

## **Review of CAA's Farnborough Airport PIR - FNG April 2025**

### **Summary**

The Farnborough Airport (FAL) Post Implementation Review (PIR) is a review of the impact of the changes in flightpaths and airspace introduced by the Civil Aviation Authority (CAA) and FAL in February 2020. The airspace was changed (from uncontrolled to controlled airspace) to support the increase in FAL's permitted flight numbers from 28,000 to 50,000 per year granted in 2011. The start of the airspace change process was a public consultation in 2014/15 and the PIR is the final stage of its implementation. The airport has since submitted a planning application to increase the number of flights to 70,000 a year with a doubling of weekend flights and larger aircraft.

It is clear that the whole airspace change process run by the airport for the CAA has been designed to achieve the intended outcome and ignore the valid issues raised by interested parties. The 2014/15 consultation did not meet the Gunning Principles (Government principles that set how public consultations should be conducted). For example, most regions impacted by the changes in flightpaths were not consulted.

The way the new controlled airspace should operate was set out in a document (CAP1678). For example, it determined the flightpaths, climb/descents and calculated a reduction in the number of people overflown as a result. It also determined changes in emissions and changes in safety.

Data for the PIR was collected from April 2022 for a year. Farnborough Noise Group (FNG) and others challenged the scope of the PIR that was set by FAL and approved by the CAA. It did not measure noise where people were impacted by new flightpaths (it was merely estimated, and only included measurements near the airport). It did not properly measure pollution (Only NOX was measured close to the airport, not particulate pollution and in areas where pollution is blown). The CAA and FAL have been unwilling or unable to provide data to support claims of the reduction in number of people overflown or to properly evaluate the impact of noise. These issues were raised with MPs and with the CAA. The CEO of the CAA at the time, Richard Moriarty, did confirm to MPs in writing that all aircraft noise up to 7,000ft and 20 miles from the airport would be measured in the PIR. This has not happened.

The PIR was two years late because the CAA continued extensive discussions with flying clubs and operators. At no time has there been any discussion with councils or FNG that represent the views of many people impacted by the airport and its operations. Nor has FNG been given the appropriate opportunity to raise concerns via the Farnborough Aerodrome Consultative Committee (FACC) and FAL/CAA have repeatedly refused to answer questions and provide data to support claims being made.

There are many more Heathrow and Gatwick aircraft flying over the area south of Farnborough at lower height (down to about 5,500ft) than before the change in airspace, in addition to FAL aircraft and General Aviation aircraft (helicopters and light aircraft). Both types of aircraft are a significant contributor to noise and noise

complaints. The areas most impacted are rural areas (including National Landscapes). Before the changes to airspace, these typically had background noise of below 45dBA (average over 16 hours). The average is now 50 – 54dBA. An increase of 10dBA is a doubling of noise because the decibel scale is not linear. FAL has stated in its documentation for its proposed expansion that a 3dBA increase is “significant” and there are government guidelines on noise that are being ignored (see Appendix 2).

Below is a summary review of the PIR with a more detailed review attached. There are many misleading and completely fabricated points in the CAA’s PIR response. Without providing evidence or substantiating claims, the PIR’s conclusions are questionable. These are a few of the key points:

1. Aircraft noise has not been properly measured. Only FAL aircraft have been measured and the data that the CEO of the CAA committed to provide has not been provided. If it had been provided, it would have shown the significant increase in aircraft noise that is supported by data collected from FNG’s noise monitoring equipment. The airport’s one-off noise assessment at Churt recorded 54dBA (16 hr average) and that excluded non-FAL aircraft. FAL has refused to provide the full noise measurement.
2. There was a 2,074% increase in the number of complaints (Page 22 Point 3.64) during the review period. That will be a fraction of the number of people disturbed by noise who have not submitted a complaint. The number of complaints was explained away as a small number of complainants in a small number of places. People complain because they are disturbed and cannot be discounted because they “*complain too much*”.
3. The PIR claims aircraft safety has been improved (Page 3 Point 1). But this is misleading. This may be true within controlled airspace but it has made surrounding uncontrolled airspace more dangerous because aircraft of different types are compressed into a smaller space at lower height and at very different speeds (e.g. a microlight at 40mph in the same airspace as and a jet going to Fairoaks at 200mph). This was not assessed.
4. The CAA suggests that where issues have been identified by stakeholders (which includes the public), they have been refined and FAL has engaged with and continues to engage with stakeholders (Page 8 Point 3.2). This is completely untrue. There has been no engagement with the public or FNG regarding issues raised.
5. One of the main issues now, which demonstrates the irrelevance of the airspace change and the PIR, is that since the PIR data collection period, the vast majority of aircraft controlled by FAL are no longer flying the flightpaths and heights set out in CAP1678 and on which the consultation was based. This has been repeatedly raised with FAL and the response has been that pilots can choose the flightpaths they take (emails from FAL stating this are available). All the claims regarding number of people overflowed and the noise modelling are therefore invalid as the flightpaths on which the conclusions

were based were only followed for the period of the PIR data collection (Page 9 Point 3.7).

6. The CAA has concluded that there has been no worsening of air quality. But it was only measured at Farnborough and only included NOX, not particulates or other pollutants such as kerosine (Page 16 Point 3.31), and not in the areas where pollution will blow.
7. The CAA says it undertook modelling to determine if there had been a significant noise impact from General Aviation (light aircraft, helicopters, etc). The only way to do this properly is to measure it, before and after, something the CAA committed to do but didn't. The CAA's section modelling General Aviation Noise was based on "*ICAO Chapter 6 noise standards*". These exclude helicopters and assume that all light aircraft are modern and relatively quiet. The reality is that most light aircraft flying in the area are 30 – 60 years old and not Chapter 6 compliant for noise (Page 18 point 3.42). The report suggests 180 flights a day would be needed to create an average of 57dBA per day. But this ignores the fact that light aircraft frequently circle over the same place 10 – 15 times in one flight and it suggests there is no other noise being created by anything else. Noise levels are ALREADY above what is known as SOAEL (Significant Observed Adverse Effect Level), without additional noise from General Aviation.

## Conclusion

The CAA's PIR evaluation is not a valid, supportable or independent review and the conclusions are largely unfounded with much of the required information not being collected and the modelling assumptions flawed.

Relevant bodies and leaders should require the CAA and FAL to properly apply the government's noise, emissions and pollution legislation and guidelines to protect the public's health. As such, the PIR should be amended to address the relevant issues.

## Detailed review

The comments below reference the CAA PIR conclusion document - <https://www.caa.co.uk/publication/download/24883>

### Page 3 Point 1

- The change maintains a high standard of safety by creating a known environment in the vicinity of Farnborough airport and no detrimental impact on safety has been identified.

While this will be true, the change has made surrounding airspace less safe as aircraft outside controlled airspace are more congested and fly lower with less safety equipment.

Page 3 Point 3

- The change has had the expected outcome with regard to the impact of the change on local air quality, daytime noise, night-time noise, indirect (consequential) noise impacts from other airspace users (i.e., those airspace users neither departing from nor arriving at Farnborough airport), overflight, tranquillity and biodiversity.

This statement is untrue and unsupported. No noise was measured before or after the change in airspace, despite the CEO of the CAA (Richard Moriarty at the time) committing to MPs that it would be measured up to 7,000ft and 20 miles from the airport. Nor has there been any measurement of air quality apart from NOx (e.g. ignoring particulates) and only near to the airport.

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- 2.2 The change sponsor sought to bring benefits to the Farnborough ATC operation and to other airspace users in the region, to enhance aviation safety, and to reduce noise impact on the local population.

The benefits are only for airspace users at the expense of everyone else. The way to reduce the noise impact on the local population can only be by avoiding unnecessary flights for a very small number of ultra-wealthy people.

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- 2.3 The objectives of the airspace change were to increase the predictability and efficiency of departure and arrival routes, to reduce the complexity of airspace interactions, to establish a route structure that, as far as practicable, would avoid towns and villages below 4000ft and avoid major population centres between 4000ft and 7000ft, and would encourage the GA community to use the services provided by Farnborough ATC.

The new flightpaths have increased the number of flights over towns & villages. General Aviation is not using controlled airspace (it is flying round it). GA that does transit Farnborough's controlled airspace is being directed to fly lower than before to keep upper space clear for jet operations.

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- 3.2 Feedback indicates that where issues and efficiencies are identified, procedures between stakeholders have been, and continue to be, refined. The airspace construct, interdependencies, and procedures in terms of arrival and departure routes in a controlled environment are operating as expected. It is noted, however, that further co-ordination is required with some affected stakeholders. The CAA is content that the change sponsor has engaged and continues to engage with stakeholders to ensure that all operational requirements are considered.

FAL has not engaged with the public and FNG, who are stakeholders.

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- 3.7 Utilisation data provided by NATS Farnborough demonstrates systemised use of the designated arrival and departure routes supported by operational procedures and letters of agreement. Initial issues with track keeping regarding use of RNAV5 vs RNAV1 arrival routes have been resolved through review and amendment of procedures. Utilisation of CTA 7 is discussed below. The CAA has concluded that the airspace constructs are being utilised as described within the concept of operation and that track keeping requirements are as predicted.

Aircraft may have followed the set flightpaths in 2022 but they aren't now. For example, 70% of easterly departures do not achieve the set height of 4,000ft by the time they pass over the A31. About 30% of arriving aircraft do not follow the flightpaths consulted on and used to calculate noise impact and number of people overflown.

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- 3.11 Farnborough PIR aircraft movement data and stakeholder feedback suggests that establishment of controlled airspace has affected the lateral track of some aircraft transiting the area remaining outside of controlled airspace, with some displacement to the West/Southwest, to the extent anticipated at the time of the decision. The CAA has concluded that the change has had the intended outcome. The CAA analysed MOR data for the area and no adverse impact on safety was identified. The air navigation service provider is

The CAA seems to recognise that more aircraft are rat-running under controlled airspace south of Farnborough airport. This was NOT anticipated and it has had a significant noise impact for people living in these areas. This is especially true for the large number of helicopters avoiding controlled airspace, including the Kings flight going to/from RAF Odiham. Flight density diagrams provided by FAL show this concentration but they exclude aircraft that do not have ADS-B transponders, about half of light aircraft, which is what should be measured at low height.



## Noise

- Paragraph 65 - The overall exposure of any individual or community to noise on the ground was not anticipated to increase to a level that

exceeds 57dB LAeq,16h, where the increase in the level of exposure to noise in itself exceeds 3dB as a result of the proposed change

- Paragraph 65 - The proposed changes to departure routes was not anticipated to have an impact upon the airport's LAeq,16h noise contours
- Paragraph 73 – It was anticipated that no new people will be significantly affected by noise
- Paragraph 73 – It was anticipated that any areas overflowed more often are likely to result in people experiencing an increase in aircraft noise, but not at levels that would be considered "significant"

The statements above are incorrect and not consistent with government guidelines (see Appendix 1). The noise comments in the PIR only relate to communities close to the airport (within 2 miles) and are not valid for communities further away but under new flightpaths and controlled airspace. By all methods of measurement and against the airports and government's standards, areas being overflowed more are experiencing significant increase in noise. This is why the CAA/FAL have so steadfastly refused to measure noise before and after the change in airspace.

## Overflight

- Paragraph 67 – It was anticipated that the introduction of the RNAV routes would result in greater concentration of aircraft flying those routes meaning some people will be overflowed more frequently but the concentration of traffic would result in less people being overflowed by Farnborough Airport traffic
- Paragraph 67 – It was anticipated that there would be a reduction in the low overflight of populated areas
- Paragraph 79 – It was anticipated that after the first turn, the vertical profile of aircraft departing Runway 06 SID would improve in comparison to current departures meaning that they will typically be higher than departing aircraft before the change was implemented
- Paragraph 87 – It was anticipated that after passing Ewshot the vertical profile of aircraft departing the Runway 24 SID was expected to improve in comparison to departures before the change meaning that they will typically be higher than departing aircraft before the change was implemented

Data to support claims of a reduction in the number of people overflown has not been provided. There has been an increase in the number of aircraft flying lower.

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### **Tranquillity and Visual Intrusion**

- Paragraph 71 - With regard to Areas of Outstanding Natural Beauty (AONB) and National Parks it was anticipated that the impact of the

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Page 15

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CAA Assessment

change would be no worse than currently experienced, with the potential to improve if aircraft achieve anticipated improved vertical profiles

- Paragraph 96 – It was anticipated that the South Downs National Park and Surrey Hills AONB would continue to be overflown by arriving aircraft though generally in a narrower swathe, and at altitudes similar to or higher than before the change was implemented
- Paragraph 100 – It was anticipated that the pattern of traffic over the South Downs National Park would change at altitudes below 7,000ft, and that the change would represent a redistribution of aircraft rather than a change in altitudes or numbers of aircraft.

There has been an increase in noise disturbance in these areas (now called National Landscapes). Aircraft noise, caused by all types of aircraft, is constant (FNG has data and recordings from its noise monitoring equipment). However, because the CAA/FAL haven't measured actual noise, they are not in a position to make such a claim.

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### **Conclusion**

- 3.31 The CAA has concluded that that the implementation of the change has not led to a breach or worsening of legal air quality limits. The outcome was therefore as intended.

Airports are supposed to measure a range of pollution types, including particulates. Rushmoor Borough Council, on behalf of FAL, only measures nitrogen dioxides (NOx) and does not measure particulates.

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- 3.34 CAP 725 states that sponsors must produce LAeq,16h noise exposure contours for airports where the proposed airspace change entails changes to departure and arrival routes for traffic below 4,000ft above ground level (agl) based on the published minimum departure and arrival gradients.

FAL did not produce noise contours for traffic below 4,000ft AGL. These would need to extend a long way west, south and east of the airport e.g. aircraft above Beacon Hill (Hindhead) are below 4,000ft AGL.

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### **Conclusion**

- 3.40 The sponsor has provided evidence to show that the changes to airspace have not had an impact on the 57dB LAeq,16h contour and therefore the change has had no impact on the number of people significantly affected by aircraft noise. The track density diagrams produced as part of the PIR data set, show that changes to actual flown mean track occur beyond the 57dB LAeq,16h contour. The sponsor has also provided noise contours post-implementation to support and confirm that the changes in airspace design and the design of the early left turn are not influencing the shape or size of the 57dB LAeq,16h contour. The CAA has concluded the outcome was therefore as anticipated.

Noise was not measured away from the airport. The noise monitoring assessments now being carried out in specific locations only measure the noise of FAL aircraft, not all aircraft noise that people hear.

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- 3.42 In this PIR, the CAA has undertaken its own analysis to determine whether there has been a significant noise impact (as defined by the Secretary of State) resulting from any General Aviation (GA) traffic not arriving or departing Farnborough but flying in the vicinity of Farnborough. This assessment was performed using data sourced from the CAA Airspace Analyser Tool on GA aircraft activity between 16 June and 15 September 2023<sup>11</sup>. For example, for a small aircraft certificated to ICAO Chapter 6 noise standards, the average certified noise level is 72dB L<sub>Amax</sub> at 1,000 ft. Therefore, 180 such flights would be required to cause noise exposure above 57dB LAeq,16h. Observations from the CAA Airspace Analyser Tool indicated that GA traffic levels in the vicinity of Farnborough were below this threshold. The CAA's assessment of this data has led the CAA to conclude that the level of noise experienced as a result of aircraft not arriving or departing Farnborough airport, but flying around the controlled airspace, has not exceed 57dB LAeq,16h. The CAA has concluded the outcome was as intended.



Most GA aircraft are not compliant with ICAO Chapter 6 noise standards – most are 30 -60 years old and were made before the regulations came in to effect. The standards also exclude helicopters which are a significant proportion of overflights in the area and are very noisy. The statement assumes there are no other aircraft making noise (180 flights would generate 57 dBA LAeq16) which is of course misleading and it assumes that GA aircraft are flying for 16 hours a day, which is also incorrect.

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### **Anticipated impacts**

- 3.44 The proposed change will lead to a concentration of traffic which will result in approximately 255,000 fewer people being directly overflown by Farnborough traffic. However, for people under the new arrival and departure routes there will be an increase in the number of times they are overflown which is an inevitable consequence of concentration. Both arriving and departing aircraft were anticipated to typically be higher, reducing the low overflight of populated areas.

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### **Conclusion**

- 3.53 On review of figures in Farnborough Airport Airspace Change PIR Annex A Traffic Dispersion and Environmental Overflight Diagrams Issue 1.0, it is concluded that there is no net increase in flights over the AONB and National Park. Traffic is concentrated and redistributed<sup>13</sup> following the airspace change, as anticipated at the time of the CAA's decision. As noted in the overflight assessment (referred to above), the vertical profiles of arriving and departing aircraft are higher, as anticipated. The CAA has concluded that the outcome is as intended.

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- 3.88 As detailed in the environmental assessment, the CAA has undertaken its own analysis to determine whether there has been a significant noise impact as a result of the rerouting of GA traffic. This analysis concluded that the level of noise experienced due the rerouting of GA aircraft is not significant (i.e., not above 57dB LAeq,16h).

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- 3.90 Assessment of the impacts on tranquillity, including the Surrey Hills AONB and South Downs National Park, is covered in the Environmental Assessment above. The CAA concluded that there is no net increase in flights over the AONB and National Park. Traffic is concentrated and redistributed following the airspace change, however, these changes were anticipated as part of the change. The vertical profiles of arriving and departing aircraft are higher, also as anticipated.

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- 3.99 It was expected as part of the airspace change that IFR traffic from nearby airports such as Blackbushe or Fairoaks would follow Farnborough's new STAR. Previously and before the new controlled airspace was established, Blackbushe and Fairoaks IFR inbounds always interacted with Farnborough arrivals. While respondents' concerns that this is contributing to the noise impacts are acknowledged, the CAA notes that such traffic is very limited compared to the volume of Farnborough traffic. While a number of respondents felt that traffic from other airports such as Gatwick and Heathrow were using Farnborough's airspace and therefore perceived an increase in traffic in the area, this traffic has always historically flown above Farnborough's airspace, within the long-established London Terminal Manoeuvring Area controlled airspace structure, and is therefore not a consequence of the change.

Appendix III: The Civil Aviation Authority (Air Navigation) Directions 2001 (incorporating Variation Direction 2004)

Section 9

- (b) where such changes might have a significant effect on the level or distribution of noise and emissions in the vicinity of a civil aerodrome, ensure that the manager of the aerodrome, users of it, any local authority in the neighbourhood of the aerodrome and any other organisation representing the interests of persons in the locality, have been consulted (which might be undertaken through the consultative committee for the aerodrome where one exists);

## Appendix 1

PIR Section 3 on noise includes this statement:

3.33 The Air Navigation Guidance 2014 stated that the Government's overall policy on aviation noise is to limit, and where possible reduce, the number of people in the UK significantly affected by aircraft noise. In determining whether or not someone is "significantly affected" by aircraft noise, the Aviation Policy Framework 2013 states that the Government will continue to treat the 57dB LAeq,16h contour as the "*average level of daytime aircraft noise marking the approximate onset of significant community annoyance*".

57dB (LAeq 16h - average noise over 16 hours) is a high level of noise and it is rarely exceeded, even at the ends of the runway. This is partly because the airport operates for 12 hours or 15 hours a day, not 16 hours over which the noise is averaged. Obviously, that discrepancy has a bigger difference at weekends due to the shorter operating hours. As a result, the PIR concludes that there have been no new people affected by 57dB and there have been no new people not affected by 57dB. That is not much consolation and is a misrepresentation of the situation as many people now find themselves in a situation where noise was previously 45dB and is now 55dB. That is twice as much noise after the changes but still below the 57dB threshold FAL has set. The guidance regarding the onset of harm from noise has now been reduced from 57dB to 54dB.

What FAL has done is calculate how many people are no longer overflowed. Even if it was previously just one flight a day. However, this contradicts the CAA's definition of measuring overflight which states anything less than using a change of less than 5 flights a day as a measurement is misleading (CAP 1498 "definition of overflight" paragraph 3.5).

3.50 Due to uncertainties in modelling aircraft tracks at larger distances from airports, we consider it inappropriate and potentially misleading to present overflight contours and associated results below a certain level, e.g. 5 daily overflights.

When FNG challenged the CAA regarding the determination of what "significant" means that is used in paragraph 3.33 of the PIR, it said it was up to FAL to define it!

Furthermore, the CAA's guidance includes all aircraft noise, but FAL has only considered noise generated by FAL aircraft. This is not representative of the real aircraft noise experienced, particularly areas a few miles from Farnborough, that experience an equally large disruption from Heathrow/Gatwick aircraft (and others) as well as all the helicopters and light aircraft that fly over them but do not fly over areas close to Farnborough.

## **Appendix 2 - Noise and why it is important**

Noise is complicated. It is measured in decibels and it is a non-linear scale. Effectively, an increase in noise of 10dBA is a doubling of the volume of noise.

This article provides some useful background on noise and its impact on health.  
<https://www.bbc.co.uk/news/articles/crmjdm2m4yjo#:~:text=In%20Barcelona%20there%20are%20an,for%20the%20World%20Health%20Organization>

The impact of noise is well researched and documented. A noise level of 57dBA average is recognised as causing significant community annoyance. This has now been reduced to 54dBA<sup>1</sup>.

There are various government policies and procedures regarding pollution and its impact on public health. Noise is a pollutant and there is a government policy regarding it<sup>2</sup>.

The impact of noise on people must be measured in several ways, not one way. The reason for this is that a loud noise every 5 minutes would have a low daily average noise but cause much more disturbance than a constant noise with a higher daily average. Also, the pitch of noise can be more disturbing. Higher frequencies are often more disruptive than lower frequencies. Aircraft noise is a problem as it is usually a periodic loud noise at relatively high frequency on top of a lower constant noise (e.g. from road traffic or industrial noise).

Noise disturbance is categorised as Lowest Observed Adverse Effect Level (LOAEL) and Significant Observed Adverse Effect Level (SOAEL).

51dBA is considered to be the LOAEL during daytime<sup>3</sup>. SOAEL is the level above which significant adverse effects on health and quality of life occur. FAL recognises that the difference between LOAEL and SOAEL is 3dBA. See statement below from its planning application:

**To determine if a property is 'affected' by noise for the purposes of consultation, we have adopted a criterion of a +3dB change between the lowest observed adverse effect level (LOAEL) and the significant observed adverse effect level (SOAEL) and 2dB above SOAEL. This approach has been used by other airports and has been tested in the courts.**

Many areas under FAL's new flightpaths are rural and have average noise levels of less than 40dBA during the day and 35dBA at night (compared to 50 – 55dBA in towns). The increase in noise resulting from the change in flightpaths is typically about 10dBA under the new flightpaths, considerably more than the 3dBA between

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<sup>1</sup> <https://www.aef.org.uk/2017/02/08/lower-threshold-for-noise-annoyance-caa-study-finds/#:~:text=Though%20modern%20aircraft%20are%20individually%20quieter%20than,measurement%20of%2057%20dB%20Leq%20as%20the>

<sup>2</sup> <https://assets.publishing.service.gov.uk/media/5a7956e0ed915d0422067947/pb13750-noise-policy.pdf>

<sup>3</sup> <https://assets.publishing.service.gov.uk/media/5f624adae90e072bbae22c2c/air-navigation-guidance-2017.pdf>

LOAEL and SOAEL. This is supported by FNG's noise monitoring equipment and a one-off study conducted in Churt (under the southern arrivals flightpath) that measured an average of 54dBA but this excluded all aircraft apart from FAL aircraft so is an under-estimate.<sup>4</sup> It has refused to provide the total noise data.

Aircraft noise in the area ALREADY exceeds recommended guidelines and is disruptive. This is before any further expansion of Farnborough Airport or new flightpaths from the government's Airspace Modernisation Strategy.

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<sup>4</sup> <https://www.rushmoor.gov.uk/planning-and-building-control/farnborough-airport/farnborough-airport-planning-application/>