

Memorandum

Project: London Biggin Hill Airport
Subject: NAP Review: July 2021 report
Prepared: Lee Montague
Date: 08 September 2021
Reference: 20/0246/M1 **Revision:** 0 **Approved:** AE

1 Introduction

- 1.1 It is coming to the end of a 5 year period where the existing Noise Action Plan (NAP) should be reviewed and updated where necessary to cover the next 5 year period. RSK Acoustics (formerly Cole Jarman) undertook an audit of material relevant to the implementation of the NAP in August 2020.
- 1.2 Details are contained within memo 20/0246/M1 (dated 27 August 2020). The comments of that memo still stand, with this memo now considering the most recent specific document provided by London Borough of Bromley (LBB) to us to review.
- 1.3 This memo reviews the London Biggin Hill Airport (LBHA) July 2021 document 'Review of Noise Action Plan'. Part of this memo reviews items as proposed by LBHA to be considered in the future for the next iteration of the NAP as well as making recommendations for additional parameters or information to be made available or to be considered to assist the development of the new NAP.

Covid

- 1.4 We note that over the last 12-18 months the commercial aviation industry has been heavily affected by the Covid Pandemic, with significantly less commercial flights nationally and globally. LBHA reported in summer 2020 similar drops in flight movements as to other UK airports. RSK Acoustics have not seen the latest quarterly reports, but do note the movements information contained in the NAP review document this memo is the subject of.
- 1.5 The pandemic should not affect the underlying principles and further development of the new NAP. Given the period of lower numbers of movements it can be argued that the NAP is more important than ever when the relative year on year increase in movements could potentially be the highest for many years gone by.



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2 Background

- 2.1 Part of the reason the NAP was originally brought into being was because of an extension of hours of operation of the airport. Since May 2016 the airport had been able to operate flights in the periods 0630-0700 and 2200-2300 when previously it was not. Many restrictions were put in place to ensure residents were not adversely affected by these changes. Such measures included setting noise envelopes in terms of area that must not be exceeded, and alternative areas which the airport should strive to meet based upon using 'reasonable endeavours'. Meeting the 'reasonable endeavours' contour envelope is not technically a strict requirement providing such endeavours have been undertaken.
- 2.2 In addition to the NAP which contains multiple issues to be addressed, further information and requirements are set out in the Management Information Letter (MIL). This includes 21 actions points on how the NAP should be implemented.
- 2.3 As noted in memo 20/0246/M1, the onus falls predominantly to LBHA to implement the existing NAP and manage the process it entails, but it is important that any responsibilities falling to LBB have been actioned and appropriate records kept. The first stage of the process should therefore check that all relevant information has been received by LBB, records kept and actions undertaken as required.
- 2.4 RSK Acoustics are aware of Airport Consultative Committee (ACC) reports up to July 2020 and other information up to October 2020 that has been received by LBB. On review of these it is understood that all relevant information concerning complaints, aircraft movement data and noise contours has been provided. It should be confirmed that since this time, it has been the case and (assuming it is) will continue to be the case, that any complaints made directly to LBB must be shared with LBHA as necessary.
- 2.5 Memo M1 notes that many of the MIL items have already been effectively completed, but a number require further consideration. These are repeated from M1 below:
- 8. Controls on aircraft permitted to use the airport;
 - 9. Controls on flying training;
 - 11. Introduction of a GPS based runway guidance system;
 - 12. Changing the height of arriving and departing aircraft;
 - 13. Changing the "03 instrument approach";
 - 14. Controls in the new shoulder period;
 - 16. Relocating the VOR beacon;
 - 17. Noise Monitoring and Track Keeping System;
 - 19. Level of fines;
 - 20. NAP Review;
 - 21. Helicopters.
- 2.6 Although part of this memo and the LBHA report look to the development of a new NAP, part of the process in forming a new iteration is to ensure the existing NAP, which is still in place is being followed and implemented accordingly; and to assess the airports own performance against the NAP requirements.



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- 2.7 In addition to the local level review of the airport and the NAP, since the original NAP was introduced there has been significant developments in terms of national policy regarding aviation noise and the publication of new supporting evidence. Much of this national guidance is noted to apply to more commercial airports rather than General Aviation (light aircraft) or Business Aviation (GABA). However, it still provides useful context on the general direction of Government policy and applicable standards.
- 2.8 For example the onset of significant community annoyance is now understood to be 54dB $L_{Aeq,16h}$ (daytime) rather than formally 57dB. These levels should be considered carefully as to how they might apply in relation to GABA aviation of an existing and established airport, and also how they might apply to the local community response. A knee jerk reduction in criteria for established operating airports is not necessarily warranted by default and the local context and specific issues should be considered carefully in relation to up to date information.
- 2.9 The July 2021 LBHA document reviews their own performance over the last 5 years, summarises complaints and observations and notes future noise predictions and mitigation measures proposed to reduce noise for the forthcoming 5 years. The findings are supplemented by data and contours issued quarterly via the ACC quarterly reports.

3 Review of Section 2 - NAP: Review of Performance

- 3.1 Section 2 of the July 2021 LBHA report includes up to date data in relation to movement data and noise contours. A summary and statistics of the complaints received by the airport directly is also presented. This is in line with the quarterly reporting style, which we assume has continued since July 2020.
- 3.2 It is noted in the report that the noise contours (2020 contour contained in Appendix 1) are being produced based upon the agreed methods as set out in 2016. This is expanded upon in Appendix 3 of the report which is a summary with the noise contours from Bickerdike Allen Partners (BAP) with reference to the development of the 2025 predicted contours.
- 3.3 This method is fair to ensure like for like comparison and consistency, however we note that at some point in the future (and perhaps the new NAP is a good time) it may be prudent to update the noise model used to newer software. INM (version 7.0d) is now out of date and more recent software from the FAA (AEDT) has been available for some time (the latest version at time of writing being 3d released March 2021). As new aircraft are introduced the AEDT database will be updated whereas the INM database will not.
- 3.4 If custom flight profiles have been developed for individual aircraft types (rather than using default profiles) within the INM software then this is less critical, but in the interest of future proofing, given the new plan will last for 5 years, the adoption of more up to date software may be warranted. This could potentially be a new NAP item.
- 3.5 When moving between software (especially if custom profiles are to be adopted), it is beneficial to input data for historic contours and potentially re-set the noise envelopes and areas limits stated, in case the new software gives differing results. This can potentially be an in



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depth technical process, the results of which will require review from LBB to accept any alteration to the noise envelope shape or areas limits; but after the one off effort of making the switch of software, the noise model (on which a lot of onus is placed) will be better future proofed.

- 3.6 Table 2.1 (section 2.3) of the report shows the predicted 2020 movements (as estimated in 2015). Table 2.2 then shows the actual movements. The 2020 movement data has been affected by Covid and subsequent commentary confirms this (as can be found in the ACC meeting minutes).
- 3.7 Table 2.2 show the movements for other years in total, but it would be useful to see the breakdown for business and light aviation for these years. Moving forward in the new NAP, including more detail in the figures may be useful. This might also include breakdown of what flights are arrivals, departures and training / circuit movements. Knowing the number of movements on each runway might also be helpful, especially with potential changes to operation related to 03 to be implemented.
- 3.8 The busiest years were actually 2016 and 2017, and historically the movements were reduced into 2018 by LBHA themselves to ensure compliance with the NAP. This was done by not renewing flying school contracts. This is a positive intervention from LBHA that demonstrate their commitment to the NAP.
- 3.9 2020 movement numbers are down against estimate (due to covid), but it would be interesting to see the breakdown of business and light aircraft to see if any changes in pattern have developed and how the noise model might vary due to fleet mix.
- 3.10 The use of the forecast data (with annual movements of 49,500) in this assessment is therefore robust against what the actual situation was, and is also in line with approximate number from 2016 and 2017, so shows the upper level of movements expected.
- 3.11 Later in the report and this memo reviewing it, we consider the future noise contours and the forecasts underpinning them.
- 3.12 Section 2.7 of the report notes the airport are achieving the limits for areas of 57dB contour in morning and evening. They say they are within the 16 hour day area by 50% of the UDP envelope. This along with the quarterly reporting contours suggest the airport have met all the requirements of the NAP.
- 3.13 They state only 17 infringements of noise limits for individual aircraft over 5 years and most of those were only by 1dB. They say this is from the noise and track keeping system. This suggests that LBHA are adhering to policies and practices that are working in general.
- 3.14 It is noted that no dwellings fell within the Sound Insulation Grant Scheme (SIGS) for early morning flights. SIGS are well established from other commercial airports and in the new NAP the limit should be reviewed against latest guidance and against what other airports are offering.



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- 3.15 In terms of movements in the AM shoulder period, it is noted that there was on no occasion more than 6 movements and that number only occurred 2 times (we assume in the entirety of the last 5 years as the report sections notes 'since the interdiction of the extended hours'). This is within 8 annual movement limit. The history of setting the 8 movements limit should be reviewed. If they have successfully operated with no more than 6 flights for some time, perhaps the new NAP could restrict this limit. However, that is an arbitrary suggestion and more research into establishing the rationale for a limit on a technical basis should be sought to inform the new NAP and potential for altering the limits.
- 3.16 It is reported that there were a maximum of 5 movements in the late evening period and that only occurred once. This is within 8 movements limit. As with the morning matter, the review of this limit should be considered in developing the revised NAP.
- 3.17 Table 2.4 sets out the NAP actions to be undertaken over the 5 year period and if they have been achieved. Most have been completed or are on-going; with just a few which are on-going but not technically completed.
- 3.18 These are the implementation of GPS system; implement altered 03 instrument approach procedures; and Remove VOR. Details of why these measures have been delayed or not yet completed are given and seem reasonable, as it is understood the airport are making efforts or are otherwise committed to seeing these item through.
- 3.19 Some further evidence of items listed as completed would be beneficial to confirm compliance (if not already provided) especially where items are less tangible with less specific outcomes, such as promise to undertake reviews, but not confirmed if practices have been amended as a result. For instance, if jets are using reverse thrust or not, or how often.

4 Review of Section 3 - Public Complaints

- 4.1 Table 3.1 of the report lists the numbers of complaints over the last 5 years. The numbers have increased significantly despite a reduction in aircraft. These statistics are supplemented by information in the ACC quarterly reports. The report notes that most complaints are due to off track light aircraft.
- 4.2 LBHA note that the track keeping system now makes it easier to identify specific aircraft that are the cause of peoples complaints, so people are more likely to complain.
- 4.3 With regards to being off track, it is later noted how the airport does enforce its controls and issuing warnings and sanctioning people found to be in breach of noise or track restrictions. For example section 3.7 notes:

Since the implementation of extended operating hours, the Airport has banned 4 operators, fined one operator, issued over 145 Initial Warning letters and 7 Final Warning letters for infringements of operating procedures. The low ratio of Final Warning letters and fines issued, indicates high compliance once operators are advised of non-compliances.



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- 4.4 Chart 3.2 shows that there are likely multiple complaints from individuals, especially in Farnborough and Petts Wood. This is further evidenced in the ACC reports. No complaints should be ignored, but we appreciate repeat complaints from low numbers of individuals can skew the statistics and inflate headline numbers of complaints.

5 Review of Section 4 - Other matters

- 5.1 The publication of the complaints procedure flow chart is useful and if not already, should be made available to the public so they can see the process. Transparency in such processes and ensuring people are aware of the outcomes is good for community relations. It would be interesting to know if residents are informed of sanctions imposed if a non-compliant NAP issue is found.
- 5.2 This section goes on to give background to the items of the NAP noted earlier as not being completed within the 5 years.
- 5.3 Section 4.7 highlights some residents' issues with the accuracy of the webtrak track keeping system. LBHA have noted they do regularly ensure it is accurate and calibrated. It is this consultant's understanding that LBB is working with LBHA to independently validate the accuracy.
- 5.4 Section 4.8 notes some flights are not on webtrak due to national security. Complaints which are not identifiable on webtrak, but can be correlated to noise monitors should still be actioned; for example if national security flights are not following Noise Preferential Routes (NPRs) or other requirements, then they should also be held to account (assuming the reason for non-compliance is not a national security necessity).
- 5.5 Such flights should also form part of the noise contour process and the minimum information related to such flights (that does not compromise security) should somehow be recorded for the purposes of noise modelling. Confirmation if this can happen / is happening or will happen should be sought. If this is not viable, justifiable reasons should be outlined.
- 5.6 Section 4.10 notes a delay to the implementation of a GPS system. The section goes on to note that the UK is not joining the pan-European satellite navigation subsystem program. It should be confirmed if a GPS or equivalent system is still intended to be adopted.
- 5.7 Section 4.13 notes helicopter use, but is a little vague. Helicopters have been raised as a potential issue and historically have not been given as much consideration as fixed wing aircraft; may be due to the relatively low numbers compared to fixed wing.
- 5.8 More specific details of noise abatement procedures for rotary aircraft should be developed with stakeholder engagement and this could form part of the new NAP.
- 5.9 Section 4.14 notes the implementation of Track Violation Limits (TVLs). It notes that corridors have been assigned to allow some flexibility for the varied operation of different aircraft following NPRs. If there are regular complaints from aircraft passing towards the edges of the



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TVLs, then the corridors should be reviewed to see if they can be tightened. This might or might not be possible until GPS and more accurate navigation is implemented, but if it is not a physical safety issue for an aircraft, the TVLs could potentially be reviewed.

6 Summary of Existing NAP and MIL

- 6.1 It does appear that LBHA are following the existing NAP, and the relatively low number of individual complainants suggests measures are working reasonably. It is good to see that real sanctions are being implemented on pilots or operators who are in breach of requirements.
- 6.2 Transparency and sharing of information publicly are critical to enable fair and open review and to empower the public when they have a legitimate complaint. It is understood additional information is being made available to the public via the airport website. Such process should continue and although not necessarily on the same scale, larger designated airports have good examples of their own websites of how to convey noise information to the public.
- 6.3 The adoption of mobile noise monitors should be continued and their use maximised so they are used continually, even at surrogate locations where a complaint has not specifically been received. This could assist in calibrating the noise contours to check noise levels at various locations around the community even if a complaint has not specifically been received.
- 6.4 Of the MIL or NAP items raised in memo M1 (repeated above in section 2.5) most have been considered in the July 2021 report or otherwise have been noted in our review above. Those which are not mentioned or given less attention above, we would request additional information (if not already available by exiting means) to enable greater scrutiny of the existing NAP which can then assist in the development of the new NAP. These include:
 - 8. Controls on aircraft permitted to use the airport;
 - 9. Controls on flying training;
 - 12. Changing the height of arriving and departing aircraft;
 - 14. Controls in the new shoulder period;
 - 19. Level of fines;
 - 21. Helicopters.

7 Review of Section 5 - Future assessment and forecasts

- 7.1 Section 5 looks to the future, presenting 2025 forecasts and contours (contained in Appendix 3). It then states 13 points that it will address in the next 5 years. These points are likely the foundation of the new NAP to be devised. These points are reviewed below, but the issues raised previously in the report, should also potentially be included in some form of new MIL or the NAP; or at least be given due consideration before the NAP is finalised.



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- 7.2 Section 5.2 of the report suggests the airport is looking for economic growth which will likely lead to an increase in flights. It is imperative that the historic 2020 contour envelope is not exceeded and that a suitable 'best endeavours' contour is proposed.
- 7.3 As a worst case the existing best endeavours contour should be used, however potential reduction of the contour areas should be considered where appropriate in relation to latest guidance as to aviation noise attitude studies and other relevant guidance.
- 7.4 To ensure the NAP area or contour limits are met, it is likely the 50,000 movement cap will need to be retained. If any change to this cap is proposed it must be justified by corresponding contours demonstrating compliance and full disclosure of fleet mix used in the assumption (as the 2025 contours are in the BAP note in Appendix 3 of the report).
- 7.5 Given the mix of business jets and light aircraft at LBHA, these do not have the same degree of benefit of long term noise reduction via technology as would apply to larger commercial aircraft. The promotion of noise suppression technology to light aircraft could potentially be enhanced though. It would be interesting to see how many aircraft have taken up the financial offer of reduced fees for installing the compression systems over the last 5 years and if it is worth while enhancing this scheme further as part of the new NAP.
- 7.6 The BAP report noted earlier is set out in Appendix 3 of the July 2021 report and uses the forecast movement data as set out in section 5.3 of the report. It would be good to have a yearly breakdown of forecasts to see how slowly or quickly recovery from the pandemic moves up to the 2025 levels that are expected. This gradient of increase might then have bearing on NAP measures and their timeline for implementation.
- 7.7 As noted earlier, we recommend the use of up to date software. This might require a large one off effort, but once in place, will give better future proofing to any model changes.
- 7.8 We note that BAP have used the 2019 fleet mix and scaled to match total movements for 2025 numbers. This suggest effectively no material change in light aviation but doubling of business aviation (majority likely to be jets). Justification of this forecast is requested as the fleet mix can play an important part not only of the noise contour, but people perceptions of noise.

8 Review of Section 6 - Summary

- 8.1 This section is a summary of potential future works, possibly the most important for the new NAP. It sets out 13 points, some continuation of the existing NAP, some newly proposed. Ongoing points are mostly addressed in the memo above. Further comment on relevant new items is below:

Item 7: Consideration to extending limits on circuit operations and imposing additional restrictions on ground noise.

- 8.2 The review of circuits by light, business and rotary aircraft is welcomed. This could be flight paths, hours of operation and numerical limits (annually, monthly, daily) to be considered.



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Regarding ground noise, location of engine run ups even over short periods should be considered as well as mitigation to that; as well as more general ground noise. Any strategic review to find noise benefits from ground based operation are welcomed.

Item 11: Work with LBB to enhance public understanding through online briefing packs and simplification of technical terminology.

- 8.3 As noted earlier, empowering the public with useful technical information to an appropriate level of complexity is welcomed to improve community understanding and community relations. This linked to a good complaints procedure (which appears to already be in place) should be considered a pre-requisite of most modern airports.
- 8.4 Ensuring pilot guides and details of the NPRs and restrictions and any other relevant information contained in the UK Aeronautical Information Publication (AIP) should be developed in more easily consumable format for pilots and operators.

9 Additional Suggestions

- 9.1 Not specifically covered in the July 2021 report, but other measures we suggest that are at least discussed for potential consideration in the NAP are set out below. These are in addition to the various measures suggested throughout this memo and those set out in memo M1 from the current NAP / MIL which may need to be retained in the NAP.
- 9.2 It may not necessarily be relevant to affect noise contour plots, but reporting circuit or training movements separately from general arrivals and departures would be welcomed as part of the ACC reporting statistics. Repetitive circuits may be perceived more annoying by some despite not a material difference to noise indices.
- 9.3 Limiting hours of circuits and training flights might also be considered in the NAP.
- 9.4 Although overall contour area is quoted as the restriction limit in the NAP (based upon the historic 2020 contour), any change in shape of contour or exceedance of the contour limit set must be considered in case the area is maintained to satisfaction, but a greater number of properties are within the contour.
- 9.5 Consideration of striving for lower noise limits in line with latest guidance should be considered, if not set as a 'hard' limit or restriction.
- 9.6 SEL and/or L_{max} plots for all aircraft type operating should be plotted to ensure compliance with the NAP requirement of LEAR35 footprint or 90dB SEL contour. These should be checked at receptors via measurement; which could be part of the mobile noise monitor programme.

■ End of Section