

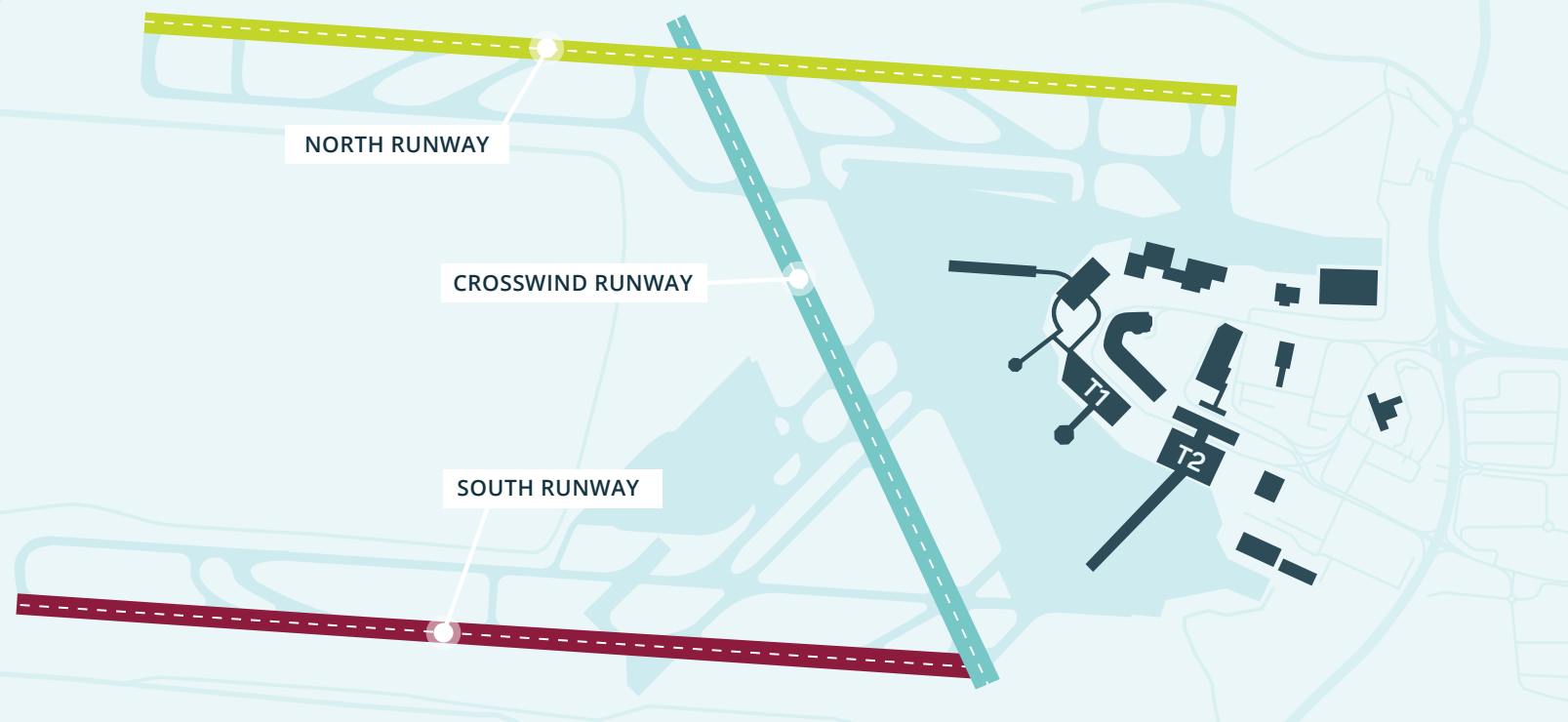
Facts on Noise Management and Mitigation at Dublin Airport



Dublin Airport Runways

Dublin Airport has three runways. **North Runway** is new. It opened in August 2022. There were two prior runways: the **South Runway** which accounted for most flights and the **Crosswind Runway**, used in the event of cross-winds.

Neither overall flight volumes nor noise have changed as a result North Runway. Instead, flight volumes and noise are spread differently across the three runways. Since North Runway opened, flight volumes on the South Runway are lower and volumes on the Crosswind Runway have been substantially eliminated.





50% Reduction in Those Significantly Impacted by Noise

The number of people significantly impacted by aircraft noise at Dublin Airport has almost halved between 2019 and 2022. This is due to a number of factors, including fewer homes being overflown, more modern and quieter aircraft and the adoption of noise mitigation measures by daa. Aircraft movements in 2022 were just 10% lower than those in 2019 as the recovery in aviation accelerated post COVID-19.

99%

99% Reduction in use of Crosswind Runway – flying over Santry and Dublin City

Since North Runway became operational, daa's Crosswind Runway (Runway 16/34) which brought flights over highly populated, major urban areas such as Santry and Dublin City, is now rarely used (usually only due to weather / wind or safety reasons as determined by AirNav Ireland). In the eight months to August 2023 there has been a 99% reduction in flights using this runway compared to 2017.



No Change in Night Time Noise (11pm to 7am) Since North Runway Opened

North Runway **does not** operate at night - i.e. between the hours of 23:00 and 07:00, other than in exceptional circumstances e.g. to facilitate essential maintenance. Typically, this amounts to 4 nights every two months or around 24 nights a year in these circumstances.

During these essential maintenance times, runway operations switch to North Runway rather than the Crosswind Runway whose flight paths are located over the highly populated areas of Santry and Dublin City. This formed part of the planning permission for North Runway whereby the default back-up runway in essential maintenance or emergency situations is North Runway.



Modern aircraft are up to 50% quieter

The fleet at Dublin Airport is one of the most modern in the world.

The significant rollout of Boeing 737 Max and Airbus A320 Neos – which are 50%¹ quieter than aircraft in operation in 2006 – has resulted in:

- 96.3% of aircraft in Dublin Airport meeting the ICAO Chapter 4² noise standard.
- 32% of aircraft in Dublin Airport also meeting the more stringent ICAO Chapter 14³ noise standard.
- Noisier aircraft (referred to as Chapter 2 aircraft) being banned from Dublin Airport.
- The original conditions attached to the grant of planning for North Runway were based on aircraft types which operated in 2003. None of Ryanair's current global fleet of 296 aircraft were in operation in 2003, while just three of Aer Lingus' 54 strong fleet were operating 20 years ago.



¹ 50% reduction at start up.

² All aircraft are assigned a type certificate before they can be entered into operation and the noise produced by the aircraft is assessed. These standards are developed by the ICAO and enforced throughout the EU. The ICAO Noise 'Chapter' defines specific noise performance criteria to which aircraft must be certified.

³ Chapter 14 of Annex 16 to the Chicago Convention, means that from 2017 new large civil aircraft types must be at least 7 EPNdB (Effective Perceived Noise in Decibels) quieter than the current Chapter 4 standard.

Promoting and Incentivising Quieter Aircraft & Penalising Airlines for Noise

We encourage and financially incentivise our airline partners to fly their quieter and more efficient aircraft fleet (Chapter 14). We have also introduced live charging for noise, which is actively being enforced and applied to invoices since last year.

Airlines operating at Dublin Airport will soon be able to avail of additional discounts of up to 25% on charges in a further bid by daa to incentivise airlines to operate newer, quieter and cleaner aircraft. daa is incorporating airline feedback into its proposals, with full details to be finalised over the coming weeks.

Among the changes being considered by daa are:

- An extension of noise surcharging to 24 hours (from night only currently) and more penal surcharges for the noisier aircraft during the night period.
- The introduction of a new Nitrogen Oxide-based emissions runway surcharge.
- The introduction of an 12.5% discount on both published runway charges and passenger charges to attract cleaner and quieter aircraft.

More Monitoring and Measurement

Aircraft noise can be measured using Noise Monitoring Terminals (NMTs). daa has increased the number of NMTs in operation by over 100% since the opening of North Runway in August 2022. We now have 15 permanent live monitors and expect a further 8 NMTs will be in place by the end of 2023. The

noise levels from these NMTs are made publicly available on our WebTrak system. The data derived from the NMTs is used to correlate aircraft movements and aviation noise. This correlation and the readings are used to provide information to Aircraft Noise Competent Authority (ANCA), Final County Council (FCC) and others, as well as generating the annual noise contours. Noise event data from the NMTs is used in the published daa Annual Compliance report which is submitted to ANCA.

NMT Status:

- 15 Fixed NMTs.
- 1 Mobile NMT, with a second to be added this month (October 2023).
- 11 Temporary NMTs were deployed at various locations throughout the last year for approximately 2 weeks each time in recognition of the initial issue identified on the departure flightpaths off the North Runway, when it opened in August 2022.

Fig. 01: A Noise Monitor Terminal (NMT) in situ



Noise and Flight Track Monitoring

daa introduced a community focused flight tracking system called WebTrak in 2021. WebTrak is a web-based service that monitors and provides information on flights and noise levels related to aircraft using Dublin Airport. It provides real-time information on flight origin and destination, aircraft type, altitude and flight path, as well as noise levels registered at Dublin Airport's noise monitoring terminals.

The system also provides a simplified way for members of the public to monitor flights and submit noise complaints.

Fig. 02: Map of Noise Monitor Terminals

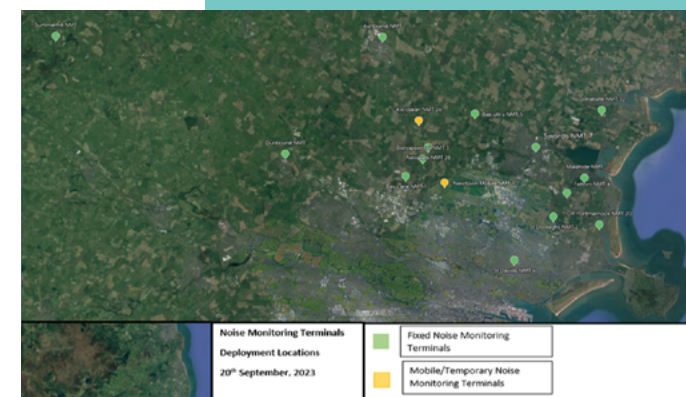
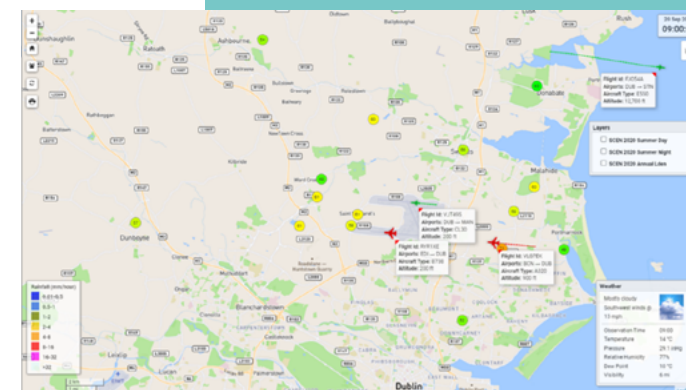


Fig. 03: Home screen with flight tags and layer selection options



Aircraft Noise Complaints



32,646

aircraft noise complaints were received by daa in 2022

90%

of complaints in 2022 came from 11 complainants

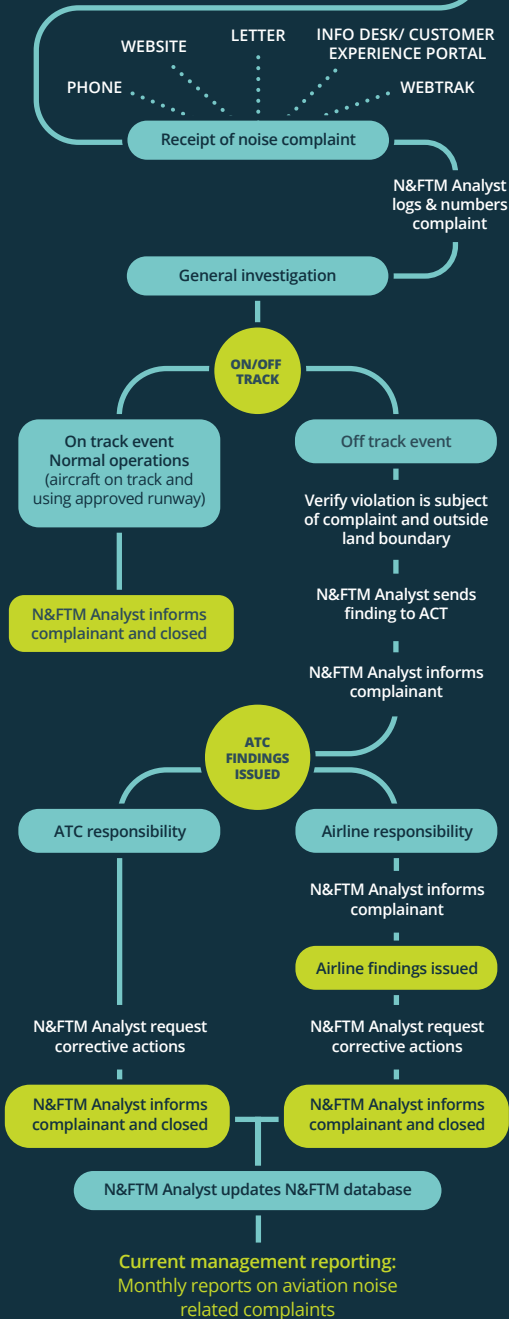
25,126

of all complaints received (77%) were from 1 serial complainant

83.8%

of complaints were responded to by daa

How daa deals with noise complaints



Adhering to Environmental Corridors

Noise Preferential Routes [NPRs], also known as Environmental Corridors enable daa to monitor the compliance of aircraft with their designated departure route. They are designed to minimise impact on surrounding communities. Unless directed otherwise by Air Traffic Control (ATC), all aircraft taking off are required to follow the NPRs.

Flight Paths

daa was granted planning permission for the construction and operation of North Runway.

As part of this process, indicative flight paths were used, however these did not form part of the planning approval.

It has been clear since 2016 that there would be a need for a diversion off North Runway to ensure a compliant and safe airspace in parallel runway operations.

Public information sessions were held to inform people about this and to show the indicative flight paths associated with the required divergence.

During the initial bedding-in period after North Runway operations commenced in August 2022, the initial departure flightpaths were not in line with modelling assumptions, resulting in some local communities being unexpectedly overflown.

Since February 2023, flight paths have been updated and are now substantially aligned with the information previously communicated by daa in 2016.

The Instrument Flight Procedures associated with North Runway were developed and designed by experts to align to the mode of operation stipulated in the planning conditions as well as international safety regulations. They were subsequently examined in detail and approved by the Irish Aviation Authority (IAA) in its role as regulator.

daa recognises that the introduction of the North Runway has brought aviation noise to new areas that previously were not affected. However the total level of aviation noise from Dublin Airport has not significantly changed since 2019 but is now distributed across a wider geographical area that has seen reductions in movements and noise levels in some areas and increases in others.

The number of people significantly impacted by aircraft noise at Dublin Airport, over two of the main classification groups, reduced by almost 50% between 2019 and 2022, as evidenced by the ANCA Review of Effectiveness for 2022.

Independent Oversight of Noise

ANCA (the Aircraft Noise Competent Authority) is the responsible agency for monitoring, and regulating where necessary, for the management of aircraft noise in the communities around Dublin Airport. daa is responsible for the implementation of mitigation measures and for the appropriate measuring systems to ensure compliance.



An tÚdarás Inniúil um
Thorann Aerárthaí
Aircraft Noise
Competent Authority

Noise Transparency and Reporting

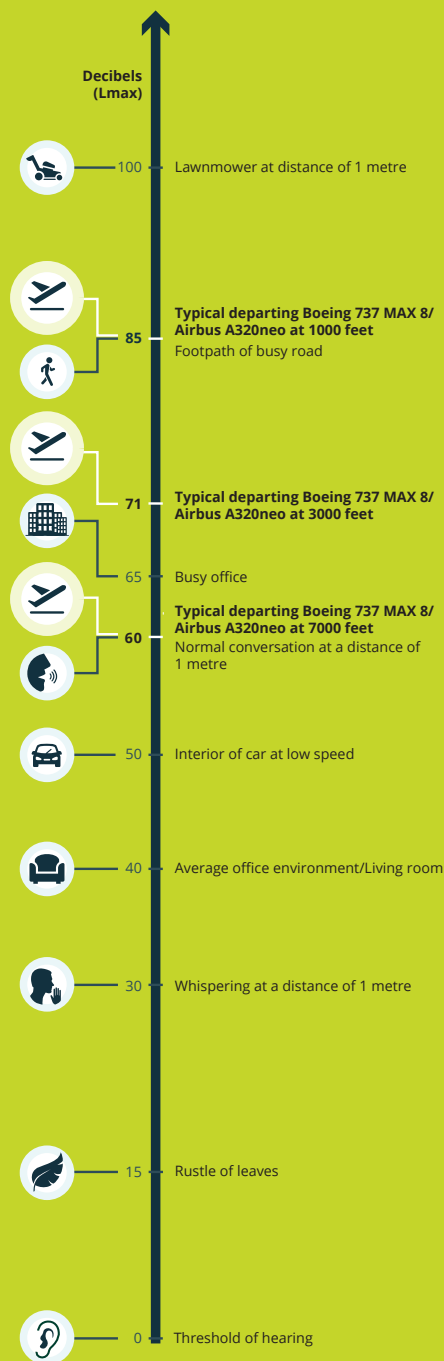
daa publishes relevant aviation noise data on a monthly and quarterly basis, as well as completing an annual report setting out the degree to which airport users are complying with the noise mitigation measures and operating restrictions.

Comparison of Noise From Various Sources

A comparison of noise from various sources is shown in the diagram to the right. These values are maximum sound levels that occur for each example.

This represents the new fleet of aircraft being used in 2023 namely the Boeing 737 Max 8 and the Airbus A320 neo. As outlined above, with the modernisation of Aircraft fleet, these noise levels will have reduced in 2023.

Understanding noise (decibel) levels



daa Actions to Mitigate Noise and Support Homeowners and the Community



Insulation

daa has extended comprehensive acoustic insulation schemes to 200 homes. This is three times the number of homes required under its 2007 grant of planning permission. This measure provides significant acoustic benefits as well as heat retention. Three schools have also benefitted from substantial insulation measures.

Scheme eligibility is reviewed every two years, however where eligibility emerges between reviews, custom and practice by daa has been to insulate homes much sooner following an eligibility assessment.



Voluntary Dwelling Purchase Scheme

For those closest to North Runway and most acutely impacted by noise, a voluntary scheme has been established that offers to buy out their homes at a 30% premium to their value pre North Runway, in addition to professional fees and relocation expenses. Almost 30 homes are, and remain eligible, for this scheme.



RESIDENTIAL NOISE INSULATION SCHEME

Eligible: 125

Opted In: 105



HOME SOUND INSULATION SCHEME

Eligible: 77

Opted In: 54



VOLUNTARY SCHOOLS SOUND INSULATION

Eligible: 4

Opted In: 3



VOLUNTARY DWELLING PURCHASE SCHEME

Eligible: 38

Opted In: 13



Changes to operating conditions

300 Homes become eligible for a €20,000 Insulation Grant

daa has sought changes to operating conditions to:

- permit North Runway to be used between 11pm and midnight and between 6am and 7am i.e. for early morning outbound and end of day returning aircraft
- to move from measuring the number of aircraft movements to measuring their noise impacts i.e. to move from a movement cap to a noise quota system

Fingal County Council has issued a notification to grant planning permission for changes to the conditions and this decision is now being considered by An Bord Pleanála. If approved and implemented, 300 homeowners will benefit from a €20,000 grant to insulate their homes.



Dublin Airport €10m Community Fund

In 2017, daa launched a €10 million Community Fund. To date, the Fund has supported over 450 projects and initiatives in the airport's locality, to a total value of over €1.8 million. Projects supported so far include sports and recreation, environment and sustainability, health and wellbeing, heritage and social inclusion.

daa also supports up to 20 local students per annum to attend university via DCU's Access programme. Since its launch in 2017, daa has supported 70 students to progress their education through this programme.



Community Engagement

Dublin Airport has a dedicated Community Engagement Team (CET) which is tasked with communicating through a number of channels with local residents impacted by airport operations.

To date in 2023, the CET has completed over 70 home visits and one-to-one meetings with residents on various issues including airport operations, flight paths and noise monitoring.

In addition, the team has actively participated in four Community Liaison Group [CLG] meetings and two Dublin Airport Environmental Group [DAEWG] meetings, as well as supporting and administering Dublin Airport's voluntary dwelling purchase scheme and insulation schemes for eligible residents.

The following is a summary of total community engagement on North Runway:

2,000

local residents met

20

public events hosted, including major public information roadshows

43,000

leaflet drops

5,000+

emails sent

2,000+

letters sent

€10m

community fund rolled out

CLG & DAEWG

meetings held regularly

Regular meetings

with public representatives

Designated

community engagement team

Dublin Airport

Location	Lat. 532517N, Long. 0061612W (midpoint runway 10/28)
Elevation	242 ft. AMSL
Runway	Runway 10R/28L: Length 2,637 metres – width 45 metres plus 7.5 metre shoulders each side Surface asphalt Category III A (Runway 10)/Category III A (Runway 28) Runway 10L/28R : Length 3,110 metres – width 75 metres plus 7.5 metre shoulders on each side Surface concrete Category III B Runway 16/34: Length 2,072 metres – width 61 metres Surface asphalt Category I (Runway 16)/Non-precision (runway 34)
Refuelling	JET A1
Operational	24hrs
Postal address	THREE, The Green, Dublin Airport, Swords, Co. Dublin, K67 X4X5, Ireland
Fax number	(01) 814 1034 (09:00-17:00) (01) 814 5479 (24hrs)
Telephone number	National (01) 8141111 International 353 1 8141111
Web	www.dublinairport.com
Sita	DUBRN7X (Airport Administration) DUBYREI (Operations)