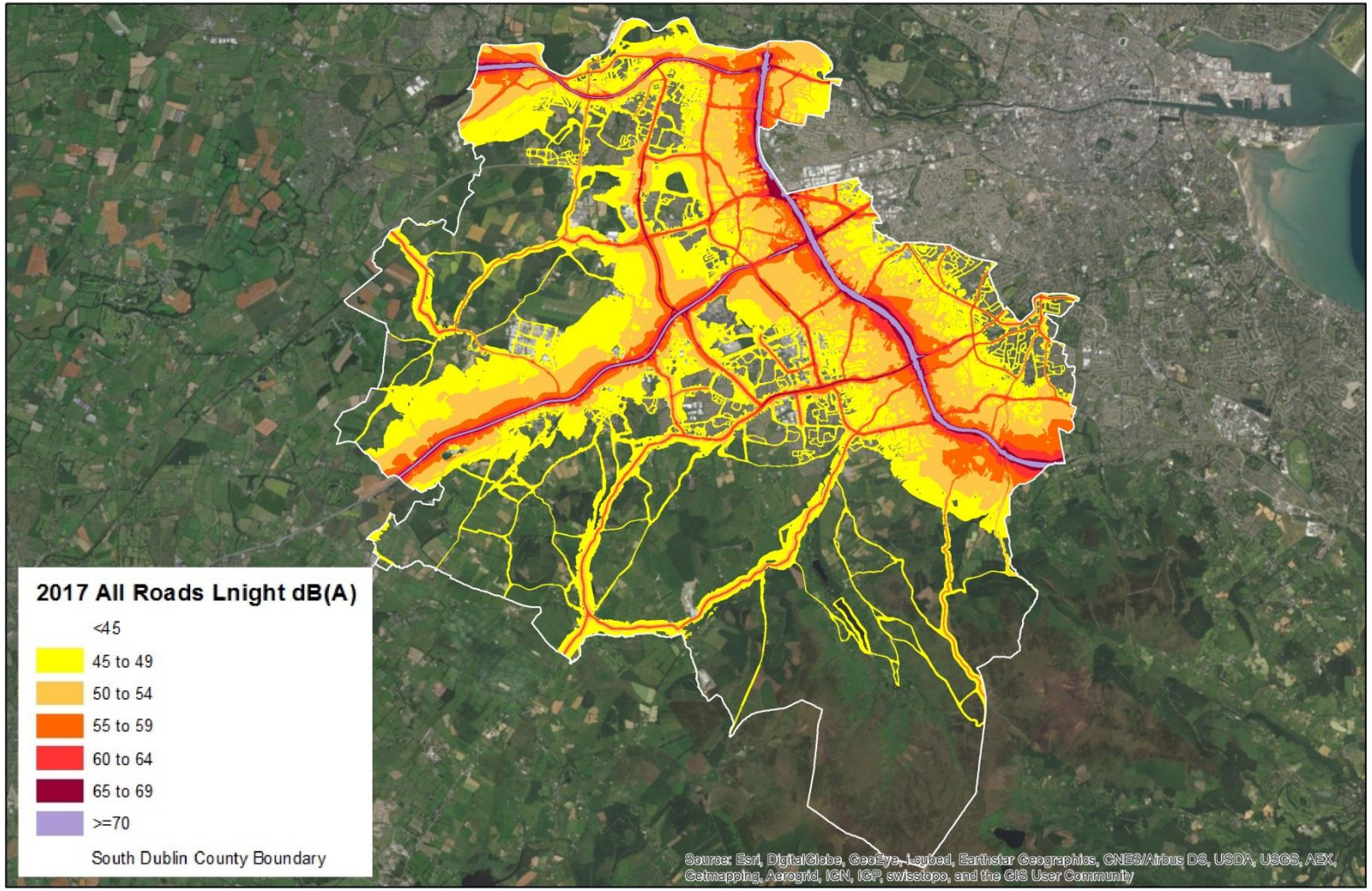


This strategic noise map presents a graphical representation of weighted predicted annual average road traffic sound levels in South Dublin County Council. The map has been developed in accordance with S.I. No.140/2006 (the Environmental Noise Regulations) and is a representation of the average environmental sound levels over one complete year. This map forms part of a national noise mapping strategy which can be primarily used as a strategic tool for large scale planning or policy matters and not suitable for local noise assessments.

Strategic Noise Map 2017:
Lden dB(A) South Dublin County Council – All Roads

1:120,000

Comhairle Contae Atha Cliath Theas
South Dublin County Council

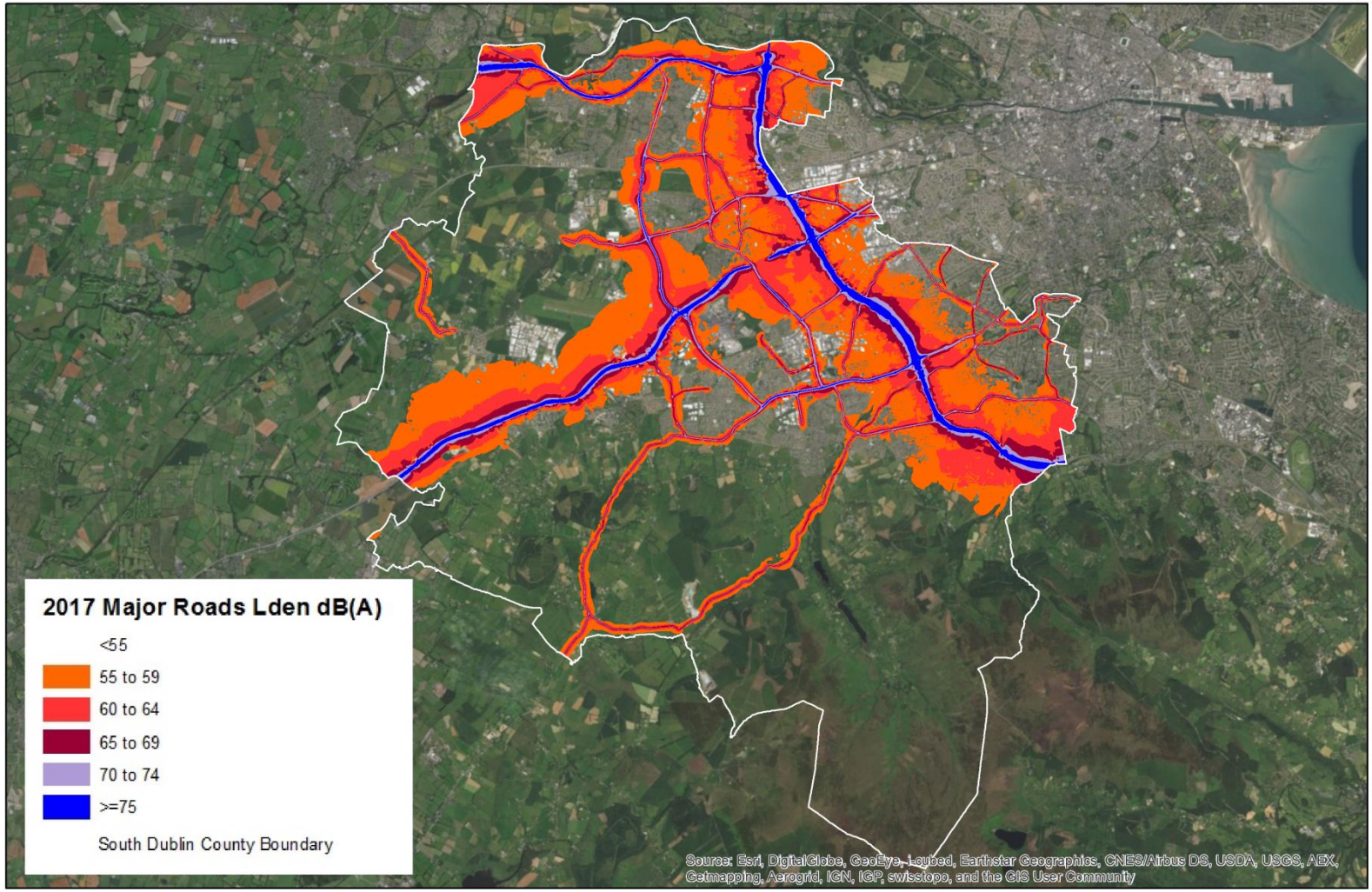


This strategic noise map presents a graphical representation of weighted predicted annual average road traffic sound levels in South Dublin County Council. The map has been developed in accordance with S.I. No.140/2006 (the Environmental Noise Regulations) and is a representation of the average environmental sound levels over one complete year. This map forms part of a national noise mapping strategy which can be primarily used as a strategic tool for large scale planning or policy matters and not suitable for local noise assessments.

Strategic Noise Map 2017:
Lnight dB(A) South Dublin County Council – All Roads

1:120,000

Comhairle Contae Atha Cliath Theas
South Dublin County Council

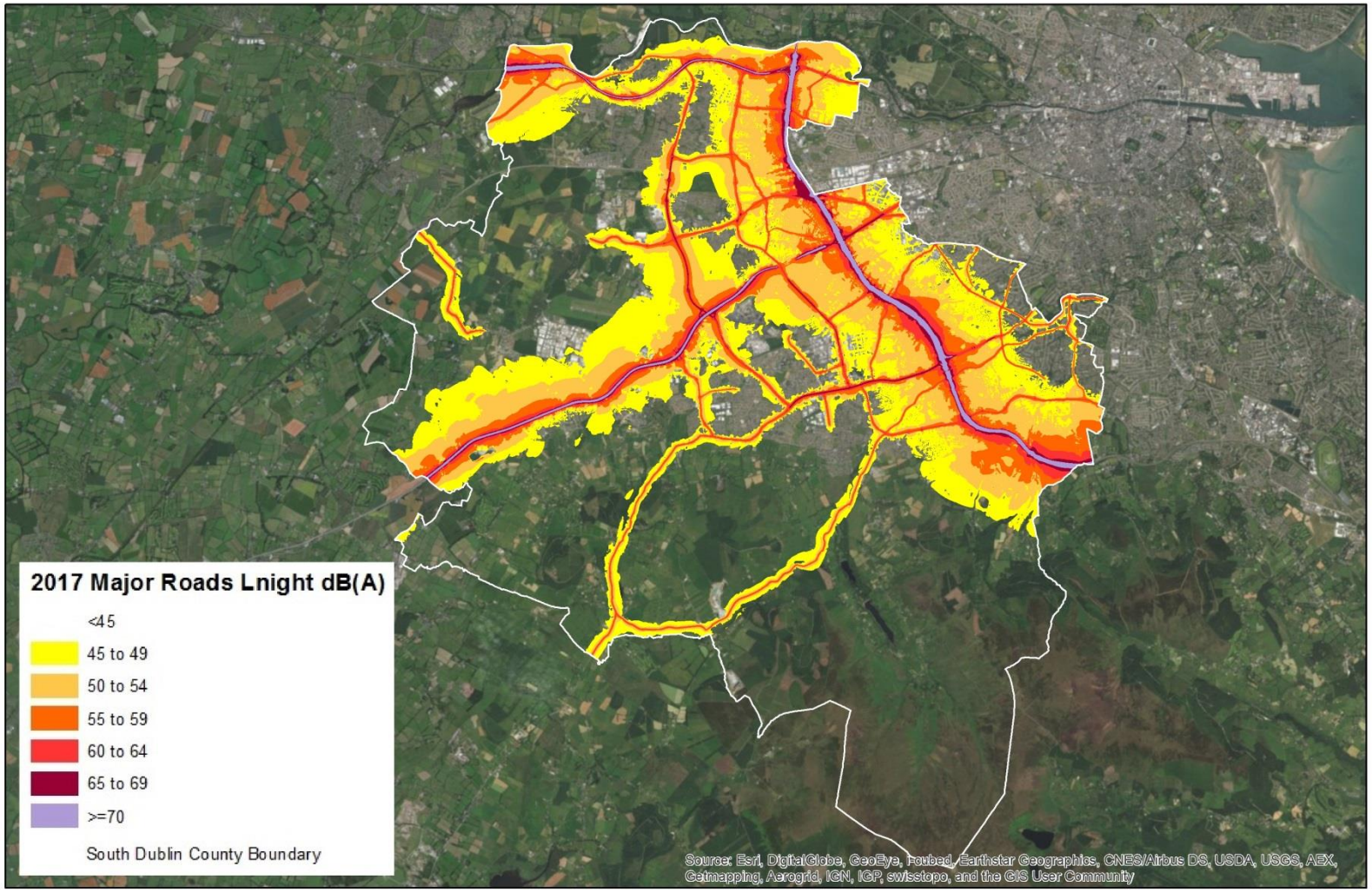


This strategic noise map presents a graphical representation of weighted predicted annual average road traffic sound levels in South Dublin County Council. The map has been developed in accordance with S.I. No.140/2006 (the Environmental Noise Regulations) and is a representation of the average environmental sound levels over one complete year. This map forms part of a national noise mapping strategy which can be primarily used as a strategic tool for large scale planning or policy matters and not suitable for local noise assessments.

Strategic Noise Map 2017:
Lden dB(A) South Dublin County Council – Major Roads

1:120,000

Comhairle Contae Atha Cliath Theas
South Dublin County Council



This strategic noise map presents a graphical representation of weighted predicted annual average road traffic sound levels in South Dublin County Council. The map has been developed in accordance with S.I. No.140/2006 (the Environmental Noise Regulations) and is a representation of the average environmental sound levels over one complete year. This map forms part of a national noise mapping strategy which can be primarily used as a strategic tool for large scale planning or policy matters and not suitable for local noise assessments.

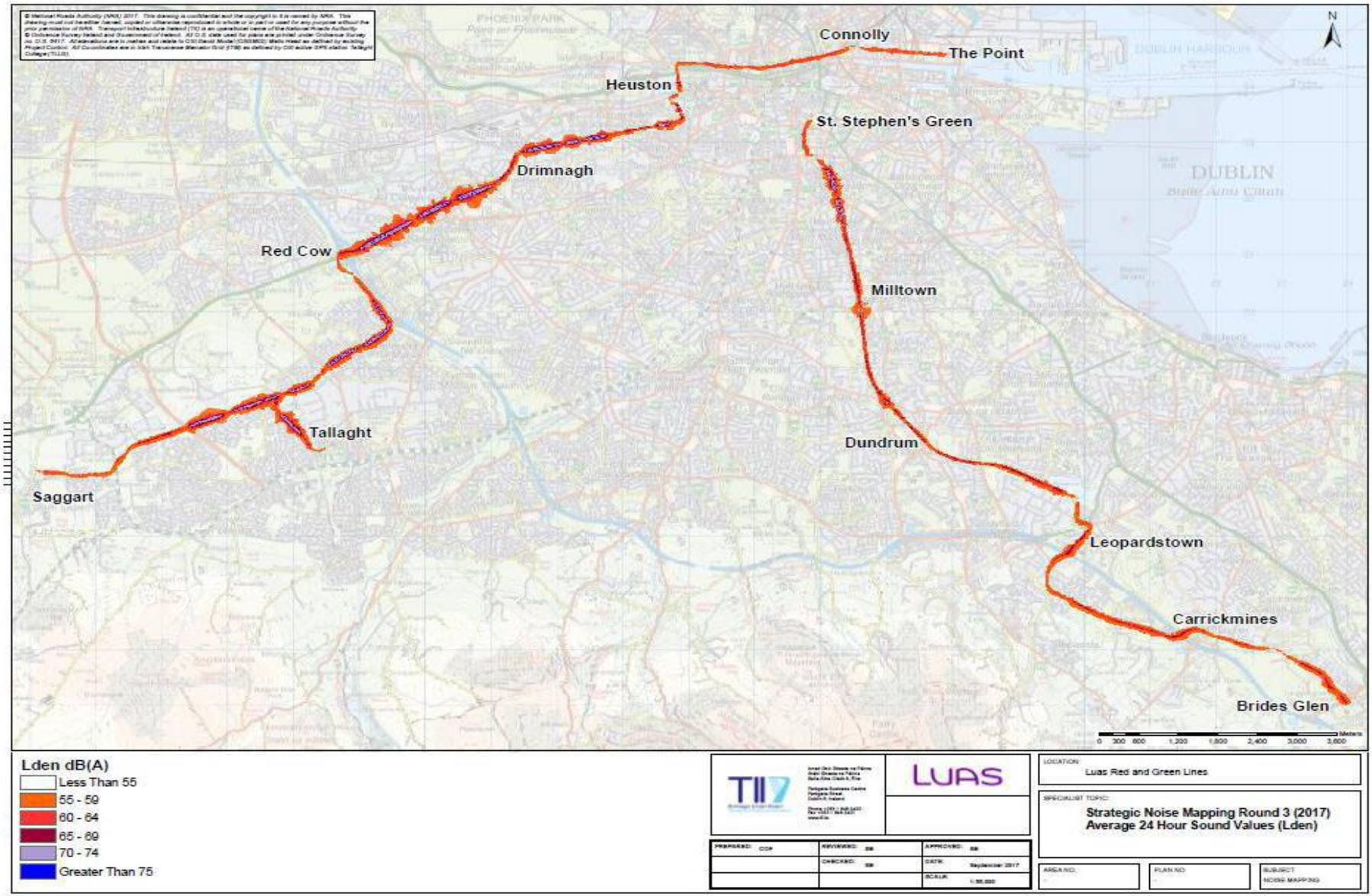
1:120,000

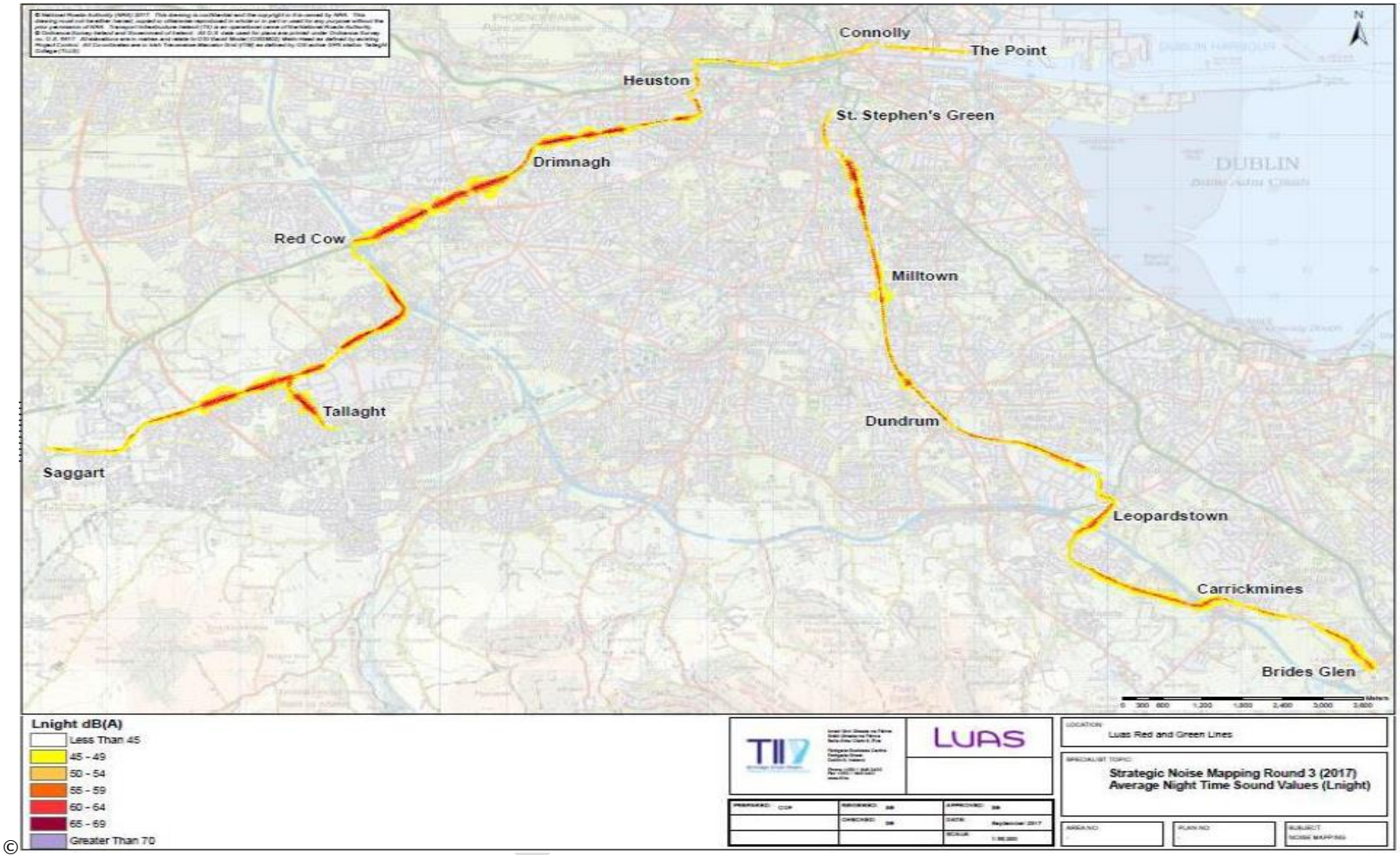
Strategic Noise Map 2017:
Lnight dB(A) South Dublin County Council – Major Roads

Comhairle Contae Atha Cliath Theas
South Dublin County Council

Table 4.0: Sound Emissions from Transport Infrastructure Ireland All Light Rail within Dublin Agglomeration Area

Major Rail – Luas dBA	L_{DEN}	L_{DAY}	$L_{EVENING}$	L_{NIGHT}	No. of Quiet Façades (QFs)	No. of people with QF (L_{DEN})	No. of people with QF (L_{NIGHT})	Area Exposed (L_{DEN}) km²	No. of Dwellings Exposed (L_{DEN})
0-44	1313400	1320100	1323200	1331900	2300	6100	13100		522400
45-49	12800	10400	9000	6000	1900	4300	3300		5400
50-54	8000	6200	5800	6900	1500	3900	5500		3200
55-59	6000	6900	6700	2200	1800	4100	1700		2600
60-64	5400	3200	2300	300	1600	4100	200		2000
65-69	1500	400	300	100	500	1200	100		600
70-74	200	200	100	0	0	100	0		100
>55	13200	10400	9400	2600	3900	9600	1900	3.24	5400
>65	1700	500	400	100	500	1300	100	1.98	700
>=70	300	200	100	0	0	200	0	0.00	100
>=75	100	0	0	0	0	100	0	0.08	0
Total	1347400	1347400	1347400	1347400	9600	23900	23900	5.30	536300


Connolly
The Point
Heuston
St. Stephen's Green
Drimnagh
Red Cow
Milltown
Tallaght
Dundrum
Saggart
Leopardstown
Carrickmines
Brides Glen
DUBLIN
N
Lden dB(A)
Less Than 55
55 - 59
60 - 64
65 - 69
70 - 74
Greater Than 75
LUAS
Luas Red and Green Lines
Strategic Noise Mapping Round 3 (2017)
Average 24 Hour Sound Values (Lden)


Connolly
The Point
Heuston
St. Stephen's Green
Drimnagh
Red Cow
Milltown
Tallaght
Dundrum
Saggart
Leopardstown
Carrickmines
Brides Glen
DUBLIN
N
Lnight dB(A)
Less Than 45
45 - 49
50 - 54
55 - 59
60 - 64
65 - 69
Greater Than 70
LUAS
Luas Red and Green Lines
Strategic Noise Mapping Round 3 (2017)
Average Night Time Sound Values (Lnight)

Appendix F - Noise Level Bands Colour scheme

The EPA Guidance Note for Noise Action Planning recommends the colour bands outlined below for use in the production of noise level contour maps. The colour bands are based upon those set out within ISO 1996-2 (1987). Furthermore, it is recommended that the colour bands are made semi-transparent such that the base mapping below remains partly visible such that orientation and location remains possible.

Table A - Recommended noise Level Bands for Maps of Lden

Noise zone dB	Colour	Code	Red	Green	Blue
< 55	Transparent				
55 to 59	Orange	# FF 66 00	255	102	0
60 to 64	Cinnabar	# FF 33 33	255	51	51
65 to 69	Carmine	# 99 00 33	153	0	51
70 to 74	Lilac red	# AD 9A D6	173	154	214
≥75	Blue	# 00 00 FF	0	0	255

Table B - Recommended Noise Level Bands for Maps of Lnight

Noise zone dB	Colour	Code	Red	Green	Blue
<45	Transparent				
45 to 49	Yellow	# FF FF 00	255	255	0
50 to 54	Ochre	# FF C7 4A	255	199	74
55 to 59	Orange	# FF 66 00	255	102	0
60 to 64	Cinnabar	# FF 33 33	255	51	51
65 to 69	Carmine	# 99 00 33	153	0	51
<70	Lilac Red	# AD 9A D6	173	154	214

Appendix G - Decision Matrix

A decision support matrix is a chart which enables identification, analysis and rating of the strength of relationships between various sets of information. It enables a number of different factors to be examined and facilitates the assessment of the relative importance of each.

For this Noise Action Plan it is proposed that the higher the number achieved in the decision matrix process, the higher the priority for action. A value of **17 or more** is suggested as the point where priority action should be considered either to reduce excessive sound levels or to preserve low sound levels where they exist. For example an address, which falls within the Sound level Lden 65-69dB (2) and 55-59dB at night (3), in a noise sensitive area for day and night (3+3) and exposed to sound from traffic day and night, (2+3) will give an overall total of 16.

Table 6.1 Noise Decision Support Matrix

Decision Selection Criteria		**Score Range day**	**Score Range Night**	**Subtotal**
Noise Band dB(A)	<55	3	4	
	55-59	2	2	
	60-64	1	3	**3**
	65-69	2	4	**2**
	70-74	3	5	
	>=75	4	6	
Type of location	City Centre	1	1	
	Commercial	1	2	
	Residential	2	3	
	Noise Sensitive Location	3	3	**6**
	Quiet Area	3	2	
	Recreational open space	2		
Type of Noise	Road	2	3	**5**
	Rail	3	4	
	Airport			
			Total	**16**

Appendix H – SDCC Noise Control Pre Planning Guidance

Comhairle Contae
Átha Cliath Theas
South Dublin County Council

14

SDCC Noise Control Pre Planning Guidance

Applicants' attention is drawn to noise issues in preparing proposals:

Noise, a significant public health issue, needs to be considered when new development may create additional noise or when it would be in a sensitive local acoustic environment. When making decisions about new development, the Council may seek opportunities to improve the acoustic environment

Development Management decisions of the Council will take into account the acoustic environment and will consider:

- whether or not a significant noise adverse effect is occurring or likely to occur;
- whether or not a good standard of acoustic amenity can be achieved.

These issues would include identifying whether the overall effect of noise exposure (including the impact during the construction phase) is, or would be, above the significant observed adverse effect level and the lowest observed adverse effect level. The Table below provides current U.K. recommended internal LAeq target levels for overall noise in the design of new buildings that could be considered. These are the sum total of structure-borne and airborne noise sources.

Activity	Location	Day & Evening	Night (23:00-07:00)
Resting	Living room	35 dB $L_{Aeq,16\ hr}$	
Dining	Dining room/area	40 dB $L_{Aeq,16\ hr}$	
Sleeping (daytime resting)	Bedroom	35 dB $L_{Aeq,16\ hr}$	30 dB $L_{Aeq,8\ hr}$

Ground-borne noise is assessed separately and is not included as part of these targets, as human response to ground-borne noise varies with many factors such as level, character, timing, occupant expectation and sensitivity.

High noise levels increases the risk that development may be refused due to noise. This risk may be reduced with a good acoustic design, clearly demonstrated and detailed the planning application. Applicants are strongly advised to seek expert advice on noise.

What factors influence whether noise could be a concern?

The subjective nature of noise means that there is not a simple relationship between noise levels and its potential impact. This depends on how factors combine in any particular situation, i.e.:

- The source and absolute level of the noise together with the time of day it occurs. Some types and level of noise will cause a greater adverse effect at night than if they occurred during the day as people are more sensitive to noise at night (11pm to 7am). The adverse effect is also greater simply because there is less background noise at night;
- For non-continuous noise; the number of noise events, and the frequency and pattern of occurrence of the noise;
- The noise spectrum (i.e. pattern of high or low frequency content) and the general character of the noise (i.e. the tonal characteristics or other particular features). The local built environment and topography should also be taken into account along with the existing and, where appropriate, the planned character of the area.

More specific factors to consider when relevant:

- if applicable, the cumulative impacts of more than one source should be taken into account along with the extent to which the source of noise is intermittent and of limited duration;
- consideration should be given to where avoiding adverse internal impacts depends on closing windows. This is not ideal. For residential development, if proposed mitigation requires windows being closed at night, an alternative means of ventilation must be provided.

How to recognise when noise could be a concern?

1. When noise is not noticeable, there is no effect. As noise exposure increases, it will cross the no effect level as it becomes noticeable. However, noise has no adverse effect so long as the exposure does not cause any change in behaviour or attitude. Such noise can slightly affect the acoustic character of an area but not to the extent there is a change in quality of life. At this level no specific measures are required to manage the acoustic environment.
2. Higher noise levels crosses the lowest observed adverse effect level above which noise starts to cause changes in behaviour and attitude, for example, needing to speak more loudly, or impaired sleep. The noise therefore starts to have an adverse effect and consideration needs to be given to mitigating those effects.
3. Increasing noise levels causes significant observed adverse effects resulting in material change in behaviour such as keeping windows closed for most of the time or sleep disturbance when the noise is present. The planning process seeks to avoid this highly undesirable effect, by use of appropriate mitigation such as by altering the design and layout. Such decisions are made taking account the economic and social benefit of the activity causing the noise.
4. The planning process aims to avoid the highest extreme where noise exposure would cause extensive and sustained changes in behaviour irrespective of mitigation measures. The impacts on health and quality of life are such that regardless of the benefits of the activity causing the noise, the exposure should be prevented.

Further useful information is available from this link:
https://www.epa.ie/pubs/advice/noisemapping/EPA%20Guidance%20Note%20for%20Noise%20Action%20Planning.pdf

1.1 August 2017