# Final stage De Minimis Assessment

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| Title: | Airspace Modernisation, Air Navigation Directions and Guidance |
| Type of measure: | Statutory directions and guidance |
| Department or agency: | Department for Transport |
| BRU sign-off number: | DfTDMA397d |
| RPC reference number: | N/A |
| Contact for enquiries: | airspacemodernisation@dft.gov.uk |
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# 1. Summary of proposal

1. The Transport Act 2000 enables the Secretary of State for Transport to provide the Civil Aviation Authority (CAA) the function of approving changes to the design of UK airspace. The details of the CAA's responsibilities are set out in the Air Navigation Directions (AND).

2. The CAA is required to take account of any guidance on environmental objectives in line with the objectives and responsibilities as set out within the Air Navigation Directions. This guidance is set out in the Air Navigation Guidance (ANG), which was last updated in 2017.

3. The Air Navigation Directions and Guidance inform the CAA's detailed Airspace Change Process (CAP1616) which is used by industry to submit and apply for changes to UK airspace. It also sets out the CAA's decision-making process.

4. The modernising of UK airspace structures is a key component of the Airspace Modernisation Strategy. Airspace modernisation is a key programme to support radical change within the aviation sector, for example through the introduction of new and innovative new aircraft such as drones. It also supports the wider economic growth agenda because some airport expansion schemes, such as the proposed third runway at Heathrow, would require an airspace change to operate,

5. The proposal comprises two complementary components:

   A. A strategic policy change that clarifies the guidance on what airspace design should seek to achieve. Safety will always be the top priority, but this element will establish how airspace design should balance capacity, noise and carbon dioxide emissions.
   B. A package of enabling reforms to improve the clarity, proportionality and efficiency of the airspace change process.

# 2. Strategic case for proposed regulation

**Background**

6. The UK's airspace is one of the most complex in the world, and its basic design has not changed significantly in 70 years following the introduction of commercial air transport. In the 1950s there were around 200,000 air traffic movements per year in UK airspace, compared to over 2.5 million flights in 2024. Each day around 6,000 aircraft fly in UK airspace, carrying 600,000 passengers.

7. Historically, aircraft would primarily navigate UK airspace using ground-based navigational aids [1](NAVAIDs). Significant advances in navigational technologies such as satellite-based navigation systems have enabled aircraft to fly more accurately and predictably.

[1] NAVAID – Radio-based infrastructure which provides aircraft with inflight navigational guidance.

8. The Government’s airspace modernisation programme is a key national infrastructure project that aims to increase the efficiency and resilience of UK airspace, enable new users to safely share the skies, whilst reducing the environmental impact of aviation. It will modernise UK airspace by updating its structural design, improve the systems which we use to manage it, and use new technology to improve how air traffic safely shares the skies.

9. The Department for Transport (DfT) and the CAA are working together as co-sponsors for the modernisation of UK airspace. These efforts are underpinned by the Airspace Modernisation Strategy (AMS) which sets out the ends, ways and means of modernising airspace through a series of 'delivery elements'. Originally published in 2018, it was refreshed in 2023.

10. The CAA is the UK’s independent aviation regulator and is responsible for air navigation functions, including overseeing and regulating how airspace is changed. The Transport Act 2000 underpins the regulatory framework for airspace change and provides the Secretary of State for Transport the powers to issue directions to the CAA to carry out these functions. The details of which are contained in the Air Navigation Directions.

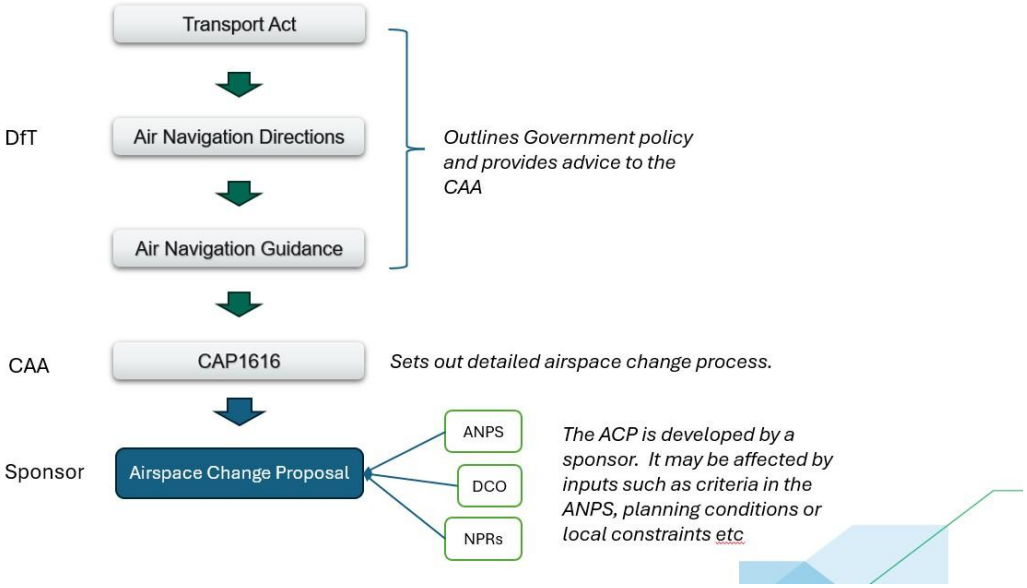
11. The Air Navigation Guidance requires the CAA to take account of any guidance on environmental objectives given to it by the Secretary of State when it is deciding whether to approve an airspace change. It also includes guidance for the aviation industry to consider when submitting applications for airspace change.

12. The Air Navigation Directions and Air Navigation Guidance inform the CAA’s detailed Airspace Change Process (CAP1616) which is used by industry to submit and apply for changes to UK airspace. It also sets out the CAA’s decision-making process. CAP1616 sets out the detailed process which must be followed by applicants, including on undertaking environmental assessments and consultation and engagement with stakeholders.

13. The primary users of the AND and ANG are organisations involved in developing, regulating and implementing airspace changes. This includes airports acting as airspace change sponsors, the CAA, NATS and other air navigation service providers, as well as local authorities, airlines and community stakeholders who rely on the framework to understand how airspace change decisions are made.

14. Figure 1 below sets out the regulatory framework for undertaking Air Navigation Functions in the UK.

# Government Policy - Air Navigation Functions




15. The aviation environment is changing, driven by economic opportunities of airport expansion and developments in technologies which are shaping how aircraft perform and operate (e.g. drones). These require a regulatory framework for airspace which recognises these unique operations, and complexities of the aviation sector, whilst ensuring that the continued growth and success are undertaken in a sustainable manner.

## Problem Under Consideration

16. Airspace modernisation is a complex and dynamic programme. It requires the Government and regulation to be at the forefront of technological advances and opportunities for growth, whilst maintaining a high level of safety and meeting obligations on sustainability. The Airspace Modernisation Strategy covers 9 different elements and ranges from the redesign of airspace structures around major airports to satellite-based navigation to the data infrastructure required. The diversity of the activity, and the longevity of the activity requires Government to be dynamic in how policy is developed and applied.

17. The problem under consideration can best be summarised under two related but distinct headings:

    A. Inefficiencies and ambiguity in the current airspace change process and guidance framework; and
    B. A lack of clarity in Government policy on how competing objectives (e.g. safety, capacity, noise and carbon) should be prioritised within airspace design.

### Inefficiencies and ambiguity in the regulatory framework

18. Airspace change is by its nature highly complex, and a significant number of airspace change proposals (ACPs) fail on their first attempt to be approved the regulator. Whilst there are many fundamental issues which contribute to this challenge, the current regulatory framework does not provide the CAA or industry with sufficiently clear and

applicable directions and guidance to support an effective regulatory process, resulting in over-regulation, increased administrative burdens, and reduced confidence in the airspace modernisation programme.

19. The existing Air Navigation Directions and Guidance are convoluted, burdensome and irrelevant in places for the CAA and industry to digest and apply. The detail has expanded over previous iterations and contain a vast variety of information which exceeds the original intentions and purpose of the documents.

20. As such, the Directions and Guidance are difficult to interpret and do not provide users (see paragraph 13)confidence that they are correctly following Government guidance. This exposes them to the risk of legal challenge from opposing stakeholders who argue that the process has not been correctly followed to have decisions overturned. This is particularly the case where Government guidance provides recommendations or suggestions but stops short of mandating action.

21. The current Guidance is often interpreted as being more prescriptive than intended. As a result, sponsors and the CAA may undertake work that is not proportionate to the circumstances of a particular airspace change to
22. minimise the risk of challenge. While such challenges may be unlikely to succeed, the time, cost and uncertainty involved in responding to them can encourage a precautionary approach and increase administrative burdens.

23. This directly results in additional time, effort and cost leading to delays in implementing airspace change, or in extreme circumstances airspace changes not happening. Indications provided by the CAA estimate that the cost of failing the CAA's CAP1616 process can cost hundreds of thousands of pounds and create significant delays (over 12 months) to implement a change.

24. Current feedback from the CAA and industry is that without changes to the current Directions and Guidance, it is highly unlikely that key ambitions of the airspace modernisation programme such as the modernisation of London Airspace can be delivered effectively and within the required timescales. The Directions and Guidance lack the robustness and flexibility to enable the CAA and airport sponsors to develop, design and implement airspace change which meets local operational needs to support the increasing growth and demand of air travel.

**Lack of clarity in strategic policy priorities**

25. In addition to challenges associated with the process and application of the Directions and Guidance, there is currently a lack of clarity within the Directions and Guidance in how competing objectives within airspace design should be prioritised. Airspace modernisation inherently requires trade-offs between factors such as safety, capacity, noise impacts and carbon dioxide emissions.

26. The current framework does not provide sufficiently clear direction on how these trade-offs should be managed, leading to inconsistent application in practice and uncertainty

for both the CAA and industry. This limits the ability of airspace design to support wider Government objectives relating to decarbonisation, growth and network efficiency.

27. This lack of clarity also limits the UK's ability to reduce the environmental impact of air travel on a per flight basis, as aircraft may continue to fly inefficient routes, leading to increased fuel burn and carbon emissions. Updating airspace design priorities can reduce these impacts with immediate effect.

## Evidence to Support the Problem Statement

28. UK Airspace Design Service (UKADS) Consultation
    The UKADS consultation was launched 22 October 2024 and sought feedback from industry on government plans to implement an airspace design service to coordinate and deliver airspace change, originally within the London region. Feedback obtained during the consultation identified the need for changes to the CAA's existing airspace change process (CAP1616), and therefore by de-facto changes to the Air Navigation Directions and Guidance which underpin this regulatory process. This was a reoccurring theme raised by airlines, airports and NATS[2] throughout the consultation process.

29. Process Cost
    The cost of applying the requirements set out in the current Directions and Guidance has been labelled by the CAA and industry as excessive and disproportionate. Ambiguity and burdensome / duplicative requirements are leading to increased costs on the CAA and industry to ensure compliance with Government policy. Sponsors are also undertaking potentially excessive action to mitigate the risk of legal challenge of not following the current unclear process. CAA have stated that a recent initial environmental assessment for an ACP cost more than £500,000. Additionally, of the 35 ACPs reviewed to date, they have not showed a significant impact on the environmental factors to meet the threshold for a full assessment to be performed. This has added significant time and resourcing cost to the CAA.

30. Inefficient use of existing airspace
    Utilisation of current airspace is inefficient leading to increased carbon emissions as aircraft are flying longer routes than necessary. This is due to old airspace designs which conform to historical and current Air Navigation Directions and Guidance. Analysis contained within the Initial UKADS De Minimis Assessment[3] (DMA) estimates that the inefficient use of airspace is responsible for nearly 1.4 million tonnes of "excess" CO2 emissions across the four airspace modernisation regions (Scotland, West, Manchester and London), ranging from 33,740 tonnes of excess emissions in the Scottish region to nearly 1.2 million tonnes in the London region.

31. CAA Annual Report
    The CAA are required to provide the Secretary of State an annual report of progress on airspace modernisation. The 2024 report identified delays and challenges to airspace changes put forward by airport sponsors. It cited:

[2] Formerly 'National Air Traffic Services'
[3] https://www.legislation.gov.uk/uksi/2025/629/pdfs/uksiod_20250629_en_001.pdf

"Some airports have not progressed their airspace change proposals (ACPs) due to applications not meeting the required regulatory standard. This has created delays on neighbouring airports and the wider Future Airspace Strategy Implementation (FASI) programme. There have also been funding challenges especially amongst smaller airports, which has resulted in some airports withdrawing from the programme. The RAG rating for this element has remained at red as a result."

32. Industry Engagement

Formal engagement with stakeholders, including NATS, airports and airlines has provided DfT feedback on the airspace change process and requests for improvement such as simplification, removal of duplication, and more proportionate guidance on the consultation process. Of note this feedback has been received from those airports who have struggled to progress their airspace change. DfT hold formal engagement with industry and attend industry forums on a quarterly basis.

33. 2025 Air Navigation Directions and Air Navigation Guidance Consultation

The AND / ANG consultation[4] ran between November 2025 and January 2026 to obtain public views on the current regulatory framework for airspace change and a series of proposed changes. Over 260 responses were received of which the majority of indicated that the AND / ANG required updating to address issues with bureaucracy, ambiguity and outdated policy. This was a recurring theme raised by airlines, airports and NATS throughout the consultation process. Providing clarity on the Government's policy towards prioritising noise, greenhouse gases and flight efficiency in the airspace design process was a key priority for most respondents.

## Regulatory Failures

34. The regulatory failures explained below provides the rationale for intervention:

**Regulatory Failure 1 – Bureaucracy and Red Tape / Efficiency.**

The current Air Navigation Directions and Guidance create a regulatory framework which is overly complex, prescriptive and, in places, ambiguous. This has resulted in a process that is not proportionate to the scale or nature of different airspace change proposals.

In practice, the CAA and industry face strong incentives to apply the guidance in a risk-averse manner, undertaking extensive analysis and process steps to demonstrate compliance and reduce the likelihood of legal challenge. This behaviour is rational given the level of ambiguity in the framework but results in duplication of effort and excessive administrative activity.

This gives rise to a form of regulatory failure, where the design of the regulatory framework leads to outcomes that are sub-optimal relative to the policy objectives.

[4] https://www.gov.uk/government/consultations/changes-to-the-air-navigation-directions-and-air-navigation-guidance

Specifically, the current framework results in:

- unnecessary administrative and compliance costs;
- delays to the development and approval of airspace change proposals;
- reduced flexibility to tailor the process to the characteristics of individual proposals; and
- reduced confidence in the efficiency and effectiveness of the airspace change process.

As a result, the existing framework constrains the timely delivery of airspace modernisation and limits the realisation of associated economic and environmental benefits.

**Regulatory Failure 2 – Strategic policy ambiguity and unclear prioritisation**

In addition to process inefficiencies, the current Directions and Guidance do not provide clear or consistent direction on how competing objectives within airspace design should be prioritised. Airspace modernisation requires trade-offs between safety, capacity, noise impacts and carbon emissions, but the existing framework relies on language that is, in places, suggestive rather than directive.

This creates a form of information and coordination failure, whereby the absence of clear policy signals results in inconsistent interpretation and application by the CAA and industry. In particular:

- stakeholders lack clarity on the relative weight that should be applied to different objectives;
- decisions may appear inconsistent across comparable airspace change proposals;
- there is increased risk of challenge due to perceived lack of transparency in how trade-offs are made; and
- opportunities to optimise airspace design, including reducing emissions and improving efficiency, may not be fully realised.

This lack of clarity leads to suboptimal outcomes, as decision-making does not consistently reflect a well-defined set of Government priorities.

## Why Government Intervention is Necessary

35. Changes to the Air Navigation Directions and Guidance are required to ensure that the powers and expectations being provided to the CAA and industry are clear, concise, accurate and proportionate whilst reflecting the Government's policy aims and priorities. This includes both providing clearer strategic direction on how airspace design should prioritise safety, capacity, noise and carbon, and improving the clarity and proportionality of the supporting framework. These changes will enable the CAA to implement airspace changes which are aligned with the broader objectives of the AMS.

36. Intervening in this manner can improve the efficiency of the airspace change process, enabling more timely decision making to help realise the benefits of airspace modernisation sooner. This will be achieved through removing ambiguity within current guidance and providing clearer expectations on the CAA. It will remove burdensome processes and duplication of effort, thus reducing operating costs and encouraging greater investment by the aviation sector.

37. The Air Navigation Directions and Air Navigation Guidance form part of the overarching regulatory framework for airspace change set by Government. These statutory documents are issued by Government, under powers of the Transport Act 2000. It is therefore the only means of updating the Directions and Guidance provided to the CAA for the purpose of regulating airspace change.

# 3. SMART objectives for intervention

**Policy Objectives, Intended Outcomes and Indicators of Success**

38. The overarching policy aim can be broken down into three key objectives which correspond to the two components of the proposed intervention.

**Objective 1 – Provide clear strategic direction on the prioritisation of airspace design objectives (Component A – Strategic Policy Change)**

**Objective statement**
Government will provide clear policy direction on how competing objectives including safety, capacity, noise and carbon emissions - are prioritised in airspace design, enabling consistent and transparent decision-making.

Specific / Measurable

- Evidence that ACP submissions and CAA decision documents explicitly reflect the revised prioritisation framework.
- Increased consistency in decision-making across comparable ACPs.
- Improvements in airspace efficiency metrics, including reductions in route distance, flight time, and per-flight carbon emissions (where data is available).
- Clear articulation of trade-offs in consultation and decision-making materials.

Achievable

- Builds on existing policy levers (AND/ANG) and established CAA processes.

Realistic

- Recognises that impacts on airspace design will be gradual and dependent on the pipeline of ACPs and wider programme delivery timelines.
- Changes in prioritisation will influence decisions at the margin, rather than fully determining outcomes in all cases due to local operational and safety constraints.

- Measurement of outcomes (particularly environmental impacts) will rely on available data and modelling capability.

Time-bound

- Initial evidence observed within 12–18 months, as new ACPs are submitted.
- Full effects realised over 2–5 years, as redesigned airspace is implemented.

**Objective 2 – Provide clear, concise and unambiguous directions and guidance to the CAA (Component B – Enabling Reforms)**

Objective statement
Government will ensure that the regulatory framework for airspace change is clear, proportionate and fit for purpose, reducing ambiguity and administrative burden while enabling a more efficient and risk-based process.

Specific / Measurable

- Reduction in average time taken to progress Airspace Change Proposals (ACPs) through key stages of the CAP1616 process.
- Reduction in number of ACPs failing at earlier stages
- Reduction in cost of delivering ACPs, as reported by industry (via consultation and post-implementation review).
- Reduction in instances of duplicated or unnecessary analysis, as identified through CAA QA or sponsor feedback.

Achievable

- Targets will be informed by baseline data (e.g. current ACP timelines, costs, failure rates) and refined through consultation with the CAA and industry.

Realistic

- Improvements are expected to be incremental and delivered through changes to guidance and process design rather than fundamental system redesign.
- Delivery is feasible within existing institutional arrangements (DfT, CAA and industry), using established mechanisms (e.g. revisions to CAP1616).
- The scale of change is proportionate to the problem, focusing on reducing inefficiency rather than introducing wholly new processes.

Time-bound

- Initial assessment within 12 months of implementation.
- Further evaluation over 2–3 years, as ACPs progress through the revised process.

**Objective 3 – Enable delivery of wider airspace modernisation priorities (Combined effect of A and B)**

**Objective statement**

Together, the strategic policy changes and enabling reforms will support the effective and timely delivery of airspace modernisation, including key programmes such as UKADS, modernisation of London airspace, and Future of Flight.

Specific / Measurable

- Increase in the number and proportion of ACPs successfully approved by the CAA.
- Reduction in overall delivery time for coordinated airspace modernisation programmes.
- Evidence of earlier and more effective integration of new airspace users.
- Delivery of key programme milestones in line with planned timelines.

Achievable

- Measures align with existing programme governance frameworks (CAA reporting, AMS oversight).

Realistic

- Recognises that delivery is dependent on a range of external factors, including funding, stakeholder coordination, and planning processes.
- Assumes improvements will be realised progressively as both policy changes and process reforms take effect.
- Reflects that the intervention is an enabler of delivery rather than the sole determinant of programme outcomes.

Time-bound

- Measured through annual CAA reporting cycles.
- Formal review at 12 months post-implementation, with ongoing monitoring over the life of the AMS.

39. The following Critical Success Factors (CSFs) have been developed to assess options. These reflect the need to balance timely and proportionate delivery of airspace modernisation with environmental, operational, and distributional considerations. The CSFs align with the identified government failures and policy objectives, and capture the key trade-offs associated with the proposed changes:

    - **CSF1 - Timely and Deliverable Implementation.** The preferred option must be deliverable within the required timeframes for airspace modernisation (including key milestones such as FASI and Heathrow expansion), avoiding undue complexity or delay in modelling, consultation, or approval processes.
    - **CSF2 - Proportionate Management of Noise Impacts**. The option must ensure that noise impacts are considered in a proportionate and transparent way, balancing the number of affected households against wider system benefits.

- **CSF3 - Contribution to Decarbonisation and Efficiency.** The option must enable more efficient flight paths and contribute to reductions in fuel burn and carbon emissions, consistent with wider Government decarbonisation objectives.
- **CSF4 - Support for Capacity and System Resilience.** The option must enable sufficient flexibility in airspace design to accommodate future demand, improve resilience, and support wider aviation growth objectives.
- **CSF5 - Scalability and Proportionality of Consultation and Engagement.** The option must allow for a consultation and engagement approach that is proportionate and scalable, avoiding unnecessary burdens on industry and the regulator.

**Government Missions**

40. Updated Air Navigation Directions and Guidance will improve the deliverability of the airspace modernisation programme and enable benefits to be realised in a timely manner. This intervention will support the Government's mission to kickstart economic growth, facilitating a reduction in both airport and airline operating costs (in the form of reduced fuel burn) and flight delays, and the Department's aim to deliver greener transport, facilitating reduced carbon emissions and noise per flight. Reduced operating costs and delays are likely to increase the attractiveness of the UK aviation sector, thereby potentially inducing greater levels of investment and consequent growth.

41. In addition, updating the Directions and Guidance will ensure regulation takes into account the integration of new airspace users, such as drones, aerial taxis and spacecraft. Without its introduction, the significant economic potential of these nascent industries cannot be fully realised.

42. The Government has committed to reduce regulatory administrative costs to business by 25%[5]. While it is difficult at this stage to estimate exactly how much costs will fall by, there will be process efficiencies and simplifications associated with improving the directions and guidance provide to the CAA. The magnitude of any savings will be explored through the consultation process with industry.

# 4. Summary of long-list and alternatives

43. Four overarching options were considered at the long list stage. These options consider both the extent of reform to the regulatory framework and, where relevant, alternative approaches to strategic policy, including altitude-based priorities.

44. These options were formalised during workshop events with key stakeholders including the CAA and NATS. Using evidence obtained from historical applications and design modelling, impacts and benefits of each option were identified to score each of the options below.

The options are set out below:

[5] https://www.gov.uk/government/publications/a-new-approach-to-ensure-regulators-and-regulation-support-growth/new-approach-to-ensure-regulators-and-regulation-support-growth-html

45. **Option 1 – Do Nothing.**

See Section 5.

46. **Option 2 – Non-Regulatory Directions and Guidance.**

Under this option the DfT would provide informal, non-regulatory guidance to supplement the existing directions and guidance. This option would allow Government to address ambiguity within the current documents to provide clearer and more concise guidance whilst not requiring any formal regulatory changes. This would allow changes to be made without consultation and in a shorter time frame.

However, any such document could not supersede the existing Directions and Guidance as these are statutory documents which the CAA must follow / consider under the Transport Act 2000. Any supplementary guidance could only reinforce current policy.

Reinforcing current policy would not go far enough to support CAA improve their airspace change processes. The CAA are required to fundamentally change and improve their processes to support the timely implementation of new airspace structures in the UK to support airport capacity and growth.

Changes are required to policy such as environmental considerations, strategic prioritisation and activities required to support new users (i.e. drones) which are not covered within the existing directions and guidance. These new policies and government priorities would only have effect if they were to be within statutory documents. This is the primary mechanism to ensure that CAA take these policy changes and government priorities into account in delivering their air navigation function.

This option would not only fail to meet the critical success factors and intended policy objectives but also allows existing operational inefficiencies to continue. As a result, this option was removed from consideration.

47. **Option 3 – Do Minimum – Light touch review of AND and ANG to make existing policy clearer and unambiguous.**

This option involves reviewing the Air Navigation Directions and Guidance to identify areas of improvement to the language, style and tone to afford greater clarity to the CAA and aviation industry on our instructions and expectations for airspace change.

It will consider where processes and guidance can be tightened up to avoid duplication, and unnecessary work. This will reduce administrative costs for the industry through ensuring only activity which is required takes place. It will also improve the language, so the documents make clear where an activity is mandatory, versus optional to avoid overcomplicating process to limited benefit. This will partially reduce the risk of legal challenge as Government direction will be clearer and afford the aviation industry greater confidence in the process and their compliance.

This option will also remove unnecessary and irrelevant information which is not required the purpose of the Air Navigation Directions and Guidance.

This option does not meet the requirements of Objective 1, as it does not include any changes to current policy (last revised 2017). Current policy is deemed outdated and inadequate in providing users with a set of clear and achievable policy priorities to fulfil the political, strategic and operational intent of the 2023 Airspace Modernisation Strategy.

This option partially meets Objective 2 through making textual and stylistic changes to how current policy is articulated to reduce ambiguity and make clear how current policy can be best adapted and implemented in the airspace design process. However without revising and updating the document to reflect current policy, it is not deemed fit for purpose and thus provides conflicting advice and guidance to users.

48. **Option 4 – Do Maximum (Preferred) – Update AND and ANG to provide new policy directions and guidance on emerging Government priorities for Airspace Modernisation.**

    See section 6.

49. The long-list of options was assessed against the policy objectives to determine whether each option constitutes a viable solution to the identified problems, specifically in addressing both enabling reforms and the provision of clear strategic policy direction, and in supporting the delivery of wider airspace modernisation priorities.

Figure 1 Appraisal of long-list options

| Option | Objective 1 (Strategic policy clarity) | Objective 2 (Clear and proportionate framework) | Objective 3 (Enabling delivery of airspace modernisation) | Overall assessment |
|---|---|---|---|---|
| **Option 1 – Do Nothing** | No change to strategic prioritisation | Does not address inefficiencies or ambiguity | Does not support delivery of modernisation priorities | Not viable |
| **Option 2 – Non-regulatory** | Does not provide binding policy direction | Limited clarification only; underlying issues remain | Insufficient to support delivery at scale | Not viable |

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| **Option 3 – Do Minimum** | Does not provide binding policy direction | Partially improves clarity and reduces duplication, but some inefficiencies remain | Some efficiency improvements, but limited overall impact | Not viable |
| **Option 4 – Do Maximum** | Provides clear strategic direction (including Airspace Design Priorities) | Addresses inefficiencies and ambiguity | Enables delivery of wider airspace modernisation priorities | Viable (taken forward) |

50. Whilst option 3 provides some improvements to the guidance through improved explanation of current policy and removal of ambiguity, it however falls short of implementing any change which is deemed vital in supporting the delivery of Airspace Modernisation objectives. Option 4 introduces major changes to the document which explain and guide users on the latest Government policies for airspace design.

**Small and Micro Business Assessment (SaMBA)**

51. As set out in the Evidence Base section, it is expected that approximately 133 current or recent airspace change sponsors will be required to undertake some level of familiarisation and transitional activities as a result of the measure. These organisations are diverse in type and include: commercial aerodromes, air navigation service providers, recreational aerodromes, aerospace manufacturers, and innovative aviation technology companies.
52. Due to the number and variety of impacted organisations, it has not been possible to provide an estimate of the number of micro (1-9 employees), small (10-49 employees), medium (50-249 employees) and large organisations (250+ employees) that will be affected by the measure.
53. Of the affected organisations in scope of the measure, it is likely that large commercial aerodromes will face the most significant familiarisation and transition costs due to a) the number of ACPs they are likely to be involved in and b) the relative complexity of those ACPs compared with more straightforward ACPs that are likely to be undertaken by other organisations.
54. It has not been possible to assess the size of all commercial aerodromes due to a lack of suitable data. However, the size of aerodromes within the Airspace Modernisation Masterplan has been assessed in previous analysis conducted by DfT. Of the 18 airports included in the latest iteration of the masterplan, it is estimated that there are 9

medium sized firms, 8 large firms and one Ministry of Defence run airport[6]. In addition, a significant proportion of ACPs are sponsored by NATS, which has over 4,500 employees[7] and is therefore also categorised as a large firm.

55. It is likely that any impacts of the measure will scale according to the complexity of the typical ACPs undertaken by an organisation, i.e. it is likely that larger organisations will generally undertake more complex ACPs due to the complexity of their immediate airspace. As the measure is primarily beneficial to ACP sponsors, it is therefore likely that large organisations will experience larger benefits compared with smaller organisations.
56. However, given the policy is intended to be beneficial for all organisations, it would not be appropriate to include any exemptions or mitigations based on organisational size.

# 5. Description of shortlisted policy options carried forward

57. Given the need to address both enabling reforms and the lack of clear strategic policy direction, only Option 4 (Do Maximum) was taken forward to the shortlist. Within this option, a number of variants were developed to reflect alternative strategic policy approaches to the prioritisation of competing objectives within airspace design, specifically through different airspace design priorities. In addition, the Do Nothing option has been shortlisted as a point of comparison in line with Green Book guidance.

**Option 1 – Do Nothing.**

Under this option, there would be no government intervention, and the existing Air Navigation Directions 2023 and Air Navigation Guidance 2017 would remain as the extant regulatory framework documents for airspace modernisation.

Critical airspace modernisation activities which support the implementation of a new UK airspace design service and key elements of the Government's growth strategy such as airport expansion (e.g. at Heathrow) would be difficult to deliver, as the Directions and Guidance do not currently make allowances for the activities required to deliver these projects.

Where existing airspace changes continue, sponsors will follow the existing process set by the CAA. These processes are burdensome, inefficient and in places require nugatory or duplicative effort. Testing and trials cannot be delivered as current policy does not consider emerging aircraft type (i.e. drones).

In some cases, airspace change proposals may not be pursued. The complex and unclear process creates legal risk of challenge, where opposing stakeholders challenge the application of the CAA's decision-making process as has been experienced by some London airports in recent years. More widely, this risks delivery of the wider airspace modernisation programme undermining Government commitment.

[6] Categorisations based on latest available annual accounts from Companies House.
[7] https://www.nats.aero/about-us/company/

This option would not only fail to meet the critical success factors and intended policy objectives but also allows existing operational inefficiencies to continue. As a result, this option was removed from consideration.

58. All of the shortlisted options incorporate administrative changes (i.e. Component B) to the Directions and Guidance. This would include but not be limited to:

    1. **Environmental:** Enabling environmental assessments already undertaken as part of other processes (e.g. planning) to be utilised for the purpose of an airspace change. This will remove the need to undertake environmental assessments for some specific airspace proposals (e.g. drones).
    2. **Consultation & Engagement:** Reduce the criteria for the call-in process, including setting a definitive time limit. Provide improved guidance on how to undertake the consultation process.
    3. **Operational:** Afford industry greater flexibility to design more localised options, which best meet their operational need. Extending the period permitted for emerging new aircraft to undertake tests and trials in UK airspace.
    4. **Procedural:** Improve the efficiency and streamline processes to avoid duplication of effort, improve delivery timescales and reduce administrative burdens.
    5. **Ambiguity:** Review current guidance and improve the language to be clearer and more concise on government policy.

59. The shortlisted options differ in their approach to strategic policy, i.e.:

    A. **Strategic Policy:** Setting new Government policy on how airspace design must prioritise safety, capacity, noise and carbon emissions. Setting the precise altitude at which these factors must be prioritised within an airspace design, including implementing new airspace design priorities which amend the prioritisation of noise considerations in the airspace design. These variants therefore represent the key policy choices available to Government in balancing noise, carbon and capacity outcomes, and form the basis for further appraisal.

60. **Option 4a – Do Maximum with 4,000ft threshold.**

    This option implements the full package of enabling reforms to the Air Navigation Directions and Guidance, alongside a strategic policy change setting the primary threshold for prioritisation of noise impacts at 4,000 feet.

    Under this approach:

    - Noise impacts are prioritised below 4,000ft.
    - Above this altitude, emphasis is placed on fuel efficiency and operational performance.
    - This enables aircraft to adopt more efficient routing and climb/descend profiles at an earlier stage.

    This option represents a more efficiency- and carbon-focused approach, with reduced consideration of noise impacts at higher altitudes.

61. **Option 4b – Do Maximum with 5,000ft threshold**

See section 6.

62. **Option 4c - Do Maximum with 7,000ft threshold**

This option retains the existing threshold of 7,000 feet within an updated regulatory framework.

Under this approach:

- Noise impacts are prioritised up to 7,000ft.
- This limits the ability to introduce more direct or fuel-efficient flight paths at lower altitudes.
- This also limits the ability to introduce smoother vertical climbs and descents which could have a negative impact on noise.
- Maintains greater coverage of affected populations within noise assessments.

This option represents a continuation of the current noise prioritisation approach, with more limited improvements in efficiency and capacity.

63. **Option 4d – Do Maximum with higher noise prioritisation (beyond 7,000ft)**

This option applies the enabling reforms but adopts a stronger emphasis on noise mitigation, either by:

- Increasing the altitude threshold beyond 7,000ft, or
- Strengthening the weight given to noise considerations at all altitudes.

Under this approach:

- Noise impacts are prioritised over a greater proportion of the flight profile.
- This significantly constrains routing flexibility and operational efficiency.
- Leads to greater inclusion of affected populations in decision-making.

This option represents a noise-led approach, with corresponding trade-offs in carbon, capacity and deliverability.

64. Each of the shortlisted options was appraised against the Critical Success Factors (CSFs) - explained in Section 3.

65. The RAG ratings and commentary displayed in the table below were determined through DfT analysis of public consultation responses in addition to engagement with subject matter experts at the CAA and NATS. Detailed analysis was also conducted in order to assess the likely noise impacts of various changes to altitude-based priorities.

66. The values outlined in CSF2 refer to analysis carried out by the Civil Aviation Authority, presented in Annex A. Heathrow daytime ($LAeq_{,16h}$) current policy results have been

included in the table to illustrate altitude threshold differences, however, Annex A also includes four further airports.

| Option | CSF1 – Timely and Deliverable Implementation | CSF2 – Proportionate Management of Noise Impacts | CSF3 – Contribution to Decarbonisation and Efficiency[8] | CSF4 – Capacity & Resilience | CSF5 – Consultation burden[9] |
|---|---|---|---|---|---|
| **Option 4a – 4000ft** | Fastest to deliver; fewer design options reduces modelling and approval time. | Fewer households would be within the band where noise impacts were prioritised. Compared to 7,000 ft, 11% of households would not fall within this. (38,400 fewer households) | Greatest carbon reduction due to more efficient routing. | Maximum flexibility supports capacity and resilience. | Lowest consultation burden; most proportionate. |
| **Option 4b – 5000ft (preferred)** | Increased complexity vs 4000ft but remains deliverable. | More balanced inclusion of households within the band where noise is prioritised. 2% fewer households would be encompassed compared to 7,000 ft. (6,200 fewer households) | Moderate efficiency and carbon benefits. | Strong support for capacity and resilience. | Moderate consultation burden; manageable. |
| **Option 4c – 7000ft** | Unlikely to meet delivery timelines of airspace change and operational needs; complex modelling requirements and coordinating departure flights. | Broad household coverage in noise assessment. An average household number of 359,700 would | Reduced efficiency gains vs lower thresholds. | Constraints begin to limit capacity flexibility. | High consultation burden; potential delivery risk. |

[8] These ratings are based on a qualitative assessment informed by first principles and engagement with CAA and NATS subject matter experts. The scale of any carbon impact will depend on the design of future airspace change proposals and can only be estimated reliably through scheme-specific technical modelling. Undertaking this modelling for hypothetical future designs would not be proportionate for the purposes of this DMA.

[9] Assessment provided by NATS based on indicative modelling of consultation burden at different altitudes

| | | | | | |
|---|---|---|---|---|---|
| | | be encompassed. | | | |
| **Option 4d – Higher noise priority** | Highly complex and unlikely to be deliverable. | Maximum household coverage. CAA Appraisal not carried out at this stage. | Lowest carbon efficiency due to constrained routing. | Reduced flexibility constrains capacity. | Highest consultation burden; disproportionate. |

# 6. Description of preferred option and explanation of the logical change process whereby this achieves SMART objectives

**Preferred Option and how it Achieves Policy Objectives**

67. **Option 4b – Do Maximum with 5,000ft threshold (Preferred)**

This option includes the same enabling reforms as other shortlisted options but sets the threshold for prioritising noise impacts at 5,000 feet.

Under this approach:

- Noise considerations extend to a higher altitude compared to Option 4a
- This constrains some operational flexibility compared with 4,000ft, i.e. by constraining some airspace design choices where sponsors would otherwise have greater latitude to determine the appropriate trade-offs. However, it does provide greater flexibility in design than current policy
- Provides a more balanced trade-off between noise and efficiency outcomes

This option represents an intermediate position, moderating both environmental (carbon) and distributional (noise) impacts.

The aim of these policy changes is to primarily improve the deliverability of airspace changes by providing industry greater flexibility and scope to design and propose options which best fit their individual needs. It also provides the CAA greater discretion to consider applications considering the type of activity, local operational needs and stakeholders impacted.

68. How the preferred option achieves the policy objectives, mitigates identified government failures, while aligning strongly with the identified Critical Success Factors (CSFs) is explained below:

Objectives

69. **Objective 1:** Option 4b provides a clear and balanced prioritisation framework via a 5,000 ft threshold, improving consistency and transparency in trade-offs without being overly restrictive.

70. **Objective 2:** Option 4b delivers a clearer, more proportionate regulatory framework by reducing ambiguity, duplication and administrative burden through enabling reforms.

71. **Objective 3:** Option 4b best supports delivery of airspace modernisation by combining strategic clarity and process efficiency in a way that remains operationally deliverable.

Critical Success Factors

72. Option 4b is preferred as it represents the best overall trade-off across the Critical Success Factors. While it is not the optimal option for any single factor, it avoids the most significant drawbacks of the alternatives and provides a balanced and deliverable approach to managing competing priorities of noise, carbon efficiency, capacity and engagement.

73. **CSF1 (Timely and deliverable):** Option 4b remains deliverable within required timelines, balancing complexity and stakeholder acceptability to reduce risks of delay.

74. **CSF2 (Noise):** Option 4b ensures proportionate consideration of noise by including a meaningful but bounded threshold, balancing distributional impacts with system benefits.

75. **CSF3 (Decarbonisation and efficiency):** Option 4b enables moderate but credible efficiency and carbon improvements without imposing significant trade-offs.

76. **CSF4 (Capacity and resilience):** Option 4b maintains sufficient flexibility to support capacity growth and system resilience.

77. **CSF5 (Consultation):** Option 4b results in a manageable and proportionate consultation burden relative to the scale of impacts.

Government Failures

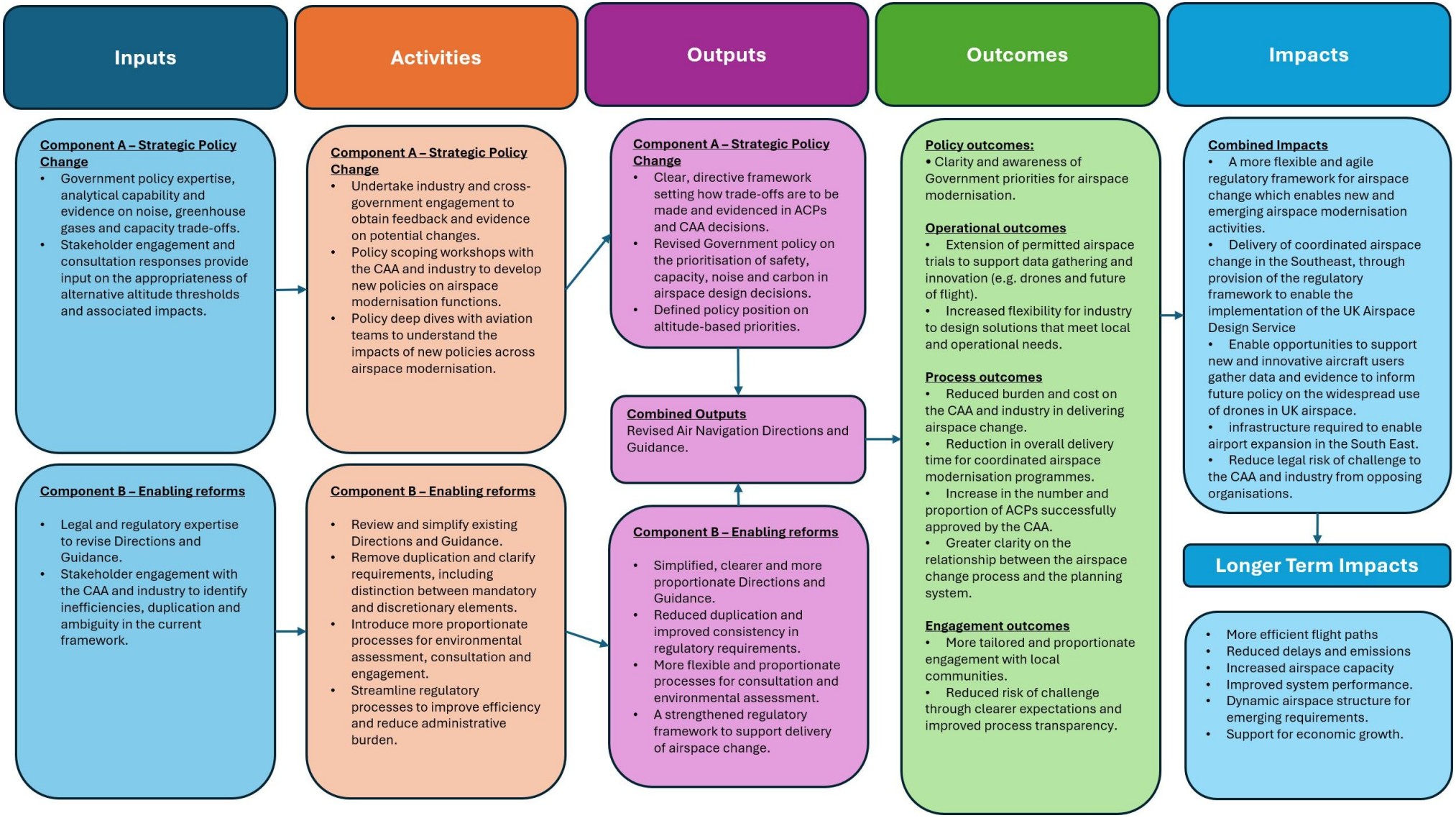
78. **Government Failure 1 (Process inefficiency):** Option 4b reduces regulatory inefficiency by streamlining processes and enabling a more proportionate, risk-based approach.

79. **Government Failure 2 (Policy ambiguity):** Option 4b resolves ambiguity by providing a clear framework and Government policy priorities for balancing competing objectives.

## Logic Model

80. Figure 1 overleaf illustrates the logic model driving the preferred policy option and the impacts we expect this to have.

## Figure 1: Logical Flow Model for revising and updating the Air Navigation Directions and Guidance



# 7. Regulatory scorecard for preferred option

## Part A: Overall and stakeholder impacts

| (1) Overall impacts on total welfare | | Directional rating<br><br>**Note: Below are examples only** |
|---|---|---|
| **Description of overall expected impact** | Compared with a Do Nothing baseline, the proposed updates introduce short-term costs for stakeholders, including training and procedural adjustments to align with new strategic, environmental, and consultation frameworks. Transitioning may require legal reviews and system updates, especially as responsibilities shift and noise policies evolve, potentially increasing disturbance in some areas.<br><br>However, the reforms offer significant benefits: they reduce administrative complexity, streamline decision-making, and clarify roles and timelines, improving efficiency. The changes support airspace modernisation by enabling better integration of emerging technologies like drones and electrical vertical take-off and landing aircraft (eVTOLs), increasing capacity, reducing delays, and lowering environmental impact. These improvements are expected to deliver long-term economic gains and enhance the UK's aviation competitiveness.<br><br>Although it has not been possible to provide quantitative estimates of the EANDCB, it is thought highly likely that the measure falls well within the de minimis threshold of ±£10m. If monetised, the following impacts would be considered as direct costs or benefits to business:<br><br>• **Costs**<br>  ○ Stakeholder Familiarisation<br>  ○ Transition and compliance<br>• **Benefits**<br>  ○ Reduced administrative burden<br><br>Initial costs associated with adjusting to the updated airspace change process will be offset by reduced long-term administrative burdens, leading to long-term benefits for businesses. It has been indicatively estimated, through CAA expertise and previous analysis, that these savings could be in the region of £1.1 million to £1.65 million per annum[10].<br><br>In addition to the direct impacts, there are a number of possible indirect impacts. The policy does not prescribe particular routing outcomes. Benefits will arise only where airspace change takes place and where existing routes are not already close to the most fuel-efficient configuration. More | **Positive**<br><br>**Based on all impacts (incl. non-monetised)** |

[10] Indicative estimates are order-of-magnitude illustrations only and are not sufficiently robust to inform EANDCB or NPV.

| | | |
|---|---|---|
| | efficient routing may result both from clearer prioritisation of competing objectives and from making it easier to develop and implement efficient airspace designs.<br><br>However, any efficiency gains on individual routes is likely to be marginal as the phase of flight in which savings can be realised is relatively short, e.g. an aircraft climbing at a rate of 1,000 to 3,000 feet per minute would only be at the newly affected altitudes for 1 to 3 minutes. Based on analysis conducted for a 2017 Impact Assessment[11], it is indicatively estimated that fuel savings in the region of £6 million per annum[12] could be experienced. Due to the number of steps in the logic chain and these benefits accruing to organisations that are not directly subject to the regulations, these savings have been assessed to be an indirect benefit to businesses.<br><br>The measure is therefore expected to be beneficial overall for businesses, i.e. the business NPV is positive. The EANDCB is expected to be negative but is unlikely to exceed the -£10m threshold.<br><br>Overall, it is expected that the wide-ranging benefits of the measure will exceed the fairly limited costs and the NPV of the measure is therefore expected to be positive. | |
| **Monetised impacts** | There are no monetised impacts of the policy due to an absence of suitable evidence.<br><br>Information was sought through the consultation process to enable monetised estimates of key impacts to be presented in the final stage impact assessment. However, no such information was provided and all impacts are therefore non-monetised. | **Neutral** |
| **Non-monetised impacts** | **Direct Costs:**<br><br>• **Stakeholder Familiarisation (Businesses, Components A & B):** Stakeholders will incur one-off costs associated with understanding and implementing both the revised strategic policy framework (Component A) and updated regulatory processes (Component B). This includes training, legal review and internal process updates.<br><br>• **Transition and Compliance (Businesses, Component B):** Organisations will need to update internal procedures to align with both new policy expectations and revised regulatory requirements. While these costs are short-term, they are necessary to ensure effective implementation.<br><br>**Indirect Costs:**<br><br>• **Noise Disturbance (Households, Component A):** Changes to strategic policy, particularly revisions | **Positive** |

[11] https://assets.publishing.service.gov.uk/media/5a81c7a6e5274a2e87dbf707/clarifying-altitude-based-priorities-during-airspace-changes.pdf
[12] See Footnote 10

| | | |
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| | to airspace design priorities may result in redistribution of aircraft noise. Some communities may experience increased noise exposure, reflecting the chosen balance between efficiency and noise mitigation. For more information on this, please refer to Annex A.<br><br>**Direct Benefits:**<br><br>• **Reduced Administrative Burden (Businesses; Component B):** Enabling reforms streamline processes, reduce duplication and improve clarity, lowering compliance costs and reducing the time required to deliver airspace change.<br><br>• **Improved Process Efficiency (CAA, Components A & B):** Clearer roles, responsibilities and processes reduce bottlenecks and enable faster, more consistent decision-making.<br><br>**Indirect Benefits:**<br><br>• **Fuel efficiency savings due to changes to Airspace Design Priorities (Businesses, Component A):** Strategic policy changes (Component A) enable more direct routing and more efficient climb and descent profiles, reducing fuel burn and associated emissions.<br><br>• **Support for Modernisation (Various; Components A & B):** The updated framework provides better support for and improves deliverability of the UK's Airspace Modernisation Strategy, leading to:<br><br>  • **Increased Capacity and Reduced Delays:** Modernised airspace allows more efficient routing and better traffic flow management, reducing delays and improving resilience.<br><br>  • **Enabling Future of Flight:** Faster approvals and integration of drones and eVTOLs are expected, supporting commercialisation and operational scaling.<br><br>  • **Environmental and Financial Gains:** More direct, fuel-efficient routes reduce emissions and decrease fuel consumption and associated expenditure.<br><br>• **Long-term Economic Benefits (Various; Components A & B)**<br>Improved efficiency, reduced delays and increased capacity support wider economic growth and enhance the attractiveness of the UK aviation sector. | |
| **Any significant or** | No significant adverse or distributional business impacts are expected as a result of the policy. | **Uncertain** |

| | | |
|---|---|---|
| **adverse distributional impacts?** | There is the potential for adjusted flight paths to lead to adverse distributional impacts for some households. These impacts will naturally be felt by those working or living near airports. However, the precise nature of these impacts cannot be identified at this stage and is it will be determined by future airspace changes and planning decisions. | |

## (2) Expected impacts on businesses

| | | |
|---|---|---|
| **Description of overall business impact** | The preferred option is expected to deliver a positive overall impact on businesses.<br><br>From a process perspective (Component B), businesses will benefit from reduced administrative burdens, streamlined regulatory processes and improved clarity, leading to lower compliance costs and more predictable outcomes.<br><br>From a strategic policy perspective (Component A), businesses - particularly airlines - will benefit from improved operational efficiency, including reduced fuel consumption, more direct routing and reduced delays.<br><br>While there are short-term adjustment costs associated with familiarisation and transition, these are expected to be outweighed by ongoing benefits associated with improved efficiency and reduced operating costs.<br><br>Overall, the preferred option is expected to result in a positive net present value for businesses. | **Positive** |
| **Monetised impacts** | There are no monetised impacts of the policy due to an absence of suitable evidence.<br><br>Information was sought through the consultation process to enable monetised estimates of key impacts to be presented in the final stage impact assessment. However, no such information was provided and all impacts are therefore non-monetised. | **Neutral** |
| **Non-monetised impacts** | **Direct Costs:**<br><br>• **Stakeholder Familiarisation (Businesses, Components A & B):** Stakeholders, especially airspace change sponsors, will incur costs undertaking training, legal reviews, and policy updates to understand the new framework.<br><br>• **Transition and Compliance (Businesses, Component B):** Organisations must realign internal processes to match the updated regulatory framework. This includes adapting environmental assessments and consultation strategies. Though long-term burdens are expected to decrease, the transition may involve legal and system updates and coordination with the CAA. | **Positive** |

**Direct Benefits:**

- **Reduced Administrative Burden (Businesses, Component B):** The reforms streamline processes by reducing duplication and allowing reuse of environmental assessments. The CAA gains more autonomy, cutting delays and compliance costs. Clearer guidance also reduces misinterpretation. It has been indicatively estimated, through CAA expertise and previous analysis, that these savings could be in the region of £1.1 million to £1.65 million per annum[13].
- **Improved Regulatory Certainty (Businesses, Component B):** Clearer guidance and improved distinction between mandatory and discretionary requirements are expected to reduce ambiguity and the risk of misinterpretation. This will lower the likelihood of rework and reduce exposure to legal challenge.

**Indirect Benefits:**

- **Fuel efficiency savings due to changes to Airspace Design Priorities (Businesses, Component A):** Separately to the fuel efficiency benefits brought about by the implementation of the UK's Airspace Modernisation Strategy (see below), the revisions to Altitude Based Priorities (ABPs) are likely to lead to decreases in fuel consumption when flightpaths are amended to prioritise CO2 emissions in place of the current balanced approach.

- **Support for Modernisation (Various; Components A & B):** The updated framework aligns with the UK's Airspace Modernisation Strategy, leading to:
    - **Increased Capacity and Reduced Delays:** Modernised airspace allows more efficient routing and better traffic flow management, reducing delays and improving resilience.
    - **Enabling Future of Flight:** Faster approvals and integration of drones and eVTOLs are expected, supporting commercialisation and operational scaling.
    - **Environmental and Financial Gains:** More direct, fuel-efficient routes decrease fuel consumption and associated expenditure. Cost savings are likely to be modest at route level and unlikely to materially affect fares or demand, but may be substantial when aggregated across the sector.

[13] See Footnote 10

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|---|---|---|
| | • **Long-term Economic Benefits (Various; Components A & B)**<br>Improved efficiency, reduced delays and increased capacity support wider economic growth and enhance the attractiveness of the UK aviation sector. | |
| **Any significant or adverse distributional impacts?** | No significant adverse or distributional impacts are expected for businesses as a result of the preferred option. | **Neutral** |

## (3) Expected impacts on households

| | | |
|---|---|---|
| **Description of overall business impact** | The proposed updates introduce changes to noise prioritisation and potentially increase noise-related disturbance in some areas.<br><br>However, the preferred option will offer significant benefits to passengers and society. By supporting airspace modernisation, the proposal is likely to decrease journey times and reduce disruption and delays, leading to time savings for passengers. More efficient routing will also reduce fuel consumption for operators and lead to lower carbon emissions. | **Uncertain** |
| **Monetised impacts** | No monetised impacts on households have been estimated due to uncertainty in the scale and distribution of impacts, particularly in relation to changes in noise exposure and wider behavioural responses. | **Neutral** |
| **Non-monetised impacts** | **Indirect Costs:**<br><br>• **Noise Disturbance (Households, Component A):** Replacing altitude-based noise priorities with a broader policy that prioritises carbon may lead to increased noise in some limited areas. While the policy promotes flexibility and respite options, communities near adjusted flight paths may experience more disturbance. These impacts are location-specific and dependent on future airspace design.<br><br>**Indirect Benefits:**<br><br>• **Support for Modernisation (Various; Components A & B):** The updated framework aligns with the UK's Airspace Modernisation Strategy, leading to:<br><br>  • **Increased Capacity and Reduced Delays:** Households benefit indirectly from more reliable air travel, with fewer delays and | **Uncertain** |

| | | |
|---|---|---|
| | reduced disruption resulting from improved airspace efficiency.<br><br>• **Environmental and Financial Gains:** More efficient flight operations are expected to reduce fuel burn and associated emissions, contributing to environmental improvements at a societal level.<br><br>• **Long-term Economic Benefits (Various; Components A & B)**<br>Improved airspace efficiency and capacity support economic growth, which may benefit households through improved connectivity, access to services and broader economic activity. | |
| **Any significant or adverse distributional impacts?** | **Yes**.<br><br>There is the potential for adjusted flight paths to lead to adverse distributional impacts for some households due to increased aviation noise. These impacts will naturally be felt by those working or living near airports.<br><br>However, the precise magnitude of these impacts cannot be identified at this stage and is it will be determined by future airspace changes and planning decisions. | **Negative** |

## Part B: Impacts on wider government priorities

| Category | Description of impact | Directional rating |
|---|---|---|
| **Business environment:**<br><br>**Does the measure impact on the ease of doing business in the UK?** | The preferred option is expected to have a positive impact on the business environment by enabling the benefits of airspace modernisation to be realised in a more timely, efficient and predictable manner. This supports the Government's objective to promote economic growth and the Department's aim to deliver a more efficient and sustainable aviation system.<br><br>Improvements to the regulatory framework will reduce administrative complexity and remove duplicative or low-value requirements within the airspace change process. This is expected to lower compliance costs for airspace change sponsors through reduced reliance on external consultancy and lower internal resource requirements.<br><br>In parallel, the introduction of clearer strategic policy direction will enable more efficient airspace design, supporting reductions in fuel burn, operating costs and delays. A more streamlined and reliable process for delivering airspace change is expected to improve confidence within the sector, supporting investment and | **Supports** |

| | | |
|---|---|---|
| | facilitating the safe integration of new and emerging airspace users.<br><br>Overall, the measure is expected to improve ease of doing business by reducing regulatory burdens, improving operational efficiency and strengthening the delivery of airspace modernisation. | |
| **International Considerations:**<br><br>**Does the measure support international trade and investment?** | The preferred option is expected to have a positive impact on international trade and investment by enabling a more efficient and capable UK airspace system.<br><br>By improving the delivery and effectiveness of airspace modernisation, the measure is expected to reduce constraints on capacity within the UK aviation system. Given the inherently international nature of air transport, these improvements are likely to enhance connectivity and operational efficiency for both domestic and international operators.<br><br>A more efficient and reliable airspace system is also expected to increase the attractiveness of the UK aviation sector to overseas airlines and investors, supporting inward investment and strengthening the UK's position within global aviation networks. | **Supports** |
| **Natural capital and Decarbonisation:**<br><br>**Does the measure support commitments to improve the environment and decarbonise?** | The preferred option is expected to have a positive impact on decarbonisation by enabling more efficient flight operations. Improved airspace design will allow aircraft to fly more direct routes and adopt more efficient climb and descent profiles, reducing fuel consumption and associated greenhouse gas emissions.<br><br>The measure also supports broader environmental objectives by enabling more flexible routing, which can be used to manage noise impacts and reduce local environmental effects where appropriate.<br><br>While improved efficiency may increase the effective capacity of the airspace system, the extent to which this capacity is utilised will be determined through separate planning and operational decisions. Any associated impacts on overall emissions from increased aviation activity are therefore outside the scope of this assessment.<br><br>Overall, the measure supports the Government's decarbonisation objectives by reducing emissions per flight and improving the environmental performance of airspace operations. | **Supports** |
| **Growth Summary:**<br><br>**Does the measure support the Government's commitment to economic growth?** | The preferred option supports economic growth through improvements to productivity and investment, with more limited impacts on labour supply and human capital.<br><br><u>Labour supply</u><br><br>The measure is not expected to have a material impact on overall labour supply.<br><br><u>Human capital</u> | **Supports** |

| | | |
|---|---|---|
| | The measure is not expected to have a direct impact on human capital.<br><br><u>Investment</u><br><br>The preferred option is expected to have a positive impact on investment within the aviation sector.<br><br>By improving the efficiency and predictability of the airspace change process (Component B), and by providing clearer strategic direction on airspace design (Component A), the measure is expected to increase confidence among industry stakeholders. This creates a more stable and transparent environment for decision-making, which may encourage investment in airspace modernisation, operational improvements and new technologies. To the extent that this investment would not otherwise have occurred, it would contribute to the UK's capital stock and productive capacity.<br><br>In addition, improvements to system capacity and performance may increase the attractiveness of the UK aviation sector to both domestic and international investors.<br><br><u>Productivity</u><br><br>The most significant growth impact is expected through improvements in productivity.<br><br>The measure enables more efficient use of airspace by allowing aircraft to operate on more direct routes and adopt more efficient flight profiles, reducing fuel burn and delays. In parallel, the enabling reforms are expected to reduce administrative burdens and streamline regulatory processes, lowering the cost and time required to deliver airspace change.<br><br>Together, these changes improve the efficiency of aviation operations and the wider system, supporting productivity gains within the sector and across the broader economy. | |

# 8. Monitoring and evaluation of preferred option

## Evaluation Approach

Although no formal commitment is being made to conduct a Post Implementation Review, the extent to which these reforms have met the policy objectives will be reviewed on an ongoing basis as part of business as usual processes. A proportionate evaluation may seek to address the following research questions:

1. What has been the impact of the revised framework on the clarity and consistency in how safety, capacity, noise and carbon are balanced in ACPs and CAA decisions?
2. What impact has the revised framework had on the administrative burden, duplication and delays in the airspace change process?
3. What impact has the revised framework had on ACP progression, including fewer failures, rework or delays?
4. Is the revised framework supporting more effective delivery of airspace modernisation priorities, including coordinated ACPs and new airspace users?
5. Are there any unintended consequences, including increased stakeholder challenge or adverse distributional effects, e.g. noise impacts?

Impacts such as routing efficiency, fuel burn and emissions will primarily arise from individual airspace change proposals rather than directly from the revised Directions and Guidance. While these outcomes may be monitored at scheme level, attributing them to the AND/ANG would be challenging given the influence of concurrent airspace modernisation initiatives, CAP1616 reforms, traffic growth, and other operational changes. Monitoring these effects at the level of the AND/ANG is therefore unlikely to be proportionate and would risk duplicating evaluation activity already undertaken through the Airspace Modernisation Strategy and associated governance arrangements.

The nature of the policy prohibits quasi-experimental design methods, because there is no clear control group and outcomes will be shaped by multiple concurrent interventions and external factors. The evaluation is therefore expected to be a theory-based identifying causal pathways through a theory of change. A theory-based evaluation is also appropriate because impacts are anticipated to depend heavily on the type and scale of future ACPs, as well as wider programme delivery, planning decisions and the implementation of CAP1616 changes.

Potential indicators and outcomes to support the evaluation could include:

### Clarity and consistency

- Evidence that ACP submissions and CAA decision documents explicitly reference and apply the revised prioritisation framework
- Stakeholder feedback on clarity of requirements and expectations

### Process efficiency

- Average time for ACPs to progress through CAP1616 Gateways
- Proportion of ACPs requiring rework or failing at early stages
- ACP sponsor and CAA feedback on administrative burden and duplication

**Support for airspace modernisation and wider impacts**

- Number and proportion of ACPs approved, particularly those in AMS Masterplan
- Progress against key AMS milestones
- Evidence of increased use of airspace trials

**Evaluation Approach**

Following the implementation of the revised Air Navigation Directions and Guidance, we will remain committed to ensuring the new regulatory framework is functioning as intended against its objectives.

Evaluation activity may include:

- Workshops to design a theory of change
- Quantitative surveys
- Qualitative interviews (in-depth interviews and/or focus groups)
- Analysis of secondary data, where available. E.g. ACP performance data (submission dates, gateway timings etc), broader AMS reporting data, flight efficiency data etc.

Participants in evaluation activity may include representatives from the following. These groups may provide both participants for evaluation activity and relevant evidence or insights to inform the evaluation:

81. Co-sponsor Governance Boards

    Joint AMS Programme Board – This director level board is co-chaired jointly by the DfT and the CAA and serves as the main decision-making board. It is attended by key members, with attendance by key stakeholders such as the Future of Flight (FoF) project teams and the Ministry of Defence (MoD). The board set and monitor the strategic direction for the programme as appropriate. This board can be used to obtain direct feedback from the CAA on how they are utilising the new Directions and Guidance, and how that translate to supporting the aims and ambitions of improving airspace modernisation.

    Internal DfT Coordination Board – This is a DfT owned board. This is not a decision-making board. It is to provide information and insight to other DfT teams which have cross over with elements of the work taking place on the Airspace Modernisation Programme. This board can be used to obtain feedback and discussion from across DfT on the CAA's application of the Directions and Guidance to ensure it is be utilised effectively and the intended benefits being realised.

82. Industry Engagement

    The DfT have regular, formal engagement with industry through a series of industry lead forums. These forums have been used in the past to obtain feedback from industry on the problems and challenges of the existing Directions and Guidance, and will be used to obtain future feedback on the revised changes.

## Evaluation Timing

83. Dedicated Review Point

The Airspace Modernisation team will undertake a dedicated review point 12 months after the implementation of the revised Directions and Guidance. The review point will obtain feedback and evidence from the CAA and industry on the success of the changes and how they have impacted the wider programme. A report will be compiled and issued to the Joint AMS Programme Board for consideration by the Co-Chairs (Deputy Director level).

## Additional Considerations

84. **Unintended consequences** as a result of the policy should also be assessed. This could include whether the preferred option has:
    - Reputational damage and reduced trust towards Government and CAA on their intentions for minimising the impact towards the environment of airspace change.
    - Increased risk of legal challenge towards the CAA and airspace change sponsors for their proposed airspace designs which are directly due to the changes made to the regulatory framework.
    - Increased regulatory oversight for DfT of CAA actions, if CAA misapply the revised Directions and Guidance.
    - Resulted in adverse noise impacts.

## Limitations

Evaluation activity may be constrained by:

- Outcomes depend on future ACP activity and wider programme delivery
- Some impacts, particularly environmental and noise effects, will only be observable at scheme level. Airspace changes are designed at a network level, and changes to one route can alter the routing or vertical profiles of aircraft operating elsewhere in the surrounding airspace. Attributing changes in emissions to the revised Directions and Guidance, rather than to individual airspace changes and wider operational factors would therefore be challenging. In addition, many of the anticipated benefits will only be realised as future airspace changes are implemented and assessed, with some schemes unlikely to be introduced until the 2030s.
- Data availability may limit the ability to quantify changes in costs or wider system performance.

As a result, the evaluation will be proportionate to reflect available data and feasibility of analysis. At reporting stage, it is expected that findings focus on direction of change and strength of evidence, rather than precise quantification of impacts.

# 9. Minimising administrative and compliance costs for preferred option

85. The preferred option is an enabling power for the CAA which does not introduce any immediate administrative burdens for government and minimal requirements for industry. It updates the legislative mechanism for CAA to make changes to their own internal processes. As such, no new reporting requirements, forms, or compliance processes are being introduced at this stage.

86. Any administrative burdens (for industry only) associated with this power would only arise once the CAA have revised and implemented their own airspace change process which industry are required to follow.

87. We are committed to minimising administrative burdens wherever possible. This will include ensuring clear guidance is issued in advance, providing reasonable transition periods to allow businesses time to comply, and engaging stakeholders early in the process to identify areas where familiarisation time or administrative input can be reduced.

88. The preferred option also supports the Government's commitment to reduce the regulatory burden for UK regulators by the end of this Parliament. By allowing changes to be made to the Directions and Guidance, CAA can streamline and improve their own regulatory processes for industry.

# Declaration

Department:

Department for Transport

Contact details for enquiries:

airspacemodernisation@dft.gov.uk

Minister responsible:

Minister Keir Mather (Minister for Aviation)

I have read the ***De Minimis Assessment*** and I am satisfied that, given the available evidence, it represents a reasonable view of the likely costs, benefits and impact of the leading options.

Signed: 

Date: 20/07/26

# Summary: Analysis and evidence

For **Final Stage De Minimis Assessment**, please finalise these sections including the full evidence base.

**Price base year:** 2026

**PV base year:** 2026

| | **Option 1 – Do Nothing (baseline)** | **Option 4– Do Maximum (Preferred)** |
|---|---|---|
| **Net present social value** (with brief description, including ranges, of individual costs and benefits) | Not estimated – this is the baseline against which other options have been evaluated. | There are no monetised impacts of the policy due to an absence of suitable evidence.<br><br>Information was sought through the consultation process to enable monetised estimates of key impacts to be presented in the final stage impact assessment. However, no such information was provided and all impacts are therefore non-monetised.<br><br>The net present social value of the preferred option is expected to be positive overall. Short-term, non-monetised costs include stakeholder familiarisation and transition, alongside potential increases in noise disturbance for some households.<br><br>These are outweighed by ongoing benefits, including administrative cost savings, fuel efficiency savings and wider gains from improved efficiency, capacity and reduced delays.<br><br>Overall, long-term benefits are expected to exceed costs, with EANDCB negative but within the de minimis threshold. |
| **Public sector financial costs** (with brief description, including ranges) | Not estimated – this is the baseline against which other options have been evaluated. | No direct public sector financial costs have been identified. While the preferred option is expected to improve operational efficiency within the Civil Aviation Authority (CAA), including reduced administrative burden and more streamlined decision-making, these benefits do not translate into direct Exchequer savings due to the CAA's funding model, which is largely based on industry charges. As such, efficiency gains are more likely to be passed through to industry over time, rather than reducing public expenditure. |

| | | |
|---|---|---|
| **Significant un-quantified benefits and costs**<br>(description, with scale where possible) | Not estimated – this is the baseline against which other options have been evaluated. | The impacts of the preferred option have not been monetised due to limitations in the available evidence and the high degree of uncertainty regarding the scale, timing and distribution of effects.<br><br>Un-quantified costs include one-off stakeholder familiarisation and transition costs as organisations adapt to the revised framework.<br><br>In addition, changes to airspace design priorities may redistribute aircraft noise, potentially increasing exposure for some communities. Indicative analysis suggests that lowering the altitude at which noise is prioritised could considerably reduce the number of households explicitly considered in decision-making. For example at Heathrow during the day ($LAeq_{,16h}$), around 359,700 households are currently captured within the 7,000 ft noise contour compared to approximately 353,500 under a lower threshold of 5,000 ft, implying that roughly 6,200 households may no longer be directly accounted for in airspace change assessments in illustrative scenarios (lowering further to 4,000 ft would mean 38,400 households may no longer be accounted for in airspace change assessments). These impacts are highly location-specific and dependent on future airspace design. For more airports, as well as night-time figures, please refer to Annex A.<br><br>Un-quantified benefits include improved reduced administrative burdens, more efficient routing and reduced delays, and support for broader airspace modernisation. More efficient routing may result from both clearer prioritisation of competing objectives and from a framework that makes it easier to develop and implement efficient airspace designs. Support for broader airspace modernisation may increase capacity, improve resilience, enable integration of new technologies (such as drones and eVTOL), deliver environmental improvements from reduced emissions per flight, and provide longer-term productivity and economic gains.<br><br>Overall, while all impacts remain un-quantified, the preferred option is expected to result in a positive net effect, with ongoing efficiency and system-level benefits outweighing the largely one-off and distributional costs. |
| **Key risks**<br>(and risk costs, and optimism bias, where relevant) | Not estimated – this is the baseline against which other options have been evaluated. | Key risks relate to the limited monetisation of impacts, creating uncertainty around the scale of net benefits.<br><br>A central risk is that the resulting impacts are highly dependent on the nature, scale and timing of future airspace change proposals (ACPs), which determine the extent to which both benefits and noise impacts are realised. This creates delivery risk, as outcomes depend on factors beyond the immediate policy change. There are also distributional risks, particularly where changes to flightpaths increase noise exposure for some communities. |

| | | |
|---|---|---|
| **Results of sensitivity analysis** | Not estimated – this is the baseline against which other options have been evaluated. | No sensitivity analysis has been conducted due to the absence of monetised impacts. |

# Evidence base

### Introduction

The preferred option would introduce a number of amendments to the Air Navigation Directions and Air Navigation Guidance, which can be grouped as below:

A. A strategic policy change that clarifies the guidance on what airspace design should seek to achieve. This element will establish how airspace design should prioritise safety, capacity, noise and carbon dioxide emissions.
B. A package of enabling reforms to improve the clarity, proportionality and efficiency of the airspace change process.

The ultimate impact of these amendments depends to a large extent on the precise nature of subsequent airspace change proposals. Due to uncertainty in the scope and nature of these, this document provides a high level, proportionate, assessment of the combined impact of the proposed amendments.

### Number of Affected Businesses

Organisations that currently act as airspace change sponsors will need to familiarise themselves with the new Air Navigation Directions and Air Navigation Guidance in order to understand the implications for their organisations. This may involve reviewing documentation and enacting changes to existing processes. A total of 133 current / recent change sponsors has been identified on the CAA's Airspace Change Portal. All of these would be required to abide by the new Directions and Guidance[14] if they were to submit airspace change proposals.

A variety of organisational types and industrial sectors are represented within the 133 identified airspace change sponsors, namely:

- **Commercial aerodromes**, e.g. Heathrow Airport. This is the most common type of organisation identified through analysis of the portal.
- **Air navigation service providers**, e.g. NATS.
- **Aerospace manufacturers**, e.g. BAE Systems.
- **General aviation aerodromes**, e.g. London Gliding Club.
- **Renewable energy providers**, e.g. SeaGreen Wind Energy Ltd.
- **Space launch organisations**, e.g. Orbital Express Launch Ltd.
- **Advanced Air Mobility** and other innovative aviation technology companies, e.g. Skyports Ltd.

A policy for the migration to the new Directions & Guidance has been agreed and captures those ACP's underway and past Stage 2 of the process. There will be exceptions but it is expected that all ACP's will have transferred before July 2031. The organisations listed above may therefore not be affected, i.e. if they do not submit subsequent ACPs, and are

[14] DfT analysis of Airspace change portal (caa.co.uk)

therefore intended to be used as an illustration for the number and variety of impacted organisations.

### Overview of Preferred Option

The preferred option updates the Air Navigation Directions and Guidance through a combined package of strategic policy changes and enabling reforms. It introduces a clearer prioritisation framework, with noise given greater weight below 5,000 feet and efficiency and carbon above, providing a balanced trade-off between environmental and operational objectives. Alongside this, it simplifies and streamlines the regulatory process, reducing ambiguity and administrative burden while enabling more proportionate, risk-based decision-making by the CAA. Together, these changes are intended to improve clarity and support the effective delivery of airspace modernisation.

### Impacts of Preferred Option

Given the degree of commonality between the anticipated impacts of each element of the preferred option, and a desire to avoid repetition, each impact has been described once in this section. The proceeding section identifies which impacts are associated with each element of the proposal.

A small number of impacts within this impact assessment have been accompanied by indicative quantitative estimates (see below and within the Regulatory Scorecard), intended to provide an order-of-magnitude sense of the potential scale of effects. These estimates are inherently high-level and illustrative, and should not be interpreted as precise forecasts of the impacts of the policy. Consequently, they have been deemed to be insufficiently robust for inclusion in Equivalent Annual Net Direct Cost to Business (EANDCB) or Net Present Value (NPV) calculations.

### Direct Costs

**Stakeholder familiarisation (Businesses; Components A & B):** The proposed updates introduce new strategic, environmental, operational, and procedural frameworks that stakeholders - particularly airspace change sponsors - will need to understand and integrate. This will likely require short-term investment in training, legal review, and internal policy updates. For example, changes to environmental assessment requirements and consultation processes will necessitate briefings and workshops to ensure compliance. While these costs are a one-off, they are essential to ensure smooth adoption and avoid misinterpretation of the revised guidance, especially where ambiguity has been reduced or new responsibilities have been introduced.

This impact has been classified as a direct cost to business as an immediate and unavoidable consequence of the changes to the ANG and AND.

No monetised estimate of stakeholder familiarisation costs has been provided within this document due to a lack of evidence regarding the magnitude of these costs. Information was sought through the consultation process to enable monetised estimates of key impacts to be presented in the final stage impact assessment. However, no such information was provided and all impacts are therefore non-monetised.

**Transition and compliance (Businesses, Component B):** Organisations will need to adapt internal processes to align with the revised regulatory framework. This includes updating procedures for airspace change proposals, modifying environmental assessment workflows, and adjusting consultation strategies. For instance, a change in how certain environmental obligations (e.g., HRA, SEA) are met and the introduction of more flexible engagement principles will require procedural realignment. Although these changes are designed to reduce long-term burdens, the transition phase may involve legal consultation, system updates, and coordination with the CAA to ensure continued compliance, particularly where responsibilities shift or where new discretionary powers are granted to the regulator.

As with familiarisation costs, these have been classified as a direct cost to business as an immediate and unavoidable consequence of the changes to the ANG and AND.

As above, no monetised estimate of transition and compliance costs has been provided within this document due to a lack of evidence regarding the magnitude of these costs.

### Indirect Costs

**Noise disturbance (Households, Component A ):** The revised guidance proposes replacing altitude-based noise priorities with a broader policy framework that balances safety, capacity, noise, and carbon. This may lead to airspace designs that prioritise efficiency or emissions reductions over noise mitigation in certain altitude bands (e.g. 5,000–7,000 feet). As a result, some communities could experience increased aviation noise, particularly if flight paths are adjusted to optimise fuel burn or capacity. While the policy encourages local flexibility and multiple route options to provide respite, the potential for increased noise exposure remains a concern, especially in densely populated or previously quieter areas.

Households will be the main impacted group as a result of any revisions to flightpaths. These impacts have been deemed to be indirect, as there are several steps in the logic chain before any impacts are realised (see Fuel efficiency (and CO2) savings due to changes to Airspace Design Priorities section below).

Figure 2 below indicates the households encompassed in the day and night noise contours at current and sensitivity dB levels. For daytime, the metric is $LAeq_{,16h}$[15], and for night it is $LAeq_{,8h}$[16]. The current policy levels are 51dB for daytime and 45 for night time. The lower sensitivity dB levels are included to illustrate what a potential lowering of the policy would look like.

*Figure 2 Households encompassed by noise contours (10 year average)*

[15] **LAeq,16h** refers to the A-weighted equivalent continuous sound level measured over a 16-hour daytime period (typically 07:00 to 23:00 in the UK). It represents the average noise energy from all sound events occurring during that period, expressed as a single decibel value that reflects both the loudness and duration of the noise.

[16] **LAeq,8h** refers to the A-weighted equivalent continuous sound level measured over an 8-hour night-time period (typically 23:00 to 07:00 in the UK). It provides a single average decibel value representing total noise exposure during the night, accounting for both the intensity and frequency of noise events.

| | Noise Metric | Edinburgh | Gatwick | Heathrow | Stansted | Manchester | Notes |
|---|---|---|---|---|---|---|---|
| Core Impacts – current policy | 51 dB ($LAeq_{,16h}$) | 14,600 | 7,000 | 359,700 | 5,400 | 46,800 | Original (7,000 ft) |
| | 51 dB ($LAeq_{,16h}$) | 13,100 (-10%) | 6,600 (-6%) | 353,500 (-2%) | 5,400 (-0%) | 45,200 (-3%) | 5,000 ft (truncated) |
| | 45 dB ($LAeq_{,8h}$) | 19,200 | 6,900 | 305,400 | 9,100 | 75,800 | Original (7,000 ft) |
| | 45 dB ($LAeq_{,8h}$) | 16,600 (-14%) | 6,500 (-6%) | 303,900 (-0%) | 9,000 (-1%) | 74,800 (-1%) | 5,000 ft (truncated) |
| Sensitivity Impacts | 45 dB ($LAeq_{,16h}$) | 40,100 | 43,300 | 1,092,000 | 25,600 | 111,300 | Original (7,000 ft) |
| | 45 dB ($LAeq_{,16h}$) | 31,400 (-22%) | 29,700 (-31%) | 902,400 (-17%) | 24,300 (-5%) | 101,800 (-9%) | 5,000 ft (truncated) |
| | 40 dB ($LAeq_{,8h}$) | 44,300 | 30,600 | 660,700 | 35,000 | 141,000 | Original (7,000 ft) |
| | 40 dB ($LAeq_{,8h}$) | 33,300 (-25%) | 26,000 (-15%) | 635,100 (-4%) | 32,800 (-6%) | 133,700 (-5%) | 5,000 ft (truncated) |

**Direct Benefits**

**Reduced administrative burden (Businesses; Component B )**: The proposed updates aim to streamline regulatory processes, reducing duplication and unnecessary complexity. By allowing the reuse of environmental assessments from other planning processes (e.g., DCO or spaceport licensing), and enabling the CAA to act without DfT approval in specific cases, the reforms cut red tape and speed up decision-making. This provides greater certainty of timely outcomes to industry and communities affected, whilst also reducing compliance costs and administrative overhead for both regulators and industry stakeholders. Clearer guidance and reduced ambiguity also mean fewer delays due to misinterpretation, allowing sponsors to focus resources on delivering effective airspace changes rather than navigating bureaucratic hurdles.

As an immediate and unavoidable consequence of changes to guidance, these have been deemed a direct benefit to business.

It has not been possible to precisely calculate the magnitude of this reduced administrative burden. However, an indicative estimate has been produced based on previous analysis conducted by DfT and expertise provided by the CAA. The analysis underpinning the initial UKADS DMA estimated that the present value cost (PVC) of masterplan Airspace Change Proposals (ACPs) is approximately £110 million over the next ten years. The CAA estimated that the joint impact of: 1) the establishment of the UKADS; 2) changes to the CAP1616 process; and 3) the proposed updates to the AND/ANG would reduce CAA administrative burdens by 20-30%.

If it is assumed that these changes will lead to a similar administrative burden reduction for businesses and that the impact of each aspect is equal, i.e. the proposed changes to the AND/ANG will account for a third of the burden reduction, it can be indicatively estimated that the changes to the AND/ANG will deliver administrative burden reductions for masterplan ACPs valued at between £0.73m and £1.10m per annum with a central estimate of £0.91m.

*Figure 3 Estimated administrative burden reduction*

| | % administrative burden reduction | Total administrative burden reduction (£m) | Administrative burden reduction attributable to AND/ANG changes (£m) | Annual administrative burden reduction attributable to AND/ANG changes (£m) |
|---|---|---|---|---|
| **Low** | 20% | £21.94 | £7.31 | £0.73 |
| **Central** | 25% | £27.43 | £9.14 | £0.91 |
| **High** | 30% | £32.91 | £10.97 | £1.10 |

The estimates presented above consider the reduction in costs associated with masterplan ACPs [17]only, which represent 15% of ACPs currently in the system. The CAA have indicated that they expect the changes to the AND and ANG to have minimal impact on ACPs deemed “low” and “medium” complexity, but may have some impact on “high” complexity ACPs which represent 10% of ACPs in the system.

To account for this, the figures presented above are increased by 50% to estimate overall administrative burdens of £1.10m to £1.65m with a central estimate of £1.38m per annum. This uplift was based on discussions with CAA subject matter experts following engagement with industry.

**Improved airspace change process efficiency (CAA, Components A & B )**: The revised guidance introduces clearer roles, responsibilities, and timelines, particularly around call-in procedures and consultation requirements. These changes reduce bottlenecks and uncertainty, enabling faster implementation of airspace changes and better alignment with operational needs. The result is a more agile regulatory environment that supports timely delivery of modernisation objectives.

### Indirect Benefits

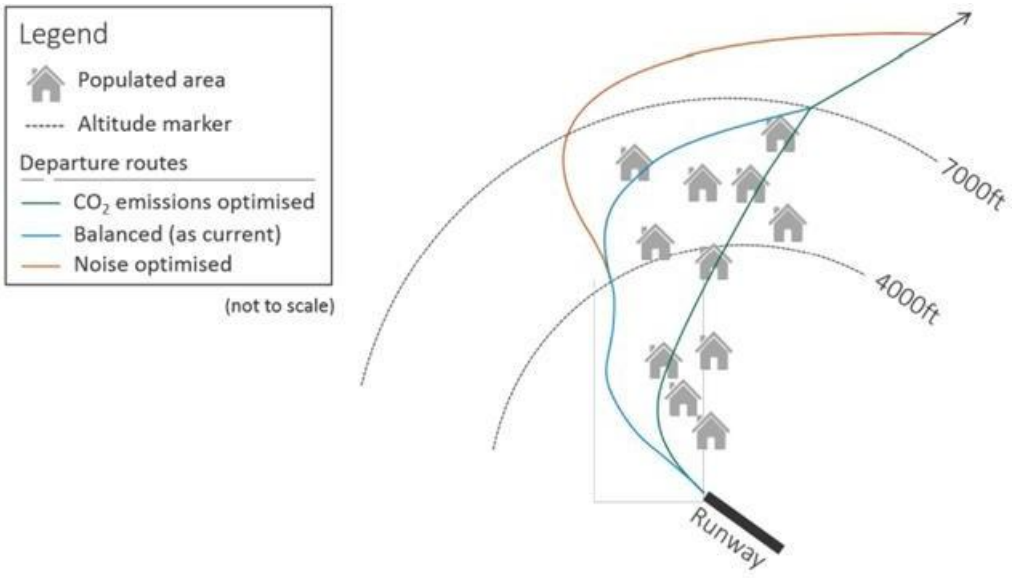
**Fuel efficiency (and CO2) savings due to changes to Airspace Design Priorities (Indirect; Businesses):** In addition to the fuel efficiency benefits brought about by the implementation of the UK’s Airspace Modernisation Strategy (see below), the revisions to Altitude Based Priorities (ABPs) is likely to lead to decreases in fuel consumption when flightpaths are amended to prioritise CO2 emissions in place of the current balanced approach.

To illustrate this benefit, Figure 4 below provides an indicative example of three potential departure routes from a fictional airport. The green line represents a proposed departure route where the CO2 emissions are prioritised. The blue line represents a balanced approach, whereby noise is prioritised provided there is no disproportionate increase in CO2 emissions. The red line represents the noise optimised route.

In this example, the green line represents the shortest possible route but also results in the overflight of a larger population than either of the other two routes. As a consequence, fuel consumption is likely to be reduced compared with the (existing) approach, although the negative impacts of aviation noise on health and quality of life will also increase.

[17] A masterplan ACP refers to an airspace change proposal submitted by a sponsor who participates in the Future Airspace Strategy Implementation (FASI) programme.

*Figure 4 Indicative example – proposed departure routes at a fictional airport*




The magnitude of this impact has not been estimated as the precise impacts will depend on the technical specifics of any future airspace design and can therefore not be estimated with any degree of accuracy. A 2017 Impact Assessment[18], which aimed to provide "the necessary clarity and strength of language to ensure that noise is prioritised up to 7,000 feet", estimated additional fuel costs of £4.6 million in 2017 prices as a consequence of aircraft flying longer routes. If it is assumed that the proposed measure has the inverse impact, the fuel benefit to airlines is estimated to be approximately £6 million in 2025 prices.

This has been classified as an indirect benefit to business in accordance with RPC guidance on direct and indirect impacts[19]. Firstly, there are several "steps in the logic chain" before these would be realised. For this to occur:

1. The change in policy will be approved and published;
2. CAA internal processes revised and updated (CAP1616)
3. Airspace change sponsors will be required to become familiar with them
4. The new priorities will then be reflected in subsequent airspace change proposals
5. The fuel benefit will be derived when operators fly the routes set out in the relevant, redesigned airspace.

Secondly, the indirect classification reflects that the businesses benefitting are not the same businesses that are subject to the regulation. In this instance, ACP sponsors – mostly aerodromes and aerospace firms – are the businesses subject to the regulation while the fuel savings are a benefit to organisations that are not directly subject to the regulation, i.e. airlines.

The 2017 Impact Assessment also identified that the expected increase in fuel burn would lead to an increase in carbon emissions, with an annual average of 37,000 tonnes estimated across years 1 to 10. This figure was not monetised as it was "considered

[18] https://assets.publishing.service.gov.uk/media/5a81c7a6e5274a2e87dbf707/clarifying-altitude-based-priorities-during-airspace-changes.pdf
[19] https://assets.publishing.service.gov.uk/media/5c9b7ccde5274a52811778f2/RPC_case_histories_-_direct_and_indirect_impacts__March_2019__1_.pdf

disproportionate given the relatively small scale of the estimated carbon costs (the annual average being around 0.1% of the 2014 CO2 emissions from UK aviation)".

However, the value of these carbon savings in 2026 prices has been estimated using the Government's carbon appraisal values, adjusted to reflect the large proportion of aviation emissions that are already covered by carbon pricing mechanisms such as the UK Emissions Trading Scheme (ETS) and the Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA), in order to avoid double counting of benefits. This results in a net carbon value of around £347 per tonne of CO2 avoided and an indicative aggregate benefit of £12.8 million annually.

**Support for airspace modernisation (Various, Components A & B)**: The updated AND/ANG framework supports the timely implementation of the UK's Airspace Modernisation Strategy. It supports the adoption of new technologies, such as drones, by explicitly including them in the regulatory scope. This ensures that the UK's airspace evolves in step with technological advancements and changing aviation demands, thus facilitating the benefits of airspace modernisation, which are listed below:

- **Increased capacity**: Modernising airspace enables more efficient use of available airspace through optimised flight paths. This allows for increased throughput at both airports and en-route sectors without the need for costly infrastructure expansion. By redesigning airspace structures and procedures, capacity can be unlocked to accommodate more flights, supporting growth in passenger and cargo volumes, subject to future planning decisions.
- **Reduced delays and disruption**: Airspace modernisation introduces more direct routing, dynamic traffic flow management, and improved coordination between air traffic control units. These enhancements reduce the need for airborne holding and ground delays, which are common causes of inefficiency and passenger dissatisfaction. By smoothing traffic flows and reducing bottlenecks, the system becomes more predictable and resilient to disruptions. This not only improves the passenger experience but also reduces operational costs for airlines.
- **Enabling Future of Flight[20]:** Modernised airspace will likely lead to: faster approvals for trials and demonstrations of drones and eVTOLs; quicker integration of new flight paths and operational zones for emerging aircraft; reduced delays in scaling up from pilot projects to commercial operations.
- **Lower environmental impact:** Modernised airspace enables aircraft to fly more direct and fuel-efficient routes, reducing overall flight time and fuel burn. This leads to significant reductions in carbon emissions and supports the UK's commitment to achieving net zero aviation.

**Long-term economic gains (Various, Components A & B )**: A more efficient and modernised airspace system enhances the UK's economic competitiveness by supporting growth in aviation, logistics, and high-value sectors reliant on air connectivity. Reduced delays, improved capacity, and better integration of regional airports contribute to productivity gains across the economy. The reforms also lower the cost and time required to implement airspace changes, encouraging investment and innovation.

[20] https://www.gov.uk/government/publications/future-of-flight-action-plan

**Error! Reference source not found.** (overleaf) provides an assessment of the extent to which each element of the preferred option contributes to each of the impacts listed above.

### Equivalent Annual Net Direct Cost to Business (EANDCB)

Although it has not been possible to provide quantitative estimates of the EANDCB, it is thought highly likely that the measure falls well within the de minimis threshold of ±£10m. If monetised, the following impacts would be considered as direct costs or benefits to business:

- **Costs**
  - Stakeholder Familiarisation
  - Transition and compliance
- **Benefits**
  - Reduced administrative burden

It is thought likely that these initial upfront costs associated with adjusting to the updated airspace change process will be significant, but are non-recurring and expected to be short term in nature. These initial costs will be offset by reduced long-term administrative burdens, leading to long-term benefits for businesses.

Businesses, namely airlines, will benefit further on an ongoing basis from reduced fuel consumption and associated costs. However, these benefits will only be realised in instances where airspace change takes place, i.e. it will not apply to all flights, and in instances where the current route choices are not already optimised for CO2 efficiency. Additionally, any efficiency gains on individual routes are likely to be marginal and the phase of flight in which savings can be realised is relatively short, e.g. an aircraft climbing at a rate of 1,000 to 3,000 feet per minute would only be at the affected altitudes for 1 to 3 minutes.

The measure is therefore expected to be beneficial overall for businesses, i.e. the EANDCB is expected to be negative, but is unlikely to exceed the -£10m threshold.

### Risks

If no further action is taken these changes could lead to businesses having to re-submit proposals which align with any revised policy and procedure. However, similar to the previous time the Directions and Guidance were amended, the DfT intend to develop a ‘migration’ policy where businesses will transition from one process to another without the need to restart their application. This is expected to only need apply to a few applications currently underway.

# Annex A – The potential impacts of setting the threshold for the Airspace Design Priorities at altitudes of 4,000 ft / 5,000 ft / 6,000 ft versus the current approach of 7,000 ft; with additional sensitivity analysis reflecting the potential policy implications of new research on aviation noise

## Introduction

This annex sets out information on the potential impacts of changing the approach to the Secretary of State's guidance to the Civil Aviation Authority (CAA) on Airspace Design Priorities (ADP). They provide clear priorities to be set for airspace design, including prioritisation of how noise, carbon, and flight efficiency are balanced. It also focusses on the impact of different policy changes in the airports' areas.

In terms of the analytical approach, we have taken the same approach as used at consultation stage because no challenges or alternatives were raised.

To illustrate the potential impacts on populations affected between setting the altitude at which noise impacts are prioritised, at different altitudes, we have commissioned the CAA, using their UK Civil Aircraft Noise Contour Model (ANCON) model, to prepare maps showing the contours with aircraft height profiles truncated[21] to three different altitudes (4,000ft, 5,000ft, and 6,000ft) against the original (actual for 2025) average summer day and night noise contours[22] (at 51 $LAeq_{,16}$ and 45 $LAeq_{,8h}$ respectively). These maps show the impact on populations affected of excluding all noise from aircraft above these altitudes. The original contours are representative of contours being truncated at 7,000ft.

51dB $LAeq_{,16h}$ and 45dB $LAeq_{,8h}$ are the Lowest Observed Adverse Effect Levels[23] (LOAEL's) for aviation noise, as set in the 2017 Air Navigation Guidance and are used as the thresholds for assessing noise impacts of airspace changes.

The CAA were also commissioned to carry out sensitivity analysis, reflecting the potential implication that new research – such as the Aviation Night Noise Effects study[24] – could have on LOAEL policy. More specifically, we have assessed what impact the changing airspace design priority would have if the LOAELs were lowered. The lower noise contours of 45dB $LAeq_{,16h}$ and 40dB $LAeq_{,8h}$ are included for the purpose of comparison for this sensitivity. It should be noted that this does not pre-judge any decisions to change policy on

[21] Truncation refers to the exclusion of noise from aircraft once they reach above a particular altitude, in this case 4,000ft, 5,000ft, and 6,000ft.
[22] A noise contour shows an area on map which is exposed to noise levels from aircraft above a certain decibel level across a certain period – in this case 16 hours (0700-2300) or 8 hours (2300-0700). The LAeq metric smooths out the peaks and troughs of aircraft noise to create an equivalent continuous sound level and reflects both the number of aircraft movement during this period and their individual loudness.
[23] The lowest observed adverse effect level is the level of noise exposure above which adverse effects on health and quality of life can be detected. It is used in the Air Navigation Guidance as the point at which adverse effects begin to be seen on a community basis.
[24] Aviation Night Noise Effects (ANNE) study - GOV.UK – ANNE is examining the relationship between exposure to night-time aviation noise and the subjective (self-reported) impact on sleep disturbance and annoyance

LOAELs, these are just presented to illustrate the potential direction policy can head should it be influenced by the recent findings of the ANNE study (that the population is now more annoyed at lower dB levels than in the past)

If the daytime LOAEL were lowered to 45dB $LAeq_{,16}$, and the nighttime LOAEL were lowered to 40dB $LAeq_{,8h}$, the population affected would increase as a larger area would be considered under the current 7,000ft threshold. Lowering the airspace design priorities approach would change not only the population affected, but also the relative difference between altitude levels.

Setting the ADP threshold at 5,000ft compared to 7,000ft would reduce the number of households (and people) taken into account in the appraisal. Reducing it further to 4,000ft would further decrease the population in scope. This does not mean that those people would be subject to greater noise than today – with improvements in technology and faster climbs and descents they may have less noise. But the impact on populations affected of setting the priority at below 4,000ft would be that the impacts on these people would not be considered in any decision to amend airspace design.

The airports presented in this annex include the three designated London airports of Gatwick, Heathrow, and Stansted, as well as Manchester and Edinburgh airports. The values indicate 10-year averages, with a base of 2024 for all airports apart from Edinburgh, which has a 2025 base year. The results for current and sensitivity (lowered) LOAELs are presented for all airports below.

The relationship is non-linear: the reduction in the population and households captured by appraisal does not occur at a constant rate as the altitude threshold is lowered. The scale of the effect varies across airports due to differences in population density and local airspace characteristics. However, a consistent finding is that lower altitude thresholds result in a greater proportion of households and population falling outside the scope of appraisal compared with the current 7,000 ft threshold.

# Annex A.1 – Edinburgh Airport (2025)

## Core Impacts

Figure 1 shows the difference between contours truncated at 4,000ft, 5,000ft, and 6,000ft and the 2025 average summer day contour (51dB $LAeq_{,16h}$, original contour) for Edinburgh airport. The runway is shown at the centre of the image. The black line represents the original contour (truncated at 7,000ft) and the coloured lines indicate the truncated contours at various altitudes.

Figure 1 also shows that there is a gap between the original contour and the contour if the airspace design priority is set at below 4,000ft. In other words, 55% of people who are currently assessed as being adversely impacted by aircraft noise would **not** be taken into account if the priority was set to below 4,000ft. (15,200 people would be within 4,000ft compared to 33,800 at 7,000ft, see Table 1).

The difference is, however, considerably smaller for the altitudes of 5,000ft and 6,000ft. With below 5,000ft being only 10% fewer people, and below 6,000ft being 1% fewer people. This indicates a non-linear relationship between the altitude and population encompassed – meaning that the difference in impact from one altitude to the next does not follow a uniform or linear pattern.

**Figure 5 – EDI contours at lower altitudes (6,000ft, 5,000ft, and 4,000ft) vs original 2025 avg. summer day (51dB)**

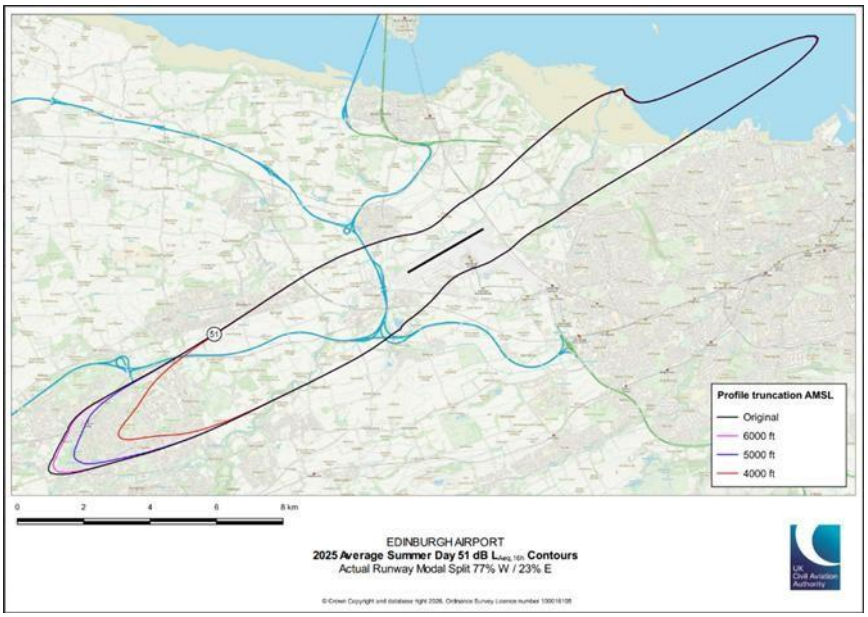
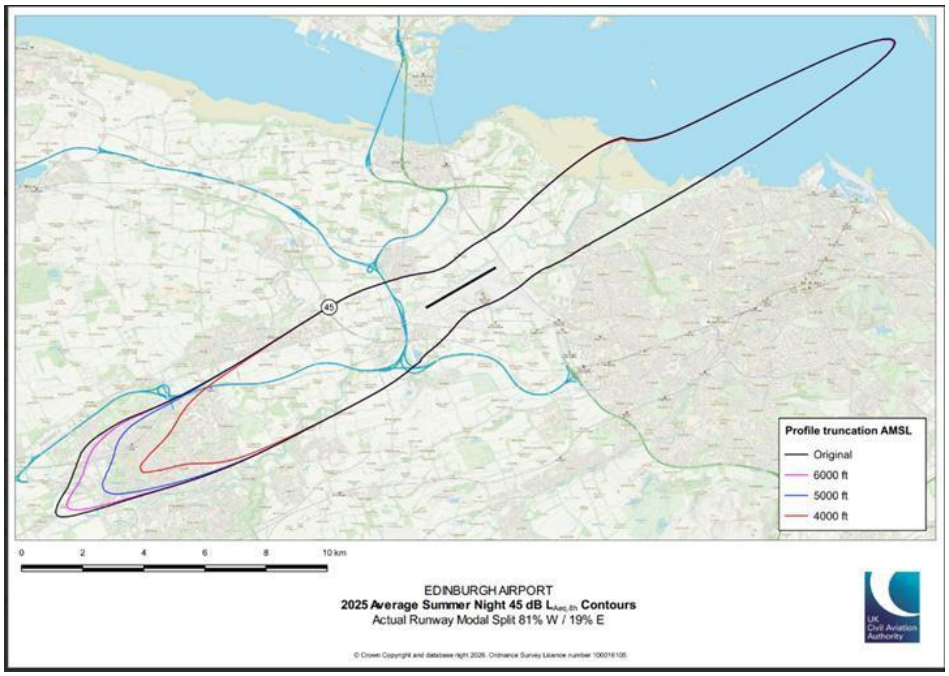



Figure 2 shows the equivalent information for nighttime. Again, this shows there is a gap between the original and new noise contour if the airspace design priority is set at below 4,000ft. In other words, 50% of people who are currently assessed as being adversely impacted by aircraft noise would **not** be taken into account if the priority was set to below 4,000ft (21,900 people would be within 4,000ft compared to 43,900 at 7,000ft, see Table 2).

**Figure 6 - EDI contours at lower altitudes (6,000ft, 5,000ft, and 4,000ft) vs original 2025 avg. summer night (45dB)**

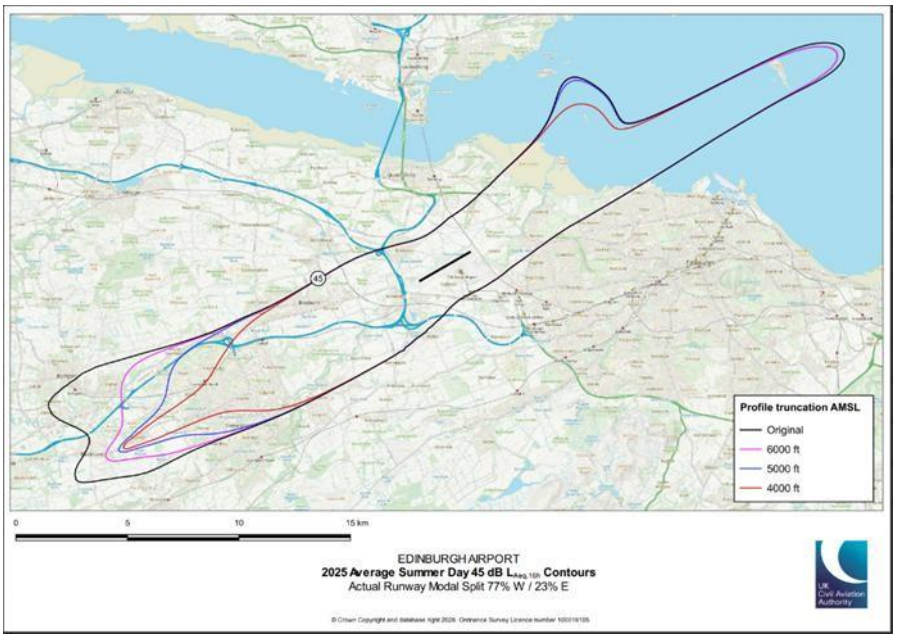



The main differences are seen over Livingston and Blackburn, and to the North East, extending over the island of Inchkeith. Similarly to daytime, at altitudes between 4,000ft and 7,000ft the difference is much smaller, with 14% fewer people assessed at 5,000ft, and 3% fewer at 6,000ft.

# Sensitivity Impacts

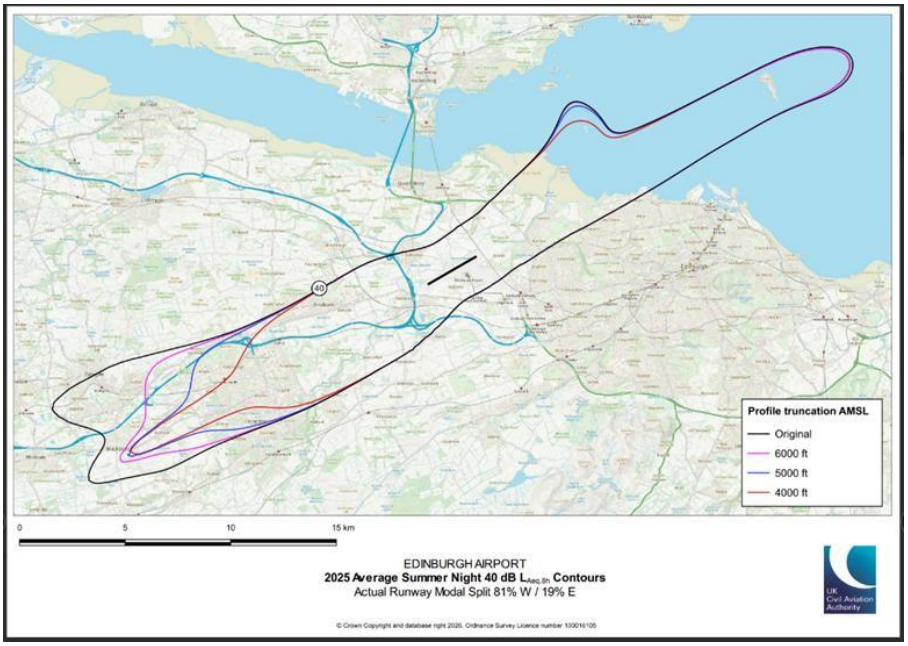
If the threshold for the Airspace Design Priorities is set at below 4,000ft with the LOAEL policy lowered to 45dB $LAeq_{,16h}$, then 36% (or 32,800) fewer people would be within 4,000ft compared to 90,200 at 7,000ft. A lowering of the LOAEL would increase the original contour (7,000 ft) around Edinburgh Airport, and as a result, the population / households encompassed would be larger under current Airspace Design Priorities. These numbers are for population specifically. Figure 3 below outlines the summer day noise contours at the lower LOAEL sensitivity level.

**Figure 7 – EDI contours at lower altitudes (6,000ft, 5,000ft, and 4,000ft) vs original 2025 avg. summer day (45dB)**




If the airspace design priority is set at below 4,000ft with the LOAEL policy lowered to 40dB $LAeq_{,8h}$, then 37% (or 36,900) fewer people would be within 4,000ft compared to 98,800 at 7,000ft. These figures are for population specifically. Figure 4 outlines the summer night noise contours at the lower LOAEL sensitivity level.

**Figure 4 – EDI contours at lower altitudes (6,000ft, 5,000ft, and 4,000ft) vs original 2025 avg. summer night (40dB)**




# Results Summary

Tables 1 and 2 show the areas, populations, and households' differences for the day and night contours at Edinburgh Airport, for current policy LOAEL's and the sensitivity. The percentage figures indicate the difference relative to the original (7,000 ft) contour. The larger % differences in population/households in the 4,000ft truncated contours arise from the geographic characteristics of the Edinburgh area and local traffic patterns. The estuary to the east of the airport results in significantly lower housing density in that direction,

reducing the population captured within the contours. In addition, departures are predominantly westerly, as shown in Figures 1–4. As lower altitude thresholds are applied, these departure profiles - and the associated noise - are increasingly excluded from the analysis, further accentuating the observed differences.

**Table 1 – Edinburgh airport 2025 average summer day contours**

| | LAeq, 16h (daytime) | Area ($km^2$) | Population | Households | Notes |
|---|---|---|---|---|---|
| Core Impacts – current policy | 51 dB | 52.7 | 33,800 | 14,600 | Original (7,000 ft) |
| | 51 dB | 52.4 (-1%) | 33,500 (-1%) | 14,500 (-1%) | 6,000 ft (truncated) |
| | 51 dB | 51.1 (-3%) | 30,300 (-10%) | 13,100 (-10%) | 5,000 ft (truncated) |
| | 51 dB | 47.0 (-11%) | 15,200 (-55%) | 6,500 (-55%) | 4,000 ft (truncated) |
| Sensitivity Impacts | 45 dB | 147.3 | 90,200 | 40,100 | Original (7,000 ft) |
| | 45 dB | 132.4 (-10%) | 73,700 (-18%) | 32,400 (-19%) | 6,000 ft (truncated) |
| | 45 dB | 122.1 (-17%) | 71,400 (-21%) | 31,400 (-22%) | 5,000 ft (truncated) |
| | 45 dB | 108.7 (-26%) | 57,400 (-36%) | 25,100 (-37%) | 4,000 ft (truncated) |

**Table 2 – Edinburgh airport 2025 average summer night contours**

| | LAeq, 8h (night-time) | Area ($km^2$) | Population | Households | Notes |
|---|---|---|---|---|---|
| Core Impacts – current policy | 45 dB | 67.9 | 43,900 | 19,200 | Original (7,000 ft) |
| | 45 dB | 66.6 (-2%) | 42,500 (-3%) | 18,500 (-4%) | 6,000 ft (truncated) |
| | 45 dB | 63.6 (-6%) | 37,800 (-14%) | 16,600 (-14%) | 5,000 ft (truncated) |

| | | | | | |
|---|---|---|---|---|---|
| | 45 dB | 58.1 (-14%) | 21,900 (-50%) | 9,700 (-49%) | 4,000 ft (truncated) |
| Sensitivity Impacts | 40 dB | 157.5 | 98,800 | 44,300 | Original (7,000 ft) |
| | 40 dB | 138.3 (-12%) | 78,300 (-21%) | 34,700 (-22%) | 6,000 ft (truncated) |
| | 40 dB | 127.6 (-19%) | 75,000 (-24%) | 33,300 (-25%) | 5,000 ft (truncated) |
| | 40 dB | 116.2 (-26%) | 61,900 (-37%) | 27,400 (-38%) | 4,000 ft (truncated) |

# Annex A.2 – London Gatwick Airport (2024)

## Core Impacts

Figure 5 shows the difference between contours truncated at 4,000ft, 5,000ft, and 6,000ft and the 2024 average summer day contour (51dB $LAeq_{,16h}$, original contour) for Gatwick airport. The runway is shown at the centre of the image. The black line represents the original contour (truncated at 7,000ft) and the coloured lines indicate the truncated contours at various altitudes.

Figure 5 also shows that there is a gap between the original contour and the contour if the airspace design priority is set at below 4,000ft. In other words, 11% of people who are currently assessed as being adversely impacted by aircraft noise would **not** be taken into account if the priority was set to below 4,000ft (15,600 people would be within 4,000ft compared to 17,600 at 7,000ft, see Table 3).

The difference is, however, considerably smaller for the altitudes of 5,000ft and 6,000ft. With below 5,000ft being only 6% fewer people, and below 6,000ft being 4% fewer people. This indicates a non-linear relationship between the altitude and population encompassed – meaning that the difference in impact from one altitude to the next does not follow a uniform or linear pattern.

**Figure 5 – LGW contours at lower altitudes (6,000ft, 5,000ft, and 4,000ft) vs original 2024 avg. summer day (51dB)**

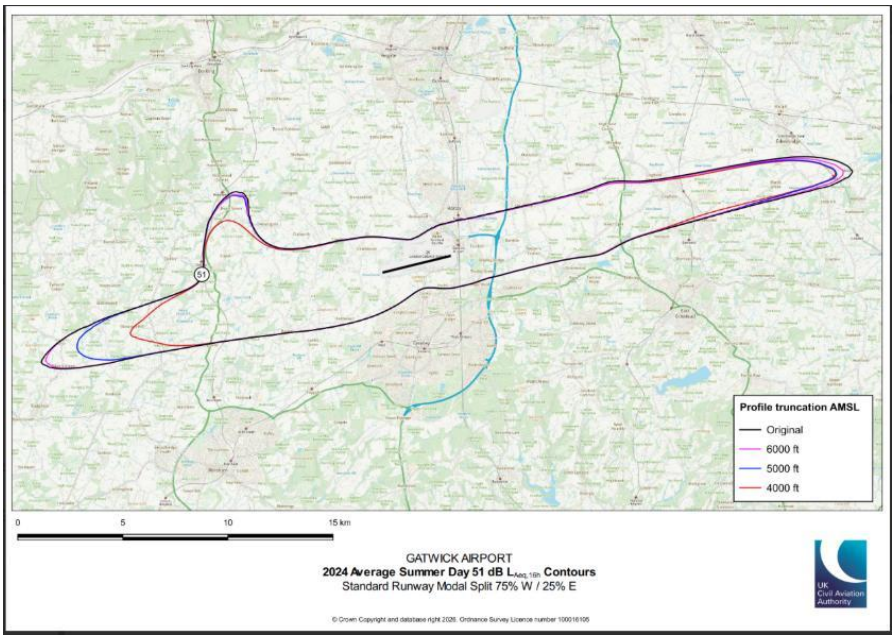
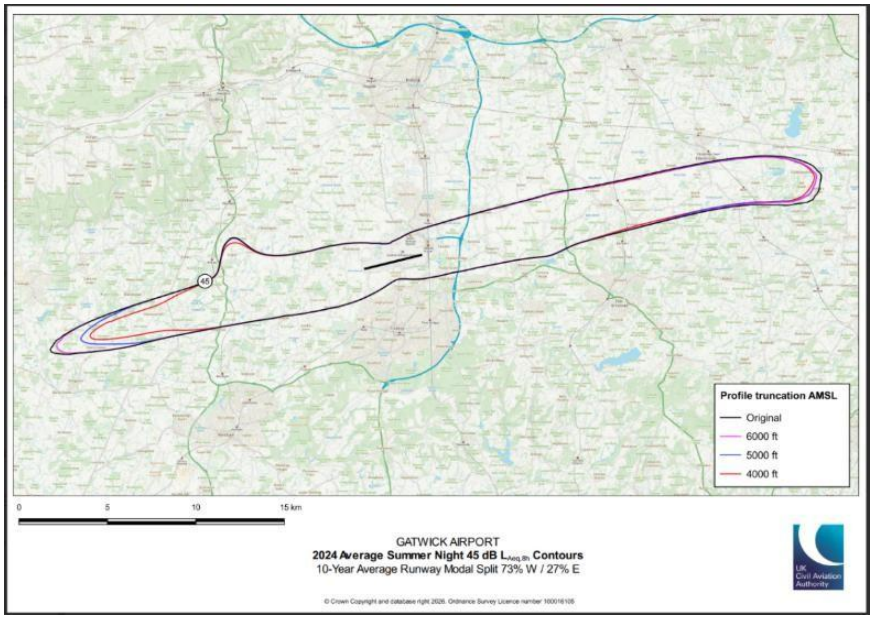



Figure 6 shows the equivalent information for nighttime. Again, this shows there is a gap between the original and new noise contour if the airspace design priority is set at below 4,000ft. In other words, 7% of people who are currently assessed as being adversely impacted by aircraft noise would not be taken into account if the priority was set to below 4,000ft (16,100 people would be within 4,000ft compared to 17,300 at 7,000ft, see Table 2).

**Figure 6 – LGW contours at lower altitudes (6,000ft, 5,000ft, and 4,000ft) vs original 2024 avg. summer night (45dB)**

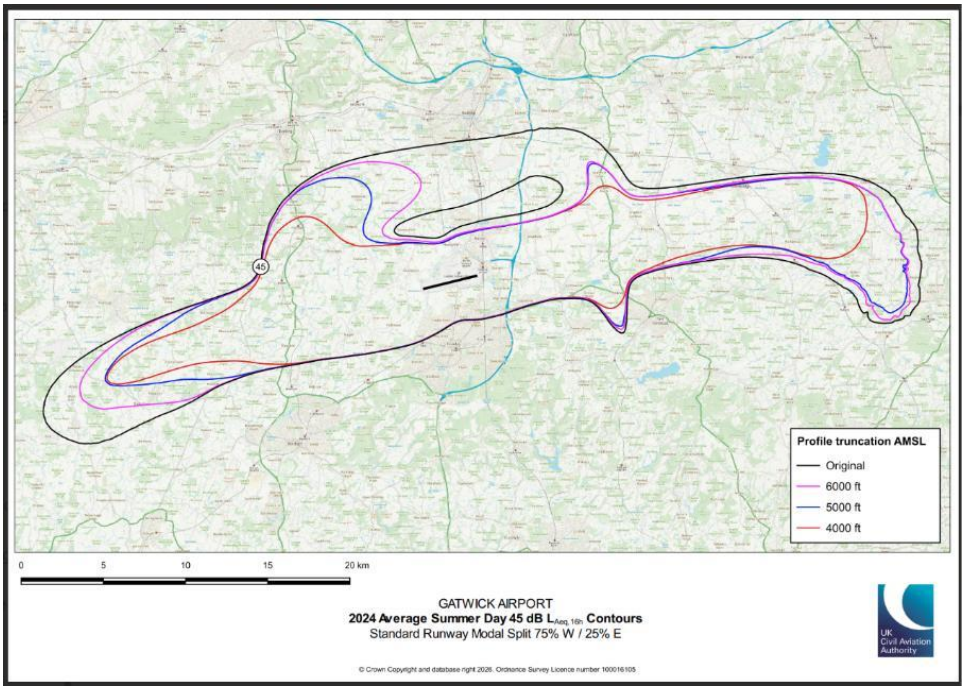



The main differences are seen over the Eastern part of the contours, and to the North West, around Holmwood. Similarly to daytime, at altitudes between 4,000ft and 7,000ft the difference is much smaller, with 6% fewer people assessed at 5,000ft, and 5% fewer at 6,000ft.

# Sensitivity Impacts

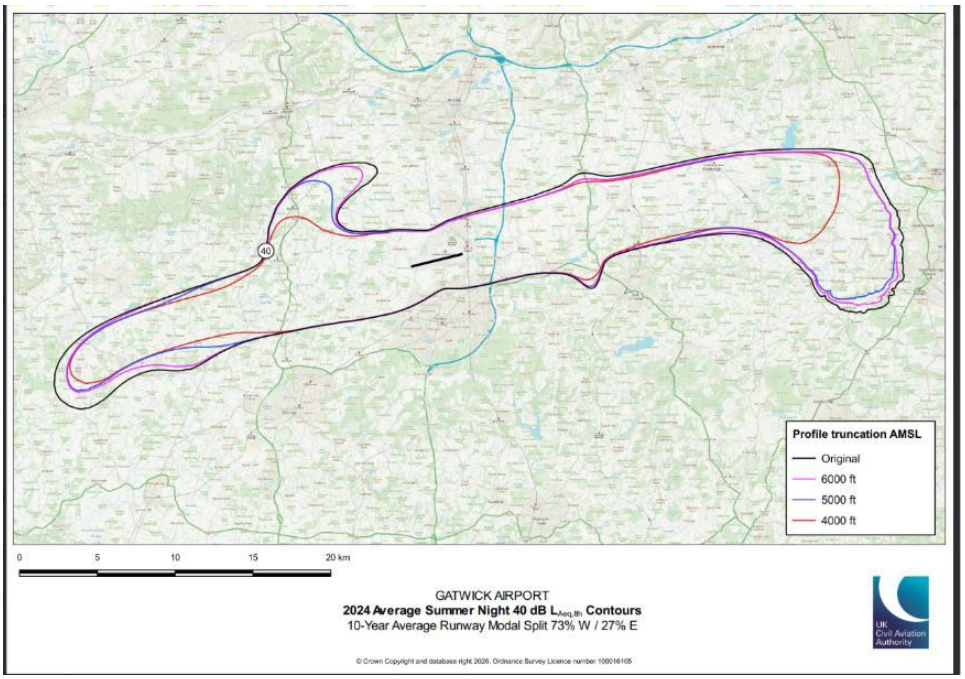
If the airspace design priority is set at below 4,000ft with the LOAEL policy lowered to 45dB $LAeq_{,16h}$, then 37% (or 40,100) fewer people would be within 4,000ft compared to 107,400 at 7,000ft. A lowering of the LOAEL would increase the original contour (7,000 ft) around Gatwick Airport, and as a result, the population / households encompassed would be larger under current Airspace Design Priorities. These numbers are for population specifically. Figure 7 outlines the summer day noise contours at the lower LOAEL sensitivity level.

**Figure 7 – LGW contours at lower altitudes (6,000ft, 5,000ft, and 4,000ft) vs original 2024 avg. summer day (45dB)**




For example, if the airspace design priority is set at below 4,000ft with the LOAEL policy lowered to 40dB $LAeq_{,8h}$, then 29% (or 22,000) fewer people would be within 4,000ft compared to 75,100 at 7,000ft. These figures are for population specifically. Figure 8 outlines the summer night noise contours at the lower LOAEL sensitivity level.

**Figure 8 – LGW contours at lower altitudes (6,000ft, 5,000ft, and 4,000ft) vs original 2024 avg. summer night (40dB)**




# Results Tables

Tables 3 and 4 show the areas, populations, and households' differences for the day and night contours at Gatwick Airport, for current policy LOAEL's and the sensitivity that was run. The percentage figures indicate the difference to the original (7,000 ft) contour.

**Table 3 – Gatwick airport 2024 average summer day contours**

| | LAeq, 16h (daytime) | Area ($km^2$) | Population | Households | Notes |
|---|---|---|---|---|---|
| Core Impacts – current policy | 51 dB | 113.8 | 17,600 | 7,000 | Original (7,000 ft) |
| | 51 dB | 111.4 (-2%) | 16,900 (-4%) | 6,700 (-4%) | 6,000 ft (truncated) |
| | 51 dB | 107.4 (-6%) | 16,600 (-6%) | 6,600 (-6%) | 5,000 ft (truncated) |
| | 51 dB | 96.9 (-15%) | 15,600 (-11%) | 6,200 (-11%) | 4,000 ft (truncated) |
| Sensitivity Impacts | 45 dB | 403.2 | 107,400 | 43,300 | Original (7,000 ft) |
| | 45 dB | 314.4 (-22%) | 79,400 (-26%) | 32,100 (-26%) | 6,000 ft (truncated) |
| | 45 dB | 278.7 (-31%) | 73,900 (-31%) | 29,700 (-31%) | 5,000 ft (truncated) |

| | | | | | |
|---|---|---|---|---|---|
| | 45 dB | 224.9 (-44%) | 67,300 (-37%) | 27,100 (-37%) | 4,000 ft (truncated) |

**Table 4 – Gatwick airport 2024 average summer night contours**

| | LAeq, 8h (night-time) | Area (km²) | Population | Households | Notes |
|---|---|---|---|---|---|
| Core Impacts – current policy | 45 dB | 125.1 | 17,300 | 6,900 | Original (7,000 ft) |
| | 45 dB | 122.3 (-2%) | 16,500 (-5%) | 6,600 (-4%) | 6,000 ft (truncated) |
| | 45 dB | 118.5 (-5%) | 16,300 (-6%) | 6,500 (-6%) | 5,000 ft (truncated) |
| | 45 dB | 112.7 (-10%) | 16,100 (-7%) | 6,500 (-6%) | 4,000 ft (truncated) |
| Sensitivity Impacts | 40 dB | 324.7 | 75,100 | 30,600 | Original (7,000 ft) |
| | 40 dB | 298.8 (-8%) | 67,200 (-11%) | 27,200 (-11%) | 6,000 ft (truncated) |
| | 40 dB | 281.7 (-13%) | 64,300 (-14%) | 26,000 (-15%) | 5,000 ft (truncated) |
| | 40 dB | 227.1 (-30%) | 53,100 (-29%) | 21,400 (-30%) | 4,000 ft (truncated) |

# Annex A.3 – London Heathrow Airport (2024)

## Core Impacts

Figure 9 shows the difference between contours truncated at 4,000ft, 5,000ft, and 6,000ft and the 2024 average summer day contour (51dB $LAeq_{,16h}$, original contour) for Heathrow airport. The two runways are shown at the centre of the image. The black line represents the original contour (truncated at 7,000ft) and the coloured lines indicate the truncated contours at various altitudes.

Figure 9 further shows that there is a gap between the original contour and the contour if the airspace design priority is set at below 4,000ft. In other words, 11% of people who are currently assessed as being adversely impacted by aircraft noise would **not** be taken into account if the priority was set to below 4,000ft (789,500 people would be within 4,000ft compared to 884,000 at 7,000ft, see Table 5).

The difference is, however, considerably smaller for the altitudes of 5,000ft and 6,000ft. With below 5,000ft being only 2% fewer people, and below 6,000ft being 1% fewer people. This indicates a non-linear relationship between the altitude and population encompassed – meaning that the difference in impact from one altitude to the next does not follow a uniform or linear pattern.

**Figure 9 – LHR contours at lower altitudes (6,000ft, 5,000ft, and 4,000ft) vs original 2024 avg. summer day (51dB)**

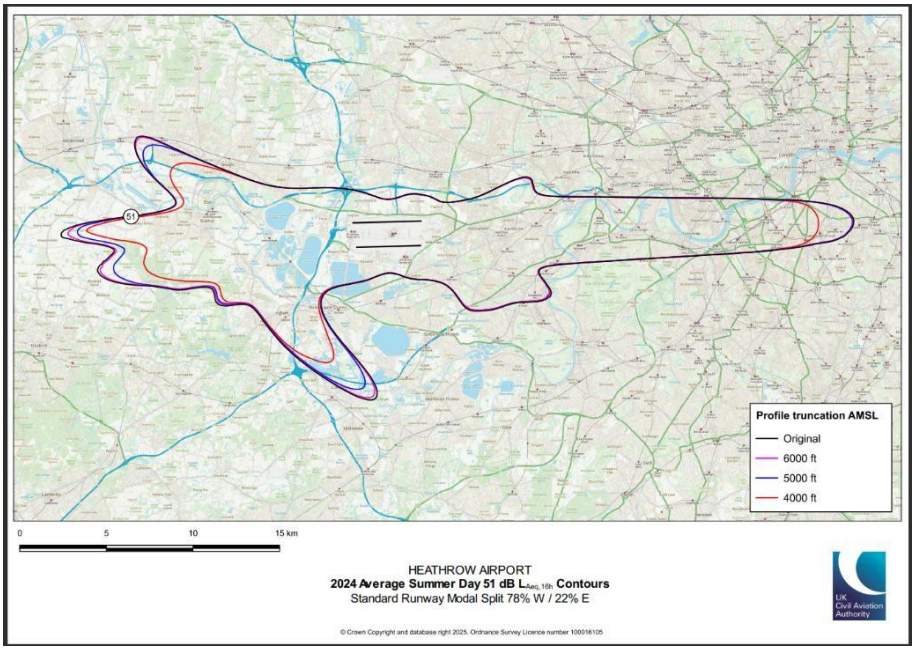
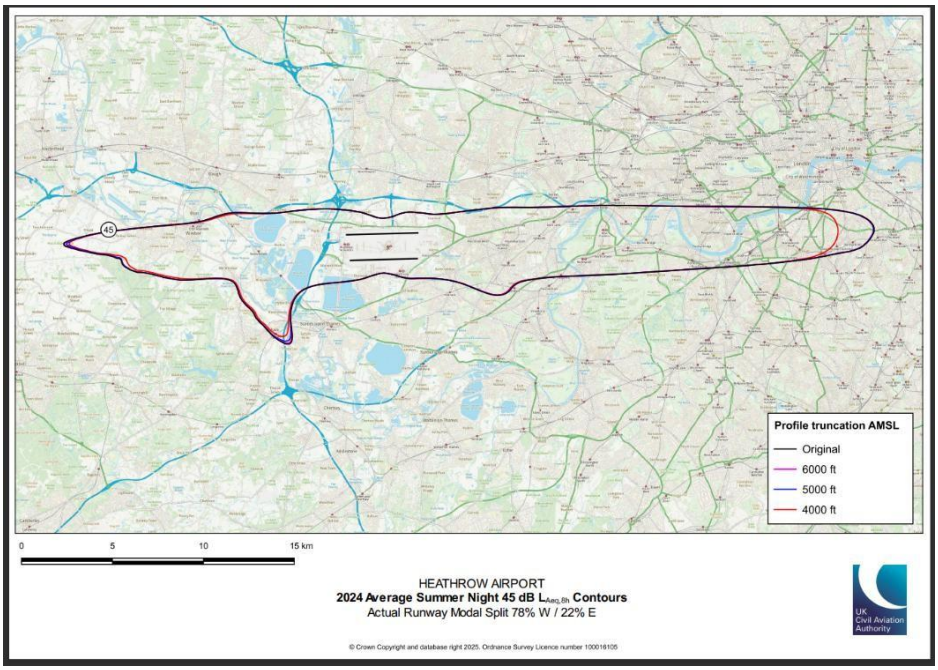



Figure 10 shows the equivalent information for nighttime. Again, this shows there is a gap between the original and new noise contour if the airspace design priority is set at below 4,000ft. In other words, 9% of people who are currently assessed as being adversely impacted by aircraft noise would **not** be taken into account if the priority was set to below 4,000ft (675,600 people would be within 4,000 ft compared to 740,000 at 7,000 ft, see Table 6).

**Figure 10 – LHR contours at lower altitudes (6,000ft, 5,000ft, and 4,000ft) vs original 2024 avg. summer night (45dB)**

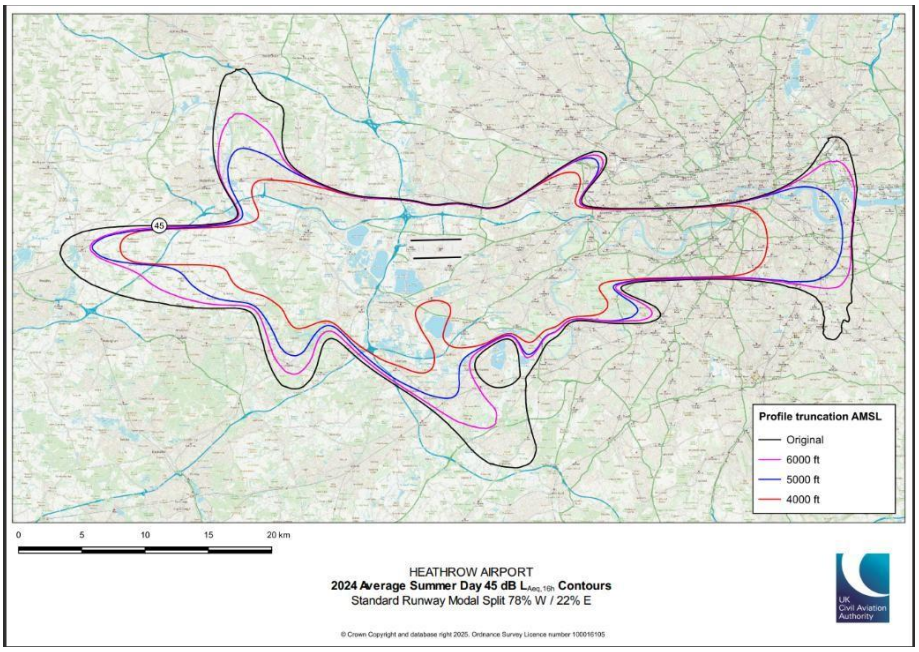



The main differences are seen over central London to the Isle of Dogs, and to the South towards Chertsey. Similarly to daytime, at altitudes between 4,000ft and 7,000ft the difference is much smaller, with 0.5% fewer people assessed at 5,000ft, and 0.4% fewer at 6,000ft.

# Sensitivity Impacts

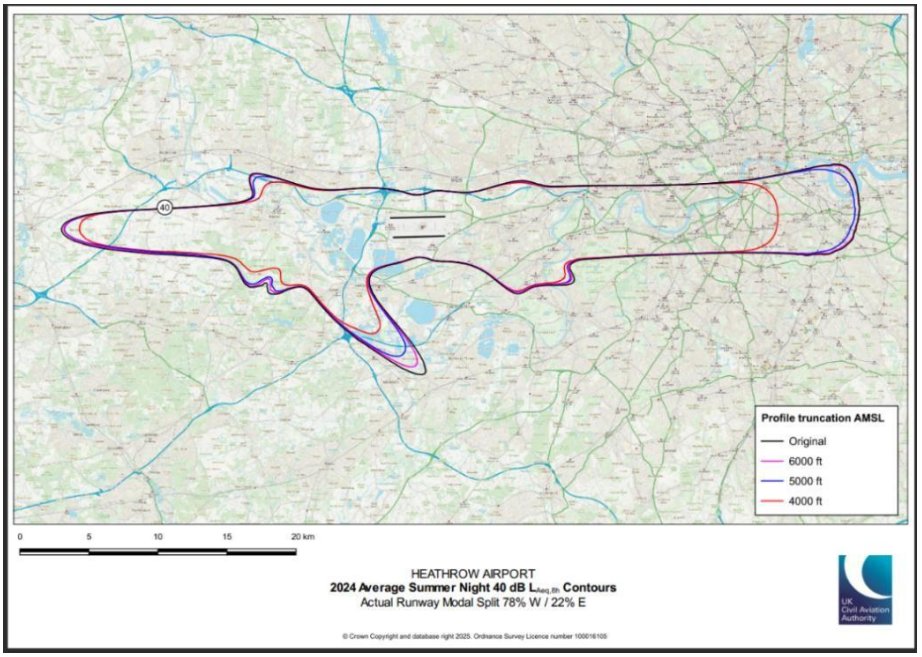
If the airspace design priority is set at below 4,000ft with the LOAEL policy lowered to 45dB $LAeq_{,16h}$, then 41% (or 1,073,800) fewer people would be within 4,000ft compared to 2,645,100 at 7,000ft. A lowering of the LOAEL would increase the original contour (7,000 ft) around Heathrow Airport, and as a result, the population / households encompassed would be larger under current Airspace Design Priorities. Figure 11 below outlines the summer day noise contours at the lower LOAEL sensitivity level.

**Figure 11 – LHR contours at lower altitudes (6,000ft, 5,000ft, and 4,000ft) vs original 2024 avg. summer day (45dB)**




If the airspace design priority is set at below 4,000ft with the LOAEL policy lowered to 40dB $LAeq_{,8h}$, then 29% (or 458,700) fewer people would be within 4,000ft compared to 1,577,700 at 7,000ft. These figures are for population specifically. Figure 12 below outlines the summer night noise contours at the lower LOAEL sensitivity level.

**Figure 12 – LHR contours at lower altitudes (6,000ft, 5,000ft, and 4,000ft) vs original 2024 avg. summer night (40dB)**




# Results Tables

Tables 5 and 6 show the areas, populations, and households' differences for the day and night contours at Heathrow, for current policy LOAEL's and the sensitivity that was run. The percentage figures indicate the difference to the original (7,000 ft) contour.

### Table 5 – Heathrow airport 2024 average summer day contours

| | LAeq, 16h (daytime) | Area ($km^2$) | Population | Households | Notes |
|---|---|---|---|---|---|
| Core impacts – current policy | 51 dB | 232.3 | 884,000 | 359,700 | Original (7,000 ft) |
| | 51 dB | 229.2 (-1%) | 877,600 (-1%) | 357,100 (-1%) | 6,000 ft (truncated) |
| | 51 dB | 223.6 (-4%) | 869,300 (-2%) | 353,500 (-2%) | 5,000 ft (truncated) |
| | 51 dB | 201.4 (-13%) | 789,500 (-11%) | 321,300 (-11%) | 4,000 ft (truncated) |
| Sensitivity impacts | 45 dB | 710.1 | 2,645,100 | 1,092,000 | Original (7,000 ft) |
| | 45 dB | 600.4 (-15%) | 2,407,400 (-9%) | 995,000 (-9%) | 6,000 ft (truncated) |
| | 45 dB | 528.1 (-26%) | 2,183,900 (-17%) | 902,400 (-17%) | 5,000 ft (truncated) |
| | 45 dB | 403.3 (-43%) | 1,571,300 (-41%) | 644,300 (-41%) | 4,000 ft (truncated) |

### Table 6 – Heathrow airport 2024 average summer night contours

| | LAeq, 8h (night-time) | Area ($km^2$) | Population | Households | Notes |
|---|---|---|---|---|---|
| Core Impacts – current policy | 45 dB | 153.7 | 740,000 | 305,400 | Original (7,000 ft) |
| | 45 dB | 153.1 (-0%) | 737,400 (-0%) | 304,300 (-0%) | 6,000 ft (truncated) |
| | 45 dB | 152.7 (-1%) | 736,500 (-0%) | 303,900 (-0%) | 5,000 ft (truncated) |
| | 45 dB | 146.5 (-5%) | 675,600 (-9%) | 279,200 (-9%) | 4,000 ft (truncated) |
| Sensitivity Impacts | 40dB | 333.4 | 1,577,700 | 660,700 | Original (7,000 ft) |
| | 40dB | 326.3 (-2%) | 1,559,500 (-1%) | 635,100 (-1%) | 6,000 ft (truncated) |

| | | | | | |
|---|---|---|---|---|---|
| | 40dB | 317.4 (-5%) | 1,519,800 (-4%) | 635,100 (-4%) | 5,000 ft (truncated) |
| | 40dB | 266.9 (-20%) | 1,119,000 (-29%) | 468,200 (-29%) | 4,000 ft (truncated) |

# Annex A.4 – London Stansted Airport (2024)

## Core Impacts

Figure 13 shows the difference between contours truncated at 4,000ft, 5,000ft, and 6,000ft and the 2024 average summer day contour (51dB $LAeq_{,16h}$, original contour) for Stansted airport. The runway is shown at the centre of the image. The black line represents the original contour (truncated at 7,000ft) and the coloured lines indicate the truncated contours at various altitudes.

Figure 13 also shows that there is a gap between the original contour and the contour if the airspace design priority is set at below 4,000ft. In other words, 1% of people who are currently assessed as being adversely impacted by aircraft noise would **not** be taken into account if the priority was set to below 4,000ft (13,500 people would be within 4,000ft compared to 13,700 at 7,000ft, see Table 7).

The difference is smaller for the altitudes of 5,000ft and 6,000ft. With below 5,000ft being only 0.7% fewer people, and below 6,000ft being 0% fewer people. This indicates a non-linear relationship between the altitude and population encompassed – meaning that the difference in impact from one altitude to the next does not follow a uniform or linear pattern.

**Figure 83 – STN contours at lower altitudes (6,000ft, 5,000ft, and 4,000ft) vs original 2024 avg. summer day (51dB)**

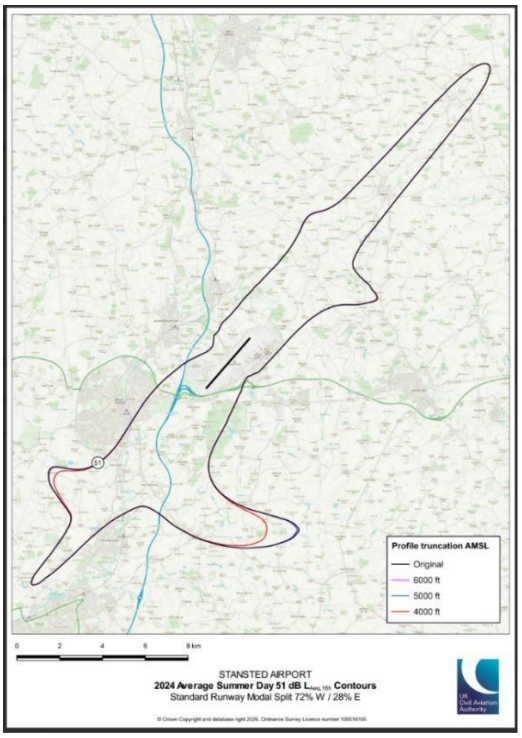
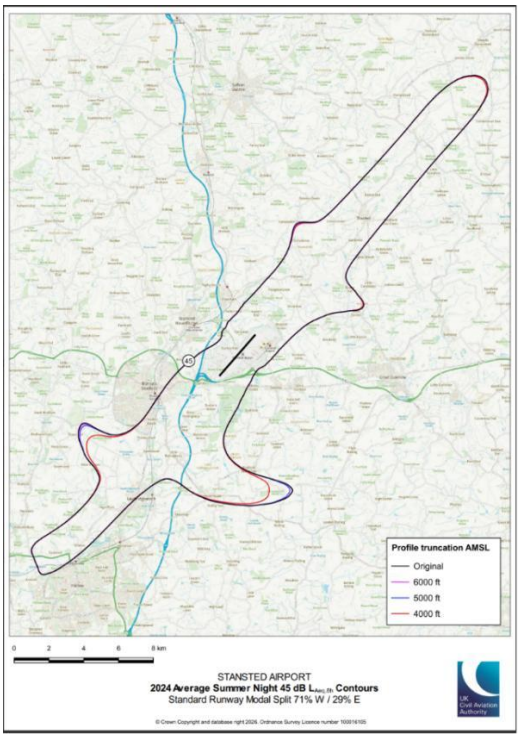



Figure 14 also shows the equivalent information for nighttime. Again, this shows there is a gap between the original and new noise contour if the airspace design priority is set at below 4,000ft. In other words, 2% of people who are currently assessed as being adversely impacted by aircraft noise would **not** be taken into account if the priority was set to below 4,000ft (22,300 people would be within 4,000ft compared to 22,700 at 7,000ft, see Table 8).

**Figure 14 – STN contours at lower altitudes (6,000ft, 5,000ft, and 4,000ft) vs original 2024 avg. summer Night (45dB)**

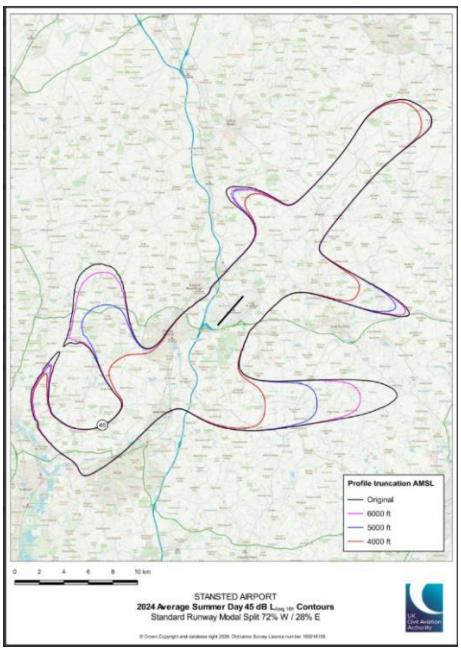


The main differences are seen over the South-Western part of the contours. Similarly to daytime, at altitudes between 4,000ft and 7,000ft the difference is smaller, with 0.9% fewer people assessed at 5,000ft, and 0.4% fewer at 6,000ft.

# Sensitivity Impacts

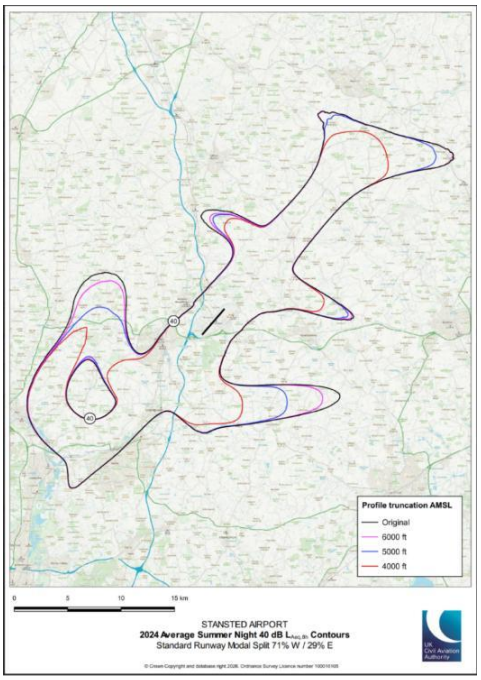
If the airspace design priority is set at below 4,000ft with the LOAEL policy lowered to 45dB $LAeq_{,16h}$, then 15% (or 9,200) fewer people would be within 4,000ft compared to 62,200 at 7,000ft. A lowering of the LOAEL would increase the original contour (7,000 ft) around Stansted Airport, and as a result, the population / households encompassed would be larger under the current Airspace Design Priorities. Figure 15 outlines the summer day noise contours at the lower LOAEL sensitivity level.

**Figure 15 – STN contours at lower altitudes (6,000ft, 5,000ft, and 4,000ft) vs original 2024 avg. summer day (45dB)**




If the airspace design priority is set at below 4,000ft with the LOAEL policy lowered to 40dB $LAeq_{,8h}$, then 14% (or 12,000) fewer people would be within 4,000ft compared to 85,100 at 7,000ft. These figures are for population specifically. Figure 16 outlines the summer night noise contours at the lower LOAEL sensitivity level.

**Figure 16 – STN contours at lower altitudes (6,000ft, 5,000ft, and 4,000ft) vs original 2024 avg. summer night (40dB)**




# Results Tables

Tables 7 and 8 below show the areas, populations, and households' differences for the day and night contours at Stansted Airport, for current policy LOAEL's and the sensitivity that was run. The percentage figures indicate the difference to the original (7,000 ft) contour.

### Table 7 – Stansted airport 2024 average summer day contours

| | LAeq, 16h (daytime) | Area (km²) | Population | Households | Notes |
|---|---|---|---|---|---|
| Core Impacts – current policy | 51 dB | 91.1 | 13,700 | 5,400 | Original (7,000 ft) |
| | 51 dB | 90.9 (-0%) | 13,700 (-0%) | 5,400 (-0%) | 6,000 ft (truncated) |
| | 51 dB | 90.8 (-0%) | 13,600 (-1%) | 5,400 (-0%) | 5,000 ft (truncated) |
| | 51 dB | 87.9 (-4%) | 13,500 (-1%) | 5,300 (-2%) | 4,000 ft (truncated) |
| Sensitivity Impacts | 45 dB | 306.1 | 62,200 | 25,600 | Original (7,000 ft) |
| | 45 dB | 290.3 (-5%) | 61,300 (-1%) | 25,200 (-2%) | 6,000 ft (truncated) |
| | 45 dB | 263.7 (-14%) | 58,800 (-5%) | 24,300 (-5%) | 5,000 ft (truncated) |
| | 45 dB | 218.0 (-29%) | 53,000 (-15%) | 22,000 (-14%) | 4,000 ft (truncated) |

**Table 8 – Stansted airport 2024 average summer night contours**

| | LAeq, 8h (night-time) | Area ($km^2$) | Population | Households | Notes |
|---|---|---|---|---|---|
| Core Impacts – current policy | 45 dB | 129.9 | 22,700 | 9,100 | Original (7,000 ft) |
| | 45 dB | 129.4 (-0%) | 22,600 (-0%) | 9,100 (-0%) | 6,000 ft (truncated) |
| | 45 dB | 129.0 (-1%) | 22,500 (-1%) | 9,000 (-1%) | 5,000 ft (truncated) |
| | 45 dB | 125.4 (-3%) | 22,300 (-2%) | 8,900 (-2%) | 4,000 ft (truncated) |
| Sensitivity Impacts | 40 dB | 386.6 | 85,100 | 35,000 | Original (7,000 ft) |
| | 40 dB | 372.4 (-4%) | 83,300 (-2%) | 34,300 (-2%) | 6,000 ft (truncated) |
| | 40 dB | 343.5 (-11%) | 79,500 (-7%) | 32,800 (-6%) | 5,000 ft (truncated) |
| | 40 dB | 275.7 (-29%) | 73,100 (-14%) | 30,300 (-13%) | 4,000 ft (truncated) |

# Annex A.5 – Manchester Airport (2024)

## Core Impacts

Figure 17 shows the difference between contours truncated at 4,000ft, 5,000ft, and 6,000ft and the 2024 average summer day contour (51dB $LAeq_{,16h}$, original contour) for Manchester airport. The two runways are shown at the centre of the image. The black line represents the original contour (truncated at 7,000ft) and the coloured lines indicate the truncated contours at various altitudes.

Figure 17 further shows that there is a gap between the original contour and the contour if the airspace design priority is set at below 4,000ft. In other words, 5% of people who are currently assessed as being adversely impacted by aircraft noise would **not** be taken into account if the priority was set to below 4,000ft (99,700 people would be within 4,000ft compared to 105,300 at 7,000ft, see Table 9).

The difference is smaller for the altitudes of 5,000ft and 6,000ft. With below 5,000ft being only 3% fewer people, and below 6,000ft being 2% fewer people. This indicates a non-linear relationship between the altitude and population encompassed – meaning that the difference in impact from one altitude to the next does not follow a uniform or linear pattern.

**Figure 97 – MAN contours at lower altitudes (6,000ft, 5,000ft, and 4,000ft) vs original 2024 avg. summer day (51dB)**

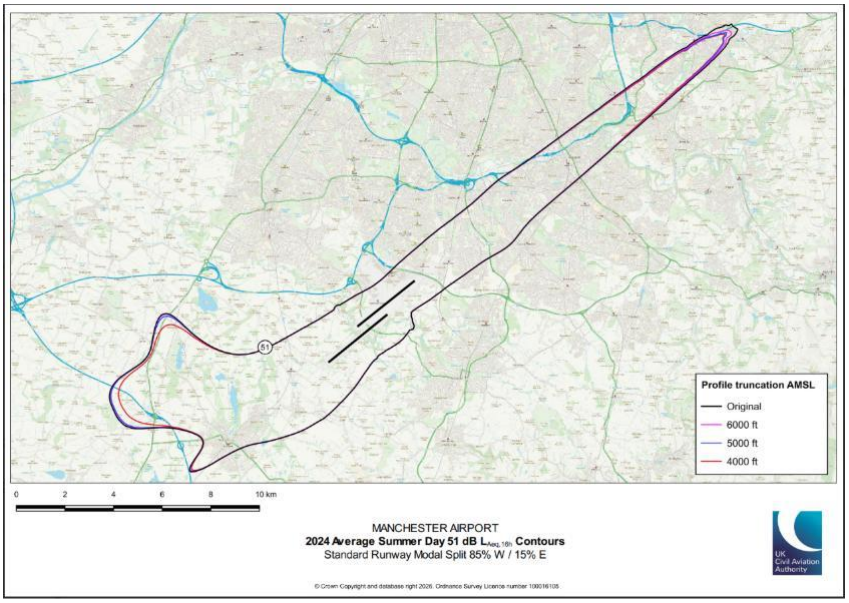
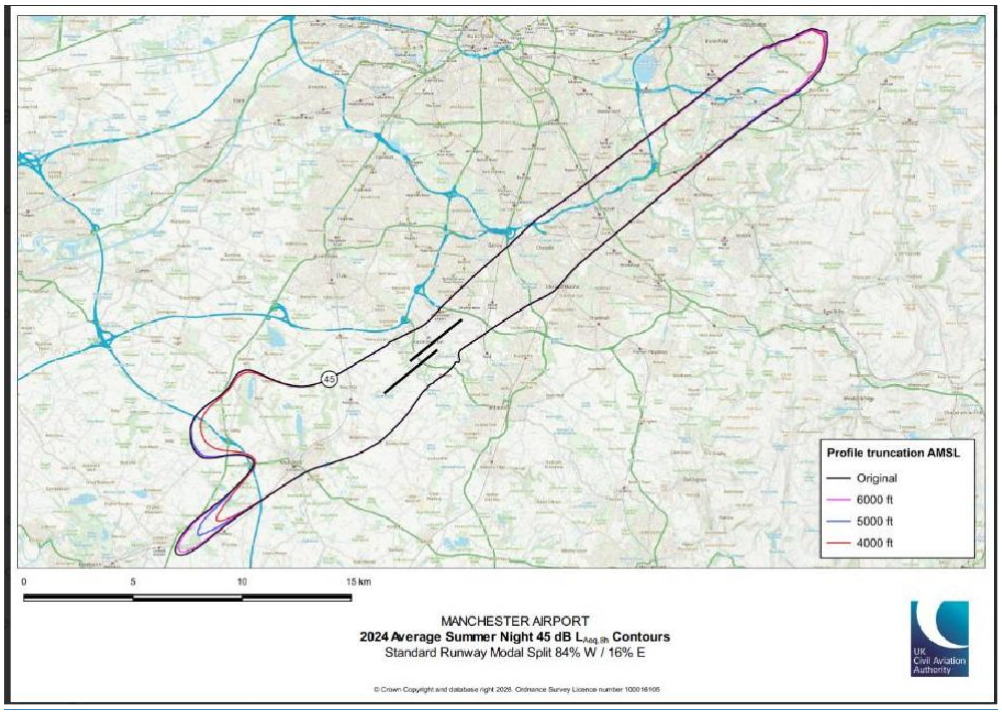



Figure 18 shows the equivalent information for nighttime. Again, this shows there is a gap between the original and new noise contour if the airspace design priority is set at below 4,000ft. In other words, 2% of people who are currently assessed as being adversely impacted by aircraft noise would **not** be taken into account if the priority was set to below 4,000ft (168,400 people would be within 4,000ft compared to 171,200 at 7,000ft, see Table 10).

**Figure 18 – MAN contours at lower altitudes (6,000ft, 5,000ft, and 4,000ft) vs original 2024 avg. summer night (45dB)**

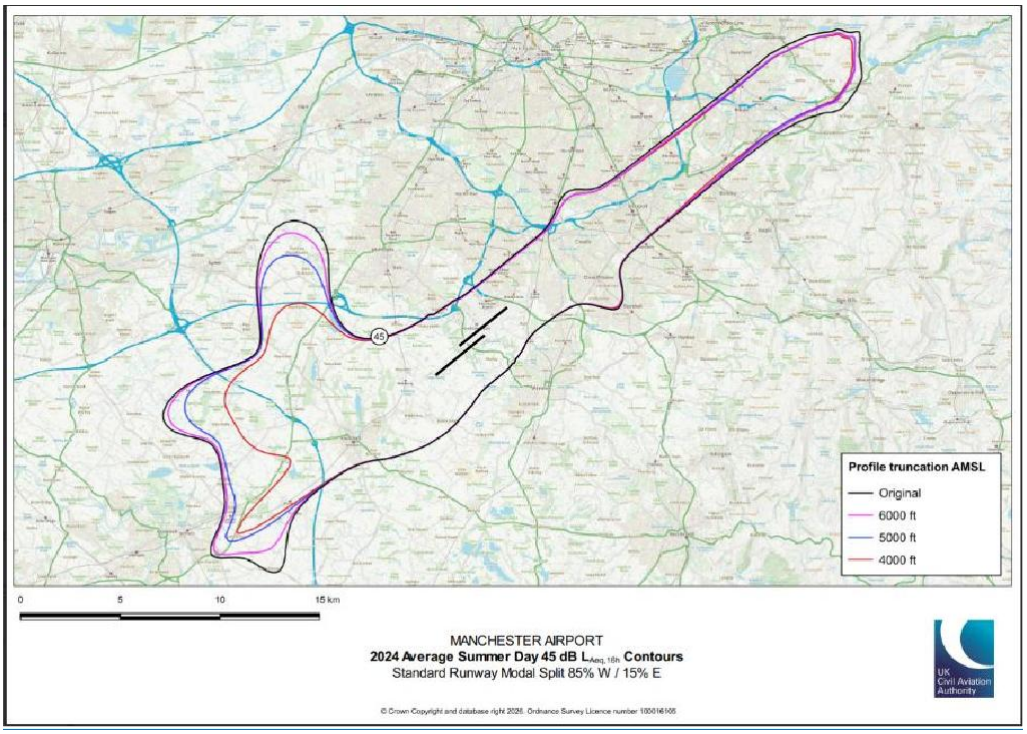



The main differences are seen over the South-Western part of the contours, and to the North East around Hadfield. Similarly to daytime, at altitudes between 4,000ft and 7,000ft the difference is smaller, with 1.2% fewer people assessed at 5,000ft, and 1.1% fewer at 6,000ft.

# Sensitivity Impacts

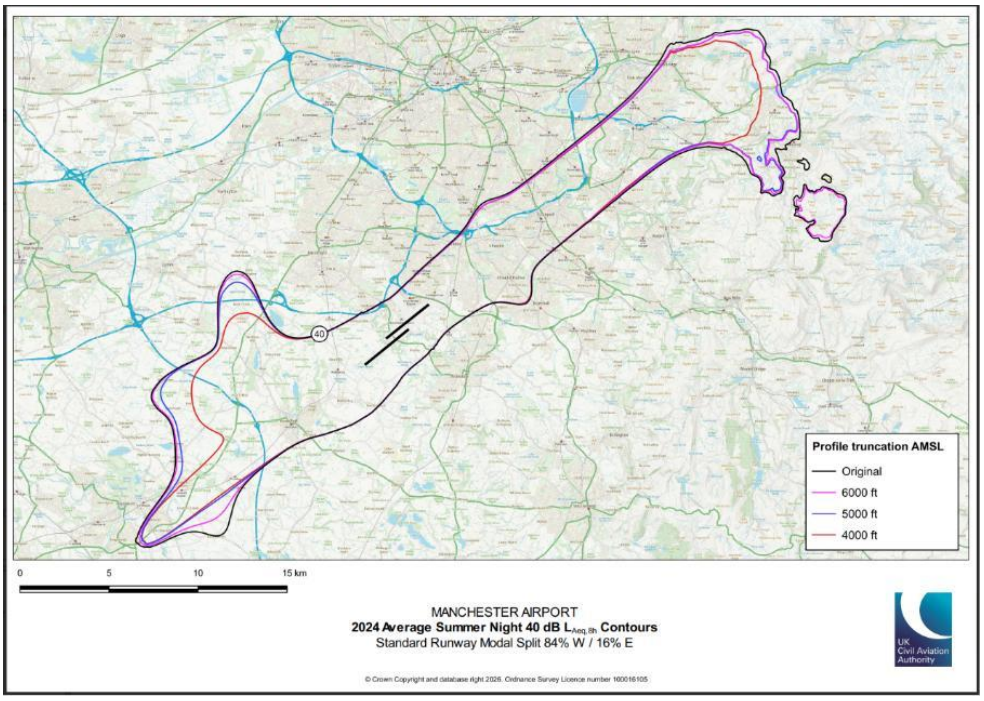
If the airspace design priority is set at below 4,000ft with the LOAEL policy lowered to 45dB $LAeq_{,16h}$, then 12% (or 29,300) fewer people would be within 4,000ft compared to 254,700 at 7,000ft. A lowering of the LOAEL would increase the original contour (7,000 ft) around Manchester Airport, and as a result, the population / households encompassed would be larger under the current Airspace Design Priorities. These figures are for population specifically. Figure 19 outlines the summer day noise contours at the lower LOAEL sensitivity level.

**Figure 19 – MAN contours at lower altitudes (6,000ft, 5,000ft, and 4,000ft) vs original 2024 avg. summer day (45dB)**




If the airspace design priority is set at below 4,000ft with the LOAEL policy lowered to 40dB $LAeq_{,8h}$, then 11% (or 35,000) fewer people would be within 4,000ft compared to 322,600 at 7,000ft. Figure 20 below outlines the summer night noise contours at the lower LOAEL sensitivity level.

**Figure 20 – MAN contours at lower altitudes (6,000ft, 5,000ft, and 4,000ft) vs original 2024 avg. summer night (40dB)**



# Results Tables

Tables 9 and 10 show the areas, populations, and households' differences for the day and night contours at Manchester Airport, for current policy LOAEL's and the sensitivity that was run. The percentage figures indicate the difference to the original (7,000 ft) contour.

**Table 9 – Manchester airport 2024 average summer day contours**

| | LAeq, 16h (daytime) | Area ($km^2$) | Population | Households | Notes |
|---|---|---|---|---|---|
| Core Impacts – current policy | 51 dB | 75.7 | 105,300 | 46,800 | Original (7,000 ft) |
| | 51 dB | 74.8 (-1%) | 102,900 (-2%) | 45,700 (-2%) | 6,000 ft (truncated) |
| | 51 dB | 74.1 (2%) | 101,700 (-3%) | 45,200 (-3%) | 5,000 ft (truncated) |
| | 51 dB | 72.0 (-5%) | 99,700 (-5%) | 44,200 (-6%) | 4,000 ft (truncated) |
| Sensitivity Impacts | 45 dB | 216.2 | 254,700 | 111,300 | Original (7,000 ft) |
| | 45 dB | 202.7 (-6%) | 238,400 (-6%) | 104,300 (-6%) | 6,000 ft (truncated) |
| | 45 dB | 189.9 (-12%) | 232,500 (-9%) | 101,800 (-9%) | 5,000 ft (truncated) |
| | 45 dB | 163.5 (-24%) | 225,400 (-12%) | 98,800 (-11%) | 4,000 ft (truncated) |

**Table 10 – Manchester airport 2024 average summer night contours**

| | LAeq, 8h (night-time) | Area ($km^2$) | Population | Households | Notes |
|---|---|---|---|---|---|
| Core Impacts – current policy | 45 dB | 104.2 | 171,200 | 75,800 | Original (7,000 ft) |
| | 45 dB | 102.6 (-2%) | 169,400 (-1%) | 75,000 (-1%) | 6,000 ft (truncated) |
| | 45 dB | 100.8 (-3%) | 169,100 (-1%) | 74,800 (-1%) | 5,000 ft (truncated) |
| | 45 dB | 97.6 (-6%) | 168,400 (2%) | 74,500 (-2%) | 4,000 ft (truncated) |

| | | | | | |
|---|---|---|---|---|---|
| Sensitivity Impacts | 40 dB | 241.7 | 322,600 | 141,000 | Original (7,000 ft) |
| | 40 dB | 229.3 (-5%) | 308,800 (-4%) | 135,100 (-4%) | 6,000 ft (truncated) |
| | 40 dB | 216.9 (-10%) | 305,600 (-5%) | 133,700 (-5%) | 5,000 ft (truncated) |
| | 40 dB | 186.9 (-23%) | 287,600 (-11%) | 125,900 (-11%) | 4,000 ft (truncated) |