

Introduction

The information detailed herein is provided to explain the work undertaken by Iarnród Éireann in fulfilling our legislative requirements as prescribed in the Environmental Noise Regulations 2006.

The background to the Noise Regulations and the work undertaken by Iarnród Éireann is detailed herein. Iarnród Éireann's work culminates with the publication of Strategic Noise Maps for specific areas of our heavy rail network (i.e. does not include Luas Light Rail).

The Strategic Noise Maps published by Iarnród Éireann include:

- Major Heavy Rail (above a threshold of >30,000 vehicle passages per annum) within Dublin Agglomeration Area;
- Major Heavy Rail (above a threshold of >30,000 vehicle passages per annum) outside Agglomeration Areas;
- All Rail (all vehicle passages per annum) within Dublin Agglomeration Area; and
- All Rail (all vehicle passages per annum) within Cork Agglomeration Area.

The strategic noise maps graphically display the exposure of the receiving environment to noise generated by annualised daily train movements along defined sections of the Iarnród Éireann network.

The production and publication of strategic noise maps is a statutory requirement of the Environmental Noise Regulations 2006. Further supporting information about the Environmental Noise Regulations 2006, the national noise mapping project is available on the Department of Environment, Community and Local Government website and the Environmental Protection Agency website at the links provided below:

<http://www.environ.ie/en/Environment/Noise/EnvironmentalNoiseRegulations2006/>

<http://www.epa.ie/downloads/advice/noisemapping/>

It must be noted that these strategic noise maps have been produced only for the purposes of the Environmental Noise Regulations 2006. Iarnród Éireann will not be held responsible for any outcomes that may arise from the use of these results by any party for any reason other than for the purpose of fulfilling the requirements of the Environmental Noise Regulations.

Legislative Requirements

European Council [Directive 2002/49/EC](#), commonly referred to as the Environmental Noise Directive (END), relates to the assessment and management of environmental noise. Directive 2002/49/EC has been transposed into Irish legislation through the Environmental Noise Regulations 2006 (S.I. No. 140 of 2006). In the context of the Regulations, environmental noise is defined as unwanted or harmful outdoor sound created by human activities, specifically noise emitted by means of transport (road, rail and air traffic) and from industry.

The aim of the Directive is "to define a common approach intended to avoid, prevent or reduce on a prioritised basis the harmful effects, including annoyance, due to exposure to environmental noise".

There are three action stages set out in the END for the assessment and management of environmental noise, which are:

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

Iarnród Éireann has undertaken an assessment of the rail network and produced strategic noise maps for defined sections of the network to determine the exposure to environmental noise, in compliance with Item 1 above.

The strategic noise maps are published on the Iarnród Éireann website, in compliance with Item 2 above.

The strategic noise maps have been provided to the relevant local authorities whose responsibility it is to produce and adopt action plans. This adoption of such action plans by the local authorities will ensure compliance with Item 3 above.

Strategic Noise Mapping

A strategic noise map is designed for the assessment of noise exposure in a defined area (i.e. city or large town) or from a defined source (road, rail & air traffic or industry). Just as a map has contours indicating how ground levels change spatially, so to a noise map can illustrate how environmental noise levels change across an area.

Iarnród Éireann is a designated in the Environmental Noise Regulations as a noise mapping body for the making of Strategic Noise Maps. .

Iarnród Éireann has maintained close liaison and co-operation with other designated noise mapping bodies to achieve a co-ordinated approach to the strategic noise mapping project, to ensure a consistent approach and allow for comparison of results.

Round 1 Strategic Noise Mapping (for base year 2006)

Strategic noise mapping was initially prepared in 2007 (Round 1). Owing to the defined thresholds for this Round (assessment base year being 2006), the mapping of heavy rail was confined within the Dublin Agglomeration Area.. There was no major heavy rail (defined Major Rail threshold for round 1 was 60,000 vehicle passages per year) outside the Dublin Agglomeration. The Round 1 strategic noise mapping for the Dublin Agglomeration Area was undertaken by Dublin City Council in collaboration with Iarnród Éireann and other noise mapping bodies.

Round 2 Strategic Noise Mapping (for base year 2011)

This second round of strategic noise mapping (Round 2) was undertaken between 2011 and 2012, with lower defined assessment thresholds than those for Round 1 (defined Major Rail threshold for round 2 was 30,000 vehicle passages per year). For Round 2 mapping, the heavy rail strategic noise mapping encompassed the Dublin Agglomeration Area, the

Cork Agglomeration area and Major Rail to Cherryville Junction in County Kildare (where Waterford Line diverges from the Cork Mainline).

Round 3 Strategic Noise Mapping (for base year 2016)

This second round of strategic noise mapping (Round 3) was undertaken between 2016 and 2017, with the thresholds remaining the same as Round 2 (defined Major Rail threshold for round 3 was 30,000 vehicle passages per year). For Round 3 mapping, the heavy rail strategic noise mapping encompassed the Dublin Agglomeration Area, the Cork Agglomeration area and Major Rail to Portarlinton Junction in County Laois (where Galway Line diverges from the Cork Mainline).

Calculation Method

The strategic noise maps published by Iarnród Éireann are produced by computer modelling techniques, which have calculated the noise levels along the required Round 2 mapping network as a result of sound emanating from rail vehicles. The data inputs to this model included vehicle timetabling, vehicle and carriage type and length, track asset information, topographic contour data and proximity of buildings to rail corridors. The model was developed on a 10 metre grid. Proprietary software was utilised in the production of the strategic noise maps. Data was imported and managed using both AutoCad and ArcGIS design software. Noise emission modelling employed Predictor software (Version 8.12)

The contouring is based on noise levels that are grouped into 5 decibel (dB) bands, as recommended and required by the Environmental Noise Regulations. There are maps for night-time (L_{Night}) and 24hr hour (L_{DEN}) sound levels. Matching the colour in the map with the colour in the accompanying legend will give the viewer the sound level band for the location of interest.

Next Step - Action Plans

The Environmental Noise Directive requires that Action Plans be developed and adopted. These action plans will be progressed by City and County Council and will be designed to manage noise issues and effects, including noise reduction if necessary. Iarnród Éireann is not responsible for developing any Action Plans, however we will co-operate with the City and County Council, as requested and as necessary. The action plans will be developed following a consultation process involving the general public.

The action plans will include:

- a description of the agglomeration, the major roads, the major railways or major airports and other noise sources being taken into account in the plan
- a summary of the results of the noise mapping
- an evaluation of the estimated number of people exposed to noise, and identification of problems that need to be improved
- any noise reduction measures already in force and any projects in preparation
- actions to be taken over the five year period covered by the Action Plan

- a long term strategy

It is envisaged that action plans will identify relevant measures (both existing and new) to manage environmental noise from the sources mapped. Such measures could range from over-arching national strategies which take noise into account, to local targeted measures designed primarily to address a specific noise issue.