



Submission on behalf of SMTW Environmental DAC

***TO APPEAL THE PLANNING DECISION OF FINGAL COUNTY
COUNCIL AND THE REGULATORY DECISION OF THE
AIRCRAFT NOISE COMPETENT AUTHORITY***

Table of Contents

SUBMISSION DOCUMENTS 1

PREFACE..... 3

0.1 FINGAL COUNTY COUNCIL PLANNING DECISION 9

1.0 REGULATORY DECISION..... 21

2.0 VALIDITY OF PLANNING PERMISSION 30

3.0 PUBLIC CONSULTATION..... 37

4.0 EIAR 41

5.0 CLIMATE CHANGE..... 44

 5.1 EIAR..... 44

 5.2 PLANNER’S REPORT 56

 5.3 NON-CO2 EFFECTS ON CLIMATE CHANGE 58

 5.4 TRANSPORT & ENVIRONMENT 60

 5.5 EUROSTAT – GROWTH OF GHG EMISSIONS 62

 5.6 CONCLUSION 63

6.0 CONDITIONS 3(A)-3(D) 64

 6.1 SUMMARY 64

 6.2 CONDITION 3 65

 6.3 OPTION 7B 75

7.0 ENVIRONMENTAL NOISE DIRECTIVE (END) ROUNDS 1,2 & 3..... 81

 7.1 ROUND 1 END..... 81

 7.2 ROUND 2 END..... 83

 7.3 ROUND 3 END..... 84

 7.4 2019 NOISE STATISTICS 85

 7.5 2018 NOISE STATISTICS 88

 7.6 COMPARISON OF NOISE STATISTICS89

 7.7 COMPARISON OF CONTOUR AREAS91

7.8 SUMMARY 97

8.0 BASELINE REFERENCE YEAR FOR NAO (2019)..... 99

8.1 CONSULTATION REPORT 99

8.2 SUMMARY 101

8.3 NOISE PROBLEM..... 102

8.4 NOISE ACTION PLAN 104

8.5 2019 106

8.6 EU TENDER DOCUMENT 108

8.7 NOISE ZONES..... 112

8.8 CROSSWIND RUNWAY 115

8.9 ORAL HEARING 119

8.10 EU COMMISSION ACTION PLAN 125

8.11 PHENOMENA PROJECT 127

8.12 FLEET RENEWAL 132

8.13 NOISE MONITOR DATA..... 138

8.14 FORECASTS 141

8.15 UPDATE FOR 2022 DATA..... 144

8.16 2025 PERMITTED vs PROPOSED ... 157

9.0 COST EFFECTIVENESS ANALYSIS..... 168

9.1 SUMMARY 168

9.2 COST EFFECTIVENESS ANALYSIS . 169

9.3 ICAO 176

9.4 REGULATORY DECISION 177

9.5 HEALTH COSTS..... 185

9.6 CARBON EMISSION COSTS 186

9.7 ENVIRONMENTAL DAMAGE 188

9.8 PROJECT SPLITTING 189

9.9 F19A/0449..... 191

9.10 INBOUND TOURISM VERSUS OUTBOUND TOURISM 193

10.0 SCENARIO P02 FAILS TO MEET THE NAO 194

10.1 SUMMARY 194

10.2 COMPARISON OF SCENARIO P02 AND SCENARIO P11 195

11.0 APPROPRIATE ASSESSMENT 205

11.1 SCREENING REPORT 205

11.2 LITERATURE REVEIW 208

11.3 SACS 209

11.4 AA NATURA IMPACT STATEMENT . 211

11.5 SUBMISSION TO ANCA FROM SABRINA JOYCE-KEMPER 216

12.0 INSULATION SCHEME 217

12.1 SUMMARY 217

12.2 DAA PROPOSAL 219

12.3 APPENDIX L DRAFT REGULATORY DECISION 220

12.4 CONSULTATION REPORT REGULATORY DECISION 222

12.5 PRE-PLANNING 224

12.6 EIAR 225

12.7 FINGAL DEVELOPMENT PLAN 230

12.8 CONSULTATION REPORT – ADEQUACY OF NOISE INSULATION SCHEMES
..... 231

12.9 DAY TIME INSULATION SCHEME - RNIS 234

13.0 NOISE MONITORING REPORTS 237

13.1 PROPG PLANNING GUIDELINES ... 237

13.2 NOISE REPORTS 240

13.3 BAP PRESENTATION 243

13.4 NOISE COMPLAINTS 250

14.0 QUOTA COUNT SYSTEM 253

14.1 QUOTA COUNT SYSTEM 253

14.2 ANCA CHANGES TO PRELIMINARY DECISION 260

15.0 HSE SUBMISSIONS 263

15.1 SUMMARY 263

15.2 SUBMISSION TO PLANNING AUTHORITY 264

15.3 LDEN.....265

15.4 LNIGHT 268

15.5 REVISED EIAR 271

15.6 ORIGINAL EIAR VS REVISED EIAR 272

15.7 RESIDUAL EFFECTS 273

15.8 HSE EHS SUBMISSION TO ANCA ..274

15.9 CONCLUSION 275

16.0 HEALTH AND HEALTH COSTS 276

16.1 SUMMARY 276

16.2 LATEST RESEARCH.....277

16.3 HEALTH 280

16.4 HEALTH BURDEN 284

16.5 DALY CALCULATION 290

16.6 SUMMARY OF DIFFERENT DALY VALUES 293

16.7 DAA’S HEALTH EXPERTISE.....295

16.8 UN REPORT 296

17.0 LA_{MAX} SINGLE NOISE EVENTS 297

17.1 SUMMARY 297

17.2 NOISE REPORTS.....303

17.3 BAP PRESENTATION 306

17.4 SOURCE-BASED SUBJECTIVE RESPONSES TO SLEEP DISTURBANCE FROM
TRANSPORTATION NOISE 321

17.5 AIRCRAFT ENVIRONMENTAL NOISE STUDY SURVEY 323

17.6 HEALTH STUDY ON AIRCRAFT NOISE EVENTS 325

17.7 IMPACT OF AIRCRAFT NOISE POLLUTION ON RESIDENTS OF LARGE CITIES 328

17.8 THE EFFECT OF AIRCRAFT NOISE ON STROKE 330

18.0 CONFLICT OF INTEREST 331

18.1 NOISE CONSULTANTS 331

18.2 FINGAL COUNTY COUNCIL 332

18.3 DELETED ASSESSMENT 336

18.4 AIRCRAFT NOISE BILL – GENERAL SCHEME 337

18.5 SECTION 21(3) REVIEW / DISPUTE RESOLUTION339

CONCLUSION..... 340

APPENDIX A: DAA Report 22.10.2021.pdf

APPENDIX B: Dublin_Airport_Noise_Medical_Report.pdf

APPENDIX C: HealthEffectsOfAircraftNoiseOnTheCardiovascularSystem.pdf

APPENDIX D: Video - “Health Effects Of Aircraft Noise on the Cardiovascular System”
(Included in electronic format on USB stick attached to this appeal)

APPENDIX E: NMT 1 2 3 2016 2018 2019 Lmax events.xlsx

APPENDIX F: HSE.pdf

APPENDIX G: Environmental Health Submission Feb 2022.pdf

APPENDIX H: King_Submission.pdf

**APPENDIX I: SJK ANCA draft decision consultation F20A0668.pdf,
SabrinaJoyceKemper.pdf, 00718132.pdf, Enviro Section F20A0668 SJK.pdf**

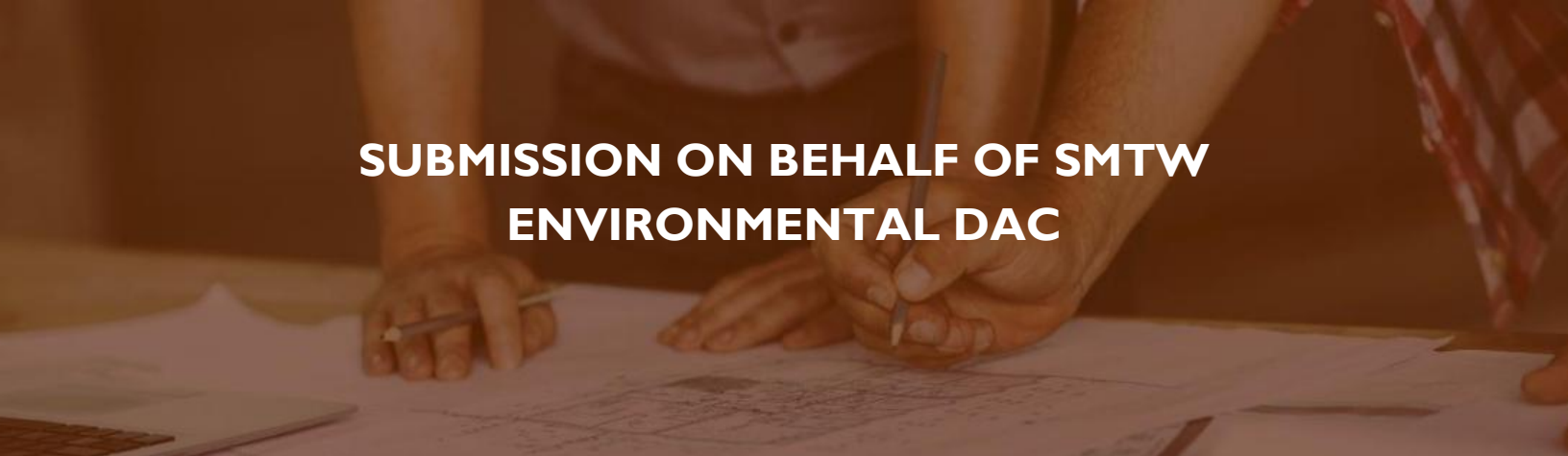
APPENDIX J: Receipt of submission FIN-C338-ANCA-308.pdf

APPENDIX K:

**AdverseCardiovascularEffectsOfTrafficNoiseWithAFocusOnNightTimeNoiseAndTheNe
wWHONoiseGuidelines.pdf**

APPENDIX L: **525093-MLM-ZZ-XX-RP-YA-0001-Aircraft Noise Survey.pdf**

APPENDIX M: **<https://consult.fingal.ie/en/node/15666/submissions>**



SUBMISSION ON BEHALF OF SMTW ENVIRONMENTAL DAC

SUBMISSION DOCUMENTS

This submission is in response to ANCA's Aircraft Noise Consultation

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 needs 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.

'HealthEffectsOfAircraftNoiseOnTheCardiovascularSystem.pdf'

'Video - "Health Effects Of Aircraft Noise on the Cardiovascular System"'

Online presentation by Professor Münzel on the research on the health effects of aircraft noise on the Cardiovascular System

'NMT 1 2 3 2016 2018 2019 Lmax events.xlsx'

Lmax data given to the CLG group by the daa via email on January 14th, 2022.

HSE.pdf

Submission by the HSE Environmental Health section to the Planning Authority for Planning Application F20A/0668, dated January 28th, 2021.

Environmental Health Submission Feb 2022.pdf

Submission by the HSE Environmental Health section to ANCA, dated February 24th, 2022.

King_Submission.pdf

A technical note on a review of a proposed noise quota system for Dublin Airport by Dr Eoin A. King of NUIM

SJK ANCA draft decision consultation F20A0668.pdf, SabrinaJoyceKemper.pdf, 00718132.pdf, Enviro Section F20A0668 SJK.pdf

Submissions by Ms Sabrina Joyce-Kemper to the Planning Authority and ANCA concerning the validity of the AA process, the lack of AA development and environmental issues.

Receipt of submission FIN-C338-ANCA-308.pdf

Receipt form ANCA acknowledging the submission to the Consultation Process

AdverseCardiovascularEffectsOfTrafficNoiseWithAFocusOnNightTimeNoiseAndTheNewWHONoiseGuidelines.pdf

Paper submitted to the Annual Review of Public Health by Münzel et al

525093-MLM-ZZ-XX-RP-YA-0001-Aircraft Noise Survey.pdf

Noise Survey conducted by MLM Group on 3 properties

<https://consult.fingal.ie/en/node/15666/submissions>

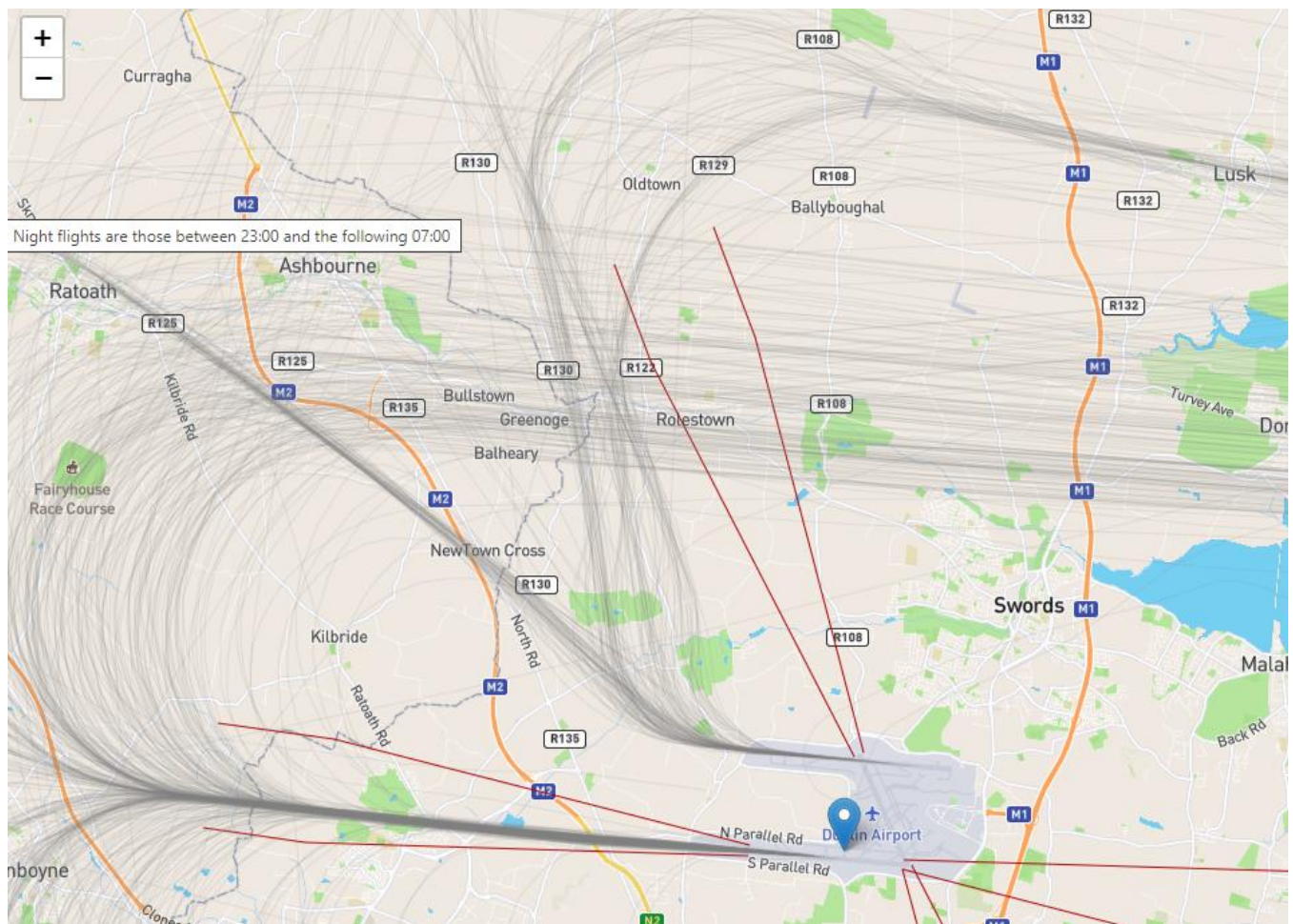
Aircraft Noise Consultation – 1382 submissions

PREFACE

NORTH RUNWAY OPERATIONS – AUGUST 24TH, 2022

The first Aircraft departed on the Northern Runway on August 24th, 2022.

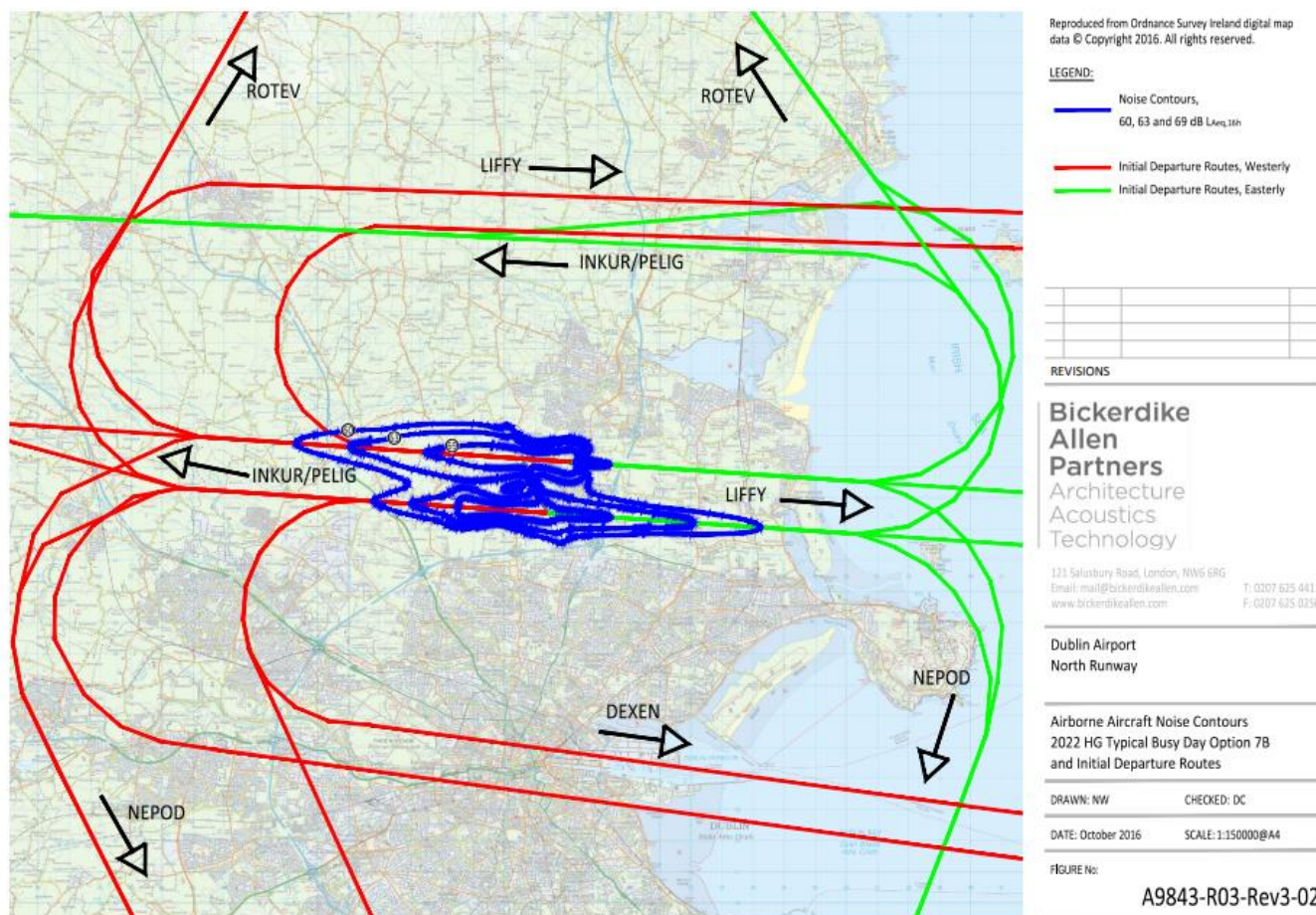
We refer to the flight paths below for departure from the Runway since being operated from August 2022. We note that the entire community of St. Margaret's The Ward were in shock as these flight paths not only contravene the current planning permission but are also in contravention of the entire flight paths presented by daa in their EIAR for the Relevant Action.



The following drawing by Bickerdike Allen Partners (BAP) is for “Airborne Aircraft Noise Contours 22022 HG typical busy day option 7B and initial departure routes.” These are the

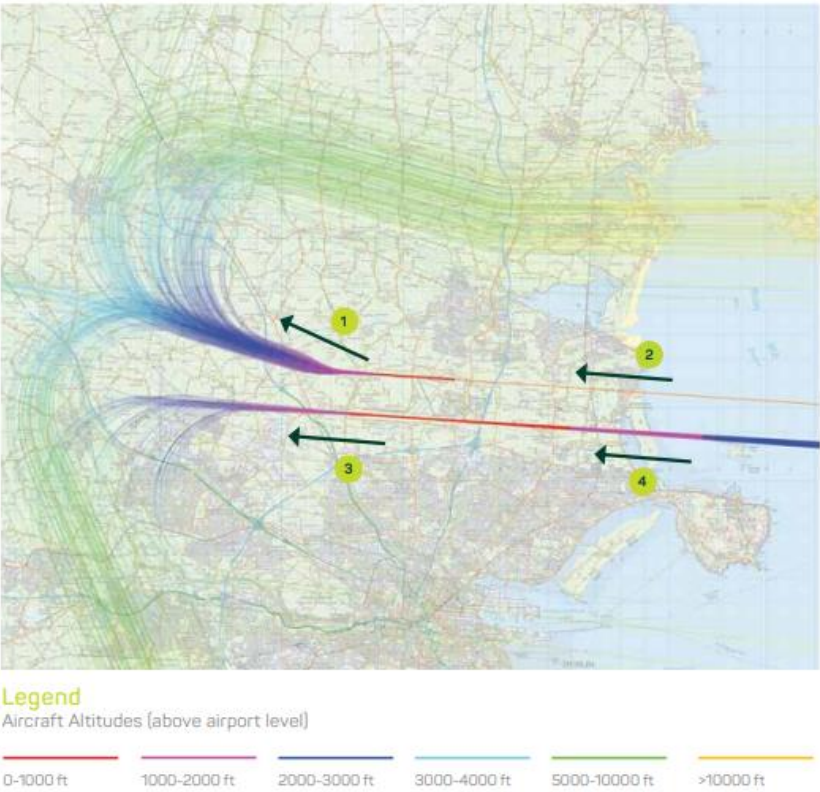
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routes on which the noise insulation programme was based and submitted to Fingal County Council for compliance with condition 7 of the An Bord Pleanála grant of planning for Reg Ref F04A/1755.



“Aircraft Altitudes and Flight Movements in Westerly Operations” is an extract from the proposed flight paths indicated in the daa’s “Consultation on flight paths and change to permitted operations information booklet” used by the daa to consult with St. Margaret’s The Ward residents in 2016. Again, please note the vast difference in this proposal with respect to the flight paths being actually used on the North Runway.

Aircraft Altitudes and Flight Movements in Westerly Operations
(approx. 70% of the time) on a Representative Summer's Day



1. NORTH RUNWAY DEPARTURES					
Time	2016	2022	2037	2016	2022
	Current Operations	With Existing Planning Conditions	With Proposed Operations	With Existing Planning Conditions	With Proposed Operations
	No. Flights	No. Flights	+/- No. Flights	No. Flights	+/- No. Flights
0400-0500	N/A	0	0	0	0
0500-0600	N/A	0	0	0	0
0600-0700	N/A	0	+15	0	+19
0700-2200	N/A	311	+23	378	+11
2200-2300	N/A	6	0	12	-3
2300-0000	N/A	0	0	0	0
0000-0400	N/A	0	0	0	0

2. NORTH RUNWAY ARRIVALS					
Time	2016	2022	2037	2016	2022
	Current Operations	With Existing Planning Conditions	With Proposed Operations	With Existing Planning Conditions	With Proposed Operations
	No. Flights	No. Flights	+/- No. Flights	No. Flights	+/- No. Flights
0400-0500	N/A	0	0	0	0
0500-0600	N/A	0	0	0	0
0600-0700	N/A	0	0	0	0
0700-2200	N/A	12	-12	25	+8
2200-2300	N/A	0	0	0	0
2300-0000	N/A	0	0	0	+6
0000-0400	N/A	0	0	0	0

3. SOUTH RUNWAY DEPARTURES					
Time	2016	2022	2037	2016	2022
	Current Operations	With Existing Planning Conditions	With Proposed Operations	With Existing Planning Conditions	With Proposed Operations
	No. Flights	No. Flights	+/- No. Flights	No. Flights	+/- No. Flights
0400-0500	0	0	0	0	0
0500-0600	0	3	+2	3	+2
0600-0700	37	25	-1	25	+8
0700-2200	284	39	-15	55	+26
2200-2300	4	0	0	0	0
2300-0000	1	0	0	0	+2
0000-0400	2	1	0	1	+2

4. SOUTH RUNWAY ARRIVALS					
Time	2016	2022	2037	2016	2022
	Current Operations	With Existing Planning Conditions	With Proposed Operations	With Existing Planning Conditions	With Proposed Operations
	No. Flights	No. Flights	+/- No. Flights	No. Flights	+/- No. Flights
0400-0500	4	3	+2	3	+6
0500-0600	6	7	+5	7	+8
0600-0700	3	4	+3	4	+5
0700-2200	265	310	+15	379	+17
2200-2300	16	29	-9	33	-5
2300-0000	22	12	+15	13	+20
0000-0400	18	10	+1	9	+3

15

Exhibit 2.2 – “Generalised Noise Model Flight Tracks for Segregated and Mixed Mode” as presented in the Ricondo “Dublin Airport North Runway Regulation 598/2014 (Aircraft Noise Regulations) forecast without new measures and additional measures assessment report (Revision 1 – July 2021) “as part of the relevant action planning submission Reg Ref F20A/0668. Note that this report states “*The information contained in this Report is based on multiple technical analysis conducted to support the Aircraft Noise Regulation Assessment for Dublin Airport.*”

Again, note that the flight paths indicated are grossly different than those actually in use on the North Runway.

With reference to Table 2-1 of the above Ricondo Document under item ‘NA – 2’ it is quite clear that:

“Departures from all runways (except easterly departures on the existing runway 10/28) must maintain course straight out for 5 nautical miles (1 nautical mile = 1852 metres) after take-off before commencing a turn, unless otherwise declared by IAA – ATC.”

This scenario is represented as:

EXHIBIT 2-2 GENERALISED NOISE MODEL FLIGHT TRACKS FOR SEGREGATED AND MIXED MODE



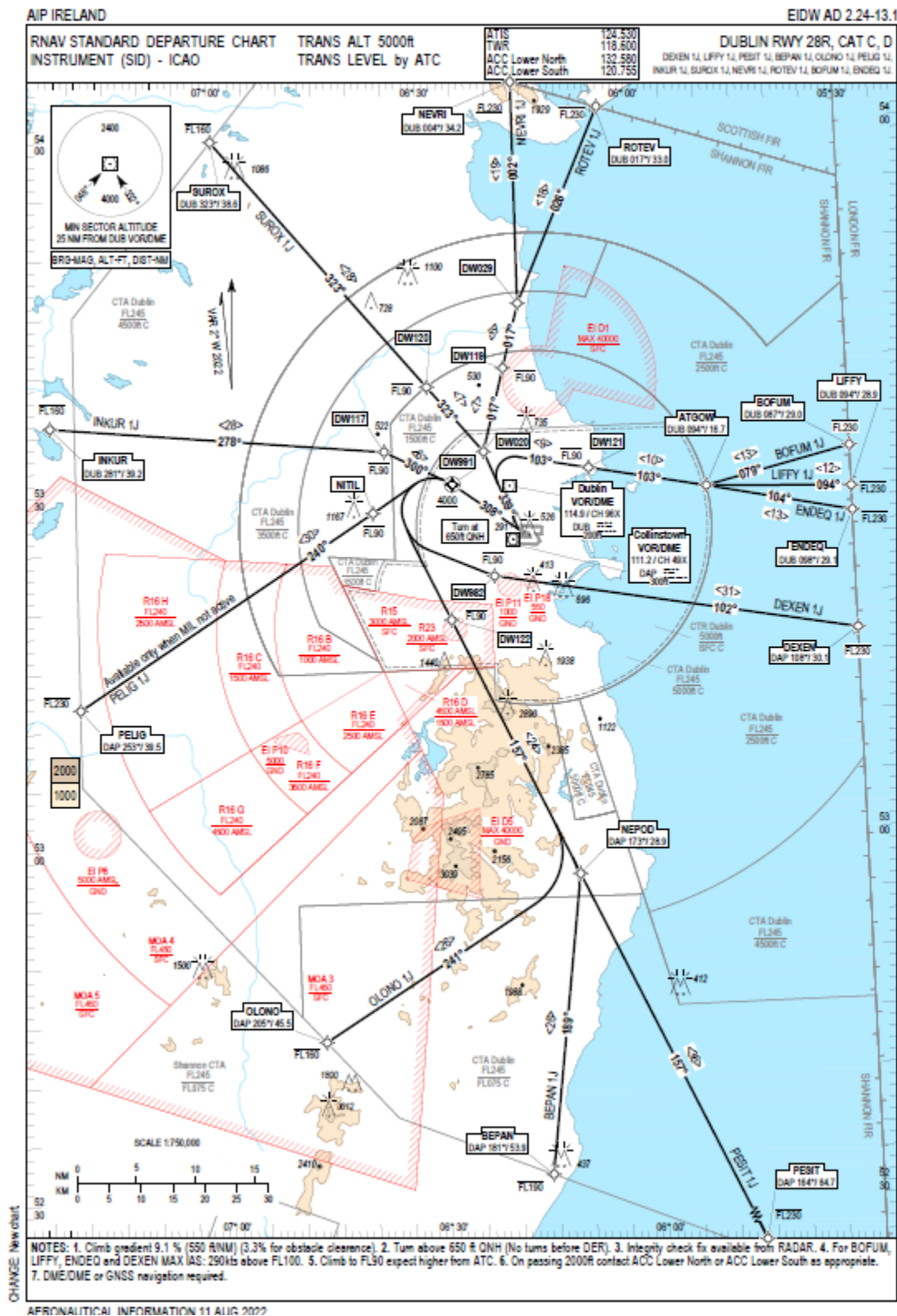
NOTE: The Irish Aviation Authority Air Navigation Services Provider has developed instrument flight procedures (IFPs) for all runways. Air Traffic Control operational procedures will accommodate whatever mode/time operation is decided upon for the runways.

SOURCE: Bickerdike Allen Partners LLP, Dublin Airport North Runway Relevant Action Application – Noise Information ANCA Request, June 2021.

Prior to presenting the complete noise contour analysis and the EIAR and all documents associated with any planning permission or relevant action, we the general public assumed that the daa and their consultants would have co-ordinated their proposals with IAA-ATC to ensure that what they presented to the public on the impact of those operations and the associated mitigation measures as presented was in fact the actual scenario when the runway opened.

The St. Margaret's The Ward residents group obtained the "Standard Instrument Departure" (SID) chart for category C & D jet engines as indicated below by the IAA. This appears to be the actual flight paths that are being used when the runway opened in August 2022, however these are totally at variance from the planning approved at Reg. Ref. F04A/1755, different to those presented for consultation in 2016 and now different from those presented in the "Relevant Action" Reg Ref F20A/0668.

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Therefore, all noise contour mapping, all proposed issues associated with the North Runway and all planning documents submitted are incorrect and therefore the planning process must start again.

The current insulation programme for the North Runway which daa say is complete and is in compliance with planning Reg Ref F04A/1755 is totally incorrect as the wrong set of flight paths have been used and people that were previously excluded in the Noise Insulation Programme are now being exposed to higher noise than previously modelled due to the change in flight paths.

Also, there are now residents located under the flight paths immediately below the flight path being used that are located adjacent to the runway that are being exposed to extremely loud noise and who now should be included in the voluntary purchase scheme.

It is also worth pointing out that the daa have not adhered to An Bord Pleanála's imposed Condition #5 of the North Runway's permission as it currently is not limiting night-time flights to less than 65 across the entire airport. The daa are relying on an interpretation from the Commission for Aviation Regulation (CAR) that the condition does not come into effect until summer 2023. Again, we claim that this is a deliberate act circumventing the planning condition specifically added by An Bord Pleanála after additional information was sought from Aer Rianta in 2007.

As An Bord Pleanála can appreciate this is a wholly unacceptable situation and as citizens of Ireland none of the activities at the new North Runway at Dublin Airport meet the European or Irish Planning and Development Act and Regulation Requirements with respect to environmental considerations and the runway should be closed down immediately until this mess that the daa have created is sorted.

0.1 FINGAL COUNTY COUNCIL PLANNING DECISION

PROPOSAL

On page 5 of the planning officers report, the planning officer describes the proposed relevant action and also includes on page 6 the wording of the planning application.

The last paragraph on page 5 states:

“The proposed relevant action relates to the night-time use of the runway system at Dublin Airport. It involves the amendment of the operating restriction set out in condition no. 3 (d) and the replacement of the operating restriction in condition no. 5 of the North Runway Planning Permission (Fingal County Council Reg. Ref. No F04A/1755; ABP-305289-19), as well as proposing new noise mitigation measures. Conditions no. 3 (d) and 5 have not yet come into effect or operation, as the construction of the North Runway on foot of the North Runway Planning Permission is ongoing. The proposed relevant action, if permitted, would be to remove the numerical cap on the number of flights permitted between the hours of 11pm and 7 am daily that is due to come into effect in accordance with the North Runway Planning Permission and to replace it with an annual night-time noise quota between the hours of 11.30pm and 6am and also to allow lights to take off from and/or land on the North Runway (Runway 10L 28R) for an additional 2 hours i.e. 2300hrs and 0600hrs to 0700 hrs. Overall, this would allow for an increase in the number of flights taking off and or/ landing at Dublin Airport between 2300hrs and 0700hrs over and above the number stipulated in condition no. 5 of the North Runway Planning Permission, in accordance with the annual night time noise quota”.

Note that nowhere is there a mention of revisions to the proposed flight paths, divergence or take off, movement of noise contours etc. from the original planning submission F04A/1755, which obtained planning permission.

But because of the proposed revision to flight paths etc. the entire Environmental Impact of the original permission has changed and requires re-evaluation. But this does not form part of this application and therefore the planning as granted did not submit sufficient information in accordance with statutory planning requirements both in Ireland and Europe.

For example, an Appropriate Assessment for the entire operation of the revised proposals required on the relevant action has not been carried out.

RELEVANT ACTION

At page 9 of the report, it is noted that:

“There is no proposal to amend or replace conditions 3 (a), 3 (b) and 3 (c) of the ABP permission and the application does not seek any change to the permitted combined capacity of Terminal 1 and Terminal 2 which together shall not exceed 32 million passengers per annum [mppa].”

This is despite the fact that a considerable amount of the documentation does attempt to look at “relevant action” with passenger numbers in excess of 32mppa but not as submitted by the daa.

The EIAR is therefore project splitting and not a realistic long-term view of the noise situation proposed for Dublin Airport as is required by EU and Irish Legislation. We note that the daa did submit a planning application in the recent past to increase passenger numbers beyond 32mppa but withdrew this application just prior to submitting this relevant action. There therefore can be no doubt of the intentions of daa about increasing numbers. It would appear that they are attempting a steppingstone approach putting forward a far more environmentally friendly proposal to that which is planned and is therefore project splitting the application to deceive the communities surrounding the airport.

POLICY CONTEXT

It is worth noting that the policy review did not unearth any mention of specific passenger growth numbers or aircraft movement numbers. The National Aviation Policy is to grow aviation, but no numbers are included in the policy document. This is very important when comparing passenger numbers between the Permitted and Proposed scenarios. The Permitted scenario which retains the operation restrictions (Conditions 3(d) and 5) still grows passenger numbers to 40m by 2040 in line with Government Policy.

Objective ED33 is referenced from the Fingal County Council Development Plan:

“Balance the impact of expansion of aviation and the important strategic issue of reducing carbon emissions”

PRE-APPLICATION CONSULTATION

In the pre-application consultation in April 2020, discussion on the setting on the Noise Abatement Objective were held between the daa, ANCA and Fingal County Council. This was highly inappropriate. The creation of the NAO should not have been influenced by the daa and they should not have had exclusive knowledge of it before it was created. The NAO sets the criteria for the noise situation at the airport, and this should have been set by ANCA and ANCA alone. The daa should have only been allowed comment on the NAO via the 14-week consultation period the same as the public. By allowing the daa exposure to the NAO and an opportunity to influence the content of the NAO, the daa were provided with the knowledge to fashion their planning application to achieve success. This is not how an Independent Noise Regulator should act

In the pre-planning presentation from April 30th, 2020 (PPC 106276), ANCA outlines the identification of a Potential Noise problem and the setting of a candidate NAO.

In the introduction slide it states that:

“Should the current restrictions be implemented and the North Runway commence operation, noise exposure at night would reduce significantly to levels well below where they are today”.

This is exactly the intention of the planning restrictions applied by An Bord Pleanála for the North Runway. They were intended to cap the night-time operations at the airport once the Runway was operational. However, the planning permission was granted in 2007 but the daa are only now opening the Runway some 15 years later. In the interim the noise situation at night has spiralled out of control well above the cap intended by An Bord Pleanála. The daa should not be rewarded for delaying the opening of the runway some 15 years later. The restrictions only come into force when the runway was operational. The delay has facilitated the daa to increase night-time noise and proper governance was not provided by Fingal County Council in its duties under 2002/49/EC and the noise action plans. Had the runway been built and in operation shortly after planning permission was granted in 2007, we would not be in a position today where night-time noise has been allowed cause harmful effects on the populations surrounding Dublin Airport.

In the slides ANCA provide 3 potential aspects of a noise problem at Dublin Airport. Aspect A relates to the noise action plans and night-time noise. The graph shows the number of people exposed to >50dB L_{night} and >55dB L_{night} for the years 2006, 2011 and 2016 which are the reporting years for the 3 rounds of the Environmental Noise Directive (END). 2018 is also included as a comparison. It's evident that night-time noise has increased significantly over time, and this can be used as a basis for declaring a noise problem. ANCA should have used

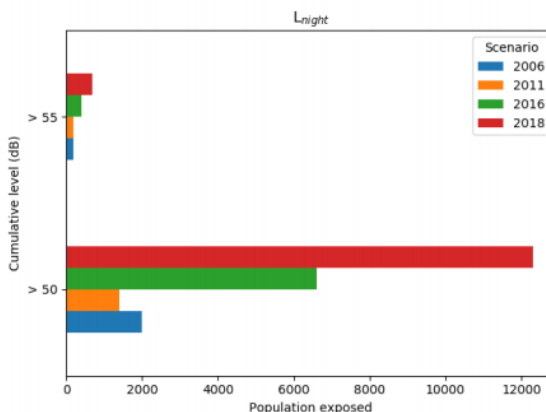
the END data in the Noise Action Plans to declare a noise problem when ANCA was first incorporated.

DRAFT

Noise Problem Aspects

Aspect A – Noise Action Plan and Night Noise

- NAP indicated that night noise from the Airport *“may be a problem and may need to be improved”*. This was based on 2016 data.
- The NAP includes actions for daa to report exposure annually. The information provided under pre-planning provides data for 2018 and 2021 – ANCA has since requested 2017 and 2019 data.
- The data shows that night noise exposure has increased several fold since 2006 and would continue to increase. This may be used as a basis of declaring a noise problem.
- This aspect does lend itself to supporting the setting of a NAO.



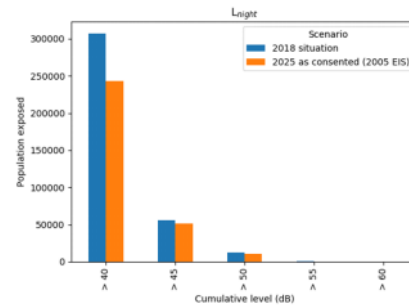
Aspect B compares the current night-time noise exposure with what was consented by An Bord Pleanála in 2007. ANCA analysis shows that the night-time noise exposure levels were higher in 2018 compared to the North Runway consented levels. This again shows that Fingal County Council allowed night-time noise levels to grow beyond what An Bord Pleanála consented. This is another clear sign of a noise problem.

Noise Problem Aspects

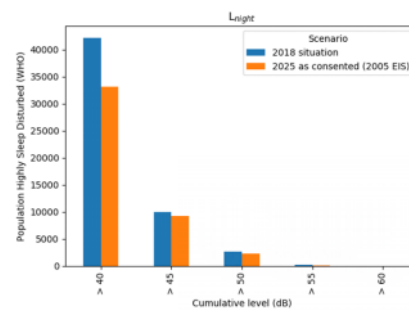
Aspect B – Current L_{night} exposure in excess of consented L_{night} exposure

- daa has provided an estimate of the 2005 EIS forecast L_{night} noise exposure in 2025 as associated with the operating conditions for the North Runway consent.
- This has some importance and materiality as it is the level of noise exposure that is attached with the current North Runway consent.
- This could be seen to achieve an unwritten noise abatement objective set by the Board to determine the restrictions in the consent
- ANCA analysis indicates that 2018 noise exposure was higher than the North Runway consented exposure. ANCA will explore this in relation to 2017 and 2019 data when this is available.

(a) Population Exposed - L_{night}



(b) Population HSD - L_{night}



Aspect C focuses on the forecast night-time exposure scenarios compared with the consented scenario. The graph shows that all forecast scenarios would result in higher exposure levels compared with the consented scenario from ABP in 2007. It states that:

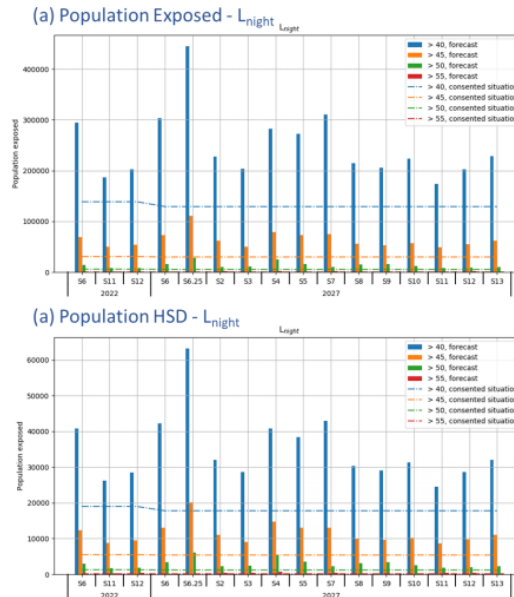
“This points to significant environmental effects under EIA and as such materiality”.

In summary any of the three aspects could have been used to declare a noise problem in 2019.

Noise Problem Aspects

Aspect C – Forecast noise exposure is higher than the consented situation

- The data provided by daa and their Consultants demonstrates clearly that for most metrics and noise indicators, that scenarios for changes to the North Runway planning consent will result in higher levels of noise exposure than would occur if the consent remained unchanged.
- This points to significant environmental effects under EIA and as such materiality.



ANCA have used 2019 as the reference baseline year to compare future noise years against. But this was a year beyond the three Rounds of the END that showed spiralling noise levels and a year in which the daa unlawfully handled 32.9m passengers, 0.9m beyond the terminal 32m cap.

2016 would be a far more appropriate year to have as a baseline year. Or alternatively the '2025 Consented' scenario as approved by An Bord Pleanála for the North Runway planning permission in 2007.

Another pre-planning consultation document, dated October 2nd 2019, makes reference to a Mott MacDonald report and the use of dual runway operations between 06:00-07:00 and 23:00-23:59. It states:

"At the moment there is understood to be 114 movements per night. This statement about using dual runway operations does not seem justified when the current single runway operation appears to meet this demand?"

It is noted that Slide 26 assumes 45 movements per hour for single runway operation, which is in line with a previous report prepared by NATS in 2003 which suggested 43 per hour off the main south runway. If the main use in the night period is from 23:00 to 00:00 and 05:00 to 07:00, 135 movements are provided within these 3 hours plus a few overnight, suggesting up

to 160 movements over 8 hours before capacity is insufficient off one runway, which could take them to 2032 according to Slide 13”.

This comment from ANCA shows that a single runway could be used for the night-time period to handle demand up to 2032 (160 movements). This is far beyond the 2025 limit of the current planning application and shows clearly that dual runway operation is not needed during the night-time period.

This document also specifies the ‘consented situation’ as a scenario for modelling. It is worth noting that the daa included the consented scenario in their original planning application but removed it from their revised application. No explanation was given by the daa, and no questions were raised by ANCA as to its omission.

ASSESSMENT

Chapter 7 of the Planner’s report deals with planning assessment of the relevant action. Under the heading of “Flight Paths” on p.168 and p.169 it is stated that:

“Concerns have been expressed in relation to the introduction of flight paths. Concerns are raised regarding divergence of flight paths when runways are operating in mixed mode. It is stated that the route has not been included in the contour modelling. It is also stated noise contour cannot be relied upon given metrics used”.

The report then goes on to state that:

“The proposal under consideration is the relevant action as subject to the Regulatory Decision has no impact on non-consents any changes to flight paths. It is outlined in the EIAR there will be no new flight paths in the proposed scenario.”

It further states that:

“ANCA in SEA report outline the assessment of impacts of flight paths and the active procedures of Dublin Airport’s operations is a matter for DAA and the competent authorities for airport management and design.”

With reference to Noise Consultants “Advice Report: Aspects of a potential noise problem associated with Planning Application F20A/0668” dated February 2021 it clearly states at Section 5.14 that

“The proposed Development is forecast to result in a change in the use of airspace by virtue of a change in the use of the Airports runways associated operating pattern”

And at Section 5.17

“A change to conditions 3 (d) therefore has the potential to result in populations becoming exposed to aircraft noise at night at levels potentially harmful to human health”.

A total of 9 different scenarios of Night-time Runway preferences considered by the applicant are presented in that report at table 4. All of these are at variance from the original planning submission EIS, but this fact is not expressed in the description of the planning application nor is it being considered after the year 2025, nor does it deal with passenger limits above 32 MPPA.

To correct the Planners Report, the proposals do alter the flight paths from those submitted under the original planning permission F04A/1755 and therefore a whole different area and population base are now affected by the new proposals, none of which are addressed in the working of the “Relevant Action” application.

It is the responsibility of the Planning Authority to ensure that proper and sustainable planning is carried out in accordance with the Irish and European Legislation. The “Relevant Action” application does not state this in its description and therefore the Planning Authority must refuse permission and request that the daa resubmit planning if their intention is as proposed to alter the flight paths of the original permission.

To suggest that the environmental effects on land and human beings of airspace management is a matter for daa and the Competent Authority in isolation of informing the public through correct advertisement of their proposal and a proper planning submission to the authorised Planning Authority is totally incorrect. An Bord Pleanála must correct this blatant misunderstanding of the planning submission under this relevant action by refusing permission

REGIONAL POLICY

Under the heading “Regional Policy - Regional Spatial and Economic Strategy,” it is noted at RP0 7.8 that:

“Local authorities shall incorporate the objectives of the EU Environmental Noise Directive in the preparation of strategic noise maps and action plans that support proactive measures to avoid, mitigate, and minimise noise, in cases where it is likely to have to have harmful effects”.

We refer to Professor Münzel’s report with respect to the serious health effects associated with aircraft noise that apply to the community surrounding Dublin Airport.

Also, on p.11 of the report, whilst it acknowledges the international connectivity and growth at Dublin Airport, it notes that:

“Consideration of continued growth of the airport has to include the environmental considerations, airplanes are a significant emitter of greenhouse gas and noise, both of which have to be mitigated. Also, in the interests of public safety, careful land and planning considerations must be given to the surrounding areas of flight paths.”

HSE SUBMISSION

The Planning Officer’s report acknowledges the HSE submission (at pages 30-32) and acknowledges that a significant proportion of people, namely 63,316 people assessed as highly annoyed and 128 people exposed to at least a high noise level based on the 2025 baseline scenario, will still be exposed to airline noise above WHO recommendations of 45 Lden. It acknowledges that the EHS notes that the increase in people exposed to 50dB Lden and 45dB Lnight may result in ADVERSE HEALTH EFFECTS as outlined in the WHO Environmental Noise Guidelines 2018.

Again, the Planning Officer acknowledges receipt of the HSE submission at section c.2.3 on P. 84 of his report and states that the serious health issues raised by the HSE are addressed in section 7 of his report under Planning Assessment of the Relevant Action.

ENVIRONMENTAL HEALTH OFFICER

On P.28 reference is made to the Environmental Health Officer’s report and also on p.82 and p.83. The Environmental Health Officer clearly states that:

“The 2018 WHO guidelines strongly recommend reducing night noise exposure levels produced by aircraft during night-time to below 40dB Lnight. Aircraft noise above these levels are associated with ADVERSE HEALTH EFFECTS. The DAA have modelled the night-time insulation programme on exposure levels of 55dB which leaves a significant proportion of people exposed to night-time levels above 40dB exposure level recommended by WHO”.

They then recommend:

“It is recommended that consideration be given to the proposed noise mitigation measures i.e. to provide an extension of noise insulation schemes to include the 2018 WHO Environmental Noise Guidelines”.

The Officer also notes the major escalation in people exposed to be highly sleep deprived over the years as proposed.

The Planner’s report states that the EHO issues are addressed in section 7 of the planning and assessment of the relevant action.

The EHO issues as stated in 2.2.10 above are assessed at section 7.1.2 p. 163 and p.164 of the Planner's report. It states that:

"The review of the revised EIAR for the proposed development carried out by Brady Shipman Martin (who were engaged by Fingal County Council to provide an independent review of the planning documents) has identified potentially significant adverse and residual environmental impacts on the human health and wellbeing as a result of noise, on amenity and local communities as a result of noise."

Despite this fact no report from a medical health expert has been provided given the serious issues noted above, the planner makes no further comment on recommendations of these issues!!!

Noise insulation is not a mitigation measure of night-time noise on health effects and in no way protect the long-term health of those affected by aircraft noise.

How can the Planning Authority just leave it there without enough proper protection to those affected by the escalating environmental noise?

Again, at section 7.1.3 p.164 and p.165 of the Planner's report acknowledges the HSE submission on adverse health effects yet again.

Monitoring and noise insulation do not address the serious health issues and therefore these issues are not mitigated against. The Planning Officer just accepts this fact and moves on.

At section 9 "EIA prior to development consent being determined" of the Planner's report on p.188 the Planner states:

"These metrics help articulate the effect of aircraft noise on health and quality of life. The following would also be used to help identify where noise exposure results in the population experiencing harmful effects. These are the number of people exposed to aircraft noise above:

- *55dB L_{night} (a level of night-time noise exposure observed by the WHO as representing a clear risk to health); and*
- *65Db L_{den} (where a large proportion of those living around Dublin Airport can be considered highly annoyed)."*

The Night Noise Guidelines (NNG) 2009 by WHO in the Executive Summary on page XVII state that for average night noise level over a year L_{night} outside "40 to 55 dB - Adverse health effects are observed among the exposed population. Many people have to adapt their lives to cope with the noise at night. Vulnerable groups are more severely affected" & "Above 55 dB -

The situation is considered increasingly dangerous for public health. Adverse health effects occur frequently, a sizeable proportion of the population is highly annoyed, and sleep disturbed. There is evidence that the risk of cardiovascular disease increases."

It further states at page XVIII of the Executive Summary that "An interim target (IT) of 55 dB L_{night}, outside is recommended in the situations where the achievement of NNG is not feasible in the short run for various reasons. It should be emphasized that IT is not a health-based limit value by itself. Vulnerable groups cannot be protected at this level. Therefore, IT should be considered only as a feasibility-based intermediate target which can be temporarily considered by policymakers for EXCEPTIONAL local situations."

Taken the above together with the health warnings from Fingal's own Environmental Health Officer, the Health & Safety Executive and the report submitted by Professor Munzel, how on earth can Fingal County Council consider the Interim Target of 55dB L_{night} as a temporary consideration for an exceptional local situation. There is nothing preventing the majority of the affected housing units being insulated to the WHO recommended 40dB L_{night} other than money. This is not acceptable that people's health is being put at risk for daa profit.

It is not daa's health that is being affected and they could not care less about the local community's exposure to dangerous aircraft noise, and they take the cheap route. Unfortunately, ANCA also have no skin in the game and are bowing to daa's propaganda.

Furthermore, we also note at page VII of the Executive Summary of the 2009 WHO NNG document, it states that "A number of instantaneous effects are connected to threshold levels expressed in L_{Amax}. The health relevance of these effects cannot be easily established. It can be safely assumed, however, that an increase in the number of such events over the baseline may constitute a subclinical adverse health effect by itself leading to significant clinical health outcomes."

As it states elsewhere in this appeal document, noise conditions within housing units which have been insulated by daa, revealed that noise levels have been recorded above that recommended by the WHO and also per the "ProPG: Planning & Noise – New Residential Development, May 2017" as indicated on p.15 of the Planner's report being its document used to evaluate noise zones by Fingal County Council.

This has a serious consequence for the ones closest to the runway as noise insulation does not provide adequate protection even if windows are closed, which in the summertime does not meet Building Regulation Requirements.

No studies on the health of the affected population have been carried out to identify the vulnerable groups as addressed by WHO. But this does not seem to deter daa, ANCA and

Fingal from imposing dangerous environmental noise on the vulnerable groups without adequate investigation.

The consequences of such a decision are premature death and severe health effects of the local members of the communities in St. Margaret's/The Ward and the only protection / mitigation is that daa shall monitor the noise levels to ensure that they do not exceed the noisiest levels that were reached in 2015.

We plead with An Bord Pleanála to review this decision and to impose restrictions on night flights asper the original planning granted which were imposed to protect the health of local communities.

I.0 REGULATORY DECISION

SUMMARY

The key points of this submission on ANCA's regulatory decision are listed under the following headings:

- Planning Conditions 3(a)-3(d)
- EIAR
- Forecasts
- Insulation Scheme
- Population and Human Health
- Cost-effectiveness analysis
- 2025 Proposed
- Consultation
- 2018/2019 Baseline for NAO
- Difference maps
- Objective DA07
- Population most affected

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.
- 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.

Forecasts:

- 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 and Fingal County Council in the Dublin Airport Noise Action Plan claim that aircraft types have changed in Dublin Airport between 2003 to 2017 resulting in quieter aircraft. However, noise exposure levels grew exponentially in line with movement increases.
- Noise levels submitted by the daa to the St Margarets The Ward group for various noise emissions for specific aircraft indicate that there is very little difference in the actual measured noise level between the older and newer aircraft. Therefore, the assertions claimed regarding fleet replacements is totally flawed
- Using daa's own forecasts for arrivals and departures there appears to be no reason for proposing a change from the current flight restrictions as there is little or no difference in proposed movements during 06:00-08:00.
- 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.
- 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 installed in houses already insulated by the daa fails to mitigate against adverse noise levels as outlined in the report from the MLM Group.
- Insulation Scheme proposed by ANCA **insulates less houses** than in the planning application by the daa. A large number of houses in Coolquay, The Ward, St Margarets and Kileek Lane have been removed.
- ANCA did not use the criteria 2 specification from the daa in their cost-effectiveness analysis. They only used criteria 1. The daa included all dwellings >55dB Lnight in 2025 for criteria 1 and all dwellings >50dB Lnight with a 9dB increase in 2022 Proposed compared with 2025 Permitted for criteria 2.
- Insulation Scheme only applies to the cohort deemed 'very significantly' affected. No mitigation for 'moderately' or 'significantly' affected dwellings.
- ANCA and the daa are proposing noise insulation as a mitigation measure to night-time noise increases within the St Margarets The Ward communities. This is contrary to Fingal County Council's advice within their own Development Plan, and testing carried out within the St Margarets The Ward area on housing that has already been insulated by the daa recently indicates the guidance referred to by Fingal County Council and the WHO cannot be achieved and will cause serious health issues of those affected by the proposed increase in night time noise.
- ProPG and WHO NNG Guidelines state an internal noise level of no more than 10-15 events > 45dB LAmax.
 - Based on N60 contours, 18,959 dwellings >= 10 events and 5,282 dwellings >=25 events for 2025 Proposed scenario. Mitigation for these dwellings is not taken into account. The cost-effectiveness analysis does not consider these large number of dwellings and so the application of the Balanced Approach is flawed.
- Conflicts with Fingal Development Plan as not all houses in Noise Zone B are being offered insulation,
- 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.
- No medical expertise used in the analysis to determine the criteria for insulation.
- Large number of warehouses and offices in close proximity to Dublin Airport exposed to noise levels >60dB Lden and some exposed to levels >65dB Lden, potentially exceeding BS8233:2014 limits.

Population and Human Health:

- Population and Human Health chapter in the EIAR uses the incorrect HSD values for 2025 Proposed, therefore grossly underestimating the health effects of the Proposed scenario.
- **79,405** people will be **Highly Annoyed** and **37,080** will be **Highly Sleep Disturbed** in 2025.
- The Health Summary conclusion of Potential Residual Effects were **negative (-)** for Air Quality, Noise and Vibration, and Neighbourhood Amenity for 2025.
- Conclusion from report and presentation from Professor Münzel, leading Cardiologist and noise expert, is that all night-time flights should be banned in order to protect health.
- Submission from HSE Environmental Health to Fingal County Council states that all efforts should be made to minimize the number of people subjected to the adverse health effects of aircraft noise by reducing aircraft noise levels to below the WHO safe limits of 45dB Lden and 40dB Lnight.

Cost-effectiveness:

- The reports on cost effectiveness submitted by the daa exclude quantification of costs associated with the adverse health effects inflicted on residents. This item was specifically requested by ANCA and was not provided by the daa. We in St Margarets The Ward as citizens were expecting this information to be presented to us as requested by ANCA. We refer to our submission on Public Health where we have evaluated the costs associated with the adverse health effects inflicted on us which indicated that the total yearly cost based on the 2019 figures is a staggering **€600** million euro. How are we expected to suffer these costs to protect our health?
- The cost effectiveness analysis (CEA) submitted by Ricondo does not meet the requirements of EU598/2014 as it does not take into account of the current flight restrictions in place at Dublin Airport. The report therefore is misleading and inaccurate.
- The cost effectiveness analysis as submitted by Ricondo does not take into account the costs associated with Carbon Emissions nor does it indicate the costs in meeting Ireland's requirements under the Climate Action and Low Carbon (Amendment) Act 2021 for the proposed revision to the current restrictions.
- The EIAR submitted does not meet the requirements set out in the EPA guidance as it does not take into account the foreseeable and planned increase in passenger numbers above 32 million passengers and is considered 'project splitting'.

- In section 9.1 of the DRD concerning the CEA, ANCA state the use of the number of people HSD and exposed to a noise level > 55dB Lnight. Day time should not be excluded in this analysis. ANCA should look at the full noise picture and not just the night-time subset. In the Oral Hearing of 2007, Mr. Rupert Thornely-Taylor commented on the interaction of daytime and night-time movements in his report. Therefore, ANCA has erred by not including the HA figures and population > 65dB Lden as per the NAO.

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 than the original EIAR in December 2020. The differences and reasons for these changes in noise levels are not explained by the daa or ANCA.
- 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 311.5km². No explanation provided.
- The number of people forecast to be highly annoyed in 2025 Proposed is 79,405 and highly sleep disturbed is 37,080.
- The number of people forecast to be at least significantly adversely affected in 2025 Proposed compared to 2025 Permitted is **11,494**.
- The number of people forecast to suffer ‘**significant**’ adverse residual effects after mitigation in 2025 is **10,560**.

Consultation:

- The daa refused consultation with the CLG group to explain the additional information in the revised application.
- ANCA never made contact with the CLG group.
- No leaflet drops by ANCA to the residents most affected. Only 3 online webinars where no inter-action was facilitated except by typing questions.
- No community meetings held even after the removal of Covid restrictions.
- 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.

2018/2019 Baseline for NAO:

- The selection of 2019 or 2018 as the baseline for noise comparison does not meet the requirements of Directive 2002/49/EC as required by the Aircraft Noise (Dublin Airport) Regulation Act 2019. The escalating noise reported in noise action plans dating back to 2008 have been ignored with respect to reducing and prevention of noise at Dublin Airport
- The selection of 2019 as a baseline for noise is contrary to target 2 of the EU Action Plan “Towards zero pollution for air, water and soil” adopted by the European Commission on 12th of May 2021, as the targets are not set using 2017 as the baseline. The selection of 2019 as a baseline is contrary to ANCA’s own SEA document used to screen the project.
- The number of people in the 2018 57dB LAeq16 contour is 9177. The number of people in the 2019 57dB LAeq16 contour is 9706. 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 Pleanála at that time. Therefore, 2018 or 2019 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. ANCA should have insisted on them.
- 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.

- 2019 was the worst year on record for noise levels
- 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 since 2006.
- 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***".
- From 2016 to 2019 the size of the daytime noise 45dB Lden contour grew from 370km² to 745km²
- From 2016 to 2019 the size of the night-time noise 40dB Lnight contour grew from 212km² to 328km².

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 most 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.

- ANCA's regulatory decision fails to take account of the population who will be subjected to the cumulative effect of aircraft noise 24 hours per day. Large sections of St Margarets The Ward will be exposed to high levels of daytime noise and high levels of night-time noise. A significant proportion of this population does not qualify for insulation under the daytime >63 LAeq16 scheme or the new night-time scheme. In particular dwellings between the two runways and those to the north of the North Runway.
- ANCA have performed no analysis on the health status of the residents of St Margarets The Ward in order to consider their health needs.
- Due to the Covid-19 pandemic, many people are working from home and will be subjected to more aircraft noise than in the past.

2.0 VALIDITY OF PLANNING PERMISSION

In the planning documents submitted it is stated that the permission sought from Fingal County Council is for a

“proposed development comprising the taking of a “Relevant Action” only within the meaning of Section 34C of the Planning and Development Act 2000 as amended at Dublin Airport”

AND THAT

“The proposed Relevant Action relates to the night-time use of the Runway System at Dublin Airport. It involves the amendment of the operation Restriction set out in Condition No 3(d) and the replacement of the operating Restriction in Condition No 5 of the North Runway Planning Permission (ABP Ref No. PL06F.217429).”

The An Bord Pleanála decision to grant permission (PL 06F.217429) noted quite clearly that:

“In coming to the above decision the Bord noted that in addition to planning controls, Dublin Airport would in the future be subject to the new noise control regime introduced under the EU Environmental Noise Directive 2002/49/EC and the Environmental Noise Regulative 2006”

and that

- 1. there would be no significant deterioration in noise conditions at night- time in the vicinity of the airport due to the proposed Option 7b operating mode for the runways (non-use of new runway and of cross runway at night) and the restriction on night-time aircraft movements by way of condition,*
- 2. in relation to day-time noise, there would be some **improvements** relative to current or future noise impacts with the existing runway system to be offset against disimprovements in other areas/respects and the net effects would not be significant in terms of public health and safety such as to warrant a refusal of permission,*
- 3. in relation to schools affected (including pre-school facilities), the mitigation measures proposed, reinforced by conditions and monitoring would ensure that a suitable noise environment can be maintained within classrooms and school buildings generally.*

To reinforce Condition 1 above of the Order by An Bord Pleanála is very specific.

The stated objective of Noise Directive 2002/49/EC is to avoid/prevent or reduce on a prioritised basis harmful effects, including annoyance due to Environmental Noise.

We refer to Section 8 “Environmental Noise Directive (END) Rounds 1, 2 & 3” of this submission that sets out in detail the progression of Environmental Noise due to operations at Dublin Airport since the introduction of this legislation.

It is quite clear that there has not been any avoidance, prevention, or reduction of noise to the surrounding communities at Dublin Airport and in fact the situation is now chronic due to the escalation in Environmental Noise at Dublin Airport.

The improvements anticipated by The An Bord Pleanála decision in Environmental Noise at Dublin Airport has not materialised since its decision in 2007 and worsened considerably since that decision.

Furthermore in its regulatory decision ANCA have chosen the baseline noise conditions to those that existed at Dublin Airport in 2019 which was the highest level of noise recommended at Dublin Airport prior to the Covid 19 Pandemic.

We note that the future proposed noise contours as forecasted for the Northern Runway were not included in rounds 1,2 and 3 of the Noise Action Plan for Dublin Airport and therefore the local communities were not fully informed of the planned noise situation as required by the END Directive.

This planning application seeks significant changes to the “Relevant Permission” that had been granted back in 2007 that not only relate to operating restrictions but also to the greater environment surrounding the Airport and the local Communities affected by the Airport.

The permission sought is not just a “Relevant Action” under the meaning of Section 34C of the Planning Acts and requires a far more detailed and informed application to alter the granted permission by An Bord Pleanála (PL 06F.217429).

Contrary to the anticipation and reliance of An Bord Pleanála on the introduction of stringent EU Environmental Noise legislation when it made its decision in 2007, the daa are now attempting to apply the noise conditions that existed at Dublin Airport in 2018 as being the comparison for betterment as a result of introducing the proposed “Relevant Action”. This is absurd given the escalation in noise conditions since An Bord Pleanála decision in 2007.

A full application to Fingal County Council must be submitted by daa in order to modify the original foundations of environmental improvements anticipated when An Bord Pleanála granted permission.

At footnote 6 on page 6 of the Planning Report by Tom Phillips & Associates, it states that:

“2018 is used as a baseline for evaluation as this provides an empirical description of the effects when the airport was close to 32 MPPA.”

The fact that environmental noise had spiralled to devastating proportions above and beyond all projections is overlooked completely and totally without justification without consideration of the assumptions An Bord Pleanála granted its permission.

The proposed “Relevant Action” is not for the increase to 32 MPPA, it is a proposal that will allow for the continued escalation of environmental noise that seriously affect members of the local communities.

To emphasise this point we refer to Figure 58 part 4 of the EIS, which indicates the future noise exposure at night for 2025 as submitted as part of additional information request item 4 to An Bord Pleanála below for the original application. This indicated the number of households and population to be affected. Look at how low the numbers are compared to those now being presented by the daa for ‘2025 Consented’. The ‘2025 Consented’ figures are not what An Bord Pleanála based their decision on and therefore this “Relevant Action” application does not address the original permission and cannot be taken in isolation.

We refer to Section 8.17 of this Report which include the “heat maps” for 2025 proposed Easterly and Westerly operations at Dublin Airport as submitted by daa. As can be clearly noted due to the proposed “divergence” of aircraft take offs, the areas of those now affected by Aircraft noise has altered from that included in the planning submission that was granted in 2007. However there is no mention of any of this in the submitted “Relevant Action” and therefore most people now affected by the new proposals are not aware of the proposed alterations to the original planning permission and due to this serious omission in the “Relevant Action” description by daa have prevented these people from having their input on this matter.

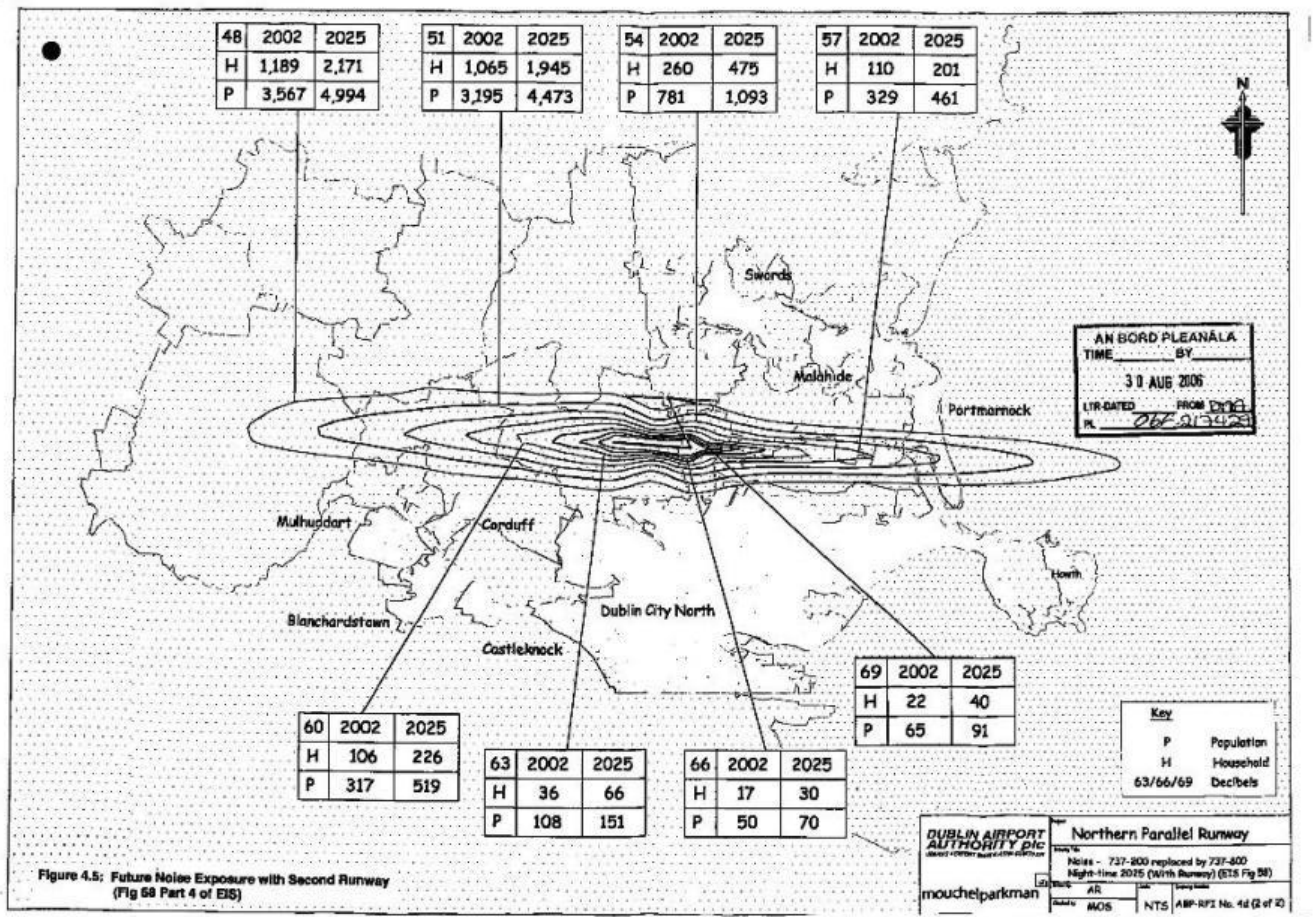


Fig 58 Part 4 of EIS additional information submitted for F04A/1755

We further note that Condition 28 of An Bord Pleanála decision is quite clear that:

“A Community Liaison Group shall be established involving representation of the St. Margaret’s Community, Fingal County Council and the Dublin Airport Authority. The composition of the committee and any variation thereof, shall be subject to the prior agreement of the Planning Authority. The Committee shall facilitate consultation with the existing community in accordance with the policies and objectives of the Fingal / Development Plan 2005 – 2011 in relation to Saint Margaret’s.

Reason: To provide for ongoing communication, dissemination of information and consultation with local community affected by the proposed Runway”.

St. Margaret’s, The Ward Residents Group attend the meetings of the Community Liaison Group (CLG). We were notified by daa that a brief presentation of this proposed “Relevant Action” submission would be given to the members of the committee on Tuesday 15th

December 2020. This was the first time that the proposal which included a Noise Quota System, a night noise insulation grant scheme, that 2018 Noise Levels would be used as a baseline, that divergence off the Runway now affected larger areas of the local communities, that there would be increases in Highly Annoyed (HA) and Highly Sleep Disturbed (HSD) population etc. were presented to the CLG.

Without any form of consultation or explanation of the proposals the planning was submitted on December 18th, 2020. No further consultation or explanation on the serious quantum of technical information submitted by the daa has taken place since.

Therefore condition 28 has not been satisfied prior to the submission of this “Relevant Action” and the local communities have to rely on their own interpretations of the documents which are highly technical, and the maps provided which are extremely difficult to read.

On top of this, with covid-19 restrictions, most of the community members could not visit Fingal County Council offices to examine the files as submitted. The planning documents submitted were uploaded to the Fingal County Council planning website when the application was submitted on December 18th, 2020, and the date indicated for submissions was noted as February 1st, 2021. On the 4th, 11th, 12th and 22nd of January 2021 a huge selection of documents were added to the file and displayed on the Fingal County Council Planning website. However, the date for submission was not altered to allow community members to adequately review this material.

We note that a brief presentation to the CLG Committee was made by Martin Doherty Environmental & Planning Manager, North Runway Project with daa. We further note that the documents added to Fingal’s Planning website were records of consultation that included daa, ANCA and Fingal County Council Planning officials and these date back to September 2019, 16 months before daa made this submission to Fingal County Council.

How could this happen? How could the local community be left in the dark and not consulted on daa proposals at CLG meetings when both daa and Fingal County Council, through regular consultations knew what was being proposed and did not inform the local communities.

A presentation by Mr Martin Doherty to an ICAO Green Seminar in Lima, Peru in May 2019 gives an insight as to how the daa deal with local communities. This presentation is publicly available and is appended to this report In Appendix A. The presentation is titled “North Runway Project, Noise and Community”.

On page 5 of the presentation, item 1 under the heading of “*Changing noise regime, since permission was granted in 2007*”, clearly acknowledges that the “*3rd Noise Action Plan shows greater numbers effected by noise*”, and item 2 that there is “*increased public concern in*

relation to noise". But then at page 11, *"What I have learned (so far!) with Community Engagement and Noise"* he states:

"Have the Technical information available but do not focus too much on noise contours as most people don't understand them! Focus on information such as the number and times of flights, likely flight patterns, future aircraft types".

This is insulting to the local communities who are starved of information on what the daa proposals are. However, this is exactly what daa have done in their submissions. There is a huge lack of information on who exactly are affected by the noise contours and explanation as to what they mean.

Go to the community but, if possible, avoid "town hall" meetings."

Really, is this in the interest of friendly relations with community members?

He further states:

"Support as many community groups, sports clubs, educational facilities as you can = emphasise the positive impact of the airport"

i.e. give handouts such as the community fund, of an insignificant amount, to divide communities on the real issues that affect large numbers of the community.

And also;

"Share information about major airport plans in a timely manner and not just in "development" plans or when the airports want something."

He was obviously overruled on this one by his superiors as they never shared the information and never explained these proposals.

It is clear that the daa and Fingal County Council are not in compliance with condition 28 as the daa submitted the application without adequate consultation and in the middle of a Pandemic which by the way, is not a valid excuse for a lack of consultation. Even the submitted number of flights proposed indicates that the numbers at the Airport can operate quite easily with the operating restriction for a couple of more years so there is plenty of time for adequate engagement with the local communities.

We note that the daa did provide a portal later on in the process and this portal contained the technical document submitted to Fingal. This however was not a forum whereby consultation or explanation of the proposal could be carried out by members of the St. Margaret's / The Ward Community.

3.0 PUBLIC CONSULTATION

Within the current Fingal County Development Plan there is an objective DA09 which states.

“Ensure that aircraft-related development and operation procedures proposed and existing at the Airport consider all measures necessary to mitigate against the potential negative impact of noise from aircraft operations (such as engine testing, taxiing, taking off and landing), on existing established residential communities, while not placing unreasonable, but allowing reasonable restrictions on airport development to prevent detrimental effects on local communities, taking into account EU Regulation 598/2014 (or any future superseding EU regulation applicable) having regards to the ‘Balanced Approach’ and the involvement of communities in ensuring a collaborative approach to mitigating against noise pollution.”

It is quite clear from this objective that the proposed “Relevant Action” as submitted by daa requires the involvement of the affected communities in ensuring a collaborative approach to mitigating against Noise Pollution.

Documents relating to the consultation between Fingal County ANCA and daa were uploaded to the Fingal Council Planning Portal. On pdf record 00683463 (ANCA interim response to pre-application consultation on proposed noise mitigation measures. Dated 18th May 2020) under item 9 it was noted that *“It is noted that the flight path consultation for the North Runway was undertaken in 2016. Given the time that will pass since this consultation and the commencement of operations ANCA recommends additional community consultation to advise those who may be newly overflowed by North Runway operations.”* daa did not hold public consultation on the revised proposals.

The daa in their submitted documentation state that *“The Applicant has and continues to engage with a variety of stakeholders and will continue to manage effective relationships with a wide array of stakeholders.”* They list the local community as one of these stakeholders.

We note that the daa did participate in Public Consultation back in 2016, over 5 years ago previous to the “Relevant Action” application, when they indicated that they were preparing to submit a planning application to revise conditions 3d and 5.

However, these consultations did not explain the proposal of a Noise Quota System. They did not indicate that there was to be a “night noise insulation” scheme being proposed. They did not produce the noise information now submitted which indicates that large sections of the community shall be either “Highly Sleep Disturbed (HSD) or Highly Annoyed (HA) due to the projected future noise from the Airport. They did not inform the local communities exactly what area of the community are affected by HSD and HA. They did not indicate that they would be

providing a grant of €20k for a night insulation programme and where in the community this would be offered to.

We note that the proposed Noise Quota System differs considerably than that operating in the UK and elsewhere.

Permission was granted for the Northern Runway in 2007 for option 7b in condition 3 which is a segregated mode operation. The proposal now is NOT for a segregated mode and the flight path divergence proposed particularly to the west of the new North Runway, which is a mixed mode operation, will affect a substantial new area of the communities that were not previously affected by the original permission.

We note that the community of St. Margaret's was first notified of this new proposal of a "Relevant Development" Submission on Tuesday December 15th, 2020, and the Planning Submission was made on Friday December 18th, therefore there was no public consultation on this submission prior to submitting to Fingal County Council despite many requests to daa to do so for The St. Margaret's/ The Ward Community. We note that Variation # 1 of the current Fingal County Council Development plan introduced Planning Protection for Future Aircraft Noise Zones. Prior to the introduction of this variation, Fingal County Council held public open consultation meetings to explain to members of the community what the proposal were and to allow the public to ask questions of their Agents and Representatives over an extended period of time.

Fingal County Council made it quite clear that the noise zones were indicative only and not representative of real noise contours particularly with respect to night flights given the fact that night noise contours were indicated. Fingal County Council made it clear also that they would not be enforcing or providing grants to housing that already exists and which were now indicated as being within high night and day noise zones. We note that submissions on the Variation # 1 to Fingal County Council could be made free of charge.

The charge to make a submission on this daa application is €20 per person.

We, the local community, are outraged at this attempt by daa to keep the local communities in the dark with respect to the submission on this Relevant Action. They used the Covid-19 pandemic and restrictions to their advantage in order to subdue an already deflated community to get their way.

We called on our elected Representatives, and Fingal County Council to rally against this submission and to force the daa to hold public consultations in whatever format was safe to do so with the local communities to inform them properly of the contents of this submission and to explain to the community the impact of these proposals. We note that the information as provided

is extremely technical and falls majorly short in detail that can be understood by members of the local community. However due to Covid 19 little or no action on this matter was taken.

The DART+ West Public Consultation is an example of how a major infrastructural project can conduct a Public Consultation process in the middle of the Covid-19 pandemic (<https://www.irishrail.ie/about-us/iarnrod-eireann-projects-and-investments/DART-Programme/DART-West-Public-Consultation/DART-West-Line-Public-Consultation-Process>).

Another example is the N/M20 Motorway scheme (<https://corklimerick.ie/>). Both schemes resulted in far greater levels of public engagement because the information was easy to access and gave people time to consider the information. As a result there was a far greater number of submissions and designs were amended to reflect this.

The daa failed to meet the objectives of the Current Development Plan and therefore we protested that the application cannot and should not be allowed to proceed until proper public consultation is carried out. They also failed to comply with condition 28 of the grant of permission by An Bord Pleanála in 2007 as set out in section 2.0 of this report.

We further note that additional documents were added to the Fingal Planning Portal on the 4th, 11th, 12th and 22nd of January 2021 following the original application Reg: Ref F20A/0668 was lodged on December 18th, 2020. We note that there was a substantial number of additional documents but that the closing date for submission / observations is 1st February 2021 and did not alter.

The newspaper advertisement and site notice stated that the application could be inspected at the Swords Fingal County Council offices. However, as you are aware the covid-19 restrictions in place did not allow people to travel beyond 5km of their homes. Therefore, a huge proportion of local communities could not visit the Swords office and are totally reliant on the Fingal Planning Portal.

We as citizens and members of the affected community were deprived of our statutory right to adequate time to study such a large and complicated file in order to make a planning submission and are of the opinion that the timing of the application was purposefully arranged to deter submission. We note that from a quick examination of the additional documents that consultation with Fingal County Council and ANCA commenced as far back as September 2019 without any community notification.

The daa published their “Dublin Airport Noise Management Plan” dated May 2018. At the bottom of page 13 of 20 it states, *“It is anticipated that community engagement will be included in any future interaction of the balanced approach”*. In the same document at Section 5.3 **ENGAGEMENT** it states *“Dublin Airport is committed to engaging with the local community in order to inform and discuss developments relevant to the Airport. It should be noted that*

community engagement is expected to form part of the next interaction of the Balanced Approach.” They did not fulfil this commitment and are in breach of their own published policies.

The onus is on daa to inform the local communities of their proposals prior to making an application to Fingal Council or ANCA.

The above public consultation should not be confused with the submission / observation period required for a draft regulatory decision by ANCA whereby the public can make submissions / observations on the draft regulatory decision by ANCA under part 2 Section 9 of the Aircraft Noise (Dublin-Airport) Regulation Act 2019.

The public consultation required is for daa and its expert team to inform and answer any queries the members of the community have on the submission being made to Fingal County Council Planning Authority ANCA are supposed to be a totally independent organisation and are not part of the Fingal County Council Planning Authority to which this Development Plan objectives apply to.

In correspondence from Matthew McAleese, Director of Services for Fingal County Council, he stated “As you are aware the relevant application may be subject to, in accordance with EU Regulation 598/2014, the “balanced approach” to aircraft noise management. If this occurs there will be separate public consultation undertaken by ANCA”.

This is not correct. Fingal County Council are the Planning Authority and are subject to the Development Plan requirements and planning approval conditions.

ANCA are an independent public body and are not part of the Fingal County Council Planning Authority. There is no “public consultation” by ANCA prior to them making a draft regulatory decision. ANCA are required under legislation to issue a “draft regulatory decision”.

We noted that it is not proposed to operate the new Runway until 2022 and therefore there was plenty of time to properly consult with the local communities.

We also note that the proposal does not breach the 32m passenger cap already exceeded in 2019 and therefore we would query why the proposed changes are required.

4.0 EIAR

Section 4.7 of the Planning Report by Tom Phillips & Associates state that “*strictly without prejudice to that position, daa is submitting an EIAR with the application out of an abundance of caution*” (that because the application is not a project within the meaning of the “EIA Directive”, it does not require an EIAR).

As detailed in the section titled “Validity of planning submission” of this report the original decision of An Bord Pleanála was based on reductions in environmental noise through the introduction of the 2002/49/EC directive (relating to the assessment and management of environmental noise) and that this application seeks to materially alter the “relevant permission” and is not in itself a “relevant action” to simply alter or replace operating restrictions.

We are of the opinion that Tom Phillips & Associates are aware of this fact and whilst attempting to claim that an EIAR is not required, still provide one as they attempt to address the original environmental issues assessed in the original permission granted by An Bord Pleanála in 2007.

Since this planning application does not address the fact that it will cause a fundamental change to the environmental noise conditions of the original planning permission, it is an invalid application. The wording of the planning application is therefore incorrect and does not inform those affected that other criteria as submitted in the original planning submission are also being changed.

The EIAR provided falls short of what is required to be addressed in an EIAR under the EIA directive (2009/31/EC).

An EIAR should contain an assessment of the medium and long-term effects on the environment. The current EIAR only discusses alleged impacts up to 2025 which does not satisfy this requirement under the EIA directive.

The directive is quite clear as are the draft EPA EIAR Guidelines 2017 which state:

“A description of the likely significant effects of the project on the environment resulting from, inter alia:...

....c) the emission of pollutants, noise, vibration, light, heat and radiation, the creation of nuisances, and the disposal and recovery of waste;...

*The description of the likely significant effects on the [environmental] factors should cover the direct effects and any indirect, secondary, cumulative, transboundary, **short-term, medium-term and long-term, permanent and temporary, positive and negative effects of the project.**”*

The main purpose of an EIAR is to identify, describe and present an assessment of the likely significant impacts of a project on the environment.

“Duration” is a concept that can have different meanings for different topics and in the absence of specific definitions for different topics, the following definitions may be useful:

- Momentary effects – Effects lasting from seconds to minutes.
- Brief Effects – effects lasting less than a day.
- Temporary effects – Effects lasting less than one year.
- Short-term effects – Effects lasting one to seven years.
- Medium-term effects – Effects lasting seven to fifteen years.
- Long-term effects – Effects lasting fifteen to sixty years.
- Permanent effects – Effects lasting over sixty years,

The EIAR submitted by the applicant does not include medium- and long-term effects and is deficient in content.

The sole focus is on reaching 32MPPA to 2025 as opposed to looking at the effects going forward, which the daa are aware of from when they applied for and subsequently withdrew a planning application for up to 40m passengers per annum.

The planning was granted in August 2022. Does this mean this planning is only valid to the end of 2025 as this is the year that forecasted data is presented in the application. Why is this not explicably stated in the Grant of Permission?

A short-term approach such as this is pointless when it is known that the effects will change in the medium to long term. This is akin to project splitting and the daa have not presented the potential impacts of the true extent of Dublin Airport with two runways in operation.

This application therefore does not include the detail necessary by law to inform the Local Community, Fingal County Council and the ANCA.

A noise baseline was chosen from 2018 as a comparative looking forward, due to the fact that it was the year that 31.5MPPA was recorded at Dublin Airport. This is not a solid environmental baseline to use. An Bord Pleanála relied on the 2006 environmental noise directive to check escalation of environmental noise at Dublin Airport which as shown at the 3 stages of the noise action plans carried out to date have failed with noise spiralling out of control. Refer to section 8.0 of this document.

The effects of a 40m passengers per annum going forward must be demonstrated together with a base line prior to 2016 in order to meet the 2006 environmental noise directive requirements.

Therefore, it is clear that long-term effects of the Relevant Action should be taken into account along with any other past or future projects.

5.0 CLIMATE CHANGE

5.1 EIAR

Chapter 11 of the revised EIAR focuses on Climate and Carbon. Section 11.1.1 quotes the Directive 2014/52/EU:

“(13) Climate change will continue to cause damage to the environment and compromise economic development. In this regard, it is appropriate to assess the impact of projects on climate (for example greenhouse gas emissions) and their vulnerability to climate change.”

Annex IV of the Directive, part 5. (f) requires a description of the likely significant effects of the project on the environment resulting from:

“(f) the impact of the project on climate (for example the nature and magnitude of greenhouse gas emissions) and the vulnerability of the project to climate change;”

It further states:

“The description of the likely significant effects on the factors specified in Article 3(1) should cover the direct effects and any indirect, secondary, cumulative, transboundary, short-term, medium-term and long-term, permanent and temporary, positive and negative effects of the project. This description should take into account the environmental protection objectives established at Union or Member State level which are relevant to the project.”

The factors specified in Article 3(1) are:

- (a) population and human health;
- (b) biodiversity, with particular attention to species and habitats protected under Directive 92/43/EEC and Directive 2009/147/EC;
- (c) land, soil, water, air and climate;
- (d) material assets, cultural heritage and the landscape;
- (e) the interaction between the factors referred to in points (a) to (d).

Therefore, it is clear that long-term effects of the Relevant Action should be taken into account along with any other past or future projects.

In section 11.2.5 the EIAR refers to the Climate Action Act (2021) and its target to reduce emissions by 51% by 2030 and reach net zero by 2050. This target was developed in line with

the previous target of 80% reduction compared with 1990 levels in Green House Gas (GHG) emissions from the Climate Action Act (2015).

Section 11.2.21 refers to Fingal County Council's Climate Change Action Plan 2019 – 2024 and how the Council “*recognises the Climate Emergency as declared by the Dáil and commits itself in this plan to prioritising mitigation of, and adaptation to, climate change across its functions*”.

Section 11.3.6 states that the Permitted Scenario was used as the baseline for the GHG emissions assessment. By using the Permitted Scenario as the baseline, the EIAR is giving the impression that the Permitted Scenario is acceptable. This is not the case as even with the Permitted Scenario, GHG emissions will rise. This conflicts with the Government policies to reduce GHG emissions by 51% by 2030. The baseline should take account of future reduction targets as defined by the Institute of Environmental Management & Assessment (IEMA) definition of ‘Future Baseline’ in their guide on ‘Assessing Greenhouse Gas Emissions and Evaluating their Significance’ (<https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/TR010056/TR010056-001649-Climate%20Emergency%20Planning%20and%20Policy%20-%20Appendix%20A%20-%20IEMA%20Guide-%20Assessing%20Greenhouse%20Gas%20Emissions%20and%20Evaluating%20their%20Significance,%20Version%202,%20Feb%202022.pdf>)

The IEMA guide refers to three overarching principles that are relevant in considering the aspect of significance for GHG emissions:

- “1. The GHG emissions from all projects will contribute to climate change, the largest interrelated cumulative environmental effect*
- 2. The consequences of a changing climate have the potential to lead to significant environmental effects on all topics in the EIA Directive (e.g. human health, biodiversity, water, land use, air quality)*
- 3. GHG emissions have a combined environmental effect that is approaching a scientifically defined environmental limit; as such any GHG emissions or reductions from a project might be considered to be significant”.*

This is very relevant in relation to the daa's Relevant Action application that any GHG emissions can be considered significant.

To meet Ireland's reduction targets, Environmental Impact Assessment must give proportionate consideration to whether and how a project will contribute to or jeopardise the achievement of these targets. The IEMA guide states:

“The crux of significance therefore is not whether a project emits GHG emissions, nor even the magnitude of GHG emissions alone, but whether it contributes to reducing GHG emissions relative to a comparable baseline consistent with a trajectory towards net zero by 2050”.

Therefore, when determining significance, it is important to consider the net zero trajectory in line with the Paris Agreement’s 1.5°C pathway. Also, the timing of reductions is critical to the cumulative effect of GHG emissions.

The IMEA guide provides in Figure 5 a graphical form of how to determine significance and how the GHG emissions align with the UK’s net zero compatible trajectory:

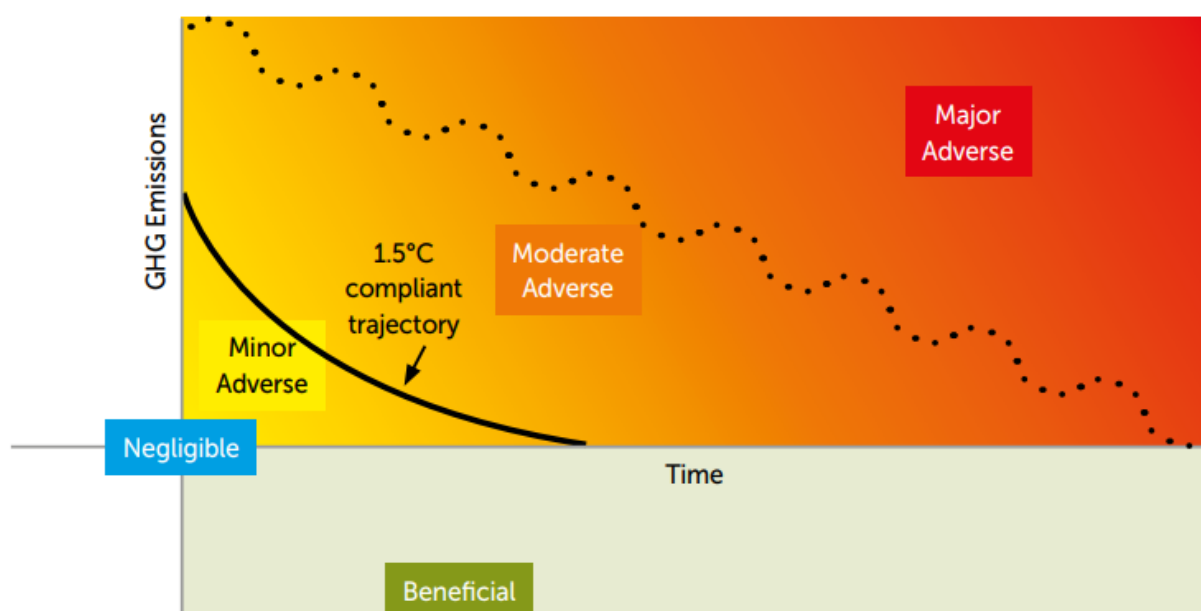


Figure 5: Different levels of significance plotted against the UK’s net zero compatible trajectory³⁶

The guide states that:

“A project that follows a ‘business-as-usual’ or ‘do minimum’ approach and is not compatible with the UK’s net zero trajectory, or accepted aligned practice or area-based transition targets, results in a significant adverse effect”.

The guide provides examples of significance criteria in Box 3:

Box 3: Examples of significance criteria

For the avoidance of doubt IEMA's position that all emissions contribute to climate change has not changed. This Box 3 provides practitioners with examples of how to distinguish different levels of significance. Major or moderate adverse effects and beneficial effects are **considered to be significant**. Minor adverse and negligible effects are **not considered to be significant**.

Major adverse: the project's GHG impacts are not mitigated or are only compliant with do-minimum standards set through regulation, and do not provide further reductions required by existing local and national policy for projects of this type. A project with major adverse effects is locking in emissions and does not make a meaningful contribution to the UK's trajectory towards net zero.

Moderate adverse: the project's GHG impacts are partially mitigated and may partially meet the applicable existing and emerging policy requirements but would not fully contribute to decarbonisation in line with local and national policy goals for projects of this type. A project with moderate adverse effects falls short of fully contributing to the UK's trajectory towards net zero.

Minor adverse: the project's GHG impacts would be fully consistent with applicable existing and emerging policy requirements and good practice design standards for projects of this type. A project with minor adverse effects is fully in line with measures necessary to achieve the UK's trajectory towards net zero.

Negligible: the project's GHG impacts would be reduced through measures that go well beyond existing and emerging policy and design standards for projects of this type, such that radical decarbonisation or net zero is achieved well before 2050. A project with negligible effects provides GHG performance that is well 'ahead of the curve' for the trajectory towards net zero and has minimal residual emissions.

Beneficial: the project's net GHG impacts are below zero and it causes a reduction in atmospheric GHG concentration, whether directly or indirectly, compared to the without-project baseline. A project with beneficial effects substantially exceeds net zero requirements with a positive climate impact.

(Note the IMEA guide referred to above is the 2nd edition published in February 2022. The EIAR report refers to the 2017 report which has been superseded by the February 2022 report)

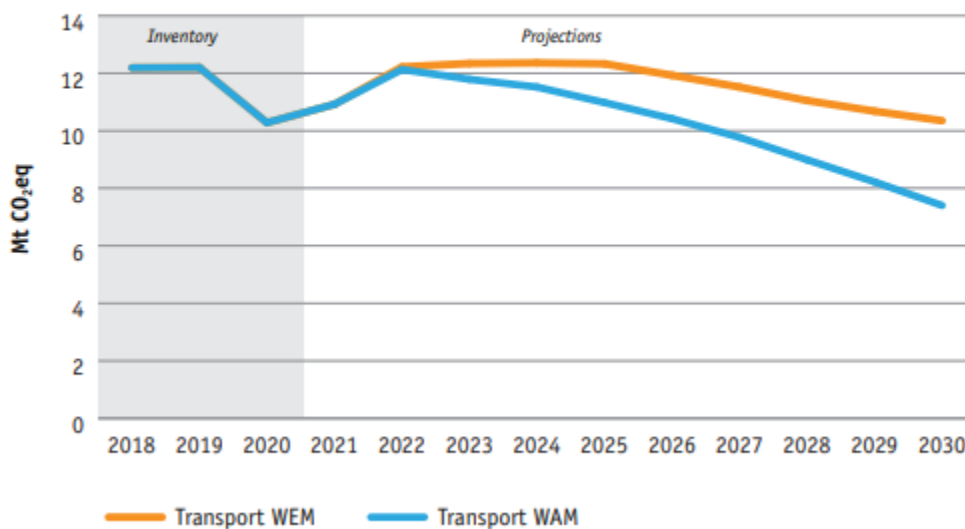
Section 11.3.25 refers to the "*absence of specific criteria for defining the significance of GHG emissions*". However, as shown above the new updated guidance from the IMEA does provide guidance on significance criteria as show in Box 3 above.

Therefore the 1% threshold discussed in section 11.3.26 is incorrect. It is evident that GHG emissions will rise from the implementation of the Relevant Action and does not meet the trajectory of net zero. Therefore, this equates to a significance level of 'major adverse'.

The analysis provided here in this appeal uses the latest GHG emission projections from the EPA in their June 2022 report (<https://www.epa.ie/publications/monitoring--assessment/climate-change/air-emissions/EPA-Ireland's-GHG-Projections-Report-2021-2040v4.pdf>).

In the EPA report, it states that under the 'With Additional Measures' scenario, Transport emissions are projected to decrease by 28% over the period 2020 to 2030 from 10.3 to 7.4 Mt CO₂ eq.

Figure 9: Greenhouse Gas Emissions Projections from the Transport Sector under the *With Existing Measures* and *With Additional Measures* scenarios out to 2030



Note these projections do not include aviation emissions but these are a good proxy for what the sector should be aspiring to.

The 'With Existing Measures' scenario forecasts Ireland's emissions including all national policies and measures implemented by the end of 2020. These include measures in the National Development Plan (NDP) and Climate Action Plan 2019.

The 'With Additional Measures' scenario includes government policies and measures to reduce emissions such as those in Ireland's Climate Action Plan 2021. This was published in November 2021 and the included measures have not yet moved into implementation phase.

The EPA report states that "*Ireland's national emission reduction objectives as set in the Climate Action and Low Carbon Development (Amendment) Act 2021, are to achieve a 51% emissions reduction by 2030 compared to 2018 and achieve a climate neutral economy by no later than the end of 2050*".

Table 11-6 presents the projected total GHG emissions for the Permitted and Proposed scenarios for 2022, 2025 and 2035:

Table 11-6: Total Annual GHG Emissions Projections – Permitted vs Proposed Scenarios

Year	Total Annual GHG Emissions (tCO ₂ e ⁴⁶)			
	Permitted	Proposed	Variation	% Variation (permitted to proposed)
2022	2,132,154	2,249,576	117,421	5.51%

⁴⁶ Note: While this is reported in tCO₂e, the aviation emissions included within this total only account for CO₂ emissions.

daa

ent Classification: Class 1 - General

AECOM
11-13

Dublin Airport North Runway Relevant Action

Environmental Impact Assessment Report
Chapter 11: Climate and Carbon

Year	Total Annual GHG Emissions (tCO ₂ e ⁴⁶)			
	Permitted	Proposed	Variation	% Variation (permitted to proposed)
2025	3,101,502	3,203,276	101,774	3.28%
2035	3,185,352	3,128,361	-56,991	-1.79%

Table 11-7 of the EIAR attempts to assign significance to the difference in aviation emissions between the Permitted and Proposed scenarios relative to the projected national emissions inventory:

Table 11-7: GHG Emissions Against Future National Emissions Inventory Scenarios

Year	Additional Annual GHG Emissions (kt CO ₂ e)	Projected National Emissions Inventory (kt CO ₂ e)	Emissions as a % of National Emissions Inventory	Significance
2022	117.4	61,510	0.191%	Minor Adverse
2025	101.8	61,430	0.166%	Minor Adverse
2035	-57.0	55,200	0.103%	Minor Beneficial

Note: While emissions are reported in ktCO₂e, the aviation emissions included within the total only account for CO₂ emissions.

As mentioned previously, this is a flawed approach to ascertain significance and the criteria in the IMEA guide should be used. As is evident from table 11-6, GHG emissions are projected to increase with the Relevant Action proposal and therefore a significance of '**major adverse**' should be assigned as the additional emissions do not align with the net zero trajectory.

Section 11.5.1 states that for the assessment, the projected national emissions inventories for each of the assessment years under the 'With Additional Measures' scenario were used. In table 11-7, the figures for the projected national emissions inventory for years 2022, 2025 and 2035 are from Ireland's Greenhouse Gas Emissions Projections 2018-2040 published in 2019 (https://www.epa.ie/publications/monitoring--assessment/climate-change/air-emissions/Ireland_2019_GHG_Emission_Projections_2018-2040.xlsx). More recent up to date figures have been published in the EPA's 2022 report on Ireland's Greenhouse Gas Emissions Projections 2021-2040 (https://www.epa.ie/publications/monitoring--assessment/climate-change/air-emissions/Data-file-for-Web---Ireland_2022_GHG_Emission_Projections_2021-2040v1.xlsx).

Year	Projected National Emissions Inventory (kt CO ₂ e)
2022	61950
2025	55320
2035	38400

The data for 2022 is comparable, but 2025 reduced from 61430 to 55320 and for 2035, it reduced from 55250 to 38400.

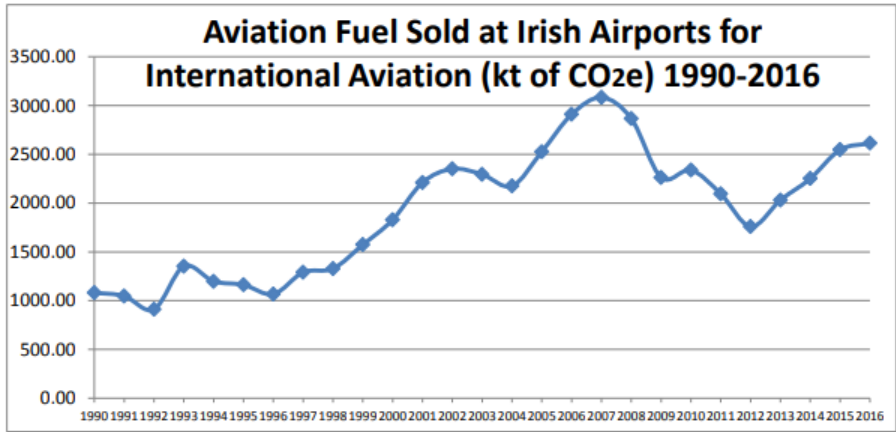
The EEA provide a dashboard for viewing GHG gases (<https://www.eea.europa.eu/data-and-maps/data/data-viewers/greenhouse-gases-viewer>).



It is evident that Ireland's aviation emissions reached a new peak in 2019, having peaked previously in 2007.

A Department of Transport 2019 report on 'Ireland's Action Plan for Aviation Emissions Reduction' (<https://assets.gov.ie/21634/ee5b50357fb04fc5a8af5f6589759231.pdf>) incorrectly claimed that emissions peaked in 2007. The data used in the 2019 report stopped at 2014 and shows Ireland peaking in 2007:

Figure 2 Aviation Fuel Sold at Irish Airports for International Aviation (kt CO₂e) 1990-2016



The claims in this 2019 report are flawed as emissions rose in line with increasing aircraft movements.

Using the data from the EEA dashboard, emissions from International Aviation rose from 1,752,554 to 3,347,333 tCO₂e from 2012 to 2019, an almost doubling of emissions in that 7-year period.

Domestic Transport increased from 10,834,887 to 12,210,071 tCO₂e, which is an increase in absolute emissions of 1,375,184 tCO₂e, equivalent to a 12.7% rise in emissions.

The data proves that International Aviation emissions attributed to Ireland were increasing at an alarming rate pre Covid and needs to be addressed immediately if we are to meet the net zero target by 2050.

The Relevant Action will increase these GHG emissions even further and therefore these emissions have a significance of 'major adverse' as per the IEMA guidelines.

Over 12m passengers travelled through Dublin Airport during the first six months of 2022 (<https://www.dublinairport.com/latest-news/2022/07/08/over-2.8-million-passengers-travelled-through-dublin-airport-in-june>). Assuming the same numbers use the airport for the second half of the year, a total of 24m plus passengers would be expected for the full year. A comparable year is 2015 where 25m passengers travelled through Dublin Airport.

In the daa’s reporting template provided to ANCA, the figure for passenger numbers in 2022 with Permitted operations is 19.6m whereas the passenger numbers for 2022 with Proposed operations in 21.0. Based on the over 12m passengers handled by Dublin Airport in the first 6 months of 2022, the estimates in the reporting template are inaccurate and therefore the GHG emissions will be higher than stated in the EIAR.

Using the EEA dashboard, the GHG emissions for 2015 amounted to 2,538 kt CO₂e. This is over 10% bigger than the figure calculated for 2022 and shown in table 11-6. It is a safe assumption that the calculations in the EIAR report underestimate the future GHG emissions.

Another flaw with the GHG emission calculations is that the 2035 scenario is assessed based on the passenger cap of 32m. The assessment has failed to take into account Government Policy to increase passenger numbers and is therefore not compliant with EIAR legislation and guidelines. The daa lodged a planning application in 2019 (F19A/0449) to increase passenger numbers from 32m to 35m but withdrew this application in 2020 when Covid struck. Future scenarios should be included in AA screening and assessment.

From the daa’s forecasts submitted to ANCA in their reporting template, 39.5m passengers (273180 movements) are forecast in 2035 with the cap removed for the Permitted scenario and 43.4m passengers (298614 movements) are forecast in 20235 with the cap removed for the Proposed scenario. Based on these movements with the 32m passenger cap removed, **25,434 additional movements are expected in 2035** with the Relevant Action.

Using the 2040 forecasts in the reporting template and the scenarios without the 32m cap, 317926 movements are forecast for the Proposed scenario and 288512 movements for the Permitted scenario, **resulting in an additional 29414 movements** with the Relevant Action.

Table 11-1: Permitted and Proposed Annual ATM Projections for each Assessment Year

Year	Scenario		
	Permitted	Proposed	Variation
2022	166,000	176,000	10,000
2025	227,000	236,000	9,000
2035	236,000	236,000	0

Year	Permitted	Proposed	Variation	% Increase
2022	166,000	176,000	10,000	6.02%
2025	227,000	236,000	9,000	3.96%
2035 (with cap)	236,000	236,000	0	0%
2035 (no cap)	273,180	298,614	25,434	9.31%
2040 (no cap)	288,512	317,926	29,414	10.2%

The % increase in ATMs between the Proposed and Permitted scenarios acts as a good proxy for the % increase in annual GHG emissions shown in table 11-6.

In table 11-1, the variation in movements for 2022 equated to 10k movements. These 10k movements were estimated to equate to 117,421 tCO_{2e} as shown in table 11-6. 2035 movement differences without the cap are 2.5x times the 2022 figure and therefore 2035 would roughly equate to 293 ktCO_{2e}. 2040 movement differences without the cap are 2.9x times the 2022 figure and therefore 2040 would roughly equate to 340 ktCO_{2e}.

These figures of 293 and 340 ktCO_{2e} for 2035 and 2040 without the 32m cap equates to between an **8.5 - 10% increase in GHG emissions from 2019 levels**, when aviation emissions peaked at 3347 ktCO_{2e}.

Compared with 2020 emissions, these figures equate to a **24.5 - 28.5% increase in GHG emissions**.

Based on the analysis of ATM differences between the Proposed and Permitted scenarios in 2035 and 2040 with the passenger cap removed, it is a safe assumption to say that GHG emissions will rise between 8.5 – 10% as a result of the Relevant Action.

Using the EPA's 2022 emissions inventory dataset, and allowing for passenger numbers beyond the 32m cap and their estimated emissions, table 11-7 updates as follows:

Year	Additional GHG emissions (ktCO _{2e})	Projected national Emissions Inventory (ktCO _{2e})	Emissions as a % of National Emissions Inventory
2022	117.4	61,950	0.19%
2025	101.8	55,315	0.18%
2035 (with cap)	-57.0	38,397	-0.15%

2035 (no cap)	293	38,397	0.76%
2040 (no cap)	340	35642	0.95%

Without the 32m cap emissions will rise significantly and will continue to grow in percentage terms as the projected national emissions inventory reduces in time as Ireland attempts to reach net zero.

All additional GHG emissions put extra pressure on Ireland's Climate action ambitions as they are long term and irreversible.

Table 11-8 compares the additional GHG emissions with the Future Transport Emissions inventory scenarios for 2022, 2025 and 2035. As noted earlier the data used for the projected national emissions inventory date from 2019 (https://www.epa.ie/publications/monitoring--assessment/climate-change/air-emissions/Ireland_2019_GHG_Emission_Projections_2018-2040.xlsx). A later more accurate 2022 version of the report is now available (https://www.epa.ie/publications/monitoring--assessment/climate-change/air-emissions/Data-file-for-Web---Ireland_2022_GHG_Emission_Projections_2021-2040v1.xlsx).

Using the data from the 2022 EPA report, table 11-8 is updated as follows:

Year	Additional Annual GHG Emissions (kt CO ₂ e)	Projected National Emissions Inventory (kt CO ₂ e)	Emissions as a % of National Emissions Inventory
2022	117.4	12130	0.97%
2025	101.8	10980	0.93%
2035 (32m cap)	-57.0	5940	0.96%
2035 (no cap)	293	5940	4.93%
2040 (no cap)	340	5100	6.67%

Using the same logic as above for future years without the 32m cap in place, an estimate of 293 and 340 kt CO₂e is assigned for 2035 and 2040. Without the cap in place, it is estimated that the **additional aviation emissions from the Relevant Action will be 4.93% of the total national transport emissions inventory in 2035, and 6.67% of the total transport emissions in 2040.**

5.2 PLANNER'S REPORT

In section 6.4.2, page 124, of the Planner's report it states: *"that no significant effects on climate change have been identified"*. It also states: *"the assessment in Chapter 11 did indicate that the Proposed Scenario would result in a 5.51% increases in Green House Gas (GHG) in 2022 and a 3.28% increase in 2025. In 2035 the Proposed Scenario results in a 1.79% reduction in GHG. The -1.79% GHG reduction by 2035 is broadly consistent with the overall (national) target of net zero by 2050"*.

It is very clear from the analysis provided here that the input data has been revised by the EPA in 2022 and the percentage increases are larger than presented by the applicant. When adjusting for passenger numbers without the 32m cap, the increase in emissions between the Proposed and Permitted scenarios is estimated to be 8.5 – 10% for 2035 and 2040.

These increases are clearly not consistent with the net zero target

In section 6.4.6, page 135, of the Planner's report it references Chapter 11 of the EIAR on Climate and Carbon. The Planner's report makes reference to the EIAR and no differences in ATMs for 2035 with the 32m cap in place. The report doesn't question why figures were not provided for 2035 with the 32m cap.

On page 136 it states that the most recent emissions inventory for Ireland was 2019 which is incorrect. The EPA have released inventory reports in 2020, 2021 and the latest in June 2022. Fingal County Council should be using the latest inventory data for analysis. This section also refers to the -1.79% reduction in GHG emissions in 2035 but makes no comments of forecast emissions without the 32m cap in place. The report states that:

"Any additional GHG emissions arising as a result of the proposed Relevant Action are considered to have a direct, negative effect on the receptor. The effects of GHG emissions are also considered to be long term, irreversible and have the potential to be cumulative with other projects".

It further states that by 2035 and presumably for some time before the Proposed scenario would result in a reduction in GHG emissions. This again is not an accurate statement as it fails to take the removal of the 32m cap into account.

Page 137 references table 11-7 from the EIAR report. As show above, table 11-7 is outdated as it used the 2019 EPA inventory report. Fingal County Council should have used the 2022 report in their assessment of the application. The analysis in this appeal shown above shows that the percentage of total national emissions increases from 0.19% to 0.95% by 2040 when the 32m cap is removed.

With reference to table 11-8, the analysis shown here with the updated 2022 EPA inventory dataset and using passenger forecasts beyond 32m, the percentage of transport emissions increases from 0.97% to 6.67% by 2040.

The report incorrectly states that GHG emissions arising from the Relevant Action will be minor and not significant. The EIAR failed to take account of the latest national inventory emissions dataset and failed to take into account the future planned passenger number beyond 32m and therefore failed to assess the true significant effects which are 'major adverse' as per the IEMA guidelines.

5.3 NON-CO₂ EFFECTS ON CLIMATE CHANGE

In the Planner's report, it dismisses the impact of non-CO₂ effects on Climate Change.

In a scientific paper from January 2021 titled 'The contribution of global aviation to anthropogenic climate forcing for 2000 to 2018' (<https://www.sciencedirect.com/science/article/pii/S1352231020305689?via%3Dihub>), the authors state that 3.5% of total warming in 2011 was associated with aviation and that roughly two thirds of warming due to aviation at that time was caused by non-CO₂ sources. The aviation industry has been solely focused on CO₂ reduction, neglecting the necessity to reduce non-CO₂ aviation effects on Climate. In a Nature article published in July 2022 (<https://www.nature.com/articles/s41558-022-01404-7>), the authors state that:

"The aviation sector needs to neutralise CO₂ emissions and reduce non-CO₂ climatic effects. Despite being responsible for approximately two-thirds of aviation's impacts on the climate, most of aviation non-CO₂ species are currently excluded from climate mitigation efforts".

Carbon offsetting will not be sufficient at reducing aviation's effects on Climate Change. The authors state:

"We demonstrate that simply neutralizing aviation's CO₂ emissions, if nothing is done to reduce non-CO₂ forcing, causes up to 0.4 °C additional warming, thus compromising the 1.5 °C target".

The effects of non-CO₂ effects is also referenced by the EU Commission (https://ec.europa.eu/clima/eu-action/transport-emissions/reducing-emissions-aviation_en#tab-0-0):

*"Aviation also has an impact on the climate through the release of nitrogen oxides, water vapour, and sulphate and soot particles at high altitudes, which could have a significant climate effect. A November 2020 study conducted by the European Aviation Safety Agency (EASA) looks into the non-CO₂ effects of aviation on climate change, and fulfils the requirement of the EU Emissions Trading System Directive (Art. 30.4). **Overall, the significance of combined non-CO₂ climate impacts from aviation activities, previously estimated to be at least as important as those of CO₂ alone, is now fully confirmed by the report** .*

This contradicts section 11.3.15 of the EIAR which states that the "the science is uncertain, and these additional impacts are not included in EU or international policy making at present".

The EASA report confirms that the EIAR has grossly underestimated the effects of aviation on Climate Change by not considering the effects of non-CO₂ effects. The report provides three possible options to address non-CO₂ effects:

- EASA environmental certification standards

- Reductions in fuel burn
- Monetary charge levied on aircraft NOx emissions
- Inclusion of non-CO₂ effects under EU ETS
- ATM management

In the 'Report from the Commission to the European Parliament and the Council' (<https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52020DC0747&from=EN>), it states:

"The significance of non-CO₂ climate impacts from aviation activities, previously estimated to be at least as important in total as those of CO₂ alone is fully confirmed by the report. This results in a need to consider how to best to address them further to contribute to the EU's climate objectives and the Paris Agreement, complementary to climate action already being taken. This would allow moving towards policies targeting aviation's full climate impacts. This would also result in co-benefits regarding local air quality".

Non-CO₂ effects are therefore a known issue and one that should have been included in the EIAR whilst analysing the significant effects of aircraft activities on Climate Change.

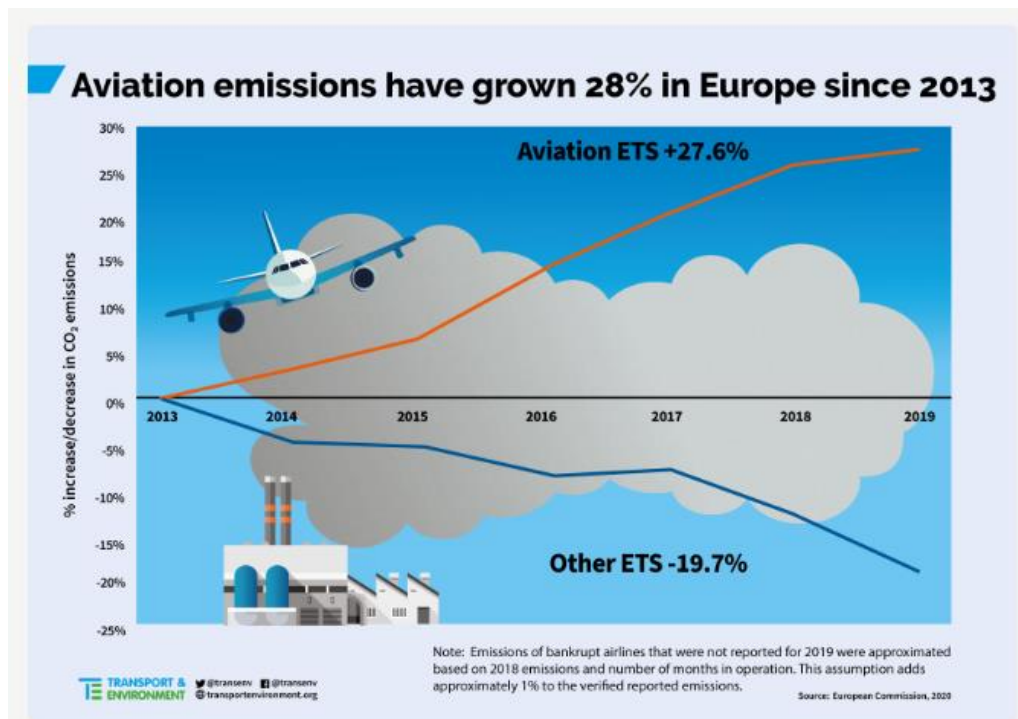
5.4 TRANSPORT & ENVIRONMENT

In an article (<https://www.transportenvironment.org/state-aviation-ets/>) produced by Transport & Environment (T&E), one of Europe's leading NGO's campaigning for cleaner transport, it states that figures for 2019 show that, unlike other sectors covered by the EU ETS, aviation emissions continued to grow by an estimated 1.5% in 2019. This compares to a fall of 8.9% in the emissions from other sectors covered by the ETS, such as power, coal, steel and cement. The figure of 1.5% growth in 2019 only covers flights within Europe and excludes flights to and from Europe.

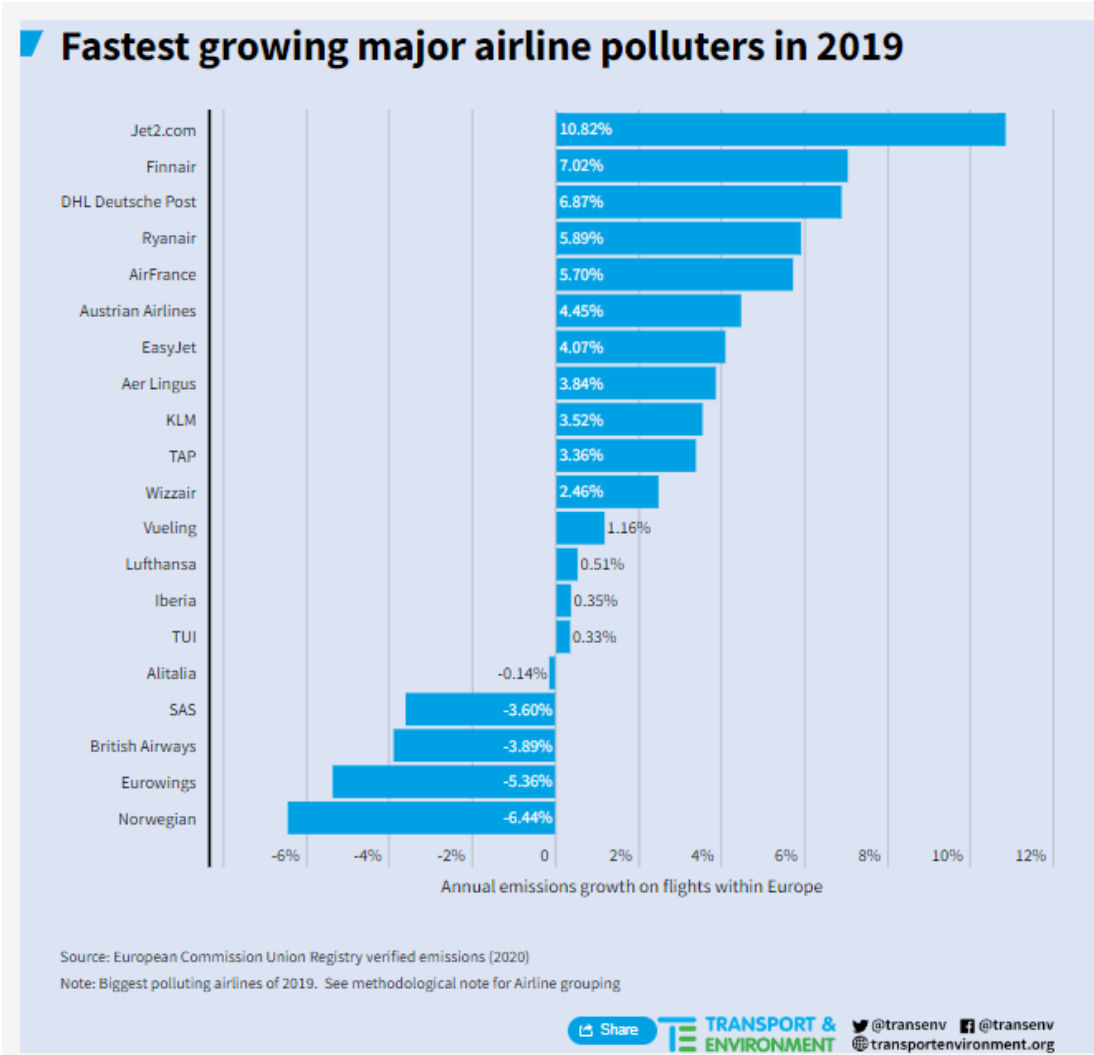
The article states that:

“Reflecting the growth in emissions from this sector, airlines are an increasing presence among top emitters in different member states. In 2018, airlines were top 5 emitters in 13 member states (top 10 in 16 member states). In 2019 airlines were top 5 emitters in 14 member states, with Vueling reaching 5th spot in Spain. The aviation sector, including airports and airlines, is increasingly being recognised as a major emitter in states, after years of its emissions flying under the radar. This has led to increasing calls for these emissions to be included in national climate targets, a move supported by T&E.”

The article states that since 2013, aviation emissions have increased 27.6% compared to a 19.7% decrease for other sectors in the ETS. Between 1990 and 2018, total EU aviation emissions grew from 1.5% of EU emissions to 3.6%.

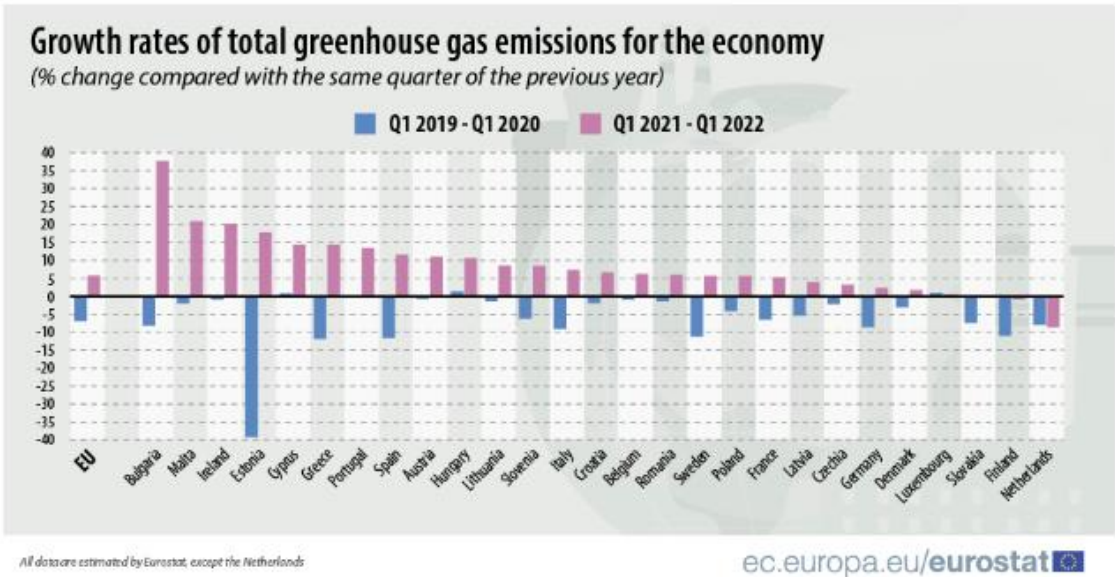


Interestingly the article lists both Ryanair and Aer Lingus among the fastest growing airline polluters in 2019:



5.5 EUROSTAT – GROWTH OF GHG EMISSIONS

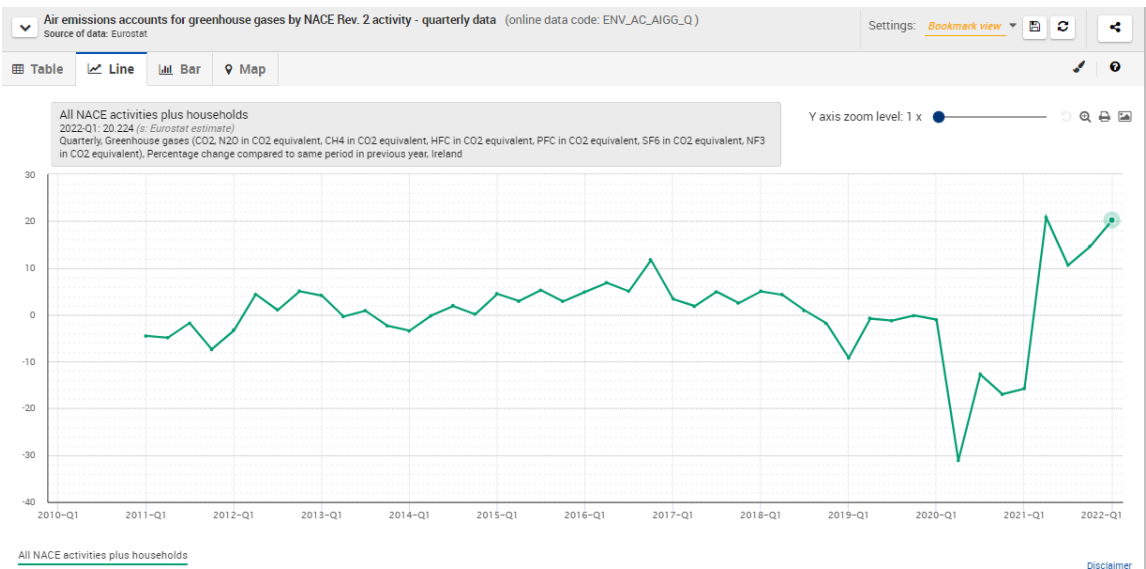
EuroStat has reported that GHG emissions have risen in Q1 of 2022 compared to the same quarter in 2021 (<https://ec.europa.eu/eurostat/web/products-eurostat-news/-/ddn-20220816-1>):



It states:

“Among the Member States with increased emissions in the same comparison period were Bulgaria (+38%), Malta (+21%) and **Ireland (+20%)**”.

Ireland is singled out with the 3rd biggest increase with a 20% increase:



5.6 CONCLUSION

The chapter on Climate and Carbon in the EIAR is seriously flawed when assessing the significance of GHG emissions. The latest IEMA guidelines clearly demonstrate that the additional GHG emissions from the additional aircraft movements from the Relevant Action will lead to a significance of '**major adverse**' as these emissions do not follow the net zero trajectory.

The omission of realistic future years scenarios demonstrates a serious flaw in the Climate and Carbon chapter. It is Government Policy to increase passenger numbers and the daa itself has put plans in place to increase terminal capacity beyond the 32m cap. The daa lodged a planning application with ANCA in 2019 to increase passenger numbers from 32-35m but subsequently withdrew it due to Covid. Failure to include future years without the 32m passenger cap is contrary to EIAR legislation and guidelines.

The daa have failed to properly quantify GHG future emissions and failed to assign the significance as 'major adverse' as per IEMA guidelines.

The daa and Fingal County Council have also failed to take account of non-CO₂ effects on Climate Change and achieving the net zero target.

6.0 CONDITIONS 3(a)-3(d)

6.1 SUMMARY

- Dual runway departures between 06:00-08:00 conflict with Option 7(b) and planning conditions 3(a)-3(c) which state 'Either/Or'.
- The daa have failed in their application to justify the need for dual departures between 06:00–08:00. ANCA have also failed to explain this in their regulatory decision and have provided no proof that they have analysed the flight prediction data. The large populations of Fingal and Dublin West will be exposed to serious adverse night-time health effects for just 2 extra flights in the period 06:00–08:00 and 4 extra flights in the period 22:00–24:00, when comparing 2025 Proposed with 2025 Permitted.
- Conflicts with Condition 3(c);
- Conflicts with the advice of Mr Rupert *Thornely-Taylor, the Board's Noise Consultant during the Oral Hearing in 2007, that "no departures on runway 10L shall take place at any time"*.
- Conflicts with the advice of Mr Rupert *Thornely-Taylor, the Board's Noise Consultant during the Oral Hearing in 2007, that "the runway (10L/28R) shall not be used for takeoff or landing between the hours of 2300 and 0700"*.
- 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)

6.2 CONDITION 3

Condition 3 of the North Runway planning application (F04/1755) states:

3. On completion of construction of the runway hereby permitted, the runways at the airport shall be operated in accordance with the mode of operation – Option 7b – as detailed in the Environmental Impact Statement Addendum, Section 16 as received by the planning authority on the 9th day of August, 2005 and shall provide that –

- (a) the parallel runways (10R-28L and 10L-28R) shall be used in preference to the cross runway, 16-34,
- (b) when winds are westerly, Runway 28L shall be preferred for arriving aircraft. Either Runway 28L or 28R shall be used for departing aircraft as determined by air traffic control,
- (c) when winds are easterly, either Runway 10L or 10R as determined by air traffic control shall be preferred for arriving aircraft. Runway 10R shall be preferred for departing aircraft, and
- (d) Runway 10L-28R shall not be used for take-off or landing between 2300 hours and 0700 hours,

except in cases of safety, maintenance considerations, exceptional air traffic conditions, adverse weather, technical faults in air traffic control systems or declared emergencies at other airports.

Reason: In the interest of clarity and to ensure the operation of the runways in

accordance with the mitigation measures set out in the Environmental Impact Statement in the interest of the protection of the amenities of the surrounding area.

It is very clear from 3(b) that ‘either’ Runway 28L ‘or’ 28R can be used for departing aircraft in the westerly direction. The Cambridge English online dictionary (<https://dictionary.cambridge.org/dictionary/english/either-or>) defines ‘either/or’ as:

used to refer to a situation in which there is a choice between two different plans of action, but both together are not possible

This a clear definition that dual departures on Runway 28L and 28R are not permitted. The daa have not sought to change Conditions 3(a)-(c) and therefore their EIAR and planning application is flawed and conflicts with the planning permission for the North Runway.

In the revised EIAR the daa provide a list of what has changed since the initial application at the end of each chapter:

What has changed since the EIAR was submitted in December 2020?

This EIAR chapter has been updated in response to a Request for Further Information from Fingal County Council dated 19/02/2021. As well as several minor corrections, including minor removals from and additions to the earlier text, the chapter has been revised to:

- Address additional assessment years requested by the Council;
- Set out more clearly the scenarios for assessment in the EIAR;
- Respond to the latest passenger growth forecasts at Dublin Airport; and
- Reflect the revised content of the subsequent EIAR chapters.

In a change to the modelled runway usage, the revised EIAR assumes that in 2025 and 2035 both parallel runways are used for departures in the 06:00 to 08:00 i.e. semi-mixed mode. For 2022, it is assumed that segregated mode is in use 06:00 to 08:00 (no change from December EIAR).

The EIAR has been updated to account for this change and all modelling and assessment are revised accordingly. The above does not change the description of the Relevant Action

“The revised EIAR assumes that in 2025 and 2035 both parallel runways are used for departures in the 06:00 to 08:00 i.e. semi-mixed mode. For 2022, it is assumed that segregated mode is in use 06:00 to 08:00 (no change from December EIAR)”.

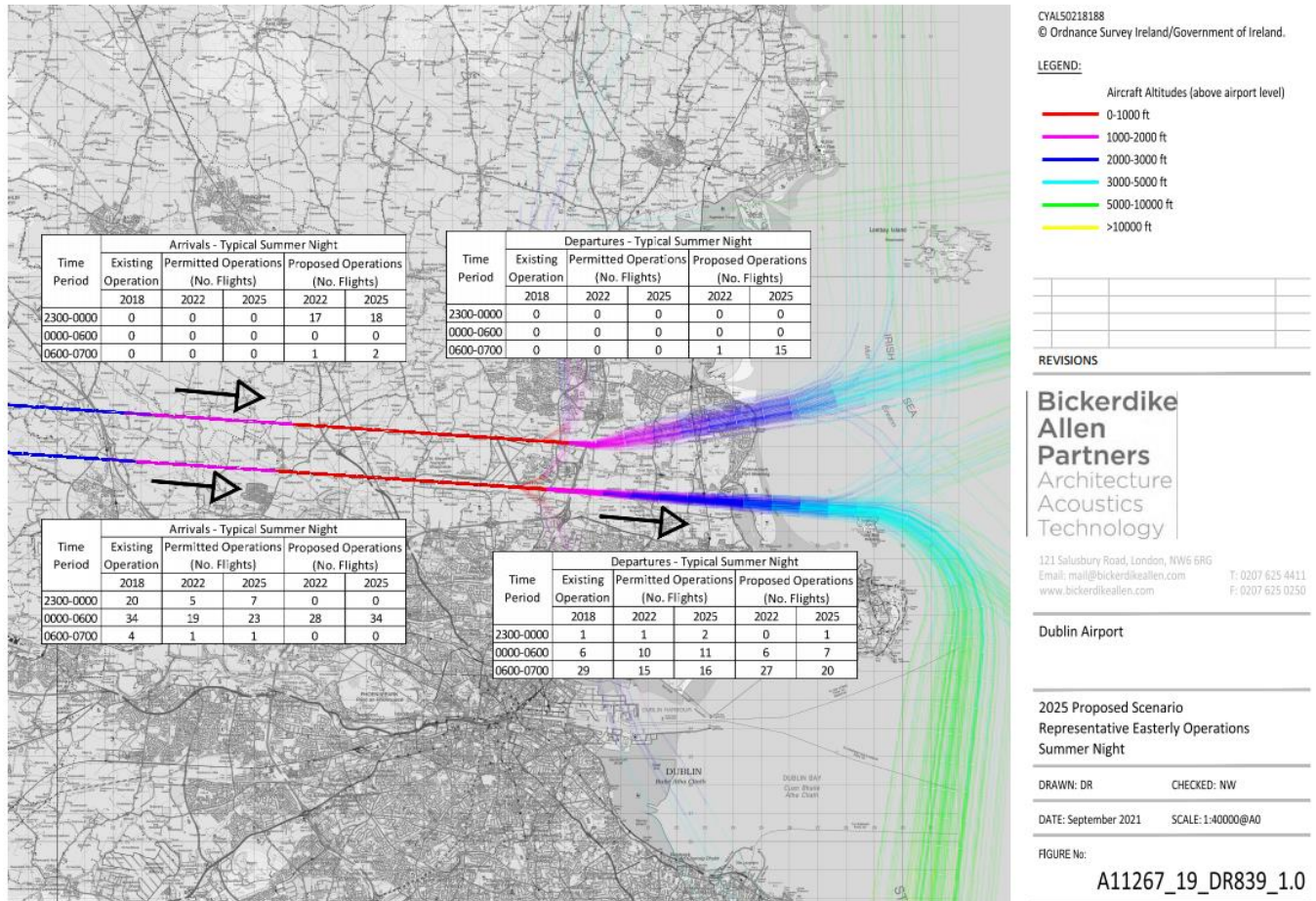
It is very clear that the daa now wants dual departures between 06:00 – 08:00. This contradicts with Condition 3(b) and therefore the planning application and regulatory decision is flawed and premature. A change to Condition 3(b) is required before the regulatory decision can be adjudicated on. The regulatory decision should be struck out as its assessment is based on an illegal use of the runways.

Condition 3(c) states that “*Runway 10R shall be preferred for departing aircraft*”. This condition also conflicts with the desired intention of the daa to use semi-mixed mode. Condition 3(c) states a clear preference for Runway 10R for departures. But the daa intend to change this preference without first seeking planning permission to amend the condition.

On their planning portal the daa provided heat maps for 2025 Proposed Easterly and Westerly Operations (<https://northrunway.exhibition.app/download/?maps#>).

Here is the 2025 Proposed Easterly heat maps which shows the number of aircraft movements on each runway when flying in the easterly direction during an average Summer night:

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This map shows that in 2025 with Proposed operations, there will be 15 departures on Runway 10L between 23:00 – 07:00 and all 15 occur between 06:00 – 07:00. It also shows that there will be 28 departures on Runway 10R between 23:00 – 07:00, 20 of which occur between 06:00 – 07:00.

15 out of 35 departures between 06:00 and 07:00 is contrary to Condition 3(c) in which “Runway 10R shall be preferred for departing aircraft”.

It is also worth making reference to Tables 13B-11 and 13B-13 in Appendix 13B of the revised EIAR for 2025 Proposed and comparing with 2025 Permitted. As can be seen from the tables in the map above, between 06:00 – 07:00, there are 35 departures on 10L and 10R with 2025 Proposed versus 16 with 2025 Permitted. However, if one refers to Tables 13B-11 and 13B-13 in Appendix 13B of the revised EIAR, one can see that there are 18 less flights between 07:00 – 08:00 with 2025 Proposed versus 2025 Permitted. Tables 13B-11 and 13B-13 actually show slightly different numbers compared to the map above. They show 37 flights on 10R and 10L for 2025 Proposed versus 17 for 2025 Permitted between 06:00 -07:00.

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Dublin Airport North Runway Relevant Action

Environmental Impact Assessment Report
Appendix 13B

Table 13B-11: Average Annual Day Runway Usage By Hour – Easterly Operations, Permitted Scenarios

Hour	2022 Permitted		2025 Permitted		2035 Permitted	
	10R (South)	10L (North)	10R (South)	10L (North)	10R (South)	10L (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	33	20	43	26	28	48
08:00-08:59	10	20	12	21	5	31
09:00-09:59	11	18	13	27	14	27
10:00-10:59	9	15	17	22	17	23
11:00-11:59	15	9	21	18	21	18
12:00-12:59	11	23	22	28	24	29
13:00-13:59	15	15	19	18	20	19
14:00-14:59	13	16	18	19	19	19
15:00-15:59	17	14	18	17	18	17
16:00-16:59	14	22	19	25	19	27
17:00-17:59	20	14	21	18	22	20
18:00-18:59	13	18	18	23	20	23
19:00-19:59	13	22	18	25	18	26
20:00-20:59	17	9	20	10	21	10
21:00-21:59	8	13	9	15	9	15
22:00-22:59	6	28	6	31	6	32
23:00-23:59	6	0	9	0	9	0

Note: All values rounded to nearest whole number

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Dublin Airport North Runway Relevant Action

Environmental Impact Assessment Report
Appendix 13B

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

Hour	2022 Proposed		2025 Proposed		2035 Proposed	
	10R (South)	10L (North)	10R (South)	10L (North)	10R (South)	10L (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	28	2	20	17	20	17
07:00-07:59	28	13	16	35	16	35
08:00-08:59	10	20	12	22	12	22
09:00-09:59	13	17	16	25	16	25
10:00-10:59	8	15	14	22	14	22
11:00-11:59	16	10	21	18	21	18
12:00-12:59	11	23	23	28	23	28
13:00-13:59	16	18	19	21	19	21
14:00-14:59	14	16	19	21	19	21
15:00-15:59	18	16	20	18	20	18
16:00-16:59	16	22	20	25	20	25
17:00-17:59	18	16	22	20	22	20
18:00-18:59	19	17	22	22	22	22
19:00-19:59	15	22	20	22	20	22
20:00-20:59	17	11	18	12	18	12
21:00-21:59	10	11	10	13	10	13
22:00-22:59	5	22	5	26	5	26
23:00-23:59	0	17	1	18	1	18

Note: All values rounded to nearest whole number

The same can be seen with Westerly Operations and tables 13B10 and 13B-12:

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LEGEND:

Aircraft Altitudes (above airport level)

- 0-1000 ft
- 1000-2000 ft
- 2000-3000 ft
- 3000-5000 ft
- 5000-10000 ft
- >10000 ft

REVISIONS

No.	Description	Date

Bickerdike Allen Partners
Architecture
Acoustics
Technology

121 Salisbury Road, London, NW6 6RG
Email: mail@bickerdikeallen.com T: 0207 625 4411
www.bickerdikeallen.com F: 0207 625 0250

Dublin Airport

2025 Proposed Scenario
Representative Westerly Operations
Summer Night

DRAWN: DR **CHECKED:** NW

DATE: September 2021 **SCALE:** 1:40000@A0

FIGURE No:
A11267_19_DR840_1.0

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Dublin Airport North Runway Relevant Action

Environmental Impact Assessment Report
Appendix 13B

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

SUBMISSION ON BEHALF OF SMTW ENVIRONMENTAL DAC

Dublin Airport North Runway Relevant Action

Environmental Impact Assessment Report
Appendix 13B

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

In summary there are just **2** extra departures between 06:00 – 08:00. The daa want to inflict night-time noise on the populations of Malahide, St Margarets, The Ward and Coolquay for just 2 extra flights from 06:00 – 08:00.

It is also worth analysing the number of flights between 23:00 and 24:00 between 2025 Proposed and 2025 Permitted from the tables above. There are an additional 10 flights on both runways. However, between 22:00 – 23:00 there are 6 less flights. In summary between 22:00 and 24:00 there are only an additional **4** flights.

The daa have failed in their application to justify the need for dual departures between 06:00 – 08:00. ANCA have also failed to explain this in their regulatory decision and have provided no proof that they have analysed the flight prediction data. The large populations of Fingal and

Dublin West will be exposed to serious adverse night-time health effects for just 2 extra flights in the period 06:00 – 08:00 and 4 extra flights in the period 22:00 – 24:00.

It is also worth pointing out the evidence from the Board's consultant, Mr Rupert Thornely-Taylor, in his report during the Oral Hearing for the North Runway in 2007. In his report dated June 4th, 2007 on his findings of the Oral Hearing submissions (Microsoft Word - R217429A.DOC (pleanala.ie)), Mr Thornely-Taylor recommended the following conditions be applied if permission for the runway was granted:

The runway hereby permitted shall not be used except in accordance with Option 7b as defined in the Environmental Impact Statement Addendum, Section 16, and accordingly:

the runway (10L/28R) shall not be used for takeoff or landing between the hours of 2300 and 0700;

no departures on runway 10L shall take place at any time;

except in cases of safety, maintenance considerations, exceptional air traffic conditions, adverse weather, technical faults in air traffic control systems or declared emergencies at other airports.

It is very clear that his recommendation is for no flights on runways 10L/28R between 23:00 – 07:00 and that no departures take place on runway 10L. Mr Thornely-Taylor makes it very clear that the night-time ban was proposed by the applicant's Counsel:

“The applicants indicated, through their advocate Mr O'Donnell, that they would implement a planning permission that contained a condition limiting the use of the new runway in accordance with Option 7b, and that this would involve prohibiting the use of runway 10L or 28R for departures during the hours of 2300-0700. He further advised that his statements to the hearing about what the applicants will do are enforceable under Irish planning law.”

Mr O'Donnell's advice that his statements to the hearing on what the applicants will do are enforceable under Irish planning law, has consequences for the opening of the North Runway in August, and whether the daa will adhere to the 65-flight limit.

6.3 OPTION 7B

Mr Thornely-Taylor also makes reference to Option 7b. He states that these assumptions are:

- 1) *The parallel runways (10R-28L and 10L-28R) would be used in preference to the cross runway 16-34.*
- 2) *When winds are westerly, Runway 28L will be preferred for arriving aircraft. Either Runway 28L or 28R will be used for departing aircraft as determined by ATC.*
- 3) *When winds are easterly, either Runway 10L or 10R as determined by ATC will be preferred for arriving aircraft. Runway 10R will be preferred for departing aircraft.*
- 4) *No operations at night, defined according to the noise contour period as 2300-0700, on runway 10L/28R with very limited exceptions.*

Option 7b was first introduced in the EIS Addendum from August 2005 provided by Aer Rianta. Section 16 focuses on noise. In section 16.1 it discusses 'mode of operation' and the preferences for the use of the runways are proposed:

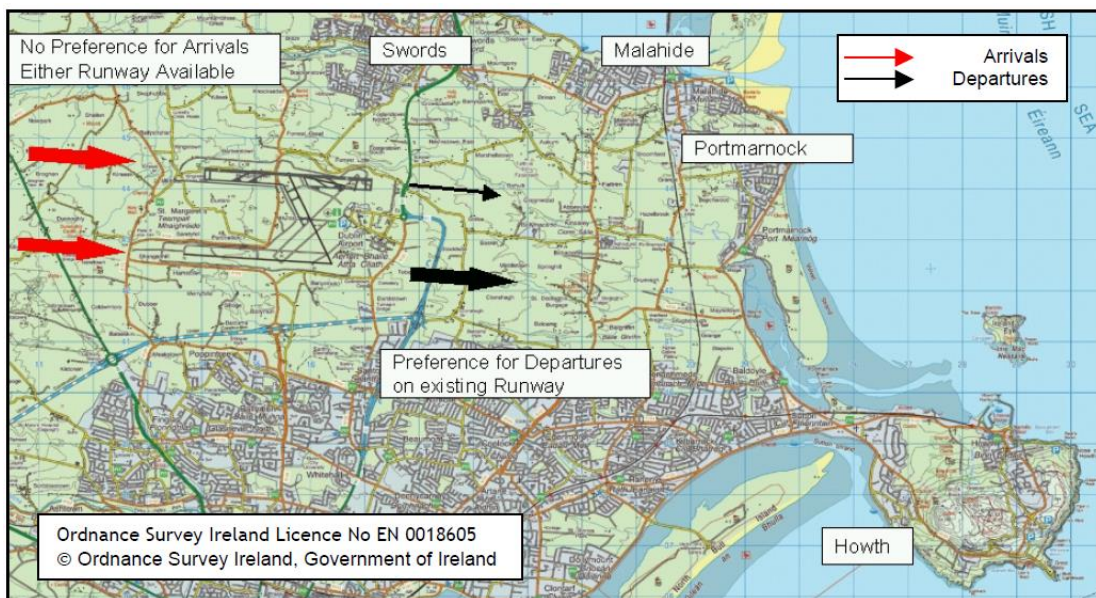
Firstly, *the parallel runways (10R-28L and 10L-28R) would be used in preference to the cross runway 16-34 to mitigate the impacts associated with over-flying of the highly populated areas on North Dublin City.*

Secondly, *when winds are westerly, Runway 28L will be preferred for arriving aircraft. Either Runway 28L or 28R will be used for departing aircraft as determined by ATC. This is illustrated in EIS Addendum Figure 16.3.*



EIS Addendum Figure 16.3 - Preferential Use of Parallel Runways (Westerly Winds).

When winds are easterly, either Runway 10L or 10R as determined by ATC will be preferred for arriving aircraft. Runway 10R will be preferred for departing aircraft. This is illustrated in EIS Addendum Figure 16.4.



EIS Addendum Figure 16.4 - Preferential Use of Parallel Runways (Easterly Winds).

This approach has the aim of limiting the numbers of people affected by operations on the proposed northern parallel runway.

It is very evident from the EIS Addendum outlining Option 7b that the flight routes are straight out. However, in the daa's current planning application the routes are divergent.

In Appendix 13B of the EIAR report, section 13B.3.13 describes the proposed runway layout:

Once the North Runway is operational Dublin Airport will operate during the daytime (07:00 – 23:00) in accordance with Conditions 3a-3c per the mode of operation Option 7b, as detailed in the Environmental Impact Statement Addendum, Section 16 as received by the planning authority on the 9th day of August, 2005. This provides that:

- a. *“the parallel runways (10R-28L and 10L-28R) shall be used in preference to the Crosswind Runway, 16-34,*
- b. *when winds are westerly, Runway 28L shall be preferred for arriving aircraft. Either Runway 28L or 28R shall be used for departing aircraft as determined by air traffic control,*
- c. *when winds are easterly, either Runway 10L or 10R as determined by air traffic control shall be preferred for arriving aircraft. Runway 10R shall be preferred for departing aircraft,*
except in cases of safety, maintenance considerations, exceptional air traffic conditions, adverse weather, technical faults in air traffic control systems or declared emergencies at other airports.”

Sections 13B.3.16/17 reference the use of mixed mode (both runways used simultaneously for arrivals and/or departures). No planning permission has been granted or sought for this type of operation and it is not in accordance with Option 7b.

Section 13B.3.18 discusses the triggers that could warrant the change to mixed mode operation:

- i. More than 35 arrivals in one hour.
- ii. More than 44 departures in one hour.
- iii. More than 48 movements (combined arrivals and departures) on one runway in one hour

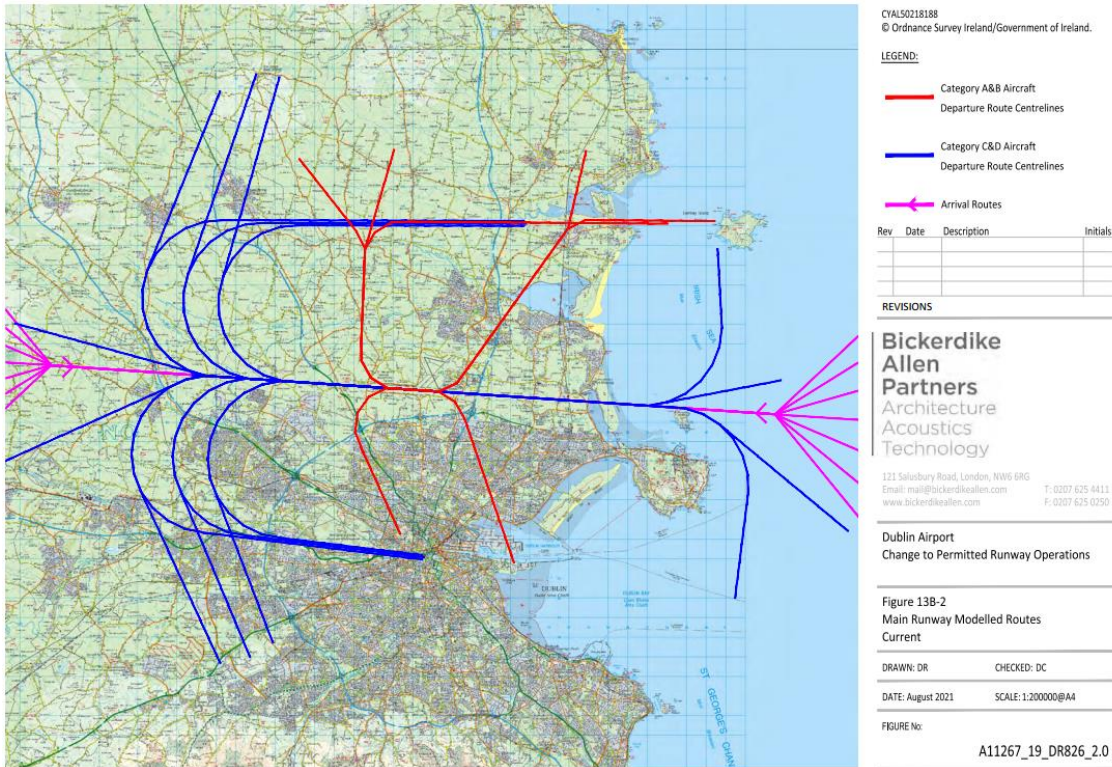
Referring back to tables 13B-10/11/12/13 above, there is no hour during the night-time period where either of the 3 conditions are met. The largest number of forecast movements during the night-time period for westerly operations is between 06:00 – 07:00, with 22 movements on 28L and 15 on 28R. The largest number of forecast movements during the night-time period for

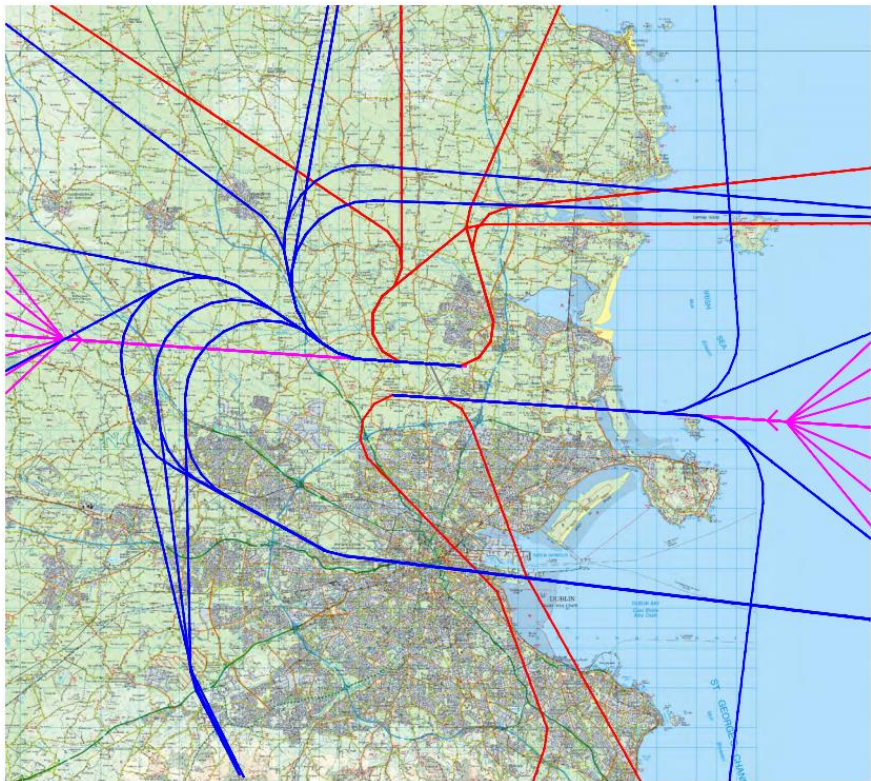
easterly operations is also between 06:00 – 07:00, with 20 movements on 10R and 17 on 10L. **Therefore, based on the daa’s own forecasts and their logic for switching between segregated mode and mixed mode, there is no justification for mixed mode during the night-time period.**

At the end of Appendix 13B, maps are provided showing the current routes with the existing runway (Fig 13B-2), the future segregated mode routes (13B-3) and the future mixed mode routes (Fig 13B-4).

In Fig 13B-2, the departure routes are straight out for category C&D aircraft (jets) until they reach an altitude of 3k feet, whereas in Fig 13B-3 and 13B-4 the routes are divergent and early turns are shown. As stated in section 13B.3.41, early divergent angles of 30 and 75 degrees are presented for departures to the West on the North Runway and 15 degrees for departures to the East. Departures on the South Runway continue straight out.

These divergent routes are contrary to Option 7b, and no planning permission exists for them.





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LEGEND:

Category A&B Aircraft
Departure Route Centrelines

Category C&D Aircraft
Departure Route Centrelines

Arrival Routes

Rev	Date	Description	Initials

REVISIONS

**Bickerdike
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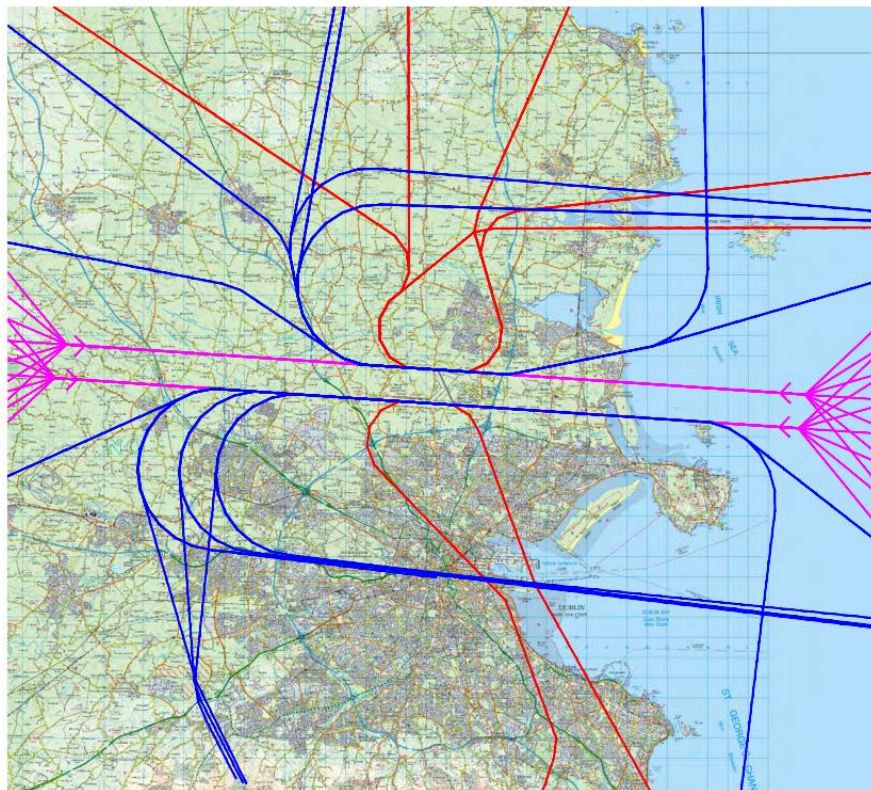
Dublin Airport
Change to Permitted Runway Operations

Figure 138-3
Main Runway Modelled Routes
Future Segregated Mode

DRAWN: DR CHECKED: DC

DATE: August 2021 SCALE: 1:200000@A4

FIGURE No:
A11267_19_DR827_2.0



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LEGEND:

Category A&B Aircraft
Departure Route Centrelines

Category C&D Aircraft
Departure Route Centrelines

Arrival Routes

Rev	Date	Description	Initials

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Dublin Airport
Change to Permitted Runway Operations

Figure 138-4
Main Runway Modelled Routes
Future Mixed Mode

DRAWN: DR CHECKED: DC

DATE: August 2021 SCALE: 1:200000@A4

FIGURE No:
A11267_19_DR828_2.0

It is also important to stress that during the 2016 Consultation phase, a divergence of 30 degrees was not mentioned. And the future 2022 night-time noise contours presented only had a resolution down to 48 dB LAeq,8. As a result, highly populated areas such as Malahide were not made aware that they would be subject to night-time noise levels in excess of the WHO Guideline limits.

7.0 ENVIRONMENTAL NOISE DIRECTIVE (END) ROUNDS 1,2 & 3

7.1 ROUND 1 END

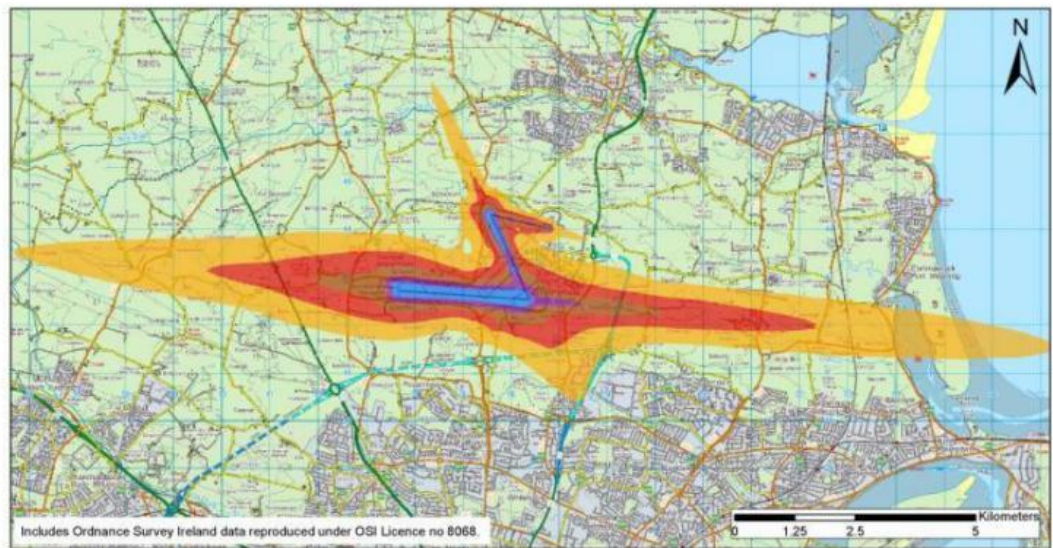
Under EU Directive 2002/49/EC (END) and transposed into Irish Law by the Environmental Noise Regulations, SI 140 of 2006, the EPA has been designated as the National Authority for the purposes of the regulations. The four local authorities in Dublin were designated as the noise-mapping and action planning bodies for the purpose of making and approving strategic noise maps action plans in Dublin. This aim of the Directive is to create strategic noise maps for major roads, railways, airports and agglomerations. These maps can then be used to assess the number of people affected by noise and used to compare the noise situation to other EU countries.

The first Noise Action Plan (NAP) was created with noise data from 2006 and can be found at [https://www.dublincity.ie/sites/default/files/media/file-uploads/2018-07/Noise Action Plan 2008.pdf](https://www.dublincity.ie/sites/default/files/media/file-uploads/2018-07/Noise%20Action%20Plan%202008.pdf).

Dublin Airport is considered a major airport under the END as it caters for greater than 50,000 movements. Noise data in relation to Dublin Airport can be found in Appendix 11 and 12.

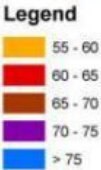
Lden (population)	2006	Lnight (population)	2006
55-59.9	2800	50-54.9	0
60-64.9	200	55-59.9	0
65-69.9	100	60-64.9	0
70-74.9	10	65-69.9	0
>=75	0	>=70	0

APPENDIX 12



Dublin Airport
Environmental Noise
Regulations 2006

L-DEN Contours

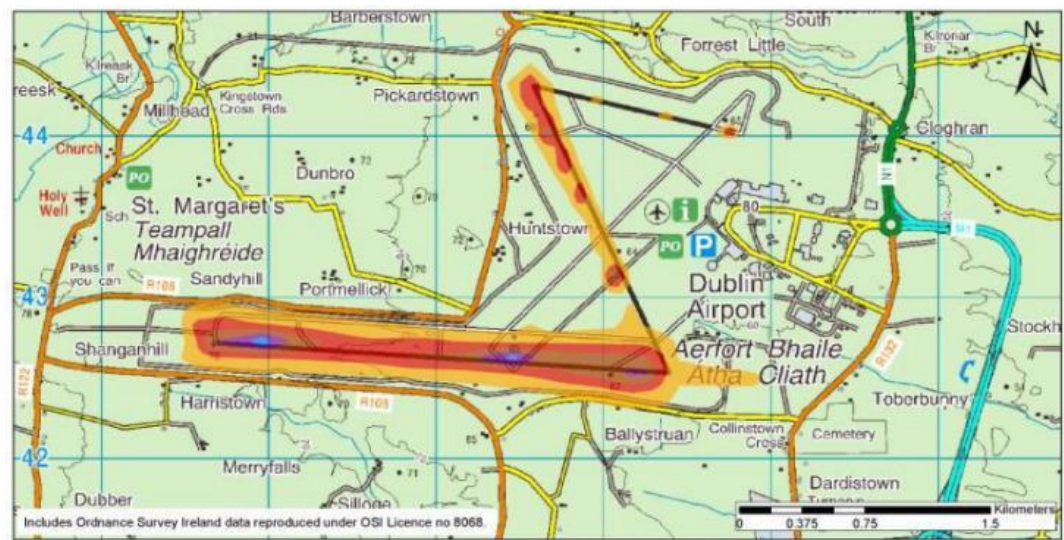


Statistics (expressed as hundreds)

Numbers of people Exposed to Lden 55-59	agglomeration	28
Numbers of people Exposed to Lden 60-64	agglomeration	2
Numbers of people Exposed to Lden 65-69	agglomeration	1
Numbers of people Exposed to Lden 70-74	agglomeration	0.1
Numbers of people Exposed to Lden >75	agglomeration	0

Flawler, EPA, 18/12/2007

APPENDIX 11



Dublin Airport
Environmental Noise
Regulations 2006

L-Night Contours



Statistics (expressed as hundreds)

Numbers of people Exposed to Lnight 50-54	agglomeration	0
Numbers of people Exposed to Lnight 55-59	agglomeration	0
Numbers of people Exposed to Lnight 60-64	agglomeration	0
Numbers of people Exposed to Lnight 65-69	agglomeration	0
Numbers of people Exposed to Lnight >70	agglomeration	0

Flawler, EPA, 18/12/2007

7.2 ROUND 2 END

The second NAP was created based on noise data for 2011 and can be found at [https://www.dublincity.ie/sites/default/files/media/file-uploads/2018-07/Dublin Noise Action Plan 2013-2018 Final.pdf](https://www.dublincity.ie/sites/default/files/media/file-uploads/2018-07/Dublin_Noise_Action_Plan_2013-2018_Final.pdf).

A summary of the results can be found in table 5.9 of the NAP:

30 | Dublin Agglomeration Environmental Noise Action Plan December 2013 – November 2018

Table 5.9 Noise exposure levels from aircraft – Dublin Agglomeration 2012

Decibels dB(A)	Lden number people Exposed	Lden % people Exposed	Lnight number people Exposed	Lnight % people Exposed
<50	1260700	99%	1271700	100%
50-54	11900	1%	1200	0%
55-59	300	0%	200	0%
60-64	200	0%	0	0%
65-69	0	0%	0	0%
70-74	0	0%	0	0%
>75	0	0%	0	0%

7.3 ROUND 3 END

For the third NAP Fingal County Council created a separate NAP for Dublin Airport. It was created with data from 2016 and can be found at <https://www.fingal.ie/sites/default/files/2019-04/NAP%20Final.pdf>.

The results of the noise mapping are as follows:

Table 2 2016 Noise Level Band Area Total L_{den}

Noise Band L_{den} dB(A)	Area (km ²)	Dwellings	Population
55 – 59.9	39.7	6,400	18,500
60 – 64.9	16.9	500	1,500
65 – 69.9	6.5	100	300
70 – 74.9	2.3	0	0
≥ 75	1.6	0	0

Table 3 2016 Noise Level Band Area Total L_{night}

Noise Band L_{night} dB(A)	Area (km ²)	Dwellings	Population
50 – 54.9	24.1	2,200	6,200
55 – 59.9	9.1	100	400
60 – 64.9	3.3	0	0
65 – 69.9	1.3	0	0
≥ 70	1.0	0	0

7.4 2019 NOISE STATISTICS

2019 Noise statistics were submitted to ANCA as part of the planning application F19A/0449 to increase passenger numbers at Dublin Airport for all passenger buildings from 32mppa to 35mppa. The DAA subsequently withdrew their application on the 25th of June by email.

During the planning process the DAA submitted a report from BAP consultants titled 'DUBLIN AIRPORT AIRPORT NOISE METHODOLOGY REPORT' (<https://www.fingal.ie/sites/default/files/2020-04/20200331-aircraft-noise-modelling-methodology-report-1.pdf>).

The Lden and Lnight noise statistics for 2019 are as follows:

2019 Annual L _{den} Contour					
Contour Value, L _{den}	Area, km ²	Excluding Permitted Developments		Including Permitted Developments	
		Dwellings	Population	Dwellings	Population
≥ 45 dB	745.7	304,600	847,100	316,200	883,600
≥ 50 dB	218.7	119,900	339,700	130,800	374,000
≥ 55 dB	88.3	26,000	73,700	33,400	96,300
≥ 60 dB	35.6	6,500	17,600	11,300	32,500
≥ 65 dB	12.2	1,100	2,700	3,900	11,800
≥ 70 dB	4.4	0	0	0	0
≥ 75 dB	1.7	0	0	0	0

Table 16: Areas, dwelling and population counts – 2019 Annual L_{den} contours

2019 Annual L _{night} Contour					
Contour Value, L _{night}	Area, km ²	Excluding Permitted Developments		Including Permitted Developments	
		Dwellings	Population	Dwellings	Population
≥ 45 dB	122.2	11,900	33,800	19,100	55,900
≥ 50 dB	52.3	3,500	10,000	7,500	22,600
≥ 55 dB	18.6	500	1,300	1,300	3,900
≥ 60 dB	6.4	0	0	0	0
≥ 65 dB	2.5	0	0	0	0
≥ 70 dB	1.0	0	0	0	0

Table 18: Areas, dwelling and population counts - 2019 Annual L_{night} contours

The 2019 Baseline Lden contour figures are also provided in table 13-11 of the original EIAR:

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Table 13-11: Areas, number of dwellings and population in 2019 Baseline Annual L_{den} contours

Scenario		2019 Baseline			
Contour L_{den} (dB)	Area (km ²)	Excluding Consented Developments		Including Consented Developments	
		Dwellings	Population.	Dwellings	Population
45	745.7	261,053	754,135	272,632	790,487
50	218.7	57,115	174,146	66,707	204,495
55	88.3	11,493	34,097	17,888	53,757
60	35.6	2,115	6,279	5,558	17,182
65	12.2	104	285	104	285
70	4.4	10	31	10	31

The 2019 Baseline L_{night} contour figures are given in table 13-19 of the original EIAR:

Table 13-19: Areas, number of dwellings and population in 2019 Baseline Annual L_{night} contours

Scenario		2019 Baseline			
Contour L_{night} (dB)	Area (km ²)	Excluding Consented Developments		Including Consented Developments	
		Dwellings	Population.	Dwellings	Population
40	328.4	113,699	344,912	123,802	376,760
45	122.2	19,717	59,307	26,939	81,439
50	52.3	4,522	13,838	8,518	26,369
55	18.6	558	1,533	1,376	4,158
60	6.4	41	110	41	110
65	2.5	4	13	4	13

2019 L_{den} and L_{night} noise statistics were also obtained via an AIE request to the DAA for 2019 noise contours. The DAA provided a document 'Ref 1_A11267_11_RP015_3.0 2019 Noise Contours.pdf' titled 'Dublin Airport 2019 Noise Contours, Areas, Dwelling and Population Counts, Community Building Counts'. The document is dated November 2020 and created by BAP. Tables 7 lists the L_{den} figures and table 9 lists the L_{night} figures:

2019 Annual 24h Contour					
Contour Value, L_{den}	Area, km ²	Excluding Permitted Developments		Including Permitted Developments	
		Dwellings	Population	Dwellings	Population
≥ 45 dB	745.7	261100	754100	272600	790500
≥ 50 dB	218.7	57100	174100	66700	204500
≥ 55 dB	88.3	11500	34100	17900	53800
≥ 60 dB	35.6	2100	6300	5600	17200
≥ 65 dB	12.2	100	300	100	300
≥ 70 dB	4.4	0	0	0	0
≥ 75 dB	1.7	0	0	0	0

Table 7: Areas, dwelling and population counts – 2019 Annual 24h contours, L_{den} average mode (cumulative contour bands)

2019 Annual Night Contour					
Contour Value, L_{night}	Area, km ²	Excluding Permitted Developments		Including Permitted Developments	
		Dwellings	Population	Dwellings	Population
≥ 40 dB	328.4	113700	344900	123800	376800
≥ 45 dB	122.2	19700	59300	26900	81400
≥ 50 dB	52.3	4500	13800	8500	26400
≥ 55 dB	18.6	600	1500	1400	4200
≥ 60 dB	6.4	0	100	0	100
≥ 65 dB	2.5	0	0	0	0
≥ 70 dB	1.0	0	0	0	0

Table 9: Areas, dwelling and population counts - 2019 Annual Night contours, L_{night} average mode (cumulative contour bands)

The 2019 Noise statistics submitted to ANCA by the DAA as part of the planning application F19A/0449 in the document (<https://www.fingal.ie/sites/default/files/2020-04/20200331-aircraft-noise-modelling-methodology-report-1.pdf>) differ from the data provided in tables 13-11 and 13-19 of the original EIAR. The data supplied via the BAP 2019 November 2020 report also differs. The contour areas match but the dwellings and population numbers differ. Two sets of data have been provided by the DAA in planning applications to Fingal County Council and the other via an AIE request. Which set of data do we trust? This is real empirical data and should not be re-modelled. These errors in historical data calls into question all the figures supplied by the DAA in their EIARs.

7.5 2018 NOISE STATISTICS

In the original EIAR document, table 13-10 provides the 2018 Baseline Lden figures:

Table 13-10: Areas, number of dwellings and population in 2018 Baseline Annual Lden contours

<i>Scenario</i>		<i>2018 Baseline</i>			
<i>Contour Lden (dB)</i>	<i>Area (km²)</i>	<i>Excluding Consented Developments</i>		<i>Including Consented Developments</i>	
		<i>Dwellings</i>	<i>Population.</i>	<i>Dwellings</i>	<i>Population</i>
45	703.2	245,806	716,719	257,385	753,071
50	209.3	61,726	184,770	71,332	215,161
55	85.9	11,887	35,476	18,100	54,562
60	33.5	1,639	4,710	4,953	15,248
65	11.6	92	251	92	251
70	4.1	8	25	8	25

In table 13-18 we have the 2018 Baseline Lnight figures:

Table 13-18: Areas, number of dwellings and population in 2018 Baseline Annual Lnight contours

<i>Scenario</i>		<i>2018 Baseline</i>			
<i>Contour Lnight (dB)</i>	<i>Area (km²)</i>	<i>Excluding Consented Developments</i>		<i>Including Consented Developments</i>	
		<i>Dwellings</i>	<i>Population.</i>	<i>Dwellings</i>	<i>Population</i>
40	304.4	102,538	307,457	112,422	338,671
45	118.2	18,815	55,492	25,998	77,477
50	48.4	4,131	12,316	7,808	23,926
55	16.8	276	753	328	950
60	5.8	19	56	19	56
65	2.3	3	10	3	10

7.6 COMPARISON OF NOISE STATISTICS

Lden (pop.)	2006	2011	2016	2018	2019 (32m-35m)	2019 (EIAR)
45-49.9				531949	507400	579989
50-54.9				149294	266000	140049
55-59.9	2800	11900	18500	30766	56100	27818
60-64.9	200	300	1500	4449	14900	5994
65-69.9	100	200	300	226	2700	254
70-74.9	0	0	0	25	0	31
>=75	0	0	0	0	0	0

Lden

- From 2006 -> 2019, population exposed to **>= 55 dB** Lden increased from 3100 -> 12400 -> 20300 -> 35476-> 34097
- WHO recommended safe Lden limit is **45 dB**.
- Therefore, there were **754,135** people exposed to adverse effects of aircraft daytime noise in 2019 according to the WHO.

L_{night} (pop.)	2006	2011	2016	2018	2019 (32m-35m)	2019 (EIAR)
40-44.9				251965		285605
45-49.9				43176	23800	45469
50-54.9	0	1200	6200	11563	8700	12305
55-59.9	0	200	400	697	1300	1423
60-64.9	0	0	0	46	0	97
>=65	0	0	0	10	0	13

L_{night}

- From 2006 -> 2019, population exposed to **>= 50 dB L_{night}** increased from 0 -> 1400 -> 6600 -> 12316 -> 13838
- WHO recommended safe L_{night} limit is **40 dB**.
- Therefore, there were at least **344,912** people exposed to adverse effects of aircraft night-time noise in 2019 according to the WHO.

7.7 COMPARISON OF CONTOUR AREAS

Lden

Table 13C-3: Contour Areas, L_{den} Metric

Metric Value, dB L_{den}	Scenario and Contour Area, km ²						
	2018	2022 Permitted	2022 Proposed	2025 Permitted	2025 Proposed	2035 Permitted	2035 Proposed
≥ 45	703.2	432.2	499.6	535.2	714.3	350.5	410.3
≥ 50	209.3	162.3	185.3	186.5	218.1	148.5	168.1
≥ 55	85.9	67.6	76.9	80.7	93.8	63.6	73.2
≥ 60	33.5	26.4	30.2	31.4	36.6	24.3	28.1
≥ 65	11.6	9.2	11.1	11.2	13.4	8.0	9.4
≥ 70	4.1	3.3	4.0	3.9	4.7	2.9	3.4
≥ 75	1.7	1.3	1.5	1.6	1.9	1.2	1.4

Lnight

Table 13C-4: Contour Areas, L_{night} Metric

Metric Value, dB L_{night}	Scenario and Contour Area, km ²						
	2018	2022 Permitted	2022 Proposed	2025 Permitted	2025 Proposed	2035 Permitted	2035 Proposed
≥ 40	304.4	170.7	248.5	196.8	311.5	149.9	227.4
≥ 45	118.2	75.1	116.3	85.9	128.7	68.5	105.1
≥ 50	48.4	29.0	45.2	34.6	55.0	26.6	43.0
≥ 55	16.8	10.1	16.9	12.0	20.8	9.0	14.7
≥ 60	5.8	3.5	5.8	4.2	6.9	3.0	5.1
≥ 65	2.3	1.4	2.2	1.6	2.7	1.2	2.0
≥ 70	1.0	0.6	0.9	0.7	1.1	0.5	0.8

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Lden and Lnight area contours for 2016 are given in the Noise Actin Plan for Dublin Airport 2019 – 2023:

Contour Band	2006		2011		2016	
	Area (km ²)	# Dwellings	Area (km ²)	# Dwellings	Area (km ²)	# Dwellings
55-59.9 dB L _{den}	35.5	4,500	29.9	4,100	39.7	6,400
60-64.9 dB L _{den}	13.0	300	10.7	100	16.9	500
65-69.9 dB L _{den}	5.4	100	4.6	100	6.5	100
70-74.9 dB L _{den}	2.1	0	1.7	0	2.3	0
≥75 dB L _{den}	1.6	0	1.4	0	1.6	0
50-54.9 dB L _{night}	17.0	600	14.6	400	24.1	2,200
55-59.9 dB L _{night}	6.6	100	5.9	100	9.1	100
60-64.9 dB L _{night}	2.8	0	2.3	0	3.3	0
65-69.9 dB L _{night}	1.0	0	0.8	0	1.3	0
≥70 dB L _{night}	0.9	0	0.8	0	1.0	0

Collating all contour areas from all years and forecasts:

Contour Areas square km

dB L _{den}	2006	2011	2016	2018	2019	2022 Permitted	2022 Proposed	2025 Permitted	2025 Proposed
≥45				703.2	745.7	432.2	499.6	535.2	714.3
≥50				209.3	218.7	162.3	185.3	186.5	218.1
≥55	57.6	48.3	67	85.9	88.3	67.6	76.9	80.7	93.8
≥60	22.1	18.4	27.3	33.5	35.6	26.4	30.2	31.4	36.6
≥65	9.1	7.7	10.4	11.6	12.2	9.2	11.1	11.2	13.4
≥70	3.7	3.1	3.9	4.1	4.4	3.3	4.0	3.9	4.7
≥75	1.6	1.4	1.6	1.7	1.7	1.3	1.5	1.6	1.9

SUBMISSION ON BEHALF OF SMTW ENVIRONMENTAL DAC

Contour Areas square km

dB Lnight	2006	2011	2016	2018	2019	2022 Permitted	2022 Proposed	2025 Permitted	2025 Proposed
>=40				304.4	328.4	170.7	248.5	196.8	311.5
>=45				118.2	122.2	75.1	116.3	85.9	128.7
>=50	28.3	24.4	38.8	48.4	52.3	29.0	45.2	34.6	55.0
>=55	11.3	9.8	14.7	16.8	18.6	10.1	16.9	12.0	20.8
>=60	4.7	3.9	5.6	5.8	6.4	3.5	5.8	4.2	6.9
>=65	1.9	1.6	2.3	2.3	2.5	1.4	2.2	1.6	2.7
>=70	0.9	0.8	1	1	1	0.6	0.9	0.7	1.1

It is very evident that the sizes of the contours have grown from Round 1 of the END. The contours did decline in size for Round 2 in 2011 due to the downturn in flights from the financial crisis.

'2025 Proposed' contours have grown considerably compared with '2016 Baseline' and '2025 Baseline'.

There were 589 submissions to the Dublin Airport Noise Action Plan for Dublin Airport 2019 – 2023, completed in December 2018, complaining of the increase in noise over the three rounds of the END. Unfortunately, Fingal County Council as the designated body for Noise Action Planning did not hold Dublin Airport to account and ignored the submissions to the NAPs and allowed noise levels to spiral out of control.

We contest the use of 2018 as the baseline year for this new planning application. 2016 saw all key noise metrics increase. The submissions from the public were ignored by Fingal County Council.

Under the European Communities (Environmental Noise) Regulations 2018, Fingal County Council as the designated body for Noise Action Planning, must report progress on their NAP to the EPA each year and are required to set out the steps that have been taken to prevent, protect against and reduce excessive transport noise, as identified in the NAP. Fingal have failed in this regard as noise levels have been increasing from 2006 -> 2016 -> 2018 -> 2019.

The EPA in their 2020 report, Ireland's Environment An Integrated Assessment 2020, state that ***"noise complaints around Dublin Airport have become a more significant issue in recent years, with the Dublin Airport Authority logging 1453 noise-related complaints in 2018"***.

The EPA further add that the roll out of Policy Objective 65 in the Project Ireland 2040: National Planning Framework (DHPLG, 2018) will be a significant driver of environmental noise policy in Ireland over the coming decades.

Policy Objective 65 requires the following:

“Promote the pro-active management of noise where it is likely to have significant adverse impacts on health and quality of life and support the aims of the Environmental Noise Regulations through national planning guidance and Noise Action Plans”.

EPA Noise Summary stating that Local Authorities need national guidance and will help to implement the noise objective in Project Ireland – National Planning Framework 2040 and should consider the WHO 2018 Noise guidelines.

Chapter Highlights for Environmental Noise



National noise planning guidance for local authorities is needed. This will support and promote the proactive management of noise where it is likely to have significant adverse impacts on health and quality of life. The guidance will also help to implement the noise objective in Project Ireland – National Planning Framework 2040 and should also consider the 2018 WHO noise and health guidelines.



Noise pollution complaints from the public have been increasing and current measures do not always allow for them to be adequately addressed. Local authorities need to take a much stronger leadership role in dealing with noise issues, particularly in more urban areas.



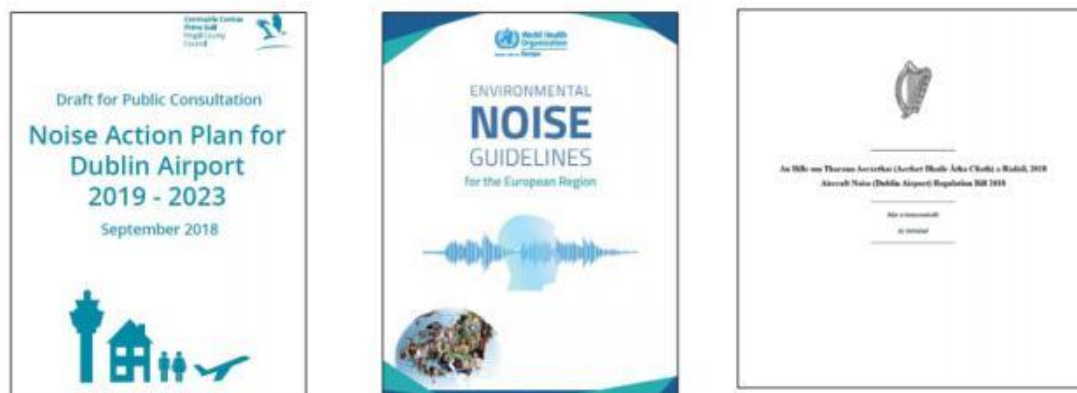
Integrating air pollution and noise mitigation measures (and climate actions), particularly in transport management, can bring many benefits. Such integration of options could be explored under the plans for a clean air strategy for Ireland. Local authorities should also designate quiet areas in their cities for health and wellbeing value.

At an ICAO conference in Peru in May 2019
(<https://www.icao.int/Meetings/GREENAIRPORTS2019/Green%20Airports%20Presentations/>)

[Martin%20Doherty%20session%206.pdf](#)), Martin Doherty, Environmental & Planning Manager, North Runway Project Dublin Airport, outlined that Round 3 of the END showed a greater number of houses affected by noise and an increased public concern in relation to noise. This is clear evidence that the DAA agreed that the Round 3 NAP using data from 2016 identified a noise problem.

Changing noise regime since permission was granted in 2007

- 3rd Noise Action Plan shows greater numbers affected by noise
- Increased public concern in relation to noise
- Regulation 598/2014 (Balanced Approach); new Competent Authority for airport noise announced
- New World Health Organisation (WHO) Guidelines for Night Noise released



It is very evident that 2016 identified a Noise Problem as was identified by the DAA and the outcome of the NAP. 2016 is therefore the obvious choice as a baseline reference year in the past and one that ANCA should insist on.

ANCA were aware of the NAPs and the 2019 noise statistics from the F19A/0449 planning application and discontinued to evaluate the noise situation at Dublin Airport when the planning application was withdrawn. ANCA should have continued to assess the noise situation then but instead waited for another planning application to continue with the process. This was a failure on behalf of ANCA and a dereliction of its duties under regulation 598/2014.

On June 25th 2020, the DAA wrote to ANCA informing them of their withdrawal of F19A/0449. In email correspondence from ANCA on July 15th 2020 when queried on the noise assessment, ANCA stated:

*“I can confirm that planning application F19A/0449 has been withdrawn by the DAA. Although the aircraft data as submitted by the airport authority as part of the planning application was informative, it was not sufficient to facilitate a full assessment of the noise situation at the airport. ANCA requested detailed additional information but a response to the request was not received in advance of the application being withdrawn. This information is on the planning section of our website. Notwithstanding this, it is the intention of ANCA that a full aircraft noise assessment will be undertaken for Dublin Airport. **I do not have a date for the assessment at this time** but can advise that there will be no pre-determined outcome.”*

ANCA could still have requested the information irrespective of the DAA withdrawing F19A/0449 to carry out a noise assessment but declined to do so.

ANCA also neglected to inform the Environmental section of FCC about the increase in noise.

It is worth noting that Fingal County Council Planning Department updated their Development Plan with new Noise Zones to take account of night-time noise > 55 dB L_{night}. That should have triggered the Environmental section of Fingal County Council to act to enforce mitigation measures at Dublin Airport under their NAP. Unfortunately, that did not happen. Nor did ANCA intervene with the noise problem identified by Fingal County Council Planning Department. ANCA turned a blind eye.

7.8 SUMMARY

- Large increase in population affected by noise from Rounds 1-3 of the END (2006 -> 2016)
- Population exposed to adverse noise levels increased significantly in 2018 and 2019
- Lden
 - From 2006 -> 2019, population exposed to **>= 55 dB** Lden increased from 3100-> 12400 -> 20300 -> 35476-> 34097
 - WHO recommended safe Lden limit is **45 dB** highlighting that **754,135** people exposed to adverse effects of aircraft daytime noise in 2019
- Lnight
 - From 2006 -> 2019, population exposed to **>= 50 dB** Lnight increased from 0 -> 1400 -> 6600 -> 12316 -> 13838
 - WHO recommended safe Lnight limit is **40 dB**, highlighting that **344,912** people exposed to adverse effects of aircraft night-time noise in 2019
- Differences in 2019 noise figures between this application and those provided in planning application F19A/0449
- 2019 is historical data and differences suggest data cannot be relied upon
- '2025 Proposed' Lden contours significantly larger than 2016 and '2025 Permitted' contours in terms of size
- '2025 Proposed' Lnight contours significantly larger than 2016 and '2025 Permitted' contours in terms of size
- 589 submissions to Dublin Airport NAP from members of the public
- Historical trail of failure by Fingal County Council to control noise at Dublin Airport
- EPA in their 2020 report state that noise around Dublin Airport has become a significant issue with the daa logging 1453 noise-related complaints in 2018
- EPA signals that Policy Objective 65 in Project Ireland 2040 requires to "Promote the pro-active management of noise where it is likely to have significant adverse impacts on health and quality of life and support the aims of the Environmental Noise Regulations through national planning guidance and Noise Action Plans"
- Night-time noise issue identified by Fingal County Council Planning Department when updating their Noise Zones. Neither the Environmental section of Fingal County Council nor ANCA saw it as their role under 2002/49/EC or under EU 598/2014 to mitigate this identified noise problem at Dublin Airport
- Martin Doherty, daa's Environmental Manager, publicly acknowledged the noise problem and increased public concern resulting from the 2016 noise data from the 3rd Round of the END at an ICAO conference in May 2019

- ANCA were presented with noise data as part of planning application F19A/0449 but failed to progress the noise assessment once the application was withdrawn

8.0 BASELINE REFERENCE YEAR FOR NAO (2019)

8.1 CONSULTATION REPORT

On page 22 of the consultation report it discusses the '*Selection of 2019 as the Reference Year in the NAO*'. It states that ANCA adopted 2019 as the reference point for the NAO outcomes as it represents:

- *"The latest data available to ANCA for the Airport at the time the NAO was developed; and*
- *The year in which noise outcomes from the Airport were at their peak with respect to the population exposed to aircraft noise"*.

The first comment is a remarkable comment to make. ANCA can request the daa to provide any data it requires under the Aircraft Noise Bill. It therefore could have got access to 2020 and 2021 datasets.

The second comment is also an extraordinary comment as ANCA have deliberately chosen to select the noisiest year on record as their baseline. It was also a year in which the daa breached the 32m passenger cap and illegally handled 32.9m passengers.

Under the 3rd Round of the END presented in the Noise Action Plan for Dublin Airport, it used data from 2016. This data clearly shows an escalating noise problem at Dublin Airport. Fingal County Council failed to address this and allowed the noise to escalate to 2019 levels.

The next paragraph shows that ANCA were not willing to be restrictive on the daa's operations and so used the worst illegal year on record to facilitate the daa's operation:

"With regard to the use of 2016 as the reference year when setting the NAO, ANCA's analysis indicated that to limit and reduce the long-term adverse effects of aircraft night time noise (while allowing the sustainable development of the airport), setting the NAO with reference to the 2016 situation may be overly restrictive with regard to wider local, regional and national policy relating to the growth of the airport and the forecasts provided with the Application".

ANCA state that the EU Action Plan '*Towards a Zero Pollution for Air, Water and Soil*' references 2017 as the baseline year but that the data was based on 2016 data provided in Round 3 of the Environmental Noise Directive (END).

ANCA make reference to the candidate NAO (cNAO) put forward by the daa. In pre-planning material on Fingal's Planning website for application F20A/0668, there's clear evidence of ANCA meeting with the daa to formulate a NAO. This is not how an independent Noise Regulator should act.

ANCA state that the NAO is designed to manage the noise of increasing aircraft activity in a sustainable manner. There is nothing sustainable about selecting a NAO that facilitates an increase in noise levels over the existing permitted planning permission. If noise levels increase from the permitted scenario then this proves that the NAO is not fit for purpose.

But evidence provided by ANCA shows that even using 2019 as the baseline reference year, the number of people exposed to >55dB Lnight in 2030 with population growth due to the daa's proposal (scenario P02) will exceed the 2019 levels. And ANCA also show that when taking future passenger numbers into consideration beyond the 32m cap, that the daa's proposal will fail to reduce the number HSD below 30% by 2030.

The following paragraphs from page 23 of the Consultation Report show the true motive behind ANCA's actions:

"Different reference points could have been selected in developing the NAO, however the percentage reductions set by ANCA would need to be reconsidered to reflect what is achievable. For example, the percentage reduction outcomes stated in the NAO (i.e., to reduce the number of people HA and HSD by 30% in 2030, by 40% in 2035, and 50% in 2040), cannot be achieved by using the reference year of 2018 by many of the runway use and restriction scenarios considered by ANCA.

Likewise, setting the fourth outcome required by the NAO (i.e., to reduce the number of people exposed to levels of noise above 55 dB Lnight and 65 dB Lden compared to 2019), if changed to reference against 2018, would also limit detailed consideration of many of the runway use and restriction scenarios considered by ANCA in its analysis.

ANCA has determined that the NAO, which has been developed against the 2019 reference situation, will enable the airport to ensure future decreases in noise exposure and associated health outcomes whilst providing operational flexibility".

ANCA has deliberately set out to find the worst noise situation possible as its baseline so that it doesn't impact on any future flight activities at Dublin Airport. They can only achieve that by selecting 2019. If they select 2018 that the daa proposed, then they cannot satisfy the NAO.

A truly independent Noise Regulator would have chosen 2016 as the baseline reference year as the data from Round 3 of the END clearly shows the noise levels spiralling out of control. 2016 also supports the recommendation from the EU Action Plan 'Towards a Zero Pollution for Air, Water and Soil'.

2016 should be the baseline reference year and ANCA should then adjust their NAO criteria based on this reference year. But it's obvious that ANCA did it the other way around. Select the criteria first and then find the year that fits the agenda.

8.2 SUMMARY

- The selection of 2019 or 2018 as the baseline for noise comparison does not meet the requirements of Directive 2002/49/EC as required by the Aircraft Noise (Dublin Airport) Regulation Act 2019. The escalating noise reported in noise action plans dating back to 2008 have been ignored with respect to reducing and prevention of noise at Dublin Airport
- The selection of 2019 as a baseline for noise is contrary to target 2 of the EU Action Plan “Towards zero pollution for air, water and soil” adopted by the European Commission on 12th of May 2021, as the targets are not set using 2017 as the baseline. The selection of 2019 as a baseline is contrary to ANCA’s own SEA document used to screen the project.
- The figures presented by the daa for 2018 as a baseline are incorrect as during 2018 the crosswind runway was used extensively and therefore the figures are distorted and not accurate with respect to reviewing the current application.
- At the Oral Hearing in 2007 for the North Runway, figures were presented comparing 2007 levels to a 2025 forecast. The increase in population exposed with the 2025 forecast scenario were deemed unacceptable by An Bord Pleanála’s consultant, Mr Rupert Thornely-Taylor. The figures in the daa’s current proposal are higher again. In 2007 the forecast noise exposure figures were deemed to be unacceptable from a health point of view. How can they be acceptable now?
- The health effects proposed to be inflicted on the St Margarets The Ward community have not been evaluated by either the daa or ANCA. The real cost due to health effects alone is calculated at more than €600 million per annum due to the proposal.
- The daa and Fingal County Council in the Dublin Airport Noise Action Plan claim that aircraft types have changed in Dublin Airport between 2003 to 2017 resulting in quieter aircraft. However, noise exposure levels grew exponentially in line with movement increases.
- Noise levels submitted by the daa to the St Margarets The Ward group for various noise emissions for specific aircraft indicate that there is very little difference in the actual measured noise level between the older and newer aircraft. Therefore, the assertions claimed regarding fleet replacements is totally flawed
- Using daa’s own forecasts for arrivals and departures there appears to be no reason for proposing a change from the current flight restrictions as there is little or no difference in proposed movements

8.3 NOISE PROBLEM

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 L_{night} comparison.

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

Noise Band L _{night} 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 of the noise screening document by Noise Consultants states that “Over the period 2006 to 2019 the population reported to be exposed to night-time noise above 50 dB L_{night} 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 L_{night} 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 L_{night} calculation will inflate the figures as the population grew by 56k or 23% in that timeframe.

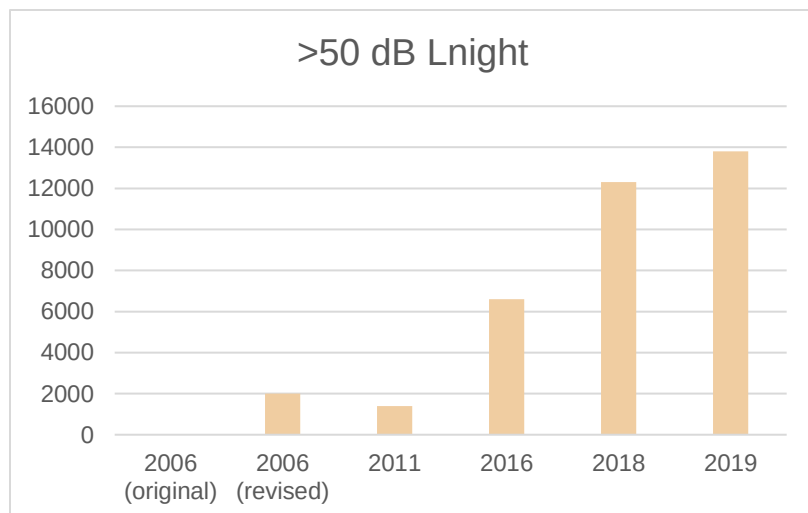
8.4 NOISE ACTION PLAN

The original statistics from the 2006 NAP show zero people affected <50 dB L_{night}.

Noise Action Plan for Dublin Airport 2019 - 2023

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

Noise dB(A)	Band	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 L_{den} and >40 dB L_{night} 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
2019	754135	344912	34097	13838	745.8	328.4

Comparing the populations exposed to >55 dB Lden and >50 dB Lnight between 2016 and 2019, shows a significant increase in numbers affected. From the area contours above, it is evident that the increase in the population affected is due to the increase in the contours and not encroaching developments as specified by ANCA. The noise increased on the population and not the other way around. The >45dB Lden contour doubled in size from 2016 to 2019. The >40dB Lnight contour increased by 50% from 2016 to 2019. These are the contour limits defined by the WHO as leading to adverse health effects. Fingal County Council failed in its role under the END to limit and reduce noise and protect the health of the public. ANCA in its role as the Competent Authority also did nothing to combat noise when presented with the noise statistics for 2019. ANCA also failed to take action for the breach of the 32m cap even though the 32m passenger cap is an operating restriction which comes under its remit. This is a clear signal that ANCA/Fingal County Council has a conflict of interest and was unwilling to tackle the daa.

It is also worth noting that ANCA started the process of evaluating the noise situation at Dublin Airport when the daa lodged their application to increase passenger numbers from 32-35m in September 2019. The daa subsequently withdrew their application but ANCA failed to continue the process of evaluating the noise situation. They have the powers to request any noise data from the daa but were unwilling to do so. It is clear that ANCA did not want to evaluate the noise situation unless the daa had a planning application submitted. One can postulate that ANCA did not want to jeopardise any future plans from the daa.

8.5 2019

2019 was the noisiest year on record at Dublin Airport and the year the passenger limit was breached. Fingal County Council failed to take the daa to task even when made aware of the planning breach.

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 2019:

- **754k** people >45 dB Lden and **344.9k** people >40 dB Lnight.
- Over **13.8k** people affected >50 dB Lnight
- Over **34k** people exposed to >45 dB Lden.

At part 2 section 9(1) of the “Airport Noise (Dublin Airport) Regulations Act 2019” states:

“The competent authority shall ensure that the noise situation at the airport is assessed in accordance with the European Communities (Environmental Noise) Regulations 2018 (S.I. No. 549 of 2018) and the Environmental Noise Directive”.

The Environmental Noise Directive 2002/49/EC required all member states to produce noise action plans in 2008 and thereafter every 5 years.

Under Article 1(1) of the Directive is noted that “The aim of the Directive shall be to define a common approach intended to avoid, prevent or reduce on a prioritised basis the harmful effects, including annoyance, due to exposure to environmental noise”.

A noise action plan was produced in 2008 and 2013 for the Dublin Agglomeration which includes Dublin Airport. This noise action plan was produced by Dublin City Council, Fingal, South Dublin and Dun Laoghaire Rathdown County Councils.

In both of these action plans a decision-making matrix was presented. A value of 17 or more is suggested as the point where ‘Priority’ action shall be considered. In both action plans the St Margarets The Ward area had a value of 20 and therefore were categorised as an area of priority with respect to avoiding, preventing or reducing noise. Measures put forward in these action plans include flight restrictions.

Fingal County Council provided the noise action plan for 2018 for Dublin Airport. The priority matrix was not included in this plan.

Planning permission for the new North Runway was granted in 2007. Therefore, all the Local Authorities involved in the production of the noise action plans to date were aware of the

planned runway. At item 6 of Annex IV of the Directive 2002/49/EC it states that “for the purposes of informing the citizens in accordance with article 9 and the development of action plans in accordance with Article 8, additional and more detailed information must be given, such as:

— difference maps, in which the existing situation is compared with various possible future situations”.

The noise mapping for the proposed new runway which had been granted permission was not presented in any of the noise action plans to inform citizens as required by the Directive. Both daa and ANCA therefore were fully aware of the escalating noise situation at Dublin Airport and the fact that as a result the St Margarets The Ward area was a prioritised area to prevent and reduce environmental noise.

The noise situation was known to be escalating and required action as far back as 2006.

These levels cannot be used as acceptable baseline levels to compare against. Using 2019 or 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.

8.6 EU TENDER DOCUMENT

ANCA's publication 'Preliminary Assessment and Identification of a Noise Problem' (<https://consult.fingal.ie/en/system/files/materials/15666/C.%20Preliminary%20Assessment%20and%20Identification%20of%20a%20noise%20problem.pdf>) mentions an EU Tender document ENG/2020/OP/0036, <https://etendering.ted.europa.eu/document/document-file-download.html?docFileId=88838>, on the Study on Airport noise Reduction.

Section 2.22 of ANCA's publication references Box 1 of the EU Tender document.

Section 2.23 states the objective of the END is to **reduce the harmful effects of environmental noise exposure on human health**.

Section 2.24 states that "It can be inferred from these provisions that where the noise exposure level are harmful to human health, **Member States are required to identify that situation in the action plan as a "problem"** in the sense of Annex V No. 1, 6th indent to the END."

Importantly, section 2.27 states "Box 1 of the tender specification suggests that the Balanced Approach may be triggered when measures other than operating restrictions are introduced and potentially when the noise action plan is being revised or reviewed". This is very relevant to the Dublin Airport Noise Action Plans as they showed clear signs of escalating noise. Therefore, these should have triggered the Balanced Approach.

Box 1 further states that:

"The objective of an action plan is not confined to simply mapping problems (noise mapping is set out in Art.7 of END), but ultimately to trigger actions intended to address the problems identified. It follows that where Member States authorities have identified a problem in the action plan, they also have to provide for noise reduction measures. Article 8(1) second subparagraph gives Member States discretion in deciding which noise- reduction measures in particular they take to address a problem. However, this provision is not giving to Member States the discretion whether to take measures at all. Indeed, this would be against the systematic approach and procedures set out in the Directive in order to reach the objective to reduce noise".

Measures were not taken to address the noise problems identified in the Noise Action Plans.

Box 1

Commission Services' assessment of legislative obligations deriving from the combined reading of the END and the BAR

Context

The END requires Member States by 2008, and every five years thereafter, to draw up action plans to "manage noise issues, including noise reduction if necessary", according to Article 8(1) and 8(5). Annex V point 1 states that an action plan must include [6th indent] an "identification of problems and situations that need to be improved" as well as [8th indent] "noise reduction measures [in force and] in preparation". In accordance with the 9th indent of Annex V point 1, the plan must also refer to "actions which the competent authorities intend to take in the next five years, including any measures to preserve quiet areas".

The BAR is intended to facilitate the achievement of specific noise abatement objectives at the level of individual airports and to enable as a last resort and when needed the use of operating restrictions in accordance with the balanced approach, i.e. the process developed by the International Civil Aviation Organization (ICAO) under which a range of measures available to reduce airport noise is considered and defined by Article 2(3) of the BAR. The main provisions of the BAR are included in its Article 5, on "General rules on aircraft noise management", and in Article 6, whose title is "Rules on noise assessment". Those provisions set out procedures potentially leading to the adoption of noise-related action.

BAR is closely linked to END. Not only do both acts (partially) have the same objective of protecting the environment but moreover, BAR also refers to END in several provisions, acknowledges the procedures set out therein and builds upon the measures taken in accordance with the Directive.

The objective of an action plan is not confined to simply mapping problems (noise mapping is set out in Art.7 of END), but ultimately to trigger actions intended to address the problems identified. It follows that where Member States authorities have identified a problem in the action plan, they also have to provide for noise reduction measures. Article 8(1) second subparagraph gives Member States discretion in deciding which noise-reduction measures in particular they take to address a problem. However, this provision is not giving to Member States the discretion whether to take measures at all. Indeed, this would be against the systematic approach and procedures set out in the Directive in order to reach the objective to reduce noise.

When the BAR is to be applied?

The BAR applies whenever a “noise problem” has been identified. Specific rules apply whenever there is a new operating restriction envisaged, aiming at noise reduction.

(1) The identification of a noise problem is a prerequisite for the application of the BAR, Article 1(1) and Article 5(2). Given the strong reference of the BAR to the END, it follows that the reference, in Article 1(1) and 5(2) of the Regulation, to a situation in which “a noise problem has been identified” must be understood as meaning that such problem emerges

from the action plan, in accordance with Annex V point 1, 6th indent to the Directive (“identification of problems and situations that need to be improved”).

The Directive does not state expressly how the Member States shall identify a problem. However, the objective of the Directive is to reduce on a prioritised basis harmful effects (defined in Article 3(b) as negative effects on human health) of exposure to environmental noise, Article 1(1). To that end, Member States adopt action plans, “with a view to preventing and reducing noise levels where necessary, and particularly where exposure levels can induce harmful effects on human health”, Article 1(1)(c).

It can be inferred from these provisions that where the noise exposure level are harmful to human health, Member States are required to identify that situation in the action plan as a “problem” in the sense of Annex V point 1, 6th indent to the END.

Moreover, it is useful to compare the terms of Article 5 and Article 6 of BAR. Only Article 6(2) requires the existence of an indication “that new operating restriction measures may be required”, whereas Article 5(2) applies as soon as “a noise problem has been identified”. In addition, the introductory phrase of Article 5(3) refers to a situation in which “noise-related action is taken” and confirms by its terms that such action may encompass measures other than operating restrictions.

Consequently, Article 5(2) of the Regulation does not require that operating restrictions be envisaged.

Time wise, the BAR is triggered when the noise action plan is revised or reviewed according to the END.

(2) A specific case under the BAR arises where it turns out that a new noise related operating restriction may be required, namely as a result of the assessment conducted under the END. In such case, Article 6(2) of that Regulation applies.

Additional information

- *One or two action plans?*

Regardless the existence of two legal acts, the action plan is a single instrument which, as such, is governed by the END.

- *One or two public consultations?*

The END foresees under Article 8(7) to consult the public about proposals for action plans. The same is requested under the BAR, Article 5(2)(e). Given the close link between the two acts, and the fact that the action plan is a single instrument, it can be considered that Article 5(2)(e) of the BAR does not require to repeat a public consultation for any given problem.

- *Review every how long?*

At least every 5 years or whenever a major development affecting the existing noise situation.

If there is an existing operating restriction, shall competent authorities (re-)evaluate that

8.7 NOISE ZONES

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 L_{night} metrics in the definition of the 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. <i>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.</i> <i>Applicants are advised to seek expert advice.</i>
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 <i>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.</i>

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	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:

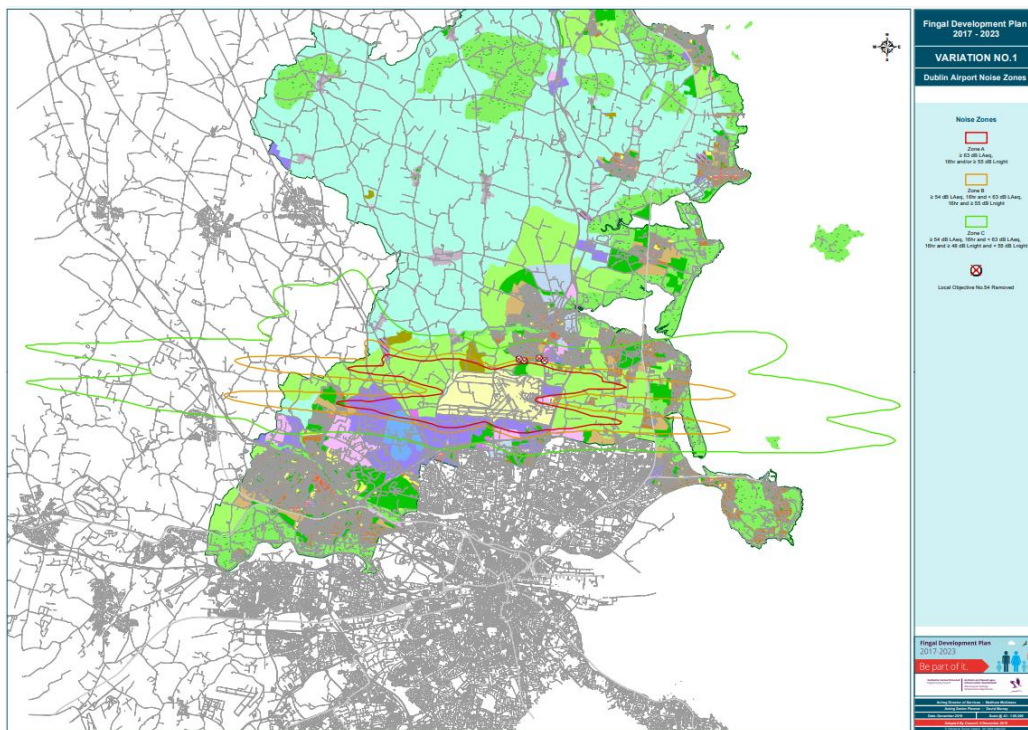
*“Objective DA07: Strictly control inappropriate development and require noise insulation where appropriate in accordance with table 7.2 above within Noise Zone B and Noise Zone C and where necessary in Assessment Zone D, and actively resist new provision for residential development and other noise sensitive 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 minimise 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 but were not.

Variation number 1 of Fingal Development Plan 2017-2023

(https://www.fingal.ie/sites/default/files/2020-01/map-adopted_variation_no_1.pdf)



Zone B accounts for areas exposed to noise levels $>55\text{dB L}_{\text{night}}$ but ANCA are not intending to insulate all dwellings within Zone B. There is a very clear contradiction in what the planning authority perceives as areas requiring insulation compared to ANCA. It is worth highlighting that the noise zones were developed assuming worse case 100% usage in each direction to account for days when the airport is operating under certain conditions. ANCA are not taking these conditions into account and are averaging out the noise levels.

8.8 CROSSWIND RUNWAY

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

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(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

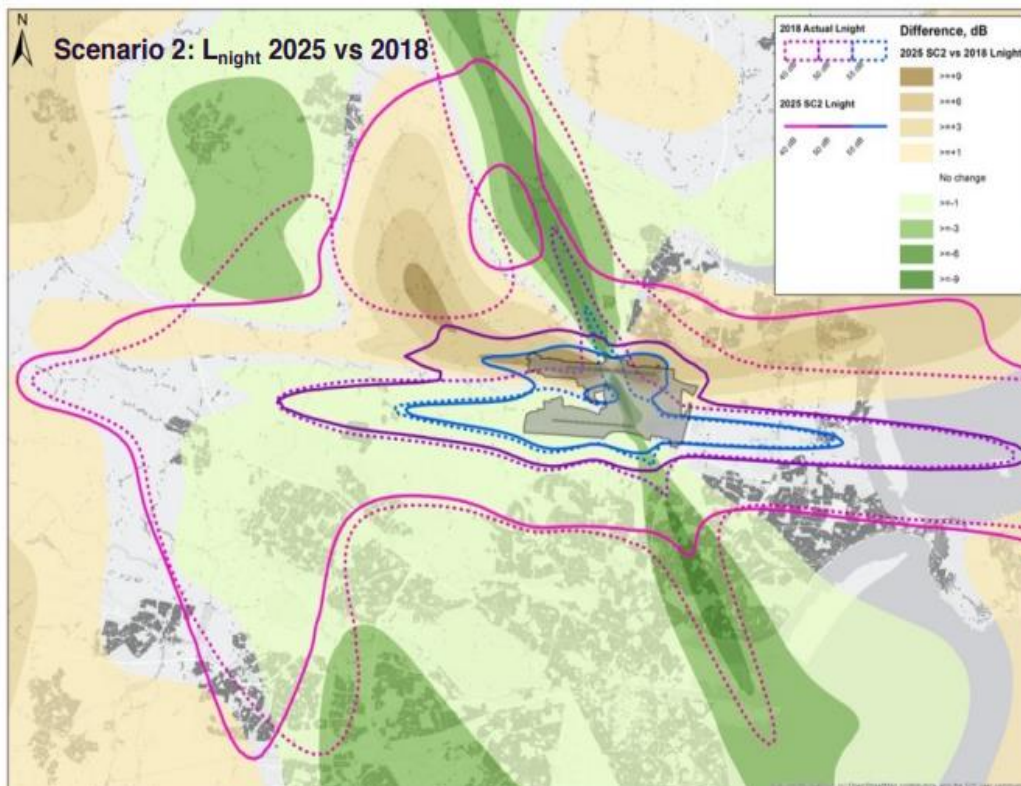
Runway	Arrivals	Departures
10L/10R	29%	29%
28L/28R	70%	70%
16	0.75%	0.75%
34	0.25%	0.25%

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 and 2019 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 L_{night} 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 from 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.



8.9 ORAL HEARING

Mr Rupert Thornley Taylor was a consultant for An Bord Pleanála (ABP) and provided a report dated June 4th, 2007 on his findings of the Oral Hearing submissions (Microsoft Word - R217429A.DOC (pleanala.ie)). Mr Taylor concluded that the people and property counts before the hearing were unreliable 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 Pleanála Ref. No. PL 06F.217429

TABLE 1

Non-Dispersed			Dispersed		
Option 7b (737-800) 2025 Contour High Growth			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. 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. 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
L _{Aeq16}	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 Taylor found that an increase from **5403->7431** > 57dB L_{Aeq16} and an increase from **336->439** >63dB L_{Aeq16} unacceptable.

In 2018 and 2019, the >63dB L_{Aeq16} figures improved slightly. The > 57dB L_{Aeq16} figures increased from 5403 to 9177 and 9706. Growth between 2007 and 2018/2019 was allowed to grow unmitigated beyond values deemed unacceptable by Mr. Taylor at the Oral Hearing.

These large increases in the population exposed to >57dB L_{Aeq16} in 2018/2019 demonstrate that 2018/2019 cannot be deemed appropriate Baseline years as increases in magnitude of these values compared with 2007 were unacceptable at the Oral Hearing in 2007.

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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

In a pre-planning document from ANCA dated 30th April 2020 (“The Identification of a Potential ‘Noise Problem’ and the setting of a candidate Noise Abatement Objective for Dublin Airport”), ANCA present data showing that the 2018 data exceeds an estimate of the 2005 EIS forecast as associated with the planning conditions for the North Runway consent. 2019 data is noisier again and this provides further proof on the illegality of 2018 and 2019 as baseline reference years.

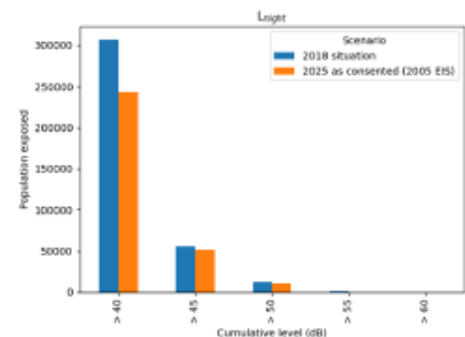
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Noise Problem Aspects

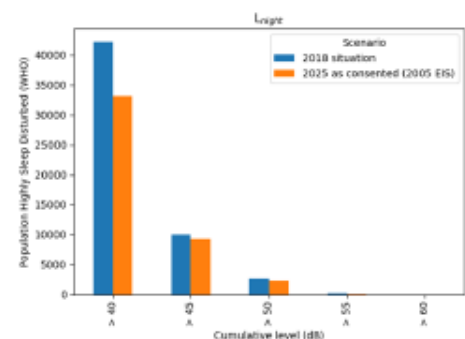
Aspect B – Current L_{night} exposure in excess of consented L_{night} exposure

- daa has provided an estimate of the 2005 EIS forecast L_{night} noise exposure in 2025 as associated with the operating conditions for the North Runway consent.
- This has some importance and materiality as it is the level of noise exposure that is attached with the current North Runway consent.
- This could be seen to achieve an unwritten noise abatement objective set by the Board to determine the restrictions in the consent
- ANCA analysis indicates that 2018 noise exposure was higher than the North Runway consented exposure. ANCA will explore this in relation to 2017 and 2019 data when this is available.

(a) Population Exposed - L_{night}



(b) Population HSD - L_{night}



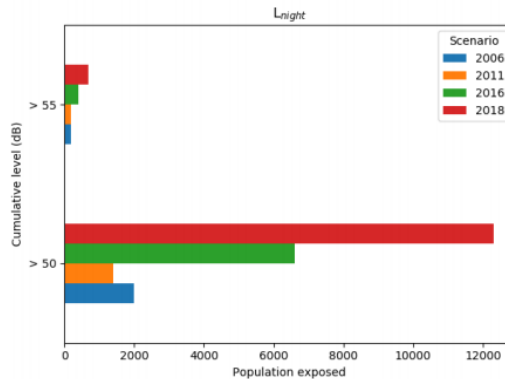
Aspect A relates to the noise action plans and night-time noise. The graph shows the number of people exposed to >50dB L_{night} and >55dB L_{night} for the years 2006, 2011 and 2016 which are the reporting years for the 3 rounds of the Environmental Noise Directive (END). 2018 is also included as a comparison. It is evident that night-time noise has increased significantly over time, and this can be used as a basis for declaring a noise problem. ANCA should have used the END data in the Noise Action Plans to declare a noise problem when ANCA was first incorporated.

DRAFT

Noise Problem Aspects

Aspect A – Noise Action Plan and Night Noise

- NAP indicated that night noise from the Airport *“may be a problem and may need to be improved”*. This was based on 2016 data.
- The NAP includes actions for daa to report exposure annually. The information provided under pre-planning provides data for 2018 and 2021 – ANCA has since requested 2017 and 2019 data.
- The data shows that night noise exposure has increased several fold since 2006 and would continue to increase. This may be used as a basis of declaring a noise problem.
- This aspect does lend itself to supporting the setting of a NAO.



An tÚdarás Inniúil um
Thorann Aerárthai
Aircraft Noise
Competent Authority

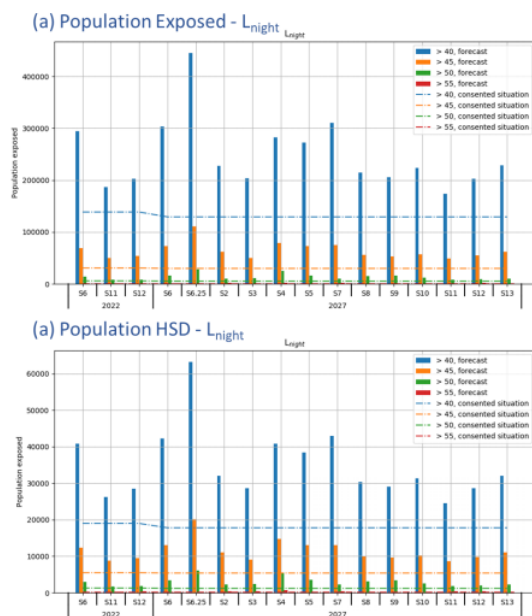
Aspect C focuses on the forecast night-time exposure scenarios compared with the consented scenario. The graph shows that all forecast scenarios would result in higher exposure levels compared with the consented scenario from ABP in 2007. It states that:

“This points to significant environmental effects under EIA and as such materiality”.

Noise Problem Aspects

Aspect C – Forecast noise exposure is higher than the consented situation

- The data provided by daa and their Consultants demonstrates clearly that for most metrics and noise indicators, that scenarios for changes to the North Runway planning consent will result in higher levels of noise exposure than would occur if the consent remained unchanged.
- This points to significant environmental effects under EIA and as such materiality.



In summary any of the three aspects could have been used to declare a noise problem in 2019.

8.10 EU COMMISSION ACTION PLAN

In ANCA's SEA environmental report it references the EU Commission Action Plan document: 'Towards a Zero Pollution for Air, Water and Soil':

https://ec.europa.eu/environment/strategy/zero-pollution-action-plan_en

The target is to reduce the number of people chronically disturbed by transport noise by 30% from a 2017 baseline.

- 2.26 In the case of the European Commission's Zero Pollution Action Plan (2021), this overarching EU policy sets clear targets with respect to reducing the number of people chronically disturbed by transport noise. As part of this Action Plan, Target 2 states that:

"By 2030 the EU should reduce by 30% the share of people chronically disturbed by transport noise [from a 2017 baseline]."

Target 2: By 2030 the EU should reduce by 30% the share of people chronically disturbed by transport noise

Basis: Environmental Noise Directive 2002/49/EC

Description: The target is based on a 2021 Commission study analysing the official Member State data on noise exposure (Article 7 of the Environmental Noise Directive), national noise action plans covering the 2018-2024 period (Article 8 of the Environmental Noise Directive) and the 2020 EEA outlook on environmental noise in Europe⁵. The study quantified the reduction in noise-related health issues which can derive from implementing cost-effective measures, including solutions already available on the market. Some of those stem from specific noise limits mandatory under EU law (e.g.: on tyres⁶, on road vehicles⁷, on quiet wagons⁸), whilst others (e.g.: on quieter road surfaces, on smooth and quieter rails, on flight timeframes and procedures) require measures to be taken at national/local level under the Environmental Noise Directive in interplay with other relevant EU law⁹: the overall coordination and ambition level of the latter are left to the discretion of the relevant national/local authorities. Overall, the assessment of different scenarios integrating measures on roads, railways and airports showed that, compared to 2017, the expected reduction in noise-related health issues by 2030 ranged from 15% to 45%, with the most modest reduction stemming from the implementation of a few measures linked to the specific noise limits mandatory under EU law, and the highest reduction from a combination of the first scenario

together with stronger measures at local level. Thus, a reduction of 30% by 2030 is proposed as a realistic ambition, mainly achievable through a better implementation of relevant EU law and sound support to urban and regional zero-pollution actions on noise.

Reference year: 2017

Evidence base: EU study (2021) 'Assessment of potential health benefits of noise abatement measures in the EU'¹⁰

Monitoring: Update of the regular EEA assessment (latest EEA Report No 22/2019¹¹) to be included in the Zero Pollution Monitoring and Outlook Framework¹²

Target 2 in the Action Plan is to reduce the number of people chronically disturbed by Transport Noise by 30% by 2030. But the reference year to compare against is **2017**. The EU are basing this from the outcomes of the PHENOMENA project.

ANCA have the same target in their NAO of 30% by 2030 but their reference year is 2019. The SEA outlines how those > 50dB L_{night} have more than doubled since 2016 (6600 -> 13838). And 2025 Proposed will have 9764 people >50dB L_{night}.

4.80 *However, based on information submitted as part of planning application F20A/0668, the advice report on the potential noise problem associated with the application (Noise Consultants Ltd, 2021) shows further increases in noise exposure beyond those in the NAP. For example, the number of people exposed to night-time noise levels above 50 dBA L_{night} had risen to 12,317 in 2018, and to 13,838 in 2019 – more than double the figure for 2016. Similarly, the number of people exposed to average daytime noise levels greater than 55 dBA L_{den} reached 35,483 in 2018 (falling slightly to 34,097 in 2019) – again double the 2016 figure.*

This is further evidence that ANCA chose to take the 30% reduction from the EU Commission's Action Plan but chose deliberately to ignore their choice of 2017 and used 2019 instead as it was the noisiest year on record.

The baseline of 2019 chosen by ANCA is therefore contrary to Ireland's obligations under the adopted EU Action Plan on environmental noise and ignores all the data previously presented indicating the escalating noise figures which in turn inflict further health issues onto the community of St Margarets The Ward.

It is also worth noting that the daa had originally intended to apply to ABP in 2016 to have the operating restrictions removed. Had they proceeded at that time then 2016 would have been the noisiest year. So, it suited the daa's case that the Aircraft Noise Bill was delayed until 2019 when ANCA was enacted. This delay should not be used by ANCA as an opportunity to grant 2019 as the Baseline reference year.

8.1.1 PHENOMENA PROJECT

(Assessment of Potential Health Benefits of Noise Abatement Measures in the EU)

The aims of the Phenomena project are summarised in https://nws.eurocities.eu/MediaShell/media/Phenomena_project_summary.pdf.

The Phenomena project aims to support the European Commission in defining the potential of measures capable of delivering significant reductions (20%- 50%) of the health burden due to environmental noise from major roads, railways and airports, and to assess how legislation could be enhanced to strengthen the implementation of mitigation measures, whilst considering the constraints and specificities of each transport mode.

This will be undertaken by evaluating the current situation and potential improvements, considering realistic abatement measures and legislative options in a series of scenarios.

The project encompasses:

- assessment of international and national noise legislation and relevant literature;
- assessment of noise action plans and their implementation
- identification and quantification of appropriate noise abatement solutions
- global modelling of characteristic traffic noise situations, scaling up from a series of site noise maps to EU level
- cost-benefit analysis (CBA) of each noise abatement measure
- a broad stakeholder consultation and two stakeholder workshops;
- baseline definition and scenario development;
- cost-benefit analysis (CBA) per measure and per scenario;
- comparative assessment of selected scenarios.

A final report will provide recommendations for enhanced legislation to achieve the targets for reduction of health burden.

Infrastructure in the scope is focused on

- roads and railways inside agglomerations of more than 100.000 inhabitants.
- locations around major roads of more than 3 million vehicles a year, where noise levels are above 53 dB Lden;
- around major railway lines of more than 30.000 trains a year, where noise levels are above 54 dB Lden; and
- around major airports of more than 50.000 movements a year, where noise levels are above 45 dB Lden.

Existing noise mitigation measures will be considered, such as:

for roads: quieter tyres, vehicles and road surfaces, barriers and local planning.

for railways: infrastructure improvement, barriers and local planning;

for aircraft: improved landing and take-off profiles, flight dispersion, operating restrictions, phasing out of older aircraft and local planning.

Legislation options to be considered may include for example: mandatory action plans, noise limits at dwellings, vehicle noise limits, link between END and vehicle legislation.

The project set up a specific methodology to quantify the health burden and its reduction at EU level over time. The DPSEEA framework was applied, quantifying each step in the chain from source to receiver and health impact. **The health burden is quantified by two monetisation methods to account for potential spread, but also in terms of percentage reduction of highly annoyed, highly sleep disturbed people and DALYs (related to heart disease).**

The existing average noise distribution in the EU, from EEA data, is used for the baseline, including forecast traffic growth and foreseen noise legislation.

The health burden reduction is calculated from the change in this noise distribution resulting from changes to the baseline, for example due to further reduction of noise at source, in the path or at receiver.

The cost-benefit analysis is based on the costs for increased implementation of noise abatement measures and the monetised health benefits using the two methods. It results in a benefit-to cost ratio over the period 2020-2035, net present value and a break-even year.

For airports, the report considered the following noise abatement solutions:

Table 7.13 Scenarios with a single noise solution for aircraft noise

Scenario	Description
A – flight profiles	Introduction of improved flight profiles. 2 dB reduction for departures.
B – track dispersion	Introduction of P-RNAV, resulting in no horizontal dispersion
C - Operating restrictions - curfew	night curfew, simulated by shifting 25% of the night flights to the evening, 25% to the day and by cancelling the remaining 50%. The effect of an implementation in i) 2025 and ii)2030 will be assessed.

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D - Operating restrictions - prohibition of operation for noisier aircraft	Prohibition of noisy aircraft during night period, simulated by replacing all non-chapter 4 aircraft by a chapter 4 equivalent in the period from 22h to 08h. The effect of an implementation in i) 2025 and ii)2030 will be assessed.
E - Forced phase out of older aircraft	In this scenario all non-chapter 4 compliant aircraft will be replaced by chapter 4 compliant equivalents. The effect of an implementation in i) 2025 and ii)2030 will be assessed.
F - Acquisition of new quieter aircraft	Accelerated fleet renewal. Apply an additional 0.1 dB/year noise reduction until 2030. After that, natural renewal is assumed
G - Sound insulation of residential and communal buildings	It is assumed that the percentage of dwellings with façade/roof insulation is increased by 50% in 2035. As an approximation it is further assumed that the noise exposure for insulated dwellings is so much reduced that these dwellings can be eliminated from the exposure distributions.
H - Creation of a buffer zone	It is assumed that in 2035 no population is living in areas with $L_{den} > 70$ and $L_{night} > 65$ dB.
I - Stakeholder engagement	Reduction of sensitivity equivalent to 2dB is assumed to be achieved by 2035.
J - reception limits	A scenario with reception limits $L_{den} = 60$ dB and $L_{night} = 55$ dB will be considered.

The report shows that the “best single solution with respect to health burden reduction is the introduction of a night curfew at all airports”.

The health burden reduction in 2030 is estimated between 37-60% and the benefit to cost ratio over 2020-2030 is 0.1-0.2.

Table 8.20 Overview of the impact of night curfew

Definition	Night curfew
Solutions triggered	Operating restriction, banning night flights at EU airports
Legislation concerned, new/amended	BAR
Causal links to national or EU legislation	National reception limits, noise emission ceilings, END action plans.
Technical and administrative steps required	Careful Impact assessment (CBA)
Negative trade-offs	Potentially high economic and social impact due to loss of jobs and profit
Expected health burden reduction	37 to 60%
Estimated benefit to cost ratio	0.1 to 0.2
Stakeholder inputs	Communities around airports strongly in favour (as main beneficiaries).
Likelihood of implementation by competent authorities	Not very likely to be implemented for the full night period (8 hours). Some possibilities for a ban during shorter periods.
Obstacles	Airlines (especially air cargo) will strongly oppose the measure, due to the likely high economic impact.
Timeline	As the BAR is currently under review, adjusting specific aspects of the instrument related to night-time bans could be implemented within two to four years.

ANCA have stated that the phasing out of the noisiest aircraft would have a significant effect on noise levels. However, that statement is contradicted by the Phenomena report which states that the expected health burden reduction is just 2.6-3.7%.

Table 8.23 Overview of the impact of phasing out the noisiest aircraft

Definition	Phasing out noisiest aircraft
Solutions triggered	Quieter aircraft
Legislation concerned, new/amended	BAR
Causal links to national or EU legislation	National reception limits, noise emission ceilings, END action plans.
Technical and administrative steps required	Direct financial support for the phasing out of noisiest aircraft before the restart of post-pandemic economy; review of the BAR to accommodate forced phase out.
Negative trade-offs	Loss of flight slots and business especially for the air freight sector.
Expected health burden reduction	2.6-3.7%
Estimated benefit to cost ratio	2.7-5.2
Likelihood of implementation by competent authorities	Likely if it also delivers savings such as fuel.
Obstacles	N.A.
Timeline	Targeted financial support could be an immediate solution within a year.

In section 8.5.5 (F – Fleet replacement with quiet aircraft), the expected health burden reduction from fleet replacement is discussed. These estimates are based on a replacement of the whole fleet such that in the period 2030-2035 a fully Chapter 14 compliant fleet is achieved. This is the best-case scenario for fleet replacement and far and above the forecasts for fleet replacements by the main carriers at Dublin Airport.

The report proposes a variant worth considering would be a night curfew for non-Chapter 14 aircraft in 2025. Also, economic incentives for quieter aircraft such as preferential slots for latest generation aircraft.

Table 8.24 Overview of the impacts for fleet replacement

Definition	Replacement of the existing fleet with quieter aircraft
Solutions triggered	Quieter aircraft
Legislation concerned, new/amended	BAR, EU Slot Regulation
Causal links to national or EU legislation	National reception limits, noise emission ceilings, END action plans.
Technical and administrative steps required	Stakeholder consultation, BAR review
Negative trade-offs	Partial write-off of investment
Expected health burden reduction	22-23%
Estimated benefit to cost ratio	-0.1
Likelihood of implementation by competent authorities	Likely if it also delivers savings such as fuel
Obstacles	Stakeholder buy-in
Timeline	10-15 years

This best-case-scenario for complete fleet renewal delivers an expected health burden in the region 22-23%. These estimates show that ANCA’s NAO cannot deliver the expected outcomes it hopes to achieve:

- The number of people highly sleep disturbed and highly annoyed in 2030 shall reduce by 30% compared to 2019
- The number of people highly sleep disturbed and highly annoyed in 2035 shall reduce by 40% compared to 2019
- The number of people highly sleep disturbed and highly annoyed in 2040 shall reduce by 50% compared to 2019
- The number of people exposed to aircraft noise above 55 dB L_{night} and 65 dB L_{den} shall be reduced compared to 2019

8.12 FLEET RENEWAL

The main contributor to ANCA's reduction is fleet renewal. There is no reduction in the number of flights on the South Runway at night and forecasts show that they will grow as the Night Quota System facilitates growth in movements. There is also future growth during the daytime with the new North Runway.

ANCA provided a report titled a 'Review of Applicant's Fleet and Forecast Assumptions and Curfew Commentary' in Appendix G of their draft decision. The projections of future aircraft mix were analysed by 'Altitude Aviation Advisory'. Altitude Aviation Advisory did not develop passenger forecast for Dublin Airport. They have used Mott MacDonalds forecasts. This is a serious flaw as no independent scrutiny has taken place of Mott MacDonalds forecast. ANCA, as independent Noise Regulator, is therefore taking the daa's passenger forecasts without any due diligence.

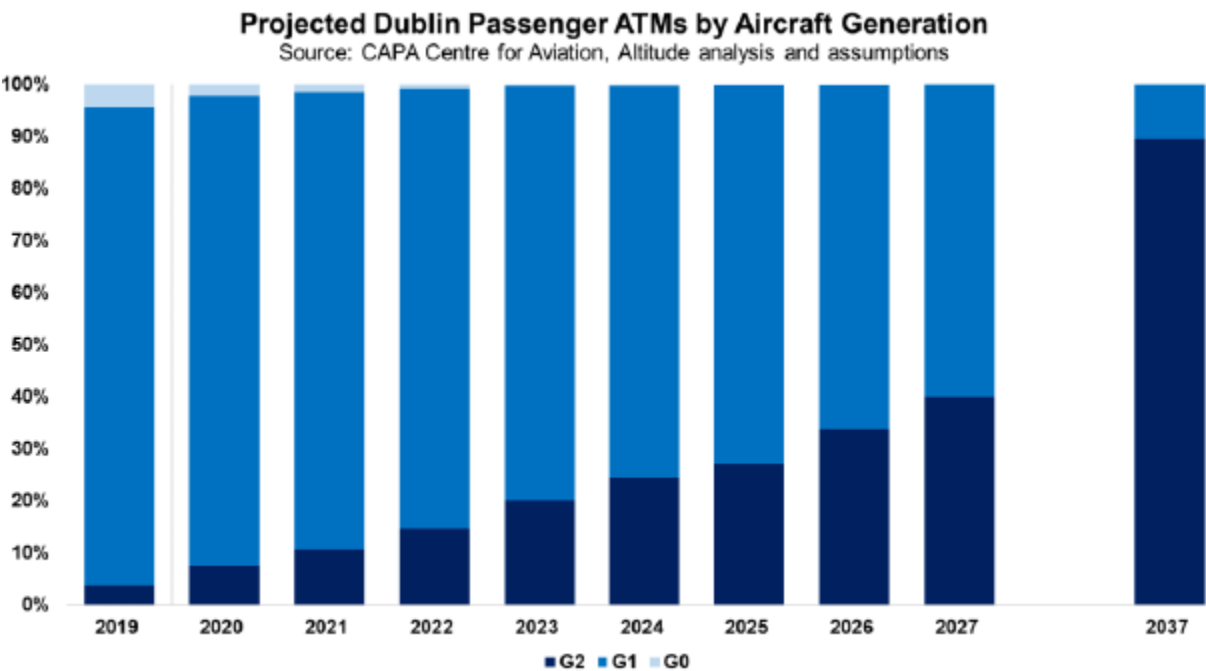
Forecast Parameters

- We have not developed passenger forecasts for Dublin Airport.
 - Instead, we have used the Mott MacDonald central unconstrained ATM forecast.
 - Additionally, we have adopted the Mott Macdonald 2019 ATM shares by airline, reported for Aer Lingus, Ryanair and British Airways.

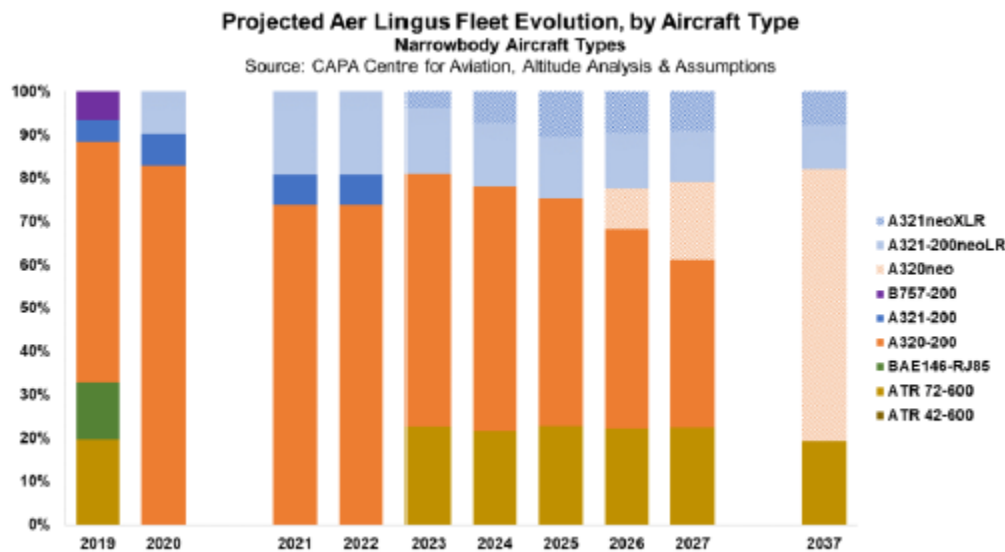
Also worryingly from Altitude Aviation Advisory:

- We have not had access to detailed data on actual flight operations at Dublin (only planned schedules) and have not been able to consult directly with the DAA or airlines on their plans.

The report provides a forecast of the various aircraft generation types. Circa 25% of aircraft in 2025 will be Generation 2, the year used for the regulatory decision. The projections are for 90% replacement by 2037 which is less than the whole fleet replacement modelled by the Phenomena project. Therefore, the estimated reduction in health burden of 22-23% will be reduced at Dublin Airport.



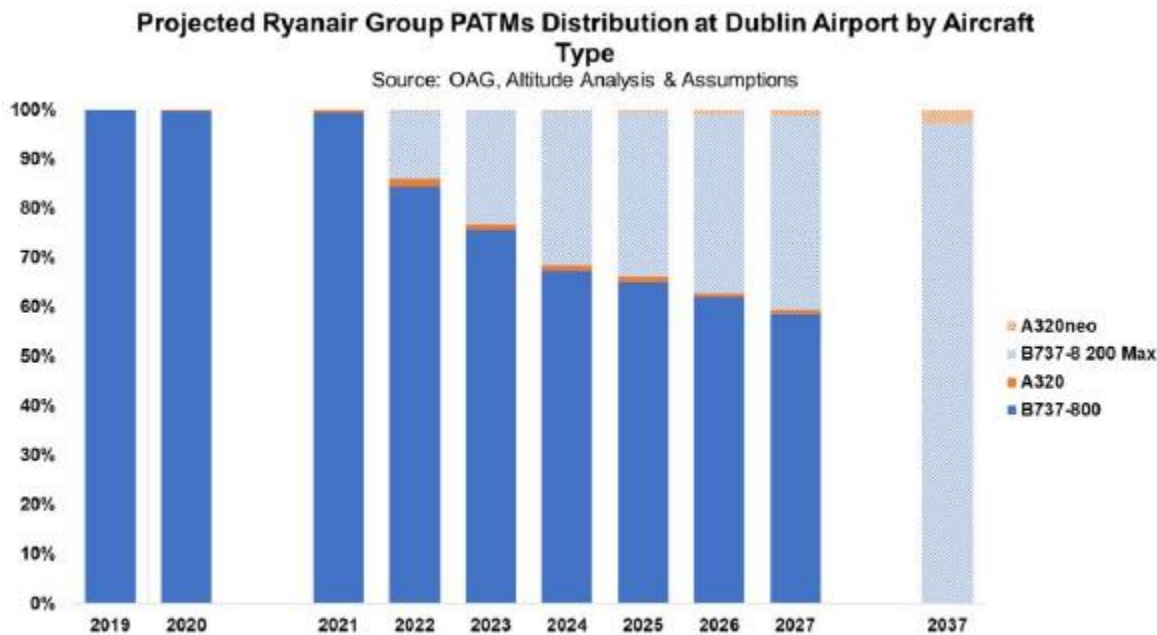
The report provides modelling of the projected fleet development for Aer Lingus. The majority of the fleet are narrow body aircraft. The projections show that the A320neo is not coming on stream until 2026, after the time period considered in the daa’s application.



These forecasts are predicated on the following assumptions:

A320 / A320neo	2021: Average age of existing A320 is ca. 14yrs with min age of ca. 10yrs and max age of ca. 20yrs. 2021-27: We <u>assume</u> A320 aircraft are used to cover capacity on some of the routes previously operated by Stobart/CityJet. 2021-27: We <u>assume</u> a gradual phase out of the existing A320 aircraft beginning 2023. 2021-31: We <u>assume</u> an order will be made for A320neo aircraft (or allocated to Aer Lingus from existing group capacity), and that these will begin to replace the A320 (with gradual growth of the combined A320/A320neo fleet). 2028-37: We <u>assume</u> continued gradual growth of the A320neo fleet.

The modelling of Ryanair’s fleet is as follows:



The projections show that the B737-8 200 Max has approximately a 35% share by 2025, the time period considered in the daa’s application.

These forecasts are predicated on the following assumptions:

B737-8 200 MAX	2021: This aircraft is now certified for service once again. Ryanair has 173 outstanding orders for the type, with a schedule for deliveries over 2022-24 (source: CAPA). 2021-27: We <u>assume</u> the aircraft are delivered as per the schedule over this period. Further, we assume that Ryanair is able to secure delivery slots for further aircraft over 2025-27. 2028-37: We <u>assume</u> further aircraft of this type will be ordered, and that deliveries will continue over this period (gradually replacing B737-800 airframes). We <u>assume</u> deliveries come at a faster rate than retirements of other aircraft types, leading to net fleet growth consistent with short term projections by the company but at a lower rate than seen historically.

ANCA’s reduction in noise levels outcomes presented in its NAO are not achievable based on the results from the Europe wide Phenomena project.

In the conclusion of the Phenomena report, it highlights that the study included the review of 300 Noise Action Plans (NAPs). The review indicated that a *“wide variety of measures are focused on noise mitigation both from the receiver as well as the noise source perspective. These often combine operating restrictions, such as a curfews with a penalty regime, noise monitoring and infrastructure development including lengthening the runway to avoid low flights over residential areas”*.

It is worth noting that the NAP for Dublin Airport never attempted to provide any meaningful reduction in noise levels, as curfews or penalty regimes were never considered.

The study concludes for Aircraft noise that the best single solution with respect to health burden reduction is the introduction of a night curfew at all airports.

Aircraft

The best single solution with respect to health burden reduction is the introduction of a night curfew at all airports, i.e. an EU-wide ban on night flights. Although this has a large reduction in health burden, it has also a very high cost.

Health burden reduction in 2030: 37-60%

Benefit to cost ratio over 2020-2035: 0.1-0.2

The Dublin Airport Noise Action Plan (<https://www.fingal.ie/sites/default/files/2019-04/NAP%20Final.pdf>) references the change in aircraft types from 2003 to 2017. In 2003 46% of aircraft were Chapter 4 and 14, 83% in 2008 and 90% in 2017. Yet noise exposure levels grew exponentially in line with movement increases.

In 2017 over 90% of aircraft using Dublin Airport were the quietest types (Chapter 4 and 14) compared to 83% in 2008 and 46% in 2003⁵.

So, if fleet replacement didn't work in the past, why do ANCA solely rely on fleet replacement to Chapter 14 levels to reduce noise if movement levels are to increase? This is clear evidence that fleet replacement does not counter the effects of ever-growing movements which is facilitated by ANCA's Night Quota System. ANCA must interrogate the historical data and explain why with the adoption of quieter aircraft, noise levels grew exponentially due to the increase noise contour footprint.

In 2016 the 45dB Lden contour was 370km². In 2019 it grew to 745km². This is a doubling of the size of the 45dB Lden contour in just 3 years.

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In 2016 the 40dB Lnight contour was 212km². In 2019 it grew to 328km². This is a 50% increase in the size of the 40dB Lnight contour in just 3 years.

Here's a comparison of the Lden and Lnight contours areas from 2006 to 2019:

dB Lden	2006	2016	2018 Baseline	2019 Baseline
>=45		370	703.2	745.7
>=50		148	209.3	218.7
>=55	57.6	67	85.9	88.3
>=60	22.1	27.3	33.5	35.6
>=65	9.1	10.4	11.6	12.2
>=70	3.7	3.9	4.1	4.4
>=75	1.6	1.6	1.7	1.7

dB Lnight	2006	2016	2018 Baseline	2019 Baseline
>=40		212	304.4	328.4
>=45		90	118.2	122.2
>=50	28.3	38.8	48.4	52.3
>=55	11.3	14.7	16.8	18.6
>=60	4.7	5.6	5.8	6.4
>=65	1.9	2.3	2.3	2.5
>=70	0.9	1	1	1

ANCA needs to explain this growth in contour areas even though the percentage of quieter aircraft grew to over 90% in that timeframe. And why this will not be the case in future years. The modelling by the daa for the quieter aircraft cannot be trusted. The recorded noise levels from the Chapter 14 aircraft are in line with those of Chapter 4 on the ground at the noise monitors surrounding Dublin Airport.

8.13 NOISE MONITOR DATA

On January 14th, 2022, the daa provided noise data, 'NMT 1 2 3 2016 2018 2019 Lmax events.xlsx' in Appendix E, to the Community Liaison Group (CLG), setup as part of the planning conditions for the Northern Runway, following a request for noise results for monitors #1, #2 and #3 for 2016, 2018 and 2019.

In 2019 there were 6959 arrivals of aircraft type B738 recorded at noise monitor #1. The average LA_{max} for these arrivals was 79.61dB. The equivalent average for B38M aircraft was 78.82dB LA_{max}, just 0.79dB in difference.

The average of all arrivals at noise monitor #1 in 2019 was 78.94dB LA_{max} which is just 0.12dB LA_{max} above the B38M average.

In 2019 there were 30553 departures of aircraft type B738 recorded at noise monitor #1. The average LA_{max} for these departures was 76.55dB. The equivalent average for B38M aircraft was 75.00dB LA_{max}, just 1.55dB in difference.

The average of all departures at noise monitor #1 in 2019 was 75.9dB LA_{max} which is just 0.9dB LA_{max} above the B38M average.

These statistics prove that the new Ryanair aircraft type B38M creates equivalent noise disturbance as to its predecessor, the B738. This data is real data and not modelled. What scrutiny of the daa's modelling did ANCA conduct?

ANCA provided a document titled 'Assessment of Aircraft Noise Modelling' in Appendix F of their regulatory decision. This study was conducted by Noise Consultants Ltd. In section 3.27 it states that:

- 3.27 The Applicant has validated its modelling by comparing modelling aircraft noise event levels (in terms of Sound Exposure Level (SEL)) with those measured by the Airport's Noise and Track Keeping (NTK) System. The Applicant has relied on data measured at three of the airport's noise monitoring terminals (NMTs) over the period January and December 2018.

What verification was done by Noise Consultants Ltd?

Noise Consultants Ltd reference the BAP document 'A11267_19_RP035_4.0, Dublin Airport North Runway Relevant Action Application, Noise Information – ANCA Request, February 2021 (https://www.fingal.ie/sites/default/files/2021-08/20210723-a11267_19_rp035_4.0-noise-information_anca-rfi-incl.-figures-red.pdf).

Under AEDT validation, BAP state that the results from the Dublin Airport Noise and Track Keeping (NTK) system have been used for noise validation purposes, specifically the results from noise monitors 1, 2 and 20 for 2018. The AEDT software has been used to predict the noise level at the noise monitors using the recommended AEDT aircraft type. And this has been compared to the measured averages for the aircraft types. Where differences between measured and predicted results were found to be significant then adjustments were made to the model. The adjustments are shown in Table A2.55.



Table A2.55: Modifications to AEDT Default Assumptions

Aircraft Type	Arrivals		Departures		Adjustment (dB)
	AEDT Type	Adjustment (dB)	AEDT Type	Profile	
A306	A300-622R	-3.1	A300-622R	30KFT	+0.6
A319	A319-131	-1.4	A319-131	30KFT	+0.9
A320	A320-211	-0.7	A320-211	USER	-1.3
A320neo	A320-211	-2.0	A320-211	USER	-3.2
A321	A321-232	-0.4	A321-232	USER	-0.5
A332	A330-301	-1.3	A330-301	30KFT	-1.1
A333	A330-301	-1.1	A330-301	30KFT	-0.8
ATR72	SD330	+1.5	SD330	30KFT ⁽²⁾	+0.1 ⁽³⁾
B734	737400	+0.4	737400	30KFT	-0.1
B738	737800	-2.7	737800	USER	-1.2
B738MAX	7878max	-3.0	7378max	USER	-1.5
B752	757RR	-0.4	757RR	30KFT	-2.3
B772	777200	+0.2	777200	30KFT	+1.5
B773	777300	-0.8	777300	30KFT	-2.4
B787	7878R	-0.3	7878R	30KFT	+0.1
E190	EMB190	-0.8	EMB190	30KFT	+0.5
RJ85	BAE146	-3.3	BAE146	30KFT ⁽²⁾	-1.6
DH4 ⁽¹⁾	SD330	0	DHC6	30KFT ⁽²⁾	0

These adjustments are critical to the evaluation of the noise situation at Dublin Airport. What data has Noise Consultants Ltd interrogated to prove that the 'B738MAX' should be adjusted by -3.0dB for arrivals and -1.5dB for departures?

It is very evident from the LAmax values for 2019 that noise levels for B738 and B38M aircraft types are similar at the noise monitors and therefore it is not credible that noise can be reduced by replacing B738s with B38Ms alone. There is a fundamental problem with the noise modelling that ANCA have failed to justify.

This is proven by the numbers provided by the daa as presented above and are not a fabrication. ANCA must review this data again and reconsider their position.

8.14 FORECASTS

Another rather strange anomaly in the daa’s application is the fact that their forecasts for 2025 Proposed in Table 13B-5 of the revised EIAR show 0 flights of the 737 Max (B38M) during the night period. There will be 14,316 movements of this newest of Ryanair’s fleet during the day and evening but 0 during the night. How is this possible? This is also supported by the Reporting Template ‘FleetMove’ showing 0 flights at night with 2025 Proposed. In fact, there’s 0 flights for 2025 Permitted but oddly enough there are more 737 Max movements in 2025 Permitted than 2025 Proposed (15617 vs 14316). Why would that be?

Have the daa artificially inflated the Noise Quota figures at night by not using the quieter aircraft?

Have ANCA or their consultants analysed these fleet movements?

Have ANCA or their consultants analysed the differences in fleet movements between the original EIAR and the revised EIAR? Have the daa explained the reasons for the differences?

Here are the differences in aircraft types between 2025 Relevant Action (initial EIAR) and 2025 Proposed (revised EIAR):

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

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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	

2601 more 737-800s and 651 less 737 Max aircraft types. What has caused that shift in Ryanair's fleet usage between the initial and revised EIARs?

These are the questions that independent regulators should be asking. It's not acceptable to just state it's a revised forecast. Revised based on what knowledge?

The airlines should be forced to fly the latest technology aircraft only at night and heavily penalised otherwise.

If the daa state that the 737 max are not overnighing in Dublin, then this proves that the quietest aircraft are not being incentivised to stay overnight and fly at night. It would also show that the Ryanair model is not point to point and aircraft can be routed anywhere.

8.15 UPDATE FOR 2022 DATA

In table 13B-2 of the revised EIAR, for '2022 Permitted' it shows 0 flights of the Boeing 737 Max (B38M) during the night period.

Table 13B-2: 2022 Permitted Scenario Forecast Movements

Aircraft Type	2022 Permitted 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	300	0	90	0
Airbus A319	1,502	300	0	541	0
Airbus A320	25,537	6,910	4,507	9,737	1,352
Airbus A320neo	1,502	901	0	721	0
Airbus A321	4,807	0	601	1,443	180
Airbus A321neo	1,502	300	601	541	180
Airbus A330	9,314	0	300	2,795	90
Airbus A330neo	0	0	0	0	0
Airbus A350	0	0	0	0	0
ATR 42	0	0	0	0	0
ATR 72	14,721	2,103	601	5,049	180
BAe 146/Avro RJ	0	0	0	0	0
Boeing 737-400	0	601	1,202	180	361
Boeing 737-700	0	0	0	0	0
Boeing 737-800	38,456	17,125	5,107	16,680	1,533
Boeing 737 MAX	2,403	1,202	0	1,082	0
Boeing 757	0	0	0	0	0
Boeing 767	300	601	901	270	270
Boeing 777	300	601	300	270	90
Boeing 777X	0	0	0	0	0
Boeing 787	4,206	0	601	1,262	180
Bombardier CS300	1,202	0	0	361	0
Bombardier Dash 8	1,202	601	0	541	0
Embraer E190/195	5,107	2,103	601	2,164	180
Embraer E190-E2	0	0	0	0	0
Other	3,605	1,202	0	1,443	0
Total	115,668	34,851	15,322	45,170	4,598

This is also the case for '2022 Proposed' as shown in table 13B-3:

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Table 13B-3: 2022 Proposed Scenario Forecast Movements

Aircraft Type	2022 Proposed Scenario Forecast Movements				
	Day 07h-19h	Annual Evening 19h-23h	Night 23h-07h	92-Day Summer Day 07h-23h	Night 23h-07h
Airbus A306	0	300	0	90	0
Airbus A319	1,502	300	0	541	0
Airbus A320	27,036	6,609	6,609	10,098	1,984
Airbus A320neo	1,502	901	0	721	0
Airbus A321	5,107	300	1,202	1,623	361
Airbus A321neo	1,202	300	901	451	270
Airbus A330	8,111	0	1,502	2,434	451
Airbus A330neo	0	0	0	0	0
Airbus A350	0	0	0	0	0
ATR 42	0	0	0	0	0
ATR 72	14,119	2,103	1,202	4,869	361
BAe 146/Avro RJ	0	0	0	0	0
Boeing 737-400	0	601	1,202	180	361
Boeing 737-700	0	0	0	0	0
Boeing 737-800	41,155	15,921	9,012	17,130	2,705
Boeing 737 MAX	2,403	1,202	0	1,082	0
Boeing 757	0	0	0	0	0
Boeing 767	300	601	901	270	270
Boeing 777	0	601	601	180	180
Boeing 777X	0	0	0	0	0
Boeing 787	3,905	0	901	1,172	270
Bombardier CS300	1,202	0	0	361	0
Bombardier Dash 8	1,202	601	0	541	0
Embraer E190/195	4,806	2,403	601	2,164	180
Embraer E190-E2	0	0	0	0	0
Other	3,605	1,202	0	1,443	0
Total	117,158	33,946	24,633	45,350	7,393

However, reviewing the actual night-time flights in July 2022, the data shows that the 737 Max (B38M) has been flown at night. As an example, on the night of July 28th, during the night-time period 13 737 Max (B38M) flew:

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From:				To:				complete download of 13	
07/28/2022 10:00 PM				07/29/2022 07:53 AM					
Callsign	Reg	A/line	Type	Time	Day/Night	Rwy	Oper'	Status	
RYR47JE	EI-HGZ	Ryanair	B38M	22-07-28 23:08	Night	28	LA	-	
RYR6MW	EI-HGP	Ryanair	B38M	22-07-28 23:10	Night	28	LA	-	
RYR58HT	EI-HGR	Ryanair	B38M	22-07-28 23:35	Night	28	LA	-	
RYR59BD	EI-HAW	Ryanair	B38M	22-07-28 23:39	Night	28	LA	-	
RYR7ZZ	EI-HGY	Ryanair	B38M	22-07-29 00:00	Night	28	LA	-	
BLA3SX	YR-MXB	null	B38M	22-07-29 00:31	Night	28	LA	-	
BLA4JU	YR-MXC	null	B38M	22-07-29 00:37	Night	28	LA	-	
RYR9LK	EI-HEZ	Ryanair	B38M	22-07-29 00:41	Night	28	LA	-	
BLA5YN	YR-MXC	null	B38M	22-07-29 02:13	Night	28	TO	-	
BLA2956	YR-MXB	null	B38M	22-07-29 02:24	Night	28	TO	-	
RYR6MA	EI-HGZ	Ryanair	B38M	22-07-29 05:57	Night	28	TO	-	
RYR19SX	EI-HGY	Ryanair	B38M	22-07-29 06:02	Night	28	TO	-	
RYR1ZY	EI-HGP	Ryanair	B38M	22-07-29 06:36	Night	28	TO	-	

This is clear evidence that even for 2022, the flight schedules cannot be trusted. '2025 Proposed' also shows 0 flights of the 737 Max (B38M) at night while they are in use during the daytime period. This calls into question the noise predictions and noise contours provided by the daa as the input data to the models cannot be trusted.

This also is the case with the Airbus A319. The 2022 Permitted and Proposed schedules show no use of this aircraft at night, which has not been the case in 2022 thus far. 63 A319 flights have taken place between June 15th and July 29th, 2022.

There is no mention of the Airbus A333 used by Aer Lingus. 130 such aircraft flew during the night period between June 15th and July 29th, 2022. 966 such aircraft flew during the daytime in the same time period.

The A333 is one of the noisiest aircrafts and it has been omitted from the flight schedules. The A333 is listed on the daa's noise reports for Jan-Mar 2022

(https://www.dublinairport.com/docs/default-source/airport-noise/dublin-noise-report-2022-q1.pdf?sfvrsn=c05d878f_2):

Results from Noise Monitoring Terminal 1 (NMT1):

Table 5 shows the top 10 loudest correlated aircraft types from the total count of correlated noise events to NMT1.

Aircraft Type	Max dB	Total Count
B764	81.4	80
B77W	79.8	105
B772	79.7	5
B77L	79.7	65
A333	79.5	661
B735	78.8	2
B789	77.9	183
B744	77.7	1
A339	77.6	1
A332	77.4	13

Table 5: LAmax by aircraft types correlated to NMT1, January - March 2022

Results from Noise Monitoring Terminal 2 (NMT2):

Table 6 shows the top 10 loudest correlated aircraft types from the total count of correlated noise events to NMT2.

Aircraft Type	Max dB	Total Count
B764	80.1	85
B733	79.3	1
B734	78.2	189
B77W	78.2	111
B77L	77.9	64
A333	77.6	659
A332	77.3	15
B772	77.2	4
B744	76.8	1
A306	76.6	34

Table 6: LAmax by aircraft types correlated to NMT2, January - March 2022

Results from Noise Monitoring Terminal 5 (NMT5):

Table 9 shows the top 10 loudest correlated aircraft types from the total count of correlated noise events to NMT5.

Aircraft Type	Max dB	Total Count
B77W	84.7	3
B77L	84.6	1
B763	82.9	7
A332	82.5	2
A306	81.7	1
A333	81.3	27
B764	81	4
B789	80.6	3
B737	80.3	2
B738	80.3	218

Table 9: LAmax by aircraft types correlated to NMT5, January - March 2022

Results from Noise Monitoring Terminal 6 (NMT6):

Table 10 shows the top 10 loudest correlated aircraft types from the total count of correlated noise events to NMT6.

Aircraft Type	Max dB	Total Count
B737	82.9	1
GLEX	80.9	1
B764	80.6	2
A333	78.8	15
B77W	78.7	2
A332	77.9	2
B734	77.1	4
B739	76.7	2
B788	76.7	4
EM5	76.1	1

Table 10: LAmax by aircraft types correlated to NMT6, January - March 2022

Results from Noise Monitoring Terminal 20 (NMT20):

Table 11 shows the top 10 loudest correlated aircraft types from the total count of correlated noise events to NMT20.

Aircraft Type	Max dB	Total Count
PRM1	78.4	1
B744	76.8	1
B764	76.7	86
B77W	76.4	110
B753	76.2	1
A339	76.1	1
B772	75.9	4
A332	75.6	15
A333	75.6	655
B733	75.6	1

Table 11: LAmax by aircraft types correlated to NMT20, January - March 2022

No interrogation of the flight schedules carried out by ANCA. It's very obvious from the noise reports that the A333 is flying in 2022 and this is very easily verified using the flight data from this period. Incredibly one of the noisiest and frequent aircraft was omitted from the schedules and noise modelling, therefore the modelling needs to be repeated.

Another noisy aircraft is the B77W. The schedules for 2022 Proposed show 180 flights during the day and 180 at night for all 777 aircraft. Up until July 29th (half of the 92-day Summer period), there have been 419 flights of the 777 family. Again, the schedules and modelling do not reflect the real noise situation at Dublin Airport during the Summer period, 2022.

Further anomalies are contained in the hourly movements depicted in Tables 13B-10, 13B-12 of Appendix 13B in the EIAR for 2025 Proposed vs 2025 Permitted. Between 06:00-06:59

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there are 20 more movements with 2025 Proposed compared with 2025 Permitted. But between 07:00-08:00 there are 18 less flights with 2025 Proposed. So, the overall net gain between 2025 Proposed and 2025 Permitted in the timeframe 06:00-08:00 is only **2** movements.

Tables 13B-10, 13B-12, Appendix 13B	2025 Proposed		2025 Permitted			
	28L	28R	28L	28R	Diff	
00:00-00:59	12	0	7	0	5	0
01:00-01:59	9	0	8	0	1	0
02:00-02:59	3	0	2	0	1	0
03:00-03:59	0	0	0	0	0	0
04:00-04:59	8	0	6	0	2	0
05:00-05:59	10	0	11	0	-1	0
06:00-06:59	22	15	17	0	5	15
07:00-07:59	29	22	40	29	-11	-7
08:00-08:59	22	12	25	8	-3	4
09:00-09:59	24	17	26	14	-2	3
10:00-10:59	18	18	18	21	0	-3
11:00-11:59	20	19	20	19	0	0
12:00-12:59	28	23	28	22	0	1
13:00-13:59	19	21	15	22	4	-1
14:00-14:59	20	20	19	18	1	2
15:00-15:59	15	23	14	21	1	2

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16:00-16:59	25	20	25	19	0	1
17:00-17:59	22	20	20	19	2	1
18:00-18:59	20	24	21	20	-1	4
19:00-19:59	20	22	23	20	-3	2
20:00-20:59	12	18	10	20	2	-2
21:00-21:59	14	9	16	8	-2	1
22:00-22:59	26	5	31	6	-5	-1
23:00-23:59	18	1	9	0	9	1

This is clear evidence from the daa's own forecasts that in their busiest time of the day between 06:00-08:00 the only net gain of changing Conditions 3(d) and 5 is the gain of an additional **2** flights.

It also totally contradicts the daa's request to operate dual runways in mixed mode between 06:00-08:00. It also contradicts the IAA's support of the daa's decision for mixed mode operations during these hours.

A request under the AIE regulations was made to the IAA to justify their submission to the planning process where they supported the use of mixed mode operations between 06:00-08:00.

- It is considered essential to use both runways for departure between the hours of 06:00 to 08:00 (local time), due to the demand for the first wave of departures to take off from Dublin during this period. The

The IAA have provided no meaningful data to qualify this statement in answer to the AIE request. The daa's hourly forecasts do not support this decision.

In the BAP report titled 'Dublin Airport North Runway Relevant Action Application, Noise Information Request February 2021', BAP also make reference to the IAA response, but the 3 criteria outlined by BAP for switching to mixed mode are not met in 2025 based on the forecasts given by the daa.

Given the IAA response to the application, which stresses the importance of using both runways for departures between 06.00-08.00 this has been allowed for in all the scenarios except those where the North Runway is not used at night, and those for 2022 as the forecast activity is noticeably less than occurred in 2018.

For the remaining hours the method assumes activity switches from segregated mode to mixed mode where activity is such that any of the three following single runway capacity limits are exceeded:

- i. More than 35 arrivals in one hour.
- ii. More than 44 departures in one hour.
- iii. More than 48 movements (combined arrivals and departures) on one runway in one hour.

These fleet movements are available to be scrutinised, but no such scrutiny has been provided in ANCA's analysis to date. What direction was given by ANCA to its consultants in this regard?

The IAA have again reiterated their claim that it is essential to use both runways for departure during the 06:00-08:00 period in their latest submission to ANCA. They state that there was an average of 80 movements during these 2 hours in 2019. Again, the night-time period covers just 1 hour of this period 06:00-07:00. I again reference the criteria from BAP above governing the switch from segregated to mixed mode. The IAA have failed to produce any data to justify their claims. The 2025 forecast from the daa from Tables 13B-12 in Appendix 13B show that there are more movements (90) between 11:00-13:00 than 06:00-08:00 (88) with the proposed scenario in 2025 and yet neither the IAA nor the daa are calling for dual runway usage in this time period. In fact, with 2035 Proposed there are the same 90 movements between 11:00-13:00 compared with 88 between 06:00-08:00. Based on the daa's forecasts there is no necessity for mixed mode operations between 06:00-08:00. ANCA needs to refute these claims as the data is clear and unambiguous.

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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

It is also worth noting that the figures in 13B-12 appear to be the 92-day summer average movements and not the annual average movements as they do not match the annual average figures in the daa's reporting template but are closer to the summer figures.

Using the figures for 2025 and 2035 proposed in the reporting template, the average number of flights between 06:00-07:00 is 33 and 45 between 07:00-08:00. The figure for 11:00-13:00 is 80.

Comparing 2018 and 2019 to 2025 and 2035 we see a small growth (5) in average movements between 06:00-08:00 but the figures are below the movements for 11:00-13:00.

These figures using annual average movement show that the 06:00-07:00 time period is not the busiest time at Dublin Airport and therefore does not warrant dual runway usage.

Annual Average	2018	2019	2025	2035
06:00-07:00	30	31	33	33
07:00-08:00	41	42	45	45
11:00-12:00	37	39	35	35
12:00-13:00	40	40	45	45

Extending this analysis to the average summer movements we again find that the hour 06:00-07:00 is not the busiest.

Summer average	2018	2019	2025	2035
06:00-07:00	34	35	36	36
07:00-08:00	45	44	50	50
11:00-12:00	41	42	38	38
12:00-13:00	43	43	50	50

From reviewing the night-time movements on the 'Diurnal' tab of the reporting template one can see that the 06:00-07:00 period is in the bottom half of hourly movements. Thus, the evidence from the daa's forecasts given to ANCA in the Reporting template provide undisputable evidence that dual runway operations are not required between 06:00-07:00.

Noise Consultants Ltd were asking the same questions when analysing the origins of Condition 3(d) and 5. From a FOI request to ANCA (FOI/2021/164), record 16 titled 'NJ1087C-2-D1 Origins of Conditions.pdf' discusses the origins of Conditions 3 and 5. In section 6.7 the authors, Noise Consultants Ltd' state that '*What is not clear is why daa would seek to change Condition 3(d) as well as Condition 5*':

6.7 What is not clear is why daa would seek to change Condition 3(d) as well as Condition 5. This poses the following questions:

1. What are the drivers for seeking to change both Condition 5 and Condition 3(d) i.e. demand or operational freedoms?
2. What benefit does daa see in lifting or changing Condition 3(d) if the existing runway could potentially handle existing demand? i.e. by lifting Condition 5 alone
3. In connection to 1, are daa exploring how by lifting Condition 3(d) this may provide different noise abatement outcomes as part of lifting Condition 5?;
4. What forms of restriction could daa bring forward instead of Condition 5?

These questions have not been answered in the planning application. As stated in 6.7, lifting Condition 5 alone could handle existing demand.

Further questioning of the need for dual runway use was given in a pre-planning document from ANCA dated October 2nd, 2019, ref PPC 106276 (CA 19.01).

2. Slide 4

"Condition 3d (limiting night operations to a single runway) does not in itself act as an additional constraint, as it provides sufficient capacity for a 65/night limited schedule. However, in the absence of the Condition 5-night movement limit, there is a requirement for dual runway operations between 06:00-07:00 and 23:00-23:59 to meet demand."

At the moment there is understood to be 114 movements per night. This statement about using dual runway operations does not seem justified when the current single runway operation appears to meet this demand?

It is noted that Slide 26 assumes 45 movements per hour for single runway operation, which is in line with a previous report prepared by NATS in 2003 which suggested 43 per hour off the main south runway. If the main use in the night period is from 23:00 to 00:00 and 05:00 to 07:00, 135 movements are provided within these 3 hours plus a few overnight, suggesting up to 160 movements over 8 hours before capacity is insufficient off one runway, which could take them to 2032 according to Slide 13.

This pre-planning document highlights how ANCA are aware that dual runway operations are not required for 2025 as a single runway is sufficient to meet demand up to 2032. Why has ANCA now agreed to dual runway usage and inflicting adverse health effects on more areas, when not required?

8.16 2025 PERMITTED VS PROPOSED

From the analysis of Tables 13B-10 and 13B-12 in Appendix 13B of the revised EIAR above, it is evident that the 2025 Permitted forecast only accounts for 60 flights during the night-time period. This is underutilisation of the 65-movement limit of Condition 5 of the North Runway's planning permission. The daa are inflating the difference figures between 2025 Proposed and 2025 Permitted.

Based on data from the Mott MacDonald report from the EIAR appendices (Dublin Airport Operating Restrictions Quantification of Impacts on Future Growth Updated analysis in response to the ANCA RFI June 2021 - version 1.3.1 (Final)):

- Dublin Airport can achieve 42m passengers by 2040 whilst retaining the night-time operating restrictions but removing the 32m passenger cap (scenario B)
- This proves that the objectives of the National Aviation policy (2015) can be met whilst protecting the health of residents and retaining restrictions
- **Retaining the operating restrictions does not hinder growth at Dublin Airport**

Annex B of Appendix A Dublin Airport Night Quota System Proposal – Response to RFI

Annual Traffic Impact

Impact of Operating Restriction Scenarios

► This study has developed busy day forecast schedules and analysed the impacts of operating restrictions for four scenarios, in addition to the original daa input schedule, as summarised in the tables opposite.

• **Scenario A** is the daa input busy day forecast schedules, aligned with the Centreline annual forecast case. Flights are timed at commercially and operationally 'ideal' 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

• **Scenario D** applies the 32m annual passenger cap to the runway capacity coordinated schedules of Scenario C, but does not apply the night operating restrictions (Conditions 3d and 5)

The 32m passenger level is reached in 2025. The 32m cap begins to have an impact from 2024 as traffic growth approaches the 32m capped level asymptotically

• **Scenario E** applies the 32m annual passenger cap to the night operating constrained schedule of Scenario B.

The 32m passenger level is reached around 2027

• **Scenario F** applies the restriction to operate one runway only 23:00-07:00, but without the 65/night movement cap and without the 32m annual passenger cap.

Constrained runway capacity in the 06:00-07:00 hour for first-wave departures limits growth in DUB-based aircraft flying

Annual Traffic Summary

Scenario	Condition 3d (single runway)	Condition 5 (night limits)	32m cap	Description
A	daa	None	No	daa input schedule
B	2300-0700	65/night	No	Night limit constraints
C	2300-0600	None	No	Unconstrained (runway capacity only)
D	2300-0700	None	Yes	32m cap only
E	2300-0700	65/night	Yes	Night limits + 32m cap
F	2300-0700	None	No	Single runway 2300-0700 only

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
2032	41.3	37.6	41.3	32	32	40.4
2033	42.1	38.2	42.1	32	32	41.0
2034	42.7	38.9	42.7	32	32	41.7
2035	43.4	39.5	43.4	32	32	42.4
2036	44.0	40.0	44.0	32	32	43.0
2037	44.7	40.5	44.7	32	32	43.6
2038	45.3	41.0	45.3	32	32	44.2
2039	46.0	41.7	46.0	32	32	44.7
2040	46.6	42.0	46.6	32	32	45.3
Traffic Impact						
2022-2025	-	-7.0	0.0	-0.7	-7.0	-1.7

Source: Mott MacDonald analysis, based on daa Centreline forecast scenario

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On page 5 of the Mott MacDonald report, it is claimed that there'll be a 2-year delay in reaching 32 million passengers due to the night-time restrictions:

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 annual average fleet movement and diurnal figures from the Reporting Template for 2022 and 2025 Permitted show the daa's calculations don't utilize the full available 65 flight limit compared with the Proposed scenarios. The figures show an average of 42 night-time movements in 2022 and 53 movements in 2025.

Keeping the restrictions and utilizing the full available 65 movement limit, capacity can increase to

- 20.6 million passengers in 2022
- 31 million passengers in 2025

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

And note these calculations do not allow for any further rescheduling of flights between 07:00-23:00.

In 2015, almost 24.9m passengers passed through Dublin Airport (<https://www.cso.ie/en/releasesandpublications/er/as/aviationstatistics2015/>). 24.9m is the same as the daa's forecast for 2023, where they state that 1.8m passengers are lost due to the restrictions. So, 2015 is a good proxy for 2023.

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Data provided by the daa to the Community Liaison Group (CLG) show that for 5 months of the year in 2015 the monthly average movements at night were less than 65.

Year	Month	Average daily movements	# > 65	Monthly movements	Passengers
2015	January	54			
	February	53			
	March	56			
	April	69	4	120	15000
	May	77	23	372	46500
	June	86	21	630	78750
	July	89	24	744	93000
	August	84	19	589	73625
	September	81	16	480	60000
	October	76	11	341	42625
	November	64			
	December	60			
	Total		118	3276	409500

Based on the 24.9m passengers and 198000 movements

([https://www.dublinairport.com/docs/default-source/resources/presentation-boards-\(2\)-\(1\).pdf?sfvrsn=8224dd1e_2](https://www.dublinairport.com/docs/default-source/resources/presentation-boards-(2)-(1).pdf?sfvrsn=8224dd1e_2)), the loading factor can be calculated as 125.

Based on the table above with the movements > 65 and the loading factor of 125, the number of passengers carried beyond the 65-limit equated to 409,500.

But factor in that the airport will now have a second runway in 2023 compared to 2015 that can accommodate extra capacity, it is a reasonable statement to make that extra flights can be handled during the daytime with the extra runway.

The daa's figure of a loss of 1.8m passengers for 2023 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 exaggerate any passenger losses.

Another strange anomaly with the revised EIAR figures compared with the original EIAR is that the original EIAR showed a constrained value of 30.9 million passengers in 2025 whereas the revised EIAR shows a lower constrained value of 30.4 million. Why would the revised EIAR have a lower constrained value compared to the original EIAR? No explanation given and none sought by ANCA or its consultants. It is very obvious that the daa's figures in the revised EIAR are bloated to inflate a larger loss in passenger numbers.

Dec '20 EIAR				Revised EIAR		
Year	Unconstrained	Constrained	Difference	Proposed	Permitted	Difference
2021	20.7	20.7	0	7.9	7.9	0
2022	29.6	28.7	-0.9	21	19.6	-1.4
2023	30.4	29.3	-1.1	26.7	24.9	-1.8
2024	31.2	30.1	-1.1	30.8	29.3	-1.5
2025	32	30.9	-1.1	32	30.4	-1.6
Total			-4.2			-6.3

This underutilisation of the 65-movement limit in the daa's figures has further implications for the cost-effective analysis and the costs associated with delays in reaching 32 million passengers. The fleet forecasts feeding into the cost-effective analysis figures have not been interrogated by ANCA or its consultants and have been accepted without scrutiny. This is not acceptable for an Independent Noise Regulator. The costs attributed in the cost-effect analysis will need to be recomputed as a result.

8.17 INVESTOR PROSPECTUS

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, losses should only be considered post Q1 2024 if a decision is made to retain the restrictions. The restrictions are currently in place as conditions of the North Runway planning and therefore losses should only be considered when the planning process concludes in Q1 2024. Any losses before Q1 2024 are fictitious in nature and should be removed from the cost-effective analysis. ANCA does not have a magic wand to switch on/off the restrictions in 2022.

It is very clear from the ICAO Guidance on the Balanced Approach and EU598/2014 that the Forecast without new measures should include the existing operating restrictions.

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.

It is also worth noting the Proceedings of the 2nd Phenomena project Workshop. In section 2.2.6 Air Traffic Management it states that consideration should be given to incorporate noise emission constraints in the EU Slot Regulation. It also states that:

*“According to the stakeholders interviewed, the reduction of noise sources stemming from international legislation is the best long-term solution for eliminating environmental noise. However, in the short term, the most efficient measures are the change of flight routes, **night flight bans** and the implementation of the “**polluter pays**” principle for early morning/late evening flights. For instance, **the introduction of Lmax reception limits at night** could be considered a solution to avoid noisy flight operation”.*

This is also reinforced in the policy suggestions for Aviation:

3. Policy Suggestions for Aviation

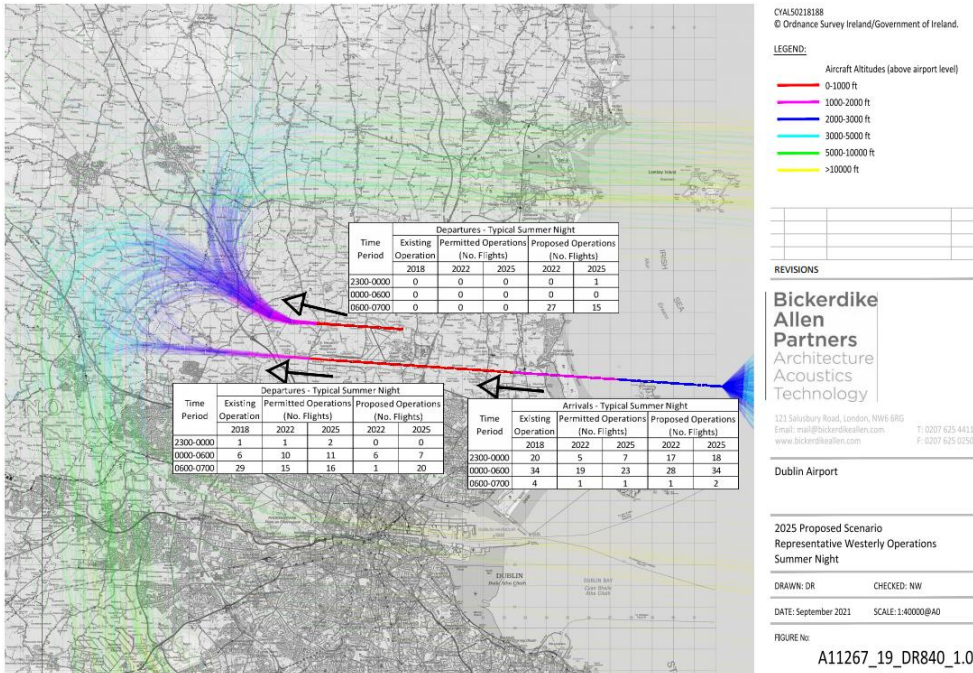
Aircraft noise

- Based on the NAPs, **operational and traffic management initiatives** are one of the key instruments for meeting noise thresholds in and around airports
- No room for tightening vehicle limits, since this is regulated at global level (ICAO)
- At EU level a **fleet replacement with quieter aircraft** may be implemented (through incentives or non-addition/non-operation rules)
- **Avoiding noisy operations at night** (based on Lmax, not on margin to certification limits) – reception limits
- At Airport level **3D-optimised flight procedures** should be considered
- At Airport level **stakeholder engagement/dialogue** with public should be fostered
- **Land use planning** should be improved to avoid encroachment
- Consider **extension of END/BAR to smaller airports** (<50.000 mov), since many of those experience significant growth. Opportunity to avoid noise issues (rather than correct them) in short-medium term

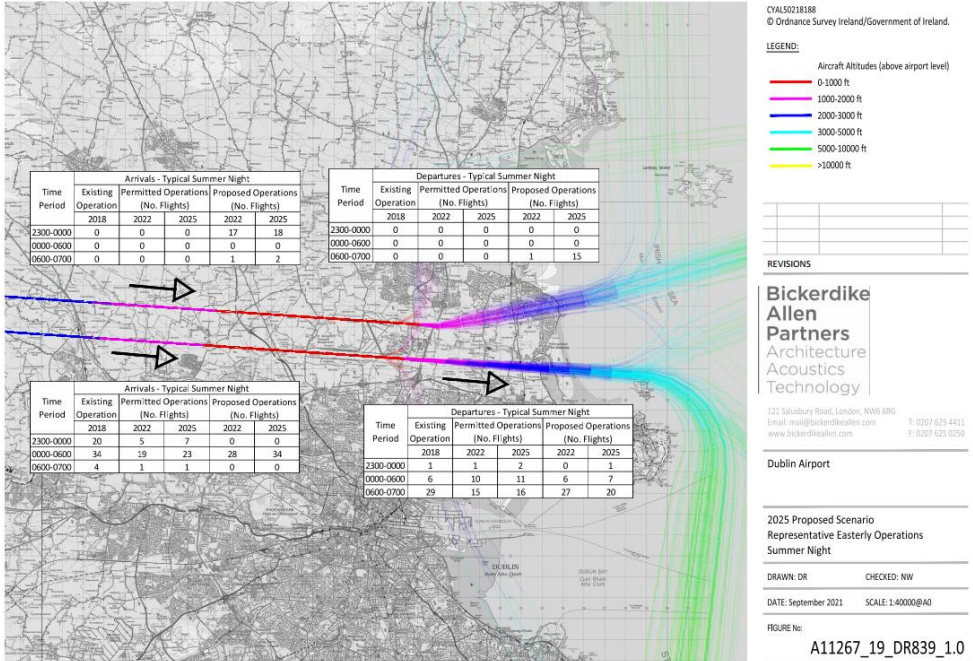
On the daa's portal they provide Heat maps for 2025 Proposed Easterly and Westerly operations

Westerly Operations:

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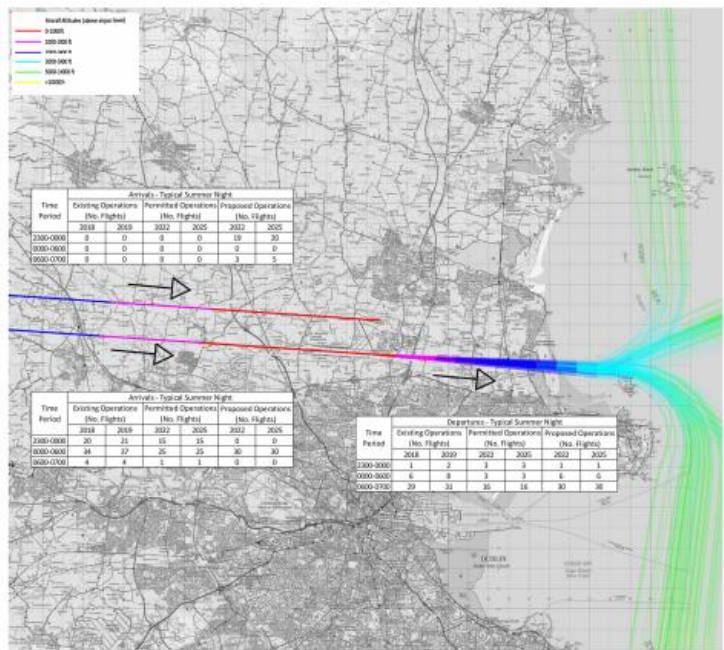
Easterly Operations:



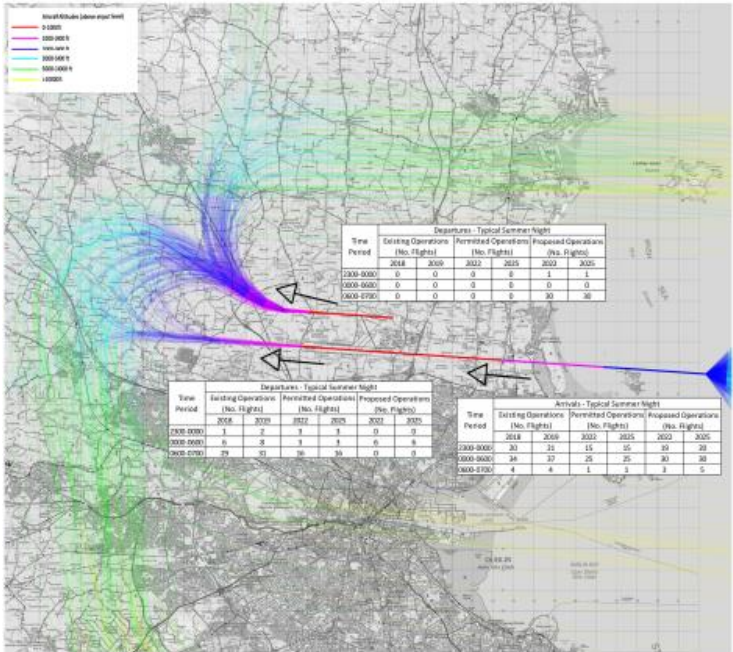
On the daa's portal, they provide a document titled 'Operation, Assessment and next steps'. In this document they show the Heat maps based on the original Relevant Action application.

Easterly Operations Relevant Action:

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Westerly Operations Relevant Action:



In the Heat maps for the initial EIARs, no movements are shown on the North Runway for Easterly Operations. In total it shows 37 departures on the South Runway for the night period with 30 departing between 06:00-07:00. Comparing that to the revised application, there are now 15 departures on the North Runway in an Easterly direction and 20 on the South Runway between 06:00-07:00.

For Westerly Operations, the initial EIAR shows 37 departures on the North Runway with 30 occurring between 06:00-07:00. The revised EIAR has 15 departures on the North Runway and 20 on the South Runway for Westerly Operations.

There has been no rationale put forward by the daa for the change in operations between the revised and initial EIARs and why the number of departures on the runways has changed. The net effect of these changes is a serious increase in the number of people affected by noise which is not addressed by the daa or ANCA.

Comparing the 2025 Proposed application in the revised EIAR to the 2025 Relevant Action in the initial EAIR we find:

- **63k** more people affected by day-time noise (>45dB Lden)
- **94k** more people affected by night-time noise (>40dB Lnight)
- **11.3k** more people Highly Annoyed
- **12.6k** more people Highly Sleep Disturbed

It is incredulous that ANCA have not seen to address the question why the revised EIAR should be accepted compared with the original EIAR.

Comparing Tables 13B-4 in the revised EIAR and Table 13B-7 from the initial EIAR we find that the total forecast movements with 2025 Proposed is 235,883 compared with 240,788 movements with the original 2025 Relevant Action.

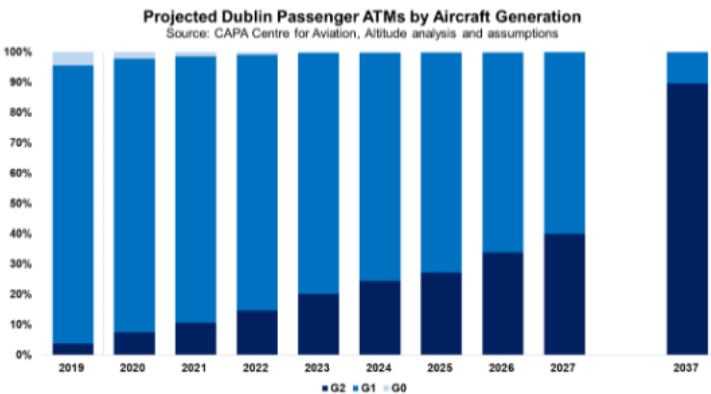
2025 Proposed has a lower number of movements but a far worse effect on the population affected by noise. This is of serious concern and ANCA needs to answer questions why it accepts this 2025 Proposed scenario when it effects a far larger population with respect to noise. And furthermore, it allows less flights.

These forecasts are incredulous, and it appears that the daa are making them up as they go along to fit their agenda. They want mixed mode operations for the future, but the analysis put forward here clearly shows that it is not needed for this regulatory decision.

Attention is also drawn to Appendix G slide 4 where the different Aircraft Generation types are discussed (G0, G1 and G2):

Aircraft Generations

- To aid comparisons, we have adopted the aircraft generation definitions used by Mott MacDonald in its analysis.
- Generation 0 (G0):
 - Older aircraft types, typically developed in the 1970s or 1980s and now generally out of production.
 - E.g. B737 Classic (300/400/500), B757, B767, A300, A310.
- Generation 1 (G1):
 - Current aircraft types, typically developed in the 1990s or 2000s and still in production.
 - E.g. B737NG (700/800/900), B777, A320 series, A330, A340, A380, Bombardier CRJ, Embraer EJets, Avro RJ, Bombardier Q400, ATR42/72.
- Generation 2 (G2):
 - Latest aircraft types recently entering production or under development.
 - E.g. B737MAX, B787, B777X, A320neo, A330neo, A350, A220 (aka Bombardier CSeries), Embraer EJet E2, Sukhoi Superjet.



This clearly shows that the B737MAX and A320neo are G2 type aircraft.

However, in the DRD Report, Table 7.1 incorrectly lists the B737MAX and A320neo as G1 type aircraft instead of G2:

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Table 7.1: Fleet mix for Dublin Airport in 2019

Annual Movements in 2019						
Aircraft Type	Noise Chapter	Generation	Annual Day	Annual Eve	Annual Night	Annual 24hr
Airbus A300	3	G0	0	0	0	0
Airbus A306	4	G0	162	301	377	840
Airbus A319	4	G0	3,159	911	370	4,440
Airbus A320	4	G0	41,840	10,109	6,796	58,745
Airbus A320neo	14	G1	1,000	119	13	1,132
Airbus A321	3	G0	5,461	907	1,086	7,454
Airbus A321neo	14	G1	619	87	158	864
Airbus A330	4	G0	8,905	40	2,031	10,976
Airbus A330neo	14	G1	0	0	0	0
Airbus A350	14	G1	214	0	220	434
ATR 42	4	G0	2,124	273	2	2,399
ATR 72	4	G0	14,398	2,481	1,089	17,968
BAe 146/Avro RJ	14	G0	4,280	767	207	5,254
Boeing 737-400	4	G0	196	547	527	1,270
Boeing 737-500	4	G0	89	1	4	94
Boeing 737-700	4	G0	1,001	298	104	1,403
Boeing 737-800	4	G0	58,447	18,855	12,136	89,438
Boeing 737 MAX	14	G1	251	6	103	360

Table 7.2 incorrectly lists 0% of G2 type aircraft movements in 2019:

Table 7.2: Fleet mix for 2019 by Noise Chapter and Generation

ICAO Chapter	Annual Day	Annual Eve	Annual Night	Annual 24hr
3	4.4%	3.6%	6.1%	4.4%
4	82.8%	86.8%	86.5%	84.0%
14	7.4%	4.8%	5.7%	6.7%
N/A	5.5%	4.8%	1.8%	4.9%
Generation	Annual Day	Annual Eve	Annual Night	Annual 24hr
G0	96%	99.3%	95.1%	96.9%
G1	3.4%	0.7%	4.9%	3.1%
G2	0.0%	0.0%	0.0%	0.0%
N/A	0.0%	0.0%	0.0%	0.0%

And in Table 7.7 ANCA show 0% of G2 aircraft forecast which is incorrect and does not match the information in Appendix G and the daa's own forecasts.

9.0 COST EFFECTIVENESS ANALYSIS

9.1 SUMMARY

- The reports on cost effectiveness submitted by the daa exclude quantification of costs associated with the adverse health effects inflicted on residents. This item was specifically requested by ANCA and was not provided by the daa. We in St Margarets The Ward as citizens were expecting this information to be presented to us as requested by ANCA. We refer to our submission on Public Health where we have evaluated the costs associated with the adverse health effects inflicted on us which indicated that the total yearly cost based on the 2019 figures is a staggering 610 million euro. How are we expected to suffer these costs to protect our health?
- The cost effectiveness analysis (CEA) submitted by Ricondo does not meet the requirements of EU598/2014 as it does not take account of the current flight restrictions in place at Dublin Airport. The report therefore is misleading and inaccurate.
- The cost effectiveness analysis as submitted by Ricondo does not take account of the costs associated with Carbon Emissions nor does it indicate the costs in meeting Ireland's requirements under the Climate Action and Low Carbon (Amendment) Act 2021 for the proposed revision to the current restrictions.
- The EIAR submitted does not meet the requirements set out in the EPA guidance as it does not take account of the foreseeable and planned increase in passenger numbers above 32 million passengers and is considered 'project splitting'.

9.2 COST EFFECTIVENESS ANALYSIS

Ricondo revised their 'Forecast Without New Measures and Additional Measures Assessment Report' and their 'Cost Effectiveness Analysis Report' (CEA) in the revised further information application. 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) include 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 excluding 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”.

It is clear that An Bord Pleanála included Conditions 3(d) and 5 to ameliorate the noise impact.

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'.

3.4.2 'DO-NOTHING' ALTERNATIVE

The range of alternatives can include a 'do-nothing' alternative²⁰ 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 in 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.

As a result of not having a decision by ABP until Q1 2024, losses should only be considered post Q1 2024. The restrictions are currently in place as conditions of the North Runway planning and therefore losses should only be considered when the planning process concludes in Q1 2024. **Any losses before Q1 2024 are fictitious in nature and should be removed from the cost-effective analysis.** And there’s no guarantees that the planning process will conclude in Q1 2024 as alluded to by the daa in the financial prospectus. Losses can not be attributed to the daa’s failure to get the planning restrictions removed by the time the North Runway opens this year. The daa have been trying to remove these restrictions since the 2015/2016 when it embarked on a consultation process. That was 6 years ago. They cannot claim losses for the cost-effectiveness analysis as a result of their own incompetence. It is clear that the ‘Forecast without new measures’ should include the existing operating restrictions and any changes to planning should be compared against that scenario.

In a pre-planning document 'Ricondo CEA ANCA Workshop DRAFT 20200320.pdf', presented to the daa on March 31th 2020, Ricondo present their cost effective analysis strategy. On slide 6 they incorrectly specify the 'Do Nothing' scenario, conflicting with the EIAR and the EPA Guidelines. They include the North Runway but exclude the operating restrictions which are attached to the North Runway planning consent. They also assume mixed-mode runway use for 24-hour period which is contrary to the planning of the North Runway. This is a major error on behalf of Ricondo.

DRAFT

Situation Zero

- Annex I of Regulation 598/2014 – “Forecast without New Measures” – a study of the forecast noise impact on the surrounding area caused by expanding the capacity, runways and terminals and/or by modifying flight paths and approach and take-off routes without implementing further new measures is required
- Represents the “Do Nothing” forecast noise environment – €0 cost and zero effectiveness
- Serves as baseline to assess forecast noise compared to noise abatement objective – defines potential noise issues or concerns
- “Do Nothing” should represent forecast noise exposure based on:
 - Inclusion of North Runway
 - Existing noise reduction measures
 - Arrival and departure flight procedure concepts proposed in second consultation phase and corresponding NPR corridors
 - No operation restrictions or new noise reduction measures
 - Forecast operations and fleet mix
 - Assumes mixed-mode runway use for 24-hour period



SOURCE: daa, July 2019 (accessed at <https://www.dublinairport.com/north-runway>)



Dublin Airport | Noise Reduction Cost-Effectiveness Methodology | March 31, 2020

6

9.3 ICAO

The ICAO ‘Guidance on the Balanced Approach to Aircraft Noise Management’ publication (https://global.ihc.com/doc_detail.cfm?input_search_filter=ICAO&items_key=00507943&item_key_date=890221&input_doc_number=9829&input_doc_title=&org_code=ICAO) sets out the Baseline case. The “*base-case noise situation is that which currently exists and that which is expected to exist at given points in the future taking into account all noise mitigation actions that are already planned*”. This clearly identifies the approved planning restrictions as being part of the base-case.

Part I. The Balanced Approach to Aircraft Noise Management
Appendix 2. Analytical methodologies/tools

I-A2-9

5.4 Identifying the base-case

5.4.1 A starting point for the analysis must be defined in order to measure or assess the change in noise exposure that may be expected to occur should a particular noise reduction measure be chosen and implemented. This starting point, which reflects the noise situation around the airport as it currently exists, taking into account existing noise controls and current operating and land-use regulations, typically is referred to as the “baseline” or “base-case.” The baseline/base-case noise situation may also be referred to as the “no further action scenario” because it is the noise scenario that is expected to occur based on existing plans with no additional action.

5.4.2 While the base-case noise situation is supposed to reflect aircraft-related noise under existing conditions, considering the noise situation at a single point in time usually would not be deemed sufficient to truly assess the situation. Rather, the noise situation should be assessed over a projected time period, taking into account what is known about the fleet mix over that time period, traffic, operational procedures, existing management plans, agreed future noise controls, and noise mitigation actions. In such a case, the base-case noise situation is that which currently exists and that which is expected to exist at given points in the future taking into account all noise mitigation actions that are already planned. Any additional noise mitigation measure that is not agreed would be outside the base-case.

5.4.3 The length of time over which the noise situation is projected should be sufficiently long to take into account changes in the fleet mix, the longer term nature of airport planning and other factors. As noted in Chapter 3, a common approach is to establish a baseline noise assessment that examines noise in the present and into the future over a period of time established by authorities (e.g. five-year and ten-year intervals).

5.4.4 Once the base-case noise situation over a specified time period has been identified, it can be compared with the noise situation that would be expected should a particular noise reduction measure be adopted.

In section 3.7 of the ICAO document, it states that when establishing the baseline, measures such as noise abatement operational procedures and **existing operating restrictions** should be taken into account.

3.7.4 In addition to any information that may be available in an existing management plan, other current and agreed-to noise mitigation measures should be taken into account in establishing the baseline. These would include measures such as noise abatement operational procedures and existing operating restrictions. They may also include noise reductions at source based on expected noise performance improvements to an operator’s fleet as a result of technology developments and fleet renewal.

9.4 REGULATORY DECISION

In ANCA's regulatory decision report (<https://www.fingal.ie/sites/default/files/2022-06/Regulatory%20Decision%20Report.pdf>), chapter 9 focuses on the Cost Effectiveness Analysis. In section 9.1, ANCA state the use of the number of people HSD and exposed to a noise level > 55dB Lnight. Day time should not be excluded in this analysis. ANCA should look at the full noise picture and not just the night-time subset. In the Oral Hearing of 2007, Mr. Rupert Thornely-Taylor commented on the interaction of daytime and night-time movements in his report. Therefore, ANCA has erred by not including the HA figures and population > 65dB Lden as per the NAO.

In ANCA's Cost Effectiveness Methodology and Results report (Appendix J), they outline their choice of metrics. In section 1.3 they define the Forecast without new measures (baseline scenario) and exclude Conditions 3(d) and 5 which is contrary to EU598/2014 and the ICAO's definitions in their 'Guidance on the Balanced Approach to Aircraft Noise Management' document.

In section 1.3.1, ANCA state that they have not had sight of the Applicant's passenger forecasting model and relied solely on the Applicant's consultants Mott MacDonald. Why did ANCA just accept these figures? Why didn't ANCA insist on requesting the passenger model? These are critical to the decision-making process. How can an independent regulator rely on an Applicant's consultants? This is a matter of grave concern and raises questions over the independence of ANCA.

In section 1.3.2 ANCA state that in the daa's FWNM scenario, that arrivals are split evenly between the two runways. This contravenes Option 7b where runway 28L should be preferred for arrivals during westerly operations and runway 10R shall be preferred for departures for easterly operations.

ANCA show how the NAO targets can be met without Conditions 3(d) and 5. But they use 2019 as the comparison year. Why not use 2007 when the Runway was awarded Planning Permission? This regulatory decision is a change to the planning permission granted in 2007 and so an obvious choice of reference year should be 2007.

In section 1.3.2.1 ANCA incorrectly state the number of people exposed to a night-time noise priority will be 16 by 2025. This contradicts with the 75-figure given by the daa in their excel sheet 'a11267_19_ca437_2.0-summary-of-results-including-mitigation.xlsx'.

Section 1.3.3 contains errors in the description of the runway operations:

- Runway 10L or 10R, as determined by air traffic control, is preferred for arriving during easterly winds, and Runway 28L is the preferred runway for arriving aircraft during westerly winds.
- Runway 10R is the preferred runway for departing aircraft during easterly winds and either Runway 28L or 28R is used for departing aircraft as determined by air traffic control during westerly winds.

The description of FWNM (P06) clearly shows that it does not follow the Option 7b mode. It makes no sense whatsoever to exclude Option 7b. This is described in Conditions 3(a-c) and not being changed by the applicant. Option 7b was a mode of operation put forward by the daa at the Oral Hearing in 2007. The FWNM outlined by ANCA is a flawed scenario and both the daa's and ANCA's cost-effectiveness analysis need to be recomputed.

ANCA have failed to address this flaw with their FWNM and CEA in their Consultation Report.

In section 1.4.2 ANCA discuss the night-time noise insulation scheme and compare various scenarios. In a pre-planning consultation in November 2020 (Note the daa lodged their application one month later in December 2020), the daa proposed a scheme whereby they insulated dwellings $>55\text{dB L}_{\text{night}}$ in 2025 and those $\geq 50\text{dB L}_{\text{night}}$ in 2022 and experienced a $+9\text{dB}$ change compared with 2018. This document shows that the daa were intending to insulate 325 new dwellings. This scenario is not presented in the analysis by ANCA. This alternative should have been compared as an alternative and especially as it had been used in a pre-planning consultation with ANCA.

NOISE INSULATION GRANT SCHEME

A grant scheme for the installation of sound insulation measures up to a value of €20,000 for dwellings:

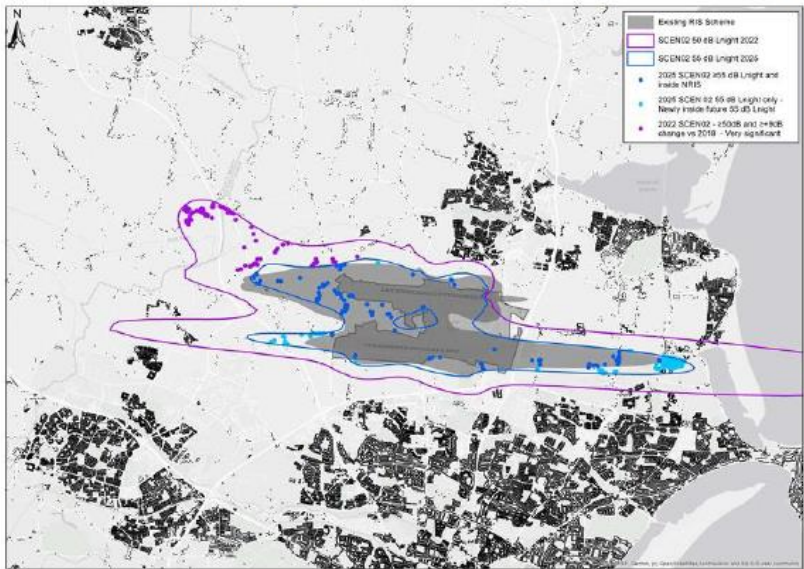
- Forecasted to be exposed to night-time noise levels of at least $55\text{ dB L}_{\text{night}}$ in 2025 or
- Forecasted to be exposed to noise levels greater than $50\text{ dB L}_{\text{night}}$ in 2022 arising from a change of at least 9 dB when compared with 2018.

Eligibility within the $55\text{ dB L}_{\text{night}}$ contour will be reviewed every 2 years with revised forecasts.

The night insulation scheme is considered additional to the existing daytime noise insulation scheme currently provided in accordance with Condition 7 of North Runway planning permission and the current scheme (based on 2016 contours).

Night Noise Insulation Grant Scheme

Based on exposure to noise levels $\geq 55\text{dB } L_{\text{night}} 2025$ or $L_{\text{night}} \geq 50\text{dB}$ (2022) and change $\geq +9\text{dB}$
325 additional properties eligible noise insulation grant (over that currently covered by the NRIS).



	Dwellings
Total $\geq 55\text{dB } L_{\text{night}} 2025$	360
Total $\geq 50\text{dB}$ with $+9\text{dB}$ change (2022 compared with 2018)	83
TOTAL DWELLINGS IN SCHEME	443
Dwellings already covered by existing NRIS	118
NEW DWELLINGS ELIGIBLE FOR NEW NIGHT NIS Grant	325

There are additional properties eligible under the current daytime scheme not included in these numbers = approx. 90 additional.

The applicant changed their insulation when submitting their application in December 2020. They changed their criteria 2 to those dwellings $>50\text{dB } L_{\text{night}}$ in 2022 and experiencing a $+9\text{dB}$ change compared with 2022 Permitted. This provided for 54 dwellings getting insulation on top of the 180 covered by criteria 1. So, the daa had reduced their scheme by 91 dwellings from the pre-planning meeting in November 2020 to the submission in December in 2020.

What is perplexing is that the daa did not consider either of these two scenarios in their cost-effectiveness analysis. They considered either using 2022 or 2025, whereas the pre-planning proposal and their submission both used a combination of 2025 and 2022. Because the applicants preferred case and their initial pre-planning proposal are not considered, the cost-effectiveness analysis is deficient and needs to be amended.

It is clear that the daa’s pre-planning proposal insulates more homes than any scenario outlined by ANCA. It uses 2022 for criteria 2 which is the year that the households will experience the sharp rise in noise exposure.

It is also worth mentioning that ANCA did not look at any other alternative except the $+9\text{dB}$ change proposed by the daa. They give no reason for doing so and have provided no medical or scientific rationale for this decision. They just accepted the daa’s proposal. In table 0-1 they list the criteria for those ‘**Significantly adversely affected**’ by noise. ANCA should be using this definition for insulation purposes. ANCA needs to explain from a health point of view why they would leave people ‘significantly adversely affected’ by noise when these people’s lives could be improved by insulation. ANCA should have costed this proposal. How can ANCA justify the

costs in health that society must bear due to these significantly adverse effects? The noise will be imposed on the people by ANCA’s decision to revoke the operating restrictions. The people have not moved to the noise. The responsibility to bear these costs should then be borne by Fingal County Council and ANCA.

These deficiencies have not been addressed in the Consultation Report.

Table 0-1: The Applicant’s thresholds for determining if a person is significantly adversely affected

Noise indicator	Threshold based on absolute noise exposure and increase in noise exposure compared with a situation
L _{den}	Exposed to noise levels between 45 dB and 50 dB L _{den} and an increase at or higher than 9 dB
	Exposed to noise levels between 50 dB and 55 dB L _{den} and an increase at or higher than 6 dB
	Exposed to noise levels between 55 dB and 65 dB L _{den} and an increase at or higher than 3 dB
	Exposed to noise levels between 65 dB and 70 dB L _{den} and an increase at or higher than 2 dB
	Exposed to noise levels 70 dB L _{den} or higher and an increase at or higher than 1 dB
L _{night}	Exposed to noise levels between 40 dB and 45 dB L _{night} and an increase at or higher than 9 dB
	Exposed to noise levels between 45 dB and 50 dB L _{night} and an increase at or higher than 6 dB
	Exposed to noise levels between 50 dB and 55 dB L _{night} and an increase at or higher than 3 dB
	Exposed to noise levels between 55 dB and 60 dB L _{night} and an increase at or higher than 2 dB
	Exposed to noise levels 60 dB L _{night} or higher and an increase at or higher than 1 dB

Source: Ricondo, daa

It is also worth pointing out that the 7th EAP referenced ‘High’ noise levels as levels above 55dB L_{den} and 50dB L_{night}. When have ANCA chose to ignore these ‘High’ levels from the 7th EAP?

This reference to the 7th EAP is also referred to in the EEA’s ‘The European environment – state and outlook 2020’ report:

BOX 11.1
EU noise indicators

The Environmental Noise Directive (END) defines two important noise indicators to be used for noise mapping and action planning:

L_{den}: Long-term average indicator designed to assess annoyance and defined by the END. It refers to an A-weighted average sound pressure level over all days, evenings and nights in a year with an evening weighting of 5 dB and a night weighting of 10 dB.

L_{night}: Long-term average indicator defined by the END and designed to assess sleep disturbance. It refers to an A-weighted annual average night period of exposure.

High noise levels are defined in the 7th EAP as noise levels above 55 dB L_{den} and 50 dB L_{night}. ■

BOX 11.2
The 2018 Environmental noise guidelines for the European region (WHO, 2018)

In 1999 and 2009 the World Health Organization (WHO) published guidelines to protect human health from exposure to community noise and night noise. Since then there has been a substantial increase in the number and quality of studies on environmental noise exposure and health outcomes. Following the Parma Declaration on Environment and Health, adopted at the Fifth Ministerial Conference (2010), the Ministers and representatives of Member States in the WHO European Region requested WHO to develop updated guidelines on environmental noise. To this end, WHO commissioned systematic reviews to assess the relationship between environmental noise and health outcomes such as cardiovascular and metabolic effects, annoyance, effects on sleep, cognitive impairment, hearing

impairment and tinnitus, adverse birth outcomes, and quality of life, mental health and well-being. These reviews are the basis for the development of the recommended noise levels above which negative effects on health begin according to our best knowledge. ■

Reducing noise below these levels is recommended (WHO, 2018).

	Road	Rail	Aircraft
L _{den}	53 dB	54 dB	45 dB
L _{night}	45 dB	44 dB	40 dB

It is also worth pointing out that ANCA’s Director Ms Ethna Felton stated on a Webinar given by ANCA that the draft decision provides for more houses to be insulated. This is a false and inaccurate statement. As proven by the above analysis, ANCA did not compare the daa’s proposal and are incorrectly comparing the scenario C6 to the 2022 scenarios C1, C3 and C5.

This mistake by ANCA is inexcusable. ANCA’s draft and regulatory decisions insulate fewer houses than the daa’s submission. It’s also noticeable that ANCA’s decision reduces the insulation in The Ward and Coolquay areas, where the residents will experience a very significant rise in noise exposure in 2022 due to the North Runway opening.

Having a Noise Regulator reduce the number of houses that an applicant wanted to insulate is a very worrying and alarming situation and calls into question the competency of the regulator.

ANCA go on to state that the “*The Applicant’s preferred long-term measure is Scenario P02 with a noise insulation variant B. This results in an increase in the number of HSD people compared to the FWNM, but is relatively cost effective at minimising the number of people exposed to night-time noise priority*”.

Variant B is not what the applicant is proposing and the definition in Table J9 is incorrect.

Table J9: Noise insulation measures based on different RSIGS eligibility criteria

Measure	Insulation scheme eligibility criteria
<i>Applicant assessed measures</i>	
RSIGS B	A €20,000 grant for noise insulation given to dwellings exposed to noise levels exceeding 55dB L _{night} in 2025 and not eligible under existing noise insulation schemes

Please refer to the Anderson Acoustics document 3870-RGIGS dated July 2021 (https://northrunway.exhibition.app/assets/pdf/documents/13_Proposed_Sound_Insulation_Grant_Scheme.pdf) where a detailed description of the scheme is outlined.

1. Dwellings forecast to be exposed to “high” night-time noise levels in 2025 - at least 55dB L_{night}.
2. Dwellings with a “very significant” rating arising from forecast noise levels of at least 50dB L_{night} in the first full year when the Relevant Action comes into operation, with a change of at least +9dB when compared with the current permitted operation in the same equivalent year.

“Criteria 2 eligibility is based on forecasts for the first year of operation of the Relevant Action. For the purposes of the application and the assessment this has been assumed to be 2022”.

Land Use Planning. Residential Sound Insulation Grant Scheme.

Minimising the potential for significant adverse effects arising from Scenario 2.

- Consistent with the application of the ICAO Balanced Approach, daa is proposing a Residential Sound Insulation Grant Scheme (RSIGS) as part of the package of measures submitted in support of the planning application and associated EIA (Relevant Action) to amend Condition 3(d) and replace Condition 5 of the existing planning permission for the North Runway.
- The RSIGS will make available a grant of up to €20,000 for the installation of noise insulation measures for eligible dwellings.
- Dwellings are considered eligible if they meet either of the following noise related criteria:
 1. Dwellings forecast to be exposed to "high" night-time noise levels in 2025 - at least 55dB L_{night} .
 2. Dwellings with a "very significant" rating arising from forecast noise levels of at least 50dB L_{night} in the first full year when the Relevant Action comes into operation, with a change of at least +9dB when compared with the current permitted operation in the same equivalent year.
- These proposals are additional to the North Runway Insulation Scheme (NRIS) from Condition 7 of the North Runway Planning Permission.
- Properties that have received noise insulation measures through the existing HSIP scheme would not be eligible for the RSIGS. Upon operation of the Relevant Action the current HSIP scheme will come to an end - the NRIS and the RSIGS will form the noise insulation scheme offers for Dublin Airport.
- It is also proposed that dwellings approved for construction after the December 2020 Relevant Action Application that fall within any of the noise insulation areas would not be eligible for either scheme.

Initial Criteria 1 eligibility for the grant scheme will be based on the initial 2025 forecast presented in the revised EIAR.

Bi-annual, retrospective reviews that align with the reviews of the existing North Runway scheme are proposed. At each review, the actual historic contours will be compared with the forecast for 2025.

Criteria 2 eligibility is based on forecasts for the first year of operation of the Relevant Action. For the purposes of the application and the assessment this has been assumed to be 2022. However, if that year is later than 2022, the +9dB area will be reviewed for the revised first year and adjusted accordingly. It is proposed that the area of eligibility will be reviewed in the year after the Relevant Action comes into operation by comparing the actual +9dB change area with that included as part of the application and will be adjusted accordingly. As this area is only applicable to the change in the first year, this review will happen once.

Final details of the scheme will be finalised and agreed with the Competent Authority in due course, but the approach will utilise the experiences gained on the existing insulation scheme in terms of products and specifications that would be recommended for installation.

The following slides presents the areas of eligibility for each of the criteria.

Consistent with the Environmental Impact Assessment for the Relevant Action Planning Application all analysis is based on GeoDirectory data for 2019 Q2. It is recognised that there maybe some dwellings that have been built since that data was compiled. Prior to finalisation of the scheme details the eligible dwellings will be reviewed to ensure all that all those eligible are included.

Dublin Airport – RSIGS - DRAFT



It is clearly evident that a major overhaul of the cost-effectiveness analysis with respect to insulation schemes needs to be undertaken.

In section 1.6.1, ANCA state that the Noise Quota Scheme limit *"has been set such that it would not impose any operating restrictions based on the Applicant's forecasts of ATMs and the fleet mix"*.

In section 1.6.2.1 no costs associated with the health costs on the number of people Highly Annoyed and Highly Sleep Disturbed are given. No costs associated with other health issues are given. No costs due to lack of productivity due to noise are given. No costs due to handling the carbon emissions of the aircraft are given.

This section also accepts the daa's estimates of 45,000 fewer flights and 7.1 million fewer passengers, which have been robustly refuted in this submission. Once again one has to question the role of the independent regulator and whether it is fit for purpose and whether it

takes its role as regulator seriously or just accepts the data given to it by the applicant. The number of fewer passenger numbers is critical to this regulatory decision and must be forensically examined and challenged by the regulator.

ANCA conclude that the total cost estimate ranges from 88 million euro to 1,023 million euro over the period 2022-26 but exclude health and carbon emission costs.

In section 1.6.2.2, ANCA state that the highest Quota Count will be in 2025 at 15,892 given to it by the daa (once again an acceptance of the daa's figures). They then state that a 16,260 limit can be met without imposing any restrictions on the applicant. This just proves that ANCA's acceptance of the daa's 16,260 limit is designed not to curtail any aircraft movements and is a farcical system. This is further shown in table J22 where the number of people no longer impacted compared with FWNM is 0 for the Noise Quota Schemes for both HSD and Night-time noise priority. This proves that the Noise Quota System is not a mitigation measure and has no effect on noise in its current form. It is deliberately set so high that it facilitates all flight movements. This is not how Noise Quota Systems work in the UK as they are always combined with movement limits. It is astonishing that Noise Consultants Ltd give their backing to such a farcical interpretation of Noise Quota Systems seeing as they are UK based consultants and only too familiar with the Noise Quota Systems in operation in the UK. Once again, we have to call into question the regulator and its consultants with regard to independence.

The final comment in the Cost Effectiveness Methodology and Results report is very interesting and states that:

"Our lower bound estimate of the cost-effectiveness of the Permitted Operations scenario, suggests it is possible that the restrictions could be more cost-effective than some of the alternatives. But that is assuming the most optimistic outcome in terms of costs".

So the Permitted scenario with restrictions could be the most cost-effective outcome. And this is based on no inclusion of costs associated with health and carbon emissions.

9.5 HEALTH COSTS

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.

9.6 CARBON EMISSION COSTS

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.

An article in the Guardian newspaper in December (<https://www.theguardian.com/environment/2021/dec/22/cleanup-cost-of-heathrow-third-runway-doubles-to-100bn-mps-told>) referenced a study by the New Economics Foundation (<https://neweconomics.org/uploads/files/NEF-Flying-Low.pdf>) suggesting the carbon value or clean-up cost of Heathrow’s third runway has increased from £50bn to £100bn, twice the figure presented to ministers and parliamentarians by the Department for Transport in the Airports National Policy Statement (ANPS) in 2018.

Gatwick Airport handled 46million passengers in 2019 and are planning to handle 62million by 2038. But the estimated costs to handle the extra emissions from 2025-2050 is 9billion.

Table 1: The net present value of the departing-flight emissions from eight airport expansions underway across the UK has more than doubled following the revision to BEIS carbon values.

Net present value in £millions (2025 – 2050) of greenhouse gas emissions from new departing flights resulting from eight in-progress UK airport expansions.

	Old 2020 departing emissions value (£m)	New 2021 departing emissions value (£m)	Increase factor	Status
Heathrow	24,998	49,212	2.0	Approved by parliament and courts, awaiting application
Gatwick	4,502	9,196	2.0	Development consent order application process started

The daa handled 32m in 2019 and are forecasting 46m by 2040. So, the growth in passengers between Gatwick and Dublin is comparable and so the cost of 9billion to handle the extra emissions to 2050 should be applicable to Dublin too.

daa and ANCA needs to factor in this cost of emissions. 9billion over 25 years is 360million per year or **1440million** from 2022-2025.

This only factors in the cost of growth in passenger numbers and costs for dealing with existing passenger emissions are excluded.

The Climate Action and Low Carbon (Amendment) Act 2021 was passed in Ireland in July 2021. The Act outlines ambitious air pollution targets. It commits Ireland to:

- Reducing greenhouse gas emissions by 51% by 2030
- Achieving a climate neutral economy by 2050, this is known as the 'national climate objective'

A climate neutral economy is an economy with net-zero greenhouse gas emissions. Net-zero emissions means the amount of emissions produced equals the emissions removed from the atmosphere. This is also known as 'carbon neutrality'.

Ireland's Aviation Policy built on aviation growth is contrary to the Climate Action and Low Carbon Act 2021.

9.7 ENVIRONMENTAL DAMAGE

The PBL Netherlands Environment Assessment Agency produced a policy briefing document in June 2018 titled - 'MONETARY ENVIRONMENTAL DAMAGE IN THE NETHERLANDS' (<https://www.pbl.nl/publicaties/monetaire-milieuschade-in-nederland>).

In this document it states that aviation alone accounted for €3.5bn in environmental damages when taking into account damage caused by Dutch residents and companies abroad.

Table 4.8 Environmental damage to aviation in the Netherlands and by Dutch residents in 2015 (in million euros)

	In the Netherlands	By Dutch residents
<i>Climate (greenhouse gases)</i>		
carbon dioxide	43	744
methane	0	0
Distikstofoxide	0	6
<i>Air pollution NEC substances</i>		
Nitrogen Oxides	118	2.814
Sulfur oxides	6	85
Ammonia	0	0
NMVOs	1	3
particulate matter	2	10
<i>Air pollution other substances</i>		
Carbon monoxide	0	1
Total	170	3.644
<i>Climate (extra two degrees)</i>	28	486
Total	198	4.129

Source: see table 4.7

In 2015 there were 540381 aircraft movements at Dutch airports. For '2025 Proposed' the daa are forecasting 236k aircraft movements, equating to 43.7% of the Dutch 2015 numbers. Applying this percentage to the €3.5 billion aviation environmental damage equates to €1.5 billion. Thus €1.5 billion is a good proxy of the environmental damage expected due to Aviation from Irish residents in 2025 (based on 2015 costs).

These environmental costs from Irish residents travelling abroad are not factored into ANCA's CEA.

9.8 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 (Competent Authority) 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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Antúdarás Inniúil um
Thorann Aerárthai
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

9.9 F19A/0449

With reference to F19A/0449, ANCA failed to define the NAO for Dublin Airport after starting the process. ANCA requested noise information from the daa under section 9(10) of the 2019 Act (<https://www.fingal.ie/sites/default/files/2019-12/anca-rf01.pdf>):

Accordingly, ANCA is now engaged in the process of consultation with the Planning Authority, determining whether the development the subject of F19A/0449 would give rise to a noise problem, in accordance with Section 34B(2) of the PDA.

To assist in making that determination, ANCA is exercising its power to request information under Section 9(10) of the 2019 Act, which provides that ANCA may, for the purposes of an assessment of the noise situation at the airport, direct the applicant to provide ANCA with such information as ANCA may reasonably require. As you are aware, assessment of the noise situation at the airport is one of ANCA's functions under Section 9(1) of the 2019 Act, which is incorporated into the Section 34B process under Section 34B(1)(b) of the PDA.

Appendix A to this letter outlines the specific information sought from daa at this point in the Section 34B process. This information is required to enable ANCA to, in the first instance:

- assess the noise situation at the airport;
- determine whether the proposed increase in the Capacity Limit would give rise to a 'noise problem'; and
- potentially inform the process of setting a Noise Abatement Objective (NAO) for Dublin Airport.

The application was withdrawn by the applicants in June 2020:

Dear Mr Mahon

RE: APPLICATION FOR PLANNING PERMISSION FOR A CHANGE OF USE TO PROVIDE FOR AN INCREASED COMBINED PASSENGER CAPACITY FOR ALL PASSENGER BUILDINGS FROM 32 MILLION PASSENGERS PER ANNUM (MPPA) TO 35 MPPA (OF WHICH 3 MPPA WILL BE CONNECTING PASSENGERS) IN THE TOWNLANDS OF CORBALLIS AND COLLINSTOWN, AT DUBLIN AIRPORT, CO. DUBLIN

FCC Reg Ref: F19A/0449

We refer to the above application and your most recent correspondence dated 9th April 2020. We wish to advise that daa plc has determined that the proposed increase in passenger capacity for all passenger buildings from 32mppa to 35mppa is no longer required in the short term. This is due to the recent impacts of Covid-19 on the number of passengers expected to utilise Dublin Airport over the next 12 – 24 months. As a result, we have advised the planning authority that the planning application is withdrawn pursuant to article 37(1) of the *Planning and Development Regulations 2001 – 2019*.

Future growth in passenger numbers at the airport will continue to be planned for in the long term and a subsequent planning application will be submitted to the planning authority in due course.

I trust that the above is in order and would appreciate a letter of acknowledgement.

Yours sincerely



Gavin Lawlor
Director
Tom Phillips + Associates

After the withdrawal of the application, ANCA decided to discontinue their role in assessing the noise situation at the airport and defining the Noise Abatement Objective (NAO). ANCA had the powers to continue their work and request any noise data from the daa but declined. Querying this decision, ANCA replied on July 15th stating that the data received from the daa was insufficient to facilitate a full assessment of the noise situation:

I refer to your correspondence of 5th July 2020.

I can confirm that planning application F19A/0449 has been withdrawn by the daa. Although the aircraft data as submitted by the airport authority as part of the planning application was informative, it was not sufficient to facilitate a full assessment of the noise situation at the airport. ANCA requested detailed additional information but a response to the request was not received in advance of the application being withdrawn. This information is on the planning section of our website. Notwithstanding this, it is the intention of ANCA that a full aircraft noise assessment will be undertaken for Dublin Airport. I do not have a date for the assessment at this time but can advise that there will be no pre-determined outcome.

There is currently no noise abatement objective for Dublin Airport. ANCA has, however, commenced a review of the noise mitigating measures at the airport under Section 21 of the Aircraft Noise (Dublin Airport) Regulation Act 2019. The outcome of this review will be posted on our website when available. As advised in previous correspondences, a request from you under Section 21(3)(a) can only be progressed when a noise abatement objective is in place at the airport.

Kind regards

Joe Mahon

Aircraft Noise Competent Authority
Fingal County Council | County Hall | Swords | County Dublin, K67 X8Y2

ANCA failed to continue the work of defining the Noise Abatement Objective for Dublin Airport even though it had the powers under section 9(10) of the Act to request the daa to provide any data it required. It is very apparent that ANCA did not want to define the NAO unless there was a planning application lodged by the daa. And one can deduce that ANCA did not want to define the NAO before any planning application was lodged as it might jeopardise the daa's future activities. This action calls into question the true independence of ANCA and raises concerns over a conflict of interest.

9.10 INBOUND TOURISM VERSUS OUTBOUND TOURISM

In the CSO statistics on tourism (<https://www.cso.ie/en/releasesandpublications/ep/p-syi/statisticalyearbookofireland2020/tt/tourism/>) it states that €8.3bn was spent on overseas trips in 2019 by Irish residents.



In contrast, €5.1bn was spent by overseas residents in Ireland in 2019:

“Excluding fares, expenditure by overseas travellers decreased by 0.9% in 2019, from €5,149 million in 2018 to €5,101 million. Of this €5,101 million, 60.3% was spent by overseas travellers for holiday/leisure/recreation purposes, 17.8% by those travelling to visit friends and relatives, 14.1% by business travellers and the remaining 7.8% by those travelling for ‘Other’ reasons”.

This equates to a net loss in tourism in 2019 of €3.2bn. From 2014 to 2019 there have been tourism deficits. One can assume that this pattern of losses will continue into the future. These losses facilitated by aviation have not been factored into the daa's or ANCA's Cost Effective Analysis. The analysis provided only factors in the positive effects of inbound tourism and ignores the negative effects of outbound tourism, facilitated by aviation.

10.0 SCENARIO P02 FAILS TO MEET THE NAO

10.1 SUMMARY

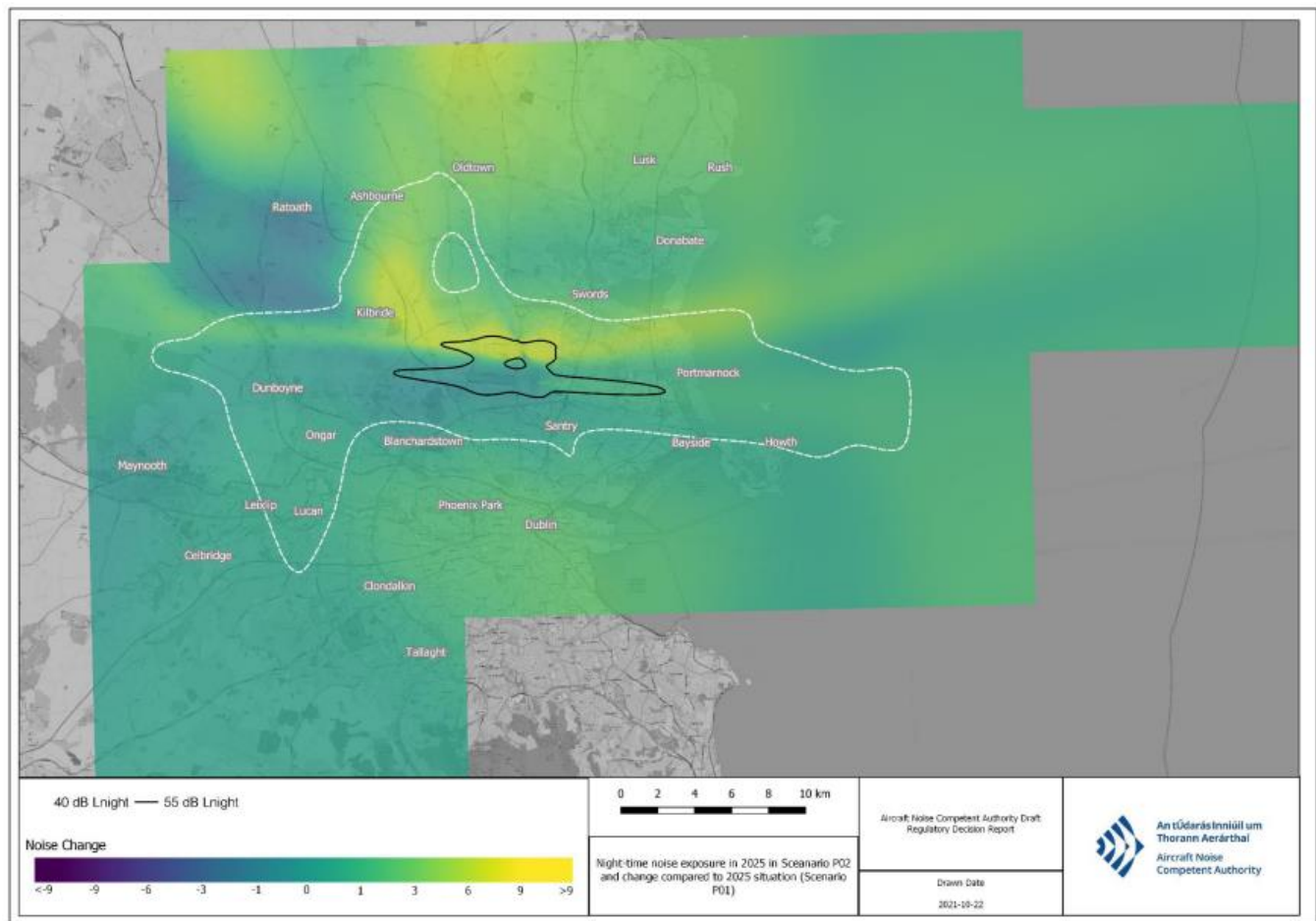
- Scenario P02 does not meet the NAO when taking population growth into account.
- Scenario P11 has just an increase of 2 people contained in the >55dB Lnight contour compared with 2019. This is well within the margins of error of the forecasts and should not be excluded from further analysis.
- ANCA used population with growth to dismiss scenario P11 yet attempted to ignore population with growth to justify the inclusion of P02.
- Night noise imposed on new populations from the North Runway for only a gain of 2 extra flights between 06:00-08:00 and 4 between 22:00-24:00, as outlined in the daa's forecasts.
- Scenario P11 shows less night-time impact than P02 and has lower numbers of HSD and HA.
- Including P02 and excluding P11 is not a Balanced Approach!

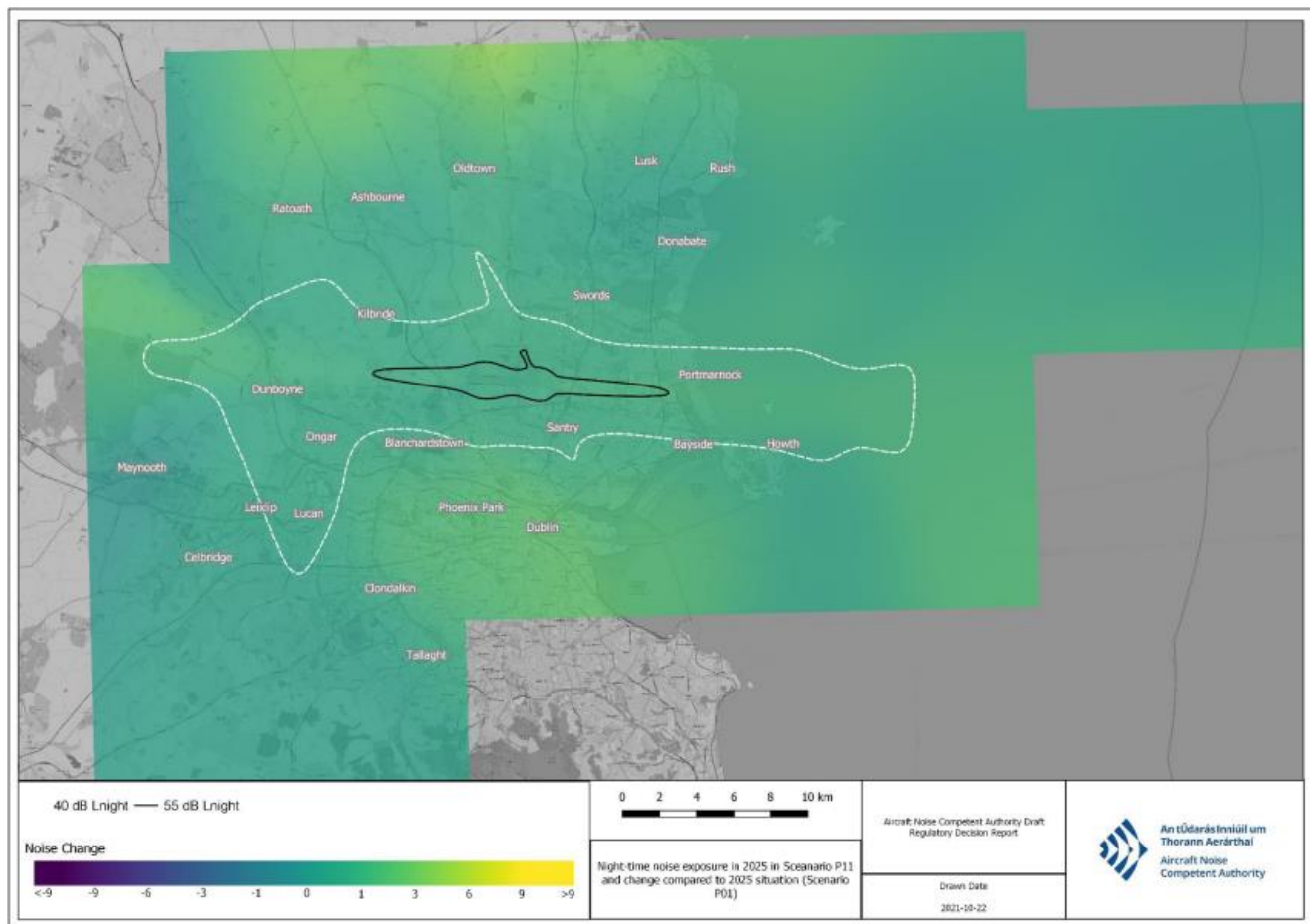
10.2 COMPARISON OF SCENARIO P02 AND SCENARIO P11

ANCA looked at a comparison of scenario P02 with P11. Scenario P02 is equivalent to the daa's Relevant Action proposal. Scenario P11 is equivalent to replacing Condition 5 with a NQS but leaving Condition 3(d) in place. This equates to having unlimited night-time flights on the South Runway only and no night-time flights on the North Runway.

Comparing the difference maps between scenarios 02 and 11 with scenario 01 (Permitted) one can see that scenario P11 causes no significant changes in noise exposure and a scenario that that ANCA should favour.

Scenario P02 introduces whole new populations to night-time noise for the first time, primarily in Malahide, Swords, St Margarets, The Ward and Coolquay





Draft Regulatory Decision – Appendix E (<https://www.fingal.ie/sites/default/files/2021-11/appendix-e.pdf>)

Effectively no new populations will be exposed to new levels of noise with scenario P11. This is an outcome that ANCA should be aspiring to achieve.

ANCA provided the population numbers for the different scenarios in terms of significant adverse effects but failed to include scenario P11 in table 7.22 of their Regulatory report:

Table 7.22: Population experiencing significant adverse effects due to changes in night time noise exposure in 2025

Scenario	Population Experiencing Significant Night time Noise Effects in 2025 arising from changes in aircraft noise exposure as per the EIAR significance criteria ¹²¹
2025 P01 30.4 mmpa	0
2025 P02 32.0 mppa	1,879
2025 P03 32.0 mppa	3,677
2025 P04 32.0 mppa	23,414
2025 P05 32.0 mppa	17,547
2025 P07 32.0 mppa	17,050
2025 P08 32.0 mppa	4,629
2025 P09 32.0 mppa	14,984
2025 P10 32.0 mppa	22,379

It is also of significance that scenario P11 was omitted from the 'a11267_19_ca437_2.0-summary-of-results-including-mitigation.xls' spreadsheet which was requested by ANCA to compare the various scenarios in terms of HSD, HA, >55dB Lnight, >65dB Lden and numbers significantly adversely affected by noise.

ANCA used the number of people >55dB Lnight to rule out scenario 11. But their analysis is flawed.

Here are the metrics for the NAO:

Expected Outcomes

In the context of its recovery from the global pandemic, noise exposure from Dublin Airport is expected to increase up to 2025. Whilst the resultant health effects are expected to be lower than those which occurred prior to the pandemic and in the years 2018 and 2019, these effects should then reduce over the medium to long-term, to improve the noise situation at Dublin Airport whilst allowing for sustainable growth. ANCA therefore expects the following outcomes to be achieved through this NAO.

The number of people highly sleep disturbed and highly annoyed shall reduce so that:

- The number of people highly sleep disturbed and highly annoyed in 2030 shall reduce by 30% compared to 2019;
- The number of people highly sleep disturbed and highly annoyed in 2035 shall reduce by 40% compared to 2019
- The number of people highly sleep disturbed and highly annoyed in 2040 shall reduce by 50% compared to 2019 and;
- The number of people exposed to aircraft noise above 55 dB L_{night} and 65 dB L_{den} shall be reduced compared to 2019.

Note there is no year or percentage reduction linked to >55dB Lnight and 65dB Lden. The numbers need to be reduced compared to 2019.

The Draft Regulatory Decision document focuses on >55dB Lnight and HSD only. In Fig 7.14 it shows the >55dB Lnight and >65dB Lden figures for 2025 for all the scenarios vs 2019.

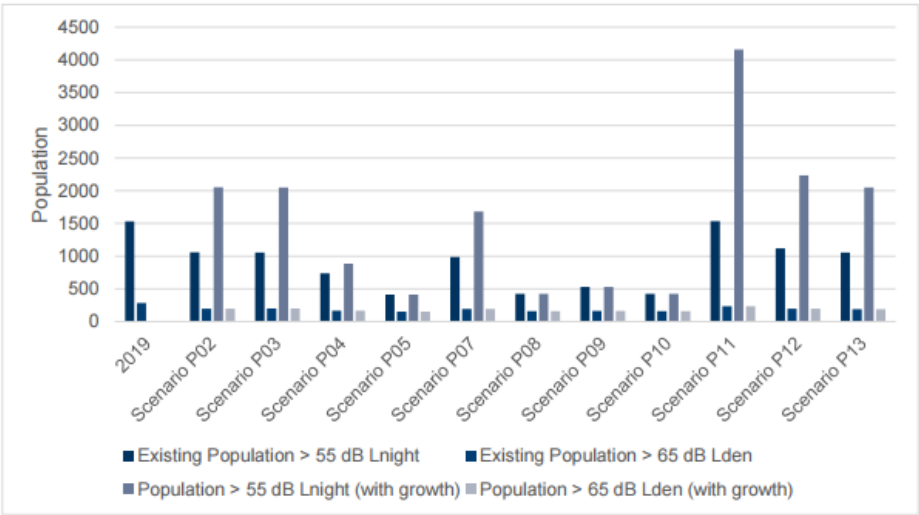


Figure 7.14: Population exposed to levels above the NAO priorities under different runway use and restriction scenarios with and without potential population growth

Scenario P11 exceeds 2019 when population growth is taken into account. Population growth is made up of future occupied, future consented planning and future zonings.

ANCA then compares future years to highlight the scenarios that exceeds >55dB Lnight in 2025/2030/2035/2040 with population growth. P11 exceeds the 2019 figure but so too does P02, the daa's proposal.

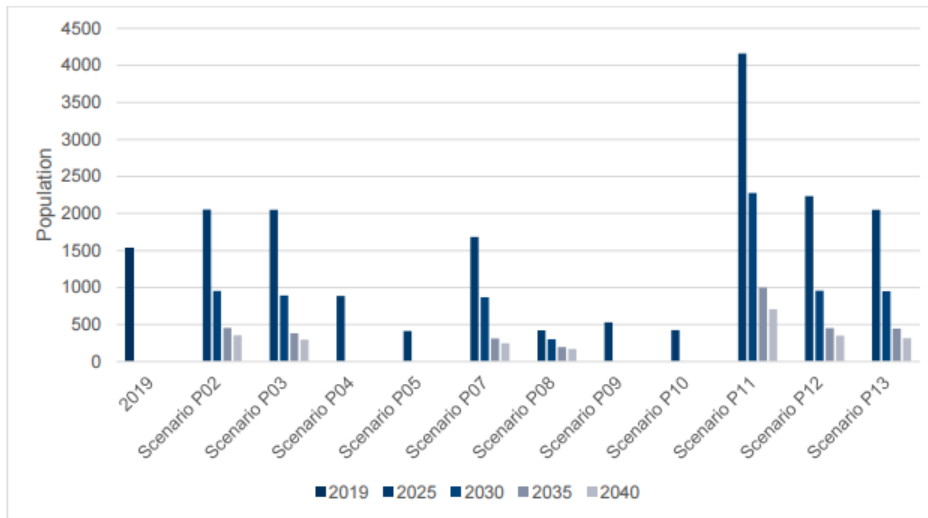


Figure 7.15: Population exposed to levels above the NAO night time priority of 55 dB L_{night} under different runway use and restriction scenarios with potential population growth over the period 2025 to 2040

P02 fails to meet the NAO when using population growth.

In the Regulatory decision on page 145, ANCA state:

“The population growth assumptions utilised by the Applicant are documented. What is important to note is that these are estimates only and rely on an analysis of permitted developments and allocating lands zoned for residential development with an assumed number of dwellings and population per hectare. In preparing the analysis presented in Figure 7.15 above, it has been assumed that all forecast population growth has already occurred. ANCA’s view is that this is unlikely to have occurred by 2025 but that it may have occurred by 2030. For this reason, ANCA has not ruled out any scenario which exceeds the night time priority in 2025 when accounting for potential population growth except for Scenario P11.

It is important to note that any zoned land which is exposed to night time aircraft noise of above 55 dB L_{night} would need to be subject to a planning application and a noise assessment with the specification of appropriate sound insulation. This is a requirement under Variation No. 1 of the County Development Plan. As such, the population which may be exposed to aircraft noise above the night time priority in the future will be influenced by planning decisions.”

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ANCA appear to be stating that with future zoned land, mitigation will be attached as a planning condition and therefore the population will not be affected. Variation No. 1 of the Fingal Development Plan 2017-2023 was adopted on December 9th, 2019. Therefore, it is a safe assumption that most of the Future Consented population will have mitigation attached to their planning conditions also.

ANCA have tried to use future population growth to remove P11, but P02 fails to meet the NAO too. Arguments are then made that the future population growth will not occur by 2025 and so P02 is not dismissed.

ANCA should be focused on the dwellings that are exposed to >55dB Lnight and have not had insulation installed as a mitigation measure. Why dismiss P11 due to population growth when mitigation in the form of insulation has been inserted as a planning condition?

The population growth figures that were supplied by the daa are broken down into:

- Future Occupied
- Future Consented
- Future Zoned

Totals	2018	2019	2025 Forecast	2025 Scen 02	2025 Scen 11	2030 Forecast	2030 Scen 02	2030 Scen 11	2035 Forecast	2035 Scen 02	2035 Scen 11	2040 Forecast	2040 Scen 02	2040 Scen 11
>55 Lnight	753	1533	280	1059	1535	243	756	1162	203	454	680	184	354	511
>55 Future Occupied	0	0	0	0	0	0	0	0	0	0	0	0	0	0
>55 Future Consented	197	825	0	394	825	0	197	515	0	0	318	0	0	197
>55 Future Zoned	0	1800	0	600	1800	0	0	600	0	0	0	0	0	0
	950	4158	280	2053	4160	243	953	2277	203	454	998	184	354	708

In Fig 7.14 ANCA do not show the population growth for 2019, just the actual figure at that time which was 1533.

The top row in the table above is a comparison of >55dB L_{night} exposure without population growth. Scenario P11 is 1535 which is just 2 people above the 2019 level and well within the tolerance of error with forecasts. Being above the 2019 figure by just 2 people should not be used as a mechanism to dismiss scenario P11.

In table 7.21 of the Regulatory Decision, it compares HSD and HA along with >55dB L_{night} and >65dB L_{den} for the various scenarios. It is evident that P11 has lower HSD and HA than P02 (daa's proposal).

Table 7.21: Population HSD, HA and exposed above the NAO priorities in 2019 and in 2025 for the modelled runway use and restriction scenarios

Scenario	Population HSD	Population > 55 dB L _{night}	Population HA	Population > 65 dB L _{den}
2019 Situation	47,045	1,533	115,738	285
2025 P01 30.4 mppa	22,500	280	64,241	119
2025 P02 32.0 mppa	37,080	1,059	79,405	196
2025 P03 32.0 mppa	35,757	1,055	77,962	201
2025 P04 32.0 mppa	35,260	737	78,838	167
2025 P05 32.0 mppa	36,363	412	78,774	151
2025 P07 32.0 mppa	36,699	989	78,921	192
2025 P08 32.0 mppa	35,784	422	78,301	161
2025 P09 32.0 mppa	34,896	528	77,553	163
2025 P10 32.0 mppa	36,463	426	78,686	158
2025 P11 32.0 mppa	35,799	1,535	77,630	236
2025 P12 32.0 mppa	37,159	1,119	79,641	199
2025 P13 32.0 mppa	36,275	1,055	78,606	189

In fact, P02 has one of the highest combinations of HSD and HA figures of all scenarios

The bottom row is the totals including population growth. 2025 scenario 02 (daa's proposal) is 2053 which is higher than 1533 in 2019 and therefore fails the NAO.

But ANCA state that it is unlikely the growth will have happened by 2025 and therefore do not exclude scenario P02. But this very same reason was used by ANCA to exclude P11.

Growth was used to dismiss P11 but not P02. This highlights the flaws in ANCA's analysis and illustrates how they have manipulated the logic to arrive at their desired outcome which facilitates the daa.

ANCA also state that the Zoned lands will be subject to planning permission. Therefore, planning will either be refused, or insulation required to mitigate against it. So why would ANCA use the Zoned numbers in this analysis?

The status of the 'consented' lands is also an unknown, as they could have received permission after Variation #1 of the Fingal Development Plan came into being, which introduced the new Noise Zones, and therefore may have insulation required as part of any planning application and so these figures could also be excluded.

It is apparent that ANCA have set out with the intent to exclude P11 rather than consider it on its own merits. A proper analysis of the Zoned and Consented figures is required before ruling out P11.

In the Chapter titled 'Conditions 3(a)-3(d)', evidence is provided that the daa failed in their application to justify the need for dual departures between 06:00–08:00. ANCA have also failed to explain this in their regulatory decision and have provided no proof that they have forensically analysed the flight prediction data. Large populations of Fingal and Dublin West will be newly exposed to serious adverse night-time health effects from the North Runway for just 2 extra flights in the period 06:00–08:00 and 4 extra flights in the period 22:00–24:00, when comparing 2025 Proposed with 2025 Permitted.

There is not a strong enough case to exclude scenario P11 (South Runway for all night-time flights and leaving Condition 3(d) in place). The difference in exposure levels compared to 2025 Permitted would be minimal. P11 is a more preferable outcome than annoying a huge new cohort of the population for no benefit.

In section 7.6.11.3 of the Regulatory Report, ANCA discuss the forecasts beyond 2025 and without the 32m cap in place. ANCA state that this is not part of the planning application, but it is part of the wider growth policy for Dublin Airport. ANCA's analysis shows that the daa's proposal P02 will fail the NAO in 2030 with the anticipated increase in passenger numbers. P02 will only achieve 26.8% reduction in HSD numbers and thus fail the NAO. In comparison, P11 would reduce the HSD numbers by 33.2%.

The HSD and HA metrics were introduced by EU directive 2002/49/EC which amends Annex III of directive 2002/49/EC. These are used to assess the harmful effects of noise and therefore should be given priority status in this assessment.

In this assessment P11 has lower HSD and HA figures than P02. And P02 fails the NAO in 2030 with regard to HSD numbers when future passenger growth and population growth are factored in.

What is also evident is that scenario P01 (situation – keeping Conditions 3(d) and 5) has far lower HSD and HA numbers than P02:

Table 7.21: Population HSD, HA and exposed above the NAO priorities in 2019 and in 2025 for the modelled runway use and restriction scenarios

Scenario	Population HSD	Population > 55 dB L _{night}	Population HA	Population > 65 dB L _{den}
2019 Situation	47,045	1,533	115,738	285
2025 P01 30.4 mmpa	22,500	280	64,241	119
2025 P02 32.0 mppa	37,080	1,059	79,405	196

P01 has been effectively disregarded in this assessment and the focus has been on best alternatives. P01's HSD numbers are 39.3% lower than the daa's proposal P02. And P01's population >55dB L_{night} is roughly one quarter that of P02's.

P01 is the best option to achieve the NAO in all circumstances. P01 will reduce the HSD value by 51% in 2030 even when including population growth and future passenger numbers beyond the 32m cap.

Section 6.62 of the SEA report visually compares scenarios P02 and P11. In section 6.60 it states:

“6.60 In terms of the alternatives to Condition 3(d), Alternative (v) (i.e. runway use pattern P11) is likely to have a negligible effect on protected sites and species, as with aircraft expected to operate as currently (with just the increase in night flights associated with lifting Condition 5) the overall level of noise will increase very slightly everywhere (i.e. for all of the designated sites within the ZoI), as shown in Figure 5.1. In contrast, the changes to operations associated with each of the other runway use patterns result in a much greater level of noise (of up to 9.5 dB) occurring along the descent and take-off routes of the North Runway as night-time flights begin to operate from here, and a potential reduction in noise (of up to 1.5 dB) along the descent and take-off routes of the South Runway as some of these flights are moved to the North Runway. These are also shown in Figure 5.1, with runway use pattern P02 shown for Alternative (vi), and Alternatives (vii) and (viii) represented by runway use patterns P13 and P04 respectively”.

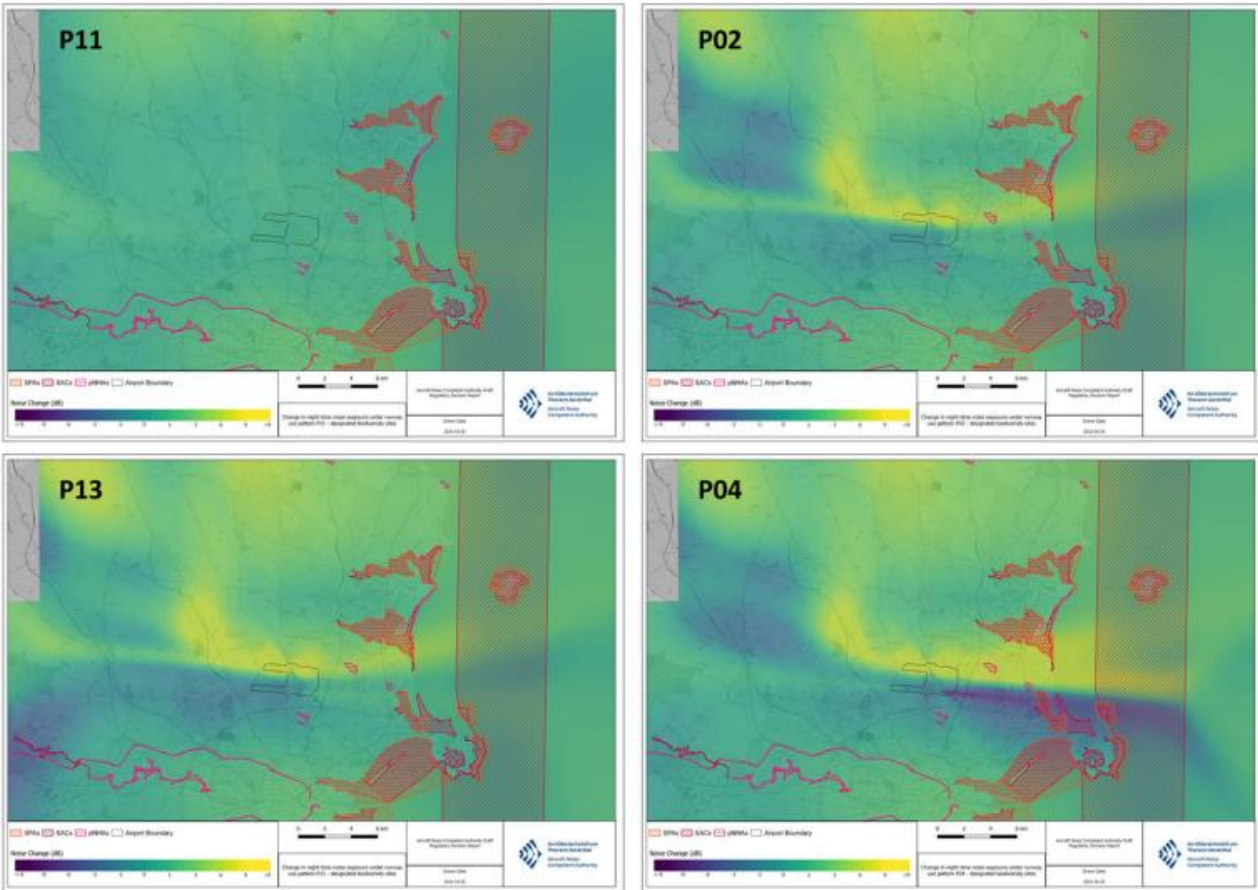


Figure 5.1 – Change in night-time noise exposure of RD Alternatives (v), (vi), (vii) and (viii) (represented by runway use patterns P11, P02, P13 and P04) at designated nature conservation sites in the vicinity of Dublin Airport

11.0 APPROPRIATE ASSESSMENT

11.1 SCREENING REPORT

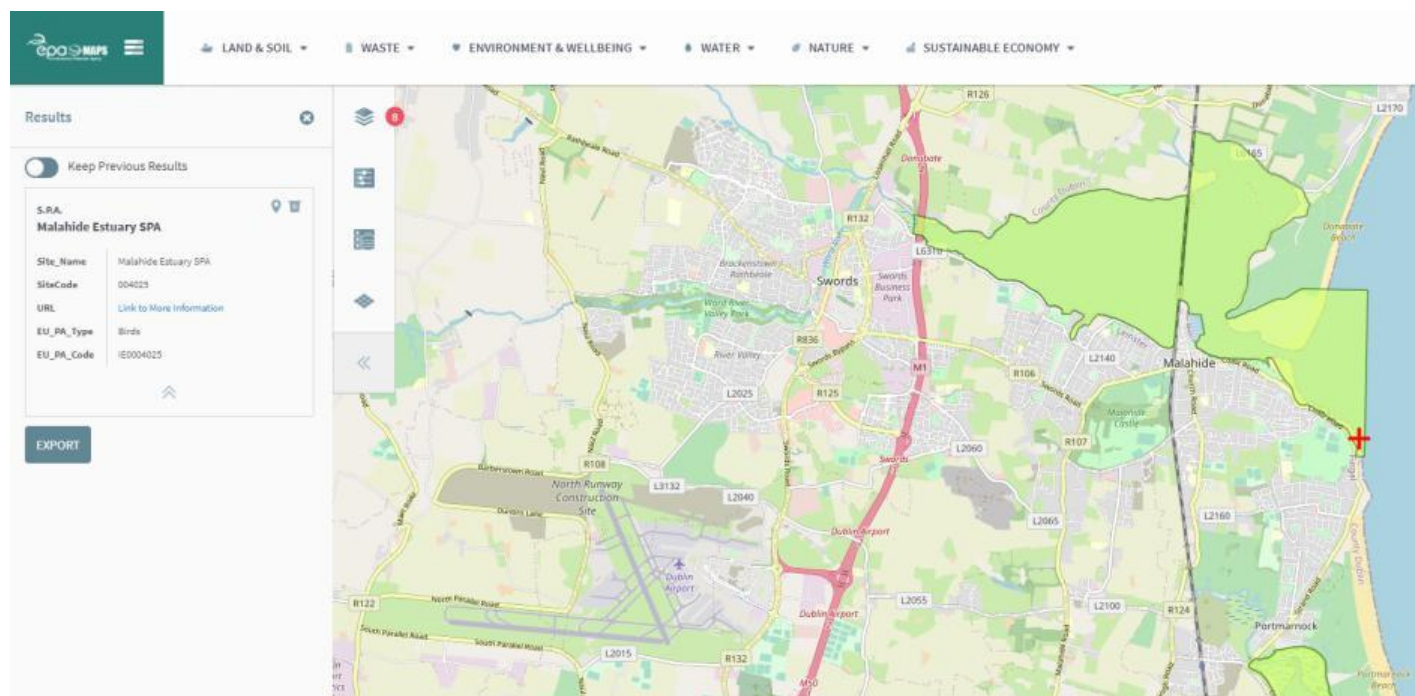
Under the Habitats Directive, EU member states are required to designate SACs for habitats listed in Annex I and Annex II of the Directive.

Under the Birds Directive, EU member states are required to identify and classify SPAs for rare or vulnerable species listed on Annex I of the Directive, as well as for all regularly occurring migratory species.

The screening report incorrectly states that the proposals can have no effects on SACs. Malahide SAC will be directly overflowed by the plans to operate a divergent route for Easterly departures on the North Runway in mixed-mode operation. This divergent route has no planning permission and was never proposed in the original planning in 2004-2007 under Option 7b.



As can be seen this Easterly departure route on the North Runway has a 15 degree divergnce path and takes a route over Robswall Park in Malahide and over the Malahide SAC.



It is a failure of the screening process to even acknowledge this potential to affect a SAC and as a minimum, appropriate assessment is warranted.

In fact, this screening report states in section 2.1.7 that:

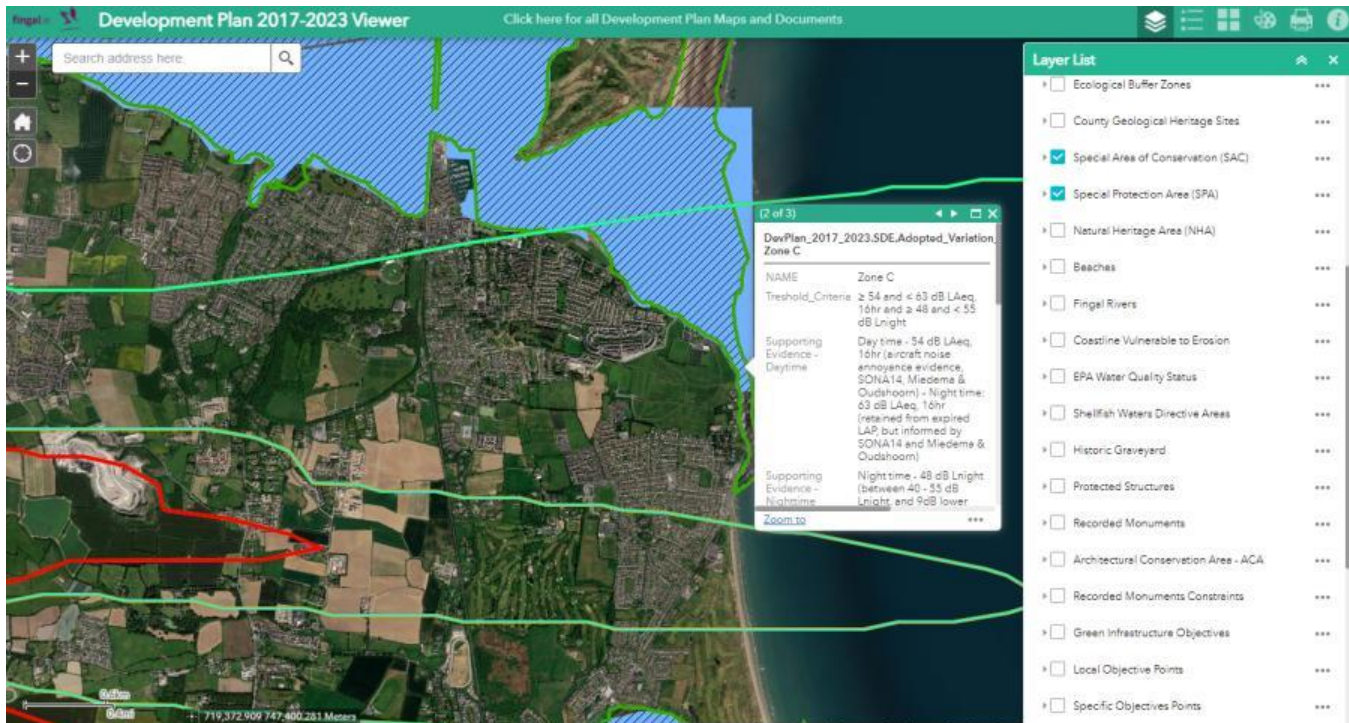
“Flight paths will not pass over Malahide Estuary SPA, North Bull Island SPA or Howth Head Coast SPA, which are otherwise within 15km of Dublin Airport”.

It is also very noticeable that the Lnight contours for 2025 Proposed do not appear to take departures on the North Runway into account as the noise contours don't stretch over this flight path.

Questions need to be raised why this is the case. This contradicts with the Fingal Development Plan, Variation #1, where 100% directional routes were modelled up to 2037. The Development Plan has this area around Robswall Park/Low Rock Malahide in Zone C, which caters for daytime noise levels ≥ 54 dB and < 63 dB LAeq16 and including night-time noise levels ≥ 48 dB and < 55 dB Lnight.

Fingal County Council and ANCA need to scrutinize the DAA to see if they have neglected to model departures on the North Runway for easterly departures.

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In addition, easterly departures on the South Runway do not fly directly over Howth Head Coast SPA but are in very close proximity to it. This can be perceived as a current flight path, but as a minimum it should be assessed in this screening report.

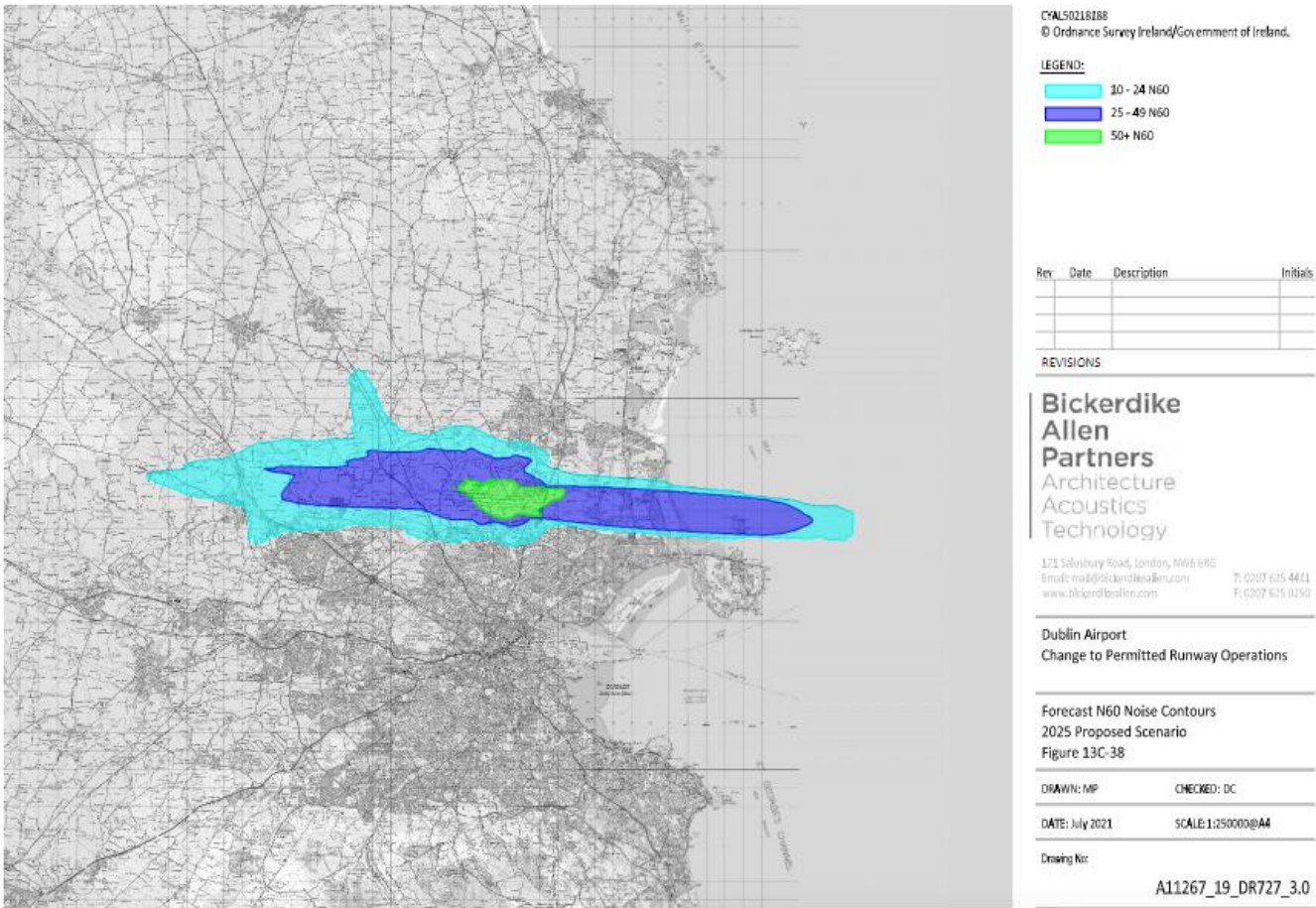
There's also failure of the screening process to take the proposed night-time operations into account. The planning application is proposing to allow night-time flights on the North Runway between 23:00-24:00 and 06:00-07:00. No mention of screening for effects on the SACs and SPAs along the Irish coast potentially affected for these night-time operations.

Nor does the screening report examine the Noise Quota Count system and scrutinize its potential for a larger number of night-time flights on both runways that will impact on SPAs and SACs on the Irish coast.

11.2 LITERATURE REVIEW

In the summary of the literature review, which itself is very sparse, it states that noises > 60 dB(A) have been shown to elicit disturbance responses in some studies”.

Here is a map displaying forecast 2025 Proposed N60 contours, which shows the number of events > 60 dB at night and how there are forecast to be between 25-49 noise events impacting on SACs and SPAs.



Another important feature to be noted that could have a significant effect on wildlife and birds will be the difference between the Covid-19 quiet period and a return to growth in aircraft movements. This difference in activity needs to be analysed and assessed.

Table 11 in the Appropriate Assessment Screening Report compares the number of aircraft movements > 60 dB LAmax between Permitted and Proposed scenarios.

Comparing 2025 Permitted and 2025 Proposed, the number of noise events > 60 dB LAmax increases from 35 to 45 (28.6% increase) for Baldoye Bay and increases from 31 to 45 (45.2% increase) for Ireland's Eye.

11.3 SACs

The screening report for Appropriate Assessment makes very little reference to SACs. In its conclusion it states that

“the nearest SAC to the North Runway is Malahide Estuary SAC, located approximately 4km north-east and designated for a number of coastal and estuarine habitats. The SAC is not designated for any Annex II species (or mobile species). Taking into consideration the distance of the SAC from the North Runway, there is no potential for the increased number of night-time flights to have any effect on the qualifying habitats. For these reasons, this AA screening was therefore concerned with testing for LSE on Special Protection Areas only”.

Incredibly, the report makes no reference to the other SACs in close proximity to Dublin Airport. How were they screened out?

In relation to the Malahide Estuary SAC, its qualifying interests are:

Qualifying Interests

** indicates a priority habitat under the Habitats Directive*

000205	Malahide Estuary SAC
1140	Mudflats and sandflats not covered by seawater at low tide
1310	<i>Salicornia</i> and other annuals colonising mud and sand
1320	<i>Spartina</i> swards (<i>Spartinion maritimae</i>)
1330	Atlantic salt meadows (<i>Glauco-Puccinellietalia maritimae</i>)
1410	Mediterranean salt meadows (<i>Juncetalia maritimi</i>)
2120	Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes)
2130	Fixed coastal dunes with herbaceous vegetation (grey dunes)*

All of the above are Annex I natural habitat types and should be listed and a screening decision made on each.

Lambay Island SAC contains both Annex I and Annex II species:

Qualifying Interests

** indicates a priority habitat under the Habitats Directive*

000204	Lambay Island SAC
1170	Reefs
1230	Vegetated sea cliffs of the Atlantic and Baltic coasts
1364	Grey seal <i>Halichoerus grypus</i>
1365	Harbour seal <i>Phoca vitulina</i>

The other SACs of interest:

- Rockabill to Dalkey Island SAC
- Baldoyle Bay SAC
- Howth Head SAC
- North Dublin Bay SAC
- Ireland's Eye SAC
- Rogerstown Estuary SAC
- South Dublin Bay SAC

As these SACs are not even mentioned, it is evident that that a thorough identification of the European Sites within the Zone Of Interest has not been carried out. All SACs in general have been screened out on the assumption that the proposed Relevant Action does not have any effect on SACs, as it *“does not propose any changes to the consented and under-construction layout of infrastructure associated with Dublin Airport North Runway nor does it propose any additional infrastructure at the airport”*. No further evidence is provided.

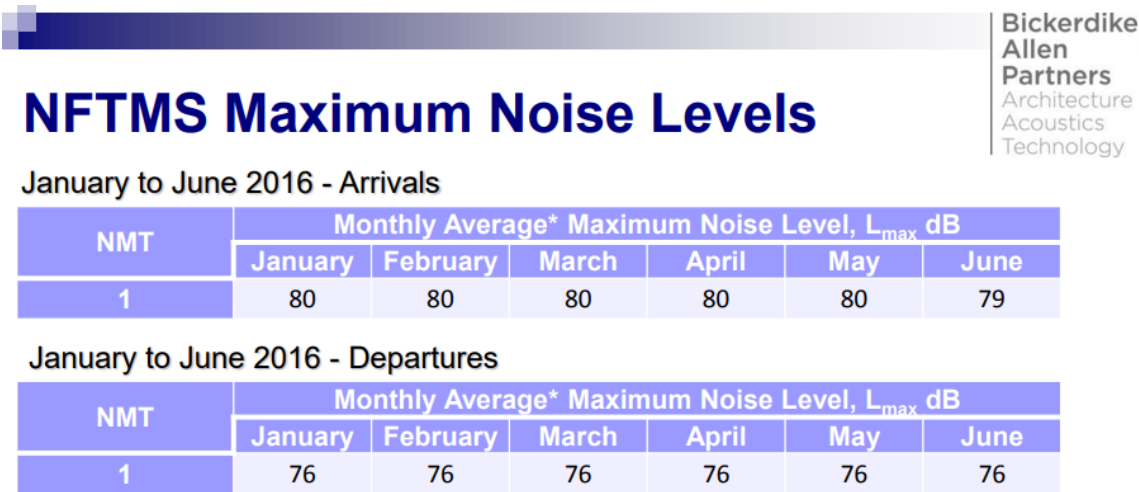
It is worth noting that this lack of consideration of SACs contrasts with the screening report provided by Fingal County Council for Variation No.1 of the Fingal Development Plan 2017-2023. This variation was primarily focused on the development of new Noise Zones for Dublin Airport and so a comparison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

11.4 AA NATURA IMPACT STATEMENT

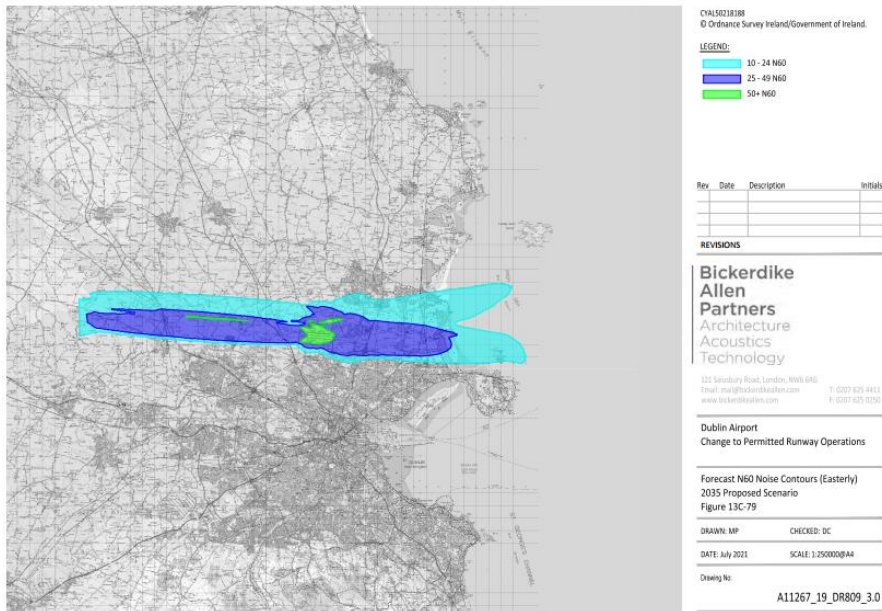
In section 3.26 of ANCA’s Final AA Natura Impact Statement, it considers that only continuous noise is relevant for bird disturbance as aircraft noise is regular and consistent. This cannot be said of night-time noise and the new airport layout when the North Runway becomes operational. The design of the airspace includes more routes and the number of flights during many of the night-time hours are less than 10. From Table 13B-12 of Appendix 13B, there are just 20 movements between 01:00 and 05:00 or one flight every 12minutes. During 02:00 to 04:00 there are only 3 flights forecast. These rates are not continuous and therefore intermittent noise needs to be assessed also

In section 3.27, it states that aircraft produce sound less than 65dB LAmax below 3000ft when descending. This is contradicted by measurements at the noise monitoring sites around Dublin Airport. In fact, arrivals achieve higher LAmax values at the monitoring sites than departures.

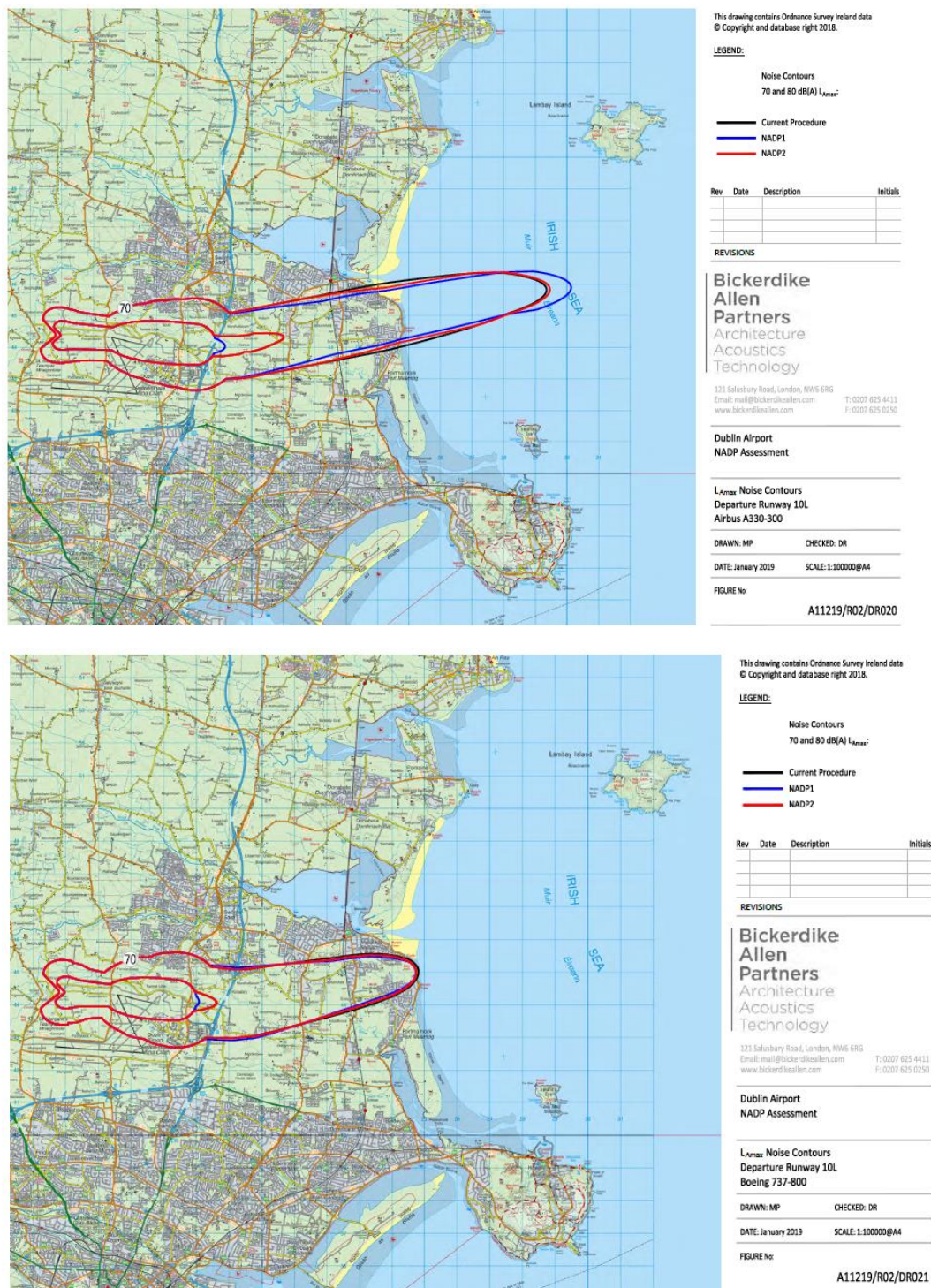
At a Community Liaison Group (CLG) meeting in April 2017 (https://www.dublinairport.com/docs/default-source/meeting-documentation/aircraft-noise-monitoring-datac4fa448b73386836b47fff0000600727.pdf?sfvrsn=8f6e160f_2), a presentation from BAP was given titled ‘Aircraft Noise Monitoring Data from Noise Monitoring Terminals (NMTs)’. On slide 15 BAP show a comparison between arrivals and departures for NMT 1 between January to June 2016, and the results show that arrivals achieve on average 80dB LAmax compared to 76dB LAmax for departures:



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:

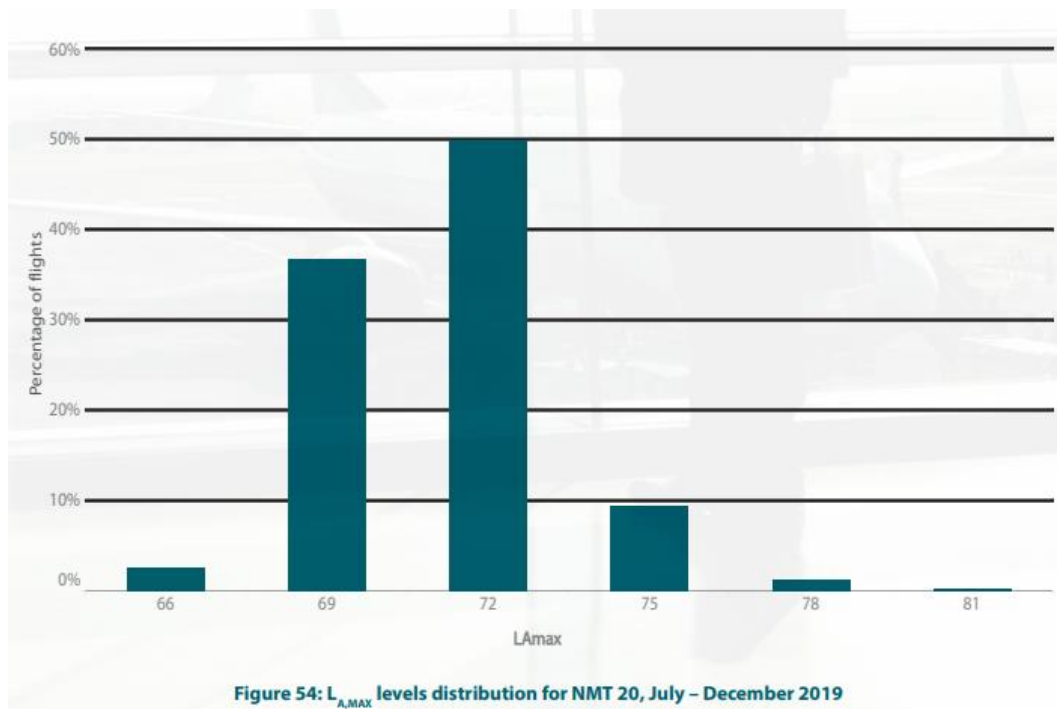


In relation to section 5.6, the daa's 2025 figures show an additional 20 flights between 06:00-07:00, but 18 less flights between 07:00-08:00, a difference of just 2 flights in the 06:00-08:00 timeframe. This is shifting the burden of noise an hour earlier and this needs to be accounted for.

Section 5.18 states that more efficient aircraft will produce less noise. However, as shown in this submission the LA_{max} figures comparing the more modern B38M aircraft with the older B737 show less than 1dB difference in 2019 at NMT 1 for arriving aircraft and a difference of 1.55dB for departing aircraft. These differences are imperceptible levels. In the Dublin Airport Noise Action Plan (<https://www.fingal.ie/sites/default/files/2019-04/NAP%20Final.pdf>) it references the change in aircraft types from 2003 to 2017. In 2003 46% of aircraft were quieter aircraft (Chapter 4 and 14), 83% in 2008 and 90% in 2017. Yet noise exposure levels grew exponentially in line with movement increases.

In 2017 over 90% of aircraft using Dublin Airport were the quietest types (Chapter 4 and 14) compared to 83% in 2008 and 46% in 2003⁵.

From the statement made in section 5.22. it is worth considering the noise monitor at the coast road, NMT 20, close to Baldoyle SPA and SAC. Below is the LA_{max} distribution between July and December 2019 (https://www.dublinairport.com/docs/default-source/airport-noise/noise-monitoring-report-july---september-2019.pdf?sfvrsn=98b7f129_0). Over 60% of movements are greater than 72dB LA_{max} and over 10% greater than 75dB LA_{max}.



In the EEA's 'European environment – state and outlook 2020' report, https://www.eea.europa.eu/publications/soer-2020/at_download/file, Box 11.3 refers to the effects of noise on wildlife. It refers to a study by Dominoni et al (2016) which showed that

songbird species started their dawn song earlier due to aircraft noise compared to the same species unaffected by aircraft noise. It was also suggested that noise greater than 78dB(A) can impair acoustic communication in birds. This has also been supported by Gil et al (2014) and Sierro et al (2017) who further suggest 'higher fitness costs in relation to daily energy expenditure'.

One of the most studied effects of anthropogenic noise on wildlife is its impact on the singing behaviour of birds (Gil and Brumm, 2013). A study in the forest near Tegel airport in the city of Berlin found that some songbird species started their dawn song earlier than the same species singing in a nearby forest that was less affected by aircraft noise (Dominoni et al., 2016). The authors of the study concluded that the birds in the vicinity of the airport started singing earlier in the morning to gain more time for uninterrupted singing before the aircraft noise set in. In addition, it was found that during the day, chaffinches avoided singing during aircraft take-off when the noise exceeded a certain threshold, 78 dB(A), further suggesting that airport noise can impair acoustic communication in birds. ■

In conclusion the AA Natura impact Statement hasn't fully assessed the expected noise levels at the SPAs and SACs. It has underestimated the noise levels compared with real noise results from the monitoring stations. It also hasn't factored in the new routes that will become operational when the North Runway becomes operational or those new routes that are subject to the daa's Relevant Action. The report also assumes that night-time is continuous which has shown not to be the case. One also has to factor in the normal low ambient noise levels at these Natura sites when no aircraft are flying overhead. The change in noise levels can be significant.

Another important factor that needs to be considered is the potential change in dawn chorus due to the shifting of aircraft movements from 07:00-08:00 to 06:00-07:00, and what impact the increase in noise levels has on the birds due to higher energy expenditure on louder singing.

The assessment carried out cannot be relied upon to rule out negative impacts on the Natura sites in proximity to Dublin Airport.

11.5 SUBMISSION TO ANCA FROM SABRINA JOYCE-KEMPER

Ms Joyce-Kemper makes the points that the Appropriate Assessment is insufficient and that ANCA did not come to an AA determination before making the draft decision. There is no AA for the North Runway development. The North Runway granted permission under planning application F04A/1755, appealed to ABP under PLo6F.217429 and planning extension under F04A/1755/E1. At no stage was AA carried out for the development. The judgment in the Friends of the Irish Environment V An Bord Pleanála 2018 No.734 J.R. and Court of Justice Judgment C 254/19 which found that an extension to a permission was a project as defined under the EIA Directive and that definition was applicable to the Habitats Directive. As no AA has ever been carried out all potential impacts from the development since 2006 and any cumulative impacts with other developments granted since then must be assessed in order for a legal and valid appropriate assessment to be completed both by ANCA and by Fingal County Council. The current ANCA process and planning application could be deemed unauthorised development and that Fingal County Council and ANCA are precluded from considering a development consent that amends a previous consent that would have required an AA before it commenced.

This question on the lack of AA for the North Runway development was not addressed comprehensively in the Consultation Report.

Also included in this submission are the submissions from Ms Joyce-Kemper to the Planning Authority:

- SabrinaJoyceKemper.pdf
- 00718132.pdf

12.0 INSULATION SCHEME

12.1 SUMMARY

- Insulation installed in houses already insulated by the daa fails to mitigate against adverse noise levels as outlined in the report from the MLM Group.
- Insulation Scheme proposed by ANCA **insulates less houses** than in the planning application by the daa. A large number of houses in Coolquay, The Ward, St Margarets and Kileek Lane have been removed.
- In their draft decision, ANCA did not use the criteria 2 specification from the daa in their cost-effectiveness analysis. They only used criteria 1. The daa included all dwellings >55dB L_{night} in 2025 for criteria 1 and all dwellings >50dB L_{night} with a 9dB increase in 2022 Proposed compared with 2025 Permitted for criteria 2.
- Insulation Scheme only applies to the cohort deemed 'very significantly' affected. No mitigation for 'moderately' or 'significantly' affected dwellings.
- ANCA and the daa are proposing noise insulation as a mitigation measure to night-time noise increases within the St Margarets The Ward communities. This is contrary to Fingal County Council's advice within their own Development Plan, and testing carried out within the St Margarets The Ward area on housing that has already been insulated by the daa recently indicates the guidance referred to by Fingal County Council and the WHO cannot be achieved and will cause serious health issues of those affected by the proposed increase in night time noise.
- ProPG and WHO NNG Guidelines state an internal noise level of no more than 10-15 events > 45dB LA_{max}.
 - Based on N60 contours, 18,959 dwellings ≥ 10 events and 5,282 dwellings ≥ 25 events for 2025 Proposed scenario. Mitigation for these dwellings is not taken into account. The cost-effectiveness analysis does not consider these large number of dwellings and so the application of the Balanced Approach is flawed.
- Conflicts with Fingal Development Plan as not all houses in Noise Zone B are being offered insulation,
- RFI #93 states that over-heating was not taken into account for insulation purposes. The response also does not take into account LA_{max} 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.
- No medical expertise used in the analysis to determine the criteria for insulation.

- Large number of warehouses and offices in close proximity to Dublin Airport exposed to noise levels >60dB Lden and some exposed to levels >65dB Lden, potentially exceeding BS8233:2014 limits.
- Day time insulation scheme modelled with straight out routes and not with divergent routes. Dwellings excluded as a result and therefore subjected to harmful levels of noise. Scheme needs to be remodelled and North Runway operations suspended pending the remodelling.

12.2 DAA PROPOSAL

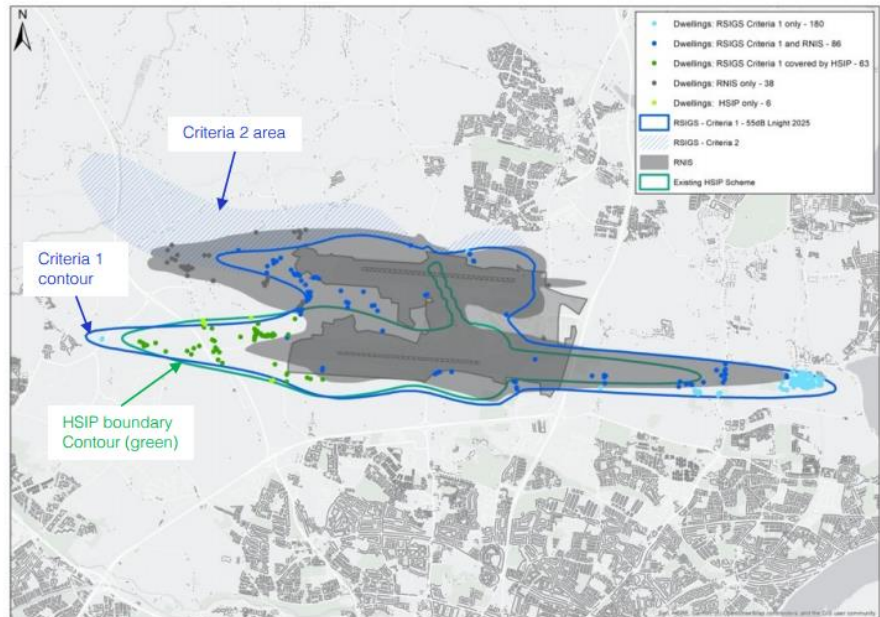
Land Use Planning. Residential Sound Insulation Grant Scheme. Minimising the potential for significant adverse effects arising from Scenario 2.

Dwellings are eligible for RSIGS if they are not eligible for insulation under the existing HSIP and RNIS schemes, and satisfy either of the following noise-based criteria:

- **Criteria 1:** Dwellings forecast to be exposed to "high" night-time noise levels in 2025 - at least 55dB L_{night} (dark blue contour line in figure); **OR**
- **Criteria 2:** Dwellings with a "very significant" rating arising from forecast noise levels of at least 50dB L_{night} and a change of at least +9dB in the first full year when the Relevant Action comes into operation when compared with the permitted operation in the same equivalent year (area indicated by blue hatched area in the figure).

Analysis indicates the following dimensions of the proposed RSIGS.

- **Criteria 1:** Approximately 335 dwellings in total are forecast to be exposed to noise levels greater than 55 dB L_{night}. Approximately 90 of these are already included as part of the RNIS (dark blue dots in the grey shaded area) and 63 as part of the HSIP (green contour and dots) which leaves approximately 180 dwellings eligible as a result of Criteria 1 only (bright blue dots).
- **Criteria 2:** Approximately 67 dwellings in total meet this criteria - located predominantly to the north-west of the airport blue hatched area). Of these, approximately 13 are already included as part of the RNIS (overlap of grey and blue hatched area) and none included in the HSIP. This leaves approximately 54 dwellings in the area identified for RSIGS criteria 2.



Dublin Airport Development of Proposed Noise Measures

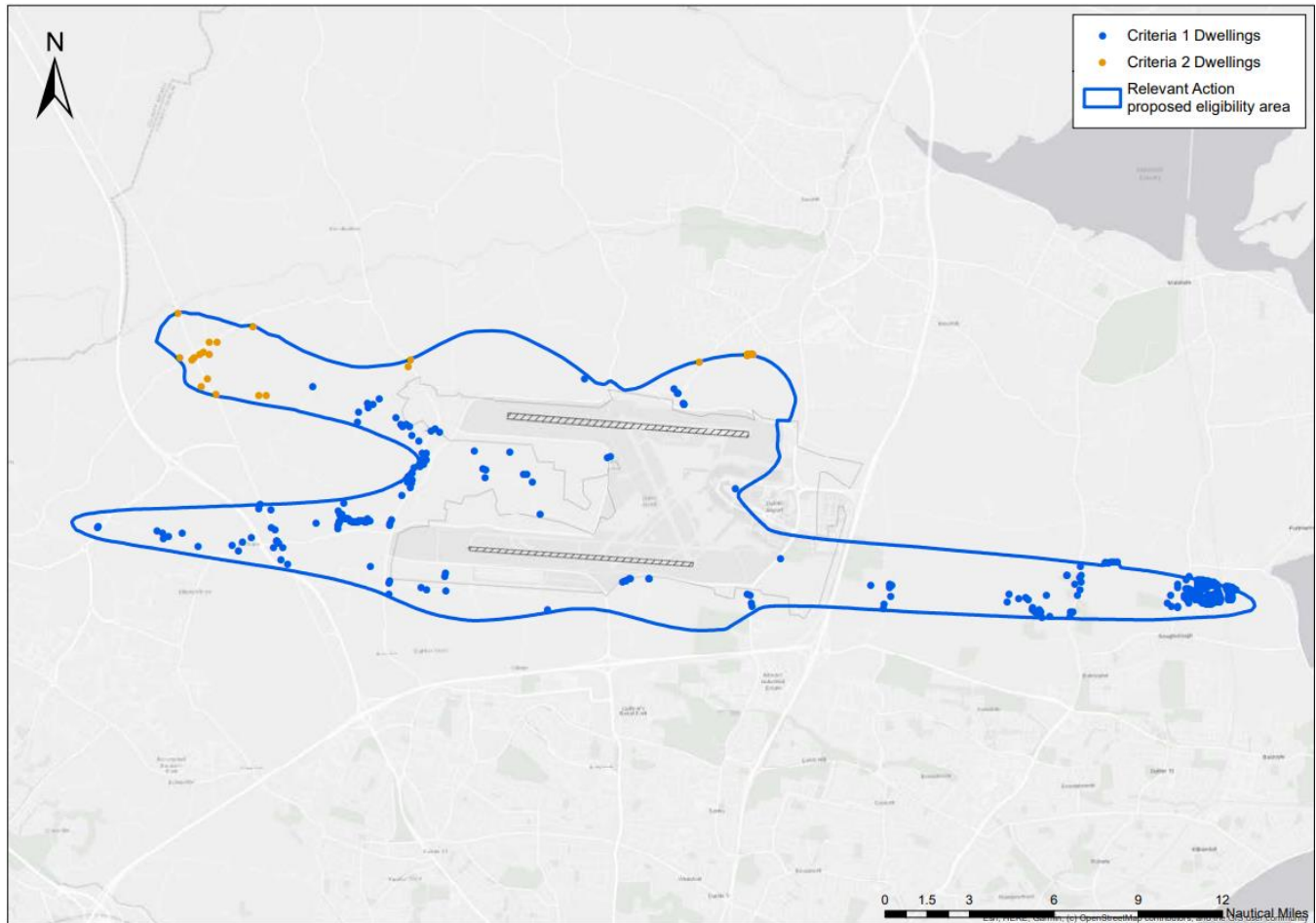


For Criteria 1, there are 180 dwellings requiring insulation in the >55dB L_{night} contour.

For Criteria 2, there are 54 dwellings requiring insulation based on >50dB L_{night} and a +9dB change.

Arising from ANCA's draft decision the dwellings in Criteria 2 have changed. This is due to ANCA selecting 2025 as the reference year as opposed to 2022 used by the daa. As a result, the number of houses requiring insulation drops to circa 30 houses. The daa were intending to insulate 54 dwellings under criteria 2 but ANCA have reduced this to ~30.

12.3 APPENDIX L DRAFT REGULATORY DECISION



The choice of 2025 by ANCA for criteria 2 of the insulation scheme is a strange decision by ANCA. The intent of ‘significance’ with reference to an EIAR is to show the change before the development relevant to the change after development. It makes no sense to compare 2025 Proposed to 2025 Permitted. The residents will not be exposed to 2025 Permitted. That is a theoretical scenario. The significance should be related to when the development comes into operation. So, a comparison between real exposure levels to what is predicted when the development comes into force. Real exposure levels could be 2016, 2017, 2018, 2019, 2020 and 2021. It is assumed the North Runway will begin operations in 2022.

ANCA have chosen a baseline reference year of 2019 for their NAO yet have chosen 2025 Permitted as the comparison year.

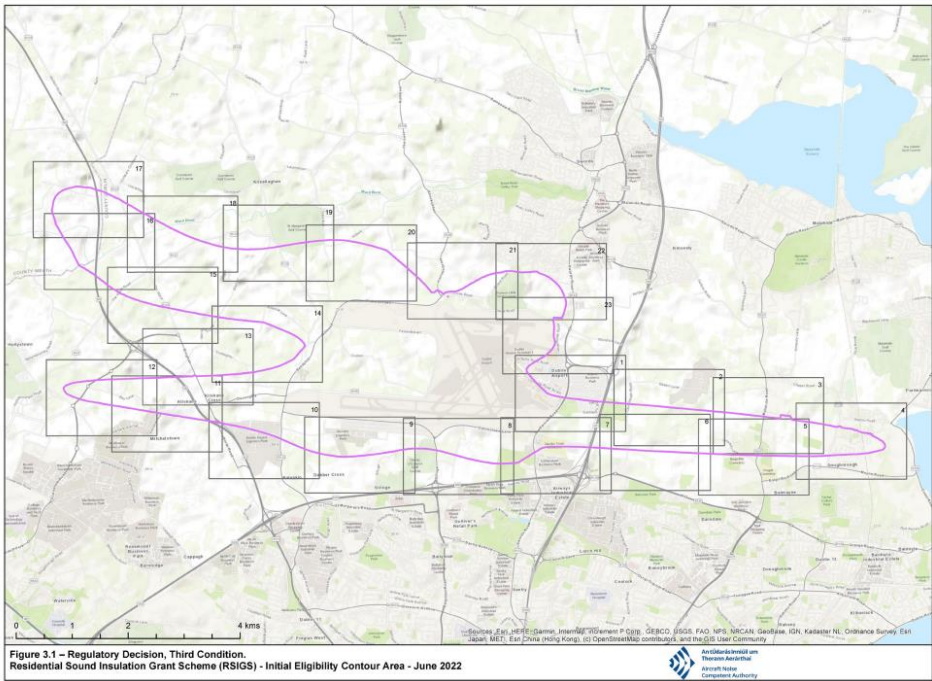
2019 should not be used as the baseline reference year as highlighted in the accompanying documentation. 2016 is a more applicable year and the year used in the last Round of the END. And 2017 has been selected in the EU Commission's Action Plan 2021 "Towards zero pollution for air, water and soil".

The significance criteria should be the comparison of noise levels just before the North Runway opens and the anticipated noise levels for the first year after it opens. Because of the downturn in the aviation sector due to Covid, the current noise levels are well below what is to be expected for the population soon to be affected by the North Runway operations. The population affected are going to experience a significant increase in noise. Some of these residents may have experienced higher noise levels in 2018 and 2019 but have enjoyed a relative noise free environment for much of 2020 and 2021. Their noise exposure may increase in 2022 before the North Runway opens, but not to the levels of 2018 or 2019. They will experience a 'very significant' change in exposure when the North Runway opens and it's this significance that is important to their health and why it's a cornerstone of an EIAR. The population significantly affected by the change in noise levels should not be excluded solely based on a downturn in aviation due to Covid. Their health will be impacted by the sudden change in significance, and they need to be protected from such exposure. Protection of the population exposed to sudden rises in significant noise levels should be a fundamental duty of a Noise Regulator under EU598/2014. The Regulator cannot be excused of their duties by quoting Covid-19. 2018 and 2019 were the anomaly years as Fingal County Council recklessly allowed noise to spiral out of control.

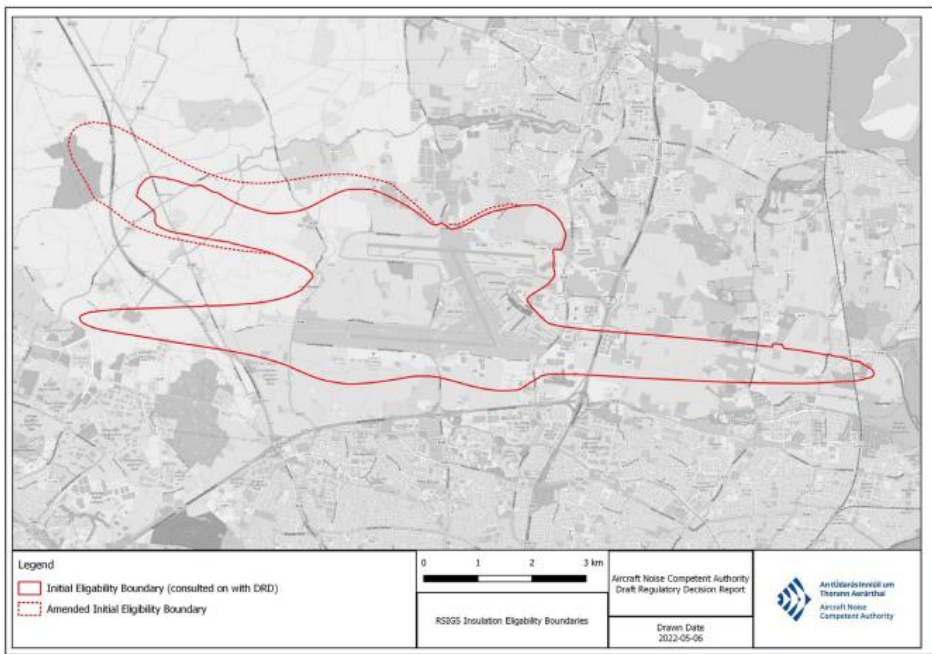
ANCA have erred on their selection of 2025 as it fails the significance test. Comparison to a theoretical year of 2025 Permitted is meaningless. The significance test should be a comparison of what the exposure levels are just before and just after the North Runway opens.

12.4 CONSULTATION REPORT REGULATORY DECISION

In the Regulatory Decision report, figure 3.1 shows the revised RSIGS from ANCA:



In their Regulatory decision, ANCA have decided to extend the insulation scheme to reflect the ‘very significant’ determined from the 2022 forecast. Figure 14.1 of the Regulatory Report shows the difference in the RSIGS eligibility:



ANCA have changed criteria 2 to include dwellings exposed to a +9dB change in 2022 compared with 2019. This again falls short of what the daa proposed to insulate. The daa compared a +9dB change in 2022 with 2018 which allowed for more dwellings to be insulated.

ANCA are persisting with only insulating dwellings that are 'very significantly' affected by noise. This is against the advice of the HSE in their submission to ANCA. ANCA should be enforcing an insulation scheme for all dwellings 'significantly' affected by noise changes and not just 'very significantly' affected. Identifying 'Significance' is a key element of any EIAR and it is a threshold that should be reflected in any insulation scheme.

12.5 PRE-PLANNING

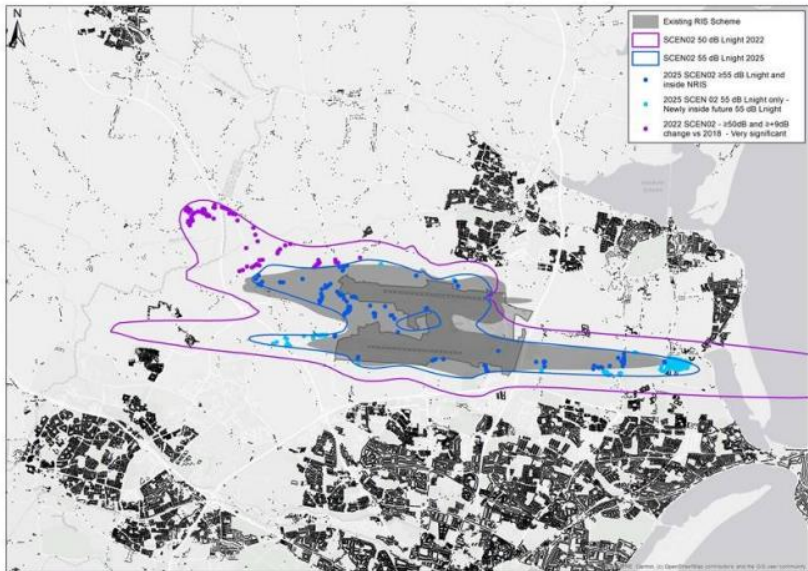
In a pre-planning presentation to Fingal County Council in November 2020, the daa presented details of their impending application. Included in the presentation are details of a new insulation scheme to take account of night-time noise.

- Grant scheme for sound insulation measures up to a value of €20,000 for dwellings:
 - Forecasted to be exposed to night-time noise levels of at least 55dB L_{night} in **2025** or
 - Forecasted to be exposed to noise levels >50dB L_{night} in **2022** arising from a change of at least 9 dB when compared with **2018**

The result was an intended 325 new dwellings to be insulated. For criteria 2, the daa were intending to insulate 83 dwellings >50dB L_{night} in 2022 and have experienced a +9dB change relative to 2018. This is a far more appropriate comparison of when the North Runway opens compared to a real previous year.

Night Noise Insulation Grant Scheme

Based on exposure to noise levels $\geq 55\text{dB L}_{\text{night}}$ 2025 or $\text{L}_{\text{night}} \geq 50\text{dB}$ (2022) and change $\geq +9\text{dB}$ 325 additional properties eligible noise insulation grant (over that currently covered by the NRIS).



	Dwellings
Total $\geq 55\text{dB L}_{\text{night}}$ 2025	360
Total $\geq 50\text{dB}$ with $+9\text{dB}$ change (2022 compared with 2018)	83
TOTAL DWELLINGS IN SCHEME	443
Dwellings already covered by existing NRIS	118
NEW DWELLINGS ELIGIBLE FOR NEW NIGHT NIS Grant	325

There are additional properties eligible under the current daytime scheme not included in these numbers = approx. 90 additional.

However, restricting to only those dwellings experiencing a +9dB change is a serious limitation of the scheme and not in line with EPA Guidelines on significance.

12.6 EIAR

The daa's EIAR document presents table 13-3 to show the potential significance effect of absolute and relative changes in noise. Adding in the Lnight absolute and relative values shows the range of noise scenarios that cause significant effects.

Absolute Noise Level Rating Lnight	Change in Noise Level rating	0-0.9	1-1.9	2-2.9	3-5.9	6-8.9	>=9
< 40		Imperceptible	Imperceptible	Imperceptible	Not Significant	Slight	Moderate
40-44.9		Imperceptible	Imperceptible	Not Significant	Slight	Moderate	Significant
45-49.9		Imperceptible	Not Significant	Slight	Moderate	Significant	Significant
50-54.9		Not Significant	Slight	Moderate	Significant	Significant	Very Significant
55-59.9		Slight	Moderate	Significant	Significant	Very Significant	Profound
>=60		Moderate	Significant	Significant	Very Significant	Profound	Profound

Currently the daa are only proposing to insulate the dwellings shaded dark red (Very Significant and Profound effects). This is not acceptable and all dwellings in the light red shading (Significant effects) should be insulated.

For example, a dwelling in the 50-54.9 dB Lnight contour and which encountered a > 3 dB

change should be insulated. Likewise, a dwelling in the 45-49.9 dB L_{night} contour that experienced a > 6 dB increase in noise should also be insulated. And a dwelling in the 40-44.9 dB L_{night} contour that experienced a noise increase ≥ 9 dB should also be insulated.

Article 1 of EU598/2014 states that the number of people 'significantly affected' by aircraft noise should be limited and reduced in accordance with the Balanced Approach. It does not state people 'very significantly' affected as proposed by the daa and ANCA.

Article 1

Subject matter, objectives and scope

1. This Regulation lays down, where a noise problem has been identified, rules on the process to be followed for the introduction of noise-related operating restrictions in a consistent manner on an airport-by-airport basis, so as to help improve the noise climate and to limit or reduce the number of people significantly affected by potentially harmful effects of aircraft noise, in accordance with the Balanced Approach.

In the UK Government's consultation document "Aviation 2050 The future of UK aviation" (https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/769696/aviation-2050-print.pdf), it states that the Government is "*proposing new measures to improve noise insulation schemes for existing properties, particularly where noise exposure may increase in the short term or to mitigate against sleep disturbance*".

As a result, the Government proposes to extend the noise insulation beyond 63dB LAeq16 to 60dB LAeq16. Why haven't ANCA followed suit and what is ANCA's rationale for not doing so?

The Government also proposes to set a minimum threshold of 3dB LAeq for airspace changes leading to increased overflight which leave properties in the 54dB LAeq16 contour. So the UK Government acknowledges that a 3dB rise in noise levels warrants insulation.

3.121 The government is also:

- **proposing new measures to improve noise insulation schemes for existing properties, particularly where noise exposure may increase in the short term or to mitigate against sleep disturbance**

3.122 Such schemes, while imposing costs on the industry, are an important element in giving impacted communities a fair deal. The government therefore proposes the following noise insulation measures:

- **to extend the noise insulation policy threshold beyond the current 63dB LAeq 16hr contour to 60dB LAeq 16hr**
- **to require all airports to review the effectiveness of existing schemes. This should include how effective the insulation is and whether other factors (such as ventilation) need to be considered, and also whether levels of contributions are affecting take-up**
- **the government or ICCAN to issue new guidance to airports on best practice for noise insulation schemes, to improve consistency**
- **for airspace changes which lead to significantly increased overflight, to set a new minimum threshold of an increase of 3dB LAeq, which leaves a household in the 54dB LAeq 16hr contour or above as a new eligibility criterion for assistance with noise insulation**

Extending this to night-time movements, and following the 'significance' matrix above, all dwellings >50dB L_{night} and experiencing a +3dB increase in noise should also be insulated. The criteria for changes in night-time noise requiring insulation should be:

- >40dB and +9dB
- >45dB and +6dB
- >50dB and +3dB
- >55dB

This is in agreement with the EPA EIAR Guidelines.

The Bap report titled 'Noise Information for the Regulation 598/2014 (Aircraft Noise Regulation) Assessment' (A11267_12_RP032_3.0) dated November 2020 lists the absolute noise impact criteria:

Table 1: Noise Impact Criteria (absolute) – residential

Scale Description	Annual dB L _{den}	Annual dB L _{night}
Negligible	<45	<40
Very Low	45 – 49.9	40 – 44.9
Low	50 – 54.9	45 – 49.9
Medium	55 – 64.9	50 – 54.9
High	65 – 69.9	55 – 59.9
Very High	≥70	≥60

And in table 2 it lists the relative noise impact criteria:

Scale Description	Change in noise level, dB(A)
Negligible	0 – 0.9
Very Low	1 – 1.9
Low	2 – 2.9
Medium	3 – 5.9
High	6 – 8.9
Very High	≥9

In table 1, >55dB L_{night} is ranked as ‘High’ and is used for the insulation scheme.

In table 2, ‘High’ includes changes in noise levels >6dB(A). Yet the daa only offered to insulate those dwellings exposed to ‘Very High’ (>9dB(A)).

ANCA failed to enforce enough health protection for populations exposed to ‘High’ relative levels of noise. The same ‘High’ criteria should be used in both circumstances.

Table 3 shows how the absolute and relative impacts are interpreted into magnitude of effect and is taken from the EPA Draft EIAR Guidelines:

Table 3: Summary of magnitude of effect – noise

<i>Absolute Noise Level Rating</i>	<i>Change in Noise Level Rating</i>					
	<i>Negligible</i>	<i>Very Low</i>	<i>Low</i>	<i>Medium</i>	<i>High</i>	<i>Very High</i>
Negligible	Imperceptible	Imperceptible	Imperceptible	Not Significant	Slight	Moderate
Very Low	Imperceptible	Imperceptible	Not Significant	Slight	Moderate	Significant
Low	Imperceptible	Not Significant	Slight	Moderate	Significant	Significant
Medium	Not Significant	Slight	Moderate	Significant	Significant	Very Significant
High	Slight	Moderate	Significant	Significant	Very Significant	Profound
Very High	Moderate	Significant	Significant	Very Significant	Profound	Profound

BAP further state that ‘A potential significant effect (adverse or beneficial) would be considered to arise if in Table 3 the magnitude of the effect was rated as significant or higher’.

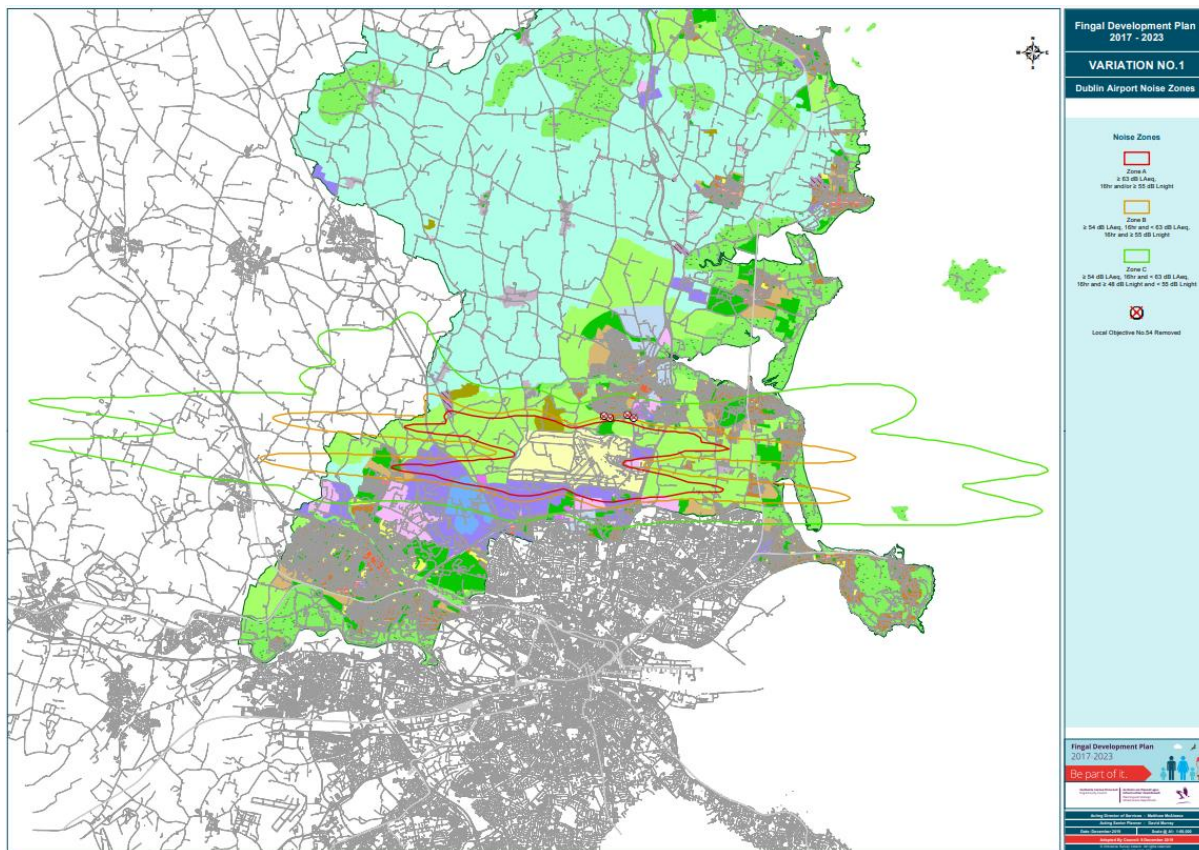
This is a very clear indication that the daa and ANCA have failed to mitigate against ‘Significant’ effects as defined by the EPA guidelines.

12.7 FINGAL DEVELOPMENT PLAN

Variation number 1 of Fingal Development Plan 2017-2023:

https://www.fingal.ie/sites/default/files/2020-01/map-adopted_variation_no_1.pdf

Zone B accounts for areas exposed to noise levels >55dB Lnight but ANCA are not intending to insulate dwellings within Zone B, conflicting with the Development Plan.



The Development Plan Zones take account of the fact that the areas in Zone B will experience noise >55dB Lnight during certain periods of the year. The requirement for anyone building in Zone B is that “Appropriate well-designed noise insulation measures **must** be incorporated into the development in order to meet relevant internal noise guidelines”.

It is therefore very apparent that the noise insulation scheme proposed by ANCA conflicts with the Fingal Development Plan and many dwellings from Zone B will be omitted from the insulation scheme, thus not meeting the relevant internal noise guidelines.

It is also worth noting that the EIAR has no receptors around the Ward Cross or under the new North Runway flight path.

12.8 CONSULTATION REPORT – ADEQUACY OF NOISE INSULATION SCHEMES

With reference to the ANCA Public Consultation Report and with respect to their response to the “Adequacy of Noise Insulation Schemes” we would highlight some very gross misstatements and incorrect assertions as follows:

On page 36 it is stated that “*Noise Insulation Schemes are a common means of mitigating aircraft noise impacts*”. This is a completely false statement when dealing with the Health Effects of Night-time noise and noise insulation does not mitigate this dangerous health issue. In order to further this argument on page 37 it is stated that “*Under the proposed scheme, where ventilators are provided, a ventilation strategy must be created for bedrooms in each eligible dwelling under the scheme, to be prepared in accordance with Part F of the Building Regulations. The aim of the Ventilator is to supply fresh air into bedrooms from the outside minimizing the requirement to open windows therefore maintaining the sound insulation performance.*”

We refer to the extracts below from the Building Regulations Technical Guidance Document Part F. The requirements for Purge Ventilation at section 1.2.4.6 is quite clear that it must be 1/20th of the floor area of the room and MUST be available at all times. Not as suggested by ANCA between noisy aircraft episodes to meet sound insulation requirements. With reference to Table 3 of The Technical Guidance Document the minimum General ventilation are the Ventilators ANCA are referring to and this by itself in no way meets the requirements of the Building Regulations. Also, in Summer when temperatures are high the Ventilators noted are of no assistance in cooling. The scenario ANCA portray are one similar to a jail cell where ventilation requirements complying to building Regulation requirements are being contravened to satisfy night-time flights. These are very serious misrepresentations of the real facts and must be addressed by An Bord Pleanála.

I.S. EN 13141-1:2004 and installed to manufacturers' instructions.

1.2.4.5 Manually controlled background ventilators may be used. Background ventilators that respond to pressure differential across the ventilator and automatically reduce opening area to adjust ventilation flowrate may also be used.

Purge Ventilation

Windows (habitable rooms)

1.2.4.6 For a hinged or pivot window that opens 30° or more, or for sliding sash windows, the height multiplied by the width of the opening part should be at least 1/20th of the floor area of the room.

For a hinged or pivot window that opens between 15° and 30°, the height multiplied by width of the opening part should be at least 1/10th of the floor area of the room.

If the room contains more than one openable window, the areas of all the opening parts may be added to achieve the required proportion of the floor area. The required proportion of the floor area is determined by the opening angle of the largest window in the room. Refer to Part B /TGD B of the Regulations for minimum opening sizes required for escape.

Where a risk of overheating is identified, a greater proportion of opening areas may be required: see TGD L 2019 paragraph 1.3.5.2 (d).

External doors (including patio doors) (habitable rooms)

For an external door, the height x width of the opening part should be at least 1/20th of the floor area of the room.

If the room contains more than one external door, the areas of all the opening parts may be added to achieve at least 1/20th of the floor area of the room.

If the room contains a combination of at least one external door and at least one openable window, the areas of all the opening parts may be added to achieve at least 1/20th of the floor area of the room.

Mechanical Extract Fans

1.2.4.7 Mechanical extract fans should be chosen to achieve the specified airflow rate having regard to location, length and type of ducting and size and type of discharge grille. Axial fans are normally only suitable for use with short length of through-the-wall ducting of the same size as the fan outlet. For bathrooms, axial fans may be acceptable for use with flexible ducting up to 1.5 m long and two 90° bends. Centrifugal fans can generally be used with flexible ducting of up to 3m and one 90° bend for extract rates of 60l/s (e.g. from kitchen) and up to 6m for extract rates of 15 l/s with two 90° bends (e.g. from bathrooms).

1.2.4.8 The appropriateness of a particular fan for a particular use should be verified by reference to manufacturer's data. The aerodynamic performance of extract fans should be established using the test methods specified in I.S. EN 13141-4:2011. For cooker hoods the test methods are specified in I.S. EN 13141-5:2004.

Room or Space	General Ventilation Minimum equivalent area of background ventilator ^a (mm ²)	Extract ventilation Extract fan ^b - Minimum intermittent extract rate (l/s) ^h	Purge ventilation Opening window or external door - Minimum provision ^g
Habitable Room	7000 ^{c,j}	-	1/20th of room floor area
Kitchen	3500 ^{c,d,f}	60 l/s generally 30 l/s if immediately adjacent to cooker (e.g. cooker-hood not recirculating)	Window opening section (no size requirement) ^d
Utility Room	3500 ^{c,d}	30 l/s	Window opening section (no size requirement) ^d
Bathroom	3500 ^{c,d}	15 l/s	Window opening section (no size requirement) ^d
Sanitary Accommodation (no bath or shower)	3500 ^{c,d}	6 l/s ^a	Window opening section (no size requirement) ^d

Notes:

(a) See paragraph 1.2.4.1 re: total equivalent area for all background ventilators.

(b) See paragraphs 1.2.4.9 and 1.2.4.10 re alternative of passive stack ventilation or continuous room ventilation with heat recovery.

(c) See paragraph 1.2.4.12 re the extent and location of background ventilation where there is only a single exposed façade and cross-ventilation is not possible.

(d) See paragraph 1.2.4.3 re ventilation provision where the provision of background ventilation and purge ventilation is not possible, e.g. when there is no external wall.

(e) As an alternative, the opening window section provided for purge ventilation may also be relied on for extract ventilation.

(f) See paragraphs 1.2.4.13 to 1.2.4.15 re: provision for ventilation of habitable rooms through other rooms or into courtyards.

(g) Opening window or external door minimum provisions given in this table are for ventilation purposes. Other requirements apply to the provision of openings for windows or external doors for example escape in case of a fire. Refer to Part B / TGD B for further guidance.

(h) The performance flowrates for Intermittent extract fans should be tested in accordance with I.S. EN 13141-4:2011, Cooker Hood performance flowrates should be measured in accordance with I.S. EN 13141-3:2017.

12.9 DAY TIME INSULATION SCHEME - RNIS

The Residential Noise Insulation Scheme is based on the 63dB LAeq16 contour.

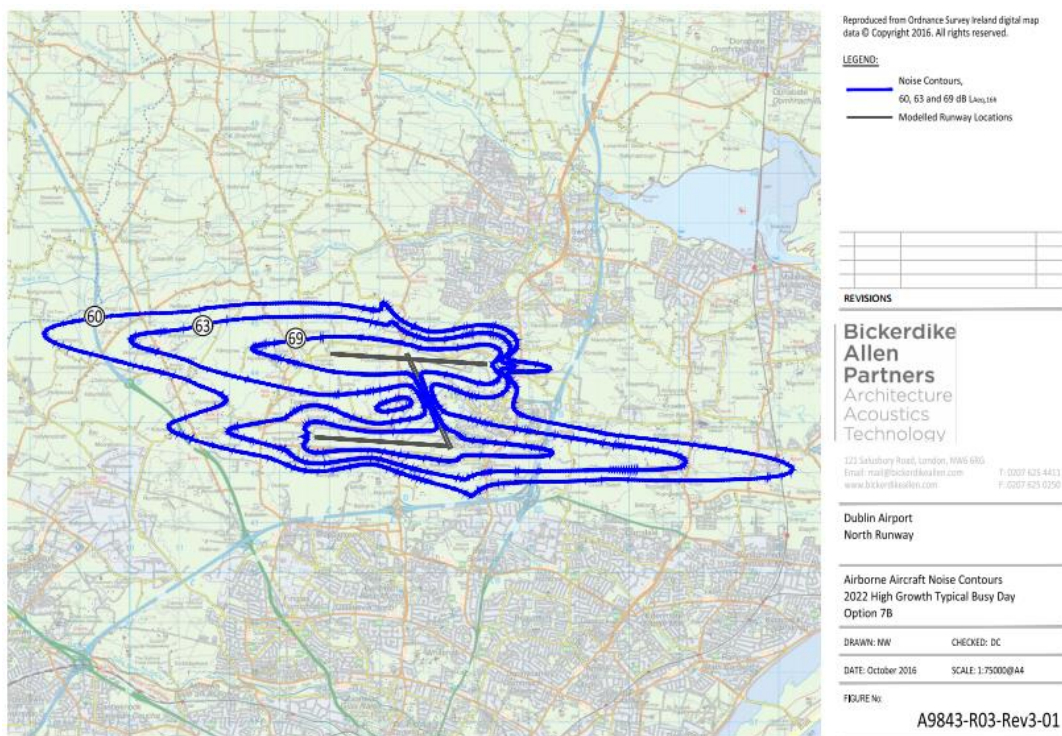
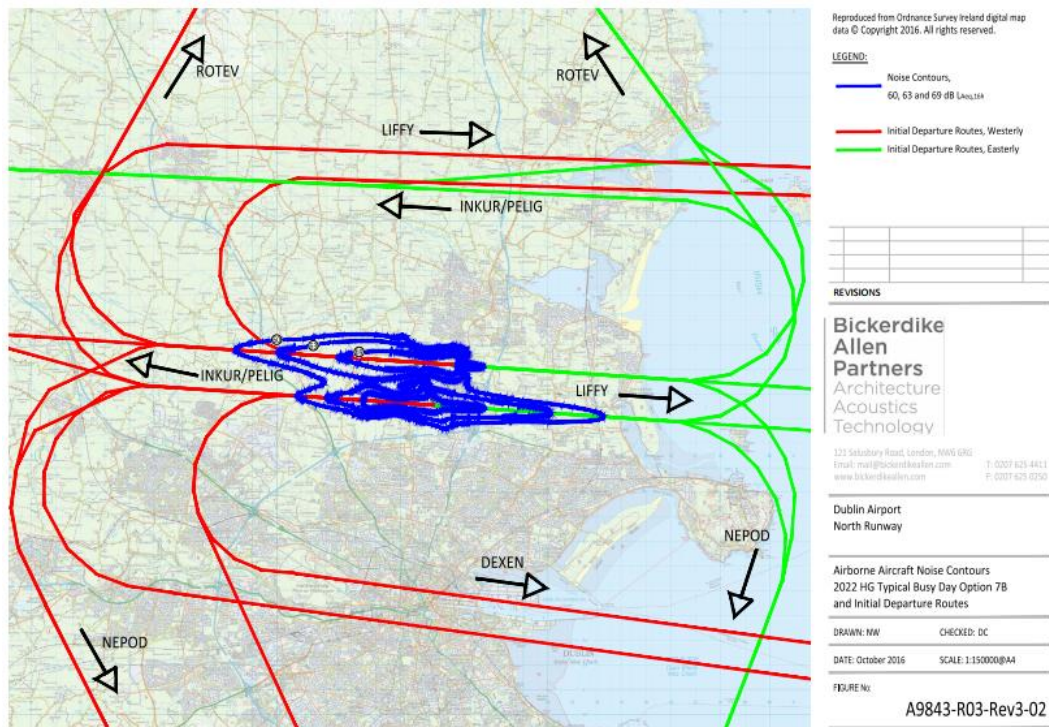
In the insulation scheme report submitted to Fingal County Council for Condition 7 of the North Runway's Planning permission, BAP provide a report on the Option 7b contours for conditions 6, 7 and 9. In section 2.4 of this BAP report, it states:

*"For the parallel runways, **initial departure routes have been prepared based on the existing published routes for the south runway, with those for the north runway in effect replicating them.** There are four initial departure routes for each runway end, heading approximately north, south, east and west.*

*For category A & B aircraft, the initial turns are modelled as occurring shortly after the end of the runway. **For category C & D aircraft, the aircraft are modelled as flying straight for 5 nm before turning.** These C & D routes have been supplemented for departures to the west by routes that turn earlier. This assumption arises from a previous study of radar data which found that approximately 75% of the category C & D aircraft on runway 28 actually perform their initial turn earlier than described by the SIDs. **This is because they have reached an altitude of 3,000 ft or greater and are permitted to exit the environmental corridor at this altitude** if cleared by Air Traffic Control. Two additional 'Early Turn' routes per runway were therefore created for large aircraft, one with an initial turn to the north which subsequently headed east, to the LIFFY beacon, and one with an initial turn to the south which remained heading south, to the NEPOD beacon".*

The initial modelled departure routes are shown in Figure A9843-R03-Rev3-02 and the noise contours in Figure A9843-R03-Rev3-01:

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As can be seen, these routes and contours are based on straight out operations mirroring the operation of the existing South Runway.

This is a serious flaw with the noise insulation scheme contours as no divergent routes were used. During the consultation process in 2016, the daa presented divergent routes for the public to choose from. Yet the insulation schemes were never modelled using these divergent routes. It is very clear to see that this is a serious issue with the insulation scheme and many homes affected by these divergent routes will not be covered by the scheme initially, therefore putting the health of the residents at risk.

This insulation scheme is not fit for purpose and does not model the intended routes to be used for the North Runway. The North Runway should not be allowed to open until this anomaly has been addressed.

13.0 NOISE MONITORING REPORTS

13.1 PROPG PLANNING GUIDELINES

The planning noise zones adopted by Fingal County Council in Variation number 1 of the Fingal Development Plan stipulate those applications for development in Zones A, B and C must carry out a noise assessment in accordance with the ProPG Planning Guidelines with respect to internal noise levels. The ProPG guidelines make use of L_{Amax} as the key indicator for internal bedroom at night. Individual noise events should not exceed 45 dB L_{Amax} more than 10 times a night. The guidelines also make reference to open windows and

“where it is proposed that windows need to be closed to achieve the internal noise level guidelines, then full details of the proposed ventilation and thermal comfort arrangements must be provided”.

ACTIVITY	LOCATION	07:00 – 23:00 HRS	23:00 – 07:00 HRS
Resting	Living room	35 dB $L_{Aeq,16\text{ hr}}$	-
Dining	Dining room/area	40 dB $L_{Aeq,16\text{ hr}}$	-
Sleeping (daytime resting)	Bedroom	35 dB $L_{Aeq,16\text{ hr}}$	30 dB $L_{Aeq,8\text{ hr}}$ 45 dB $L_{Amax,F}$ (Note 4)

NOTE 1 The Table provides recommended internal L_{Aeq} target levels for overall noise in the design of a building. These are the sum total of structure-borne and airborne noise sources. Ground-borne noise is assessed separately and is not included as part of these targets, as human response to ground-borne noise varies with many factors such as level, character, timing, occupant expectation and sensitivity.

NOTE 2 The internal L_{Aeq} target levels shown in the Table are based on the existing guidelines issued by the WHO and assume normal diurnal fluctuations in external noise. In cases where local conditions do not follow a typical diurnal pattern, for example on a road serving a port with high levels of traffic at certain times of the night, an appropriate alternative period, e.g. 1 hour, may be used, but the level should be selected to ensure consistency with the internal L_{Aeq} target levels recommended in the Table.

NOTE 3 These internal L_{Aeq} target levels are based on annual average data and do not have to be achieved in all circumstances. For example, it is normal to exclude occasional events, such as fireworks night or New Year's Eve.

NOTE 4 Regular individual noise events (for example, scheduled aircraft or passing trains) can cause sleep disturbance. A guideline value may be set in terms of SEL or $L_{Amax,F}$, depending on the character and number of events per night. Sporadic noise events could require separate values. In most circumstances in noise-sensitive rooms at night (e.g. bedrooms) good acoustic design can be used so that individual noise events do not normally exceed 45dB $L_{Amax,F}$ more than 10 times a night. However, where it is not reasonably practicable to achieve this guideline then the judgement of acceptability will depend not only on the maximum noise levels but also on factors such as the source, number, distribution, predictability and regularity of noise events (see Appendix A).

In Appendix A.10 the ProPG Guidelines make reference to the UK Government's Planning Practice Guidance and highlights the distinction between detectable impacts and adverse and significant adverse effects of noise on sleep.

- “Noise with the “potential for some reported sleep disturbance” is an “Observed Adverse Effect” that should be mitigated and reduced to a minimum; and
- Noise with the “potential for sleep disturbance resulting in difficulty in getting to sleep, premature awakening and difficulty in getting back to sleep” is a “Significant Observed Adverse Effect” that should be avoided; and
- Noise that causes “regular sleep deprivation/awakening” is a “Significant Observed Adverse Effect” that should be prevented.”

This focus on L_{Amax} is also highlighted in the WHO Community Noise Guidelines 1999. It is therefore imperative that L_{Amax} should be a critical assessment metric in the NAO.

The WHO Community Noise Guidelines 1999 are referenced in the BAP report titled “Dublin Airport Aircraft Noise Methodology Report” dated March 2020 and which was submitted to ANCA as part of their planning application to have the passenger numbers increased from 32m to 35m (F19A/0449).

In appendix A2.33 it states:

*“The 1999 WHO guidelines provide advice that for a good sleep, **indoor sound pressure levels should not exceed approximately 45 dB L_{Amax} more than 10-15 times per night**. This guidance on internal noise levels remains current. Accounting for sleeping with a bedroom window slightly open (and a reduction from outside to inside of 15 dB), this translates to an outside sound pressure level of 60 dB L_{Amax}.”*

The BAP report goes on further to explain how N60 contours can be used to show differences in scenarios for individual noise events:

“N60 contours are therefore used in this assessment to illustrate how, for a given point on the ground, the number of aircraft events producing a level of 60 dB L_{Amax} or more will change between various scenarios.”

The WHO 2009 Night Noise Guidelines (NNG) makes reference to the Community Noise Guidelines (1999):

“If negative effects on sleep are to be avoided the equivalent sound pressure level should not exceed 30 dBA indoors for continuous noise. If the noise is not continuous, sleep disturbance correlates best with L_{Amax} and effects have been observed at 45 dB or less. This is particularly true if the background level is low. Noise events exceeding 45 dBA should therefore be limited if possible. For sensitive people an even lower limit would be preferred. It should be noted that it should be possible to sleep with a bedroom window slightly open (a reduction from outside to inside of 15 dB). To prevent sleep disturbances, one should thus consider the equivalent sound

pressure level and the number and level of sound events. Mitigation targeted to the first part of the night is believed to be effective for the ability to fall asleep.”

The NNG comments further:

“New information has made more precise assessment of exposure-effect relationship. The thresholds are now known to be lower than LAmax of 45 dB for a number of effects. The last three sentences still stand: there are good reasons for people to sleep with their windows open, and to prevent sleep disturbances one should consider the equivalent sound pressure level and the number of sound events. The present guidelines allow responsible authorities and stakeholders to do this. Viewed in this way, the night noise guidelines for Europe are complementary to the 1999 guidelines. This means that the recommendations on government policy framework on noise management elaborated in the 1999 guidelines should be considered valid and relevant for the Member States to achieve the guideline values of this document.”

The executive summary makes reference to the interim target (IT) of 55 dB Lnight,outside and for its recommendation in the situations where the NNG of 40 dB Lnight, outside is not achievable in the short term. But the **“IT is not a health-based limit by itself. Vulnerable groups cannot be protected at this level”**.

The 2009 NNG makes reference to a comparison of ‘Inside’ to ‘Outside’. The assumption is that the insulation value of a house is 30 dB with windows closed and 15 dB with windows open. With windows open 50% of the time then the value is 18 dB. The guidelines present a figure of 21 dB as a conversion factor between outside and inside and this takes account that even well insulated houses may have their windows open a large part of the year.

Another very important feature of night-time noise events is the difference between the background noise levels and these single events. Background noise levels are lower at night and therefore harder to mask the individual aircraft noise events. The environs of the flight paths to the West of Dublin Airport are rural, lending itself to quiet night-time ambient noise levels and therefore the changes from ambient to high aircraft noise levels is of high significance. This change from low background noise to high noise levels is seen with the report from the MLM Group included in this submission.

13.2 NOISE REPORTS

The DAA provide biannual noise monitoring reports and publish them on their website (<https://www.dublinairport.com/corporate/sustainability-and-community/noise/airport-noise-noise-reports>).

The January-June 2020 report shows a significant decrease in aircraft movements from March to June due to the Covid-19 pandemic. Table 4 provides overflying altitudes at the various noise monitoring terminals (NMTs) comparing with the same period in 2019:

Table 4: Average overflying height										
	Height [ft]									
	NMT1		NMT2		NMT5		NMT6		NMT20	
	A	D	A	D	A	D	A	D	A	D
2019	900	2,600	1,100	2,600	1,100	2,800	1,200	2,800	1,500	3,400
2020	1,000	2,800	1,000	3,000	1,100	3,000	1,300	3,200	1,600	3,600

NMT1 monitors runway 28 departures and runway 10 arrivals. It's located at the 'Bay Lane' and is approximately 6.5km from the start of the runway.



Table 4 shows that arrivals were on average 100 ft higher at NMT1 and departures 200 ft higher. This can be explained by lighter load factors due to the loss of passengers during the Covid-19 pandemic.

The July-December 2019 report shows the average overflying height compared with the same period in 2018:

Table 4: Average overflying height

	Height [ft]													
	NMT1		NMT2		NMT3		NMT4		NMT5		NMT6		NMT20	
	A	D	A	D	A	D	A	D	A	D	A	D	A	D
2018	900	2,600	1,000	2,600	900	2,500	1,100	2,900	1,100	2,700	1,200	3,100	1,500	3,400
2019	1,000	2,500	1,000	2,600	1,000	2,500	1,100	2,800	1,100	2,700	1,200	3,100	1,500	3,400

And the January to June 2019 report compares the same period with 2018:

Table 4: Average overflying height

	Height [ft]									
	NMT1		NMT2		NMT5		NMT6		NMT20	
	A	D	A	D	A	D	A	D	A	D
2018	900	2,600	1,000	2,600	1,100	2,800	1,100	3,100	1,500	3,400
2019	900	2,600	1,000	2,600	1,100	2,800	1,200	2,800	1,500	3,400

Using these average overflying heights, the data shows that arrivals normally overfly NMT1 at 900ft and departures at 2600ft. The data in the first half of 2020 shows that these heights have increased but that can be explained by the lower loads due to lower passenger numbers. The report states that in the first half of 2020 there was a decrease of 65% in passenger numbers compared to the same period in 2019. And Runway 28 handled 88% of all the movements in this period.

The report provides the L_{Amax} distribution for NMT1 in figure 12:

Figure 12 shows the L_{Amax} distribution, for aircraft noise, for the first half year of 2020 for NMT 1.

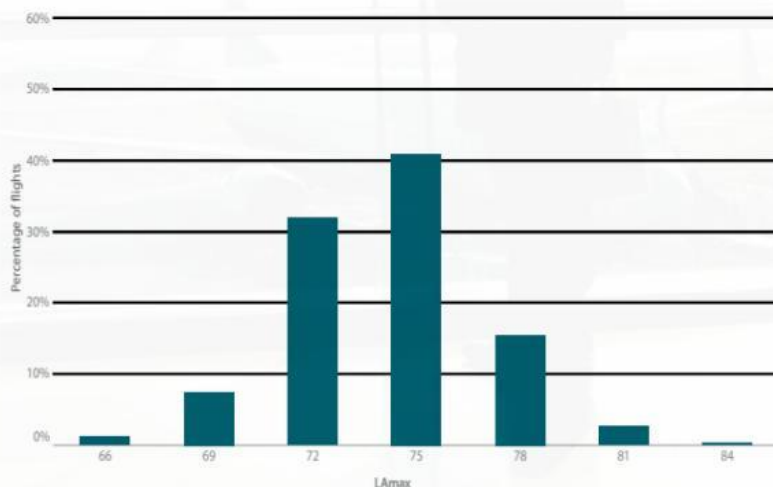
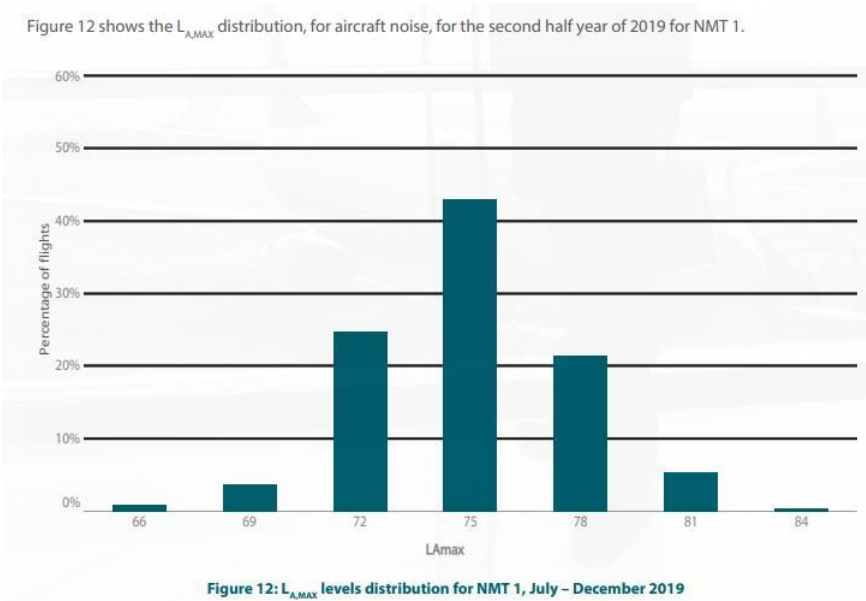


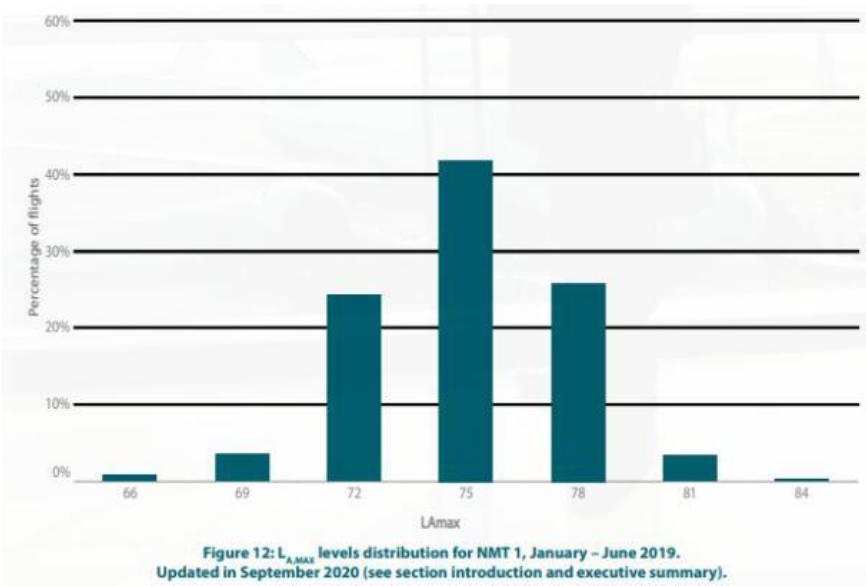
Figure 12: L_{Amax} levels distribution for NMT 1, January - June 2020

Figure 12 shows that approximately 58% of aircraft movements detected at NMT1 had a LAmax value > 75 dB. Approximately 18% had a LAmax value > 78 dB and 2.5% > 81 dB.

Looking at the distribution of the LAmax values for the June-December 2019 time period, the percentage of events > 75 dB LAmax is approximately 68%. 26% are > 78 dB LAmax and 5% > 81 dB LAmax.



The distribution for the first half of 2019 is similar. From these distributions and the lower heights of overflying aircraft one can deduce that the distribution for 2020 shows lower amount of LAmax events > 75 dB, which is below normal expected noise levels.



13.3 BAP PRESENTATION

At a Community Liaison Group (CLG) meeting in April 2017 (https://www.dublinairport.com/docs/default-source/meeting-documentation/aircraft-noise-monitoring-datac4fa448b73386836b47fff0000600727.pdf?sfvrsn=8f6e160f_2), a presentation from BAP was given titled 'Aircraft Noise Monitoring Data from Noise Monitoring Terminals (NMTs)'. In this presentation BAP explain noise monitoring and metrics. The presentation also focused on NMT1 and NMT3 which are to the West of Dublin Airport.

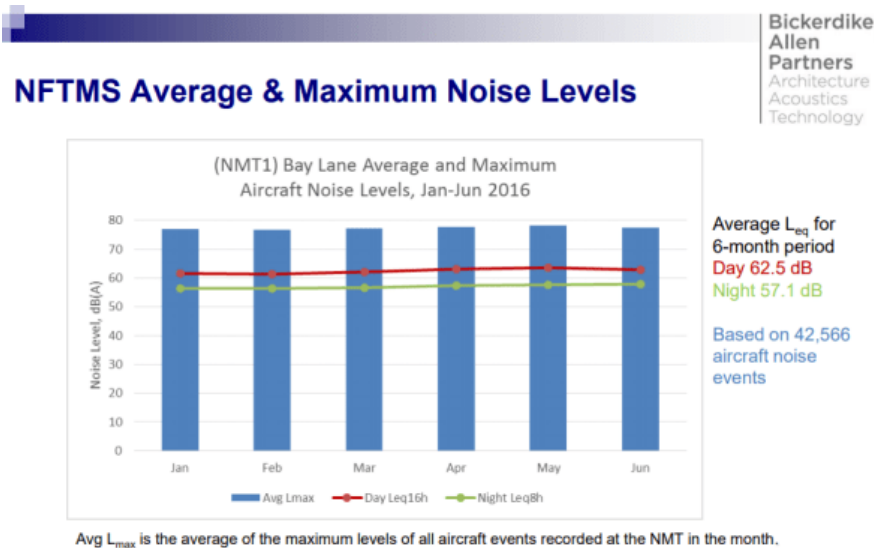
NFTMS NMT1 Bay Lane – Details



NFTMS NMT3 Bishopswood – Details

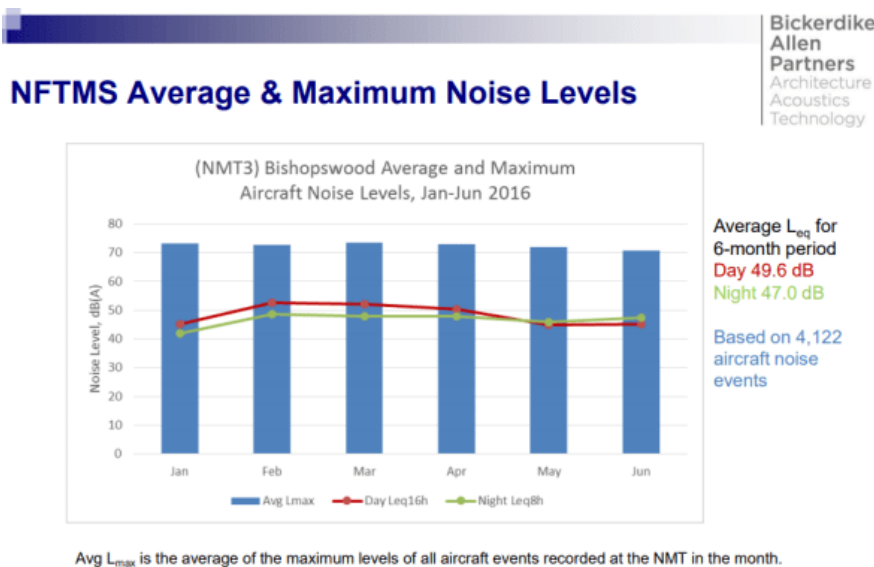


Average L_{Amax} at NMT1 from January-June 2016 was 77 dB:



Average L_{max} for 6-month period is 77 dB
Day L_{eq} 5 dB higher than night on average

Average L_{Amax} at NMT3 from January-June 2016 was 72 dB:



Average L_{max} for 6-month period is 72 dB
Day L_{eq} 3 dB higher than night on average

An important point to note is that there are many dwellings that are located closer to Dublin Airport than NMT1 which is 6.5km from the start of the South Runway. These dwellings are exposed to noise levels in excess of those at NMT1 as the aircraft are lower on departure and arrival, closer to the airport.

L_{Amax} values for 2019 were requested via an AIE request to the DAA on August 12th, 2020, and the DAA responded with an Excel sheet on September 9th.

Data for July and September for NMT1 was analysed and the following statistics produced:

- July
 - 1208 Noise events in the night-time period 23:00-07:00
 - Average of 39 movements per night at NMT1
 - Max value of 93.1 dB L_{Amax}
 - Min value of 66.7 dB L_{Amax}
 - Mean value of 76.1 dB L_{Amax}
 - 6.7% of movements > 80 dB L_{Amax}
 - 56.5% between 75-80 dB L_{Amax}
 - 35.3% between 70-75 dB L_{Amax}
 - 1.6% between 65-70 dB L_{Amax}
- September
 - 1101 Noise events in the night-time period 23:00-07:00
 - Average of 37 movements per night at NMT1
 - Max value of 106.7 dB L_{Amax}
 - Min value of 66.4 dB L_{Amax}
 - Mean value of 76.1 dB L_{Amax}
 - 12.2% of movements > 80 dB L_{Amax}
 - 52.0% between 75-80 dB L_{Amax}
 - 34.7% between 70-75 dB L_{Amax}
 - 1.2% between 65-70 dB L_{Amax}

The data shows that during July and September 2019, over 37 movements per night were detected at NMT1 over the night-time period and over 63% of these movements were recorded at a value greater than **75 dB L_{Amax}**, at a distance 6.5km from the start of the runway.

In the ProPG guidelines, appendix A2.33 states:

“The 1999 WHO guidelines provide advice that for a good sleep, indoor sound pressure levels should not exceed approximately 45 dB L_{Amax} more than 10-15 times per night. This guidance on internal noise levels remains current. Accounting for sleeping

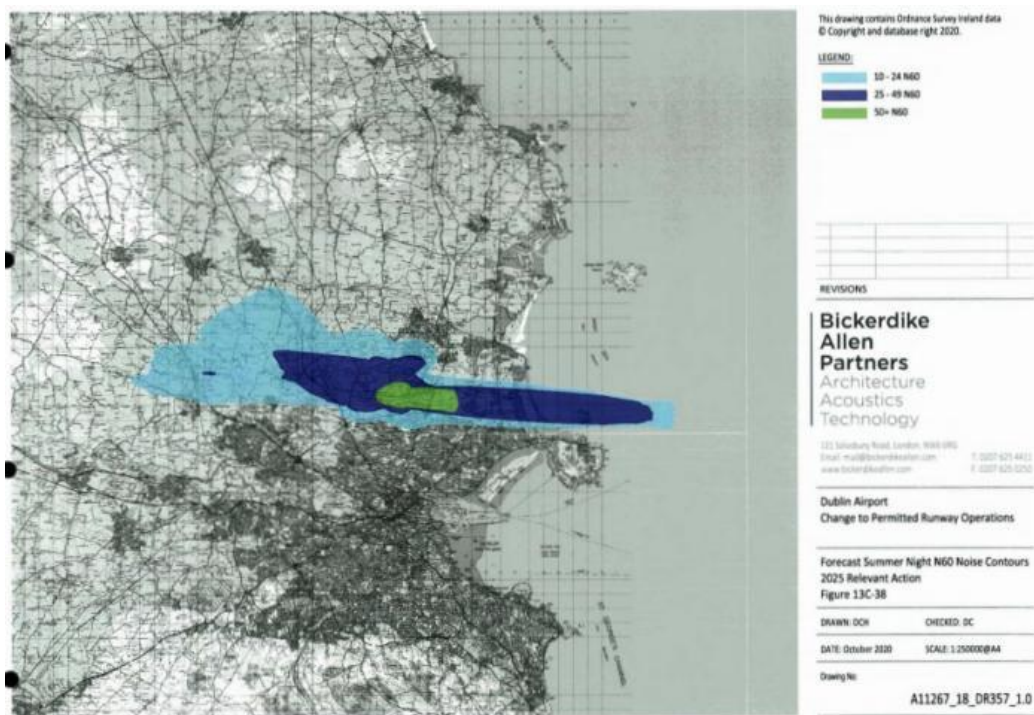
with a bedroom window slightly open (and a reduction from outside to inside of 15 dB), this translates to an **outside sound pressure level of 60 dB LAmax**".

In table 13C-40 of the original EIAR's appendices, the existing population counts for the N60 metric are given for existing population count. N60 is the number of events above 60 dB LAmax per night-time period.

Table 13C-40: Existing Population Counts, N60 Metric

Metric Value, N60	Scenario and Existing Population Count						
	2018 Baseline	2019 Baseline	2022 Baseline	2022 Relevant Action	2025 Baseline	2025 Consented	2025 Relevant Action
≥ 10	69,613	75,967	42,926	59,891	42,864	65,906	61,018
≥ 25	24,638	26,835	15,370	11,879	15,020	7,958	11,739
≥ 50	80	7,402	35	67	32	29	191
≥ 100	0	0	0	0	0	0	0

The '2025 Relevant Action' scenario has 42% more people (61018 vs 42864) subjected to between 10-25 noise events compared with '2025 Baseline'.



Based on the ProPG Guidelines, 61018 people will not be able to sleep with their windows slightly open or risk having their sleep disturbed, with the '2025 Relevant Action' Scenario.

Comparing with Table 13C-56 in the revised EIAR, the number of people exposed to > 10 events above 60dB LAmax with 2025 Proposed is 56,517. It is worth noting that the number of people exposed to > 25 such events increased from 11,739 with 2025 Relevant Action to 16,277 with 2025 Proposed, highlighting the significance increase in people experiencing adverse noise levels between the two EIARs, which as not been explained by the daa or challenged by ANCA.

Table 13C-56: Existing Population Counts, N60 Metric

Metric Value, N60	Scenario and Existing Population Count						
	2018	2022 Permitted	2022 Proposed	2025 Permitted	2025 Proposed	2035 Permitted	2035 Proposed
≥ 10	69,613	41,432	46,401	44,908	56,517	27,353	29,801
≥ 25	24,638	296	8,820	15,333	16,277	12,452	12,981
≥ 50	80	0	67	16	110	16	98
≥ 100	0	0	0	0	0	0	0

Analysing the later April – June 2021 noise report (https://www.dublinairport.com/docs/default-source/corporate/dublin-noise-report-2021-q2.pdf?sfvrsn=4dc7d803_0), the height of aircraft at noise monitors NMT1, 2, 3 and 4 decreased compared with the same period in 2020. A decrease in aircraft height results in higher noise levels.

From the charts below it is evident that arriving aircraft are noisier at the noise monitors than departures. This has been reported in this submission based on LAmax values obtained from the daa by the CLG group, 'NMT 1 2 3 2016 2018 2019 Lmax events.xlsx' in Appendix E. This highlights the inadequacy of the proposed Noise Quota Count System as it assigns a smaller count to most aircraft types to arrivals compared with departures. It therefore is illogical to use the proposed Night Quota Count System at Dublin Airport as it rewards noisier arrivals over departures for those populations living under the flight path and who are most affected by aircraft noise.

Average monthly L_{Amax} noise levels per NMTs are shown in Figure 6

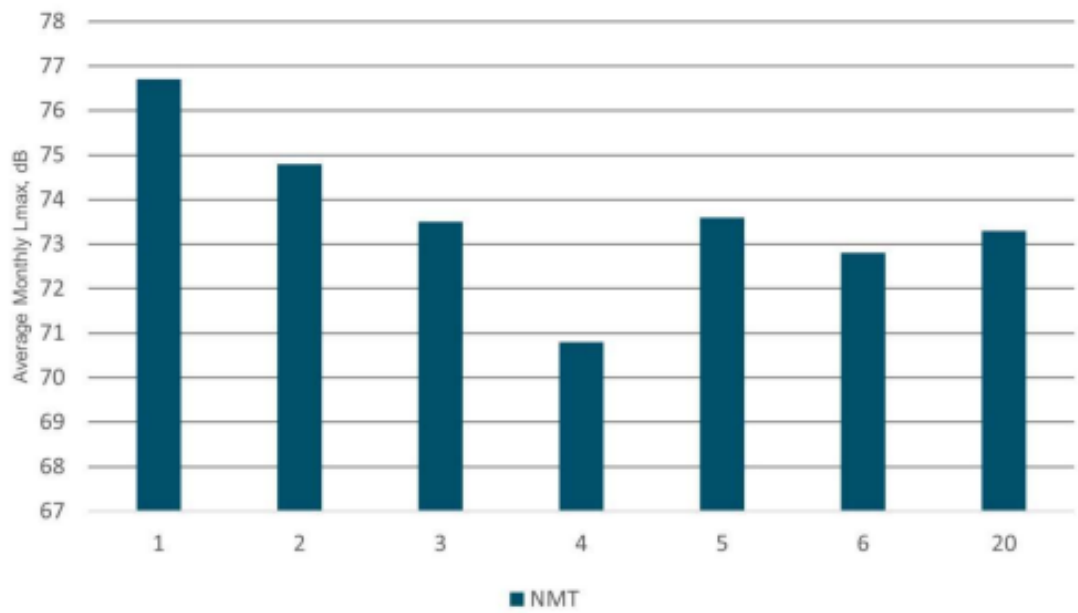


Figure 6: Average L_{Amax} levels distribution for NMTs, April - June 2021

Average monthly L_{Amax} noise levels per NMT for departing and arriving aircraft.

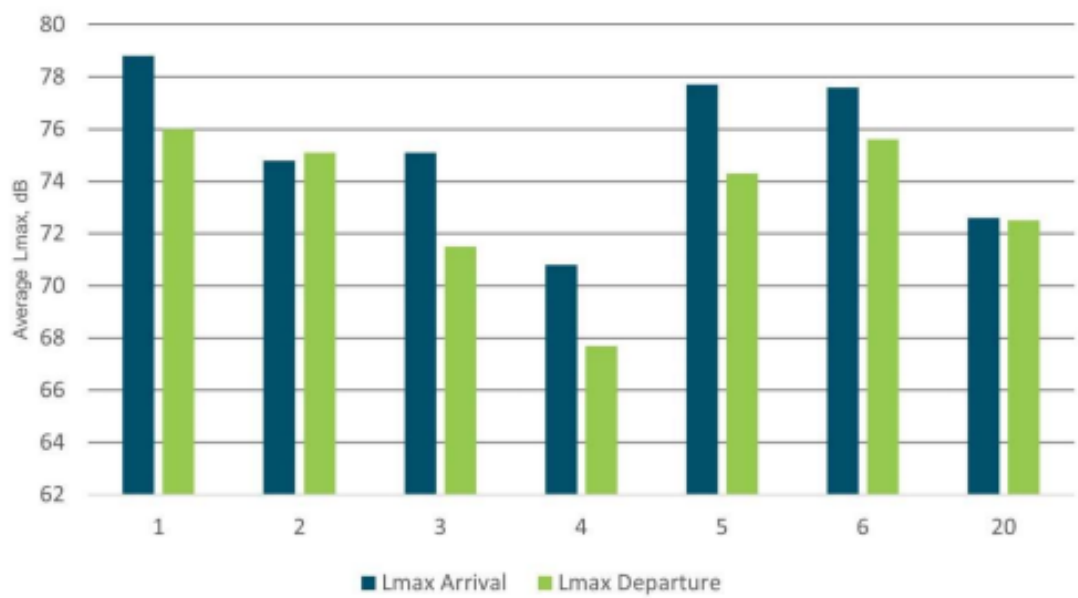


Figure 7: Average L_{Amax} levels distribution for NMTs for arriving and departing aircraft, April - June 2021

From above the average L_{Amax} at NMT1 for arrivals was 79dB and 76dB for departures
The L_{Amax} distribution for April-June 2021 is given below.

Figure 23 shows the L_{Amax} distribution for aircraft noise for the Second quarter of 2021 for NMT2.

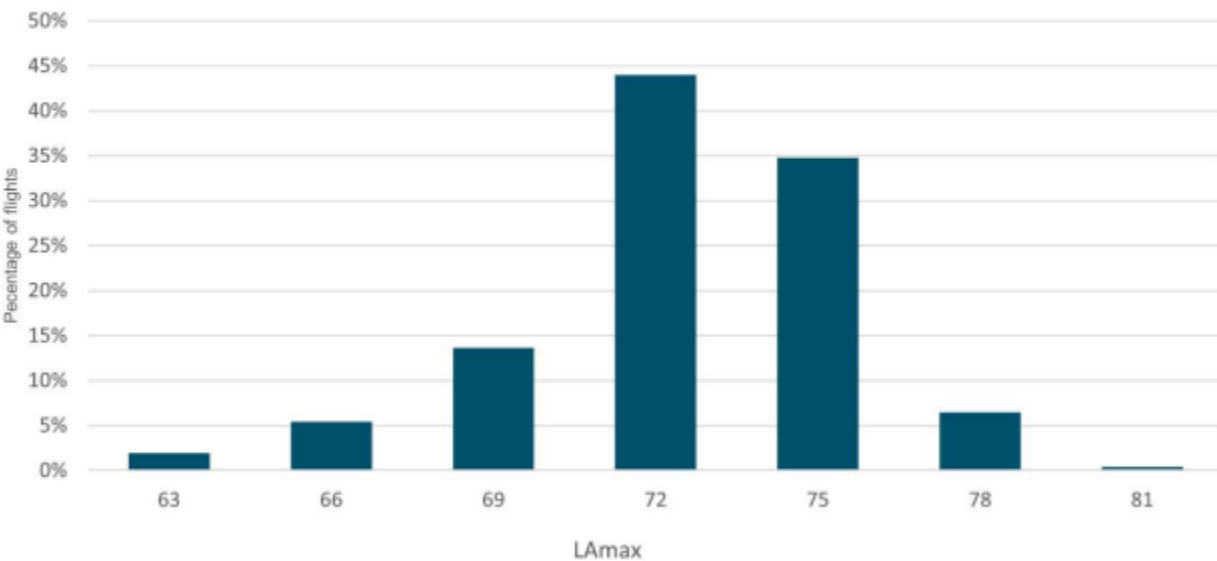


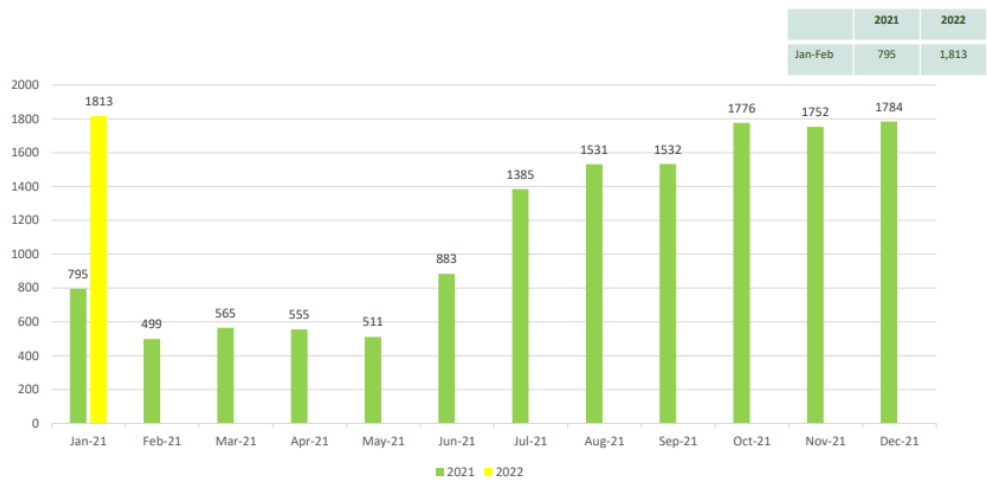
Figure 23: L_{Amax} levels distribution for NMT 2, April - June 2021

In ANCA's draft decision, they have not shown how they can protect the residents living closest to Dublin Airport when they are exposed to such high L_{Amax} level exceeding the ProPG and WHO Guidelines. This is a serious omission from ANCA's analysis and highlights how they are failing in their duty to protect Public Health.

13.4 NOISE COMPLAINTS

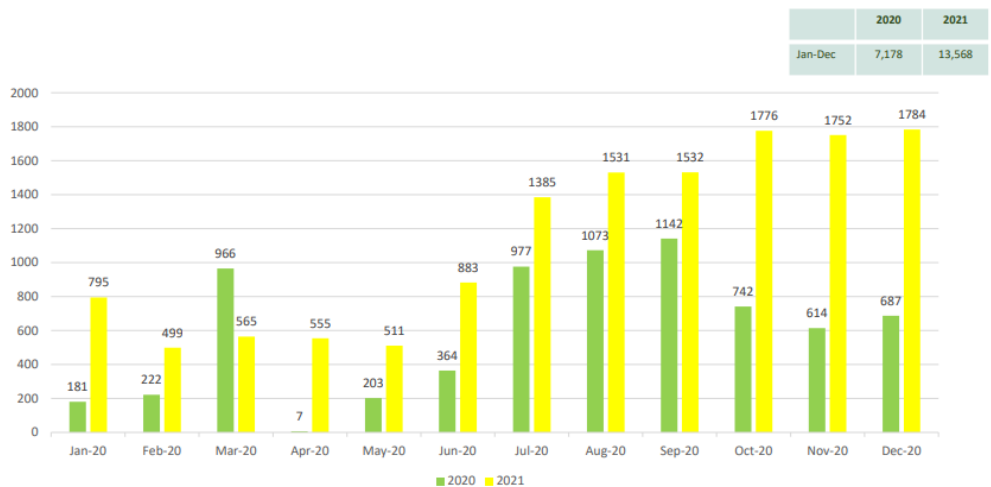
The daa produce monthly Noise & Track Monitoring Reports. The latest report on their website is for January 2022 (<https://www.dublinairport.com/docs/default-source/airport-noise/01-dublin-monthly-jan-2022.pdf>). In January there were 1813 noise complaints. This is a significant increase on January 2021.

Noise Complainants Analysis 2021 V 2022



In the December 2021 report, it is clear to see the increase in noise complaints over the whole year.

Noise Complainants Analysis 2020 V 2021



There is no mention of noise complaints in ANCA’s draft decision. How can the public have trust in the Noise Regulator if it fails to examine noise complaints? Why should the public complain if nothing is going to be done by the Regulator?

The Dublin Airport Noise Action Plan 2019-2023 identifies noise complaints as an action item:

8	Encourage daa to continue to operate noise complaint management systems and respond to all aviation-related noise complaints in a timely manner	Submission of progress report using target of 95% of aircraft noise complaints responded to within 28 days	Monitoring and community engagement through adequate response times to all aviation related noise complaints	Ongoing

The EPA in their 2020 Publication ‘Ireland’s Environment – An Integrated Assessment 2020’ (https://www.epa.ie/publications/monitoring--assessment/assessment/state-of-the-environment/EPA_Irelands_Environment_2020.pdf) devoted a whole chapter to environmental noise. The report highlights the increasing number of noise complaints due to aircraft noise – 1453 in 2018.

Airport Noise: A Key Issue to Control When Passenger Numbers Increase Again

Dublin Airport welcomed 32.9 million passengers during 2019, setting a new record for traffic at the airport (Dublin Airport, 2020). Noise complaints around Dublin Airport have become a more significant issue in recent years, with the Dublin Airport Authority logging 1453 noise-related complaints in 2018 (Dublin Airport, 2019), although there has clearly been a major reduction in airport activities during the COVID-19 pandemic. The numbers of passengers using Cork (2.4 million passengers) and Shannon (1.85 million passengers) Airports had also increased in recent years, until the COVID-19 pandemic in 2020. However, both airports are currently below the threshold of 50,000 air movements per annum for noise mapping requirements. Over the last 3 years, according to the Dublin Airport Authority, there have been very few recorded noise complaints for Cork Airport and no noise complaints for Shannon Airport.

The report mentions the appointment of ANCA as Competent Authority. It states that the “unit is responsible for ensuring that noise generated by aircraft activity at Dublin Airport is assessed in

accordance with EU and Irish regulations". Ignoring noise complaints and not taking on board public consultation is contrary to 2002/49/EC. Article 8(7) states that "Member States shall ensure that the public is consulted about proposals for action plans, given early and effective opportunities to participate in the preparation and review of the action plans, that the results of that participation are taken into account and that the public is informed on the decisions taken. Reasonable time-frames shall be provided allowing sufficient time for each stage of public participation".

In 2019, Fingal County Council was appointed as the competent authority to regulate airport noise at Dublin Airport under EU Regulation No. 598/2014 (Government of Ireland, 2019), which covers noise-related operating restrictions at EU airports with more than 50,000 aircraft movements per year. The independent competent authority section within Fingal County Council is called the Airport Noise Competent Authority. This unit is responsible for ensuring that noise generated by aircraft activity at Dublin Airport is assessed in accordance with EU and Irish regulations. It ensures the application of the 'balanced approach' to aircraft noise management, as set out by the International Civil Aviation Organization (ICAO), in cases where a noise problem or potential noise problem is identified at the airport (ANCA, 2019).

It is imperative that ANCA monitor noise complaints. This is the only mechanism that residents have to voice their annoyance with aircraft movements.

14.0 QUOTA COUNT SYSTEM

14.1 QUOTA COUNT SYSTEM

The use of the Quota Count System put forward by the daa halves the quota count value for B38M movements compared with B738 movements. The certification levels may be different but the noise on the ground is the same. Therefore, the quota count values should not be half/double. They should be comparable. The certification of aircraft is governed by EU598/2014 but the assignment of count values is not and can be designed on a case-by-case basis. It is very apparent that the UK approach of assigning quota count values is not appropriate to real noise levels on the ground in the environs of Dublin Airport.

Nmt #1	Num Arr	LAmarr	QC Arr	Num Dep	LAmarr	QC Dep
A320	4669	79.32	0.25	20075	74.65	0.5
A21N	125	78.50	0.25	496	73.81	0.5
A20N	157	77.57	0.125	630	72.93	0.25
B738	6959	79.61	0.5	30553	76.55	0.5
B38M	32	78.82	0.25	162	75.00	0.25

Nmt #2	Num Arr	LAmarr	QC Arr	Num Dep	LAmarr	QC Dep
A320	22702	75.59	0.25	5720	73.62	0.5
A21N	496	73.78	0.25	112	72.65	0.5
A20N	768	72.81	0.125	214	71.73	0.25
B738	34785	75.76	0.5	8686	75.74	0.5
B38M	152	73.98	0.25	17	74.96	0.25

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Nmt #3	Num Arr	LAmx Arr	QC Arr	Num Dep	LAmx Dep	QC Dep
A320	183	72.24	0.25	2697	71.24	0.5
A21N	5	70.38	0.25	56	70.98	0.5
A20N	12	72.17	0.125	57	73.78	0.25
B738	194	72.36	0.5	14813	70.44	0.5
B38M	0		0.25	20	76.08	0.25

Nmt	LAmx Arr	LAmx Dep	LAmx Both
Nmt #1	78.94	75.90	76.52
Nmt #2	75.08	74.96	75.06
Nmt #3	72.30	71.13	71.16

Looking at the tables above it's clear that arrivals are far noisier at the noise monitors than departures. Yet the QC value for departures is twice those of arrivals. Why are the noisier arrivals given a lower QC value?

Less than 2dB between the A320 and A20N. The A20N averaged 77.57dB LAmx on arrival at nmt #1.

Less than 1dB between the B738 and B38M for arrivals on nmt #1. The B38M still recorded an average arrival noise level of 78.82dB LAmx.

Less than 2dB between the A320 and A20N and 1.55dB between the B738 and B38M for departures on nmt #1.

QC values have no consistency or relevance to what is being measured on the ground and how those most affected by noise are measured by a QC system.

The certified EPNdB values are not subject to change as per EU598/2014. However, the assigned QC values per EPNdB can be modified. Using a multiplier of 2 for each category of EPNdB is not appropriate for use at Dublin Airport. It is worth stating that the ICAO do not provide guidance on the use of Noise Quota Systems and the quota count values assigned to

certification bands. The ICAO certification relates to the EPNdB levels only. The quota count system was first introduced in the UK and the rationale for doubling/halving the quota count values for each 3dB band was based on the fact that noise power doubles every 3dB. However, a more realistic approach should use the perceived doubling of noise by the human ear which is every 9dB. The quota count system as it currently stands can reward an aircraft that reduces its noise certification level from, say, 87 EPNdB to 86.9 EPNdB by halving its quota count value. A 0.1 EPNdB reduction can equate to a reduction from 0.5 to 0.25 in quota count terms.

The proponents of Quota Count Systems state that the reduction in 3dB of noise power means 2 aircraft of 3dB less equates to the 1 noisier aircraft. That may be true from a noise power point of view but it's rare that 2 aircraft fly at the same time. 2 aircraft movements will mean 2 noise events to local residents in sequential order. It does not mean 2 parallel noise events.

The real measured data shows that a QC system such as the one proposed by the daa and ANCA is not fit for purpose and should not be deployed at Dublin Airport.

The data also casts a doubt on ANCA and its consultant's ability to properly interrogate the data and come up with independent analysis. ANCA has accepted the QC totals from the daa and only suggested to use an 8-hour count rather than a 6.5-hour count. However, the daa just simply increased the value from 7990 to 16260 and ANCA duly obliged and accepted it.

Table 3.2: Noise classifications and Quota Count in use by the UK Department of Transport (October 2021)

Noise Classification	Quota Count
Below 81 EPNdB	0
81 – 83.9 EPNdB	0.125
84 – 86.9 EPNdB	0.25
87 – 89.9 EPNdB	0.5
90 – 92.9 EPNdB	1
93 – 95.9 EPNdB	2
96 – 98.9 EPNdB	4
99 – 101.9 EPNdB	8
Greater than 101.9 EPNdB	16

Forecasts QC reference table

Aircraft code	Est QC Arrival	Est QC Departure
223	0.125	0.25
318	0.25	0.25
319	0.25	0.5
320	0.25	0.5
321	0.25	1
332	0.5	2
333	0.5	2
339	0.5	1
359	0.5	0.5
738	0.5	0.5
739	0.5	1
781	0.25	1
788	0.25	0.5
789	0.25	0.5
32A	0.25	0.5
32N	0.125	0.25
32Q	0.25	0.5

Aircraft code	Est QC Arrival	Est QC Departure
33F	0.5	2
738F	0.5	0.5
73H	0.5	0.5
73P	1	1
73W	0.5	0.5
75W	1	1
76F	2	2
76V	1	2
77L	1	2
77W	1	2
7M2	0.25	0.25
7M8	0.25	0.25

Aircraft code	Est QC Arrival	Est QC Departure
ABY	1	2
AT4	0.5	0.125
AT7	0.25	0.25
CNT	0	0
CS3	0.125	0.25
DH4	0.25	0
E70	0.25	0.5
E75	0.25	0.5
E90	0.125	0.5
E92	0.125	0.5
E95	0.125	0.5
ER4	0.125	0.125
GS5	0.125	0.25
Q84	0	0.25
SF3	0.25	0.25

The Quota Count System in the draft decision does not stop one single flight from the daa's forecasts at night. In fact, it does the opposite and allows unmitigated flights. How can this be a Balanced Approach?

It is also worth referring to the submission to ANCA (FIN-C338-ANCA-177) from Dr King from NUI Galway. In his conclusions, Dr King makes the following points:

- The proposed Quota system is an incomplete interpretation of that operated in the London airports. The London airports operate a Noise Quota System together with a movement limit. If the Dublin approach is based upon the London Stansted approach, then it should also include a movement limit.
- The use of a quota system based on EPNL fails to account for noise events. A movement limit in parallel with the noise quota would go some way to address this issue.
- If there is no movement limit, any aircraft movement with a quota count value of zero would in effect be unlimited, despite the fact that it is a noise generating movement. The total of 16,260 QC points far exceeds the totals in Gatwick, Heathrow, and Stansted. It should be reduced significantly. A reduction in this limit would go some way in to meet that stated objective of limiting and reducing the long-term adverse effects of aircraft noise on health and quality of life.
- The total of 16,260 was based on a goal of reducing the average fleet noise per movement. This does not necessarily lead to a decrease in overall noise levels. For

2022, 2023 and 2025, the average fleet noise per movement decreases, but the overall QC points increase each year. A more appropriate approach would be to deliver a reduction of QC instead.

- In this authors opinion a target QC of 14,000 in parallel with a movement limit would represent a more progressive approach. These should be considered minimal targets and I encourage ANCA to consider lower limits. The QC target of 14,000 is based on a slight improvement of 2018 data. An appropriate movement limit would also need to be determined. By analyzing the average relationship between the Movement/Noise Quota Limits described in the London airports, a movement limit of 21,000 would appear in line with international practice. Similar to the London schemes, these limits could be revised to account for summer/winter variation.
- The above limits are based on 2018 data, as 2018 is the year identified by the DAA in the development of the target QC/ATM. However, the data suggest the limits would also be applicable to 2017, which might be more appropriate to set as a pseudo baseline year against which improvements are assessed. This would align with the timing of EU Directive 2002/49/EC as well the European Commission's 'Towards Zero Pollution for Air, Water and Soil' Action Plan.

Dr King's specific comments have not been addressed in the Consultation Report. Dr King has extensive experience in the areas of acoustics, noise control, transportation and urban sustainability. He is currently Managing Editor of Noise/New International, a quarterly publication from the International Institute of Noise Control Engineering. He is a member of the European Commission Noise Expert Group, and in the past has served as member of the Board of the Institute of Noise Control Engineering (USA), and the International WELL Building Institute's Sound Concept Advisory Panel.

He is author/co-author of more than 70 academic journal papers, book chapters, conference papers and reports, including one book. He holds a B.A. B.A.I. Mechanical Engineering (2003), Postgraduate Diploma in Statistics (2007) and PhD (2008) in Environmental Acoustics all from Trinity College Dublin, Ireland. Following EU postdoctoral research on noise assessment and control, he established a start-up noise and vibration consulting company before moving to the only US university that offers specialist undergraduate programs in acoustics and music.

Dr King is eminently qualified to comment on noise and his views should be acknowledged and acted upon.

Attention is also drawn to comments in ANCA's report 'DRD Report 11 November 2021.pdf', where ANCA state that the Noise Quota Count System proposed **"does not inhibit the ability of Dublin Airport to meet its forecasts for passenger and ATM growth in the future"**.

ANCA is therefore conscious that under the Applicant's proposals, whilst the noise quota sets an operating restriction, it does not inhibit the ability of Dublin Airport to meet its forecasts for passenger and ATM growth in the future. This is due to the proposal setting the noise quota at a value for which the introduction of quieter aircraft will cater for more aircraft to be operated within the same noise quota in the future. As such, the proposed noise quota provides the incentive for Dublin Airport to use quieter aircraft in return for additional movements. This is only possible as the proposals do not include an aircraft movement limit, and providing Dublin Airport continues to meet the NAO.

The Applicant's proposals include allowances for carry-overs and overruns which would allow the noise quota in one year to be increased by as much as 10%. However, ANCA notes that the

In section 1.6.2.2 of the Cost Effectiveness Methodology and Results report (Appendix J) it states:

"The Applicant's modelling shows that the annual night quota count (i.e. over the period 23:00 to 06:59) will be highest in 2025, at 15,892. This suggests that the 8-hour alternative noise quota limit of 16,260 as suggested by ANCA can be met without imposing any restrictions on how an airline may wish to operate from the airport subject to more restrictive restrictions on aircraft QC from 2030 onwards."

The report also lists the zero impact the Noise Quota Count System has on HSD and night-time noise priority figures:

Table J22: Reduction in people impacted in 2025 under different measures

Measure	Number of people no longer impacted compared with FWNM		Number of people impacted following measure	
	HSD	Night-time noise priority	HSD	Night-time noise priority
Permitted Operations	-14,083	-16	22,481	0
The Applicant's Proposed Noise Quota Scheme	0	0	36,564	16
Alternative Noise Quota Scheme	0	0	36,564	16
Most effective measure under HSD metric	-2,022	-16	34,542	0
Most cost-effective measure	-219	-16	36,345	0
The Applicant's preferred measure	442	-16	37,006	0

¹⁵ Note that it was not possible to derive effectiveness measure Permitted Operations Scenario for Significantly Adversely Affected people due to data not being available.

33

The Quota Count System is simply a marketing ploy by the daa that has been accepted by ANCA. ANCA's own analysis shows that the Noise Quota System does not impact on the daa's plans nor does it introduce any cost as no flights will be reduced. This is farcical implementation of the Balanced Approach and shows categorically that there is no 'Balance' applied by ANCA.

14.2 ANCA CHANGES TO PRELIMINARY DECISION

In section 14.1 of the Regulatory Decision, ANCA outlay changes to the draft regulatory decision regarding Noise Quota System following submissions from cargo companies:

“Following publication of the DRD for consultation, ANCA received a number of submissions from cargo operators on the restrictions proposed to take effect from 1 January 2030. These submissions highlighted that, while the affected aircraft comprised 12% of the overall fleet mix, such aircraft are more concentrated in cargo operators’ fleets”.

“Having regard to submissions received during the consultation period, ANCA has therefore decided to modify the post-2030 QC restriction as proposed. The RD has been changed so that Schedule A, Part 2, 2.1(d) and 2.1(e) as proposed in the DRD have been removed. Notwithstanding this, the overall QC scheme is likely to require the introduction of mechanisms to reduce the occurrences of high QC fleet movements during the night period”.

In the draft regulatory decision, Parts 2.1(d) and 2.1(e) were as follows:

- “d. No aircraft with a Quota Count of 2.0 or more shall be permitted to take off at the Airport during the night time from 1 January 2030*
- e. No aircraft with a Quota Count of 1.0 or more shall be permitted to land at the Airport during the night time from 1 January 2030”*

ANCA have rolled back on these conditions which cover the post 2030 period. ANCA reference a report by Altitude Aviation which is contained in Appendix N of the Regulatory Decision Report.

Altitude Aviation outline the material that was not given to them:

“However we do not have access to all of the forecast detail we consider necessary to provide a complete impact assessment:

- 1) There is no information as to which carriers are expected to operate the forecast Night Period ATMs: This makes it hard to determine e.g. whether or not the operator has the ability to switch out a non-compliant aircraft for a compliant aircraft.*
- 2) There is no split of Night Period ATMs by arrivals/departures: as an aircraft’s QC value differs depending on whether it is taking off or landing, this split may materially impact the number of Night Period ATMs at Dublin Airport that would be impacted”.*

On slide 14 Altitude Aviation outline the impacts of 2.1(d). They use a short timeframe of February 2022 to identify cargo flights and flights non-compliant with 2.1(d). They state that UPS would be the only carrier operating an aircraft type that would become non-compliant in 2030, the Boeing 767-300 (B763). Slide 14 only lists 5 departures for UPS using the 767-300. This is incorrect. There were 16 767-300 UPS departures during the night-time period in February 2022.

Regardless of the number of departures of B767-300 aircraft during the night-time period, ANCA have decided to roll back on 2.1(d) to facilitate a single cargo operator, UPS. No incentive for UPS to acquire quieter aircraft as a result of this decision. No discussion as to whether these movements could be switched to after 7am.

On slide 18 Altitude Aviation outline the impacts of 2.1(e) on cargo flights. They list only 28 flights that would be non-compliant (B737-400, B767-300, B767-200). From an analysis of night-time flights during February 2022, there were 106 arrivals from these aircraft. In January there were 111 arrivals and in March 114 arrivals. Therefore, these arrivals contribute significantly to the noise environment at night and in particular for those residents underneath the flight paths. The removal of 2.1(e) will increase significantly the noise impact at night.

In the conclusion on slide 22 Altitude Aviation state:

- *“It is not clear whether the regulatory changes would lead to a reduction in cargo services or services would be broadly maintained but with additional costs and/or worse service for end customers.*
- *The submissions from the carriers themselves do touch on this issue at a high level, although there is relatively little discussion of the specific impacts/costs associated with fielding a compliant fleet to DUB by 2030”.*

The submissions to ANCA from the cargo companies give no detail on what the impacts would be in terms of costs and services. These companies operate on a global scale and can swap aircraft to suit operational needs. ANCA have provided no incentive for these cargo companies to modernise their fleet or to switch to using quieter aircraft during the night-time period or even switch their operations out of the night-time period. The daa have incentivised operators to use the night-time period in the past by facilitating lower landing and take-off charges and parking charges.

ANCA have incorrectly stated that the removal of 2.1(d) and 2.1(e) will have no impact of the night-time noise environment. It is clear that there are a large number of aircraft that would be non-compliant with 2.1(d) and 2.1(e). These aircraft are some of the noisiest aircraft operating at Dublin Airport, specifically at night, and ANCA have now rolled back on their decision to restrict their operations.

In section 14.1 of their Regulatory Decision Report, ANCA state:

“ANCA considered that the more stringent restrictions after 2030 would yield a small added benefit in terms of reducing individual noise exposure events without disproportionately restricting operations, as the aircraft affected by the proposed restrictions represented only 12% of the overall fleet mix. However, the measures were additional to those required to achieve the quantitative health objectives in the NAO and were intended to further the general objective in the NAO to limit and reduce aircraft noise”.

On what basis have ANCA concluded that these more stringent restrictions after 2030 would yield a small added benefit? As shown earlier, there were 100 plus landings of non-compliant aircraft with 2.1(e) in February during the night period. This is not a small number, and they can greatly influence the average night-time noise levels and result in very high L_{Amax} single noise events.

The NQS agreed by ANCA to allow a quota count of 16260 facilitates continuing growth at Dublin Airport without any impact on the daa's predictions and forecasts. The removal of 2.1(d) and 2.1(e) further shows that ANCA are not interested in restricting the noisiest aircraft beyond 2030 and therefore there are no incentives or obligations on the operators to reduce their noisiest aircraft. ANCA have provided no modelling data on the effects of 2.1(d) and 2.1(e) and what the impacts are on the numbers of people affected by noise at night.

The ANCA decision could enable the noisier passenger aircraft owners to relocate their noisier aircraft to Dublin for the night period, which was the exact opposite intention of 2.1(d) and 2.1(e) from the draft regulatory decision.

15.0 HSE SUBMISSIONS

15.1 SUMMARY

- The net effect of the revised EIAR is a worsening of the health impacts outlined by the HSE in their original submission to the Planning Authority. A 17.2% increase in the number of people highly annoyed and an increase of 51.6% in people highly sleep disturbed. The residual effects of the 2025 Proposed scenario (without restrictions) compared with the 2025 Permitted scenario (with restrictions) are a net significant adverse effect for 10474 people in terms of the Lnight metric.
- ANCA did not take into account the submissions to the Planning Authority and thus excluded the HSE's submission.
- The HSE concludes that:
 - All efforts should be made by the DAA to ensure as many people as possible are protected from the adverse health effects associated with aircraft noise as outlined above in this report. This must include reducing aircraft noise levels to below 45 dB Lden, and for night noise exposure to below 40 dB Lnight".
 - "The EHS is of the opinion that The World Health Organisation's Environmental Noise Guidelines of 45 dB Lden and 40 dB Lnight should have been used for ground noise assessments".

15.2 SUBMISSION TO PLANNING AUTHORITY

The HSE Environmental Health section made a submission, 'HES.pdf' in Appendix E, dated 28/01/2021 on planning application F20A/0668 by the daa regarding the removal of night-time flight restrictions at Dublin Airport.

Since the initial application by the daa, there has been a revised application submitted by the daa which incorporated a revised EIAR. The HSE EHS did not make a formal submission on this revised application. In parallel with the Planning Authority, the Aircraft Noise Competent Authority (ANCA) initiated their process in relation to the Aircraft Noise Bill. The planning application is on hold until ANCA adjudicate on noise. This is a separate statutory process to the Planning Authority and ANCA have not considered any of the submissions made to the Planning process. In effect, the HSE submission will not form part of ANCA's process unless it is resubmitted to ANCA. ANCA have made a draft decision on noise and published a draft Noise Abatement Objective (NAO) and published a draft Regulatory decision on the daa's application. This draft decision did not take the HSE's submission into account. ANCA may not be legally obliged to consider submissions to the Planning Authority, but it certainly does not meet the spirit of public consultation. ANCA must provide justification for refusing to take submissions to the Planning Authority into account.

Note:

In the HSE's submission the figures for 2025 quoted were the figures for 2025 Baseline and not 2025 Relevant Action. 2025 Baseline is the scenario if the restrictions stay in place. 2025 Relevant Action is the scenario with the restrictions removed and what the daa were applying for.

15.3 LDEN

In the first part of the submission, reference is made to the WHO's 45 dB Lden strong recommendation.

It states that 110234 people were Highly Annoyed (HA) in 2018, rising to 115740 in 2019. And the number of people exposed to >65 dB Lden increased from 251 to 285.

Figures for 2022 Baseline and 2025 Baseline are provided showing the drop in HA figures to 65227 and 63316 and for > 65dB Lden, the figures reduced to 133 and 128.

The submission concludes:

“While the EHS welcomes the significant reduction in the people exposed to airline noise between the 2018/2019 baseline and the 2022/2025 forecast baseline scenario it still acknowledges that a significant proportion of people, namely 63316 people assessed as highly annoyed and 128 people exposed to at least a high noise level based on the 2025 baseline scenario, will still be exposed to airline noise above the WHO recommendation of 45Lden.”

The 2022 and 2025 Baseline scenarios are the situation if the planning restrictions are not amended. These are the forecasts if the original 2007 planning conditions are left intact. The HSE EHS rightly acknowledges that there are 63316 people assessed as being highly annoyed using the WHO's submission exposure curves.

However, the submission failed to list the population figures for the 2022 and 2025 Relevant Action scenarios. The 'Relevant Action' is the amending of the operating restrictions which leads to a large increase in the population highly annoyed compared to the status quo or Baseline scenarios.

Table 13-29 in the original EIAR lists the HA values for 2022 Baseline compared to 2022 Relevant Action.

Below the table it states:

“Comparing the 2022 Relevant Action scenario with the 2022 Baseline, the number of people exposed to aircraft noise is forecast to increase, for all contour levels. The number of people assessed as highly annoyed by aircraft noise **increases by 6% from 65,227 to 69,428**. The number of people exposed to at least a high level of noise (i.e. 65 dB Lden or above) **increases from 133 to 227** excluding consented developments.”

Therefore, the number of people highly annoyed in 2022 would be **69428** and the number exposed to >65 dB Lden would be **227** assuming the daa’s Relevant Action application was granted.

Table 13-29: Number of people highly annoyed – 2022 Relevant Action vs Baseline Scenarios

Scenario	No. People Highly Annoyed	
	Excluding Consented Developments	Including Consented Developments
2022 Relevant Action	69,428	78,534
2018 Baseline	110,234	120,201
2022 Baseline	65,227	74,321
2025 Consented	125,742	136,170

Comparing the 2022 Relevant Action scenario with the 2018 Baseline, the number of people exposed to aircraft noise is forecast to reduce, for all contour levels except 70 dB Lden, which increases from 25 to 32 people. Consequently the number of people assessed as highly annoyed by aircraft noise also decreases, specifically by

AECOM
13-32

Dublin Airport North Runway Relevant Action Environmental Impact Assessment Report

37% from 110,234 to 69,428. The number of people exposed to at least a high level of noise (i.e. 65 dB Lden or above) decreases from 251 to 227 excluding consented developments.

Comparing the 2022 Relevant Action scenario with the 2022 Baseline, the number of people exposed to aircraft noise is forecast to increase, for all contour levels. The number of people assessed as highly annoyed by aircraft noise increases by 6% from 65,227 to 69,428. The number of people exposed to at least a high level of noise (i.e. 65 dB Lden or above) increases from 133 to 227 excluding consented developments.

Table 13-43 compares people highly annoyed between 2025 Relevant Action and Baseline scenarios.

Below the table it states:

*“Comparing the 2025 Relevant Action scenario with the 2025 Baseline, the number of people exposed to aircraft noise is forecast to increase for all contour levels. The number of people assessed as highly annoyed by aircraft noise **increases by 7% from 63,316 to 67,760**. The number of people exposed to at least a high level of noise (i.e. 65 dB Lden or above) **increases from 128 to 218**, excluding consented developments.”*

Therefore, the number of people highly annoyed in 2025 would be **67760** and the number exposed to >65 dB Lden would be **218** assuming the daa’s Relevant Action application was granted.

Table 13-43: Number of people highly annoyed – 2025 Relevant Action vs Baseline Scenarios

Scenario	No. People Highly Annoyed	
	Excluding Consented Developments	Including Consented Developments
2025 Relevant Action	67,760	76,809
2018 Baseline	110,234	120,201
2025 Baseline	63,316	72,337
2025 Consented	125,742	136,170

AECOM
13-41

Dublin Airport North Runway Relevant Action

Environmental Impact Assessment Report

Comparing the 2025 Relevant Action scenario with the 2018 Baseline, the number of people exposed to aircraft noise is forecast to reduce at lower contour levels but increase at higher contour levels. Overall the number of people assessed as highly annoyed by aircraft noise decreases by 39% from 110,234 to 67,760. The number of people exposed to at least a high level of noise (i.e. 65 dB L_{den} or above) decreases from 251 to 218 excluding consented developments.

Comparing the 2025 Relevant Action scenario with the 2025 Baseline, the number of people exposed to aircraft noise is forecast to increase for all contour levels. The number of people assessed as highly annoyed by aircraft noise increases by 7% from 63,316 to 67,760. The number of people exposed to at least a high level of noise (i.e. 65 dB L_{den} or above) increases from 128 to 218, excluding consented developments.

15.4 L NIGHT

In the next first part of the submission, reference is made to the WHO's 40 dB Lnight strong recommendation.

It states that 42260 people were Highly Sleep Disturbed (HSD) in 2018, rising to 47044 in 2019. And the number of people exposed to >55 dB Lnight increased from 753 to 1533.

Figures for 2022 Baseline and 2025 Baseline are provided showing the drop in HSD figures to 19690 and 19464 and for > 55dB Lnight, the figures reduced to 284 and 281.

The submission concludes:

“While the EHS welcomes the significant reduction in the people exposed to airline noise between the 2018/2019 baseline and the 2022/2025 forecast baseline scenario it still acknowledges that a significant proportion of people, namely 19464 people assessed as highly sleep disturbed and 281 people exposed to at least a high noise level based on the 2025 baseline scenario, will still be exposed to airline noise above the WHO recommendation of 40Lnight.”

The 2022 and 2025 Baseline scenarios are the situation if the planning restrictions are not amended. These are the forecasts if the original 2007 planning conditions are left intact. The HSE EHS rightly acknowledges that there are **19464** people assessed as being highly sleep disturbed using the WHO's submission exposure curves.

However, the submission failed to list the population figures for the 2022 and 2025 Relevant Action scenarios. The 'Relevant Action' is the amending of the operating restrictions which leads to a large increase in the population highly annoyed compared to the status quo or Baseline scenarios.

Table 13-36 in the original EIAR lists the HA values for 2022 Baseline compared to 2022 Relevant Action.

Below the table it states:

“Comparing the 2022 Relevant Action scenario with the 2022 Baseline, 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 also **increases, specifically by 24% from 19,690 to 24,355.** The number of people exposed to at least a high level of noise (i.e. 55 dB Lnight or above) **increases from 284 to 1,152** excluding consented developments.”

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Therefore, the number of people highly sleep disturbed in 2022 would be **24355** and the number exposed to >55 dB L_{night} would be **1152** assuming the daa's Relevant Action application was granted.

Table 13-36: Number of people highly sleep disturbed – 2022 Relevant Action vs Baseline Scenarios

Scenario	No. People Highly Sleep Disturbed	
	Excluding Consented Developments	Including Consented Developments
2022 Relevant Action	24,355	29,812
2018 Baseline	42,260	48,062
2022 Baseline	19,690	24,479
2025 Consented	33,207	38,415

Comparing the 2022 Relevant Action scenario with the 2018 Baseline, the number of people exposed to aircraft noise is forecast to reduce at most contour levels but increase at the contour levels of 55 and 60 dB L_{night}. Overall the number of people assessed as highly sleep disturbed by aircraft noise decreases by 42% from 42,260 to 24,355. However, the number of people exposed to at least a high level of noise (i.e. 55 dB L_{night} or above) increases from 753 to 1,152 excluding consented developments.

Comparing the 2022 Relevant Action scenario with the 2022 Baseline, 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 also increases, specifically by 24% from 19,690 to 24,355. The number of people exposed to at least a high level of noise (i.e. 55 dB L_{night} or above) increases from 284 to 1,152 excluding consented developments.

Table 13-50 in the original EIAR lists the HA values for 2025 Relevant Action and Baseline scenarios.

Below the table it states:

*“Comparing the 2025 Relevant Action scenario with the 2025 Baseline, 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 26% from 19,464 to 24,456**. The number of people exposed to at least a high level of noise (i.e. 55 dB L_{night} or above) **increases from 281 to 1,157** excluding consented developments.”*

Therefore, the number of people highly sleep disturbed in 2025 would be **24456** and the number exposed to >55 dB L_{night} would be **1157** assuming the daa's Relevant Action application was granted.

SUBMISSION ON BEHALF OF SMTW ENVIRONMENTAL DAC

Below is a summary of the noise metrics from the various scenarios from the original planning application in December 2020.

The 2025 Relevant Action clearly increases the number of people affected by noise compared to 2025 Baseline.

Scenario	Highly Annoyed	Highly Sleep Disturbed	>65 dB Lden	>55 dB Lnight
2018 Baseline	110234	42260	251	753
2022 Baseline	65227	19690	133	284
2022 Relevant Action	69428	24355	227	1152
2025 Baseline	63316	19464	128	281
2025 Relevant Action	67760	24456	218	1157

15.5 REVISED EIAR

With the revised application by the daa, the noise statistics changed as the daa changed to use dual runways simultaneously between 06:00-08:00 and provided revised passenger growth forecasts.

What has changed since the EIAR was submitted in December 2020?

This EIAR chapter has been updated in response to a Request for Further Information (RFI) from Fingal County Council dated 19/02/2021. As well as several minor corrections, including minor removals from and additions to the earlier text, the chapter has been revised to:

- Address additional assessment years requested by the Council
- Respond to the latest passenger growth forecasts at Dublin Airport

In a change to the modelled runway usage, the revised EIAR assumes that in 2025 and 2035 both parallel runways are used for departures in the 06:00 to 08:00 i.e. semi-mixed mode. For 2022, it is assumed that segregated mode is in use 06:00 to 08:00 (no change from December EIAR).

The EIAR has been updated to account for this change and all modelling and assessment are revised accordingly. The above does not change the description of the Relevant Action.

Using tables 13-23, 13-29, 13-40, 13-45 and 13-50 of the revised EIAR:

Scenario	Highly Annoyed	Highly Sleep Disturbed	>65 dB Lden	>55 dB Lnight
2018 Baseline	110238	42260	251	753
2022 Permitted	50603	18789	94	222
2022 Proposed	52713	19188	142	356
2025 Permitted	64241	22500	119	280
2025 Proposed	79405	37080	196	1059

15.6 ORIGINAL EIAR VS REVISED EIAR

Comparing the original planning application in December 2020 to the revised application and focusing on the 2025 Relevant Action and 2025 Proposed scenarios, which are the scenarios assuming the application is granted to remove the night-time operating restrictions, it is very evident that the revised application (with the revised growth forecast and dual runways for departure between 06:00-08:00) leads to a substantial increase in people highly annoyed (+17.2%) and highly sleep disturbed (+51.6%) compared to the original application.

Scenario	Highly Annoyed	Highly Sleep Disturbed	>65 dB Lden	>55 dB Lnight
2025 Relevant Action	67760	24456	218	1157
2025 Proposed	79405	37080	196	1059

15.7 RESIDUAL EFFECTS

Section 13.9.8 of the revised EIAR gives a summary of the Residual Effects of noise which takes account of the effect of the residential insulation schemes.

In section 13.9.10 it states:

*“Considering the Assessment Year of 2025, the residual effects of the Proposed Scenario when compared to the Permitted Scenario are a net significant adverse effect for 46 people in terms of the Lden metric and a **net significant adverse effect for 10,474** people in terms of the Lnight metric.”*

Therefore, by granting permission to remove the night-time restrictions, and taking the insulation schemes into account, a net 10474 people will be significantly adversely affected in 2025 compared with the existing restrictions being left in place.

Residual Effects

13.9.8 The residual effects, after the benefit of the residential sound insulation schemes has been allowed for, are summarised in Table 13-64. The table includes all people in existing residential receptors who are exposed to at least 45 dB Lden or 40 dB Lnight in at least one of the scenarios.

Table 13-64: Summary of Residual Air Noise Effects, Proposed vs Permitted

Year	Lden Residual Effects			Lnight Residual Effects		
	Significant Beneficial	Significant Adverse	Not Significant	Significant Beneficial	Significant Adverse	Not Significant
2022	79	10	368,727	151	8,985	166,605

daa
t Classification: Class 1 - General

AECOM
13-52

Dublin Airport North Runway Relevant Action

Environmental Impact Assessment Report
Chapter 13: Aircraft Noise and Vibration

2025	8	54	511,742	86	10,560	257,813
2035	0	20	255,657	12	4,284	131,432

13.9.9 Considering the Assessment Year of 2022, the residual effects of the Proposed Scenario when compared to the Permitted Scenario are a net significant beneficial effect for 69 people in terms of the Lden metric and a net significant adverse effect for 8,834 people in terms of the Lnight metric.

13.9.10 Considering the Assessment Year of 2025, the residual effects of the Proposed Scenario when compared to the Permitted Scenario are a net significant adverse effect for 46 people in terms of the Lden metric and a net significant adverse effect for 10,474 people in terms of the Lnight metric.

15.8 HSE EHS SUBMISSION TO ANCA

In a submission to ANCA's consultation, the HSE EHS section state that in relation to Condition 1 of the Draft Regulatory Decision, the '*rationale given is not a rationale for revoking condition 5 of the current planning permission, but is a rationale for the Noise Quota Scheme proposed*'. It further states that in relation to condition 2, the '*rationale given is not for amending the existing conditions is not given. The reasons given are for the new controls, which are less stringent than existing*'.

The HSE submission states that the existing Planning Conditions are in place to protect public health and that:

'The operating restrictions already exist and the Draft Regulatory Decision is to revoke and amend them, there should therefore be a clear rationale for this and clear evidence that the mitigation measures proposed will ensure there is not a diminishing of health protection that is compliant with the existing operating restrictions'.

It is very evident that revoking and amending the existing conditions will result in a diminishing of health protection. From table 7.21 of the Regulatory Decision Report the number of people HSD increases from 22500 to 37080 by revoking and amending the existing planning conditions. The populations exposed to night-time noise >55dB L_{night} will increase from 280 to 1059.

Table 7.21: Population HSD, HA and exposed above the NAO priorities in 2019 and in 2025 for the modelled runway use and restriction scenarios

Scenario	Population HSD	Population > 55 dB L _{night}	Population HA	Population > 65 dB L _{den}
2019 Situation	47,045	1,533	115,738	285
2025 P01 30.4 mmpa	22,500	280	64,241	119
2025 P02 32.0 mppa	37,080	1,059	79,405	196

The HSE state that if the planning authority and ANCA are going to increase the hours of operation of the runways, then they must ensure all who are significantly impacted have the opportunity of mitigation. This is not the case with the current application as only those 'highly significantly' and 'profoundly' affected are offered mitigation in the form of insulation.

The HSE references the WHO 2018 Guidelines and note that 45dB L_{den} and 40dB L_{night} are strong recommendations based on a complete review of the health research around aircraft noise. They further reiterate their view that it is '*important that the noise mitigation measures*

are made available to all parties that are significantly impacted by the proposal to ensure protection of health’.

The current proposal has failed to cater for all populations significantly affected by noise. It will result in a diminishing of health protection.

Astonishingly the HSE submissions are not mentioned in the Consultation Report. It is also worth noting that ANCA never formally requested the HSE to make a submission to their consultation process. It is a serious dereliction of their duties to not invite the State agency whose role is to protect Public Health.

15.9 CONCLUSION

In its conclusion the HSE states that:

- *“All efforts should be made by the DAA to ensure as many people as possible are protected from the adverse health effects associated with aircraft noise as outlined above in this report. This must include reducing aircraft noise levels to below 45 dB Lden, and for night noise exposure to below 40 dB Lnight”.*
- *“The EHS is of the opinion that The World Health Organisation’s Environmental Noise Guidelines of 45 dB Lden and 40 dB Lnight should have been used for ground noise assessments”.*
- *“The Conditions 3(d) and 5 were put in place to protect public health so if the planning authority are going to increase the hours of operation they must ensure all who are significantly impacted have the opportunity of mitigation”.*
- HSE not invited by ANCA to make a submission to their Consultation process
- No reference to the HSE submissions in the Consultation Report

16.0 HEALTH AND HEALTH COSTS

16.1 SUMMARY

- Imperative that independent noise monitoring is conducted on the dwellings most affected by aviation noise from Dublin Airport, including properties already insulated by the daa.
- Imperative that a health study be carried out on the population surrounding Dublin Airport to understand the health of the population relative to the norm.
- ANCA and the daa have totally ignored the objective of Target 2 of the EU Action Plan *“Towards a zero pollution for air, water and soil”* adopted in May 2021 as the targets for 2030 are set at far higher noise levels in 2019 and 2018 which exceed the baseline year of 2017 required under the EU Action Plan. The selection of 2019 as the baseline is contrary to ANCA’s own SEA document used to screen the project.
- Neither ANCA nor the daa have evaluated the serious health effects and costs associated with such health effects of their proposed modification to the current restrictions in place at Dublin Airport. This has serious health implications for the inhabitants within the St Margarets The Ward area.
- ANCA and the daa are proposing noise insulation as a mitigation measure to night-time noise increases within the St Margarets The Ward communities. This is contrary to Fingal County Council advice within their own Development Plan and testing carried out within the St Margarets The Ward area on housing that has already been insulated by the daa recently indicates the guidance referred to by Fingal County Council and the WHO cannot be achieved and will cause serious health issues of those affected by the proposed increase in night-time noise.
- No mitigation measures are proposed by the daa or ANCA to solve the health implications being imposed by the removal of the existing restrictions.

16.2 LATEST RESEARCH

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/circovasres/advance-article/doi/10.1093/cvr/cvab316/6381568>). This review forms part of the medical health report from Professor Münzel which is part of this submission. 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

SUBMISSION ON BEHALF OF SMTW ENVIRONMENTAL DAC

	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). 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	MI mortality was increased in response to road traffic (HR 1.034, 95% CI 1.014-1.055), railway (HR 1.020, 95% CI	15

		noise	1.007-1.033), and aircraft noise (HR 1.025, 95% CI 1.005-1.046) per 10 dB increase in L_{den} .	
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

SUBMISSION ON BEHALF OF SMTW ENVIRONMENTAL DAC

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% CI 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

It is important to point out that a majority of the above research did not form part of the WHO 2018 Guidelines as it wasn't available in time for the review. Neither ANCA nor the daa have considered this latest research. ANCA as the noise regulator has a duty to keep abreast of latest scientific research in order to perform its duties. HA and HSD figures are real people. ANCA needs to understand that these are real people and families and not just numbers. It will be responsible for inflicting night noise on residents and damaging their health. Who do residents sue for their ill health? ANCA and Fingal County Council will be responsible for removing the restrictions. They cannot hide behind the Aircraft Noise Bill as they have crafted the Noise Abatement Objective to allow tens of thousands of people to be Highly Sleep Disturbed. The onus rests with ANCA and Fingal County Council.

16.3 HEALTH

In the EIAR, chapter 7 is devoted to Population and Human Health.

The European Environmental Agency (EEA) published a report in 2020 titled 'Environmental Noise in Europe – 2020'. The report states that:

“Chronic exposure to environmental noise has significant impacts on physical and mental health and well-being. Exposure to environmental noise is a widespread problem in Europe, with at least one in five people exposed to levels considered harmful to health. Given the negative impacts on human health and the large number of people affected, environmental noise is therefore a significant concern for citizens and policy makers. Reducing environmental noise is a key objective under the Seventh Environment Action Programme (7th EAP) and the Environmental Noise Directive (END).”

Key findings of the report:

Environmental noise from road, rail, aircraft and industry sources affects millions of people, causing significant public health impacts

- Long-term exposure to environmental noise is estimated to cause
 - 12000 premature deaths and
 - contribute to 48000 new cases of ischaemic heart disease per year in the European territory.
 - It is estimated that 22 million people suffer chronic high annoyance and
 - 6.5 million people suffer chronic high sleep disturbance.
 - As a result of aircraft noise, 12500 schoolchildren are estimated to suffer learning impairment in school.
- These significant health impacts are most likely to be underestimated, with new WHO evidence demonstrating effects at levels below the obligatory END reporting thresholds. In addition, the END does not comprehensively cover all urban areas, roads, railways and airports across Europe.

(i.e. Noise below current END reporting values also cause health effects)
- Exposure to environmental noise does not affect everyone equally. Socially deprived groups, as well as groups with increased susceptibility to noise, may suffer more pronounced health-related impacts of noise.

The report further states that the policy objectives on environmental noise have not been achieved. The number of people exposed to high levels of noise has not decreased. The key

objective of the 7th EAP of significantly reducing noise pollution in the EU and moving closer to the WHO recommended levels by 2020 has not been achieved. Fingal County Council and ANCA need to explain how they moved closer to the WHO recommended levels by 2020. Note this is recommended levels and not interim levels. The 7th EAP also categories 'High' noise levels as those levels **> 55 dB Lden and > 50 dB Lnight**. Fingal County Council and ANCA need to support these definitions of high noise.

The report states that 4 million people are exposed to high levels of aircraft noise. It also states how noise pollution is a threat not only to humans but also to wildlife.

“Anthropogenic noise affects a wide variety of terrestrial and marine wildlife species causing a range of physiological and behavioural responses. These can reduce reproductive success and increase mortality and emigration, resulting in lower population densities.”

The noise contours for Dublin Airport extend over the Special Areas of Conservation (SACs) and Special Protection Areas (SPAs). No analysis has been carried out on the effects of aircraft noise on these areas.

The new divergent flight routes and potential night-time use of the North Runway has not been studied for their effects on existing wildlife and in particular bird species. These flight routes have changed since the original EIS in 2004-2007. It has become very apparent in Fingal that many bird species are now thriving under the quieter skies and the effects of changing flight routes and operation times need to be examined.

Environmental noise is the second biggest environmental killer after air pollution.

The WHO have strongly recommended that noise from aircraft should be reduced below 45dB Lden and 40dB Lnight as aircraft noise above these levels are associated with adverse health effects such as cardiovascular disease, hypertension and cognitive impairment in children. The WHO report states that “1 million healthy years of life are lost every year in the EU”. A 2011 WHO report places “the burden of disease from environmental noise as the 2nd highest after air pollution”. Interestingly the WHO 2018 report states that overall, the GDG “estimated that the benefits gained from minimizing adverse health effects due to aircraft noise exposure outweigh the possible (economic) harms”.

Questions need to be asked of Fingal County Council as to why no health study has ever been conducted on the residents of Fingal living in the vicinity of Dublin Airport. The Council is fixated on the economic benefits of the airport to the detriment of the population of Fingal.

In addition to the WHO report I would like to point to a recent paper at Euronoise 2018 titled 'Transportation noise and incidence of hypertension' (http://www.euronoise2018.eu/docs/papers/92_Euronoise2018.pdf). The results "*indicated a clear association for aircraft noise*" and "*a particularly high risk estimate for those exposed to both aircraft and road traffic noise, indicating that exposure to multiple sources of traffic noise may be especially harmful*".

The new noise zones recently incorporated into the Fingal Development Plan are a clear recognition by Fingal County Council that serious adverse health effects occur at exposure levels well below those that are mitigated for in this application. All future properties that lie inside Zones A, B and C require to be thoroughly insulated as outlined by the WHO 2018 Guidelines.

Note that this variation to the Development Plan states that in Zone A "*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*". Under this variation it is acknowledged by Fingal County Council that noise insulation is not a solution within Zone A which covers most of St Margarets The Ward.

The Variation refers to "ProPG Planning and Noise Professional Practice Guidance on planning and noise for new residential developments", dated May 2017 as the guidance for "Good Acoustic Design".

With reference to the ProPG document at Fig 2 it notes that in bedrooms between the hours of 23:00-07:00 that 45dB LA_{max} should not be exceeded. Footnote 4 states "***in most circumstances in noise sensitive rooms at night (eg bedrooms) good acoustic design can be used so that individual noise events do not normally exceed 45 dB LA_{max} more than 10 times per night***".

The St Margarets The Ward Residents have carried out a noise survey of a number of houses recently insulated by the daa under their noise insulation programme. Please refer to noise report from the MLM Group.

As a minimum requirement for an Independent Regulator, independent monitoring should be carried out in the areas closest to the airport. The regulator should not accept only the results from the noise monitoring stations. It should have its own independent analysis carried out to understand how the populations closest to the airport are being affected. This should also be carried out on dwellings that have been insulated to understand the residual effects of noise post insulation.

The Independent Regulator should also conduct a health survey of the population surrounding the airport. A regulator cannot understand the effects of noise without conducting a health screening. The regulator has not engaged medical expertise on the health effects of noise and is thus not adhering to regulation EU598/2014:

- (11) The importance of health aspects needs to be recognised in relation to noise problems, and it is therefore important that those aspects be taken into consideration in a consistent manner at all airports when a decision is taken on noise abatement objectives, taking into account the existence of common Union rules in this area. Therefore, health aspects should be assessed in accordance with Union legislation on the evaluation of noise effects.

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;

16.4 HEALTH BURDEN

In 2016 the EU carried out a review and evaluation of the Environmental Noise Directive titled “Evaluation of Directive 2002/49/EC Relating to the Assessment and Management of Environmental Noise” (<https://op.europa.eu/en/publication-detail/-/publication/7febde6d-9a89-11e6-9bca-01aa75ed71a1>).

“A cost-benefit analysis (CBA) was conducted to quantify (in monetary terms) the cost-effectiveness of the END. The benefits are mainly gained by the population affected by excessive noise. It was not possible to quantify some of the strategic benefits of the END, such as its role in stimulating awareness of noise as an issue, facilitating the generation of large and consistent spatial datasets on noise exposure and supporting actions in other areas (e.g. development of technical standards). The CBA is therefore based primarily on an assessment of the contribution made by measures identified in R1 NAPs to reducing exposure to harmful levels of noise.

*The analysis revealed that the END has made a positive contribution to reducing population exposure to high levels of environmental noise. Whilst the magnitude of costs and benefits of noise mitigation measures was found to vary between countries and sources, a positive cost-benefit relationship was identified under a range of scenarios, where the scenarios reflect both differences in the underlying assumptions regarding the extent to which costs and benefits can be attributed to the END and the range of uncertainty in relation to the value of impacts on human health. **The base case scenario results in a favourable cost-benefit ratio (of 1:29) overall**, although the ratios vary substantially between measures. The benefits are likely to be understated, since the analysis only considered the effects of noise reduction on the ‘**highly annoyed**’ and ‘**highly sleep disturbed**’ populations. It should be noted that whilst the CBA is an important element of assessing efficiency, measure-level data only provides a proxy, since NAP measure implementation is not compulsory and does not take into account the strategic, qualitative benefits of the END (see impacts under “effectiveness”).”*

The review references the ‘EEA’s 2014 Noise in Europe Report’ report that outlines that the population exposure due to environmental noise is a major health problem in Europe which “causes at least 10000 cases of premature death in Europe each year, with almost 20 million adults annoyed and a further 8 million suffering from sleep disturbance due to environmental noise”. It also notes that noise pollution causes 43000 hospital admissions in Europe per year.

The 7th Environment Action Programme (7th EAP) provides an overarching policy framework for European environment policy until 2020 and sets out a long-term vision for 2050.

Priority Objective 3 addresses challenges to ‘human health and wellbeing’, such as air and water pollution and excessive noise.

Priority Objective 8 – ‘Sustainable Cities’ notes that “Europe is densely populated and 80 % of its citizens are likely to live in or near a city by 2020. Cities often share a common set of problems such as [inter alia] poor air quality and high levels of noise”.

In order to safeguard the Union’s citizens from environment-related pressures and risks to health and well-being, the **7th EAP aims to ensure that by 2020 noise pollution in the Union has significantly decreased, moving closer to the WHO recommended levels**. It notes that this implies “implementing an updated Union noise policy aligned with the latest scientific knowledge, and measures to reduce noise at source, including improvements in city design”.

It is very clear from the Noise Action Plans and the increase in noise levels at Dublin Airport, that Ireland has failed in relation to the 7th EAP.

On the 12th of May 2021, the EU Commission adopted the EU Action Plan “Towards a zero pollution for air, water and soil”.

Target 2 of this Action Plan is “by 2030 the EU should reduce by 30% the share of people chronically disturbed by transport noise”. This 30% reduction is from the reference year 2017 and is based on the EU study (2021) “Assessment of Potential Health Benefits of Noise Abatement Measures in the EU”.

At section 2.25 of the ANCA SEA draft environmental report by Noise Consultants it clearly states that “in the case of the European Commission’s Zero Pollution Action Plan (2021), this overarching EU policy sets clear targets with respect to reducing the number of people chronically disturbed by transport noise. As part of this action plan target 2 states that “by 2030 the EU should reduce by 30% the share of people chronically disturbed by transport noise [from a 2017 baseline]””.

2.25 *In the case of the European Commission's Zero Pollution Action Plan (2021), this overarching EU policy sets clear targets with respect to reducing the number of people chronically disturbed by transport noise. As part of this Action Plan, Target 2 states that:*

"By 2030 the EU should reduce by 30% the share of people chronically disturbed by transport noise [from a 2017 baseline]."

Yet ANCA have set the baseline at 2019 figures which was the busiest and noisiest year in the history of Dublin Airport, despite the fact that their own SEA documentation above clearly states 2017 as the baseline year.

This must be reported to the Irish Government as a total breach of Ireland to meet the adopted action plan by Europe. The daa are also in breach of the EU requirements as they adopted 2018 as the baseline year despite the escalation of noise over successive noise action plans as indicated below. This is a blatant attempt to disregard the protection of health of the St Margarets The Ward community over commercial considerations despite the EU's regulations and requirements to reduce harmful noise by 30% from 2017-2030.

In section 1.3.2, the EU review references the WHO 2011 publication on the 'Burden of Disease from environmental noise through the quantification of healthy life years lost in Europe' (http://www.euro.who.int/_data/assets/pdf_file/0008/136466/e94888.pdf). According to the WHO, a Disability-Adjusted Life Years (DALY) represents one lost year of "healthy" life. "The sum of these DALYs across the population, or the burden of disease, can be thought of as a measurement of the gap between current health status and an ideal health situation where the entire population lives to an advanced age, free of disease and disability"

The review in its cost benefit analysis using the value of a VOLY (value of life year lost) for a DALY. It used a value of **110,987** euro, derived from the cost benefit analysis of the Air Quality Package for Europe (<https://ec.europa.eu/environment/air/pdf/TSAP%20CBA.pdf>), adjusted to 2014 prices using the Eurostat GDP deflator.

The EEA produced a report in 2020 (<https://www.eea.europa.eu/publications/environmental-noise-in-europe>) on the Health Impact Assessment of noise.

In Section 3.4 of this EEA report, it discusses the Burden of Disease of noise in terms of DALYs/year and DALYs/year/million (Table 3.6). It only looks at noise >55dB Lden and >50dB Lnight. It states that this is an underestimate as the END didn't specify lower levels. Roughly 1 million healthy years of life are lost every year.

*"The associated decline in the population's health because of noise has an economic impact in Europe. There are different approaches for quantifying the economic costs of noise on health, one of which relies on assigning a monetary cost per DALY (Defra, 2014.) Although the assessment of the costs in terms of DALYs may differ from country to country, if we assume that the **monetary cost per DALY is EUR 78 500** (VITO, 2003), the resulting economic impact of noise is estimated to be **EUR 35 billion for annoyance, EUR 34 billion for sleep disturbance, EUR 12 billion for IHD and EUR 5 million for cognitive impairment in children**. Monetary costs can also exist as a result of reduced house prices, loss of labour days and reduced possibilities for land use (EC, 2000)."*

In the Defra 2014 report titled 'Environmental Noise: Valuing impacts on: sleep disturbance, annoyance, hypertension, productivity and quiet' (https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/380852/environmental-noise-valuing-impacts-PB14227.pdf), it recommends the use of disability-adjusted life years (DALYs) to reflect the value of impact'.

$DALY = \text{Years of life lost (YLL)} + \text{Years lived with Disability (YLD)}$

This analysis focuses solely on years lived with disability (YLD). In the DEFRA 2014 report it assumes that sleep disturbance does not result in premature death and therefore YLL is zero. However, recent scientific evidence suggests that sleep disturbance can cause premature death. For simplicity in this analysis, YLL is assumed zero although this should be investigated further by ANCA.

For Sleep Disturbance, the value is defined by the following formula:

Valuing sleep disturbance

32. The value of sleep disturbance can be calculated. A full description of the method is provided in Annex II. The overall approach to valuing sleep disturbance is provided in the following equation:

$$\text{Value of sleep disturbance} = \text{population exposed} \times \text{proportion sleep disturbed} \times \text{disability weight} \times \text{health value}$$

This equates to: Total HSD x 0.07 x Value of DALY

The Highly Sleep Disturbed (HSD) population can be calculated using the formulae in Annex III of 2002/49/EC (END) which were inserted by EU Directive 2020/367 (<https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32020L0367>).

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

for aircraft noise.

- 3.3. For HA and HSD in the case of road, railway and aircraft noise, the total number **N** of people affected by the harmful effect **y** (number of attributable cases) due to the source **x**, for each combination of noise source **x** (road, railway or aircraft source) and harmful effect **y** (HA, HSD), is then:

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

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 disability weight for Sleep Disturbance has been assigned by the WHO in their 2018 Guidelines as **0.07**. This means that being highly sleep disturbed due to environmental noise reduces a completely healthy individual's health by around 7%.

The DEFRA 2014 report uses the Department of Health DALY value of Stg 60,000. This estimate would need to be revised upwards in line with inflation.

For Sleep Annoyance, the value is defined by the following formula:

$$\text{Value of annoyance} = \text{population exposed} \times \text{proportion highly annoyed} \times \text{disability weight} \times \text{health value}$$

From Annex III of 2002/49/EC (END):

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

for aircraft noise.

3.3. For HA and HSD in the case of road, railway and aircraft noise, the total number *N* of people affected by the harmful effect *y* (number of attributable cases) due to the source *x*, for each combination of noise source *x* (road, railway or aircraft source) and harmful effect *y* (HA, HSD), is then:

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

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 disability weight for Sleep Annoyance has been assigned by the WHO in their 2018 Guidelines as **0.02**. This means that being highly annoyed due to environmental noise reduces a completely healthy individual's health by around 2%.

The DEFRA 2014 report uses the Department of Health DALY value of Stg 60,000.

The DEFRA report also looks at Hypertension, Productivity losses and Quiet Areas which are not covered in this analysis of the daa's relevant action and ANCA's draft decision. The report estimates that the productivity loss from road traffic noise in England ranges from 2-6 Billion sterling per year.

	%HSD	%HSD plus assuming only 73% in employment
Low	£3,000,000,000	£2,000,000,000
High	£6,000,000,000	£4,000,000,000

ANCA as the independent regulator should also assess productivity losses in Ireland due to aircraft noise.

16.5 DALY CALCULATION

The total number of Highly Sleep Disturbed (HSD) and Highly Annoyed (HA) people for various scenarios are presented by the daa in their reporting template and summarized here:

Scenario	Total HSD	Scenario	Total HA
2025 Proposed	37080	2025 Proposed	79405
2025 Permitted	22500	2025 Permitted	64241
2018	42260	2018	115738
2019	47045	2019	110238

In the EU's 2016 review and evaluation of the Environmental Noise Directive titled "Evaluation of Directive 2002/49/EC Relating to the Assessment and Management of Environmental Noise" (<https://op.europa.eu/en/publication-detail/-/publication/7febde6d-9a89-11e6-9bca-01aa75ed71a1>), it uses a value of **110987** for a DALY.

Calculations were performed using the 3 different DALY values: €78500 (Vito 2003), €70850 (60k stg, DEFRA 2014)) and €110987 (EU review 2016).

Scenario	Total HSD	DW	Total HSD DALYs	Cost of DALY	Total HSD Cost per year
2025 Proposed	37080	0.07	2596	78500	€203,754,600
2025 Permitted	22500	0.07	1575	78500	€123,637,500
2018	42260	0.07	2958	78500	€232,218,700
2019	47045	0.07	3293	78500	€258,512,275

SUBMISSION ON BEHALF OF SMTW ENVIRONMENTAL DAC

Scenario	Total HA	DW	Total HA DALYs	Cost of DALY	Total HA Cost per year
2025 Proposed	79405	0.02	1588	78500	€124,665,850
2025 Permitted	64241	0.02	1285	78500	€100,858,370
2018	115738	0.02	2315	78500	€181,708,660
2019	110238	0.02	2205	78500	€173,073,660

Scenario	Total HSD	DW	Total HSD DALYs	Cost of DALY	Total HSD Cost per year
2025 Proposed	37080	0.07	2596	70850	€183,898,260
2025 Permitted	22500	0.07	1575	70850	€111,588,750
2018	42260	0.07	2958	70850	€209,588,470
2019	47045	0.07	3293	70850	€233,319,678

Scenario	Total HA	DW	Total HA DALYs	Cost of DALY	Total HSD Cost per year
2025 Proposed	79405	0.02	1588	70850	€112,516,885
2025 Permitted	64241	0.02	1285	70850	€91,029,497
2018	115738	0.02	2315	70850	€164,000,746
2019	110238	0.02	2205	70850	€156,207,246

SUBMISSION ON BEHALF OF SMTW ENVIRONMENTAL DAC

Scenario	Total HSD	DW	Total HSD DALYs	Cost of DALY	Total HSD Cost per year
2025Proposed	37080	0.07	2596	110987	€288,077,857
2025Permitted	22500	0.07	1575	110987	€174,804,525
2018	42260	0.07	2958	110987	€328,321,743
2019	47045	0.07	3293	110987	€365,496,839

Scenario	Total HA	DW	Total HA DALYs	Cost of DALY	Total HSD Cost per year
2025Proposed	79405	0.02	1588	110987	€176,258,455
2025Permitted	64241	0.02	1285	110987	€142,598,317
2018	115738	0.02	2315	110987	€256,908,268
2019	110238	0.02	2205	110987	€244,699,698

16.6 SUMMARY OF DIFFERENT DALY VALUES

Scenario	Total Yearly Cost for HA and HSD (Vito 2003)	Total Yearly Cost for HA and HSD (DEFRA 2014)	Total Yearly Cost for HA and HSD (EU 2016)
2025 Proposed	€328,420,450	€296,415,145	€464,336,312
2025 Permitted	€224,495,870	€202,618,247	€317,402,842
2018	€413,927,360	€373,589,216	€585,230,012
2019	€431,585,935	€389,526,924	€610,196,537

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.

It also lists ‘environmental sustainability, including interdependence between noise and emissions’. The daa have provided no costings on environmental sustainability or interdependencies between noise and emissions. ANCA, as regulator, should insist on these costings to quantify the environmental burden of its draft decision.

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 costs of health.

The daa have failed to quantify in monetary terms the costs on health of the population exposed to noise as a result of aircraft activity at Dublin Airport. This is a serious omission from the cost effective analysis.

The "Airport Noise Information Reporting Template Guidance" document from ANCA states the following at section 3.2:

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.

We note that the daa did not submit any of these costs which is a glaring omission as the costs of same are in the order of 610 million euro per year which is alarming.

It is also worth noting that ANCA requested L_{Amax} and SEL data:

daa are invited to provide further, objective measures, using the following or derivations of, for example:

- L_{day};
- L_{evening};
- L_{Amax}; and
- SEL

These were not provided by the daa. Why? Why are ANCA not insisting on the daa to provide the information. We in St Margarets The Ward were awaiting such vital information.

16.7 DAA'S HEALTH EXPERTISE

Following an AIE request to the daa for all documentation and materials compiled by the daa on the health effects of aircraft noise on residents living in the vicinity of an airport, including any medical opinions and reports, any opinions on WHO guidelines and any correspondence or reports provided to senior management, only 4 documents were provided. This decision was appealed to the OCEI Commissioner and below is the feedback from the Commissioner's office.

The daa submits that it hasn't sought medical opinions or reports or even compiled material on the health effects of aircraft noise. How is it possible to do a health impact assessment without this information?

19. DAA does not accept that it is hiding information. DAA submits that it has not commissioned medical opinions and reports on the impact of noise on nearby residents; nor has it compiled any materials on the health effects of aircraft noise, save for the five documents identified as falling within scope. DAA submits that, in common with most other airports in other jurisdictions, DAA does not have in-house competency to undertake research and make generalised assessments or judgments on a specialised environmental and health issue such as the health effects of aircraft noise on nearby residents. Rather, the type of information gathered and used by DAA is, by its nature, publicly available, as DAA relies on public health guidance and research to guide its understanding. DAA submits that its approach is determined primarily by international and national regulations which are predicated on reports by specialists and experts at a European and global level. As a result, DAA relies primarily on published material and associated regulations, which now fall under the [Aircraft Noise \(Dublin Airport\) Regulation Act 2019](#), implementing [Regulation \(EU\) No 598/2014](#). DAA submits that, while over time it has collected aircraft noise information, that information has been published either as part of its noise contour maps or as part of the noise complaints information provided to local communities on a regular basis. In any event, such information does not include information on the health effects of aircraft noise on nearby residents, so it does not fall within the scope of your request.

The same question can be asked of ANCA. What Health expertise has ANCA sought on the impacts of aircraft noise? As the Independent Noise Regulator has it sought the advice of the HSE or other Health Authorities in Ireland? Has it commissioned its own medical assessments? How can ANCA adjudicate on Noise when it doesn't have the expertise to understand the health impacts?

However as indicated in the previous sections of this report, the tools to calculate the cost associated with health damage to those affected by airport noise are readily available. Under current legislation it is the responsibility of the Competent Authorities to inform affected citizens of the consequences of the imposition of environmental noise on them and to evaluate the cost associated with the consequences of such noise production.

16.8 UN REPORT

The UN published a report titled 'Frontiers 2022: Noise, Blazes and Mismatches' (<https://www.unep.org/resources/frontiers-2022-noise-blazes-and-mismatches>). It states:

"Today, noise pollution is a major environmental problem, cited as a top environmental risk to health across all age and social groups and an addition to the public health burden. Prolonged exposure to high levels of noise impairs human health and well-being, which is a growing concern for both the public and policymakers."

It quotes research from Professor Münzel:

"Noise-induced awakenings can trigger a range of physiological and psychological stress responses because sleep is necessary for hormonal regulation and cardiovascular functioning. There is increasing evidence that traffic noise exposure is a risk factor for the development of cardiovascular and metabolic disorders such as elevated blood pressure, arterial hypertension, coronary heart disease and diabetes. A conservative estimate indicates that long-term exposure to environmental noise contributes to 48,000 new cases of ischemic heart disease and causes 12,000 premature deaths annually in Europe."

The report cites the WHO 2018 Guidelines:

"Scientific evidence used in the WHO review, from studies representing numerous regions on different continents, provides the basis for the recommended exposure thresholds. This comprehensive coverage supports adoption of these thresholds to inform noise control policies around the world."

Aircraft	45 dB	40 dB
		

17.0 LA_{MAX} SINGLE NOISE EVENTS

17.1 SUMMARY

- No mention of ProPG Guidelines or use of LA_{max} in application
- LA_{max} highlighted by WHO Community Noise Guidelines 1999 and WHO Europe Night Noise Guidelines 2009
- LA_{max} highlighted by BAP pre-planning consultation document of March 2020
- The daa's noise reports for 2020 show how overflying height values recorded at noise monitor 1 (NMT1) are higher than previous years due to low passenger numbers
- Because of higher overflying heights for 2020, LA_{max} values are artificially lower than would be expected for normal airport activity
- 58% of movements detected at NMT1 had a LA_{max} > 75 dB, 18% > 78 dB and 2.5% > 81 dB based on data supplied in noise reports for the Jan-June 2020 period
- 68% of movements detected at NMT1 had a LA_{max} > 75 dB, 26% > 78 dB and 5% > 81 dB based on data supplied in noise reports for the June-Dec 2019 period
- From BAP presentation to CLG in April 2017, average LA_{max} at NMT1 from Jan-June 2016 was 77 dB
- From BAP presentation to CLG in April 2017, average LA_{max} at NMT3 from Jan-June 2016 was 72 dB
- From LA_{max} values supplied by the daa via an AIE request, in July 2019:
 - 1208 Noise events in the night-time period 23:00-07:00
 - Average of 39 movements per night at NMT1
 - Max value of 93.1 dB LA_{max}
 - Min value of 66.7 dB LA_{max}
 - Mean value of 76.1 dB LA_{max}
 - 6.7% of movements > 80 dB LA_{max}
 - 56.5% between 75-80 dB LA_{max}
 - 35.3% between 70-75 dB LA_{max}
 - 1.6% between 65-70 dB LA_{max}
- For September 2019:
 - 1101 Noise events in the night-time period 23:00-07:00
 - Average of 37 movements per night at NMT1
 - Max value of 106.7 dB LA_{max}
 - Min value of 66.4 dB LA_{max}
 - Mean value of 76.1 dB LA_{max}
 - 12.2% of movements > 80 dB LA_{max}

- 52.0% between 75-80 dB LA_{max}
 - 34.7% between 70-75 dB LA_{max}
 - 1.2% between 65-70 dB LA_{max}
- NMT1 is 6.5km from the start of the South Runway and many dwellings are in closer proximity to the airport, subjected to higher LA_{max} values
- ProPG: - “Indoor sound pressure levels should not exceed approximately **45 dB LA_{max} more than 10-15 times per night**. This guidance on internal noise levels remains current. Accounting for sleeping with a bedroom window slightly open (and a reduction from outside to inside of 15 dB), this translates to an **outside sound pressure of 60 dB LA_{max}**”.
- ‘2025 Proposed’ equates to 56k people exposed to > 10 N60 Noise events
- 56k people will not be able to sleep with windows slightly open without being sleep disturbed
- ‘2025 Proposed’ scenario has 26% more people (56517 vs 44908) subjected to > 10 N60 noise events compared with ‘2025 Permitted’.
- Comparing the ‘2025 Proposed’ scenario from the revised EIAR with the ‘2025 Relevant Action’ scenario from the initial EIAR, the population exposed to > 25 N60 events increases from 11739 to 16277, an increase of 38% in the number of people exposed to the number of events exceeding the limit identified by the ProPG and WHO night-time guidelines.
- No consideration by ANCA of the populations exposed to a combined high number of N60 and N65 events, 24 hours a day, without respite.
- EIAR states ‘SEL’ and ‘LA_{max}’ have been presented in the application which is factually incorrect and a serious deficiency of the application
- European Heart Journal December published an editorial on night-time aircraft noise events triggering cardiovascular death
 - Population attributable fraction of 3% of deaths significantly associated with aircraft noise events 2 hours preceding death
 - Editorial suggests that if these findings are confirmed by further studies, then a complete ban on night-time flights must be the consequence and reinforcement of the WHO noise limits
- Fingal County Council and the Health Authorities urgently need to conduct a survey on the populations exposed to noise at Dublin Airport to identify the vulnerable groups and identify risk factors leading to adverse health

The planning noise zones adopted by Fingal County Council in Variation number 1 of the Fingal Development Plan stipulate that planning applications for development in Zones A, B and C must carry out a noise assessment in accordance with the ProPG Planning Guidelines with

respect to internal noise levels. The ProPG guidelines make use of L_{Amax} as the key indicator for internal bedroom at night. Individual noise events should not exceed 45 dB L_{Amax} more than 10 times a night. The guidelines also make reference to open windows and

“where it is proposed that windows need to be closed to achieve the internal noise level guidelines, then full details of the proposed ventilation and thermal comfort arrangements must be provided”.

ACTIVITY	LOCATION	07:00 – 23:00 HRS	23:00 – 07:00 HRS
Resting	Living room	35 dB $L_{Aeq,16\text{ hr}}$	-
Dining	Dining room/area	40 dB $L_{Aeq,16\text{ hr}}$	-
Sleeping (daytime resting)	Bedroom	35 dB $L_{Aeq,16\text{ hr}}$	30 dB $L_{Aeq,8\text{ hr}}$ 45 dB $L_{Amax,F}$ (Note 4)

NOTE 1 The Table provides recommended internal L_{Aeq} target levels for overall noise in the design of a building. These are the sum total of structure-borne and airborne noise sources. Ground-borne noise is assessed separately and is not included as part of these targets, as human response to ground-borne noise varies with many factors such as level, character, timing, occupant expectation and sensitivity.

NOTE 2 The internal L_{Aeq} target levels shown in the Table are based on the existing guidelines issued by the WHO and assume normal diurnal fluctuations in external noise. In cases where local conditions do not follow a typical diurnal pattern, for example on a road serving a port with high levels of traffic at certain times of the night, an appropriate alternative period, e.g. 1 hour, may be used, but the level should be selected to ensure consistency with the internal L_{Aeq} target levels recommended in the Table.

NOTE 3 These internal L_{Aeq} target levels are based on annual average data and do not have to be achieved in all circumstances. For example, it is normal to exclude occasional events, such as fireworks night or New Year's Eve.

NOTE 4 Regular individual noise events (for example, scheduled aircraft or passing trains) can cause sleep disturbance. A guideline value may be set in terms of SEL or $L_{Amax,F}$, depending on the character and number of events per night. Sporadic noise events could require separate values. In most circumstances in noise-sensitive rooms at night (e.g. bedrooms) good acoustic design can be used so that individual noise events do not normally exceed 45dB $L_{Amax,F}$ more than 10 times a night. However, where it is not reasonably practicable to achieve this guideline then the judgement of acceptability will depend not only on the maximum noise levels but also on factors such as the source, number, distribution, predictability and regularity of noise events (see Appendix A).

In Appendix A.10 the ProPG Guidelines make reference to the UK Government's Planning Practice Guidance and highlights the distinction between detectable impacts and adverse and significant adverse effects of noise on sleep.

- “Noise with the “potential for some reported sleep disturbance” is an “Observed Adverse Effect” that should be mitigated and reduced to a minimum; and
- Noise with the “potential for sleep disturbance resulting in difficulty in getting to sleep, premature awakening and difficulty in getting back to sleep” is a “Significant Observed Adverse Effect” that should be avoided; and

- Noise that causes “regular sleep deprivation/awakening” is a “Significant Observed Adverse Effect” that should be prevented.”

This focus on L_{Amax} is also highlighted in the WHO Community Noise Guidelines 1999. It is therefore imperative that L_{Amax} should be a critical assessment metric in the NAO.

The WHO Community Noise Guidelines 1999 are referenced in the BAP report titled “Dublin Airport Aircraft Noise Methodology Report” dated March 2020 and which was submitted to ANCA as part of their planning application to have the passenger numbers increased from 32m to 35m (F19A/0449).

In appendix A2.33 it states:

*“The 1999 WHO guidelines provide advice that for a good sleep, **indoor sound pressure levels should not exceed approximately 45 dB L_{Amax} more than 10-15 times per night**. This guidance on internal noise levels remains current. Accounting for sleeping with a bedroom window slightly open (and a reduction from outside to inside of 15 dB), this translates to an outside sound pressure level of 60 dB L_{Amax}.”*

This is a clear statement from BAP noise consultants that this guidance on L_{Amax} occurrences is still current and valid. This is in direct contrast to ANCA’s response in the Consultation Report. In the WHO 2018 Guidelines, it states on page 28 that:

“the current guideline values for the night time are only based on the prevalence of self-reported sleep disturbance and do not take physiological effects into account” and

“the current guidelines are restricted to long-term health effects during night time and therefore only include recommendations about average noise indicators: L_{night}. Nevertheless, the evidence review on noise and sleep (Basner & McGuire, 2018) includes an overview of single-event exposure–effect relationships”.

The results from the ‘Basner & McGuire’ review consistently indicate that a 10dBA increase in the indoor maximum noise level is associated with an Odds Ratio for awakenings or sleep stage changes to Stage 1 of 1.3 or higher.

Table 13. Summary of findings.

Sleep Outcomes	Noise Source	Number of Participants (Studies)	Quality of Evidence	Noise Metric	Odds Ratio per 10 dBA Increase (95% CI)
Cortical Awakenings in Adults	Road	94 (2)	⊕⊕⊕○ Moderate There was evidence of dose-response	Indoor L _{AS,max}	1.36 (1.19–1.55)
	Rail	33 (1)	⊕⊕⊕○ Moderate There was evidence of dose-response	Indoor L _{AS,max}	1.35 (1.21–1.52)
	Aircraft	61 (1)	⊕⊕⊕○ Moderate There was evidence of dose-response	Indoor L _{AS,max}	1.35 (1.22–1.50)
Self-Reported Sleep Disturbance in Adults (Noise Source Specified)	Road	20,120 (12)	⊕⊕⊕○ Moderate There was evidence of dose-response	Outdoor L _{night}	2.13 (1.82–2.48)
	Rail	7133 (5)	⊕⊕⊕○ Moderate There was evidence of dose-response	Outdoor L _{night}	3.06 (2.38–3.93)
	Aircraft	6371 (6)	⊕⊕⊕○ Moderate There was evidence of dose-response	Outdoor L _{night}	1.94 (1.61–2.33)

The WHO 2018 Guidelines state on page 75 that:

“There is additional uncertainty when characterizing exposure using the acoustical description of aircraft noise by means of L_{den} or L_{night}. Use of these average noise indicators may limit the ability to observe associations between exposure to aircraft noise and some health outcomes (such as awakening reactions); as such, noise indicators based on the number of events (such as the frequency distribution of L_{A,max}) may be better suited.”

The BAP report goes on further to explain how N60 contours can be used to show differences in scenarios for individual noise events:

“N60 contours are therefore used in this assessment to illustrate how, for a given point on the ground, the number of aircraft events producing a level of 60 dB L_{A,max} or more will change between various scenarios.”

The WHO 2009 Night Noise Guidelines (NNG) make reference to the Community Noise Guidelines (1999):

“If negative effects on sleep are to be avoided the equivalent sound pressure level should not exceed 30 dBA indoors for continuous noise. If the noise is not continuous, sleep disturbance correlates best with L_{A,max} and effects have been observed at 45 dB or less. This is particularly true if the background level is low. Noise events exceeding 45 dBA should therefore be limited

if possible. For sensitive people an even lower limit would be preferred. It should be noted that it should be possible to sleep with a bedroom window slightly open (a reduction from outside to inside of 15 dB). To prevent sleep disturbances, one should thus consider the equivalent sound pressure level and the number and level of sound events. Mitigation targeted to the first part of the night is believed to be effective for the ability to fall asleep.”

The NNG comments further:

“New information has made more precise assessment of exposure-effect relationship. The thresholds are now known to be lower than LAmax of 45 dB for a number of effects. The last three sentences still stand: there are good reasons for people to sleep with their windows open, and to prevent sleep disturbances one should consider the equivalent sound pressure level and the number of sound events. The present guidelines allow responsible authorities and stakeholders to do this. Viewed in this way, the night noise guidelines for Europe are complementary to the 1999 guidelines. This means that the recommendations on government policy framework on noise management elaborated in the 1999 guidelines should be considered valid and relevant for the Member States to achieve the guideline values of this document.”

The executive summary makes reference to the interim target (IT) of 55 dB L_{night,outside} and for its recommendation in the situations where the NNG of 40 dB L_{night, outside} is not achievable in the short term. But the ***“IT is not a health-based limit by itself. Vulnerable groups cannot be protected at this level”***.

The 2009 NNG makes reference to a comparison of ‘Inside’ to ‘Outside’. The assumption is that the insulation value of a house is 30 dB with windows closed and 15 dB with windows open. With windows open 50% of the time then the value is 18 dB. The guidelines present a figure of 21 dB as a conversion factor between outside and inside and this takes account that even well insulated houses may have their windows open a large part of the year.

Another very important feature of night-time noise events is the difference between the background noise levels and these single events. Background noise levels are lower at night and therefore harder to mask the individual aircraft noise events. The environs of the flight paths to the West of Dublin Airport is rural, lending itself to quiet night-time ambient noise levels and therefore the changes from ambient to high aircraft noise levels is of high significance.

17.2 NOISE REPORTS

The DAA provide biannual noise monitoring reports and publish them on their website (<https://www.dublinairport.com/corporate/sustainability-and-community/noise/airport-noise-noise-reports>).

The January-June 2020 report shows a significant decrease in aircraft movements from March to June due to the Covid-19 pandemic. Table 4 provides overflying altitudes at the various noise monitoring terminals (NMTs) comparing with the same period in 2019:

Table 4: Average overflying height										
	Height [ft]									
	NMT1		NMT2		NMT5		NMT6		NMT20	
	A	D	A	D	A	D	A	D	A	D
2019	900	2,600	1,100	2,600	1,100	2,800	1,200	2,800	1,500	3,400
2020	1,000	2,800	1,000	3,000	1,100	3,000	1,300	3,200	1,600	3,600

NMT1 monitors runway 28 departures and runway 10 arrivals. It’s located at the ‘Bay Lane’ and is approximately 6.5km from the start of the runway.



Table 4 shows that arrivals were on average 100 ft higher at NMT1 and departures 200 ft higher. This can be explained by lighter load factors due to the loss of passengers during the Covid-19 pandemic.

The July-December 2019 report shows the average overflying height compared with the same period in 2018:

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Table 4: Average overflying height

	Height [ft]													
	NMT1		NMT2		NMT3		NMT4		NMT5		NMT6		NMT20	
	A	D	A	D	A	D	A	D	A	D	A	D	A	D
2018	900	2,600	1,000	2,600	900	2,500	1,100	2,900	1,100	2,700	1,200	3,100	1,500	3,400
2019	1,000	2,500	1,000	2,600	1,000	2,500	1,100	2,800	1,100	2,700	1,200	3,100	1,500	3,400

And the January to June 2019 report compares the same period with 2018:

Table 4: Average overflying height

	Height [ft]									
	NMT1		NMT2		NMT5		NMT6		NMT20	
	A	D	A	D	A	D	A	D	A	D
2018	900	2,600	1,000	2,600	1,100	2,800	1,100	3,100	1,500	3,400
2019	900	2,600	1,000	2,600	1,100	2,800	1,200	2,800	1,500	3,400

Using these average overflying heights, the data shows that arrivals normally overfly NMT1 at 900ft and departures at 2600ft. The data in the first half of 2020 shows that these heights have increased but that can be explained by the lower loads due to lower passenger numbers. The report states that in the first half of 2020 there was a decrease of 65% in passenger numbers compared to the same period in 2019. And Runway 28 handled 88% of all the movements in this period.

The report provides the L_{Amax} distribution for NMT1 in figure 12:

Figure 12 shows the L_{Amax} distribution, for aircraft noise, for the first half year of 2020 for NMT 1.

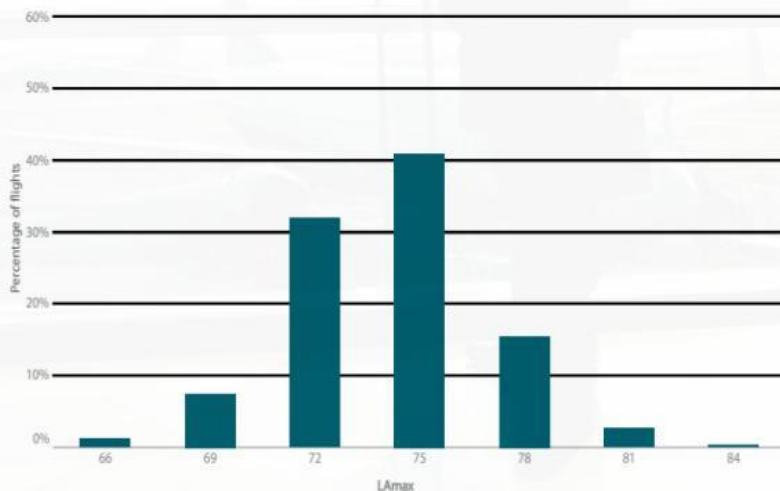
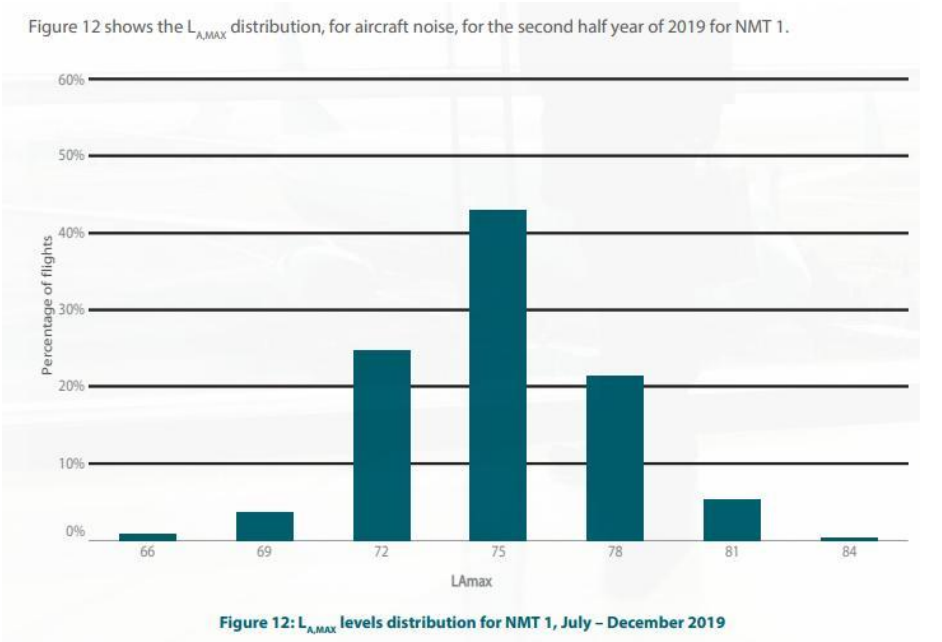


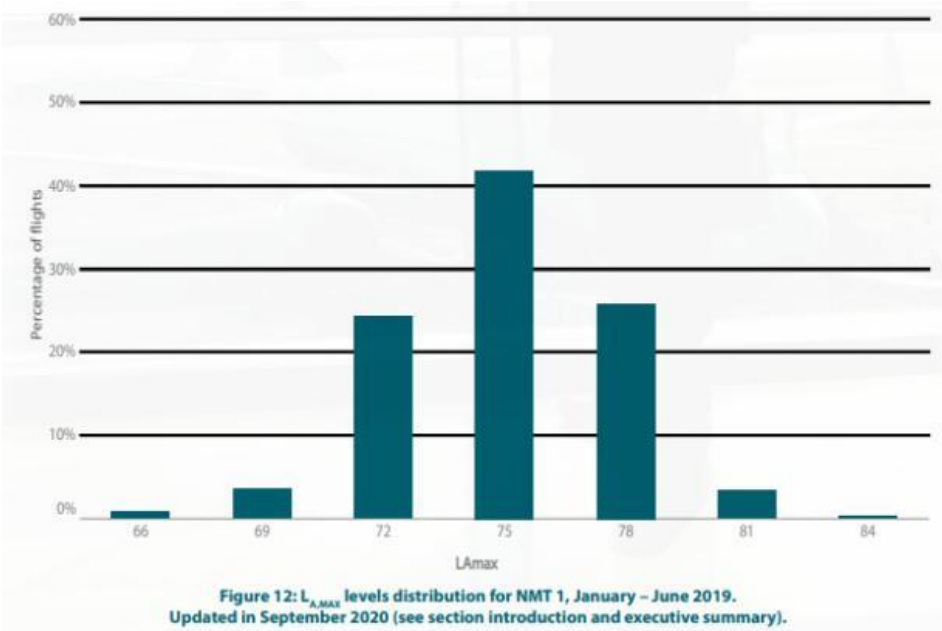
Figure 12: L_{Amax} levels distribution for NMT 1, January - June 2020

Figure 12 shows that approximately 58% of aircraft movements detected at NMT1 had a LAmax value > 75 dB. Approximately 18% had a LAmax value > 78 dB and 2.5% > 81 dB.

From the distribution of the LAmax values for the June-Dec 2019 time period, the percentage of events > 75 dB LAmax is approximately 68%. 26% > 78 dB LAmax and 5% > 81 dB LAmax.



The distribution for the first half of 2019 is similar. From these distributions and the lower heights of overflying aircraft one can deduce that the distribution for 2020 shows lower amount of LAmax events > 75 dB, which is below normal expected noise levels.



17.3 BAP PRESENTATION

At a Community Liaison Group (CLG) meeting in April 2017, a presentation from BAP was given titled 'Aircraft Noise Monitoring Data from Noise Monitoring Terminals (NMTs)'. In this presentation BAP explain noise monitoring and metrics. The presentation also focused on NMT1 and NMT3 which are to the West of Dublin Airport.

NFTMS NMT1 Bay Lane – Details



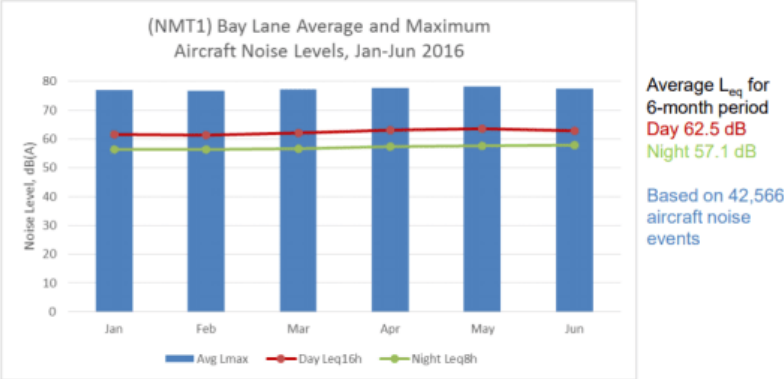
NFTMS NMT3 Bishopswood – Details



Average LAmax at NMT1 from January-June 2016 was 77 dB:

NFTMS Average & Maximum Noise Levels

Bickerdike
Allen
Partners
Architecture
Acoustics
Technology



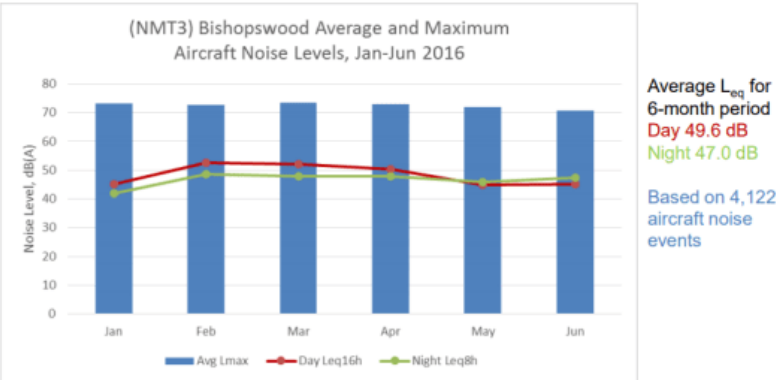
Avg L_{max} is the average of the maximum levels of all aircraft events recorded at the NMT in the month.

Average L_{max} for 6-month period is 77 dB
Day L_{eq} 5 dB higher than night on average

Average L_{Amax} at NMT3 from January-June 2016 was 72 dB:

NFTMS Average & Maximum Noise Levels

Bickerdike
Allen
Partners
Architecture
Acoustics
Technology



Avg L_{max} is the average of the maximum levels of all aircraft events recorded at the NMT in the month.

Average L_{max} for 6-month period is 72 dB
Day L_{eq} 3 dB higher than night on average

An important point to note is that there are many dwellings that are located closer to Dublin Airport than NMT1 which is 6.5km from the start of the South Runway. These dwellings are

exposed to noise levels in excess of those at NMT1 as the aircraft are lower on departure and arrival, closer to the airport.

L_Amax values for 2019 were requested via an AIE request to the DAA on August 12th 2020 and the DAA responded with an Excel sheet on September 9th.

Data for July and September for NMT1 was analysed and the following statistics produced:

- July
 - 1208 Noise events in the night-time period 23:00-07:00
 - Average of 39 movements per night at NMT1
 - Max value of 93.1 dB L_Amax
 - Min value of 66.7 dB L_Amax
 - Mean value of 76.1 dB L_Amax
 - 6.7% of movements > 80 dB L_Amax
 - 56.5% between 75-80 dB L_Amax
 - 35.3% between 70-75 dB L_Amax
 - 1.6% between 65-70 dB L_Amax
- September
 - 1101 Noise events in the night-time period 23:00-07:00
 - Average of 37 movements per night at NMT1
 - Max value of 106.7 dB L_Amax
 - Min value of 66.4 dB L_Amax
 - Mean value of 76.1 dB L_Amax
 - 12.2% of movements > 80 dB L_Amax
 - 52.0% between 75-80 dB L_Amax
 - 34.7% between 70-75 dB L_Amax
 - 1.2% between 65-70 dB L_Amax

The data shows that during July and September 2019, over 37 movements were detected at NMT1 over the night-time period and over 63% of these movements were recorded at a value greater than 75 dB L_Amax, at a distance 6.5km from the start of the runway.

In the ProPG guidelines, appendix A2.33 states:

*“The 1999 WHO guidelines provide advice that for a good sleep, **indoor sound pressure levels should not exceed approximately 45 dB L_Amax more than 10-15 times per night**. This guidance on internal noise levels remains current. Accounting for sleeping with a bedroom window slightly open (and a reduction from outside to inside of 15 dB), this translates to an **outside sound pressure level of 60 dB L_Amax**”.*

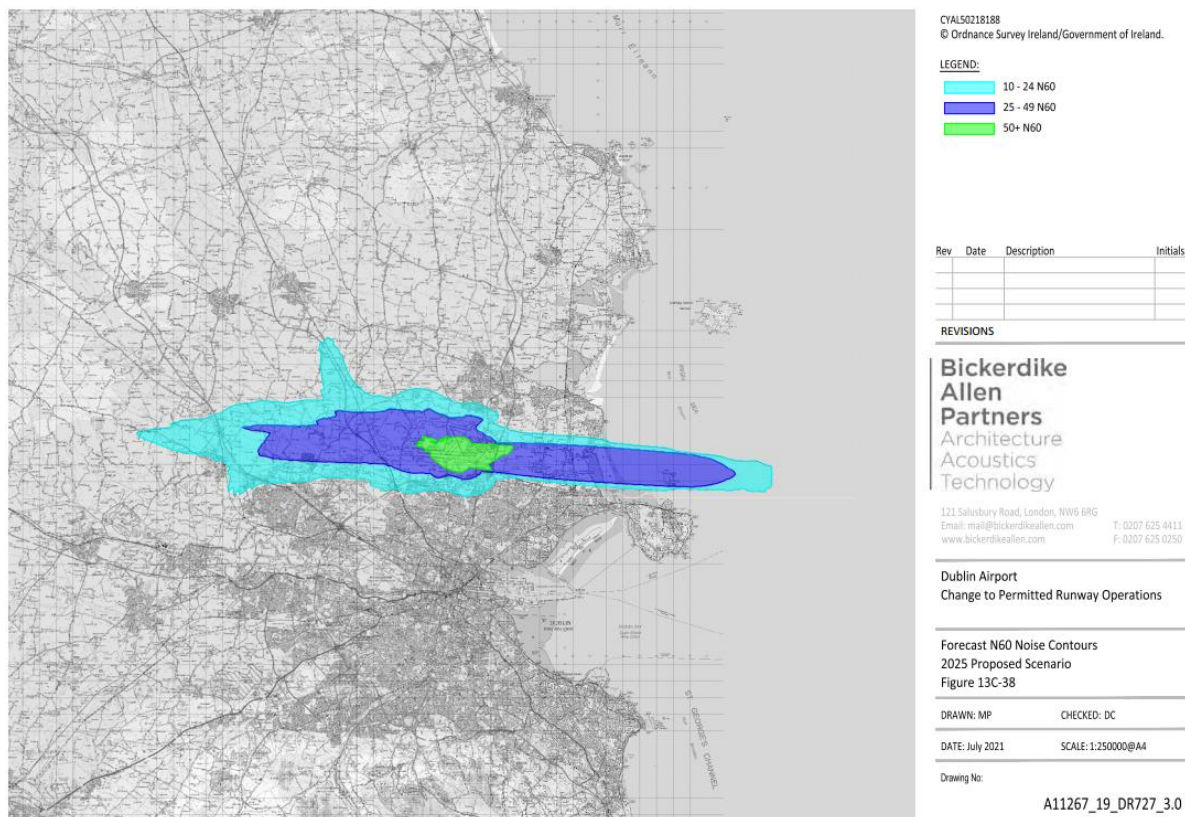
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In table 13C-56 of the EIAR appendices, the existing population counts for the N60 metric are given. N60 is the number of events above 60dB LAmax per night-time period.

Table 13C-56: Existing Population Counts, N60 Metric

Metric Value, N60	Scenario and Existing Population Count						
	2018	2022 Permitted	2022 Proposed	2025 Permitted	2025 Proposed	2035 Permitted	2035 Proposed
≥ 10	69,613	41,432	46,401	44,908	56,517	27,353	29,801
≥ 25	24,638	296	8,820	15,333	16,277	12,452	12,981
≥ 50	80	0	67	16	110	16	98
≥ 100	0	0	0	0	0	0	0

The '2025 Proposed' scenario has 26% more people (56517 vs 44908) subjected to > 10 N60 noise events compared with '2025 Permitted'.



Based on the ProPG Guidelines, 56517 people will not be able to sleep with their windows slightly open or risk having their sleep disturbed, with the ‘2025 Proposed’ Scenario.

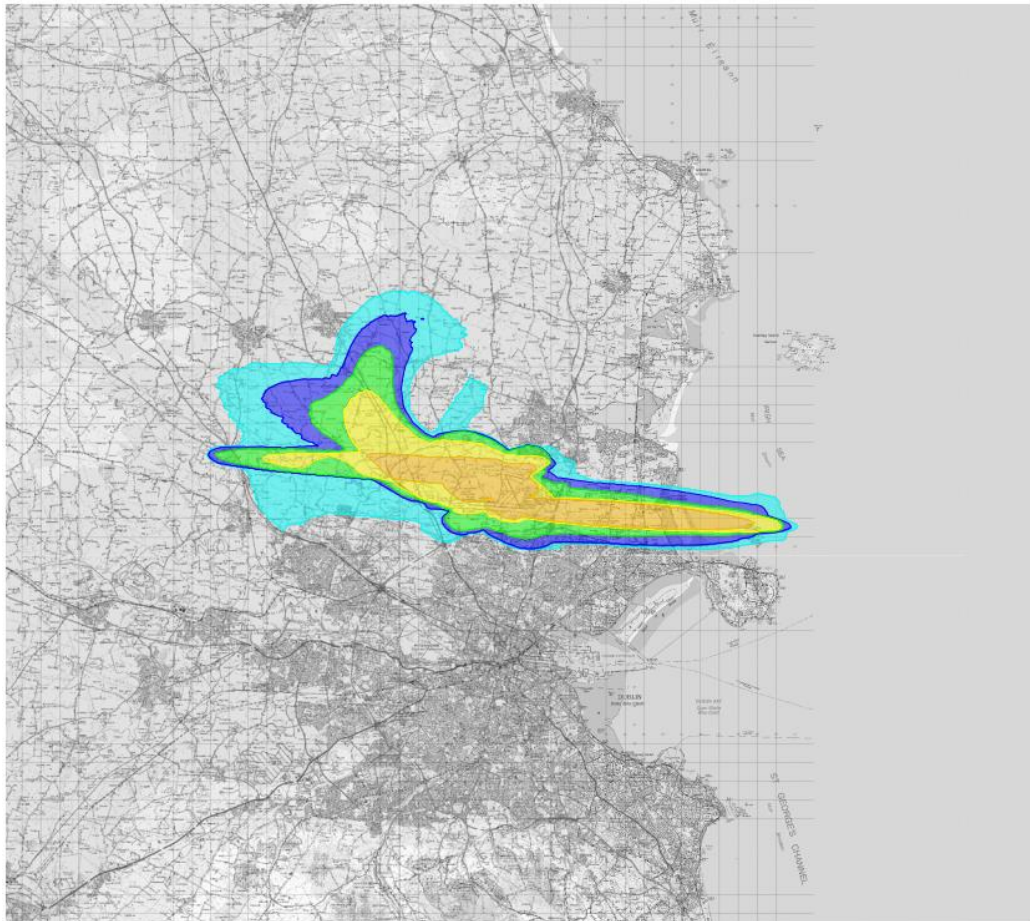
Comparing the ‘2025 Proposed’ scenario from the revised EIAR with the ‘2025 Relevant Action’ from the initial EIAR, one can see that although the population exposed to > 10 N60 events reduces from 61018 to 56517, the population exposed to > 25 N60 events increases from 11739 to 16277, an increase of 38% in the number of people exposed to the number of events exceeding the limit identified by the ProPG and WHO night-time guidelines.

Table 13C-40: Existing Population Counts, N60 Metric

Metric Value, N60	Scenario and Existing Population Count						
	2018 Baseline	2019 Baseline	2022 Baseline	2022 Relevant Action	2025 Baseline	2025 Consented	2025 Relevant Action
≥ 10	69,613	75,967	42,926	59,891	42,864	65,906	61,018
≥ 25	24,638	26,835	15,370	11,879	15,020	7,958	11,739
≥ 50	80	7,402	35	67	32	29	191
≥ 100	0	0	0	0	0	0	0

This increase in harmful exposure has not been explained by the daa and not addressed by ANCA in their Regulatory Decision and Consultation Report. ANCA should have considered the initial ‘2025 Relevant Action’ as an alternative scenario in their analysis but failed to do so.

Another area that ANCA failed to address in their Regulatory Decision and Consultation Report is the combined effects of both excessive daytime and night-time exposures. When looking at the N65 Noise Contours, one can see a large overlap in the St Margarets The Ward and Portmarnock areas with the N60 Noise Contours. These populations are expected to endure > 25 N60 night-time events and > 200 N65 daytime events. There is no respite for these areas and ANCA have failed in their Regulatory Decision and Consultation Report to address this harmful 24 hour exposure and provided no respite which is common at other major airports.



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LEGEND:

- 10 - 24 N65
- 25 - 49 N65
- 50 - 99 N65
- 100 - 199 N65
- 200 - 499 N65
- 500+ N65

Rev	Date	Description	Initials

REVISIONS

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Dublin Airport
Change to Permitted Runway Operations

Forecast N65 Noise Contours
2025 Proposed Scenario
Figure 13C-37

DRAWN: MP	CHECKED: DC
DATE: July 2021	SCALE: 1:250000@A4
Drawing No:	A11267_19_DR726_2.0

In section 13.3.12 of the EIAR (Supplementary Noise Metrics), it lists ‘SEL’ and ‘LAmax’ as metrics that have been presented in this application.

Supplementary Noise Metrics

- 13.3.10 The primary air noise assessment metrics generally rely on extensive surveying of attitudes to aircraft noise resulting in a dose-response relationship linking levels of community annoyance to the metric. In addition, as used previously in the assessment of air noise around Dublin Airport, noise contours have been prepared in terms of the established UK noise metrics for air noise, the $L_{Aeq,16h}$ metric for the daytime (07:00-23:00) period and the $L_{Aeq,8h}$ metric for the night-time (23:00-07:00) period. These periods relate to an average summer day. Summer in this instance is defined as the 92-day period between 16 June and 15 September inclusive.
- 13.3.11 Some other supplementary air noise metrics, while having limited research into correlation with community annoyance, can be useful in reflecting how aircraft noise is experienced in the locality around an airport and these are also presented here.
- 13.3.12 The following supplementary noise metrics have been presented to contextualise the noise around Dublin Airport associated with the proposed Relevant Action:
- The summer $L_{Aeq,16h}$ and $L_{Aeq,8h}$ metrics. These describe the average noise level during a summer day (07:00-23:00) and summer night (23:00-07:00) respectively. They were used for the application

daa

Classification: Class 1 - General

AECOM
13-5

Dublin Airport North Runway Relevant Action

Environmental Impact Assessment Report
Chapter 13: Aircraft Noise and Vibration

that led to the North Runway Planning Permission and the former is used for the eligibility of the current Residential Sound Insulation Schemes;

- The annual L_{day} and $L_{evening}$ metrics which are optional under EU Regulation 598/2014. These describe the average noise level during an annual day (07:00-19:00) and evening (19:00-23:00) respectively. They provide information on the variation in noise across the day and evening;
- N65 and N60 indices. N65 for example indicates the number of times a threshold level of 65 dB L_{Amax} is exceeded within the time period of interest and has been determined for the summer daytime period. The N60 has been determined for the summer night-time period. These metrics are included as they are considered to aid public understanding by providing distributions of noise events;
- Single mode contours for the L_{night} and N60 indices. These are used to illustrate the noise on a night when aircraft operate all in the same direction. This differs from the standard contours which reflect the average use of the runways over the long-term, typically a year;
- L_{Amax} , which can be used to rate the impacts of noise from individual aircraft operations at night; and
- Hourly noise levels during the night at representative residential receptors shown in Plate 13.4 and listed in Table 13-10, to give an indication of how these will change due to the proposed Relevant Action.

This is factually incorrect as no discussion on SEL or L_{Amax} values are presented. This is a serious deficiency in any noise application. SEL and L_{Amax} values should be important noise metrics requested by ANCA.

It is interesting to note that ANCA requested SEL and L_{Amax} data from the daa in their additional information request (anca-rf01.pdf) during the 32 to 35m passenger planning application (F19A/0449).

including schools within the voluntary school insulation scheme;

1.9 The applicant is required to provide further, additional relevant objective measures, using the following (or derivations of), for example:

- L_{day};
- L_{evening};
- L_{Amax}; and
- SEL.

In Annex I of Directive 2002/49/EC (<https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32002L0049&from=EN>) it lists both L_{Amax} and SEL as supplementary noise indicators, which have been dismissed by ANCA in their Regulatory Decision and Consultation Report without due consideration.

3. Supplementary noise indicators

In some cases, in addition to L_{den} and L_{night}, and where appropriate L_{day} and L_{evening}, it may be advantageous to use special noise indicators and related limit values. Some examples are given below:

- the noise source under consideration operates only for a small proportion of the time (for example, less than 20 % of the time over the total of the day periods in a year, the total of the evening periods in a year, or the total of the night periods in a year),
- the average number of noise events in one or more of the periods is very low (for example, less than one noise event an hour; a noise event could be defined as a noise that lasts less than five minutes; examples are the noise from a passing train or a passing aircraft),
- the low-frequency content of the noise is strong,
- L_{Amax} or SEL (sound exposure level) for night period protection in the case of noise peaks,
- extra protection at the weekend or a specific part of the year,
- extra protection of the day period,
- extra protection of the evening period,
- a combination of noises from different sources,
- quiet areas in open country,
- the noise contains strong tonal components,
- the noise has an impulsive character.

ANCA's response to single event noise indicators such as SEL and LA_{max} has been simply to dismiss their use and attempted to base their rebuttal citing remarks in the WHO 2018 Guidelines:

Consultation Report – Pages 21 & 29

There is research which has used alternative metrics to describe the potential impacts of aircraft noise events on sleep, such as indoor and outdoor LA_{max} levels, their distribution and occurrence. Whilst recognising that such metrics can be used to describe effects such as awakenings and physiological reaction, ENG18 states that: *"the relationship between different types of single-event noise indicators and long-term health outcomes at the population level remains tentative"*. As such the ENG18 made no recommendations for single-event noise indicators.

The regulatory framework under which ANCA is required to carry out its assessments specifies the use of annual-averaged noise exposure metrics. These take into account the level of individual aircraft noise events, such as those reported in a submitted 2018 'longitudinal analysis' along with the frequency of their occurrence. The objective of the regulatory framework is to limit and reduce the harmful effect of environmental noise. This relies on dose-response relationships taken from the ENG18. ENG18 considered single-event noise indicators, such as Sound Exposure Level (SEL) and LA_{max}, however only found tentative evidence associated with these and long-term health outcomes.

A review of night-time transportation noise and the WHO 2018 Guidelines was carried out by Münzel et al in 2020 – *"Adverse Cardiovascular Effects of Traffic Noise with a Focus on Nighttime Noise and the New WHO Noise Guidelines"*

(<https://www.annualreviews.org/doi/abs/10.1146/annurev-publhealth-081519-062400>).

This review states that:

"The 2018 WHO report focused on the effects of LDEN (24 h noise) in their evaluation of cardiometabolic disease, so in this review we summarize the current knowledge of the pathway from exposure to nighttime noise to cardiovascular and metabolic disease, identify research gaps, and present mitigation measures."

The review states that:

"The focus of the WHO report was to evaluate the effects of exposure to transportation noise over the whole day, estimated as Lden. The WHO evaluated the effects of nighttime noise previously in 2009. However, since 2009, a number of mechanistic studies have investigated the effects of nocturnal noise, indicating that it may be a particularly crucial time window, as exposure to noise during nighttime disturbs and stresses the body during sleep, thereby increasing a number of cardiovascular risk factors (44, 54, 80, 81)."

The review then summarises the current knowledge of the cardiovascular effects of nighttime noise.

“The WHO recently evaluated the effects of transportation noise on measured and self-reported sleep (3). A meta-analysis of psychoacoustic surveys on self-reported sleep disturbance (percent highly disturbed) showed statistically significant odds ratios of 1.9 for aircraft, 2.1 for road, and 3.1 for rail per 10 dB(A) increase in noise when questions referred to the effects of noise on sleep (3). However, in studies where the sleep questions did not refer to specific noise sources but to general sleep indicators, such as problems with falling asleep and awakenings, associations with traffic noise were less pronounced.

Furthermore, as part of the WHO review, a combined analysis was conducted of two existing studies examining acute effects of traffic noise events on sleep physiology measured by polysomnography (5, 22). This event-related analysis showed that a 10 dB(A) increase in indoor maximum noise from road, rail, or aircraft was significantly associated with awakenings or sleep stage changes (from deeper sleep stages to wake or stage 1) with odds ratios of 1.35 (3). Based on this analysis, the WHO strongly recommended to decrease nighttime noise (L_{night}) for road traffic noise below 45 dB(A), for railway noise below 44 dB(A), and for aircraft noise below 40 dB(A) to prevent effects on sleep (103).

A 2018 study (73), published after the WHO review, with young (19–33 years) and older (52–70 years) volunteers confirmed effects from nighttime transportation noise events on increased sleep electroencephalography (EEG) arousal indices, although sleep structure and continuity were not affected [L_{eq} was 45 dB; maximum event levels were 50–62 dB(A)] (73). Amplitude of sleep spindles, which are known to have a sleep-protective function (100) and to be relevant for memory consolidation (2), was consistently decreased during noise compared with noise-free nights in both age groups.

Which time window during sleep is most critical is still unclear, although such knowledge is important for efficient noise control. A study of 12 women and 12 men who slept for 2 weeks in a sleep laboratory applied 3 different noise scenarios with noise curfews at different times during the night (11 PM–3 AM, 11 PM–5 AM, 3 AM–7 AM) and analyzed the polysomnograms (33). Investigators found that noise in the beginning of the night impaired the process of falling asleep. However, sleep disturbances experienced in the beginning of the night were compensated later if nighttime curfews were in place. In contrast, even short periods of noise toward the end of the sleeping period were observed to cause sleep disturbances. In line with this finding, several observational studies on transportation noise indicate that noise exposure has the strongest effect on self-reported sleep quality in the morning, when the sleep pressure is lowest. In a Norwegian study of 13,019 participants (24) and a Swiss study of 1,375 participants (29), modeled nighttime traffic noise exposure was associated primarily with self-reported early awakenings, whereas associations with other sleep-quality parameters such as awakening during the night or difficulty falling asleep were less pronounced. Also,

psychoacoustic surveys observed that noise exposure occurring during the early part of the night and during the time just preceding usual awakening were reported to be most annoying (63). Strikingly, a panel study of 40 individuals found that noise exposure during work had sustained effects on nighttime sleep quality, suggesting that daytime noise may also be relevant for sleep (57)."

The review then looks at night-time noise and risk for cardiovascular disease (CVD):

"Although exposure to transportation noise is known to disturb sleep duration and quality, epidemiological studies comparing the effects of daytime and nighttime transportation noise are necessary to improve our understanding of which exposure time window is most harmful.

Separating long-term effects of daytime and nighttime noise exposure in epidemiological studies are challenging. Exposure misclassification for daytime noise is higher than for nighttime noise because large-scale epidemiological studies are based on residential exposure, which may not reflect personal exposure during the day, when people are likely not to be at home. Also, daytime and nighttime exposure levels are often highly correlated. This finding is especially evident for road traffic noise where input data on traffic are based on traffic count samples, which are then extrapolated over the whole day, resulting in correlations between daytime and nighttime noise close to 1 (36, 42, 89). In reality, correlation between road traffic noise at different time intervals is expected to be lower (71).

A Spanish cross-sectional study overcame this correlation dilemma by calculating three different estimates for residential traffic noise for their population of ≈2,000 persons: noise at the most exposed façade; noise at the bedroom façade; and "indoor bedroom noise" where information on insulation, type of window, and window-opening habits was included (28). They found a significant association with a higher systolic blood pressure only for indoor bedroom noise, suggesting that nighttime noise affects the blood pressure. However, they also found noise at the most exposed façade to be more strongly associated with hypertension than was indoor bedroom noise, suggesting that exposure during the day and evening can also be harmful.

For aircraft and railway noise, correlations between daytime and nighttime noise are lower than for road traffic noise. The Hypertension and Exposure to Noise Near Airports (HYENA) study of ≈5,000 persons living near one of six major European airports investigated effects of nighttime aircraft noise (20, 39, 40, 49). In this study, correlation between daytime and nighttime aircraft noise was 0.8 and a significant association between nighttime aircraft noise and prevalent hypertension was found, whereas no association was seen for daytime aircraft noise (Figure 1c) (49). A follow-up study of the Greek population of the HYENA study later supported this finding in a longitudinal design: The data showed a significant association between nighttime aircraft noise and incident hypertension, whereas associations with daytime

aircraft noise were weaker and insignificant (20). Within the framework of the HYENA study, 140 participants were selected for a field study with continuous measurements of noise and blood pressure during sleep at home (40). The study found a 6-mm Hg increase in systolic and a 7-mm Hg increase in diastolic blood pressure if an aircraft event of >35 dB(A) had occurred within the last 15 minutes. Results of similar size were observed for road traffic noise. This association was independent of the sequence of noise measurements, indicating that there is no habituation happening during the night. Using the same study population, both measured nighttime bedroom exposure and modeled long-term exposure to road traffic noise were found to be associated with a decrease in systolic and diastolic dipping, whereas no association was found for aircraft noise (39). Subsequent longitudinal studies on aircraft noise and risk of CVD found similar associations for modeled daytime noise compared with nighttime noise, which indicates that, for aircraft noise, separating the effects of daytime and nighttime noise is problematic when using standard noise modeling (38, 108). This limitation highlights the importance of improved or new noise assessment methods that better capture the difference in noise over the course of the day.

A recent Swiss study developed a method for estimating an “intermittency ratio” (IR) during nighttime, which quantifies the contribution of individual noise events above the background noise level (105). The IR varies from 0%, corresponding to continuous noise (no events above background), to 100%, corresponding to all noise made by single noise events. It thereby captures a potentially very important aspect of noise, as single distinct noise events during sleep have been linked to awakenings and cardiac arousals (4, 5), and nighttime noise events have been found to affect arterial stiffness (Figure 1b) (27). Data from 4.4 million people indicated that moderate IR levels during nighttime were found to be more strongly associated with overall cardiovascular mortality than were low IR and high IR (41). The project also investigated associations with CVD for noise exposure at different time windows during the day, estimated as combined long-term noise exposure from road, rail, and air based on modeled hourly traffic data (42). Despite the inherent difficulties in separating the effects of different noise time windows (correlations ≥ 0.94), the combination of the three noise sources yielded more variation, thereby facilitating the analyses. For IHD, the highest mortality risks were found for noise exposure during the core nighttime period, whereas for heart failure, exposure during the daytime period was associated with the highest risk (42). Overall, this finding suggests that for acute CVD, nocturnal intermittent noise exposure is more relevant than daytime exposure, whereas for more chronic CVD, continuous daytime exposure is most relevant. In support, measured brachial-ankle pulse wave velocity in 2,775 participants (49–81 years old) was significantly associated with the number of noise events during the nighttime (at residence) but not with the number of noise events during the day (Figure 1b) (27).”

“In summary, the few epidemiological studies that have successfully managed to separate daytime and nighttime exposure to noise have found that nighttime noise is indeed an important risk factor for some CVDs and that intermittent noise with peaks clearly above the background level during the nighttime may be particularly harmful.”

The review goes on to investigate translation studies and the effects of simulated night-time noise on vascular function.

It also looked into mechanistic insights from animal studies on the effects of around-the-clock noise on stress hormones, oxidative stress, and cerebrovascular complications:

“A study on mice exposed to noise for 1–4 days found that around-the-clock aircraft noise resulted in higher levels of circulating neurohormonal stress hormones, endothelial dysfunction, vascular inflammation, and oxidative stress”

This has consequences for the areas of St Margarets The Ward and Portmarnock where the population will be exposed to high levels of both daytime and night-time noise, without any respite.

The study also examined the effects of sleep versus phase noise on the cardiovascular system and the brain and noise and the circadian clock system.

The conclusion of the review states that exposure to noise towards the end of the sleeping period may be the most crucial regarding effects of noise on sleep, and that night-time noise compared with daytime noise is associated with more adverse cardiovascular effects. Compared with daytime noise, night-time noise leads to a stronger stress reaction. Also, evidence suggests that intermittent noise with peaks clearly above the background levels during the night-time may be particularly harmful. This is very evident in the rural areas of St Margarets The Ward, where the intermittent aircraft noise events far exceed the background noise levels.

WHO 2018 Guidelines clearly state that the CNG indoor guidelines [WHO 1999] remain valid:

“The current environmental noise guidelines for the European Region supersede the CNG from 1999. Nevertheless, the GDG recommends that all CNG indoor guideline values and any values not covered by the current guidelines (such as industrial noise and shopping areas) should remain valid. Furthermore, the current guidelines complement the NNG from 2009.”

The WHO Community Noise Guidelines (<https://apps.who.int/iris/handle/10665/66217>) make reference to L_{Amax} and single noise events. In its executive summary it states:

“Currently, the recommended practice is to assume that the equal energy principle is approximately valid for most types of noise and that a simple L_{Aeq,T} measure will indicate the expected effects of the noise reasonably well. When the noise consists of a small number of discrete events, the A-weighted maximum level (L_{Amax}) is a better indicator of the disturbance to sleep and other activities. In most cases, however, the A-weighted sound exposure level (SEL) provides a more consistent measure of single-noise events because it is based on integration over the complete noise event. In combining day and night L_{Aeq,T} values, night-time weightings are often added. Night-time weightings are intended to reflect the expected increased sensitivity to annoyance at night, but they do not protect people from sleep disturbance.

Where there are no clear reasons for using other measures, it is recommended that L_{Aeq,T} be used to evaluate more-or-less continuous environmental noises. Where the noise is principally composed of a small number of discrete events, the additional use of L_{Amax} or SEL is recommended. There are definite limitations to these simple measures, but there are also many practical advantages, including economy and the benefits of a standardized approach.”

In the guideline section it references the use of L_{Amax} for dwellings:

“In Dwellings. The effects of noise in dwellings, typically, are sleep disturbance, annoyance and speech interference. For bedrooms the critical effect is sleep disturbance. Indoor guideline values for bedrooms are 30 dB L_{Aeq} for continuous noise and 45 dB L_{Amax} for single sound events. Lower noise levels may be disturbing depending on the nature of the noise source. At night-time, outside sound levels about 1 metre from facades of living spaces should not exceed 45 dB L_{Aeq}, so that people may sleep with bedroom windows open. This value was obtained by assuming that the noise reduction from outside to inside with the window open is 15 dB. To enable casual conversation indoors during daytime, the sound level of interfering noise should not exceed 35 dB L_{Aeq}. The maximum sound pressure level should be measured with the sound pressure meter set at “Fast”.

To protect the majority of people from being seriously annoyed during the daytime, the outdoor sound level from steady, continuous noise should not exceed 55 dB L_{Aeq} on balconies, terraces and in outdoor living areas. To protect the majority of people from being moderately annoyed during the daytime, the outdoor sound level should not exceed 50 dB L_{Aeq}. Where it is practical and feasible, the lower outdoor sound level should be considered the maximum

desirable sound level for new development.”

Table 1: Guideline values for community noise in specific environments.

Specific environment	Critical health effect(s)	L _{Aeq} [dB(A)]	Time base [hours]	L _{Amax} fast [dB]
Outdoor living area	Serious annoyance, daytime and evening Moderate annoyance, daytime and evening	55 50	16 16	- -
Dwelling, indoors	Speech intelligibility & moderate annoyance, daytime & evening	35	16	-
Inside bedrooms	Sleep disturbance, night-time	30	8	45
Outside bedrooms	Sleep disturbance, window open (outdoor values)	45	8	60
School class rooms & pre-schools, indoors	Speech intelligibility, disturbance of information extraction, message communication	35	during class	-
Pre-school bedrooms, indoor	Sleep disturbance	30	sleeping-time	45
School, playground outdoor	Annoyance (external source)	55	during play	-
Hospital, ward rooms, indoors	Sleep disturbance, night-time Sleep disturbance, daytime and evenings	30 30	8 16	40 -
Hospitals, treatment rooms, indoors	Interference with rest and recovery	#1		
Industrial, commercial shopping and traffic areas, indoors and outdoors	Hearing impairment	70	24	110
Ceremonies, festivals and entertainment events	Hearing impairment (patrons:<5 times/year)	100	4	110
Public addresses, indoors and outdoors	Hearing impairment	85	1	110
Music and other sounds through headphones/ earphones	Hearing impairment (free-field value)	85 #4	1	110
Impulse sounds from toys, fireworks and firearms	Hearing impairment (adults) Hearing impairment (children)	- -	- -	140 #2 120 #2
Outdoors in parkland and conservations areas	Disruption of tranquillity	#3		

#1: As low as possible.

The CNG indoor noise level recommendations are still valid as stated by the WHO 2018 Guidelines, and the current guidelines complement the NNG from 2009. Therefore, single noise event indicators cannot be dismissed, as suggested by ANCA, as these are still valid. L_{Amax} is referred to in 200/49/EC as a supplementary noise indicator and therefore ANCA have a duty to take it on board. Evidence has been provided that the L_{Amax} levels exceed the CNG guidelines and Pro PG guidelines in dwellings that have already been insulated by the daa. This evidence cannot be refuted by ANCA, and it has deliberately refused to take this evidence on board.

17.4 SOURCE-BASED SUBJECTIVE RESPONSES TO SLEEP DISTURBANCE FROM TRANSPORTATION NOISE

A 2015 study (<https://www.sciencedirect.com/science/article/pii/S0160412016301593>) by UCD School of Architecture was conducted to investigate the use of subjective responses to questions concerning night-time noise exposure as a means of assessing sleep disturbance from transportation noise. A site location was chosen to study the impact of noise from Dublin Airport. The site is located in a private housing development 6.3km from the main runway at Dublin Airport directly under the flight path.

The results show that the highest average LA_{max} was 64.2 dB(A). The report states that the range and standard deviation in LA_{max} were more variable at the air location site and that this finding is consistent with the high degree of intermittent noise associated with aircraft.

Table 3
L_{Aeq}, L_{Amax} and L_{A90} (8 h) – Monday to Thursday 11 pm–7 am.

	Minutes	Mean (dB(A))	SD (dB(A))	Range (dB(A))
<i>L_{Aeq}, 8 h</i>				
Road	1924	51.3	5.2	37.5
Rail	1920	47.1	4.2	25.3
Air	1924	51.3	6.4	35.0
Control	1924	46.6	6.2	23.4
<i>L_{Amax}, 8 h</i>				
Road	1924	63.8	5.9	45.7
Rail	1920	57.9	7.7	41.8
Air	1924	64.2	9.8	48.8
Control	1924	60.7	11.4	39.1
<i>L_{A90}, 8 h</i>				
Road	1924	41.9	4.5	33.2
Rail	1920	40.0	3.2	19.1
Air	1924	38.1	2.6	19.2
Control	1924	37.6	1.8	13.3

Interestingly the results from the study suggest that LA_{eq} is an inadequate indicator of night-time noise disturbance:

“It is useful to compare these results with the measurement data from Table 3. Take the air location as an example. There the night-time measured average LA_{eq} value is below 55 dB(A). In a typical noise assessment, this would indicate that while residents are subject to a

potential increase in adverse health effects, frequent adverse health effects would not be expected. However, the subjective data at this location points to levels of bother, annoyance or disturbance in greater than 90% of households suggesting, contrary to the measurement data, frequent adverse health effects. Indeed, while the average LAeq data for the road and air locations are similar, indicating comparable noise environments, the subjective responses to disturbance at the two locations is different. Taken together, the results suggest that LAeq is an inadequate indicator of night-time environmental noise disturbance.”

The report concludes that in terms of subjective responses, aircraft noise is overwhelmingly the most disturbing:

“In terms of subjective responses, our study shows that aircraft noise is overwhelmingly the most disturbing with approximately three quarters of residents at the air location reporting some level of disturbance during a typical week night and over a third reporting interference with their sleep. This result is not significant in itself because previous studies have demonstrated that aircraft noise is highly disturbing. However, its significance lies in comparing the subjective responses with measured data which if relied upon solely would have indicated a relatively unproblematic night-time noise environment.”

The report also references a paper from Murphy and King ([https://researchrepository.ucd.ie/bitstream/10197/5692/1/An assessment of residential exposure to noise at a shipping port.pdf](https://researchrepository.ucd.ie/bitstream/10197/5692/1/An%20assessment%20of%20residential%20exposure%20to%20noise%20at%20a%20shipping%20port.pdf)) where the authors argued that the:

“LAeq indicator tends to underestimate the magnitude of the health impact of environmental noise in terms of sleep disturbance. Indeed, laboratory studies using recorded intermittent and continuous traffic noise have demonstrated that human subjects are more disturbed by intermittent noise than by continuous noise (Öhrström and Rylander, 1982). Furthermore, a field study by Janssen et al. (2014), which investigated the number of aircraft noise events on sleep quality, found that the number of noise events above 60 dB(A)LAmax was related to an increase in mean motility amongst respondents, indicating lower sleep quality. These studies suggest that LAmax may be a more appropriate indicator for night-time noise because it better captures intermittent noise which has a greater impact on sleep disturbance. This is particularly important for the current study given the nature of the noise in the study locations which includes numerous short bursts of loud noise from passing buses, trams and overflying aircraft at regular and irregular intervals.”

17.5 AIRCRAFT ENVIRONMENTAL NOISE STUDY SURVEY

The St Margarets and The Ward Residents Group contracted the MLM Group to conduct surveys on properties that had been insulated under the daa's schemes. The purpose of the surveys was to investigate the internal bedroom noise to determine what levels of noise the occupants were being subjected to in relation to best international guidance for health. The ProPG Guidelines discussed earlier in this section state that:

“Indoor sound pressure levels should not exceed approximately **45 dB LAmax more than 10-15 times per night**. This guidance on internal noise levels remains current. Accounting for sleeping with a bedroom window slightly open (and a reduction from outside to inside of 15 dB), this translates to an **outside sound pressure of 60 dB LAmax**”.

It should be noted that the Fingal County Council Variation #1 to the Development Plan focuses on the ProPG Guidelines:

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’		

As can be seen from the survey report, property number #1 experienced 20 events > 45 dB LAmax, property number #2 experienced 17 events > 45 dB LAmax and property number #3 experienced 1 event > 45 dB LAmax. As the report states it is likely that these events will increase when normal activity resumes at Dublin Airport post Covid-19. It is also worth noting that the aircraft are operating at a lot lower loading factors than normal times and therefore the aircraft are lighter and therefore climb higher at a quicker rate.

The CEO of the daa, Mr Dalton Philips, is quoted in an RTE article from September 9th 2020 as stating that the load factors of the 31 airlines operating at Dublin Airport were at 39%, compared to 90% a year earlier (<https://www.rte.ie/news/business/2020/0909/1164158-dublin-airport-operator-losing-1m-a-day-due-to-covid/>). He further states that every day in 2019 around 100k passengers on average used the airport, but that in 2020 the average was down to 16.5k. It is a safe argument to make that with the lower passenger numbers and lower loading factors that the weight of the aircraft would be significantly reduced and requiring less fuel. As a result, the noise experienced in the 3 properties during the surveys is not reflective of normal operations at Dublin Airport and it would be anticipated that the properties would experience even greater noise levels when normal operations resume.

A very important factor to consider in conjunction with the LAmax values is the relative increase from ambient baseline levels at night. At night the quiet periods between flights show LAFmax levels very low in the low 20's. This then increases by as much as 30 dB when there is a flight. That is a very significant change in noise level and would be an increased risk factor for being awoken from sleep and as the next section discusses, an increased risk of a serious cardiovascular event.

This report clearly demonstrates that the insulation scheme provided by the daa fails to adequately protect the residents in the environs of Dublin Airport. They are being exposed to noise levels in their bedrooms that lead to adverse health effects and are at risk to acute cardiovascular events. Insulation is not a safe mitigating factor for these residents and only a complete ban on night-time flights can protect their health.

17.6 HEALTH STUDY ON AIRCRAFT NOISE EVENTS

On December 23rd, the European Heart Journal published an editorial (<https://academic.oup.com/eurheartj/advance-article/doi/10.1093/eurheartj/ehaa984/6046141>) titled 'Noise and cardiovascular risk: nighttime aircraft noise acutely triggers cardiovascular death'. The editorial refers to 'Does night-time aircraft noise trigger mortality? A case-crossover study on 24 886 cardiovascular deaths', by A. Saucy *et al.*, doi: [10.1093/eurheartj/ehaa957](https://doi.org/10.1093/eurheartj/ehaa957).

The editorial discusses how most epidemiological studies have focused on cardiovascular side effects of long-term exposure to transportation noise.

"So far, most epidemiological studies have focused on cardiovascular side effects of long-term exposure to transportation noise (for reviews, see Basner *et al.*⁷ and Munzel *et al.*⁸). Importantly, translational studies in humans and animals primarily focused on health side effects of nighttime noise with respect to the cardiovascular system.⁹ In humans only one night of aircraft noise triggered endothelial dysfunction, increased stress hormone levels, and deteriorated sleep quality.¹⁰ These effects were even more pronounced in patients with already established CVD.¹¹ The acute administration of the antioxidant vitamin C improved endothelial dysfunction, suggesting an involvement of reactive oxygen species in the pathophysiology of noise-induced vascular dysfunction.¹⁰ Recent animal studies indicated that aircraft noise applied during the sleeping phase of mice, but not during the awake phase, raises blood pressure, dysregulates genes related to the circadian clock and stress hormone levels, causes endothelial dysfunction, and increases cerebral and vascular oxidative stress.¹² These observations may indicate that the disturbance of sleep (e.g. sleep deprivation or fragmentation) may account at least in part for noise-induced cardiovascular damage."

Even one night's exposure to noise pollution affected the cardiovascular system:

"Epidemiological and translational studies of humans with and without coronary artery disease revealed that nighttime exposure to different transportation noise patterns for only one night adversely affected blood pressure, diastolic heart function, sympathovagal balance, and the plasma proteome."

This study sought to determine the effect of acute exposure to night-time aircraft noise on cardiovascular death. The authors analysed 24886 CVD deaths from the Swiss National Cohort around Zurich Airport between 2000 and 2015. The authors established that:

"for nighttime deaths, aircraft noise exposure levels 2 h preceding death were significantly associated with mortality for all causes of CVD"

The authors also calculated a population-attributable fraction of 3% in their study population and finally concluded that nighttime noise may trigger acute cardiovascular mortality.

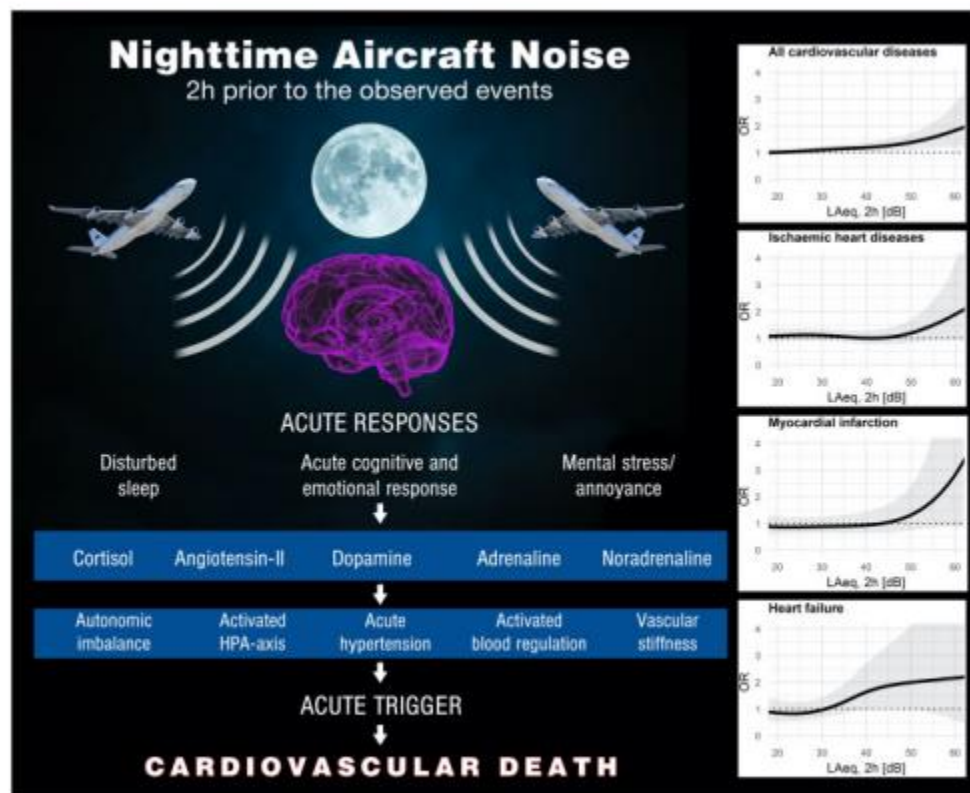


Figure 1 Effects of acute nighttime aircraft noise exposure that lead to cardiovascular death. Inserts (right panel) show substantial odds ratios of nighttime mortality in relation to 2 h- L_{Aeq} levels (energy-equivalent average A-weighted sound pressure level expressed in decibels) as adapted from Saucy et al.,¹⁶ with permission.

Quite worryingly, the study found higher associations for people living in areas with low background noise and in buildings constructed before 1970. A large cohort of rural Fingal, Dublin West and Meath would fit into this category and so are more at risk.

The editorial asks the question about these findings: “What are the societal and political consequences?”

They state that this study describes for the first time the acute effect of noise on cardiovascular mortality, indicating that aircraft noise is a trigger for fatal acute coronary events.

The authors suggest that if these findings are confirmed by further studies at airports with higher night-time noise exposure, **a complete ban on night-time flights** must be the consequence and **reinforcing the WHO noise limits**.

Based on this study's findings, Fingal County Council and the Health Authorities should conduct a similar study around Dublin Airport. No such study has ever been carried out.

This editorial shows that LAmax single noise events during the night-time period can trigger fatal acute coronary events, and it is imperative that they should be minimized.

17.7 IMPACT OF AIRCRAFT NOISE POLLUTION ON RESIDENTS OF LARGE CITIES

(Study requested by PETI Committee of the European Parliament: [https://www.europarl.europa.eu/RegData/etudes/STUD/2020/650787/IPOL_STU\(2020\)650787_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/STUD/2020/650787/IPOL_STU(2020)650787_EN.pdf))

In section 3.4 (Improving Noise Metrics) of this 2020 European Parliament study it states:

“Furthermore, the use of new metrics like Number of Events above a certain noise value are being pushed forward. As it is indicated in the WHO 2018 Environmental Noise Guidelines for the European Region *“There is additional uncertainty when characterizing exposure using the acoustical description of aircraft noise by means of Lden or Lnight. Use of these average noise indicators may limit the ability to observe associations between exposure to aircraft noise and some health outcomes (such as awakening reactions); as such, noise indicators based on the number of events (such as the frequency distribution of LA,max) may be better suited. However, such indicators are not widely used”.*”

The above statement refutes the argument made by ANCA on page 21 of its Consultation Report

“There is research which has used alternative metrics to describe the potential impacts of aircraft noise events on sleep, such as indoor and outdoor LAmax levels, their distribution and occurrence. Whilst recognising that such metrics can be used to describe effects such as awakenings and physiological reaction, ENG18 states that: *“the relationship between different types of single-event noise indicators and long-term health outcomes at the population level remains tentative”*. As such the ENG18 made no recommendations for single-event noise indicators.”

Section 3.4 of the European Parliament study is also referenced in ‘Towards Mapping of Noise Impact’ (<https://link.springer.com/content/pdf/10.1007/978-3-030-91194-2.pdf>). It goes on further to state:

“There is, therefore, a proposal to start giving more priority to other noise indicators (in particular event-related metrics) as well as calculating lower noise level contours to present noise exposure, which is a challenging modification considering the way the noise effects have been studied until now.

This also supports the notion that annoyance is not just a yearly value and cannot be characterised by a single metric. More and more countries are considering various metrics simultaneously.”

In 'Aircraft noise effects on sleep: Substantiation of the DLR protection concept for airport Leipzig/Halle'

(https://www.dlr.de/me/en/Portaldata/25/Resources/dokumente/flugphysiologie/ICBEN_Proceedings_2008_p772-779_Leipzig.pdf), the author Mathias Basner presents findings of nocturnal aircraft noise on sleep in polysomnographical laboratory and field studies between 1999 and 2004. The noise protection plan for Leipzig/Halle is presented and substantiated:

- (1) on average, there should be less than one additional awakening induced by aircraft noise,
- (2) awakenings recalled in the morning should be avoided as much as possible, and
- (3) aircraft noise should interfere as little as possible with the process of falling asleep again.

17.8 THE EFFECT OF AIRCRAFT NOISE ON STROKE

A study by Seidler et al in 2018 titled ‘*The Effect of Aircraft, Road, and Railway Traffic Noise on Stroke – Results of a Case-Control Study Based on Secondary Data*’ (<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6122263/>) highlights a 7% increased chance of risk of stroke from Aircraft Noise from 6 single night noise events > 50dB, even though the nightly average was < 40dB.

“However, stroke risk was statistically significantly increased by 7% [95% confidence intervals (95%CI): 2–13%] for people who were exposed to <40 dB of 24-h continuous aircraft noise, but ≥6 events of maximum nightly sound pressure levels ≥50 dB”.

This shows the importance of LAmax and single noise events relative to average noise values. In the conclusion it states:

“Overall, this study suggests that traffic noise exposure may increase stroke risk. It furthermore indicates that maximum aircraft noise levels at night increase the stroke risk even when continuous noise exposure is low. This highlights the relevance of maximum noise levels for future research and policies regarding aircraft noise protection measures”.

This study shows the effects of just 6 noise events at night >50dB. As discussed earlier in this chapter, ‘2025 Proposed’ will equate to 56k people exposed to > 10 N60 noise events (N60 is noise above 60dB at night). ‘2025 Permitted’ equates to 45k people subjected to > 10 N60 noise events. Thus, ‘2025 Proposed’ will increase the population exposed to > 10 N60 noise events by 26%.

‘2025 Proposed’ will have a significant increase in the number of people exposed to > 10 N60 events compared with Gatwick Airport. Gatwick Airport had 33850 people subjected to > 10 N60 events in 2019 (<https://www.gatwickairport.com/globalassets/company/airspace/noise-reports/2020/noise-contour-report-2020.pdf>). Dublin in comparison had 80k exposed in 2019. With ‘2025 Proposed’, Dublin will have a 65% increase in > 10 N60 noise events compared to Gatwick in 2019.

It is also of note that the CAA in the UK, on behalf of the Department of Transport, used N60, N65 and N70 metrics in their ‘*Aviation Strategy: Noise Forecast and Analyses*’ from 2018 (http://publicapps.caa.co.uk/docs/33/CAP1731AviationStrategyNoiseForecastandAnalyses_v2.pdf).

(It is worth noting that the WHO 2018 Guidelines used research up to 2015, and research such as this from Seidler et al has been conducted since then, and all new research since 2015 should be taken into account when evaluating the health effects of aircraft noise.)

18.0 CONFLICT OF INTEREST

18.1 NOISE CONSULTANTS

Members of the consortium of noise consultants acting on behalf of ANCA have also worked on projects for Fingal County Council. Regulation 598/2014 states that the Competent Authority *“should be independent of any organisation involved in the airport’s operation, air transport or air navigation service provision, or representing the interests thereof and of the residents living in the vicinity of the airport”*. It further states that *“The competent authorities shall be independent of any organisation which could be affected by noise-related action”*.

Fingal County Council is the designated authority for noise mapping under the Environmental Noise Directive 2002/49/EC. Fingal County Council has also developed Noise Zones for planning purposes. Mr Simon Shilton has worked extensively for Fingal County Council with the development of the Noise Zones. Mr Shilton has also been engaged by ANCA as part of the Noise Consultants consortium. It is also worth noting that Mr Shilton is also working for the EPA in Ireland.

Mr James Trow the lead noise consultant for ANCA has also worked on assignments for Fingal County Council when he was employed by Amec Foster Wheeler.

18.2 FINGAL COUNTY COUNCIL

Fingal County Council is the local authority in which Dublin Airport resides. Fingal County Council was not the first choice as Competent Authority and controversy arose when it was initially earmarked for the role (<https://www.irishtimes.com/business/transport-and-tourism/council-warned-government-it-could-not-be-noise-regulator-for-dublin-airport-runway-1.3798272>). The Director of Services at the time, Ms AnnMarie Farrelly (now CEO of Fingal County Council) wrote to the Department of Transport outlining the concerns of Fingal County Council as the Council is responsible for the County Development Plan, Dublin Airport Local Area Plan and Noise Action Plan which are reserved functions of the Council.

The concerns about the conflict of interest with Fingal County Council was also raised in the Oireachtas (<https://www.oireachtas.ie/en/debates/debate/seanad/2019-04-03/9/?highlight%5B0%5D=amendments&highlight%5B1%5D=amendments&highlight%5B2%5D=bill&highlight%5B3%5D=development&highlight%5B4%5D=government&highlight%5B5%5D=development&highlight%5B6%5D=planning&highlight%5B7%5D=development&highlight%5B8%5D=government&highlight%5B9%5D=bill>) where it was stated that Fingal County Council received up to 29million euro in rates annually from the airport campus. This is on top of the 21million euro received in development levies for granting permission for the North Runway.

There should be a clear separation of duties between the Competent Authority and Fingal County Council Planning department. It is evident that this is not the case.

Comhairle Contae Fhine Gall
Fingal County Council

record 5
An Roinn um Pleanáil agus
Infrastruchtúr Straitéiseach
Planning and Strategic
Infrastructure Department



Fintan Towey
Assistant Secretary
Aviation, Policy Coordination and Human Resources,
Department of Transport, Tourism & Sport
Leeson Lane,
Dublin 2,
Ireland. D02TR60

2nd November 2017

Ref: Engagement with Department of Transport on Dublin Airport noise Issues.

Dear Fintan,

Thank you for the meeting held on Friday 27th October, which representatives of Fingal County Council attended at your request. During the meeting there was discussion surrounding which body would be best suited to act as the competent noise authority for noise control at Dublin Airport and the importance of the matter is recognised. It is also acknowledged that Dublin Airport is the principle gateway to Ireland and a major contributor to the national economy. In this regard Dublin Airport represents the most significant single economic entity in Fingal and the Dublin region.

Presently Fingal County Council has an extensive remit in both shaping and determining the strategic direction of Dublin Airport through its land use planning and associated functions. The recent adoption of the Fingal Development Plan was the Council's first step in delivering the tiered structure of plans associated with Dublin Airport, as required under the Irish Planning System. The Development Plan includes policy for the implementation of Government policy to develop Dublin Airport as a secondary hub airport, competing effectively with the UK and other European airports for the expanding global aviation services market. This objective is aligned with strategic policy in the areas of noise, public safety, transport, air quality, water quality

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management and its interaction with surrounding land uses and communities amongst other issues.

The adoption of the Fingal Development Plan is a reserved function of the Elected Members of the Council. In the context of the Balanced Approach, Objective DA09 of the Development Plan, as adopted (and amended) by the Elected Members, already commits to *"Ensure that aircraft-related development and operation procedures proposed and existing at the Airport consider all measures necessary to mitigate against the potential negative impact of noise from aircraft operations (such as engine testing, taxiing, taking off and landing), on existing established residential communities, while not placing unreasonable, but allowing reasonable restrictions on airport development to prevent detrimental effects on local communities, taking into account EU Regulation 598/2014 (or any future superseding EU regulation applicable) having regard to the 'Balanced Approach' and the involvement of communities in ensuring a collaborative approach to mitigating against noise pollution"*.

Following from the adoption of the Development Plan, the Council is now in the process of preparing, as required, the Dublin Airport Local Area Plan, in the context of the strategic policy as set out in the parent Development Plan document and other relevant national policy guidance. The Local Area Plan will include more specific objectives for the zoning of land for particular purposes, infrastructural requirements, and such other objectives for the proper planning and sustainable development of the area. Ultimately, the Local Area Plan will be the statutory framework against which future development proposals will be assessed in the area. Again, the adoption of the Local Area Plan is a reserved function of the Elected Members of the Council.

Arising from the delivery of the above referenced statutory planning frameworks associated with Dublin Airport, Fingal County Council is also responsible for determining applications for planning proposals at Dublin Airport, in line with the adopted policy. Part of this function also includes the disposal of planning compliance associated with conditions of such permissions and which may also relate to caveats in terms of operations restrictions at the airport.

In light of the existing complex and varied role that Fingal County Council plays, as outlined above, it is considered that the Council may not be best placed to act as the 'Competent Authority' for the purpose of implementation of the Regulation 598/14 with particular reference

to clause 13. Clause 13 states that *"The competent authority responsible for adopting noise-related operating restrictions should be independent of any organisation involved in the airport's operation, air transport or air navigation service provision, or representing the interests thereof and of the residents living in the vicinity of the airport. This should not be understood as requiring Member States to modify their administrative structures of decision-making procedures"*.

Further, Fingal County Council does not have the requisite competencies available within the Council in areas of aviation operations, noise (including contour mapping) and economic feasibility assessments for the purpose of determining the cost-effectiveness of solutions within the context of the 'Balanced Approach' as set out in the Regulation.

In this regard, and again in the context of clause 13 it may be that other independent bodies, which do not hold conflicting responsibilities in the provision of other functions that influence the development of Dublin Airport, should be considered for appointment as 'Competent Authority' for the purpose of Regulation.

I wish to thank you for your engagement on this issue and please be advised that I am more than happy to discuss any of the matters touched upon in my letter or to assist in any way in your progression of the issue.

I look forward to hearing from you in the matter and to our continued positive engagement.

Yours sincerely



AnnMarie Farrelly

Director of Services

Planning and Strategic Infrastructure Department

18.3 DELEAYED ASSESSMENT

On June 25th 2020, the DAA wrote to ANCA informing them of their withdrawal of F19A/0449. In email correspondence from ANCA on July 15th 2020 when queried on the noise assessment, ANCA stated:

*“I can confirm that planning application F19A/0449 has been withdrawn by the DAA. Although the aircraft data as submitted by the airport authority as part of the planning application was informative, it was not sufficient to facilitate a full assessment of the noise situation at the airport. ANCA requested detailed additional information but a response to the request was not received in advance of the application being withdrawn. This information is on the planning section of our website. Notwithstanding this, it is the intention of ANCA that a full aircraft noise assessment will be undertaken for Dublin Airport. **I do not have a date for the assessment at this time** but can advise that there will be no pre-determined outcome.”*

ANCA could still have requested the information irrespective of the DAA withdrawing F19A/0449 to carry out a noise assessment but declined to do so.

ANCA also neglected to inform the Environmental section of FCC about the increase in noise.

The 32m passenger cap is an operating restriction that ANCA is responsible for under the Aircraft Noise Bill. ANCA were made aware of the 32m limit being breached in 2019 yet failed to act. No repercussions for the daa from ANCA or Fingal County Council for breaching this cap in 2019. The daa acquired passenger charges from 0.9m passengers unlawfully and the Commission for Aviation Regulation also failed to intervene.

It is worth noting that Fingal County Council Planning Department updated their Development Plan with new Noise Zones to take account of night-time noise > 55 dB Lnight. That should have triggered the Environmental section of Fingal County Council to act to enforce mitigation measures at Dublin Airport under their NAP. Unfortunately, that did not happen. Nor did ANCA intervene with the noise problem identified by Fingal County Council Planning Department. ANCA turned a blind eye.

18.4 AIRCRAFT NOISE BILL – GENERAL SCHEME

In the General Scheme of the Bill published in September 2018, Head 6 states that the Noise Abatement Objective is to be defined after the commencement day:

PART II NOISE ABATEMENT OBJECTIVE AND NOISE ASSESSMENT

Head 6 Noise abatement objective to be defined after the commencement day

Provide That:

- 1) As soon as practicable after the commencement day, the Competent Authority shall:
 - (a) define, and publish, the draft initial noise abatement objective for the airport;
 - (b) invite submissions in relation to the draft noise abatement objective from interested parties.

The intention of the Bill was to define the Noise Abatement Objective shortly after ANCA were incorporated. The explanatory note with the General Scheme states:

Explanatory Note

This Head provides that once the Competent Authority has been officially designated on commencement of the Act, that they will publish a draft noise abatement objective. The Competent Authority shall invite submissions in relation to the draft noise abatement objective. Following the public consultation and having considered any submissions, the Competent Authority shall define the noise abatement objective. The objective will be defined no later than 8 weeks after the publication of the draft objective.

In a Joint Committee on Transport, Tourism and Sport meeting on Oct 3rd 2018, Mr Ronan Gallagher (Principal Officer at the Department of Transport, Tourism and Sport) answered a question from Deputy Troy on the Noise Abatement Objective:



Mr. Ronan
Gallagher



Assuming we have an establishment day, the intention is for the noise abatement objective to kick off from then. There will be a period of eight weeks in which to produce one. The intention of the Bill is for there to be a noise abatement objective within eight weeks of it being enacted. Part VI explains how Fingal County Council will arrive at that objective, including the information to which it will refer in bringing the objective to fruition. The Deputy is right about the objective being the key first step, but we would not include a calendar date in primary legislation. It depends on when the Bill is enacted, but the intention is for it to happen within eight weeks of establishment. If we say that and then-----

**Mr. Ronan
Callagher**



We will examine the issue. The Deputy is right. We will see if we can define it. The Department's intention is for it to happen without any delay, as everything will derive from it.

However, this requirement to have the Noise Abatement Objective defined within 8 weeks of incorporation of ANCA did not make it to the Aircraft Noise Bill 'as initiated' in November 2018.

It is clear that it was the intent of the Department to have the Noise Abatement Objective defined as soon as possible but ANCA refused to carry out such an assessment under section 9 of the Act.

18.5 SECTION 21(3) REVIEW / DISPUTE RESOLUTION

ANCA used the omission of a noise abatement objective to refuse a section 21(3)(a) review:

“The airport authority, or a person upon whom there is a noise impact from the airport, may, by notice in writing given to the competent authority, request the competent authority to review the effectiveness of the noise mitigation measures and operating restrictions (if any) on achieving the noise abatement objective”.

- ANCA stated:

“Section 9 of the 2019 Act provides for the process of assessment of the noise situation at the Airport. There is no requirement in the 2019 Act to have such an assessment completed by 1st September.”

Section 9(2) states that the Balanced Approach should be applied where a *“noise problem at the airport has been identified”*. The 2019 noise statistics clearly show a continuing noise problem and therefore ANCA were mandated to act, and failure to do so was a dereliction of their duties.

Article 1 of EU 598/2014 states:

“This Regulation lays down, where a noise problem has been identified, rules on the process to be followed for the introduction of noise-related operating restrictions in a consistent manner on an airport-by-airport basis, so as to help improve the noise climate and to limit or reduce the number of people significantly affected by potentially harmful effects of aircraft noise, in accordance with the Balanced Approach”.

ANCA would only evaluate the noise situation at Dublin Airport when the daa lodged a planning application. This is not a ‘Balanced Approach’ and the health of the public under the legislation was not being taken seriously and ANCA failed in their duties under the Act and EU 598/2014.

EU 598/2014 states that:

“they shall ensure that dispute resolution is provided for”

ANCA stated that:

“No regulations have been made by the Minister to date under this section of the 2019 Act and I am not aware of any intentions in this regard”.

There is no dispute resolution available mechanism and Ireland is not compliant with EU598/2014. This is a serious lapse in the legislation for an individual’s right to seek redress.

CONCLUSION

In this report we have outlined serious deficiencies with ANCA's regulatory decision and the daa's revised application. 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 by the daa to hold a public consultation is in breach of the North Runway's planning permission conditions. ANCA also failed to engage fully in the consultation process. There were opportunities after the Covid restrictions were lifted to host public events, but they declined to do so. ANCA should publish the figures on the number of people who logged on to their webinars and whether these numbers can be considered as a valid public consultation. As a result of Covid restrictions, a leaflet drop should have been carried out to inform the public. The majority of people in Fingal and Dublin West are either not aware of the consultation process or unable to make sense of the onerous amount of technical detail. Residents are unaware that their houses qualified for insulation under the daa's submission and subsequently removed by ANCA. This is not proper consultation with the people most affected by the daa's proposal.

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 three 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 three rounds of the END show a noise problem. ANCA have also acknowledged that a noise problem existed in the three rounds of the END, yet incredibly choose 2019 as the baseline reference year. 2019 was the year that the daa breached the 32m passenger planning cap. ANCA were informed as was Fingal County Council of the impending breach in 2019 yet declined to take any action. ANCA have responsibility for the 32m cap as it's classified as an operating restriction.

This submission includes a health report from one of the foremost authorities, Professor Münzel, on aircraft noise and their effects on the cardiovascular system. 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 ANCA and 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. ANCA failed to engage medical expertise on their decision-making process. The residents of Fingal and Dublin West are more than just numbers. They deserve a thorough analysis of the health effects of the daa's proposal. The daa have stated that they don't collect material on the health effects of aircraft noise, nor have they conducted any research. ANCA have also failed to produce any evidence that they have engaged medical expertise.

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.

The regulatory decision outlines how ANCA have accepted almost in its entirety all the proposals from the daa. The only deviation from the daa's submission is the choice of an 8-hour Quota Count System instead of a 6.5 hour one. But even with an 8-hour Quota Count System, ANCA accepted the daa's 16260 count value which ANCA have stated leads to no loss of flights to the daa. The Quota Count System proposed does not have an associated movement limit which is the norm in the UK. The Quota Count System is simply a marketing ploy by the daa that has been accepted by ANCA. ANCA's own analysis shows that the Noise Quota System does not introduce a cost as no flights will be reduced. This is farcical and calls into question ANCA's competence.

ANCA's regulatory decision will lead to fewer houses being insulated under criteria 2 for night-time insulation. Incredibly ANCA don't even realise this and are publicly acknowledging that their changes to the insulation scheme is better than the daa's proposal. How does less houses included in the insulation scheme improve the scheme?

ANCA are also trying to take credit for imposing a 6-hour restriction on the North Runway at night. An Bord Pleanála already imposed planning condition 3(d) which covers an 8-hour period from 23:00-07:00. ANCA should be transparent with the public and state the obvious, that they reduced the limit from 8 hours to 6.

To understand ANCA's regulatory decision, one simply has to take a look at the number of people who will be Highly Annoyed, and Highly Sleep disturbed after their decision. 79,405 people will be left Highly Annoyed and 37,080 will be left Highly Sleep Disturbed. The WHO's definition of Highly Sleep Disturbed assigns a disability weighting of 0.07. This means that being

Highly Sleep Disturbed due to environmental noise reduces a completely healthy individual's health by around 7%. The disability weight for Highly Annoyed is 0.02 or 2%. ANCA have failed in their draft decision to account for the health costs associated with the daa's proposal. They also fail to take the carbon emissions costs for the increase in aircraft movements that is facilitated by their decision. As a result of ANCA's draft decision there will be a high price to pay for the public both in terms of health and carbon costs that dwarfs any financial or economic gain from additional aircraft activity. The daa's forecast figures show that their proposal will lead to only an additional 2 flights between 06:00 and 08:00 in 2025 compared with restrictions in place. How can an Independent Regulator inflict serious adverse health effects and costs on the population it is mandated to protect for such limited gain? ANCA has not forensically examined the daa's proposal and has effectively rubber stamped it.

The St Margaret's The Ward Residents submitted a report previously to the Planning Authority, 'DAA Report 22.10.2021.pdf', which is included in Appendix A. ANCA needs to explore relocation options with the daa and Fingal County Council for those people most affected by noise and where ANCA's decisions would leave these people vulnerable to the adverse effects of Aircraft Noise. ANCA are responsible for removing the night-time restrictions and therefore the onus is on ANCA to find a safe environment for these people and their families to live. In their current draft decision, ANCA have not explored relocation options or taken on board the residual health effects and costs associated with their decision. The community has proposed Thornton Hall as such a site that would be acceptable to the community and ANCA need to explore this option in depth. To finance this relocation scheme, the community is advocating an increase to the passenger charge imposed on travellers along the lines of the 'Polluter Pays' principal. The monies raised from such a charge could be ring fenced to purchase Thornton Hall and provide housing for the displaced residents. The cost is borne by the 'Polluter' and not by Government.

In conclusion, we call on An Bord Pleanála to reject this regulatory decision from ANCA as there's no justification for it except inflicting health costs and carbon costs on the public.

APPENDIX A

DAA Report 22.10.2021.pdf

APPENDIX B

Dublin_Airport_Noise_Medical_Report.pdf

APPENDIX C

HealthEffectsOfAircraftNoiseOnTheCardiovascularSystem.pdf

APPENDIX D

Video - “Health Effects Of Aircraft Noise on the Cardiovascular System”

APPENDIX E

NMT I 2 3 2016 2018 2019 LMAX EVENTS.XLSX

APPENDIX F

HSE.PDF

APPENDIX G

ENVIRONMENTAL HEALTH SUBMISSION FEB 2022.PDF

APPENDIX H

KING_SUBMISSION.PDF

APPENDIX I

**SJK ANCA draft decision consultation F20A0668.pdf, SabrinaJoyceKemper.pdf,
00718132.pdf, Enviro Section F20A0668 SJK.pdf**

APPENDIX J

Receipt of submission FIN-C338-ANCA-308.pdf

APPENDIX K

AdverseCardiovascularEffectsOfTrafficNoiseWithAFocusOnNightTimeNoiseAndTheNe
wWHONoiseGuidelines.pdf

APPENDIX L

525093-MLM-ZZ-XX-RP-YA-0001-Aircraft Noise Survey.pdf

APPENDIX M

<https://consult.fingal.ie/en/node/15666/submissions>

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