Submission on behalf of the St. Margarets The Ward Residents Group

FOR FINGAL COUNTY COUNCIL PLANNING PERMISSION REG. REF. F20A/0668

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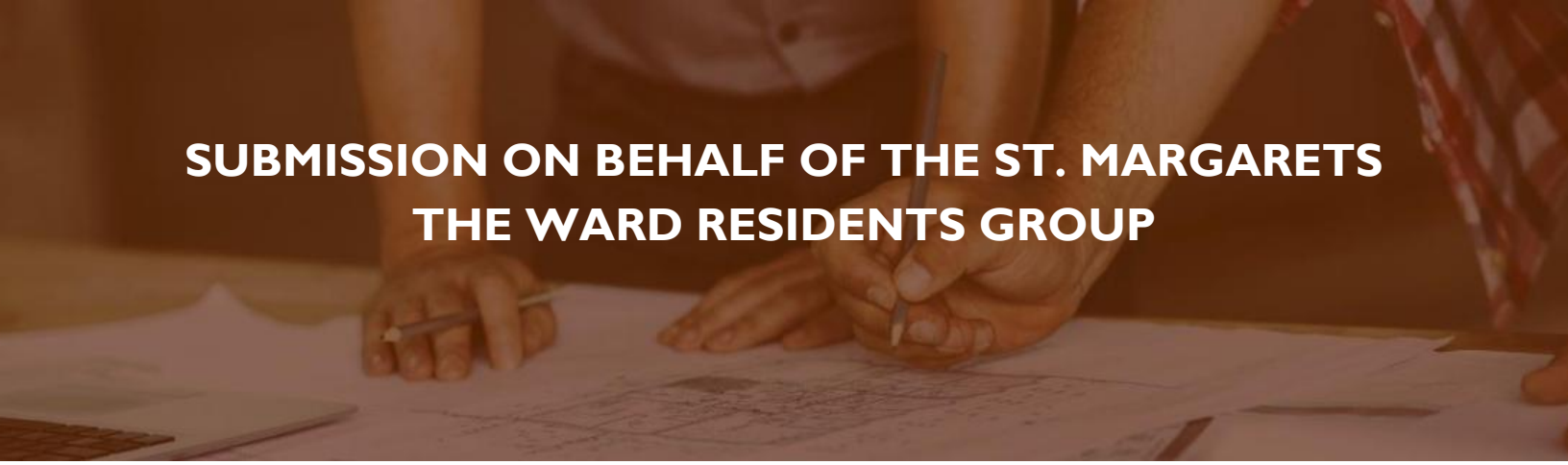

SUBMISSION ON BEHALF OF THE ST. MARGARETS THE WARD RESIDENTS GROUP

SUBMISSION DOCUMENTS

This submission is in response to the additional information request made by Fingal County Council to the daa with respect to planning application F20A/0668.

Included in this submission are:

‘**DAA Report 22.10.2021.pdf’:**

Outlines the key challenges facing the communities of St Margarets and The Ward. The mitigation provided in the past and the planned mitigation for the future cannot protect the health of the population in these areas if night-time movements are allowed to continue or even increase. An expert study group needs to be appointed to focus on these communities. Serious engagement on relocation schemes need to be put in place.

‘Dublin_Airport_Noise_Medical_Report.pdf’:

A health report summarising the latest research into adverse health effects from aircraft noise. The report was written by Professor Thomas Münzel MD, Head of the Department of Cardiology at the University Medical Center, Johannes Gutenberg University Mainz, Germany. Professor Münzel’s research group focuses on environmental risk factors for cardiovascular disease with a focus on aircraft noise and air pollution. He has more than 1000 publications and a Hirsch index of 136. The report focuses on the latest research and particularly on the cardiovascular effects of night-time noise. The report also discusses the noise statistics from the revised EIAR.

1.0 ADDITIONAL INFORMATION SUMMARY

The key points of this submission on the additional information submitted are listed under the following headings:

- Planning Conditions 3(a)-3(d)
- EIAR
- TAP 28 Prospectus
- Insulation Scheme
- Population and Human Health
- 2025 Proposed
- Consultation
- 2018 Baseline
- Difference maps
- Objective DA07
- Population mostly affected

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Planning Conditions 3(a)-3(d):

- Dual runway departures between 06:00-08:00 conflict with Option 7(b) and planning conditions 3(a)-3(c) which state 'Either/Or'.
- Conflicts with Condition 3(c); Runway 10R should not be used for take-off as outlined in Robert Thornely-Taylor's advice given to ABP during the Oral Hearing in 2007.
- For Easterly departures, during peak times aircraft will be routed over Malahide at Robswall Park. As a result, large sections of Malahide and Swords are newly enclosed in 40dB Lnight contour for the first time
- 30 degrees divergence was not considered during the 2016 consultation (only 15 and 75 degrees)

EIAR:

- EIAR only considers future scenarios capped at 32m passengers. This is a serious omission from the EIAR as the realistic future scenario is not presented. The daa had previously submitted an application to increase passenger numbers from 32-35m and pre-planning documentation shows the daa were planning to lodge an application to increase passenger numbers to 40m.
- This is 'Project-splitting' and both applications should be considered as a single application.
- Chapter 9 Traffic and Transport does not consider passenger number beyond 32m. The 32m cap was imposed primarily due to Transport capacity constraints. This has not been addressed in this EIAR and as a result the EIAR is inadequate.
- EIAR fails to consider not opening the runway before 2025 in their '*do-nothing*' scenario. The Airport could cater for 32.9m passengers in 2019 using a single main runway. There is no need for a change to planning for 32m passengers for 2025.
- Mott MacDonald report shows that the daa can achieve 42m Passengers in 2040 whilst keeping restrictions, providing proof that the objectives of the National Aviation Policy (2015) can be achieved whilst protecting the health of residents.
- Retaining the operating restrictions does not hinder growth.
- The daa's figures for the number of movements lost up to 2025 are grossly overestimated by not fully utilizing the available 65 movements limit.
- daa's forecasts show ample capacity between 07:00-23:00 to cater for increased passenger numbers.

- The EIAR states that the application is not an application for development consent for a project within the meaning of the EIA Directive. However, a pre-planning draft EIA scoping document by AECOM and a review of the scoping document for Fingal County Council by Brady Shipman Martin determined that it is not possible to rule out the potential for significant environmental effects and an EIA is therefore required.

Tap 2028 Prospectus:

- In their Tap 2028 Prospectus the daa outline risks related to the North Runway. It discusses the two planning conditions, namely condition 3(c) and 5. It states that the current estimate of a decision from Fingal County Council is quarter 3, 2022. And if the decision is appealed, a decision from the appeals board is anticipated in quarter 1, 2024. Therefore, the loss of passenger numbers presented in the Mott MacDonald report are unrealistic as the planning conditions will not be amended before then. The Mott MacDonald figures are theoretical and inaccurate.
- As a result, the cost benefit analysis performed by the daa based on losses accrued up to 2025 are purely theoretical and always going to occur. It's a fictional cost benefit analysis.
- 2025 is a premature timeframe used in this planning application. The sole intention of this application is to remove the planning conditions before applying for an increase in passenger numbers.

Insulation Scheme:

- Insulation Scheme only applies to the cohort deemed ‘very significantly’ affected. No mitigation for ‘moderately’ or ‘significantly’ affected dwellings.
- Insulation scheme fails to adequately mitigate against aircraft noise for the population mostly affected. Noise study confirms that internal noise levels are at damaging levels even after insulation.
- Based on N60 contours, 18959 dwellings >= 10 events and 5282 dwellings >=25 events for 2025 Proposed scenario. Mitigation for these dwellings is not taken into account.
- Nor does the cost benefit analysis consider these large number of dwellings and so the application of the Balanced Approach is flawed.
- ProPG and WHO NNG Guidelines state an internal noise level of no more than 10-15 events > 45dB LAmax.

- Fingal County Council's new Noise Zones reference 40dB Lnight for Zone D.
- Cost effectiveness analysis does not take into account the true cost to mitigate against adverse effects of noise
- No figures for QALYs or DALYs provided
- RFI #93 states that over-heating was not taken into account for insulation purposes. The response also does not take into account LAmax values as specified in the ProPG Guidelines and in BS8233:2014 section 7.7.2 note 4.
- No consultation with people potentially affected and requiring insulation.

Population and Human Health:

- Population and Human Health chapter uses the incorrect HSD values for 2025 Proposed, therefore grossly underestimating the health effects of the Proposed scenario.
- The Health Summary conclusion of Potential Residual Effects were **negative (-)** for Air Quality, Noise and Vibration, and Neighbourhood Amenity for 2025.

2025 Proposed:

- The revised noise statistics for 2025 Proposed versus the original 2025 Relevant Action reveal that the daa predictions are worse now with the revised EIAR that the original EIAR in December 2020. The differences and reasons for these changes in noise levels are not explained.
- Population >40dB Lnight increases from 174k to 268k; the number highly sleep disturbed increases from 24.4k to 37k; the area of the 40dB Lnight contour increases from 302 to 311.5km^2. No explanation provided.
- The number of people forecast to be highly annoyed in 2025 Proposed is 79405 and highly sleep disturbed is 37080.
- The number of people forecast to be at least significantly adversely affected in 2025 Proposed compared to 2025 Permitted is 11494.
- The number of people forecast to suffer significant adverse residual effects after mitigation in 2025 is 10560.

Consultation:

- The daa refused consultation with the CLG group to explain the additional information in the revised application.
- Consultation documentation in 2016 makes no mention of large parts of Malahide being included in 40dB Lnight contour.
- In 2016, no mention of large area of St Margarets, The Ward, and Coolquay requiring night-time insulation.
- Large number of housing units developed since 2016 and never consulted.
- No consultation on the WHO 2018 Guidelines.
- 30 degrees divergence was not considered during the 2016 consultation (only 15 and 75 degrees) were mentioned.
- Divergence not considered in original planning permission for North Runway. All Runways had straight out departures.
- No consultation with people potentially affected and requiring insulation.

2018 Baseline:

- The number of people in the 57dB LAeq16 contour is 9177. At the Oral Hearing in 2007 evidence was provided by the daa by way of additional information showing 5403 people >57dB LAeq16 in 2007, increasing to 7431 in 2025 with Option 7b High Growth (43m). The growth in figures were deemed an unacceptable rise in noise levels by Mr Thornely-Taylor and An Bord Pleanala at that time. Therefore, 2018 should not be accepted on these same grounds as the population >57dB LAeq16 is higher than the unacceptable Option 7b High Growth levels.
- The daa have not provided population and dwelling figures for the lower contours for 2016. They only provided values for >55dB Lden and >50dB Lnight. They did provide the contour maps and area sizes at the lower contours and therefore it should be a simple process to provide these using the 2016 census data.
- Comparisons of 2016 against the predicted scenarios cannot be made for HA and HSD values at the lower contours.
- 2018 had high use of the crosswind runways 16-34 due to crosswinds and runway maintenance. Runways 16-34 will be restricted to <1% when the North Runway opens. Therefore, there will be a lot less people affected in Dublin City when the runways open compared with 2018. This is not related to the Relevant Action proposal and the number of people benefitting from the restrictive use of runways 16-34 should not be

apportioned as a benefit from this Relevant Action proposal. Noise statistics should be generated for the cross runways solely to identify the numbers affected in previous years to ensure no benefit is incorrectly attributed to the Relevant Action.

- 2018 was the worst year on record for noise levels where the 32m passenger cap was not breached.
- Data from the 3 Rounds of the Environmental Noise Directive (END) show an escalating noise problem.
- ANCA's document on the determination of a noise problem states that "*Over the period 2006 to 2019 the population reported to be exposed to night-time noise above 50dB Lnight had increased by a multiple of seven*".

Difference maps:

- No difference maps provided as per Annex IV of 2002/49/EC.

Objective DA07:

- The Relevant Action proposal undermines Objective DA07 of the Fingal Development Plan which states that "*time based operational restrictions on usage of a second runway are not unreasonable to minimize the adverse impact of noise on existing housing within the inner and outer noise zone*".

Population mostly affected:

- No noise predictions provided for location reference points under the flight path of the North Runway operating in a Westerly direction. This will be the population most affected by noise at Dublin Airport as 70% of the time take offs will be to the West and the North Runway is the preferred Runway for Westerly departures. This is a major flaw with the EIAR as the population mostly affected are not considered.

2.0 BASELINE REFERENCE YEAR - 2018

Under the Aircraft Noise (Dublin Airport) Regulation Act 2019, the Aircraft Noise Competent Authority (ANCA) carried out a screening process to identify whether the Proposed Development may give rise to a noise problem (https://www.fingal.ie/sites/default/files/2021-02/20210209-aspects-of-a-potential-noise-problem-assoc-with-f20a-0668-.pdf).

Following this screening study, ANCA determined "that the proposed development may significantly influence the evolving noise climate at Dublin Airport to the extent that presents a noise problem that requires detailed assessment" (https://www.fingal.ie/sites/default/files/2021-02/20210210-anca-recommendation-report-.pdf) and recommended the following:

1. The determination of a noise problem at Dublin Airport, in the context of the 2019 Act and the Aircraft Noise Regulation, arising from the Application for a Relevant Action ref. F20A/0668;

2. The establishment of a Noise Abatement Objective for Dublin Airport;

3. The commencement of the process of aircraft noise regulation prescribed by Section 34C of the Planning and Development Act of 2000 including the application of the ICAO Balanced Approach.

To support their application the daa have developed a candidate NAO (cNAO). The summary objective of the cNAO is:

"To limit and reduce the adverse effects of long-term exposure to aircraft noise, including health and quality of life, so that long-term noise exposure, particularly at night, does not exceed the situation in **2018**. This should be achieved through the application of the Balanced Approach".

Section 2.1.8 of the EIAR states that 2018 was chosen as it was the most recent year with full data available when the relevant action assessment process commenced. It was also the first year of the 2018-2023 Dublin Airport Noise Action Plan (NAP). However, the NAP only considered data up to 2016, from the 3rd Round of the END, and data from 2017 and 2018 was not considered. Therefore the 2018-2023 NAP did not consider the most up to date data available to it when it was approved in December 2019 by members of Fingal County Council.

The selection of the baseline year to compare noise against for the NAO is of paramount importance to protect the health and well-being of residents. In the noise problem screening document (https://www.fingal.ie/sites/default/files/2021-02/20210209-aspects-of-a-potential-

noise-problem-assoc-with-f20a-0668-.pdf), from section 6.4 a discussion of the historic noise situation at Dublin Airport is given using the data from the 3 Rounds of the Environmental Noise Directive (END) in 2006, 2011 and 2016 and compared with 2018 and 2019. Table 5 shows the Lnight comparison.

Table 5 Reported Night-time Noise Exposure (L_{night}) for Dublin Airport

Noise Band Lnight dB(A)	Population Exposed				
	2006	2011	2016	2018	2019
50 - 54.9	1,800	1,200	6,200	11,600	12,300
55 - 59.9	200	200	400	700	1,400
60 - 64.9	0	0	0	0	100
65 - 69.9	0	0	0	0	0
>=70	0	0	0	0	0

Section 6.7 states that “Over the period 2006 to 2019 the population reported to be exposed to night-time noise above 50 dB Lnight had increased by a multiple of **seven**”. 2018 was the noisiest year on record where the 32m passenger cap wasn’t breached (In 2019 the Airport handled 32.9m exceeding its planning permission).

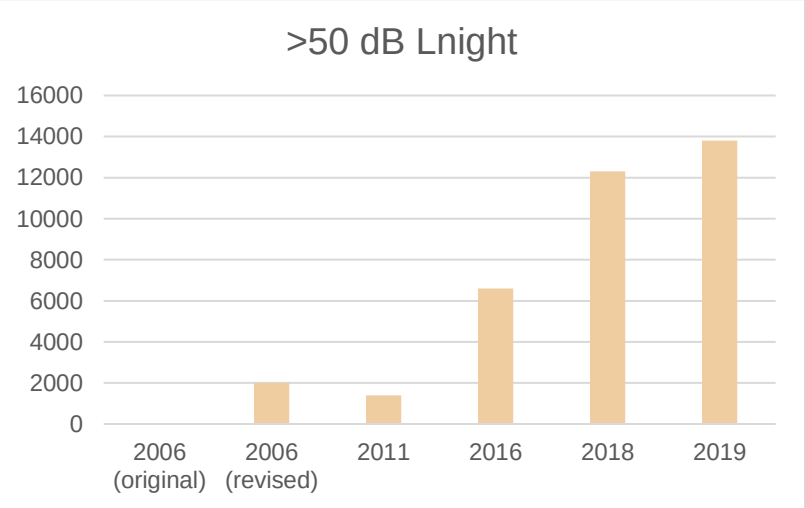
It is also worth noting that the 2006 Lnight figures used in the noise screening document (Table 5 a) were not the figures presented in the 2006 NAP. The figures presented in the screening document are revised figures based on the 2016 census. The population of Fingal is given as 296214 in the 2016 census, 273051 in the 2011 census and 239992 in the 2006 census. As a result, using the 2016 census data for the 2006 Lnight calculation will inflate the figures as the population grew by 56k or 23% in that timeframe.

The original statistics from the 2006 NAP show zero people affected <50 dB Lnight.

Noise Action Plan for Dublin Airport 2019 - 2023

Table 7 Population within Noise Level Band Data for Total Area L_{night}

Noise Band dB(A) L_{night}	2006 (original)	2006 (revised)	2011	2016
50 – 54.9	0	1,800	1,200	6,200
55 – 59.9	0	200	200	400
60 – 64.9	0	0	0	0
65 – 69.9	0	0	0	0
>= 70	0	0	0	0



The chart above clearly shows an escalating noise problem over the 3 Rounds of the END.

Comparing the >45 dB Lden and >40 dB Lnight contour sizes for 2016 and 2018 using the Reporting Templates https://www.fingal.ie/sites/default/files/2021-06/20210618-reporting-template-update.xlsx and https://www.fingal.ie/sites/default/files/2021-08/20210827-anca-reporting-template-update-2016-end.xlsx, it's very clear that the size of the contours increased significantly in 2018 compared to 2016.

Year	Population				Area (km^2)	
	>45 dB Lden	>40 dB Lnight	>55 dB Lden	>50 dB Lnight	>45 dB Lden	>40 dB Lnight
2016			20300	6600	370.5	212.8
2018	716726	307458	35482	12316	703.2	304.4

Comparing the populations exposed to >55 dB Lden and >50 dB Lnight between 2016 and 2018, shows a significant increase in numbers affected. From the area contours above, it is evident that the increase in the populations affected is due to the increase in the contours and not encroaching developments.

2018 was the noisiest year on record at Dublin Airport where the passenger limit wasn't breached. There are no figures provided for 2016 for the lower contours of >45 dB Lden and >40 dB Lnight beyond which the WHO states lead to adverse health effects.

For 2018,

- 716k people >45 dB Lden and 307k people >40 dB Lnight.
- Over 12k people affected >50 dB Lnight
- Over 35k people exposed to >45 dB Lden.

These levels cannot be used as acceptable baseline levels to compare against. Using 2018 for the NAO is detrimental to health of residents. The Local Authority and Competent Authority have allowed unsafe levels of noise to be inflicted on a significant number of residents according to the WHO Guidelines.

It is worth noting that the members of Fingal County Council approved new noise zones for planning purposes on December 9th 2019, via Variation No.1 of the Fingal Development Plan 2017-2023 (https://www.fingal.ie/sites/default/files/2020-01/adopted-fdp-variation-1.pdf). Variation No.1 took on board the growing scientific evidence that night-time noise is detrimental to health and included Lnight metrics in the definition of the zones.

Table 7.2 Aircraft Noise Zones

Zone	Indication of Potential Noise Exposure during Airport Operations	Objective
D	≥ 50 and < 54 dB $L_{Aeq, 16hr}$ and ≥ 40 and < 48 dB L_{night}	**To identify noise sensitive developments which could potentially be affected by aircraft noise and to identify any larger residential developments in the vicinity of the flight paths serving the Airport in order to promote appropriate land use and to identify encroachment.** *All noise sensitive development within this zone is likely to be acceptable from a noise perspective. An associated application would not normally be refused on noise grounds, however where the development is residential-led and comprises non-residential noise sensitive uses, or comprises 50 residential units or more, it may be necessary for the applicant to demonstrate that a good acoustic design has been followed.* *Applicants are **advised** to seek expert advice.*
C	≥ 54 and < 63 dB $L_{Aeq, 16hr}$ and ≥ 48 and < 55	**To manage noise sensitive development in areas where aircraft noise may give rise to annoyance and sleep disturbance, and to ensure, where appropriate, noise insulation is incorporated within the development** *Noise sensitive development in this zone is less suitable from a noise perspective than in Zone D. A noise assessment **must** be undertaken in order to demonstrate good acoustic design has been followed.*

	dB L_{night}	*The noise assessment must demonstrate that relevant internal noise guidelines will be met. This **may** require noise insulation measures.* *An external amenity area noise assessment **must** be undertaken where external amenity space is intrinsic to the development's design. This assessment should make specific consideration of the acoustic environment within those spaces as required so that they can be enjoyed as intended. Ideally, noise levels in external amenity spaces should be designed to achieve the lowest practicable noise levels.* *Applicants are **strongly advised** to seek expert advice.*
B	≥ 54 and < 63 dB $L_{Aeq, 16hr}$ and ≥ 55 dB L_{night}	**To manage noise sensitive development in areas where aircraft noise may give rise to annoyance and sleep disturbance, and to ensure noise insulation is incorporated within the development.** *Noise sensitive development in this zone is less suitable from a noise perspective than in Zone C. A noise assessment **must** be undertaken in order to demonstrate good acoustic design has been followed.* *Appropriate well-designed noise insulation measures **must** be incorporated into the development in order to meet relevant internal noise guidelines.* *An external amenity area noise assessment **must** be undertaken where external amenity space is intrinsic to the developments design. This assessment should make specific consideration of the acoustic environment within those spaces as required so that they can be enjoyed as intended. Ideally, noise levels in external amenity spaces should be designed to achieve the lowest practicable noise levels.* *Applicants **must** seek expert advice.*
A	≥ 63 dB $L_{Aeq, 16hr}$ and/or ≥ 55 dB L_{night}	**To resist new provision for residential development and other noise sensitive uses.** *All noise sensitive developments within this zone may potentially be exposed to high levels of aircraft noise, which may be harmful to health or otherwise unacceptable. The provision of new noise sensitive developments will be resisted.*
Notes: • 'Good Acoustic Design' means following the principles of assessment and design as described in ProPG: Planning & Noise – New Residential Development, May 2017; • Internal and External Amenity and the design of noise insulation measures should follow the guidance provided in British Standard BS8233:2014 'Guidance on sound insulation and noise reduction for buildings'		

Objective DA07 was included in Variation No.1. It states:

"Objective DA07: Strictly control inappropriate development and require noise insulation where appropriate in accordance with table 7.2 above within Noise Zone B and Noise Zone C and where necessary in Assessment Zone D, and actively resist new provision for residential development and other noise sensitive uses within Noise Zone A, as shown on the Development Plan maps, while recognising the housing needs of established families farming

in the zone. **To accept that time based operational restrictions on usage of a second runway are not unreasonable to minimize the adverse impact of noise on existing housing within the inner and outer noise zone**."

Objective DA07 facilitates the use of operating restrictions to mimise the adverse effects of noise

The new noise zones were adopted in December 2019 to take account of night-time noise from a planning perspective. Immediate mitigations plans should have been introduced to limit the health impacts to the populations exposed to such night-time noise levels.

Another reason to exclude 2018 as the Baseline year was its overuse of the crosswind runways which will be severely restricted when the North Runway becomes operational.

In the original EIAR from December 2020, tables 13B-8 and 13B-9 show the annual runway usage for 2018 and 2019. A major refurbishment of runways 10/28 started in November 2016 and continued until September 2018 (https://www.dublinairport.com/corporate/corporate-social-responsibility/noise/runway-maintenance). As a result, runways 16 and 34 were used as a replacement.

Runway Usage

Current Situation

13B.3.11 The runway usage for 2018 has been obtained from the individual aircraft movement data for the relevant year. A summary of the overall runway split for the 2018 annual period is given in Table 13B-8.

Table 13B-8: 2018 Annual Runway Usage

Runway	Arrivals	Departures
10	23.3%	24.1%
28	72.2%	71.4%
16	3.8%	2.4%
34	0.6%	2.1%

13B.3.12 The runway usage for 2019 has been obtained from the individual aircraft movement data for the relevant year. A summary of the overall runway split for the 2019 annual period is given in Table 13B-9.

Table 13B-9: 2019 Annual Runway Usage

Runway	Arrivals	Departures
10	21.1%	20.8%
28	77.9%	76.7%
16	0.8%	0.3%
34	0.2%	2.2%

Comparing arrivals in 2018 to 2019, 4.4% of all arrivals used runways 16/34 compared to 1.0%.

Comparing departures in 2018 to 2019, 4.5% of all departures used runways 16/34 compared to 2.5%.

Data comparing runways 16/34 usage with other years was provided in the ANCA RFI No.80 request

(https://northrunway.exhibition.app/assets/pdf/documents/5_Response_to_ANCAs_Direction_01.pdf). The total runway usage by category is listed in Table 3:

Table 3: Runway 16-34 Movements by Year and Category

Year	Runway 16-34 Movements by Category					
	Operational Efficiency	Recorded Crosswind	Possible Crosswind Related	Maintenance	Other	Total
2010	1,158	588	1,340	2,055	336	5,477
2011	1,783	1,494	3,279	2,668	322	9,546
2012	2,349	1,467	1,710	2,145	624	8,295
2013	2,057	1,989	2,793	2,215	419	9,473
2014	2,102	2,408	2,710	1,616	134	8,970
2015	1,484	3,131	2,990	1,779	605	9,989
2016	1,421	1,744	2,069	2,207	556	7,997
2017	2,260	1,447	1,512	8,230	625	14,074
2018	2,291	2,718	2,040	3,048	216	10,313
2019	2,445	1,003	252	926	58	4,684
Total	**19,350**	**17,989**	**20,695**	**26,889**	**3,895**	**88,818**
Percent[1/]	1.0%	0.9%	1.1%	1.4%	0.2%	4.6%

1/ Percent of total aircraft movements over the 10-year period on both runways.

In 2018, there were a total of 10313 movements on 16/34 compared with just 4684 movements in 2019.

In the revised EIAR, Table 13B-9 outlines the future use of runways 16/34. Just 0.75% of aircraft movements are forecast to use Runway 16 and 0.255 to use Runway 34.

North Runway Airport Layout

13B.3.12 Once the North Runway is operational the Crosswind Runway (16/34) will continue to be used, however only for essential use (e.g. when there are strong crosswinds) as stated in Condition 4 of the North Runway Permission. The past use of the crosswind runway has been reviewed and is reported in *Crosswind Runway Information, Requested by ANCA RFI Appendix A, Request H and Table 4 Items 79, 80 and 81, Ricondo, May* 2021. Allowing for this, for the purposes of noise modelling the future usage of the Crosswind Runway is assumed to be 1% of aircraft movements, with the remaining 99% of movements on the two main runways. 0.75% of aircraft movements are forecast to use Runway 16 with the remaining 0.25% on Runway 34. The modelled future runway usage over a given year is summarised in Table 13B-9 below, based on the average runway usage over the last 10 years and allowing for the expected reduction in Crosswind Runway usage.

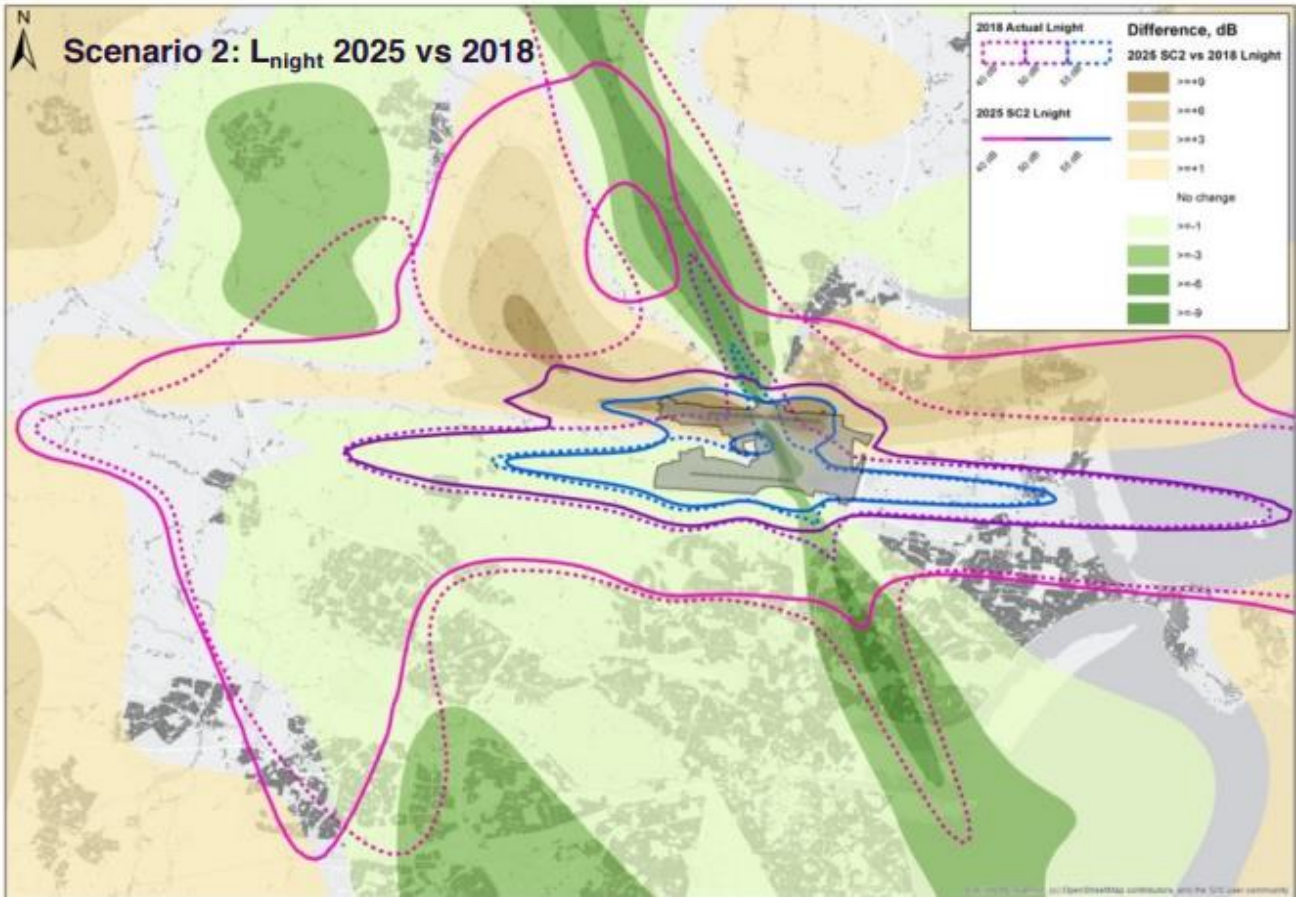
Table 13B-9: Future Runway Usage

Runway	Arrivals	Departures
10L/10R	29%	29%
28L/28R	70%	70%
16	0.75%	0.75%
34	0.25%	0.25%

The daa's future scenario's modelling has been performed with these future runway usage statistics. Movements on runways 16/34 are severely curtailed as the flight paths extend over Dublin city affecting a densely populated area.

2018 has been selected by the daa as their Baseline year in which to compare the future scenarios against. 2018 had a high usage of the Crosswind runways compared with 2019 as shown above. When comparing a future year to 2018, the difference in the number of people affected by the crosswind runways in the future will be significantly lower due to the limited use of the crosswind runways in the future once the North runway is operational. Therefore, comparing against 2018 is not a good comparison. The number of people affected by the crosswind runway overuse should be subtracted from the 2018 figures and then compared to future scenarios. The Relevant Action planning application should not be seen to artificially benefit from the overuse of runways 16/34 in 2018 compared to future years. The restrictive use of runways 16/34 is not as a result of the Relevant Action. It's as a result of the North Runway planning conditions.

As part of the additional information, the daa added a new report from Anderson Acoustics titled 'Dublin Airport Development of Proposed noise Measures' (https://northrunway.exhibition.app/assets/pdf/documents/14_Development_of_Proposed_Noise_Measures.pdf). This document is intended to provide an overview of the approach taken by the daa. On a slide title 'Runway Operating Scenario 2' a map is shown detailing the Lnight noise scenario between 2018 and 2025 Proposed. This map shows the areas that will benefit (green shading) in 2025 compared to 2018 and the areas that will suffer (brown shading) higher noise levels. Because of the future limited use of runways 16/34, the populations under their flight paths will benefit. As the flight path for runway 34 extends over Dublin city, a large proportion of people will benefit form its future restrictive use. But this is not related to the Relevant Action and these reductions in the population figures affected by runways 16/34 should not be allowed to offset and minimize the overall numbers of people affected by the Relevant Action.



Mr Rupert Thornley-Taylor was a consultant for An Bord Pleanala (ABP) and provided a report dated June 4th, 2007 on his findings of the Oral Hearing submissions (Microsoft Word - R217429A.DOC (pleanala.ie)). Mr Thornely-Taylor concluded that the people and property counts before the hearing were unreliable and and revised figures were requested by ABP in Information Request #3. A response was received on January 9th 2007 and the data provided in Table 1:

Dublin Airport Authority Northern Parallel Runway — An Bord Pleanala Ref. No. PL 06F.217429

TABLE 1

Non-Dispersed Option 7b (737-800) 2025 Contour High Growth			Dispersed Option 7b (737-800) 2025 Contour High Growth		
	2007	2025		2007	2025
69 dB contour			**69 dB contour**		
Household	19	19*	Household	20	20*
Persons	57	57	Persons	60	60
66 dB contour			**66 dB contour**		
Household	39	70	Household	38	68
Persons	117	161	Persons	114	156
63 dB contour			**63 dB contour**		
Household	61	110	Household	54	97
Persons	183	253	Persons	162	223
60 dB contour			**60 dB contour**		
Household	840	1,512	Household	852	1,534
Persons	2,520	3,478	Persons	2,556	3,528
57 dB contour			**57 dB contour**		
Household	882	1,588	Household	837	1,506
Persons	2,646	3,652	Persons	2,511	3,464
54 dB contour			**54 dB contour**		
Household	1,767	3,180	Household	1,806	3,251
Persons	5,301	7,314	Persons	5,418	7,477
51 dB contour			**51 dB contour**		
Household	4,347	7,824	Household	5,543	9,977
Persons	13,041	17,995	Persons	16,629	22,947
48 dB contour			**48 dB contour**		
Household	11,038	19,868	Household	15,213	27,383
Persons	33,114	45,696	Persons	45,639	62,981

Mr. Thornely-Taylor stated that the revised data shows an increase in the number of households within the **63 dB contour** from 112 to 185 between 2007 and Option 7b 2025 High Growth and the number of people rising from **336 to 439**.

Mr. Thornely-Taylor stated that the EIS from Dec 2004 states that the 63 dB LAeq16 contour represents ‘moderate annoyance’ and that the onset of disturbance ‘Low annoyance’ is represented by the **57 dB LAeq16 contour**. Figures from Table 1 of the additional information

shows that the number of households increases from 1801 to 3225 from 2007 to Option 7b 2025 High Growth and the number of people increases from **5403 to 7431**.

Contour	Dwellings	Population	Dwellings	Population
LAeq16	2007		Option 7b (737-800) 2025 High Growth	
>48	24363	73089	43836	100836
>51	9150	27450	16453	37855
>54	3607	10821	6476	14908
>57	**1801**	**5403**	**3225**	**7431**
>60	964	2892	1719	3967
>63	**112**	**336**	**185**	**439**
>66	58	174	88	216
>69	20	60	20	60

He further states that the "*proposed development will result in an extension of the significant effects of noise as indicated by the population counts given…This conclusion is predicated on confinement of the use to Option 7b and a ban on the use of the proposed new runway between the hours of 2300 and 0700. This will be partially offset by the noise mitigation scheme as a result of the extension to the noise insulation programme, the buy-out scheme and the scheme for noise insulation of schools, but outside the limits of these schemes there will be an increase in noise exposure for the people affected.".*

So, Mr. Thornely-Taylor found that an increase from **5403->7431** > 57 dB LAeq16 and an increase from **336->439** >63 dB LAeq16 unacceptable.

Now compare the 2018 and 2019 numbers. The >63 dB LAeq16 figures improved slightly. The > 57 dB LAeq16 figures increased to 9177 and 9706. So, growth between 2007 and 2018 was allowed to grow unmitigated beyond values that Mr. Thornely-Taylor deemed unacceptable at the Oral Hearing.

These large increases in the population exposed to >57 dB LAeq16 in 2018 demonstrate that 2018 cannot be deemed an appropriate Baseline year as increases in magnitude of these values compared with 2007 were unacceptable at the Oral Hearing in 2007.

.

Contour	2007	2016 (27.9m)	2018 (30.8m)	2019 (32.9m)	Option 7b (737-800) 2025 High Growth (43m)
LAeq16					
>48	73089				100836
>51	27450		49108	53278	37855
>54	10821		23683	24622	14908
>57	**5403**	5320	**9177**	**9706**	**7431**
>60	2892		1998	2158	3967
>63	**336**	303	257	266	**439**
>66	174		138	146	216
>69	60	29	28	28	60

3.0 COST EFFECTIVENESS ANALYSIS

Ricondo made revisions to their Forecast Without New Measures and Additional Measures Assessment Report and their Cost Effectiveness Analysis Report. The basis of these reports is the use of the 'Forecast without new measures' scenario.

'Forecast without new measures' as defined in EU598/2014 Annex I (2) includes developments *'already approved and in the pipeline*'. This clearly relates to the new North Runway and associated planning conditions. It's also clear that future growth beyond 32m passenger should be considered.

2. Forecast without new measures

2.1. Descriptions of airport developments, if any, already approved and in the pipeline, for example, increased capacity, runway and/or terminal expansion, approach and take-off forecasts, projected future traffic mix and estimated growth and a detailed study of the noise impact on the surrounding area caused by expanding the capacity, runways and terminals and by modifying flight paths and approach and take-off routes.

2.2. In the case of airport capacity extension, the benefits of making that additional capacity available within the wider aviation network and the region.

2.3. A description of the effect on noise climate without further measures, and of those measures already planned to ameliorate the noise impact over the same period.

2.4. Forecast noise contours — including an assessment of the number of people likely to be affected by aircraft noise — distinguishing between established residential areas, newly constructed or planned residential areas and planned future residential areas that have already been granted authorisation by the competent authorities.

2.5. Evaluation of the consequences and possible costs of not taking action to reduce the impact of increased noise, if it is expected to occur.

3. Assessment of additional measures

3.1. Outline of the additional measures available and an indication of the main reasons for their selection. Description of those measures chosen for further analysis and information on the outcome of the cost-efficiency analysis, in particular the cost of introducing those measures; the number of people expected to benefit and the timeframe; and a ranking of the overall effectiveness of particular measures.

3.2. An overview of the possible environmental and competitive effects of the proposed measures on other airports, operators and other interested parties.

3.3. Reasons for selection of the preferred option.

3.4. A non-technical summary.

In a pre-planning document from 9th of June 2020 (PPC 106276) titled 'ANCA interim response to pre-application consultation on cost effectiveness', interim comments of ANCA are given in

response to the cost effectiveness presentation by the daa at a Section 247 meeting on April 2nd 2020.

The document refers to the definition of the Baseline and makes reference to 'forecast without new measures' as defined in EU598/2014 in Annex I (2.3):

> Definition of the Baseline
> In a cost-effectiveness assessment, a baseline is used as the counterfactual against which alternative options are compared. A typical baseline would use a 'forecast without new measures', which is referred to in Annex I of Reg598:
>
> *"A description of the effect on noise climate without further measures, and of those measures already planned to ameliorate the noise impact over the same period."*

ANCA further refine its definition of 'forecast without new measures':

> This definition of the 'forecast without new measures' implies the inclusion of all existing measures. This would be akin to the 'current consented north runway operation upon opening' and the 'future forecast north runway operation' as described within the Aircraft Noise Information Reporting Template Guidance. These scenarios describe what would happen if no changes are made to the Airport's existing noise management and restrictions. However, it is noted that the applicant may wish to replace some existing measures with alternatives. Consequently, including existing measures in the baseline would make it challenging to compare the 'consented situation' to other noise mitigation measures. ANCA therefore strongly recommends excluding existing noise mitigation measures and restrictions that the applicant is proposing to replace, from 'the forecast without new measures'.

ANCA incorrectly recommends the exclusion of existing noise mitigation measures and restrictions. ANCA have misinterpreted Annex I (2.3). The way to read 2.3 is as follows:

"A description of the effect on noise climate without further measures, and ('*a description of the effect*') of those measures already planned to ameliorate the noise impact over the same period".

This interpretation is also backed up by the fact that the existing operating restrictions are not mentioned in section 3 Assessment of additional measures.

Ricondo have taken ANCA's interpretation and excluded conditions 3(d) and 5 from their definition of 'forecast without new measures':

"*The cost-effectiveness evaluation of measures for achieving the NAO for Dublin Airport will be based on calculating the ratio between cost and the reduction in the number of people exposed to a selected unit compared to the future "do nothing" noise exposure levels. The "do nothing" scenario represents a forecast situation resulting from revoking, replacing, or amending an operating restriction and maintaining existing noise mitigation measures; it does not include new noise measures. The Aircraft Noise Regulation identifies this condition as the Forecast without New Measures scenario as described in Annex I. The Forecast without New Measures scenario for this North Runway Aircraft Noise Regulation analysis includes existing and planned noise measures and revoking Conditions 3(d) and 5 of the permission granted to Dublin Airport to develop Runway 10L-28R (North Runway)*."

The EPA EIAR Guidelines (https://www.epa.ie/publications/monitoring--assessment/assessment/EPA_EIAR_Guidelines.pdf) include a definition of the 'do-nothing' alternative scenario. It '*should consider the effects of projects which already have consent but are not yet implemented*'.

Environmental Impact Assessment Reports | Draft Guidelines

3.4.2 'DO-NOTHING' ALTERNATIVE

The range of alternatives can include a 'do-nothing' alternative[70] where appropriate. This examines trends currently occurring at the site, for example likely land use changes or other interventions, the likely effects of climate change, and the significance of these changing conditions. It can be particularly useful when assessing effects caused by projects which themselves are designed to alleviate environmental or infrastructural problems, e.g. waste treatment facilities, flood relief projects, road building, etc.

The do-nothing alternative is a general description of the evolution of the key environmental factors of the site and environs if the proposed project did not proceed. It is similar to but typically less detailed than the 'likely future receiving environment' description discussed in *section 3.6 Describing the Baseline*.

It should consider the effects of projects which already have consent but are not yet implemented. It may also be appropriate to consider other projects that are planned but not yet permitted. For example, it would be prudent to consider a significant project for which a planning application has been lodged even if the consent decision has not been issued.

The do-nothing alternative should describe consequences that are reasonably likely to occur. It ought not be used to exaggerate or catastrophize environmental consequences that may occur without the proposed project.

To further confuse the situation, the EIAR makes reference to the 'Do Nothing' scenario is section 4.3.4. It states that the 'do nothing' scenario is the current North Runway Planning Permission. It equates the 'do nothing' scenario to the 'Permitted' scenario. It is therefore very clear that the EIAR and CEA documents have conflicting definitions of the 'do nothing' and 'forecast without new measures' scenarios.

Scope of Alternatives to be Studied

Do Nothing Scenario

4.3.4 The 'do nothing' scenario is the current North Runway Planning Permission, or the Permitted Scenario. The North Runway Planning Permission contains 31 planning conditions. Two of these planning conditions, no. 3(d) and 5, relate to operating restrictions on the use of the runways and overall number of permitted flights at night, and these are due to come into force once the North Runway is operational in 2022. The Permitted Scenario is therefore, in effect, the 'do nothing' scenario. The key differences between the Permitted Scenario and the Proposed Scenario, as discussed in *Chapter 2: Characteristics of the Project*, are that there is a slower return to the 32mppa Cap in the Permitted Scenario (2027, versus 2025 in the Proposed Scenario) and that there would be fewer flights during night-time in the Permitted Scenario.

The EPA EIAR Guidelines also provide a definition in section 3.6 of the 'Baseline' scenario. The section gives examples of consented projects and how they should be assessed.

Examples	
(a) Water discharge	Water quality in a river to which a water discharge is proposed is going to improve due to an already permitted upgrade to a water treatment plant upstream of the project, which will be operational before the time of the proposed new discharge. In this case the EIAR should assess the impact of the proposed discharge against the receiving baseline water quality which will occur when the project is built.
(b) Expansion of Industrial Site	Where an intensification of other operations on a site have already been permitted but are not yet operational at the time of the assessment, then emissions from the proposed expansion should be assessed against the increased emissions levels which would apply when the intensification of operations has occurred.
Scenarios In the case of the examples above, if it is not certain if the change will be in effect before commencement of the proposed project then the impact of the proposed project may be assessed against two scenarios, i.e. with and without the water treatment plant upgrade in example (a) and with and without the intensifications of other operations in example (b). It is important to ensure that the *worst case-scenario* is assessed. This is the scenario that would be likely to give rise to the most significant environmental impacts.	

The daa have stated in an investor prospectus document (https://www.daa.ie/wp-content/uploads/2021/09/Tap-2028-Prospectus.pdf) that in the absence of a planning determination before August 2022 the new North Runway would become operational with the planning restrictions in force. The document states that the daa does not anticipate a decision by ABP until Q1 2024. Therefore, it's clear that the baseline scenario and 'forecast without new measures' is the runway operational with the planning restrictions, conditions 3(d) and 5, in place.

Matters relating to the new parallel runway development at Dublin airport may impact the Group

In August 2007, a 10-year planning permission was granted for a new parallel runway at Dublin airport. In March 2017, the planning permission was extended by a further five years to August 2022. Initial enabling works on the new parallel runway commenced in late 2016 and the main runway construction works commenced in February 2019. Construction of the new parallel runway is nearing completion, and this will be followed by a commissioning and testing phase which is expected to be completed in the summer of 2022.

A condition of the 2007 planning permission is that on completion of the new parallel runway, the average number of late night and early morning aircraft movements at Dublin airport shall not exceed 65 between 23:00 hours and 07:00 hours. A further condition restricts the use of the new parallel runway between 23:00 and 07:00 hours, save where safety, emergency or other similar circumstances require that it be used during those hours.

The Group has been involved in a process seeking to amend and replace these conditions and mitigate the risks associated with them. In this respect, daa lodged a planning application with Fingal County Council ("**FCC**"), the "competent authority", in December 2020 for the purposes of the Aircraft Noise (Dublin Airport) Regulation Act 2019. In the absence of a planning determination before August 2022, the date that the 2007 planning permission expires, the new parallel runway would become operational with the onerous conditions in place for the period up to when a determination is received from FCC. It is not clear what the timeframe for the potential conclusion of the planning application process is and the current estimate is that a decision will issue from FCC in quarter 3, 2022. If the decision is appealed by a third party, as expected, a decision from the appeal board, An Bord Pleanála, is anticipated in quarter 1, 2024. This uncertainty could have an adverse impact on the Group's ability to plan for the deployment of capacity at Dublin Airport. These conditions could result in a period, potentially up to quarter 1, 2025, where Dublin airport would be forced to operate at a reduced capacity for certain times of the day thereby impacting the throughput capability in that period. In such circumstances, no assurances can be given that there would be no material adverse effect on the Group's business, results of operations, prospects and/or financial condition.

EU598/2014 Annex II states that Competent Authorities 'may' take account of health and safety of local residents and environmental sustainability:

ANNEX II

Assessment of the cost-effectiveness of noise-related operating restrictions

The cost-effectiveness of envisaged noise-related operating restrictions will be assessed taking due account of the following elements, to the extent possible, in quantifiable terms:

(1) the anticipated noise benefit of the envisaged measures, now and in the future;

(2) the safety of aviation operations, including third-party risks;

(3) the capacity of the airport;

(4) any effects on the European aviation network.

In addition, competent authorities may take due account of the following factors:

(1) the health and safety of local residents living in the vicinity of the airport;

(2) environmental sustainability, including interdependencies between noise and emissions;

(3) any direct, indirect or catalytic employment and economic effects.

The ‘Aircraft Noise Information Reporting Template Guidance’ document from ANCA states in section 3.2 Noise Effects Data, that the assessment of costs of noise exposure should include costs of annoyance and health.

3.2 Noise Effects Data

Using the noise exposure data, the effects information should be provided:

- Assessment of any significant effects of noise on sensitive receptors;
- Assessment of harmful effects due to long term exposure to noise from airport operations, including:
  - Number of people living in dwellings highly annoyed;
  - Number of people living in dwellings highly sleep disturbed;
  - Sub-totals per Electoral Division
    - Where effects are to be reported per Electoral Division, this should be achieved by prefixing the elements presented in the 'Health' tab to report designators for the Electoral Divisions.
- Assessment of costs of noise exposure, including:
  - Costs of annoyance;
  - Costs of health.

The CEA report makes no attempt to quantify the costs associated with the adverse health effects inflicted on residents as a result of the proposed Relevant Action. Nor does it quantify the costs associated with the environmental harm of increased aviation activity.

Project Splitting

The EPA EIAR Guidelines state that the '*project needs to be considered in its entirety for screening purposes. This means that other related projects need to be identified and assessed at an appropriate level of detail. This will identify the likely significance of cumulative and indirect impacts thus providing the CA with a context for their determination. Dividing the project into separate parts so that each part is below an applicable threshold needs to be avoided. This is project-splitting and is not compliant with the Directive'*.

It is very evident that the daa intend to apply for planning permission to increase capacity beyond the existing 32m cap on the Terminals. The daa had applied for an increase in passenger numbers from 32m to 35m in 2019 (F19A/0449) but withdrew their application in June 2020.

It is also very evident from pre-planning material that the daa were having discussions with FCC and ANCA on the Relevant Action to revoke/amend Conditions 3(d) and 5 and also on increasing the passenger capacity to 40m+.

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An tÚdarás Inniúil um Thorann Aerárthaí
Aircraft Noise Competent Authority

Record of Pre-Application Consultation
Section 247 of the Planning & Development Act 2000 (as amended)

Date: 5th February 2020.

Ref. No.: **PPC 106276 (CA 19.01)** – In relation to the operating restrictions on the North Runway
Ref. No.: **PPC 106336 (CA 20.01)** – In relation to an increase in the Terminals' passenger capacity.

Applicant: **DAA**

Development Description: Detailed Development Description not given –

1. North Runway –*Relevant Action – to replace Condition 3d and 5 of North Runway permission. These relate to* night-time operations only.

2. & Increase Passenger Capacity 40+ MPPA & Associated Infrastructure.

In their initial EIAR the daa did not include any reference to capacity beyond 32m. In their revised EIAR the daa make reference to 2035 as a future year but restrict the use of 2035 to 32m. This is a clear case of 'project splitting' and the EPA Guidelines make reference to Case Law from the Court of Justice of the European union (CJEU) pointing to this fact.

The inclusion of the pending application to remove the 32m cap is very significant as ABP applied the 32m cap when granting the Terminal 2 planning permission (PL06F.220670) and having regard for transport capacity constraints.

Capacity

3. The combined capacity of Terminal 2 as permitted together with Terminal 1 shall not exceed 32 million passengers per annum unless otherwise authorised by a further grant of planning permission.

Reason: Having regard to the policies and objectives of the Dublin Airport Local Area Plan and capacity constraints (transportation) at the eastern campus.

REASONS AND CONSIDERATIONS (2)

The proposed development of Phase 2 of the terminal building would be premature pending the determination by the road authority of the detailed road network to serve the area and the commitment by the planning authority to design and fund all the external transport elements detailed in the Environmental Impact Statement to facilitate Phase 2. In these circumstances, to expand further the terminal capacity at this location would contravene the objectives EA2, EA3 and TP10 of the Dublin Airport Local Area Plan which seek to provide balanced road infrastructure to manage traffic and to cater for the comprehensive development of the airport.

Section 9 of the EIAR is titled 'Traffic & Transport'. This section only includes passenger numbers up to 32m. Maintaining a 32m cap up to 2035 goes against the aims of the National Aviation Policy for Ireland. This is a serious flaw and reflects the 'project splitting' nature of the application. Failure to take account of the impact of future Transport needs invalidates this planning application and therefore FCC should refuse the application on these grounds alone.

Table 9-1 Assessment Scenarios and forecast passenger growth

	2022		2025		2035	
	Permitted	**Proposed**	**Permitted**	**Proposed**	**Permitted**	**Proposed**
Flight Profile	Without RA	With RA	Without RA	With RA	Without RA	With RA
mppa	19.6	21	30.4	32	32	32

4.0 APPROPRIATE ASSESSMENT

In their revised submission, the daa have included a separate screening report from AECOM.

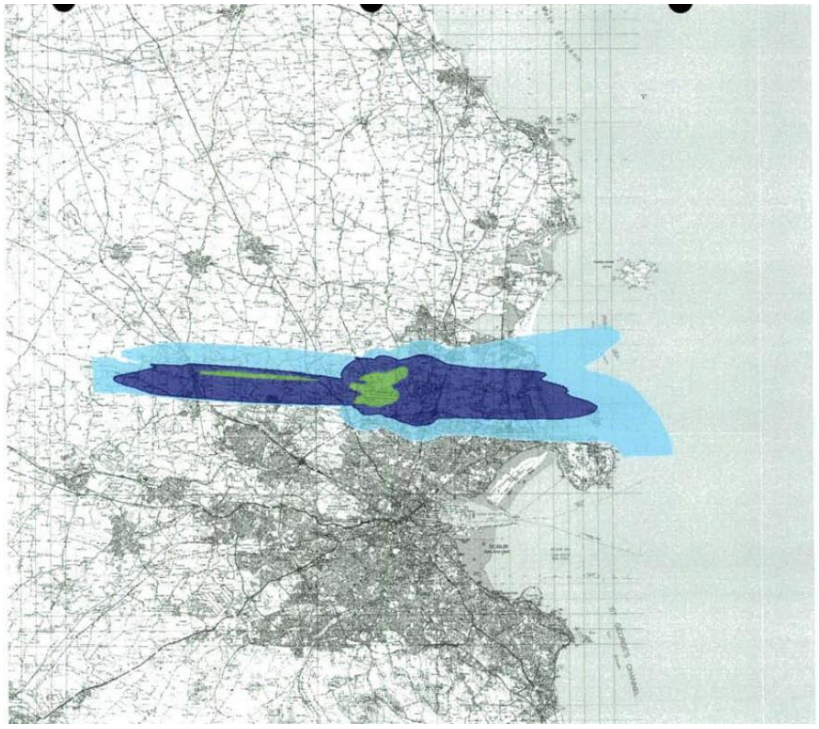
In the summary of changes section, AECOM point out that their report does not take account of the future 40m passengers. This points to 'project splitting' and the screening is too limited. Guidance from the NPWS (https://www.npws.ie/sites/default/files/publications/pdf/NPWS_2009_AA_Guidance.pdf) states that Article 6(3) requires that any plan or project that is not directly connected with or necessary to the management of the Natura 2000 site concerned but is likely to have a significant effect on it, on its own or in conjunction with other plans and projects, is to be authorised only if it will not adversely affect the integrity of that site. Screening for AA and, if screening indicates the need, AA itself, must be carried out and the assessment and conclusions recorded to ensure that existing and future plans or projects are not authorised if they are likely to adversely affect the integrity of a site. These safeguards are designed to ensure the conservation of Natura 2000 sites.

ANCA as part of their remit is also conducting an Appropriate Assessment screening for the Noise Abatement Objective (NAO) and the Relevant Action. In its screening report, it states that the following possible effects could arise:

- The effects of increases in the level and frequency of noise, and visual disturbance events caused by increases in aircraft overflying of Natura 2000 sites and potentially, also by this overflying occurring at different times of the day and night
- The effects of changes to air quality, particularly increases in the concentrations of NOx and levels of nitrogen deposition, caused by increased numbers of aircraft overflying Natura 2000 sites.
- The effects of emergency fuel dumping from overflying aircraft affecting Natura 2000 sites directly, or indirectly through surface water pathways.

In section 3.13 of the screening report, reference is made to N60 contours and Figure 1. This is the 2025 N60 contour.

The EIAR Appendices include Easterly N60 contours which are of interest of SPAs and SACs:



The additional information report (Appendix J RFI 118) also contains LAmax contours for specific aircraft and of interest are the contours for departures from Runway 10L in the Easterly direction:

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LEGEND:

Noise Contours
70 and 80 dB(A) L_{Amax}:

Current Procedure
NADP1
NADP2

Rev	Date	Description	Initials

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Dublin Airport
NADP Assessment

L_{Amax} Noise Contours
Departure Runway 10L
Airbus A330-300

DRAWN: MP CHECKED: DR

DATE: January 2019 SCALE: 1:100000@A4

FIGURE No:

A11219/R02/DR020

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LEGEND:

Noise Contours
70 and 80 dB(A) L_{Amax}:

Current Procedure
NADP1
NADP2

Rev	Date	Description	Initials

REVISIONS

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Dublin Airport
NADP Assessment

L_{Amax} Noise Contours
Departure Runway 10L
Boeing 737-800

DRAWN: MP CHECKED: DR

DATE: January 2019 SCALE: 1:100000@A4

FIGURE No:

A11219/R02/DR021

Table 3 lists the European sites within the potential Zone of Interest:

Table 3. European sites within the Potential ZoI of the proposed Relevant Action

Site name [site code]	Approximate distance from Dublin Airport North Runway	Summary of QI / SCI
Malahide Estuary SPA [004025]	4.0 km north-east	• Non-breeding waterbirds and wetland habitats supporting waterbirds.
Baldoyle Bay SPA [004016]	6.6 km east-south-east	• Non-breeding waterbirds and wetland habitats supporting waterbirds.
Rogerstown Estuary SPA [004015]	8.0 km north-east	• Non-breeding waterbirds and wetland habitats supporting waterbirds.
South Dublin Bay and River Tolka Estuary SPA [004024]	8.1 km south	• Breeding seabirds. • Non-breeding waterbirds and wetland habitats supporting waterbirds.
North Bull Island SPA [004006]	8.2 km south-east	• Non-breeding waterbirds and wetland habitats supporting waterbirds.
Rockabill to Dalkey Island SAC [003000]	10.9 km east	• Harbour porpoise *Phocoena phocoena*
Ireland's Eye SPA [004117]	11.3 km east-south-east	• Breeding seabirds.
Howth Head Coast SPA [004113]	13.2 km south-east	• Breeding seabirds.
Lambay Island SPA [004069]	15.1 km north-east	• Breeding seabirds. • Non-breeding waterbirds.
Lambay Island SAC [000204]	15.1 km north-east	• Grey seal *Halichoerus grypus* • Harbour seal *Phoca vitulina*
Dalkey Islands SPA [004172]	19.7 km south-east	• Breeding seabirds.

As can be seen with the above maps, a number of SACs have been omitted:

Malahide SAC
Baldoyle Bay SAC
Howth Head SAC
Ireland’s Eye SAC
North Dublin Bay SAC

It is worth noting that this lack of consideration of SACs contrasts with the screening report provided by Fingal County Council for Variation No.1 of the Fingal Development Plan 2017-2023. This variation was primarily focused on the development of new Noise Zones for Dublin Airport and so a comparison with this proposed Relevant Action is very appropriate. Comparing the two screening reports, it’s evident that the revised Relevant Action screening report is deficient and not fit for purpose.

5.0 HIGHLY ANNOYED/ HIGHLY SLEEP DISTURBED

In the EIAR one of the key assessment tools is the use of the number of people 'Highly Annoyed' and 'Highly Sleep Disturbed'. This comes as no surprise as ANCA shared their candidate NAO with the daa:

> Part 3 - How we will measure the NAO
> The NAO will be primarily measured through the number of people 'highly sleep disturbed' and 'highly annoyed' in accordance with the approach recommended by the World Health Organisation's Environmental Noise Guidelines 2018 as endorsed by the European Commission through Directive 2020/367, taking into account noise exposure from 45 dB Lden and 40 dB Lnight. These metrics help articulate the effect of aircraft noise on health and quality of life. Further to the above, additional metrics will also be used to help identify priorities. These include:
> - 50 dB Lnight (a level of night-time noise exposure at which adverse impacts begin to clearly present over a population)
> - 55 dB Lnight (a level of night-time noise exposure representing a clear risk to health)
> - 55 dB Lden (which can be linked to other cognitive impacts from aircraft noise)
> - 65 dB Lden (where a large proportion of those living around the airport can be considered 'highly annoyed')

The formulae to calculate HA and HSD were mentioned in the WHO 2018 Guidelines and were added to Annex III of Directive 2002/49/EC via Directive 2020/367.

HA:

$$AR_{HA,air} = \left(-50.9693 + 1.0168 * L_{den} + 0.0072 * {L_{den}}^2\right)/100 \quad \text{(Formula 6)}$$

HSD:

$$AR_{HSD,air} = \left(16.7885 - 0.9293 * L_{night} + 0.0198 * {L_{night}}^2\right)/100 \quad \text{(Formula 9)}$$

$$N_{x,y} = \sum_j [n_j * AR_{j,x,y}] \quad \text{(Formula 12)}$$

Where:

— $AR_{x,y}$ is the AR of the relevant harmful effect (HA, HSD), and is calculated using the formulas set out in point 2 of this Annex, calculated at the central value of each noise band (e.g.: depending on availability of data, at 50,5 dB for the noise band defined between 50-51 dB, or 52 dB for the noise band 50-54 dB),

— n_j is the number of people that is exposed to the j-th exposure band.

The population figures provided were tabulated for Lden and Lnight for all the relevant case years.

Lden	>40 dB	>45	>50	>55	>60	>65	>70
2022 Proposed		351063	83696	17270	2024	142	23
2025 Proposed		511732	130559	25976	3011	196	32
2018 Baseline		716725	184777	35482	4717	257	31
2019 Baseline		754135	174146	34097	6279	285	31
2022 Permitted		336611	77349	12850	1513	94	13
2025 Permitted		421417	9889	19213	2006	119	19

Lnight	>40 dB	>45	>50	>55	>60	>65	>70
2022 Proposed	136626	33603	5200	356	45		
2025 Proposed	268498	54532	8705	1059	56	6	
2018 Baseline	307457	55492	12316	753	56	10	
2019 Baseline	344912	59307	13838	1533	110	13	
2022 Permitted	138421	27964	3482	222	28		
2025 Permitted	163476	33932	6080	280	31	6	

The HA formulae were then applied to generate the number of people Highly Annoyed:

Case	Total Number HA	45-50	50-55	55-60	60-65	65-70	70-75
2022 Proposed	56689	36292	14785	4772	766	60	14
2025 Proposed	**83454**	51739	23278	7188	1146	83	19
2018 Baseline	**117013**	72205	33230	9630	1815	114	19
2019 Baseline	121192	78726	31172	8708	2440	128	19
2022 Permitted	53722	35191	14356	3549	578	41	8
2025 Permitted	67556	44050	17289	5386	768	50	12

The percentage of people highly annoyed attributed to each noise band is as follows:

Case	Total Number HA	45-50	50-55	55-60	60-65	65-70	70-75
2022 Proposed	56689	64.02	26.08	8.42	1.35	0.11	0.02
2025 Proposed	**83454**	62.00	27.89	8.61	1.37	0.10	0.02
2018 Baseline	**117013**	61.71	28.40	8.23	1.55	0.10	0.02
2019 Baseline	121192	64.96	25.72	7.18	2.01	0.11	0.02
2022 Permitted	53722	65.51	26.72	6.61	1.08	0.08	0.01
2025 Permitted	67556	65.21	25.59	7.97	1.14	0.07	0.02

From the percentage calculations, it's evident that the lower bands have a disproportional influence over the total number highly annoyed. The combination of the 45-50 and 50-55 dB Lden bands contribute approximately 90% to the total number highly annoyed.

It is worth noting that these two lower bands are not mandatory reporting bands under 2002/49/EC and figures for these bands were never reported in the three Rounds of the END in 2006, 2011 and 2016 by Fingal County Council.

Therefore, the analysis should focus on the higher bands reported under the END. This also allows a direct comparison with the three Rounds of the END:

Case	Total Number HA	55-60	60-65	65-70	70-75
2022 Proposed	5612	4772	766	60	14
2025 Proposed	**8436**	7188	1146	83	19
2018 Baseline	11578	9630	1815	114	19
2019 Baseline	11294	8708	2440	128	19
2022 Permitted	4175	3549	578	41	8
2025 Permitted	**6216**	5386	768	50	12
2016	**6553**	5791	611	151	0
2011	3948	3725	122	101	0
2006	1008	876	81	50	0

It is clear that '2025 Proposed' will lead to an increase in over 2k people highly annoyed compared with '2025 Permitted' and '2016'.

The HSD formulae were then applied to generate the number of people Highly Sleep Disturbed:

Case	Total Number HSD	40-45	45-50	50-55	55-60	60-65	65-70
2022 Proposed	19571	13452	4920	1094	90	16	0
2025 Proposed	**37912**	27938	7938	1726	289	18	3
2018 Baseline	43210	32899	7479	2610	201	17	4
2019 Baseline	48396	37291	7876	2778	410	35	6
2022 Permitted	19465	14422	4241	736	56	10	0
2025 Permitted	**23132**	16915	4825	1309	72	9	3

The percentage of people highly annoyed attributed to each noise band is as follows:

Case	Total Number HSD	40-45	45-50	50-55	55-60	60-65	65-70
2022 Proposed	19571	68.73	25.14	5.59	0.46	0.08	
2025 Proposed	**37912**	73.69	20.94	4.55	0.76	0.05	0.01
2018 Baseline	43210	76.14	17.31	6.04	0.46	0.04	0.01
2019 Baseline	48396	77.05	16.27	5.74	0.85	0.07	0.01
2022 Permitted	19465	74.09	21.79	3.78	0.29	0.05	
2025 Permitted	**23132**	73.12	20.86	5.66	0.31	0.04	0.01

From the percentage calculations, it's evident that the lower bands have a disproportional influence over the total number highly annoyed. The combination of the 40-45 and 45-50 dB Lnight bands contribute over 93% to the total number highly sleep disturbed.

It is worth noting that these two lower bands are not mandatory reporting bands under 2002/49/EC and figures for these bands were never reported in the three Rounds of the END in 2006, 2011 and 2016 by Fingal County Council.

Therefore, the analysis should focus on the higher bands reported under the END. This also allows a direct comparison with the three Rounds of the END:

Case	Total Number HSD	50-55	55-60	60-65	65-70
2022 Proposed	1199	1094	90	16	0
2025 Proposed	**2036**	1726	289	18	3
2018 Baseline	2832	2610	201	17	4
2019 Baseline	3229	2778	410	35	6
2022 Permitted	802	736	56	10	0
2025 Permitted	**1393**	1309	72	9	3
2016	1515	1400	115	0	0
2011	**329**	271	58	0	0
2006	0	0	0	0	0

It is clear that '2025 Proposed' will lead to an increase in over 600 people highly sleep disturbed compared with '2025 Permitted' and 500 people compared with '2016'.

Focusing on the population HSD > 55 dB Lnight, '2025 Proposed' contains 310 people versus 84 in '2025 Permitted' and 115 in '2016'. This clearly shows a worsening noise problem at the levels that cause serious adverse health effects.

This is also very evident in the statistics for the population exposed to > 55 dB Lnight.

Lnight	>55	>60	>65	>70
2022 Proposed	356	45		
2025 Proposed	1059	56	6	
2018 Baseline	753	56	10	
2019 Baseline	1533	110	13	
2022 Permitted	222	28		
2025 Permitted	280	31	6	
2016	400			
2011	200			
2006				

1059 people will be exposed to a Lnight value > 55 dB with '2025 Proposed' compared with 280 with '2025 Permitted' and 400 with '2016'. This is also acknowledged in the EIAR in section 13.7.49:

13.7.49 Comparing the 2025 Proposed Scenario with the 2025 Permitted Scenario, the number of people exposed to aircraft noise is forecast to increase, for all contour levels. Consequently, the number of people assessed as highly sleep disturbed by aircraft noise increases by 65% from 22,500 to 37,080 (excluding consented developments). The number of people exposed to at least a high level of noise (i.e. 55 dB L_{night} or above) increases from 280 to 1,059.

In a pre-planning consultation document dated October 2nd 2019, ANCA make comments on documents received subsequent to the pre-planning consultation of September 12th 2019. In this document ANCA requested percentages of HA and HSD per noise level band. **This information was not provided by the daa in this planning application.**

2. Quantifiable metrics for the NAO should include what is likely to be forthcoming from the revised END Annex III (which is expected to have a transposition deadline of 21 December 2021) and include as a minimum:
    a. Lden and Lnight;
    b. % Highly Annoyed (%HA) (per building or noise level band) and total number HA; and

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c. % Highly Sleep Disturbed (%HSD) (per building or noise level band) and total number HSD

SUBMISSION ON BEHALF OF THE ST. MARGARETS THE WARD RESIDENTS GROUP

SUMMARY

- Lower bands have a disproportional influence on the number of people highly annoyed and highly sleep disturbed
- No discussion on local rural communities and the impact on them
- Lower bands are not mandatory reporting bands under the END
- Lowest 2 bands account for >90% of people calculated as highly annoyed
- Lowest 2 bands account for >92% of people calculated as highly sleep disturbed
- Focusing on lower bands, more people highly annoyed in '2025 Proposed' than 2016 and '2025 Permitted'.
- Focusing on lower bands, more people highly sleep disturbed in '2025 Relevant Action' than 2016 and '2025 Baseline'
- Using all bands, more people highly annoyed in '2025 Proposed' than '2025 Permitted'.
- Using all bands, more people highly sleep disturbed in '2025 Proposed' than '2025 Permitted'
- Population >55dB Lnight for '2025 Proposed' is 1059 compared with 280 with '2025 Permitted' and 400 with 2016
- No percentages of HA and HSD per noise band were supplied by the daa, as requested by ANCA
- 63.8% increase in HSD figures between '2025 Permitted and '2025 Proposed'
- HA and HSD figures show that the proposed Relevant Action leads to an increase in people affected by noise

6.0 RUNWAY USAGE

AVERAGE ANNUAL DAY RUNWAY USAGE BY HOUR

In Table 13B-10 and Table 13B-12, average annual runway per hour is provided for Westerly operations for both the Permitted and Proposed scenarios.

13B.3.24 The resulting runway usage by hour on an average annual day for both easterly and westerly operations is shown in Table 13B-10 and Table 13B-11 for the Permitted Scenarios, and in Table 13B-12 and Table 13B-13 for the Proposed Scenarios.

Table 13B-10: Average Annual Day Runway Usage By Hour – Westerly Operations, Permitted Scenarios

Hour	2022 Permitted		2025 Permitted		2035 Permitted	
	28L (South)	28R (North)	28L (South)	28R (North)	28L (South)	28R (North)
00:00-00:59	6	0	7	0	7	0
01:00-01:59	5	0	8	0	8	0
02:00-02:59	2	0	2	0	2	0
03:00-03:59	0	0	0	0	0	0
04:00-04:59	5	0	6	0	6	0
05:00-05:59	11	0	11	0	11	0
06:00-06:59	16	0	17	0	17	0
07:00-07:59	16	37	40	29	46	30
08:00-08:59	19	11	25	8	27	9
09:00-09:59	17	12	26	14	26	15
10:00-10:59	11	13	18	21	19	21
11:00-11:59	11	13	20	19	20	19
12:00-12:59	24	10	28	22	29	24
13:00-13:59	12	18	15	22	16	23
14:00-14:59	16	13	19	18	19	19
15:00-15:59	11	20	14	21	14	21
16:00-16:59	22	14	25	19	27	19
17:00-17:59	16	18	20	19	22	20
18:00-18:59	16	15	21	20	21	22
19:00-19:59	20	15	23	20	24	20
20:00-20:59	9	17	10	20	10	21
21:00-21:59	14	7	16	8	16	8
22:00-22:59	28	6	31	6	32	6
23:00-23:59	6	0	9	0	9	0

Note: All values rounded to nearest whole number

Table 13B-12: Average Annual Day Runway Usage By Hour – Westerly Operations, Proposed Scenarios

Hour	2022 Proposed		2025 Proposed		2035 Proposed	
	28L (South)	28R (North)	28L (South)	28R (North)	28L (South)	28R (North)
00:00-00:59	9	0	12	0	12	0
01:00-01:59	6	0	9	0	9	0
02:00-02:59	3	0	3	0	3	0
03:00-03:59	0	0	0	0	0	0
04:00-04:59	7	0	8	0	8	0
05:00-05:59	10	0	10	0	10	0
06:00-06:59	2	28	22	15	22	15
07:00-07:59	9	32	29	22	29	22
08:00-08:59	19	11	22	12	22	12
09:00-09:59	16	14	24	17	24	17
10:00-10:59	11	12	18	18	18	18
11:00-11:59	12	14	20	19	20	19
12:00-12:59	24	10	28	23	28	23
13:00-13:59	16	18	19	21	19	21
14:00-14:59	15	15	20	20	20	20
15:00-15:59	13	21	15	23	15	23
16:00-16:59	22	16	25	20	25	20
17:00-17:59	18	16	22	20	22	20
18:00-18:59	15	21	20	24	20	24
19:00-19:59	20	17	20	22	20	22
20:00-20:59	11	17	12	18	12	18
21:00-21:59	12	9	14	9	14	9
22:00-22:59	22	5	26	5	26	5
23:00-23:59	17	0	18	1	18	1

Note: All values rounded to nearest whole number

Summing up the total number of movements:

	2022 Permitted	2022 Proposed	2025 Permitted	2025 Proposed
Total Movements per day	552	585	697	725
Total movements per year	200928	212940	253708	263900

The number of predicted aircraft movements for the EIAR future years are summarized in Table 1-1 and repeated in Table 13-1 of the EIAR.

1.5.36 The Mott MacDonald Report Dublin Airport Operating Restrictions Quantification of Impacts on Future Growth, presented in Appendix 1A, sets out the predicted Air Traffic Movements (ATMs) and Annual Passengers (PAX) for the future Permitted and Proposed Scenarios. The PAX numbers and ATMs, taken from this report, and assessed in this EIAR are provided in Table 1-1. In addition, the forecast Busy Day ATMs for the 23:00 to 07:00 have been provided. These were developed using the Motts forecast and are based on runway times (not scheduled times).

Table 1-1: Assessment Years, Scenarios, PAX and ATMs

Assessment Years and Scenarios	Predicted Annual Passengers (PAX) (millions per annum)	Permitted vs Proposed Difference in PAX (millions)	Air Traffic Movements (ATMs) ('000s per annum)	Typical 'Busy Day' Night-Time ATMs (23:00-07:00)
2022 Permitted	19.6	n/a	166	51
2022 Proposed	21.0	1.4	176	82
2025 Permitted	30.4	n/a	227	60
2025 Proposed	32.0	1.6	236	98
2035 Permitted	32.0	n/a	236	65
2035 Proposed	32.0	0.0	236	98

13.1.3 The effect on the forecast numbers of passengers and movements in each of the Assessment Years is summarised in Table 1-1 of *Chapter 1: Introduction* which is repeated below as Table 13-1.

Table 13-1: Assessment Years, Scenarios, PAX and ATMs

Assessment Years and Scenarios	Predicted Annual Passengers (PAX) (millions per annum)	Permitted vs Proposed Difference in PAX (millions)	Air Traffic Movements (ATMs) ('000s per annum)	Typical 'Busy Day' Night-Time ATMs (23:00-07:00)
2022 Permitted	19.6	n/a	166	51
2022 Proposed	21.0	1.4	176	82
2025 Permitted	30.4	n/a	227	60
2025 Proposed	32.0	1.6	236	98
2035 Permitted	32.0	n/a	236	60
2035 Proposed	32.0	0.0	236	98

Comparing figures from Table 1-1 and 13-1 with Table 13B-12, it's evident that the figures in Table 13B-12 are incorrect. The movements for 2025 Proposed in Table 1-1 is 236k whereas with 13B-12 it's 264k.

Comparing the noise data from the original EIAR and the revised EIAR it's evident that the revised figures for 2025 Proposed indicate a worse outcome in terms of noise compared to 2025 Relevant Action in the original EIAR from December 2020.

All key noise metrics have increased significantly.

Year	Population				Area (km^2)		Significant Effects	Residual Effects
	>45 dB Lden	>40 dB Lnight	HA	HSD	>45 dB Lden	>40 dB Lnight	Lnight	Lnight
2025 Relevant Action	448k	174k	67.7k	24.4k	737.5	302	-11783	-10631
2025 **Proposed**	511k	268k	79k	37k	714.3	311.5	-11494	-10474

There is no explanation in the revised material submitted by the EIAR to indicate what the cause of this increase in noise is.

Assuming that the predicted aircraft movements between 2025 Relevant Action in the original submission and the 2025 Proposed in the revised application, a potential difference may be in relation to the aircraft types between the two.

Table 13B-7 from the original EIAR shows the 2025 Relevant Action Forecast Movements by aircraft type and time of day:

Table 13B-7: 2025 Relevant Action Forecast Movements

Aircraft Type	2025 Relevant Action Forecast Movements				
	Annual			92-Day Summer	
	Day 07h-19h	Evening 19h-23h	Night 23h-07h	Day 07h-23h	Night 23h-07h
Airbus A306	325	0	976	90	270
Airbus A319	1,952	651	976	721	270
Airbus A320	40,349	10,087	9,111	13,975	2,524
Airbus A320neo	7,484	1,952	976	2,615	270
Airbus A321	3,254	0	0	902	0
Airbus A321neo	2,603	0	1,302	721	361
Airbus A330	11,714	0	1,302	3,246	361
Airbus A330neo	0	0	0	0	0
Airbus A350	325	0	325	90	90
ATR 42	2,278	325	0	721	0
ATR 72	15,293	2,278	651	4,869	180
BAe 146/Avro RJ	0	0	0	0	0
Boeing 737-400	0	1,627	976	451	270
Boeing 737-700	2,929	1,302	325	1,172	90
Boeing 737-800	49,785	15,293	10,413	18,032	2,885
Boeing 737 MAX	8,460	4,555	651	3,606	180
Boeing 757	0	0	0	0	0
Boeing 767	0	325	325	90	90
Boeing 777	651	0	651	180	180
Boeing 777X	0	651	0	180	0
Boeing 787	5,857	0	1,302	1,623	361
Bombardier CS300	1,952	0	0	541	0
Bombardier Dash 8	1,952	651	0	721	0
Embraer E190/195	5,857	976	325	1,893	90
Other	4,230	1,627	651	1,623	180
Total	**167,251**	**42,301**	**31,238**	**58,063**	**8,655**

Table 13B-5 of the revised EIAR lists the 2025 Proposed forecast movements by aircraft type and time of day:

Table 13B-5: 2025 Proposed Scenario Forecast Movements

Aircraft Type	2025 Proposed Scenario Forecast Movements				
	Annual			92-Day Summer	
	Day 07h-19h	Evening 19h-23h	Night 23h-07h	Day 07h-23h	Night 23h-07h
Airbus A306	0	0	0	0	0
Airbus A319	651	0	0	180	0
Airbus A320	34,488	7,809	7,809	11,721	2,164
Airbus A320neo	11,062	3,254	1,301	3,967	361
Airbus A321	651	0	0	180	0
Airbus A321neo	5,531	651	2,277	1,713	631
Airbus A330	10,086	325	1,627	2,885	451
Airbus A330neo	2,277	0	325	631	90
Airbus A350	325	0	325	90	90
ATR 42	0	0	0	0	0
ATR 72	15,292	2,277	1,301	4,869	361
BAe 146/Avro RJ	0	0	0	0	0
Boeing 737-400	0	0	651	0	180
Boeing 737-700	325	325	0	180	0
Boeing 737-800	49,454	16,268	13,014	18,212	3,606
Boeing 737 MAX	10,086	4,230	0	3,967	0
Boeing 757	0	0	0	0	0
Boeing 767	325	651	976	270	270
Boeing 777	0	0	651	0	180
Boeing 777X	651	651	0	361	0
Boeing 787	6,182	0	976	1,713	270
Bombardier CS300	1,301	0	0	361	0
Bombardier Dash 8	2,603	651	0	902	0
Embraer E190/195	6,507	2,603	651	2,524	180
Embraer E190-E2	0	0	0	0	0
Other	5,206	1,301	0	1,803	0
Total	**163,003**	**40,995**	**31,885**	**56,530**	**8,836**

Comparing differences between the schedules for the night-time period only, shows 1302 less A320s for 2025 Proposed than originally planned with 2025 Relevant Action. And 2025 proposed predicts to have 2601 more 737-800s than 2025 Relevant Action.

A strange anomaly appears in relation to the 737 MAX aircraft. The revised EIAR is predicting 651 less 737 MAX. But looking at Table 13B-5, it shows 10086 737 MAX during the daytime and 4230 during the evening time, yet zero during the night-time period? Why is the 737 MAX not scheduled to be used in the night period? No explanations given as to the differences in these schedules and it's difficult to trust this new modelling.

Annual Night Difference		
-976	Airbus	A306
-976	Airbus	A319
-1302	Airbus	A320
325	Airbus	A320neo
0	Airbus	A321
975	Airbus	A321neo
325	Airbus	A330
325	Airbus	A330neo
0	Airbus	A350
0	ATR	42
650	ATR	72
0	BAe	146/Avro RJ
-325	Boeing	737-400
-325	Boeing	737-700
2601	Boeing	737-800
-651	Boeing	737 MAX
0	Boeing	757
651	Boeing	767
0	Boeing	777
0	Boeing	777X
-326	Boeing	787
0	Bombardier	CS300
0	Bombardier	Dash 8
326	Embraer	E190/195
	Embraer	E190-E2
-651	Other	
647	Total	

7.0 UNDER UTILISATION OF AVAILABLE SLOTS

In the Mott MacDonald report in EIAR Appendix 1.A, on page 34, the claim is made that there'll be a 2-year delay in reaching 32m passengers.

timings and are not smoothed to fit within airport capacities

- **Scenario B** applies the current North Runway night operating restrictions (the 65/night limit and no use of the North Runway 23:00-07:00), but does not apply the 32m annual passenger cap

The night restrictions severely limit traffic growth, delaying post-Covid recovery to 2019 traffic levels by around 2 years (from 2025 to 2027).

- **Scenario C** is an unconstrained schedule with no night limits or annual passenger cap. The daa input schedule (Scenario A) has been coordinated within the physical runway capacity constraints, adjusting flight times to smooth demand, but Scenario C has the same volume of flights as the daa input schedule. The runways are assumed to operate in mode Option 7b (see page 8) and according to the capacities discussed in Section 3 (page 20) of this report.

Runway capacity is sufficient to accommodate the full daa input forecast schedule with relatively minor schedule timing adjustments. Unconstrained annual forecast passengers can be accommodated

Scenarios	A	B	C	D	E	F
2015	25.0					
2016	27.9					
2017	29.6					
2018	31.5					
2019	32.9	32.9	32.9	32.9	32.9	32.9
2020	7.4	7.4	7.4	7.4	7.4	7.4
2021	7.9	7.9	7.9	7.9	7.9	7.9
2022	21.0	19.6	21.0	21.0	19.6	20.6
2023	26.7	24.9	26.7	26.7	24.9	26.2
2024	31.2	29.3	31.2	30.8	29.3	30.8
2025	32.3	30.4	32.3	32	30.4	31.9
2026	34.0	31.6	34.0	32	31.2	33.3
2027	35.6	32.8	35.6	32	32	34.7
2028	37.0	33.9	37.0	32	32	36.2
2029	38.4	35.1	38.4	32	32	37.6
2030	39.6	36.3	39.6	32	32	39.0
2031	40.5	37.0	40.5	32	32	39.7

The aircraft movement figures from the Reporting Template for 2022 and 2025 Permitted show their calculations don't utilize the full available 65 flight limit compared with the Proposed scenarios. The 2022 / 2025 Permitted / Proposed scenarios are compared in the table below with regard to aircraft movements at night. Using the forecast passenger numbers the loading factor can be calculated per scenario.

2022 Permitted has an average night-time of 42 movements, yet the 2022 Proposed has 68 movements at night. There are 23 underutilized slots available that have not been modelled.

Scenario (Data from Reporting Template)	Total Movements per year	Total Movements per day	Movements 07:00 - 23:00	Annual Average Movements 23:00 - 07:00	Total Passengers Per Year	Loading Factor	Reported Passenger Loss	Under utilisation of 65 flights	Revised Total Passengers Per Year
2022 Permitted	165840	456	414	42	19600000	118		1000427	**20600427**
2022 Proposed	175737	483	415	68	21000000	119	1400000		21000000
2025 Permitted	226772	623	570	53	30400000	134		592567	**30992567**
2025 Proposed	235882	648	561	87	32000000	136	1600000		32000000

2025 Permitted has an average night-time of 53 movements, yet the 2025 Proposed has 87 movements at night. There are 12 underutilized slots available that have not been modelled.

Because the daa's modelling has chosen not to use the full 65 slots available, the figures for passenger losses has been over exaggerated.

By utilizing the available 23 slots for 2022 Permitted, a further 1000427 passengers can be facilitated during the night-time period whilst keeping the 65-flight limit. Note this does not take into account any further increase in day-time usage of the airport arising from the availability of these extra slots.

The daa have forecast a loss of 1.4m passengers in 2022. Note that 2022 Proposed has just 68 flights in the night period which is just 3 extra movements over the planning restrictions limit. It is clear from the data above that it's questionable if any loss in passengers would accrue in 2022.

By utilizing the available 12 slots for 2025 Permitted, a further 592567 passengers can be facilitated during the night-time period whilst keeping the 65-flight limit. Note this does not take into account any further increase in day-time usage of the airport arising from the availability of these extra slots.

It is a safe assumption that the same conclusions can be drawn for 2023 and 2024.

The daa present cumulative losses in Table 3-1.

3.2.10 Table 3-1 presents the assessed impact of the Permitted Scenario is a cumulative loss over the 4-year period 2022-2025 of 6.3m passengers when compared with the Proposed Scenario.

Table 3-1: Annual Traffic Impact Summary (millions of passengers)

	2022	2023	2024	2025	2022-2025 Total
Proposed	21.0	26.7	30.8	32.0	110.5
Permitted	19.6	24.9	29.3	30.4	104.2
Difference	-1.4	-1.8	-1.6	-1.6	-6.3[1]

Source: Quantification of Impacts on Future Growth, Update 2022 - 2025 Period (Mott MacDonald, 2021)

In 2015, almost 24.9m passengers passed through Dublin Airport (https://www.cso.ie/en/releasesandpublications/er/as/aviationstatistics2015/).

Data provided by the daa to the CLG show that in 2015, 5 months of the year the monthly average movements at night were less than 65.

Year	Month	# of night-time movements
2015	January	54
	February	53
	March	56
	April	69
	May	77
	June	86
	July	89
	August	84
	September	81
	October	76
	November	64
	December	60

Using these monthly averages, the total movements at night equates to 25860 movements. Based on the 24.9m passengers, the loading factor can be calculated as 96.

Averaging over the whole year, the average night-time usage was 71 movements at night, just 6 above the 65-planning restriction limit.

Multiplying this 6 movements by the loading factor (96) and extrapolating for full year, a figure of 210k additional passengers were handled above the 65-limit.

But factor in that the airport will now have a second runway compared to 2015 that can accommodate extra capacity, it is a reasonable statement to make that 6 extra flights could be handled during the daytime with an extra runway.

The daa's figure of a loss of 1.8m passengers is incredulous when compared to 2015 where a similar passenger number was handled.

It is a reasonable statement to make that the daa's projections on passenger numbers are not credible and over exaggerate any passenger losses.

In the Mott MacDonald report on the Dublin Airport Operating Restrictions, an oversimplification of aircraft movements has been presented, assuming that all aircraft movements from Dublin Airport are solely point to point and return back to Dublin. Examining Dublin Airport flight schedules, it's evident that flights can leave Dublin Airport and not return for a number of days. A large European Airline such as Ryanair schedules their flights on a pan European basis to optimize aircraft usage. They do not confine the scheduling to point to point.

An example of such routing is given below for aircraft EI-DPK from FlightRadar24.com. This aircraft last flew out of Dublin on October 21st to Lisbon and the aircraft has been operating out of Lisbon since and not returned to Dublin. This is just one example of how an airline can maximise and optimize their fleet movement without being curtailed by point to point operations. This has the net effect of minimizing movement losses when the planning restrictions are in force.

23 Oct 2021	London (STN)	Lisbon (LIS)	FR1884	2:14
23 Oct 2021	Lisbon (LIS)	London (STN)	FR1885	2:29
22 Oct 2021	Brussels (BRU)	Lisbon (LIS)	FR2931	2:21
22 Oct 2021	Lisbon (LIS)	Brussels (BRU)	FR2932	2:30
22 Oct 2021	Toulouse (TLS)	Lisbon (LIS)	FR1799	1:27
22 Oct 2021	Lisbon (LIS)	Toulouse (TLS)	FR1798	1:33
22 Oct 2021	Marseille (MRS)	Lisbon (LIS)	FR2078	2:08
22 Oct 2021	Lisbon (LIS)	Marseille (MRS)	FR2077	1:49
21 Oct 2021	Dublin (DUB)	Lisbon (LIS)	FR7138	2:14
21 Oct 2021	Bristol (BRS)	Dublin (DUB)	FR505	0:44
21 Oct 2021	Dublin (DUB)	Bristol (BRS)	FR504	0:42
21 Oct 2021	Biarritz (BIQ)	Dublin (DUB)	FR1983	1:52
21 Oct 2021	Dublin (DUB)	Biarritz (BIQ)	FR1982	1:42
20 Oct 2021	Glasgow (GLA)	Dublin (DUB)	FR5775	0:41
20 Oct 2021	Dublin (DUB)	Glasgow (GLA)	FR5776	0:41

8.0 POPULATION AND HUMAN HEALTH

Latest research since the WHO 2018 Guidelines has been collated in the review paper '*Environmental risk factors and cardiovascular diseases: a comprehensive expert review*' (https://academic.oup.com/cardiovascres/advance-article/doi/10.1093/cvr/cvab316/6381568). This review forms part of the medical health report from Professor Münzel. The supplementary material associated with the review summarises the latest findings:

Table S1. Epidemiological/observational evidence for an association between traffic noise and cardiovascular disease, events, and mortality with focus on recent studies.

First author / year	Population / cohort	Noise sources	Major outcomes	Ref
Roca-Barceló, 2021	21,936 CVD deaths	Aircraft noise	CVD and CHD mortality risk tended to increase with increasing levels of aircraft noise (L_{dn}), while no linear trend was found for stroke mortality.	1
Kupcikova, 2021	502,651 subjects	Road traffic noise	Road traffic noise exposure (L_{den} >65 vs. ≤55 dB(A)) led to 0.77% (95% CI 0.60-0.95) higher SBP, 0.49% (95% CI 0.32-0.65) higher DBP, 0.79% (95% CI 0.11-1.47) higher triglycerides, and 0.12% (95% CI –0.04-0.28) higher glycated hemoglobin.	2
Yankoty, 2021	1,065,414 subjects	Total environmental / transportation noise	The HRs for incident MI were 1.12 (95% CI 1.08-1.15), 1.11 (95% CI 1.07-1.14), and 1.10 (95% CI 1.06-1.14) per 10 dB(A) increase in L_{Aeq24}, L_{den}, and L_{night}, respectively.	3
Gilani, 2021	909 subjects	Road traffic noise	An OR of 2.25 (95% CI 1.38-3.67) for the prevalence of CAD per 5 dB(A) increase in road traffic noise (L_{den}) was found.	4
Saucy, 2021	24,886 CVD deaths	Aircraft noise	Acute increases in aircraft noise 2 hours preceding death were associated with total CVD mortality (OR 1.44, 95% CI 1.03-2.04) for the highest group of exposure (L_{Aeq} >50 vs. <20 dB).	5
Baudin, 2021	5,860 subjects	Aircraft noise	Aircraft noise levels per 10 dB(A) increase in L_{night} increased the odds of antihypertensive medication by 43% (OR 1.43, 95% CI 1.19-1.73).	6
Osborne, 2020	498 subjects	Combination of road traffic and aircraft noise	Higher noise exposure per 5 dB(A) increase in L_{Aeq24} predicted major CV events (HR 1.341, 95% CI 1.147-1.567).	7
Bai, 2020	37,441 cases of incident acute MI and 95,138	Road traffic noise	Road traffic noise (L_{Aeq24}) per IQR increase was associated with an elevated risk of incident acute MI (HR 1.07, 95% CI 1.06-1.08) and CHF (HR, 1.07 95% CI 1.06-1.09).	8

	cases of incident CHF			
Thacher, 2020	52,758 subjects	Road traffic noise	At the most exposed façade, road traffic noise per IQR increase was associated with a 13% (HR 1.13, 95% CI 1.06-1.19) and 11% (HR 1.11, 95% CI 0.99-1.25) higher CVD and stroke mortality, respectively. At the least exposed façade, road traffic noise remained to be associated with CVD (HR 1.09, 95% CI 1.03-1.15), IHD (HR 1.10, 95% CI 1.01-1.21), and stroke (HR 1.06, 95% CI 0.95-1.19) mortality.	9
Thacher, 2020	52,053 subjects	Road traffic noise	There was no association between road traffic noise and filled prescriptions for antihypertensive drugs.	10
Andersson, 2020	6,304 men	Road traffic noise	The HRs were 1.08 (95% CI 0.90-1.28) for CV mortality, 1.14 (95% CI 0.96-1.36) for IHD incidence, and 1.07 (95% CI 0.85-1.36) for stroke incidence in response to road traffic noise (L_{Aeq24} >60 vs. <50 dB.	11
Shin, 2020	Subjects without a history of hypertension (701,174) or diabetes mellitus (914,607)	Road traffic noise	An increase in L_{Aeq24} per 10 dB(A) was associated with an 8% increase in incident diabetes mellitus (HR 1.08, 95% CI 1.07-1.09) and a 2% increase in incident hypertension (HR 1.02, 95% CI 1.01-1.03). Similar estimates were obtained for L_{night}.	12
Baudin, 2020	6,105 subjects	Aircraft noise	An increase per 10 dB(A) in L_{night} was associated with an increased risk of hypertension (RR 1.03, 95% CI 1.01-1.06$_t$). An association was also found between aircraft noise annoyance and hypertension risk (RR 1.06, 95%CI 1.00-1.13 for highly annoyed vs. not highly annoyed).	13
Pyko, 2019	20,012 subjects	Road traffic, railway, aircraft noise	In subjects exposed to all three traffic noise sources at ≥45 dB L_{den}, risks of IHD were elevated with a HR of 1.57 (95% CI 1.06-2.32), and a comparable observation for stroke (HR 1.42, 95% CI 0.87-2.32).	14
Héritier, 2019	4.4 million subjects	Road traffic, railway, aircraft noise	MI mortality was increased in response to road traffic (HR 1.034, 95% CI 1.014-1.055), railway (HR 1.020, 95% CI 1.007-1.033), and aircraft noise (HR 1.025, 95% CI 1.005-1.046) per 10 dB increase in L_{den}.	15
Héritier, 2018	4.41 million subjects	Combination of road traffic, railway, aircraft noise	For the core night, the highest HR was observed for IHD mortality (1.025, 95% CI 1.016-1.034), while this association was lower for the daytime (1.018, 95% CI 1.009-1.028). HF mortality and daytime noise was associated with the highest HR (1.047, 95% CI 1.027-1.068).	16
Pyko, 2018	4,854 subjects	Road traffic, railway, aircraft noise	Aircraft noise increased the incident risk of hypertension by 16% (HR 1.16, 95% CI 1.08-1.24) per 10 dB increase in L_{den}. Road traffic and railway noise were not associated with incidence of hypertension.	17
Yang, 2018	663 subjects	Road traffic noise	Road traffic noise per 5 dB(A) increase was associated with the prevalence of CVD (OR 2.23, 95% CI 1.26-3.93).	18
Cai, 2018	21,081 incident CVD cases	Road traffic noise	No associations were found between road traffic noise and incident CVD, IHD, or CBVD in the total population.	19
Hahad, 2018	14,639 subjects	Road traffic, railway, aircraft noise	Traffic-related noise annoyance is associated with increased prevalence of AF.	20
Héritier, 2017	4.41 million subjects	Road traffic, railway, aircraft noise	HRs for MI mortality were per 10 dB increase in L_{den} 1.038 (95% CI 1.019-1.058) for road traffic, 1.018 (95% CI 1.004-1.031) for railway, and 1.026 (95% CI 1.004-1.048) for aircraft noise.	21
Zeeb, 2017	137,577 cases and 355,591 controls	Road traffic, railway, aircraft noise	There was no association between any of the traffic noise sources and incident hypertension. Likewise, no association between nighttime noise levels and hypertension was found. For the group of subjects with newly diagnosed hypertension followed by hypertensive heart disease, the ORs were elevated.	22
Fuks, 2017	41,072 subjects	Road traffic noise	A weak relationship between road traffic noise and incident self-reported hypertension was found, whereas no conclusive association with measured hypertension was established.	23

Pitchika, 2017	2,552 subjects	Road traffic noise	No association between road traffic noise (L_{Aeq24}) and prevalent hypertension was found.	24
Roswall, 2017	50,744 subjects	Road traffic noise	Road traffic noise was associated with a higher risk of MI, with a HR of 1.14 (95% CI 1.07-1.21) per IQR increase in L_{den}.	25
Evrard, 2017	1,244 subjects	Aircraft noise	Only in men, a 10 dB(A) increase in aircraft noise (L_{night}) was associated with risk of hypertension (OR of 1.34, 95% CI 1.00-1.97).	26
Dimakopoulou, 2017	780 subjects	Aircraft noise	A 10 dB increase in L_{night} resulted in an OR of 2.63 (95% CI 1.21-5.71) for hypertension and of 2.09 (95% CI 1.07-4.08) for doctor-diagnosed cardiac arrhythmia.	27
Sørensen, 2017	57,053 subjects	Road traffic noise	An IRR of 1.14 for HF (95% CI 1.08-1.21) per IQR increase in L_{den} road traffic noise was found.	28
Seidler, 2016	19,632 cases and 834,734 controls	Road traffic, railway, aircraft noise	A 10 dB increase in L_{Aeq24} was associated with higher odds of MI in response to road traffic (2.8%, 95% 1.2-4.5) and railway noise (2.3%, 95% CI 0.5-4.2), but not aircraft noise. Aircraft noise levels of 60 dB and above were associated with increased MI risk (OR 1.42, 95% CI 0.62-3.25).	29
Recio, 2016	Cohort of subjects ≥65 years	Road traffic noise	Short-term road traffic noise increased the risk of death from IHD, MI, and CBVD.	30
Monrad, 2016	57,053 subjects	Road traffic, railway noise	A 10 dB increase in L_{den} road traffic noise was associated with a 6% increased risk of AF (IRR 1.06, 95% CI 1.00-1.12), which was weaker after further adjustment for air pollutants. AF risk was not related to railway noise.	31
Sørensen, 2011	57,053 subjects	Road traffic noise	An IRR of 1.14 for stroke (95% CI 1.03-1.25) per 10 dB increase in L_{den} road traffic noise was found.	32
Beelen, 2009	120,852 subjects	Road traffic noise, traffic intensity	Traffic intensity was associated with CV mortality, with highest RR of 1.11 (95% CI 1.03-1.20 per increase in 10,000 motor vehicles/24 h). Road traffic noise (>65 dB(A)) was associated with increased risk of IHD (RR 1.15, 95% CI 0.86-1.53) and HF mortality (RR 1.99, 95% CI 1.05-3.79),	33
			which was attenuated after further adjustment air pollution and traffic intensity.	

CVD: Cardiovascular disease, CHD: Coronary heart disease, L_{dn}: Day-night noise levels, SBP: Systolic blood pressure, DPB: Diastolic blood pressure, HR: Hazard ratio, MI: Myocardial Infarction, $L_{Aeq(time\ period)}$: Noise levels over a certain period of time, L_{night}: Night noise levels, IHD: Ischemic heart disease, CHF: Congestive heart failure, IQR: Interquartile range, CBVD: Cerebrovascular disease, dB: Decibel, OR: Odds ratio, CI: Confidence interval, CAD: Coronary artery disease, L_{den}: Day-evening-night noise levels, AF: Atrial fibrillation, IRR: Incidence rate ratio, RR: Relative risk

CONCLUSION

In this report we have outlined serious deficiencies with the daa's planning application F20A/0668. A project of this magnitude requires a thorough public consultation. 511k people will be exposed to daytime noise levels > 45dB Lden and 268k people exposed to night-time noise >40dB Lnight in 2025 as a result of the 'Relevant Action'. These contours have been identified by the World Health Organisation as noise limits beyond which leads to adverse health effects. This vast number of people need to be properly consulted and informed. Failure to hold a public consultation is in breach of the North Runway's planning permission conditions.

This application is deficient and flawed on a number of grounds. It does not consider medium to long term forecasts and the impacts of this proposal. The daa have plans to grow the passenger numbers to 40m+ and this application is a classic example of 'project splitting'. The daa are trying to suggest that the noise situation in 2018 was 'acceptable', when the data from the 3 rounds of the Environmental Noise Directive clearly shows escalating noise. The noise data used in the Dublin Airport Noise Action Plan 2019-2023 is based on noise data from 2016. The daa have publicly acknowledged that the 3 rounds of the END show a noise problem.

This submission includes a health report from one of the foremost authorities on aircraft noise and their effects on the cardiovascular system, Professor Münzel. His conclusions are that the night-time period from 23:00-07:00 should be protected and that the effects of the Relevant Action will lead to a significant deterioration in the health of the population affected.

The proposal from the daa also fails to take account of the communities most affected. It fails to acknowledge and discuss these communities and the devastating impact the airport's operations have had and will continue to impose on these families. They are only referenced as numbers. The EIAR's definition of significant effects fails these communities.

Based on the noise report conducted on properties already insulated by the daa, it clearly shows that noise insulation is not a solution and that the occupants of these properties are at noise exposure levels that are a serious risk to their health. Only a complete ban on night-time flights can safeguard their health.

A serious flaw with this application is that the daa have failed to justify why they need this 'Relevant Action' to cater for 32m passengers by 2025. The existing South Runway catered for 32.9m passengers in 2019. On those grounds alone, the application should be thrown out.

We once again call on Fingal County Council to reject this application.

APPENDIX A

DAA Report 22.10.2021.pdf

APPENDIX B

Dublin_Airport_Noise_Medical_Report.pdf

SUBMISSION ON BEHALF OF THE ST. MARGARETS THE WARD RESIDENTS GROUP

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