

DAVIES – NOISE SUBMISSION

The 2M Group is an all-party alliance of local authorities concerned about the environmental impact of Heathrow operations on their communities. Our members are not anti-Heathrow but work together to improve the environment and protect the quality of life for local people.

The group, which took its name from the 2 million residents of the original 12 authorities, now represents a combined population of 5 million people and was successful in 2010 in overturning plans for a third runway at the airport.

This is our second submission to the Airports Commission. Our first, in May 2013, called on the Commission to publish the assessment methodology it was using to evaluate competing proposals for short, medium and long term additions to capacity.

A new threshold for annoyance

We do not believe that recommendations for new airport capacity can be produced without a fundamental re-evaluation of the noise impacts on the communities affected. This in turn must lead to the setting of a new threshold for annoyance that will provide a credible and challenging benchmark against which airport operations can be measured.

This is more than measuring simple ‘annoyance.’ The Commission must also take into account the health impacts arising from noise disturbance and acknowledge the increasing importance attached by communities to their local environment and quality of life.

These are not assessments that can be carried out once the main outcomes have been settled. If competing proposals for additional capacity are to be properly weighed they must include the cost of providing appropriate compensation for people living under the new flightpaths. The noise cost therefore becomes a vital component of the overall cost-benefit analysis for each option.

We do not think that the noise averaging approach which produced the current 57dB contour is fit for purpose. It is difficult for a measure to command public confidence when it effectively tells people living in places like Barnes, Fulham, Putney, Ealing, Chelsea, Stockwell and Windsor that they are not affected by noise because they live outside the Heathrow contour. Our own evidence as local councils responding every day to complaints on aircraft noise suggests that the true number affected by Heathrow operations is around 1m – four times the figure implied by the 57dB contour.

As an interim measure we would support the 55 Lden contour adopted by the EU as a more realistic benchmark for the onset of significant community annoyance. By adding a weighting for the times of day when people are most sensitive to noise the Lden metric is a fairer reflection of people’s experience of noise. Until an alternative to the noise averaging approach is found which is capable of securing public confidence, 55 Lden should be used as the basis for calculating mitigation costs for the communities affected.

A 30-year-old noise metric

The Commission is aware of the history of attempts to establish a metric that could provide a sound basis for assessment and evaluation of impacts. If we go back 50 years to the original Noise and Number Index (NNI) we find that if this measure had remained in place the size of the noise contour it produced would not have shrunk. Neither government nor industry would have been able to claim that the noise climate had improved as a result of the introduction of 'quieter' aircraft.

Today's noise averaging system (Leq) was introduced following the ANIS study in 1982 – more than 30 years ago. While this new metric gave greater weight to the noise energy produced by individual aircraft at source, it has failed to give adequate weight to a near doubling of noise episodes at Heathrow during the standardised 16-hour period. As a result complaints from residents grew while the contour itself was shrinking.

Annex C of the Commission's noise discussion paper presents a chart showing the 57dB average mode contour from 1974 to 2011. Appendix 1 to this 2M submission contains an annotated version which includes annual air traffic movements in these years. This shows the perverse effect of ANIS in 'allowing' a three-fold reduction in the size of the contour (within which people are said to be significantly annoyed) at a time when overall movements had risen by 70 per cent.

Roy Vandermeer's report of the Terminal 5 inquiry found that the increase in numbers of aircraft using Heathrow (280,000 ATMs in 1983 to around 425,000 during the inquiry) had made the noise climate worse for many people. He commented specifically on the insensitivity of the index which had effectively hidden the noise impact of what was a significant rise in the numbers of early morning arrivals (night flights) at the airport:

'The actual timing of noise events during a 16 hour day and other factors could mean that the contours did not show the real effect ... The Department had confirmed that differences of half a decibel could be significant if they translated into frequent over flights for a particular area.'

At the Heathrow Terminal 5 Inquiry, Stephen Turner (Consultant to the Local Authorities - now DEFRA Noise Adviser) identified a paradox about the noise impact of Heathrow Airport:

'On the one hand, we are told that the area covered by the average mode noise contours is continuously reducing, that aircraft are quieter and that effectively the noise problem is reducing despite the increase in activity at the airport. On the other hand, it is the local authorities' experience that there is still much concern about the aircraft noise and that there is a belief that the noise problem is worsening and not improving.' [LAH/5010, Volume 1, 2.2.1]

¹ Proof of Evidence of Stephen Turner to Heathrow Terminal 5 Planning Application - Volume 1 (paragraph 2.21)

An explanation for the paradox is given to be the increase in air transport movements (ATMs):

'Having once had a movement limit applied to Heathrow, the local authorities firmly believe that its removal and the subsequent large increase in ATMs is one of the main causes of the unacceptable noise climate experienced at present.' [Volume 5, 508T, 3.10]²

Mr Turner also stated that in his view increases in movement numbers change the nature of the disturbance. He believed that a straightforward assessment which does not consider this can lead to an underestimation of the impact:

'In 1978 the number of ATMs was 268,848. In 1995, the number of movements was nearly 420,000, a 56% increase and this Inquiry is considering future situations with ATMs of 458,000 to over 500,000. This increase in the number of movements means that whereas in the early 1980s an aircraft landed at Heathrow roughly every 3 minutes, in 1995 aircraft land with less than 2 minutes between them. Thus, although the noise of the aircraft is on average less loud, there is today a much greater proportion of the day when aircraft noise is audible and potentially intrusive. It will be shown that this change in the nature of the disturbance is extremely relevant in trying to determine the effect of the T5 proposals, and that the straightforward assessment made by BAA can lead to an underestimation of the impact.' [LAH/5010, Volume 1, 3.54]³

Roy Vandermeer also commented unfavourably on the use of noise envelopes (contour caps):

'One of the disadvantages of a contour cap was that it was completely indifferent to the shape of the contour, and no specific control of aircraft schedules was involved.' [2.7.18]⁴

'Having only a Leq cap in terms of the 16 hour day, as BAA had suggested, would mean that reductions in sound energy brought about by aircraft technology could simply be used as an opportunity for increasing the number of movements at the airport.' [2.7.19]⁵

This is exactly what has happened at Heathrow. Contour caps or noise envelopes are based upon average noise dose over time derived from the 'equal energy principle.' This means that a doubling of movements will result in a 3dB rise in noise exposure. It has been government policy in the past to claim that a 3dB rise in noise is only just perceptible to an adult with average hearing response. This does not reflect actual experience of those who are overflown.

The Aviation Policy Framework (2013) now promotes the concept of a noise envelope as a means of controlling exposure to noise around airports. But an

² Proof of Evidence of Stephen Turner to Heathrow Terminal 5 Planning Application - Volume 1 (paragraph 2.21)

³ Proof of Evidence of Stephen Turner to Heathrow Terminal 5 Planning Application - Volume 1 (paragraph 3.54)

⁴ Report of Roy Vandermeer QC Heathrow & Associated Inquiries 2001 Report (Ref Topic 5 Noise (paragraph 2.7.18))

⁵ Report of Roy Vandermeer QC Heathrow & Associated Inquiries 2001 Report (Ref Topic 5 Noise (paragraph 2.7.19))

average noise contour area limit alone fails to protect people from increased flight frequency as demonstrated in Appendix 1.

To set this in context, the current 57 dB contour area set as the threshold for significant community annoyance covers an area of 108 square kilometres. If there were no further expansion at Heathrow this would shrink to 77 square kilometres (ECRD report 0705) by 2030. Setting the cap any wider than this would mean the community loses all the benefits they could gain from the use of quieter aircraft.

The current cap – as with others in use at Heathrow – is too easily achieved. It has not required any reduction in movements. As a result it bears no relationship to the level of annoyance actually experienced so that improvements in the noise performance of new aircraft are not shared with the community. A contour cap is therefore of little benefit without an associated cap on movements.

ANASE study (2007)

It may be that there is no simple underlying relationship between noise and annoyance. However what is manifestly self-evident is that simple 'Leq averaging' fails to capture the complexity of this relationship or provide any insight into people's readiness to balance annoyance against other more positive factors.

It was for precisely this reason that the Government in 2001 commissioned the ANASE study. The headline results published in 2007 confirmed what people living around Heathrow (and other major airports) had been saying for nearly 20 years - that the equal energy principal (Leq) failed to give sufficient emphasis to the increasing numbers of flights.

In announcing the decision to permit the development of Heathrow Terminal 5, the then Secretary of State (Mr Byers) told the House of Commons:

'In the light of the Inspector's views on the adequacy of the Leq index, the Secretary of State thinks it right to adopt a precautionary approach... he accepts the Inspector's recommendation for a condition limiting ATMs to 480,000 per year. He does so on the basis of the Inspector's concerns about noise, particularly the weighting of the number of aircraft movements relative to noise within Leq.'

Mr Byers went on to say that he had already announced his intention, independently of Terminal 5, to conduct a new study on aircraft noise and the perception of people subject to it.

On 8 May 2001, in response to a Parliamentary Question asking the Secretary of State what plans he had to carry out a new study to update the Aircraft Noise Index Study of 1985, Mr Bob Ainsworth, then Parliamentary Under Secretary in the Department of the Environment, Transport and the Regions, said:

'My Department is to carry out a major study to reassess attitudes to aircraft noise. This new study underlines the Government's commitment to underpin our policy on aircraft noise by substantial research that

commands the widest possible confidence. It is envisaged that the results of this study will help to show whether the Leq index does in fact have the weaknesses suggested by the Inspector.'

The Chief Economist in a statement published on 2 November 2007 alongside the ANASE study acknowledged that it was:

'highly probable that concern (or annoyance) with a particular level of aircraft noise was now higher than found in the original ANIS study in the early 1980s. This finding is in line with emerging findings from the European Commission's HYENA study. It is also consistent with the more general finding that peoples' valuation of environmental impacts tend to increase over time as average incomes(or GDP) grows, a finding which is reflected in the Department for Transport's approach to the valuation of noise impacts from road and rail.'

The Chief Economist commented further that the study showed that:

'people are far more concerned about aircraft noise at night than they are during the day' and that 'the study provides indicative evidence to suggest that people may be more concerned about the numbers of aircraft (and slightly less concerned about the sound level of an individual aircraft) than the present LAeq indicator assumes.'

He further commented that in cases where the disbenefits increase incrementally, a benchmark or standard will often be inefficient:

'A better approach is usually to 'price' the disbenefits of the pollutant into decision making, either explicitly or through cost benefit analysis, enabling the costs of pollution to be balanced against the costs of additional mitigation.'

The Chief Economist suggested further evidence needs in a number of areas. This included further work on the issue of numbers and noise – and further work as recommended by the peer reviewers. To our knowledge, none of this has ever been done.

<http://webarchive.nationalarchives.gov.uk/+/http://www.dft.gov.uk/pgr/aviation/environmentalissues/Anase/anasechiefeconomist>

The Aviation Policy Framework published in 2013 was another missed opportunity. LB Hillingdon (M Rickaby) had provided evidence during the consultation supporting the case for a re-evaluation of the noise metric. This referenced the 2010 European Environment Agency (EEA) report which summarised the latest views on issues such as exposure-response relationships and thresholds for health endpoints (annoyance, sleep disturbance, cardiovascular effects and cognitive impairment).

The Hillingdon submission showed that the annoyance levels used by the UK were not in line with more recent studies in Europe. Indeed these studies are more in line

with the findings of the ANASE project. We are happy to re-submit the Hillingdon paper to the Commission.

ANASE Update Study (2013)

The Commission in its discussion paper (2.14) seems too ready to dismiss the findings of ANASE. This was subject to national expert advice and peer review and international peer review at every stage of the project. Yet the ANASE researchers were never offered the opportunity to respond to the criticisms of their work by one of the peer review groups.

In our view the adoption of the ANASE findings would provide the Commission with a more robust benchmark than the 57dB contour. The introduction of a lower noise dose and response threshold need not be a show stopper for any expansion proposals - but it would for the first time help quantify the true costs of expansion.

The 2M Group regrets the failure of successive governments to review the ANASE evidence and reassess the apparent shortcomings. This is astonishing given the significant investment of public money in the study over a number of years.

The task of re-appraising ANASE should not fall to the local authorities. However in the interests of fairness and public accountability the 2M Group invited the ANASE team to respond to the peer reviewers' criticisms of their work. This is the first time they have been given this opportunity. Work is now complete and we are happy to include it as part of the 2M evidence. We believe this updated work is of sufficient importance to merit a formal presentation to the Commission.

The observations and conclusions of the 'ANASE Update Study' are those of the authors alone. In commissioning the work the local authorities were seeking simply to add to the body of evidence available to the Commission.

It is worth however highlighting this extract forming the main conclusions of the new study:

This report by independent researchers with no affiliation or links to UK government policy, highlights peculiarities in existing UK policy and its evidence base. This report demonstrates that:

- *Though the Government has selected to ignore, thus far, the findings of the 2005 ANASE research that it commissioned, the ANASE research findings are far more robust than the research evidence it chooses to continue to base its policies on (the ANIS study).*
- *The ANASE findings are far more up-to-date, reflecting the views of communities around 20 UK airports in 2005/6, whilst the research still being used to inform government policy obtained the views of residents in 1982, more than 30 years ago, when aircraft sound levels and numbers were very different to today.*

- *The ANASE findings are far more consistent with non survey-based sources of reported community annoyance (e.g. complaints by the public to government and aviation authorities) and corroborate these vocal indications that significant proportions of some communities outside 57 LAeq - such as areas in and around Eton & Windsor, East Sheen, Barnes and Putney - report that they find aircraft noise to be annoying.*
- *The ANASE findings are consistent with the known situation across Europe – whilst the research still used by government may be consistent with the European situation of 30 years ago.*
- *The ANASE research findings provide evidence of the ratio between aircraft numbers and average sound levels that best reflects community annoyance, which is consistent with historical UK evidence (in particular, the Wilson Committee adoption of NNI).*
- *In contrast, the single piece of research that suggests community annoyance is more influenced by changes in aircraft sound levels than changes to aircraft numbers, ANIS, was biased in the way it asked residents to think only of the noisiest aircraft situation (with no mention of numbers of aircraft) when considering their annoyance with aircraft noise.*

From a purely research evidence perspective, it is surprising that policy-makers continue to base their understanding of numbers of people affected by aircraft noise on out-of-date, biased, non-independently-reviewed research – especially when there is available much more up-to-date evidence of UK residents' views on aircraft noise that is consistent with all other substantive pieces of research in the UK and elsewhere in Europe.

The consequence is that policy-makers continue to presume that 'the onset of significant annoyance' is 57 LAeq and that communities below this noise exposure threshold are relatively unaffected by aircraft noise – despite the fact that many such residents say that they are.

The case for a new social study

The 2M group is not calling for the Commission to adopt ANASE – not least because it may be itself out of date. But it is hard to understand why the Government should continue to rely on a noise threshold that was based on studies carried out for ANIS more than 30 years ago - which was itself never subject to peer review and which today would not represent best practice.

The Commission is tasked with producing recommendations for the location of new airport capacity. The communities affected by expansion have a right to expect that assessments of noise impacts are based on the most up to date information

available. The promoters of new capacity may also expect that the community impact of their proposals will be properly costed in order to provide a fair basis for comparison.

The 2M Group therefore makes four recommendations to the Commission:

- That it immediately orders a new social survey of community attitudes to aircraft noise that can provide a rational basis for its assessments.
- That any new noise threshold should look beyond the equivalent continuous sound level (Leq) noise averaging principle to ensure that sufficient weight is given around major airports to the numbers of movements and noise episodes experienced in any one hour.
- That the adoption of a new threshold be accompanied by a review of compensation arrangements for communities affected.
- That as an interim measure for weighing the costs of mitigation, entitlement to compensation should be extended to households within the 55 Lden contour adopted by European Commission as the benchmark for significant community annoyance.

The 2M Group
September 2013

Enclosures

1. Noise Discussion Document Annex C – annotated version
2. ANASE Update Study (MVA Consultancy)
3. Evidence to Draft Aviation Framework Consultation (LB Hillingdon – M Rickaby)
4. Chief Economist statement on ANASE
5. 2M response to questions