

January 2024

London Luton Airport Expansion

Planning Inspectorate Scheme Ref: TR020001

Volume 8 Additional Submissions (Examination)

8.163 Applicant's Response to Deadline 6 Submissions
Appendix C - LADACAN

Infrastructure Planning (Examination Procedure) Rules 2010

Application Document Ref: TR020001/APP/8.163

The Planning Act 2008

The Infrastructure Planning (Examination Procedure) Rules 2010

**London Luton Airport Expansion Development Consent
Order 202x**

**8.163 APPLICANT'S RESPONSE TO DEADLINE 6 SUBMISSIONS
APPENDIX C - LADACAN**

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Table 1.1: Applicant's response to open floor hearing submission by LADACAN [REP6-133] at Deadline 6

I.D	Topic	Deadline 6 submission (Verbatim)	Luton Rising's Response
1	Fleetmix	<p>Fleet evolution LADACAN:</p> <p>“The Applicant has told the Panel that neo aircraft would account for 40% of flights this summer – in fact it looks more like 30%.”</p> <p>We have discussed this apparent disparity with the Applicant, and clarified that LADACAN and the Airport Operator in its Quarterly Reporting have quoted the number of neo aircraft as a percentage of all flights, whereas the Applicant is quoting it as a proportion of commercial flights only.</p>	<p>Noted. The Applicant provided clarification on this matter in the Applicant's Post Hearing Submission – Issue Specific Hearing 8 [REP6-066], at paragraph 3.5.17.</p>
2	Noise and vibration	<p>LADACAN:</p> <p>“The Boeing 737-900 now being flown by EI Al is proving much louder than the cargo freighters and 737-800s by a substantial margin – a big step in the wrong direction.”</p> <p>Noise monitoring data for 2022/23 provided to LADACAN by the Airport Operator shows the Boeing 737-900 aircraft averaging 76.4dB LAmax at the 6.5km monitoring position on westerly departure, over twice as loud in sound energy terms as the Airbus 300-600 freighters at 72.1dB; and over four times as loud (by the same measure) as the Airbus A320neo.</p> <p>We cite this as an example of the lack of control the Airport Operator has on the types flown, and the need to ensure that airlines are adequately incentivised to fly less noisy, rather than noisier, aircraft especially on long-distance routes where they will be more heavily laden with fuel.</p>	<p>The Applicant considers the issue raised regarding incentivisation of quieter aircraft was answered in ISH9 as summarised in the Applicant's Post Hearing Submission – Issue Specific Hearing 9 [REP6-067] in response to the agenda item “Whether the noise envelope incentivises improvement in future noise levels”, section 4.4.</p>
3	Climate Change / Greenhouse Gases and Fleetmix	<p>LADACAN:</p> <p>“Despite claims of a ‘mitigation hierarchy’ there is no such thing. Fleet modernisation will progress at a rate which suits airlines, motivated by a reduction in fuel costs, and more seats per flight. This will happen anyway.</p> <p>” We quote, as just one example of airline strategy, a 2020 McKinsey report¹ on successful airlines:</p> <p>“A narrow-body aircraft generates a higher capital turnover than a wide-body plane because of cost and usage. A narrow-body Boeing 737-800 is three to four times cheaper than a wide-body aircraft such as the 777-300ER. Because</p>	<p>The Applicant notes the points made by LADACAN in terms of fleet replacement being a function of airline economics, which incentivises a fleet transition overall. However, airlines have choices as to the order in which they deploy new generation and next generation aircraft at individual airports and the incentives in place through GCG are aimed at ensuring the earliest possible fleet transition at London Luton Airport as part of the mitigation hierarchy.</p>

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		<p>a narrow-body aircraft is deployed on shorter flights, it can complete five or six flights per day compared with one or two trips for wide-body aircraft.</p> <p>Regardless of aircraft type, airlines that buy newer, more expensive aircraft will have to manage the large weight on their balance sheets by maximizing utilization. Ideally, new planes should be in the air for ten to 12 hours a day for narrow bodies and 14 to 15 hours a day for wide bodies.</p> <p>If airport regulations permit, airlines could complement such flight activity with the potential deployment of depreciated aircraft, especially on popular routes. Airlines that do this may capture revenue peaks while lowering asset costs. As capital assets, airplanes are subject to depreciation...</p> <p>One low-cost carrier, for example, separates its aircraft internally into two subfleets. The new, efficient modern fleet flies more than 12 hours, on average, every day. The older fleet, with significantly lower ownership costs, flies when there's sufficient demand at the right yields."</p>	
4	Noise and vibration	<p>LADACAN: "Compensation by noise insulation for the worst affected people does not assist the majority who would suffer increasing noise disturbance both day and night, over a far wider area than the innermost noise contours. Noise impacts would be made intolerable by adding 70% more night flights."</p> <p>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.</p> <p>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. This is not to denigrate that increased impact, but to make the point: change is what people notice, the Dacorum area would experience significant change, yet much of the affected area – and indeed the expanded lobe of the N60 "10 flights" zone – is not eligible for compensation by insulation. It should be noted that the effects of easterly departures, which turn 180° right and track back west over north Harpenden, are not shown on the N60 contour map because overflights occur only one third of the time. But during those easterly periods, the impacts would be noticeable.</p>	<p>As noted in the Applicant's ISH8 Post Hearing Submission [REP6-066] in response to Action 22, contours are banded, so moving from one contour band to another does not necessarily mean a doubling.</p> <p>For example, Markyate Scout Hut in Dacorum is predicted to experience an increase in N60 from 16 to 25, and Stockwood Park in South Luton is predicted to experience an increase in N60 from 24 to 36. These increases are of similar proportion and neither represent a doubling of night flights.</p> <p>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 (Ref 2, Ref 3) 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.</p>
5	Funding Statement	<p>LADACAN: "We remain unclear over funding. The new statement (REP5-009) leaves us none the wiser about how phase 2 would be paid for. Hypothetical options are described but without definiteness. It appears possible that compulsory purchases may go ahead but no developer would be found to pay</p>	<p>The Applicant considers there to be four matters raised here:</p> <ul style="list-style-type: none"> • How will Phase 2 be funded? Phase 2 expansion will be funded from net airport income derived from passengers, business aviation and freight. Section 4.4 of the Funding Statement [REP5-009] explains the three Delivery Options being considered, which

I.D	Topic	Deadline 6 submission (Verbatim)	Luton Rising's Response
		<p>for Terminal 2 and associated works, particularly bearing in mind the track record." It is of particular concern that development would encroach onto Wigmore Valley Park even in Phase 1, in order to create additional aircraft stands to service Terminal 1 on a temporary basis.³</p> <p>LADACAN: "Large amounts of office space currently stands empty in Luton: Green Horizons Park may prove to be superfluous, and along with it the Airport Access Road which Luton Borough Council is supposed to fund."</p> <p>See Appendix 2 for a table giving examples of office space currently available to let in Luton.</p>	<p>includes information on how finance to pay for initial capital costs may be raised. It is not possible, nor required, to state with definiteness the final delivery route because of the phased approach to expansion and the timing of delivery of the Phase 2 works.</p> <p>However, the answer to Question 8.5 in the Applicant's Response to Comments on Deadline 6 Submissions [TR020001/APP/8.163] provides an update on discussions with the existing concessionaire, and, pending successful negotiations, the planned Phase 2 Joint Venture delivery option.</p> <ul style="list-style-type: none"> • The risk of compulsory land purchases being made, if Phase 2 does not proceed. The compensation code makes provision for what should happen if land is acquired and then not needed for the purpose it was acquired. However, the Applicant will only exercise compulsory acquisition powers for later stages of expansion at the appropriate time and when there is greater certainty on when each parcel will be required. This will avoid the risk of land being acquired and subsequently not being needed for the airport scheme. • The inference that land in Wigmore Valley Park is only needed temporarily in Phase 1. The provision of additional stands at Phase 1 requires some relocation of car parking into parts of Wigmore Valley Park. These stands are not temporary, but a permanent requirement to enable the airport to handle 21.5mppa through the existing terminal. Once the second terminal opens, some of these new stands will then be reallocated for Terminal 2. • An assertion Luton Borough Council will fund the Airport Access Road. The Airport Access Road is required equally for either (or both) the Proposed Development and/or Green Horizons Park. It is included within this application for development consent to provide for certainty of delivery should the road not be constructed under the Green Horizons Park planning permission. The cost of its delivery is included within the costs set out in the Funding Statement. Thus, LADACAN's assertion that "Luton Borough Council is supposed to fund" the Airport Access Road is incorrect. The Applicant's position remains that Green Horizons Park and its funding are not matters relating to the application under examination.
6	General	<p>Governance</p> <p>LADACAN: "We also raised concerns over governance. The Chief Exec of Luton Borough Council and Shareholder Representative for Luton Rising, Robin Porter who we heard from earlier, publicly takes credit for the growth incentive scheme which led the Airport to 18 million passengers by 2019, 9 years too soon."</p>	<p>The Applicant does not agree with LADACAN's assertion that it does not operate at arm's length from the Council.</p> <p>The Applicant reiterates the position as outlined in Roles and Responsibilities of Luton Borough Council [REP1-018]. The Applicant would note that its current management arrangements are not the same as they were during the period identified by LADACAN in its comments (between 2012-2019).</p>

I.D	Topic	Deadline 6 submission (Verbatim)	Luton Rising's Response
		<p>See Appendix 3 for substantiation from LinkedIn. This indicates that between Apr 2012 and Jun 2019 Mr Porter was 'Chief Officer' of London Luton Airport Ltd (Luton Rising), taking credit for the growth incentivisation scheme which led to LTN becoming the fastest growing major UK airport; whilst at the same time between Jan 2012 and May 2019 being the 'Deputy Chief Executive and Corporate Director – Customer and Commercial' of Luton Borough Council. It also indicates that since May 2019 Mr Porter has been 'Chief Executive of Luton Borough Council' and 'Shareholder Representative for Group Companies (including) London Luton Airport Ltd'.</p> <p>These overlapping roles pertained during the rapid growth which breached planning conditions and led to the DCO Application being made, and it is very hard to see how such an overlap of key roles can possibly constitute operating on an arm's length basis or following best practice, despite claims in REP1-018 such as:</p> <p>"2.1.7 LBC therefore maintains oversight of Luton Rising's business on an arm's length basis in its capacities as sole shareholder of, and lender to, Luton Rising. Given LBC's interests in Luton Rising, arrangements have been in place since the implementation of the airport transfer scheme in 1987 (described in paragraph 2.1.3) to ensure the due and proper demarcation of roles and responsibilities. These arrangements are subject to frequent review and update to ensure best practice is observed at all times."</p>	<p>At no time during the specified period was the Chief Operating Officer of London Luton Airport Ltd responsible for planning functions within Luton Borough Council. Appropriate separation of functions has always remained in place.</p> <p>The Applicant continues to evolve its management processes. Since the submission of REP1-018 [Roles and Responsibilities of Luton Borough Council], the Applicant has commenced the process to appoint a new independent Director who will act as the Chair of the Board, with an appointment anticipated before the close of the Examination.</p>
7	Climate Change / Greenhouse Gases	<p>Greenhouse Gas Emissions LADACAN: "Finally we have raised concerns over 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?"</p> <p>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.</p>	<p>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.</p>

Table 1.2: Applicant's response to post hearing submission by LADACAN [REP6-134] at Deadline 6

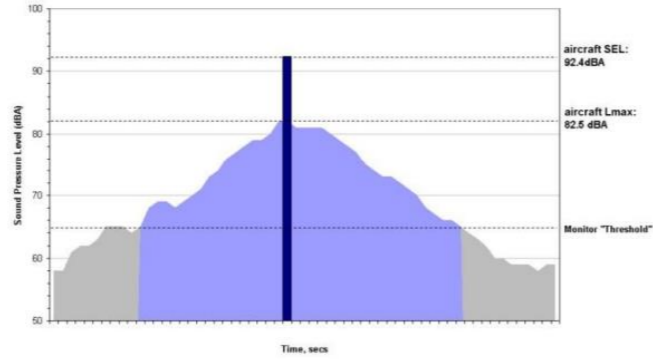
I.D	Topic	Deadline 6 submission (Verbatim)	Luton Rising's Response
1	Noise And Vibration	<p>Modelling of 2019-consented baselines</p> <p>We noted that in modelling a contour-compliant 2019 fleet by replacement with less noisy aircraft rather than removing the excess flights, the Applicant has not achieved a realistic model. Two key planning conditions applicable in 2019 must both be complied with to create any model of a consented operation: the annual passenger limit (18 million) and the noise contour limits. The 2019 operation of Luton Airport reached the passenger limit and exceeded the noise contour limits, as the Airport Operator's 2019 Annual Monitoring Report1 KMIs and data tables confirm</p>	<p>The intention of the adjusted 2019 fleet mix was to test the compliance with the baseline for noise purposes. It was not suggested that this was a plausible scenario for 2019 in terms of passenger numbers. However, removing 22% of flights from the daily summer schedule would equally not have replicated conditions in 2019, when the airport was handling 18 mppa, for the purpose of the assessment of other effects.</p> <p>This was an academic exercise to show what the noise contours would have been if noise contour limits were complied with in 2019, the occupancy of those aircraft has little bearing on this. As such, it could be assumed that other unspecified measures would be in place to maintain the passenger cap.</p>
2	Noise And Vibration	<p>Furthermore, as evidenced in REP1-095 paragraph 145, the Airport Operator confirmed to the 2022 Inquiry that "...the Airport would have to remove 30 daytime movements from the daily summer schedule (9%) and 13 night-time movements from the daily summer schedule (22%) compared with 2019 in order to comply with Condition 10." (Condition 10 being the contour limits)</p> <p>It therefore follows that the Applicant's approach of substituting older with modernised aircraft, when these tend to have more seats, is not an adequate way to model a 2019-consented fleet, without also ensuring that the passenger limit is not breached.</p>	<p>The baseline is considered representative and robust required for the purposes of identifying likely significant noise effects and comparing the with development scenario with actual and compliant baselines for air noise only, both of which are reported in the Environmental Statement. There is no reason to assume different passenger numbers in this air noise test. It is not relevant to other aspects of the Environmental Statement as they do not require an artificial baseline to be generated.</p> <p>The 2019 contours have no implications on the findings of the noise assessment, which compares future Do-Something contours against future Do-Minimum contours (with smaller contour areas than the compliant 2019 contours).</p>
3	Noise And Vibration	<p>We stated that given the fleet available in 2019, using all the information cited above (and under normal operating conditions), it would not have been possible to fly 18 million passengers and at the same time comply with the noise contour limits, therefore the passenger count would have been reduced by the number of passengers who flew in those 30 daytime and 13 night-time excess summer movements. This would have reduced the number of passenger journeys, and emissions, hence reducing the 2019-consented baselines for comparison of other environmental assessment factors.</p>	
4	Noise And Vibration	<p>Steeper descent operations</p> <p>We have separately submitted the LLA document evidencing that airlines have declined to progress using steeper descents at Luton Airport in order to reduce noise, due to the comparatively shorter runway and the stronger winds.</p>	<p>Noted. No benefit from steeper descents have been assumed in the noise assessment in Chapter 16 of the Environmental Statement [REP1-003].</p>
5	Noise And Vibration	<p>A321neo noise</p> <p>We have separately submitted an Action point document covering the A321neo noise issue. Noise modelling using the -2dBA benefit compared to the A321ceo applies in Phase 1 until 2031 and it is important to ensure impacts are being correctly assessed. We noted that the Wizz A321neo fleet is among those being recalled for maintenance on the Pratt and Whitney geared turbofan blades.</p>	<p>See response REP6-135 [Post hearing submission - ISH8 Action 7 - A321neo vs A321ceo noise and Full Length Runway Departure Trial] and in also Table 1.3 of this document.</p>

I.D	Topic	Deadline 6 submission (Verbatim)	Luton Rising's Response
		<p>As a result, Wizz is reported to be extending leases on non-modernised aircraft to cover the shortfall: "As part of its action plan, Wizz has extended the leases for nine A320-200s and four A321-200s and is currently in the process of doing so for additional lease periods of two to four years".</p> <p>The type-noise information from LLA's Quarterly Monitoring Reports reproduced in our response to Action 7 from ISH6 shows that overall the noise from A320ceo aircraft is comparable to that of the A321neo, whereas the noise from A321ceo aircraft is greater – and the Applicant has put a figure of +2dBA on that differential. Therefore the short-term noise impact modelling needs to be assessed to determine the effects of the recall of A321neo aircraft.</p>	

Table 1.3 Applicant's response to post hearing submission by LADACAN [REP6-135] at Deadline 6

I.D	Topic	Deadline 6 submission (Verbatim)	Luton Rising's Response
1	Noise And Vibration	<p>Data from Quarterly Monitoring Reports LLA Quarterly Monitoring Reports (QMRs)</p> <p>Appendix 1 reproduces 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.</p> <p>Data from NMT03 (which forms a "gate" with NMT02) is not included as neither the Applicant nor LADACAN consider it a valid noise monitoring location due to its proximity to the M1 motorway.¹</p> <p>The QMRs do not provide numerical averages: Table 1 below shows averages read from the graphs. These indicate that, while the relative noise levels vary from quarter to quarter, the A321neo is on average only 0.75dB L_{Amax} less noisy than the A321ceo at these locations.</p> <p>It is noteworthy that for each quarter, average noise values for these aircraft types are consistently higher on Easterly operations than on Westerly. This suggests that the noise modelling should take account of this disparity. It could be due to stronger westerly than easterly winds giving more lift, or easterly operations coinciding with warmer and less dense air giving lower climb.</p>	<p>Table 6.2 of ES Appendix 16.1 [AS-096] refers to a 2dB benefit on departure. However, this row was a legacy from the PEIR and should have been deleted as the corrections were not applied in the ES modelling. This has been corrected in an update to ES Appendix 16.1 [AS-096] submitted at D7 [TR020001/APP/5.02]. The A321Neo modelled in Phase 1 was validated using 2019 radar data and measured noise data, as described in paragraph 6.6.3 of ES Appendix 16.1 [AS-096].</p> <p>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.</p> <p>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.</p> <p>The validation was undertaken using radar track data, which provides information on altitude and ground speed. Insets 6.15 to 6.20 of Appendix 16.1 [AS-096] compare departure profiles for each aircraft variant used by each airline operator and show no material differences for each</p>

I.D	Topic	Deadline 6 submission (Verbatim)	Luton Rising's Response																																																																																																		
		<p>The overall easterly departure average benefit is -0.73dB L_{Amax}, and westerly -0.77dB L_{Amax}. Note that the 2022 Q3 and Q4 differences are anomalously high: flight trials were being conducted at the time which may have influenced the results. Removing these would reduce the neo benefit.</p> <p>Appendix 2 reproduces the results of LLAOL mobile noise monitoring in South Luton during a 5month period Jan-May 2022. This shows the A321neo on average 0.8dB L_{Amax} less noisy on departure, and 0.9dB L_{Amax} noisier on arrival, compared to the A321ceo, at this location also. The average benefit of the A321neo versus the A321ceo initially used in modelling by the Applicant is -2.0dB SEL as shown in Table 6.2 below, reproduced from AS-096, PDF page 85.</p> <table border="1" data-bbox="513 747 1344 974"> <thead> <tr> <th>Aircraft</th> <th>Surrogate Aircraft</th> <th>Approach CorrectiondB</th> <th>Departure CorrectiondB</th> <th>Source</th> </tr> </thead> <tbody> <tr> <td>A319Neo</td> <td>A319</td> <td>-4.0</td> <td>-1.0</td> <td>ANP</td> </tr> <tr> <td>A321Neo (assessment Phase 1)</td> <td>A321</td> <td>+0.6</td> <td>-2.0</td> <td>LLAOL data</td> </tr> <tr> <td>A321Neo (assessment Phase 2a, assessment Phase 2b)</td> <td>A321</td> <td>-0.7</td> <td>-3.7</td> <td>ANP</td> </tr> </tbody> </table> <p>The -2.0dB benefit, modelled for Phase 1, does not agree with the differentials we show above. Furthermore, Table 6.28 AS-096, PDF page 131 (reproduced below), includes Measured SEL dB values for these two aircraft types:</p> <p>Table 6.28: A321 SEL Departure Noise</p> <table border="1" data-bbox="513 1115 1092 1320"> <thead> <tr> <th>Runway</th> <th>Location</th> <th>Measured SELdB</th> <th>SELdB</th> <th>DifferencedB</th> </tr> </thead> <tbody> <tr> <td rowspan="3">7</td> <td>LTN_BG</td> <td>91.1</td> <td></td> <td>+1.1</td> </tr> <tr> <td>NMT01</td> <td>85.8</td> <td>84.6</td> <td>-1.2</td> </tr> <tr> <td>LTN_SLTN</td> <td>88.0</td> <td>89.4</td> <td>+1.4</td> </tr> <tr> <td rowspan="5">25</td> <td>LTN_PPR</td> <td>87.2</td> <td>85.8</td> <td>-1.4</td> </tr> <tr> <td>NMT02</td> <td>85.1</td> <td>83.7</td> <td>-1.4</td> </tr> <tr> <td>NMT03</td> <td>85.8</td> <td>82.9</td> <td>-2.4</td> </tr> <tr> <td>LTN_MRK</td> <td>81.8</td> <td>81.1</td> <td>-0.7</td> </tr> <tr> <td>LTN_FLM</td> <td>78.4</td> <td>78.8</td> <td>+0.4</td> </tr> </tbody> </table> <p>Table 6.29: A321Neo SEL Departure Noise Prediction Testing</p> <table border="1" data-bbox="513 1356 1092 1562"> <thead> <tr> <th>Runway</th> <th>Location</th> <th>Measured SELdB</th> <th>Predicted SELdB</th> <th>DifferencedB</th> </tr> </thead> <tbody> <tr> <td rowspan="3">7</td> <td>LTN_BG</td> <td>88.4</td> <td>85.6</td> <td>-2.8</td> </tr> <tr> <td>NMT01</td> <td>84.2</td> <td>82.1</td> <td>-2.1</td> </tr> <tr> <td>LTN_SLTN</td> <td>85.2</td> <td>82.6</td> <td>-2.6</td> </tr> <tr> <td rowspan="5">25</td> <td>LTN_PPR</td> <td>86.3</td> <td>83.2</td> <td>-3.1</td> </tr> <tr> <td>NMT02</td> <td>83.0</td> <td>81.1</td> <td>-1.9</td> </tr> <tr> <td>NMT03</td> <td>83.3</td> <td>80.1</td> <td>-3.2</td> </tr> <tr> <td>LTN_MRK</td> <td>80.1</td> <td>78.4</td> <td>-1.7</td> </tr> <tr> <td>LTN_FLM</td> <td>75.7</td> <td>76.0</td> <td>+0.3</td> </tr> </tbody> </table> <p>The measured A321neo easterly benefit (NMT01) is only -1.6dB SEL, westerly (NMT02) -2.1dB SEL. Not only are these both higher than the L_{Amax} differences we have quoted, they also suggest that easterly and westerly departures ought to be modelled with different values, yet only one value is quoted in the Applicant's Table 6.2 above.</p> <p>Reason for disagreement over modelled A321neo benefit</p> <p>The Applicant has previously suggested (REP2-037, printed p332) that the reason for the apparent disparity in relative benefit of the A321neo is due to</p>	Aircraft	Surrogate Aircraft	Approach CorrectiondB	Departure CorrectiondB	Source	A319Neo	A319	-4.0	-1.0	ANP	A321Neo (assessment Phase 1)	A321	+0.6	-2.0	LLAOL data	A321Neo (assessment Phase 2a, assessment Phase 2b)	A321	-0.7	-3.7	ANP	Runway	Location	Measured SELdB	SELdB	DifferencedB	7	LTN_BG	91.1		+1.1	NMT01	85.8	84.6	-1.2	LTN_SLTN	88.0	89.4	+1.4	25	LTN_PPR	87.2	85.8	-1.4	NMT02	85.1	83.7	-1.4	NMT03	85.8	82.9	-2.4	LTN_MRK	81.8	81.1	-0.7	LTN_FLM	78.4	78.8	+0.4	Runway	Location	Measured SELdB	Predicted SELdB	DifferencedB	7	LTN_BG	88.4	85.6	-2.8	NMT01	84.2	82.1	-2.1	LTN_SLTN	85.2	82.6	-2.6	25	LTN_PPR	86.3	83.2	-3.1	NMT02	83.0	81.1	-1.9	NMT03	83.3	80.1	-3.2	LTN_MRK	80.1	78.4	-1.7	LTN_FLM	75.7	76.0	+0.3	<p>variant for westerly and easterly operations. As the same aircraft operate regardless of directions, it would be counter-intuitive to model the same aircraft differently depending on whether they were operating on easterlies or westerlies. The aircraft noise model verification has been extensively reviewed by the Host Authorities and their noise expert and are matters of common ground with the Applicant and recorded in each Statement of Common Ground [REP6-027 to REP6-036]. Additionally, the Civil Aviation Authority has agreed that the aircraft noise model validation is appropriate in its Statement of Common Ground [REP6-021] with the Applicant.</p> <p>L_{Aeq,T} noise contours are calculated using the Sound Exposure Level metric for individual aircraft. As such, it is common to reference this metric when assessing aircraft noise. The L_{ASmax} metric is used to calculate Number Above and sleep disturbance supplementary noise metrics. As the aircraft noise assessment is based around L_{Aeq,T} noise contours, it is appropriate to refer to the SEL when putting into context any changes in aircraft noise that may affect the noise contour area. Regardless of how noise level differences are described, this does not affect the noise model validation.</p>
Aircraft	Surrogate Aircraft	Approach CorrectiondB	Departure CorrectiondB	Source																																																																																																	
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I.D	Topic	Deadline 6 submission (Verbatim)	Luton Rising's Response
		<p>the Applicant basing its noise measurements on SEL values, whereas the data quoted by LADACAN from LLAOL reports is LAm_{ax}:</p> <p>“171. The correction applied to the surrogate A321Ce_o aircraft to provide A321Ne_o aircraft noise predictions was based on measured noise data in the 2019 baseline year. The noise data presented in the Quarterly Monitoring Reports is LAs_{max} data, whereas the corrections applied are based on Single Event Level (SEL) data, which are not directly comparable. As such, the data in the Quarterly Monitoring Reports cannot be used to determine the difference in SEL between aircraft variants.”</p> <p>We respond to that comment as follows, with reference to the diagram below explaining SEL2:</p> <p>2.2 Sound Exposure Level - SEL</p> <p>The sound exposure level (SEL) of an aircraft noise event is the sound level, in dBA, of a one second burst of steady noise that contains the same total A-weighted sound energy as the whole event (Figure 2). In other words, it is the dBA value that would be measured if the entire event energy were uniformly compressed into a reference time of one second. Aircraft noise event SELs are usually measured using integrating sound level meters, which measure the total sound energy and normalise it to a reference duration of one second.</p> <p>Figure 2: Graphical representation of SEL</p>  <p>Depending on the cutoff threshold of the integrating noise monitor, the width of the lower part of the noise waveform, or 'skirt', will be narrower for less noisy aircraft transits, all else being equal. The change in SEL for a given change in LAm_{ax} will vary depending on LAm_{ax} and the threshold setting: SEL is roughly 10-11dB greater but in our observation this depends on the threshold and on LAm_{ax}, as well as the transit waveform itself. As a consequence, the difference between a louder type (A321ce_o) and a less loud type (A321ne_o) may be more reliably stated when comparing average LAm_{ax} values: there are less dependencies. We are willing to engage further with the Applicant to clarify this point.</p>	
2	Noise And Vibration	<p>Full length runway departures trial report</p> <p>Appendix 3 below reproduces the report of a joint project in which LADACAN assisted LLAOL with data analysis of the full-length runway departure trial on</p>	<p>The Applicant provided information on the full length runway trial in Applicant's Post Hearing Submission – Issue Specific Hearing 8 [REP6-066] in response to Action 5.</p>

I.D	Topic	Deadline 6 submission (Verbatim)	Luton Rising's Response
		<p>westerly departures held during Feb and Mar 2022. The report identified three issues with the South Luton monitoring:</p> <ol style="list-style-type: none"> 1) the monitoring system rejected many of the measurements due to the prevailing humidity 2) the need for noise monitors to be calibration-checked so data can be collected before, during and after such trials 3) the study only achieved a relatively small dataset <p>These factors were noted by LLAOL for 'future learning' in other trials, as the slides show.</p> <p>The report tentatively concludes that there is potentially a small benefit of some 0.6dB SEL in noise reduction close in to the airfield if the full runway length is used for westerly departures, but the benefit does not extend as far as the statutory monitors. The benefit may be due to a combination of different thrust settings calculated by the Flight Management System given more available runway length, and the aircraft being positioned some 300m east, more distant from South Luton, at start-of-roll.</p> <p>Given the caveats above, and the anomaly already highlighted concerning differences between use of SEL and LAmx, these results should be considered tentative until a more comprehensive study has been performed.</p>	<p>As noted in the post hearing submission, no benefit from the use of the full length runway trial has been assumed in the noise assessments in Chapter 16 of the Environmental Statement [REP1-003] despite extended taxiways being proposed as part of the development, which would facilitate more aircraft using the full length of the runway.</p>

Table 1.4: Applicant's response to post hearing submission by LADACAN [REP6-136] at Deadline 6

I.D	Topic	Deadline 6 submission (Verbatim)	Luton Rising's Response
1	Need Case	<p>Specific issues indicative of uncertainty and slow progress are worth highlighting:</p> <ol style="list-style-type: none"> 1) The Department for Transport remains insufficiently confident of economic and market certainty to yet create meaningful long-term demand forecasts for air passenger growth. The last official forecast was produced in 2017, pre-COVID. 	<p>Although the Department for Transport has not produced a full update to the UK Aviation Forecasts 2017 in terms of all the detailed outputs, updated assessments of the overall scale of the UK air passenger market and of aircraft movements were produced in connection with the Jet Zero Strategy and the consultation on the SAF Mandate. Both noted continuing uncertainty in terms of the rate of recovery from Covid-19 but it is not correct to say that updated long term demand forecasts from the Department for Transport are not available.</p>
2	Need Case / Climate change	<ol style="list-style-type: none"> 2) 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. 	<p>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.</p>

I.D	Topic	Deadline 6 submission (Verbatim)	Luton Rising's Response
		<p>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.</p> <p>In December 2023, allowances are trading at £32.66, significantly below the low price scenario used in the Jet Zero modelling. According to the modelling, UK ETS allowance prices in 2023 were assumed to be £71/tCO₂ in the central scenario, £95/tCO₂ in the high scenario and £53/tCO₂ in the low scenario. Prices are likely to remain lower than forecast until at least 2027.</p> <p>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.</p>	Hence any implications for passenger demand are already accounted for in the demand forecasts.
3	Climate change	5) The process supporting airspace modernisation (which is expected to contribute to emissions reduction by eliminating holding stacks and enabling continuous climb and descent) appears to have stalled. The Airspace Strategy Board has been scrapped and a new process is due to start in the New Year.	Changes to the governance of the airspace modernisation strategy are aimed at ensuring better coordination and integration of proposals to ensure faster resolution of the issues and implementation of airspace modernisation over the earliest possible timescale. This includes handing accountability to Single Design Entity.
4	Climate change	Additional sensitivity testing would be appropriate given that overall progress appears to be slower than expected, with no obvious impetus from government to improve it.	This is a matter for Government in further updates to its Jet Zero Strategy as changes would impact national not airport specific targets.

Table 1.5: Applicant's response to post hearing submission by LADACAN [REP6-139] at Deadline 6

I.D	Topic	Deadline 6 submission (Verbatim)	Luton Rising's Response
1	Noise And Vibration	<p>Relevance of CAP1129</p> <p>LADACAN summarised its position with respect to the noise envelope design process followed by the Applicant as follows, with reference to REP5-071:</p> <p>Firstly, the Aviation Policy Framework 2013 states in section 3.29 "The Government wishes to pursue the concept of noise envelopes as a means of giving certainty to local communities about the levels of noise which can be expected in the future and to give developers certainty on how they can use their airports."</p> <p>The DfT commissioned the CAA to provide guidance on the creation of a noise envelope, which it published in 2013 as CAP1129. We have summarised its key guidance in Annex 1 of REP2-061, and applied its guidance in many of our responses to the Applicant in REP5-072.</p>	<p>The Applicant considers the issue raised regarding adherence to CAP1129 and Noise Envelope consultation was answered in ISH9 as summarised in the Applicant's Post Hearing Submission – Issue Specific Hearing 9 [REP6-067] in response to the agenda item "Extent to which community engagement has, or needs to, inform the development of the noise envelope", section 4.2.</p> <p>The issue raised regarding sharing the benefits was answered in ISH9 as summarised in the Applicant's Post Hearing Submission – Issue Specific Hearing 9 [REP6-067] in response to the agenda item "balance of growth vs future noise reduction", section 4.5.</p> <p>Please also refer to the response to Written Question GCG.2.6 in the Applicant's Response to Written Questions – Green Controlled Growth [TR02001/APP/8.154].</p>

I.D	Topic	Deadline 6 submission (Verbatim)	Luton Rising's Response
		<p>The importance of that guidance was underlined by the Airports National Policy Statement, 2018, in the context of the Heathrow third runway. Section 5.60 states: "The applicant should put forward plans for a noise envelope. Such an envelope should be tailored to local priorities and include clear noise performance targets. As such, the design of the envelope should be defined in consultation with local communities and relevant stakeholders, and take account of any independent guidance such as from the Independent Commission on Civil Aviation Noise (ICCAN). The benefits of future technological improvements should be shared between the applicant and its local communities, hence helping to achieve a balance between growth and noise reduction. Suitable review periods should be set in consultation with the parties mentioned above to ensure the noise envelope's framework remains relevant."</p> <p>We noted that, given the demise of ICCAN, that the currently available guidance is in CAP1129.</p> <p>Process set out in CAP1129 As REP5-071 indicates, CAP1129 is clear that in top-level process stage 4, the foundation of a noise envelope design involves agreeing "the appropriate metrics (ie controls) and respective limits" (which, taken together, form the 'parameters') of a noise envelope which strikes "an appropriate balance between minimising noise impacts and maximising sustainable growth" and which will "address precisely the noise issues local to the airport under consideration".</p> <p>Whilst the Noise Envelope Design Group (NEDG) discussed at length the controls which could be used, limits were not specified for those controls until the very end of the process. Those limits, which define the "magnitude" of the envelope, were not arrived at (as required in CAP1129) by striking an appropriate balance between minimising noise impacts (ie Do Nothing) and maximising growth. Instead, they were set by the Applicant to maximise growth, using its Faster Growth model based on its growth forecasts.</p> <p>Therefore, the magnitude of the Noise Envelope – by which we mean the overall additional noise impacts which would result from the Application – has been set at the upper end of maximising growth, whereas it ought to be at some middle point so as to achieve the required balance.</p> <p>For clarity, this means that the proposed noise contour areas and numbers of flights are larger than the application of the guidance of CAP1129 would indicate.</p>	

I.D	Topic	Deadline 6 submission (Verbatim)	Luton Rising's Response
		<p>Striking a balance and sharing the benefits</p> <p>The Aviation Policy Framework provides guidance on both these aspects of noise management in its paragraph 3.3: “We want to strike a fair balance between the negative impacts of noise (on health, amenity (quality of life) and productivity) and the positive economic impacts of flights. As a general principle, the Government therefore expects that future growth in aviation should ensure that benefits are shared between the aviation industry and local communities. This means that the industry must continue to reduce and mitigate noise as airport capacity grows. As noise levels fall with technology improvements the aviation industry should be expected to share the benefits from these improvements.”</p> <p>A fair balance is clearly not a position in which industry takes everything it wants, and the sharing of benefits by industry is clearly predicated on noise levels falling. The introduction of slightly less noisy aircraft already goes hand-in-hand with the commercial benefits to industry of reduced fuel costs and additional passenger seats.</p> <p>The current limits do not represent a fair balance, but one of benefit mainly to industry, which is not what noise envelope guidance requires.</p> <p>Addressing the specific noise issues</p> <p>From the representations received, one of the specific noise issues at Luton Airport is night flights: the Airport has a 24-hour operating licence. Addressing the specific noise issues caused by such flights at night – including at the start of the night from 11pm, and in the early morning up to 7am, would involve a reduction – not a 70% increase – in night flights. Again, it is inadequate simply to argue that low-cost airlines need to fly from 5am to 3am the next morning to maximise the return on assets – that is not striking a fair balance or addressing the specific noise issues.</p> <p>Performed correctly, the noise envelope design process would have started by addressing these issues and reaching an agreement on a fair compromise. That was not even attempted.</p> <p>Lack of consultation on the Noise Envelope Design</p> <p>The Applicant maintains it consulted on a broader envelope than that now being proposed. Its statutory consultation was opposed by local authorities in impacted areas on ground of noise, and the current proposal is also opposed by the Joint Host Authorities on grounds of noise. Local people and community</p>	

I.D	Topic	Deadline 6 submission (Verbatim)	Luton Rising's Response
		<p>groups opposed the proposal in non-statutory and statutory consultation on grounds of noise.</p> <p>The noise envelope for the current application – the set of controls and limits – may be slightly smaller in noise contour terms, but has not been consulted on. Such consultation would at least have indicated whether the fair balance which ought to have been struck in the noise envelope design had in fact achieved a better compromise between growth benefits and noise harms.</p> <p>The covering letter with the Interim Report from the independent chair of the NEDG to the Luton Rising Programme Director dated 6 Nov 2021 and copied to members, said in its second paragraph:</p> <p>“We are awaiting the outcome of realistic growth modelling based on aviation forecasts before we can consider many of the values that we might recommend be attached to the metrics we’ve agreed.”</p> <p>On 3rd May 2022, following a hiatus in which the technical experts had been struggling to create a prototype noise model, an email sent on behalf of the Chair to members said in its second and third paragraphs:</p> <p>“while we made representations in our Interim Report as to the various metrics and elements that should be included within the Noise Envelope we were not in a position to put final values on the metrics recommended. This outstanding action needs to be completed. I had hoped that we would be able to put values against the various elements before the DCO went to public consultation. However, that was not possible...”</p> <p>Finally, the covering letter to the Final Report dated 20 Dec 2022, sent to the Programme Director and copied to members, said in its second paragraph: “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. I ask that [the NEDG administrator] copies this letter and the report to the NEDG membership who will be interested in any response from LR while accepting that further consultation will take place later once the DCO application is submitted. In this respect, I note the members will have an opportunity to express their views on the appropriateness of any proposed noise management scheme to the Examining Authority.” None of these notes reflects a process governed by CAP1129, probably because few of the Group had read it and it was not adopted as the touchstone guiding the process. The final note implies some other consultation once the DCO application is submitted, whereas as we noted in the ISH, the current process is an examination, not a consultation.</p>	

I.D	Topic	Deadline 6 submission (Verbatim)	Luton Rising's Response
		<p>The “consultation” conducted among named members of community groups on an extract of the Interim Report therefore did not offer any chance for them to comment on the magnitude of the envelope and the specific proposed limits, since as indicated above the limits were not available at that time.</p> <p>Therefore, as we stated in the ISH, the Noise Envelope Design has not been consulted on.</p> <p>Conclusion regarding the Noise Envelope Design The process for defining and agreeing a Noise Envelope for the Proposed Development did not follow the guidance of CAP1129 and does not meet its objectives; neither has the Noise Envelope been consulted on as required by that guidance; nor was agreement reached on the magnitude of the Noise Envelope; and many of the controls proposed to be included were removed between the Final Report of the NEDG and the DCO Proposal.</p>	
2	Noise And Vibration	<p>Adequacy of noise controls</p> <p>The ExA asked for LADACAN's comment on whether the range of noise controls proposed was sufficient. In the context of those controls which had been agreed by the NEDG, we affirmed that they probably provided sufficient means of noise control. The key, though, is not just the controls but the limits, and to these we do not agree for all the reasons set out above.</p> <p>The NEDG Final Report recommended the following noise controls (REP4-023 Annex A): Movement caps to provide annual control (which would also control shifts in travel patterns to non-summer periods); night period control and early morning period control (2.2.3 PDF p39) Noise violation limits to control the departure noisiness of individual flights, with different limits based on the QC classification of aircraft type (2.3.3 PDF p42) Differential airport charges based on QC classification (same section, PDF p43)</p> <p>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.</p> <p>[It is worth noting that the NEDG suggested using the Quota Count system to assist in forecasting and slot control, PDF p45 paragraph 2] Summer day and night noise contours (2.5.3, PDF p48)</p>	<p>The consolidated noise control recommendations in the NEDG Interim Report and NEDG Final Report (see paragraph 10 of the NEDG Final Report in Annex A of Appendix 16.1 of the Environmental Statement [AS-096]) are:</p> <ul style="list-style-type: none"> a. Area enclosed by the 54 dB, LAeq,16h summer average day contour; b. Area enclosed by the 48 dB, LAeq,8h summer average night contour; c. Total number of Air Transport Movements as a 12-month rolling average in the night-time quota period (23:30 – 06:00) d. Total annual Quota as a 12-month rolling average in the night-time period (23:00 – 07:00) e. Total number of Air Transport Movements as a 12-month rolling average; and f. Departure Noise Violations Limits at the current monitoring locations, but graduated according to the certificated departure noise performance of the different aircraft types <p>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.</p> <p>Of these recommended limits A, B and C have been adopted fully in line with the recommendations. F has been adopted but with a single Noise Violation Limit that reduces over time, justification for this approach is provided in Response to Suono's Note on Noise Controls [REP6-052], ID12.</p> <p>Whilst recommendation D has not been adopted in this form, total annual quota limit of 3,500 in the night quota period (23:30 – 06:00) has been adopted, and the GCG Framework requires the use of quota count budgets for the full night period (23:00 – 07:00) for the 92-day summer. Along with the night-time contour area limit this provides sufficient control over night-time noise with a combination of movement limits, quota count limits, contour area limits and quota count</p>

I.D	Topic	Deadline 6 submission (Verbatim)	Luton Rising's Response
		<p>Table 2 on PDF p53 shows the final set, with the exception of the shoulder period protection.</p> <p>In order to strike a fair balance, and to incentivise improving noise performance over time, the limits associated with these controls would be lower than those proposed by the Applicant, and where appropriate could progressively tighten over time to incentivise noise reduction.</p>	<p>budgets that cover annual and 92-day summer timeframes and full night period (23:00 – 07:00) and night quota period (23:30 – 06:00).</p> <p>Recommendation E has not been adopted as movement limits are poorly correlated with noise impact metrics (as demonstrated in Noise Envelope - Improvements and worked example [REP2-032]) and provide no incentive for the adoption of quieter aircraft and therefore no further movement limits are proposed over and above the night quota period movement limit, though annual movements will be reported as set out in the Aircraft Noise Monitoring Plan [REP5-028], secured by a DCO Requirement.</p> <p>This is in line with CAA's CAP1731 document (Ref 4), which includes a review of suitable noise metrics for limiting and controlling noise, and which notes on page 58 that the number of movements: "has good correlation with day noise quota count and night noise quota count, when broken down into the number of movements per day and night respectively. It shows reasonable correlation with day noise contour area, but it gives no mechanism to limit impact within a given area. It also does not have any correlation with people exposed, so it would be not be effective in controlling population noise exposure or in driving noise reduction. Overall, the number of movements is a metric that should be monitored to understand the growth of the aviation market, but it does not provide effective controls to limit noise generation, noise exposure nor noise impacts."</p> <p>The NEDG recommendation to use the Quota Count system to assist in forecasting and slot allocation is noted and has been adopted in GCG.</p>

REFERENCES

Ref 1 Department for Transport (2017), Consultation Response on UK Airspace Policy: A framework for balanced decisions on the design and use of airspace.

Ref 2 Civil Aviation Authority (2021), CAP1506: Survey of Noise Attitudes 2014: Aircraft Noise and Annoyance, Second Edition

Ref 3 Civil Aviation Authority (2021), CAP2161: Survey of Noise Attitudes 2014: Aircraft Noise and Sleep Disturbance

Ref 4 Civil Aviation Authority (2019), CAP1731 Aviation Strategy – Noise Forecast and Analyses