

I will restrict my talk to predominantly one aspect of this application to expand Bristol Airport, even though there are many other undesirable consequences. The most important one to me is clearly the impact on the CO₂ emissions of the UK and the world as a whole, from flights as well as road traffic.

However, I want to show that another consequence of airport expansion goes absolutely against one of our most important core strategy, CS3, and that is the impact of the noise created by overhead aircraft. Therefore, NSC was entirely justified in rejecting the initial application. All the data I am going to cite were taken entirely from BAL's own environmental impact assessment.

In theory, the appellant seems to have accepted the detrimental effects of night time noise. I quote from **Environmental Statement Addendum—Main Report (Volume 1)**, page 134: *“For noise, the main potential health outcomes are cardiovascular health, mental health conditions (e.g. stress, anxiety or depression), sleep disturbance and cognitive performance in children. The Proposed Development results in a larger population being adversely affected by noise, mainly due to increased night-time noise from airborne aircraft. In the context of existing levels of daytime and night-time noise (due to existing noise issues and the permitted changes that would occur without the Proposed Development), the changes due to the Proposed Development are small. In population health terms, the change due to the Proposed Development is unlikely to be discernible”*.

Considering that the noise from flights in and out of Bristol Airport is already having a big detrimental effect on a large proportion of NS residents, this seems a rather callous assessment!

A DEFRA report from 2013 says that the effect of noise on humans is difficult to measure, that it is not possible to derive a single, objective measure of harm due to noise. DEFRA also says that aircraft noise is most damaging, worse than for example road or train traffic, due to its intermittent nature. Nevertheless, it makes recommendations to use averaged noise levels over hourly periods and categorises these ranges. DEFRA then makes recommendations for each of these categories. It says that reasonable steps should be taken to **mitigate and minimise harm** from what it calls Lowest Observable Adverse Effect Levels (LOAEL), at average dB levels ranging from 45 to 54 dB. But noise levels which are deemed to cause **significant (SOAEL) or unacceptable adverse effects (UAEL)** should be avoided, these are average noise levels in excess of 54 dB. These are the recommended dominant metrics used in the original application as well as in the appeal.

In contrast, the 2018 World Health Organisation Environmental Noise Guidelines state that “For night noise exposure, the GDG (Guideline Development Group) strongly recommends reducing noise levels produced by aircraft during the night time below 40 dB L_{night}, as night time aircraft noise above this level is associated with adverse effects on sleep”.

As in the original decision meeting, I have looked carefully at these again and compared them with changes submitted as part of the appeal. The data I use are all from the airport’s own submission, those from the original application are taken from Chapter 7, Noise and Vibration Environmental Statement, those from the appeal from Appendix 6A, Noise and Vibration Supporting Data.

As we all know, our own CS23 supports airport expansion in principle, but only subject to satisfactory solutions to environmental issues such as noise. So our CS3 is concerned with noise and aligns closely with the Noise Policy Statement for England, which aims to **avoid, minimise, mitigate and where possible reduce** significant adverse impacts of noise on health and quality of life. In my opinion, this application totally failed to do this. Therefore, the decision to refuse expansion was completely in line with our CS3. It based and still bases many of its noise predictions on a change in aircraft types which is not within its own remit. And even if airlines make the promised changes to quieter aircraft, it does not grasp the opportunity this would present to actually benefit from this, as stated in our promise to reduce where possible. It is now possible!

With some acceptance of the incomplete and somewhat unsatisfactory nature of the DEFRA metrics, well above those recommended by the WHO, the original application also used several other supplementary metrics to assess the noise impact on our residents.

One alternative metric estimates the number of seriously sleep disturbed people and another called N70 and N60 counts the number of noise peaks exceeding a certain dB level threshold in a certain time period. This latter one originated in Australia and is becoming more commonly used worldwide. It is felt by many to be a better metric for aircraft noise than the DEFRA categories due to its intermittent nature. N70 counts the number of residents exposed to more than 10 noise peaks exceeding 70 dB during the day, and N60 those exceeding 60 dB during the night. These

residents are then further categorised for exposures of more than 10 or more than 20 per night, and for more than 10, 20, 50 or 100 during the day. I suspect most residents would feel that these metrics are more appropriate for a rural location with low background noise levels, with sudden huge jumps in noise levels due to an overhead aircraft.

The original application gave the factual base line data for 2017, the last year for which actual data were available, and compared them with predictions for 2021, a relatively arbitrary intermediate time point called the sensitivity case, for which we now know the predictions were wildly wrong. So a more meaningful comparison would be baseline values with a future time point with and without expansion, an independent noise expert has also raised this (Review by Jacobs / CH2M of Noise and Vibration).

I had pointed out in the original planning committee decision that there seemed to be a disproportionate predicted increase in the noise impact for all metrics used in the application for this intermediate time point of 2021, with the forecast values for residents exposed to the DEFRA metrics increasing by 60% for the LOAEL categories to more than 100% for the SOAEL categories, compared to a forecast of an 18% increase in passenger numbers. The extra deterioration forecast for 2026 with expansion then looked quite insignificant in comparison. (Table 7D.25). But in each case, there was a significant detrimental effect on our population both in comparing 2017 with 2026 without expansion as well as comparing expansion with no expansion. All numerical quotes are taken from the technical environmental impact appendix 7A-G.

Three other supplementary metrics were used in the original application. One estimated the number of highly sleep disturbed people during an average annual night (Table 7D. 29), one the levels above WHO recommendations (Table 7D.35) and a third metric measuring the number of noise peaks in excess of certain thresholds called N60 (Table 7D.41). In each case, there was a dramatic predicted deterioration by 2026, with relatively minor extra effects due to any expansion.

In particular. the number of seriously sleep disturbed people on an average night were predicted to rise (Table 7.29) from 450 in 2017 to 850 by 2021 in the original application. They were then predicted to remain at 800 with expansion and extra night time flights but reduce a bit to 650 by 2026 with quieter aircraft and without expansion.

A particularly relevant metric which counts the number of people hearing intense noise peaks during summer nights, N60 (Table 7D.41), predicted that the number of residents exposed to more than 10 such noise peaks during the 8 hour summer night time periods, would increase from about 9 000 in 2017 to 18 000 by 2021, again a massive jump. Then further to 24 000 by 2026 due to the expansion and extra night time flights in summer and 16 000 people without, still much more than in 2017 but a slight improvement from 2021 due to quieter aircraft. The expansion would have exposed 24 000 people to more than 10 noise peaks per night, almost twice as many as in 2017, one eighths of our total population. But most worrying was the number of residents predicted to be exposed to 20 or more such peaks every night, they were predicted to increase from 250 people in 2017 to 5000 without and 8000 with the expansion. And of course the similar N70 day time metric also shows quite clearly the day time impacts.

The number of people exposed to more than 100 noise peaks above 70 dB during the day was also predicted to increase substantially due to expansion, from 600 to 900 people, not to mention those in the 10, 20 and 50 noise peaks categories.

There was no consistent explanation for these anomalies predicted by BAL for 2021. But in each case, there was a significant detrimental effect on our population both in comparison between 2017 and 2026 as well as due to the scenario with the expansion.

I believe it absolutely fell within our CS3 commitment to take account of these unexplained inconsistencies as well as the secondary metrics when assessing the impact of the expansion on our population in our decision to refuse.

The appellant has now changed the predicted numbers of night flights considerably compared with the ones in the original application, due to predicted differences in the fleet mix (**Environmental Statement Addendum—Main Report (Volume 1), Table 6.1**)). These changes are now predicted to have reduced effects on some of the predicted noise metrics, the huge adverse effects predicted in the original application for 2021 have been much reduced for 2024. **I query how relevant this change in the predicted noise impact data is in relation to NSC's original decision to reject, as this was a major element in the decision? And how trustworthy?** Also an illustration of the reliability of predictions!

So summer night time flights are now predicted to increase from the 2017 baseline of 2735 to 3940 in 2030 rather than to 4639 predicted originally

for 2026, in spite of the fact that BAL is still applying to lift the cap on summer night flights. 3210 flights are predicted without expansion (**Table 6.1**). So the difference between summer night time flights with and without development is still more than 700 aircraft movements, an 8 extra flights per night, 43 rather than 35, compared to 30 in 2017. This is a significant deterioration of 40% compared to the status quo in 2017.

More detailed data on the impact of these night time flights on our residents in the appeal addendum are given in Appendix 6A, Noise and Vibration Supporting Data. Table 6A.16 now predicts a small change for the 2024 DEFRA LOAEL categories compared to 2017, 15 000 rather than 14 000 residents, with a deterioration to 17000 with expansion and improvement to 13000 without. Similarly, the number of people in the higher SOAEL categories, to be avoided according to DEFRA, are now predicted to increase from 500 in 2017 to 700 with expansion, but would slightly decrease to 450 without.

The new data in Table 6A.21 of the addendum for seriously sleep disturbed people now gives these data as remaining consistently at 470 people, regardless of extra flight numbers or expansion. In fact their rounded up figures show 500 people for 2030 without expansion compared to 450 with! This seems very surprising and I would like to ask for a detailed explanation.

But unfortunately, data for the third and in my opinion the most relevant metric, the number of people exposed to very high noise peaks measured by N60 and N70, were not presented at all in the appeal. Could it be because this metric much better reflects the true noise impact of the expansion, the number of noise peaks during a

summer night which will still be substantially higher with the expansion, even with slightly quieter aircraft? As the difference in the number of night time flights between expansion and no expansion are predicted as 8 extra flights per summer night (43 rather than 35, in comparison to 30 in 2017 and 36 predicted for 2024), it seems reasonable that expansion would also significantly increase the number of people exposed to such sudden noise peaks. Just to remind you, they were originally predicted to increase from about 9 000 people in 2017 to 18 000 by 2021, and then further to 24 000 by 2026 due to the expansion and extra night time flights. In the original application, the number of people in the worst affected category, exposed to more than 100 noise peaks per day exceeding 70 dB, was 900 rather than 600 without expansion.

All of these new figures in the addendum demonstrate clearly that any beneficial effect, which due to quieter aircraft would at least keep the damage due to noise on our population within current limits when the ceiling of 10 mppa is reached, would be entirely reversed by the expansion. Also, the argument that all individual metrics only deteriorate slightly and that therefore the overall effect is negligible ignores the accumulative impact of all of these looked at as a whole.

Let me remind you of the appellants own rather callous statement: *“For noise, the main potential health outcomes are cardiovascular health, mental health conditions (e.g. stress, anxiety or depression), sleep disturbance and cognitive performance in children. The Proposed Development results in a larger population being adversely affected by*

noise, mainly due to increased night-time noise from airborne aircraft. In the context of existing levels of daytime and night-time noise (due to existing noise issues and the permitted changes that would occur without the Proposed Development), the changes due to the Proposed Development are small. In population health terms, the change due to the Proposed Development is unlikely to be discernible”.

I bet it is quite discernible to the significant proportion of our North Somerset population who will experience the high day and night time noise peaks.

I would argue that our CS3, aligned closely with the Noise Policy Statement for England, promises to **avoid, minimise, mitigate and where possible reduce** significant adverse impacts on health and quality of life from current levels. **The current development of quieter aircraft worldwide is presumably aligned with these goals, using this welcome technological advance to then argue that we can now create more noise to counteract this beneficial trend seems totally against the spirit of one of our most important core strategies.**

After listening to some of the ongoing discussion at the inquiry, I would like to make one extra point. Several speakers representing the local business communities spoke of the need to expand to support connectivity and business travel. I have personal experience of flights to Frankfurt and Munich, which used to be provided by BMI, as some of my family live in Germany. When BMI started such business routes to Germany about ten

years ago, the initial destination airports were Frankfurt, Munich, Hannover and Hamburg. Flights to Hannover and Hamburg were dropped quite quickly and as I am sure you know BMI went into liquidation in 2019, mainly due to Brexit, but also due to existing viability issues. It did not surprise me, as the flights which I witnessed were never more than 50% full, frequently only 1/3 full. So clearly those business flight routes were not viable and there was massive overcapacity. In a post COVID world and the realisation of how much time and money is saved by video conferencing, it seems extraordinary to claim that the current passenger limits need to be raised.