An tÚdarás Inniúil um Thorann Aerárthaí

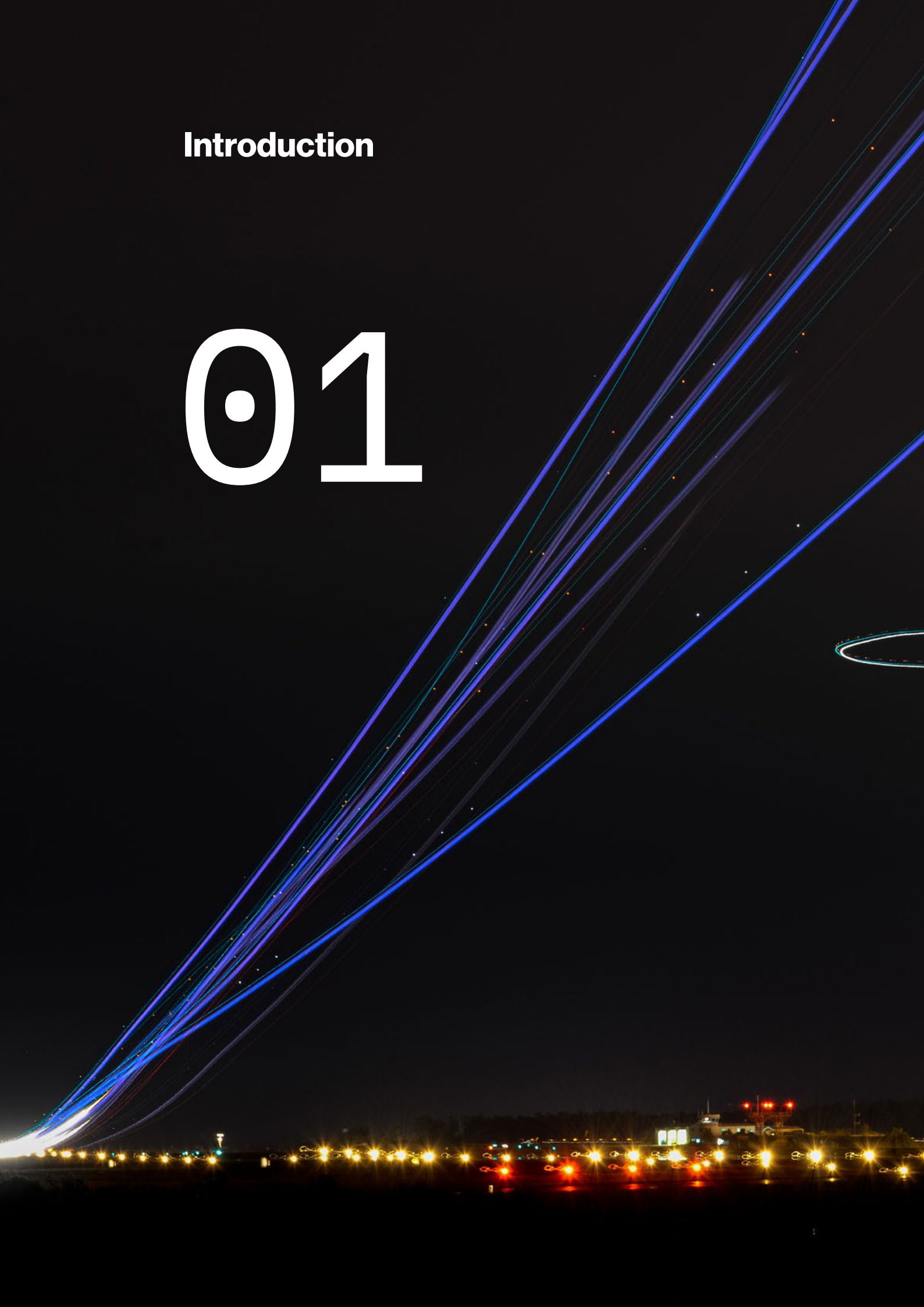
Aircraft Noise Competent Authority

A review of the effectiveness of aircraft noise mitigation measures at Dublin Airport 2024

Contents

Introduction

01



Introduction

Environmental noise is an unwelcome and harmful byproduct of many sources of transport infrastructure, and airports are no exception. Aviation activity associated with international airports will often occur during times when the background ambient noise is lower. This has the effect of increasing the impact of annoyance and sleep disturbance and their associated adverse health impacts.

The effective management of aircraft noise is essential, to minimise its impact on communities near airports. Effective strategies include the implementation of noise abatement procedures, such as optimising flight paths and altitudes to avoid densely populated areas. Investment in quieter aircraft technology and soundproofing buildings can also significantly reduce the impact of noise pollution. Community engagement and transparent communication between airports, airlines, and residents are also important aspects of noise management to address concerns and develop mutually beneficial solutions. By combining technological advancements with proactive policies, it is possible to create a more harmonious environment for both residents and the aviation industry.

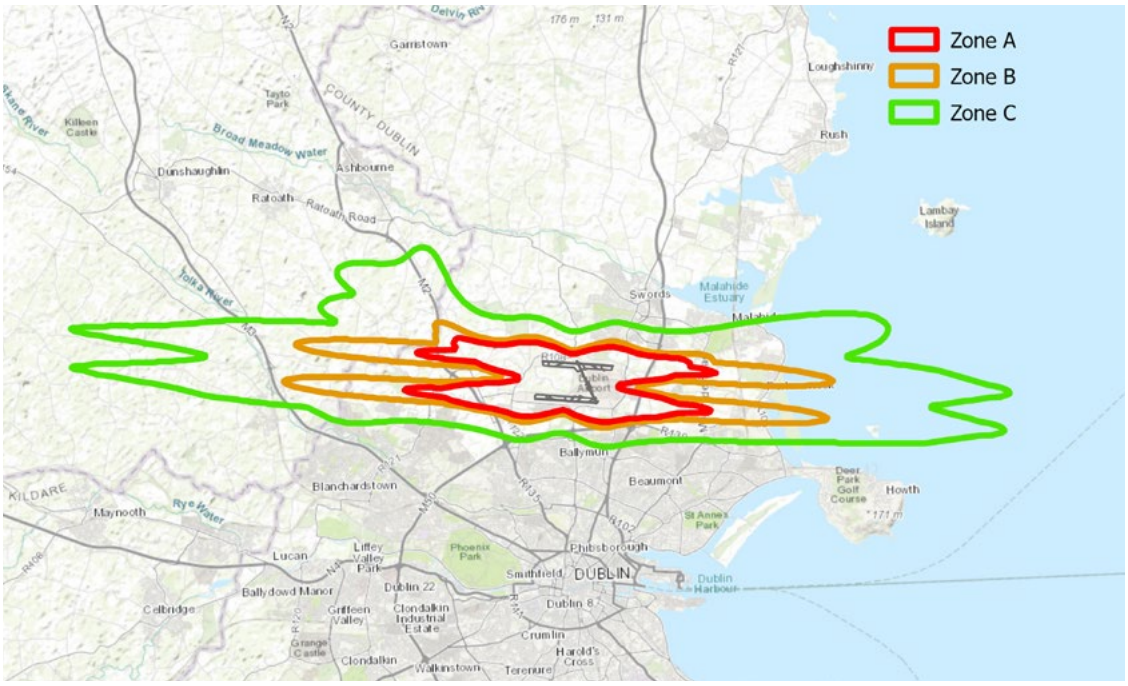
This report examines the effectiveness of the noise mitigation measures in place at Dublin Airport during 2024 in the context of the noise management objectives for the airport. The outcome of these annual assessments informs future regulatory cycles. They are published on ANCA's website[1].

1 www.fingal.ie/aircraftnoiseca/airport-compliance-reports

Policy Context

National, regional, and local planning policy frameworks support the sustainable development of Dublin Airport (often expressed in terms of passenger capacity). The current airfield layout has been planned for many decades, and aircraft noise zones have been a feature of successive county development plans since 2005. The development plans seek to ensure that development around the airport is of an appropriate type, and in locations that are compatible with forecasted aviation activity.

Figure 1 **Fingal County Development Plan 2023-2029 Airport Noise Zones**



Legislative Framework

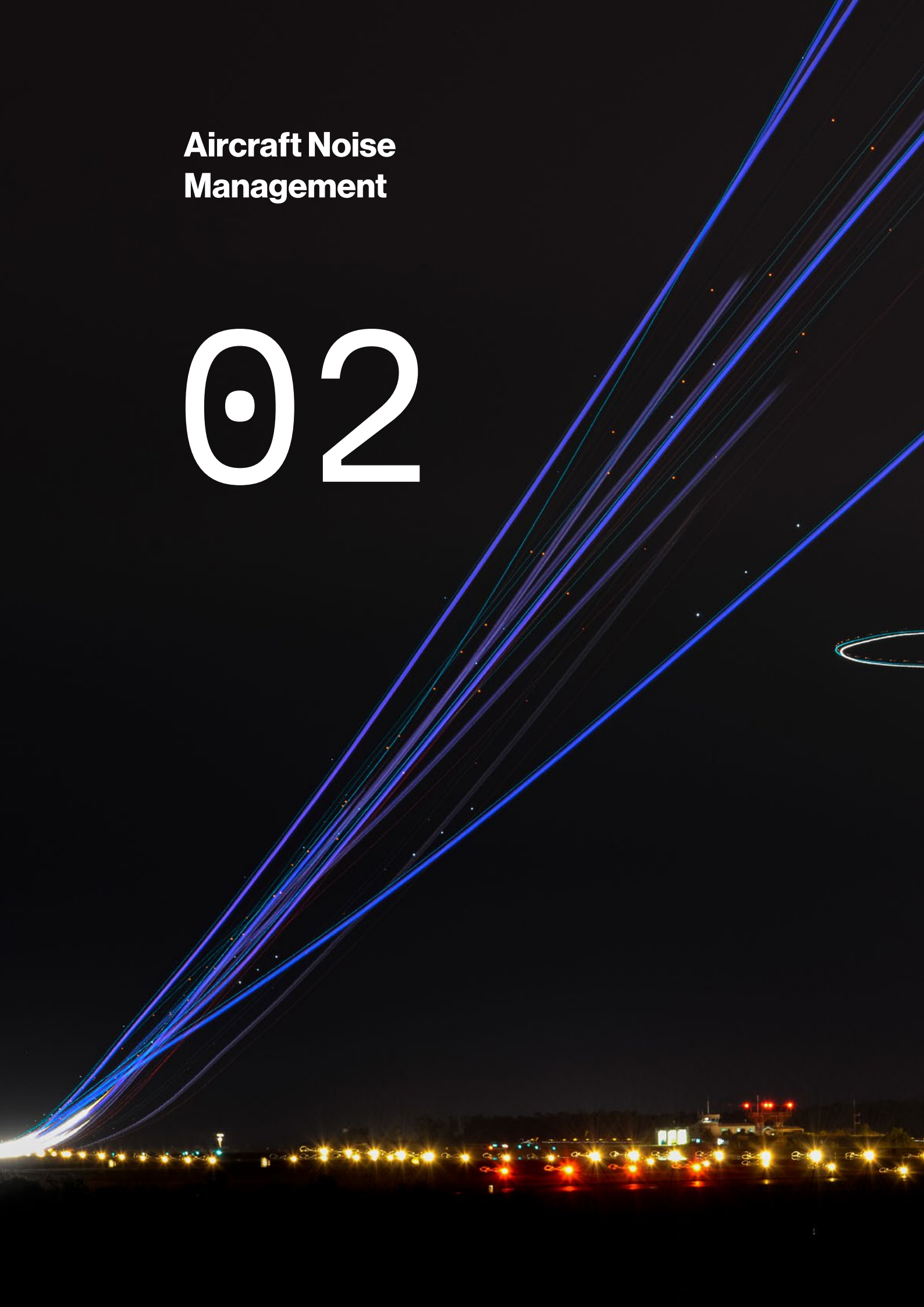
Environmental noise from the major sources of transport is managed through legislation that is established through a common European framework and given effect through national legislation. For this purpose, the EU Environmental Noise Directive (END) is transposed into Irish law through the European Communities (Environmental Noise) Regulations 2018 (ENR).

Regulation EU 598/2014 (the Aircraft Noise Regulation) has direct application across the European Union for the assessment of aircraft noise at 'major airports'[2] and the considered development of mitigation measures. The Aircraft Noise (Dublin Airport) Regulation Act 2019 (the Act of 2019) gives additional effect to the Aircraft Noise Regulation at Dublin Airport. The Aircraft Noise Competent Authority (ANCA) is the authority for the assessment and regulation of aircraft noise at Dublin Airport. The Act of 2019 provides for, amongst other things, the preparation of annual noise mitigation compliance reports by the airport authority (daa) and assessment of the effectiveness of mitigation measures in place at the airport by ANCA.

2 A major airport is defined as one with greater than 50,000 aircraft movements per year

Aircraft Noise Management

02



Aircraft Noise Management

Although airport expansion works may evolve over time, individual airfield developments, such as new runway infrastructure, can result in a step-change in the distribution of aircraft activity that varies the areas overflown by arriving and departing aircraft. Noise management measures must be kept under regular review to ensure that they remain relevant and effective in the context of change and may need to be adapted to reflect an evolving noise climate. For this reason, environmental noise legislation requires a review of the noise climate on a five-year cycle and whenever a major development occurs that affects the existing noise situation. In the context of the commissioning of the north parallel runway at Dublin Airport in August 2022, the review process included the making of a Noise Action Plan (NAP) for Dublin Airport focusing on the years 2021 and 2023. Although 2021 was the European common assessment year, 2023 was included for the Dublin Airport plan to reflect the post-COVID noise climate. These years were also the full operational years prior to, and post runway opening. The NAP identifies specific actions to take place across the duration of the plan for the management of aircraft noise at the airport. The development of Dublin Airport in its current format has been identified in strategic plans for many decades and supported by successive land use management plans. County development plans included aircraft noise zones that forecasted the potential impact of the airport development to ensure that development occurs in a sustainable way that is compatible with the aircraft noise climate. These zones have been updated over time to address the evolving noise climate around the airport. The phased development of Dublin Airport must have effective noise mitigation measures in place that is appropriate for each stage of development, providing for measures in advance where possible to reduce negative impacts on the surrounding communities.

More people are exposed to noise from rail and road transportation sources across the European Union but studies show that aviation noise causes the highest levels of annoyance and sleep disturbance. The adverse health impacts from environmental noise through annoyance and sleep disturbance have been extensively researched and documented. It is essential to regularly review the aircraft noise climate and the measures in place to manage it, ensuring that the best possible balance is achieved between an efficient aviation transportation network and the protection of the health and wellbeing of people within the communities around airports.

The noise situation at an airport should be reviewed on a five-year cycle and whenever a major development occurs that affects the existing noise situation.

The Balanced Approach to Aircraft Noise Management

In a modern island economy that depends on an efficient integrated transportation system to service the needs of the population, it is not always possible to ensure that there will not be adverse impacts from aviation noise at times and in places that have the potential to cause disruption in surrounding communities. Aviation noise is managed through common principles that are agreed at international level and implemented by member states through legislation. The principal framework for aircraft noise management is the Balanced Approach of the International Civil Aviation Organization (ICAO).

The Balanced Approach has four key elements:

- Reduction of noise at the source: Implementing quieter aircraft technologies.
- Land-use planning and management: Ensuring that land use zoning around airports minimises noise impact.
- Noise abatement operational procedures: Implementing procedures that reduce noise during take-off and landing.
- Operating restrictions: As a last resort, imposing restrictions on aircraft operations to manage noise levels.

ICAO Balanced Approach

Noise Action Plan for Dublin Airport

The preparation of a noise action plan is a statutory requirement[3] for the assessment and management of environmental noise from the major sources of transport across the European Union. It is prepared by local authorities to manage noise and reduce impacts on communities living in proximity to transport infrastructure and industrial sites. The Noise Action Plan for Dublin Airport 2024-2028 was prepared and published by Fingal County Council in December 2024 and is available to view and download from a link on the ANCA website[4]. The NAP reported nineteen measures at Dublin Airport for the management of aircraft noise which are outlined in Table 1 below. These measures were implemented through a combination of planning conditions and flight operations developed by the airport authority and implemented by air traffic control or aircraft operators. They can be further categorised under the ICAO pillars of the Balanced Approach.

Table 1 **Noise mitigation measures at Dublin Airport as reported in NAP**

No.	Description	ICAO Balanced Approach Element
1	Promote quieter aircraft through incentives such as Fly Quiet programmes	Reduction of Noise at Source
2	Work with airline partners to introduce quieter aircraft, particularly at night – including consideration of incentives	Reduction of Noise at Source
3	Preferential Runway Use	Noise Abatement Operating Procedure
4	Noise Preferential Routes (NPRs) and Flight-Track Keeping	Noise Abatement Operating Procedure
5	Noise Abatement Departure Procedures (NADPs) Climb Profile	Noise Abatement Operating Procedure
6	Visual Approach Jet Aircraft (Cat C/D)	Noise Abatement Operating Procedure
7	Continuous Climb Operations / Continuous Decent Approach	Noise Abatement Operating Procedure
8	Reverse Thrust	Noise Abatement Operating Procedure
9	Engine Ground Running	Noise Abatement Operating Procedure
10	Monitor and Report	n/a
11	Stakeholder Engagement	n/a
12	Community Engagement Programme	n/a
13	Noise & Flight Track Monitoring System	n/a

3 European Union Directive 2002/49/EC
4 https://www.fingal.ie/noise-action-plan

No.	Description	ICAO Balanced Approach Element
14	Noise Complaint Management Systems	n/a
15	Runway 10L-28R shall not be used for take-off or landing between 2300 hours and 0700 hours	Operating Restriction
16	The average number of night-time aircraft movements at the airport shall not exceed 65/night (between 2300 hours and 0700 hours) when measured over the 92-day modelling period[5]	Operating Restriction
17	Residential Noise Insulation Scheme (RNIS)	Land Use and Planning Management
18	Voluntary Dwelling Purchase Scheme (VDPS)	Land Use and Planning Management
19	Voluntary School Insulation Scheme (SIS)	Land Use and Planning Management

Note *Through a process of assessment, consultation and regulation, ANCA made provision for amended noise mitigation measures and additional operating restrictions for Dublin Airport during 2022. These measures were incorporated into a decision by the planning authority and subsequently appealed to the planning appeals authority. An Coimisiún Pleanála (ACP) made a final decision on the appeal in July 2025. The measures within the decision were not therefore in place during 2024.*

The NAP also identified five areas of improvement and three actions to be delivered during the duration of the plan with respect to the management of aircraft noise at Dublin Airport:

Noise Action Plan Areas of 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 Aeronautical Information Publication (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 WebTrak 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.

5 Condition 5 of the north runway planning permission ABP Ref. No. PL06F.217429 (establishing this provision), is the subject of ongoing High Court proceedings brought by daa bearing the Record Number: 2023 / 916 JR In which Fingal County Council is the Respondent.

Noise Action Plan 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.

Implementation and Reported Performance of Noise Mitigation Measures at Dublin Airport

The performance of, and compliance with, the noise mitigation measures at Dublin Airport is reported in a statutory compliance report by the airport authority each year through Section 19 of the Act of 2019. The report of the airport authority for 2024 is published on the ANCA website[6].

The report presented the implementation and performance of the Noise Mitigation Measures outlined in the tables below. Additional context can be obtained from the full published report.

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

6 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 "FlyQuiet" 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	Residential Sound Insulation Grant Scheme (RSIGS)	Bedroom insulation scheme to reduce night-time noise exposure especially due to new night-time NR use.	Progress and compliance
LU-5	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 2400 hours and 0600 hours.	Compliance
OR-2	Night movement limit	65 night-time aircraft movements as detailed within Condition 5 of NRPP.	Compliance

The compliance report of the airport authority additionally reports on community engagement initiatives.

The 2024 compliance report of the airport authority also reports on the effectiveness and compliance with the measures in place at Dublin Airport as follows:

Ref.	Effectiveness/ Performance	Opinion On Compliance
NS-1	Fleet improvement included increase in A320NEO and A321NEO flights, but 737 MAX movements decreased.	Continual improvement
NA-1	Monthly CDO is steady 76-79% NPR performance is consistently 99.7% on SR but 93% on NR.	Continual improvement
NA-2	RW 16/34 = 0.26% of total movements 10L NR dep = 0.02% of dep 28R NR arr = 0.76% of arr NR Night = 0.38% of total annual movements	Compliance on-going
NA-3	SR 99.8% Adherence NR 92.8% Adherence	Continual improvement
NA-4	See CCO, CDO and NADP below.	Compliance on-going
NA-5	**EUROCONTROL CCO below FL100** 2024: 99.7% 2023: 99.6% **Draft CCO Performance- ANOMS** 2024: 98% 2023: 98%	Continual improvement
NA-6	**EUROCONTROL CDO below FL75** 2024: 56% 2023: 55% **Draft CDO Performance below 5,500ft - ANOMS** 2024: 78% 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
NA-8	10 tests 20:00-07:00 4 tests 07:00-09:00 CAT C	Disimprovement compared to 2023
NA-9	Research	Research is on-going. Trials being conducted at Schiphol and Gatwick.
NA-10	Research	Research on data collection is commencing. Trials being conducted at Heathrow.

Ref.	Effectiveness/ Performance	Opinion On Compliance
LU-1	2024 Review and Forecast contours added 33 homes. Homes completed in 2024/25 194/224 eligible	Continual improvement
LU-2	More offers than scheme requirements. 9 completed, 9 in process.	Continual improvement
LU-3	Five eligible schools (in Forecast Contour) completed or in process.	Compliant
LU-4	Scheme was launched voluntarily in early 2025 ahead of a NRRA decision.	Pre-launch started Q1 2025
LU-5	Safeguarding reviews of planning applications has started.	Residential intensification continues in noise impacted areas east and west of the airport.

Ref.	Effectiveness/ Performance	Opinion On Compliance
OR-1	Night-time NR movements (only during SR closures) were 898 movements or 0.38% of total annual movements.	In 2024, the old NRPP Condition 3(d) NR closure 23-07h was complied with.
OR-2	High Court proceedings brought by daa bearing the Record Number: 2023 / 916 JR remain in process.	Not provided in Compliance Report.

Effectiveness / Performance and Areas for Improvement

The annual compliance report by the airport authority also reports on opportunities for improvement for the effectiveness of the noise mitigation measures.

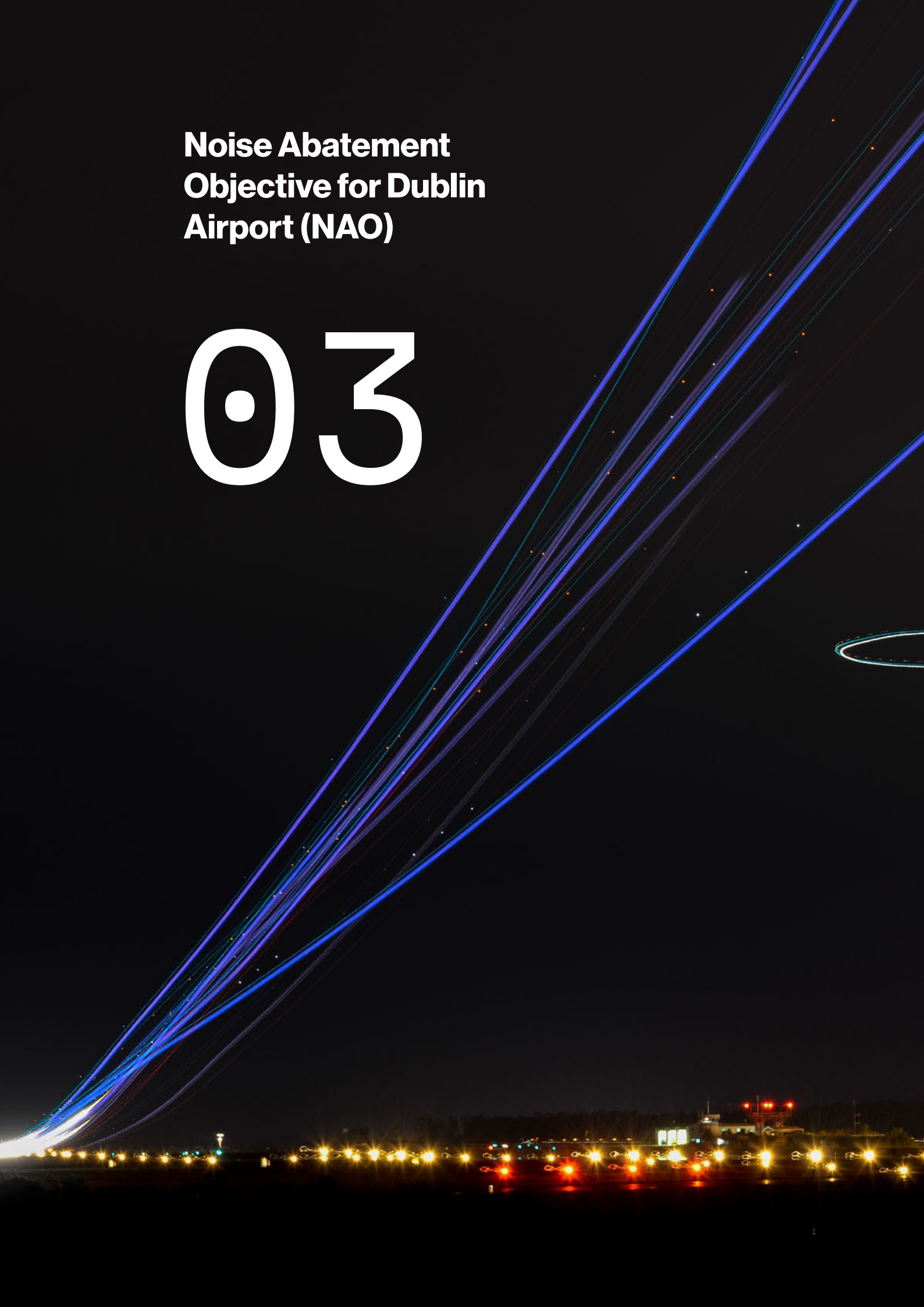
Ref.	Opportunities for improvement.
NS-1	If progressive fleet improvement stalls, consideration could be given to reviewing the noise-related landing fee and an airline ranking system with a fleet modernisation component.
NA-1	ANOMS Perform Track module is now in place for ANI and the four largest airlines plus regular reports for other airlines. Data and analysis can help and encourage airlines to improve.
NA-2	None – already standard operations
NA-3	New ANOMS module, Perform Track, 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.
NA-4	NADP was undertaken in 2024. Potential development of ANOMS NADP identification capability.
NA-5	Potential for development of local CCO/CDO procedures to better reflect procedures at Dublin Airport. Perform Track ANOMS module would incorporate CCO
NA-6	Revise legacy rules with important input from AirNav and the airlines. Promote Perform Track and report to assist airline management and improvement.
NA-7	Reducing RT 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.

Ref.	Opportunities for improvement.
LU-1	2024 graphical information package for RNIS with homes, scheme boundaries and noise contours, update and improved.
LU-2	Active engagement with homeowners continues; daa voluntarily extended term of the Scheme by one year; new public online tool for checking eligibility.
LU-3	One new pre-school has been identified in the Forecast Contour
LU-4	None identified
LU-5	Improvement engagement on the FCC FDP and its noise zone and implementation of insulation requirement.

Ref.	Opportunities for improvement.
OR-1	Not available
OR-2	Not available

Noise Abatement Objective for Dublin Airport (NAO)

03



Noise Abatement Objective for Dublin Airport (NAO)

A noise abatement objective is a policy objective 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 development occurs in the most sustainable manner possible to minimise the impact of aircraft noise.

The process of aircraft noise assessment requires a review of the noise abatement objectives to ensure that they remain relevant in the context of an evolving noise climate. Through an aircraft noise assessment, that also provided for noise mitigation measures and operating restrictions through a regulatory decision in 2022, noise abatement objectives[7] were established for Dublin Airport. The objectives are: -

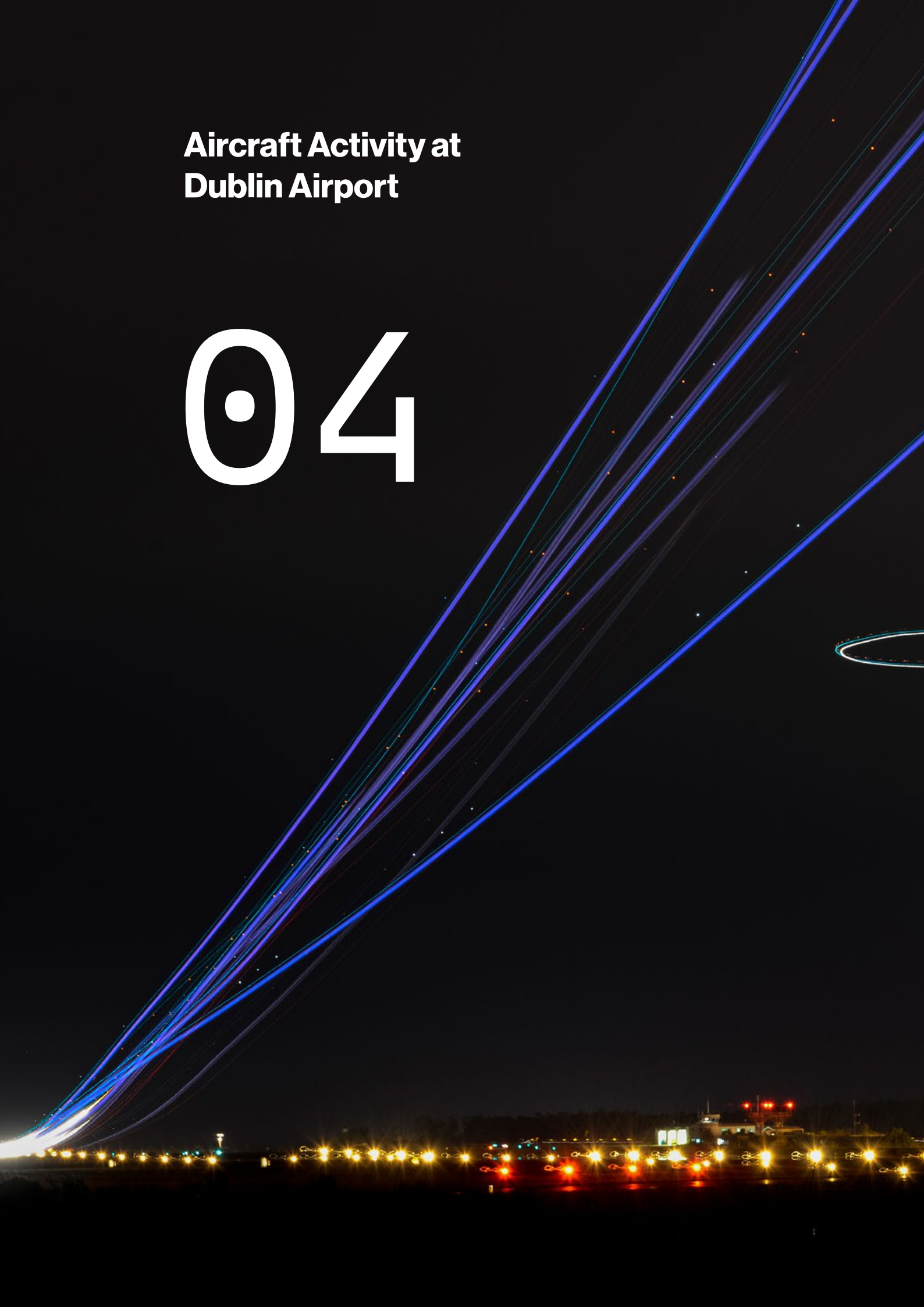
- The number of people highly sleep disturbed and highly annoyed in 2030 shall reduce by 30% compared to 2019;
- The number of people highly sleep disturbed and highly annoyed in 2035 shall reduce by 40% compared to 2019
- The number of people highly sleep disturbed and highly annoyed in 2040 shall reduce 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.

The current NAO is benchmarked against 2019 data and utilises forecasts that predate the operational use of the north runway. This report examines the effectiveness of the noise mitigation measures in place at the airport in the fifth year of aircraft operations since the data underpinning the NAO was prepared.

7 https://www.fingal.ie/aircraftnoiseca/noise-abatement-objective

Aircraft Activity at Dublin Airport

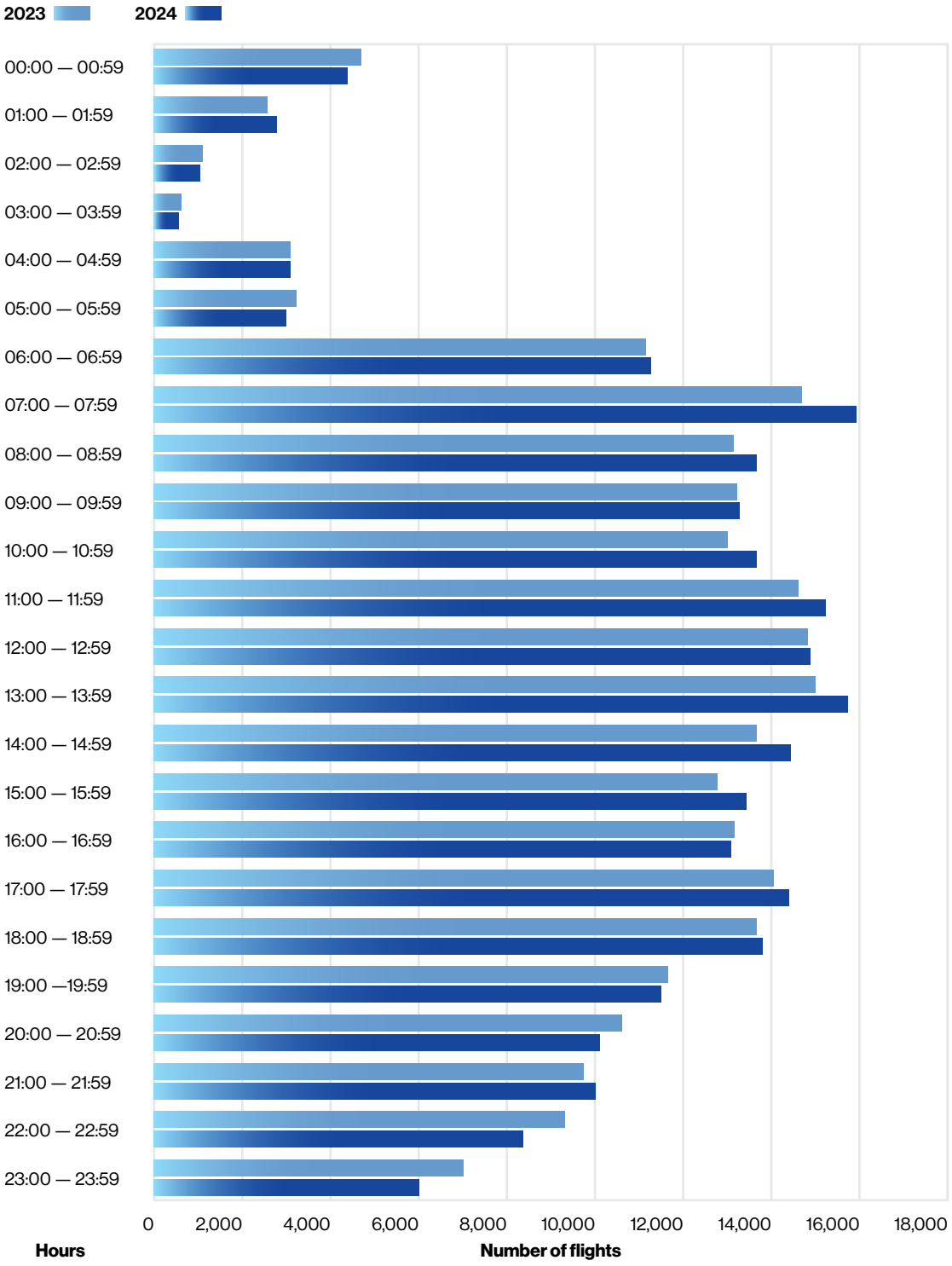
04



Aircraft Activity at Dublin Airport

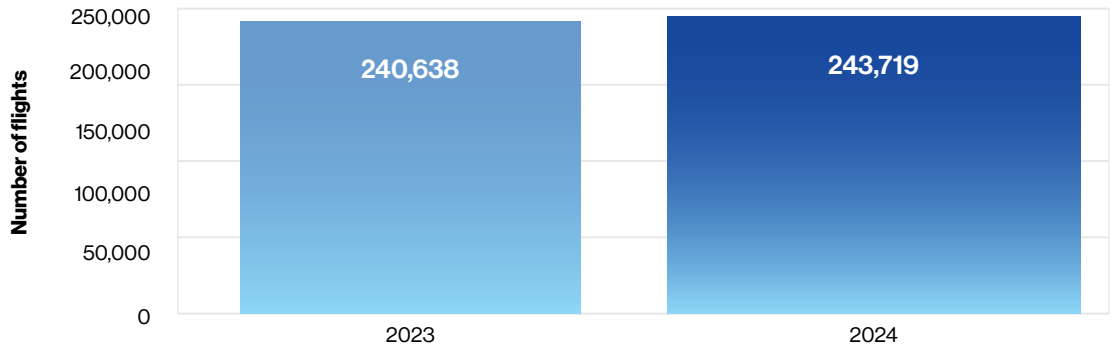
The impact of aviation activity has many variables, including the scale of activity and the times during which it occurs. Regular review and assessment of aircraft activity can inform consideration of any amendments necessary for the effective management of aircraft noise. A comparison of the annual average number of flights per hour for 2023 and 2024 is provided in Figure 2 below.

Figure 2 **Annual averaged flight distribution by hour 2023 and 2024**



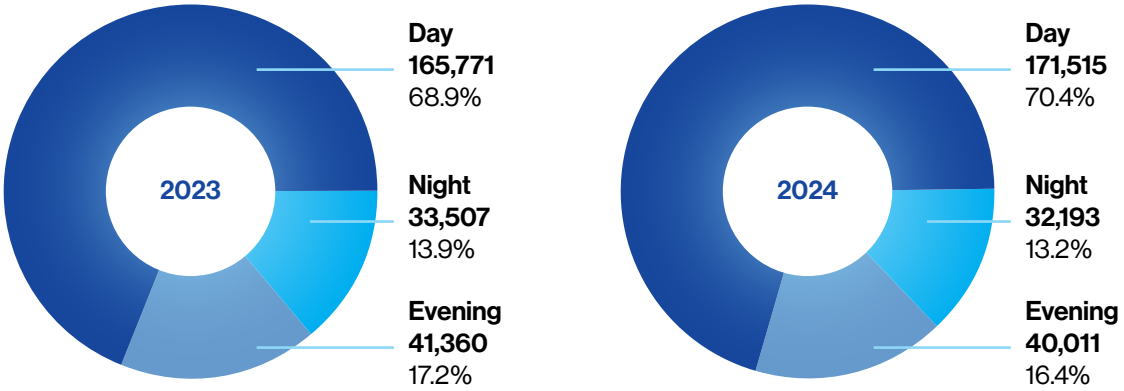
A comparison of the annual total number of aircraft movements for 2023 and 2024 is presented in Figure 3. The number of flights at Dublin Airport increased by approximately 1% during 2024 when compared with 2023 aircraft movement figures.

Figure 3 Annual averaged flight numbers 2023 and 2024



The percentage of aircraft movements for 2023 and 2024 for the day evening and night periods are provided in Figure 4.

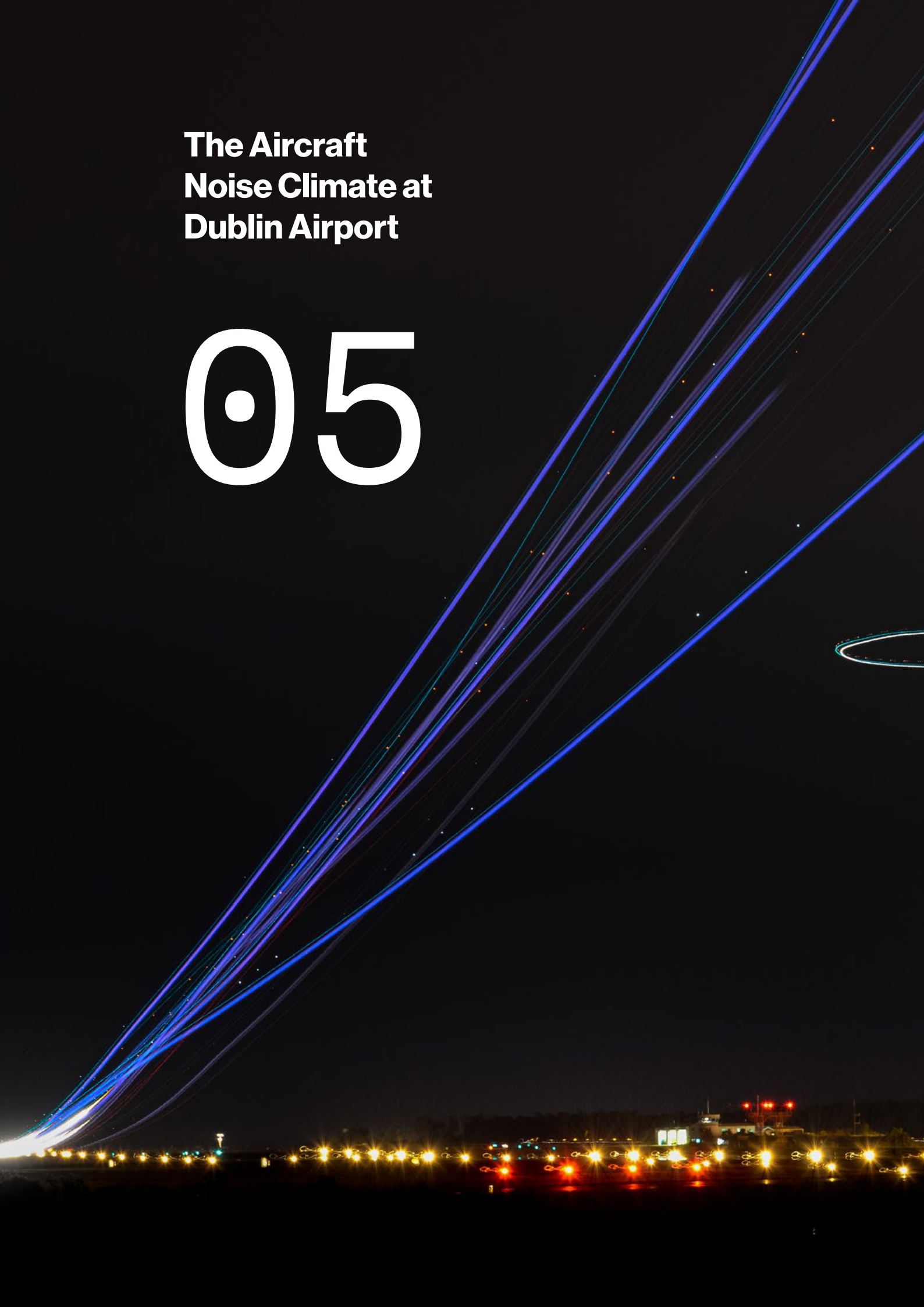
Figure 4 Diurnal distribution of flights 2023 and 2024



The overall level of aircraft activity increased at Dublin Airport from 2023 to 2024. This growth primarily occurred during day-time hours (07:00-19:00). The number of flights during the noise sensitive night-time hours (23:00-07:00) reduced by 1,314 in 2024. The number of aircraft events also reduced during the annual average evening periods.

The Aircraft Noise Climate at Dublin Airport

05



The aircraft noise climate at Dublin Airport

The noise climate at the airport arises through the level and type of aviation activity, the time it occurs and the effectiveness of the measures in place to manage it. The population exposure to environmental noise is affected by the location of residential developments in relation to the noise 'footprint' of the airport. The noise exposure may vary through the construction of residential developments or changes to aircraft types, routes or activity.

The END requires European member states to produce strategic noise maps for major airports handling more than 50,000 movements per year. These maps are used as a basis for noise action plans. Strategic noise maps are produced by fifty states on a five-year cycle, with the most recent maps utilising 2021 data. As 2021 represented a year during which the effects of COVID on passenger transport was still significant, the Noise Action Plan for Dublin Airport additionally reported the aircraft noise exposure data for 2023.

The END requires EU member states to report on environmental noise population exposure above 55 dB L_{den} and 50 dB L_{night}. It does not introduce or require the introduction of noise limits. Considering World Health Organization (WHO) guidance recommending the reporting and assessment of noise levels below the mandatory reporting requirements, ANCA assessments and maps present noise exposure to the lower levels of 45dB L_{den} and 40dB L_{night}.

Table 2 **Noise exposure data 2019 and 2024**

Indicator	2019	2024	% change
Noise exposure at WHO recommended measurement levels			
Area of noise exposure above 40dB L_{night} (sq.km)	328.5	344.2	+5%
Number of people exposed to aircraft noise above 40dB L_{night}	344,912	267,315	-22%
Number of people classified as highly sleep disturbed	47,045	39,144	-17%
Area of noise exposure above 45dB L_{den} (sq.km)	745.9	680.2	-9%
Number of people exposed to aircraft noise above 45dB L_{den}	754,135	483,517	-36%
Number of people classified as highly annoyed	115,738	80,769	-30%
NAO priority noise exposure levels			
Area of 55dB L_{night} Contour (sq.km)	18.6	19	+2%
Number of people exposed to aircraft noise above 55dB L_{night}	1,533	6,791	+343%
Area of 65dB L_{den} Contour (sq.km)	23.3	13.5	-42%
Number of people exposed to aircraft noise above 65dB L_{den}	285	348	+22%

END also prescribes a common method for noise mapping to standardise assessments and facilitate comparison of data on a common basis across the European Union. These standards require the use of the night metric (L_{night}) and the day-evening-night metric (L_{den}). These indicators are also prescribed by the Aircraft Noise Regulation and are used as part of research and guidance in relation to impact of aircraft noise on health and quality of life.

It is important to note that averaged (contour) noise levels cannot be compared to the noise level of a single aircraft event. Single event noise information is used for different purposes and the data from community single-event noise monitors is available through links on the Dublin Airport and ANCA websites.

The day-evening-night noise climate around Dublin Airport

The day-evening-night noise level in decibels (expressed through the L_{den} indicator) is the long-term annual average indicator designed to facilitate the assessment of annoyance from environmental noise. It refers to an average sound pressure level over all the days, evenings and nights in a year, with an evening weighting of 5 dB and a night weighting of 10 dB applied as noise can have higher levels of annoyance and disturbance during these periods when external ambient noise is lower.

The expected noise outcomes of the NAO are tracked against the 2019 noise climate. Figure 5 reflects the significant geographical differences to the aircraft noise impact (above 45dB L_{den}) across the combined day-evening-night periods between 2019 and 2024. This change in geographical noise impact primarily arose through the re-distribution of aircraft traffic across two primary runways after the north parallel runway opened in 2022. Fleet modernisation further contributed to reductions in overall noise exposure. Densely populated areas to the south of the airport have experienced a reduction in aircraft noise exposure due to this redistribution of aircraft activity during the day and evening periods (planning conditions prohibited use of the north runway during night-time hours).

Figure 5 Locations exposed to aircraft noise above 45dB L_{den} (2019 and 2024)

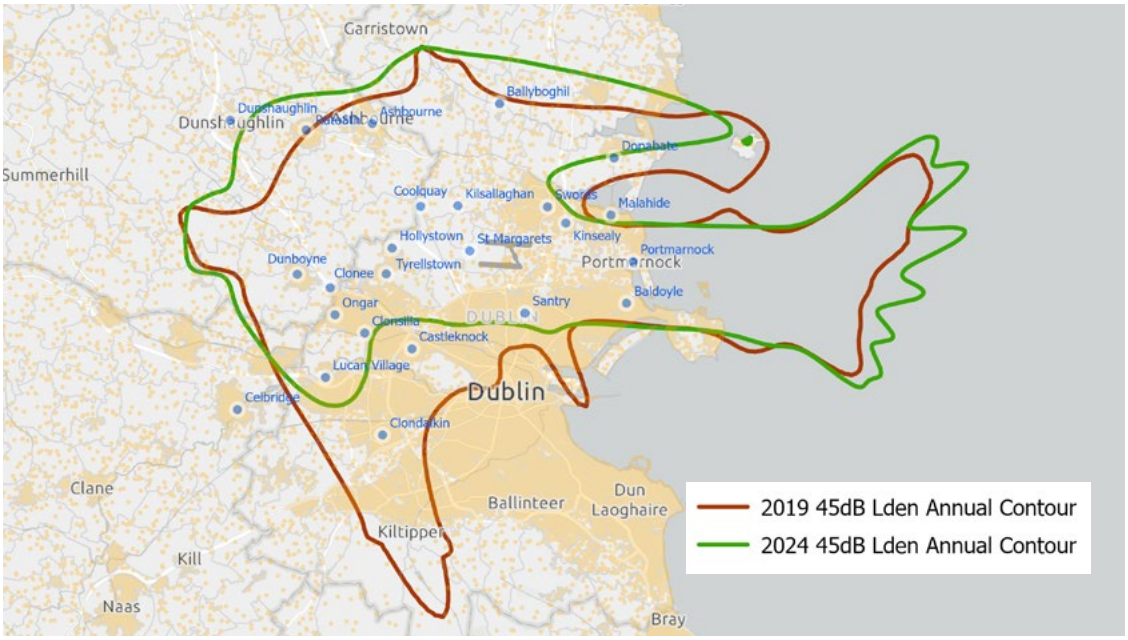
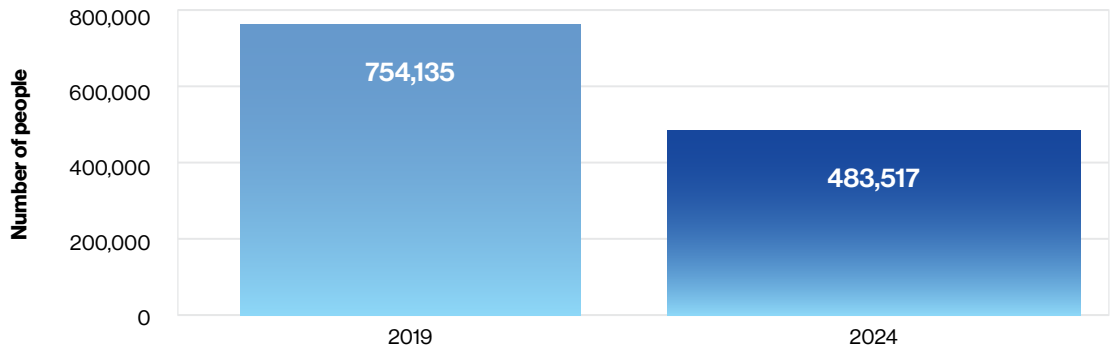


Figure 6 Number of people exposed to aircraft noise above 45dB L_{den}



Although the area of noise exposure (above 45dB L_{den}) decreased by 9% between 2019 and 2024, the number of people exposed to noise above this threshold decreased by 36% during this time. This highlights the value of noise mitigation operational measures (in this case preferred runway selection) as a mechanism to reduce community noise exposure.

Figure 7 highlights the changes to the areas of noise exposure above the NAO priority value of 65dB L_{den} between 2019 and 2024. The redistribution of aircraft traffic across two runways had a significant impact on this contour area. Although the noise contour area reduced by 42% between 2019 and 2024, an additional 63 people were exposed to aircraft noise above this threshold during this period.

Figure 7 Locations exposed to aircraft noise above 65dB L_{den} (2019 and 2024)

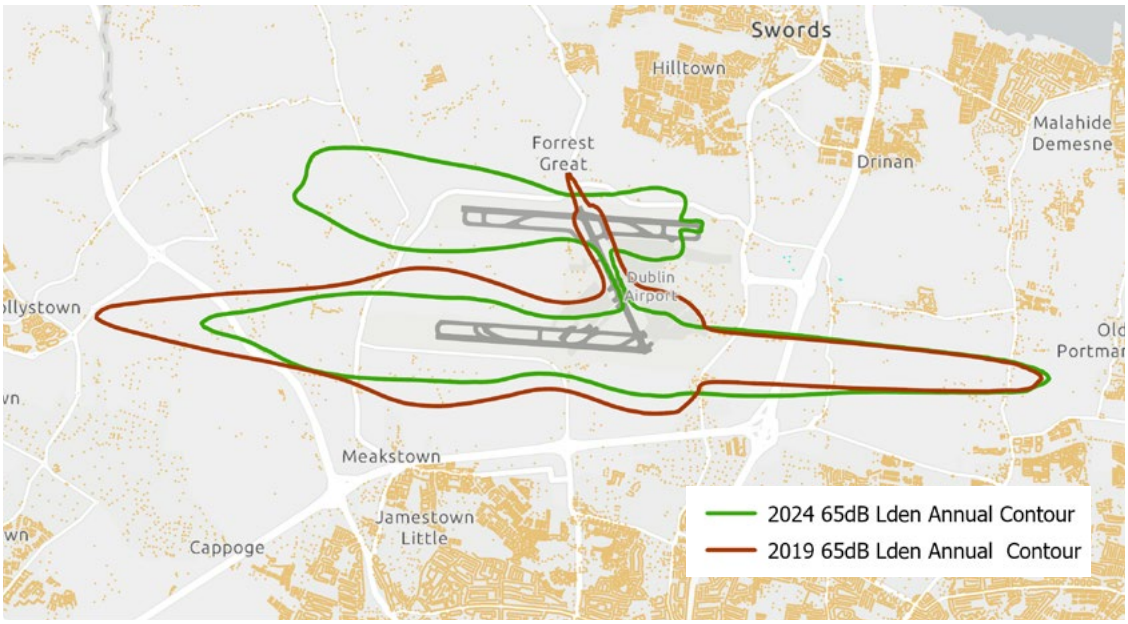
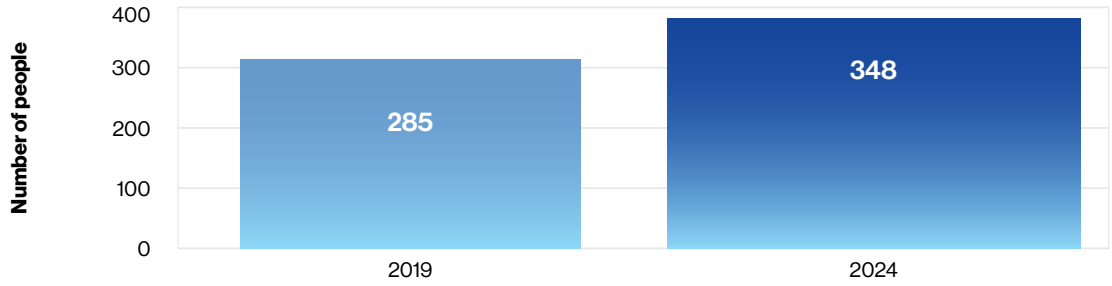
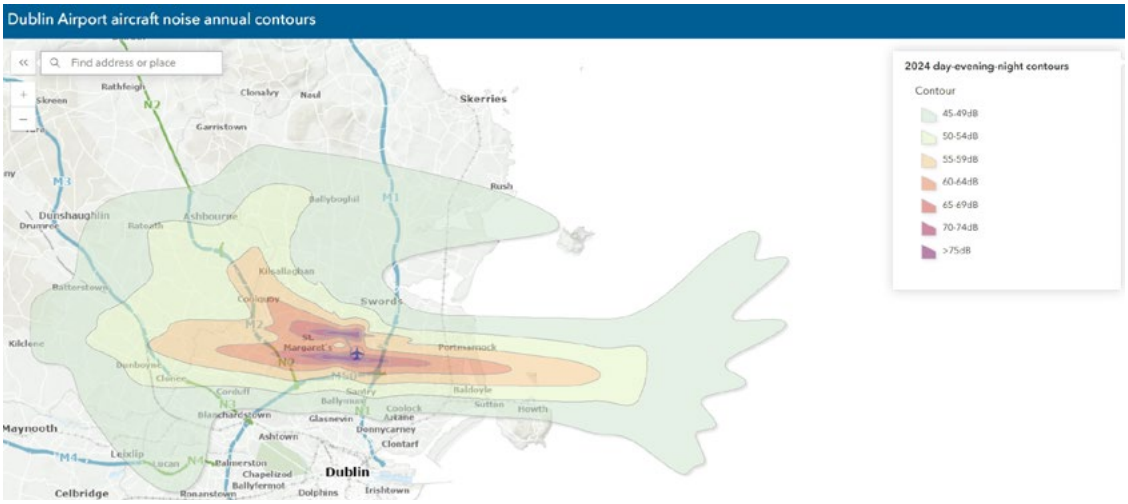


Figure 8 Number of people exposed to aircraft noise above 65dB L_{den}

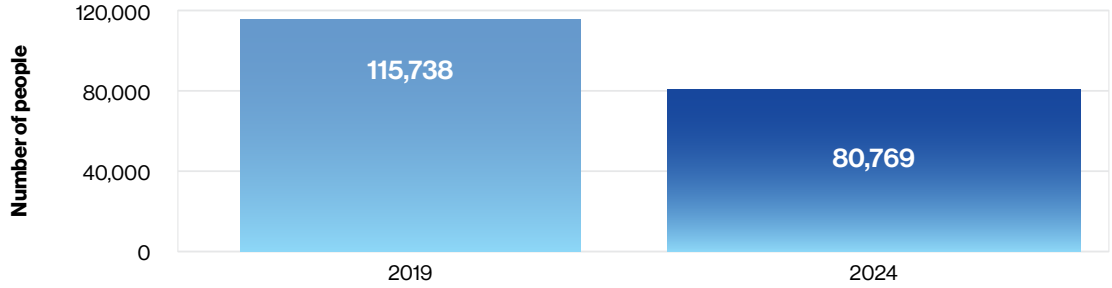


Detailed contour maps are published on the ANCA website in 5dB increments for all areas above 45dB L_{den}. The aircraft noise exposure can be examined down to the level of individual properties.



The number of people classified as Highly Annoyed (HA)[8] is the primary indicator for assessing community annoyance from aircraft noise. The NAO for Dublin Airport provides that the number of people categorised as HA shall reduce by 30%, 40% and 50% by 2030, 2035, and 2040 respectively.

Figure 9 Number of people categorised as Highly Annoyed



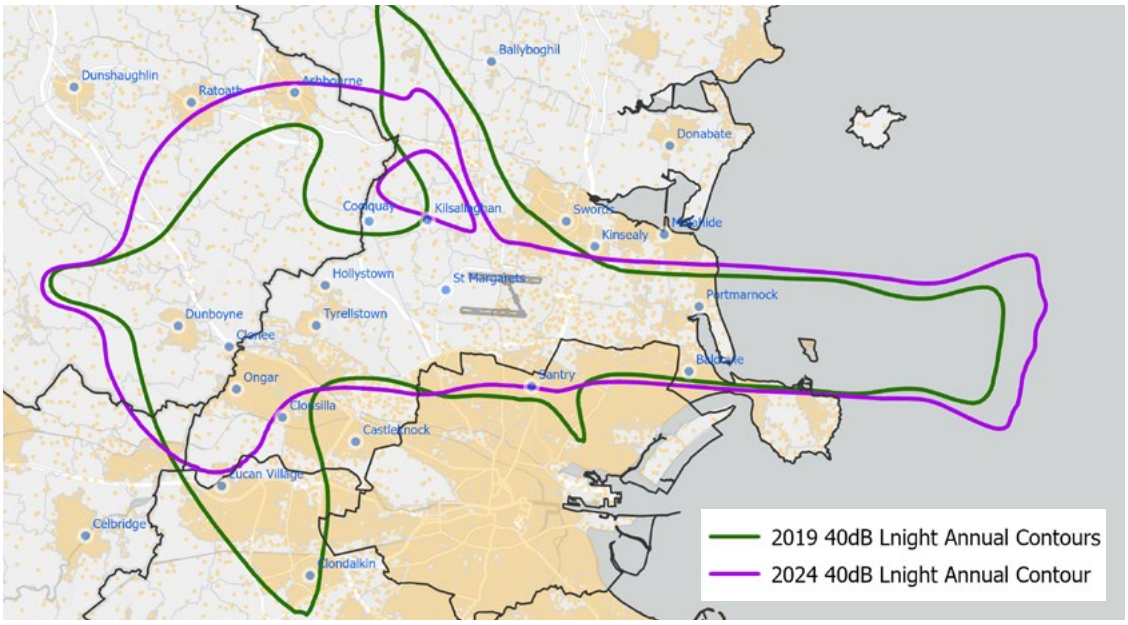
The number of people categorised as HA during 2024 was lower than 2019 but higher than in 2023 (71,388).

8 Using methodology prescribed by END

The night-time noise climate around Dublin Airport

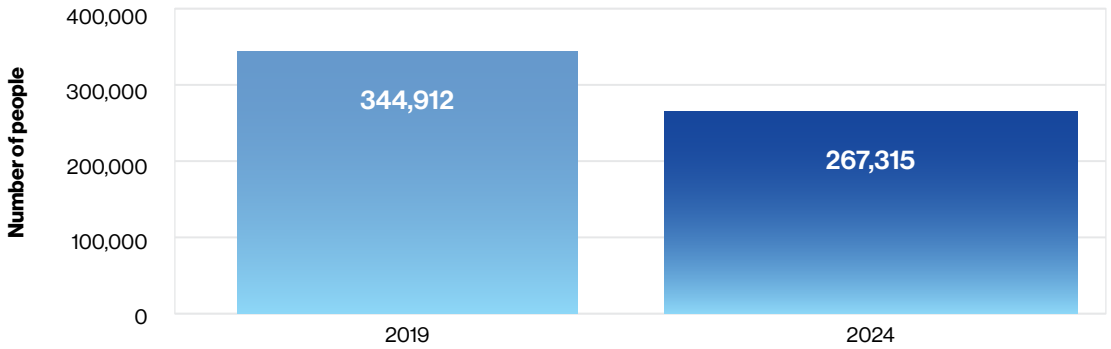
The night-time noise exposure level (expressed through the L_{night} indicator) is the long-term annual average indicator in decibels, designed to facilitate the assessment of sleep disturbance from environmental noise. It refers to an annual average period of exposure over all the nights of a year. ANCA assessments and maps consider night-time noise exposure to the lower level of 40dB as recommended by the World Health Organization rather than the 45dB level required by environmental noise legislation.

Figure 10 Locations exposed to aircraft noise above 40dB L_{night} (2019 and 2024)



Planning conditions have restricted the use of the shorter (crosswind) runway to limited, defined situations since the north parallel runway became operational. This resulted in a redistribution of aircraft from the crosswind runway to the south runway (as additional conditions limited use of the north runway at night). Some differences in the noise climate may also be attributed to the routing of aircraft towards their destination by air traffic control. Between these years, some areas have experienced a reduction in aircraft noise exposure whilst other areas experienced an increase. Overall, there has been a reduction in the number of people exposed to aircraft noise above 40dB L_{night} between 2019 and 2024.

Figure 11 Number of people exposed to aircraft noise above 40dB L_{night}



The NAO also seeks to limit noise exposure above 55dB L_{night}. Although the area of noise exposure above this priority value has not increased significantly between 2019 and 2024, there has been a redistribution of aircraft activity that varied the locations affected. The number of people exposed to aircraft noise above this level continues to increase above 2019 levels.

Figure 12 Locations exposed to aircraft noise above 55dB L_{night} (2019 and 2024)

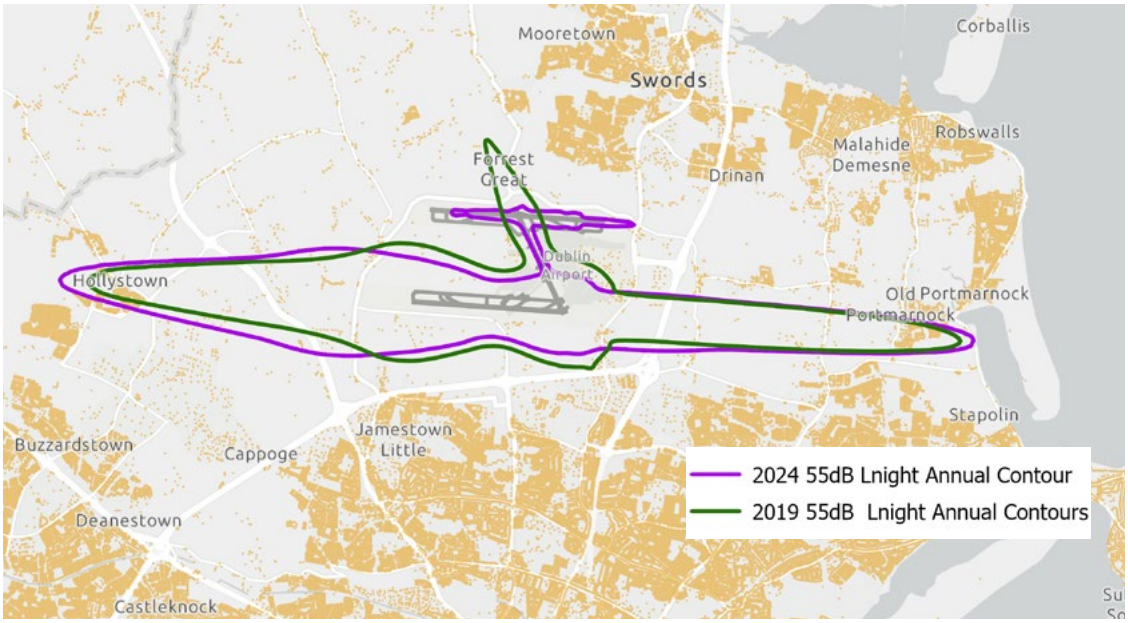
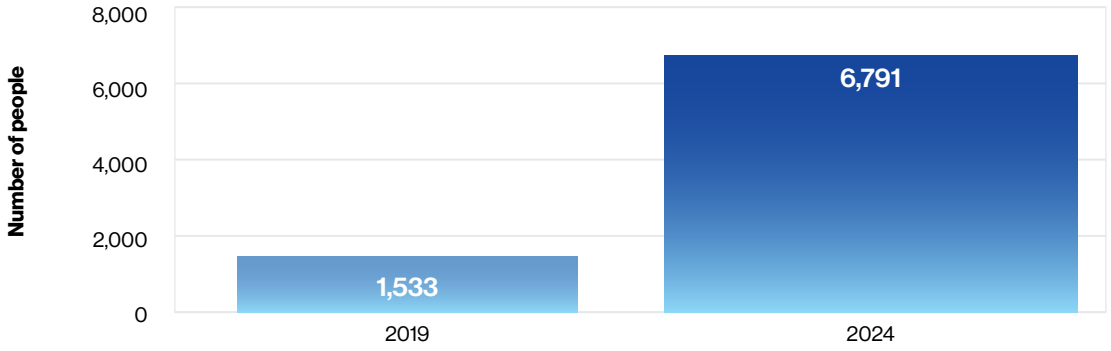


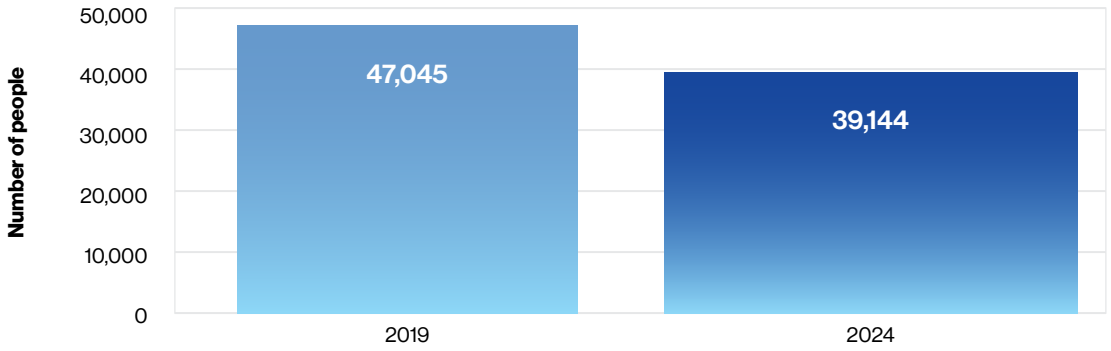
Figure 13 Number of people exposed to aircraft noise above 55dB L_{night}



The number of people classified as Highly Sleep Disturbed (HSD) is the primary indicator for assessing sleep disturbance from aircraft noise. The NAO for Dublin Airport provides that the number of people categorised as HSD shall reduce by 30%, 40% and 50% by 2030, 2035, and 2040 respectively.

The number of people HSD during 2024 is 17% lower than 2019 but higher than that reported for 2023 (32,562).

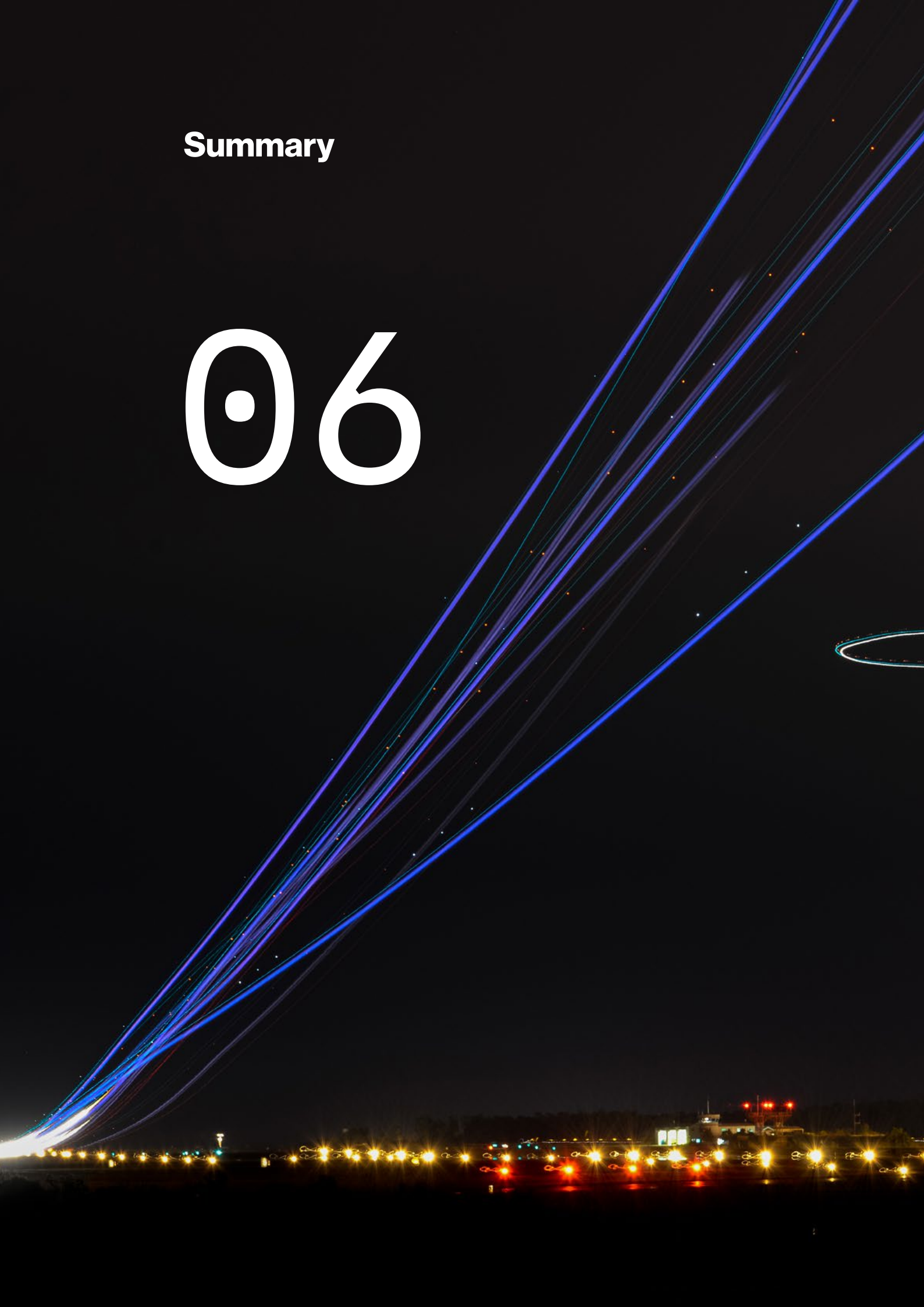
Figure 14 Number of people categorised as Highly Sleep Disturbed



Detailed L_{night} contour maps are also published on the ANCA website in 5dB increments for all areas above 40dB L_{night}. The aircraft noise exposure can be examined down to the level of individual properties. Residents can input their Eircode to check where their properties are located within the contour maps.

Summary

06



Summary

A broad inventory of noise management measures has been identified and implemented at Dublin Airport across all four pillars of the ICAO Balanced Approach. Many of these have been in place for many years, whilst others are in transition phase. Some measures have a direct impact on the noise climate, the effectiveness of which can have significant dependencies on the runway allocation by air traffic control, the broader fleet mix at the airport and the operation of individual aircraft. Other measures promote awareness or participation in processes for the management of noise.

Operating restrictions are the highest tier of noise management and have the potential to have the greatest impact on the noise climate. They also have the potential to distort competition or hamper the overall efficiency of the European Union aviation network through inefficient use of existing capacity. Two noise related operating restrictions were incorporated into the original planning consent for the north parallel runway (10L/28R). Through a process of assessment and public consultation, ANCA made a regulatory decision in June 2022 that contained new and amended measures to support the delivery of the NAO for Dublin Airport. The planning decision, that contained the regulatory decision, was the subject of appeal and a final determination on that appeal was made by An Coimisiún Pleanála in July 2025. The measures within the final planning consent will be important contributors towards an improved noise climate when implemented, but had no effect during 2024, the year of focus of this report.

An operating restriction at Dublin Airport that limited night-time aircraft activity[10] remained under legal challenge during 2024 and, as a result, did not have a positive impact on the noise climate. The planning condition associated with this aircraft movement limit was replaced in July 2025 by An Coimisiún Pleanála with an annual-averaged night-time aircraft movement limit and a noise quota system designed to incentivise the use of quieter aircraft. The remaining noise mitigation measures in place at the airport did not support the delivery of the noise exposure limit aspects of the NAO during 2024. The contributors to the future achievement of this objective are multi-faceted and will require targeted operational and land-use planning measures that work cohesively together. Successive noise assessments since 2019 have determined that noise related operating restrictions remain a necessary component of the noise management framework for Dublin Airport. Although the implementation of operating restrictions at the airport remains in transition, it is noted that insulation measures, to mitigate the impact of aircraft noise above the priority levels of the NAO, are currently identified and implemented through the land use planning aspect of the ICAO Balanced Approach (at both planning and retrofit stage). Accurate forecasting is an essential component for the development of robust land use management policies that facilitates and balances both economic and leisure aviation activity with the protection of human health and wellbeing. The absence of effective noise limiting operating restrictions has been an impediment to the delivery of the noise-limit aspect of the NAO during 2024.

10 Condition 5 of north runway planning permission.

The reports notes that the noise mitigation measures in place at the airport have made effective contributions towards the health exposure reduction aspects of the NAO. However, the number of people classified as HA and HSD during 2024, whilst lower than 2019, have increased when compared to 2023. The performance of these indicators will require continued oversight to ensure that the outcomes can be achieved by the first target date of 2030.

The suite of measures in place at the airport act in combination, and it is not always possible to retrospectively ascertain the precise contribution of individual measures. The principal contributors to the reductions in noise exposure observed between 2019 and 2024 include the preferred mode of runway selection and the addition of next generation aircraft to the aircraft fleet. Financial incentives can be an important component of fleet modernisation. The annual compliance report of the airport authority identified reduced proportions of the latest generation Boeing 737 Max aircraft in the fleet mix during 2024. However, the report advised that this trend has reversed during 2025.

Preferred runway selection has been demonstrated to be an effective operational measure for managing the highly annoyed and highly sleep disturbed reduction aspects of the NAO. This measure, in place at Dublin Airport since 2022 (Mode 7b)[11], distributes the aircraft noise in a way that minimises the impact on the overall population around the airport. This measure was only operationally effective for day and evening hours (07:00 to 23:00) during 2024 due to planning restrictions on night-time use of the north runway. Figures 5 and 6 highlight reduced population exposure that is possible through the implementation of preferred runway selection as permitted by the current planning framework. Amendments to this mitigation measure during the first and last night-time hours (23:00-00:00 and 06:00-07:00) may permit additional noise exposure improvements to be obtained in future years. In this context, it is noted that An Coimisiún Pleanála has issued planning consent for such amendments during 2025. This amended measure has the potential to reduce sleep disturbance in the population in the years ahead and will be assessed after it becomes operational.

Two planning applications for increases to permitted passenger capacity and development works at Dublin Airport are currently under assessment by the planning authority and ANCA. Having consideration to the potential impact of operating restrictions and mitigation measures contained within the ACP decision of July 2025, the assessment for the need for further noise related actions to address any potential noise problems arising through proposed developments is currently ongoing. The process of assessment also requires review of the NAO to ensure that it remains an effective instrument for the management of the harmful aspects of aircraft noise.

The 2024 annual compliance report of the airport authority identifies areas where there may be opportunities for improvement in the performance of existing noise mitigation measures and opportunities for the development of new measures. Some of these require the participation of regulatory authorities and airline stakeholders. These candidate measures and improvements may make positive contributions to the noise climate outside of regulatory noise assessment processes.

11 Condition 3 of north runway planning permission

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 2024 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.

Glossary

Technical terms and acronyms used in this report

Act of 2019	The Aircraft Noise (Dublin Airport) Regulation Act 2019
ACP	An Coimisiún Pleanála
Aircraft Noise Regulation	Regulation (EU) 598/2014
ANI	Aeronautical Navigation Information
ANOMS	Aircraft Noise & Operation Monitoring System
CCO	Continuous Climb Operations
CDO	Continuous Descent Operations
DAOPG	Dublin Airport Operations Planning Group
END	Environmental Noise Directive
ENR	European Communities (Environmental Noise) Regulations 2018 (ENR).
Highly Annoyed (HA)	Metric used to describe the number of people calculated to be highly annoyed by aircraft noise.
Highly Sleep Disturbed (HSD)	Metric used to describe the number of people calculated to be highly sleep disturbed by aircraft noise using the methodology prescribed by END.
ICAO	International Civil Aviation Organization, a specialised agency of the United Nations to coordinate the principles and techniques of international air navigation and transport
L_{den} (day-evening-night noise level in dB)	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.
L_{night} (night noise level in dB)	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
NAO	Noise Abatement Objective for Dublin Airport 2022
NPR	Noise Preferential Routes
NRPP	North Runway Planning Permission (FCC Planning Register Reference Number: F04A/1755; An Bord Pleanála Reference Number: PL 06F.217429)
RNIS	Residential Noise Insulation Scheme
WHO	The World Health Organization. A specialised agency of the United Nations responsible for international public health.

References

A National Aviation Policy for Ireland 2015.
Department of Transport.

Annual Compliance Report 2024.
daa

Environmental noise in Europe 2025.
European Environment Agency.

Fingal Development Plan 2023-2029.
Fingal County Council.

Noise Action Plan for Dublin Airport 2024-2028.
Fingal County Council.

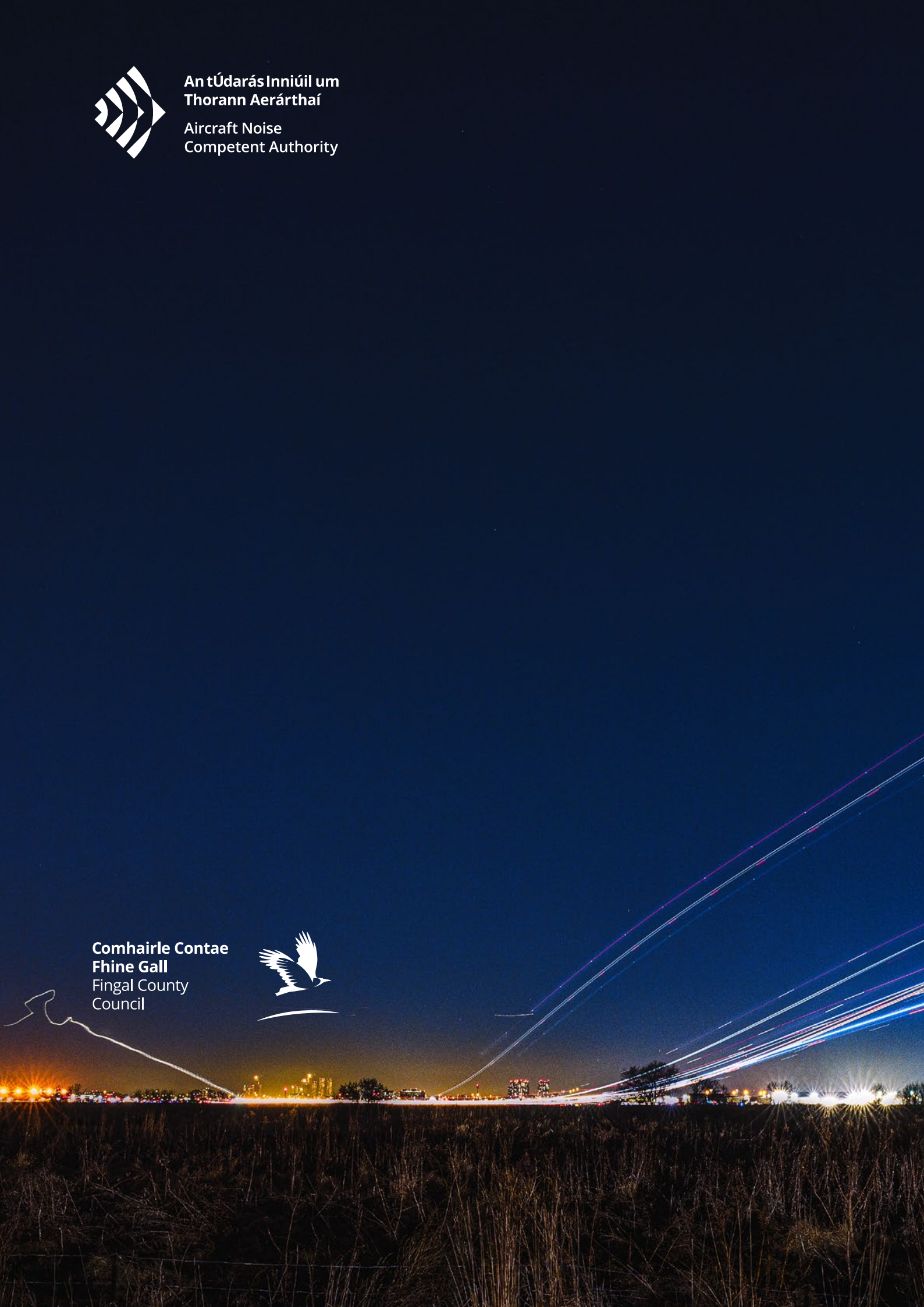
North runway planning permission.
FCC Planning Register Reference Number: F04A/1755;
An Bord Pleanála Reference Number: PL 06F.217429.

Regional Spatial & Economic Strategy 2019-2031.
Eastern & Midland Regional Assembly.

The Noise Abatement Objective for Dublin Airport 2022.
Aircraft Noise Competent Authority.

An tÚdarás Inniúil um Thorann Aerárthaí

Aircraft Noise Competent Authority



Comhairle Contae Fhine Gall
Fingal County Council