

Rowena Lyon,
Barston Parish Council
By email

25 January 2016

Dear Rowena,

Birmingham Airport Noise Analysis

I have studied the documents you sent to me before Christmas, and my conclusions are as follows.

The key point is that if the noise results tabulated in 5.1 and 5.2 of the document "Trial of southbound R-NAV SIDs for Runway 15" had shown a difference of more than 3 dB(A) between options 5 and 6 then option 5 would have been chosen. It follows that the main question is whether it was correct to use a change of more than 3 dB(A) as a criterion, and whether anything else should have been taken into account.

Before considering the appropriateness of the 3 dB criterion, it is important to note that in addition to noise change, regard must be had to the absolute level of noise as well. CAP 725 says at B.82 "The level of 70 dBA L_{max} was selected [by the Australian Department of transport] because it was considered to represent the level indoors that would be likely to interfere with conversation or listening to the radio or television (approximately 60 dBA L_{max})." This is followed by speculation that the outside-inside reduction is less in Australia because of the nature of Australian house construction, but is it generally accepted that in the UK 10 dB is the reduction for a wide open window (15 dB for a partially open window). As a consequence of choosing option 6, Balsall Street East receives most L_{max} events at levels below 70, whereas Barston receives many events over 75 dB L_{max} . When the end point after applying a noise increase is a level above a threshold that causes interfere with conversation or listening to the radio or television, that needs to be taken into account along with the magnitude of the noise level difference between the two options. In his decision letter relating to the Farnborough Airport planning appeal in 2011 the Secretary of State agreed with the inspector that the effects of the development would amount to demonstrable harm. The inspector had said that

"484. [Rushmore Borough Council] suggests that at the 57dB(A) contour the average L_{Amax} would be around 75dBA and that an L_{Amax} of 65dB(A) would represent the onset of significant speech interference outdoors. In some cases there may also be interference with indoor speech if windows were to be partially open, a situation which would be exacerbated at higher L_{Aeq} 16hr levels closer to the runway. My own experience would bear out that indoor speech interference can occur even at some distance from the runway. It is, however, unlikely that anyone would suffer indoor speech interruption with closed windows. Despite [the Airport's] view that there was no evidence of internal disturbance, there was no substantive challenge to the Council's figures. 485. For my part I am clear that, based on the analysis above, the proposed increase in movements would lead to more

frequent instances of speech interruption (compared to both today's position and to that of the fallback) and would result in greater annoyance to an appreciable number of residents. Irrespective of whether or not a 2.2db(A) increase is said to be discernible, residents would be very much aware of the noise events consequent on the increased numbers of movements (on average an additional 71 BATMs per weekday)."

The proposition that a change of up to 3 dB is not significant does not come from CAP 725. Although it recommends (B.50) that intervals of 3 dB should be used, it also recommends that when difference contours are used (B.76) they should be produced in intervals of 1-2 dB, $\geq 2-3$ dB $\geq 3-6$ dB, $\geq 6-9$ dB and ≥ 9 dB. If a change of up to 3 dB should not be taken into account, then they would not call for contours of 1-2 dB and $\geq 2-3$ dB.

The "3dB is insignificant" tenet, which can be seen in many airport environmental statements, comes from a note in the Glossary of the now withdrawn Planning Policy Guidance note PPG 24, which it states is "the minimum perceptible under normal conditions". It is referring to the loudness of sound and not the effects on annoyance, sleep or communication. CAP 725 makes reference to the Schultz curve (B.210) according to which, at the levels of noise exposure which occur at Barston, the population highly annoyed increases by 50% if the noise index rises by 3 dB¹. That is not insignificant.

The Schultz curve has been superseded by more recent meta-analyses, some of which show greater annoyance than in his day, but it remains the case that the Schultz data are commended in CAP 725.

In making the choice between options 5 and 6, the decision-making process should have taken into account the following facts.

L_{max} levels of 75 dB may cause speech interference indoors (CAP 725 B.82). This causes harm.

Option 5 L_{max} levels are slightly higher in Barston than in Balsall Street East
Many aircraft types cause around 75 dB L_{max} or more in Barston – few come close to 75 dB L_{max} in Balsall Street East and only rare exceedances occur.

Option 6 L_{max} levels are significantly higher in Barston than in Balsall Street East
Many aircraft types cause L_{max} levels over 75 dB in Barston.
Few aircraft types exceed 70 dB L_{max} in Balsall Street East.

Option 6 causes harm in Barston but there is little harm in Balsall Street East.

Option 5 causes less harm in Barston than Option 6 and harm is less in Balsall Street East than in Barston,

¹ While much of the discussion has focussed on L_{max} levels, if across all aircraft movements L_{max} levels change, environmental noise indices such as L_{Aeq} or Schultz's L_{dn} change at the same rate.

While Option 6 results in lower noise levels in Balsall Street East than Option 5, this is at the expense of harm in Barston.

The conclusions of the "Airspace Change Proposal Environmental Assessment" consist of three bullet points under the Noise heading, two of which are comparisons between Barston and Balsall Street East which are unsupported or incomplete and do not take full account of the all the matters contained in CAP 725. The considerations set out above suggest that a decision maker, taking only Barston and Balsall Street East into account, would, acting reasonably, choose Option 5.

Yours sincerely,

A handwritten signature in black ink, appearing to read 'Rupert Thornely-Taylor', with a long horizontal flourish extending to the right.

Rupert Thornely-Taylor