

Dublin City Council

**Strategic Noise Mapping and Noise Action Plan for the
Agglomeration of Dublin for
Round 4 of the Environmental Noise Regulations 2018**

**Exposure Statistics
Dublin City and Agglomeration**

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February 2025

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Executive Summary

A project to implement Round 4 of the Strategic Noise Mapping and Noise Action Plan for Dublin City commenced in May 2021 and is due for completion by September 2024. In addition to delivering Dublin City Council's obligations in respect of preparing Strategic Noise Maps and a Noise Action Plan for the Dublin City administrative area, a project management team from Dublin City Council is managing the delivery of the Round 4 project at a national level for all the agglomerations in Ireland.

Legislation and Requirements

EU Directive 2002/49/EC, which was transposed into Irish law through the European Communities (Environmental Noise) Regulations 2018 to 2021, requires Noise Mapping Bodies and Action Planning Authorities to prepare Strategic Noise Maps and Noise Action Plans every 5 years. These apply to environmental noise created by human activities, including road, rail and air traffic and sites of industrial activity. Two indicators must be applied in the assessment and management of noise;

- **L_{den}** is the annual average noise level for the day, evening and night period and is designed to measure 'annoyance'. It has a defined reporting threshold of **55dB**.
- **L_{night}** is the annual average noise level for night-time periods and is designed to assess sleep disturbance. It has a defined reporting threshold of **50dB**.

Member states must report the numbers of people who are exposed to noise levels above both these thresholds for the range of noise sources mentioned above.

Strategic Noise Maps, and Noise Action Plans, must be prepared for each of the following areas;

- Agglomerations (>100,000 persons)
- Major roads (>3,000,000 vehicle passages per year)
- Major rail (>30,000 train passages per year)
- Major airport (>50,000 movements per year).

The Noise Action Plans shall include actions and measures to address priorities which may be identified by the exceedance of any relevant noise limits or other relevant criteria established by the Environment Protection Agency (EPA).

Agglomerations Project – Progress & Next Steps

The project, being delivered by Dublin City Council at a national level deals with agglomerations only and includes the Dublin, Cork and Limerick agglomerations, and consists of the following two phases;

- Phase 1 – Noise Modelling & Strategic Noise Mapping (June 2022 – May 2023)
- Phase 2 – Noise Action Plans (June 2023 – September 2024).

At present the project team has successfully completed the noise modelling work, delivered the digital results to the EPA, published the graphical Strategic Noise Maps and finalised the Dublin Agglomeration Noise Action Plan 2024 – 2028. The Maps and Plan are now available to view at the following location;

[\[https://www.dublincity.ie/residential/environment/role-air-quality-monitoring-and-noise-control-unit/dublin-city-noise-maps\]](https://www.dublincity.ie/residential/environment/role-air-quality-monitoring-and-noise-control-unit/dublin-city-noise-maps)

This report sets out the population exposure and health effects statistics resulting from the noise modelling work.

1 Introduction

A project to implement Round 4 of the Strategic Noise Mapping and Noise Action Plan for Dublin City commenced in May 2021 and is due for completion by September 2024. This report provides an update on the statutory basis and requirements for the project and presents the results of the populations exposure and health effects assessment which was undertaken as part of the modelling work and using the strategic noise maps produced.

1.1 Legislative Background

EU Directive 2002/49/EC relates to the assessment and management of environmental noise and is more commonly known as the Environmental Noise Directive (END). The directive was implemented on foot of an EU green paper on 'Future Noise Policy' which highlighted the need for a high level of health and environmental protection against noise. In the green paper, noise in the environment was addressed as one of the main environmental problems in Europe.

The Directive was transported into Irish law through the following Regulations;

- Environmental Noise Regulations 2006 (S.I. No. 140 of 2006) (Now revoked)
- European Communities (Environmental Noise) Regulations 2018 (S.I. No. 549 of 2018)
- European Communities (Environmental Noise) (Amendment) Regulations 2021 (S.I. No. 663 of 2021).

Round's 1 to 3 were completed under the now revoked 2006 Regulations.

The 2018 Regulations were introduced to bring into effect a new European common assessment method which was set out in Commission Directive (EU) 2015/996. This common assessment method, known as CNOSSOS-EU, ensures that Ireland and all Member States are applying a common approach to modelling and assessing the impact of environmental noise and the avoidance, prevention and reduction of harmful effects as a result of exposure to it.

The 2021 Amendment was introduced to bring into effect amendments to the agglomeration boundaries to be covered by Round 4 and also introduced the requirement at a National level to complete an assessment of the harmful effects associated with environmental noise in line with the methodology set out in the Second Schedule. The Amendment also gave effect to a one year extension granted by the EU for the completion of the Round 4 Noise Action Plans from 2023 to 2024.

The 2018 Regulations make the Environmental Protection Agency (EPA) the national competent Authority for the purpose of overseeing implementation of the Regulations and for providing guidance.

1.2 Scope and Requirements

1.2.1 Environmental Noise Sources and Metrics

The END and the 2018 Regulations apply to environmental noise, created by human activities, which people are exposed to in built-up areas, in public parks or quiet areas, near schools and hospitals and

other noise sensitive buildings and areas. The definition of “environmental noise” contained within the 2018 Regulations includes “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 2018 Regulations do not apply to noise from domestic activities or noise created by neighbours or natural environmental noise such as wind, waves and nature. As such the Regulations do not cover many of the noise compliant subjects which Dublin City Council Air Quality and Noise Control Unit would receive on an annual basis.

The END and the 2018 Regulations requires two main indicators to be applied in the assessment and management of noise as follows;

- **L_{den}** is the annual average noise level for the day, evening and night period and is designed to measure ‘annoyance’. It has a defined reporting threshold of **55dB**.
- **L_{night}** is the annual average noise level for night-time periods and is designed to assess sleep disturbance. It has a defined reporting threshold of **50dB**.

Member states must report the numbers of people who are exposed to noise levels above both these thresholds for the range of noise sources mentioned above.

Furthermore, at a National level estimates of the harmful effects in terms of number of people potentially exposed to ischaemic heart disease (IHD), high annoyance (A) and high sleep disturbance (HSD) must be reported to the Department of Environment, Climate and Communications (DECC) (for more details see Section 1.2.4).

This report presents the finding of the exposure and harmful effects assessment work completed for Round 4.

1.2.2 Strategic Noise Maps

The END and the 2018 Regulations require Noise Mapping Bodies (NMBs) to prepare or review Strategic Noise Maps every 5 years for each of the following areas;

- Agglomerations (>100,000 persons)
- Major roads (>3,000,000 vehicle passages per year)
- Major rail (>30,000 train passages per year)
- Major airport (>50,000 movements per year).

For the agglomerations, there is a requirement to place special emphasis on noise emitted by road traffic, rail traffic, airports and industry activity sites including ports.

For the purpose of the 2021 (Amendment) Regulations, NMBs are defined as follows;

- Agglomeration of Dublin – Dublin City Council and the County Councils of Dun Laoghaire Rathdown, Fingal, South Dublin, Wicklow and Kildare.
- Agglomeration of Cork – Cork City Council and Cork County Council.
- Agglomeration of Limerick – Limerick City and County Council and Clare County Council.
- Major Roads;
 - National Roads – Transport Infrastructure Ireland (TII)
 - Non-National Roads – relevant Local Authority
- Major Rail;
 - Heavy Rail – Iarnród Éireann

- Luas/Light Rail – TII
- Major Airports - relevant Airport Authority.

The purpose of the Strategic Noise Maps are to;

- Provide relevant data to the European Commission in accordance with the requirements of the END,
- Provide a source of information for the general public
- Provide the basis for developing Noise Action Plans to identify Priority Important Areas and Quiet Areas and propose relevant mitigation measures to mitigate the harmful effects of these noise sources.

The Statutory deadline for reporting the results of the Strategic Noise Mapping to the European Commission was the 31st December 2022. PDF versions of the Strategic Noise Maps for Dublin City Council and the agglomeration of Dublin can be viewed at the following link;

[\[https://www.dublincity.ie/residential/environment/role-air-quality-monitoring-and-noise-control-unit/dublin-city-noise-maps\]](https://www.dublincity.ie/residential/environment/role-air-quality-monitoring-and-noise-control-unit/dublin-city-noise-maps)

In addition to these pdf maps, the maps can also be viewed on the EPA's mapping web site in a Web GIS format at the following link;

[https://gis.epa.ie/EPAMaps/.](https://gis.epa.ie/EPAMaps/)

1.2.3 Population Exposure Assessment

Population exposure assessment for the Dublin agglomeration was carried out as follows;

- Exposure to noise was assessed for each of the following noise sources within the Agglomeration;
 - All Roads
 - Major Roads
 - All Railways
 - Major Railways
 - Industry
- Exposure statistics were calculated for the END reporting levels shown in Section 1.2.1 above.
- Exposure statistics for each of the following are required to be reported;
 - Number of dwellings (in hundreds)
 - Number of schools
 - Number of hospitals
 - Number of people living in dwellings (in hundreds)
 - Number of people living in dwellings (in hundreds) with a quiet façade (if known)
 - Number of people living in dwellings (in hundreds) with special insulation against noise (if known)
 - Areas exposed to noise (in km²)

1.2.4 Harmful Effects Assessment

The Environmental Noise Regulations 2021 requires an assessment to be made of the harmful effects associated with environmental noise.

The assessment of the health effects of noise was carried out in accordance with the Second Schedule of the 2021 Regulations and Annex III of the END as amended by Directive (EU) 2020/367 and as set out below.

- The criteria relating to health effects for which assessment was undertaken include the following;
 - Ischaemic heart disease (IHD) corresponding to codes BA40 and BA6Z of the international classification ICD-11 established by the World health Organisation;
 - High annoyance (HA);
 - High sleep disturbance (HSD).
- The methodologies used to calculate the health effects for each of the above criteria are set out in Annex III of Directive (EU) 2020/367 and use dose-effect relationships which are based on research by the World Health Organisation (WHO).
- The exposure assessment of the population to these health effects were undertaken independently for each noise sources below;
 - All Roads
 - Major Roads
 - All Railways
 - Major Railways
- At present there are no does-response relationships prepared by the WHO which relates to industrial noise and as such no assessment for industrial noise can be completed.
- The Environmental Noise Regulations 2021 does not set out the noise thresholds above which the health effects should be calculated. Advice from the EPA suggested that the WHO Guidelines, which sets out noise levels above which adverse health effects may be associated, should be used. The values for road and rail are set out below;
 - Railways
 - 54 dB L_{den}
 - 44 dB L_{night}
 - Roads
 - 53 dB L_{den}
 - 45 dB L_{night}
- In respect of the assessment of health effects relating to aircraft noise for Dublin and Cork Airports, information was supplied by Dublin Airport Authority (DAA).

2 Strategic Noise Modelling – Population Exposure Assessment Results – Dublin

2.1 Background

The strategic noise exposure assessment results for Dublin City and the agglomeration of Dublin are presented in Section 2.2 and also Appendix A. The following results are presented;

- Roads L_{den} ,
- Roads L_{night}
- Rail L_{den}
- Rail L_{night}
- Industry L_{den}
- Industry L_{night} .

It should be noted that all roads within the agglomeration have been models including those which would be classed as Major Roads.

The source data for the modelling work is reflective of a base year of 2021.

For traffic data a traffic model was created using a combination of traffic sources which included;

- TII traffic count data on national roads
- The NTA Regional Modelling System, specifically the Eastern Regional Model for the Dublin agglomeration.
- Local Authority traffic count data, both historic and traffic surveys completed for the purpose of Round 4
- Default traffic data sets for minor roads.

Rail traffic data sets were provided by Iarnród Éireann and TII.

For industry the sites that were included within the modelled included Industrial Emission (IE) sites, as regulated by the EPA under the IPPC Directive 96/61 EC. In addition to this Dublin Port and Port of Cork were included in the industry analysis. Information on each site was provided by the EPA, i.e. Annual Environmental Reports (AERs) or obtained from other publicly available data. Where data was not available on specific noise sources, a default methodology was applied.

2.2 Population Exposure Assessment Results

A summary of the key results for Dublin City and the Agglomeration of Dublin are provided in the tables below. A breakdown of all the results across all categories set out in Section 1.2.3 above are provided in Appendix A.

Please note statistics have been rounded to the nearest 100 in line with the requirements of the Regulations and as noted in Section 1.2.3 above.

Table 2-1 – Population Exposure Statistics Road Sources

	Road (All Sources)			Road (Major Sources)	
Noise Exposure (dB Lden)	Dublin Agglomeration	Dublin City Council		Dublin Agglomeration	Dublin City Council
55-59	287,400	90,300		151,000	31,300
60-64	160,500	55,900		78,800	20,700
65-69	78,700	39,700		53,600	26,700
70-74	23,100	12,300		20,700	11,200
>=75	2,500	400		2,400	400
	552,200	198,600		306,500	90,300
Noise Exposure (dB Lnight)	Dublin Agglomeration	Dublin City Council		Dublin Agglomeration	Dublin City Council
50-54	169,200	50,700		104,800	22,900
55-59	78,400	35,400		54,700	22,600
60-64	33,000	19,200		29,000	16,500
65-69	6,300	2,600		6,200	2,500
>=70	400	0		400	0
	287,300	107,900		195,100	64,500

Table 2-2 – Population Exposure Statistics Rail and Industry Sources

	Rail			Industry	
Noise Exposure (dB Lden)	Dublin Agglomeration	Dublin City Council		Dublin Agglomeration	Dublin City Council
55-59	33,900	18,700		1,700	1,400
60-64	19,300	10,500		400	300
65-69	14,600	7,800		100	100
70-74	10,700	6,600		0	0
>=75	5,700	4,400		0	0
	84,200	48,000		2,200	1,800
Noise Exposure (dB Lnight)	Dublin Agglomeration	Dublin City Council		Dublin Agglomeration	Dublin City Council
50-54	22,400	12,700		1,100	1,000
55-59	15,500	8,200		300	200
60-64	10,600	6,800		0	0
65-69	6,200	3,900		0	0
>=70	1,900	1,700		0	0
	56,600	33,300		1,400	1,200

2.3 Harmful Effects Assessment Results

The results of the harmful effects assessment for Dublin City and the Agglomeration of Dublin are presented in the tables below.

Table 2-3 – Harmful Effects Assessment Results – Road Sources

Road		
Harmful Effect	Dublin Agglomeration	Dublin City Council
Ischaemic Heart Disease	101	40
Highly Annoyed	108,380	40,727
Highly Sleep Disturbed	28,996	10,641
Harmful Effect	Dublin Agglomeration	Dublin City Council
Ischaemic Heart Disease	0.01%	0.01%
Highly Annoyed	7.99%	8.11%
Highly Sleep Disturbed	2.14%	2.12%

Table 2-4 – Harmful Effects Assessment Results – Rail Sources

Rail		
Harmful Effect	Dublin Agglomeration	Dublin City Council
Highly Annoyed	21,052	12,406
Highly Sleep Disturbed	10,987	6,630
Harmful Effect	Dublin Agglomeration	Dublin City Council
Highly Annoyed	1.55%	2.47%
Highly Sleep Disturbed	0.81%	1.32%

The percentages shown above are relative to the population of the Dublin Agglomeration [1,355,968] and the proportion of that for Dublin City Council [501,897].

Note: It should be noted that the assessment method is a statistical approach across the whole population covered by the strategic noise maps and does not provide an accurate assessment of possible health effects at any specific building or location.

APPENDIX A – POPULATION EXPOSURE STATISTICS – DUBLIN

ROAD NOISE SOURCES (ALL AND MAJOR)

Table A1: Breakdown of Number of People in Dwellings – L _{den} Road Traffic – All Sources		
Noise Exposure (dB L _{den})	Dublin Agglomeration	Dublin City Council
55-59	287,400	90,300
60-64	160,500	55,900
65-69	78,700	39,700
70-74	23,100	12,300
>=75	2,500	400

Table A2: Breakdown of Number of People in Dwellings – L _{den} Road Traffic – Major Sources		
Noise Exposure (dB L _{den})	Dublin Agglomeration	Dublin City Council
55-59	151,000	31,300
60-64	78,800	20,700
65-69	53,600	26,700
70-74	20,700	11,200
>=75	2,400	400

Table A3: Breakdown of Number of Dwellings – L _{den} Road Traffic – All Sources		
Noise Exposure (dB L _{den})	Dublin Agglomeration	Dublin City Council
55-59	113,300	40,600
60-64	66,200	27,200
65-69	35,400	20,300
70-74	10,800	6,600
>=75	1,000	200

Table A4: Breakdown of Number of Dwellings – L _{den} Road Traffic – Major Sources		
Noise Exposure (dB L _{den})	Dublin Agglomeration	Dublin City Council
55-59	57,600	13,900
60-64	31,000	9,600
65-69	23,600	13,200
70-74	9,600	5,800
>=75	1,000	200

Table A5: Breakdown of Number of School Buildings – L_{den} Road Traffic – All Sources		
Noise Exposure	Dublin Agglomeration	Dublin City Council
(dB L _{den})		
55-59	260	88
60-64	185	67
65-69	101	61
70-74	30	23
>=75	7	0

Table A6: Breakdown of Number of School Buildings – L_{den} Road Traffic – Major Sources		
Noise Exposure	Dublin Agglomeration	Dublin City Council
(dB L _{den})		
55-59	166	45
60-64	98	27
65-69	68	42
70-74	25	18
>=75	7	0

Table A7: Breakdown of Number of Hospital Buildings – L_{den} Road Traffic – All Sources		
Noise Exposure	Dublin Agglomeration	Dublin City Council
(dB L _{den})		
55-59	12	9
60-64	11	8
65-69	8	7
70-74	4	0
>=75	0	0

Table A8: Breakdown of Number of Hospital Buildings – L_{den} Road Traffic – Major Sources		
Noise Exposure	Dublin Agglomeration	Dublin City Council
(dB L _{den})		
55-59	5	4
60-64	4	2
65-69	5	4
70-74	4	0
>=75	0	0

Table A9: Breakdown of Number of People in Dwellings – L_{night} Road Traffic – All Sources		
Noise Exposure	Dublin Agglomeration	Dublin City Council
(dB L _{night})		
50-54	169,200	50,700
55-59	78,400	35,400
60-64	33,000	19,200
65-69	6,300	2,600
>=70	400	0

Table A10: Breakdown of Number of People in Dwellings – L_{night} Road Traffic – Major Sources		
Noise Exposure	Dublin Agglomeration	Dublin City Council
(dB L _{night})		
50-54	104,800	22,900
55-59	54,700	22,600
60-64	29,000	16,500
65-69	6,200	2,500
>=70	400	0

Table A11: Breakdown of Number of Dwellings – L_{night} Road Traffic – All Sources		
Noise Exposure	Dublin Agglomeration	Dublin City Council
(dB L _{night})		
50-54	68,000	24,400
55-59	34,600	18,100
60-64	15,700	10,300
65-69	2,700	1,300
>=70	200	0

Table A12: Breakdown of Number of Dwellings – L_{night} Road Traffic – Major Sources		
Noise Exposure	Dublin Agglomeration	Dublin City Council
(dB L _{night})		
50-54	40,300	10,600
55-59	23,300	11,100
60-64	13,500	8,600
65-69	2,700	1,200
>=70	200	0

Table A13: Breakdown of Number of School Buildings – L_{night} Road Traffic – All Sources		
Noise Exposure	Dublin Agglomeration	Dublin City Council
(dB L _{night})		
50-54	186	58
55-59	105	54
60-64	46	35
65-69	4	1
>=70	5	0

Table A14: Breakdown of Number of School Buildings – L_{night} Road Traffic – Major Sources		
Noise Exposure	Dublin Agglomeration	Dublin City Council
(dB L _{night})		
50-54	112	26
55-59	75	36
60-64	40	29
65-69	4	1
>=70	5	0

Table A15: Breakdown of Number of Hospital Buildings – L_{night} Road Traffic – All Sources		
Noise Exposure	Dublin Agglomeration	Dublin City Council
(dB L _{night})		
50-54	11	7
55-59	3	3
60-64	9	4
65-69	0	0
>=70	0	0

Table A16: Breakdown of Number of Hospital Buildings – L_{night} Road Traffic – Major Sources		
Noise Exposure	Dublin Agglomeration	Dublin City Council
(dB L _{night})		
50-54	5	2
55-59	1	1
60-64	8	3
65-69	0	0
>=70	0	0

RAIL NOISE SOURCES (ALL AND MAJOR)

Table A17: Breakdown of Number of People in Dwellings – L_{den} Railway Traffic – All Sources

Noise Exposure (dB L _{den})	Dublin Agglomeration	Dublin City Council
55-59	33,900	18,700
60-64	19,300	10,500
65-69	14,600	7,800
70-74	10,700	6,600
>=75	5,700	4,400

Table A18: Breakdown of Number of People in Dwellings – L_{den} Railway Traffic – Major Sources

Noise Exposure (dB L _{den})	Dublin Agglomeration	Dublin City Council
55-59	30,900	18,300
60-64	17,300	10,100
65-69	13,100	7,600
70-74	10,100	6,500
>=75	5,600	4,400

Table A19: Breakdown of Number of Dwellings – L_{den} Railway Traffic – All Sources

Noise Exposure (dB L _{den})	Dublin Agglomeration	Dublin City Council
55-59	14,900	8,800
60-64	8,700	5,200
65-69	6,400	3,800
70-74	4,900	3,100
>=75	3,000	2,400

Table A20: Breakdown of Number of Dwellings – L_{den} Railway Traffic – Major Sources

Noise Exposure (dB L _{den})	Dublin Agglomeration	Dublin City Council
55-59	13,600	8,600
60-64	7,900	5,000
65-69	5,800	3,700
70-74	4,600	3,000
>=75	3,000	2,400

Table A21: Breakdown of Number of School Buildings – L_{den} Railway Traffic – All Sources		
Noise Exposure	Dublin Agglomeration	Dublin City Council
(dB L _{den})		
55-59	36	26
60-64	20	13
65-69	13	8
70-74	9	3
>=75	17	16

Table A22: Breakdown of Number of School Buildings – L_{den} Railway Traffic – Major Sources		
Noise Exposure	Dublin Agglomeration	Dublin City Council
(dB L _{den})		
55-59	34	26
60-64	19	13
65-69	12	8
70-74	9	3
>=75	17	16

Table A23: Breakdown of Number of Hospital Buildings – L_{den} Railway Traffic – All Sources		
Noise Exposure	Dublin Agglomeration	Dublin City Council
(dB L _{den})		
55-59	3	3
60-64	0	0
65-69	0	0
70-74	5	4
>=75	2	2

Table A24: Breakdown of Number of Hospital Buildings – L_{den} Railway Traffic – Major Sources		
Noise Exposure	Dublin Agglomeration	Dublin City Council
(dB L _{den})		
55-59	3	3
60-64	0	0
65-69	0	0
70-74	5	4
>=75	2	2

Table A25: Breakdown of Number of People in Dwellings – L_{night} Railway Traffic – All Sources

Noise Exposure	Dublin Agglomeration	Dublin City Council
(dB L _{night})		
50-54	22,400	12,700
55-59	15,500	8,200
60-64	10,600	6,800
65-69	6,200	3,900
>=70	1,900	1,700

Table A26: Breakdown of Number of People in Dwellings – L_{night} Railway Traffic – Major Sources

Noise Exposure	Dublin Agglomeration	Dublin City Council
(dB L _{night})		
50-54	20,900	12,500
55-59	14,200	8,100
60-64	10,100	6,700
65-69	6,100	3,900
>=70	1,900	1,700

Table A27: Breakdown of Number of Dwellings – L_{night} Railway Traffic – All Sources

Noise Exposure	Dublin Agglomeration	Dublin City Council
(dB L _{night})		
50-54	10,100	6,200
55-59	6,800	4,000
60-64	4,900	3,200
65-69	3,100	2,100
>=70	1,000	900

Table A28: Breakdown of Number of Dwellings – L_{night} Railway Traffic – Major Sources

Noise Exposure	Dublin Agglomeration	Dublin City Council
(dB L _{night})		
50-54	9,400	6,100
55-59	6,200	3,900
60-64	4,700	3,200
65-69	3,100	2,100
>=70	1,000	900

Table A29: Breakdown of Number of School Buildings – L_{night} Railway Traffic – All Sources		
Noise Exposure	Dublin Agglomeration	Dublin City Council
(dB L _{night})		
50-54	24	17
55-59	10	7
60-64	12	5
65-69	12	10
>=70	4	4

Table A30: Breakdown of Number of School Buildings – L_{night} Railway Traffic – Major Sources		
Noise Exposure	Dublin Agglomeration	Dublin City Council
(dB L _{night})		
50-54	22	17
55-59	10	7
60-64	12	5
65-69	12	10
>=70	4	4

Table A31: Breakdown of Number of Hospital Buildings – L_{night} Railway Traffic – All Sources		
Noise Exposure	Dublin Agglomeration	Dublin City Council
(dB L _{night})		
50-54	2	2
55-59	0	0
60-64	3	2
65-69	2	2
>=70	2	2

Table A32: Breakdown of Number of Hospital Buildings – L_{night} Railway Traffic – Major Sources		
Noise Exposure	Dublin Agglomeration	Dublin City Council
(dB L _{night})		
50-54	2	2
55-59	0	0
60-64	3	2
65-69	2	2
>=70	2	2

INDUSTRY NOISE SOURCES

Table A33: Breakdown of Number of People in Dwellings – L _{den} Industry – All Sources		
Noise Exposure (dB L _{den})	Dublin Agglomeration	Dublin City Council
55-59	1,700	1,400
60-64	400	300
65-69	100	100
70-74	0	0
>=75	0	0

Table A34: Breakdown of Number of Dwellings – L _{den} Industry – All Sources		
Noise Exposure (dB L _{den})	Dublin Agglomeration	Dublin City Council
55-59	800	700
60-64	200	200
65-69	0	0
70-74	0	0
>=75	0	0

Table A35: Breakdown of Number of School Buildings – L _{den} Industry – All Sources		
Noise Exposure (dB L _{den})	Dublin Agglomeration	Dublin City Council
55-59	1	1
60-64	2	1
65-69	0	0
70-74	0	0
>=75	0	0

Table A36: Breakdown of Number of Hospital Buildings – L _{den} Industry – All Sources		
Noise Exposure (dB L _{den})	Dublin Agglomeration	Dublin City Council
55-59	1	1
60-64	0	0
65-69	0	0
70-74	0	0
>=75	3	3

Table A37: Breakdown of Number of People in Dwellings – L _{night} Industry – All Sources		
Noise Exposure	Dublin Agglomeration	Dublin City Council
(dB L _{night})		
50-54	1,100	1,000
55-59	300	200
60-64	0	0
65-69	0	0
>=70	0	0

Table A38: Breakdown of Number of Dwellings – L _{night} Industry – All Sources		
Noise Exposure	Dublin Agglomeration	Dublin City Council
(dB L _{night})		
50-54	500	500
55-59	100	100
60-64	0	0
65-69	0	0
>=70	0	0

Table A39: Breakdown of Number of School Buildings – L _{night} Industry – All Sources		
Noise Exposure	Dublin Agglomeration	Dublin City Council
(dB L _{night})		
50-54	2	1
55-59	0	0
60-64	0	0
65-69	0	0
>=70	0	0

Table A40: Breakdown of Number of Hospital Buildings – L _{night} Industry – All Sources		
Noise Exposure	Dublin Agglomeration	Dublin City Council
(dB L _{night})		
50-54	1	1
55-59	0	0
60-64	0	0
65-69	0	0
>=70	1	1

