LADACAN comments on Deadline 7 submissions IP ref 20040757

Contents

Glossary

19mppa application	Application 21/00031/VARCON on the LBC Planning Portal – submitted by LLAOL to LBC to further increase noise contour limits and the passenger cap
2022 inquiry	Planning Inspectorate Inquiry (ref APP/B0230/V/22/3296455) into the called-in decision by LBC to grant the 19mppa application
Airport	London Luton Airport
Airport Operator	London Luton Airport Operations Ltd, currently the concessionaire at the Airport
Applicant	Luton Rising (London Luton Airport Ltd)
Application	This application TR020001 for a Development Consent Order
CAP1129	'Noise Envelopes', CAP 1129, Civil Aviation Authority, Dec 2013
CAP2091	'CAA Policy on Minimum Standards for Noise Modelling', CAP 2091, Civil Aviation Authority, 2021
CAA	Civil Aviation Authority
Early Morning Shoulder	The period between 06:00 and 07:00 in the morning during which there is currently consented an annual movements cap of 7,000
LBC	Luton Borough Council, ultimate owner of and Local Planning Authority for LLA
LLA	London Luton Airport
LLAOL	London Luton Airport Operations Ltd, the operator of LLA
mppa	'million passengers per annum': a measure of an airport's passenger capacity or actual passenger throughput
NEDG	Noise Envelope Design Group
noise contour	An outline on a map enclosing an area in which the 8-hour or 16-hour logarithmic average of aircraft noise for an average day in a defined 92-day summer period equals or exceeds a given value, expressed in terms of LAeq for an 8h or 16h period
Project Curium	Application 12/01400/FUL on the LBC Planning Portal – submitted by LLAOL to LBC in 2012 for development works to increase LLA capacity to 18mppa by 2028
shoulder period	The term refers to periods either side of the 'short night': the late evening period between 23:00 and 23:30 during which there is currently no cap, and the early morning period between 06:00 and 07:00 during which there is currently consented an annual movements cap of 7,000

Table 1: LADACAN's comments on the Applicant's REP7-048 submission

Comments use the ID numbers from REP7-048, and address specific points from the original response to provide a more manageable format.

PINS ID	Question	Luton Rising's Response	LADACAN comments
ISH9 - WQ1	Noting that the Airports National Policy Statement (ANPS) states that government expects the applicant to make particular efforts to avoid significant adverse noise impacts, can the Applicant explain whether a phased capacity release requirement eg linking growth to the deployment of noise insulation could be a means to avoid significant observed adverse effects and provide residents assurance that the Applicant is delivering noise reduction via noise insulation as well as growth.	Growth and capacity release must be delivered within the Limits and processes of the GCG Framework. The noise contour area Limits are set in five-year phases based on the forecast growth and capacity release of the airport as it reaches 21.5 mppa, 23mppa, 27mppa and then 32 mppa. _____ In terms of linking growth to noise insulation, DCO, Hybrid Bill and Town and Country Planning Act decision precedent is that the offer of a full noise insulation package above the Significant Observed Adverse Effect Level (SOAEL), combined with employing all reasonable and practicable measures to provide the insulation is sufficient to meet the policy aims of the Noise Policy Statement for England and the Airports National Policy Statement to avoid significant adverse noise effects on health and quality of life.	As we and the Host Authorities have made clear in our previous representations, Limits set according to the Faster Growth case are unreasonably high. We note the ExA's proposals that the contours should be replaced by those from the Core case, in which case the Limits would be adjusted downwards accordingly. _____ The context is relevant in assessing this Application, and to date (as indicated in REP7-104 page 11) LLAOL failed to deliver noise insulation at a rate which kept in step with its accelerated capacity growth during Project Curium. By limiting itself to one contractor, LLAOL failed to employ *"all reasonable and practicable measures"* to provide the insulation sufficient to meet the aims of the NPSE and ANPS in respect of the noise impacts in 2019. It would therefore be entirely reasonable for the ExA to require the current installation backlog to be addressed before any further increase in passenger capacity. The noise insulation issue was addressed in the Decision Letter of the 19mppa application, as indicated below.

PINS ID	Question	Luton Rising's Response	LADACAN comments
			The last bullet on PDF p30 under Agreed Matters says: *"• The proposal provides for an enhanced Noise Insulation Scheme (NIS), secured by planning conditions and obligations, providing a fund of £4,500 per property (index linked) with an uncapped annual fund. The Applicant [LLAOL] intends to allocate £8.5M to the scheme to ensure all properties meeting the relevant criteria can be insulated within 5 years. This is compared to the existing NIS which has an annual capped fund of £100,000pa (index linked) and a 'per property' fund of £3,000 (index linked). A current estimate is that it would take 33 years to complete with a fund of approximately £3.5M (based on current uptake of the scheme of approximately 50%), at best deployment could take 16 years."* (our underline) It is notable that the LLAOL KC's summing up on PDF p62 para 8.145 extols the benefits of the proposed scheme for the 19mppa application: *"8.145 The benefits of what is on offer from this application in terms of noise insulation have been ignored by LADACAN in their assessments and portrayal of this application. This is to the detriment of the people who stand to gain a significant advantage in terms of noise from the changes to the scheme if this application were to be approved."* (our underline) Clearly it would be even more to their detriment if further expansion occurred without the insulation being installed.

			The summing-up goes on: *"8.147 The proposed new scheme would have a fund of £4,500 (index linked) per property within an uncapped annual fund. This is to ensure that all properties meeting the relevant criteria can be insulated within 5 years. 2023 is the year which is forecast to have the largest SOAEL contour, with 322 additional properties falling into the night time SOAEL contour, albeit the increase in noise will be imperceptible. Persons currently affected by noise levels just under 63dB under existing conditions are not eligible for noise insulation and will never be so under the existing position."* *"8.148 However, in consequence of an imperceptible increase in the noise arising from this scheme, they will become eligible for noise insulation in their property with eligibility continuing for 5 years (even if their property subsequently falls below 63dB). The mitigation scheme will fix eligibility based on this contour for five years. Therefore, unlike the current scheme, eligibility would not change each year but would be based on the 2023 contour which allows everyone affected by the worst case year to be eligible for insulation in future years."* If the 19mppa commitment to install insulation within 5 years was not to be honoured, people living in properties entitled to at least the level of insulation would not be protected. This 5-year commitment therefore provides a basis on which a requirement to gear any future growth to insulation delivery could quite properly be founded.

PINS ID	Question	Luton Rising's Response	LADACAN comments
ISH9 - WQ2	At D5 the Applicant provided commentary on the reasons for early and late running flights [REP5-090, GCG.1.3]. The response explains the basis for applying a 5% delay factor. How does a change in delay factor affect the noise model and the extent of the modelled noise contours? Do the local authorities support the use of this delay factor?	Paragraph 2 of the response says: *"Not allowing for this 5% schedule shift above the number of flights expected to be scheduled to operate within the night period would mean that, effectively, the airport would need to reduce the number of flights that it could schedule in the night period with consequent implications for the number of flights that it could schedule in total over the whole day, so reducing the passenger throughput attainable.* *In order to ensure that the noise assessment reflects a reasonable worst case, it was considered important to reflect the potential for late running aircraft outside of the airport's control within the calculation of the noise contour."*	In commenting on the quoted response we are confident that the ExA will have noted the dual function of the noise contour calculations: 1) To provide an indication of the forecast impacts of the proposed capacity increases for the purpose of the ES assessment 2) To inform the Limits used to control the rate of capacity expansion under Green Controlled Growth The Applicant's approach throughout has been to base the contour calculations on "Reasonable Worst Case" forecasts, arguing that the claimed economic benefits justify the increased environmental noise impacts, based on its faster growth scenario. However, if this approach were to succeed, the Limits for future control would be at the maximum expected levels. As noted above, the ExA has proposed use of Core Case projections instead. Applying similar reasoning to the 5% schedule shift would indicate that the Limits should be set based on declared, not shifted, schedules, and that industry should thereby be incentivized to improve timekeeping and avoid further worsening impacts in the sensitive night noise period. We do not support the use of the delay factor in contours which define Limits.

PINS ID	Question	Luton Rising's Response	LADACAN comments
ISH9 - WQ3	Can the Applicant confirm whether capacity related delays have been dispensed at Luton? If so can the Applicant confirm whether there is an exceptional underlying cause for these delays? What measures would the Applicant take to ensure that such delays would be avoided in future?	*"In line with guidance from the Department for Transport on appropriate dispensations, the following aircraft movements are to be dispensed for the purposes of complying with Sections 2.3 to 2.5 of the Air Noise Management Plan:* *a. delayed aircraft which are likely to lead to serious congestion at the aerodrome or serious hardship or suffering to passengers or animals;"* *...* *"The airport operator notifies the local planning authority of the flights it wishes to dispense together with rationale for this on a monthly basis. This is also reported to the London Luton Airport Consultative Committee's (LLACC) Noise and Track Sub-Committee (NTSC). Dispensations are only granted when serious congestion would result, in line with point a. above."*	LLAOL has only recently started to dispense flights: it has not been custom and practice hitherto. The change was announced in the 2023 Q3 Quarterly Monitoring Report: *"In March 2023, LLA started to dispense movements in line with the Section 106 agreement. LLA submitted a Dispensation Policy to the Local Planning Authority that was approved. This was to dispense (remove) movements from the night-time movement limit, night time QC limit and early morning movement limit."* Given its history of contempt for planning conditions, finding ways to avoid flights being counted towards noise impacts has not gone down well with communities. The matter has been discussed at both LLACC and its Noise and Track Sub-Committee, and community disquiet over the high number of dispensations has been minuted. The sentiments were expressed that if passengers choose to fly with low-cost airlines and those flights are delayed due to over-ambitious scheduling, and passengers have to stay overnight in hotels, that is a matter for them to take up with the airlines. It certainly does not eradicate the local noise impacts of their flights, and should not be used as a reason to dispense those flights from any assessment of the noise impacts of LLA.

Table 2: LADACAN's comments on the Applicant's REP7-054 submission

Comments use the ID numbers from REP7-054, and address specific points from the original response to provide a more manageable format.

PINS ID	Question	Luton Rising's Response	LADACAN comments
GCG.2.4	The ExA wishes to understand the difference that using the core case to develop noise contours, limits and thresholds would have on the controls within the GCG framework. Provide an alternative Table 3.1 of the GCG framework [REP5-022] updating the limits and thresholds so that they are based on the core planning case rather than the faster growth case.	(Beneath the requested tables) *"It should be noted that, commensurate with the lower noise values that would arise with the Core Case, the delivery of economic benefits is slower with the Core Case than with the Faster Growth Case. The differences are illustrated in Appendix F of the Need Case [APP-214].* *The Applicant considers that advancing these economic benefits would provide a balance to any relatively small differential noise implications of adopting Limits and Thresholds based on the Faster Growth Case."*	We profoundly disagree with the Applicant's view that the correct approach is to model Limits and Thresholds on the Faster Growth case. As indicated in our previous representations (for example REP6-139), the magnitude and scope of a Noise Envelope should represent a fair balance between growth and mitigation in accordance with the guidance of CAP1129 and aviation policy. The Limits represent the magnitude and scope of the Noise Envelope associated with this Application, and the Core Case is the only assessment case in which long-term noise reduction is delivered. That therefore reasonably represents the maximum acceptable extent of the Limits.

PINS ID	Question	Luton Rising's Response	LADACAN comments
GCG.2.6	In light of comments at Issue Specific Hearing (ISH) 8 regarding consultation on the final noise envelope, confirm whether it would be possible for the presently disbanded NEDG to provide comments on the final noise envelope design. Also confirm whether there is time within the examination timetable to allow submission of comments on any NEDG response by IPs prior to the end of the Examination.	Extracts from response for comment: *"the NEDG's Independent Chair ... noted that as the noise envelope is now closely aligned with the original recommendations ... that consequently sees little to be gained from reconstituting and reconvening the NEDG at this stage."* *"The letter from the Independent Chair of the NEDG accompanying the [Final] report was clear that 'The Group recognise that it is for Luton Rising to design the noise management model that will appear in their DCO but hope you will be informed by our extensive deliberations.'"* *"As part of the examination there have been three rounds of open floor hearings (open to the public), two rounds of issue specific hearings, two sets of examination Written Questions and six deadlines at which any Interested Party could submit comments and representations on the proposals. The Noise Envelope and its design has featured in every one of these."*	The Applicant's response overall is disingenuous and self-serving. Since the point at which the work of the NEDG was hustled to an unseemly and incomplete close and then broadly disregarded, its tactics have been to create such a high workload for the Examination of noise issues that little progress has been made except, as the Chair notes in this response, to bring the Envelope back into closer alignment with what the NEDG originally proposed. The NEDG was not shown a draft of the letter from the Independent Chair which accompanied the Final Report prior to the letter being issued. The letter should not therefore purport to speak for the Group, and it seems possible that the sentence quoted was 'provided' or 'suggested' by the Applicant's advisers to cover off its own intention to disregard the work of the NEDG and set its own proposals in place instead. This comment underlines the fact that the proper process for first agreeing the scope and magnitude of the Noise Envelope, then agreeing the controls and parameters, and then consulting on it, was not followed. This simply evidences just how much of the Examination's time and resource has been devoted to seeking to undo the Applicant's wanton dismissal of the NEDG's work. The Joint Host Authorities' budgets are very constrained – a mere £250K was contributed by the Applicant, compared to its own spending of £65m or more on the Application.

		"There are ... practical implications for timing and it is unlikely to be possible to regroup the NEDG and give the group sufficient time to discuss as a group and come to a consensus view and for that to then be reported in time for a submission that would also allow Interested Parties to consider and then respond in turn."	Here at last the Applicant acknowledges that there should have been an effort made to achieve a consensus view on the final Noise Envelope proposals before they were submitted. As we have evidenced, the material circulated to community groups for 'consultation' was not complete and the proposed Noise Envelope could not be inferred from it. This failure of process is in our view egregious and should we respectfully suggest weigh in the ExA's assessment.
GCG.2.7	Table 12.40 of Appendix 16.1 Noise and Vibration Information [AS-096] includes a sensitivity test for the worst-case noise impacts arising from the Airspace Change Process and concludes that contour area changes are 2-6% less than predicted in the core case. Since the Airspace Change is predicted to reduce contour areas, explain why, following the discussions at ISH9, the GCG Framework needs to include a mechanism that allows for an increase as well as a decrease in noise contour areas.	Extract of response for comment: *"An example agreed with the Local Authorities (see [REP6-094]) is where noise Thresholds and Limits could increase as a result of a review triggered under GCG by the approval of an Airspace Change Proposal which results in a larger noise contour area but with a noise benefit, for example due to fewer people within the noise contour due to a change in shape. It is therefore not possible to conclude at this stage that future airspace change would only result in a decrease in noise contour area Limits."*	This sleight of hand is not acceptable, and demonstrates why the use of noise contours alone is not an adequate proxy for noise impacts, as we have argued (REP1-095, para 187 p26). A protection would be require in this case to ensure that (if the contours are the controlling Limits) fewer people are within the contour even if the contour is larger. FASI-S is intended to reduce delays, emissions and noise according to the NATS slogan "Quicker, cleaner, quieter" (https://www.nats.aero/airspace/future/). Therefore the carbon emissions reduction limiting of Green Controlled Growth should also include a step-down reduction arising from delivering airspace change as part of FASI. The shape of success in that regard is achieving genuine Continuous Descent rather than the LLA-version from the 20+ miles of level flight at 5000ft which typically occurs on easterly arrivals; and Continuous Ascent rather than 10+ miles of level flight held at 4000 or 5000ft on departure (REP1-095 para 184 p25).

PINS ID	Question	Luton Rising's Response	LADACAN comments
GCG.2.8	Explain whether any additional noise monitoring is being proposed over and above the basic monitoring that would be required to satisfy any future airspace change. Also clarify whether the quoted distances in paragraph C4.2.3 of Appendix C Aircraft Noise Monitoring Plan [REP5-028] should be 6.5 kilometres (km) from start of roll and 2km (our emphasis) from the landing threshold, rather than 2.5km? It is understood that the International Civil Aviation Organisation (ICAO) requirement of 2.5km relates to light aircraft.		For the assistance of the ExA, the LLA Noise and Track Sub-Committee has discussed the following: 1) The need for a fixed noise monitor to cover runway 07 arrivals (ie somewhere in Caddington, 6.5 km from start of runway 25 roll) 2) The need for a statutory noise monitor positioned between NMT02 and NMT03 (ie located directly beneath the flight path, rather than the existing noise 'gate' where NMT03 is too close to the M1) 3) The benefit (as the Applicant has noted) of monitors somewhere roughly 2km outward from each end of the runway to assist in noise model validation in respect of departure profiles. LLAOL has undertaken to consider these proposals. It would be helpful for a firmer commitment to be made as part of the Examination of this Application.

Table 3: LADACAN's comments on the Applicant's REP7-066 submission

Comments use ID and page numbers from REP7-066, and may summarise the concern or response to provide a more manageable format.

I.D	Concerns raised	Luton Rising's Response	LADACAN further comments
4 (p1)	Noise & vibration: ASI-111 figure 16.50 shows that the areas where the most severe perception of change caused by the proposed additional night flights would be in the outermost parts of the N60 contours, which largely impact north Dacorum. In that area, the light blue N60 contour is labelled 20, but in the DM case in ASI-110 Figure 16.48 it is labelled 10. These communities would experience a doubling of night flights with noise impacts at or over 60dB by 2039. Comparing the other contours does not show a proportional increase of this magnitude. The N60 contours over South Luton for example show an increase from 20 to 30, ie only 1.5 times.	Apart from disputing whether the numbers mean what they appear to indicate, the Applicant said: *"In line with Government noise policy (Ref 1), eligibility for the noise insulation schemes is determined based on L noise exposure.* *UK specific research from the Civil Aviation Authority shows that there is no evidence to suggest that any noise indicators (including N above contours) correlate better with the principal health effects from aircraft noise (daytime annoyance and night-time sleep disturbance) than the LAeq metric."*	We have not said that N above contours correlate better than the LAeq metric with the principal health effects of aviation noise annoyance and sleep disturbance, but we have consistently said that LAeq alone does not adequately represent those impacts, particularly at night. In this instance, our argument is that the perception of aircraft movements at night will increase by a factor of two in north Dacorum as shown in the N-above contour plot. People are affected by change, and this would be a significant change. Yet, because only the LAeq metric is used to assess eligibility for compensation by noise insulation, these residents will not be compensated for their loss of residential amenity. Given the claimed benefits which will accrue to the Luton economy, it would be reasonable to review the provision of compensation rather than expecting that providing money to a Community Fund to which organisations in north Dacorum can apply if they qualify, is adequate. For example, the Community Fund could also accept applications for noise insulation installation from those residents who experience loss of amenity but are outside the qualifying LAeq zones. This would also offer a way forward for people in Caddington.

I.D	Concerns raised	Luton Rising's Response	LADACAN further comments
7 (p4)	Climate change / GHG: Re the halving of the operational carbon emissions between the consulted PEIR and the DCO application. Similar numbers of aircraft of similar types are proposed to be flown in the years to 2043. There are not equivalent 'zero emissions' aircraft available. How will the operational emissions magically reduce by such a significant amount?" The Applicant still has not made clear what would happen if the 2% annual improvement in carbon efficiency does not occur; if Zero Emissions Flight does not emerge at the level of commercial jets which operate from Luton Airport; if SAF takeup does not occur at the rate necessary to achieve net zero.	*"The Government has made clear in the Jet Zero Strategy that it will set binding targets for the total amount of aviation emissions. This will, ultimately, cap growth in the sector as a whole in the UK even if the 2% annual improvement in carbon efficiency does not occur.* *The cap will apply at the sector level, not at the individual airport level as it will be controlled through the permits issued under the UK Emissions Trading Scheme."*	As the Applicant's response implies, there are currently no binding targets for aviation emissions, nor any binding targets which will cap growth in the sector, either in the Jet Zero strategy or elsewhere. The Jet Zero One Year On 2023 update refers to targets, but these are for airport operations and surface access strategies (see for example JZ-OYO, page 23, top right and page 31). Policy is not yet clear on whether Government or industry or both will be expected to take action to ensure the hoped-for emissions reduction trajectory is met, or what remedial action will be taken if emissions are off-track. As we noted previously, ETS only covers emissions only relating to flights to and from European destinations. Long haul flights, which generate more emissions on a per-flight basis (and are responsible for a larger share of national UK aviation emissions) will not be addressed by the scheme, but instead be covered by the weaker offsetting mechanism, CORSIA, which does not apply any sectoral caps. Therefore our original concern still stands.

I.D	Concerns raised	Luton Rising's Response	LADACAN further comments
1-3 (p5)	Modelling of 2019-consented baselines		To avoid repetition, we simply ask the ExA to ensure that the modelling of other environmental impact baselines does take account of the fact that in 2019, LLA was not properly entitled to fly 18 million passengers, since to do so breached its noise limits. Therefore some 20% less than that number of passengers would have caused other impacts, such as those on the surface transport network, so those baselines should also be modelled as lower than their 2019 actuals.

I.D	Concerns raised	Luton Rising's Response	LADACAN further comments
1 (p6)	The graphs showing average measurements made by LLAOL at monitoring locations NMT01 (easterly) and NMT02/NMT10 (westerly), 6.5km from departure start-of-roll, for the period Q1 2022 to Q3 2023 referenced in REP1-095, p24, paragraph 171 and elsewhere … indicate that, while the relative noise levels vary from quarter to quarter, the A321neo is on average only 0.75dB LAmax less noisy that the A321ceo at these locations.	*"When validating the A321Neo, it was tested against AEDT data using the historic A321 variant and an equivalent new generation variant; the A320Neo. It was found that the A321Neo data provided a better correlation with the default A320Neo data in AEDT.* *After the A320Neo profiles were adjusted using A321Neo radar data profiles, approach and departure profiles were adjusted to match measured A321Neo data. Table 6.23 of Appendix 16.1 [AS-096] shows a correction of +1.5dB for approaches and Table 6.31 of Appendix 16.1 [AS-096] shows a correction of +2dB for departures."* *"There is a commitment to yearly validation updates in Green Controlled Growth Framework Appendix C [REP5-028], which ensures that future noise models account for any variation in aircraft noise performance. This validation will be undertaken using actual aircraft movements and so includes fleet transitions, including aircraft variant changes due to maintenance."*	We analysed the LLA 2019 noise measurement data which was disclosed to the 2022 Inquiry and compared the results to those quoted in the Applicant's REP7-013 Tables 6.4-6.7. Differences and anomalies were identified, some exceeding 0.5dB, and communicated to the Applicant's noise experts. It should be noted that although LLA is technically classed as a Category C Airport by the CAA's CAP 2091 "Minimum Standards for Noise Modelling", paragraph 4.10 states: *"Some airports may already be providing noise modelling at a higher Category than the minimum required here. We would expect these arrangements to persist and so no airport (or other stakeholder) should do less in terms of its noise modelling than it did on or before January 2020, when we first consulted on this policy, or 8 February 2021, when it comes into force."* Annexes A-C below detail and exemplify the validation standards already in place at LLA, and hence applicable. By that token, data should be cleaned to remove issues and the differences of 0.5dB or more we identified should be investigated and resolved to improve the model. Also, the model should be revalidated annually - in line with the commitment which has now been made during the Examination process. Hence it should be revalidated using the 2023 data now available, and that update used at the very least to update the contours for Core Growth and the Limits and Thresholds of the Noise Envelope.

I.D	Matters raised	Luton Rising's Response	LADACAN further comments
2 (p9)	Jet Zero relies on carbon pricing in the form of the UK Emissions Trading Scheme (ETS) and CORSIA to reduce emissions. Cost pass-through results in relative increases in ticket prices, which in turn reduce demand. However, the UK ETS allowance price was significantly below its EU counterpart in the summer of 2023 following a government decision to allow entities to retain unused allowances issued during the pandemic, and the price has continued to fall. In December 2023, allowances are trading at £32.66, significantly below the low price scenario used in the Jet Zero modelling. … Prices are likely to remain lower than forecast until at least 2027. Hence the short-term control of demand is lower than that modelled, which may result in more significant requirement for reduction in the medium term.	*"The fact that the UK ETS price is below that in the EU is not relevant to the demand forecasts, which are based on the Jet Zero carbon cost trend line established by the Department for Transport, which trends upwards from the historic ETS price to the longer-term BEIS appraisal value that allows for the full cost of carbon and its abatement.* *Hence any implications for passenger demand are already accounted for in the demand forecasts."*	The Applicant's argument appears flawed. We agree that the carbon cost which 'trends upwards from the historic ETS price to the longer-term BEIS appraisal value' is used in Jet Zero to model both emissions and passenger demand. The impact of the carbon price on demand and emissions is significant, and in the Jet Zero 'High Ambition' scenario it accounts for 27% of the emissions reduction in 2050 through higher air fares and the consequential impact this has on demand for air travel. In Jet Zero the assumed carbon price is taken as a proxy for decarbonisation costs. It is evident, therefore, that if the actual ETS price is lower or higher than the assumed ETS price, there will be a consequence for both emissions and demand. Current prices, and trends out to at least 2027, are considerably lower than the assumed ETS price, suggesting that emissions (and demand) are likely to be higher than predicted. There are two implications of having lower prices: (1) weaker carbon prices won't help to accelerate the uptake of alternative fuels and technology, and (2) lower carbon prices, when fed through to ticket prices, will lessen demand reduction. Both have a direct impact on emissions, and we raised the issue to show why the Jet Zero strategy is already off course to deliver.

I.D	Matters raised	Luton Rising's Response	LADACAN further comments
2 (p14)	Noise quotas for the night period (2.4.3, PDF p44) – a quota for shoulder periods was discussed but it was decided to use caps instead – see 2.2.3 (d) on PDF p40 – except this was omitted from the final recommended set and the error was not picked up.	*"It is not agreed that caps for the shoulder period was omitted in error, this does not feature in the consolidated recommendations in either the Interim or Final NEDG report."*	We accept there was an error in our reference to 2.2.3 (d) relating to caps in the night noise period. However, it is the case that the NEDG Final Report is unclear about protection of the shoulder periods. In 2.2.3 Conclusions and Recommendations it says: *"d) The control of noise during shoulder periods would be best maintained through use of Quota Count (QC) limits, as discussed in Section 2.4 of this report."* (PDF p40) In 2.4.3 Conclusions and Recommendations it says: *"Discussion was held within the Group regarding the extension of the night quota period to include some of the shoulder hours. However, it was concluded that the Quota limit should remain applied over the night quota period only."* The concern regarding the need to protect the shoulder periods was not however followed through. LADACAN supports the ExA's suggestion of a movement cap for these periods (TR020001-002827-Recommended DCO Schedule.pdf page 56 item 6) but proposes that the total shoulder period cap should be 10,000 not the 13,000 suggested by the Applicant. We ask the ExA to consider our separate document relating to the shoulder period caps in response to the Recommended DCO Schedule.

Table 4: LADACAN's comments on the Applicant's REP7-076 submission

Luton Rising submission	LADACAN comments
The Applicant argues in both section 2.1.10 and 2.1.17 of REP7-076 that: *"Given the universally acknowledged uncertainty around the magnitude of additional warming resulting from non-CO_2 effects, there is clearly no consensus around which uplift factor is most appropriate to apply to aviation."*	While we acknowledge that there is no universally accepted uplift factor, this does not prevent a number from being selected for this purpose, and the Applicant accepts in section 2.1.5 that the Government recommends to UK businesses that they apply an uplift factor of between 1.7 and 3 when calculating their company travel emissions. Selecting an uplift factor from a range is more transparent than using the uncertainty argument not to quantify non-CO_2 impacts at all. Online calculation tools may assist in this task. For example, in January 2024, CE Delft (commissioned by the Dutch Government) published an estimation tool for aviation non-CO_2 impacts at: https://cedelft.eu/publications/aviation-non-co2-estimator-anco/

Bickerdike Allen Partners
Architecture Acoustics Technology

LONDON LUTON AIRPORT

A11060-N71-DC

18 August 2022

NOISE CONTOURING METHODOLOGY – OVERVIEW

1.0 INTRODUCTION

LADACAN have made a series of requests for information. Some of these relate to the methodology and information used in the production of the noise contours in the ES and ES addendum.

This note gives an overview of contour methodology in Section 2.0, with further details of specific elements in Section 3.0. Additional information is also available in earlier BAP notes[1].

2.0 METHODOLOGY OVERVIEW

The methodology involved developing a model for the airport in the INM software, version 7.0d. This model includes physical details of the area around the airport and contains representative routes for the airport operations, and representative noise data and profiles for the aircraft types that operate there.

Noise contours can then be produced by entering the number of movements by aircraft type for each route and profile. This can either be for actual operations or forecast operations. While in theory you could model actual contours using the individual routes flown, this would need robust data to be available for every movement which does not occur in practice. Standard practice is to use representative routes in accordance with relevant legislation[2].

3.0 METHODOLOGY COMPONENTS

3.1 Physical

The model contours local terrain data. This allows the model to account for the airport being in a relatively elevated location compared to much of the surrounding area. This reduces the predicted noise levels in some locations relatively close to the airport, such as Park Town and parts of Capability Green.

---

[1] A11060 N67 DR_2.0 Section 73 Addendum Noise Contouring Methodology & A11060 N69 DR_1.0 Processing of NMT Results

[2] EU Directive 2015/996 https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32015L0996&from=PT as implemented by The Environmental Noise (England) Regulations 2006: https://www.legislation.gov.uk/uksi/2006/2238/contents

The model also contains a database of dwellings and populations by postcode. This comprises a location for each postcode with a corresponding number of dwellings and population. The model predicts the noise level at each of the postcode locations and this noise level is assigned to all dwellings and people within that postcode.

3.2 Runway Spilt

The runway split refers to how many of the flights operate from each end of the runway. For actual contours (i.e. those based on historic activity) the actual runway used by each movement can be modelled. For future contours a long-term average of the runway split is applied.

3.3 Routes

Routes for arrivals and departures are derived from published information, such as the AIP entry for the airport[3], and radar information where available. The modelled routes in use at Luton Airport are not reviewed on a regular basis, but are updated when there is a significant change. For example, a change was made to incorporate the Brookmans Park RNAV route which was implemented in 2015 following an airspace change process.

Although details of specific flight tracks are not routinely provided to BAP, information is provided within the quarterly reports to NTS-C and also details of any airspace changes, which would trigger a review of the modelled routes.

The initial noise model for the airport was that developed by Bureau Veritas. This contained a set of routes. When BAP took over the modelling we undertook a review, including of the routes. This involved comparison with radar data which found the routes in the model were representative.

Since that time the runway 26 departure routes were updated to allow for the drift in magnetic north.

For the introduction of the RNAV route, track density plots were used to inform the modelled route.

3.4 Profiles

These comprise the operational details for arrivals and departures. They include details on the engine thrust settings, the flap settings, and rates of climb in the case of departures, and the altitude or speeds at which they change.

The model contains default profiles for each aircraft type. For larger aircraft, such as the main types operating at Luton Airport, a series of profiles are included which correspond to different

[3] https://www.aurora.nats.co.uk/htmlAIP/Publications/2022-08-11-AIRAC/html/index-en-GB.html

weights of departure. These are associated with destination distance which is known as the stage length in the software.

In the modelling of departures, the individual flights are analysed so the profile for the appropriate stage length can be applied to each.

For key aircraft types, the profiles in the software data have been revised. This followed receipt of airline operational details.

3.5 Validation

The validation exercise is to provide a check on the profiles and noise data contained in the INM database. It involves:

- processing the results from the fixed noise monitors to remove unreliable data (see A11060 N69)
- comparing the average result from the remaining data with the predicted noise levels by aircraft type and operation (separately for arrivals and departures)
- where significant differences occur, looking at adjustments that could be made to reduce the difference across the monitors, while limiting the difference at any one monitor. For the quieter types less weight is applied to the results at NMT3 due to the nearby presence of the M1 which means only the loudest measured events are correlated
- This results in movement factors (as detailed in A11060 N67 2.0) which are applied to the raw number of movements. These are determined by the computation of the $L_{Aeq,T}$ metric.

-x-x-x-x-

Bickerdike
Allen
Partners
Architecture
Acoustics
Technology

LONDON LUTON AIRPORT

A11060 N39 DCH 2019

09 August 2019

2019 CONTOURING METHODOLOGY UPDATE

1.0 INTRODUCTION

Since quarter 1 of 2012, London Luton Airport Operations Limited (LLAOL) have retained Bickerdike Allen Partners LLP (BAP) to produce quarterly night noise contours in accordance with the Night Noise Policy.

The methodology uses the Federal Aviation Administration (FAA) prediction program, the Integrated Noise Model (INM), and the actual number and mix of aircraft during the quarter, which is supplied by the airport. The methodology is reviewed periodically to ensure that the accuracy of the contours is maintained. A review has recently been completed resulting in the 2019 methodology which will be used for all 2019 contours. The only change between this and the previous (2018) methodology, reported in the note A11060-N17-DR, is the usual update of the validation exercise so that it is based on the most recent annual set of measured results from the airport's noise and track keeping (NTK) system, i.e. those for the calendar year of 2018.

Sections 2.0 to 7.0 describe the main assumptions used in the modelling and highlight any changes to the previous methodology. Section 8.0 assesses the effect of the update in methodology by comparing the recently produced contours, those for the first quarter of 2018, produced under both methodologies.

2.0 SOFTWARE

The 2018 contours were produced using INM version 7.0d, which was released on 30th May 2013. This has been replaced by the FAA with the Aviation Environmental Design Tool (AEDT) as of May 2015. Until this new software has been fully trialled and validated for use at Luton Airport, the earlier INM software has continued to be used.

3.0 ARRIVAL AND DEPARTURE TRACKS

Arrivals are modelled as straight approaches, along the runway centreline. Departure tracks are based on the published Standard Instrument Departures (SIDs) as given in the UK Aeronautical Information Publication (AIP). From runway 08 there are three modelled initial departure tracks; one to Compton, one to Olney, and one to Match/Detling. From runway 26 there are four; these are to the same set of destinations however the route to Match/Detling has an additional track for the RNAV version of the route. The majority of aircraft now use the RNAV version of the route. The movement data supplied by the airport gives details of specific departure tracks used.

4.0 LOCAL TERRAIN

Local terrain has been included in the model, as it was in the previous methodology.

5.0 DEPARTURE PROFILES

For the majority of aircraft, the standard INM departure profiles have been used. For the Airbus A319, Airbus A320, Airbus A320neo and Boeing 737-800, modified departure profiles have been used. These were developed as part of the 2015 methodology update, based on information received from airlines and measured results from a mobile noise monitor when it was based in south Luton. These assumptions are identical to those used in the 2018 methodology.

6.0 STAGE LENGTH

In the INM software, departure profiles and weights are determined by the stage length parameter, which categorises aircraft based on the distance to their destinations. Destination information has been used to determine departure weights, as was the case in the previous methodology.

7.0 UPDATE OF VALIDATION

The validation exercise undertaken by BAP has been updated so that it is based on the most recent set of annual measured results from the airport's NTK system. For the most common and loudest aircraft types the previous validation exercise, which used 2017 measured data, has been updated. This has been based on measured results in 2018. The measured sound exposure levels (SELs) obtained for the three main aircraft types operating at Luton Airport, the Airbus A319, Airbus A320, and the Boeing 737-800, from the fixed Noise Monitoring Terminals (NMTs) in 2017 and 2018 are shown in Table 1. These are the averages of thousands of results for each operation.

Aircraft Type	Operation	Movement-Weighted NMT Noise Level, SEL dB(A)		
		2017 Average[1]	2018 Average[1]	Validated INM Prediction[1]
Airbus A319	Arrival	84.7	84.7	84.5
	Departure	84.0	83.7	83.9
Airbus A320	Arrival	84.4	84.4	84.2
	Departure	84.2	84.0	84.2
Boeing 737-800	Arrival	85.8	85.7	86.5
	Departure	85.8	86.2	85.9

[1] Only NMT1 results used for arrivals. NMT2 and NMT3 given half weighting as each aircraft movement typically results in 2 measured noise events.

Table 1: Comparison of Measured Sound Exposure Levels – Fixed NMTs

For the detailed validation the average at each individual monitor is considered, and the validation attempts to achieve the best fit with the results. In this it is considered that the results from NMT 3, due to its proximity to the motorway, are likely to overstate the aircraft noise.

The measured arrival noise levels remain similar from 2017 to 2018 for all three aircraft. The measured departure noise levels for the Airbus A319 and the Airbus A320 have decreased slightly in 2018 whereas the measured departure levels for the Boeing 737-800 have slightly increased. Due to the small magnitude of the increases the only change made to the validation was to increase the predicted level for the Boeing 737-800, which changed by the largest amount, in order to keep the prediction difference below 1 dB.

Aside from these main types the measured noise levels were relatively consistent for most aircraft types. Due to changes in the measured noise levels, small changes have been made to the modelled departure noise levels for the Boeing 737-400 and Boeing 737-900. Specifically, the modelled noise levels have been increased by 0.8 dB for the Boeing 737-400 and decreased by 0.5 dB for the Boeing 737-900.

Two aircraft which were newly validated this year were the Airbus A321neo and Airbus A330-200. Strictly the Airbus A321neo validated has primarily used results from 2019 as it is a new aircraft and therefore very few results for 2018 are available. For the A321neo a dedicated type is not yet in the modelling software database so it was modelled with the type it replaces, the Airbus A321-232. Compared to the existing A321ceo, no change was made for arrivals and a decrease of 2.0 dB was made to the modelled departure noise level. The Airbus A330-200 was modelled using the A330-301 INM aircraft type and required no adjustment.

The Boeing 737-300 aircraft type was validated in 2018 but not in 2019 due to the aircraft type no longer operating in sufficient numbers. In 2019 this aircraft is modelled using the default INM assumption.

8.0 CONTOUR COMPARISON

The contours for quarter 1 of 2019 have been computed using both methodologies and are compared in Figure 01. The areas of the contours are given in Table 2.

Contour Value (dB $L_{Aeq,8h}$)	Jan – Mar 2019 Contour Area (km^2)		
	2018 Methodology	2019 Methodology	Change (%)[1]
48	28.4	29.1	2.3%
51	16.2	16.6	2.5%
54	9.1	9.3	2.1%
57	5.2	5.4	2.3%
60	2.6	2.7	3.1%
63	1.5	1.5	2.3%
66	0.9	0.9	2.4%
69	0.6	0.6	2.2%
72	0.4	0.4	2.3%

[1] Percentage change based on unrounded contour areas.

Table 2: Comparison of Night Time Noise Contour Areas

As can be seen from Figure 01, the methodology update results in a small change to the contours. There is an increase in contour area of around 2-3% in all contour bands, with the largest difference being the 60 dB band which has an increase of 3.1%. This is due to the validation update, and in particular the small increase made to the modelled departure noise level of the Boeing 737-800 to reflect the higher measured noise levels.

Dean Chapman
for Bickerdike Allen Partners LLP

David Charles
Partner

Bickerdike Allen Partners
Architecture Acoustics Technology

LONDON LUTON AIRPORT

A11060-N69-DR

06 July 2022

PROCESSING OF NMT RESULTS

1.0 INTRODUCTION

Bickerdike Allen Partners LLP (BAP) have been preparing noise contours for London Luton Airport for many years. As part of the process measured noise levels correlated with individual aircraft movements have been provided by London Luton Airport Operations Limited (LLAOL). These measured noise levels have then been compared to predictions as part of regular validation exercises.

This note briefly describes how BAP process the supplied correlated noise measurements to remove erroneous data.

2.0 NOISE MODELLING

The correlated noise measurements from the airport's Noise and Track Keeping system (NTK) are processed by BAP to remove potentially erroneous noise measurements. As an example of the processing that BAP undertake, the sections below set out the ways in which the 2018 NMT data was filtered for use in the 2019 validation. It should be noted that in many cases a single correlated noise measurement will be excluded for more than one reason. The overall effect was just over 3% of the 131,745 correlated noise measurements being excluded.

2.1 Wrong NMT

In some cases, a noise result is recorded at an NMT that a flight would not have overflown. For instance, measured results from NMT1, which is located to the east of the airport, are attributed to departures using runway 26, which depart to the west of the airport. Such instances are excluded from the validation.

2.2 Duration

Excessively short or long measurements can be indicative of non-aircraft noise sources interfering with a measurement or only partial capture of aircraft events. For the 2018 data measurements of below 10 seconds or above 60 seconds were excluded from the validation.

2.3 Distance from NMT

One of the parameters recorded by the NTK system is the "Distance to NMT", this is a combination of an aircraft's altitude and lateral distance from the NMT, as measured by the track keeping system at the time of the L_{max}. Aircraft that are recorded as relatively distant from the NMTs are excluded from the validation. For the 2018 data, arriving aircraft that were recorded as more than 500m from NMT1, departing aircraft that were more than 1,300m from NMT1 and departing aircraft that were more than 1,500m from NMTs 2 & 3 were excluded from the validation.

2.4 Manual Exclusion

Excessively quiet or loud measurements are manually reviewed. In 2018 only 1 such measurement was excluded on this basis. This was attributed to an Airbus A320 arrival on 31st July 2018 at 14:21. The measured SEL was 126 dB(A), which is more than 25 dB louder than the next loudest A320 arrival, which is not explainable by operational differences.

-x-x-x-x-