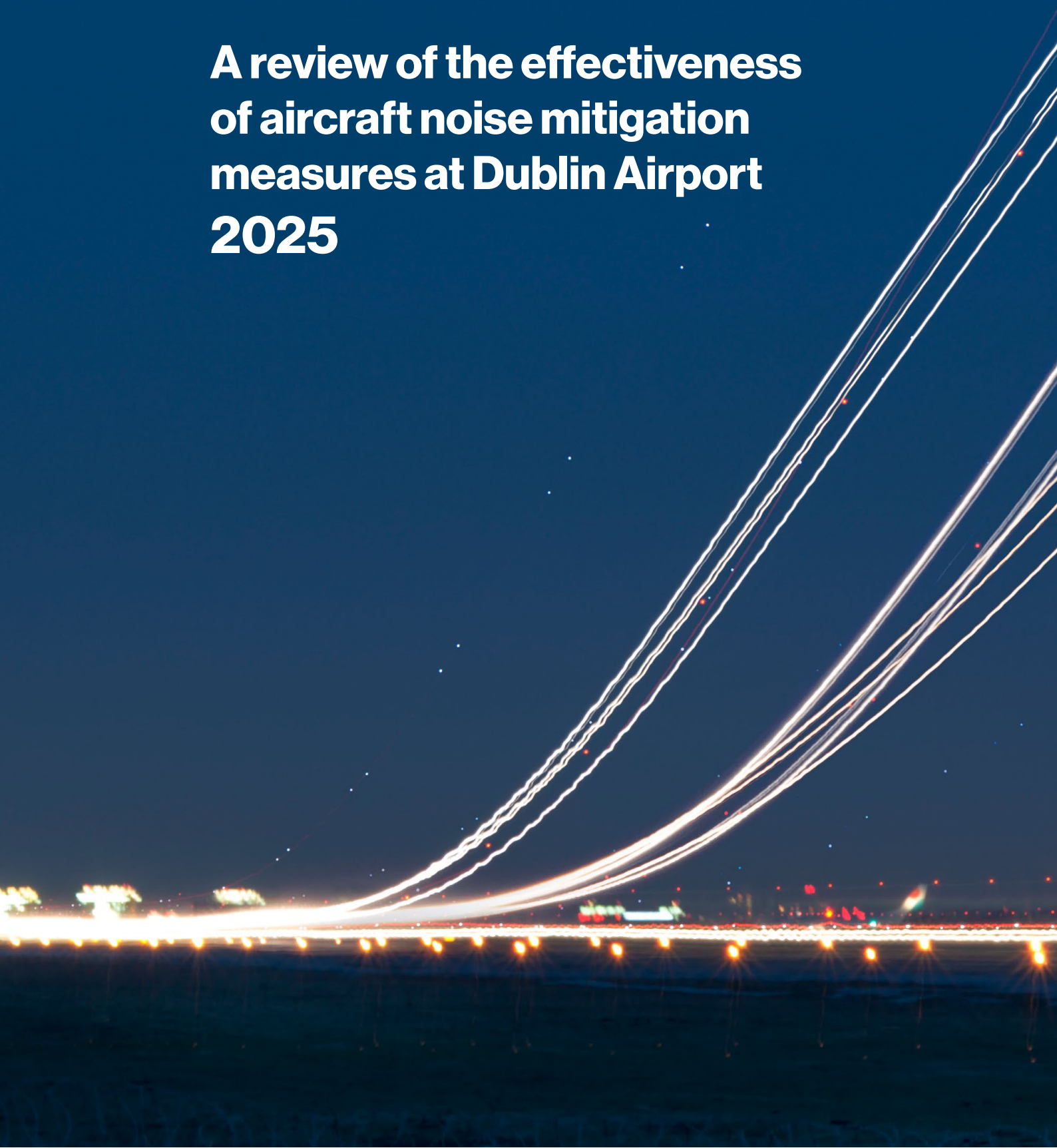




An tÚdarás Inniúil um  
Thorann Aerárthaí

Aircraft Noise  
Competent Authority

# **A review of the effectiveness of aircraft noise mitigation measures at Dublin Airport 2025**



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# Introduction

# 01



## Introduction

The impact of environmental noise on human health continues to be the subject of extensive research and analysis and is now recognised as one of the leading environmental risks to health in Europe. The 2018 Environmental Noise Guidelines by the World Health Organization (WHO) documents how long-term exposure to excessive noise from transport sources such as roads, railways and aircraft has negative impacts on human health and wellbeing. Aviation noise is a significant contributor to annoyance and sleep disturbance for people living around airports. Although more people are exposed to high levels of environmental noise from roads and rail across the European Union, studies report that the characteristics of aircraft noise cause a higher annoyance and sleep disturbance response.

The impact of aircraft noise on communities around an airport can be reduced and mitigated through a combination of technology innovation, operational procedures and land use management. Measures that limit the capacity of an airport for noise reasons can only be considered in the context of an identified noise problem that cannot be addressed in the first instance with other solutions working individually or in combination. This is known as the balanced approach to aircraft noise management.

The framework of measures for the management of aircraft noise at Dublin Airport remained in a phase of transition through planning and regulatory processes during 2025. Approval was issued by An Coimisiún Pleanála (ACP) during July 2025 for a planning application<sup>1</sup> that regulates the management of night-time aircraft noise at Dublin Airport. In addition to noise mitigation measures, the ACP decision contained operating restrictions that are subject to a process of review by the EU Commission as defined by Article 8 of Regulation (EU) 598/2014 (the Aircraft Noise Regulation). This ensures that measures that limit the operational capacity of an airport for noise reasons are applied in a consistent way across the European Union and the process in respect of this planning application had not concluded by the end of 2025. In addition, planning enforcement and legal processes associated with aviation activity at the airport also continued during 2025.

**The Balanced Approach to aircraft management is the selection of measures to address an identified noise problem at an airport in a consistent and transparent manner.**

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<sup>1</sup> ACP reference 314485, planning authority ref. F20A/0668.

The airport authority for Dublin Airport (daa) submitted a planning application to Fingal County Council in December 2023 for development that includes infrastructure projects and an increase to the permitted passenger capacity at the airport. The application was referred to ANCA for an assessment of the potential aircraft noise implications of the development as proposed. Further information was provided to ANCA in November 2025 to permit the completion of a noise assessment and the preparation of a draft regulatory decision for public consultation. The regulatory process to identify the noise mitigation measures to address the noise problem that may arise through the implementation of the development as proposed remains underway during 2026

The completion of these processes will have an impact on the aircraft noise climate around Dublin Airport. This report reviews the effectiveness of the noise mitigation measures in place at Dublin Airport on achieving the noise abatement objective during 2025.

## Policy and Legislative Framework

The International Civil Aviation Organization (ICAO) is a specialised agency of the United Nations that promotes aviation safety, efficiency, security, economic development and environmental protection between 193 member states. Ireland became a member of ICAO through the Convention on International Civil Aviation (the Chicago Convention) on 7 December 1944.

The Balanced Approach is the overarching ICAO policy for aircraft noise management and is given legal effect through European and Irish legislation.

Environmental noise is managed in Europe through the EU Environmental Noise Directive<sup>2</sup> (END) as transposed into Irish law as through the European Communities Environmental Noise Regulations<sup>3</sup> (ENR). The legislation requires member states to produce noise maps and action plans for major airports with more than 50,000 aircraft movements per year. These action plans form the basis for policy and regulatory changes to reduce environmental noise exposure and the associated negative impacts on health and wellbeing. Fingal County Council published a dedicated noise action plan for Dublin Airport in 2024 that contains actions and areas of improvement to be implemented during the 5-year duration of the plan.

The sustainable development of Dublin Airport is supported by planning and aviation policy at national, regional and local level. County development plans incorporate policies and zoning objectives to ensure that development occurs in a sustainable manner and in locations that are compatible with aviation activity. Noise zones ensure that appropriate assessment and mitigation is incorporated into the design and construction of new noise sensitive developments to minimise the impact of aviation on human health and wellbeing.

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### World Health Organization Environmental Noise Guidelines

**Guidelines by the World Health Organization provide recommendations for protecting human health from exposure to aircraft noise. The guidelines identify average outdoor aircraft sound levels of 45 dB Lden and 40 dB Lnight as thresholds associated with adverse effects on health and sleep.**

**Environmental noise in Ireland is regulated through EU directives transposed into national law, with a focus on reducing harmful effects of noise in public and sensitive areas with mandatory reporting thresholds from 55 dB Lden and 50 dB Lnight.**

**ANCA reports and sets noise objectives for Dublin Airport for aircraft noise from the WHO recommended thresholds.**

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<sup>2</sup> EC 2002/49/EC

<sup>3</sup> S.I. No. 549/2018 and its amendment S.I. No. 663/2021.

## The ICAO Balanced Approach

The balanced approach is a framework to address a noise problem at an airport by evaluating all available measures to reduce the aircraft noise impact in a cost-effective and sustainable way. The framework is based on four pillars of aircraft noise management: reduction of noise at source; land-use planning and management; noise abatement operational procedures; and operating restrictions. Operating restrictions that limit the capacity of an airport for noise reasons are only considered where other measures, alone or in combination, cannot achieve the desired outcome in a cost effective manner. Measures are developed in a transparent and consistent way that include stakeholder participation.



### Reduction of noise at source

Promotes the development and adoption of new technologies such as quieter aircraft and engines, including modifying existing aircraft to improve acoustic performance.



### Land-use planning and management

Involves the design and implementation of measures to ensure that surrounding land use is compatible with aircraft operations. This includes land use zoning, insulation and purchase of properties in area incompatible with aviation activity.



### Noise abatement operational procedures

Seek to reduce noise exposure by adjusting flight paths, using preferential runway selection, or implementing flight procedures such as continuous descent approaches that minimise noise over sensitive areas.



### Operating restrictions

Limit airport access with measures such as curfews, movement limits, or aircraft type bans. The Balanced Approach emphasises that operating restrictions should only be considered after all other measures have been evaluated and are unable to achieve the desired results cost-effectively.

## The Noise Action Plan for Dublin Airport 2024-2028 (NAP)

An action plan for the management of aircraft noise at Dublin Airport was prepared by Fingal County Council in 2024<sup>4</sup> through the provisions of the ENR. The NAP establishes actions to be undertaken during the duration of the plan and identifies potential areas for improvement as listed below.

| No. | NAP actions                                                                                                                                                                                                  |
|-----|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1   | Implement all noise mitigation measures at Dublin Airport unless and until updated, replaced or omitted through relevant processes.                                                                          |
| 2   | Carry out the process of Aircraft Noise Regulation at Dublin Airport in accordance with the relevant provisions of the Act of 2019, the Act of 2000 and/or the Aircraft Noise Regulation as appropriate.     |
| 3   | Carry out a review of the Noise Abatement Objective for Dublin Airport to support sustainable community and airport development in accordance with relevant plans and policies.                              |
| 4   | Undertake an encroachment analysis to ensure that relevant plans and objectives remain effective to ensure that land use planning is an effective component of the ICAO balanced approach at Dublin Airport. |

| No. | NAP areas for improvement                                                                                                                                                                                                                                                                                                                                                          |
|-----|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1   | Opportunities may exist to further develop the flight reporting software (Webtrak) as delivered during the 2019-2023 plan to provide additional community information such as flight tracks. It is important to ensure that there is community self-service access to good quality information relating to the noise climate around the airport and the factors that influence it. |
| 2   | Opportunities may exist to identify and implement improvements in noise abatement procedures in the AIP.                                                                                                                                                                                                                                                                           |
| 3   | Reduction of noise at source is an important objective. The promotion of quieter aircraft through incentives, particularly at night, such as FlyQuiet programmes or environmental charges schemes should continue to be progressed.                                                                                                                                                |
| 4   | The noise complaints management system is a valuable tool for communities to report aircraft noise concerns. The process of accepting, responding to and using the information provided through the complaints system should remain under ongoing review to identify and implement process enhancements where possible.                                                            |
| 5   | The significantly increased number of noise monitoring terminals has been a valuable enhancement to the network of monitors. Further improvements may be obtained by reviewing the locations of monitors to ensure they are closely aligned with airspace operations.                                                                                                              |

The relevant stakeholders will work to implement the actions and areas for improvement during the duration of the plan.

<sup>4</sup> <https://www.fingal.ie/Noise-Action-Plan-for-Dublin-Airport-2024-2028>.

# **The Noise Abatement Objective for Dublin Airport**

# 02



## The Noise Abatement Objective for Dublin Airport

A noise abatement objective (NAO) is a policy for managing the effects of aircraft noise emissions on the surrounding communities and environment at an airport where a noise problem has been identified. It is a plan to ensure that airport development occurs in the most sustainable way possible to minimise the impact of aircraft noise on human health.

Through the process of aircraft noise assessment and regulation associated with a planning application<sup>5</sup> seeking to amend the measures that regulate night-time aircraft activity at Dublin Airport, ANCA defined an NAO for Dublin Airport in June 2022. The NAO set time-based objectives for reductions of up to 50% in the numbers of people categorised as highly annoyed (HA) and highly sleep disturbed (HSD) in the communities around the airport. The NAO also contains objectives that seek to limit the number of people exposed to aircraft noise above 55dB  $L_{night}$  and 65dB  $L_{den}$  compared to 2019. The target outcomes are:-

- 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.

ANCA has commenced a further process of noise regulation through an assessment of a planning application<sup>6</sup> for development that includes proposed increases to the permitted passenger capacity at Dublin Airport and through this process proposed amendments to the NAO for the airport. The proposed amendments to the NAO and noise management framework, arising through an identified noise problem, opened for consultation with all stakeholders during 2026. However, the NAO dated June 2022 remained the operational NAO for Dublin Airport during 2025, the year of focus of this report.

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<sup>5</sup> Planning application reference F20A/0668

<sup>6</sup> Planning application reference F23A/0781

**Noise Abatement  
Objective for Dublin  
Airport (NAO)**

03



## Aircraft Noise Management at Dublin Airport

Every year, the airport authority prepares a report on the compliance of airport users with noise mitigation measures and operating restrictions in place at Dublin Airport. The report includes:

- (a) particulars of failures (if any) to comply with operating restrictions due to changes in flight procedures,
- (b) the general criteria applied when distributing and managing traffic at the airport to the extent that those criteria may relate to noise impact,
- (c) the data collected by the noise measuring systems,
- (d) particulars of failures by airport users to comply with noise mitigation measures and, in addition to the failures referred to in paragraph (a), other failures to comply with operating restrictions (including aircraft flying off track without being directed to do so by the Irish Aviation Authority),
- (e) proposals to avoid or reduce the failures referred to in paragraph (a) or (d), or both such failures, including the imposition of financial penalties, and
- (f) a non-technical summary of the matters referred to in paragraphs (a) to (e) (including an analysis of the data referred to in paragraph (c)).

The annual report also identifies the noise management framework in place at the airport and provides an update on the performance of the mitigation measures. These reports are available on the ANCA website<sup>7</sup> to view or download. The 2025 report identified the mitigation measures in place, or subject to research, at Dublin Airport and are reproduced in the tables below, referenced NS-1 to OR-2.

### Noise mitigation measures in place at Dublin Airport 2025

The noise mitigation measures in place at Dublin Airport, or subject to research, are reproduced below from the 2025 compliance report of the airport authority.

#### Reduction of Noise at Source (NS)

| Ref. | Item                                          | Description                                                                                                                                                                       | Tracking               |
|------|-----------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|
| NS-1 | Develop incentives for quieter aircraft types | Promotion of quieter aircraft types, particularly at night, through incentives such as a "Fly Quiet" programme or environmental charges schemes should continue to be progressed. | Progress on incentives |

<sup>7</sup> <https://www.fingal.ie/aircraftnoiseca/airport-compliance-reports>

**Noise Abatement Operational Procedures (NA)**

| Ref.  | Item                                                      | Description                                                                                                                                        | Tracking                             |
|-------|-----------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|
| NA-1  | Develop incentives for quieter aircraft operations        | Promotion of quieter operational procedures through consultation and incentives, such as a “Fly Quiet” programme should continue to be progressed. | Progress on incentives               |
| NA-2  | Preferential Runway Use                                   | Adherence to North Runway Planning Permission NRPP (2007) Conditions 3a to 3c.                                                                     | Report on compliance                 |
| NA-3  | Noise Preferential Routes (NPRs) and Flight-Track Keeping | Promulgate rules and provide systems to assist ANI and airlines for monitoring, reporting and performance improvement.                             | Progress on performance improvement  |
| NA-4  | Noise Abatement Operational Procedures                    | Research noise impacts and potential benefits including Noise Abatement Departure Procedure (NADP).                                                | Research and progress on improvement |
| NA-5  | Continuous Climb Operations                               | Update and promulgate rules and provide systems to assist ANI and airlines for monitoring, reporting and performance improvement.                  | Progress on performance improvement  |
| NA-6  | Continuous Descent Operations                             | Update and promulgate rules and provide systems to assist ANI and airlines for monitoring, reporting and performance improvement.                  | Progress on performance improvement  |
| NA-7  | Reverse Thrust                                            | Research impacts, potential monitoring and safety implications.                                                                                    | Progress on management               |
| NA-8  | Engine Ground Running                                     | Compliance with AIP requirements and limits.                                                                                                       | Compliance                           |
| NA-9  | APU Usage                                                 | Research potential APU monitoring and use reduction.                                                                                               | Research                             |
| NA-10 | Delayed Landing Gear Deployment                           | Research potential options for Landing Gear Deployment noise reduction and monitoring.                                                             | Research                             |

**Land Use Planning (LU)**

| Ref. | Item                                       | Description                                                                                                                      | Tracking                              |
|------|--------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|---------------------------------------|
| LU-1 | Residential Noise Insulation Scheme (RNIS) | Noise insulation for home in high noise areas.                                                                                   | Progress and compliance               |
| LU-2 | Voluntary Dwelling Purchase Scheme (VDPS)  | Purchase of homes in the highest noise areas.                                                                                    | Progress and compliance               |
| LU-3 | School Insulation Scheme (SIS)             | Noise insulation and ventilation of schools in high and moderate noise areas.                                                    | Progress and compliance               |
| LU-4 | Encroachment                               | Working with stakeholders, take a proactive role in the prevention of residential encroachment in the most noise impacted areas. | Progress on prevention and mitigation |

**Operating Restrictions (OR)**

| Ref. | Item                  | Description                                                                                 | Tracking                                      |
|------|-----------------------|---------------------------------------------------------------------------------------------|-----------------------------------------------|
| OR-1 | NR night-time closure | Runway 10L-28R shall not be used for take-off or landing between 2300 hours and 0700 hours. | Compliance                                    |
| OR-2 | Night ATM Limit       | Average night ATM $\leq 65$ (92-day modelling period).                                      | Update note by airport authority <sup>8</sup> |

<sup>8</sup> The decision of ACP (Order dated 16 July 2025) on the North Runway Relevant Action (NRRRA) (ABP Ref: ABP-314485-22 (F20A/0668)) was being reconsidered and remains incomplete.

## Reported performance and compliance of noise mitigation measures

The compliance report also identifies additional initiatives with industry and community stakeholders for the management of aircraft noise. The performance of the measures and airport authority opinion on compliance are reproduced below. Additional context can be obtained from the compliance report on the ANCA website.

| Ref. | Effectiveness/ Performance                                                                                                                                                | Opinion On Compliance |
|------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|
| NS-1 | Fleet improvement included an increase in Chapter 14 aircraft types from 33% to 46%, in particular driven by the Boeing Max fleet.                                        | Continual improvement |
| NA-1 | Monthly CDO is steady between 73-79% with one major operator achieved 95%.<br>NPR performance is consistently high at 99.9% on South Runway but 91% on North Runway.      | Continual improvement |
| NA-2 | RW 16/34 = 0.14% of total movements<br>10L NR dep = 0.03% of dep<br>28R NR arr = 0.64% of arr<br>NR Night = 0.44% of total annual movements                               | Compliance on-going   |
| NA-3 | SR 99.9% Adherence<br>NR 90.8% Adherence                                                                                                                                  | Continual improvement |
| NA-4 | See CCO, CDO and NADP below.                                                                                                                                              | Compliance on-going   |
| NA-5 | <b>EUROCONTROL CCO below FL100</b><br>2025: 99.5%<br>2024: 99.7%<br>2023: 99.6%<br><br><b>Draft CCO Performance- ANOMS</b><br>2025: 99%<br>2024: 98%<br>2023: 98%         | Continual improvement |
| NA-6 | <b>EUROCONTROL CDO below FL75</b><br>2025: 54%<br>2024: 56%<br>2023: 55%<br><br><b>Draft CDO Performance below 5,500ft - ANOMS</b><br>2025: 77%<br>2024: 78%<br>2023: 77% | Continual improvement |
| NA-7 | Research starts with investigating current noise impacts and thus potential improvements. Then monitoring options can be considered.                                      | Research started      |

| Ref.  | Effectiveness/ Performance                                                            | Opinion On Compliance                                                                       |
|-------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|
| NA-8  | Improve noise monitoring to confirm and track engine testing.                         | 19 tests 20:00-07:00<br>7 tests 07:00-09:00<br>CAT C                                        |
| NA-9  | Research                                                                              | Research is on-going.<br>Trials being conducted at Schiphol and Gatwick.                    |
| NA-10 | Research                                                                              | Research on data collection is commencing. Trials being conducted at Heathrow.              |
| LU-1  | Homes completed in 2025/26 were 205 of 230 eligible. Next biennial review is in 2028. | Compliant                                                                                   |
| LU-2  | More offers than scheme requirements. 14 purchased, 1 in process.                     | Compliant                                                                                   |
| LU-3  | Five eligible schools were completed.                                                 | Compliant                                                                                   |
| LU-4  | Safeguarding reviews of planning applications has started.                            | Residential intensification continues in noise impacted areas east and west of the airport. |

## Effectiveness / Performance and Opportunities for Improvement

The update on opportunities for improvement to the effectiveness of the noise mitigation measures.

| Ref.  | Opportunities for improvement.                                                                                                                                                                                                                                                                                                                                                       |
|-------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| NS-1  | Annual review and update of noise charges to further incentivise the quietest aircraft.                                                                                                                                                                                                                                                                                              |
| NA-1  | ANOMS Perform Trak module is now in place for ANI and the four largest airlines. This platform allows ANSP and airlines to view their NPR, CDO and CCO deviations and export the data. Regular monthly reports are sent to 30 other airlines. Data and analysis can help and encourage airlines to improve. A major airline would like to improve their NPR track adherence to 100%. |
| NA-2  | None – already standard operations.                                                                                                                                                                                                                                                                                                                                                  |
| NA-3  | New ANOMS module, Perform Trak, helps identify and manage NPR Track Deviations and label ATC directions. Airlines have access to data in (almost) real time to manage and improve performance. Monthly Flight Track Performance Report are shared with 30 individual operators.                                                                                                      |
| NA-4  | Potential development of ANOMS NADP identification capability, APU noise monitoring, FEGP usage monitoring and delayed landing gear monitoring for low power/low drag operation.<br>Enhancement of NAOP rules (NPR, CDO, CCO, Single Engine Taxi, APU usage, NADP) in the AIP. Technical review is pending at AirNav Ireland.                                                        |
| NA-5  | Potential for development of local CCO/CDO procedures to better reflect procedures at Dublin Airport.<br>Perform Trak ANOMS module would incorporate CCO.                                                                                                                                                                                                                            |
| NA-6  | Revise legacy rules with important input from AirNav and the airlines.<br>Promote Perform Trak and report to assist airline management and improvement.<br>DTG (Distance to Go) distance to be provided to flight crew by ATC upon request.                                                                                                                                          |
| NA-7  | Reducing reverse thrust noise will also be a safety issue and always the decision of the pilot. Reliable measurement will need to proceed options to reduce.                                                                                                                                                                                                                         |
| NA-8  | Introduce standing item in the DAOPG. Improve noise monitoring to confirm and track engine testing.                                                                                                                                                                                                                                                                                  |
| NA-9  | First step is investigating data collection options.                                                                                                                                                                                                                                                                                                                                 |
| NA-10 | First step is investigating data collection options.                                                                                                                                                                                                                                                                                                                                 |

# **Aircraft activity and the noise climate at Dublin Airport**

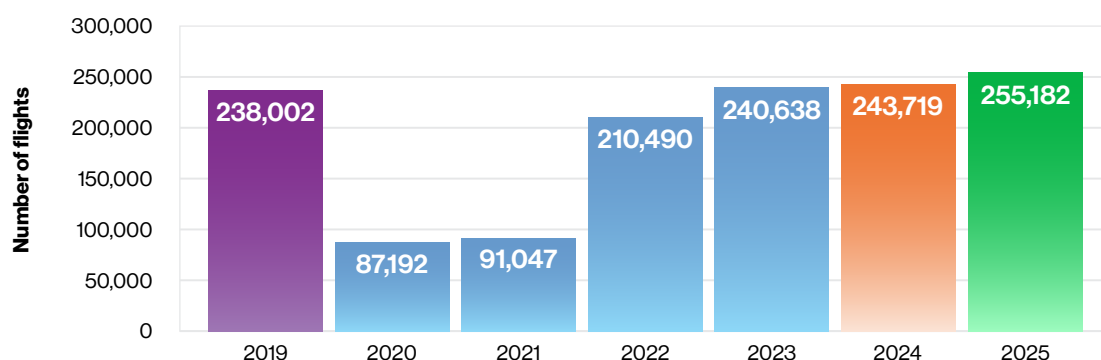
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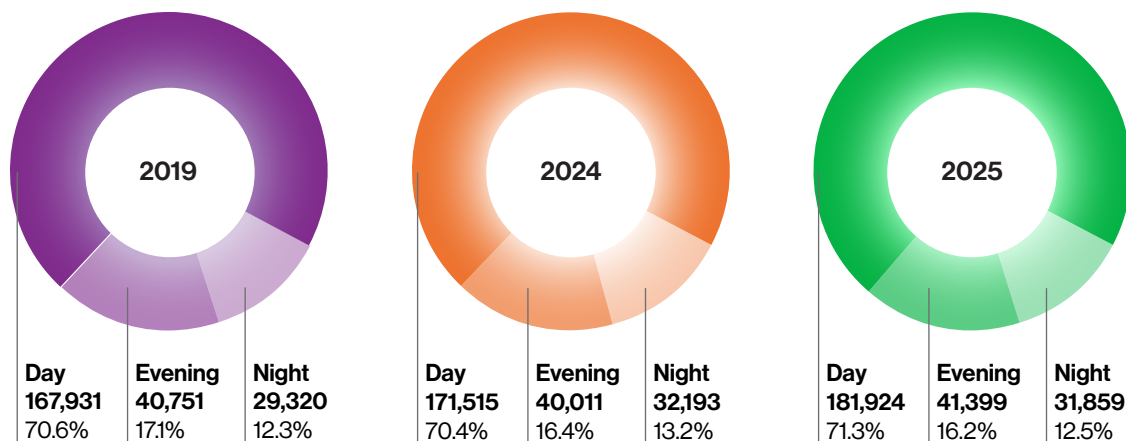
## Aircraft Activity at Dublin Airport

The aircraft noise climate around an airport is influenced by the scale and time of activity, the composition of the aircraft fleet, and the combined effectiveness of the measures in place to mitigate the noise impact. The figures below provide information on the scale of aircraft activity at Dublin Airport, the periods of the day during which it occurs and the volume of aircraft movements for the most common types of aircraft in the fleet mix.

**Figure 1** Annual aircraft movement numbers 2019 - 2025

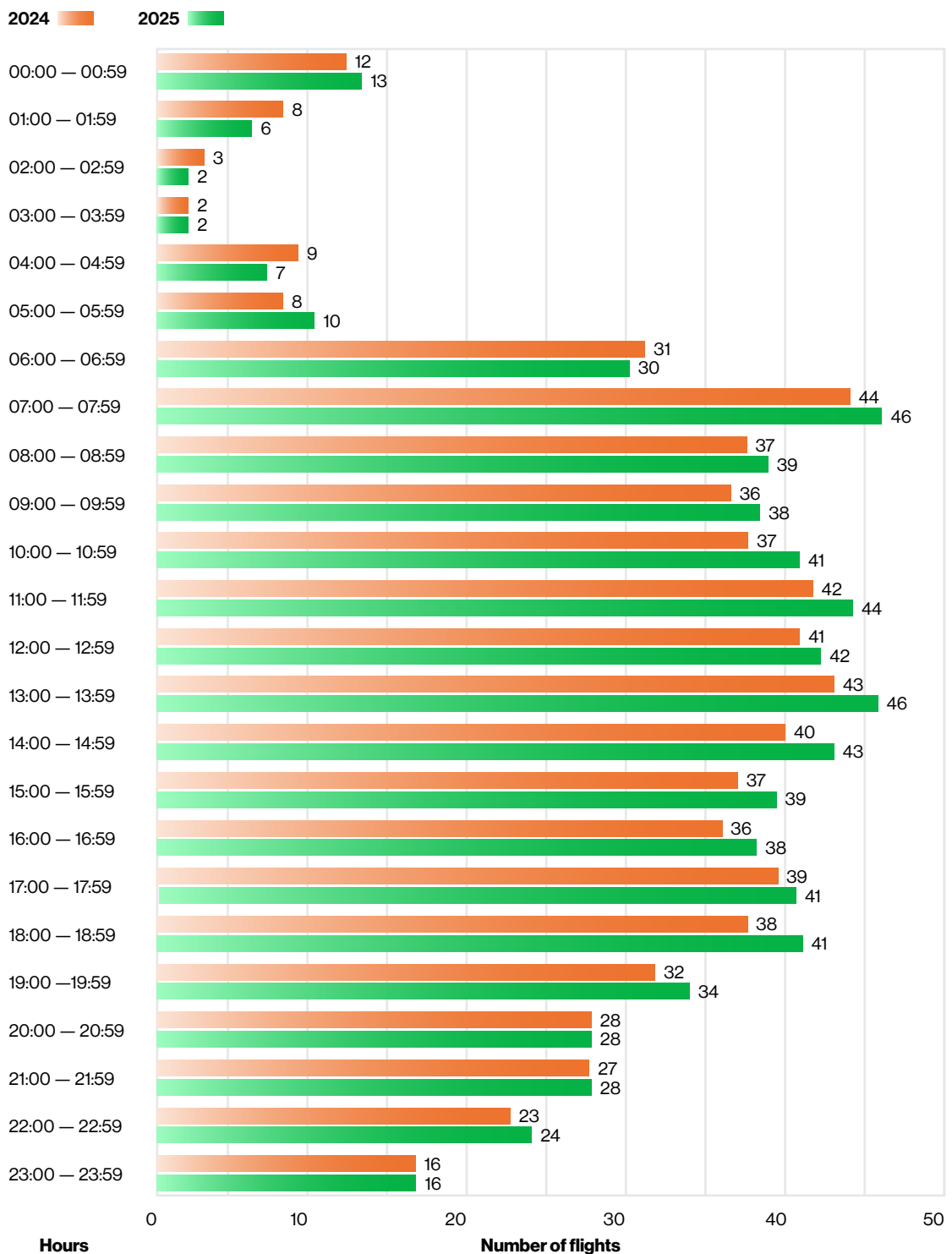


**Figure 2** Diurnal distribution of flights 2019, 2024 and 2025



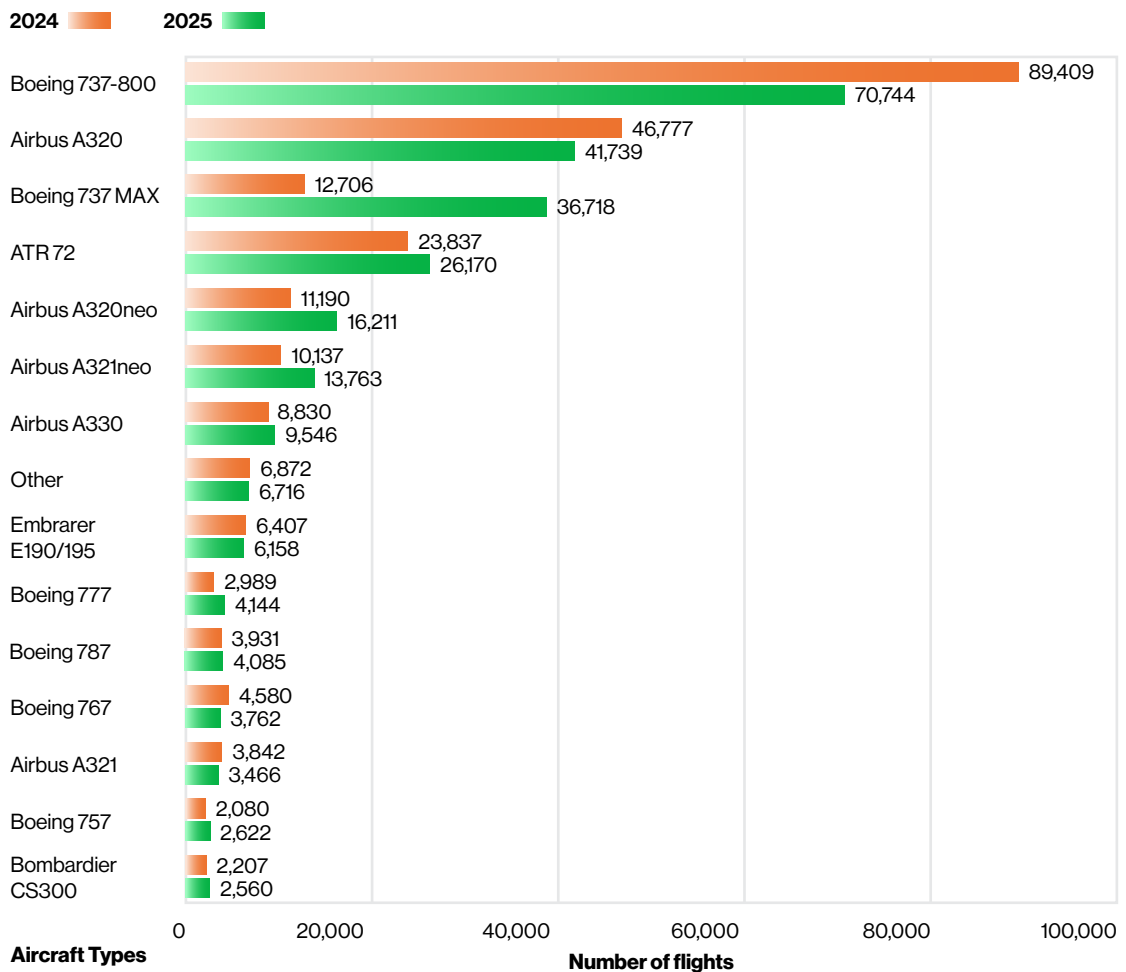
Annual aircraft movements increased by 11,463 from 2024 to 2025. This increase was primarily associated with the day-time periods (07:00-19:00). Although there was a 3.5% increase in evening activity across the year (19:00-23:00) between 2024 and 2025, the evening activity reduced as a percentage of the overall annual aircraft movements. Night-time activity (23:00-07:00) reduced in volume during 2025 and as a percentage of overall activity during 2025 compared to the preceding year, Figure 3 highlights fluctuations in the daily average hourly profile of aircraft activity as averaged across the full 2025 calendar year compared to the preceding year.

**Figure 3** Annual averaged daily flight distribution by hour 2024 and 2025



The number of annual aircraft movements are shown in Figure 4 for the top 15 airframe types in the fleet mix at Dublin Airport during 2024 and 2025. Boeing 737-800 and Airbus A320 represented 45% of these fleet movements in 2025. These aircraft are previous generation types which are being progressively replaced with the new and latest generation aircraft, namely the Boeing 737max and A320neo.

**Figure 4** Top 15 airframe types in the Dublin fleet mix



Airbus and Boeing aircraft represent the highest numbers of aircraft by movement and manufacturer at Dublin Airport. The number of new generation aircraft from these manufacturers (neo and max) aircraft are quieter than their predecessors due to advancements in technology and design. The numbers of aircraft movements by these new generation aircraft increased from 14% to 26% of all fleet movements in 2025 compared to 2024 with corresponding reductions in older generation fleet. Reduction of noise at source through improvements in engine and airframe technology is an important pillar of the Balanced Approach.

## The Aircraft Noise Climate at Dublin Airport 2025

**Table 1 Noise Action Plan and NAO Metrics**

WHO recommended aircraft noise exposure levels are below the END mandatory noise level reporting thresholds of 55 dB  $L_{den}$  and 50 dB  $L_{night}$ .

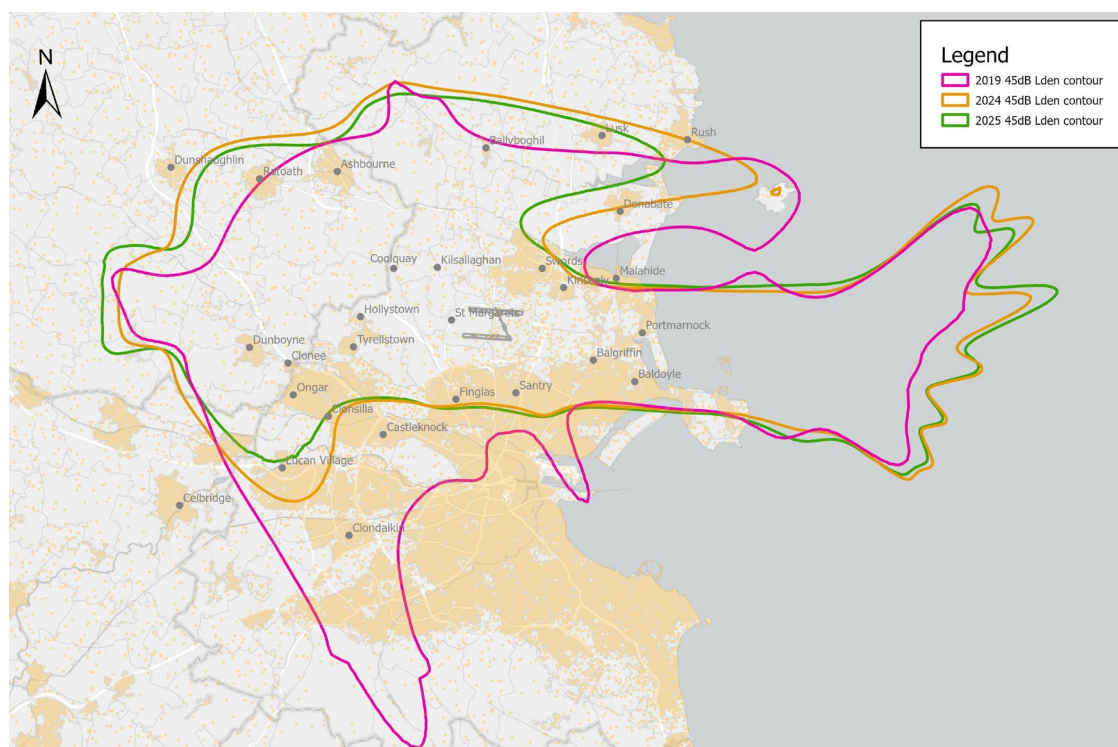
ANCA monitors and reports on aircraft noise from the WHO recommended levels of 45 dB  $L_{den}$  and 40 dB  $L_{night}$  and incorporates calculations of health impacts from these thresholds into noise policy objectives for Dublin Airport. The 2022 NAO target outcomes were benchmarked against data from the 2019 noise climate as measured from the WHO recommended levels.

| Indicator                                                                    | 2019    | 2024    | 2025    | 2025 noise climate performance against 2019 | 2025 noise climate performance against 2024 |
|------------------------------------------------------------------------------|---------|---------|---------|---------------------------------------------|---------------------------------------------|
| Noise exposure from WHO recommended measurement levels                       |         |         |         |                                             |                                             |
| Area of noise exposure above 40dB $L_{night}$ (sq.km)                        | 328.4   | 344.2   | 303.1   | ▼                                           | ▼                                           |
| Number of people exposed to aircraft noise above 40dB $L_{night}$            | 344,912 | 267,315 | 260,830 | ▼                                           | ▼                                           |
| Number of people classified as highly sleep disturbed above 40dB $L_{night}$ | 47,045  | 39,144  | 38,699  | ▼                                           | ▼                                           |
| Area of noise exposure above 45dB $L_{den}$ (sq.km)                          | 745.7   | 680.3   | 631.0   | ▼                                           | ▼                                           |
| Number of people exposed to aircraft noise above 45dB $L_{den}$              | 754,135 | 483,517 | 440,608 | ▼                                           | ▼                                           |
| Number of people classified as highly annoyed above 45dB $L_{den}$           | 115,738 | 80,769  | 77,388  | ▼                                           | ▼                                           |
| NAO priority noise exposure levels and contour areas                         |         |         |         |                                             |                                             |
| Area of 55dB $L_{night}$ Contour (sq.km)                                     | 18.6    | 19      | 19.7    | ▲                                           | ▲                                           |
| Number of people exposed to aircraft noise above 55dB $L_{night}$            | 1,533   | 6,791   | 7,537   | ▲                                           | ▲                                           |
| Area of 65dB $L_{den}$ Contour (sq.km)                                       | 12.2    | 13.5    | 14.6    | ▲                                           | ▲                                           |
| Number of people exposed to aircraft noise above 65dB $L_{den}$              | 285     | 348     | 310     | ▲                                           | ▼                                           |

The  $L_{den}$  metric (day-evening-night noise level in dB) is the long-term annual average indicator in decibels, designed to assess annoyance. It refers to an A-weighted average sound pressure level over all days, evenings and nights in a year, with an evening weighting of 5 dB and a night weighting of 10 dB as noise is generally more annoying during these periods. There is more information on the ANCA website explaining why this metric is used by ANCA.

The area impacted by aircraft noise around Dublin Airport from 45dB L<sub>den</sub> changed significantly through the opening of the north parallel runway in 2022 (Figure 5). The additional runway facilitates the distribution of aircraft in a manner that reduces the community impact of aircraft noise around the airport. Although prioritised runway selection has facilitated significant reductions in people exposed to aircraft noise and reductions in the people experiencing adverse health outcomes, some communities will be overflowed by arriving and departing aircraft or may be overflowed at lower altitude than was previously the case.

**Figure 5** Noise impact area above 45dB L<sub>den</sub> 2019, 2024 and 2025

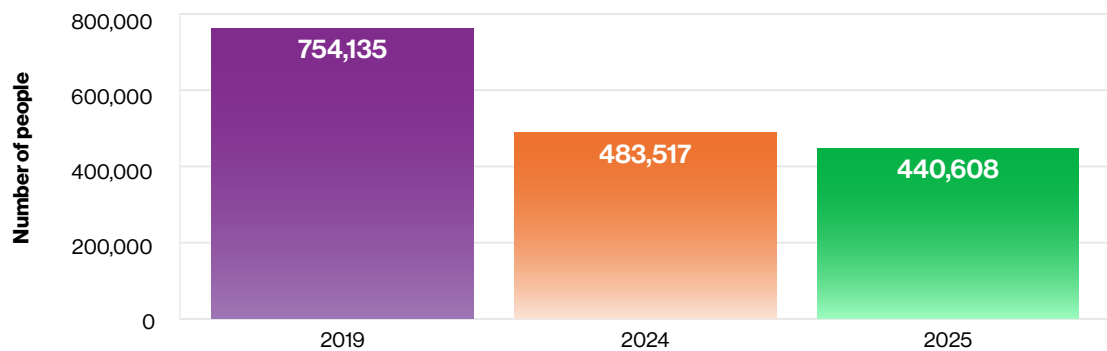


### Numbers of people impacted by aircraft noise

Strategic noise maps facilitate the identification of both the number of people exposed to aircraft noise and the calculation of those likely to experience adverse health outcomes such as high annoyance. This process permits the design and evaluation of the effectiveness of noise mitigation measures. The number of people living around an airport is not static and the numbers impacted are the combined effect of aviation activity (and the measures in place to manage it) and the development of new communities around the airport. The number of people impacted by aircraft noise around the airport above  $45L_{den}$  remains below 2019 levels and reduced during 2025 in comparison to the preceding year.

Despite the number of aircraft movements at the airport increasing from 2024 to 2025, the commissioning of the north runway at the airport was a significant contributing factor to these reductions when compared to 2019. Modernisation of the fleet mix during 2025 is likely to be a significant factor in the additional reduction in noise impact between 2024 and 2025.

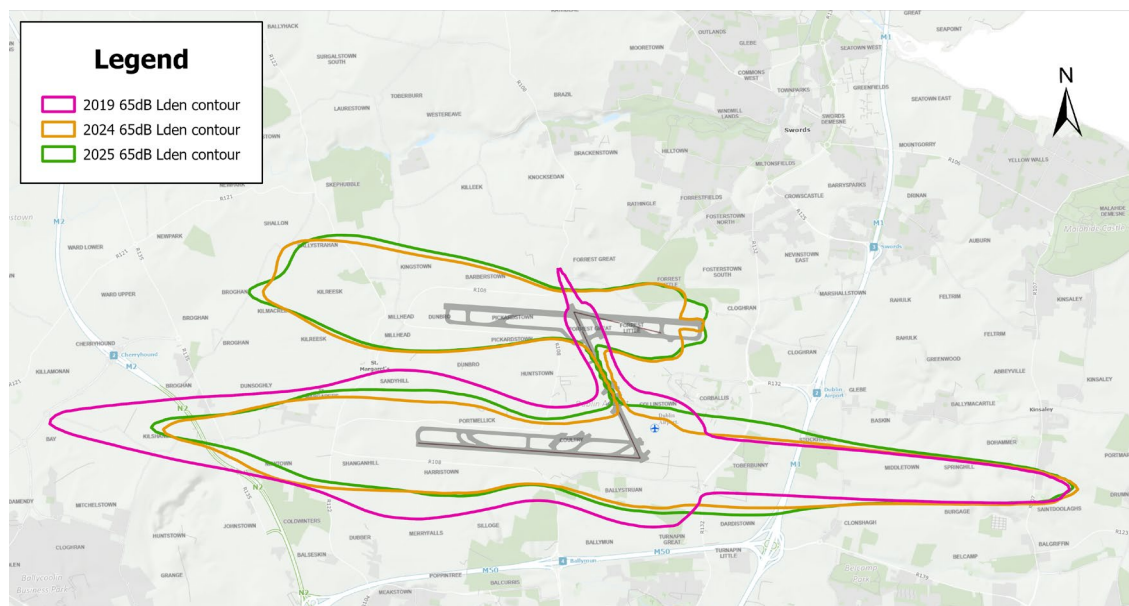
**Figure 6** Number of people exposed to aircraft noise above  $45dB L_{den}$  2019, 2024 and 2025



### Number of people exposed to aircraft noise above $65dB L_{den}$

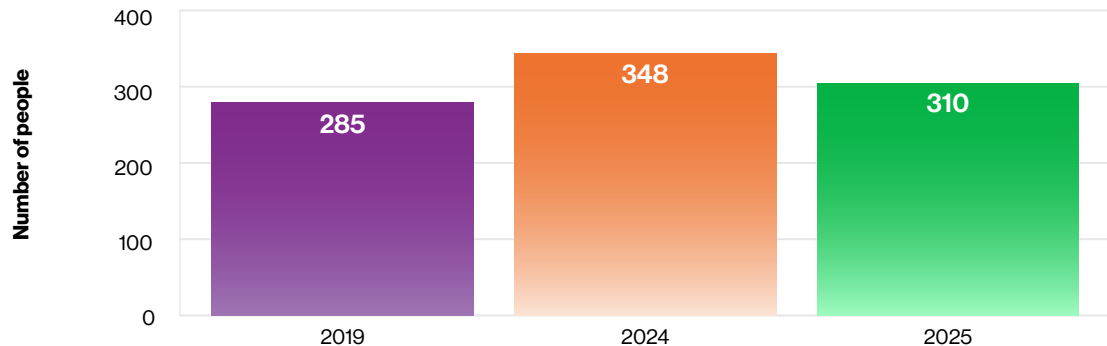
The 2022 NAO contains an objective to limit the number of people exposed to aircraft noise above  $65dB L_{den}$ . The commissioning of the north runway in 2022 altered the distribution of aircraft during the day and evening periods which affected the areas impacted (Figure 7 below).

**Figure 7** Area exposed to aircraft noise above  $65dB L_{den}$  2019, 2024, and 2025.



Although the area of noise exposure representing the NAO priority metric of 65dB  $L_{den}$  increased by 8% during 2025 compared to 2024, the number of people affected reduced by 11% (Figure 8) during the same period. The area of exposure remains higher than 2019 and the number of people exposed above this noise level remains above the NAO objective. The combination of factors contributing to this outcome are detailed in the ANCA 2026 NAO review report<sup>9</sup>.

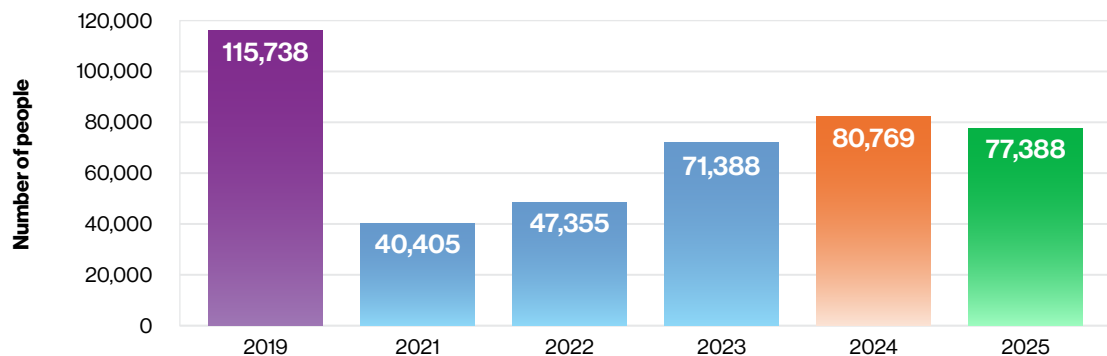
**Figure 8** Number of people exposed to aircraft noise above 65dB  $L_{den}$  2019, 2024, and 2025



#### Number of people experiencing high annoyance

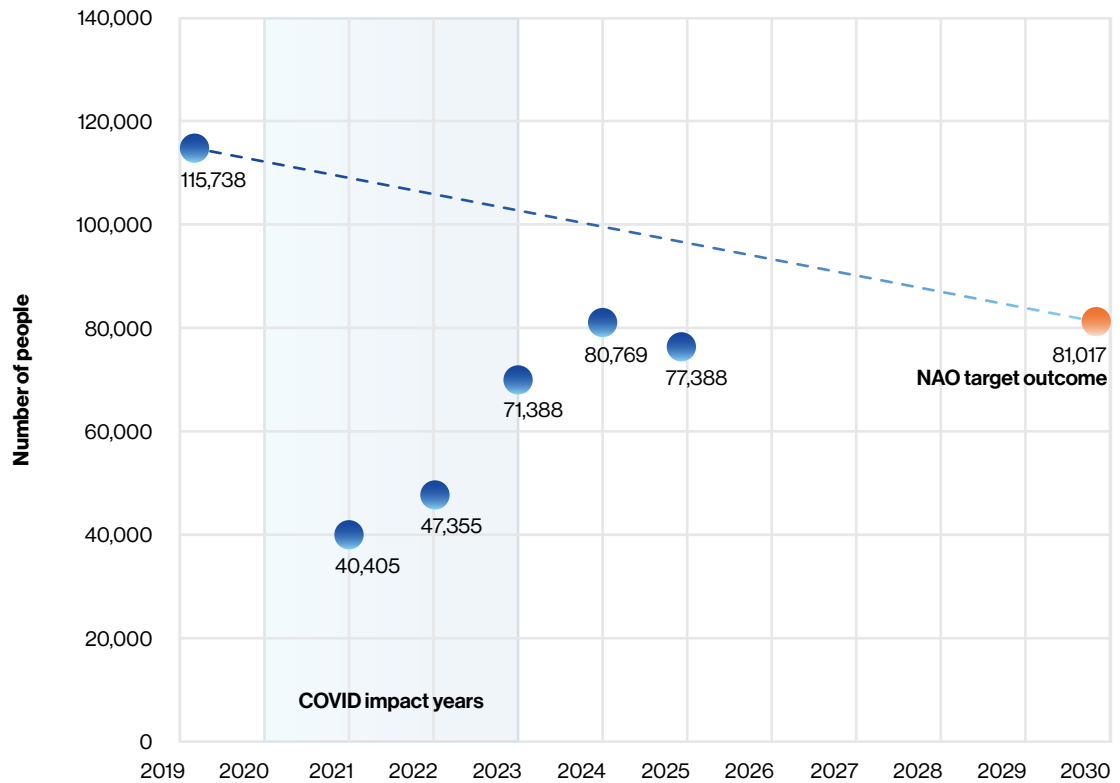
The NAO includes time-based targets for reductions in the number of people categorised as highly annoyed by aircraft noise. As the human response to sound is specific to each individual, END provides a standardised methodology for calculating high annoyance based on the systematic review of studies carried out by the WHO which link average noise levels ( $L_{den}$ ) to the percentage of highly annoyed population (HA). This metric is used by the EU for the definition of the Exposure Response Function (ERF) between noise and health effect.

**Figure 9** Number of people categorised as Highly Annoyed 2019 - 2025



In 2025, 77,388 people were categorised as highly annoyed by aircraft noise from Dublin Airport – a 4.2% reduction since the previous year. The NAO has timebound objectives to reduce the number of HA by 30%, 40%, and 50% by 2030, 2035, and 2040 respectively.

<sup>9</sup> <https://www.fingal.ie/sites/default/files/2026-05/02-noise-abatement-objective-report-may-2026.pdf>

**Figure 10** Number of people Highly Annoyed against NAO 2030 target

The number of people classified as highly annoyed from aircraft noise at Dublin Airport reduced during 2025 and, with a reduction of 33% as measured against 2019, remains ahead of the 2030 NAO target of 30%. The availability of the north runway since 2022 during the day and evening periods has facilitated preferential runway use that reduces the community impact of aircraft noise. In the absence of other significant changes to aircraft noise operations between 2024 and 2025, a higher proportion of newer generation aircraft in the fleet mix is likely to have been a significant contributor to the additional improvement to the noise climate since the preceding year.

The  $L_{\text{night}}$  metric (night noise level in dB) is the long-term annual average indicator in decibels, designed to assess sleep disturbance. It refers to an A-weighted annual average night period of exposure. There is more information on the ANCA website explaining why this metric is used by ANCA.

The area impacted by aircraft noise around Dublin Airport above 40dB L<sub>night</sub> has both reduced in size and has changed geographically since 2019 as planning conditions restrict the crosswind runway to limited operational use only since 2022. Priority runway selection between the remaining parallel runways to minimise the community noise impact is not currently permitted during night-time hours. Figure 11 illustrates the geographical impact of aircraft noise at night above 40dB L<sub>night</sub> for 2019, 2024 and 2025.

**Legend**

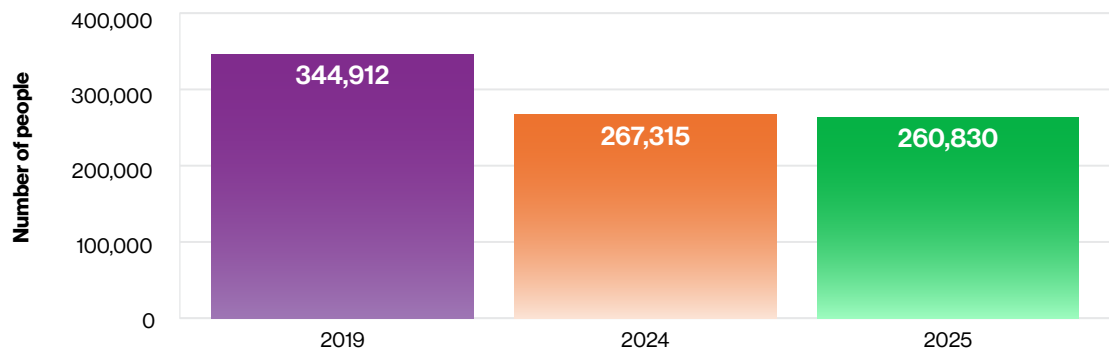
- 2019 40dB Night contour
- 2024 40dB Night contour
- 2025 40dB Night contour

Map labels include: Dunshaughlin, Ratoath, Ashboona, Ballyboghil, Lusk, Rush, Donabate, Swords, Kinsealy, Malahide, Portmarnock, Balgriffin, Baldoyle, Santry, Enghave, Castleknock, Clonsilla, Lucan Village, Gondalkin, Celbridge, Clonsilla, Tyrellstown, Dunboyne, St Margarets, Coolquay, Kilsallaghan, and Hollystown.

### Numbers of people impacted by aircraft noise

The preparation of strategic noise maps also facilitates the calculation of those likely to experience adverse health outcomes associated with nighttime noise such as high sleep disturbance. The number of people impacted by aircraft noise around the airport above 40dB  $L_{night}$  remains below 2019 levels and further reduced during 2025 in comparison to the preceding year. The commissioning of the north runway at the airport contributed to this improvement by reducing operational use of the crosswind runway over densely populated areas. Modernisation of the fleet mix during 2025 is likely to be a significant factor in the additional reduction in noise impact between 2024 and 2025.

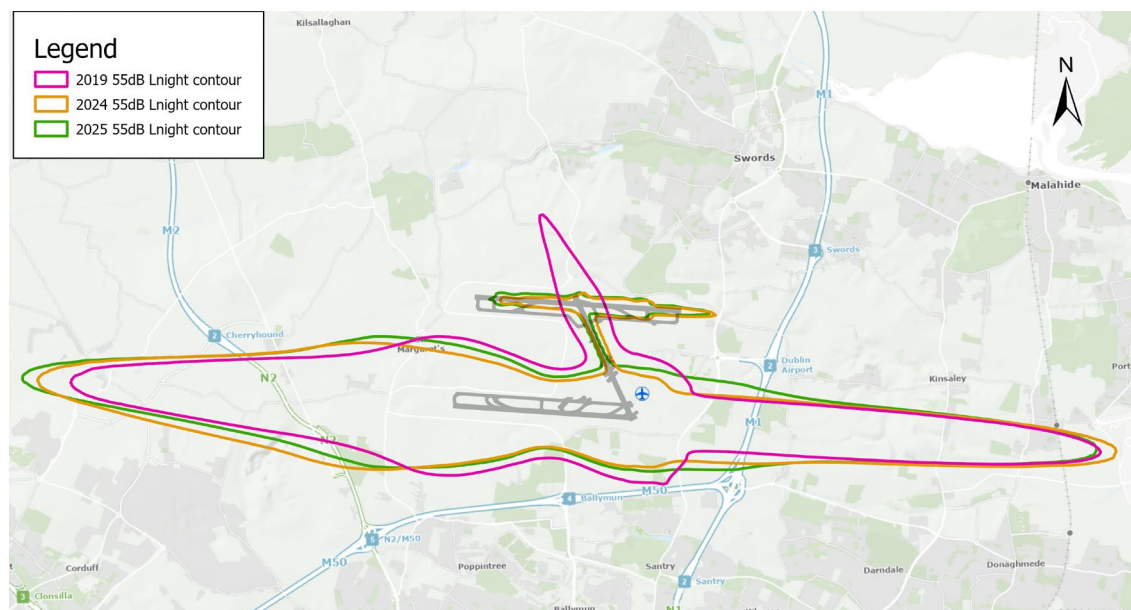
**Figure 12** Number of people exposed to aircraft noise above 40dB  $L_{night}$  2019, 2024 and 2025



### Number of people exposed to aircraft noise above 55dB $L_{night}$

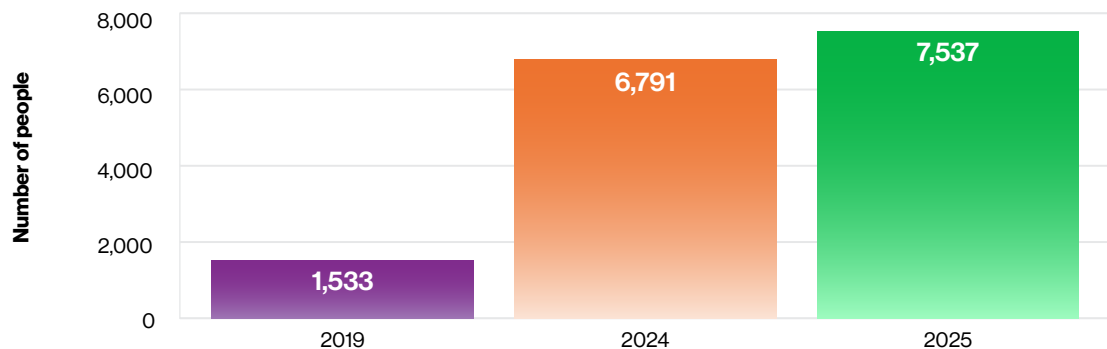
The 2022 NAO also contains an objective to limit the number of people exposed to aircraft noise above 55dB  $L_{night}$ . The area of exposure representing the NAO priority metric of 55dB  $L_{night}$  marginally increased between 2024 and 2025 and remains larger than 2019. The commissioning of the north runway restricts the crosswind runway to limited operational use only since 2022 which altered the geographic impact of the aircraft noise above this level and therefore the communities affected. Figure 13 illustrates the 55dB  $L_{night}$  noise contours for 2019, 2024 and 2025.

**Figure 13** Area exposed to aircraft noise above 55dB  $L_{night}$  2019, 2024, and 2025.



The number of people exposed to aircraft noise above this nighttime level continues to trend upwards from the 2019 baseline. The combination of factors contributing to this are also presented in the ANCA 2026 NAO review report.

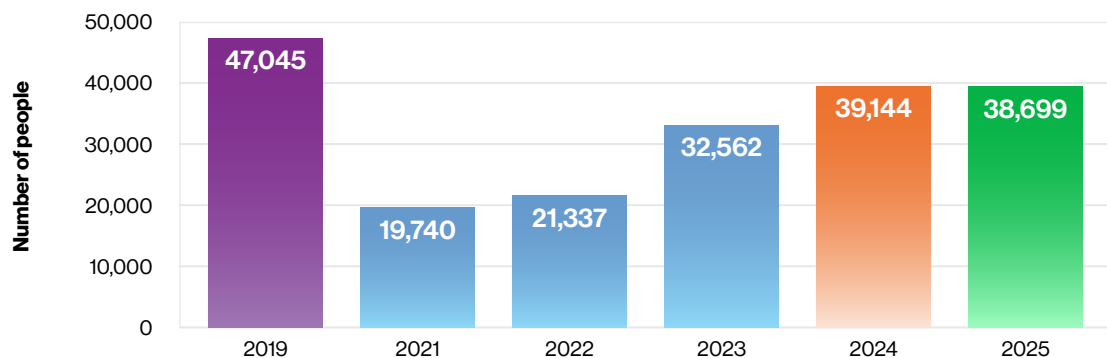
**Figure 14** Number of people exposed to aircraft noise above 55dB  $L_{night}$  2019, 2024 and 2025



#### Numbers of people experiencing high sleep disturbance

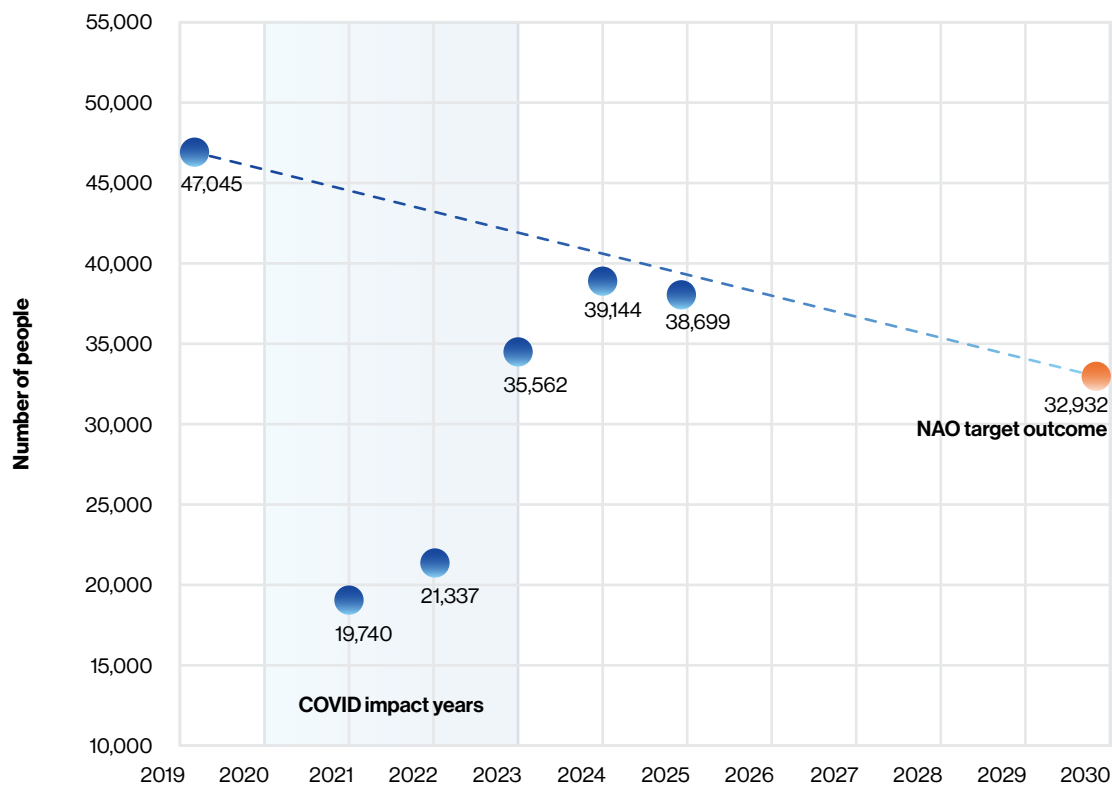
The NAO also includes time-based targets for reductions in the number of people categorised as highly sleep disturbed from aircraft noise (HSD). In addition to high annoyance, END also provides a standardised methodology for calculating high sleep disturbance based on large scale studies that link average noise levels ( $L_{night}$ ) to the percentage of highly sleep disturbed population (HSD). This metric is used by the EU for the definition of the Exposure Response Function (ERF) between noise and health effect.

**Figure 15** Number of people categorised as Highly Sleep Disturbed 2019 to 2025



In 2025, 38,699 people were categorised as HSD, which is a 1.1% reduction compared to the previous year and a reduction of 17.7% compared to 2019.

The NAO has time-based targets for reductions in the number of people categorised as HSD by 30%, 40%, and 50% by 2030, 2035, and 2040 respectively, as calculated in accordance with the END methodology. Sleep disturbance is an important metric to quantify the impact of aircraft noise on sleep quality and human health. Reducing exposure to environmental noise is a key objective of END. The number of people classified as highly sleep disturbed from aircraft noise at Dublin Airport reduced during 2025 and remains below the delivery trajectory of the first NAO target outcome of 30%. Preferential runway selection is not currently available during night-time hours of airport operation as a noise mitigation measure to obtain greater reductions in sleep disturbance.

**Figure 16** Number of people Highly Sleep Disturbed against NAO 2030 target

**Summary**

05



## Summary

The knowledge base regarding the impact of aircraft noise on human health and wellbeing continues to develop and legislation incorporates the methodologies of the scientific evidence as it evolves. Environmental noise legislation continues to prioritise reductions in the harmful effects of noise taking into account evidence such as that from the World Health Organization. Significant progress has been made on reducing these adverse health outcomes in the communities around Dublin Airport through the development and implementation of measures that support the delivery of the NAO for Dublin Airport. The NAO contains time-based objectives for reducing high annoyance and high sleep disturbance in alignment with the priorities of environmental legislation.

The overall framework of noise management measures at Dublin Airport remained in transition during 2025 through several ongoing planning and regulatory processes. These include the introduction of new and amended noise mitigation measures and operating restrictions at the airport and legal consideration of existing planning conditions.

Through a process of assessment and regulation, ANCA defined a noise abatement for Dublin Airport in June 2022 that was supported by a regulatory decision that contained noise mitigation measures and operating restrictions for the management of nighttime aircraft noise. The implementation of these supporting measures remains dependent on the outcome of the planning appeals process.

Noise contours enable the impact of aviation noise in the communities around an airport to be quantified and assessed for the purposes of identifying appropriate measures to mitigate the impact and monitoring progress against noise objectives. The 45dB  $L_{den}$  aircraft noise contour for 2025 remains significantly smaller in 2025 than 2019 which in turn reduces the number of people experiencing high annoyance from aircraft noise. The noise mitigation measures in place at Dublin Airport continue to remain effective in the delivery of this NAO outcome. Preferential runway selection and improvements in the fleet mix make significant contributions in this respect.

The 40dB  $L_{night}$  contour has also reduced in area and the NAO objective for reductions in sleep disturbance is within the delivery trajectory for 2030. There is currently limited capacity to achieve additional reductions in sleep disturbance though prioritised runway selection during the nighttime periods.

In addition to the objective of reducing annoyance and sleep disturbance, the NAO for Dublin Airport also seeks to limit the number of people exposed to higher levels of aircraft noise across both the nighttime and 24-hour periods. Delivery of these targeted objectives continues to require the support of a coordinated framework of land use management measures and effective noise mitigation measures and operating restrictions that have regard to the current and projected noise climate of the airport. In order to achieve such outcomes, a coordinated approach to noise management that balances measures which limit and reduce aircraft noise with those available through wider planning policies, is required. For those measures that are working effectively, it is important to retain these and for those which are currently in process of being implemented, it is important to have these put in place.

As referred to in Section 2, the noise climate around the Dublin Airport changed significantly following the commissioning of a north parallel runway in 2022. A review of the NAO through the process of regulation determined that it is appropriate to reconsider the ongoing suitability of 2019 as a benchmark for the management of aircraft noise of the airport in three-runway format. This aspect is included within the proposed amendments to the NAO that has been published for stakeholder consultation during 2026. The amended NAO also proposes the inclusion of additional objectives and identifies opportunities to target greater reductions in adverse health outcomes.

Measures that regulate activity rather than noise output do not incentivise reductions to noise at source, a primary pillar of the balanced approach. A progressive noise management framework can be a key driver of improvements to the noise climate.

The European Environment Agency report on environmental noise in Europe 2025 presents the latest data and analysis on noise pollution and its effects on human health and the environment across Europe. The report highlights that no single measure will be sufficient to achieve a significant reduction in people affected by transport noise. It recommends a combination of strategies that includes actions that target noise at the source that benefit the largest number of people. These include optimising aircraft landing/take-off patterns to avoid populated areas and promoting the use of quieter aircraft. The noise action plan for Dublin Airport identifies actions and areas for improvement to reduce the community impact of aircraft noise. All stakeholders must work in a targeted and coordinated manner to deliver the objectives of this action plan.

**Other information**

**06**



## Glossary

Technical terms and acronyms used in this report

|                                                                   |                                                                                                                                                                                                                                                                                                                    |
|-------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>ACP</b>                                                        | An Coimisiún Pleanála                                                                                                                                                                                                                                                                                              |
| <b>END</b>                                                        | Environmental Noise Directive                                                                                                                                                                                                                                                                                      |
| <b>ENR</b>                                                        | European Communities (Environmental Noise) Regulations 2018 (ENR).                                                                                                                                                                                                                                                 |
| <b>Highly Annoyed (HA)</b>                                        | Metric used to describe the number of people calculated to be highly annoyed by aircraft noise.                                                                                                                                                                                                                    |
| <b>Highly Sleep Disturbed (HSD)</b>                               | Metric used to describe the number of people calculated to be highly sleep disturbed by aircraft noise using the methodology prescribed by END.                                                                                                                                                                    |
| <b>ICAO</b>                                                       | International Civil Aviation Organization, a specialised agency of the United Nations to coordinate the principles and techniques of international air navigation and transport                                                                                                                                    |
| <b><math>L_{den}</math> (day-evening-night noise level in dB)</b> | The long-term annual average indicator in decibels, designed to assess annoyance. It refers to an A-weighted average sound pressure level over all days, evenings and nights in a year, with an evening weighting of 5 dB and a night weighting of 10 dB as noise is generally more annoying during these periods. |
| <b><math>L_{night}</math> (night noise level in dB)</b>           | The long-term annual average indicator in decibels, designed to assess sleep disturbance. It refers to an A-weighted annual average night period of exposure                                                                                                                                                       |
| <b>NAO</b>                                                        | Noise Abatement Objective for Dublin Airport                                                                                                                                                                                                                                                                       |
| <b>NRPP</b>                                                       | North Runway Planning Permission (FCC Planning Register Reference Number F04A/1755; An Bord Pleanála Reference Number: PL 06F.217429)                                                                                                                                                                              |
| <b>the Aircraft Noise Regulation</b>                              | Regulation (EU) 598/2014                                                                                                                                                                                                                                                                                           |
| <b>the Act of 2019</b>                                            | The Aircraft Noise (Dublin Airport) Regulation Act 2019                                                                                                                                                                                                                                                            |
| <b>WHO</b>                                                        | The World Health Organization. A specialised agency of the United Nations responsible for international public health.                                                                                                                                                                                             |

## Regulatory Statement

This review report has been prepared by the Aircraft Noise Competent Authority in accordance with the provisions of Section 21(2) of the Aircraft Noise (Dublin Airport) Regulation Act 2019.

## Acknowledgements

This report references information provided in the 2025 Compliance Report of the airport authority (daa) as prepared through the provisions of Section 19 of the Aircraft Noise (Dublin Airport) Regulation Act 2019. The full compliance report is available on the ANCA website for full context.

The noise contours and health exposure impacts were provided by daa through their role as noise-mapping body for Dublin Airport.





An tÚdarás Inniúil um  
Thorann Aerárthaí

Aircraft Noise  
Competent Authority

Comhairle Contae  
Fhine Gall  
Fingal County  
Council

