



An tÚdarás Inniúil um
Thorann Aerárthaí

Aircraft Noise
Competent Authority

Effectiveness review of aircraft noise mitigation at Dublin Airport towards achieving the noise abatement objective

September 2022





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01 Introduction

On 20 June 2022, the Aircraft Noise Competent Authority (ANCA) defined a Noise Abatement Objective (NAO) for Dublin Airport.

The NAO for Dublin Airport establishes objectives to be achieved when managing the effects of aircraft noise emissions around Dublin Airport. It is a top-level plan that is supported by regulation where appropriate and does not prescribe the methods of delivery for the expected outcomes.

The preparation of the NAO was part of a detailed assessment of the noise climate at and around Dublin Airport that included the identification of a noise problem. A public consultation with community and industry stakeholders was carried out as part of the process.

In the first of its kind for an airport in Ireland, the NAO provides for specific and measurable reductions in noise impact outcomes around Dublin Airport over the coming years. The NAO has regard to pre-pandemic aircraft operations at Dublin Airport in addition to those forecast to occur over the coming years.

This Report presents ANCA's assessment of the effectiveness of noise mitigation measures in place at Dublin Airport in achieving the outcomes established by the NAO.

It should be noted that the context for this Report includes that Dublin Airport was operating in extraordinary circumstances with drastically reduced air travel from March 2020 until mid-2022, due to the global COVID-19 pandemic. While international air travel reopened in the summer of 2021, the requirements on passengers deterred many people from taking flights. Only in 2022 has air traffic has started to return to pre-pandemic levels.

The NAO is available in both Irish and English on the ANCA website:
www.fingal.ie/aircraftnoiseca/noise-abatement-objective

02

Executive Summary

02 Executive Summary

This Report assesses the effectiveness of the noise mitigation measures related to the achievement of the NAO. This is the first reporting year of the NAO. The evolving noise climate relating to implementing the NAO will become evident with further annual data.

It is not possible in this first reporting year to differentiate the causes of noise exposure reductions between the COVID-19 pandemic effect and those arising from other noise management aspects. However, the COVID-19 pandemic effect is considered to be the most significant contributor to the reduction in aircraft noise exposure.

Aviation fleets are not static and some aircraft modernisation may have occurred during this assessment period that has also made a positive contribution towards the noise climate around Dublin Airport. This impact can be assessed through mechanisms such as an examination of quota count¹ per movement. In June 2022, ANCA made a regulatory decision relating to a noise assessment arising through planning application F20A/0668. This regulatory decision makes provision for the reporting of quota count data by the the airport authority for Dublin Airport (daa). The decision of the planning authority containing the regulatory decision of ANCA has been appealed to An Bord Pleanála and the outcome of that process will have a significant impact on the outcomes of the NAO in future assessment years.

Noise exposure is expected to increase as the aviation industry emerges from the impacts of the COVID-19 pandemic. The NAO is a long-term plan that requires an examination of the noise climate on an annual basis to ensure that any growth occurs in the most sustainable manner possible. It is important to note that the data supporting this review relates to the base year of 2019 for the assessment year of 2021 and does not include impacts arising from the commencement of aircraft operations on the north runway during August 2022.

¹ Aircraft are allocated a number of points relating to the amount of noise they make. These points are called the Quota Count, or QC. The noisier the plane, the higher the QC.

03

The Noise Abatement Objective for Dublin Airport

03 The Noise Abatement Objective for Dublin Airport



A Noise Abatement Objective (NAO) is a policy objective for managing the effects of aircraft noise emissions on the surrounding communities and environment at an airport. It is a plan to ensure that any growth at Dublin Airport occurs in the most sustainable manner possible.

An NAO may be used to guide the decisions that are needed to manage the aircraft noise aspects of future aircraft operations at an airport.

There was no NAO in place for Dublin Airport during 2021, and there was no requirement to deliver noise reduction outcomes for this period. This Report examines the effectiveness of the noise mitigation measures in place in 2021 against the current NAO – this being the full calendar year of aircraft operations in the year preceding this assessment report. This approach facilitates the inclusion of the annual averaged noise metrics utilised by the NAO.

The NAO for Dublin Airport is structured in a manner that sets objective and measurable criteria to limit and reduce the adverse effects of aircraft noise on health and quality of life over time and has five parts:

Policy Objective

Limit and reduce the long-term adverse effects of aircraft noise on health and quality of life, particularly at night, as part of the sustainable development of Dublin Airport.

Explaining the Objective

Aircraft noise from Dublin Airport should be limited and reduced in line with principles of sustainable development.

As Dublin Airport grows, the long-term adverse effects on human health and quality of life should progressively reduce over the lifetime of this NAO.

The Balanced Approach will be used to ensure that cost-effective, practicable and sustainable measures are implemented to achieve this objective.

Measurable Criteria

The NAO will be primarily measured through the number of people highly sleep disturbed and highly annoyed in accordance with the approach recommended by the World Health Organization's Environmental Noise Guidelines 2018 as endorsed by the European Commission through Directive 2020/367, taking into account noise exposure from 45 dB L_{den} and 40 dB L_{night} . These metrics describe those chronically disturbed by aircraft noise.

These metrics help articulate the effect of aircraft noise on health and quality of life. The following will also be used to help identify where noise exposure results in the populations experiencing the harmful effects. These are the number of people exposed to aircraft noise above:

- 55 dB L_{night} (a level of night-time noise exposure described by the WHO as representing a clear risk to health)
- 65 dB L_{den} (where a large proportion of those living around Dublin Airport can be considered highly annoyed)

In order to measure performance, these metrics shall be completed using a noise model prepared in accordance with the methodology described in Directive 2015/996 (European Civil Aviation Conference (ECAC) Doc.29 4th Edition or as amended). The noise model shall be validated using local noise and track keeping performance data from Dublin Airport's systems.

The calculation of the number of people exposed to aircraft noise shall have regard for the most recent population data available and assessed against the population exposed to aircraft noise in 2019.

Expected Outcomes

In the context of its recovery from the global pandemic, noise exposure from Dublin Airport is expected to increase up to 2025. Whilst the resultant health effects are expected to be lower than those which occurred prior to the COVID-19 pandemic and in the years 2018 and 2019, these effects should then reduce over the medium to long-term, to improve the noise situation at Dublin Airport whilst allowing for sustainable growth. ANCA therefore expects the following outcomes to be achieved through this NAO as set against the measures described in Part 3.

The number of people highly sleep disturbed and highly annoyed shall reduce so that compared to conditions in 2019:

- The number of people highly sleep disturbed and highly annoyed in 2030 shall reduce by 30% compared to 2019;
- The number of people highly sleep disturbed and highly annoyed in 2035 shall reduce by 40% compared to 2019;
- The number of people highly sleep disturbed and highly annoyed in 2040 shall reduce by 50% compared to 2019 and;
- The number of people exposed to aircraft noise above 55 dB L_{night} and 65 dB L_{den} shall be reduced compared to 2019.

Monitoring

Monitoring of the NAO will be informed by annual reports that ANCA will review as part of its obligations under the Aircraft Noise (Dublin Airport) Regulation Act 2019.

Implementing the Noise Abatement Objective

The NAO establishes four noise impact outcomes to be delivered during the lifetime of the objective.

Dublin Airport noise abatement objective target outcomes



The number of people highly sleep disturbed and highly annoyed in 2030 shall reduce by 30% compared to 2019.



The number of people highly sleep disturbed and highly annoyed in 2035 shall reduce by 40% compared to 2019.



The number of people highly sleep disturbed and highly annoyed in 2040 shall reduce by 50% compared to 2019.



The number of people exposed to aircraft noise above 55 db L_{night} and 65 db L_{den} shall be reduced compared to 2019.

The terms highly sleep disturbed (HSD) and highly annoyed (HA) are metrics used by the World Health Organization and adopted by legislation to quantify the adverse impacts of environmental noise such as that from aircraft.

ICAO guidance places considerable emphasis on monitoring the evolution of the noise climate at and around an airport. Although the first three expected NAO outcomes have target dates of 2030, 2035 and 2040 respectively, this Report compares the number of people HSD and HA between the base year of 2019 and 2021. In doing this we aim to build an understanding of the aircraft noise impact around Dublin Airport in the early years of the implementation of the NAO.

Noise Management

The NAO for Dublin Airport establishes objectives to be achieved when managing the effects of aircraft noise emissions around Dublin Airport. The NAO is a top-level plan that is supported by regulation, where appropriate, and does not prescribe the methods of delivery for the expected outcomes. The delivery of the NAO is supported by the implementation of appropriate measures and is subject to regular review to ascertain the effectiveness of those measures.

04

Noise Management Measures in Place at Dublin Airport for 2021

04 Noise Management Measures in Place at Dublin Airport for 2021

The following tables identify the noise management measures in place at Dublin Airport during 2021.

Inventory of Noise Abatement Operating Procedures

Two-runway Preferential Runway Programme

The aim of the measure is to use the runways in order to allow aircraft to avoid noise-sensitive areas during the phases of take-off and landing. The measure is subject to operational conditions, such as crosswind or tailwind component speed values over a certain threshold. During the period 06:00-23:00 RWY 28 and RWY 10 are the preferential runways. During the period 23:00-06:00 runways will be prioritised for noise abatement purposes, when, subject to operational conditions, runway use is prioritised as follows:

Arrival: 1st RWY 10, 2nd RWY 16, 3rd RWY 28, 4th RWY 34

Departure: 1st RWY 28, 2nd RWY 34, 3rd RWY 10, 4th RWY 16.

Two-Runway Noise Preferential Routes (NPRs) or Environmental Noise Corridors and Track Keeping

The aim of the measure is to reduce overall impacts by directing aircraft along flight paths which are designed to avoid built-up areas. These paths are called Noise Preferential Routes (NPRs). All Aircraft taking off from Dublin Airport are required to follow specific NPRs. Once an aircraft reaches the end of the NPR, or at an altitude of 3,000 feet, the air traffic control will begin turning aircraft onto a direct route to their destinations.

Noise Abatement Departure Procedures (NADP)

Climb profile on departure: there are two noise abatement procedures where a stepped departure climb is being used. They are called "NADP 1" and "NADP 2". The NADP are based on the guidance included in ICAO's Procedures for Air Navigation Services Aircraft Operations Document 8168 Volume 1. This measure requires the use of NADP 2 with thrust cutback at 1,500 feet.

Visual Approach

This measure is in two parts for jet aircraft on visual approach:

- they must start the final approach procedures prior to reaching a distance from touchdown not lower than six nautical miles; and
- they must follow a descend path higher or equal than the ILS approach path.

Continuous Decent Approach (CDA)

CDA is a procedure in which an aircraft descends from an optimal position with minimum thrust and avoids inefficient segments of level flight and keeps the aircraft as high as possible for as long as possible. This procedure is currently in place at Dublin Airport and aims to reduce noise on the ground.

Continuous Climb Operations (CCO)

CCO is a procedure designed to avoid inefficient segments of level flight during the climb profile reducing both the noise experienced on the ground and fuel consumption.

Reverse Thrust

To reduce the night-time noise impact, reverse thrust procedure must not be used at night, unless required for safety reasons. Reverse thrust is a temporary diversion of an aircraft engine's thrust used to help the deceleration of aircraft on landing.

Engine Ground Running

To reduce noise impact during the most noise sensitive hours, engine tests are not permitted between 20:00 and 07:00. Only aircraft smaller than aircraft Code C are allowed to perform engine tests between 07:00 and 09:00. The rest of the aircraft types are allowed to perform tests only after 09:00.

Inventory of Land Use Planning and Management Measure

Land Use Compatibility Management Framework

A noise zoning system has been developed and included in the Fingal County Council (FCC) County Development Plan 2017–2023 (Variation No. 1) and the Dublin Airport 2020 Local Area Plan (LAP). The goal of the zoning system is to ensure that land use is compatible with airport operations preventing, also, noise and safety concerns for surrounding communities. For Dublin Airport, the zones are based on potential noise exposure levels ($L_{Aeq, 16hr}$ and L_{night} levels) due to Dublin Airport using either the new north or existing south runways.

Sound Insulation Schemes

There are two sound insulation schemes available to households located within the 63 dB $L_{Aeq, 16hr}$ noise contour.

Voluntary Dwelling Purchase Scheme

There is a voluntary purchase of dwellings schemes available to households located within the 69dB $L_{Aeq, 16hr}$ noise contour.

Schools Sound Insulation Scheme

There is a sound insulation scheme available to schools located within the 60dB $L_{Aeq, 16hr}$ noise contour.

05

Managing Aircraft Noise

05 Managing Aircraft Noise

Managing the Impact of Aviation Noise

During 2021, Dublin Airport operated with a single primary runway and a shorter (crosswind) runway. During this time, the runways were operated in a similar manner to 2019. The year 2021 was the last full calendar year of operation prior to the opening of the new north runway in 2022.

Aircraft noise management is a multi-stakeholder process. Although the daa is the principal body responsible for managing aircraft activity, the input and regulation of other authorities is an integral part of the process. Many of these authorities facilitate community and business engagement, particularly when regulation is proposed.

International policy on aviation is coordinated by the International Civil Aviation Organization (ICAO), a specialised division of the United Nations. The Balanced Approach to aircraft noise management was developed by ICAO and incorporated into European and Irish legislation.

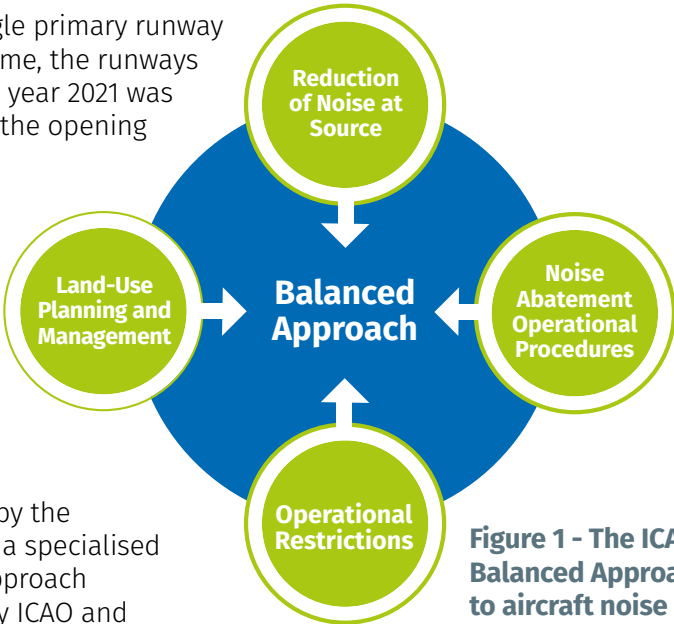


Figure 1 - The ICAO Balanced Approach to aircraft noise management

Examples of the components of the Balanced Approach are:

Reduction of noise at source	}	<ul style="list-style-type: none"> • Aircraft design • Aircraft fleet mix • Scheduling and slot allocation • Incentives
Noise abatement operational procedures	}	<ul style="list-style-type: none"> • Noise preferential routes • Preferential runway operation • Aircraft departure and arrival procedures • Runway use alternation
Land-use planning	}	<ul style="list-style-type: none"> • Development zones • Sound insulation programmes • Relocation assistance schemes
Operating restrictions	}	<ul style="list-style-type: none"> • Aircraft movement limit • Noise quotas • Curfews on individual runways or hours of operation • Aircraft type restrictions

Assessing the impact of aircraft noise



Historically, Ireland adopted practices developed in the UK for the measurement of aircraft noise. This involved assessment over a 92-day period between 16th June and 15th September each year to determine an 'average summer day'. Aircraft noise was averaged across this period for both a combined day and evening period (07:00-23:00) and the night period (23:00-07:00) using the metrics $L_{Aeq,16hr}$ and $L_{Aeq,8hr}$ respectively. Many noise assessments in Ireland were undertaken using these metrics; and were referenced in planning conditions.

The European Commission has now legislated for standard methods of assessment across the European Union for common sources of environmental noise (namely road, rail, aviation, and industry). Standardised methods of assessment are prescribed in legislation and represent noise as an average over a full calendar year using the metrics L_{night} and L_{den} . For this reason, this Report provides an assessment of the full calendar year preceding publication – in this instance 2021.

More information on the metrics used in ANCA in noise assessments and what they mean is available at www.fingal.ie/aircraftnoiseca/aircraft-noise-information

The COVID-19 pandemic continued to have a significant impact on aircraft activity during 2021 and this manifested in a marked reduction in aircraft noise exposure outcomes for that period. This reduced activity is evidenced in the annual averaged daily aircraft events in the figures below for Dublin Airport.

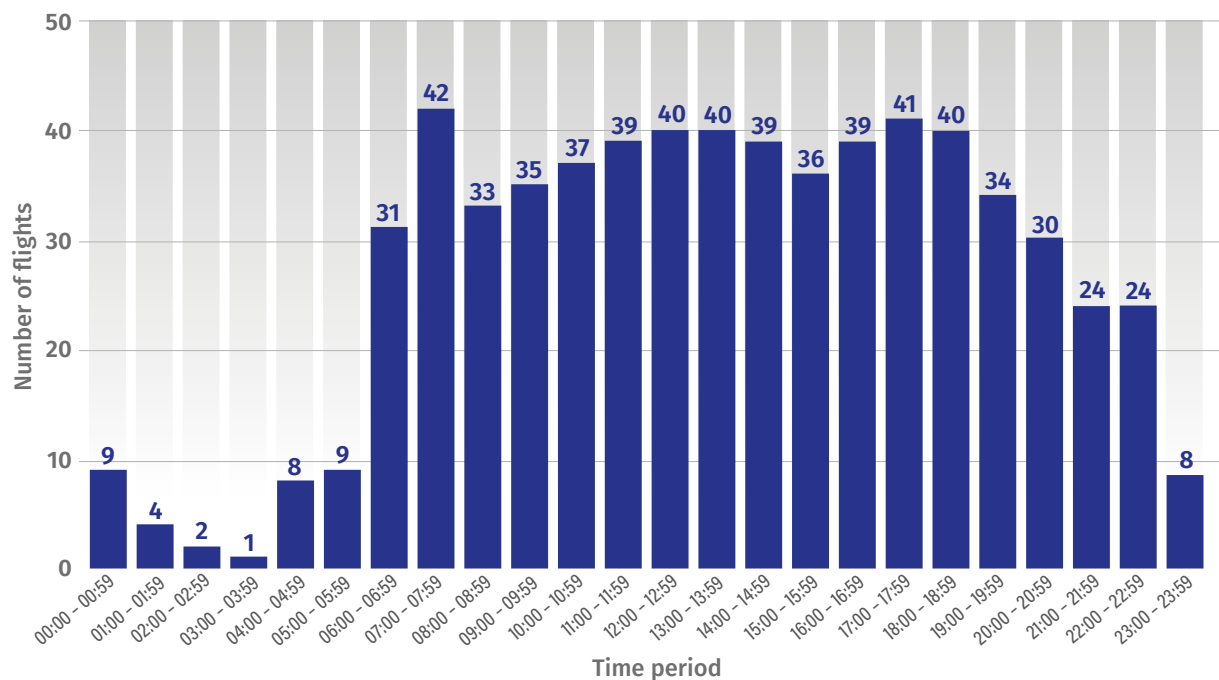


Figure 2 - Aircraft movements by hour (annual average) at Dublin Airport for 2019

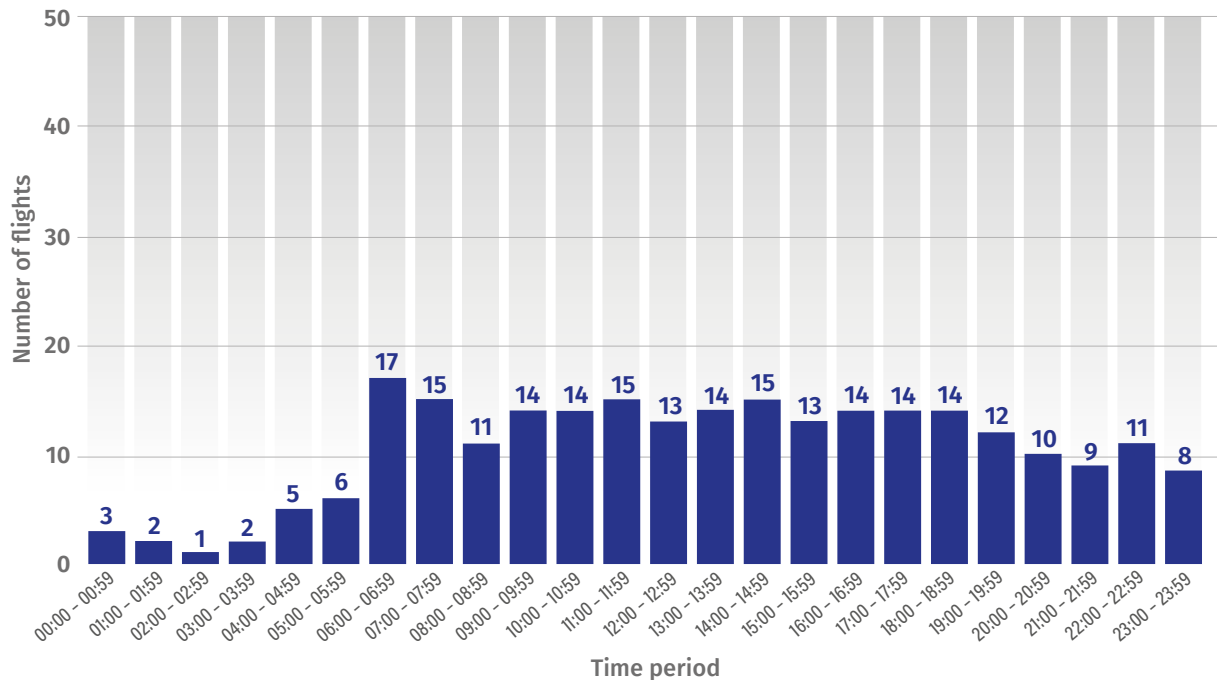


Figure 3 - Aircraft movements by hour (annual average) at Dublin Airport for 2021

The management of aircraft noise is an ongoing and evolving process and the reduced activity and associated noise impact during 2021 are part of the evolution of the noise climate around an airport. As international aviation recovers following the COVID-19 pandemic, fleet modernisation continues with older aircraft being retired and replaced by newer generation aircraft, or as airlines respond to increasing environmental requirements.

06

Presenting the Impact of Aircraft Noise

06 Presenting the Impact of Aircraft Noise

The combination of noise management measures and aircraft activity are used to support the preparation of noise exposure maps that graphically present the impact of noise exposure on the communities around an airport. From these, the calculation and assessment of the location and number of people and other noise-sensitive receptors can also be obtained. This data can then be used to examine the harmful effects of aircraft noise.

Analysis of Data Through Noise Exposure Contours



The impact of aircraft noise is presented as averaged-noise contours. Although noise is not experienced in an averaged way, the use of standardised contours facilitate:

- an examination of noise exposure trends over time and the harmful effects of aircraft noise;
- a comparison of different operating scenarios;
- an examination of the predicted impact of development proposals;
- comparisons of the impacts of the primary sources of environmental noise across the European Union.

For this reason, the use of averaged noise contours is prescribed by legislation for aircraft noise assessments. The primary noise metrics prescribed by environmental noise legislation are:-

- i. The night-time indicator L_{night}
- ii. The weighted day-evening-night indicator L_{den} .

Additional information on these metrics is available on the ANCA website at www.fingal.ie/aircraftnoisecca/aircraft-noise-information.

The noise contours for the 2019 baseline year and 2021 assessment year are presented below for both the annual averaged night-time period (L_{night}) and the weighted annual averaged day-evening-night periods (L_{den}). The assessment has regard to noise exposure from 40dB L_{night} and 45dB L_{den} corresponding to WHO recommended values.

An interactive map viewer for these maps is available on the ANCA website [Aircraft Noise Contours](#) that facilitates an examination of the noise exposure by year for both periods down to the level of individual properties.

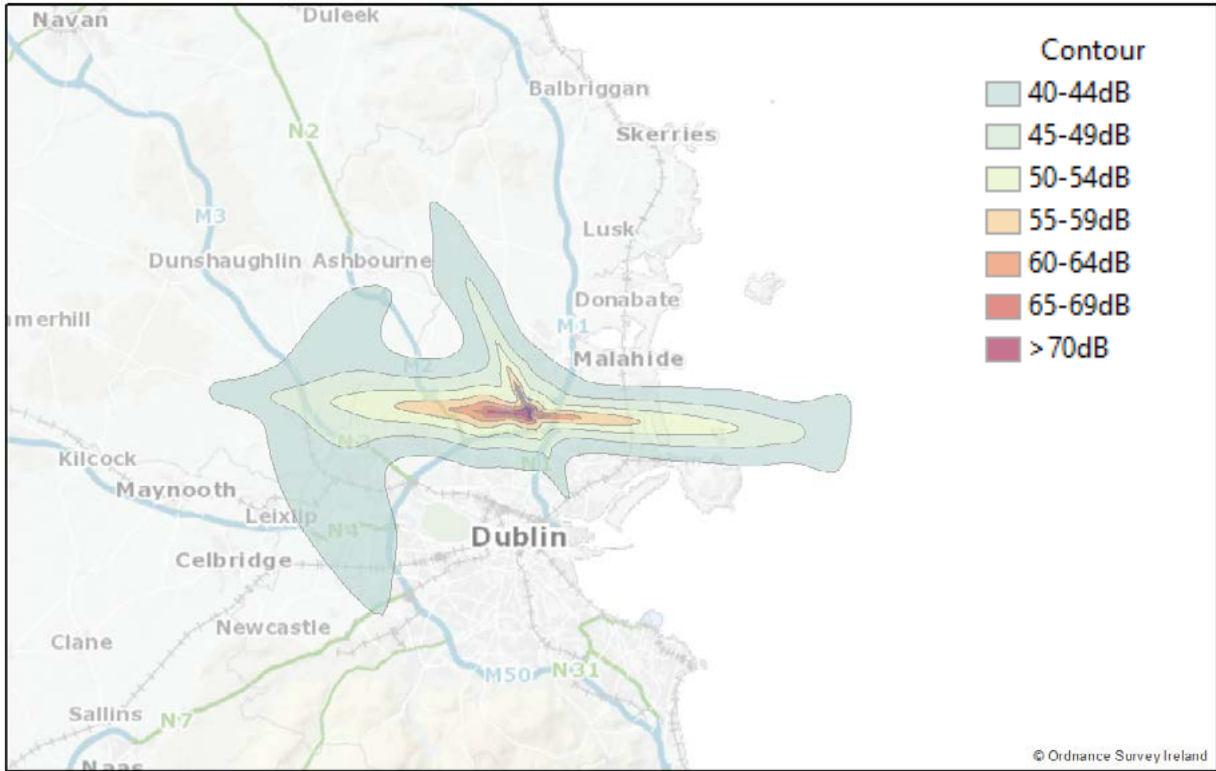


Figure 4 - Annual averaged night-time noise contours 2019 (L_{night})

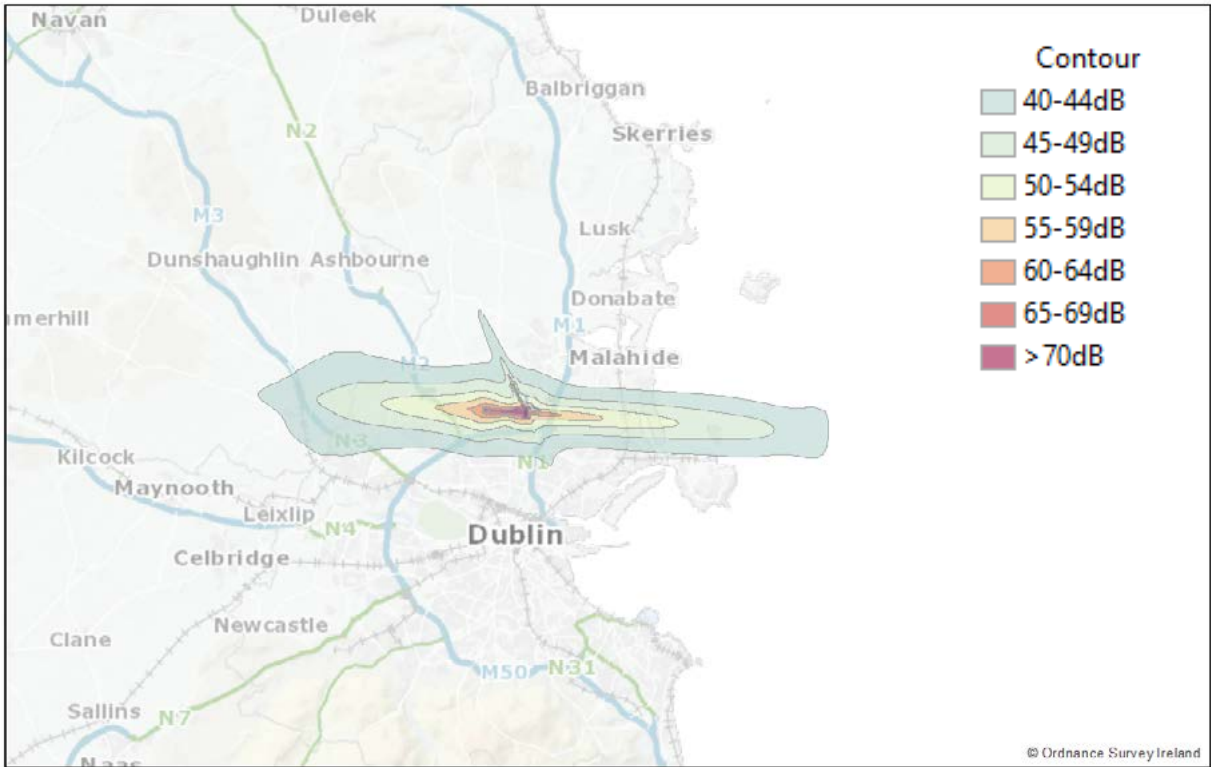


Figure 5 - Annual averaged night-time noise contours 2021 (L_{night})

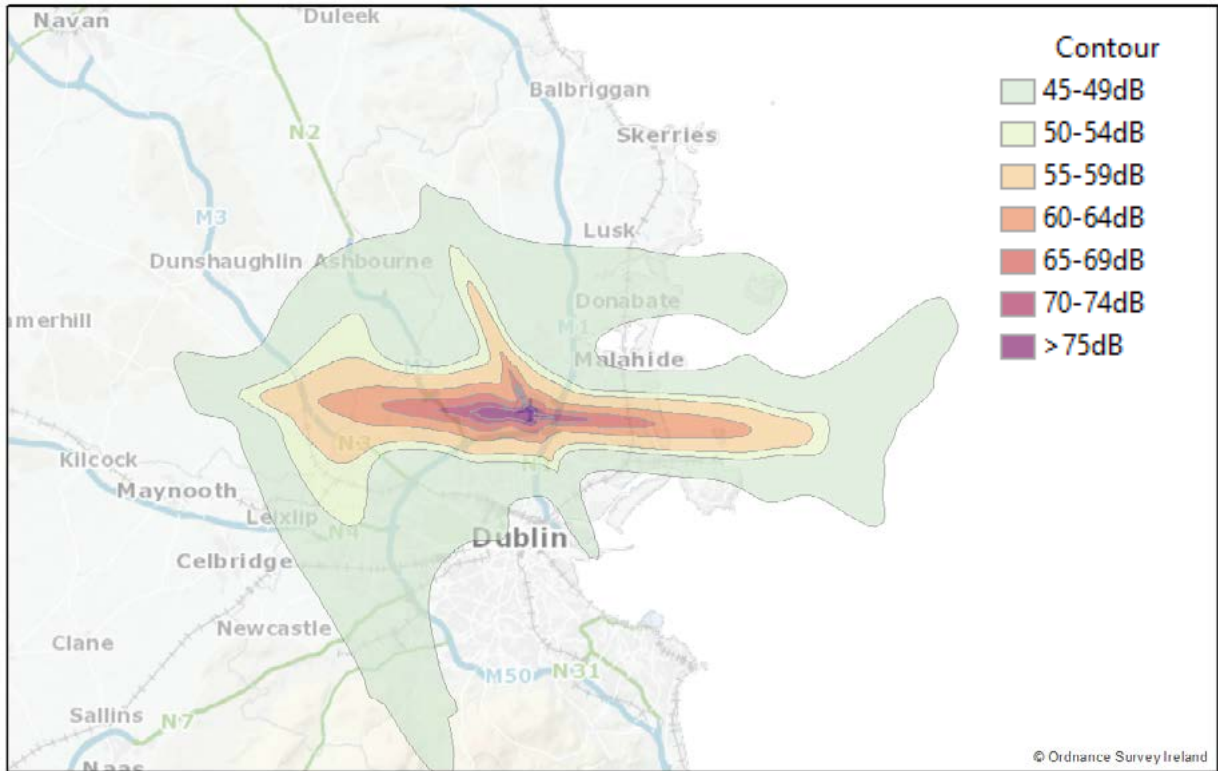


Figure 6 - Weighted annual averaged day-evening-night noise contours 2019 (L_{den})

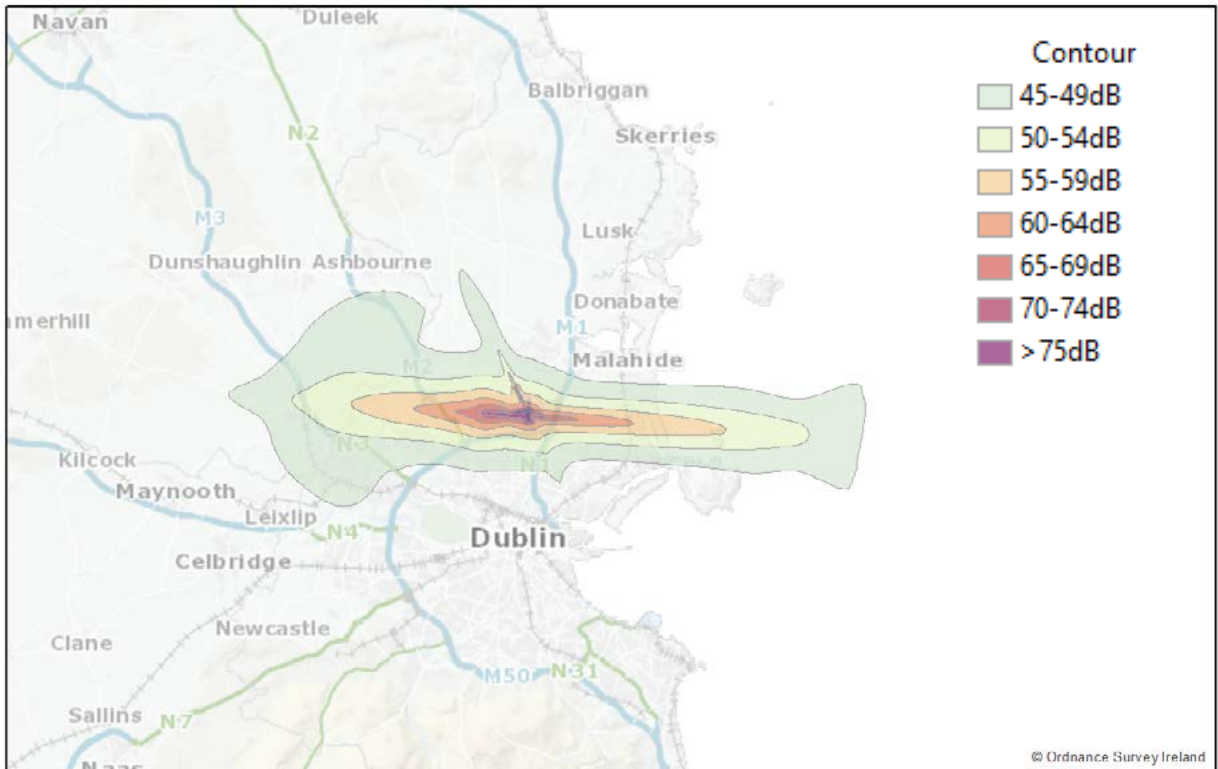


Figure 7 - Weighted annual averaged day-evening-night noise contours 2021 (L_{den})

07

Analysis of Data

07 Analysis of Data

The noise contour maps are used to quantify the impact of aircraft noise on the population around an airport. The NAO is aligned with the metrics utilised by the World Health Organization and European and Irish environmental legislation.

The NAO expected outcomes provide for progressive reductions in the numbers of people HA and HSD and also the overall numbers of affected population exposed to aircraft noise greater than 55dB L_{night}, a threshold recognised by the WHO as representing a clear risk to health and 65dB L_{den}, where a large proportion of those living around Dublin Airport can be considered highly annoyed.

NAO Expected Outcome

The number of people highly sleep disturbed shall reduce by 30%, 40% and 50% by 2030, 2035 and 2040 respectively compared to 2019.



Figure 8 - Comparison of the number of people classified as highly sleep disturbed by aircraft noise around Dublin Airport for 2019 and 2021

The NAO requires quantification of the overall numbers of people HA and HSD in accordance with the methodologies prescribed by legislation. However, it is important to understand the evolving noise impact at the level of each noise assessment band. This approach is consistent with the assessment methodologies of the World Health Organization.

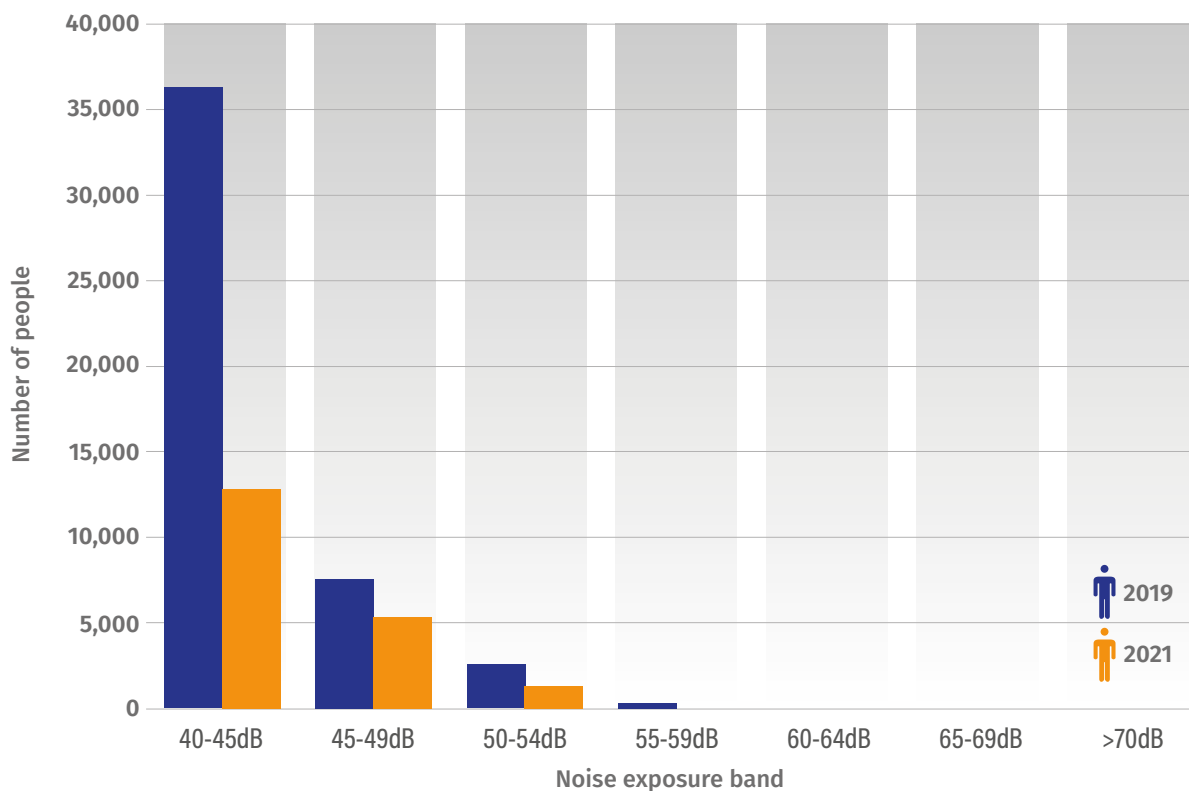


Figure 9 - Comparison of the overall number of people classified as highly sleep disturbed by aircraft noise around Dublin Airport for 2019 and 2021 by noise exposure band in 5dB intervals

Overall reduction in the numbers of people classified as highly sleep disturbed (27,306) in 2021 as compared to 2019 are broken down by band as follows:

Noise band	Number of people classified as HSD 2019	Number of people classified as HSD 2021	Reduction in number of people classified as HSD between 2019 and 2021	% reduction in number of people classified as HSD between 2019 and 2021
40-45dB L_{night}	36,339	12,883	23,456	65%
45-49dB L_{night}	7,622	5,445	2,177	29%
50-54dB L_{night}	2,665	1,344	1,321	50%
55-59dB L_{night}	380	55	325	85%
60-64dB L_{night}	34	11	23	67%
65-69dB L_{night}	5	1	4	80%
>70dB L_{night}	0	0	n/a	n/a

The number of people classified as HSD is significantly lower across all 5dB noise bands between 2019 and 2021 with significant reductions observed in the highest bands (>55dB L_{night}).

NAO Expected Outcome

The number of people highly annoyed shall reduce by 30%, 40% and 50% by 2030, 2035 and 2040 respectively compared to 2019.

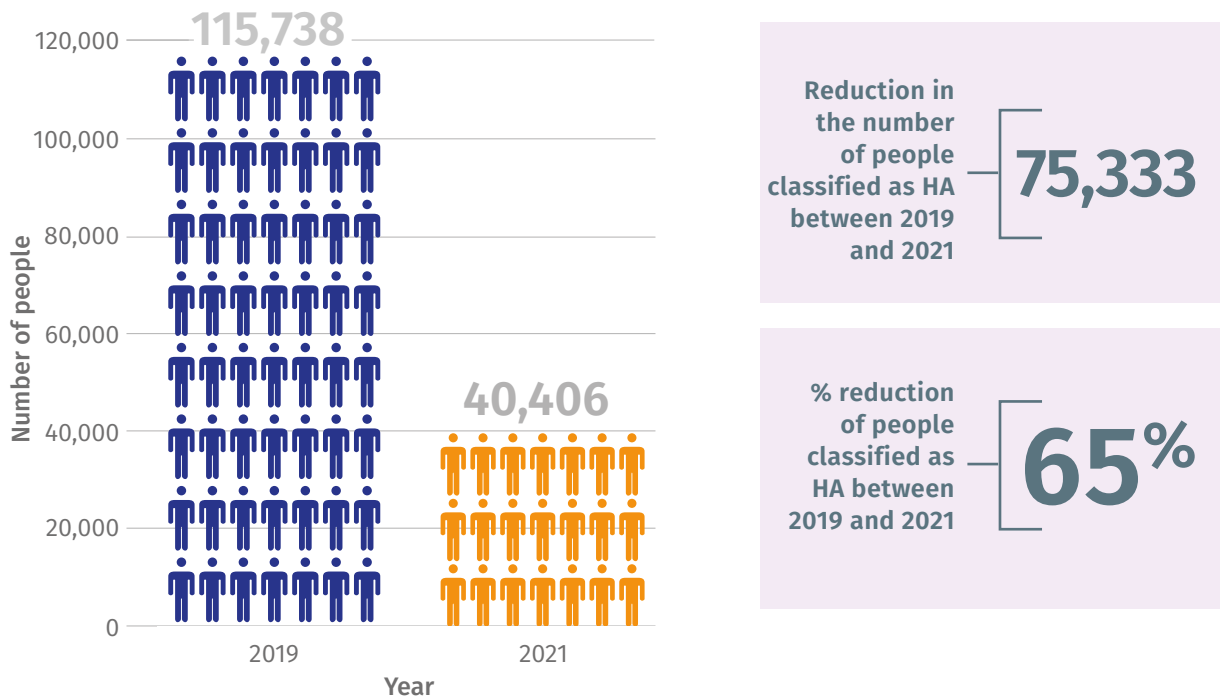


Figure 10 - Comparison of the overall number of people classified as highly annoyed by aircraft noise around Dublin Airport for 2019 and 2021

Similar to the examination of data for HSD at the level of individual noise bands, the evolving noise impact at the level of each noise assessment band is also examined for the portion of the population classified as HA.

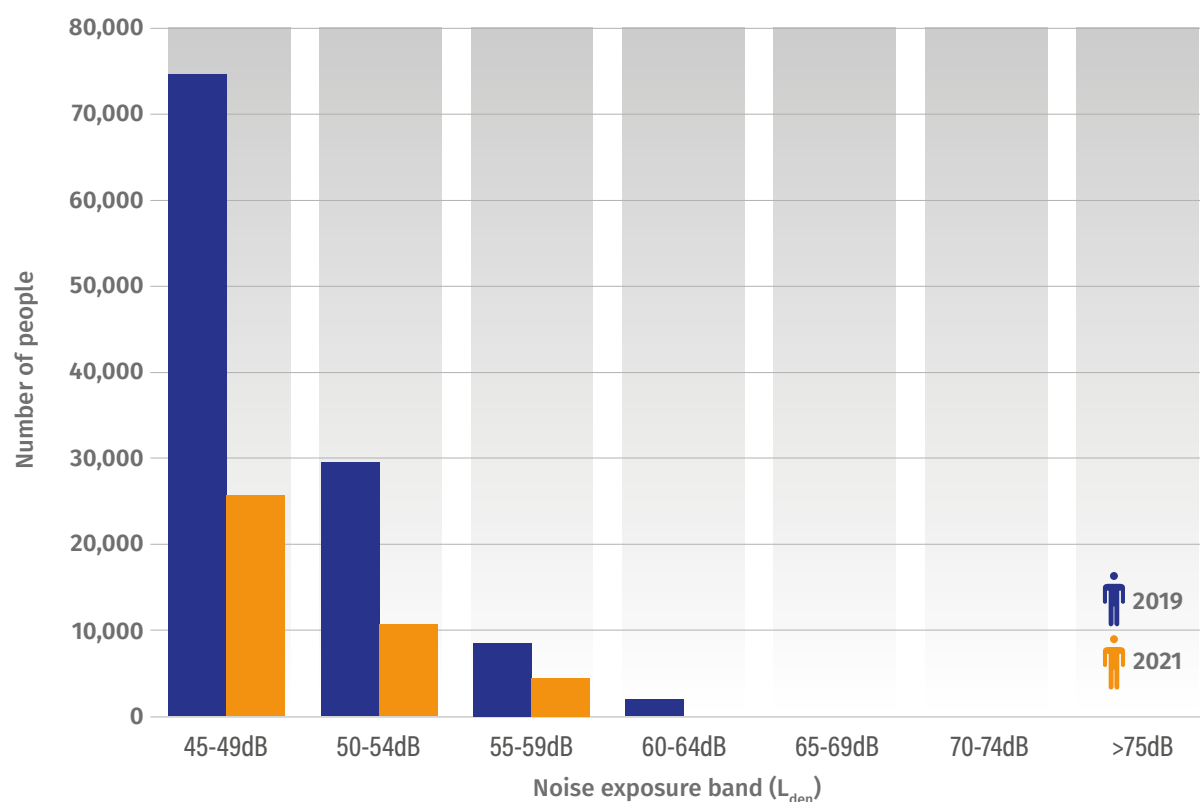


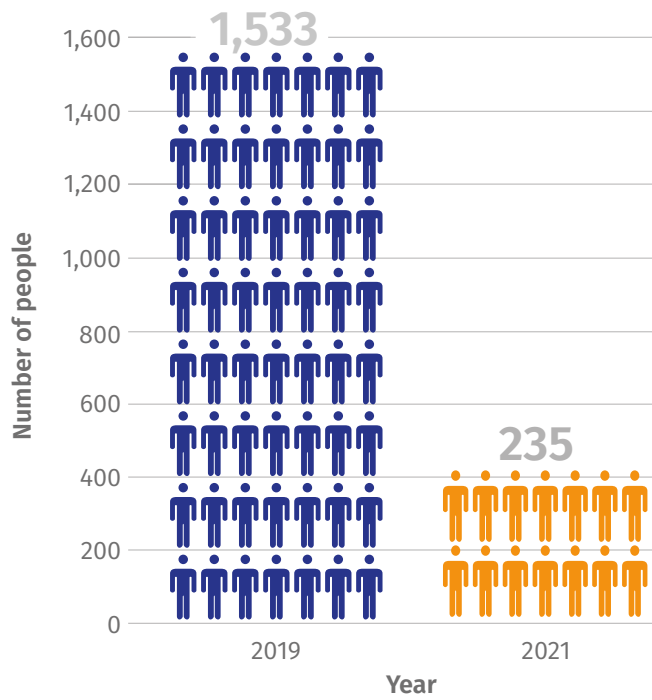
Figure 11 - Comparison of the overall number of people classified as highly annoyed by aircraft noise around Dublin Airport for 2019 and 2021 by noise exposure band in 5dB intervals

Noise band	Number of people classified as HA 2019	Number of people classified as HA 2021	Reduction in number of people classified as HSD between 2019 and 2021	% reduction in number of people classified as HSD between 2019 and 2021
45-49dB L _{den}	74,905	25,128	49,777	66%
50-54dB L _{den}	29,814	10,765	19,049	64%
55-59dB L _{den}	8,546	4,090	4,456	52%
60-64dB L _{den}	2,328	389	1,939	83%
65-69dB L _{den}	126	26	100	80%
70-74dB L _{den}	15	8	7	49%
>75dB L _{den}	4	0	4	100%

The number of people highly sleep disturbed is significantly lower across all 5dB noise bands between 2019 and 2021 with significant reductions observed in the highest bands (>60dB).

NAO Expected Outcome

The number of people exposed to aircraft noise above 55dB L_{night} shall be reduced compared to 2019.



Reduction in the number of people in noise exposure level >55dB L_{night} between 2019 and 2021

1,298

% reduction of people in noise exposure level >55dB L_{night} between 2019 and 2021

85%

Figure 12 - Number of people exposed to aircraft noise above 55dB (L_{night})

Similar to the examination of people HSD and HA, it is appropriate to consider the numbers of people in the noise exposure level $>55\text{dB } L_{\text{night}}$ between 2019 and 2021 at the level of individual bands. This analysis could identify any particular problem within a noise band that may not be apparent in only an assessment of the accumulated bands.

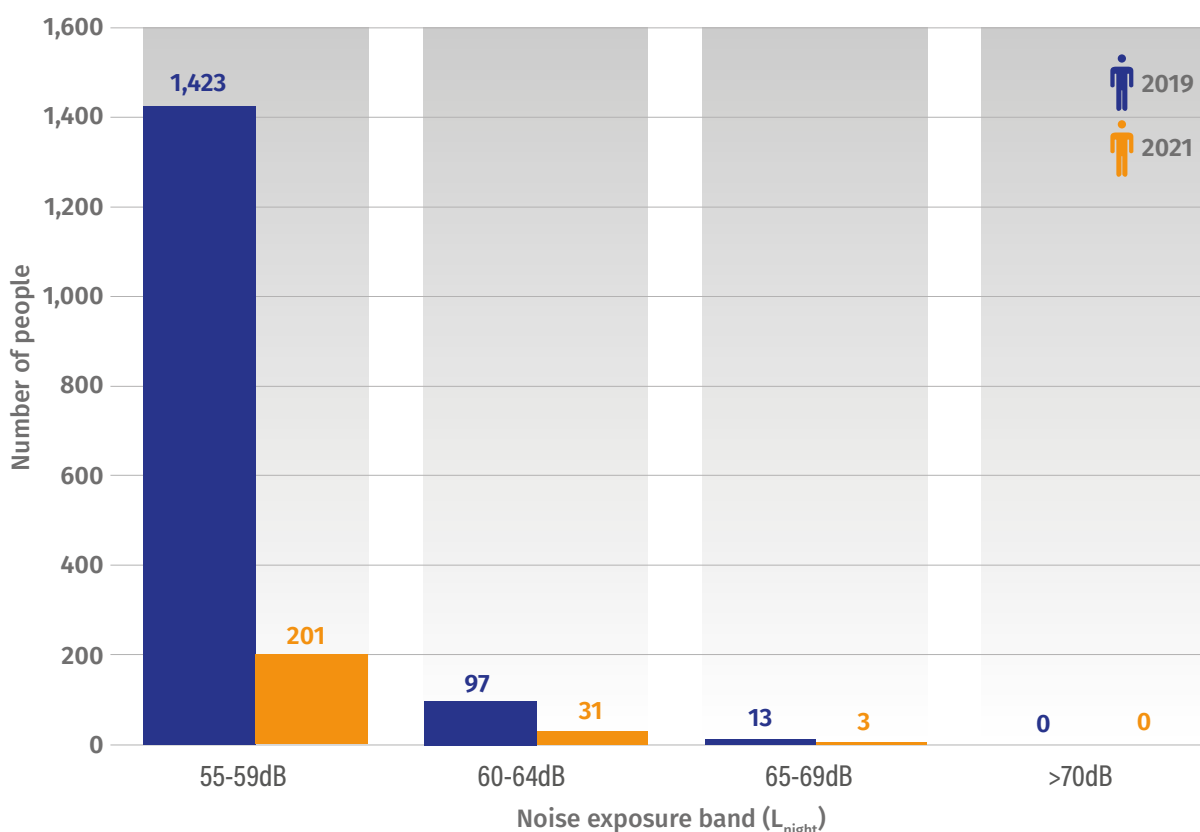


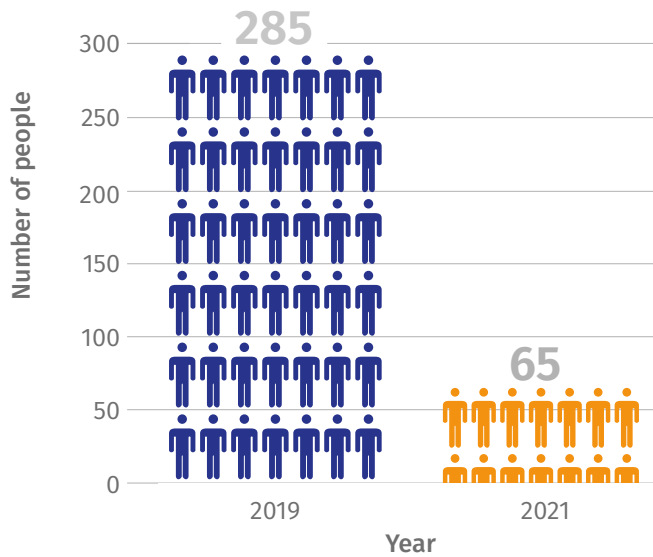
Figure 13 - Comparison of the overall number of people exposed to annual averaged night noise exposure level greater than 55dB (L_{night}) around Dublin Airport for 2019 and 2021 by noise exposure band in 5dB intervals

Noise band	Number of people in noise exposure levels $>55\text{dB } L_{\text{night}}$ in 2019	Number of people in noise exposure levels $>55\text{dB } L_{\text{night}}$ in 2021	Reduction in number of people in noise exposure levels $>55\text{dB } L_{\text{night}}$ between 2019 and 2021	% reduction in number of people in noise exposure levels $>55\text{dB } L_{\text{night}}$ between 2019 and 2021
L_{night} 55-59dB	1,423	201	1,222	86%
L_{night} 60-64dB	97	31	66	68%
L_{night} 65-69dB	13	3	10	77%
L_{night} $>70\text{dB}$	0	0	n/a	n/a

The numbers of people exposed to annual averaged night noise exposure level greater than 55 L_{night} are significantly lower across all 5dB noise bands with the highest reductions observed in the 55-59dB L_{night} exposure band.

NAO Expected Outcome

The number of people exposed to aircraft noise above 65dB L_{den} shall be reduced compared to 2019.



Reduction in the number of people in noise exposure level >65dB L_{den} between 2019 and 2021

220

% reduction of people in noise exposure level >65dB L_{den} between 2019 and 2021

77%

Figure 14 - Number of people exposed to aircraft noise in excess of 65dB L_{den}

The numbers of people in the noise exposure level >65dB L_{den} between 2019 and 2021 are also examined at the level of individual bands.

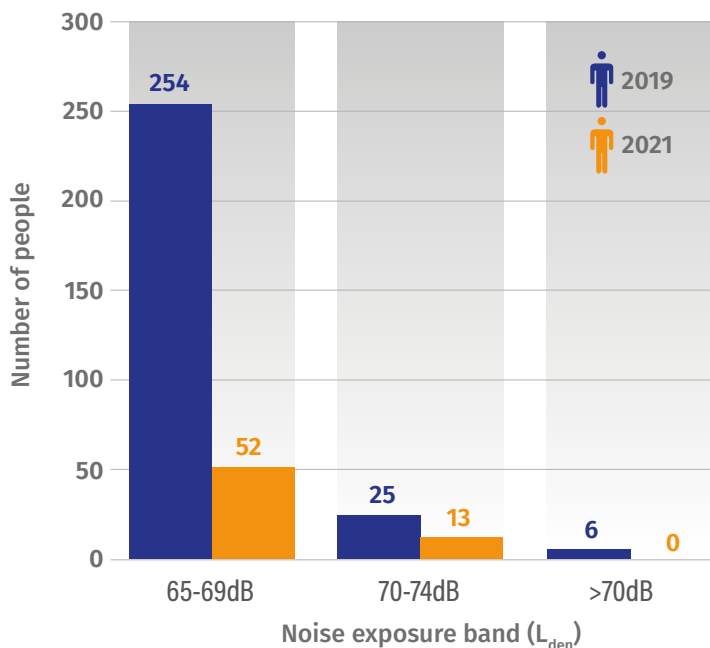


Figure 15 - Comparison of the overall number of people exposed to weighted annual averaged day-evening-night noise exposure level greater than 65dB (L_{den}) around Dublin Airport for 2019 and 2021 by noise exposure band in 5dB intervals

Noise band	Number of people in noise exposure levels >65dB L _{den} in 2019	Number of people in noise exposure levels >65dB L _{den} in 2021	Reduction in number of people in noise exposure levels >65dB L _{den} between 2019 and 2021	% reduction in number of people in noise exposure levels >65dB L _{den} between 2019 and 2021
65-69dB L _{den}	254	52	202	80%
70-74dB L _{den}	25	13	12	48%
>75dB L _{den}	6	0	6	100%

The numbers of people exposed to weighted annual averaged day-evening-night noise exposure level greater than 65dB (L_{den}) are significantly lower across all 5dB noise bands. During 2021, there was no population exposure to the highest noise band (>75dB).

A significant reduction in noise exposure is evident for the areas around Dublin Airport for 2021 when compared to the situation pertaining for 2019. The most significant contribution to this reduction is the reduced aircraft activity arising from the COVID-19 pandemic. The perception of sound can have a different impact in the context of the time in which it occurs. For this reason, environmental noise legislation subdivides the 24-hour period into three distinct periods of day, evening and night in recognition of the different impacts that sound can have on activity occurring during those periods. In addition to the subdivision of the 24-hour period, the combined noise reporting parameter L_{den} adds a 5dB penalty to the evening period and a 10dB penalty to the night-time period. For this reason, L_{den} is known as a ‘weighted’ annual average metric. Comparisons are provided below for the years 2019 and 2021 for each discrete period of the day.

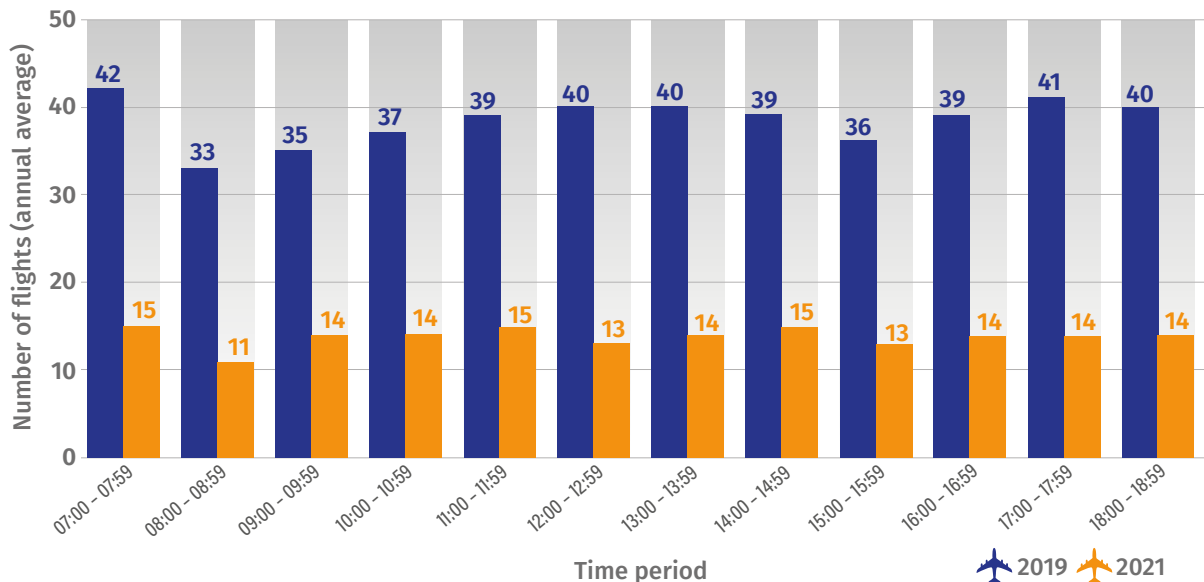
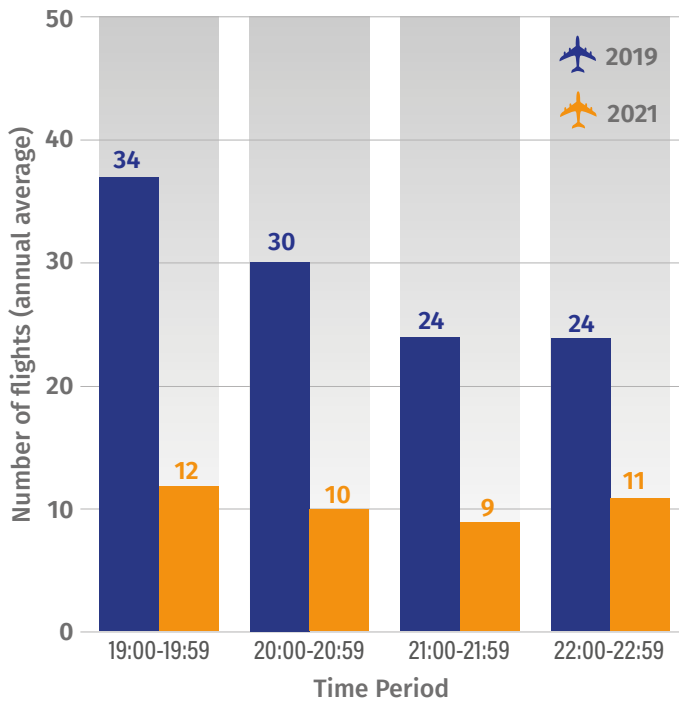


Figure 16 - Annual averaged daytime flight activity

The comparison of daytime aircraft activity (07:00-19:00) between the assessment years of 2019 and 2021 highlights the significant impact that the COVID-19 pandemic had on flight operations with an average reduction of 64% flight movements observed across the full day-time period during 2021 compared to 2019.



Aircraft activity decreased by an average of 63% across the evening period (19:00-23:00) during 2021 when compared to 2019. This is similar to the reduction in aircraft activity during the daytime period.

Figure 17 - Annual averaged evening aircraft activity

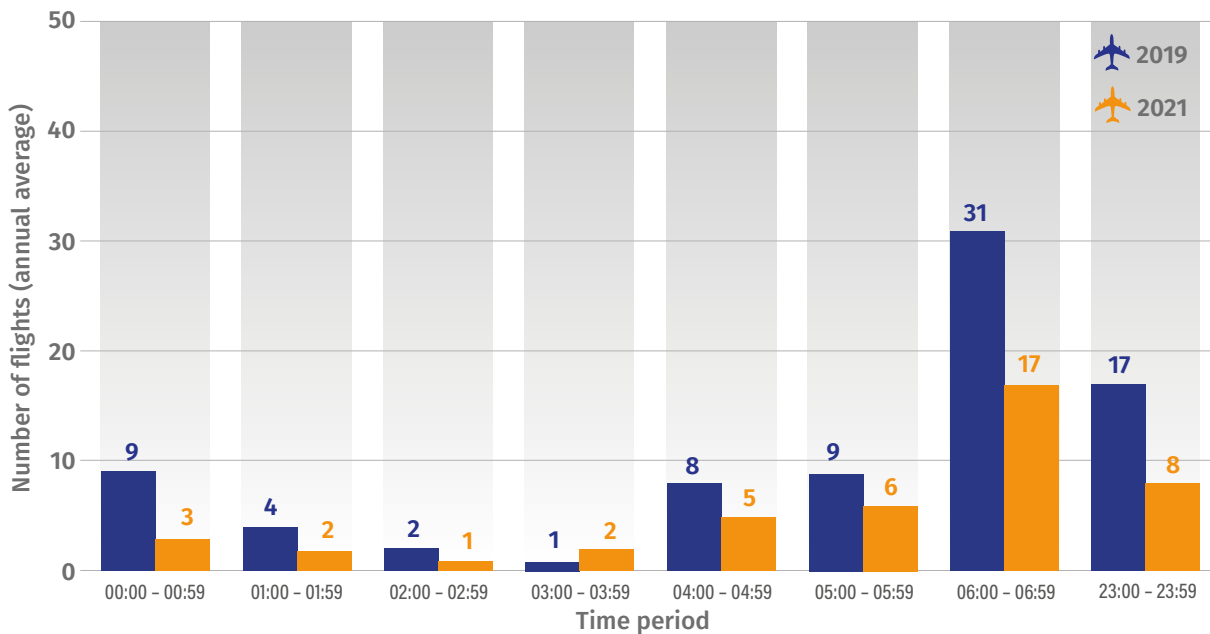
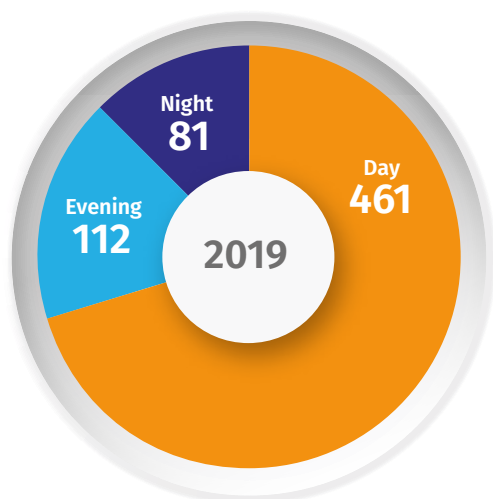


Figure 18 - Annual averaged night-time flight activity

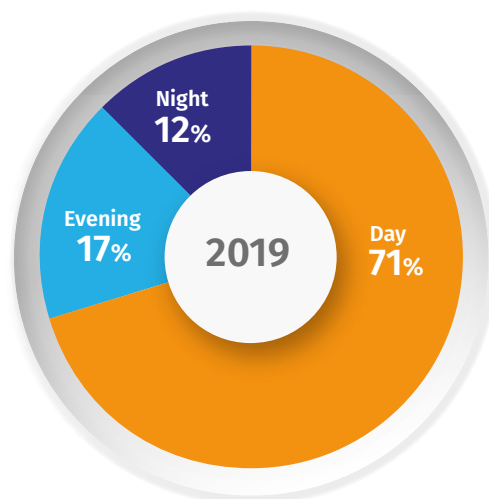
The annual averaged night-time period for 2021 had the lowest percentage reduction (48%) of all 24-hour periods when compared to 2019.

The majority of the night-time aircraft traffic at Dublin Airport occurs in the first and last hour of the period. This is significantly influenced by the first wave of aircraft based at Dublin Airport departing and returning again at the end of the day to the overnight stands.

2019: Daily Aircraft Movements

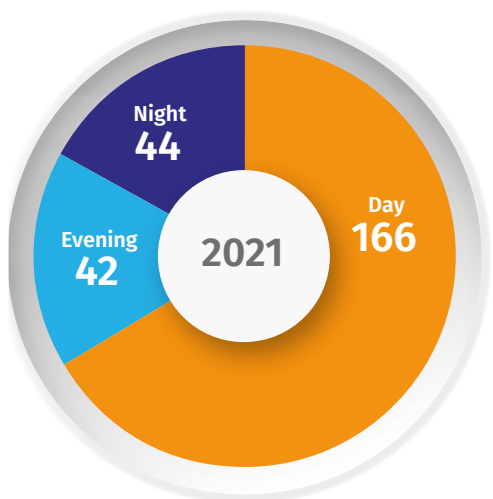


Number of daily aircraft movements 2019 (annual averaged)

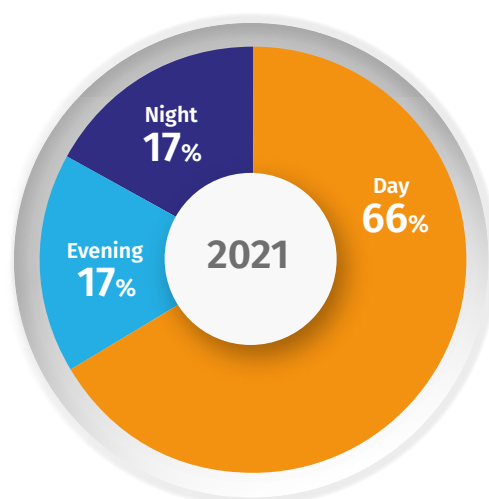


% of daily aircraft movements 2019 (annual averaged)

2021: Daily Aircraft Movements



Number of daily aircraft movements 2021 (annual averaged)



% of daily aircraft movements 2021 (annual averaged)

Although the number of aircraft movements decreased in 2021 for each subdivision of the 24-hour period when compared to 2019, the percentage of night-time movements was higher for 2021. The evening periods for 2019 and 2021 maintained a consistent ratio which suggests that the COVID-19 pandemic had the greatest impact on daytime flight operations at Dublin Airport.

This review was undertaken in accordance with the provisions of Section 21(2) of the Aircraft Noise (Dublin Airport) Regulation Act 2019 having regard to the expected outcomes of the Noise Abatement Objective dated 20 June 2022.

In this review, ANCA did not form the opinion that the noise abatement objective was not being achieved. Therefore, no actions have been considered necessary under the Aircraft Noise Regulation or the Aircraft Noise (Dublin Airport) Regulation Act 2019.

September 2022



An tÚdarás Inniúil um
Thorann Aerárthaí

Aircraft Noise
Competent Authority

Comhairle Contae
Fhine Gall
Fingal County
Council

