

# Consultation on Flight Paths and Change to Permitted Operations





#### Change to permitted operations

### Purpose of Consultation

Planning permission for North Runway has been granted, however two of the 31 conditions are onerous and limit the potential of the airport to operate, grow and deliver the maximum economic and societal benefit for Fingal, for Dublin and for Ireland as a whole.

#### Condition 3(d)

Condition 3(d) would prohibit the use of North Runway for landings and take-offs between the hours of 2300 to 0700.

#### Condition 5

Condition 5 states that, on completion of construction of the new runway, the average number of night time aircraft movements at the airport shall not exceed 65 per night (between 2300 and 0700).

• daa will be seeking to retain the operational flexibility that currently exists at Dublin Airport. That

- process will involve the preparation of an Environmental Impact Statement (EIS).
- The EIS will make an assessment of the implications of the proposed change in permitted operations and this requires a decision about flight paths that will be used.
- This consultation is about helping to determine the new flight paths for North Runway

# Maintaining Operational Flexibility

Dublin Airport has seen a return to growth with a record 25m passengers using the airport in 2015. This is due to a combination of almost 50 new routes and services, significant additional capacity on a number of existing routes and nine new airlines operating at Dublin.

#### Growth

- Aircraft movements increasing from 170,000 in 2013 to 180,000 in 2014 to 198,000 in 2015. Strong growth is continuing in 2016, with 12% year on year growth in passengers in the first eight months of the year.
- Traffic forecasts indicate potential for passenger throughput figures of up to 36 million by 2022 and up to 50 million by 2037.



#### Capacity constraints

- Dublin Airport is already experiencing capacity challenges with demand for some runway slots exceeding capacity.
- Restriction of 65 flights per night is 35 less than the 100 flights on average which are currently using the airport between 23:00 and 07:00.

#### Based aircraft

The main source of growth at Dublin Airport continues to be from based and network carriers. Based operators have a particular requirement for capacity in the early morning and late evening to get the most efficient use from their aircraft. The one hour time difference between Ireland and continental Europe adds to the need for based aircraft to depart early.

#### Developing connectivity - Dublin competes with other European airports

- In 2016, Dublin Airport will be the number five airport in Europe for flights to North America with growth in connectivity of over 65% since the opening of T2 in 2010. The proposed restrictions in the 23:00-07:00 period has the potential to limit the scope for developing those long-haul services to North America.
- At 3110m, North Runway can facilitate flights to the Far East, Asia and South America. Attracting new long-haul services, ahead of other European airports, could be jeopardised by restrictions which impede operational flexibility.
- Connecting passenger numbers increased by 89% from 2013 to 2015. An increasing proportion of long-haul passengers are seeking to connect
  onto early morning UK and European flights. The proposed restrictions would negatively impact opportunities for flight connections. This reduces the
  likelihood of new routes being established.
- Changing travel patterns mean that people now want to make same day business trips, requiring more capacity in the early morning and late evening peaks.





# Feedback from First Consultation on Environmental Impact Statement (EIS) Scoping



![](_page_2_Picture_3.jpeg)

#### Feedback from first consultation on Environmental Impact Statement (EIS) scoping

# Feedback from EIS Scoping Consultation

- Five consultation events at three separate locations in June and July.
- 500+ attendees in total.
- 200+ submissions via public consultations, website and post.

![](_page_3_Picture_5.jpeg)

#### Responses by area

#### Volume of responses

![](_page_3_Figure_8.jpeg)

The EIS Scoping Report outlined a range of environmental topics that would be considered together with the methodology that would be used to gather and assess that information. As part of the consultation process, the public was invited to provide feedback on the Scoping Report.

#### Response totals by question

	Number of Responses           20         40         60         80         100         12
Question 1:	Do you have any issues, concerns or observations relating to changes to the restrictive conditions that may be specific to you, your immediate community, area, residence or place of work?
Question 2:	Are there any broader social/environmental topics that should be considered in Environmental Impact Statement?
Question 3:	Is there any other information you feel we should consider?
General Submission	

![](_page_3_Picture_13.jpeg)

#### Feedback from first consultation on Environmental Impact Statement (EIS) scoping

### Issues Raised during Consultation Process

A full report on all feedback received has been published and is available on the North Runway website (**www.northrunway.ie**). Some of the issues raised by local residents and communities included:

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ISSUE		
<section-header></section-header>	<ul> <li>Concern that property may be devalued due to increased noise levels in the area.</li> <li>Possible depopulation of local areas due to aircraft noise could impact on the provision of school places and public services.</li> </ul>	<ul> <li>Planning restrictions in the local area are resulting in depopulation.</li> </ul>
<section-header></section-header>	<ul> <li>Night time aircraft noise could impact on health.</li> <li>Inadequate measurement and communication of noise data by daa, e.g. location of monitoring equipment, availability and technical nature of data. Need for single event information in addition to average noise levels.</li> <li>A body independent of daa should undertake noise monitoring.</li> </ul>	<ul> <li>Acoustic barriers should be installed to reduce noise impacts.</li> <li>Concerns regarding aircraft noise causing vibration on dwellings and structures.</li> <li>Web Trak noise monitoring system should be put in place.</li> <li>Various mitigations were proposed, e.g. quotas, noise envelopes, etc.</li> </ul>
Human Health	<ul> <li>Late night and/or early morning flights impact health, including hearing impairment, blood pressure, hypertension, annoyance, and sleep disturbance.</li> <li>Concerns expressed for the welfare of children and impact of aircraft noise on cognitive development.</li> <li>Impact of unburned hydrocarbons and vapour pollution from aircraft on health.</li> </ul>	<ul> <li>Concern that particulate matter, NOx, hydrocarbons and other emissions could have adverse effects on respiratory conditions.</li> <li>Impact of increased noise from aircraft on students, the elderly, parents with young children and people with mental health vulnerabilities.</li> </ul>
Air Quality	<ul> <li>Increase in emissions due to additional flights should be considered.</li> <li>Concern regarding smell of aircraft fuel in homes.</li> </ul>	<ul> <li>Concern regarding pollution of dwellings and gardens as a result of aircraft flying overhead.</li> <li>Concern regarding increased discharge of aviation fuel and impact on air quality.</li> </ul>
	<ul> <li>Increase in traffic in local areas due to altered flight schedules.</li> <li>Projected impact of traffic flows on the local and national road network.</li> </ul>	<ul> <li>It was proposed that a rail link should be delivered to ease future congestion.</li> </ul>
Water: Drainage Flooding	<ul> <li>Potential for flooding of perimeter communitie</li> </ul>	es.
Climate	<ul> <li>North Runway development is incompatible w</li> </ul>	ith national carbon reduction targets.
Biodiversity	<ul> <li>Concern regarding the impact of the proposed paths of endangered and protected birds and or</li> </ul>	l change of permitted operations on migration on the local natural bee population.

All of the responses that emerged from this first consultation with stakeholders are now being reviewed and considered by the Project Team in finalising the assessment methodology and content of the EIS.

#### Feedback from first consultation on Environmental Impact Statement (EIS) scoping

### Actions Undertaken Based on Feedback to Date

Other issues have also been taken into account as a direct result of feedback from local residents during the first consultation. These have resulted in a number of actions:

• In addition to our permanent noise monitoring terminals, further monitoring for aircraft noise has been carried out at a number of locations.

![](_page_5_Figure_4.jpeg)

#### Key

![](_page_5_Picture_6.jpeg)

Temporary Noise Monitoring Locations

![](_page_5_Picture_8.jpeg)

- The potential impact of vibration on dwellings caused by aircraft noise will be considered.
- The potential effects of odours from aircraft fuel will be considered.
- In addition to our permanent air quality monitoring terminals, further monitoring is currently being undertaken.
- An assessment will be undertaken of Dublin Airport's accessibility in the context of planned public transport infrastructure such as Metro North, Luas, Cross City and Swiftway Bus Rapid Transit.

![](_page_5_Picture_13.jpeg)

Report on public consultation feedback

Download the report at:

www.dublinairport.com/north-runway/project-updates

![](_page_6_Picture_0.jpeg)

# Operation of the Runway System at Dublin Airport

![](_page_6_Picture_2.jpeg)

![](_page_6_Picture_3.jpeg)

#### Operation of the runway system at Dublin Airport

## How Runways Operate

#### Flight paths

- Flight paths are the designated routes aircraft follow under the direction of Air Traffic Control (ATC).
- While flight paths are often shown as single lines on a map it is not always possible for aircraft to fly exactly along that line. In practice, flight paths will vary either side of the route, within a designated flight corridor.
- ATC manages aircraft for landing or take-off along specific flight paths as well as keeping aircraft at safe distances from each other in the air and on the ground.
- Safe movement of aircraft is a vital consideration in the development of flight paths.
- The way in which an airport's runway system is used depends on a variety of factors such as: weather conditions, especially wind direction, speed and visibility, and the number of take-offs and landings.

#### Noise Preferential Routes

- Unless directed otherwise by ATC, all aircraft taking off from Dublin Airport are required to follow specific flight paths called Noise Preferential Routes (NPRs). To minimise disruption, NPRs are designed to avoid the overflight of built-up areas where possible.
- An NPR is a path or corridor (1.8km at its widest point) that aircraft follow from take-off until being directed by ATC onto their main air traffic routes, typically at 3,000 feet altitude above mean sea level.
- Aircraft normally travel in the middle of this corridor allowing 900m of corridor space on either side of the aircraft. However, the precise path followed within the corridor may vary depending on factors including: navigational equipment, the type and weight of aircraft and weather conditions (particularly winds that may cause drifting). Aircraft flying inside this corridor are considered to be flying on-track.
- Aircraft turning:
  - Once an aircraft reaches the end of the NPR, normally at an altitude of 3,000 feet, a controller will turn it onto a more direct heading to its destination.
  - ATC can turn aircraft off NPRs below 3,000 feet for safety reasons, for example to avoid storms.

### Subject to final safety assessment, routes are determined by:

Note: Not to scale.

![](_page_7_Figure_17.jpeg)

![](_page_7_Picture_18.jpeg)

#### Operation of the runway system at Dublin Airport

### Current Operation

#### Existing flight paths

- The existing flight paths follow a straight line from the end of the runway for both arrivals and departures.
- For most aircraft operating from Dublin Airport:
  - Departures from all runways (except easterly departures on the existing southern runway) must maintain course straight out for five nautical miles after take-off before commencing a turn, unless otherwise cleared by Air Traffic Control (1 nautical mile = 1,852 metres).
  - Easterly departures on the existing southern runway must maintain course straight out for five nautical miles before commencing a turn to the north, or to six nautical miles before commencing turn to the south.
- Note: Turboprop aircraft are generally turned earlier for reasons of efficiency.

#### Take-off and landing on South Runway

### Westerly Operations (approx. 70% of the time)

When the wind blows from the west, planes approach over the Irish Sea and take-off towards the west

WIND

### Easterly Operations (approx. 30% of the time)

When the wind blows from the east, planes land from the west and take-off towards the coast

![](_page_8_Picture_13.jpeg)

![](_page_8_Picture_14.jpeg)

#### Current flight departure paths

![](_page_8_Figure_16.jpeg)

#### Key

![](_page_8_Picture_18.jpeg)

Category A&B (Turboprop) aircraft westerly departure routes

Category A&B aircraft easterly departure routes

![](_page_8_Picture_21.jpeg)

Category C&D (Jet) aircraft westerly departure routes

Category C&D (Jet) aircraft easterly departure routes

![](_page_9_Picture_0.jpeg)

![](_page_9_Picture_2.jpeg)

![](_page_9_Picture_3.jpeg)

## North Runway Operation

Once North Runway comes into operation, new routes to and from the airport will be introduced.
 Condition 3 of An Bord Pleanála's grant of permission for North Runway introduces a preferred runway concept – Option 7b – to lessen the impact of aircraft noise on local communities.

Option 7b: Westerly Operations (approx. 70% of the time)

#### Westerly Wind $\rightarrow$

![](_page_10_Figure_5.jpeg)

#### Option 7b: Easterly Operations (approx. 30% of the time)

![](_page_10_Figure_7.jpeg)

- Most of the time the runways will be operated in segregated mode, i.e. one runway for all arrivals, the other for all departures.
- However, there will be occasions during peak hours when runways will need to operate in mixed mode, i.e. both runways used simultaneously for arrivals and departures.
- For safety and aircraft separation, international standards for mixed mode operations require that aircraft courses diverge by at least 15° approximately one nautical mile after take-off.
- Before any proposed flight path procedure and/or mode of operation can be finalised and implemented for North Runway, a comprehensive safety case and assessment will have to be completed by the Air Navigation Service Provider (Air Traffic Control). This will occur before the opening of North Runway.
- The EIS will make an assessment of the implications of the proposed change in permitted operations and this requires a decision about the Noise Preferential Routes (NPRs) that will be used.
- This consultation is about helping to determine the new NPRs for North Runway.
- The findings and recommendations arising from this process will be published as part of the ongoing EIS consultation and public information process and will be shared with the Air Navigation Service Provider, which has overall responsibility for airspace design.

## Departure Flight Paths

- For safety reasons, a divergence of at least 15° will be required to allow independent departures on both runways.
- Several options within the range 75°N to 5°S were considered.

![](_page_11_Picture_4.jpeg)

#### Divergence scenarios

In developing the departure Noise Preferential Routes (NPRs) we have shortlisted two scenarios to avoid areas of dense population and to minimise the number of dwellings significantly affected by

noise.

![](_page_11_Figure_8.jpeg)

**Note:** NPRs will be subject to assessment based on criteria finalised post-consultation. A comprehensive safety case and assessment will also be completed by the ANSP before North Runway opens.

### Flight Movements

Below are the number of flight movements anticipated for each runway in 2022 and 2037. These numbers are based on high growth forecasts and may be subject to change. Note: we have illustrated using a 15°N divergence for easterly and westerly departures on North Runway as this is the minimum requirement. Regardless of the degree of divergence chosen, the number of movements will be the same.

- Current operations reflect aircraft movements at Dublin Airport today.
- Existing planning conditions relate to the number of movements which would occur as a result of

the implementation of An Bord Pleanála's 2007 grant of planning permission for North Runway. These would come into effect on both runways when North Runway is operational.

• Proposed operations relate to the removal of Condition 3(d) and Condition 5. These figures show the difference in the number of movements if a change in permitted operations were agreed.

#### Easterly Operations on a representative summer's day

![](_page_12_Figure_8.jpeg)

#### Westerly Operations on a representative summer's day

	DEPARTURES						ARRIVALS						
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	0500-0600	N/A	0	0	0	0	Jonestown	0500-0600	N/A	0	0	0	0
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#### Legend

Aircraft Altitudes (above airport level)

0-1000 ft

1000-2000 ft

2000-3000 ft

3000-5000 ft

5000-10000 ft

>10000 ft

Runway 28R Arrival Track Centreline

![](_page_12_Figure_20.jpeg)

# Scenario A: 2022 Average (LAeq) Day Noise Contours

#### Scenario A

Straight out on South Runway; 15°N divergence for easterly and westerly departures on North Runway.

![](_page_13_Picture_4.jpeg)

Noise contours are developed using modelling techniques which are widely used throughout the aviation industry. The day noise contour modelling covers a 16-hour period (7am to 11pm) over 92 days during the airport's busiest summer months. It takes account of a number of elements such as runway location(s), arrival and departure routes, aircraft movements (number by aircraft type), the split of movements between the runway(s) and routes, and airport procedures.

The change of permitted operations has a modest effect on average daily noise contours, as illustrated.

#### Average noise contours on a representative summer's day, with existing conditions

![](_page_13_Figure_8.jpeg)

#### Average noise contours on a representative summer's day, with proposed operations

![](_page_13_Figure_10.jpeg)

![](_page_13_Figure_11.jpeg)

#### Understanding noise (decibel) levels

![](_page_13_Figure_13.jpeg)

## Scenario A: 2022 Average (LAeq) Night Noise Contours

#### Scenario A

Straight out on South Runway; 15°N divergence for easterly and westerly departures on North Runway.

![](_page_14_Picture_4.jpeg)

A change of permitted operations results in a larger 55db night contour. The night noise contour modelling covers an 8-hour period (11pm to 7am) over 92 days during the airport's busiest summer months. It takes account of a number of elements such as runway location(s), arrival and departure routes, aircraft movements (number by aircraft type).

#### Average noise contours on a representative summer's night, with existing conditions

![](_page_14_Figure_8.jpeg)

![](_page_14_Figure_9.jpeg)

#### Average noise contours on a representative summer's night, with proposed operations

![](_page_14_Figure_11.jpeg)

#### Legend 48 dB LAeq,8h 55 dB LAeq,8h 57 dB LAeq,8h 60 dB LAeq,8h 63 dB LAeq,8h 66 dB LAeq,8h 69 dB LAeq,8h

![](_page_14_Figure_13.jpeg)

# Scenario B: 2022 Average (LAeq) Day Noise Contours

#### Scenario B

Straight out on South Runway; 15°N divergence for easterly departures on North Runway; split divergence of 15°N and 75°N for westerly departures on North Runway, depending on ultimate destination of aircraft.

![](_page_15_Picture_4.jpeg)

Noise contours are developed using modelling techniques which are widely used throughout the aviation industry. The day noise contour modelling covers a 16-hour period (7am to 11pm) over 92 days during the airport's busiest summer months. It takes account of a number of elements such as runway location(s), arrival and departure routes, aircraft movements (number by aircraft type), the split of movements between the runway(s) and routes, and airport procedures.

The removal of the conditions has a small effect on average daily noise levels, as illustrated.

### Average noise contours on a representative summer's day, with existing conditions

![](_page_15_Figure_8.jpeg)

### Average noise contours on a representative summer's day, with proposed operations

![](_page_15_Figure_10.jpeg)

![](_page_15_Figure_11.jpeg)

# Scenario B: 2022 Average (LAeq) Night Noise Contours

#### Scenario B

Straight out on South Runway; 15°N divergence for easterly departures on North Runway; split divergence of 15°N and 75°N for westerly departures on North Runway, depending on ultimate destination of aircraft.

![](_page_16_Picture_4.jpeg)

The night noise contour modelling covers an 8-hour period (11pm to 7am) over 92 days during the airport's busiest summer months. It takes account of a number of elements such as runway location(s), arrival and departure routes, aircraft movements (number by aircraft type).

The removal of the conditions results in a larger 55dB night contour.

### Average noise contours on a representative summer's night, with existing conditions

![](_page_16_Figure_8.jpeg)

![](_page_16_Figure_9.jpeg)

Average noise contours on a representative summer's night, with proposed operations

![](_page_16_Figure_11.jpeg)

![](_page_16_Figure_12.jpeg)

![](_page_16_Figure_13.jpeg)

### Mitigation Measures

#### The Balanced Approach

International best practice on noise management at airports focuses on the Balanced Approach. The four pillars of the Balanced Approach are;

#### • Land-use planning

Dublin Airport has benefitted from a far-sighted planning process that has kept the approaches to the runways largely clear of development. Unlike many other international airports, we have very few people living under our flight paths, which means that land-use planning has been effective to date.

#### • Quieter aircraft

At Dublin Airport we are fortunate to have a large proportion of aircraft that meet the most stringent noise class (Chapter 4). In 2015, almost 95% of aircraft operating here were Chapter 4, the quietest models. There is a ban on the use of the noisiest aircraft (Chapter 2) at the airport.

![](_page_17_Picture_8.jpeg)

#### Operational procedures

Along with our airport stakeholders, we have implemented a wide range of operational procedures to minimise noise. These include flight Noise Abatement procedures for take-off and landing such as selection and compliance with Environmental Corridors, continuous descent and restrictions on reverse thrust and ground run-up. North Runway will be operated according to Option 7b, which introduces the concept of a preferred runway to lessen the impact of aircraft noise on local communities.

![](_page_17_Figure_11.jpeg)

#### • Operating restrictions

To be applied only as a last resort when other pillars have been exhausted.

#### Current mitigation measures

Under Conditions 6 and 7 of the planning permission associated with North Runway, daa will develop insulation schemes for schools and residential dwellings located in the 60dB and 63dB contours, respectively. This work is at an advanced stage and full details will be made available to all eligible residents and schools when approved by Fingal County Council. daa is also offering a Voluntary Dwelling Purchase Scheme to eligible residents.

#### Further potential mitigation

daa will consider mitigations it could put in place to address issues which may be identified in the EIS as a result of a change of permitted operations, should this be implemented. These may include insulation measures for dwellings located in 55dB LAeq 8 hours night and 60dB LAeq 16 hours day contours.

#### 2022 60dB LAeq 16-hour day and 55dB LAeq 8-hour night contours

![](_page_17_Figure_19.jpeg)

indicative only, subject to change

#### Legend

60dB LAeq 16 hours day

55dB LAeq 8 hours night

### Issues for Consultation

We wish to ensure that the flight paths chosen have as little impact as possible on our local communities. With that in mind we would like your feedback on:

- the departure Noise Preferential Routes (NPRs) scenarios detailed in this consultation;
- criteria we should apply in selecting optimum NPRs; and
- mitigation measures we should consider.

#### NPR scenarios

**Scenario 1:** Straight out on South Runway; 15° divergence for easterly and westerly departures on North Runway.

**Scenario 2:** Straight out on South Runway; 15° divergence for easterly departures on North Runway; split divergence of 15° and 75° for westerly departures on North Runway, depending on ultimate destination of aircraft.

#### Criteria for selecting NPRs

Based on stakeholder feedback to date, the number of dwellings exposed to noise is the major concern for communities surrounding the airport; therefore, daa proposes to select NPRs which minimise the number of dwellings (and other sensitive buildings e.g. schools, hospitals) that are impacted.

#### Mitigation measures

To address potential noise impact in the delivery of the change in permitted operations, daa is considering additional mitigation which may include insulation measures for dwellings located in 55dB LAeq 8 hours night and 60dB LAeq 16 hours day contours.

### How to Make a Submission

Your views are important and we would appreciate your feedback on these and other issues in the feedback form provided.

#### Feedback forms are available at consultation events and online. You can:

- Fill it out and hand it
   back to a member of
   staff upon completion.
- Or you can email it to us at:
   northrunway@daa.ie
- Or you can complete
   online via our website:
   www.northrunway.ie
- Or, you can post it to this address:
  - North Runway Consultation, RED C Limited., East Point Business
  - Park, Clontarf, Dublin 3

### Next Steps

- Publish feedback from public consultation
- Publish preferred route based on application of selection criteria adopted
- Carry out impact assessment of the proposed change of permitted operations using the chosen NPRs
- Prepare an EIS which will include a suite of mitigation measures to address North Runway environmental impacts
- Use the EIS in the review of the noise situation at Dublin Airport which the IAA (Irish Aviation Authority) will undertake once appointed as the Competent Authority in charge of airport noise management, as per announcement by the Department of Transport, Tourism and Sport dated 22nd September 2016.