

Summary

Under EU Directive 2002/49/EC relating to The Assessment and Management of Environmental Noise (known as the END), the four local authorities, within the agglomeration of Dublin, are required to produce 'Strategic Noise Maps'. The 'END' emphasises that Strategic maps are not to be used to address local noise nuisances such as neighbourhood or domestic noise nuisance. The maps were required to be completed by end of June 2007 followed by Action Plans, which are to be completed by 18th July 2008. The data on noise maps has to be forwarded to the European Commission before the end of December 2007. This report includes all the variation of noise maps required to be produced under the Environmental Noise Directive. The calculations for the Dublin City Council Maps were completed by 30th June 2007.

This report supersedes the 'Provisional Report & Statistics, Dublin City Council Noise Mapping Project' produced in June 2007.

The 'Noise Maps' show colour coded areas in Dublin based on noise levels, in 5 bands. These increment in 5 decibels. The Night time band start at 50 decibels and the 24 Hour band starts at 55 decibels. The EU Directive does not give an indication as to what level of noise is acceptable. This is left to each member state. At this point in time, Ireland does not have any statutory limit values, as is the case for air pollution. In the absence of guidance, one could assume that the closer the calculated noise level is to the highest band of noise set out in the Directive the more unacceptable it is. And conversely, the closer the calculated noise is to the lowest band of noise set out in the Directive the more acceptable it is. Separate colour coded maps have been developed to show what is deemed to be acceptable and desirable /undesirable, using this criteria.

The different sources of noise included in the maps are 'All Roads', 'Major Roads' and 'All Railway' and 'Major Railways'. The 'Luas' rail is included in 'All Railway' and 'Major Railway' categories. In this report the Luas and Rail map statistics are produced for the 'Agglomeration of Dublin', which includes all four local authority regions in the Dublin region. No maps are being produced for industrial point sources or aircraft noise, as these categories have been found to have no strategic impact on overall noise levels within the Dublin City Council region.

Some of the statistics for the Dublin City Council area indicate that: -

- Railway noise does not have a major impact on overall noise levels.
- Traffic noise is the dominant noise source.
- Just over 66% of citizens are exposed to 24-hour (Lden) sound levels from traffic below 65 decibels
- The 'All Roads' category has a greater impact on more people than the 'Major Road' category.

- 24 hour (Lden) sound levels from traffic do not drop below 55 decibels.
- 58% of Citizens are being expose to Nighttime levels from traffic above 55 decibels.
- Approximately 7600 people are being exposed to average 24hour sound levels sound levels equal to or greater than 75 decibels

The complete table of population exposure to sound from traffic can be found in Annex I

Introduction

Under EU Directive 2002/49/EC relating to The Assessment and Management of Environmental Noise, which was transposed by SI number 140 of 2006, Environmental Noise Regulations 2006, the four local authorities, within the agglomeration of Dublin (Dublin City Council, Fingal, Dun Laoghaire Rathdown and South Dublin County Councils), are required to produce 'Maps' for noise emanating from Major Industry, Roads including Major Roads, Rail including Major Rail and Airports including Major Airports.

This 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, the Commission addressed noise in the environment as one of the main environmental problems in Europe.

The aims of this Directive are: -

- To monitor environmental noise problems by requiring competent authorities in Member States to draw up "strategic noise maps" for major roads, railways, airports and agglomerations, using harmonised noise indicators L_{den} (day-evening-night equivalent level) and L_{night} (night equivalent level). These maps are to be used to assess the number of people annoyed and sleep-disturbed respectively throughout each member state in the European Union.
- To inform and consult the public about noise exposure, its effects, and the measures to be considered to address noise problems.
- To address local noise issues by requiring competent authorities to draw up action plans to reduce noise where necessary and maintain the environmental acoustic quality where it is good. The directive does not set any limit value, nor does it prescribe the measures to be used in the action plans, which remain at the discretion of the competent authorities.
- To develop a long-term EU strategy, which includes objectives to reduce the number of people affected by noise in the longer term, and provides a framework for developing existing Community policy on noise reduction from source.

The Directive is also aimed at providing a basis for developing EU wide measures to reduce noise emitted by the major sources, in particular road and rail vehicles and infrastructure, aircraft, outdoor and industrial equipment. The Directive applies to environmental noise to which humans are exposed, in particular in built-up areas, in public parks or other quiet areas in an agglomeration, in quiet areas in open country, near schools, hospitals and other noise sensitive buildings and areas. It does not apply to noise that is caused by the exposed person himself/herself, noise from domestic activities, noise created by neighbours, noise at work

places or noise inside means of transport or due to military activities in military areas. The fact that these maps are Strategic Noise Maps, precludes their use for the assessment of local noise nuisances.

Implementation and responsibilities

Under the Environmental Noise Regulations 2006 the 4 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 and have been designated as the noise mapping bodies and action planning authorities for the following categories within their areas:-

All Roads and Major Roads,

All Rail and Major Rail,

Major Industrial Processes,

All Airports and Major Airport.

No later than 18 July 2008, Action Plans are required to be made which are designed to manage, within the agglomeration, noise issues and effects, including noise reduction if necessary. The plans shall also aim to protect quiet areas against an increase in noise. Before producing and implementing Action Plans the Local Authorities must consult with the Environmental Protection Agency and the noise-mapping body for the noise-map involved, i.e. NRA, Iarnród Éireann, IPPC licensed Plants, Dublin Airport. The 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 Mapping and Action Plans

Not alone do Noise Maps and Action Plans have to be developed for agglomerations with more than 250 000 inhabitants, but also for places near major roads which have more than six million vehicle passages a year, major railways which have more than 60 000 train passages per year and major airports.

On completion of the Noise Maps, measures to be taken which are contained in the Action Plans are at the discretion of the Local Authorities, in consultation with the EPA, and the appropriate body i.e. NRA, Iarnród Eireann, IPPC licensed Plants, Dublin Airport. The plans should notably address priorities, which may be identified by the exceedance of any relevant limit value or by other criteria chosen by the Member States, and apply in particular to the most important areas as established by the strategic noise mapping. The Maps and Action Plans shall be reviewed, and revised if necessary, when a major development occurs affecting the existing noise situation, and at least every five years.

The Directive also requires that Member States shall ensure that: -

- 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 that participation are taken into account and that the public is informed on the decisions taken.
- reasonable time frames shall be provided allowing sufficient time for each stage of public participation.
- the information shall be clear, comprehensible and accessible.

Dublin City Council Noise Mapping Project

Noise mapping entails the prediction or measurement of noise 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.

Dublin City Council produced its first noise map in July 2004. These were solely for sound emitted from traffic. Noise Maps consist of a base map of an area to be 'noise mapped' overlaid with colour contour\bands representing the various levels of noise in the map region. Population exposure is then calculated by summing the number of people living within each colour contour.

The EU recommends that noise maps should be developed by computer modelling, rather than measurement. This entails inputting detailed information into a computer modelling programme such as building, barrier, rail and road structures along with volume, speed and some other characteristics of the traffic. Overlaid on these structures is a disaggregation of the population and type of land use i.e. residential, commercial or green space.

The objectives of the current Noise Mapping Project are as follows: -

1. To Comply with the requirements of EU Directive 2002/49/EC and S.I. No. 140 of 2006
2. To identify and quantify the scale of the noise problem in Dublin by providing information on noise levels.
3. To provide information to the public on the level of noise throughout the City and the location of 'Hot Spots'.
4. To assist Dublin City Council in the process of setting realistic targets for noise reduction if required.
5. To provide a tool, permitting the more effective use of planning controls to reduce noise from new noise sources and to identify and protect and create areas of low noise levels.
6. To be a tool, whereby action plans to reduce noise from existing sources can be developed analysed and costed.
7. To be a means of monitoring the effectiveness of planning controls and action plans for reducing noise.

The Objectives of Current Noise Mapping Project contd.

8. To be capable of monitoring trends in environmental noise.
9. To provide a platform for further research into the effects of environmental noise on the citizens of Dublin.

The current round of maps, have been developed using data inputted into the computer modelling which was less than 3 years old. The Maps represent the situation for the year 2006. The Directive requires that 5 bands of noise be represented on the Noise Maps, in increments of 5 decibels. The 24-hour values (Lden) start at 55dB whilst the night time (Lnight) values start at 50dB.

This report includes statistics for the Dublin City Council Region on Road Traffic noise and for the agglomeration of Dublin for Railway Noise (including the Luas). The accompanying Noise Maps include, maps for noise from Railway, Major Railway, All Roads, Major Roads only, and the Luas. As the main sound emissions of concern are from road traffic, emphasis has been put on this source. More detailed maps have been produced based on this sound source for the five local Dublin City Council administrative areas. Maps for these areas have been produced, indicating the areas affected by sound levels that are desirable, undesirable or acceptable.

Comment

Noise Maps represent a visual expression of sound values throughout the Dublin City Council region. 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. There are maps for daytime, night time and 24hr hour (Lden) sound levels. Maps have also been produced for each of the five local area committee regions showing the locations that are exposed to what could be considered acceptable, desirable/undesirable sound levels.

Accompanying the maps are tables which list the number of people who are exposed to sound from the various types of noise sources, in the relevant sound level bands, as set out in the Environmental Noise Directive.

A very small number of the population (less than 100) within the Dublin City Council region are being exposed to daytime sound values from the Railway sector that could be deemed to be undesirable, (<70dB(A)). All of this exposure is due to the sound emissions from the Luas. There are approximately 4,800 people, or less than 1% of Dublin City Council population exposed to undesirable night time sound levels, (>55dB(A)). The majority of this exposure is caused by the Luas (3,100 people). However as sound from road traffic is the dominant source along the same routes as the Luas, in most of the City Council area, this sound tends to 'mask' the sound from the Luas.

Calculations show that just 3.5% of the population (17,900) in the City Council region are exposed to daytime sound levels from traffic that could be considered undesirable (above 70 decibels). For the night time period, this rises to over 58% of the population (293400) for levels greater than 55 decibels. These figures, when disaggregated over the five local areas are shown in Table 1.

	Central Area	Nth. Central Area	Sth. East Area	Nth. West Area	Sth. Central Area
Day Time – >70dB(A)	1.3%	0.08%	0.77%	0.07%	1.24%
Night Time – >55dB(A)	14.95%	12.21%	11.73%	7.77%	11.54%

Table 1 - % of population exposed to undesirable sound levels

Daytime sound levels from traffic below 55 decibels could be considered desirable. In the City Council region 3.9% of the population (20,000) are within this band. Whilst for night time

this falls to just 0.65% of the population (3300), below a level of 50 decibels. Table 2 shows the disaggregation of these figures over the 5 local areas.

	Central Area	Nth. Central Area	Sth. East Area	Nth. West Area	Sth. Central Area
Day Time – <55dB(A)	0.9%	0.7%	1.14%	0.48%	0.67%
Night Time – <50dB(A)	0.05%	0.08%	0.37%	0.03%	0.11%

Table 2 - % of population exposed to desirable sound levels

From these statistics it is obvious that the main challenges are to reduce the number of people being exposed to undesirable sound levels during the night. There are also quite a substantial number of people living in areas which could be considered to have acceptable sound levels for a city - 92% for the day time and 41% for the night time. It is anticipated that any future action plans will incorporate actions to ensure that the night time population exposure figures are improved and that the areas with acceptable sound levels are maintained or improved upon.

The next phase of the Noise Mapping project is to develop a Noise Action Plan, as outlined in the Environmental Noise Directive. Comments or suggestions are welcome in relation to Action Plans -on their content, aims or objectives, on foot of the information outlined in this report.

Responses can be made by email or post to:

The Traffic Noise & Air Quality Unit
Block 2 Floor 4,
Civic Offices
Wood Quay
Dublin 8.
e-mail bmcmamus@dublincity.ie.

ANNEX 1
Dublin City Council

Traffic Noise Maps and Tables

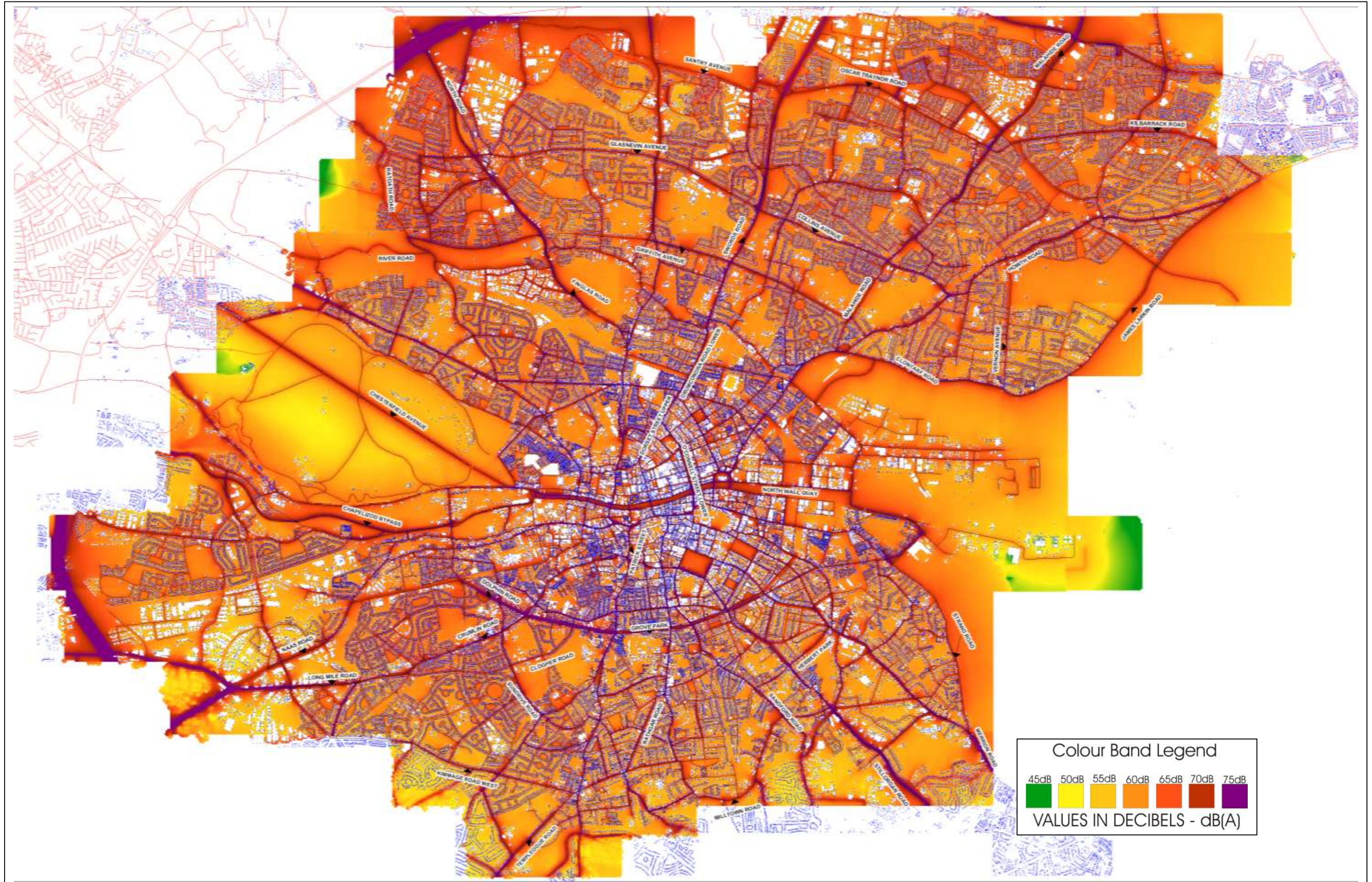
Population Exposure, From Road Traffic, Dublin City Council Region

All Road DCC	LDEN Total 24HrAllRoad ValuesDCC	LDAY Total DayAllRoad ValuesDCC	LEVE Total EveAllRoad ValuesDCC	LNIGHT Total NightAllRoad ValuesDCC	No. Of QF Total AllRoadQF DCC	LDENQF No Of People with Quiet FaçadeTotal All RoadDCC	LNIGHTQF No Of People with Quiet FaçadeTotal AllRoadDCC	LDEN Area Exposed Total AllRoad DCC	No. Of Dwellings Exposed (LDEN)Total AllRoad DCC
0-44	0	0	0	0	0	0	0	0	0
45-49	0	100	100	3300	0	0	0	0	0
50-54	100	20700	22400	206200	0	0	0	0	0
55-59	36200	261700	267600	169700	0	0	0	0	17000
60-64	296800	129700	133600	97400	0	0	0	0	130300
65-69	100700	73300	67600	26000	0	0	0	0	45900
70-74	62400	17700	12000	600	2	0	0	0	31000
>55	504500	483400	481800	293400	9	0	0	136	228500
>65	170600	91000	79500	26500	9	0	0	24.93	80800
>=70	69900	17900	11900	600	9	0	0	0	34800
>=75	7600	200	100	0	7	0	0	1.11	3900
Total	503800	503400	503400	503200	9	0	0		228100

Major Road DCC	LDEN Total 24HrMajorR oad ValuesDCC	LDAY Total DayMajorR oad ValuesDCC	LEVE Total EveMajorR oad ValuesDCC	LNIGHT Total NightMajorR oad ValuesDCC	No. Of QF Total MajorRoad QFDCC	LDENQF No Of People with Quiet FaçadeTotal MajorRoadDCC	LNIGHTQF No Of People with Quiet FaçadeTotal MajorRoadDCC	LDEN Area Exposed Total MajorRoad DCC	No. Of Dwellings Exposed (LDEN)Total MajorRoad DCC
0-44	34400	189500	215000	196500	37	100	300	0	14500
45-49	109800	134000	121600	155300	60	200	200	0	50100
50-54	170300	63300	56700	58400	36	100	100	0	76300
55-59	75200	31400	27900	25600	15	100	1500	0	33600
60-64	30400	23600	27400	49600	19	400	13800	0	13300
65-69	36800	47700	45200	19700	1129	6000	11700	0	16900
70-74	41000	14500	10000	200	2254	17300	100	0	20400
>55	189300	117600	110700	95200	3750	27300	27000	48.53	87400
>65	83700	62300	55300	19900	3715	26700	11800	13.23	40400
>=70	46800	14600	10100	200	2583	20700	100	0	23500
>=75	5800	100	100	0	326	3400	0	0.79	3100
Total	503700	504100	503900	504300	3876	27600	27700		228200

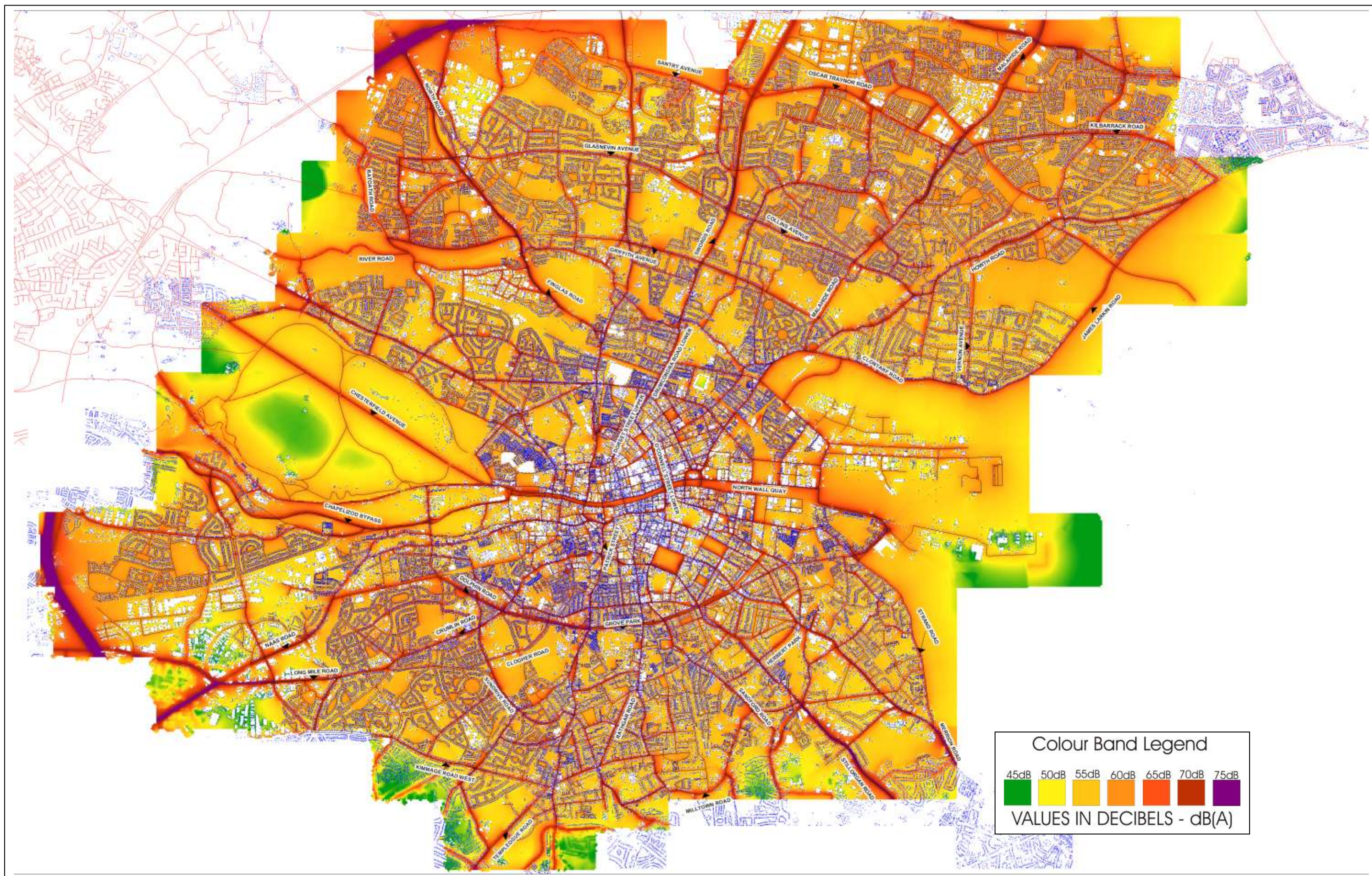
DUBLIN CITY COUNCIL AREA

24 HR Sound Levels from Traffic



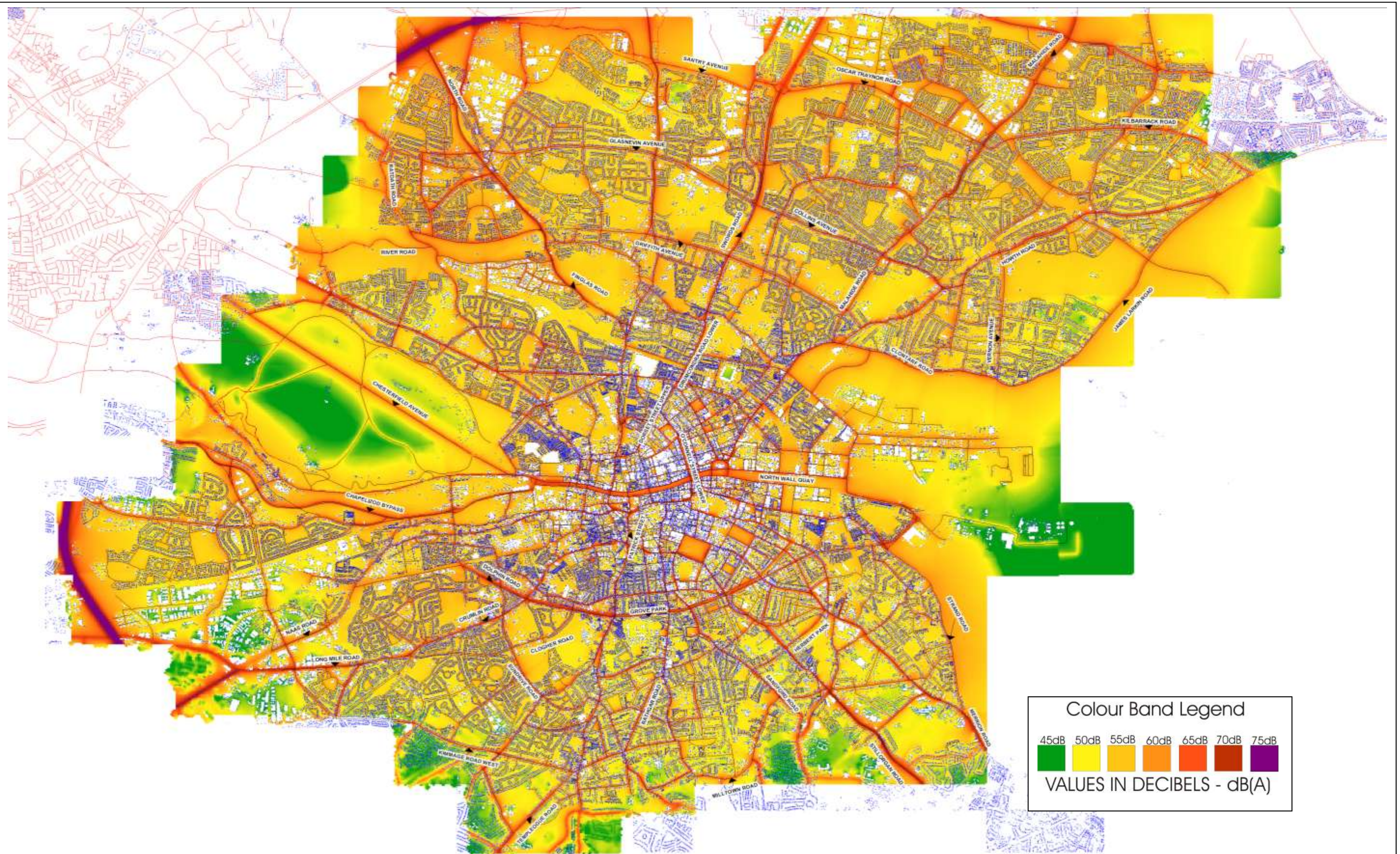
DUBLIN CITY COUNCIL AREA

Day Time Sound Levels from Traffic



DUBLIN CITY COUNCIL AREA

Night Time Sound Levels from Traffic

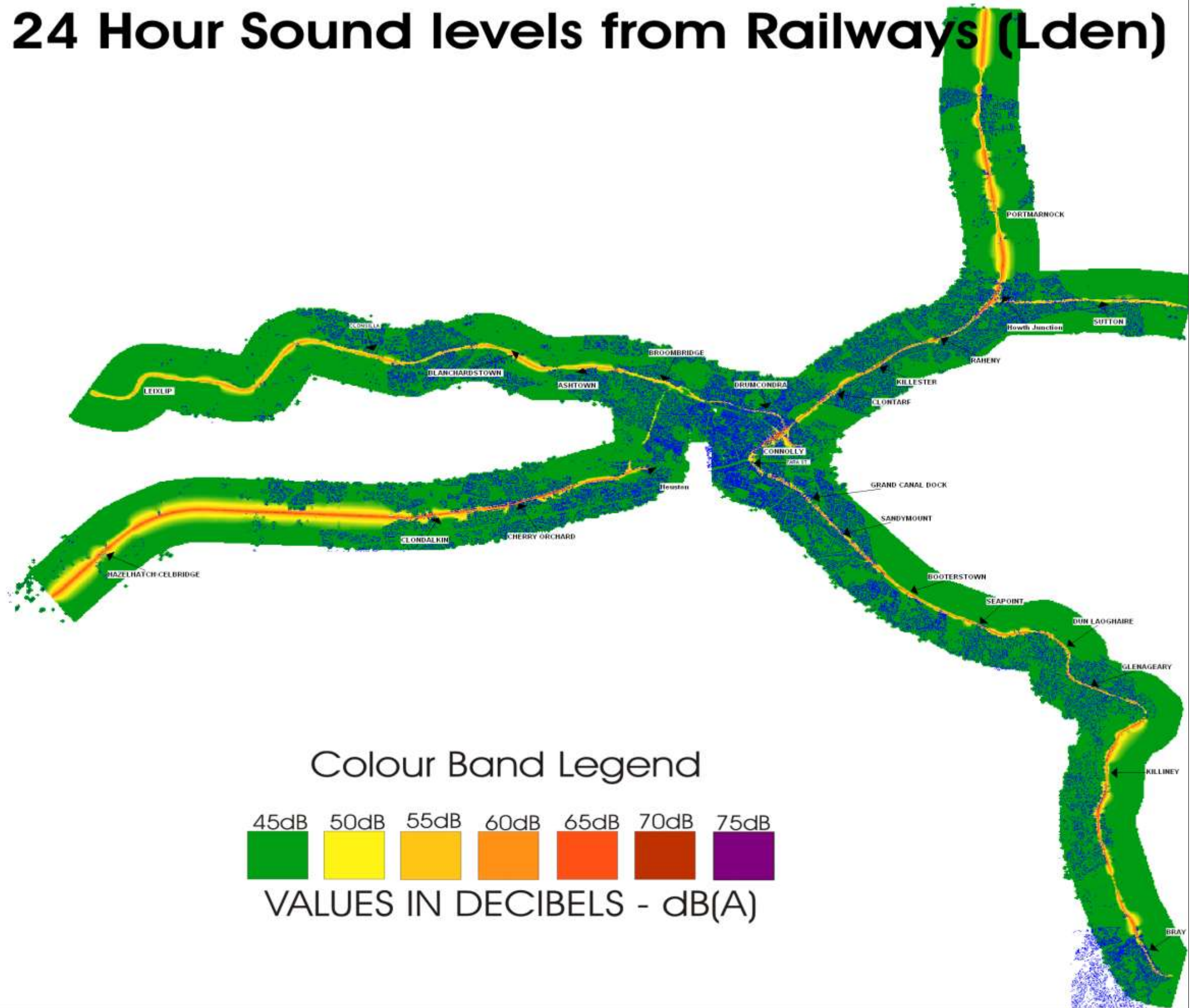


ANNEX 2
Dublin City Council
Railway Noise Maps and Tables

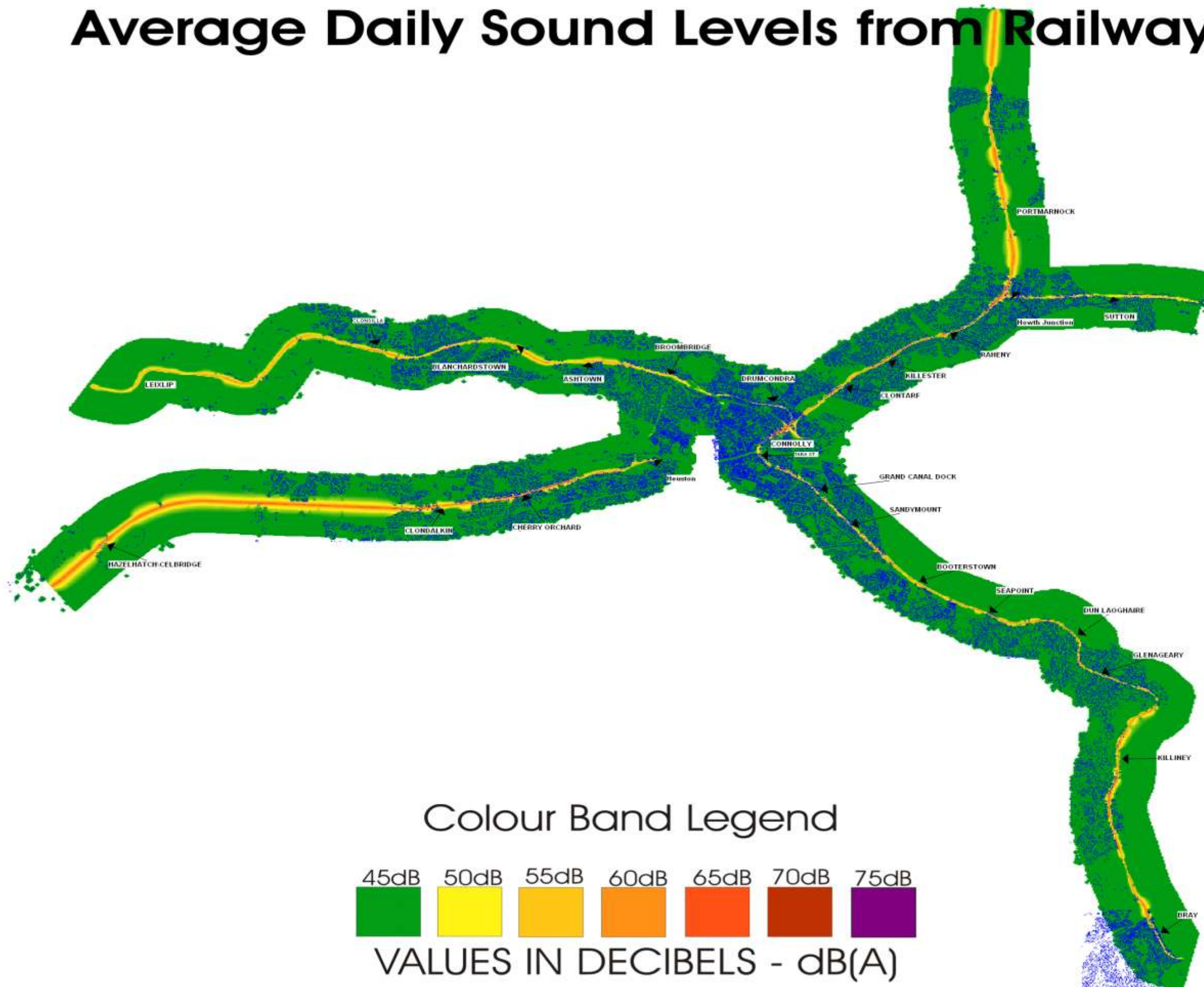
Population Exposure, From Rail, Dublin Agglomeration

All Rail Agglomeration	LDEN Total 24Hr AllRail Values Agglom	LDAY Total AllRail Day Values Agglom	LEVE Total AllRail Eve Values Agglom	LNIGHT Total AllRail Night Values Agglom	No. Of Total AllRail Agglom	QF QF	LDENQF No Of People with Quiet Façade Total All Rail Agglom	LNIGHT QF No Of People with Quiet Façade Total Rail Agglom	LDEN Area Exposed(Km2) Total All Rail Agglom	No.Of Dwellings Exposed (LDEN)Total All Rail Agglom
0-44	1114000	1137300	1143300	1162700	1074		4000	6900	0	455200
45-49	36400	22800	20200	11700	290		1200	2300	0	16200
50-54	16300	12500	11400	7400	527		1800	3200	0	7200
55-59	10000	7900	7000	3500	565		2700	2000	0	4400
60-64	6700	5100	4000	1400	949		3600	800	0	3200
65-69	2800	1300	700	100	574		1400	0	0	1400
70-74	500	0	0	0	156		300	0	0	200
>55	18800	13200	11200	4800	2235		8000	2800	7.2	8700
>65	3200	900	700	200	687		1700	100	0.93	1500
>=70	600	100	0	0	145		300	0	0	200
>=75	0	0	0	0	16		0	0	0.02	0
Total	1186700	1186900	1186600	1186800	4151		15000	15200	0	487800
Major Rail Agglomeration	LDEN Total MajorRail Values Agglom	LDAY Total MajorRail Day Values Agglom	LEVE Total MajorRail Eve Values Agglom	LNIGHT Total MajorRail Night Values Agglom	No. Of Total MajorRail Agglom	QF QF	LDENQF No Of People with Quiet Façade MajorRail Agglom	LNIGHTQF No Of People with Quiet Façade Total MajorRail Agglom	LDEN Area Exposed(Km2) Total MajorRail Agglom	No. Of Dwellings Exposed (LDEN)Total MajorRail Agglom
0-44	1118600	1140400	1146400	1163000	1422		5200	7100	0	456800
45-49	33500	20800	18100	11400	207		1000	2200	0	15100
50-54	15300	11700	10800	7400	364		1400	3200	0	6800
55-59	9500	7600	6900	3500	517		2500	2000	0	4400
60-64	6500	5000	4000	1400	916		3600	800	0	3200
65-69	2800	1300	700	100	559		1400	0	0	1400
70-74	500	0	0	0	150		300	0	0	200
>55	18400	13000	11000	4800	2137		7800	2800	4.22	8500
>65	3200	900	700	200	672		1700	100	0.86	1500
>=70	600	100	0	0	145		300	0	0	200
>=75	0	0	0	0	16		0	0	0.02	0
Total	1186700	1186800	1186900	1186800	4151		15400	15300	0	487900

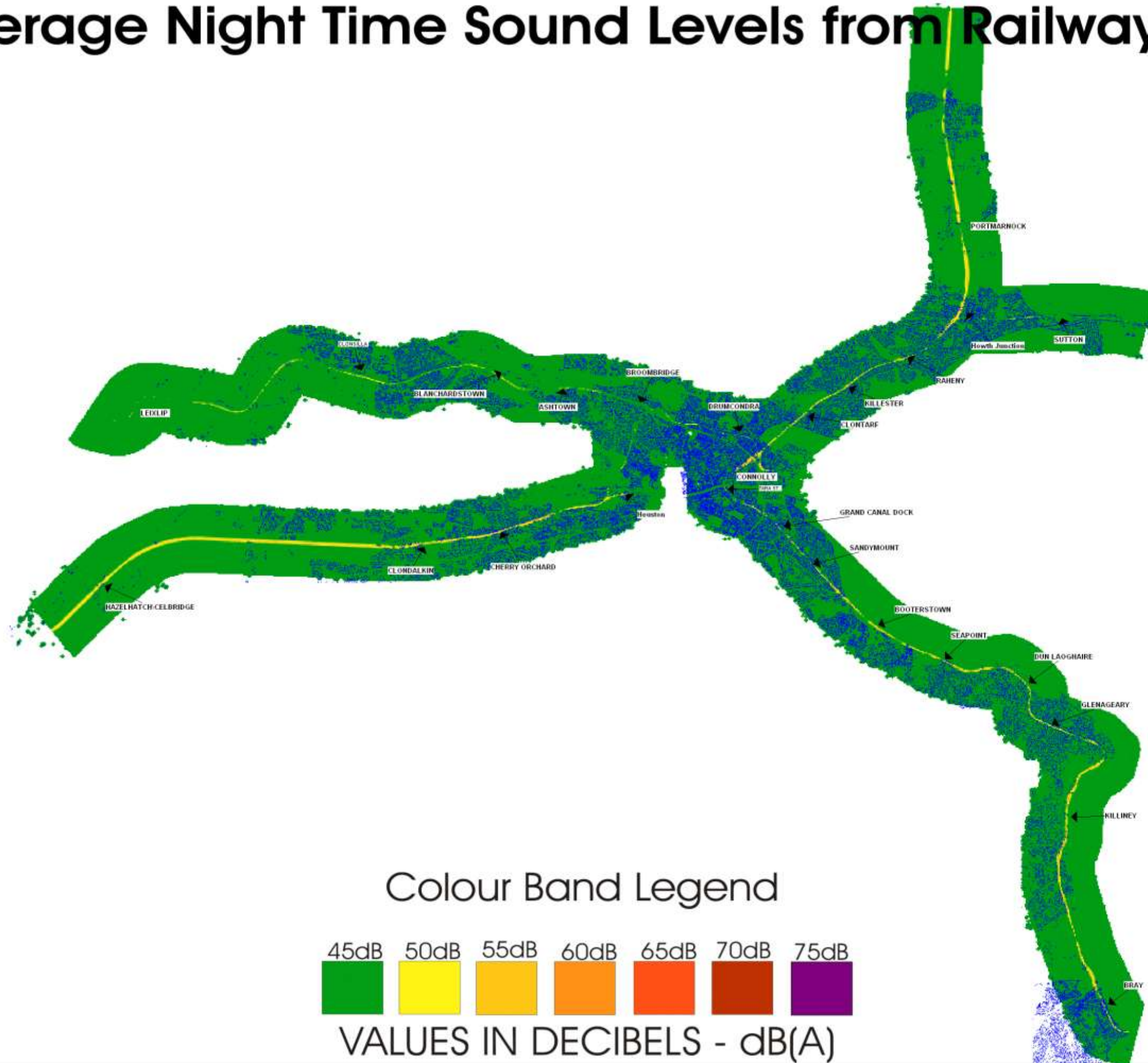
Average 24 Hour Sound levels from Railways (Lden)



Average Daily Sound Levels from Railways (LDay)



Average Night Time Sound Levels from Railways (Lnight)

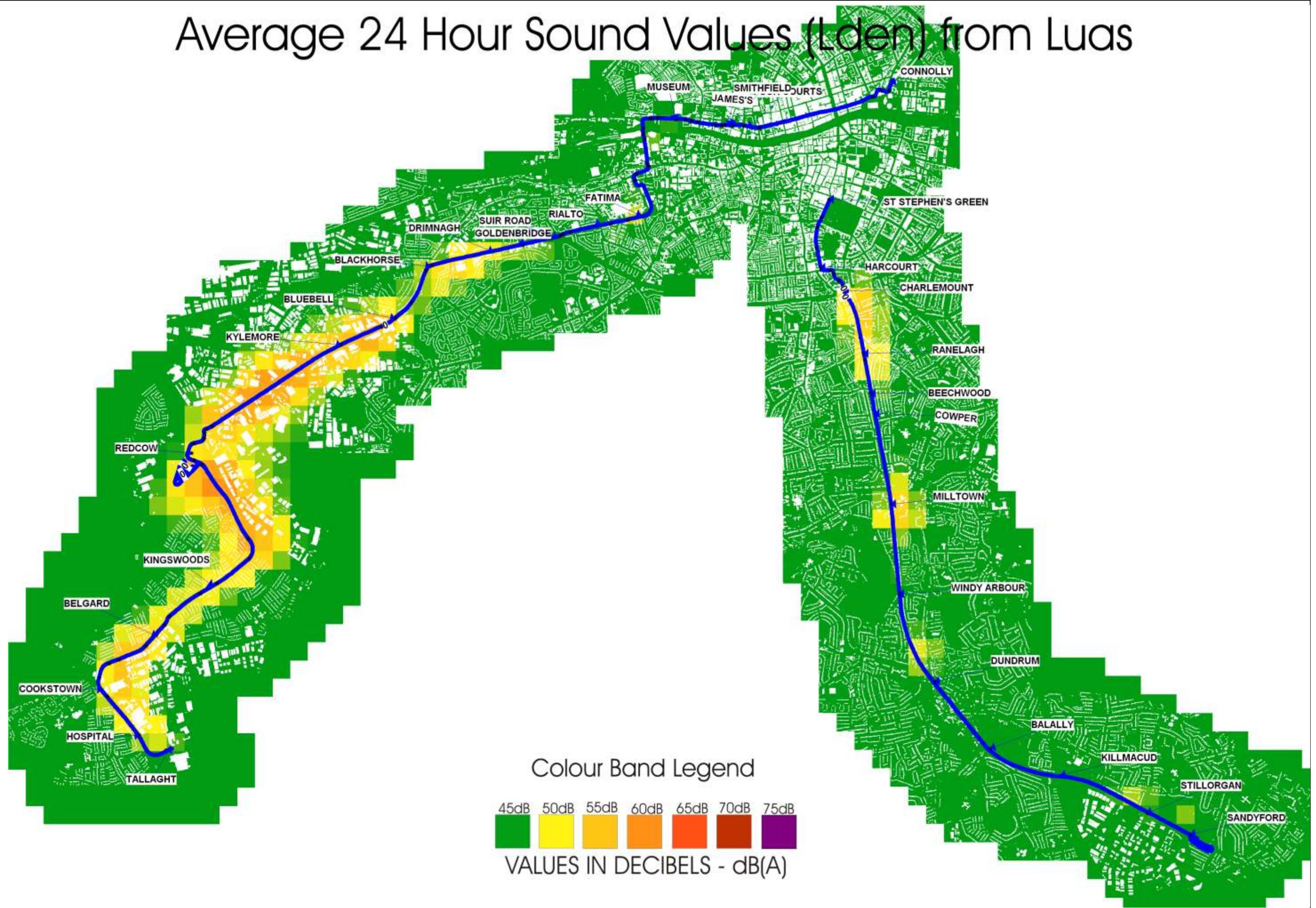


Population Exposure, From Luas, Dublin Agglomeration

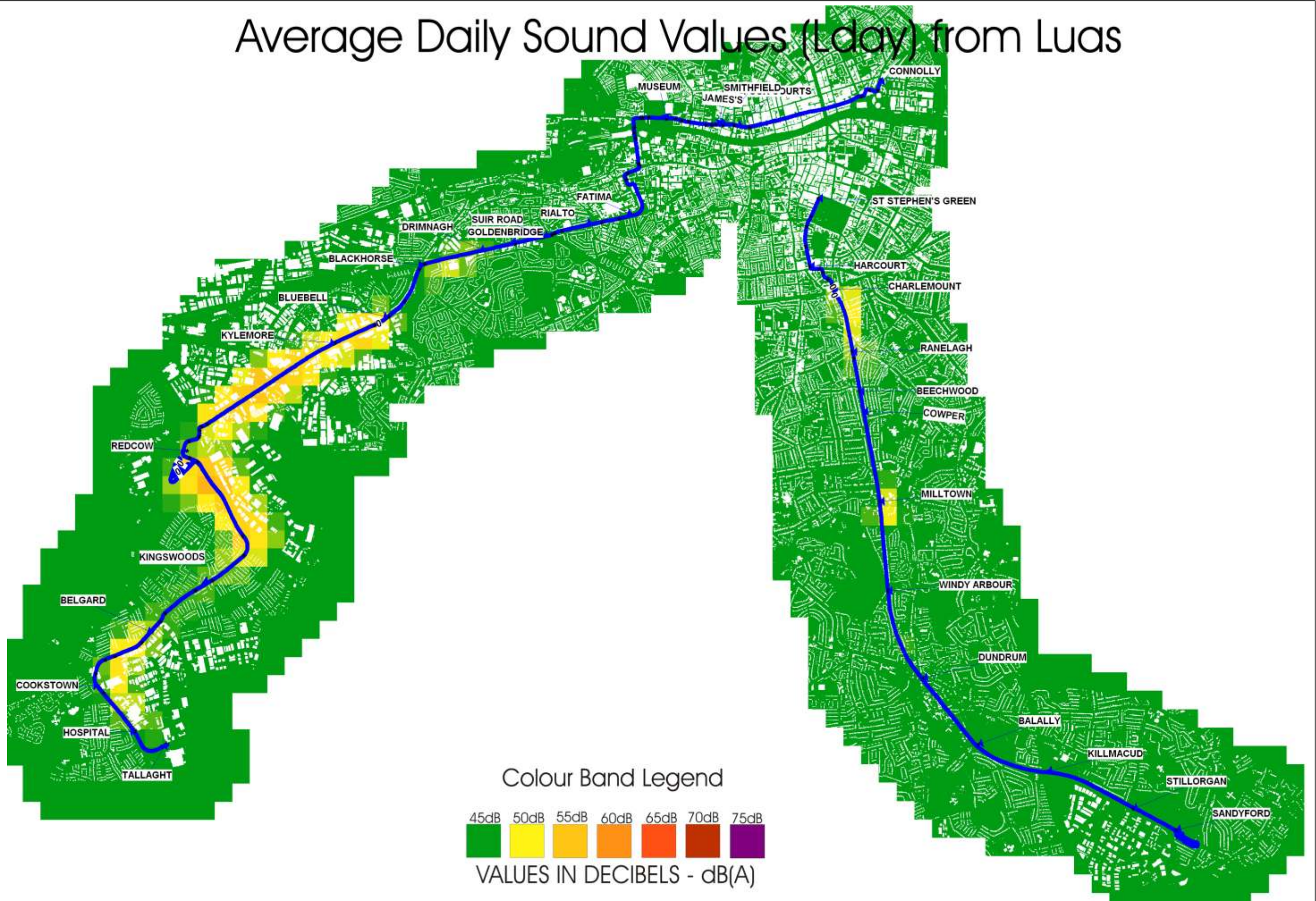
All Dublin Council	Luas City	LDEN Total Luas DCC	24HrAll Values	LDAY Total DayAll Values DCC	LEVE Total EveAll Luas Values DCC	LNIGHT Total NightAll Luas Values DCC	No. Of QF Total All LuasQF DCC	LDENQF No Of People with Quiet FaçadeTotal All Luas DCC	LNIGHTQF No Of People with Quiet FaçadeTotal All Luas DCC	LDEN Area Exposed Total All Luas DCC	No. Of Dwellings Exposed (LDEN)Total All Luas DCC
0-44		480400		489700	491500	495800	2	0	0	0	216200
45-49		12700		6400	5400	3200	1	0	100	0	6500
50-54		4600		3000	2800	2100	5	0	100	0	2300
55-59		2700		2300	2200	2000	23	200	700	0	1400
60-64		2000		2200	1900	1100	53	300	400	0	1100
65-69		1800		800	400	100	251	700	0	0	1000
70-74		400		0	0	0	34	100	0	0	200
>55		6900		5000	4500	3100	367	1400	1000	0	3500
>65		2100		600	500	200	278	800	0	0	1200
>=70		400		100	0	0	33	100	0	0	200
>=75		0		0	0	0	7	0	0	0	0
Total		504600		504400	504200	504300	376	1300	1300		228700

All County	Luas	LDEN Total Luas County	24HrAll Values	LDAY Total DayAll Luas County	LEVE Total EveAll Luas Values County	LNIGHT Total NightAll Luas Values County	No. Of QF Total All LuasQF County	LDENQF No Of People with Quiet FaçadeTotal All County	LNIGHTQF No Of People with Quiet FaçadeTotal All County	LDEN Area Exposed Total All Luas County	No. Of Dwellings Exposed (LDEN)Total All Luas County
0-44		667200		672600	674800	677300	219	600	800	0	253900
45-49		8000		5400	4000	2500	104	200	100	0	2800
50-54		3800		2200	1900	1600	60	100	400	0	1300
55-59		1900		1200	1100	700	113	200	200	0	700
60-64		900		600	600	300	188	300	100	0	200
65-69		500		300	200	0	104	100	0	0	100
70-74		100		0	0	0	59	100	0	0	0
>55		3400		2000	1500	900	464	700	400	0	1100
>65		600		200	100	0	155	200	0	0	100
>=70		100		0	0	0	54	100	0	0	0
>=75		0		0	0	0	1	0	0	0	0
Total		682400		682300	682600	682400	848	1600	1600		259000

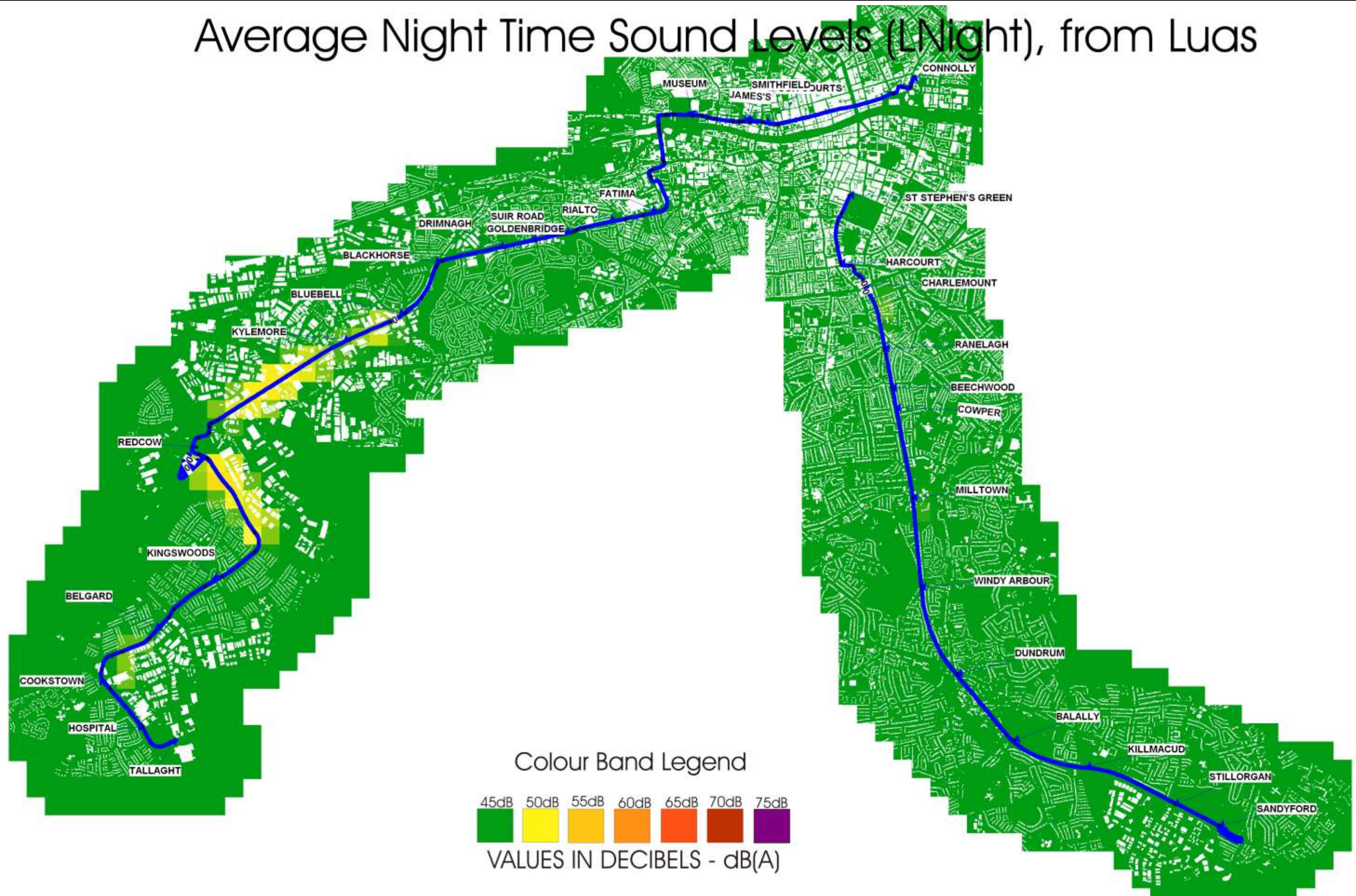
Average 24 Hour Sound Values (L_{den}) from Luas



Average Daily Sound Values (L_{day}) from Luas



Average Night Time Sound Levels (L_{Night}), from Luas



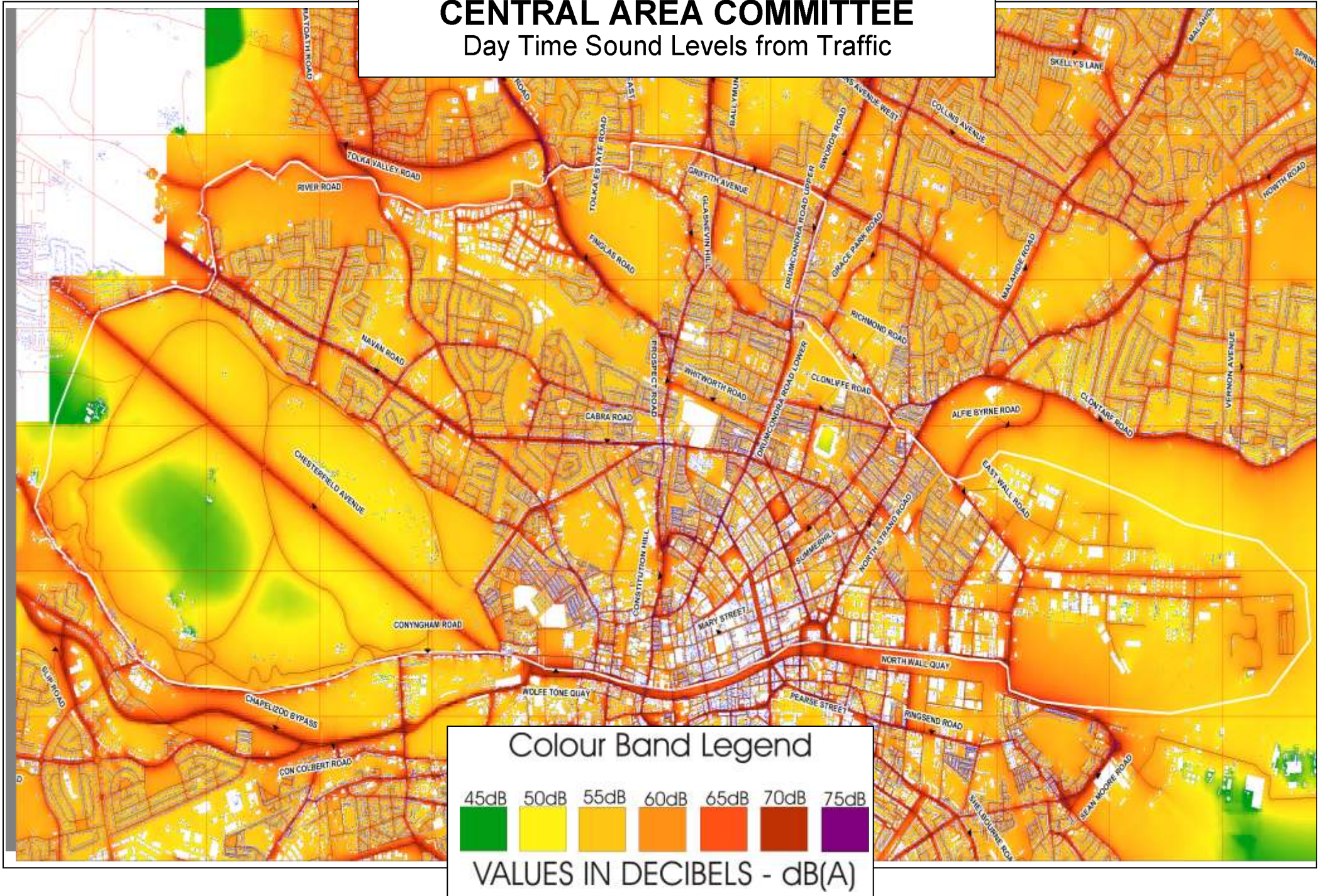
ANNEX 3
Central Area Committee
Noise Maps and Tables
For Road Traffic

Population Exposure Central Area

Central Area	All Road Sources (dB(A))	24 Hour Value Lden -(dB(A))	Daily Value(7am-7pm) Lday-(dB(A))	Evening Value 7pm 11pm Levening -(dB(A))	NightTime Value 11pm - 7am Lnigt -(dB(A))	No. of Quiet Facades	No. of People with Quiet Façade 24Hr Value	No. of People with Quiet Façade at Night.	No. of Dwelling exposed over an average 24Hr day
	0-44	0	0	0	4	0	0	0	0
	45-49	0	77	8	252	0	0	0	0
	50-54	8	4736	5048	29009	0	0	0	4
	55-59	5527	42980	44292	36888	0	0	0	2692
	60-64	52945	29524	31261	27036	0	0	0	26307
	65-69	21057	20130	19473	10806	0	0	2	10692
	70-74	21631	6876	4365	323	1	0	0	11188
	>55	104675	99821	99563	75068	2	2	2	52706
	>65	46030	27045	23795	11125	2	2	2	23618
	>=70	24962	6907	4345	323	2	2	0	12921
	>=75	3351	40	6	0	1	2	0	1743
	Total	104519	104363	104453	104318	2	2	2	52626
Central Area	Major Road Sources (dB(A))	24 Hour Value Lden -(dB(A))	Daily Value(7am-7pm) Lday-(dB(A))	Evening Value 7pm 11pm Levening -(dB(A))	NightTime Value 11pm - 7am Lnigt -(dB(A))	No. of Quiet Facades	No. of People with Quiet Façade 24Hr Value	No. of People with Quiet Façade at Night.	No. of Dwelling exposed over an average 24Hr day
	0-44	75	31416	37687	31249	0	0	0	43
	45-49	21023	33608	29839	37686	0	0	0	10325
	50-54	39559	13701	12575	11897	0	0	0	20006
	55-59	17352	6148	5489	3521	0	0	6	8759
	60-64	4981	3488	4759	11759	0	0	1481	2552
	65-69	5897	10978	10893	8394	2	13	4789	2952
	70-74	13041	5131	3382	127	527	5017	106	6625
	>55	43894	25908	24542	23801	662	6384	6384	22271
	>65	21593	16162	14275	8521	662	6384	4895	10972
	>=70	15676	5142	3388	127	660	6371	106	8011
	>=75	2645	21	12	0	132	1352	0	1390

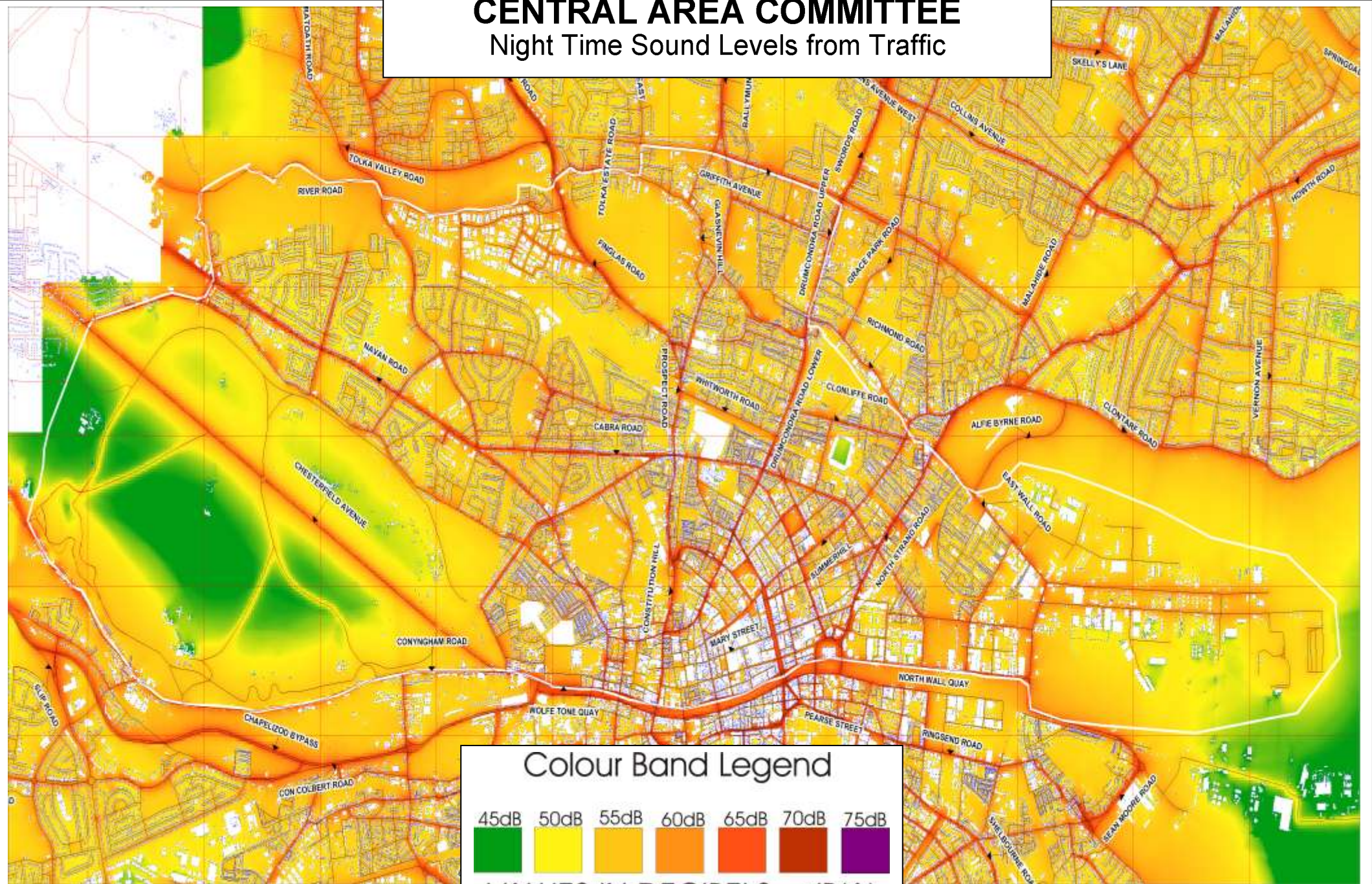
CENTRAL AREA COMMITTEE

Day Time Sound Levels from Traffic



CENTRAL AREA COMMITTEE

Night Time Sound Levels from Traffic



Colour Band Legend

45dB 50dB 55dB 60dB 65dB 70dB 75dB

VALUES IN DECIBELS - dB(A)

CENTRAL AREA COMMITTEE

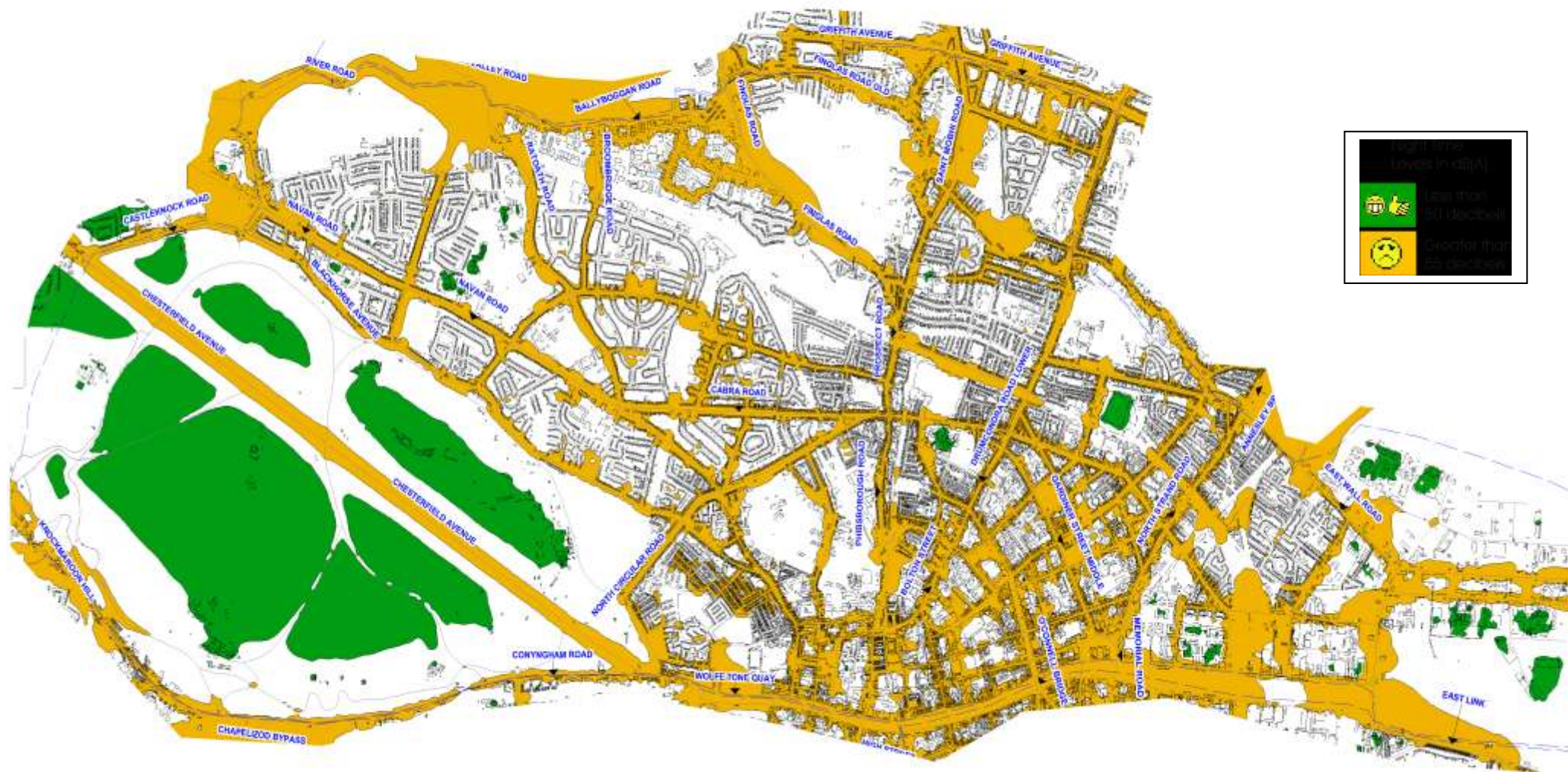
Day Time Sound Levels from Traffic



Regions of Desirable ■ & Undesirable Sound Levels ■
 White Region - Acceptable

CENTRAL AREA COMMITTEE

Night Time Sound Levels from Traffic



Regions of Desirable ■ & Undesirable Sound Levels ■
 White Region - Acceptable

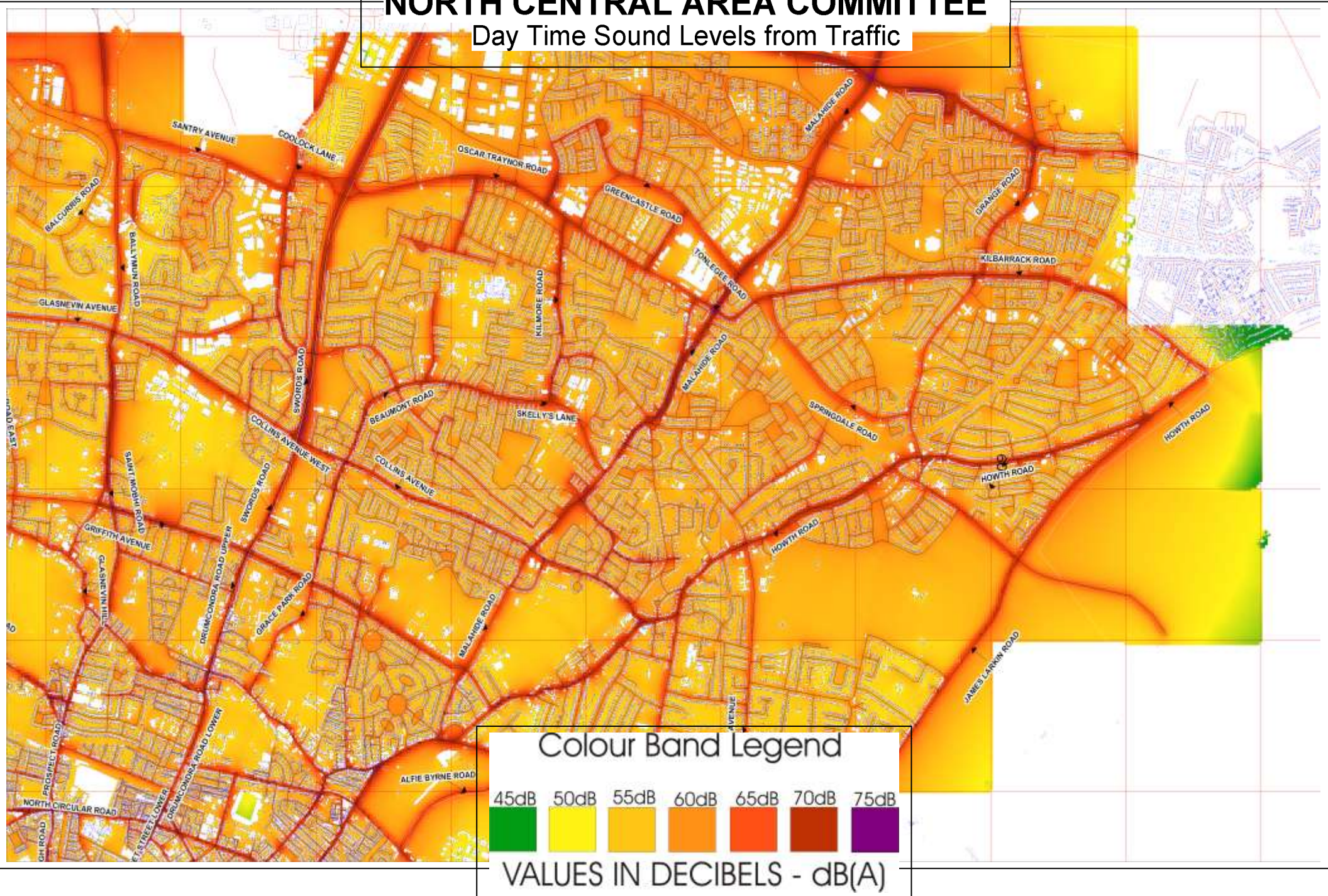
ANNEX 4
North Central Area Committee
Noise Maps and Tables
For Road Traffic

North Central Area Population Exposure

Nth. Central Area	All Road Sources (dB(A))	24 Hour Value Lden (dB(A))	Daily Value(7am-7pm) Lday-(dB(A))	Evening Value 7pm-11pm Levening (dB(A))	NightTime Value 11pm - 7am Lnight (dB(A))	No. of Quiet Facades	No. of People with Quiet Façade 24Hr Value	No. of People with Quiet Façade at Night.	No. of Dwelling exposed over an average 24Hr day
	0-44	0	0	14	0	0	0	0	0
	45-49	0	2	2	402	0	0	0	0
	50-54	2	3770	3898	65554	0	0	0	1
	55-59	6290	84578	86672	45014	0	0	0	2688
	60-64	93576	27232	26757	15785	0	0	0	35282
	65-69	21124	11684	10038	873	0	0	0	7960
	70-74	6685	439	259	0	0	0	0	2701
	>55	127922	124055	123973	61350	0	0	0	48722
	>65	27781	12097	10279	864	0	0	0	10652
	>=70	6755	437	259	0	0	0	0	2728
	>=75	107	0	0	0	0	0	0	42
	Total	127784	127705	127640	127628	0	0	0	48674
Nth. Central Area	Major Road Sources (dB(A))	24 Hour Value Lden (dB(A))	Daily Value(7am-7pm) Lday-(dB(A))	Evening Value 7pm-11pm Levening (dB(A))	NightTime Value 11pm - 7am Lnight (dB(A))	No. of Quiet Facades	No. of People with Quiet Façade 24Hr Value	No. of People with Quiet Façade at Night.	No. of Dwelling exposed over an average 24Hr day
	0-44	7696	61343	68791	45233	0	0	0	2542
	45-49	25177	32108	27577	52059	0	0	0	9366
	50-54	54577	13810	12299	14772	0	0	0	20989
	55-59	19693	7226	6221	6166	0	0	0	7611
	60-64	7566	3956	4784	8979	0	0	286	2934
	65-69	8523	8645	7426	647	43	98	69	3357
	70-74	4392	752	556	0	74	243	0	1810
	>55	40247	20595	18932	15799	122	355	355	15742
	>65	12994	9374	7958	643	122	355	69	5201
	>=70	4432	748	556	0	79	257	0	1828
	>=75	64	0	0	0	5	14	0	27

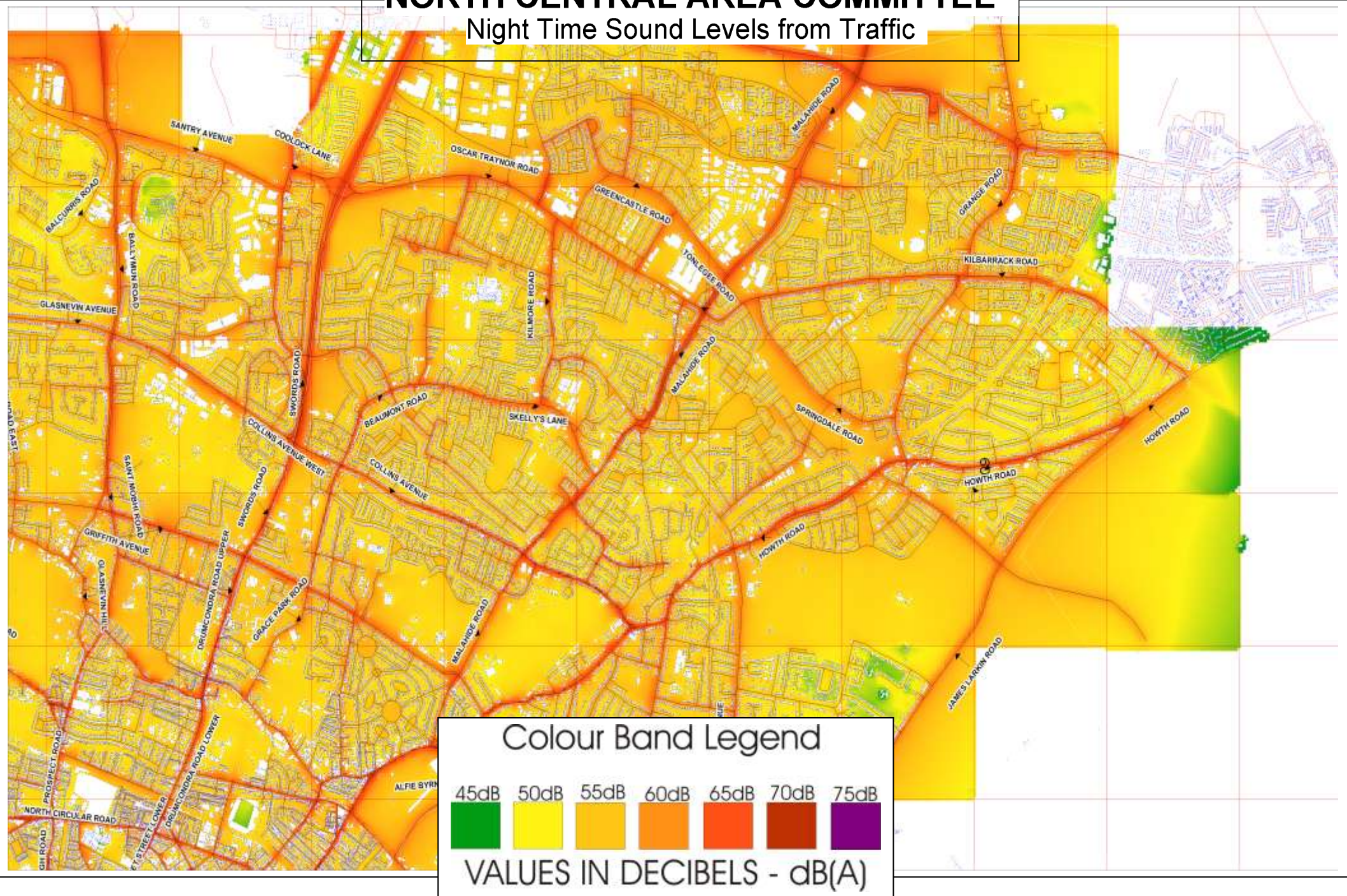
NORTH CENTRAL AREA COMMITTEE

Day Time Sound Levels from Traffic



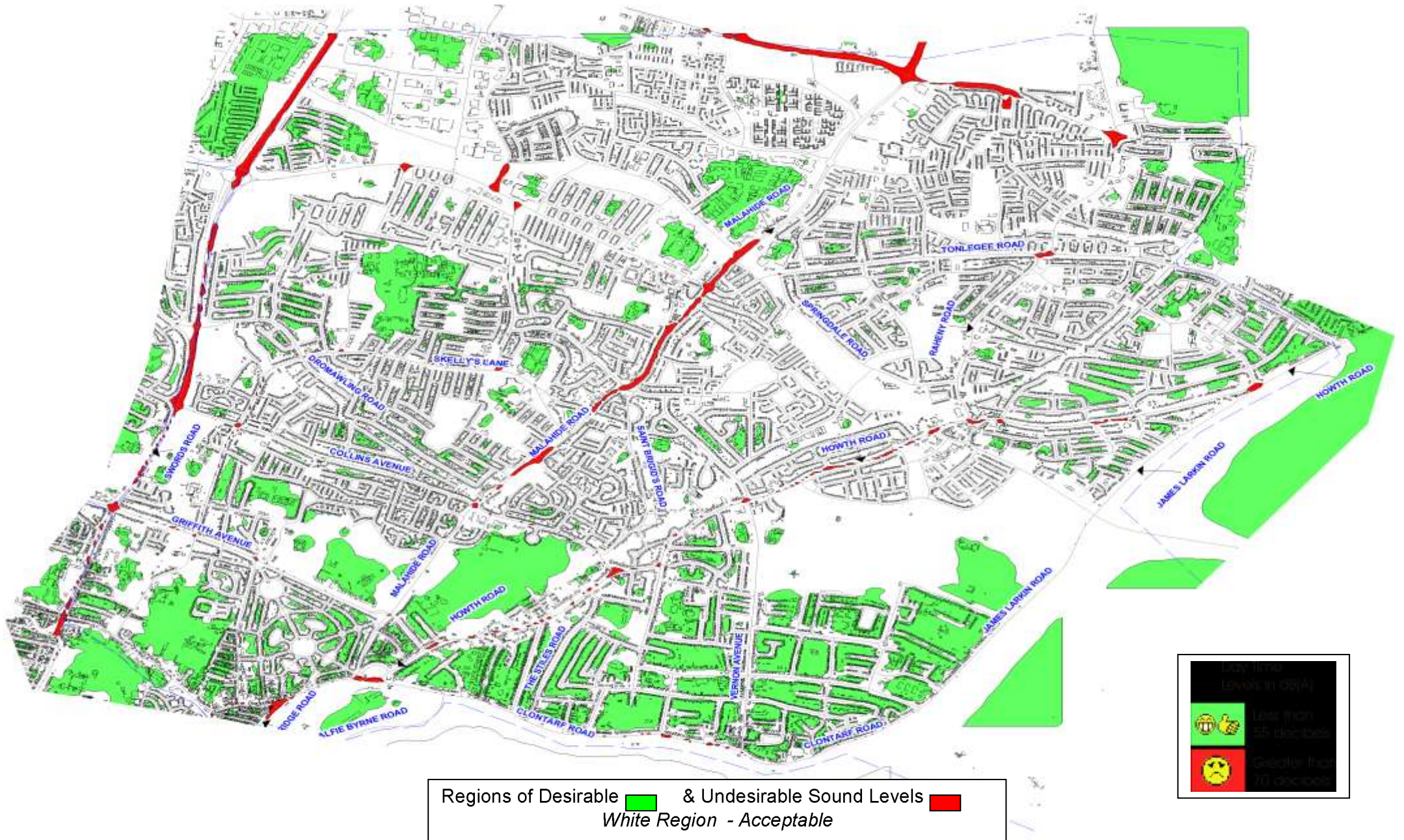
NORTH CENTRAL AREA COMMITTEE

Night Time Sound Levels from Traffic



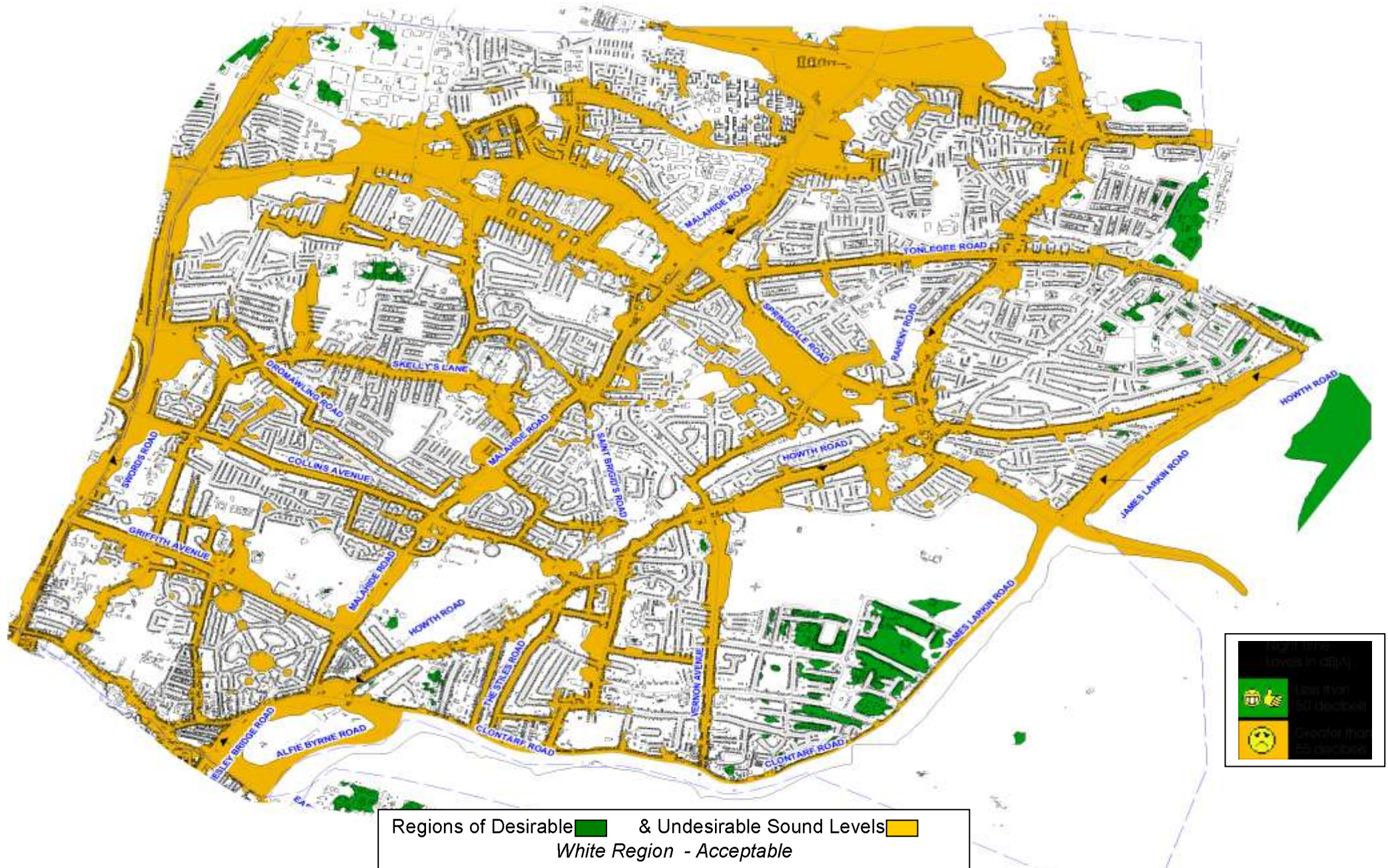
NORTH CENTRAL AREA COMMITTEE

Day Time Sound Levels from Traffic



NORTH CENTRAL AREA COMMITTEE

Night Time Sound Levels from Traffic



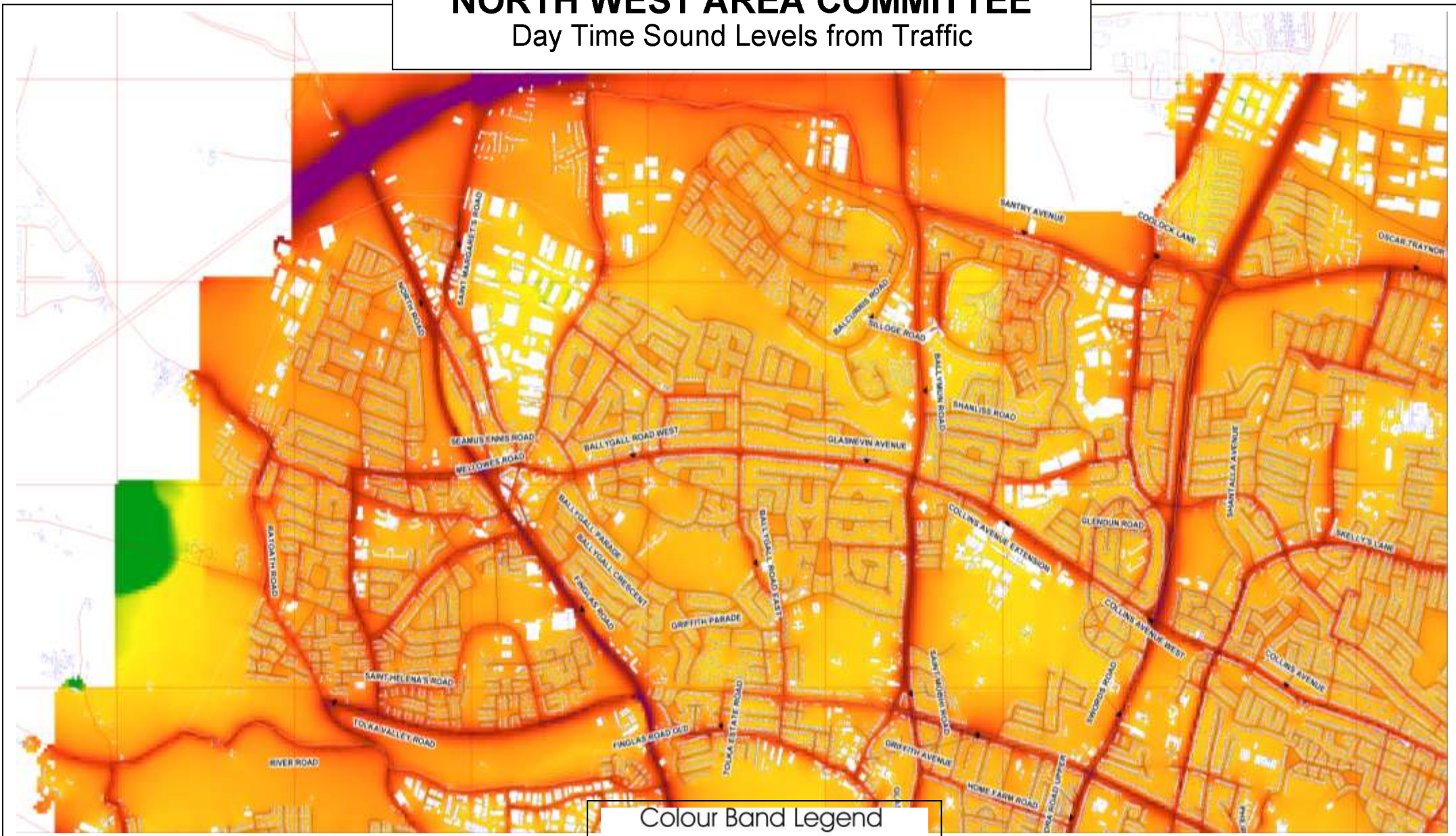
ANNEX 5
North West Area Committee
Noise Maps and Tables
For Road Traffic

Population Exposure North West Area

Nth. West Area	All Road Sources (dB(A))	24 Hour Value Lden (dB(A))	Daily Value(7am-7pm) Lday-(dB(A))	Evening Value 7pm 11pm Levening (dB(A))	NightTime Value 11pm - 7am Lnight (dB(A))	No. of Quiet Facades	No. of People with Quiet Façade 24Hr Value	No. of People with Quiet Façade at Night.	No. of Dwelling exposed over an average 24Hr day
	0-44	0	0	0	0	0	0	0	0
	45-49	0	0	0	169	0	0	0	0
	50-54	0	2556	2613	21886	0	0	0	0
	55-59	3695	37557	38192	29315	0	0	0	1515
	60-64	37432	16701	17137	9205	0	0	0	14520
	65-69	17534	3976	2963	538	0	0	0	7031
	70-74	2424	362	320	0	0	0	0	914
	>55	61311	58737	58683	39040	0	0	0	24079
	>65	20101	4321	3276	533	0	0	0	8013
	>=70	2596	359	320	0	0	0	0	992
	>=75	179	0	0	0	0	0	0	81
	Total	61264	61152	61225	61113	0	0	0	24061
Nth. West Area	Major Road Sources (dB(A))	24 Hour Value Lden (dB(A))	Daily Value(7am-7pm) Lday-(dB(A))	Evening Value 7pm 11pm Levening (dB(A))	NightTime Value 11pm - 7am Lnight (dB(A))	No. of Quiet Facades	No. of People with Quiet Façade 24Hr Value	No. of People with Quiet Façade at Night.	No. of Dwelling exposed over an average 24Hr day
	0-44	6665	24293	27165	24750	37	85	279	2622
	45-49	12002	17084	16787	18759	60	155	83	4866
	50-54	19783	10346	8607	10712	36	105	33	7675
	55-59	12996	4170	3934	4168	14	36	391	5021
	60-64	4816	2893	2549	2648	11	184	689	1901
	65-69	3700	2176	2117	238	172	473	119	1467
	70-74	1244	289	32	0	51	554	0	483
	>55	22786	9539	8637	7043	249	1249	1199	8887
	>65	4960	2465	2147	238	224	1029	119	1958
	>=70	1256	289	32	0	51	554	0	489
	>=75	12	0	0	0	0	0	0	6

NORTH WEST AREA COMMITTEE

Day Time Sound Levels from Traffic



Colour Band Legend

45dB 50dB 55dB 60dB 65dB 70dB 75dB

VALUES IN DECIBELS - dB(A)

NORTH WEST AREA COMMITTEE

Night Time Sound Levels from Traffic

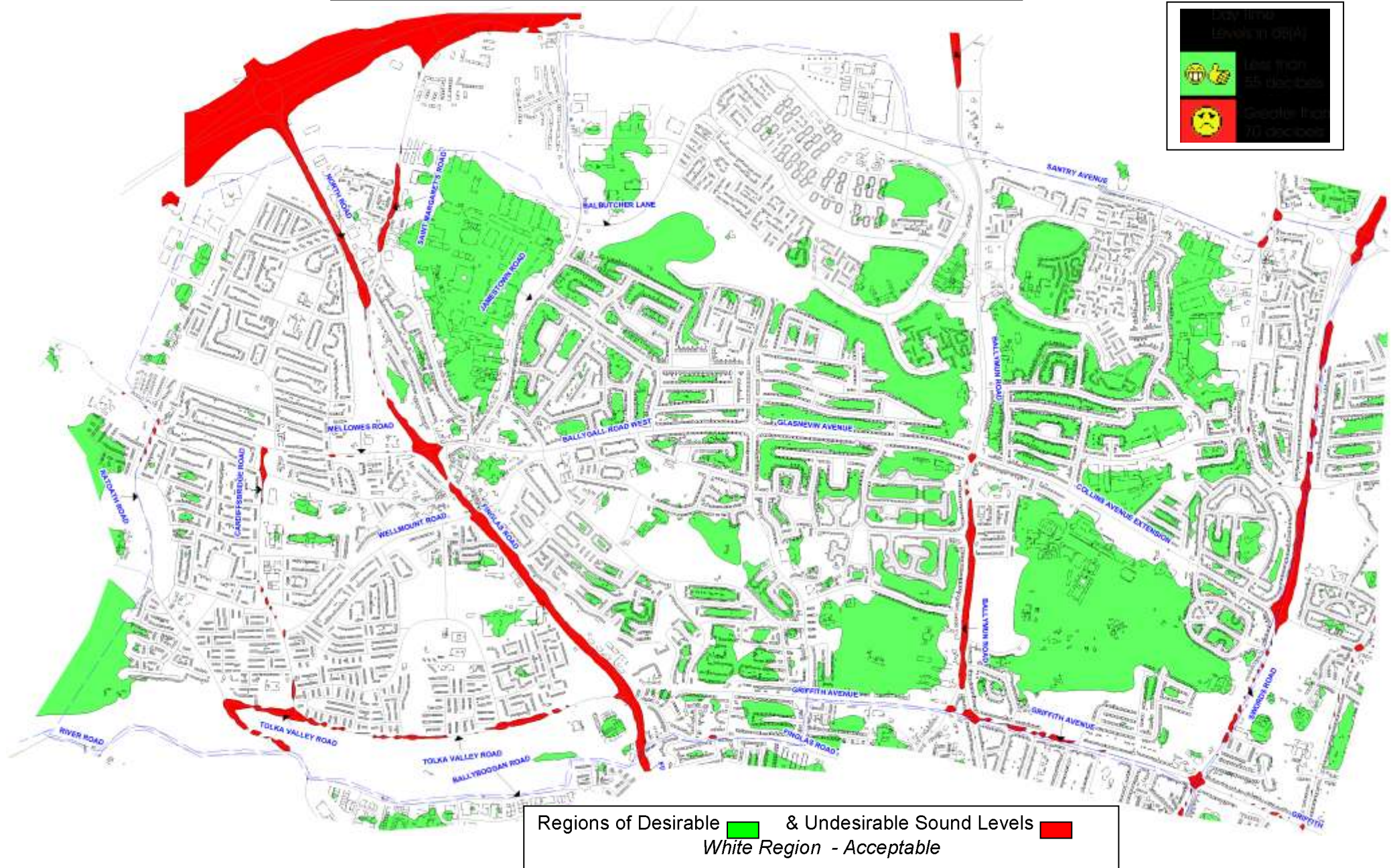


Colour Band Legend



NORTH WEST AREA COMMITTEE

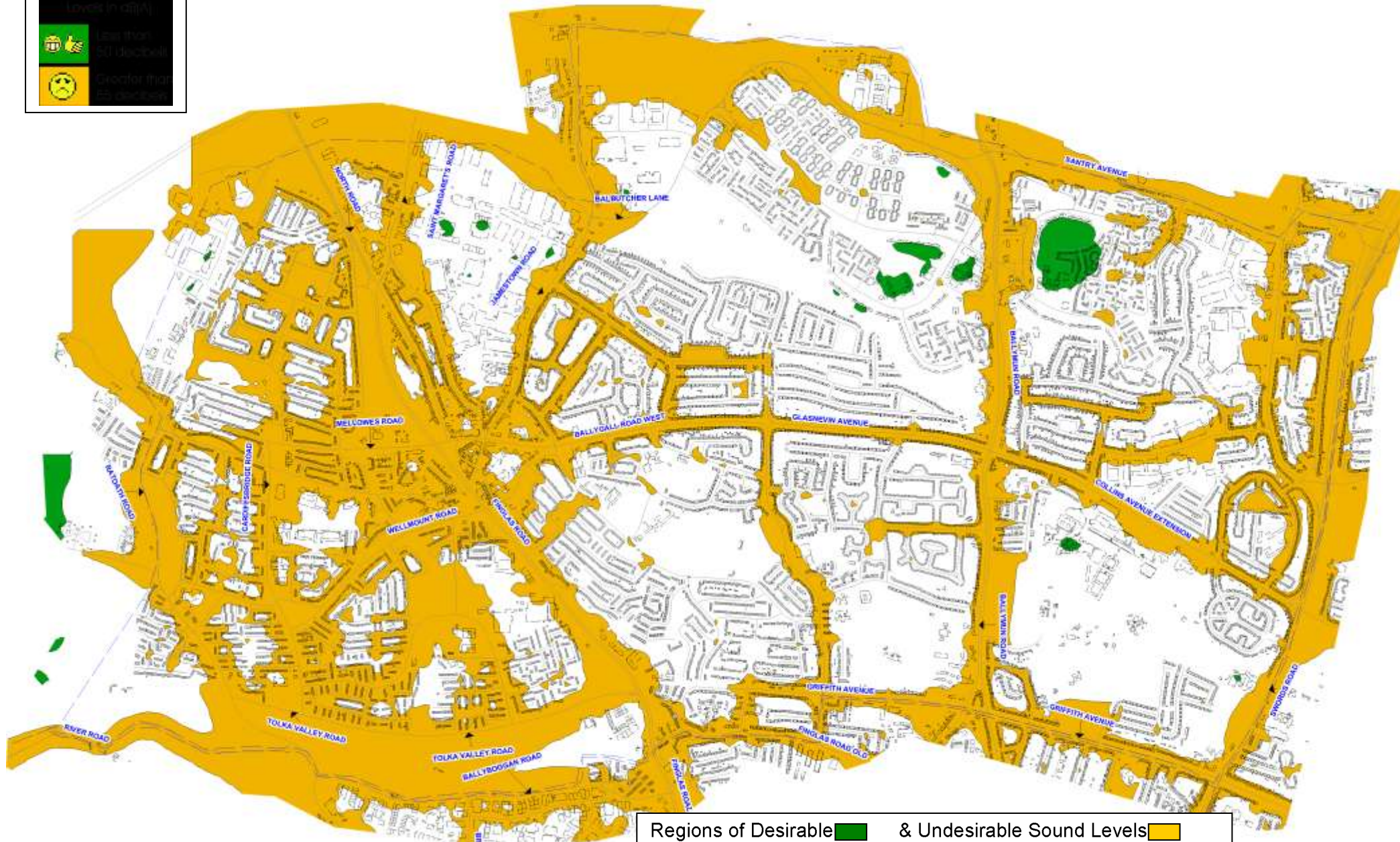
Day Time Sound Levels from Traffic



NORTH WEST AREA COMMITTEE

Night Time Sound Levels from Traffic

NORTH WEST AREA COMMITTEE
Night Time Sound Levels from Traffic



Regions of Desirable  & Undesirable Sound Levels 
White Region - Acceptable

ANNEX 6

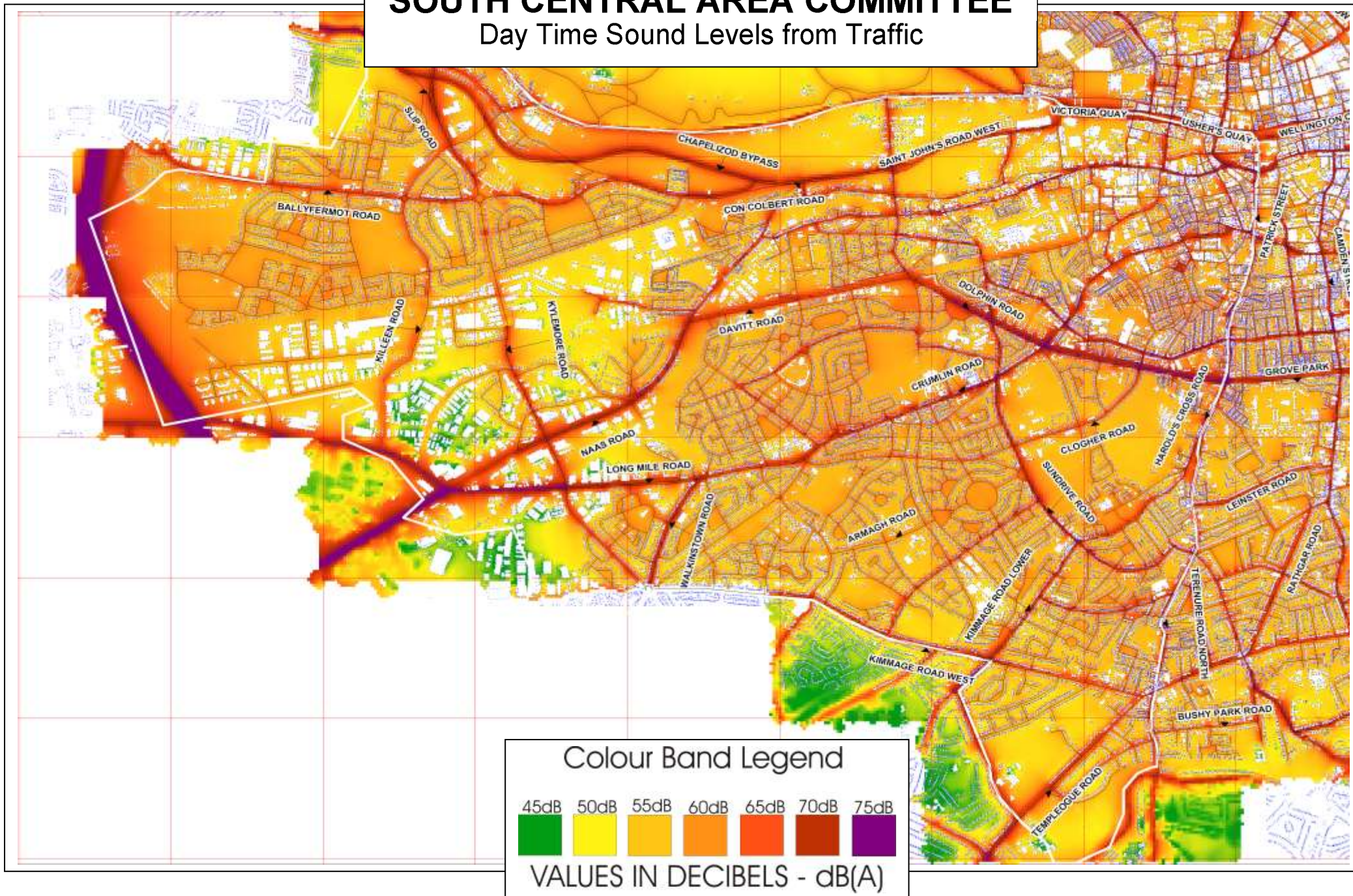
South Central Area Committee Noise Maps and Tables For Road Traffic

Population Exposure South Central Area

Sth. Central Area	All Road Sources (dB(A))	24 Hour Value Lden -(dB(A))	Daily Value(7am-7pm) Lday -(dB(A))	Evening Value 7pm 11pm Levening - (dB(A))	NightTime Value 11pm - 7am Lnight -(dB(A))	No. of Quiet Facades	No. of People with Quiet Façade 24Hr Value	No. of People with Quiet Façade at Night.	No. of Dwelling exposed over an average 24Hr day
	0-44	0	0	0	0	0	0	0	0
	45-49	0	35	35	552	0	0	0	0
	50-54	37	3497	4189	49459	0	0	0	15
	55-59	9568	53502	53972	32695	0	0	0	4562
	60-64	63839	28915	29931	18137	0	0	0	29471
	65-69	18199	15794	15513	7012	0	0	4	8662
	70-74	13925	6147	4222	158	0	0	4	6797
	>55	108177	104647	103963	57953	4	8	8	50848
	>65	34625	22059	19758	7064	4	8	8	16749
	>=70	16401	6248	4252	158	4	8	4	8075
	>=75	2508	122	51	0	4	8	0	1294
	Total	108076	108012	107913	108013	4	8	8	50801
Sth. Central Area	Major Road Sources (dB(A))	24 Hour Value Lden -(dB(A))	Daily Value(7am-7pm) Lday -(dB(A))	Evening Value 7pm 11pm Levening - (dB(A))	NightTime Value 11pm - 7am Lnight -(dB(A))	No. of Quiet Facades	No. of People with Quiet Façade 24Hr Value	No. of People with Quiet Façade at Night.	No. of Dwelling exposed over an average 24Hr day
	0-44	8387	40470	45300	42173	0	0	0	3584
	45-49	24001	25424	22799	30961	0	0	0	11360
	50-54	33297	12770	11997	12870	0	0	0	16103
	55-59	14790	7235	6527	6207	0	0	130	6866
	60-64	7550	6207	6685	11119	3	6	1979	3248
	65-69	7762	11137	11316	4808	278	646	1458	3561
	70-74	10302	4856	3532	19	705	2493	4	5022
	>55	42382	29501	28090	22178	1079	3573	3573	19747
	>65	20041	16031	14854	4819	1076	3567	1458	9632
	>=70	12262	4882	3551	19	797	2919	4	6063
	>=75	1956	49	21	0	91	426	0	1039

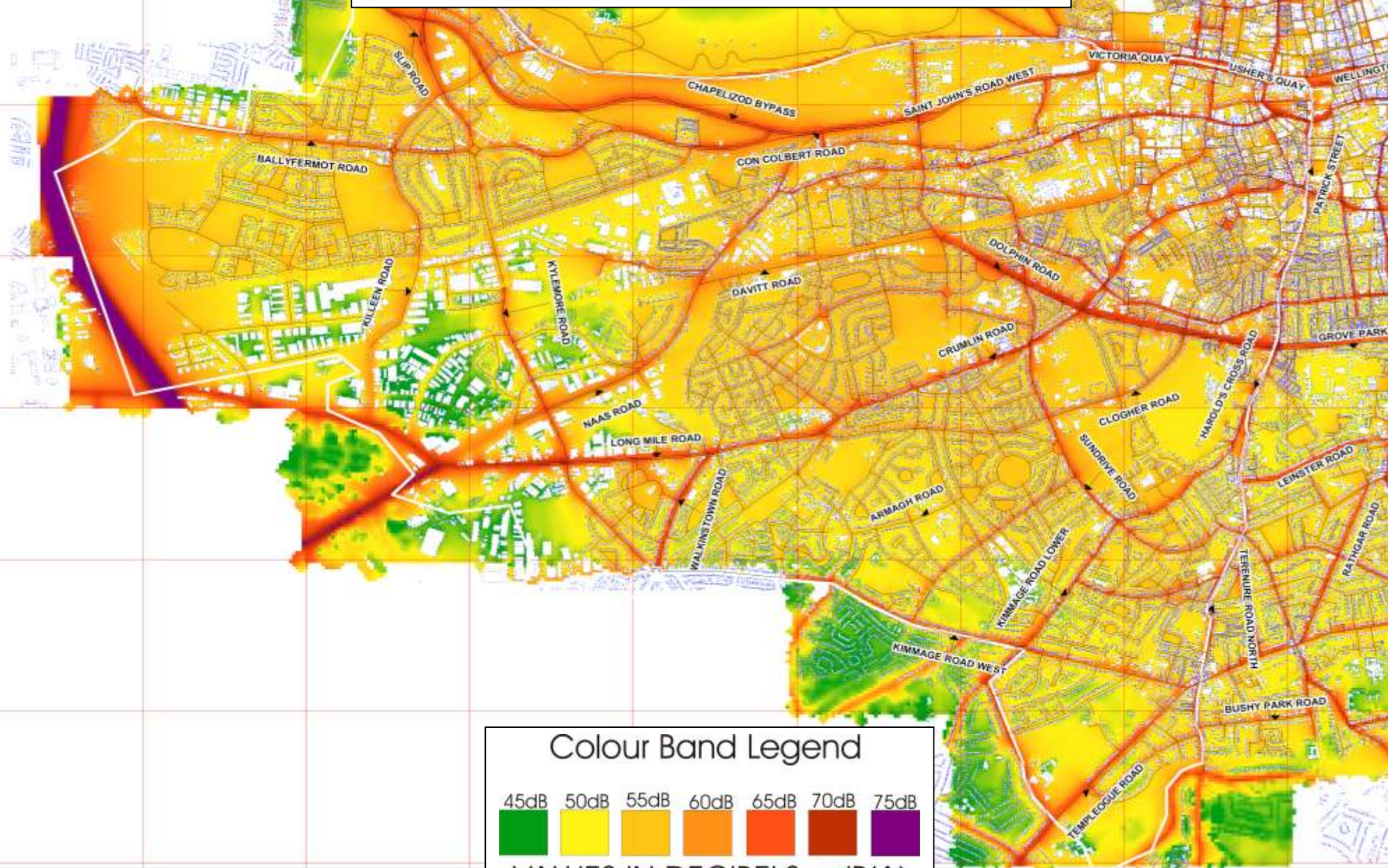
SOUTH CENTRAL AREA COMMITTEE

Day Time Sound Levels from Traffic



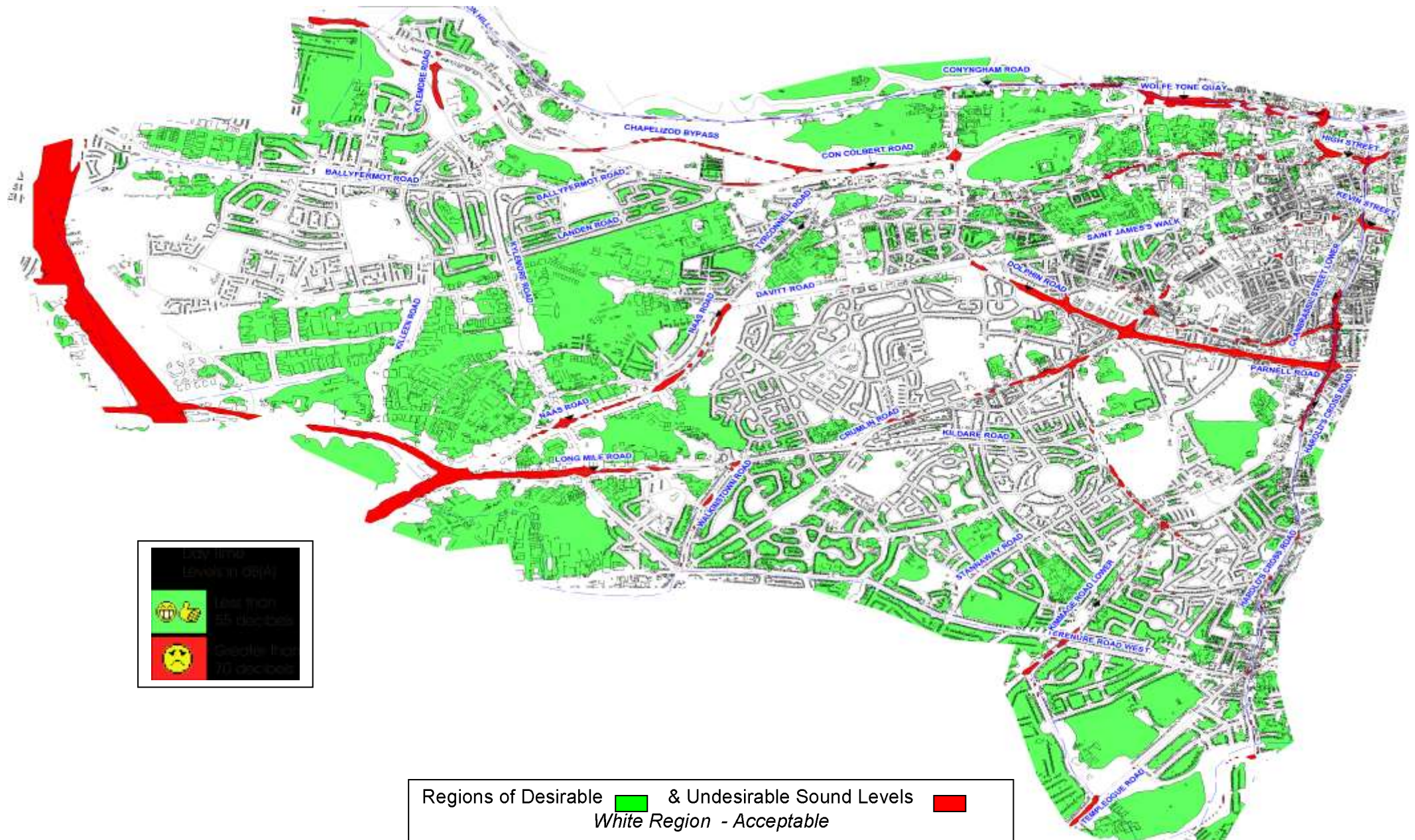
SOUTH CENTRAL AREA COMMITTEE

Night Time Sound Levels from Traffic



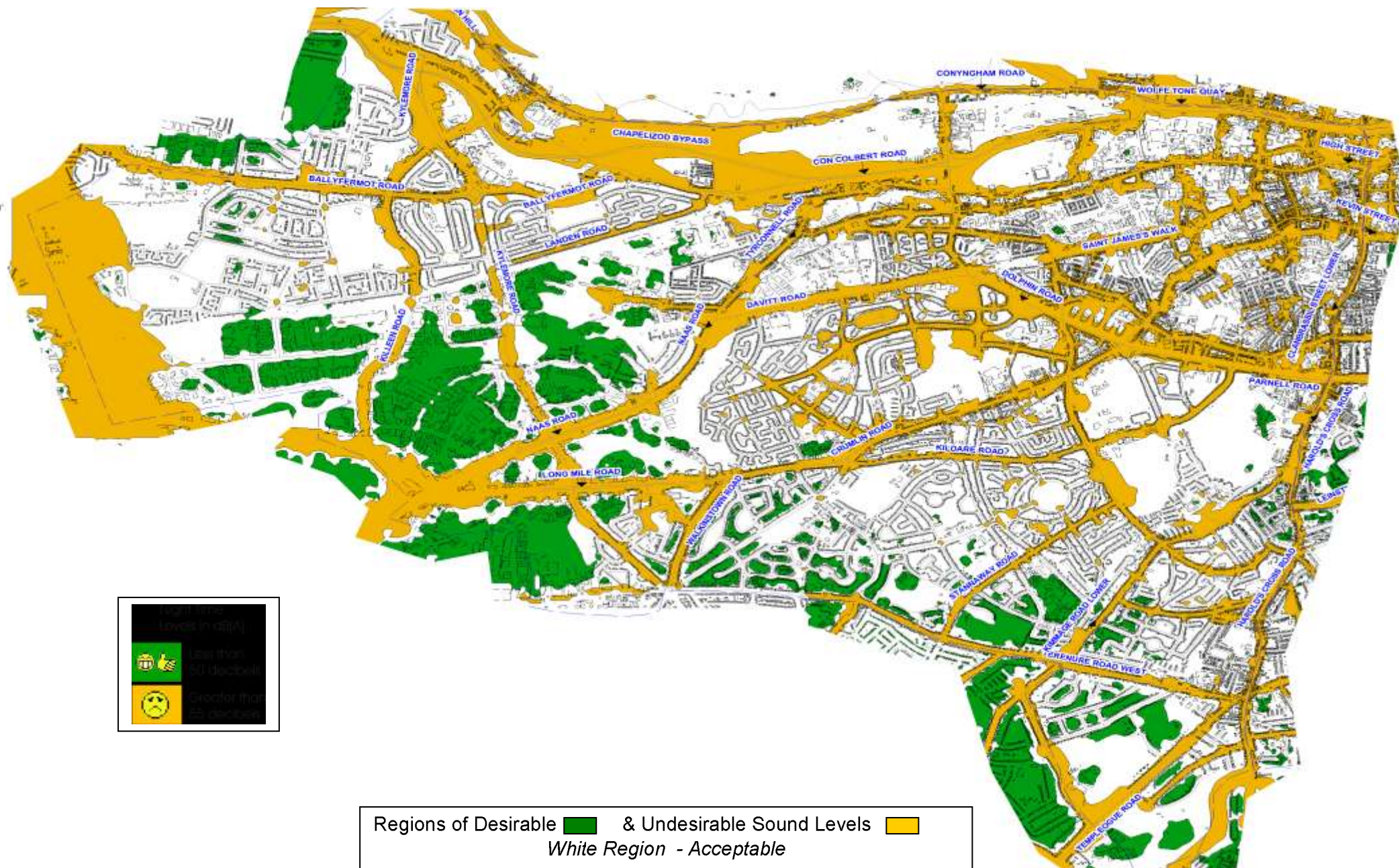
SOUTH CENTRAL AREA COMMITTEE

Day Time Sound Levels from Traffic



SOUTH CENTRAL AREA COMMITTEE

Night Time Sound Levels from Traffic



ANNEX 7

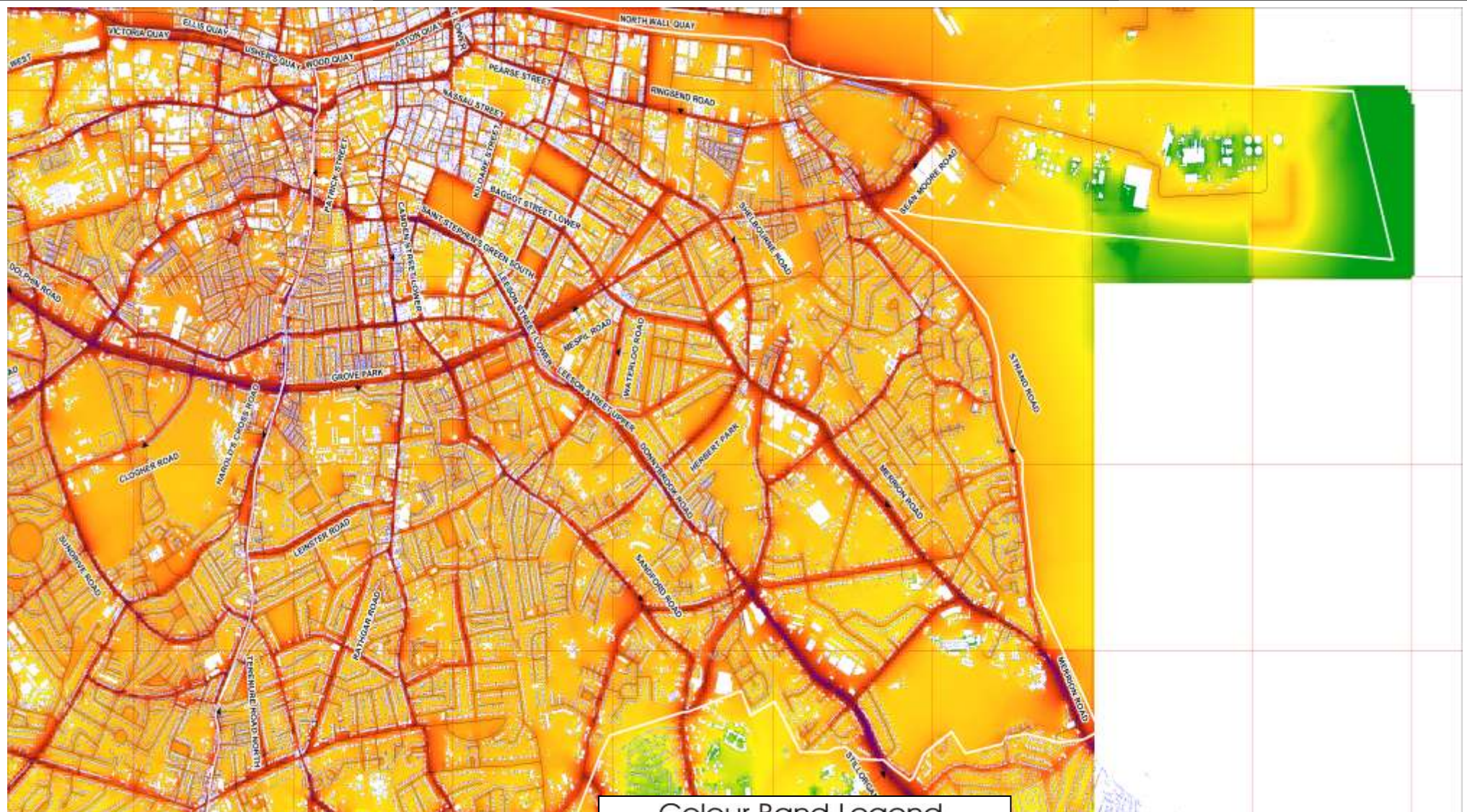
South East Area Committee Noise Maps and Tables For Road Traffic

Population Exposure South East Area

Sth. East Area	All Road Sources (dB(A))	24 Hour Value Lden - (dB(A))	Daily Value(7am-7pm) L day -(dB(A))	Evening Value 7pm 11pm Levening - (dB(A))	NightTime Value 11pm - 7am Lnight dB(A)	No. of Quiet Facades	No. of People with Quiet Façade 24Hr Value	No. of People with Quiet Façade at Night.	No. of Dwelling exposed over an average 24Hr day
	0-44	0	0	0	2	0	0	0	0
	45-49	0	9	11	1888	0	0	0	0
	50-54	7	5778	6344	40216	0	0	0	3
	55-59	11109	42836	44216	24921	0	0	0	5530
	60-64	48108	27261	28431	27208	0	0	0	24437
	65-69	22656	21292	19155	6718	0	0	6	11555
	70-74	17726	3873	2760	99	1	2	0	9382
	>55	101241	95355	94861	58910	3	6	6	51725
	>65	41801	25036	21918	6813	3	6	6	21645
	>=70	19065	3902	2721	99	3	6	0	10045
	>=75	1392	44	18	0	2	4	0	695
	Total	100998	101093	100935	101052	3	6	6	51602
Sth. East Area	Major Road Sources (dB(A))	24 Hour Value Lden - (dB(A))	Daily Value(7am-7pm) L day -(dB(A))	Evening Value 7pm 11pm Levening - (dB(A))	NightTime Value 11pm - 7am Lnight dB(A)	No. of Quiet Facades	No. of People with Quiet Façade 24Hr Value	No. of People with Quiet Façade at Night.	No. of Dwelling exposed over an average 24Hr day
	0-44	11392	31864	35994	51825	0	0	0	5623
	45-49	27605	25368	24162	15142	0	0	89	14137
	50-54	22377	12536	11134	8042	0	0	76	11271
	55-59	10339	6463	5643	5392	1	89	910	5372
	60-64	5387	6985	8551	15101	5	202	8610	2668
	65-69	10809	14464	13123	5639	634	4768	3739	5562
	70-74	11984	3490	2529	44	895	7688	7	6423
	>55	39745	31450	29916	26219	1632	13435	13270	20629
	>65	23987	17897	15662	5660	1625	13121	3723	12573
	>=70	13147	3510	2538	44	990	8358	7	6996
	>=75	1157	23	23	0	94	660	0	571

SOUTH EAST AREA COMMITTEE

Day Time Sound Levels from Traffic



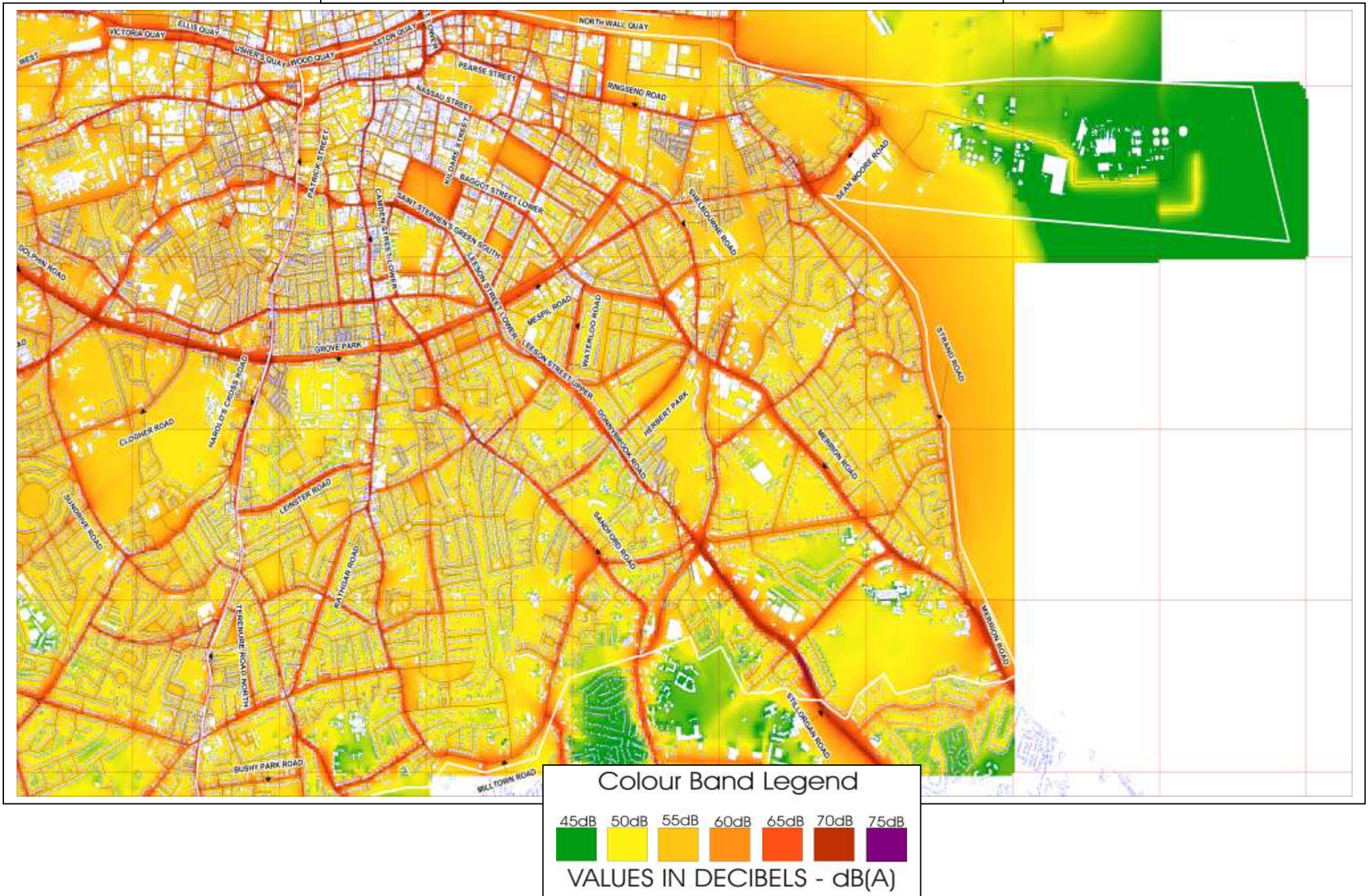
Colour Band Legend



VALUES IN DECIBELS - dB(A)

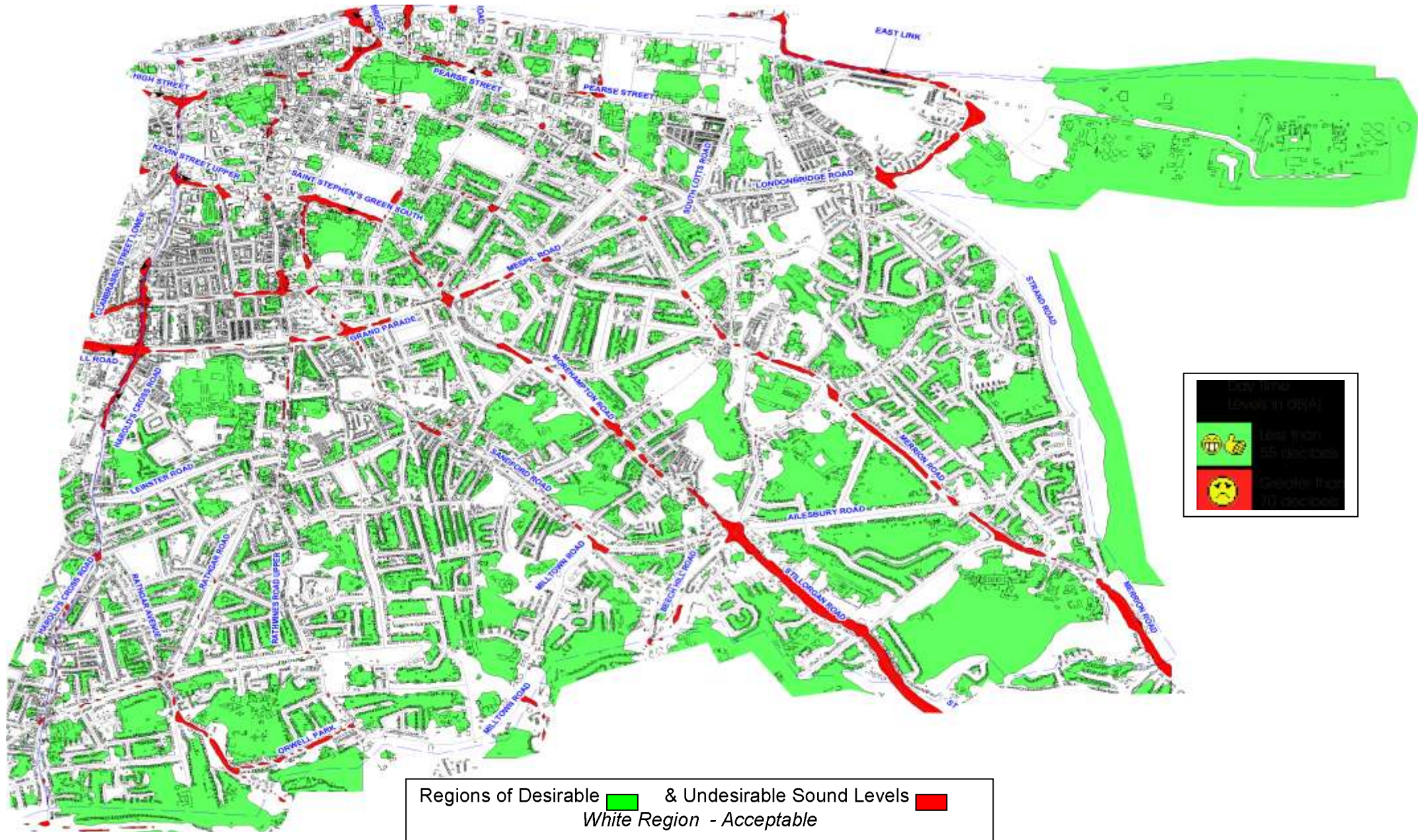
SOUTH EAST AREA COMMITTEE

Night Time Sound Levels from Traffic



SOUTH EAST AREA COMMITTEE

Day Time Sound Levels from Traffic



SOUTH EAST AREA COMMITTEE

Night Time Sound Levels from Traffic

