



The Institute of Acoustics

Response to the draft Heathrow Expansion NPS consultation

This is the text of the full response from the Institute of Acoustics that is summarised on the HENPS consultation Smart Survey portal.

1. Background

The Institute of Acoustics (IOA) is the UK's professional body for those working in the fields of acoustics, sound, noise and vibration. Members of the Institute have been working on the assessment, management and mitigation of noise from airport operations for many years. This has included preparing and presenting evidence at public inquiries and, more recently, at Development Control Order examination hearings. In fact, it is true to say that members of the IOA have provided their experience and expertise regarding every airport development in the UK for at least the past 45 years. IOA members have represented airport operators, airlines, local authorities and residents' groups. Consequently, we have a thorough understanding of the noise management issues of airport operations. Members also have experience of working in and for Government on noise issues, including the development and implementation of noise management policy.

The Institute's response to the various questions asked by the Department can be found on the Smart Survey portal. However, it was felt that providing some overarching background to our response might assist officials in evaluating, and hopefully, accepting our comments.

The IOA's response has been compiled by an experienced team of members, who have between them well over 100 years' experience of working on this issue relating to many airports in the UK. The response has been approved by the IOA's Executive Committee on behalf of the IOA's Governing Council.

The focus of the IOA's response is on the policies that relate to the management of noise and vibration within the HENPS. We have also taken the opportunity of providing some observations on the results of the recently published ANAS research referred to in the HENPS and its Appraisal of Sustainability.

Relevant members of the IOA would be delighted to meet with officials, either on-line or in person, to discuss our responses in order to assist in the finalising of the HENPS and to discuss the other points we have raised.

2. Comments on the draft HENPS

2.1 Paragraph 5.55 as drafted

The IOA recognise that Paragraph 5.55 in the draft HENPS is the new key decision-making test for noise (replacing ANPS 5.68). Limiting Heathrow Expansion noise to being no worse than 2024, or lower if reasonably possible, is not a matter for the IOA. There are, however, four technical noise policy points regarding para 5.55 that the IOA believe should be addressed. Fundamentally these are linked to the draft HENPS being inconsistent with the Noise Policy Statement for England (NPSE), a longstanding golden thread through policy, and decision-making precedent:

1. In our view, the first bullet point of paragraph 5.55 is undeliverable.

It has been established in decision-making at least since 2014 that avoiding significant adverse impacts on health and quality of life relies on all available mitigation measures to be



available for use, including noise insulation. However, as drafted paragraph 5.55 links avoidance of significant adverse impacts only to the use of quieter aircraft and operating procedures.

Without reference to noise insulation as well as all other mitigation brought forward by a proposal (e.g. quieter aircraft technology, land use planning, noise abatement operating procedures, and noise-related operating restrictions), the requirements of paragraph 5.55 could not be met by any major UK airport and the vast majority of regional airports.

2. Footnote 113 of the first bullet point appears to link avoiding significant adverse impacts on health and quality of life to thresholds that are currently defined in policy as Lowest Observed Adverse Effect Levels (LOAELs) rather than the Significant Observed Adverse Effect Levels (SOAELs) that should be used to identify such effects.

We assume that the values quoted define the area to be used for determining compliance with “reducing overall aircraft noise compared to 2024”. This ambiguity could risk lengthy and unnecessary challenges during examination with some asserting that 51 dB $L_{Aeq,16h}$ and 45 dB $L_{Aeq,8h}$ are now to be regarded as SOAEL. In fact, one IOA member has already received that comment from a barrister.

This ambiguity can be straightforwardly avoided by noting that the thresholds in footnote 113 are LOAELs (as defined by the Aviation Policy Framework as amended in 2017 and reconfirmed in the recent 2026 update of the Airspace Navigation Guidance).

3. For the avoidance of doubt and to be in line with the NPSE and aviation noise policy objectives, it is recommended that the phrase “reducing overall aircraft noise compared to 2024” should be changed to ‘reducing overall aircraft noise adverse effects compared to 2024’. Presumably that is the actual intent of that sentence and framing the test in terms of effects enables the benefits of mitigation such as noise insulation, respite and even non acoustic factors to be taken into account.
4. The second bullet point requires that *“The scheme will provide adequate, predictable respite for communities..”*. What is ‘adequate’? Presumably the Examining Authority would decide, but how would they make such a decision? In line with the long-established guidance on planning conditions, the requirement should be enforceable, reasonable and precise.

Furthermore, paragraph 5.46 of draft NENPS requires that details of the respite scheme, including timings, duration and scheduling, should be defined with engagement with local communities and relevant stakeholders. To this end the IOA recommends that the term “adequate” is omitted from paragraph 5.55.

If the current form of paragraph 5.55 is to be retained, the IOA recommends that it is revised as follows:

5.55 While an increase in noise in some areas is not, in itself, a reason to refuse development consent, to meet the Government’s noise test, a promoter must show that:

- *The scheme will avoid significant adverse impacts on health and quality of life from noise by limiting, and where reasonably possible, reducing overall aircraft noise*



- adverse effects compared to 2024¹¹³ taking account of all mitigation including quieter aircraft, appropriate noise abatement operating procedures and noise insulation; and*
- The scheme will provide predictable respite for communities including a runway alternation scheme and a night flight ban which together with other measures will mitigate and minimise adverse impacts on health and quality of life from noise.*

Footnote:

¹¹³ With reference to the area impacted in the 51 dB L_{Aeq,16h} contour for daytime noise and the 45 dB L_{Aeq,8h} contour for nighttime noise (i.e. the area within the Lowest Observed Adverse Effect Levels defined in the Aviation Policy Framework as amended in 2017^[1] and reconfirmed in the recent 2026 update of the Airspace Navigation Guidance)

¹The APF was amended in 2017 by paragraph 9 of the executive summary to Consultation Response on UK Airspace Policy: A framework

Notwithstanding our comments above, the IOA strongly recommends that it would be more robust and would avoid all ambiguity if paragraph 5.55 were replaced by the core requirements of the NPSE. This would be consistent with the ANPS (para 5.68), which has worked effectively since its introduction, and with all the other National Policy Statements.

Application of the key noise decision-making test would then benefit from the decision-making precedents created since 2014, for example, including the recent decisions for the London Luton Airport and London Gatwick Airport expansions.

Our proposed revised para 5.55 would also be applicable to all the other noise sources associated with the expansion of Heathrow and that will need to be considered at examination and in decision making. These would include aircraft ground noise, road traffic noise, noise from fixed plant and construction noise.

The IOA recognises that it is the Government's stated intention to designate Heathrow Expansion as Critical National Growth Infrastructure and hence, as set out at paragraphs 2.38 and 2.39 of the draft HENPS, the noise impact of the proposals should be considered as part of the planning balance rather than as a specific reason for possible refusal (as is the case at paragraph 5.68 of the ANPS).

Drawing on the wording used for the main noise decision-making test in the Ports NPS (paragraph 4.241), the IOA therefore recommends that paragraph 5.55 is replaced by the following:

- 5.55** *The decision-maker should be satisfied that the proposals will meet the following aims for the effective management and control of noise^{A,B}, within the context of government policy on sustainable development:*
- avoid significant adverse impacts on the environment, human health and quality of life from noise;*
 - mitigate and minimise other adverse impacts on health and quality of life from noise; and*
 - where possible, contribute to improvements to health and quality of life through the effective management and control of noise.*

Footnote:

^A Aircraft noise must be controlled, as a minimum, by quieter aircraft, noise abatement operating procedures, operating restrictions, predictable periods of respite by a plan of runway alternation, a ban on scheduled night flights and noise insulation



^B Aircraft noise must be controlled by, as far as reasonably practicable, limiting and reducing overall aircraft noise adverse effects compared to 2024

2.2 Paragraph 4.92

Compared with the ANPS, the IOA notes that further text has been added to paragraph 4.92, compared with the equivalent paragraph in the ANPS (Paragraph 4.62) and the equivalent paragraphs in other National Policy Statements.

The new text states that

“The defence conferred by statutory authorisation is not intended to extend to proceedings where the matter is “prejudicial to health” and not a nuisance. When considering whether to include exceptions to the defence in an order granting development consent (section 158(3) of the Planning Act 2008), the Secretary of State should have regard to whether any nuisance is an inevitable consequence of the development.”

The IOA presume that this has been included as Section 158 of the Planning Act 2008 provides a defence of statutory authority in civil or criminal proceedings for nuisance only and does not provide a defence against the prejudicial health limb of statutory nuisance^[2].

² The Environmental Protection Act 1990 at section 79(1) (g) prescribes “noise emitted from premises so as to be prejudicial to health or a nuisance” as a statutory nuisance. It is long established that each limb of statutory nuisance operates independently i.e. for something to be a statutory nuisance it doesn’t need to be both a nuisance and prejudicial to health. Either limb will suffice. Prejudicial to health is defined in the act as something “injurious, or likely to cause injury, to health”. The act at section 79(6) states that subsection (1)(g) above “does not apply to noise caused by aircraft other than model aircraft” and defines premises as including “land”. So, in this context the prejudicial to health limb only applies to noise sources on the ground other than aircraft. Case law has established that “prejudicial to health” does not refer to immediate physical injury, such as cuts or falls, but rather to risks that could lead to disease, illness, or other health problems. Case law has confirmed it is objective i.e. applies to people of ordinary normal health and sensitivities to environmental factors. The risk can be direct e.g. cardiac effects, hypertension etc., or indirect e.g. sleep disruption.

Furthermore, it is recognised that a National Policy Statement cannot alter this legislation to extend the defence to the prejudicial to health limb of statutory nuisance. However, such a legislative change should not be necessary as existing Government noise policy, the ANPS and the draft HENPS are framed in terms of adverse and significant adverse effects of noise on health and quality of life.

The IOA believes that is important that the threshold at which noise would become “prejudicial to health” is clearly sign-posted to all those implementing the HENPS.

This can be achieved by noting that “prejudicial to health” is equivalent to an unacceptable adverse effect which under general planning policy must be prevented. In the current Planning Practice Guidance on Noise, such exposure is described, *inter alia*, as leading to “medically definable harm”.

If it is made clear that the environmental assessment process has addressed potential effects that could be unacceptable or prejudicial to health, the risk is greatly reduced that after the DCO has been granted, operations could be disrupted by statutory nuisance abatement action on the basis that the resulting noise effects are “prejudicial to health”. This could affect all airports, not just Heathrow.

The IOA recommends that a footnote is added to paragraph 4.92 to say:

‘For noise, prejudicial to health can be regarded as equivalent to an unacceptable adverse effect found in general planning policy and associated planning practice guidance.’



2.3 Paragraph 5.346

The IOA notes the commitment in bullet point 3

“To offer to provide full acoustic insulation for residential property within the full single mode easterly and westerly 60 dB $L_{Aeq,16h}$ noise contour.”

We would point out, however, that the noise insulation requirements at lower noise levels given in bullet point 4 appear inconsistent with paragraph 3.122 of Aviation 2050, and arguably fall short of best practice at UK airports, e.g. in the recent Luton and Gatwick airport DCOs. This is both in terms of the sum of money proposed and the thresholds above which assistance with insulation is offered. The IOA recognises that the difference in qualification threshold noise levels is likely to be partly offset because paragraph 5.346 uses single-mode contours, whereas other airports use average mode contours.

Based on experience it is felt that £3,000 is not likely to be sufficient to insulate all noise sensitive rooms in many homes. The daytime thresholds of the Luton and Gatwick schemes are 3dB lower, i.e. more generous, at $L_{Aeq,16h}$ 54dB. Offering a scheme that is less than available elsewhere could lead to challenge over fairness in affected communities in the country.

3. The Aviation Noise Attitudes Survey (ANAS) and the Aviation Night Noise Effects study (ANNE)

3.1 Introduction

The draft HENPS and AoS Noise Annex refer to the ANAS and ANNE studies that were published in June 2026. The IOA very much welcome these major research studies commissioned for government, both of which will make significant contributions to the global pool of research into the effects of aircraft noise.

We note the published ANNE report covers Part 1 of the study relating to subjective sleep disturbance. We look forward to seeing Part 2, relating to objective sleep disturbance as well as the full study report

We trust government will consult with the IOA and others prior to using this study to update policy on night noise. Part 2 of the study should be particularly helpful in defining the onset threshold for significant observed adverse effects of night-time noise on health and quality of life.

3.2 ANAS Further Work Required

The ANAS study report CAP 3131 addresses most but not all of its stated aims, and we note in para S2

‘It is intended that future analysis would address the remaining aims (iii and v)’

These aims relate to providing evidence on how annoyance varies across personal, social and environmental contextual factors and associations with health and wellbeing measures.

The IOA feels that until this analysis is complete and an evidence basis is provided (including consideration of the points we raise below), it would be premature to develop policy from the results of ANAS, including any revision to LOAEL or the Transport Analysis Guidance (TAG) methodologies.

Again, we trust the government will consult with the IOA and others when this further analysis is complete before using this study to update policy on daytime aircraft noise and annoyance.



As mentioned above in the introduction to our response, IOA members have practical experience of aircraft noise, advising a wide range of stakeholders, not just airports, but also local authorities, other regulators and community groups. Consequently, we would like to offer to assist in progressing the use of these studies to make sure this wider experience is fully utilised.

The IOA intend to meet with the CAA to investigate how we can best contribute. In the meantime, we offer the following comments which we hope will help the process.

The ANAS study provides an extensive and valuable survey of daytime noise annoyance across 10 UK airports at a point in time and using a particular well documented survey method. As such it will provide a major contribution to our understanding of aircraft noise annoyance at the time of the survey using that particular survey methodology.

However, we feel there are such major differences between the circumstances, survey methods and reported levels of annoyance compared to the previous SONA survey in 2014 that, at the current time it is not possible to compare the two studies to discuss if or how annoyance may have changed. The IOA considers that substantial further work is required before that can be done.

We note the authors make this point clearly in the report e.g. para 8.16, where it states:

It is not possible to attribute changes between 2014 and 2023-2024 quantitatively to specific reasons. There are both methodological and societal differences that prohibit a direct comparison between the results of the SoNA and ANAS 2023-2024 results.

Below we draw your attention to three main areas of concern that we feel require further understanding.

3.2.1 Rate of Change and seeking approval to change

The ANAS 2023/2024 annoyance dose/response relationship sits within the range of dose/responses relationships reported in the WHO systematic review of aircraft noise annoyance^[3] that led to the overall dose response relationship and recommendation of the 2018 Environmental Noise Guidelines. The SONA 2014 annoyance dose/response relationship also sits within the WHO study range. Both dose/responses contribute to our understanding. One possible reason for the difference between the two is the different contextual circumstances.

The SONA report (see Figure 9) reported that, during the survey, those people expecting more noise next summer were 15-25% more annoyed than those that were not. The ANAS report provides information to show that during the ANAS survey all airports were growing following the exceptional situation of no, or little, air traffic during COVID.

Any airport experiencing atypical growth like this, compared to its normal operation can be called a High Rate of Change (HRC) airport in the research literature^[4]. The research uses the HRC categorisation when the growth is up to three years before the survey. All UK airports were HRC in the ANAS survey, but not during SONA.

It is possible that ANAS is indicating a different community response to short-term change compared to long-term noise. There is precedent for this. The National Highways Design Manual for Roads and Bridges (DMRB) requires short-term and long-term noise impact to be assessed separately and using different criteria. Further analysis of the ANAS results may point to it being applicable to short-term effects and may support a similar approach.



Furthermore, Gatwick and Luton had well publicised ongoing live applications (DCOs) to expand at the time of the ANAS surveys in 2023 and 2024. It is notable that these two airports show the highest annoyance response of all 10 airports. These dose/responses are quite different from some other airports (e.g. 20% more highly annoyed around $L_{Aeq,16h}$ 55dB)

The points made in the previous two paragraphs mean that ANAS cannot be used in any analysis aimed at deriving a steady state dose response, as for example is required in TAG (ANAS study aim ii).

^[3] See Figure 2, WHO Environmental Noise Guidelines for the European Region: A Systematic Review on Environmental Noise and Annoyance, Rainer Guski, Dirk Schreckenberg and Rudolf Schuemer, 2017

^[4] Truls Gjestland, *A Systematic Review of the Basis for WHO's New Recommendation for Limiting Aircraft Noise Annoyance*, 2018.

3.2.2 Survey Methods

The ANAS survey method was quite different to SONA 2014. Section 7 lists some of the main differences. For example, the survey format changed to a primarily push-to-web survey with a paper option, compared with a face-to-face interview in SONA 2014. The key question relating to HAN was much later in the survey in SONA 2014 than for ANAS 2023-2024 and interviews took place through to February in the following year.

It is easy to see how these changes could lead to a greater response. Face-to-face interviews tend to act as a filter to responses based on bias not noise. Similarly, the introductory questions tend to lead to more considered responses on noise.

These and other differences in survey methods may further explain part of the difference between the SONA and ANAS findings, preventing direct comparison. As mentioned above, the IOA would like to assist in helping the ANAS survey findings to be fully understood before they are used to inform updated noise management policy on aircraft noise.

3.2.3 Benchmarking

ANAS reports that, on average across the airports studied, 8% of the population was highly annoyed by aviation noise where the daytime exposure is 40 dB $L_{Aeq,16h}$ averaged over the summer months.

This would suggest that if ANAS were used to revise government policy on the same basis as the current LOAEL was defined based on SONA14 (7% highly annoyed), the daytime LOAEL would reduce from the current 51 dB $L_{Aeq,16h}$ as defined by policy to 39 dB $L_{Aeq,16h}$. An 11 dB reduction. More than a halving of subjective loudness.

If ANAS were used to reset daytime LOAEL for aircraft noise on the same footing as proposed by ANNE (10% of the population highly annoyed) the daytime LOAEL would reduce from the current 51 dB $L_{Aeq,16h}$ defined by policy to 43 dB $L_{Aeq,16h}$. This is an 8 dB reduction. This seems inconsistent compared with the 2 dB reduction in the night-time LOAEL as noted in ANNE. This must bring into doubt any proposal to use ANAS to adjust LOAELs.

Defra has previously published National Noise Incidence Studies. Whilst they have not been updated for some time, with reliance being placed on noise mapping data, it is unlikely that national noise incidence has changed materially, especially at lower levels of exposure (higher levels of exposure are likely to have been reduced over time as a result of four round of national noise action plans).



As a benchmark, the Defra National Noise Incidence Studies, dating from around the year 2000, show that the quietest 1% of households across the UK are exposed to around 45 dB $L_{Aeq,16h}$ or lower from any, and all, environmental sources (including aviation and all other transport modes).

Revising aviation daytime LOAELs to either 39 dB $L_{Aeq,16h}$ or 43 dB $L_{Aeq,16h}$ would therefore be representative of the outdoor environment at the very quietest homes anywhere the UK. This doesn't seem a proportionate basis for UK aviation policy noting that LOAELs are accepted as the threshold of noise becoming a material consideration for planning applications.

Conclusion

We hope you find these responses useful. As mentioned above, relevant members of the IOA would be happy to meet with officials to discuss further the points we have raised.