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London Luton Airport Expansion

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**8.184 Applicant's Position on Noise Contour and
Movement Limits**

Infrastructure Planning (Examination Procedure) Rules 2010

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The Planning Act 2008

The Infrastructure Planning (Examination Procedure) Rules 2010

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

8.184 Applicant's Position on Noise Contour and Movement Limits

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1 INTRODUCTION

- 1.1.1 This document has been prepared by Luton Rising (a trading name of London Luton Airport Limited) ('the Applicant') for submission to the Examining Authority ('ExA').
- 1.1.2 This document provides the Applicant's position on noise contour and movement limits, in response to:
- a. the ExA's commentary on and schedule of changes to the raft Development Consent Order (DCO) **[PD-018]** relating to contour area limits and movement limits (both annual and shoulder period);
 - b. the Host Authorities' Deadline 8 submissions **[REP8-050, REP8-051, REP8-052, REP8-054, REP8-055, REP8-057, REP8-058, REP8-059]** relating to movements limits (both annual and shoulder period);
 - c. LADACAN's Deadline 8 submission relating to shoulder period movement limits **[REP8-075, REP8-076]**; and
 - d. St Alban's Aircraft Noise Defence (STAND) Deadline 8 submission **[REP8-083]** relating to shoulder period movement limits; and
 - e. the ExA's request in its 25 January 2024 Rule 17 letter **[PD-021]** for a response to the Host Authorities, LADACAN and STAND submissions as listed above.
- 1.1.3 To provide important context for the Applicant's position on noise contour and movement limits, the document begins with a summary of the Applicant's overall position on the suite of air noise controls that are part of the Proposed Development and secured through the **Green Controlled Growth Framework [TR020001/APP/7.08]** and **Air Noise Management Plan [TR020001/APP/8.125]**.
- 1.1.4 The document then sets out:
- a. the Applicant's position on noise contour area limits, including commentary on the ExA's recommendation to secure limits on the face of the DCO and information on a reduction in the noise contour area limits that has been applied to the **Green Controlled Growth Framework** at Deadline 9 **[TR020001/APP/7.08]**;
 - b. the Applicant's position on annual movement limits, including a response to the alternative limits suggested by the Host Authorities;
 - c. the Applicant's position on shoulder period movement limits, including a response to the alternative limits suggested by the Host Authorities, LADACAN, STAND and other Interested Parties, and an updated position on a suitable shoulder period movement limit were one to be imposed.

2 SUMMARY OF APPLICANT POSITION ON AIR NOISE CONTROLS

2.1.1 To provide context for the Applicant's position on contour and movement limits, this section summarises the Applicant's overall position on air noise controls. The section does not present new arguments, but the intention is to provide a restatement and summary of the positions that have been made in various submissions and responses through the DCO examination to date.

2.2 The Noise Envelope

2.2.1 The Noise Envelope is a legally binding framework to monitor, manage and control aircraft noise, including a defined mechanism to share the noise reduction benefits of future technological improvements in aircraft between the airport and local communities. The Noise Envelope will be secured as part of the Development Consent Order (DCO) through the Green Controlled Growth Framework (GCG, see **Green Controlled Growth Explanatory Note [TR020001/APP/7.07]**) and will be a legally binding framework of Limits and controls to manage aircraft noise. The **Green Controlled Growth Explanatory Note [TR020001/APP/7.07]** includes details on how the Noise Envelope will be enforced through GCG, including independent oversight and scrutiny.

2.2.2 The Noise Envelope has been integrated into the GCG Framework so that the enforcement, control and reporting processes set out within GCG will automatically apply to the Noise Envelope, avoiding the need for duplication of processes and enforcement bodies and providing consistency across the four topics covered by the GCG Framework (noise, air quality, carbon and surface access).

2.2.3 In essence, the Noise Envelope defines the noise environmental outcomes to be achieved, or bettered, rather than pre-defining the specific mitigation mechanisms employed to achieve the outcomes which may or may not prove to be successful. Given that the airport expansion is planned over an extended period of time, this approach provides certainty of the outcomes that will result even in the reasonable worst-case scenario, whilst also providing appropriate flexibility for the airport operator to identify and implement the optimum mitigation at the time it may become required and draw on future technology improvement.

2.2.4 The Noise Envelope provides several enhancements to the current consented noise controls, such as independent scrutiny and oversight, increased transparency, adaptive mitigation and management plans and Noise Limit Reviews. The Noise Envelope also requires a more proactive approach to managing noise through the introduction of Thresholds below each Limit and the use of Quota Count (QC) budgets when planning growth. See **Comparison of consented and proposed operational noise controls [REP5-014]** for further details.

2.2.5 The Noise Envelope Limits and Thresholds are defined using the L_{Aeq} metric to ensure the effects on health and quality of life during the day and night are limited and where possible reduced. The L_{Aeq} metric was chosen as recent

research updates from the Civil Aviation Authority (CAA) have shown that this metric is best correlated with daytime (annoyance) and night-time (sleep disturbance) health effects (Ref 1, 2 and 3). The use of the L_{Aeq} metric as the principal noise control also aligns the Noise Envelope with the methodology for identifying significant effects used in the noise assessment in **Chapter 16 of the Environmental Statement (ES) [TR020001/APP/5.01]**, ensuring that the Noise Envelope has the ability to limit the noise effects to those presented in the ES and ensure that they are not exceeded. The methodology for identifying significant effects based on the L_{Aeq} metric is agreed in the **Statement of Common Ground (SoCG) for each Host Authority [REP6-027 to REP6-036]**.

- 2.2.6 The Noise Envelope Limits and Thresholds are aligned with the Faster Growth Scenario to ensure that the noise effects will not exceed the assessed 'reasonable worst case' in the ES. This document provides an update to the assessment of the Faster Growth scenario which assumes a faster fleet transition to new-generation aircraft, reducing noise effects and reducing the Noise Envelope Limits and Thresholds in turn. An assessment of the total adverse effects on health and quality of life of the Updated Faster Growth scenario is provided in Appendix A. The assessment notes that, as was the case for the ES Faster Growth scenario, the additional significant effects that arise in assessment Phase 1 compared to the Core Planning Case would be avoided through the provision of the full cost of insulation, so the noise effects in the Updated Faster Growth scenario are both limited and reduced.
- 2.2.7 The Noise Envelope also requires that QC budgets are derived from the contour area Limits and Thresholds and are used:
- a. to inform forward planning of airport operations (both annual and five-year forward plans);
 - b. to incentivise airlines to operate the quietest aircraft available in response to the opportunity of growth;
 - c. as part of the bi-annual process of slot management and capacity declaration; and
 - d. where, in the forward plan, the Level 2 Threshold Equivalent QC or Limit Equivalent QC is exceeded, to include within the annual Monitoring Report proposals for slot management measures, additional interventions or mitigation to ensure that the Limits will not be exceeded.
- 2.2.8 Further detail on this mechanism is provided in **Applicant's Response to Issue Specific Hearing 9 Actions 8, 19 and 20 - Quota Count Noise Controls [REP7-077]** which provides a worked example and demonstrates how this mechanism provides a link between the 92-day summer Noise Envelope contour area noise controls and the full calendar year.
- 2.2.9 As part of the Aviation 2050 consultation, the CAA in CAP1731 (Ref 4) undertook a review of aircraft noise limits and their pros and cons, informed by a benchmarking exercise of noise controls at major airports, and provided recommendations for noise limit schemes. The conclusion of this exercise was the recommendation of:

“A locally set absolute Quota Count or noise contour area limit at a particular noise level for both day and night for each airport”

2.2.10 The Applicant's Noise Envelope, with its contour area Limit and QC budget requirements is fully in line with this recommendation.

2.3 Additional noise controls

2.3.1 Following discussion at the Issue Specific Hearings in September 2023, further discussions with the Host Authorities and the decision to approve the P19 application (21/00031/VARCON), the Applicant submitted an **Air Noise Management Plan [TR020001/APP/8.125]** to secure the continuation of the following *additional* noise controls that are compatible with the growth sought by the DCO:

- a. a movement limit of 9,650 during the Night Quota Period (23:30 – 06:00)¹;
- b. a QC limit of 3,500 during the Night Quota Period (23:30 – 06:00);
- c. a ban on QC2 aircraft or above during the full night period (23:00 – 07:00);
- d. track violation penalties; and
- e. departure Noise Violation Limits.

2.3.2 Whilst, as discussed in Issue Specific Hearing 3, it was anticipated that these controls would have been maintained through the airport operator's Noise Action Plan, the **Air Noise Management Plan [TR020001/APP/8.125]**, which is secured by a Requirement to the DCO, provides certainty that these controls will be maintained.

2.3.3 The Host Authorities have agreed with the inclusion of these additional noise controls in the version of the SoCGs to be submitted at Deadline 11.

2.4 Comparison to Noise Envelope Design Group Recommendations

2.4.1 **Table 2.1** presents a summary of the Noise Envelope Design Group (NEDG) Final Recommendations for noise controls and how they have been adopted in the DCO. The table demonstrates that the only recommendation that is not at least partially adopted is the recommendation of an annual movement cap. The justification for this is provided in section 2.5 of this document. It is notable that whilst shoulder period limits were discussed, the NEDG did not recommend shoulder period limits in their Interim or Final recommendations.

¹ This restriction has been part of the proposed noise controls since DCO submission.

Table 2.1: Summary of NEDG recommendations and DCO noise controls

NEDG recommendation – control measure and time period	NEDG recommendation - Limit	DCO noise control
Night-time Quota Period – Movement Cap	9,650 movements over 12-month rolling average	Recommendation fully adopted - 9,650 movement limit Secured in the Air Noise Management Plan [TR020001/APP/8.125]
Night-time Quota Period – QC Cap	12-month rolling average Value to be determined	Recommendation fully adopted - 3,500 Quota Count limit secured in the Air Noise Management Plan [TR020001/APP/8.125]
Annual Movement Cap	12-month rolling average Value to be determined	Recommendation not adopted – see section 2.5 for justification
Average Summer Day – Daytime contour area Limit	Area enclosed by 54dB _{L_{Aeq,16h}} contour. Numerical value to be determined	Recommendation fully adopted – 54dB _{L_{Aeq,16h}} contour area Limit and Thresholds secured in the Green Controlled Growth Framework [TR020001/APP/7.08] .
Average Summer Day – Night-time contour area Limit	Area enclosed by 48dB _{L_{Aeq,8h}} contour. Numerical value to be determined	Recommendation fully adopted – 48dB _{L_{Aeq,8h}} contour area Limit and Thresholds secured in the Green Controlled Growth Framework [TR020001/APP/7.08] .
Noise Violation Limits	Noise violation limits to be applied at current locations. Limit values to be graded based on departure QC of aircraft.	Recommendation partially adopted – departure Noise Violation Limits secured in Air Noise Management Plan [TR020001/APP/8.125] with Limits that reduce over time rather than being graded based on QC. See [REP6-052] for justification.

2.5 Movement Limits

- 2.5.1 Movement limits are poorly correlated with noise impact metrics (as demonstrated in **Noise Envelope - Improvements and worked example [REP2-032]**) and prove no incentive for the adoption of quieter aircraft. Therefore, no further movement limits are proposed over and above the movement limit in the Night Quota Period, though annual movements will be regularly reported as set out in the **Aircraft Noise Monitoring Plan [REP7-026]**.
- 2.5.2 This is fully 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 (emphasis added): *"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 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.**"*
- 2.5.3 The Applicant's position therefore remains that movement limits are not an effective control in limiting noise generation, noise exposure or noise impacts. The Applicant notes that the robust and comprehensive combination of noise controls in the **Air Noise Management Plan [TR020001/APP/8.125]** (which already includes a movement limit in the 23:30 – 06:00 period) and the night-time noise contour area limits and associated QC budgets in the **Green Controlled Growth Framework [TR020001/APP/7.08]** mean that the adverse effects of aircraft noise are fully controlled and limited to the effects reported in **Chapter 16 of the ES [TR020001/APP/5.01]** as updated (reduced) in Appendix A. The Applicant has provided worked examples in **[REP2-032]** and **[REP7-077]** showing how these robust and effective controls will operate. The Applicant's view is therefore that the additional controls of annual and shoulder period movement limits are not necessary or reasonable.
- 2.5.4 The Applicant further notes that there is no 23:00 – 23:30 movement limit in the current planning permission controls, and notes that the Host Authorities are not seeking such a limit in the list of additionally sought controls in the version of the SoCGs to be submitted at Deadline 11. The Host Authorities have further noted in their Deadline 8 submissions **[REP8-051, REP8-055, REP8-057]** that *"Provision of the morning shoulder period (0600-0700) limit would in effect provide a proxy limit on the evening shoulder period (2300-2330), noting that there is already a core night period movement limit (2330-0600), the night-time summer contour and the potential annual 24-hour movement limit, all of which envelop this period."*
- 2.5.5 A limit in the 23:00 – 23:30 shoulder period, if imposed, could have the unintended consequence of pushing more movements into the deep night period 23:30 – 06:00 in instances where the 9,650 annual movement limit in this

period has not been fully used but any individual limit for the 23:00 to 23:30 period is used up. The Applicant therefore strongly opposes a movement limit being imposed separately for the 23:00 – 23:30 period.

2.5.6 Without prejudice to this position, the Applicant has provided a quantification of what an appropriate movement limit would be in response to Written Questions NO.2.5 and NO.2.6 **[REP7-056]** if they were to apply:

- a. as a total annual limit; and
- b. as an annual limit in the 06:00 – 07:00 shoulder period.

2.5.7 Sections 4 and 5 of this document provide further information on the Applicant's position on annual and shoulder period movement limits.

2.6 Summary

2.6.1 In summary, the Applicant considers that the proposed combination of contour area Limits, Night Quota Period QC limits and Night Quota Period movement limits are fully robust, are in line with best practice in airport noise controls and are in line with Civil Aviation Authority recommendations for noise control.

2.6.2 The Applicant therefore does not consider it necessary or reasonable to provide additional movement limits.

3 APPLICANT POSITION ON NOISE ENVELOPE CONTOUR AREA LIMITS

3.1 Updated Faster Growth forecast

- 3.1.1 At Deadline 6, the Applicant presented information to confirm the pace of fleet transition in the Core Planning Case relative to that put forward by the airport operator in connection with the application to grow to 19 mppa **[REP6-066, Appendix A]**. This was further explained in response to the ExA's second round of Written Questions, Question NO.2.2 **[REP7-056]**. As explained, the key parameter is the rate of fleet transition to new generation aircraft rather than the specific orders for each type of aircraft and how they will be deployed at the airport over a 20 year period. Nonetheless, the Applicant remains confident that the overall rate of fleet transition set out in the Core Planning Case is attainable.
- 3.1.2 The Applicant notes that the Host Authorities, in commenting on the response to NO.2.2 **[REP8-051, REP8-055, REP8-058]** have suggested that there is a need for some caution in the application of the fleet transition assumptions at least for the early years in the light of the well publicised issues with the Boeing B737-Max aircraft and the potential for delayed deliveries of the Airbus A320/1neo family.
- 3.1.3 It was to reflect these uncertainties, that the Applicant put forward a high case forecast with faster growth but with a slower transition to a new generation fleet of aircraft through to the early 2030s. This was to ensure that the Environmental Impact Assessment (EIA) considered a reasonable worst case, reflecting inevitable uncertainties in the precise timing of the introduction of new generation aircraft by the airlines and, in the Faster Growth Case, the assumption that the additional growth would largely come from new non-based airlines whose fleet replacement plans were less well known. This ensured that the assessment reflected a reasonable worst case. This Faster Growth case reflected both faster growth in the numbers of passengers and aircraft movements using the airport and a slower fleet transition to new generation aircraft, with the assumption that such aircraft would make up only 60% of the fleet in 2027 compared 69% in the Core Planning Case.
- 3.1.4 In light of the greater confidence in progress towards the modernisation of the fleet of aircraft at London Luton Airport as set out in response to NO.2.2, it is recognised that, notwithstanding the comments from the Host Authorities, the transition to new generation aircraft is proceeding more quickly than implied by the Faster Growth Case fleet transition. However, the Applicant still believes that any noise Limits should be set with some caution to allow for ongoing uncertainty, as identified by the Host Authorities.
- 3.1.5 The Applicant remains of the view that, so long as the noise implications remain within the envelope assessed, it is reasonable to allow for faster growth at the airport than set out in the Core Planning Case. This would ensure that the economic benefits of the Proposed Development can be delivered at the earliest possible date and still remain within the assessed environmental effects that the Applicant considers to be acceptable once mitigation is taken into account. For that reason, the Applicant cannot accept the ExA's proposal that

the noise Limits should be set by reference to the Core Planning Case only. The difference between the economic benefits arising from the Core Planning Case and Faster Growth Case is set out in **Appendix F to the Need Case [APP-214]**.

- 3.1.6 The Applicant is, however, willing to consider Limits set by reference to a faster fleet transition so long as this preserves the ability of the airport to meet faster growth in demand if it arises. On this basis, the Applicant has revisited the fleet transition assumptions in the light of more recent orders for new generation aircraft by airlines including easyJet and the trends of aircraft modernisation seen at the airport during 2023 and anticipated in 2024. The original Faster Growth Case included an assumption of 60% transition by 2027. On the basis of the more ambitious fleet transition reflected in the Updated Faster Growth Case, some 67% of the fleet are now assessed to be new generation aircraft by 2027. This represents a marginally slower fleet transition than assumed in the Core Planning Case, but it is considered essential to allow for this marginally slower transition to reflect the ongoing uncertainties as the Host Authorities have acknowledged.

3.2 Updated Green Controlled Growth Limits

- 3.2.1 The Applicant has updated the **Green Controlled Growth Framework** at Deadline 9 **[TR020001/APP/7.08]** to set lower noise lower contour area Limits and Thresholds based on the Updated Faster Growth Case (UFG) described in section 3.1. This reduction in noise contour area Limits will require airlines to adopt a faster fleet transition than was assumed in the ES Faster Growth (ESFG) Case to realise growth to 23 mppa by 2027, further incentivising the adoption of quieter aircraft and providing a greater share of the benefits with the community.
- 3.2.2 The updated noise contour area limits are presented in **Table 3.1**.

Table 3.1: GCG Limits and Thresholds for aircraft noise

Limit	Up to 2028	2029 – 2033	2034 – 2038	2039 - 2043*	2044 onwards (in 5 year cycles)
Average summer day-time noise levels, as measured by size (km ²) of 54 dB LAeq,16hr noise contour	Limit				
	33.0	32.0	30.4	32.6	32.6
	Level 2 Threshold (95% of limit)				
	31.4	30.4	28.9	31.0	31.0
	Level 1 Threshold (85% of Limit)				
	28.1	27.2	25.8	27.7	27.7
Average summer night-time noise levels, as measured by size (km ²) of 48 dB LAeq,8hr noise contour	Limit				
	43.3	42.1	39.8	43.2	43.2
	Level 2 Threshold (95% of limit)				
	41.1	40.0	37.8	41.0	41.0
	Level 1 Threshold (85% of Limit)				
	36.8	35.8	33.8	36.7	36.7

3.2.3 A noise assessment of the 2027 UFG scenario is provided in Appendix A, which demonstrates by comparison to the ESFG scenario:

- a. a reduction in the population exposed above the Lowest Observed Adverse Effect Level (LOAEL) (day and night)
- b. a reduction in the population exposed above the Significant Observed Adverse Effect Level (SOAEL) (day and night)
- c. a reduction in significant effects on health and quality of life (day and night); and
- d. a reduction in adverse likely significant effects (day and night).

3.2.4 As noted in Section 12.3 of **Appendix 16.1 [TR020001/APP/5.02]**, the effects of the ESFG in assessment Phase 2a and assessment Phase 2b are the same as for the Core Planning Case, just occurring one year earlier. This is not changed by the UFG forecast.

3.2.5 The scenario considered in this assessment only affects the quantified noise assessment used to inform GCG Limits regarding air noise. This would not alter any of the assessments reported in the ES that do not consider air noise. Where air noise is considered, the effects would still remain within the reasonable worst-case considered in the ES and therefore no new or different likely significant effects are identified and no further assessment for other topics is required.

3.2.6 The ExA's reasoning for recommending limits based on the Core Planning Case in [PD-018] is "to avoid additional effects above SOAEL for the local community that are otherwise predicted to arise." In response to this, the Applicant has provided a summary of exposure above SOAEL for the ESFG, UFG and Core Planning Cases in 2027 in **Table 3.2**.

Table 3.2: Summary of 2027 exposure above SOAEL

Population exposed above SOAEL (rounded to nearest 50)	Day	Night
ES Faster Growth Case	1,000	4,250
Updated Faster Growth Case	750	4,000
Core Planning Case	450	3,800

3.2.7 **Table 3.2** shows that setting Limits based on UFG rather than ESFG results in:

- a reduction in the number of people exposed above the daytime SOAEL compared to the Core Planning Case from 550 to 300; and
- a reduction in the number of people exposed above the night-time SOAEL compared to the Core Planning Case from 450 to 200.

3.2.8 Significant effects on health and quality of life for the relatively small population exposed above SOAEL in the UFG case that are below the SOAEL in the Core Planning Case (300 total, as those above daytime SOAEL are also above night-time SOAEL) would be avoided by the provision of full cost of noise insulation secured by the **Compensation Policies, Measures and Community First [TR020001/APP/7.10]**. It is also important to note that whilst the difference between the UFG scenario and Core Planning Case means that these 300 people move from marginally below SOAEL to marginally above SOAEL, the difference in noise levels for all assessment locations between these two scenarios ranges from only 0.3 – 0.4dB for daytime and 0.1 – 0.2dB for night-time. Despite this small and negligible change in noise, all properties above SOAEL (even marginally so) will be eligible for the full cost of noise insulation.

3.2.9 Setting Limits based on UFG rather than ESFG increases the minimum percentage 'sharing of the benefits' that goes to the community during the daytime by 7% (up to 2028), 10% (2029 – 2033) and 3% (2034 – 2038). Whilst night-time contour areas remain larger than the 2019 Consented baseline with the UFG scenario, the extent to which they are larger is reduced.

3.2.10 In addition, as noise levels will be continually reducing in Phase 1, the difference between UFG and Core Planning Case noise levels will reduce as the UFG and Core Planning Cases converge towards Phase 2a, particularly for

night-time, as can be seen by comparing the solid and dashed black lines in **Figure 3.1** and **Figure 3.2**.

Figure 3.1: Daytime UFG Limits compared to Core Planning Case Limits

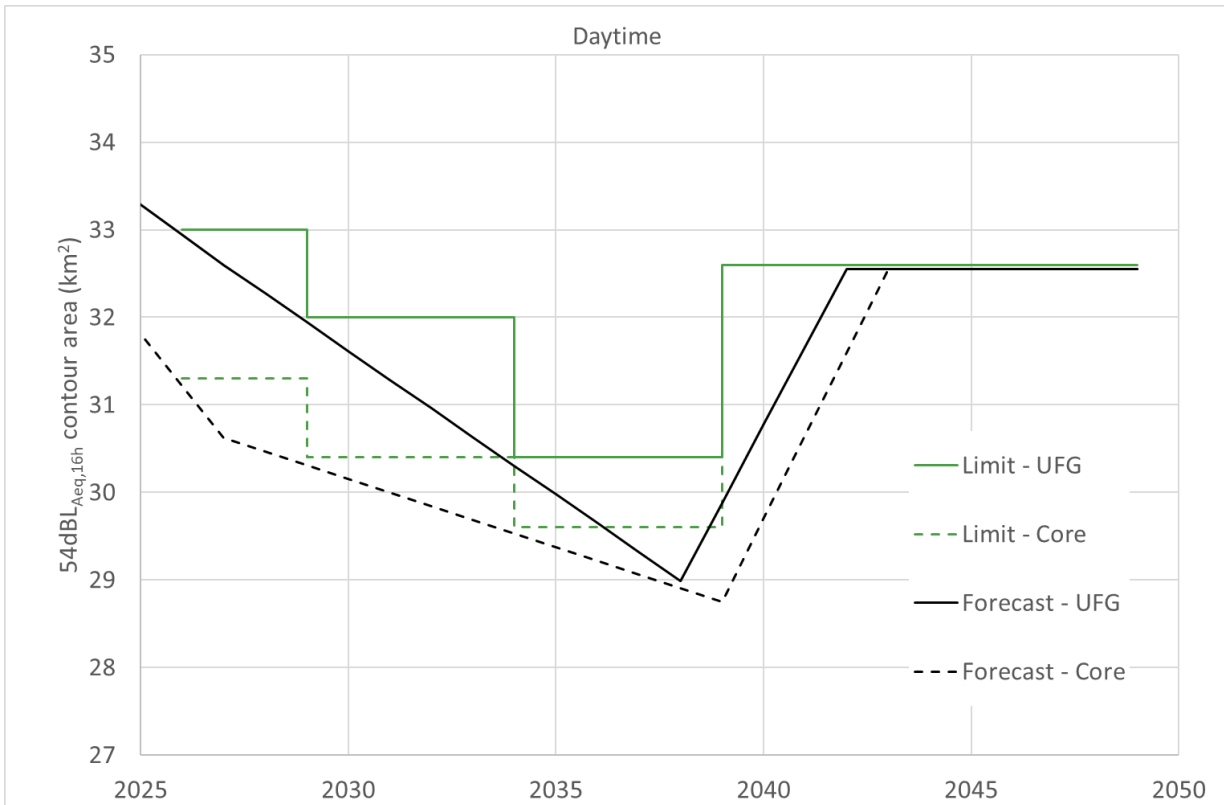
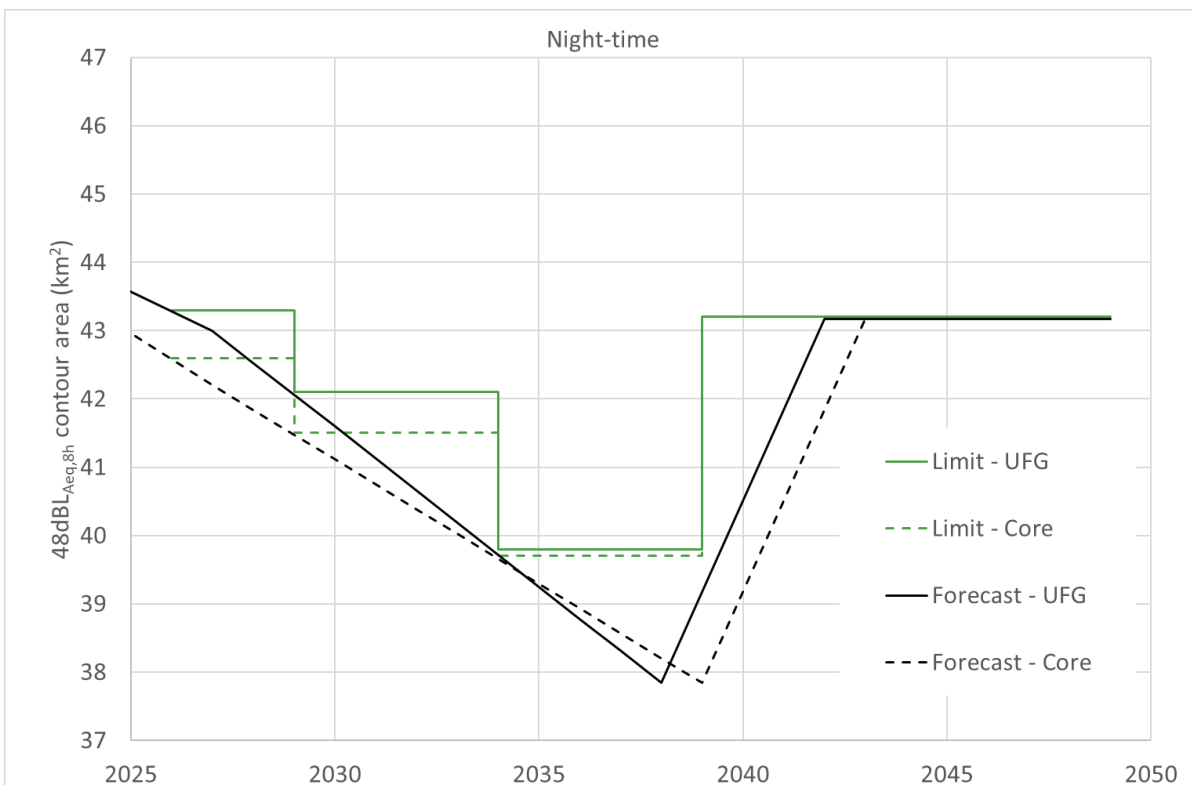


Figure 3.2: Night-time UFG Limits compared to Core Planning Case Limits



3.3 'Securing' Noise Limits and Future Revision

- 3.3.1 The Applicant disagrees with the ExA's proposal to 'secure' the noise contour Limits on the 'face' of the DCO. This provides no further legal security, certainty, nor enforceability than is already achieved by the inclusion of the noise contour Limits in the GCG Framework, but incurs the risk that it has the effect of inhibiting or disincentivising progressive "improvement" in the noise contour controls, which the GCG Framework has been specifically set up to enable – and, in any event, leads to confusion.
- 3.3.2 The reason for this is as follows. If the noise contour Limits are on the 'face' of the DCO, the ExA's proposal for these to be capable of amendment by application to the Secretary of State assumes a function for the Department for Transport which it has hitherto not accepted nor been consulted upon. It is possible the Secretary of State may not accept such a function, requiring the proposal to follow the much lengthier 'formal' DCO amendment process under the Planning Act 2008. Even if such a function was accepted by the Secretary of State, it would not be subject to the detailed and time-bound review processes contained in the GCG Framework, leading to uncertainty. Either of these scenarios complicate and potentially disincentivise the pursuit of positive changes to the noise contour Limits.
- 3.3.3 In circumstances where the Secretary of State did approve a revision to the contours on the 'face' of the DCO, this would be liable to create confusion since it would not provide for the DCO itself – a statutory instrument – to be amended. Leaving aside this issue, having two provisions in the DCO which relate to the control of the same noise Limits is likely to lead to confusion and uncertainty about the ramifications of any breach. The GCG Framework has specifically provided for a process of early warnings, and independent scrutiny and approval in connection with monitoring and managing breaches of the Limit. Having a separate but overlapping Requirement is likely to lead to unnecessary ambiguity about the processes to be followed, and fails to meet the test of precision, certainty and enforceability.
- 3.3.4 For the reasons outlined above, the Applicant considers that the noise contour Limits should be contained in the appropriate management documents 'secured' under the DCO. This is a commonplace approach for matters which are secured under a DCO but which are 'adaptive'. endorsed across the overwhelming number of made DCOs (see, for example, the control of various matters in the Requirements of the Sizewell C Nuclear Power Station Order 2022). The Applicant highlights in particular experience from other major infrastructure projects (see, for example, the Morlais Demonstration Zone which included an adaptive mitigation approach which was secured under the relevant control document (the Environmental Mitigation and Monitoring Plan under Schedule 4 to the The Morlais Demonstration Zone Order 2021). The Applicant further notes that the **Aircraft Noise Monitoring Plan [REP7-026]** contains a number of parameters, and triggers, for reviews which are secured under that plan, but which are not secured under the terms of the proposed Requirement. Those parameters, and the processes, are in the Applicant's view more appropriate to include in a document secured under the DCO, and the Applicant

notes that the document has been the subject of significant engagement and consultation with Interested Parties.

4 APPLICANT POSITION ON ANNUAL MOVEMENT LIMITS

- 4.1.1 The Applicant remains of the view that an overall limit on the annual number of aircraft movements that can use the airport is not required. For the reasons already set out by the CAA, overall aircraft movement limits are not considered effective in controlling noise and may provide a disincentive to airlines reflecting as the movement limit approaches as they cannot gain the benefit from switching to a newer aircraft by increasing their operations. The Applicant remains of the view that the preferred and most effective form of control is a noise contour Limit, which addresses the effects of growth but does not of itself limit beneficial growth from occurring.
- 4.1.2 For the reasons set out in response to the ExA's second round of Written Questions, Question NO.2.5 [REP7-056], the Applicant remains of the view that, if the ExA is still minded to impose an annual movement limit despite clear arguments, including from the CAA, as to why such limits are not an effective noise control, then the limit should be no less than 225,000 annual aircraft movements for the reasons already set out (and without prejudice to the Applicant's view that there is no requirement for such a limit to control noise and other environmental effects).
- 4.1.3 The Applicant notes the position taken by the Host Authorities in their Deadline 8 Responses [REP8-050, REP8-055, REP8-058] that the movement limit should be set at the level of annual aircraft movements used for the purpose of environmental assessment. However, given its position that a movement limit is not required in any event, the Applicant is of the view that any limit must be set having regard to the inherent uncertainty of forecasting precisely the aircraft mix at the point when the airport reaches 32 mppa.
- 4.1.4 As noted in response to NO.2.5, this applies in the first instance to uncertainties in relation to the detail of the route structure and the extent to which long haul services will develop. As such services are forecast, at 32 mppa, to account for around 5% of commercial passenger air transport movements (**Need Case [AS-125]**, paragraph 6.6.20), i.e. 8,850 aircraft movements by larger wide-bodied aircraft. The Applicant is thus unclear how the Host Authorities [REP8-050, REP8-055, REP8-058] have concluded that these could be replaced with an increase of only 1,000 additional aircraft movements, which in any event are not accounted for in the Host Authorities' position that a movement limit should be set at precisely 209,410 annual aircraft movements.
- 4.1.5 Whilst the Applicant notes the Host Authorities' view that there may be scope for more passengers to be handled on each aircraft movement than assumed in the demand forecasts, this suggests that, in such circumstances, the passenger cap would likely have an effect before a movement cap, demonstrating again why a movement cap is not appropriate. However, the Applicant takes the view that an equally possible scenario is that the next generation of aircraft, particularly those powered by alternative fuels, may be smaller with have lower seat capacities than those aircraft they replace, meaning that more aircraft movements would be required to handle the same number of passengers but with beneficial environmental effects. Setting a movement cap at precisely the number of aircraft movements forecast in the assessment cases could have the

perverse effect of preventing further modernisation of the fleet of aircraft, so reducing the scope for improvements in noise and the reduction in carbon emissions. In the alternative, applying a cap on the number of movements in those circumstances could have the effect of preventing the airport from ever reaching 32 mppa so reducing the benefits to be gained from the Proposed Development.

- 4.1.6 Taking all of these factors into account, the Applicant remains of the view that an overall limit on the annual number of aircraft movements that can use the airport is neither required nor appropriate. Without prejudice to this view, any cap on annual aircraft movements should not be set at a figure less than 225,000 annual aircraft movements to ensure that the airport can respond appropriately to demand as it arises and is incentivised to continue to improve its environmental performance within the defined GCG noise Limit that will secure the environmental effects are no worse than assessed in the Environmental Statement regardless of number of aircraft movements.

5 APPLICANT POSITION ON SHOULDER PERIOD MOVEMENT LIMITS

- 5.1.1 The Applicant's position remains that there is no requirement for a limit on movements during the shoulder periods, including the 06:00 – 07:00 period. This is because the effects of noise on health (sleep disturbance) and quality of life are limited and controlled through the limits on the LAeq,8h noise contour area Limits. The imposition of a specific movement limit would reduce airline flexibility to respond to the market without any corresponding impact on noise and health of the local population over and above that expressed as a contour area Limit.
- 5.1.2 As noted in section 2, the NEDG and Host Authorities have not recommended a limit on movements in the 23:00 – 23:30 period. However, the Host Authorities in their Deadline 8 submissions [**REP8-050, REP8-055, REP8-058**] have produced analysis to suggest a limit on annual aircraft movements in the 06:00 – 07:00 hour of 8,829. The Applicant does not consider that such a restriction is consistent with the airport being able to attain 32 mppa for the reasons set out in section 5.2 below.
- 5.1.3 LADACAN suggests that it could accept a limit of 10,000 annual aircraft movements across both night shoulder periods 23:00 – 23:30 and 06:00 – 07:00 [**REP8-075, ID.2 page 16 and REP8-076**] based on a survey of members. This is entirely arbitrary and not based on any analysis of the relevance of such a restriction to mitigating and managing the noise implications of the Proposed Development or in attaining the growth sought by the DCO.
- 5.1.4 STAND [**REP8-083**] and STAQs [**REP8-084**] both suggest that there should be no increase in the number of movements in the 06:00 – 07:00 above the currently permitted 7,000 a year. This position is echoed in a number of other individual submissions.

5.2 The Host Authorities' proposed shoulder period limit

- 5.2.1 As noted above, the Host Authorities, in their Deadline 8 submissions, have put forward an alternative limit for the morning shoulder period (06:00 - 07:00) of 8,829. This compares to that put forward by the Applicant of a minimum of 13,000 annual movements [REP7-056], response to ExAs WQ2 NO.2.6], without prejudice to the position that no limit on movements in this period is required to control noise effects.
- 5.2.2 Whilst it is accepted that the figure of 13,000 included a small allowance for some necessary headroom for flexibility in airline scheduling, the figure put forward by the Host Authorities is not accepted as being robust and the imposition of a limit at this level would fundamentally constrain growth of the airport to substantially below 32 mppa, resulting in much of the benefit of the Proposed Development not being realised.
- 5.2.3 In this section, the Applicant identifies miscalculations in the figures for a morning shoulder period movement cap which have been relied upon by the Host Authorities and also sets out further information on the shoulder period movements required to ensure that 32 mppa can be attained at London Luton Airport.
- 5.2.4 The approach adopted on behalf of the Host Authorities appear to have been to use Airport Coordination Limited (ACL) seasonal capacity reports to calculate a percentage of slots allocated at London Stansted Airport for the morning shoulder period compared to the rest of the day on the basis that this would represent a precedent for London Luton Airport as it grows to 32 mppa. It appears that the information used for Stansted relates to the busiest week of the year in 2024² as reported by ACL in the summer season scheduling report (Ref 5). For Stansted, calculating the proportion of movements required on this basis understates the proportion required over the year as a whole as it does not take into account that operations by based aircraft, which depart in the first hour of the morning in order to optimise aircraft utilisation, are more consistent over the year as a whole at that airport whereas, in winter, there are fewer aircraft movements over the remainder of the day. So whilst 5% of slots at Stansted in summer 2024 have been allocated in the 06:00 - 7:00 hour, the equivalent total on a busy winter day 2023/4 was 6.4% (Ref 6). Over the year as a whole, the average ratio for the 06:00-07:00 hour at Stansted is 5.6% when considering the 7 month summer season and 5 month winter season pro-rata.
- 5.2.5 London Luton Airport exhibits higher dependence on departures in the early morning period in summer than Stansted, in part due to its different airline mix. Whereas over 80% of aircraft movements at Stansted are operated by Ryanair, with its diverse portfolio of bases across Europe leading to a more even balance of inbound and outbound flying, London Luton Airport has two airlines providing the same proportion of flying with a more even balance between Wizz Air and easyJet, and Ryanair itself also has based operations at the airport. Although these airlines also operate into the airport from bases elsewhere, flying is more dominated by based aircraft. The equivalent figures for London Luton Airport for

² The last week in August

the same period are 6.4% of movements in the 06:00 - 07:00 hour in summer 2024 (Ref 7) but for winter 2023/4, the dependence on early morning departures was lower at 5.3% (Ref 8). Weighting across the seasons at Luton gives an average proportion of movements in the early morning period at 5.95%. It cannot be assumed that the pattern in future will necessarily mirror that at Stansted currently, given its current specific airline mix.

5.2.6 Furthermore, whilst the analysis of use of slots at Stansted and London Luton Airport includes scheduled cargo aircraft movements, for which slots have to be allocated in advance, it does not allow for business aviation activity, which is already displaced from the night period by the stricter controls in force at London Luton Airport. This is an important element of the demand for London Luton Airport, which is the second busiest airport serving London for such activity after Farnborough. It is important to highlight that support for business aviation activity is a key element of Government aviation policy as set out in Flightpath to the Future:

“Business aviation has an important role to play in supporting our recovery and global connectivity ambitions. It helps forge strategic links with established and developing markets, delivers vital connectivity to enable trade and investment, and enhances the UK’s global influence and competitiveness. As business aviation recovers following the pandemic, we are committed to continuing to work closely with this important sector to understand how and where the Government can support business aviation to thrive and seize future opportunities.” (Ref 9)

5.2.7 Hence, allowance needs to be included for these movements which are likely to have a higher dependence on being able to depart or arrive in the 06:00 - 07:00 hour as night movement limitations will largely preclude such movements before 06:00 and early morning departures and arrivals are important to meet business travel needs so as to maximise the working day attained from any trip.

5.2.8 A more thorough analysis of a whole year requirement shows a much closer correlation between the annual average proportion of morning shoulder movements between Stansted and London Luton Airport when considering the Applicant’s without prejudice suggestion of an annual movement limit of 225,000 and a morning shoulder movement limit of 13,000, with that proportion being 5.8% compared to 5.6% at Stansted.

5.2.9 Overall, as can be seen in Figure 7.22 of the **Need Case [AS-125]**, the daily profile of aircraft movement activity at London Luton Airport is expected to continue to be dominated by aircraft based at the airport. Although there is expected to be some growth in off-peak periods, the overall dependence on departures in this first hour of the morning is not expected to diminish. The airlines have a clear preference for operations by based aircraft departing in the early morning period so as to maximise their utilisation during the day and with minimum encroachment into the night control period. The Need Case shows growth from 21 to 42 aircraft movements in the 06:00 - 07:00 on a busy day as required to facilitate growth to 32 mppa.

5.2.10 The Host Authorities’ proposed limit would allow an extra 1,829 annual movements in the shoulder period (compared to the current limit of 7,000 at 19 mppa) which equates to an average of 5 extra movements in the 06:00 - 07:00

period each day of the year. Hence, the application of this limit could result in growth above 19 mppa being limited to roughly 25%, i.e. 3.5 mppa or roughly the capacity provided by assessment Phase 1.

- 5.2.11 In the alternative, if airlines were willing to accept a reduction in effective aircraft utilisation implied by having to depart later, this could result in the loss of daily aircraft rotations again reducing the ability of the airport to attain 32 mppa. Although it is difficult to assess the impact of this, it is likely that the airport would, at best, be limited to c.30 mppa due to the lost aircraft rotations alone. More likely, however, the impact on the utilisation of aircraft would result in airlines being less likely to base aircraft at the airport once the 06:00 – 07:00 period is full so limiting the effective capacity further.
- 5.2.12 Hence, the effect of the Host Authorities' suggestion would be to limit the throughput of the airport to somewhere in the range 22.5-30 mppa but it is not possible to be precise, although the Applicant considers it more likely to be at the lower end of the range.

5.3 Estimating the number of movements required 06:00 – 07:00

- 5.3.1 The appropriate calculation for estimating the number of aircraft movements that need to take place in the 06:00-07:00 hour is to apply the derived ratio to total annual aircraft movements, including cargo and business aviation movements. At 5.95%, this would be 12,460 annual aircraft movements in the morning shoulder period. This is the number assessed in the EIA, including pro-rata in the 92 day period for the purpose of the noise assessment. The figure of 13,000 was stated in response to Written Questions as a precautionary figure given the difficulty of being precise about the nature of future demands by airlines and aircraft operators and in the knowledge that noise would ultimately be controlled by the noise contour Limits. It should be stressed that this movement limit applies strictly to the 06:00 – 07:00 period and does not include the evening shoulder period.
- 5.3.2 Without prejudice the Applicant's view that a cap on movements in the 06:00 – 07:00 hour is not required given that noise is controlled overall through the 8 hour night-time contour area, the Applicant accepts that a figure lower than 13,000 would be sufficient to accommodate growth to 32 mppa but that any cap should be no less than 12,460 annual aircraft movements in this period.

5.4 Implications of a lower movement limit

- 5.4.1 If the lower number suggested by the Host Authorities was adopted this would prevent the airport from attaining 32 mppa. Although, in theory, there could be further growth from inbound non-based aircraft, the scope for material spreading of the peak is expected to be limited. In any event, if a changed profile of demand was assumed this would have implications for other aspects of the environmental assessment over and above the element of peak spreading already assessed in the Faster Growth Case, including:
- a. more passengers at different times of day on the surface access network, potentially impacting adversely on traditional surface access peaks; and

- b. lower levels of new employment generated as a substantial part of the beneficial employment impact of the Proposed Development derives from aircrew jobs associated with based aircraft (see Oxford Economics Report at **Appendix 11.1 of the ES [APP-079]**, Figure 5).

5.4.2 The limit of 10,000 annual aircraft movements across both shoulder periods proposed by LADACAN and the proposition of no increase above the current 7,000 limit in the 06:00 – 07:00 period by STAND and STAQS would have even greater impact in limiting growth below 32 mppa.

Ultimately, the constraints on growth arising from the limit on movements in the early morning shoulder period being imposed at too low a level would result in a substantial element of the benefit of airport growth being foregone, so limiting the extent to which London Luton Airport can contribute to levelling up in Luton and in delivering other wider economic benefits. It would also cut across the government policy of the airport being able to make best use of its runway, particularly given such a limit is not required to ensure that noise Limits are met.. If the ExA is minded to recommend approval of growth to 32 mppa then it must not impose caps on aircraft movements which would artificially constrain that growth, especially as it has been demonstrated that such movement caps are not effective as a noise control.

GLOSSARY AND ABBREVIATIONS

Term	Definition
CAA	Civil Aviation Authority
DCO	Development Consent Order
ES	Environmental Statement
ESFG	Environmental Statement Faster Growth
ExA	Examining Authority
GCG	Green Controlled Growth
LOAEL	Lowest Observed Adverse Effect Level
NEDG	Noise Envelope Design Group
QC	Quota Count
SOAEL	Significant Observed Adverse Effect Level
SoCG	Statement of Common Ground
STAND	St Alban's Aircraft Noise Defence
STAQS	St Alban's Quieter Skies
UAEL	Unacceptable Observed Adverse Effect Level
UFG	Updated Faster Growth
WQ	Written Question

REFERENCES

- Ref 1 Civil Aviation Authority (2021), CAP1506 Survey of Noise Attitudes 2014: Aircraft Noise and Annoyance, Second Edition
- Ref 2 Civil Aviation Authority (2021), CAP2161 Survey of Noise Attitudes 2014: Aircraft Noise and Sleep Disturbance
- Ref 3 Civil Aviation Authority (2021), CAP2250 Survey of Noise Attitudes 2014: Aircraft Noise and Annoyance, Further Analysis
- Ref 4 Civil Aviation Authority (2019), CAP1731 Aviation Strategy – Noise Forecast and Analyses
- Ref 5 Airport Coordination Ltd, London Stansted Airport, Summer 2024 Initial Coordination Report
<https://app.powerbi.com/view?r=eyJrIjoieYjA5YTUwOTAtNTE0Zi00NDExLThmZDktYWUxMWQ3N2JjZjU4IiwidCI6ImJhNzNmYjViLWw1ZWUtNGNiNy04NzFjLWU4YjI0NWQwYjY3YiJ9&pageName=ReportSection>
- Ref 6 Airport Coordination Ltd, London Stansted Airport, Winter 2023 Initial Coordination Report
<https://app.powerbi.com/view?r=eyJrIjoieZDFINjhjMzItMTQ0NC00NWQyLWJkZDQtNmIzZWVhNmMzMmNkliwidCI6ImJhNzNmYjViLWw1ZWUtNGNiNy04NzFjLWU4YjI0NWQwYjY3YiJ9>
- Ref 7 Airport Coordination Ltd, London Luton Airport, Summer 2024 Initial Coordination Report
<https://app.powerbi.com/view?r=eyJrIjoieMmE0YTU2Y2QtNDJkYS00YTFiLWFjYjQtMTQ2YzZwMTkzMzY5IiwidCI6ImJhNzNmYjViLWw1ZWUtNGNiNy04NzFjLWU4YjI0NWQwYjY3YiJ9>
- Ref 8 Airport Coordination Ltd, London Luton Airport, Winter 2023 Initial Coordination Report
<https://app.powerbi.com/view?r=eyJrIjoieZDRlOTZhN2MtNzg3My00YjdmLWI0M2EtZWw1ZTVmZmYzMTk3IiwidCI6ImJhNzNmYjViLWw1ZWUtNGNiNy04NzFjLWU4YjI0NWQwYjY3YiJ9>
- Ref 9 Department for Transport Flightpath to the Future, May 2022, page 21.

APPENDIX A – ENVIRONMENTAL ASSESSMENT OF UPDATED FASTER GROWTH FORECAST

A1 Noise assessment of Updated Faster Growth forecast

A.1.1.1 This section provides an assessment of the noise effects of the 2027 UFG scenario following the approach and methodology outlined in **Chapter 16 of the ES [TR020001/APP/5.01]**.

A.1.1.2 Analysis of area coverage by assessment Phase 1 Do-Something (DS) UFG air noise contours are presented in **Table 1.1** for daytime $L_{Aeq,16h}$ and **Table 1.2** for night-time $L_{Aeq,8h}$.

Table 1.1: Assessment Phase 1 2027 UFG Daytime Air Noise Analysis – Area (ESFG equivalent numbers provided in brackets)

$L_{Aeq,16h}$dB Noise Contour	2027 UFG Daytime Cumulative Contour Area (km²)
51 (LOAEL)	55.5 (57.0)
54	32.6 (33.6)
57	17.6 (18.3)
60	8.6 (9.0)
63 (SOAEL)	4.5 (4.7)
66	2.1 (2.2)
69 (UAEL)	1.2 (1.2)

Table 1.2: Assessment Phase 1 2027 UFG Night-time Air Noise Analysis – Area (ESFG equivalent numbers provided in brackets)

$L_{Aeq,8h}$dB Noise Contour	2027 UFG Night-time Cumulative Contour Area (km²)
45 (LOAEL)	72.1 (73.3)
48	43.0 (43.8)
51	24.7 (25.3)
54	12.8 (13.2)
55 (SOAEL)	10.0 (10.3)
57	6.4 (6.6)
60	3.2 (3.3)
63 (UAEL)	1.6 (1.6)

A.1.1.3 A summary of population within the LOAEL, SOAEL and Unacceptable Adverse Effect Level (UAEL) contours is provided in **Table 1.3** for the 2019 Actuals baseline, the Do-Minimum (DM) and the DS UFG scenarios. **Table 1.4** presents the same information using the 2019 Consented baseline. In both tables the equivalent numbers from the ESFG scenario presented in Section 12.4 of **Appendix 16.1 [TR020001/APP/5.02]** are provided in brackets for comparison.

Table 1.3 Assessment Phase 1 2027 UFG Summary of population within the Air Noise LOAEL, SOAEL and UAEL contours compared to 2019 Actuals baseline (ESFG equivalent numbers provided in brackets).

Noise exposure	Total Population (rounded to nearest 50)				
	2019 Actual Baseline	2027 DM	2027 DS	Change DS – 2019 Actuals Baseline	Change DS - DM
Daytime					
Above LOAEL and below SOAEL	39,350	25,000	35,100 (37,450)	-4,250 (-1,900)	10,100 (12,450)
Above SOAEL and below UAEL	1,650	50	750 (1,000)	-900 (-650)	700 (950)
Newly above the SOAEL in DS compared to the 2019 Actuals Baseline			0 (0)		
Above UAEL	0	0	0 (0)	0 (0)	0 (0)
Night-time					
Above LOAEL and below SOAEL	62,850	38,350	53,400 (55,250)	-9,450 (-7,600)	15,050 (16,900)
Above SOAEL and below UAEL	4,950	2,100	4,000 (4,250)	-950 (-700)	1,900 (2,150)
Newly above the SOAEL in DS compared to the 2019 Actuals Baseline			0 (0)		
Above UAEL	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)

Table 1.4 Assessment Phase 1 2027 UFG Summary of population within the Air Noise LOAEL, SOAEL and UAEL contours compared to 2019 Consented baseline (ESFG equivalent numbers provided in brackets).

Noise exposure	Total Population (rounded to nearest 50)				
	2019 Consented Baseline	2027 DM	2027 DS	Change DS – 2019 Consented Baseline	Change DS - DM
Daytime					
Above LOAEL and below SOAEL	35,250	25,000	35,100 (37,450)	-150 (2,200)	10,100 (12,450)
Above SOAEL and below UAEL	1,250	50	750 (1,000)	-500 (-250)	700 (950)
Newly above the SOAEL in DS compared to the 2019 Consented Baseline			0 (0)		
Above UAEL	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
Night-time					
Above LOAEL and below SOAEL	52,050	38,350	53,400 (55,250)	1,350 (3,200)	15,050 (16,900)
Above SOAEL and below UAEL	3,100	2,100	4,000 (4,250)	900 (1,150)	1,900 (2,150)
Newly above the SOAEL in DS compared to the 2019 Consented Baseline			900 (1,150)		
Above UAEL	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)

A.1.1.4 **Table 1.3** demonstrates that there is a reduction in the total population exposed between the LOAEL and SOAEL and between the SOAEL and UAEL in DS 2027 compared to the 2019 Actuals Baseline. This reduction in total population exposed is due to a reduction in contour areas as a result of new-generation aircraft entering the fleet, and the reduction is greater than that using the ESFG scenario due to the increased proportion of quieter new-generation aircraft.

A.1.1.5 **Table 1.4** demonstrates that there is an increase in population exposed between the LOAEL and SOAEL in the daytime ESFG scenario compared to the 2019 Consented Baseline; however, this changes to a reduction in

population in the UFG scenario. For both the ESFG and UFG daytime scenarios, there is a decrease in population exposed between the SOAEL and UAEL when compared to the 2019 Consented Baseline. There are no receptors in the study area exposed to noise levels above the daytime UAEL in any assessment scenario.

- A.1.1.6 For both the ESFG and UFG night-time scenarios, there is an increase in population exposed between the LOAEL and SOAEL and between the SOAEL and UAEL when compared to the 2019 Consented Baseline. There are no receptors in the study area exposed to noise levels above the night-time UAEL in any assessment scenario.
- A.1.1.7 Communities that would otherwise experience significant effects on health and quality of life due exposure above the SOAEL will be eligible for a full package of noise insulation (see **Compensation Policies, Measures and Community First [TR020001/APP/7.10]**) which will avoid those significant effects.
- A.1.1.8 Adverse likely significant effects in EIA terms are determined by noise change from DM to DS and the resulting DS noise exposure. **Table 1.5** provides a summary of the population experiencing changes in noise using the criteria outlined in **Table 16.14 of Chapter 16 of the ES [TR020001/APP/5.01]**.

Table 1.5 Assessment Phase 1 2027 UFG Summary of DS-DM air noise change (ESFG equivalent numbers provided in brackets).

Magnitude of effect	Noise increase (DS-DM)	Population experiencing change (rounded to nearest 50)	
		Day	Night
DS noise above LOAEL and below SOAEL			
Negligible	0.1 - 0.9dB	350 (0)	9,550 (0)
	1.0 - 1.9dB	34,750 (34,350)	43,850 (55,250)
Minor	2.0 - 2.9dB	0 (4,100)	0 (0)
Moderate	3.0 - 5.9dB	0 (0)	0 (0)
Major	6.0dB or more	0 (0)	0 (0)
DS noise above SOAEL and below UAEL			
Negligible	0.1 - 0.9dB	0 (0)	0 (0)
Minor	1.0 - 1.9dB	750 (950)	4,000 (4,250)
Moderate	2.0 - 2.9dB	0 (50)	0 (0)
	3.0 - 3.9dB	0 (0)	0 (0)
Major	4.0dB or more	0 (0)	0 (0)
DS noise above UAEL			
Unacceptable	0.1 dB or more	0 (0)	0 (0)

- A.1.1.9 No receptors within the study area experience a decrease in air noise between the DM and the DS scenarios. The increase in air noise from the DM to the DS scenarios during the daytime period is due to an increase in commercial flights (freight and general aviation movements are unchanged).
- A.1.1.10 During the daytime, the population of 35,100 exposed to noise between the LOAEL and SOAEL experience noise increases of less than 3dB corresponding to a **negligible to minor** adverse effect which is **not significant**.
- A.1.1.11 During the daytime, the population of 750 exposed to noise between the SOAEL and UAEL experience noise increases of less than 2dB corresponding to a **minor to moderate** adverse effect which is **significant**. This population

would be eligible for a full package of noise insulation which would avoid the adverse likely significant effects.

- A.1.1.12 During the night-time, the population of 53,400 exposed to noise between the LOAEL and SOAEL experience noise increases of less than 3dB corresponding to a **negligible** adverse effect which is **not significant**.
- A.1.1.13 During the night-time, the population of 4,000 exposed to noise between the SOAEL and UAEL experience noise increases of less than 2dB corresponding to a **minor** adverse effect which is **significant**. This population would be eligible for a full package of noise insulation which would avoid the adverse likely significant effects.