

Airspace Change Proposal

Full Options Appraisal



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Printed version of the FOA

Throughout this FOA document, there are links to various websites and references. Owing to the technical nature of the document we would recommend reading the FOA digitally however printed copies are available by request. The following table provides further link details for those reading the printed version:

CAP1616	www.caa.co.uk/CAP1616
Previous 2018 DSA Airspace Change	https://www.caa.co.uk/commercial-industry/airspace/airspace-change/cap-725-decisions/2019-decisions/doncaster-sheffield-airport-dsa-mnav-sids-iaps/
AMS	www.caa.co.uk/CAP1711
ACP-2024-039 Statement of Need	https://airspacechange.caa.co.uk/documents/download/7982
ACP-2024-039 Assessment Meeting Presentation	https://airspacechange.caa.co.uk/documents/download/7984
ACP-2024-039 Assessment Meeting Minutes	https://airspacechange.caa.co.uk/documents/download/7985
ACP-2024-039 Stage 1 Submission Document	https://airspacechange.caa.co.uk/PublicProposalArea?pID=656
ACP-2024-039 Stage 2(A) Submission Document	https://airspacechange.caa.co.uk/documents/download/8565
ACP-2024-039 Stage 2(B) Submission Document	https://airspacechange.caa.co.uk/documents/download/8566
CAP1616f	www.caa.co.uk/CAP1616f
CAP1498	www.caa.co.uk/CAP1498
Uk Reported Birdstrike 2023-2024	https://www.caa.co.uk/media/u0tdft10/uk-reported-birdstrike-2023-2024.pdf
Flight altitude dynamics of migrating European nightjars across regions and seasons - PMC	https://pmc.ncbi.nlm.nih.gov/articles/PMC8601712/

1. Introduction

1.1 Background

- 1.1.1 Doncaster Sheffield Airport (DSA) is located around 6 miles southeast of Doncaster and 19 miles east of Sheffield. DSA closed in 2022 after the previous airport operator withdrew. This led to the CAA removing the controlled airspace and flight procedures which supported the airports operations.
- 1.1.2 In March 2024, City of Doncaster Council (CDC) secured a 125-year lease for the site, and began work to reinstate the airport licence, establish a local air traffic control service, and prepare for scheduled passenger and cargo services to return from 2027/28.
- 1.1.3 To restore the controlled airspace and procedures needed for DSA to reopen safely and bring passenger and cargo flights back to the region, CDC are sponsoring an Airspace Change Proposal – ACP-2024-039.
- 1.1.4 The reopening of DSA is the centrepiece of South Yorkshire Airport City (SYAC), a major regional growth programme designed to restore aviation services and unlock thousands of new jobs across advanced manufacturing, engineering, logistics and green technologies. The project is being delivered through a partnership between national government, the South Yorkshire Mayoral Combined Authority and CDC.
- 1.1.5 Government backing for the SYAC programme has enabled significant investment to prepare the airport for reopening, reflecting national importance of restoring regional connectivity, supporting trade and driving economic growth across the North. The airport's return forms part of the Governments wider devolution agenda, demonstrating how locally led, nationally supported investment can deliver regeneration, skilled employment and long-term prosperity.

1.2 The Airspace Change Process

- 1.2.1 In December 2017, the Civil Aviation Authority (CAA) reformed the airspace change process and introduced [CAP1616](#), guidance on the regulatory process for changing notified airspace design and planned and permanent redistribution of air traffic. The updated fifth edition was published in November 2023.
- 1.2.2 CAP1616 lays out the regulatory process for changing flight paths, including the community engagement requirements. Proposals for changes to flight paths are submitted to be assessed and approved by the CAA following the guidance set out in CAP1616.
- 1.2.3 There are seven-stages which provide a framework for changing airspace and CAP1616 places significant importance on engaging a wide range of stakeholders, including potentially affected communities (shown in Figure 1).
- 1.2.4 The CAA monitors the progress of an airspace change proposal against the requirements of the process at key defined points, called gateways. At each gateway, the CAA will assess whether the relevant process requirements have been met, and whether to approve progress to the next stage.

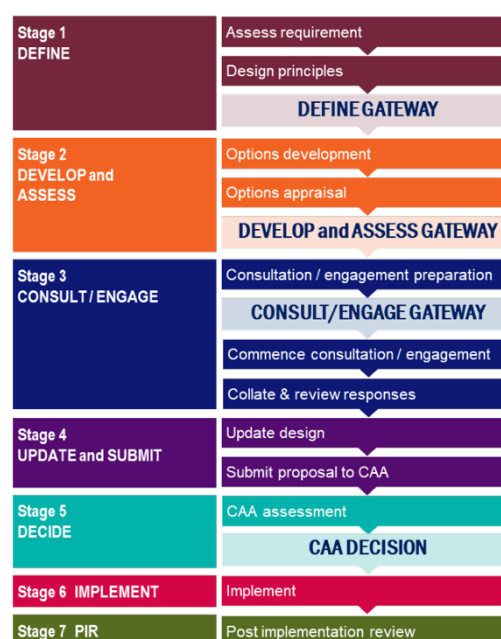


Figure 1: 7-stages of CAP1616 (Edition 5)

- 1.2.5 Each permanent airspace change proposal is assigned a 'level' depending on the characteristics of the change and potential for impacts, which is in part based on the altitude and location in which the changes occur. The application of levels enables the airspace change process to accommodate different types and complexities of airspace change proposals by applying the requirements in a proportionate way.
- 1.2.6 From September – December 2025, the CAA conducted a consultation regarding proposed changes to CAP1616 Version 5.1. The updated process and guidance are expected to be ready by the end of 2026. This submission has been written in accordance with CAP1616 Version 5.1¹.
- 1.2.7 This document is the CAP1616 Stage 3 Full Options Appraisal.

1.3 The Airspace Modernisation Strategy and the Masterplan

- 1.3.1 The Airspace Modernisation Strategy (AMS) was first published in 2018 and set out the 'ends, ways and means', of modernising airspace through a series of 'delivery elements' that will update its design technology, and operations.
- 1.3.2 As covered in the Statement of Need, in 2018, DSA successfully implemented PBN procedures, becoming an early adopter of PBN concepts and aligning its procedures with the UK AMS and ICAO global navigation plan. More information on that airspace change can be found [here](#).
- 1.3.3 The AMS was updated in 2023 and split into 3 parts, published separately. More information can be found [here](#). The AMS vision is to deliver quicker, quieter, and cleaner journeys and more capacity for the benefit of those who use and are affected by UK airspace. The AMS does not propose specific airspace change, but a key deliverable is a masterplan of airspace changes that will be necessary for modernisation.
- 1.3.4 Following the publication of the AMS, the Airspace Change Organising Group was established to co-ordinate the national programme. ACOG developed the Masterplan, a single coordinated implementation plan for airspace changes in the UK up to 2040. Across all iterations of the masterplan, it will:
- Identify when and where airspace change proposals are needed, with proposed timelines for implementation;
 - Describe how these proposals relate to each other, and highlight potential conflicts between their designs;
 - Explain how trade-off decisions to resolve these conflicts have been made¹
 - Demonstrate the anticipated cumulative impact of all the airspace change proposals.
- 1.3.5 The Masterplan is now on Iteration 3 and is being developed separately for each region of the UK. The masterplan region for the airports in the vicinity of Doncaster Sheffield Airport is referred to as the Manchester Terminal Manoeuvring Area cluster and includes Manchester Airport, Liverpool Airport, East Midlands Airport, Leeds Bradford Airport, Birmingham Airport and NERL.

Doncaster Sheffield Airport and the MTMA

- 1.3.6 Doncaster Sheffield Airport is not part of the MTMA Masterplan, and therefore the masterplan does not articulate any dependencies with other airports in the cluster.
- 1.3.7 It is possible that the re-introduction of controlled airspace at DSA will create interactions with Leeds Bradford Airports existing arrival routes and potentially departure routes. This will be assessed as part of this FOA.

¹ More information on the CAA CAP1616 consultation can be found [here](#).

2. Airspace change proposal

2.1 ACP to date

2.1.1 Table 1 provides background information on the ACP to date.

Table 1 DSA ACP to date

Airspace Change Stage	Summary	Link to Documents
Stage 1	In August 2025, DSA submitted a Statement of Need (SoN) to the CAA.	Statement of Need
	In September 2025, DSA had an assessment meeting with the CAA. The purpose of the assessment meeting is for the change sponsor to present and discuss its SoN, and to enable the CAA to consider whether it falls within the scope of the formal airspace change process. DSA and the CAA also discussed the scaling of this ACP.	Assessment Meeting Presentation Assessment Meeting Minutes
	DSA carried out engagement with relevant stakeholders to describe the Current Day scenario and to develop a set of Design Principles for this proposal. The aim of the Design Principles is to provide a framework against which design options can be developed and evaluated.	Stage 1 Submission Document
Stage 2 (A)	DSA developed a single option for the airspace change proposal. This option was shared with the same stakeholders at the same time as the proposed design principles. Feedback from this engagement was then used to generate additional options and to provide more information on the baseline scenario. The final part of Stage 2(A) was to qualitatively assess the options against the Design Principles and produce a Design Principle Evaluation. The outcome of the Design Principle Evaluation was used to shortlist the options.	Stage 2(A) Submission Document
Stage 2 (IOA)	DSA then undertook an Initial Options Appraisal (IOA) on the options which proceed from Stage 2A. This included describing the options under assessment and the baseline scenarios, followed by explaining the methodology used to assess each option. At the end of the IOA we explained, based on the outcome, the options we intended to take forward to Stage 3.	Stage 2(B) Submission Document
Stage 3 (FOA)	At Stage 3, an airspace change sponsor is required to plan for stakeholder consultation and engagement by preparing a Full Options Appraisal (FOA) and then a Consultation Strategy and Consultation documents. The FOA is the second phase of appraisal, following the IOA, with more rigorous analysis of the impacts and benefits of this proposed airspace change options. The following sections of the document initially describe the options taken forward from Stage 2B, and how they have been developed through preliminary Instrument Flight Procedure (IFP) design. It then describes the options under assessment at Stage 3 and the baseline 'do nothing' option, followed by explaining the methodology used to assess each option, and then the FOA outcome. At the end of the document we explain, based on the FOA outcome, the option we intend to take to consultation and our preferred option.	Full Options Appraisal (This document)

2.2 Requirements

- 2.2.1 Table 2 highlights the CAP1616 (v5.1) Stage 3 Full Options Appraisal (FOA) requirements for an airspace change sponsor and provides the location in this document, or associated appendix, where this information can be found.

Table 2 List of CAP1616 V5.1/CAP1616f Stage 3 FOA requirements

CAP1616 (V5.1) Requirement	Location
Each shortlisted design option fully developed, including a comparison of its impacts against the baseline scenario.	A description of how the design options have been developed can be found in Section 3 'Overview of options under assessment' . Comparison of each options' positive benefits and negative impacts against the without airspace change pre-implementation baseline can be found in Section 5 Full Options Appraisal .
All evidence gaps identified at Stage 2 fully assessed	The methodology section (section 4), includes details of the evidence gaps from Stage 2 and how these have been addressed in the FOA.
All reasonable costs and benefits quantified	The methodology section (section 4) explains our approach to quantitatively and qualitatively appraising the options, including justification for the approach if not quantified. The Full Options Appraisal section (section 5) then describes these costs and benefits for each option against the 'without airspace change' pre-implementation baseline.
All other costs and benefits described qualitatively	
Reasons why costs and benefits have not been quantified	
Detail on the preferred design option, setting out reasons for the preference (where relevant)	Details of the FOA conclusions can be found in section 6 including which option we are taking to Consultation as our preferred option.
A more detailed assessment of the impacts on safety, if completed by the change sponsor	Details of the methodology for assessing safety can be found in section 4.6 Full Options Appraisal Methodology and the safety assessments themselves are then including in section 5 .
A quantified and monetised environmental assessment of the design options, including direct and consequential impacts	Full details of the assessments of environmental impacts are included in section 5 Full Options Appraisal . Net Present Value (NPV) and Cost Benefit Analysis (CBA) tables are included in section 6 FOA conclusions .

3. Overview of options under assessment

3.1 Evolution of the 'With Airspace Change' options

- 3.1.1 Owing to DSA's [statement of need](#), the scope of the overall proposal and the [design principles](#), initially one option was proposed, which was to reinstate the same controlled airspace structure and flight procedures that were in operation before the airport closed in 2022. This was called Option 1.
- 3.1.2 Table 3 provides a high-level overview of the options developed following the engagement on Option 1, and how all of these options have progressed through the airspace change process. For more information about previous stages, please see the Stage 2A and IOA documents on the CAA's Airspace Change Portal.

Table 3 Summary of options development to date

With airspace change options	Stage 2A (pre engagement)	Stage 2A (post engagement)	Stage 2A (DPE)	Stage 2B (IOA)
Option 1 Reinstate the same controlled airspace structure and flight procedures that were in operation before the airport closed in 2022	Proposed ahead of stakeholder engagement	Feedback on this option used to develop other options below	Option was discontinued after the DPE as it did not meet a mandatory design principle	
Option 0 No Controlled Airspace		Developed following stakeholder feedback	Option 0 was discontinued ahead of the DPE as it did not meet the SoN	
Option 2 Refinement of Option 1 due stakeholder feedback or to align with CAA policy		Developed following stakeholder feedback	Assessed in the DPE and continued into IOA	Assessed in the IOA and continued into this FOA
Option 3 Use of Radius-to-Fix to create less restrictive CAS structures and to aid future MTMA integration		Developed following stakeholder feedback	Assessed in the DPE and continued into IOA	Assessed in the IOA and continued into this FOA

- 3.1.3 The following subsections describe how option 2 and option 3 have evolved since the [Stage 2B IOA](#).
- 3.1.4 All route centrelines, controlled airspace dimensions and classifications in Options 2 and 3 are subject to change as the options are matured in detail and refined in accordance with safety requirements and as an outcome of the Stage 3 public consultation.

Feedback following Stage 2 submission

- 3.1.5 At the end of Stage 2 we re-engaged with our stakeholders to provide an opportunity to feedback on Design Options 2 and 3 to refine these designs ahead of this FOA and the consultation. As of 15th May 2026, we have received 5 responses from the following stakeholders:

- DEA Aero
- Doncaster Chamber of Commerce
- British Gliding Association
- Leeds Bradford Airport
- Natural England

- 3.1.6 Natural England stated that they had no additional feedback on the updated designs and DEA Aero stated that they had no objections to either proposal, whilst welcoming the opening of DSA in an unlicensed and accessible mode as soon as possible.
- 3.1.7 Feedback from the Doncaster Chamber of Commerce highlighted a preference for Option 2, stating they felt that it best balanced safety, operational feasibility, efficiency and the wider economic and community interests of Doncaster.
- 3.1.8 Feedback from Leeds Bradford Airport did not provide any feedback specifically on Design Options 2 and 3, however they commented whether the projected traffic levels justify the amount of controlled airspace proposed.
- 3.1.9 Feedback received from the British Gliding Association focused on the volume of controlled airspace and its classification proposed in the two designs, expressing that the scale of the proposed controlled airspace was disproportionate to the level of operations forecast for the opening of DSA.
- 3.1.10 We also engaged directly with individual aviation industry stakeholders to facilitate targeted engagement ahead of the consultation, aiming to identify any issues they may have observed in the designs. As key stakeholders with local interests, DSA contacted the MOD (via DAATM), Retford Gamston Airport, Sheffield Aero Club, and E-plane Ltd (based at Sandtoft) to offer online meetings and regular touch-ins with NERL also took place. We also shared draft CAS volume dimensions with the BGA and Burn Gliding Club in March 2026 and Retford Gamston Airport in May 2026.
- 3.1.11 As of 15th May 2026, no feedback has been received that would influence the development of options ahead of this FOA. Any feedback received after this date will be asked to submit as part of their formal consultation response.

Option 2 – Refinement of the 2022 design due to stakeholder feedback or to align with CAA policy

- 3.1.12 Option 2 would be similar to the previous notified airspace arrangements at the time of the airport's closure in 2022, but not identical. If this option were to be progressed, there could be further refinements identified at consultation but at this stage, the following adjustments have been identified:
- The addition of an earlier FL60 point on the RWY02 UPTON SID to enable a reduction in the volume of controlled airspace to the north-west.
 - A new SID termination point to the SW of UPTON for UPTON SIDs
 - Remove of the RWY20 left turn UPTON SID
 - Adjustment to the ROGAG SIDs to ensure at least 2nm containment from the edge of controlled airspace
 - Revised CTA boundaries to the west of the CTR to reduce the overall volume together with a proposed reduction in classification from Class D to Class E+ for some CTAs.
- 3.1.13 As Option 2 only involves refinements to the previously existing procedures, there were no changes made to the design of Option 2 between the design assessed at Stage 2 and the ones taken into this Stage 3 FOA.

Option 3 - Use of Radius-to-Fix to create less restrictive CAS structures and to aid future MTMA integration

- 3.1.14 Option 3 uses RNP with RF to create a very different proposal compared to the previous DSA airspace which attempts to:
- Reduce the numbers of people affected by noise and overflight and remain aligned with DSA's existing NPRs
 - Contain flight paths within the smallest amount of controlled airspace
 - Position departures to the south of DSA as much as technically possible to aid existing and future MTMA integration
 - Enhance systemisation for both DSA ATC and the surrounding MTMA network design.

- 3.1.15 For most ACPs, the design process typically begins with relatively immature 'lines' drawn without the rigour of formal Instrument Flight Procedure (IFP) design as that is a very detailed and time-consuming process. It is not practical or proportionate to have IFP-designed flight paths from the outset, especially with multiple design options and iterations. As the proposed designs begin to take shape, IFP designers are then tasked with trying to formally design the procedures to reflect the intent of the draft designs being settled upon for Full Options Appraisal. For this reason, there can be variances between designs before and after IFP design.
- 3.1.16 At the end of Stage 2, DSA had relatively detailed design options as we had articulated nominal centrelines to help understand potential improvements to CAS boundaries and to aid stakeholder engagement as well as the initial appraisal of impacts and benefits. However, we noted in our documentation that "all route centrelines, controlled airspace dimensions and classifications in Options 2 and 3 are subject to change. They will be further refined as we seek to evolve a solution that best balances the competing stakeholder requirements, in accordance with further stakeholder consultation and engagement and in accordance with CAA Policy and airspace and Instrument Flight Procedure (IFP) design criteria".
- 3.1.17 The Instrument Flight Procedure review resulted in some amendments to some of the radius' used for the RNP1 +RF procedures. The following subsections describe the changes.

Departures

Refinement of the IFP design resulted in some small changes to the centrelines of the runway 20 departures which are shown in Figure 2 and the runway 02 departures which are shown in Figure 3. The centreline from the IOA is shown in red, and the centreline which will be used in the FOA is shown in blue. These minor adjustments did not result in any changes to the proposed CAS dimensions to support Option 3.



Figure 2 Refinement of the Runway 20 departure procedures (IOA: red, FOA: blue) ©OpenStreetMap



Figure 3 Refinement of the Runway 02 departure procedures (IOA: red, FOA: blue) ©OpenStreetMap

Arrivals

- 3.1.18 In the case of arrivals, the centrelines presented within the IOA (particularly the radius used for the turns to join final approach) have not changed. In preparation for the FOA, these procedures needed to be developed because, in the event of Radio Communications Failure (RCF), following a Missed Approach, an aircraft needs to be able to commence another approach and, for flight planning purposes, aircraft will need to plan to fly to DSA's overhead hold (FNY). This means that the arrival procedure centrelines developed through the IFP design process at Stage 3, particularly around 4,500ft and above, do not reflect how we expect the majority of aircraft to fly when they arrive at DSA. In reality, aircraft are unlikely to fly to the overhead (which would be an indirect route) and instead ATC will position (vector) aircraft to join the arrival transitions directly. Consequently, for arrivals, the noise and environmental analysis within this FOA has been based on where we expect aircraft to fly in future, rather than using the procedure centrelines above c.4,500ft. This can be seen in section 5.3 where in the option description we have presented information about the procedures and expected vectoring. The overflight contours to 7,000ft then reflect where we expect aircraft to be vectored to join the procedure.
- 3.1.19 The refinement of the arrival and departure procedures also lead to one lateral refinement of the proposed Controlled Airspace (CAS). This is around the proposed DSA CTA-1. The amendment is shown in Figure 4 with the green line showing the CTA-1 from the IOA, and the black line showing the refinement which will be assessed as part of the FOA. In Stage 2B we also provided details of the expected classes of CAS. In some areas following review these have been updated; a map of the latest CAS proposal is shown in section 5.3 (Figure 10).

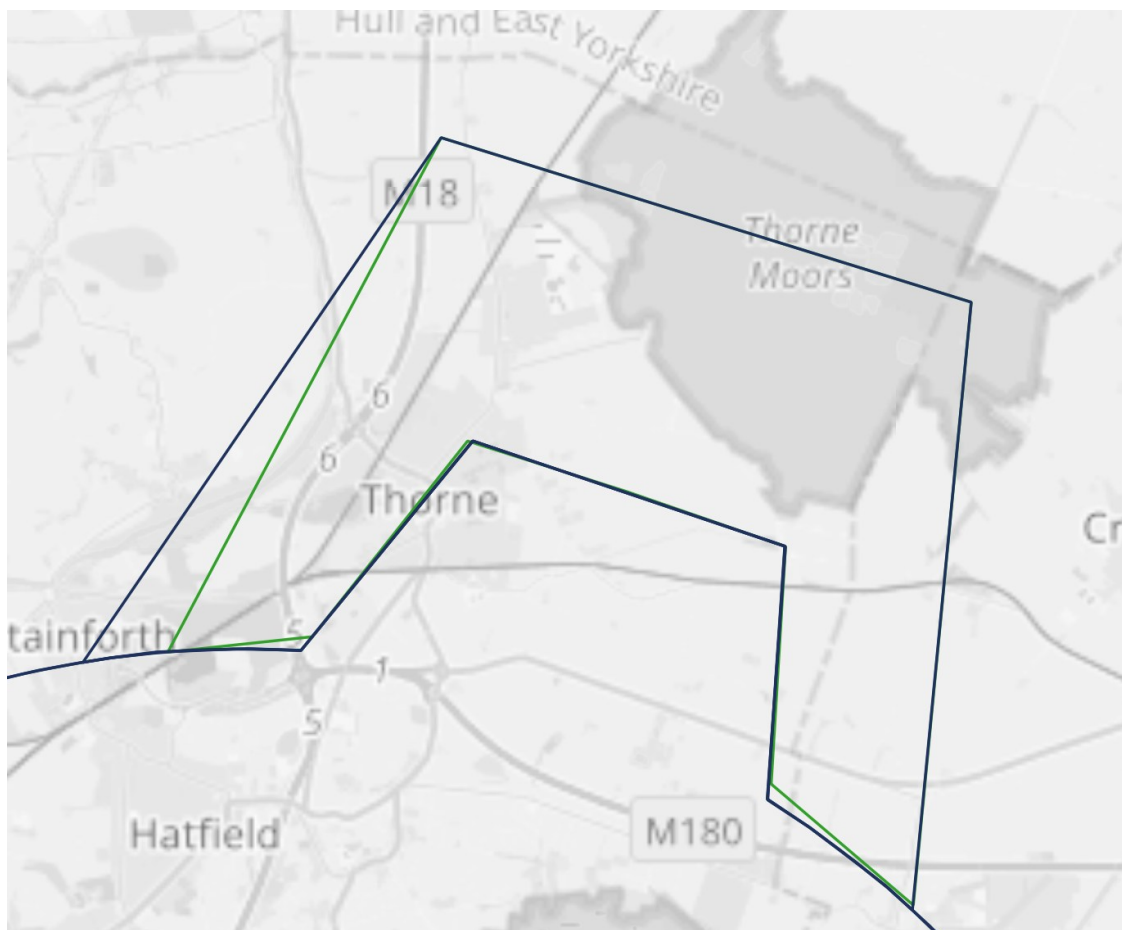


Figure 4 Refinement of CTA-1 (IOA: green, FOA: black) ©OpenStreetMap

NDB approaches

- 3.1.20 Note within the IOA DSA mentioned promulgation of NDB approaches in addition to ILS and RNP arrivals however following further consideration, whilst DSA are proposing to retain an NDB, they are not planning to promulgate NDB approaches (This applies to both options). As part of the consultation, there will be an opportunity for aviation stakeholders to provide feedback on this.

3.2 Baseline 'Without ACP'

- 3.2.1 DSA developed a description of the baseline 'without ACP' scenario as part of Stage 1 of the Airspace Change process. In the case of DSA, the baseline scenario is without a licensed, operational Doncaster Sheffield Airport with no Air Transport Movements (ATMs) per year.
- 3.2.2 The DPE explained that we cannot evaluate the future baseline against the design principles because there is no future DSA operation to assess without a consented airspace change proposal. The future baseline could neither meet, partially meet or not meet the principles. As such, the baseline 'without ACP' is not an option itself however it has been used to evaluate and appraisal the potential benefits and/or impacts of the 'with airspace change' options as part of the DPE and IOA.
- 3.2.3 CAP1616 requires the baseline scenario to continue to be appraised in this FOA as it provides a means of comparing the options to better understand and highlight the benefits and impacts of each new option. The baseline will also be appraised as part of the Final Options Appraisal at Stage 4. More information about the baseline can be found in the following section and [section 5 Full Options Appraisal](#).

4. Full Options Appraisal Methodology

4.1 Defining the baseline ‘do nothing’ scenario

- 4.1.1 As part of the FOA, CAP1616 requires airspace change sponsors to undertake an assessment of the impacts of the future scenario without the airspace change so that a comparison can be made against the impacts of the design options.
- 4.1.2 For full context, the relevant section from CAP1616 f, paragraphs 3.11-3.14 (page 30) are included below.

CAP1616f, paragraphs 3.11-3.14 (page 30)

The change sponsor must develop the baseline scenarios

3.11 The change sponsor must undertake an assessment of the impacts of the future scenario without the airspace change so that a comparison can be made against the impacts of the design options.

3.12 Because of the time needed to go through the airspace change process and implement change, the future scenario without airspace change will need to assume the current-day airspace situation (that is, airspace structures and behaviours) but reflect other changes to the use of the airspace independent of the proposed airspace change, for example, traffic growth and fleet changes that occur as part of business as usual. The future scenarios without the airspace change must also take account of anticipated changes to the types of aircraft operating in the airspace. Throughout this guidance, baseline scenarios is the term used to refer to these future scenarios without the airspace change and are developed for:

- year of implementation without the airspace change proposal (year 1); and
- 10-years after implementation without the airspace change proposal (year 10).

3.13 The baseline scenarios must also be considered in relation to their context which may be changing, by taking due consideration of known or anticipated factors that might affect it. For example, the change sponsor must identify and take account of any planned housing developments which have been given consent or known housing provision allocated within local development frameworks. These additional housing provisions must be factored into the baseline as they increase households and population affected by the change. Inclusion of planned housing development must be agreed with relevant stakeholders including local authorities.

3.14 Change sponsors must not assume that an airspace change has already taken place as part of the future baseline scenario, since this would have required an airspace change decision and associated assessment.

- 4.1.3 In the case of DSA, the baseline scenario is without a licensed, operational Doncaster Sheffield Airport with no Air Transport Movements (ATMs) per year.
- 4.1.4 A future baseline for this ACP in any year does not change, or what would change in terms of the operations of other airspace users, cannot be reasonably forecast by CDC. We cannot predict how other airports, military operations or general aviation activities would evolve out to 2037 (10-years after implementation).
- 4.1.5 As CAP1616f 3.14 states that change sponsors must not assume that an airspace change has already taken place as part of the future baseline scenario, since this would have required an airspace change decision and associated assessment. Therefore, CDC cannot assume any change to the surrounding airspace structures in the future baselines as a result of airspace modernisation of the MTMA.
- 4.1.6 There's more information about the baseline in [section 5.1](#) of this FOA document.

4.2 Planned Developments

4.2.1 Figure 5 and Table 4 show the planned housing developments have been identified and incorporated into the FOA assessments:

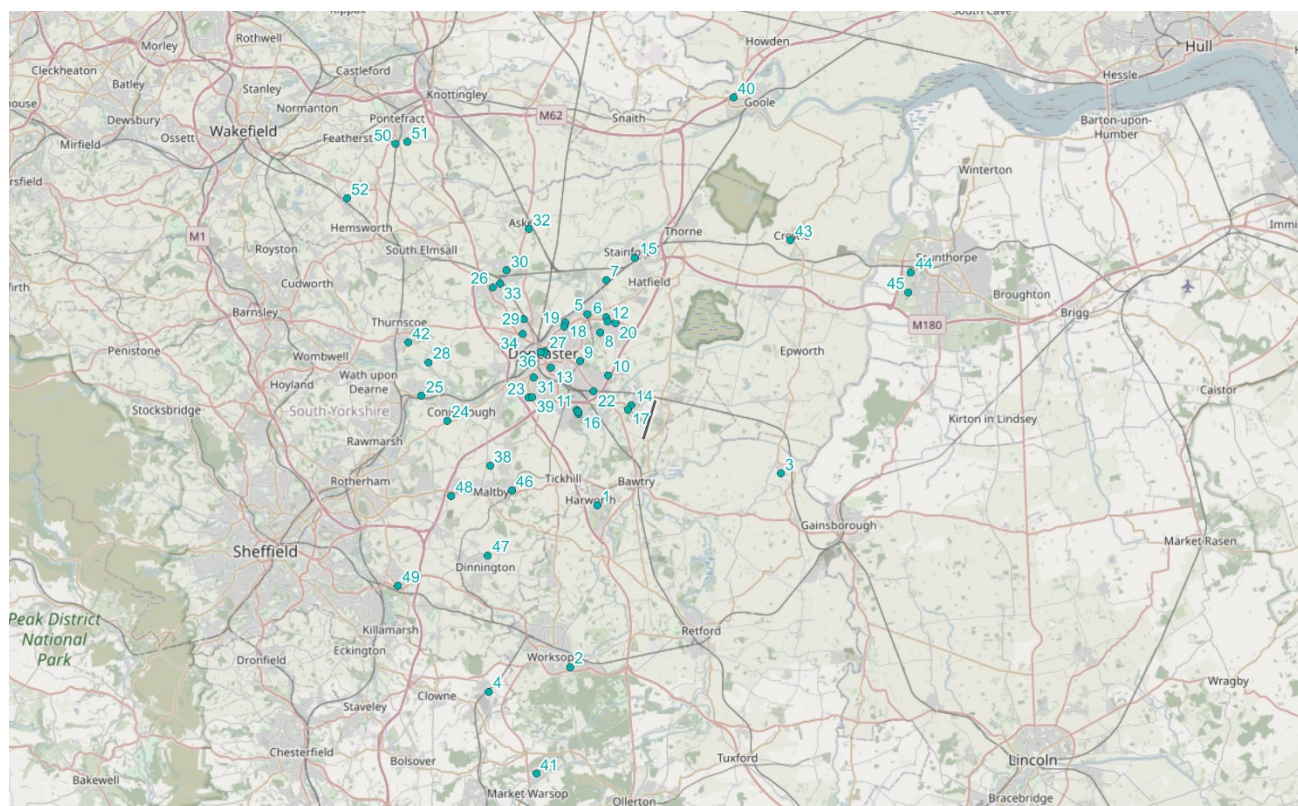


Figure 5 Planned housing developments

Table 4 Planned housing development data

Local Council Authority	Type of Development	Size of Development	Location	Status	Additional Comments	Map Ref
Bassetlaw District Council	Residential-Houses	<1300 dwellings	Land South of Scrooby Road and North of Snape Lane, Harworth, South Yorkshire	Approved	Portal Page Link	1
Bassetlaw District Council	Residential-Houses	95 dwellings	School Land and Access Kingston Road, Worksop, Nottinghamshire	Approved	Portal Page Link	2
Bassetlaw District Council	Residential-Houses	45 dwellings	Land Adjacent to Grovewood Road, Miserton, South Yorkshire	Approved	Portal Page Link	3
Bolsover County Council	Residential-Houses	450 dwellings	Former Whitwell Colliery, Station Road, Whitwell S80 4TS	Approved	Portal Page Link	4
City of Doncaster Council	Residential-Houses	542 dwellings	Hungerhill Business Park, Herald Road, Edenthorpe DN3 2JY	Approved	Portal Page Link	5

Local Council Authority	Type of Development	Size of Development	Location	Status	Additional Comments	Map Ref
City of Doncaster Council	Residential- Flats	248 dwellings	Land to the East of Mere Lane, Edenthorpe, Doncaster, DN32BF	Approved	Portal Page Link	6
City of Doncaster Council	Residential- Houses	150 dwellings	Land North of Hatfield lane, Barnby Dun, Doncaster DN3 1DE	Approved	Portal Page Link	7
City of Doncaster Council	Residential- Flats	22 dwellings	Adjacent Tadcaster Arms Hotel Doncaster Road Armthorpe Doncaster DN3 2BY	Approved	Portal Page Link	8
City of Doncaster Council	Residential- Houses	21 dwellings	Land North Of The Railway Line Rose Hill Rise Rose Hill Doncaster DN4 5LE	Approved	Portal Page Link	9
City of Doncaster Council	Residential- Houses	187 dwellings	Land East Of Warning Tongue Lane Cantley Doncaster DN4 6TT	Approved	Portal Page Link	10
City of Doncaster Council	Residential- Houses	126 dwellings	Land At Former Rossington Colliery West End Lane New Rossington Doncaster DN11 0TT	Approved	Portal Page Link	11
City of Doncaster Council	Residential and Education	400 dwellings + Primary school	Land North West of Hatfield Lane, Armthorpe, Doncaster DN3 3HA	Approved	Portal Page Link	12
City of Doncaster Council	Education	75 pupils	Wincanton Middle Bank House Middle Bank Lakeside Doncaster DN4 5PF	Approved	Portal Page Link	13
City of Doncaster Council	Residential- Houses	34 dwellings	Land East of Hurst Lane, Auckley, Doncaster, DN9 3QJ	Approved	Portal Page Link	14
City of Doncaster Council	Residential- Houses	229 dwellings	Land At Waggon's Way Stainforth Doncaster	Approved	Portal Page Link	15
City of Doncaster Council	Medical Centre	1	Land South West Of West End Lane New Rossington Doncaster DN11 0PQ	Approved	Portal Page Link	16
City of Doncaster Council	Residential- Houses	1400 dwellings	Land South Of Hurst Lane Auckley Doncaster	Approved	Portal Page Link	17
City of Doncaster Council	Residential- Houses	139 dwellings	Land North West Of Neale Road Wheatley Doncaster DN2 4PG	Approved- Permission not Required	Portal Page Link	18
City of Doncaster Council	Residential- Houses	50 dwellings	Former McCormick Tractors International Wheatley Hall Road Wheatley Doncaster DN2 4PG	Approved- Permission not Required	Portal Page Link	19

Local Council Authority	Type of Development	Size of Development	Location	Status	Additional Comments	Map Ref
City of Doncaster Council	Residential-Houses	382 dwellings	Land On The East Side Of Hatfield Lane Armthorpe Doncaster DN3 3HA	Approved-Permission not Required	Portal Page Link	20
City of Doncaster Council	Residential-Houses	184 dwellings	1 Garland Road New Rossington Doncaster DN11 0ZG	Approved-Permission not Required	Portal Page Link	21
City of Doncaster Council	Residential-Houses	166 dwellings	Land at Cammidge Way, Bessacarr, Doncaster	Approved	Portal Page Link	22
City of Doncaster Council	Residential-Houses	186 dwellings	DN4 9AP	Approved	Portal Page Link	23
City of Doncaster Council	Residential-Houses	195 dwellings	DN12 3LR	Approved	Portal Page Link	24
City of Doncaster Council	Residential-Houses	26 dwellings	S640EW	Approved	Portal Page Link	25
City of Doncaster Council	Residential-Houses	53 dwellings	Land South of Lutterworth Drive, Adwick Le Street, Doncaster DN6 7DF	Approved	Portal Page Link	26
City of Doncaster Council	Place of Worship	N/A	56-60 Silver Street, Doncaster, DN11HT	Approved	Portal Page Link	27
City of Doncaster Council	Residential-Houses	58 dwellings	Paddocks West of 100 Doncaster Road, Harlington, Doncaster, DN5 7JB	Approved	Portal Page Link	28
City of Doncaster Council	Residential-Houses	86 dwellings	Land South of Jossey Lane, Scawthorpe, DN5 9ED	Approved	Portal Page Link	29
City of Doncaster Council	Residential-Houses	63 dwellings	Land to rear of 22-72 Ownston Road, Carcroft, Doncaster DN6 8DL	Approved	Portal Page Link	30
City of Doncaster Council	Residential-Houses	4 dwellings	Land On The North East Side Of Sandford Road Balby Doncaster DN4 8DU	Approved	Portal Page Link	31
City of Doncaster Council	Residential-Houses	191 dwellings	High Street, Askern, Doncaster, DN6 0AA	Approved	Portal Page Link	32
City of Doncaster Council	Residential-Houses	35 dwellings	Former Adwick Depot Land Off Village Street Adwick Le Street Doncaster DN6 7AA	Approved-Permission not Req	Portal Page Link	33
City of Doncaster Council	Residential-Houses	59 dwellings	Land At Watch House Lane Bentley Doncaster DN5 9LR	Approved	Portal Page Link	34
City of Doncaster Council	Residential- Flats	20 dwellings	7-9 Hall Gate, Doncaster SN1 3LU	Approved	Portal Page Link	35
City of Doncaster Council	Residential- Flats	33 dwellings	Frenchgate Centre, St Sepulchre Gate, Docaster DN1 1LJ	Approved	Portal Page Link	36
City of Doncaster Council	Residential-Houses	671 dwellings	Informal Land Eden Grove Hexthorpe Doncaster DN4 0DA	Approved-Planning not Req	Portal Page Link	37

Local Council Authority	Type of Development	Size of Development	Location	Status	Additional Comments	Map Ref
City of Doncaster Council	Education	1 new school	The Old Rectory Holywell Lane Braithwell Rotherham S66 7AF	Approved	Portal Page Link	38
City of Doncaster Council	Residential-Houses	27 dwellings	1 Fullwood Drive Balby Doncaster DN4 8QH	Permission not required	Portal Page Link	39
East Riding District Council	Residential-Houses	600 dwellings	Beal Homes Development Site Rawcliffe Road Goole East Riding Of Yorkshire DN14 8JN	Approved	Portal Page Link	40
Mansfield District Council	Residential-Houses	107 dwellings	Land North Of Netherfield Lane Meden Vale Notts	Registered	Portal Page Link	41
Metropolitan Borough of Rotherham	Residential-Houses	95 dwellings	Land to the North of Barnborough Lane, Goldthorpe, Rotherham	Approved	Portal Page Link	42
North Lincolnshire Council	Residential-Houses	41 dwellings	land north of Godnow Road, Crowle, Scunthorpe	Approved	Portal Page Link	43
North Lincolnshire Council	Residential-Houses	36 dwellings	DN17 1TY	Approved with Conditions	Portal Page Link	44
North Lincolnshire Council	Residential-Houses	144 dwellings	Land Off Burringham Road, Ashby Parklands, Scunthorpe	Approved with Conditions	Portal Page Link	45
Rotherham Metropolitan Borough Council	Residential-Houses	185 dwellings	land north of Tickhill Road Maltby	Ganted Conditionally	Portal Page Link	46
Rotherham Metropolitan Borough Council	Residential-Houses	785 dwellings	land at Oldcotes Road Dinnington	Proposed to be delegated	Portal Page Link	47
Rotherham Metropolitan Borough Council	Residential-Houses	260 dwellings	land at Cumwell Lane Hellaby	Proposed to be delegated	Portal Page Link	48
Rotherham Metropolitan Borough Council	Residential-Houses	107 dwellings	land south of Mansfield Road Aston	Proposed to be committee	Portal Page Link	49
Wakefield Metropolitan District Council	Residential-Houses	211 dwellings	Land Between Ackworth Road And Hardwick Road Pontefract	Approved	Portsl Page Link	50
Wakefield Metropolitan District Council	Residential-Houses	190 dwellings	Land at Holem Farm, Carlton	Awaiting Decision	Portal Page Link	51
Wakefield Metropolitan District Council	Residential-Houses	73 dwellings	Land Off Wentworth Terrace Fitzwilliam WF9 5BZ	Awaiting Decision	Portal Page Link	52

4.3 Year of Implementation, Movement Numbers and Traffic Forecast

- 4.3.1 CAP1616 requires ACP Sponsors to consider the forecast growth of their operation in terms of the forecast number of movements. This forecast should not only consider growth between now and implementation of the proposed changes, but it should also consider the potential growth to 10 years beyond the implementation date.
- 4.3.2 This ACP is expected to be implemented in March 2028, with 10 years beyond this assessed as 2037.
- 4.3.3 Conversations between CDC and their future operators are constantly evolving. Table 5 sets out DSA's latest Air Transport Movement (ATM) forecasts as of April 2026 which remains unchanged from the forecast shared in Stage 2. This forecast sees DSA reaching their Section 106 limit of 4,140 cargo ATMs in 2034. Any increase to this limit would require a separate planning process outside of the scope of this ACP. Cargo ATMs have therefore been flatlined from 2034 to 2037. The numbers shown in the table include passenger ATMs and cargo ATMs.
- 4.3.4 When CDC first acquired DSA, our supporting consultants, Munich Airport International, presented a movement forecast based on passenger and freight activities commencing in 2026. Since then, there have been further developments to the forecast as the DSA project has matured in line with the year of implementation of the airspace change. Forecast numbers will ultimately be determined with a number of commercial deals which we are currently progressing with airlines and freight companies at pace. Given this evolving situation, the forecasts used within this Stage 3 submission are based on appropriate intelligence at this time and within the constraints of existing planning permissions. Forecasts may be updated ahead of Final Options Appraisal should more firm information come to light this year.

Table 5 DSA ATM Forecast

Year	2028 Year of implementation	2029	2030	2031	2032	2033	2034	2035	2036	2037 Year of implementation + 10 years
Total ATMs	1841	3892	6220	8167	10047	10989	11647	11869	12096	12329

- 4.3.5 At this time, there are no plans to have flying schools or any Doncaster-based General Aviation operators however some local airspace users may wish to make use of the arrival procedures for training and these will be accommodated wherever possible by ATC. The MoD have also expressed an initial interest in this. Due to the nature of these flights, they are not classified as an Air Transport Movement (ATM) and therefore they are not included in Table 5 above. This is due to the definition of an ATM and, because of the unscheduled nature of these flights, quantifiable forecasts are not available.

4.4 Fleet mix

- 4.4.1 Alongside the forecast movement information, CAP1616 requires sponsors to forecast the future fleet mix at the airport.
- 4.4.2 Just like with the forecast movements, conversations between CDC and future operators are constantly evolving. Table 6 sets out DSA's latest fleet mix forecast as of April 2026.

Table 6 Fleet mix percentages across the ACP assessment period

Aircraft type	Year of implementation	Yol +10 years
B788	0.5%	0.0%
B789	0.3%	1.0%

Aircraft type	Year of implementation	YoI +10 years
B737 Max	1.4%	1.7%
B737-800	8.3%	10.2%
A320-200	18.6%	0.0%
A320neo	5.3%	28.7%
A321-200	2.7%	0.0%
A321neo	13.7%	19.6%
A321 XLR	0.4%	0.5%
ATR72-600	1.3%	1.6%
B777-200ER	0.4%	0.0%
B777-300ER	0.3%	0.8%
E190	1.3%	1.6%
A380	0.0%	0.8%
Cargo - ATR72-600	9.1%	6.7%
Cargo - B737F	9.1%	6.7%
Cargo - A300F	9.1%	6.7%
Cargo - B747F	9.1%	6.7%
Cargo - B777	9.1%	6.7%

4.5 Runway usage (Modal Split)

- 4.5.1 Runway usage at an airport is determined by wind direction. Typically, an airspace change uses an average modal split based on long-term average runway usage. In the case of DSA there isn't a long-term average that can be used. Table 7 shows the modal split that will be used for the FOA assessments. This is based on analysis of radar data from 16th June – 15th Sept 2022.
- 4.5.2 Please note, within the Initial Options Appraisal there was a small error with the modal split data provided where it was stated as 36.7% rather than 37.6%. This has been updated for this FOA. This update does not make any difference to the results of the IOA given the largely qualitative nature of the assessment and the very small difference in modal split applied.

Table 7 DSA 2022 Modal Split

Year	Modal split	
	RWY 02	RWY 20
2022	37.6%	62.4%

4.6 Full Options Appraisal Methodology

- 4.6.1 At Stage 3 CAP1616 requires sponsors to carry out a full assessment of the benefits and impacts of each option, tested against the 'without airspace change' scenario.
- 4.6.2 The FOA assessment is required to use the list of metrics shown in page 36 – 40 of CAP1616f in the appraisals, through which the potential costs/benefits that may arise within the context of an airspace change can be assessed. The following subsections detail the methodology used to assess each of the required metrics.

Group: all, Impact: safety - methodology

- 4.6.3 A qualitative safety assessment of each option which compares against the baseline. As part of this FOA, the safety assessment has been split into a number of categories. The focus of the assessment is to highlight potential areas of benefit/impact as a result of the option and any key differences in safety between the options.
- 4.6.4 Procedure operability and route separation assessments: An assessment of the design's compliance with the CAA's route separation requirements in addition to taking information from SME feedback around safety.
- 4.6.5 Procedure design: Following Stage 2 the options have gone through further instrument flight procedure (IFP) development. There is an assessment of the option against PANS OPS criteria which is the regulation used when designing IFPs within the UK.
- 4.6.6 Controlled Airspace Containment: Alongside the detailed IFP design, the options also underwent a controlled airspace containment assessment which helps to inform the following assessment categories:
- 4.6.7 Safety of operations inside controlled airspace: This assesses the safety of operations inside controlled airspace, drawing upon previous safety assessments undertaken for DSA's airspace before it was removed. The case for the requirement for CAS is set out in [Appendix D](#) (note this is repeated from the information provided at Stage 2A).
- 4.6.8 Safety of operations outside of controlled airspace: This assesses the safety of general aviation operations outside of controlled airspace, drawing upon previous safety assessments undertaken for DSA's airspace before it was removed.
- 4.6.9 Note that at the time of this FOA, DSA is not a licensed aerodrome and is without a certified ANSP with approved Safety Management System. Therefore, no formal safety assessments have yet taken place. Detailed safety justifications will be provided as part of the airspace change submission at Stage 4.

Group: communities, Impact: noise – methodology

CAP1616 noise modelling overview

- 4.6.10 In the UK, daytime aircraft noise is measured across a 16-hour (0700-2300) average summer day, and nighttime noise across an 8-hour (2300-0700) night. The summer period is 92 days between 16 June to 15 September inclusive. Table 8 describes the noise metrics the form part of a CAP1616 airspace change assessment and their weighting when drawing conclusions on options.

Table 8 CAP1616 Primary and secondary noise metric overview

CAP1616 noise metric	Description
Primary metrics CAP1616i explains (at paragraph 5.16) “When considering noise impacts, the CAA will weigh the outcomes from ‘primary’ metrics over ‘secondary’ metrics. Primary metrics will be those that are used to quantify total adverse noise effects, such as the Department for Transport’s TAG outputs...” Paragraph 5.17 then goes on to say: “Adverse effects are considered to be those related to health and quality of life. These adverse effects must be assessed using a risk-based approach above the lowest observed adverse effect level (LOAEL), 51 dB $L_{Aeq,16h}$ daytime and 45 dB $L_{Aeq,8h}$ night-time. Adverse effects of noise are determined through TAG calculated on the basis of changes in L_{Aeq} noise exposure.” The primary metrics are therefore daytime $L_{Aeq,16h}$, night-time $L_{Aeq,8h}$ and the TAG assessment.	
$L_{Aeq,16h}$ $L_{Aeq,8h}$ TAG	L_{Aeq} contours are the equivalent continuous sound level of aircraft noise in dBA. This is based on the daily average movements that take place in the 16-hour period (07:00-23:00 local time) or 8-hour period (23:00-07:00) during the 92-day summer period 16 June to 15 September inclusive. This metric is the measure of noise exposure adopted by the UK Government for the purposes of considering adverse effects from aircraft noise and it forms the basis of the UK Government’s policies in relation to aircraft noise. The assessment of noise using L_{Aeq} also relies on the concept of the LOAEL and the SOAEL (significant observed adverse effect level). The LOAEL is the noise level above which adverse effects on health and quality of life can be detected. The SOAEL is the noise level above which significant adverse effects on health and quality of life can be detected. The LOAEL is defined in UK Government airspace policy, and the SOAEL is defined with reference to the Aviation Policy Framework and following the approaches adopted in recent planning applications for UK airports. The LOAEL and SOAEL for aircraft noise during day and night periods are: Daytime LOAEL: 51dB $L_{Aeq,16h}$ Nighttime LOAEL: 45dB $L_{Aeq,8h}$ Daytime SOAEL: 63dB $L_{Aeq,16h}$ Nighttime SOAEL: 55dB $L_{Aeq,8h}$ The L_{Aeq} contours are generated for option 2 and option 3 based on the forecast schedule and fleet mix detailed in section 4.3 and 4.4. L_{Aeq} contours have been generated in 3dB intervals from 51dB $L_{Aeq,16h}$ and 45dB $L_{Aeq,8h}$. The 55dB $L_{Aeq,8h}$ is also reported as this represents the night-time SOAEL. The outcome of the L_{Aeq} analysis, including information on population, and the number of schools, hospitals and places of worship within the contours, is shown in section 5 and the contour maps for both scenarios are presented in Appendix A. TAG assessments have been conducted for each option as part of this Full Options Appraisal and are presented as an overall net present value (NPV, £) along with NPVs for different health effects.
Secondary metrics As described in the quote from CAP1616i paragraph 5.16 above, secondary metrics are those that are not used to determine total adverse noise effects, but which are still able to convey noise effects, such as number above contours (N65 and N60). CAP1616i also lists Overflight contours and operational diagrams as secondary metrics	
N60 N65	N65 and N60 are noise metrics which respectively describe the number (N) of aircraft noise events above a noise level of 65dB L_{ASmax} in the daytime period and 60dB L_{ASmax} for the night-time period. These are event-based metrics, which can be used to better understand the number of noise events that occur and their location. The number of events is split into bands (defined by the CAA) or rate 5 (5 events per average summer day), rate 10 (10 events per average summer day) and rate 20 (20 events per average summer day). N65 and N60 contours have been generated for option 2 and option 3 based on the forecast schedule and fleet mix detailed in section 4.3 and 4.4. The outcome of the analysis, including information on population, and the number of schools, hospitals and places of worship within the

	contours, is shown in section 5 and the contour maps for both scenarios are presented in Appendix A .
Overflight contours	'Overflight' is a metric that portrays areas that are perceived to be overflowed and can be useful for describing the pattern and dispersion of aircraft below 7,000ft. Whilst they are useful as a means of communication of airspace change operations, it is important to note that they do not illustrate noise impacts. When calculating overflight contours, we use the CAA's 48.5° definition of overflight, which is published in: CAP1498. Overflight contours have been generated for option 2 and option 3 based on the forecast schedule and fleet mix detailed in section 4.3 and 4.4. The outcome of the analysis, including information on population, and the number of schools, hospitals and places of worship within the contours, is shown in section 5 and the contour maps for both scenarios are presented in Appendix A.
Operational diagrams	Operational diagrams are presented within section 5 'Full Options Appraisal' as part of the description for both option 2 and option 3. Further detailed operational diagrams based around the option for consultation are included within the consultation material.

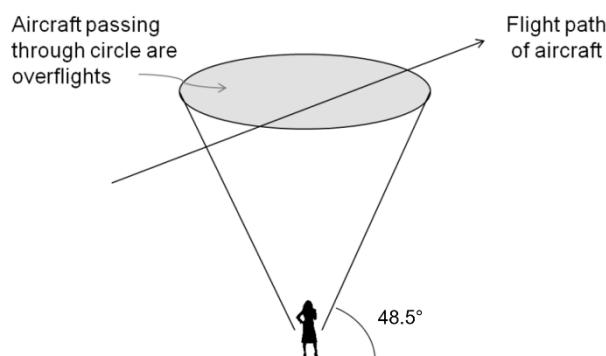


Figure 6 CAA 48.5° definition of overflight (CAP1498)

Noise modelling category

- 4.6.11 The CAA has published its Policy on Minimum Standards of Noise Modelling ([CAP 2091](#)). This document defines categories of noise modelling sophistication and describes the different situations where the CAA require noise calculations to be provided. Moreover, it sets out requirements for the minimum category which different stakeholder or sponsor groups should use when providing noise calculations to the CAA for them to carry out their regulatory duties.
- 4.6.12 CAP2091, CAA Policy on Minimum Standards for Noise Modelling, require Change Sponsors to determine and declare what Noise Modelling Category they consider is appropriate for the ACP consultation. The minimum level of sophistication of the modelling process should depend on the size of the current or proposed noise effect of the airport on its local community. The category of noise modelling required by the CAA is based on the number of residents in the 51dBL_{Aeq16h} day or 45dBL_{Aeq,8h} night contours either before or after the proposed change, whichever is greater.
- 4.6.13 The most recent publicly available noise contour data identified for this Airport relates to 2018. A comparison with the 2022 contours indicates that the 2018 contours are appreciably larger in extent and that a number of flight routes appear to have been amended in the intervening period. On this basis, the 2018 data is considered unsuitable for noise categorisation purposes.
- 4.6.14 Whilst 2022 noise contours have been produced, these are likely to reflect the atypical reduction in aircraft movements associated with the Covid-19 pandemic and may not, therefore, be representative of future operational conditions.

- 4.6.15 It is further noted that the Airport is not currently operational, and no up-to-date noise model is available from which to definitively determine the applicable noise category under CAP 2091.
- 4.6.16 In light of the above limitations, a precautionary approach was adopted, with Category E assumed in accordance with CAP 2091 guidance. This categorisation was then reviewed and verified upon completion of the Year of Issue (YOI) +10 scenario modelling, which will represent the worst-case operational condition for assessment purposes. Please the next subsection for the outcomes.

Noise modelling methodology

- 4.6.17 The noise modelling undertaken for this Full Options Appraisal, has been conducted in compliance with the requirements set forth in CAP2091 and CAP1616i.
- 4.6.18 As described in Section 4.6, following review of the population exposure results for the Year of Issue (YOI) +10 scenario generated as part of this FOA, the noise modelling category has been revised to Category D in accordance with CAP 2091 guidance.
- 4.6.19 All noise exposure data presented in Stage 3 has been generated by Noise Consultants Limited (part of Logika Group), using the latest version of Aviation Environmental Design Tool (AEDT) version 3.0g, based on inputs provided by the Project Team. These inputs include:
- number of movements by aircraft type and period of the day;
 - forecast fleet mix in 2028, 2037;
 - track digitization and dispersion pattern for the forecast scenarios; and
 - use of runways, arrival and departure routes.
- 4.6.20 [Appendix A](#) – Noise appraisal describes in detail the modelling methodology adopted for the assessment of effects, the inputs that have been relied on, and the assumptions used for the noise assessment to inform the development of this FOA.

Population and Noise Sensitive Buildings

- 4.6.21 For residential receptors, a household and population dataset provided by CACI Ltd has been used to estimate the number and distribution of people located within the calculated noise contours. This dataset contains the latest population data at postcode level for 2025 at output area level for 2028 and 2037 providing projections for both dwellings and population. This data has been supplemented with the planned residential developments described in [section 4.2](#). A population per dwelling of 2.3 (calculated from the CACI dataset) has been applied to each of the planned developments to estimate the number of individuals in each development.
- 4.6.22 In respect of non-residential noise sensitive receptors, a Point of interest (POI) dataset provided by CACI Ltd has been used to estimate the number and distribution of non-residential noise sensitive receptors located within the calculated noise contours. This dataset contains postcode-level latest data and projections of non-residential noise sensitive receptors for covering the assessment years 2028 and 2037. The POI are divided into groups based on their use. Groups are presented as follow:
- Education;
 - Hospitals; and
 - Places of Worship;

DSA's Noise Preferential Routes (NPRs)

- 4.6.23 Noise Preferential Routes (NPRs) for DSA departures were established through a public consultation in 2018 as part of an earlier ACP although they were never subsequently defined in the UK AIP or in DSA's S106 planning agreement. Because these routes were recently consulted on, CDC does not propose to modify them further as part of this ACP unless required for safety or integration. The assessment of the options will therefore consider whether there would be any changes to the NPRs, and if there are, whether there are operational or integration reasons which support the requirement to make a change.

Changes to noise from other airspace users

- 4.6.24 Re-opening DSA has the potential to generate changes to the traffic patterns of other airspace users such as General Aviation (GA) who fly in the airspace around Doncaster. GA are operations other than scheduled air services and non-scheduled air transport operations for remuneration or hire or military activity. The most common type of GA activity is recreational flying by private light aircraft and gliders, but it can range from paragliders and parachutists to microlights, balloons, helicopters and private corporate jet flights.
- 4.6.25 It's very difficult to predict changes from other airspace users, as this activity is not the responsibility of DSA or as a result of scheduled aircraft arriving and departing from DSA. The noise from GA is therefore not incorporated into the main noise assessments, however CAP1616 does require sponsors to consider any environmental impacts caused due to indirect consequential changes on the flight behaviour of other airspace users.

Group: communities, Impact: local air quality - methodology

- 4.6.26 The principal local air pollutants associated with airport activity are oxides of nitrogen (NO_x, in particular nitrogen dioxide (NO₂)) and particulate matter (PM₁₀ and PM_{2.5}). Sources of emissions include aircraft engines, road traffic associated with surface access, airside plant and equipment with diesel or petrol engines, and other combustion sources such as heating plant. Of these, aircraft engines are typically the largest on-airport source, but road traffic may pass closer to locations of relevant exposure (such as residences, schools, and medical facilities) and may therefore have greater impacts.
- 4.6.27 Due to the effects of mixing and dispersion, emissions of air pollutants from aircraft travelling above 1000 feet are unlikely to have a significant impact on local air quality. The DfT's Air Navigation Guidance (2017) states that: "Studies have shown that NO_x emissions from aviation related operations reduce rapidly beyond the immediate area around the runway. Therefore, the impact of airspace design on local air quality is generally negligible compared to changes in the volume of air traffic and that of the local transport infrastructures feeding the airport.". ICAO's Airport Air Quality Manual (International Civil Aviation Organization. Doc 9889 Airport Air Quality Manual. Second Edition, 2020. ICAO, Canada.) similarly states that 1000 feet is the typical limiting altitude for ground-level NO₂ impacts from aircraft emissions.
- 4.6.28 Local authorities are responsible under the Local Air Quality Management regime for reviewing and assessing the air quality in their areas. Defra has set Air Quality Objectives (AQOs) for key pollutants, which local authorities are expected to achieve. If a local authority identifies any places where the AQOs are not likely to be achieved, it must declare an Air Quality Management Area (AQMA), and put together an action plan to improve the air quality. Local authorities are also expected to carry out regular reviews and assessments of air quality, supported as necessary by monitoring, and to publish details in Annual Status Reports (ASR). In a parallel regime, the Secretary of State has a duty to meet statutory Limit Values for certain pollutants. For nitrogen dioxide and PM₁₀, the AQOs and Limit Values are numerically the same. There is no AQO for PM_{2.5} but there is a Limit Value. Details of the AQOs and Limit Values are given in [Appendix C](#).

- 4.6.29 Paragraph 7.5 of CAP1616i sets out criteria that would trigger a detailed assessment where there may be a change in emissions due to airspace changes, and states that change sponsors must produce information on and monetise local air quality impacts only where there is a possibility of pollutants breaching legal limits and target values. This is only considered likely where:
- there is likely to be a change in aviation emissions (by volume or location) below 1000 feet above aerodrome level; and
 - the location of emissions is within or adjacent to a designated AQMA.
- 4.6.30 Given that the baseline position is that the airport is not in operation, the proposed changes will affect aviation emissions below 1000 feet. Doncaster Metropolitan Borough Council has declared several AQMAs. The closest (AQMA No. 4) is approximately 3.5 km northwest of the airport terminal building and straddles the M18 motorway.
- 4.6.31 A proportionate approach to assessing air quality impacts has therefore been adopted. This includes consideration of:
- impacts from aircraft emissions;
 - impacts from road traffic emissions;
 - current and future baseline air quality;
 - locations of sensitive receptors, both near the airport and within the AQMA; and
 - the risk of exceedance of any AQOs or Limit Values at any relevant receptor.
- 4.6.32 Impacts have been assessed against a future baseline scenario without the airspace change proposal, i.e. with DSA not operational. Consideration has also been given to a comparison between Option 2 and Option 3, but since the number of movements will be the same in either option and there will be no differences in airspace design below 1000 feet, there will be no discernible difference in terms of air quality between the options.

Group: wider society, Impact: greenhouse gas emissions, and Group: General aviation/commercial airlines, Impact: Fuel burn – Methodology

- 4.6.33 The complete Greenhouse Gas (GHG) Emissions Assessment can be found in Appendix D, however a summary of the methodology can be found below.
- 4.6.34 Utilising the outputs of the fuel burn calculations taken from the noise modelling carried out in AEDT, the greenhouse gas emissions have been calculated for aircrafts in the landing and take-off cycle up to 10,000ft for departures and 6,000 ft for arrivals. The envelope of the GHG emissions assessment is capped at 10,000 ft for departures and 6,000 ft for arrivals as above at these altitudes it is not anticipated there will be material differences between Option 2 and Option 3, and any differences in emissions will be an artefact of variables unrelated to the operation of the airspace such as flight origin/destination.
- 4.6.35 Noise modelling provided individual representative aircraft movement datasets for each aircraft type expected to operate at DSA, based on recorded movements at the airport for 1 day that represents the average 92 day summer period.
- 4.6.36 The aircraft types included in the modelling are set out in Section 4.4, Table 5 and reflect DSA's forecast fleet mix for Year 1 (2028) and Year 10 (2037), based on ongoing engagement with future operators. The extracted movement datasets included operational parameters associated with each movement, including:

- Aircraft type.
- Flight movement classification.
- Total movement segment length.
- Fuel burn associated with the movement.

- 4.6.37 Using the representative aircraft movement datasets, a representative fuel burn intensity factor was calculated for each aircraft type per movement length (lbs/nautical mile).
- 4.6.38 The runway type and associated track length for each arrival and departure movement for Options 2 and 3 were then applied to the representative aircraft movement data to estimate fuel burn by aircraft type and route. Using the annual forecast ATM data presented in Table 5 annual total movement distance was calculated for each assessment year.
- 4.6.39 Fuel burn estimates were calculated for the assessment years of implementation (2028) and Year 10 (2037), representing the years required under CAP1616i Chapter 6.6. A fuel burn intensity per ATM was calculation for these years to enable annualisation of the data across the full appraisal period. Fuel burn intensity factors were linearly interpolated between the 2028 and 2037 baseline values and multiplied by the annual ATM forecast.
- 4.6.40 The calculated annual fuel burn values were converted from lbs to tonnes of Co2e using recognised greenhouse gas conversion factors sourced from 2025 UK Department for Energy Security and Net Zero (DESNZ) Greenhouse Gas Reporting Conversion Factors.
- 4.6.41 Using the CO₂e calculations, greenhouse gas emissions have also been monetised using the Department for Transport's Transport Analysis Guidance (TAG) greenhouse gas workbook to provide an indication of the cost associated with forecasted emissions over the appraisal period. This TAG workbook can be found in [Appendix D](#).
- 4.6.42 In accordance with CAP1616i chapter 6.3 modelling assumptions must be included in airspace change proposals as the assumptions used during this methodology is outlined below;
- Movement data sets used within calculations is reflective of future operations.
 - Fuel burn scales proportionately with route length and ATM growth.
 - Forecasted fleet mix changes and operational efficiencies occur linearly between 2028 and 2037.
- 4.6.43 CAP1616i states that '*Change sponsors must consider and demonstrate how the design and operation of the design options will impact greenhouse gas emissions.*' With the future baseline scenario without an airspace change proposal being DSA remain non-operational, DSA's increase in greenhouse gas emissions will be significant with either Option 2 or 3. [Section 5.2](#) and [section 5.3](#) presents the outcomes for the two options and then a comparison is included in the [section 6 conclusion](#).

Group: wider society, Impact: tranquillity - methodology

- 4.6.44 The Air Navigation Guidance 2017 states that "where practicable, it is desirable that airspace routes below 7,000 feet should seek to avoid flying over Areas of Outstanding Natural Beauty (AONB) and National Parks".
- 4.6.45 CAP1616i states that "The consideration of impacts upon tranquillity for airspace change proposals is with specific reference to National Parks, Areas of Outstanding Natural Beauty (AONB), National Scenic Areas (NSA) (broadly equivalent to AONBs in Scotland), the Norfolk and Suffolk Broads, plus any local 'tranquil' areas that are identified through community engagement and are subsequently reflected within an airspace change proposal's design principles."

- 4.6.46 Since both of these documents were published, Areas of Outstanding Natural Beauty have become 'National landscapes'.
- 4.6.47 In the context of this ACP, the Peak District National Park and the Lincolnshire Wolds National landscape, shown in Figure 7, are the closest tranquil sites however these are well outside of the scope of the proposed changes. There were no locally identified tranquil areas highlighted through engagement.
- 4.6.48 CAP1616i notes that "There is no universally accepted definition of tranquillity and therefore there is no accepted metric by which it can be measured". The overall tranquillity impact of each option has been assessed by considering the extent of AONBs and National Parks (NPs) with respect to at least rate 5 overflight at 7000 feet. The assessment determined that none of the tranquil areas were affected by the overflights, further confirming the conclusions set out above.

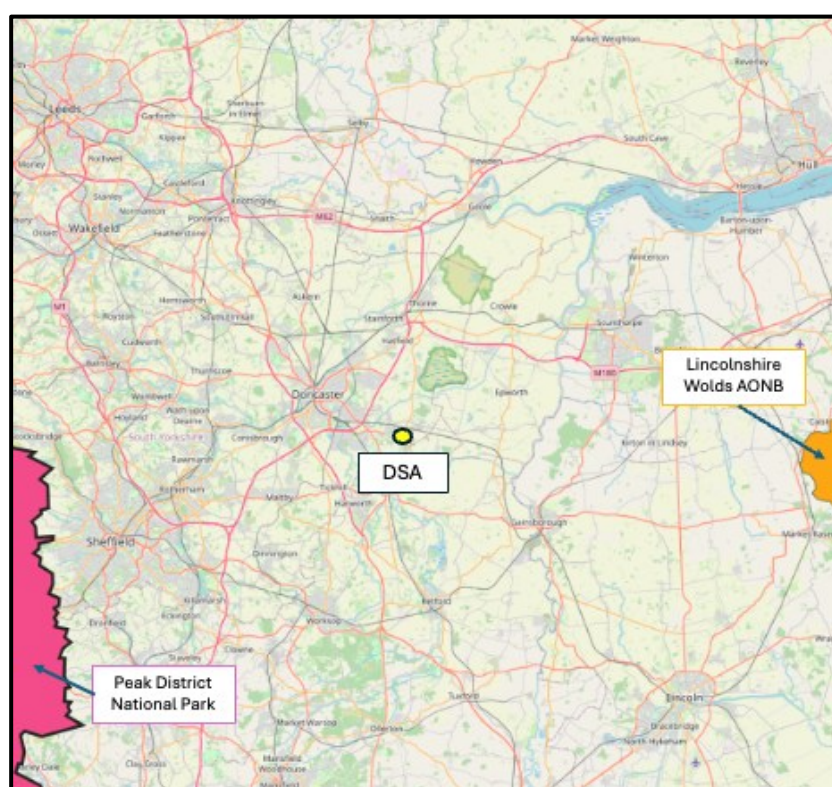


Figure 7 National Landscapes (AONBs) and National Parks

Group: wider society, Impact: biodiversity – methodology

- 4.6.49 As part of Stage 2 and as required by CAP1616, we undertook a Habitats Regulation Assessment (HRA) screening assessment which considers if there are any potential impacts to designated sites up to 3,000ft. The HRA screening assessment highlights if there is potential for this ACP to overfly European sites below this altitude. These sites are

- Special Areas of Conservation (SAC) and possible SACs
- Special Protection Areas (SPA) and potential SPAs
- Ramsar sites (wetlands of international importance) and proposed Ramsar sites.

- 4.6.50 The following sites, shown in Figure 8, have been identified which could experience change overflight patterns from DSA arrivals or departures:

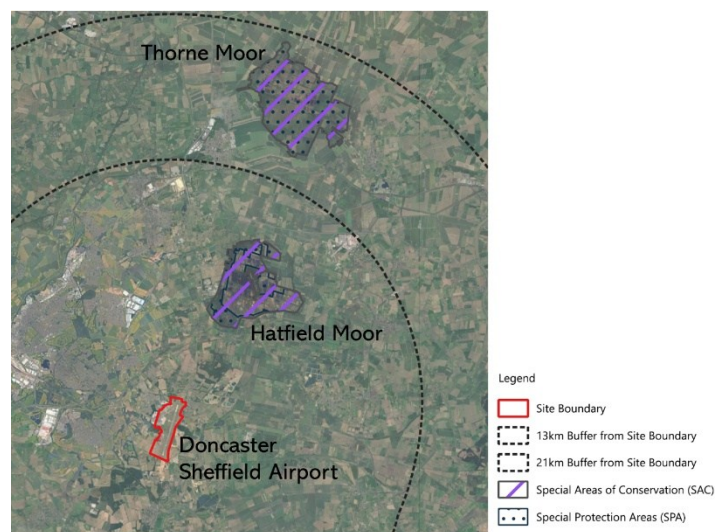


Figure 8: European sites within the scope of this ACP

- 4.6.51 As a result of the HRA screening exercise, a shadow Appropriate Assessment (noting the Appropriate Assessment will be undertaken by the CAA as competent authority) was undertaken for the full options appraisal.

Group: wider society, Impact: capacity/resilience – methodology

- 4.6.52 Subject matter experts will qualitatively assess any impacts to airport capacity and/or network resilience compared to the baseline scenario.
- 4.6.53 The resilience assessment will consider the level of reliance of the airport's proposed Instrument Flight Procedures on GNSS and/or ground based navigational infrastructure.

Group: general aviation, Impact: access – methodology

- 4.6.54 Controlled airspace (CAS) is airspace of defined dimensions within which air traffic control (ATC) service is provided in accordance with the airspace classification. Its purpose is to create a known air traffic environment to achieve the objectives of the ATC service to prevent collisions between aircraft and to expedite and maintain an orderly flow of air traffic.
- 4.6.55 DSA has developed proposed CAS structures based on collaborative work during IFP development and achieving the requirements of the CAA airspace containment policy requirements. As a result, the following types of changes are being proposed:
- Amendments to lateral dimensions of CAS
 - Amendments to vertical dimensions of CAS
 - Amendments to classifications CAS
 - Amendments to assignment (TMA/CTR/CTA) of CAS
- 4.6.56 The quantitative element of this assessment therefore considers these changes, and the potential volume changes for the various classes of CAS.
- 4.6.57 In addition to this, a qualitative assessment has been undertaken to further assess the potential impacts of each option on GA operations, including the ability to access controlled airspace in each option.

- 4.6.58 To support this assessment, we considered the traffic patterns of other airspace users currently through the use of Radar data from 1st May – 31st October 2025 and compare it to the traffic patterns between 1st May – 31st October 2022 when RHADS controlled airspace was in operation. Whilst Option 1 (to reinstate the previous DSA airspace) was discontinued in Stage 2, use of the 2022 dataset still provides useful insight into the anticipated impacts of Options 2 and 3 on GA operations. [Appendix F](#) provides details of these heatmaps.

Group: general aviation/commercial airlines, Impact: economic impact from increased effective capacity – methodology

- 4.6.59 This assessment provides the forecast change in air transport movements (passenger/cargo) and estimated passenger numbers carried for each option compared to the baseline scenario.
- 4.6.60 Within the Cost Benefit Analysis ([section 6.1](#)), a monetised value has been applied for the value of an average passenger flight. This was based on the recommendations set out by [EUROCONTROL](#) in the Standard Inputs for Economic Analysis document (Section 25). There's more information about the assumptions made when monetising the benefits of commencing flights at DSA within [section 6.1](#)

Group: commercial airlines, Impact: training costs – methodology

- 4.6.61 The FOA will consider whether any training costs would be incurred by Commercial airlines in order to implement the option.

Group: commercial airlines, Impact: other costs – methodology

- 4.6.62 The FOA will consider whether any other costs would be incurred by Commercial airlines in order to implement the option.

Group: airport/air navigation service provider, Impact: infrastructure costs – methodology

- 4.6.63 This FOA will qualitatively estimate the areas where infrastructure costs are expected to be incurred by the airport and/or ANSP.
- 4.6.64 As part of the FOA, we are comparing each of the options against the 'without airspace change' baseline, to understand the benefits and impacts, and ultimately identify the option that would offer the most benefit (balanced across all of the assessment categories). Our assessment qualitatively identifies potential infrastructure costs however these have not been monetised as these costs are not expected to be materially different between the two options.

Group: airport/air navigation service provider, Impact: operational costs and deployment costs – methodology

- 4.6.65 This FOA will qualitatively estimate the areas where operational and/or deployment costs are expected to be incurred by the airport and/or ANSP.
- 4.6.66 As part of the FOA, we are comparing each of the options against the 'without airspace change' baseline, to understand the benefits and impacts, and ultimately identify the option that would offer the most benefit (balanced across all of the assessment categories). Our assessment qualitatively identifies potential operational and deployment costs however these have not been monetised as these costs are not expected to be materially different between the two options. We have however monetised the cost of maintaining the airport's Instrument Flight Procedures (IFPs) as this does vary between the two options.

Group: airport/air navigation service provider, Impact: other costs – methodology

- 4.6.67 In 2017 the UK Government published, and consulted on, its Airspace Policy (AP) framework. In accordance with this policy and the consultation response, Government expects airport operators to offer financial assistance towards the costs of acoustic insulation to residential properties that are exposed to levels of noise of 63dB LAeq,16h.

- 4.6.68 Therefore, this FOA will consider whether any costs for the airport could be incurred in terms of financial assistance towards acoustic insulation where residents are newly exposed to noise at the 63 dB LAeq,16h level or above.

Group: all, Impact: Interdependencies with MTMA airspace – methodology

- 4.6.69 This category is not a category required for consideration during the FOA by CAP1616f, nor is this ACP in direct support of CAA's Airspace Modernisation Strategy and therefore DSA is not part of Iteration 2 of ACOG's Airspace Change Masterplan. However, there could be impacts of DSA's options on the existing and future operations of adjacent airports and ANSPs. Although we cannot assume a FASI MTMA deployment², this qualitative assessment of each option does include an indication of potential interdependencies based on the latest information available at the time of writing.

4.7 Evidence gaps following Stage 2

- 4.7.1 Throughout the Stage 2 submission document set, we highlighted where we plan to undertake further detailed appraisal as part the FOA, in order to further assess the benefits and impacts of an option. Table 9 provides details of this and where to find the information within this FOA document.

Table 9 Evidence gaps identified as part of Stage 2 and where to find information within this FOA

Evidence gap identified in Stage 2	Where to find within this FOA
Generate more granular year 1 and year 10 forecasts including assumptions around fleet mix.	Section 4.3 and 4.4
Quantitative noise contours (modelled as per CAP2091 standards), including population counts and size (km ²). These will include the 63 dB LAeq,16h level or above contour used to assess population who may be entitled to financial assistance towards acoustic insulation	Methodology: Section 4.6 Outcomes: Section 5.2 and 5.3
Qualitative Air Quality assessment.	Methodology: Section 4.6 Outcomes: Section 5.2 and 5.3
Where required, a Habitats Regulation Assessment and/or Strategy Environmental Appraisal (SEA)	Methodology: Section 4.6 Outcomes: Section 5.2 and 5.3
Quantitative overflight contours, including assessments of population, Country Parks, Gardens and Designated Landscapes, and Historic buildings.	Methodology: Section 4.6 Outcomes: Section 5.2 and 5.3
WebTAG assessment	Methodology: Section 4.6 Outcomes: Section 5.2 and 5.3 NPV tables are shown in Section 6 .
Annualised fuel burn and equivalent CO2 emissions data	Methodology: Section 4.6 Outcomes: Section 5.2 and 5.3
Further information around interdependencies with the upper network and neighbouring airports	Methodology: Section 4.6 Outcomes: Section 5.2 and 5.3
Quantified CAS	Methodology: Section 4.6 Outcomes: Section 5.2 and 5.3

² Para 3.14 of CAP1616 states 'Change sponsors must not assume that an airspace change has already taken place as part of the future baseline scenario, since this would have required an airspace change decision and associated assessment'.

5. Full Options Appraisal

5.1 Without Airspace Change

Without airspace change: Description

- 5.1.1 Number of DSA ATMs per year (2028 and 2037): 0
- 5.1.2 At present, the airport is unlicensed, which means it cannot handle commercial flights with fare-paying passengers or undertake flying training involving larger aircraft. A licence from the CAA for these activities is currently being pursued by CDC.
- 5.1.3 Since the airport closed in 2022, no commercial flights have operated to or from the site. The only aviation activity currently taking place is a small number of movements by 2Excel Aviation, which were approved by CDC. These flights do not carry passengers or cargo and operate on an unlicensed basis.
- 5.1.4 With the controlled airspace and supporting procedures removed after closure, the site currently has no active air traffic control service, no published instrument procedures and no regulated airspace protection for arriving or departing aircraft.
- 5.1.5 Although the physical infrastructure remains, the airport is not operating as a commercial aerodrome. There are no scheduled flights, no regular business or general aviation activity and no cargo operations.
- 5.1.6 Without the Airspace Change, this baseline description would be expected to remain the same for the 'without airspace change' scenario years of 2028 and 2037. As such, the following assessments apply to both 2028 and 2037 scenarios, unless otherwise stated.

Without airspace change: Safety

- 5.1.7 There is no effect on the safety performance of a future DSA operation that doesn't exist nor are CDC in a position to assess the safety performance of other airspace users' operations in the region.

Without airspace change: Noise

Primary metrics

- 5.1.8 There will be no people adversely affected by noise from DSA as there would not be any DSA commercial ATMs.

Secondary metrics

- 5.1.9 There will be no people within the N60, N65 or overflight contours below 7000ft as there would not be any DSA commercial ATMs.

Changes to noise from other airspace users

- 5.1.10 There would be no changes to noise from other airspace users such as General Aviation flying within the Doncaster area as there would be no changes to Controlled Airspace arrangements.

Without airspace change: Local air quality

- 5.1.11 There will be no effect on Air Quality as there would not be any DSA commercial ATMs. Therefore, nil emissions associated with DSA. The baseline air quality is expected to improve in future due to reductions in emissions from other sources, such as road traffic. Details of the future baseline air quality are given in [Appendix C](#).

Without airspace change: Fuel burn and Greenhouse gas emissions

- 5.1.12 There will be no fuel burn and greenhouse gas emissions as there would not be any DSA commercial ATMs.

Changes to fuel burn and greenhouse gas emissions for other airspace users

- 5.1.13 There would be no changes for other airspace users such as General Aviation flying within the Doncaster area as there would be no changes to Controlled Airspace arrangements.

Without airspace change: Tranquillity

- 5.1.14 There will be no overflight of National landscapes and National Parks, as there would not be any DSA commercial ATMs.

Without airspace change: Biodiversity

- 5.1.15 There will be no overflight of any sites designated for nature conservation value as there would not be any DSA commercial ATMs.
- 5.1.16 Existing flight activity in the area may at time overfly designated sites such as the Thorne and Hatfield Moors Special Protection Area (SPA). However, these flights are at altitudes in excess of 500m (1,640ft) where potential effects on habitats, flora and fauna from either disturbance (i.e. from noise, shadow cast or aircraft presence) or changes in air quality (i.e. NO_x concentrations / deposition from aircraft engines) would not be expected to have any detectable effects (see CAA 2527).

Without airspace change: Capacity/resilience

- 5.1.17 There would be no passenger or cargo arrivals and departures from DSA.

Without airspace change: General aviation access

- 5.1.18 There will be no impact to GA operations as there will be no changes to controlled airspace. Please see [Appendix F](#) for heatmaps of current GA operations from May to October 2025.

Without airspace change: Economic impact from increased effective capacity

- 5.1.19 Without the introduction of arrival and departure procedures and associated controlled airspace for DSA there would be significant impact to the airport's commercial capacity rendering the business case unviable with the associated lost opportunity of wider societal benefits.

Without airspace change: Airline training costs

- 5.1.20 No training costs would be incurred by commercial airlines.

Without airspace change: Other airline costs

- 5.1.21 No other costs would be incurred by commercial airlines.

Without airspace change: Airport/air navigation service provider infrastructure costs

- 5.1.22 No infrastructure costs would be incurred by the airport or ANSP.

Without airspace change: Airport/air navigation service provider operational costs and deployment costs

- 5.1.23 No operational or deployment costs would be incurred by the airport or ANSP.

Without airspace change: Airport/air navigation service provider other costs

- 5.1.24 No other costs would be incurred by the airport or ANSP.

Without airspace change: Interdependencies with MTMA airspace

- 5.1.25 No impact to NERL, Leeds Bradford Airport, Manchester Airport, East Midlands Airport, MoD or NERL.

5.2 With Airspace Change: Option 2

With airspace change – Option 2: Description

- 5.2.1 This option proposes RNAV 1 SIDs for departures and vectoring onto an RNP or ILS approach for arrivals. Non RNAV1 capable aircraft will fly an omni directional departure. Air traffic controllers will have Aerodrome Control Instrument (ADI) and Approach Control Surveillance (APS) ratings
- 5.2.2 This option would be similar to the previous notified airspace arrangements at the time of the airport's closure in 2022, but not identical. If this option were to be progressed, there could be further refinements identified as an outcome of consultation but at this stage, the following adjustments have been identified:
- The addition of an earlier FL60 point on the RWY02 UPTON SID to enable a reduction in the volume of controlled airspace to the north-west.
 - A new SID termination point to the SW of UPTON for UPTON SIDs
 - Remove of the RWY20 left turn UPTON SID
 - Adjustment to the ROGAG SIDs to ensure at least 2nm containment from the edge of controlled airspace
 - Revised CTA boundaries to the west of the CTR to reduce the overall volume together with a proposed reduction in classification from Class D to Class E+ for some CTAs.
- 5.2.3 Figure 9 shows the proposed DSA controlled airspace construct with SID and final approach centrelines shown. Airspace classifications are Class D unless stated otherwise.

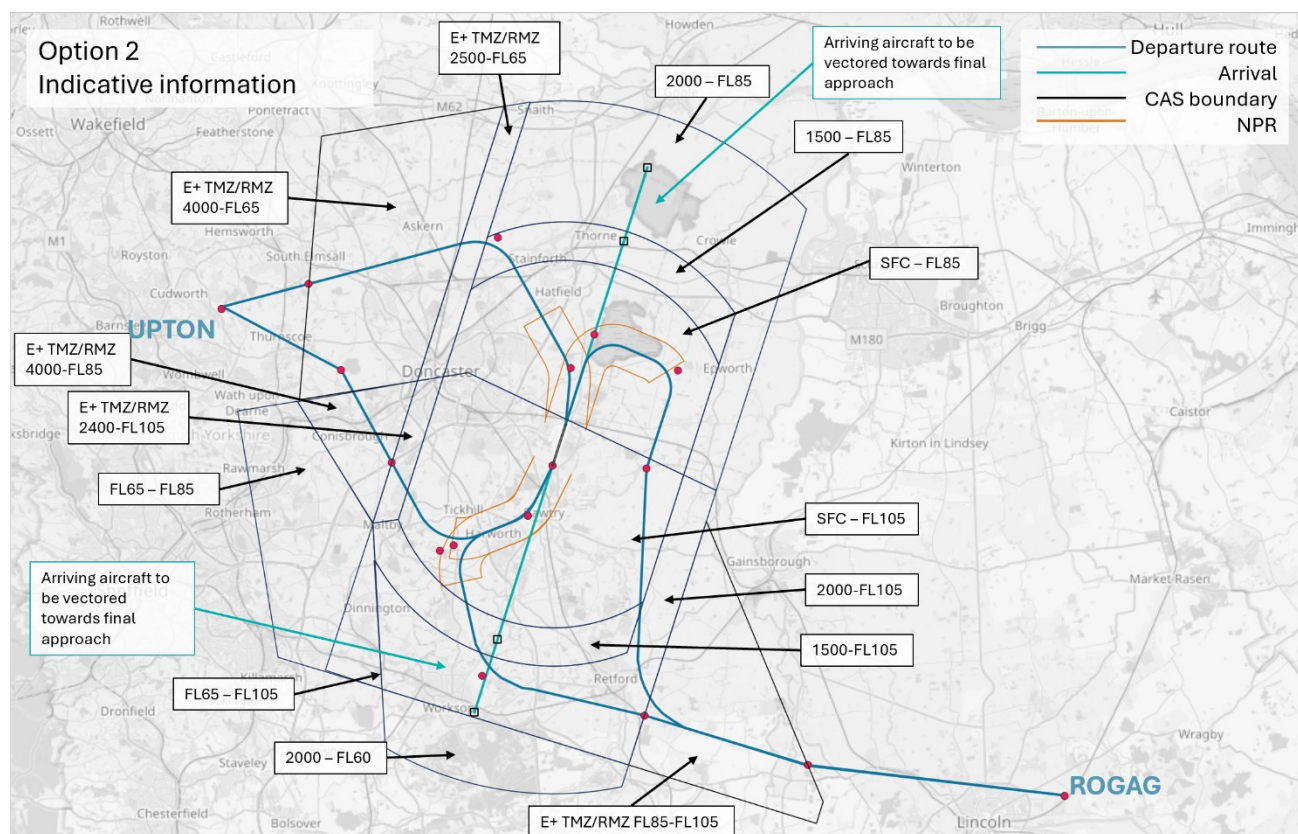


Figure 9 Option 2 operational diagram (Airspace classifications are Class D unless stated otherwise) ©OpenStreetMap

- 5.2.4 ATC would vector all arrivals onto final approach, usually to the Instrument Landing System (ILS) or occasionally to the RNP Approach or may make a visual approach. Departures will follow RNAV1 SIDs unless vectored when beyond the Noise Preferred Route or if required for safety reasons. Omni-Directional Departures will exist for any CAT aircraft unable to fly the RNAV1 SIDs although we expect a very low number of non-RNAV1 capable aircraft, or if unable to meet the climb gradients, some of which could be 9%.
- 5.2.5 Whilst this option has different controlled airspace dimensions and classifications compared to the previous airspace at DSA, we would expect the traffic patterns below 7,000ft to closely reflect those previously experienced, with some small differences above approximately 6000ft on the RWY 20 ROGAG and RWY 20/02 UPTON SIDs owing to their proposed adjustments.

Movement numbers and route usage

- 5.2.6 Overall, there is expected to be 1,841 ATMs in 2028 and 12,329 ATMs in 2037. Table 10 provides details of the estimated usage of each route at Year 1 and Year 10.

Table 10 Option 2 estimated route usage at Year 1 and Year 10

Option 2	Year 1	Year 10
Arrivals	% of all arrivals	
RWY 20 Arrivals vectored from the west	39.4%	39.4%
RWY 20 Arrivals vectored from the east	23.0%	23.0%
RWY 02 Arrivals vectored from the east	37.6%	37.6%

Option 2	Year 1	Year 10
Departures	% of all departures	
RWY 02 UPTON	17.8%	18.4%
RWY 02 ROGAG	18.2%	18.8%
RWY 02 ROGAG Omni directional departure	1.0%	0.4%
RWY 02 UPTON Omni directional departure	1.0%	0.4%
RWY 20 UPTON	28.9%	29.8%
RWY 20 ROGAG	30.1%	31.0%
RWY20 ROGAG Omni directional departure	1.5%	0.6%
RWY20 UPTON Omni directional departure	1.5%	0.6%

- 5.2.7 Over time, we expect the level of vectoring of departures at DSA to decrease as aircraft fleet equipage increases. This is reflected in the percentages shown in Table 10 and therefore in the noise and environmental assessments.

With airspace change – Option 2: Safety

- 5.2.8 Note that at the time of this FOA, DSA is not a licensed aerodrome and is without a certified ANSP with approved Safety Management System. Therefore, no formal safety assessments have yet taken place.; further safety analysis is required to be undertaken in Stage 4 of this ACP.
- 5.2.9 Procedure operability and route separation assessments: The proposed arrival and departure procedures are mainly based on the previous procedures which were safely in operation. The small adjustments to the procedures are expected to be operable and safe.
- 5.2.10 Procedure design: The Instrument Flight Procedures (IFPs) are based on the previous procedures which were safely in operation. The small adjustments to the procedures are for CAS containment purposes only and the previous IFPs have continued to be safeguarded and so there are no obstacle concerns. Owing to all of the above, this means there no flyability issues have been raised and therefore, at this stage, no procedure design concerns are raised with Option 2.
- 5.2.11 Controlled Airspace Containment: As part of the detailed development of Option 2 at the start of Stage 3, the CAS volumes were identified in order to safely maintain the procedures inside controlled airspace. There are instances where the procedures are contained within 2nm of CAS, rather than the CAA's recommended 3nm, however it is anticipated that a suitable safety assessment can be made to justify this CAS containment.
- 5.2.12 Safety of operations inside controlled airspace: Controlled airspace and IFPs were previously safely in operation up to 2022. CAA's conclusion in the 2017 PIR of this airspace (noting this was prior to the implementation of PBN SIDs) was that *"The implementation of Class D at RHADS has achieved its stated aims with regard to protecting CAT flights operating in and out of the airport, improving the operations of airspace users to and from the airport, and minimising the environmental impacts of those operations upon local communities. The introduction of SIDs and STARs and connectivity to the airways structure contained within Class D airspace undoubtedly reduces controller workload, and planning complexity for pilots and ATC alike"*.
- 5.2.13 The proposed CAS construct in this option is similar but not identical to the previous arrangement due to a proposed reduction in volume and classifications in some areas. At this stage, no safety risks have been identified by SMEs for operations inside of CAS.

- 5.2.14 As part of the work throughout Stage 1 and Stage 2 of this ACP, some stakeholders have challenged DSA on the need for CAS. In Stage 2, DSA set out a rationale for why CAS is required in order for DSA to safely operate and details of this can be found in [Appendix E](#) of this document.
- 5.2.15 Safety of operations outside of controlled airspace: Regarding the impact on the safety of operations outside controlled airspace, CAA's conclusion in the 2017 PIR stated that *"whilst the CAA acknowledges the comments from both GA and gliders raising safety concerns from the effect of funnelling, and the impact of potentially having to plan to route around the airspace, these concerns have not manifested themselves in safety occurrences as since the implementation of the ACP AIRPROX reports in the RHADS local vicinity have decreased"*.
- 5.2.16 As shown in our extended analysis of filed Airprox in the region (See [Appendix E](#) for more information), there is no evidence to show that there has been any reduction in Airprox events in the region since the closure of RHADS airspace nor is there any correlation between the number of filed Airproxes outside controlled airspace and the establishment of controlled airspace at the airport. Given that the previous 2022 airspace volume and classification did not result in an increase in safety occurrences in the region and this option proposes a reduction in the volume and classification of the controlled airspace, no safety risks have been identified by SMEs to operations outside controlled airspace at this time.
- 5.2.17 Overall: At this stage no safety risks have been identified that are considered to be intolerable. Note that at the time of this FOA, DSA is not a licensed aerodrome and is without a certified ANSP with approved Safety Management System. Therefore, no formal safety assessments have yet taken place.; further safety analysis is required to be undertaken in Stage 4 of this ACP.

With airspace change – Option 2: Noise

Primary metrics

TAG Assessment

- 5.2.18 TAG has been used to assess total adverse noise effects over a 10-year appraisal period (2028 – 2037). When we input all of the noise outcomes into TAG, Option 2 has a net present value (NPV) -£9,916,396 in 2025 prices. However, CAP1616i paragraph 5.28 requires TAG to be adjusted as "Change sponsors must not input any changes below the lowest observed adverse effect level (LOAEL), 51 dB LAeq,16h daytime and 45 dB LAeq,8h night-time."

Following these adjustments, the monetised net present value (NPV) of noise changes for Option 2 is -£6,854,005 in 2025 prices. These negative values indicate a net disbenefit, meaning an overall increase in adverse effects on health and quality of life from noise during the appraisal period. The TAG outcomes are shown in Table 11.

Table 11 Option 2 TAG assessment

Option 2 TAG assessment										
Scenario	NPV Total	NPV Sleep disturbance	NPV Amenity	NPV Acute Myocardial Infarction	NPV Stroke	NPV Dementia	Individuals experiencing increased daytime noise in forecast year	Individuals experiencing reduced daytime noise in forecast year	Individuals experiencing increased nighttime noise in forecast year	Individuals experiencing reduced nighttime noise in forecast year
Option 2	-£6,854,005	-£5,169,595	-£1,176,274	-£2,080	-£201,641	£304,415	3,456	0	13,441	0

- 5.2.19 Note CAP1616i specifies that for the aviation TAG noise workbook "Change sponsors must not input any changes below the lowest adverse effect level (LOAEL), 51 dB LAeq,16h daytime and 45 dB LAeq,8h night-time." Consequently, the workbook TAG results have been amended to reflect the net present value of amenity impacts at 51 dB LAeq,16h. In addition, the number of individuals experiencing increased

daytime noise in the forecast year has been calculated using 51 dB $L_{Aeq,16h}$, rather than the 45 dB used in the original workbook.

$L_{Aeq,16h}$ and $L_{Aeq,8h}$ Noise Metrics

5.2.20 Table 12 and Table 13 present L_{Aeq} noise exposure data for Option 2 in 2028 (year of implementation), and 2037 (10 years post-implementation) for daytime and night-time, respectively. For each year and noise contour band, the tables include:

- area of exposure (km^2);
- total population (rounded to the nearest 100);
- Number of Schools;
- Number of Hospitals; and
- Number of Places of Worship

5.2.21 For Option 2 the number of people exposed to $L_{Aeq,16h}$ level equal of above LOAEL will be equal to 100, whilst increases up to 3400 in 2037. No people will be exposed to level equal or above SOAEL for both 2028 and 2037.

5.2.22 For Option 2 the number of people exposed to $L_{Aeq,8h}$ level equal of above LOAEL will equal to 700, whilst increases up to 13,500 in 2037. No people will be exposed to level equal or above SOAEL in 2028, However, number of people exposed to $L_{Aeq,8h}$ level equal of above SOAEL will increase to 300 in 2037.

Table 12 Option 2 $L_{Aeq,16h}$ (Daytime)

Option 2 $L_{Aeq,16h}$ (Daytime)					
Contour	Area (km^2)	Total population	Number of schools	Number of hospitals	Number of places of worship
2028					
51	2.4	100	0	0	0
54	1.3	0	0	0	0
57	0.8	0	0	0	0
60	0.5	0	0	0	0
63	0.3	0	0	0	0
2037					
51	13.8	3,400	0	0	0
54	7.6	1,300	0	0	0
57	4	200	0	0	0
60	2.1	100	0	0	0
63	1.2	0	0	0	0

Table 13 Option 2 $L_{Aeq,8h}$ (Nighttime)

Option 2 $L_{Aeq,8h}$ (Nighttime)					
Contour	Area (km^2)	Total population	Number of schools	Number of hospitals	Number of places of worship
2028					

45	5.9	700	0	0	0
48	3.1	200	0	0	0
51	1.7	0	0	0	0
55	0.8	0	0	0	0
57	0.6	0	0	0	0
60	0.4	0	0	0	0
63	0.2	0	0	0	0
2037					
45	32.8	13,500	4	0	0
48	18.1	4,900	0	0	0
51	10	2,300	0	0	0
55	4.3	300	0	0	0
57	2.8	200	0	0	0
60	1.5	0	0	0	0
63	0.9	0	0	0	0

Secondary metrics

N65 and N60 Noise Metrics

5.2.23 Table 14 and Table 15 present N65 and N60 noise exposure data for Option 2 in 2028 (year of implementation), and 2037 (10 years post-implementation), respectively. For each year and noise contour band, the tables include:

- area of exposure (km²);
- total population (rounded to the nearest 100);
- Number of Schools;
- Number of Hospitals; and
- Number of Places of Worship

5.2.24 For Option 2 the number of people experiencing N65 event more than 5 times a day is equal to 0 in 2028, as the total number of N65 event is less than 5 times a day. However, the number people increases to 29,800 in 2037.

5.2.25 A similar outcome is presented for night-time, where number of people experiencing N60 event more than 5 times a day is equal to 0 in 2028, as the total number of N60 event is less than 5 times a day. However, the number people increases to 16,500 in 2037.

Table 14 Option 2 N65 (Daytime)

Option 2 N65 (Daytime)					
Contour	Area (km2)	Total population	Number of schools	Number of hospitals	Number of places of worship
2028					
5	0	0	0	0	0
10	0	0	0	0	0

20	0	0	0	0	0
50	0	0	0	0	0
100	0	0	0	0	0
2037					
5	75.5	29,800	8	0	0
10	46.7	22,500	5	0	0
20	11.6	2,900	0	0	0
50	0	0	0	0	0
100	0	0	0	0	0

Table 15 Option 2 N60 (Nighttime)

Option 2 N60 (Nighttime)					
Contour	Area (km2)	Total population	Number of schools	Number of hospitals	Number of places of worship
2028					
5	0	0	0	0	0
10	0	0	0	0	0
20	0	0	0	0	0
50	0	0	0	0	0
2037					
5	41.4	16,500	2	0	0
10	4.4	800	0	0	0
20	0	0	0	0	0
50	0	0	0	0	0

Overflight Day and Overflight Night

5.2.26 Table 16 presents Overflight data for Option 2 in 2028 (year of implementation), and 2037 (10 years post-implementation) for daytime and night-time, respectively. For each year and band, the tables include:

- Total population (rounded to the nearest 100);

5.2.27 For Option 2 the number of people overflown more than 5 times a day is equal to 0 in 2028, as the total number event is less than 5 times a day. However, it increases to 59,400 in 2037.

5.2.28 A similar outcome is presented for night-time, where number of people overflown more than 5 times a day is equal to 0 in 2028, as the total number of events is less than 5 times a day. However, it increases to 1,200 in 2037.

Table 16 Option 2 overflight contour (Daytime and nighttime)

Overflight contour rate	Option 2 Overflights (Daytime) Total population	Option 2 Overflights (Nighttime) Total population
2028		
5	0	0

Overflight contour rate	Option 2 Overflights (Daytime) Total population	Option 2 Overflights (Nighttime) Total population
10	0	0
20	0	0
50	0	0
100	0	0
2037		
5	59,400	1,200
10	10,900	0
20	0	0
50	0	0
100	0	0

Noise Preferential Routes (NPRs)

- 5.2.29 The airport is required to have Noise Preferential Routings (NPRs) for departing aircraft, together with radar tracking to assist in monitoring adherence to the NPRs. This forms part of the airport's planning agreement.
- 5.2.30 This option proposes the same routes as the previous DSA airspace, and therefore the departures are contained within the previous NPRs.

Changes to noise from other airspace users

- 5.2.31 Re-opening DSA has the potential to generate changes to the traffic patterns of other airspace users such as General Aviation (GA) who fly in the airspace around Doncaster. GA are operations other than scheduled air services and non-scheduled air transport operations for remuneration or hire or Military operations. The most common type of GA activity is recreational flying by private light aircraft and gliders, but it can range from paragliders and parachutists to microlights, balloons, helicopters and private corporate jet flights.
- 5.2.32 It's very difficult to predict changes from other airspace users as this activity is not the responsibility of DSA or as a result of scheduled aircraft arriving and departing from DSA. Furthermore, data about GA flights is limited and the noise from GA varies significantly depending on the type of GA aircraft being flown – with gliders and balloons sometimes being almost silent, through to private aircraft where the noise can vary depending on aircraft type.
- 5.2.33 The noise from GA is therefore not incorporated into the main quantitative noise assessments, however CAP1616 does require sponsors to consider any environmental impacts caused due to indirect consequential changes on the flight behaviour of other airspace users.
- 5.2.34 In order to do this, we have looked to the Controlled Airspace (CAS) assessment within the GA access section of this FOA. This is because the areas of CAS influence where GA may choose to fly if they want or need to avoid CAS.
- 5.2.35 Firstly, it is important to note that introducing CAS does not mean that all GA are unable to fly through the airspace however some GA choose not to be equipped with the right technology, some physically cannot carry the right technology (for example, a paraglider would struggle to carry a Mode S transponder) and/or some would prefer not to speak to Air Traffic Control, and therefore these aircraft

choose/need to remain outside of CAS. Given the level of air traffic service provision proposed at DSA we expect that refusal of clearances to access the controlled airspace from GA will be a very rare event and therefore the below description would apply to any GA unable or unwilling to fly through CAS.

5.2.36 The GA assessment has indicated that in terms of CAS, Option 2 is similar to the CAS in 2022 but has less CAS to the west of the airport together with reductions in classifications of some sections. We have used the 2022 and 2025 radar data, along with estimates of where patterns may change as a result of the airspace being less restrictive, to provide some indicative information for where GA might fly in future. The following bullet points describe where there may be changes. As noted above, it is very difficult to predict numbers of aircraft, however the 2025 data suggests that within the areas of change, there was less than one flight per day on average within the 6-month period in 2025.

- Areas around Tuxford, Ollerton, Gainsborough/Sturgate Airfield and Scunthorpe may see an increase in overflight from GA aircraft from Retford/Gamston Airport choosing to enter/exit the Retford/Gamston ATZ from the south in order to avoid DSA Class D airspace.
- Areas around Clowne and Stavely may see an increase in overflight from GA aircraft from Netherthorpe choosing to enter/exit the Netherthorpe ATZ from the west in order to avoid DSA Class D airspace.
- Areas around Scunthorpe may see an increase in overflight from GA aircraft from Sandtoft.
- The Gainsborough/Sturgate Airfield and Scunthorpe areas currently experience some GA overflight (heading in a North-South direction) and there may be some shifts in the patterns of this overflight in future and the potential for increased numbers of overflight in the right flying conditions. Some of this is expected to be gliding activity.
- The Conisborough, Thurnscoe, South Elmsall and Pontefrac areas are expected to see a shift in GA traffic patterns although much of this traffic density is expected to be gliders.

With airspace change – Option 2: Local air quality

5.2.37 [Appendix C](#) details the air quality assessment levels used in England, including the Air Quality Objectives (AQOs), Limit Values and targets. Baseline concentration data, including monitoring data from Doncaster City Council since 2018 and Defra's modelled background concentrations, are summarised in [Appendix C](#). Local air quality around DSA is currently well within the assessment levels, and the future baseline is expected to continue to improve.

5.2.38 Monitoring data from the years 2018–2019, when DSA was operating previously, does not indicate that there was an appreciable contribution to air pollutant concentrations or that the operation created any risk of an exceedance of the assessment levels. Concentrations of nitrogen dioxide around the airfield were at most 55% of the objective.

5.2.39 The nearest AQMA is 3.5 km from the airport and is unlikely to be appreciably affected by emissions from aircraft or other on-airport sources. Experience at much larger airports such as Heathrow and Gatwick shows that airport-related concentrations fall to around background levels within about 1 km of the airfield, so the contribution of aircraft from the much smaller DSA at 3.5 km is highly unlikely to be measurable.

5.2.40 However, road traffic associated with DSA may pass through the AQMA, heading north on the M18 motorway or towards central Doncaster on the A638. Data from the DT13 monitoring station indicate that nitrogen dioxide concentrations are currently less than 75% of the assessment levels. This is considered to be the location within the AQMA that will experience the highest concentrations, being located on the bridge over the motorway and 3.5 m from the busy A638. The amount of traffic generated

by DSA and travelling on either of these routes is very unlikely to be sufficient to be significant or to create any risk of an exceedance of the assessment levels within the AQMA or elsewhere.

- 5.2.41 No monitoring data for PM near to DSA is available, but Defra's background maps indicate that concentrations of PM_{2.5} are well below the Annual Mean Concentration Target of 10 µg/m³. Considering the level of PM emissions associated with airports, and the locations of receptors around DSA, it is judged that operating DSA at the levels expected would not jeopardise achievement of the Population Exposure Reduction Target.
- 5.2.42 As noted in paragraph 4.6.28, local authorities are responsible for reviewing and assessing air quality in their administrative areas, and publishing details in Annual Status Reports (ASRs). ASRs for a selection of local authorities containing airports of comparable size to DSA have been reviewed (namely East Devon (Exeter Airport), Eastleigh (Southampton Airport), Christchurch (Bournemouth Airport) and Cornwall (Newquay Airport)). None of these ASRs identify the respective airports as being a significant air quality issue.
- 5.2.43 It is therefore concluded that, compared with the without airspace change scenario (DSA not operating), there is no possibility of pollutants breaching legal limits and target values following the implementation of the airspace change proposal, or worsening an existing breach of legal limits and target values. Moreover, comparing Option 2 and Option 3, air quality will not have a significant impact for either option, and is therefore not a factor that can be used to discriminate between the two options.

With airspace change – Option 2: Fuel burn and Greenhouse gas emissions

- 5.2.44 Under Option 2, forecast fuel burn is estimated to increase from approximately 1,436 tonnes in 2028 (Year 1) to approximately 8,820 tonnes in 2037 (Year 10). Associated greenhouse gas emissions are estimated to increase from approximately 4,567 tCO₂e in 2028 to approximately 28,048 tCO₂e in 2037, reflecting forecast growth in ATM numbers and changes in fleet mix across the appraisal period.

TAG outcomes

- 5.2.45 TAG has been used to assess the greenhouse gas impact over a 10-year appraisal period. This has shown that the reinstatement of flights at DSA across the 10 year appraisal period will result in a 209,673 tCO₂e increase of which 129,487 tCO₂e (~62%) is traded in the UK ETS. This results in a monetised net present value (NPV) impact of -£42,838,693 for Option 2 (in 2025 prices).

Fuel burn and greenhouse gas emissions

Table 17 provides a breakdown of fuel burn and greenhouse gas emission performance across the 10-year assessment period.

Table 17 Option 2 Fuel burn and Greenhouse Gas emissions

Option 2 Fuel burn and Greenhouse Gas Emissions					
Year	Annual total fuel burn (t)	Annual total fuel cost (£)	Average fuel burn per flight (kg)	Annual total GHG emissions (tCO ₂ e)	Average total GHG emissions per flight (kgCO ₂ e)
2028	1,436	1,383,869	780	4,567	2,481
2029	3,008	2,898,610	773	9,566	2,458
2030	4,763	4,589,289	766	15,146	2,435
2031	6,195	5,969,216	759	19,701	2,412
2032	7,549	7,273,640	751	24,006	2,389
2033	8,178	7,879,422	744	26,005	2,366

Option 2 Fuel burn and Greenhouse Gas Emissions					
Year	Annual total fuel burn (t)	Annual total fuel cost (£)	Average fuel burn per flight (kg)	Annual total GHG emissions (tCO ₂ e)	Average total GHG emissions per flight (kgCO ₂ e)
2034	8,584	8,270,475	737	27,296	2,344
2035	8,662	8,345,826	730	27,544	2,321
2036	8,740	8,421,579	723	27,794	2,298
2037	8,820	8,498,321	715	28,048	2,275

Changes to fuel burn and greenhouse gas emissions for other airspace users

- 5.2.46 Changes in fuel burn from GA activity is unpredictable, given they do not file structured routes. Publicly available data about GA flights is limited and the fuel burnt by GA varies significantly depending on the type of GA aircraft being flown.
- 5.2.47 The fuel burn from GA is therefore not incorporated into the main quantitative fuel burn and GHG assessments, however CAP1616 does require sponsors to consider any environmental impacts caused due to indirect consequential changes on the flight behaviour of other airspace users.
- 5.2.48 As noted in the noise section above, the introduction of CAS does not mean that all GA are unable to fly through the airspace. Given the level of air traffic service provision proposed at DSA we expect that refusal of clearances to access the controlled airspace from powered GA will be a very rare event and we have also proposed VFR lanes to help facilitate crossing traffic.
- 5.2.49 There could be increased mileages for any airspace users who are unwilling or unable to meet entry requirements Class E+ volumes or unwilling or unable to request crossing clearances of Class D airspace. Some unpowered flights are likely to incur additional mileage to avoid controlled airspace volumes they are not able to meet the requirements for (transponder/radio) though given these are unpowered, there will be no impact on greenhouse gas emissions or fuel burn³.

With airspace change – Option 2: Tranquillity

- 5.2.50 No designated landscapes (AONBs and National Parks) will be overflown five or more times per day below 7,000 ft under Option 2 both in 2028 and 2037.

With airspace change – Option 2: Biodiversity

- 5.2.51 There are a number of European sites⁴ and Sites of Special Scientific Interest (SSSI) in the vicinity of DSA. On a precautionary basis a search for European sites was made within a 21km radius (the area within which aircraft may be at altitudes below 3,000ft). The European sites within this radius are Thorne Moor SAC, Hatfield Moor SAC and Thorne and Hatfield Moors SPA. Designation information for these sites is provided in Table 18.

Table 18 European sites within 21km of DSA

European site	Distance from Doncaster Sheffield Airport (km)	Qualifying features
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³ In our consultation on the preferred option, we propose to ask GA stakeholders to try and quantify any increase to their fuel burn and/or emissions as a result of the establishment of CAS at DSA

⁴ European sites include Special Areas of Conservation (SAC) and Special Protection Areas (SPA). As a matter of UK Government policy Possible SACs, Potential SPAs, areas secured for compensating for damage to a European site and Ramsar sites are also considered in the same way.

Thorne Moor SAC	14.58	7120 Degraded raised bogs still capable of natural regeneration
Hatfield Moor SAC	4.66	7120 Degraded raised bogs still capable of natural regeneration
Thorne and Hatfield Moors SPA	4.66	Nightjar <i>Caprimulgus europaeus</i> - 66 breeding pairs

- 5.2.52 Within this area there are also 41 SSSIs, some of which form the constituent parts of the European sites noted in Table 18.
- 5.2.53 The search area based on 3,000ft is a precautionary measure to ensure all potential effects on European sites are identified and is in line with CAP 1616i. However, when considering the Habitats Regulations Assessment Screening Report of the Airspace Change Masterplan CAP 2527, it is apparent that the potential effects on sites designated for nature conservation value occur only where flights operate below 500m (1,640ft). Above this altitude the potential for detectable effects due to disturbance caused by aircraft operation, air quality degradation due to aircraft emissions and potential injury or death associated with bird strikes on aircraft can be discounted.
- 5.2.54 Option 2 would see aircraft operating under 500m (or within 1km of the boundary) over Hatfield Moor SAC, the Thorne and Hatfield Moors SPA, Hatfield Moors SSSI⁵ and the River Idle Washlands SSSI.
- 5.2.55 The potential for disturbance of designated species to occur is low. Hatfield Moor supports breeding nightjar, a species that is migratory (only occurring in the UK during the summer) and nocturnal. This means that foraging activity would mostly take place during the period when very few or no aircraft are operating. During the day this species typically remains still to avoid detection, as opposed to reacting to disturbance agents such as dog walkers. Nightjar are known to breed on sites close to or within busy areas such as by motorways (e.g. the M3 motorway as it passes through Chobham Common) and in areas used for military training (including live fire such as the Pirbright Ranges). Further, this species has been shown to have increased in number within the Thorne and Hatfield Moors SPA following large scale habitat management works as part of the 'Restoring the Humberhead Peatlands' project. This increase took place during a period when DSA was still operational and therefore these increases were despite overflight. Therefore, it is considered that there will be no increases in disturbance of breeding nightjar due to the implementation of Option 2.
- 5.2.56 The River Idle Washlands SSSI is cited for a range of habitats and its passage and wintering wildfowl populations. The Option 2 flight paths lie to the west of the SSSI and do not directly overfly it. However, aircraft are still likely to be visible and audible to wildfowl within the western extent of the SSSI. The wildfowl present include Bewick's swan, mute swan, wigeon, teal and pochard. Swans, geese and ducks are known to occupy designated sites close to other operational airports including Heathrow (South West London Waterbodies SPA), Glasgow (Black Cart SPA) and Dublin (Baldoyle Bay SPA) where aircraft overflight has been shown to be tolerated by individual birds with no or little behavioural response (see Appendix B of CAP 2527). Given the location of the flightpaths with respect to the River Idle Washlands SSSI (at least 500m to the west) the potential for disturbance is minimal and can be discounted.
- 5.2.57 The potential for emissions from aircraft engines resulting in a degradation of habitats within designated sites can also be discounted. CAP 1616 notes '*Due to the effects of mixing and dispersion emissions from aircraft above 1,000ft are unlikely to have a significant impact on air quality.*' None of the designated

⁵ Note that in the area of overflight Hatfield Moor SAC, Hatfield Moors SSSI and Thorne and Hatfield Moors SPA are all overlapping

sites identified in proximity to DSA are overflown at an altitude of 1,000ft or less and therefore reduction in air quality can be discounted.

- 5.2.58 The majority of bird strikes recorded (85%) take place below 500ft, with a further 97% taking place below 1,500ft. Therefore, aircraft operating from DSA are most likely to suffer a bird strike in very close proximity to the airfield and not over a designated site. However, it is acknowledged that birds from designated sites will frequently leave designated areas to fulfil other needs (e.g. roost within a designated site but feed in nearby arable fields). However, the number of bird strikes is relatively small compared to the number of air transport movements per year. The CAA reports that in 2023 there were 1,675 confirmed bird strikes and 1,691 in 2024 across the UK (range per month of 4 to 14 bird strikes per 10,000 air transport movements). The majority of bird strikes are of gulls and pigeons, with no strikes of nightjar or wildfowl recorded in these years. This demonstrates that the rate of occurrence is so low that the populations of birds using either the Thorne and Hatfield Moors SPA or the River Idle Washlands SSSI are not at threat from accidental collision with aircraft.

With airspace change – Option 2: Capacity/resilience

- 5.2.59 This option would allow DSA to re-open with scheduled passenger and cargo flights. DSA would be expected to operate 1,891 ATMs in Year 1 and this would increase to 12,329 ATMs in year 10.
- 5.2.60 In terms of operational resilience, the airport is expected to have ILS to each runway end, including CAT III to RWY 20 for Low Visibility Procedures and an RNP Approach to each end. For arrivals this provides sufficient redundancy for ground based nav aid failure.
- 5.2.61 The proposed SIDs will be to RNAV1 specification with an on-airfield DME contributing to DME/DME coverage in the region for the RNAV1 SIDs. Omni-directional departures would be available for any non-RNAV1 aircraft.
- 5.2.62 Please note within the IOA DSA mentioned promulgation of NDB approaches in addition to ILS and RNP arrivals however following further consideration, DSA are not planning to promulgate NDB approaches (This applies to both options). As part of the consultation, there will be an opportunity for aviation stakeholders to provide feedback on this.
- 5.2.63 The addition of another airport with full-length runway and H24 ATS service provision provides additional resilience to the wider network for diversions and/or emergency situations.

With airspace change – Option 2: General aviation access

- 5.2.64 Table 19 presents data on proposed changes in volumes of CAS compared to without the ACP as a result of Option 2. The proposed CAS boundaries are also shown in Figure 9.

Table 19 Option 2 CAS volumes (Note volume has been rounded to one decimal place)

Option 2	Class	Lower	Upper	Volume (NM³)
DONCASTER SHEFFIELD CTR 1	D	SFC	FL 85	77.1
DONCASTER SHEFFIELD CTR 2	D	SFC	FL 105	129.9
DONCASTER SHEFFIELD CTA 1	D	1500 FT ALT	FL 85	19.3
DONCASTER SHEFFIELD CTA 2	D	1500 FT ALT	FL 105	26.6
DONCASTER SHEFFIELD CTA 3	D	2000 FT ALT	FL 60	13.6
DONCASTER SHEFFIELD CTA 4	D	2000 FT ALT	FL 85	70.7
DONCASTER SHEFFIELD CTA 5	D	2000 FT ALT	FL 105	62.1
DONCASTER SHEFFIELD CTA 6	D	FL65	FL85	11.2
DONCASTER SHEFFIELD CTA 7	E+	3000ft	FL105	6.6

DONCASTER SHEFFIELD CTA 8	E+	3000ft	FL65	5.9
DONCASTER SHEFFIELD CTA 9	D	FL65	FL105	4.6
DONCASTER SHEFFIELD CTA 10	E+	4000	FL85	9.1
DONCASTER SHEFFIELD CTA 11	E+	FL85	FL105	13.8
DONCASTER SHEFFIELD CTA 12	E+	4000ft	FL65	24.3
Total volume of Class D				415.1
Total volume of Class E+				59.7
Total overall volume				474.7

5.2.65 [Appendix F](#) presents radar data from 1st May – 31st Oct 2022 when DSA's controlled airspace was active, to 1st May – 31st Oct 2025 when there was no DSA controlled airspace.

5.2.66 Option 2 is not too dissimilar to the airspace in 2022 but has less controlled airspace to the west of the airport and some of those volumes are of a lower classification and therefore the radar plots in [Appendix F](#) from 2022 are based on a more restrictive controlled airspace then this option. However, we would expect some similar impacts in regions.

5.2.67 Some of the main differences that Option 2 are likely to mean for GA activity are:

- Retford/Gamston arrivals and departures are more likely to avoid controlled airspace and enter/exit their ATZ from the South, generating higher volumes of GA traffic over Tuxford and Ollerton and also routing to the NE to transit to the east of the DSA CTA over Gainsborough/Sturgate Airfield and Scunthorpe.
- Netherthorpe arrivals and departures are more likely to avoid controlled airspace and enter/exit their ATZ from the West, generating higher volumes of GA traffic over Clowne and Stavely
- Sandtoft arrivals and departures are more likely to avoid controlled airspace, generating higher volumes of GA traffic over Scunthorpe. As Sandtoft has recently become an unlicensed aerodrome, we're not sure whether this will result in a reduction in flights operating to/from that aerodrome.
- A general shift of traffic which is currently transiting N/S out to the east over Gainsborough/Sturgate Airfield and Scunthorpe. This region is the most obvious region that could experience an increase in density of GA operations. However, in 2022 the RAF Scampton MATZ and EGR313 were active which compressed GA traffic into a 7nm gap between RAF Scampton and Doncaster's CTA 6. RAF Scampton MATZ and EGR313 no longer exist, increasing the available gap to 11 nm with option 2, considerably wider once north of RAF Waddington. This gap would reduce to just over 7nm again when EGD324B is active but only for traffic FL105+. Suitably equipped aircraft can transit through DSA airspace, above FL85 without an ATC clearance. As can be seen from the 2025 radar data, there is already a certain density of GA operations in this region without any DSA airspace - the BGA have advised this region provides better soaring conditions than further to the east or west which are not conducive to good soaring flight.
- A general shift of traffic to the west of the CTR over Conisborough, Thurnscoe, South Elmsall and Pontefract. Although in Option 2 the proposed classification is E+ meaning some of this traffic would not be displaced as suitably equipped aircraft can transit through, above 4000ft without an ATC clearance. However, Gliders without a radio and transponder would still need to avoid the controlled airspace in Option 2 with a 4000ft base and therefore we could see similar GA density in this region in Option 2 compared to 2022.

5.2.68 Whilst the density plots show an obvious increase in density of GA operations to the east and west (particularly the east) of DSA's controlled airspace in 2022 compared to 2025, attention should be paid to the keys used in each plot. Whilst [Section F.3](#) of [Appendix F](#) show that GA traffic wishing/requiring to avoid controlled airspace would be displaced, the data suggests somewhere in the region of 10-24

transponding GA flights plus potentially up to 8 non-transponding flights in the same 1,000ft band in the entire 6-month period. This is assuming the non-transponding flights are in the same 1000ft band though this cannot be confirmed as the Primary only data covers ground all the way up to 10,000ft.

- 5.2.69 The areas with the highest density of GA traffic in the region in both the 2022 and 2025 scenario are within the Sandtoft⁶, Netherthorpe and Retford/Gamston ATZs and Sturgate Airfield. The denotification of the RAF Scampton MATZ and EGR313 provide a much less restrictive airspace structure than in 2022.
- 5.2.70 By year 10, there will be no change from year 1. Previous DSA operations with 11,569 ATMs in 2019 never refused any requests for transits through CAS⁷ and there is no evidence to suggest the forecast traffic levels will result in any less access to CAS than in Year 1.

With airspace change – Option 2: Economic impact from increased effective capacity

- 5.2.71 In year 1 we estimate there will be 1,002 passenger flights carrying 155,412 passengers and 839 cargo flights.
- 5.2.72 In year 10 we estimate there will be 8,189 passenger flights carrying 1,169,538 passengers and 4,140 cargo flights.
- 5.2.73 The introduction of arrival and departure procedures and associated controlled airspace for DSA would enable a full re-opening of the aerodrome and therefore offer significant benefit to the airport's commercial capacity. This unlocks economic growth for the South Yorkshire region, with estimates showing that, in the long term out to 2050, re-opening the airport could boost the economy by approximately £5 billion. Not only that, but re-opening the airport will support employment, with around 5,000 jobs created across aviation, logistics, engineering, construction and local businesses⁸

With airspace change – Option 2: Airline training costs

- 5.2.74 In year 1 we don't anticipate any additional training costs for commercial airlines other than the business-as-usual briefings supplied by operators to their crews when commencing operations from a new airport. In year 10 we don't anticipate any additional training costs for commercial airlines.

With airspace change – Option 2: Other airline costs

- 5.2.75 In year 1 we don't anticipate any other costs for commercial airlines other than the business-as-usual costs incurred by operators when commencing operations from a new airport. In year 10 we don't anticipate any other costs for commercial airlines.

With airspace change – Option 2: Airport/air navigation service provider infrastructure costs

- 5.2.76 By year 1 the airport will have incurred significant capital expenditure on infrastructure costs in order to provide a licensed aerodrome with H24 Approach Control (Radar) and Aerodrome Services and an instrument runway with conventional navigation aids for their instrument approach procedures.
- 5.2.77 In year 10 the airport will incur business as usual operating costs to provide a licensed aerodrome with H24 Approach Control (Radar) and Aerodrome Services and maintain an instrument runway with conventional navigation aids for their instrument approach procedures.
- 5.2.78 These costs are not expected to be materially different between the two options and therefore they have not been monetised.

⁶ No ATZ from April 2026

⁷ CAA's 2017 PIR Para 16 (<https://www.caa.co.uk/media/v15pp0jn/20170512-doncaster-pir.pdf>)

⁸ Government backs mayor to reopen Doncaster Sheffield Airport - GOV.UK (<https://www.gov.uk/government/news/government-backs-mayor-to-reopen-doncaster-sheffield-airport>) and i9 Cabinet 051125 SYAC report.pdf (<https://doncaster.moderngov.co.uk/documents/s49876/i9%20Cabinet%20051125%20SYAC%20report.pdf>)

With airspace change – Option 2: Airport/air navigation service provider operational costs and deployment costs

- 5.2.79 By year 1, the airport will have incurred operational expenditure to deploy the provision of a licensed and operational ANSP providing H24 Aerodrome and Approach (radar) Control Services. These costs are not expected to be materially different between the two options and therefore they have not been monetised.
- 5.2.80 In year 10, the airport will incur ongoing operational costs however these costs are not expected to be materially different between the two options and therefore they have not been monetised.
- 5.2.81 In year 5 and year 10 there will be a cost to undertake a 5-year review of the airport's instrument flight procedures. For option 2, this is estimated to cost £50k for each review based on 2025 prices.

With airspace change – Option 2: Airport/air navigation service provider other costs

- 5.2.82 No residents will be newly exposed to noise at the 63 dB $L_{Aeq,16h}$ level or above under Option 2 both in 2028 and 2037, therefore, no costs for the airport will incur in terms of financial assistance towards acoustic insulation.

With airspace change – Option 2: Interdependencies with existing MTMA airspace

- 5.2.83 Owing to the CAS construct to the NW of DSA and the position of the UPTON SIDs, we expect that routine co-ordination will be required between Leeds Bradford Airport and DSA so Leeds arrivals can descend through DSA's CAS and any conflict with DSA's UPTON SIDs is resolved. CAA's Post Implementation Review in 2017 of Robin Hood Airport Doncaster Sheffield (RHADS) 2008 CAS implementation stated that "LBIA states that it now fully supports the RHADS airspace and uses it daily to facilitate descent profiles to Runway 32, and that the airspace sharing and coordination procedures currently in place work successfully and support both LBIA and RHADS".
- 5.2.84 DSA UPTON departures may need to be subject to release by NATS, to ensure separation from Leeds southbound departures. In year 1, this is expected to be manageable as the interactions are almost identical in this option to the previous interactions in 2022 with much higher DSA traffic levels. DSA are forecast less than 2 UPTON departures per day in Year 1.
- 5.2.85 By year 10, there are expected to be around 14 UPTON departures on a busy day. Overall ATMs will be higher than they were previously in 2022 however it is not expected to create an unmanageable operational scenario between NATS and DSA.

Interdependencies with future MTMA airspace

- 5.2.86 The future MTMA airspace is expected to be implemented in 2030 and therefore it will not have been deployed at the point of DSA airspace implementation (Year 1 - 2028) however it could be available from Year 3 onwards. The MTMA airports and NERL are currently in Stage 3 of the CAP1616 process, but they are not yet at the stage of public consultation and therefore specific design information is limited.
- 5.2.87 Option 2 proposes RNAV1 SIDs and vectoring of arrivals. Although part systemisation and an RNAV1 specification does help with the separation of departures from other routes, the DSA SIDs are located in areas where there are more likely to be interactions with Leeds Bradford Airport arrivals in the future
- 5.2.88 NERL have indicated that there are currently considerations for a hold for Leeds Bradford Airport arrivals somewhere to the north of DSA. If this transpires, this will increase the amount of co-ordination required between Leeds and DSA. The small shift in UPTON SIDs to terminate slightly to the south of UPTON may help reduce this confliction although co-ordination will still be required and a hold to the north of DSA may limit the procedural termination level of DSA SIDs which may in turn require additional low level CAS.

5.3 With Airspace Change: Option 3

With airspace change – Option 3: Description

5.3.1 This option proposes RNP SIDs with Radius-to-Fix (RF) SIDs for departures, with one RNAV1 SID and RNP with RF approach transitions for arrivals which would join the final approach procedures. Non RF-equipped aircraft can request an omni directional departure and be vectored to final approach. Air traffic controllers will have Aerodrome Control Instrument (ADI) and Approach Control Surveillance (APS) ratings.

5.3.2 Option 3 as illustrated in Figure 10 uses a PBN specification called RNP with RF to create a different design to that previously operated at DSA. This attempts to:

- Reduce the numbers of people affected by noise and overflight⁹ and remain aligned with DSA's existing NPRs
- Contain flight paths within the smallest amount of controlled airspace
- Position departures to the south of DSA as much as technically possible to aid existing and future MTMA integration
- Enhance systemisation for both DSA ATC and the surrounding MTMA network design.

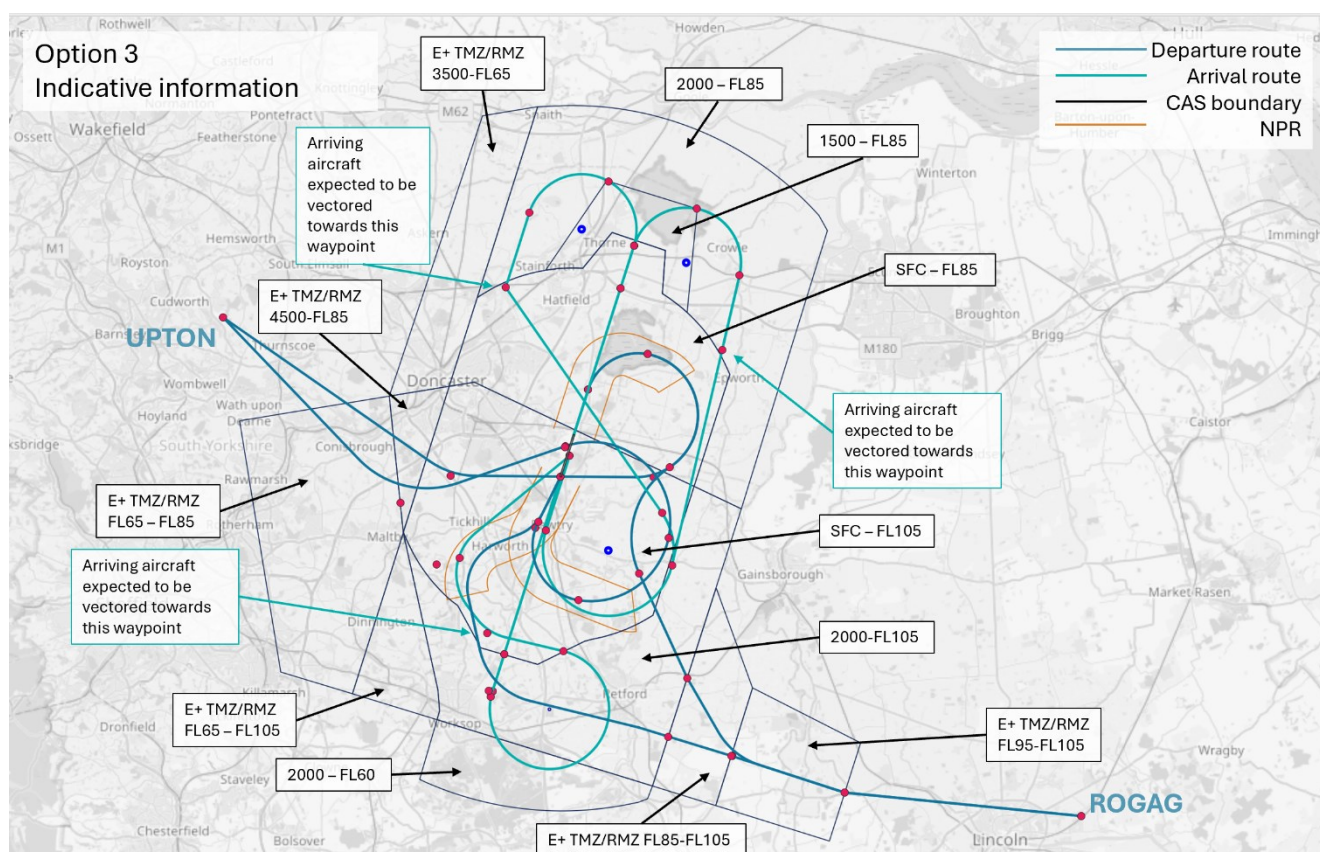


Figure 10 Option 3 operational diagram (Airspace classifications are Class D unless stated otherwise) ©OpenStreetMap

⁹ This is based on qualitative judgment whilst the option has been developed; the quantitative analysis within this FOA will provide an opportunity to understand this option's performance.

- 5.3.3 ATC would commonly vector arrivals onto the PBN procedures which aircraft could follow from c. FL60/5000ft round onto final approach, usually to the Instrument Landing System (ILS) or occasionally to the RNP Approach. Any aircraft unable to fly the PBN procedures will be vectored onto the ILS approach or may make a visual approach.
- 5.3.4 Departures will follow RNP1+RF SIDs unless vectored when beyond the NPR or if required for safety reasons. Omni-Directional Departures will exist for any aircraft unable to fly the RNP1+RF SIDs either due to aircraft navigational capability or if unable to meet the climb gradients, some of which could be 9%.
- 5.3.5 This option has different controlled airspace dimensions and classifications compared to DSA's previous controlled airspace. Compared to Option 2 it has a more systemised airspace design with arrivals following PBN procedures to/from a higher altitude. The use of RF provides a higher degree of concentration compared to the patterns associated with Option 2 but we have assumed a slightly higher number of departures requiring an Omni-directional departure in Year 1 in this option compared to option 2 owing to the higher level of PBN specification required.

Movement numbers and route usage

- 5.3.6 Overall, there is expected to be 1841 ATMs in 2028 and 12,329 ATMs in 2037. Table 20 provides details of the estimated usage of each route at Year 1 and Year 10.

Table 20 Option 3 estimated route usage at Year 1 and Year 10

Option 3	Year 1	Year 10
Arrivals	% of all arrivals	
RWY 20 Arrivals vectored from the west	7.9%	2.0%
RWY 20 RNP West	31.5%	37.4%
RWY 20 Arrivals vectored from the east	4.6%	1.2%
RWY 20 RNP East	18.4%	21.9%
RWY 02 Arrivals vectored from the east	7.5%	1.9%
RWY 02 RNP	30.1%	35.7%
Departures	% of all departures	
RWY 02 UPTON	15.0%	18.4%
RWY 02 ROGAG	15.4%	18.8%
RWY 02 ROGAG Omni directional departure	3.8%	0.4%
RWY 02 UPTON Omni directional departure	3.8%	0.4%
RWY 20 UPTON	24.1%	29.8%
RWY 20 ROGAG	25.5%	31.0%
RWY20 ROGAG Omni directional departure	6.1%	0.6%
RWY20 UPTON Omni directional departure	6.3%	0.6%

With airspace change – Option 3: Safety

- 5.3.7 Note that at the time of this FOA, DSA is not a licensed aerodrome and is without a certified ANSP with approved Safety Management System. Therefore, no formal safety assessments have yet taken place and further safety analysis is required to be undertaken in Stage 4 of this ACP.

- 5.3.8 Procedure operability and route separation assessments: The procedure design is expected to meet route separation requirements. The design is more systemised with a lower reliance on controller intervention therefore controller and pilot workload should be lower than Option 2 and the previous airspace at DSA. However it's important to note that not all aircraft will have RF capability and therefore vectoring will be required to tactically handle non-RF aircraft both after departing on an Omni-directional departure or being vectored onto final approach rather than positioned towards a waypoint on an approach transition. This vectoring is expected to reduce as aircraft fleet equipage increases.
- 5.3.9 Procedure design: This option proposes Instrument Flight Procedures which are different from the previous DSA procedures. The proposed procedures use a new type of PBN specification called Radius-to-Fix on SIDs and Approaches. Preliminary IFP design has taken place on these options, but they have not been formally designed or assessed against all terrain/obstacles although initial obstacle clearance assessments for departures and the final approaches have not uncovered any issues and no PANS OPS non-conformances have been identified. There is a greater chance of IFP flight validation raising issues than in Option 2 but nothing of concern at this stage.
- 5.3.10 Controlled Airspace Containment: As part of the detailed development of Option 3 at the start of Stage 3, the CAS volumes were identified in order to safely maintain the procedures inside controlled airspace. There are instances where the procedures are contained within 2nm of CAS and some less than 2nm, rather than the CAA's recommended 3nm, however it is anticipated that a suitable safety assessment can be made to justify this CAS containment, particularly owing to the use of RF.
- 5.3.11 Safety of operations inside controlled airspace: Controlled airspace and IFPs were previously safely in operation up to 2022. CAA's conclusion in the 2017 PIR of this airspace (noting this was prior to the implementation of PBN SIDs) was that *"The implementation of Class D at RHADS has achieved its stated aims with regard to protecting CAT flights operating in and out of the airport, improving the operations of airspace users to and from the airport, and minimising the environmental impacts of those operations upon local communities. The introduction of SIDs and STARs and connectivity to the airways structure contained within Class D airspace undoubtedly reduces controller workload, and planning complexity for pilots and ATC alike"*.
- 5.3.12 The proposed CAS construct in this option is significantly smaller in volume and classifications than in the previous design in some regions however, at this stage, no safety risks have been identified by SMEs for operations inside of CAS.
- 5.3.13 As part of the work throughout Stage 1 and Stage 2 of this ACP, some stakeholders have challenged DSA on the need for CAS. In Stage 2, DSA set out a rationale for why CAS is required in order for DSA to safely operate and details of this can be found in [Appendix E](#) of this document.
- 5.3.14 Safety of operations outside of controlled airspace: Regarding the impact on the safety of operations outside controlled airspace, CAA's conclusion in the 2017 PIR stated that *"whilst the CAA acknowledges the comments from both GA and gliders raising safety concerns from the effect of funnelling, and the impact of potentially having to plan to route around the airspace, these concerns have not manifested themselves in safety occurrences as since the implementation of the ACP AIRPROX reports in the RHADS local vicinity have decreased"*.
- 5.3.15 As shown in our extended analysis of filed Airprox in the region (See [Appendix E](#) for more information), there is no evidence to show that there has been any reduction in Airprox events in the region since the closure of RHADS airspace nor is there any correlation between the number of filed Airproxes outside controlled airspace and the establishment of controlled airspace at the airport. Given that the previous 2022 airspace volume and classification did not result in an increase in safety occurrences in the region

and this option proposes a significant reduction in the volume and classification of parts of the controlled airspace, no safety risks have been identified by SMEs to operations outside controlled airspace at this time.

- 5.3.16 Overall: At this stage no safety risks have been identified that are considered to be intolerable. Note that at the time of this FOA, DSA is not a licensed aerodrome and is without a certified ANSP with approved Safety Management System. Therefore, no formal safety assessments have yet taken place and further safety analysis is required to be undertaken in Stage 4 of this ACP.

With airspace change – Option 3: Noise

Primary metrics

TAG Assessment

- 5.3.17 TAG has been used to assess total adverse noise effects over a 10-year appraisal period (2028 – 2037). When we input all of the noise outcomes into TAG, Option 3 has a net present value (NPV) -£9,684,884 in 2025 prices. However, CAP1616i paragraph 5.28 requires TAG to be adjusted as “Change sponsors must not input any changes below the lowest observed adverse effect level (LOAEL), 51 dB LAeq,16h daytime and 45 dB LAeq,8h night-time.”

Following these adjustments, the monetised net present value (NPV) of noise changes for Option 3 is -£6,984,581 in 2025 prices. These negative values indicate a net disbenefit, meaning an overall increase in adverse effects on health and quality of life from noise during the appraisal period. The TAG outcomes are shown in Table 21.

Table 21 Option 3 TAG assessment

Option 3 TAG assessment										
Scenario	NPV Total	NPV Sleep disturbance	NPV Amenity	NPV Acute Myocardial Infarction	NPV Stroke	NPV Dementia	Individuals experiencing increased daytime noise in forecast year	Individuals experiencing reduced daytime noise in forecast year	Individuals experiencing increased nighttime noise in forecast year	Individuals experiencing reduced nighttime noise in forecast year
Option 3	-£6,984,581	-£5,209,686	-£1,238,888	-£2080	-£212,743	-£321,183	3,787	0	11,257	0

- 5.3.18 Note CAP1616i specifies that for the aviation TAG noise workbook “Change sponsors must not input any changes below the lowest adverse effect level (LOAEL), 51 dB LAeq,16h daytime and 45 dB LAeq,8h night-time.” Consequently, the workbook TAG results have been amended to reflect the net present value of amenity impacts at 51 dB LAeq,16h. In addition, the number of individuals experiencing increased daytime noise in the forecast year has been calculated using 51 dB LAeq,16h, rather than the 45 dB used in the original workbook.

LAeq,16h and LAeq,8h Noise Metrics

- 5.3.19 Table 22 and Table 23 present LAeq noise exposure data for Option 3 in 2028 (year of implementation), and 2037 (10 years post-implementation) for daytime and night-time, respectively. For each year and noise contour band, the tables include:

- area of exposure (km²);
- total population (rounded to the nearest 100);
- Number of Schools;
- Number of Hospitals; and
- Number of Places of Worship

- 5.3.20 For Option 3 the number of people exposed to $L_{Aeq,16h}$ level equal of above LOAEL will be equal to 100, whilst increases up to 3800 in 2037. No people will be exposed to level equal or above SOAEL for both 2028 and 2037.
- 5.3.21 For Option 3 the number of people exposed to $L_{Aeq,8h}$ level equal of above LOAEL will equal to 600, whilst increases up to 11,400 in 2037. No people will be exposed to level equal or above SOAEL in 2028, However, number of people exposed to $L_{Aeq,8h}$ level equal of above SOAEL will increase to 300 in 2037.

Table 22 Option 3 $L_{Aeq,16h}$ (Daytime)

Option 3 $L_{Aeq,16h}$ (Daytime)					
Contour	Area (km ²)	Total population	Number of schools	Number of hospitals	Number of places of worship
2028					
51	2.4	100	0	0	0
54	1.3	0	0	0	0
57	0.8	0	0	0	0
60	0.5	0	0	0	0
63	0.3	0	0	0	0
2037					
51	14.1	3,800	0	0	0
54	7.6	1,400	0	0	0
57	4	200	0	0	0
60	2.1	100	0	0	0
63	1.2	0	0	0	0

Table 23 Option 3 $L_{Aeq,8h}$ (Nighttime)

Option 3 $L_{Aeq,8h}$ (Nighttime)					
Contour	Area (km ²)	Total population	Number of schools	Number of hospitals	Number of places of worship
2028					
45	5.9	600	0	0	0
48	3.1	200	0	0	0
51	1.7	0	0	0	0
55	0.8	0	0	0	0
57	0.6	0	0	0	0
60	0.4	0	0	0	0
63	0.2	0	0	0	0
2037					
45	32.9	11,400	3	0	0
48	18.5	5,100	0	0	0
51	10.2	2,500	0	0	0

55	4.4	300	0	0	0
57	2.8	200	0	0	0
60	1.5	0	0	0	0
63	0.9	0	0	0	0

Secondary metrics

N65 and N60 Noise Metrics

5.3.22 Table 24 and Table 25 present N65 and N60 noise exposure data for Option 2 in 2028 (year of implementation), and 2037 (10 years post-implementation), respectively. For each year and noise contour band, the tables include:

- area of exposure (km²);
- total population (rounded to the nearest 100);
- Number of Schools;
- Number of Hospitals; and
- Number of Places of Worship

5.3.23 For Option 3 the number of people experiencing N65 event more than 5 times a day is equal to 0 in 2028, as the total number of N65 event is less than 5 times a day. However, the number people increases to 30,200 in 2037.

5.3.24 Similar outcome is presented for night-time, where number of people experiencing N60 event more than 5 times a day is equal to 0 in 2028, as the total number of N60 event is less than 5 times a day. However, the number people increases to 16,600 in 2037.

Table 24 Option 3 N65 (Daytime)

Option 3 N65 (Daytime)					
Contour	Area (km2)	Total population	Number of schools	Number of hospitals	Number of places of worship
2028					
5	0	0	0	0	0
10	0	0	0	0	0
20	0	0	0	0	0
50	0	0	0	0	0
100	0	0	0	0	0
2037					
5	80.3	30,200	7	0	0
10	43.2	15,600	3	0	0
20	12.4	2,900	0	0	0
50	0	0	0	0	0
100	0	0	0	0	0

Table 25 Option 3 N60 (Nighttime)

Option 3 N60 (Nighttime)					
Contour	Area (km2)	Total population	Number of schools	Number of hospitals	Number of places of worship
2028					
5	0	0	0	0	0
10	0	0	0	0	0
20	0	0	0	0	0
50	0	0	0	0	0
2037					
5	44.8	16,600	2	0	0
10	4.3	800	0	0	0
20	0	0	0	0	0
50	0	0	0	0	0

Overflight Day and Overflight Night

5.3.25 Table 26 presents Overflight data for Option 2 in 2028 (year of implementation), and 2037 (10 years post-implementation) for daytime and night-time, respectively. For each year and band, the tables include:

- Total population (rounded to the nearest 100);

5.3.26 For Option 3 the number of people overflown more than 5 times a day is equal to 0 in 2028, as the total number event is less than 5 times a day. However, it increases to 130,700 in 2037.

5.3.27 Similar outcome is presented for night-time, where number of people overflown more than 5 times a day is equal to 0 in 2028, as the total number of events is less than 5 times a day. However, it increases to 1,000 in 2037.

Table 26 Option 3 overflight (daytime and nighttime)

Overflight contour rate	Option 3 Overflights (Daytime) Total population	Option 3 Overflights (Nighttime) Total population
2028		
5	0	0
10	0	0
20	0	0
50	0	0
100	0	0
2037		
5	130,700	1,000
10	10,900	0
20	400	0
50	0	0
100	0	0

Noise Preferential Routes (NPRs)

- 5.3.28 The airport is required to have Noise Preferential Routings (NPRs) for departing aircraft, together with radar tracking to assist in monitoring adherence to the NPRs. This forms part of the airport's planning agreement.
- 5.3.29 DSA's NPRs for departures up to 3,000ft were consulted on in 2018, as part of an earlier ACP. Because these NPRs were recently consulted on, CDC, through engagement with stakeholder representatives, developed a Design Principle (DP5) which said: 'This ACP should not change DSA's existing NPRs, unless this is necessary to support safe operations or integration with other airspace structures'.
- 5.3.30 Below 3,000ft, the proposed PBN departure centrelines do differ from the previous DSA departure centrelines, (that the NPR corridors were defined on) due to integration with other airspace structures, however they are located within the existing NPR corridors. As aircraft flying the PBN routes will fly very precisely, this means they will remain within the existing NPR corridors. Figure 10 above shows this for Runway 20 and Runway 02.

Changes to noise from other airspace users

- 5.3.31 Re-opening DSA has the potential to generate changes to the traffic patterns of other airspace users such as General Aviation (GA) who fly in the airspace around Doncaster. GA are operations other than scheduled air services and non-scheduled air transport operations for remuneration or hire or military operations. The most common type of GA activity is recreational flying by private light aircraft and gliders, but it can range from paragliders and parachutists to microlights, balloons, helicopters and private corporate jet flights.
- 5.3.32 It's very difficult to predict changes from other airspace users as this activity is not the responsibility of DSA or as a result of scheduled aircraft arriving and departing from DSA. Furthermore, data about GA flights is limited and the noise from GA varies significantly depending on the type of GA aircraft being flown – with gliders and balloons sometimes being almost silent, through to private aircraft where the noise can vary depending on aircraft type.
- 5.3.33 The noise from GA is therefore not incorporated into the main quantitative noise assessments, however CAP1616 does require sponsors to consider any environmental impacts caused due to indirect consequential changes on the flight behaviour of other airspace users.
- 5.3.34 In order to do this, we have looked to the Controlled Airspace (CAS) assessment within the GA access section of this FOA. This is because the areas of CAS influence where GA may choose to fly if they want or need to avoid CAS.
- 5.3.35 Firstly, it is important to note that introducing CAS does not mean that all GA are unable to fly through the airspace however some GA choose not to be equipped with the right technology, some physically cannot carry the right technology (for example, a paraglider would struggle to carry a Mode S transponder) and/or some would prefer not to speak to Air Traffic Control, and therefore these aircraft choose/need to remain outside of CAS. Given the level of air traffic service provision proposed at DSA we expect that refusal of clearances to access the controlled airspace from GA will be a very rare event and therefore the below description would apply to any GA unable or unwilling to fly through CAS.
- 5.3.36 The GA assessment has indicated that in terms of CAS, Option 3 requires significantly less CAS than the previous DSA airspace in 2022 together with reductions in classifications of some sections and therefore GA patterns are expected to be different to the 2022 and 2025 radar data. The following bullet points describe where there may be changes. As noted above, it is very difficult to predict numbers of aircraft, however the 2025 data suggests that within the areas of change, there was less than one flight per day on average within the 6-month period in 2025.

- Areas around Tuxford, Ollerton, Gainsborough/Sturgate Airfield and Scunthorpe may see an increase in overflight from GA aircraft from Retford/Gamston Airport choosing to enter/exit the Retford/Gamston ATZ from the south in order to avoid DSA Class D airspace.
- Areas around Clowne and Stavely may see an increase in overflight from GA aircraft from Netherthorpe choosing to enter/exit the Netherthorpe ATZ from the west in order to avoid DSA Class D airspace.
- Areas around Scunthorpe may see an increase in overflight from GA aircraft from Sandtoft.
- The Gainsborough/Sturgate Airfield and Scunthorpe areas currently experience some GA overflight (heading in a North-South direction) and there may be some shifts in the patterns of this overflight in future and the potential for increased numbers of overflight in the right flying conditions. Some of this is expected to be gliding activity.

With airspace change – Option 3: Local air quality

- 5.3.37 [Appendix C](#) details the air quality assessment levels used in England, including the Air Quality Objectives (AQOs), Limit Values and targets. Baseline concentration data, including monitoring data from Doncaster City Council since 2018 and Defra's modelled background concentrations, are summarised in [Appendix C](#). Local air quality around DSA is currently well within the assessment levels, and the future baseline is expected to continue to improve.
- 5.3.38 Monitoring data from the years 2018–2019, when DSA was operating previously, does not indicate that there was an appreciable contribution to air pollutant concentrations or that the operation created any risk of an exceedance of the assessment levels. Concentrations of nitrogen dioxide around the airfield were at most 55% of the objective.
- 5.3.39 The nearest AQMA is 3.5 km from the airport and is unlikely to be appreciably affected by emissions from aircraft or other on-airport sources. Experience at much larger airports such as Heathrow and Gatwick shows that airport-related concentrations fall to around background levels within about 1 km of the airfield, so the contribution of aircraft from the much smaller DSA at 3.5 km is highly unlikely to be measurable.
- 5.3.40 However, road traffic associated with DSA may pass through the AQMA, heading north on the M18 motorway or towards central Doncaster on the A638. Data from the DT13 monitoring station indicate that nitrogen dioxide concentrations are currently less than 75% of the assessment levels. This is considered to be the location within the AQMA that will experience the highest concentrations, being located on the bridge over the motorway and 3.5 m from the busy A638. The amount of traffic generated by DSA and travelling on either of these routes is very unlikely to be sufficient to be significant or to create any risk of an exceedance of the assessment levels within the AQMA or elsewhere.
- 5.3.41 No monitoring data for PM near to DSA is available, but Defra's background maps indicate that concentrations of PM_{2.5} are well below the Annual Mean Concentration Target of 10 µg/m³. Considering the level of PM emissions associated with airports, and the locations of receptors around DSA, it is judged that operating DSA at the levels expected would not jeopardise achievement of the Population Exposure Reduction Target.
- 5.3.42 Local authorities are responsible for reviewing and assessing air quality in their administrative areas, and publishing details in Annual Status Reports (ASRs). ASRs for a selection of local authorities containing airports of comparable size to DSA have been reviewed (namely East Devon (Exeter Airport), Eastleigh (Southampton Airport), Christchurch (Bournemouth Airport) and Cornwall (Newquay Airport)). None of these ASRs identify the respective airports as being a significant air quality issue.
- 5.3.43 It is therefore concluded that, compared with the without airspace change scenario (DSA not operating), there is no possibility of pollutants breaching legal limits and target values following the implementation

of the airspace change proposal, or worsening an existing breach of legal limits and target values. Moreover, comparing Option 3 and Option 2, air quality will not have a significant impact for either option, and is therefore not a factor that can be used to discriminate between the two options.

With airspace change – Option 3: Fuel burn and Greenhouse gas emissions

- 5.3.44 Under Option 3, forecast fuel burn is estimated to increase from approximately 1,654 tonnes in 2028 (Year 1) to approximately 10,169 tonnes in 2037 (Year 10). Associated greenhouse gas emissions are estimated to increase from approximately 5,261 tCO₂e in 2028 to approximately 32,337 tCO₂e in 2037, reflecting forecast growth in aircraft activity across the assessment period.

TAG outcomes

- 5.3.45 TAG has also been used to assess the greenhouse gas impact over a 10-year appraisal period for Option 3. This has shown that the reinstatement of flights at DSA across the 10 year appraisal period will result in a 241,655 tCO₂e increase of which 163,181 tCO₂e (~68%) is traded in the UK ETS. This results in a monetised net present value (NPV) impact of -£48,362,322 for Option 3 (in 2025 prices).
- 5.3.46 Table 27 provides a breakdown of fuel burn and greenhouse gas emission performance across the 10-year assessment period.

Table 27 Option 3 Fuel burn and Greenhouse Gas emissions

Option 3 Fuel burn and Greenhouse Gas Emissions					
Year	Annual total fuel burn (t)	Annual total fuel cost (£)	Average fuel burn per flight (kg)	Annual total GHG emissions (tCO ₂ e)	Average total GHG emissions per flight (kgCO ₂ e)
2028	1,654	1,594,118	899	5,261	2,858
2029	3,466	3,339,291	890	11,021	2,832
2030	5,488	5,287,491	882	17,451	2,806
2031	7,138	6,877,998	874	22,700	2,779
2032	8,699	8,381,810	866	27,663	2,753
2033	9,424	9,080,766	858	29,970	2,727
2034	9,893	9,532,383	849	31,460	2,701
2035	9,984	9,620,199	841	31,750	2,675
2036	10,076	9,708,517	833	32,042	2,649
2037	10,169	9,798,013	825	32,337	2,623

Changes to fuel burn and greenhouse gas emissions for other airspace users

- 5.3.47 Changes in fuel burn from GA activity is unpredictable, given they do not file structured routes. Publicly available data about GA flights is limited and the fuel burnt by GA varies significantly depending on the type of GA aircraft being flown.
- 5.3.48 The fuel burn from GA is therefore not incorporated into the main quantitative fuel burn and GHG assessments, however CAP1616 does require sponsors to consider any environmental impacts caused due to indirect consequential changes on the flight behaviour of other airspace users.
- 5.3.49 As noted in the noise section above, the introduction of CAS does not mean that all GA are unable to fly through the airspace. Given the level of air traffic service provision proposed at DSA we expect that refusal

of clearances to access the controlled airspace from powered GA will be a very rare event and we have also proposed VFR lanes to help facilitate crossing traffic.

- 5.3.50 There could be increased mileages for any airspace users who are unwilling or unable to meet entry requirements Class E+ volumes or unwilling or unable to request crossing clearances of Class D airspace. Some unpowered flights may incur additional mileage to avoid controlled airspace volumes they are not able to meet the requirements for (transponder/radio) though given these are unpowered, there will be no impact on greenhouse gas emissions or fuel burn¹⁰.

With airspace change – Option 3: Tranquillity

- 5.3.51 No designated landscapes (AONBs and National Parks) will be overflown five or more times per day below 7,000 ft under Option 3 both in 2028 and 2037.

With airspace change – Option 3: Biodiversity

- 5.3.52 There are a number of European sites¹¹ and Sites of Special Scientific Interest (SSSI) in the vicinity of DSA. On a precautionary basis a search for European sites was made within a 21km radius (the area within which aircraft may be at altitudes below 3,000ft). The European sites within this radius are Thorne Moor SAC, Hatfield Moor SAC and Thorne and Hatfield Moors SPA. Designation information for these sites is provided in Table 28.

Table 28 European sites within 21km of DSA

European site	Distance from Doncaster Sheffield Airport (km)	Qualifying features
Thorne Moor SAC	14.58	7120 Degraded raised bogs still capable of natural regeneration
Hatfield Moor SAC	4.66	7120 Degraded raised bogs still capable of natural regeneration
Thorne and Hatfield Moors SPA	4.66	Nightjar <i>Caprimulgus europaeus</i> - 66 breeding pairs

- 5.3.53 Within this area there is also 41 SSSIs, some of which form the constituent parts of the European sites noted in Table 28.
- 5.3.54 The search area based on 3,000ft is a precautionary measure to ensure all potential effects on European sites are identified and is in line with CAP 1616i. However, when considering the Habitats Regulations Assessment Screening Report of the Airspace Change Masterplan CAP 2527, it is apparent that the potential effects on sites designated for nature conservation value occur only where flights operate below 500m (1,640ft). Above this altitude the potential for detectable effects due to disturbance caused by aircraft operation, air quality degradation due to aircraft emissions and potential injury or death associated with bird strikes on aircraft can be discounted.
- 5.3.55 Option 3 would see aircraft operating under 500m (or within 1km of the boundary) over Hatfield Moor SAC, the Thorne and Hatfield Moors SPA, Hatfield Moors SSSI¹² and the River Idle Washlands SSSI.

¹⁰ In our consultation on the preferred option, we propose to ask GA stakeholders to try and quantify any increase to their fuel burn and/or emissions as a result of the establishment of CAS at DSA.

¹¹ European sites include Special Areas of Conservation (SAC) and Special Protection Areas (SPA). As a matter of UK Government policy Possible SACs, Potential SPAs, areas secured for compensating for damage to a European site and Ramsar sites are also considered in the same way.

¹² Note that in the area of overflight Hatfield Moor SAC, Hatfield Moors SSSI and Thorne and Hatfield Moors SPA are all overlapping

- 5.3.56 The potential for disturbance of designated species to occur is low. Hatfield Moor supports breeding nightjar, a species that is migratory (only occurring in the UK during the summer) and nocturnal. This means that foraging activity would mostly take place during the period when very few or no aircraft are operating. During the day this species typically remains still to avoid detection, as opposed to reacting to disturbance agents such as dog walkers. Nightjar are known to breed on sites close to or within busy areas such as by motorways (e.g. the M3 motorway as it passes through Chobham Common) and in areas used for military training (including live fire such as the Pirbright Ranges). Further, this species has been shown to have increased in number within the Thorne and Hatfield Moors SPA following large scale habitat management works as part of the 'Restoring the Humberhead Peatlands' project. This increase took place during a period when DSA was still operational and therefore these increases were despite overflight. Therefore, it is considered that there will be no increases in disturbance of breeding nightjar due to the implementation of Option 3.
- 5.3.57 The River Idle Washlands SSSI is cited for a range of habitats and its passage and wintering wildfowl populations. The Option 3 flight paths lie to the west of the SSSI and do not directly overfly it. However, aircraft are still likely to be visible and audible to wildfowl within the western extent of the SSSI. The wildfowl present include Bewick's swan, mute swan, wigeon, teal and pochard. Swans, geese and ducks are known to occupy designated sites close to other operational airports including Heathrow (South West London Waterbodies SPA), Glasgow (Black Cart SPA) and Dublin (Baldoye Bay SPA) where aircraft overflight has been shown to be tolerated by individual birds with no or little behavioural response (see Appendix B of CAP 2527). Given the location of the flightpaths with respect to the River Idle Washlands SSSI (at least 500m to the west) the potential for disturbance is minimal and can be discounted.
- 5.3.58 The potential for emissions from aircraft engines resulting in a degradation of habitats within designated sites can also be discounted. CAP 1616 notes '*Due to the effects of mixing and dispersion emissions from aircraft above 1,000ft are unlikely to have a significant impact on air quality.*' None of the designated sites identified in proximity to DSA are overflown at an altitude of 1,000ft or less and therefore reduction in air quality can be discounted.
- 5.3.59 The majority of bird strikes recorded (85%) take place below 500ft, with a further 97% taking place below 1,500ft. Therefore, aircraft operating from DSA are most likely to suffer a bird strike in very close proximity to the airfield and not over a designated site. However, it is acknowledged that birds from designated sites will frequently leave designated areas to fulfil other needs (e.g. roost within a designated site but feed in nearby arable fields). However, the number of bird strikes is relatively small compared to the number of air transport movements per year. The CAA reports that in 2023 there were 1,675 confirmed bird strikes and 1,691 in 2024 across the UK (range per month of 4 to 14 bird strikes per 10,000 air transport movements). The majority of bird strikes are of gulls and pigeons, with no strikes of nightjar or wildfowl recorded in these years. This demonstrates that the rate of occurrence is so low that the populations of birds using either the Thorne and Hatfield Moors SPA or the River Idle Washlands SSSI are not at threat from accidental collision with aircraft.
- 5.3.60 The differences between Option 2 and Option 3 would have no discernible difference to the potential effects of overflight on sites designated for nature conservation (this is regardless of number of ATMs). This is because at the low altitudes where potential effects could occur the positioning of aircraft is similar, meaning that the same designated sites would be subject to overflight. As no significant effects on habitats, flora or fauna have been predicted with regards Option 2, the same conclusion can be drawn for Option 3.

With airspace change – Option 3: Capacity/resilience

- 5.3.61 This option would allow DSA to re-open with scheduled passenger and cargo flights. DSA would be expected to operate 1,891 ATMs in Year 1 and this would increase to 12,329 ATMs in year 10.
- 5.3.62 In terms of operational resilience, the airport is expected to have ILS to each runway end, including CAT III to RWY 20 for Low Visibility Procedures and an RNP Approach to each end. For arrivals this provides sufficient redundancy for ground based nav aid failure.
- 5.3.63 The proposed SIDs will be to either an RNP1 or RNAV1 specification with an on-airfield DME contributing to DME/DME coverage in the region for the RNAV1 SID. Omni-directional departures would be available for any non-RNAV1/RNP+RF capable aircraft or if the RNP1 SIDs were unavailable due to GNSS outages,
- 5.3.64 Please note within the IOA DSA mentioned promulgation of NDB approaches in addition to ILS and RNP arrivals however following further consideration, DSA are not planning to promulgate NDB approaches (This applies to both options). As part of the consultation, there will be an opportunity for aviation stakeholders to provide feedback on this.
- 5.3.65 The addition of another airport with full-length runway and H24 ATS service provision provides additional resilience to the wider network for diversions and/or emergency situations.

With airspace change – Option 3: General aviation access

- 5.3.66 Table 29 presents data on proposed changes in volumes of CAS compared to without the ACP as a result of Option 3. The proposed CAS boundaries are also shown in Figure 10.

Table 29 Option 3 CAS volumes (Note volume has been rounded to one decimal place)

Option 3	Class	Lower	Upper	Volume (NM ³)
DONCASTER SHEFFIELD CTR 1	D	SFC	FL85	82.5
DONCASTER SHEFFIELD CTR 2	D	SFC	FL105	135.4
DONCASTER SHEFFIELD CTA 1	D	1500ft	FL85	13.6
DONCASTER SHEFFIELD CTA 2	D	2000	FL85	90.9
DONCASTER SHEFFIELD CTA 3	D	2000	FL105	76.8
DONCASTER SHEFFIELD CTA 4	D	2000	FL60	11.4
DONCASTER SHEFFIELD CTA 5	E+	4500	FL85	4.0
DONCASTER SHEFFIELD CTA 6	E+	3500	FL65	11.0
DONCASTER SHEFFIELD CTA 7	E+	FL65	FL85	16.9
DONCASTER SHEFFIELD CTA 8	E+	FL65	FL105	7.8
DONCASTER SHEFFIELD CTA 9	E+	FL95	FL105	3.3
DONCASTER SHEFFIELD CTA 10	E+	FL85	FL105	5.3
Total volume of Class D				410.6
Total volume of Class E+				48.3
Total volume				458.9

- 5.3.67 Option 3 proposes considerably less controlled airspace than in Option 2 and therefore even less than DSA's previous airspace which is the subject of the 2022 traffic patterns in [Appendix F](#). The main differences of Option 3 (compared to Option 2) are:

- Less controlled airspace to the west and what airspace there is has higher bases than in Option 2. This region to the west was identified as having particular importance to the BGA with the

BGA claiming that the 2022 design created "narrow, shallow corridors to the west of DSA". The airspace proposed in this design removes the requirement for any DSA controlled airspace underneath Yorkshire CTA 12 and a considerably reduced volume under Yorkshire CTA 11 (compared to the previous 2022 airspace). Traffic will be able to transit to the west of DSA over Conisborough, Thurnscoe, South Elmsall and Pontefract up to FL60 (FL50 under CTA 12 as per current arrangements).

- Removal of the Netherthorpe ATZ from controlled airspace allowing N/S overflight over the top of the ATZ up to FL65 without infringing CAS.
- In order to enable to the reduced impacts to GA to the west of DSA, Option 3 would need to extend the CTA to the east by c.0.5nm to contain the new RF SIDs, which wrap around to the east of the airport to enable aircraft to gain altitude in this region, not to the west.
- The use of PBN transitions onto final approach results in changes being required to the bases of controlled airspace closer into the airport owing to IFP design criteria and CAA's controlled airspace containment rules. This requires extensions to the CTR to the north, in between Hatfield Moors and Thorne Moors which could negatively impact Sandtoft traffic and to the south near Barnaby Moor which could negatively impact Netherthorpe and Retford/Gamston traffic, where that traffic wants to avoid controlled airspace.

5.3.68 Although this option has significantly less controlled airspace than option 2, we would still expect to see:

- Retford/Gamston arrivals and departures more likely to avoid controlled airspace and enter/exit their ATZ from the South, generating higher volumes of GA traffic over Tuxford and Ollerton and also routing to the NE to transit to the east of the DSA CTA over Gainsborough/Sturgate Airfield and Scunthorpe.
- Netherthorpe arrivals and departures are more likely to enter/exit their ATZ from the East and South instead of the West, generating higher volumes of GA traffic over Clowne and Staveley.
- Sandtoft arrivals and departures are more likely to avoid controlled airspace and enter/exit their aerodrome from the South, generating higher volumes of GA traffic over Scunthorpe. As Sandtoft has recently become an unlicensed aerodrome, we're not sure whether this will result in a reduction in flights operating to/from that aerodrome.
- A general shift of traffic which is currently transiting N/S out to the east over Gainsborough/Sturgate Airfield and Scunthorpe. This region is the most obvious region that could experience an increase in density of GA operations. However, in 2022 the RAF Scampton MATZ and EGR313 were active which compressed GA traffic into a 7nm gap between RAF Scampton and Doncaster's CTA 6. In Option 3, RAF Scampton MATZ and EGR313 no longer exist, increasing the available gap to 10.5nm, considerably wider once north of RAF Waddington. This gap would reduce to just over 6.5nm again when EGD324B is active but only for traffic FL105+. Suitably equipped aircraft can transit through DSA airspace, above FL85 without an ATC clearance. As can be seen from the 2025 radar data, there is already a certain density of GA operations in this region without any DSA airspace - the BGA have advised this region provides better soaring conditions than further to the east or west which are not conducive to good soaring flight.

5.3.69 Whilst the density plots show an obvious increase in density of GA operation to the east and west (particularly the east) of DSA's controlled airspace in 2022 compared to 2025, attention should be paid

to the keys used in each plot. Whilst [Section F.3](#) of [Appendix F](#) show that GA traffic wishing/requiring to avoid controlled airspace would be displaced, the data suggests somewhere in the region of 10-24 transponding GA flights plus potentially up to 8 non-transponding flights in the same 1000ft band in the entire 6-month period. This is assuming the non-transponding flights are in the same 1000ft band though this cannot be confirmed as the Primary only data covers ground all the way up to 10,000ft.

- 5.3.70 The areas with the highest density of GA traffic in the region in both the 2022 and 2025 scenario are within the Sandtoft¹³, Netherthorpe and Retford/Gamston ATZs and Sturgate Airfield. The denotification of the RAF Scampton MATZ and EGR313 provide a much less restrictive airspace structure than in 2022.
- 5.3.71 By year 10, there will be no change from year 1. Previous DSA operations with 11,569 ATMs in 2019 never refused any requests for transits through CAS¹⁴ and there is no evidence to suggest the forecast traffic level will result in any less access to CAS than in Year 1.

With airspace change – Option 3: Economic impact from increased effective capacity

- 5.3.72 In year 1 we estimate there will be 1,002 passenger flights carrying 155,412 passengers and 839 cargo flights.
- 5.3.73 In year 10 we estimate there will be 8,189 passenger flights carrying 1,169,538 passengers and 4,140 cargo flights.
- 5.3.74 The introduction of arrival and departure procedures and associated controlled airspace for DSA would enable a full re-opening of the aerodrome and therefore offer significant benefit to the airport's commercial capacity. This unlocks economic growth for the South Yorkshire region, with estimates showing that, in the long term out to 2050, re-opening the airport could boost the economy by approximately £5 billion. Not only that, but re-opening the airport will support employment, with around 5,000 jobs created across aviation, logistics, engineering, construction and local businesses¹⁵.

With airspace change – Option 3: Airline training costs

- 5.3.75 In year 1 we don't anticipate any additional training costs for commercial airlines other than the business-as-usual briefings supplied by operators to their crews when commencing operations from a new airport. In year 10 we don't anticipate any additional training costs for commercial airlines.

With airspace change – Option 3: Other airline costs

- 5.3.76 In year 1 we don't anticipate any other costs for commercial airlines other than the business-as-usual costs incurred by operators when commencing operations from a new airport.
- 5.3.77 Whilst Option 3 requires operators to have Radius-to-Fix (RF), we expect the majority of operators to have this fleet capability in 2028. We would not expect operators without RF to upgrade avionics to meet this requirement but gradually, all fleets would become RF capable. In the meantime, ATC will have procedures to safely handle non-RF aircraft by continuing to vector to final approach and tactically manage non-RF aircraft departing via Omni-directional departures.
- 5.3.78 In year 10 we don't anticipate any other costs for commercial airlines.

¹³ No ATZ from April 2026.

¹⁴ [CAA's 2017 PIR Para 16](#)

¹⁵ [Government backs mayor to reopen Doncaster Sheffield Airport - GOV.UK](#) and [j9 Cabinet 051125 SYAC report.pdf](#)

With airspace change – Option 3: Airport/air navigation service provider infrastructure costs

- 5.3.79 By year 1 the airport will have incurred significant capital expenditure on infrastructure costs in order to provide a licensed aerodrome with H24 Approach Control (Radar) and Aerodrome Services and an instrument runway with conventional navigation aids for their instrument approach procedures.
- 5.3.80 In year 10 the airport will incur business as usual operating costs to provide a licensed aerodrome with H24 Approach Control (Radar) and Aerodrome Services and maintain an instrument runway with conventional navigation aids for their instrument approach procedures.
- 5.3.81 These costs are not expected to be materially different between the two options and therefore they have not been monetised.

With airspace change – Option 3: Airport/air navigation service provider operational costs and deployment costs

- 5.3.82 By year 1, the airport will have incurred operational expenditure to deploy the provision of a licensed and operational ANSP providing H24 Aerodrome and Approach (radar) Control Services. These costs are not expected to be materially different between the two options and therefore they have not been monetised.
- 5.3.83 In year 10, the airport will incur ongoing operational costs however these costs are not expected to be materially different between the two options and therefore they have not been monetised.
- 5.3.84 In year 5 and year 10 there will be a cost to undertake a 5-year review of the airport's instrument flight procedures. For option 3, this is estimated to cost £70k for each review based on 2025 prices.

With airspace change – Option 3: Airport/air navigation service provider other costs

- 5.3.85 No residents will be newly exposed to noise at the 63 dB $L_{Aeq,16h}$ level or above level or above under Option 3 both in 2028 and 2037, therefore, no costs for the airport will incur in terms of financial assistance towards acoustic insulation.

With airspace change – Option 3: Interdependencies with existing MTMA airspace

Interdependencies with current airspace

- 5.3.86 For year 1 through to year 10, owing to the smaller volume of CAS to the NW of DSA we expect that routine co-ordination between Leeds Bradford Airport and DSA will not be required as Leeds arrivals will not need to descend through DSA's airspace. The move of DSA's UPTON SIDs to the south of DSA will significantly help to reduce conflict.
- 5.3.87 DSA UPTON departures could be vertically separated from Leeds southbound departures enabling free-flow for both airports but this is to be confirmed as part of the safety simulation work which will take place as part of the ATC procedure development ahead of implementation.
- 5.3.88 The Ministry of Defence (MOD) have noted that a lot of military traffic within the area routes GOLES-Humberside and so having the DSA SIDs to the south of the airport will help to reduce conflict and provide military aircraft with clearances through the airspace on that route.

Interdependencies with future MTMA airspace

- 5.3.89 The future MTMA airspace is expected to be implemented in 2030 and therefore it will not have been deployed at the point of DSA airspace implementation (Year 1 - 2028) however it could be available from Year 3 onwards.
- 5.3.90 The MTMA airports and NERL are currently in Stage 3 of the CAP1616 process, but they are not yet at the stage of public consultation and therefore specific design information is limited.

- 5.3.91 DSA's use of RNP1 and RNP1+RF procedures in Option 3 is likely to be a benefit when considering the integration of DSA procedures into the wider MTMA airspace. This is because the route separation distance requirements for an RNP+RF procedure are reduced compared to RNAV1.
- 5.3.92 In addition to this, the systemisation of both arrivals and departures, along with locating the routes to the south and east of DSA (where possible to do so), means that traffic is located away from the main areas where interactions between Leeds Bradford Airport and DSA traffic are likely to occur. At this stage, Leeds Bradford Airport have only very high level 'swathe' designs however there will more opportunity to understand how Leeds traffic and Doncaster traffic could integrate as the MTMA designs mature.
- 5.3.93 With regards to the NERL proposal which looks at the airspace above 7,000ft, NERL have indicated that there are currently considerations for a hold for Leeds arrivals somewhere to the north of DSA. If this transpires, the use of RNP1+RF along with the configuration of the runway 02 departure routes to wrap around to the south of DSA will mean that it is easier to separate these routes from a hold and also free up airspace for Leeds Bradford arrivals to descend free from conflict with DSA traffic and without LBA requiring clearance through any of DSA's airspace.

6. FOA Conclusion

6.1 Cost benefit analysis

- 6.1.1 As part of the FOA, Airspace Change Sponsors are required to produce a Cost Benefit Analysis (CBA) which looks at the monetised costs associated with the ACP over a ten year period, and produces a Net Present Value (NPV) for each option.
- 6.1.2 The NPV tables on the following pages contain an analysis of all relevant monetised cost and benefits associated with each option. NPVs are based on the following assumptions:
- All 'nominal' costs and benefits Figure s have been adjusted into 2025 'real' values (using published Web TAG Databook GDP deflators) and converted into GBP when necessary (as detailed below).
 - All 'real' values have been discounted using the Social Time Preference Rate (STPR) set by the UK Government. The standard STPR of 3.5% has been used for all discounting, apart from 'Noise' values, which have been discounted using the Health impact STPR of 1.5%.
 - 2025 is used as the base year for all NPV discounting, as confirmed by the CAA via email on 20/05/2026.
 - A ten-year appraisal period is used (2028 to 2037).
 - IFP Costs are estimated by an Approved Procedure Design Organisation (APDO).
 - Greenhouse Gas (GHG) Emissions are calculated directly using WebTAG workbooks. Please refer to the methodology section in Appendix D for full methodology information.
 - Fuel burn is calculated using the same methodology described under the GHG emissions. Fuel burn values are then monetised by assuming a cost per tonne of jet fuel of £963.53. This value had been calculated from the jet fuel price of \$1286.313 per tonne (using the IATA Jet Fuel Price Monitor¹⁶) and a currency conversion rate of 1USD = GBP 0.7491 from Reuters¹⁷, both as of 15/05/2026. It should be noted the cost of jet fuel is particularly high due to current political events and may not be reflective of the cost across the entire appraisal period.
 - Consumer Benefit is calculated using the recommendations set by Eurocontrol¹⁸ of the economic benefits of an average scheduled passenger flight from the perspective of the consumer. The values represent the monetised benefits of an average passenger flight in EU27, which have been modified down to represent the short-haul nature of Doncaster flights, compared to long-haul flights that the recommendations are based on (Consumer benefits per flight discounted to 55% to reflect a short haul nature, Airline benefits per flight discounted to 60% to represent smaller short-haul yields, and other producer benefits per flight discounted to 80% to represent shorter sector length of short-haul flights). DSA's forecasted annual passenger flight movements have been assumed to be 90% international and 10% domestic. An additional discount of 4.5% has been applied to these Figure s as a risk premium compensation for the possibility that projected benefits do not materialise as forecast. EUROCONTROL's indicative 8% benchmark for Air Traffic Management related investments reflects the particular uncertainties associated with long-term aviation projects, including technology and delivery risk, network interdependencies across ANSPs, airlines and airports, demand volatility and long asset horizons over which benefits may be forecast. Eurocontrol values are in 2022 prices and in Euros. These have been inflated to 2025 using WebTAG inflators and converted to GBP using Reuters spot rate on 15/05/2026. It is noted that cargo flight movements have been excluded from this analysis, as the Eurocontrol recommendations relate to passenger movements only. However, the inclusion of the economic benefits of cargo movements will be investigated as part of the Final Options Appraisal NPV.
 - Noise impact is calculated directly using WebTAG workbooks. Please refer to the methodology section in Appendix A for full methodology information. It is noted that, in line with the CAP1616i requirements for the aviation WebTAG workbook, change sponsors must not input any Noise changes below the LOAEL, 51dB LAeq 16h daytime and 45 dB LAeq 8h night-time; accordingly the Amenity Figure s in the WebTAG workbook has been updated with the Sensitivity test Figure s that exclude impacts below 51 dB, that are contained in the same WebTAG workbook
 - This Full Options Appraisal was undertaken on the most up to date sources of data at the time, and as part of the Final Options Appraisal in CAP1616 Stage 4 an analysis will be undertaken with updated assumptions.

Option 2 NPV			2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	TOTAL
STANDARD STPR	Real Values (2025)	IFP Costs	£0	£0	£0	£0	-£43,335	£0	£0	£0	£0	-£38,679	-£82,014
		GHG Emissions	-£1,161,452	-£2,591,971	-£4,105,011	-£5,316,606	-£6,502,360	-£7,075,212	-£7,510,498	-£7,565,027	-£7,671,927	-£7,764,901	-£57,264,966
		Fuel Burn	-£1,353,360	-£2,834,707	-£4,488,113	-£5,837,618	-£7,113,285	-£7,705,712	-£8,088,143	-£8,161,833	-£8,235,916	-£8,310,966	-£62,129,653
		Consumer Benefit	£14,920,315	£32,342,241	£60,976,738	£84,384,658	£103,504,105	£108,656,230	£111,827,913	£115,088,940	£118,469,092	£121,938,586	£872,108,819
	NPV	Sum STANDARD Discount (3.5%)	£12,405,503	£26,915,562	£52,383,614	£73,230,435	£89,845,124	£93,875,307	£96,229,272	£99,362,080	£102,561,249	£105,824,040	£752,632,186
		Standard NPV	£11,189,053	£23,455,358	£44,105,597	£59,573,006	£70,617,456	£71,289,993	£70,606,397	£70,439,648	£70,248,888	£70,032,582	£561,557,977

HEALTH STPR	Real (2025)	Noise Impact	-£39,709	-£205,560	-£371,410	-£537,260	-£703,111	-£868,961	-£1,034,811	-£1,200,662	-£1,366,512	-£1,532,362	-£7,860,358
		Sum	-£39,709	-£205,560	-£371,410	-£537,260	-£703,111	-£868,961	-£1,034,811	-£1,200,662	-£1,366,512	-£1,532,362	-£7,860,358
	NPV	HEALTH Discount (1.5%)	0.956	0.942	0.928	0.915	0.901	0.888	0.875	0.862	0.849	0.836	
		Health NPV	-£37,975	-£193,675	-£344,765	-£491,347	-£633,522	-£771,386	-£905,038	-£1,034,571	-£1,160,078	-£1,281,649	-£6,854,005

TOTAL NPV			£11,151,079	£23,261,683	£43,760,832	£59,081,658	£69,983,934	£70,518,606	£69,701,359	£69,405,077	£69,088,810	£68,750,933	£554,703,972
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Option 3 NPV			2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	TOTAL
STANDARD STPR	Real Values (2025)	IFP Costs	£0	£0	£0	£0	-£60,669	£0	£0	£0	£0	-£54,151	-£114,820
		GHG Emissions	-£1,311,469	-£2,943,462	-£4,654,690	-£6,016,287	-£7,349,747	-£7,988,865	-£8,478,228	-£8,524,600	-£8,636,589	-£8,730,600	-£64,634,536
		Fuel Burn	-£1,558,974	-£3,265,673	-£5,170,922	-£6,726,365	-£8,197,024	-£8,880,571	-£9,322,231	-£9,408,111	-£9,494,482	-£9,582,005	-£71,606,358
		Consumer Benefit	£14,920,315	£32,342,241	£60,976,738	£84,384,658	£103,504,105	£108,656,230	£111,827,913	£115,088,940	£118,469,092	£121,938,586	£872,108,819
	NPV	Sum STANDARD Discount (3.5%)	£12,049,872	£26,133,106	£51,151,126	£71,642,007	£87,896,664	£91,786,794	£94,027,455	£97,156,229	£100,338,021	£103,571,831	£735,753,105
		Standard NPV	£10,868,294	£22,773,492	£43,067,875	£58,280,819	£69,085,984	£69,703,952	£68,990,856	£68,875,879	£68,726,097	£68,542,108	£548,915,356

HEALTH STPR	Real (2025)	Noise Impact	-£38,679	-£208,097	-£377,515	-£546,933	-£716,352	-£885,770	-£1,055,188	-£1,224,606	-£1,394,025	-£1,563,443	-£8,010,607
		Sum	-£38,679	-£208,097	-£377,515	-£546,933	-£716,352	-£885,770	-£1,055,188	-£1,224,606	-£1,394,025	-£1,563,443	-£8,010,607
	NPV	HEALTH Discount (1.5%)	0.956	0.942	0.928	0.915	0.901	0.888	0.875	0.862	0.849	0.836	
		Health NPV	-£36,989	-£196,066	-£350,432	-£500,194	-£645,452	-£786,308	-£922,859	-£1,055,203	-£1,183,434	-£1,307,644	-£6,984,581

TOTAL NPV			£10,831,306	£22,577,427	£42,717,443	£57,780,625	£68,440,532	£68,917,644	£68,067,996	£67,820,676	£67,542,663	£67,234,464	£541,930,776
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6.2 Conclusion and preferred option for consultation

- 6.2.1 Table 30 summarises the key differentiating assessments between Option 2 and Option 3. The green colour highlights where one option performs better than the other; it does not show how the option performed against the baseline. Please note that this is not an exhaustive summary of the overall assessments; for full assessment details please see [section 5.2](#) and [5.3](#).

Table 30 Summary of many differentiators between Option 2 and Option 3

FOA metric	Option 2	Option 3																																																										
Safety		Option 3 is more systemised that option 2 with a lower reliance on controller intervention therefore controller and pilot workload should be lower than Option 2.																																																										
	As Option 2 is mainly based on the previous procedures which were safely in operation it is less likely to have IFP design and validation issues compared to Option 3. However, Option 3 has now undergone further design development and there is no evidence to suggest that there are any IFP concerns at this stage.																																																											
	Both options have instances where the procedures with turns are contained within less than CAA's recommended 3nm from the edge of CAS, however it is anticipated that a suitable safety assessment can be made to justify this CAS containment. Use of RF in Option 3 will help to support the safety case compared to RNAV1 in Option 2.																																																											
	No material differences between the options have been identified in terms of the safety of operations inside or outside controlled airspace.																																																											
Noise (Primary metrics)	Option 2 (2025 prices)	Option 3 (2025 prices)																																																										
	Full TAG workbook outcome																																																											
	-£9,916,396	-£9,684,884																																																										
	CAA adjusted TAG workbook outcome																																																											
	-£6,854,005	-£6,984,581																																																										
	The TAG outcomes show that both options have a disbenefit in terms of noise (as expected when the 'without airspace change' is 0 arrivals and departures from DSA). The full TAG workbook results show Option 3 has marginally better performance than Option 2. The adjusted TAG results (to meet CAA requirements) show that Option 2 is marginally better than Option 3. In both cases the difference between the options was around 2%.																																																											
	The following table shows the difference in L _{Aeq} performance:																																																											
	<table><tr><th colspan="3">Option 2</th><th colspan="3">Option 3</th></tr><tr><th>Contour</th><th>Total population</th><th>Number of schools</th><th>Contour</th><th>Total population</th><th>Number of schools</th></tr><tr><td colspan="6">LAeq,16h (Daytime) 2037</td></tr><tr><td>51</td><td>3,400</td><td>0</td><td>51</td><td>3,800</td><td>0</td></tr><tr><td>54</td><td>1,300</td><td>0</td><td>54</td><td>1,400</td><td>0</td></tr><tr><td colspan="6">LAeq,8h (Nighttime) 2028</td></tr><tr><td>45</td><td>700</td><td>0</td><td>45</td><td>600</td><td>0</td></tr><tr><td colspan="6">LAeq,8h (Nighttime) 2037</td></tr><tr><td>45</td><td>13,500</td><td>4</td><td>45</td><td>11,400</td><td>3</td></tr></table>						Option 2			Option 3			Contour	Total population	Number of schools	Contour	Total population	Number of schools	LAeq,16h (Daytime) 2037						51	3,400	0	51	3,800	0	54	1,300	0	54	1,400	0	LAeq,8h (Nighttime) 2028						45	700	0	45	600	0	LAeq,8h (Nighttime) 2037						45	13,500	4	45	11,400	3
	Option 2			Option 3																																																								
	Contour	Total population	Number of schools	Contour	Total population	Number of schools																																																						
LAeq,16h (Daytime) 2037																																																												
51	3,400	0	51	3,800	0																																																							
54	1,300	0	54	1,400	0																																																							
LAeq,8h (Nighttime) 2028																																																												
45	700	0	45	600	0																																																							
LAeq,8h (Nighttime) 2037																																																												
45	13,500	4	45	11,400	3																																																							

FOA metric	Option 2			Option 3		
	48	4,900	0	48	5,100	0
	51	2,300	0	51	2,500	0
	In the L _{Aeq} daytime contours, Option 2 has 400 less people (c.12%) in the 51dB 2037 contour and 100 less people (c.8%) in the 54dB 2037 contour.					
	In the L _{Aeq} nighttime contours Option 3 has 100 less people (c.17%) in the 45dB 2028 contour. By 2037, Option 3 has 2100 people less in the contour (c.18%). Within the higher 48db and 51dB contour bands, Option 2 has 200 less people (c.4% and c.9% respectively).					
Given this mixed performance it is very difficult to draw a conclusion between the two options in terms of L _{Aeq} ; this is supported by the overall TAG results which show a very small 2% difference between the options.						
Noise (Secondary metrics – N65)	2037 N65 (only contours where there is a difference between the options)					
		Option 2		Option 3		
	Contour	Total population	Number of schools	Total population	Number of schools	
	5	29,800	8	30,200	7	
	10	22,500	5	15,600	3	
Within the 2037 N65 rate 5 contour, there are 400 fewer people in Option 2 than Option 3 however this is a c.1% marginal difference between the options. Within the rate 10 contour, there are 6,900 fewer people in Option 3 than Option 2 which equates to around a 30% difference between the options.						
Noise (Secondary metrics – N60)	2037 N60 (only contours where there is a difference between the options)					
		Option 2		Option 3		
	Contour	Total population		Total population		
	5	16,500		16,600		
Within the 2037 N60 rate 5 contour, there are 100 fewer people in Option 2 than Option 3 however this is a c.<1% marginal difference between the options.						
Noise (Secondary metrics – overflight)	2037 Overflight contour rate	Option 2 Overflights (Daytime) Total population	Option 2 Overflights (Nighttime) Total population	Option 3 Overflights (Daytime) Total population	Option 3 Overflights (Nighttime) Total population	
	5	59,400	1,200	130,700	1,000	
	20	0	0	400	0	
	Within the 2037 daytime overflight contours, there's around a 55% difference between Option 2 and Option 3 with Option 3 overflying 71,300 more people during the day than Option 2 (below 7,000ft). The overflight contours extend across the airspace but one of the main differences between Option 2 and Option 3 is due to RWY 20 arrivals in Option 3 overflying Doncaster city centre. This is because Option 3 aims to minimise the volume of CAS required and the smaller volume of CAS to North-West results in aircraft needing to fly over the city rather than flying north-west of it, as they are expected to do in Option 2 owing to the larger airspace volume in that option. Over the city centre in Option 3, we expect RWY 20 arrivals to be around 6,000ft or above. Within the 2037 nighttime overflight contours, Option 3 offers better performance than Option 2, overflying 200 less people (around a c.17% difference).					

FOA metric	Option 2	Option 3
Air quality	There would be no difference between the two options; with both options, there would be no possibility of pollutants breaching legal limits and target values following the implementation of the airspace change proposal or worsening an existing breach of legal limits and target values.	
Fuel burn and Greenhouse Gas emissions	When compared to Option 3, Option 2 results in improved fuel efficiency and lower greenhouse gas emissions due to the shorter average route mileage and lower fuel burn intensity per ATM. Both options have a disbenefit in terms of Greenhouse gas emissions however Option 2 offers c.£5.5m better performance than Option 3 in terms of NPV (based on 2025 prices).	
Tranquillity	Neither option will overly any National Parks or National Landscapes.	
Biodiversity	No significant effects on habitats, flora or fauna are expected for either option.	
Capacity / resilience	There would be no difference between the options in terms of capacity and/or resilience.	
General aviation access		Option 3 overall requires 15.8nm ³ less CAS compared to Option 2 and Option 3 is much less restrictive to GA operations to the west of DSA, a region which the BGA identified as having particular importance to the BGA, claiming that the 2022 design created "narrow, shallow corridors".
Economic impact	There is no material difference between the options in terms of economic impacts.	
Airline training costs	There is no material difference between the options in terms of training costs.	
Other airline costs	There is no material difference between the options in terms of other airline costs.	
Airport / ANSP infrastructure, deployment, operational and other costs	There is no material difference between the options in terms of infrastructure, deployment, operational and other costs. Option 2 does have £40k less IFP review cost than Option 3 but given this cost is across a 10-year period, it is not considered significant enough to differentiate between the options.	
Interdependencies with current MTMA airspace		Option 3 offers less interdependency with Leeds Bradford Airport compared to Option 2 due to the location of the departure routes to the south of DSA.
Interdependencies with future MTMA airspace		Option 3 offers greater compatibility with the future MTMA airspace compared to option 2 owing to the location of the routes to the south of DSA and the use of the RNP+RF specification,

- 6.2.2 At the end of the Full Options Appraisal, we look to the outcomes of the assessments to understand which option(s) to take to consultation. A key part of the CAP1616 process is to have a transparent approach when establishing which options to take forward, although CAP1616 does not define a shortlisting methodology.
- 6.2.3 Overall, when determining which option to take to consultation, DSA is required to balance interests across many stakeholders along with the requirements of the CAA and government. It's really important to note that the threshold for discontinuing an option cannot be based on quantitative assessments alone

but must also come down to the qualitative appraisals and professional judgment, as there are many factors and FOA categories to balance.

- 6.2.4 When considering the environmental assessments within the FOA, we have looked to the Air Navigation Guidance (ANG) 2017 (<https://www.gov.uk/government/publications/uk-airnavigation-guidance-2017>). The ANG is guidance to the CAA on its environmental objectives when carrying out its air navigation functions, and to the CAA and wider industry on airspace and noise management. The ANG outlines the Government's altitude-based priorities for consideration of the environmental impacts arising from airspace change proposals.
- 6.2.5 The altitude priorities say "In the airspace from the ground to below 4,000 feet, the Government's environmental priority is to limit and, where possible, reduce the total adverse noise effects on people". Both options have a disbenefit in terms of adverse noise impacts. This is inevitable as the 'without airspace change' scenario has 0 flights and therefore the introduction of flights will increase noise at DSA. Comparing the two options, when we look to the TAG outcomes there is only a 2% difference between the options (and there is mixed performance depending on the TAG calculation used). Within the LAeq contour population information, there is also mixed performance. As a 2% difference is marginal, we did not consider the differences in the primary metrics alone to be significant enough to determine decision making. Instead, we factored in the L_{Aeq} outcomes alongside the wider assessment of the options across the various categories.
- 6.2.6 Beyond 4,000ft, the ANG says "In the airspace at or above 4,000 feet to below 7,000 feet, the environmental priority should continue to be minimising the impact of aviation noise in a manner consistent with the Government's overall policy on aviation noise, unless the CAA is satisfied that the evidence presented by the sponsor demonstrates this would disproportionately increase CO₂ emissions".
- 6.2.7 There are marginal (c.1%) differences between the options in terms of the N65 rate 5 and N60 rate 5 contour, however within the N65 rate 10 contour, Option 3 impacts c.30% less people than Option 2.
- 6.2.8 Within the overflight contours, which are not a measure of noise, Option 2 does overfly significantly fewer people in the daytime than Option 3, and it is also noted that Option 2 offers better GHG emission performance than Option 3, with a c.14% difference between the options. Although the ANG altitude-based priorities note that, above 4000ft, impacts to CO₂ emissions should be balanced against noise, in the case of DSA the reasons for the Option 3 flight paths above 4,000ft being advantageous go beyond noise, i.e. this is not just a CO₂ v noise assessment but we also need to consider CAA Policy for the Design Controlled Airspace Structures and other Government objectives when determining route placement.
- 6.2.9 To understand this further, we've looked to the objectives of the Government's Airspace Modernisation Strategy (AMS) [CAP1711](#) to understand how the two options perform. Just like above, this is not an exhaustive summary of the assessments but Table 31 instead aims to pick out the key differences between the two to options.

Table 31 Option performance against the objectives of the Government's Airspace Modernisation Strategy

AMS objective	Option 2	Option 3
Safety Maintaining and, where possible, improving the UK's high levels of aviation safety has priority over all other 'ends' to be achieved by airspace modernisation		As noted above, Option 3 is more systemised than option 2 with a lower reliance on controller intervention therefore controller and pilot workload should be lower than Option 2.

AMS objective	Option 2	Option 3
Integration of diverse users Airspace modernisation should wherever possible satisfy the requirements of operators and owners of all classes of aircraft, including the accommodation of existing users (such as commercial air transport, General Aviation operations, military, taking into account interests of national security) and new or rapidly developing users (such as remotely piloted aircraft systems, advanced air mobility (aerial taxis), spacecraft, high-altitude platform systems)		Both options accommodate commercial air transport however Option 3 proposes less CAS than Option 2 which is considered to be advantageous to GA operators and other new and rapidly developing airspace users. Option 3 more closely aligns with the CAA's SARG Policy 126: Policy for the Design Controlled Airspace Structures which requires that "...the amount of controlled airspace is the minimum required to maintain a high standard of air safety and, subject to overriding national security or defence requirements, that the needs of all airspace users is reflected on an equitable basis"
Simplification - reducing complexity and improving efficiency Consistent with the safe operation of aircraft, airspace modernisation should wherever possible secure the most efficient use of airspace and the expeditious flow of traffic, accommodating new demand and improving system resilience to the benefit of airspace users, thus improving choice and value for money for consumers		Both options accommodate new demand and improve system resilience however Option 3 offers a more systemised airspace than option 2. This helps create an efficient airspace for ATC and airlines whilst also reducing complexity outside of CAS (by proposing less CAS than Option 2). Option 3 also offers better integration with the wider existing airspace, minimising interactions with Leeds Bradford Airport. The design is also more likely to have greater compatibility with the modernised Manchester Terminal Manoeuvring Area (MTMA) airspace. Finally, the MOD have noted that Option 3 offers benefits for their operations compared to Option 2.
Environmental sustainability Environmental sustainability will be an overarching principle applied through all airspace modernisation activities. Airspace modernisation should deliver the Government's key environmental objectives with respect to air navigation as set out in the Government's Air Navigation Guidance and, in doing so, will take account of the interests of all stakeholders affected by the use of airspace	As discussed above, there is mixed performance in terms of environmental sustainability when considering the primary and secondary noise metrics, and the GHG assessment.	

- 6.2.10 Taking into account the performance against the AMS, we recognise that there is mixed performance between the two options in terms of the environmental objectives, however when we balance the overall objectives of the AMS, Option 3 offers many other benefits compared to Option 2.
- 6.2.11 Along with considering the Government's Altitude based priorities and the Airspace Modernisation Strategy, we also considered stakeholder interests. We recognise that there is an environmental impact from re-opening Doncaster Airport however, for some communities within the local area, the positive economic and social benefits that the airport creates in the region go some way to offset the negative environmental impacts. When considering CAS, the impacts for GA may be seen by some as only negative and we have considered this when balancing which option to take to consultation as the preferred. We also considered the interests of other stakeholders, such as the MOD, NERL and Leeds Bradford Airport whereby we believe Option 3 offers a better solution.
- 6.2.12 Given all of the assessment above against the ANG Altitude Based Priorities, the AMS, and considering stakeholder interests, on balance, DSA have selected Option 3 as the preferred option to take to Consultation.

6.3 What happens next?

- 6.3.1 Option 3 has been selected to take to public consultation and the information within this FOA has been used to prepare a Consultation Strategy, two Consultation Documents (One targeting aviation interest and one targeting communities and local area interest), and supporting materials. The full consultation details can be found here: <https://consultations.airspacechange.co.uk/doncaster-airport/dsa-airspace>.
- 6.3.2 The relevant noise contours for Option 3 have been compiled into the community and local area interest consultation document.
- 6.3.3 A draft CAS chart and VFR chart has also been prepared and is included within the Aviation Interest document.

Appendix A. Noise appraisal

A.1 Introduction

Overview

6.3.4 This report presents the methodology and assumptions used for the aircraft noise assessment to inform the Doncaster Sheffield Airport Airspace Change Proposal (ACP) Stage 3.

6.3.5 This report is set out in the following sections:

- Section A.2 provides a description of the level of sophistication to be applied in the noise modelling process. It also specifies the modelling software to be utilised and outlines the results to be generated.
- Section A.3 includes comprehensive details of the modelling inputs, including information on the airfield, local terrain, flight schedules, and a description of the flight tracks that were modelled. It also provides information on the population data and points of interest datasets that were used to generate the noise exposure results.
- Section A.4 presents the Figures illustrating the air noise contours for all assessment years and relevant metrics. For cases in which no results were produced, corresponding contours are not presented.

A.2 Air Noise Modelling Methodology

Noise Modelling Software

6.3.6 All noise modelling results presented in Stage 3 – Submission Document has been generated by Noise Consultants Ltd | Part of Logika Group (NCL), using the latest version of the Aviation Environmental Design Tool (AEDT) 3.0g, in accordance with the requirements set out in CAP2091¹⁹ and CAP1616i²⁰.

6.3.7 CAP2091 specifies the minimum acceptable level of sophistication of noise modelling to be used for ensuring a consistent approach across different types of airports.

6.3.8 The levels of noise modelling sophistication are further classified into categories. These categories are based on the estimated population likely to be exposed to average noise levels exceeding the Lowest Observed Adverse Effect Level (LOAEL) i.e. 51 dB $L_{Aeq,16hr}$ for daytime and 45 dB $L_{Aeq,8hr}$ for nighttime, respectively. The thresholds for each category are shown in Table 32 and Table 33.

6.3.9 The minimum recommended and mandated thresholds for each noise modelling category are established to guide the transition between categories. Specifically, if the estimated number of residents within the 51 dB $L_{Aeq,16hr}$ or 45 dB $L_{Aeq,8hr}$ noise contours reach the minimum recommended threshold, an update to the next category of noise modelling is advised. However, the current category may be retained until the number of affected residents meets the minimum mandated threshold, at which point the transition becomes a requirement.

Table 32: Thresholds for noise modelling Categories, average summer day, population exposed to 51 dB $L_{Aeq,16hr}$ or above.

Category	Lower threshold	Recommended minimum threshold	Mandated minimum threshold	Maximum threshold
A	0	400,000	500,000	None

¹⁹ CAA CAP2091: CAA Policy on Minimum Standards for Noise Modelling, First edition, January 2021

²⁰ CAA CAP1616i: Environmental Assessment Requirements and Guidance for Airspace Change Proposals, First edition, November 2023

B	0	160,000	200,000	500,000
C	0	20,000	25,000	200,000
D	0	1,600	2,000	25,000
E	0	0	0	2,000

Table 33: Thresholds for noise modelling Categories, average summer day, population exposed to 45 dB $L_{Aeq,8h}$ or above.

Category	Lower threshold	Recommended minimum threshold	Mandated minimum threshold	Maximum threshold
A	0	400,000	500,000	None
B	0	160,000	200,000	500,000
C	0	20,000	25,000	200,000
D	0	1,600	2,000	25,000
E	0	0	0	2,000

6.3.10 CAP2091 outlines five categories of noise modelling, ranging from Category A, which represents the highest level of sophistication, to Category E, the least sophisticated. A summary of the noise modelling categories is presented in Table 34.

Table 34: Summary of Noise Modelling Categories.

Category	Aircraft Noise		Aircraft Tracks (arrival and departure routes)		
	Noise Data	Flight Profiles	Centreline (mean track)	Dispersion (variation around centreline)	Usage (allocation of traffic to routes)
A	ICAO dataset modified for local noise monitor data for all aircraft types	Local track-keeping data	Local track-keeping data	Local track-keeping data	Local track-keeping data
B	ICAO dataset validated by local noise monitor data for major aircraft types	Local track-keeping data	Local track-keeping data	Local track-keeping data	Local track-keeping data
C	ICAO dataset	Local track-keeping data for major aircraft types	Local track-keeping data	Local track-keeping data	Local track-keeping data
D	ICAO dataset	ICAO dataset	Local data from airport	ECAC guidance or data from airport ²¹	Local data from airport

²¹ European Civil Aviation Conference, Report on Standard Method of Computing Noise Contours around Civil Airports, ECAC/CEAC Doc 29, Fourth edition, December 2016

E	ICAO dataset	ICAO dataset	Local data from airport	ECAC guidance or data from airport	Local data from airport
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- 6.3.11 In the case of Doncaster Sheffield Airport, the applicable modelling requirement for the Airspace Change Proposal (ACP) is Category E, adopting a precautionary approach in line with CAP2091 guidance. In fact, the airport is currently unlicensed and not operational due to its closure in 2022, therefore there is not an up-to-date noise modelling scenario to determine which category the airport falls under.
- 6.3.12 All the models for FOA have been generated at the lowest sophistication level under CAP2091, Category E to demonstrate the correct category to apply to Doncaster airport.
- 6.3.13 Following review of the exposure results for year post implementation generated as part of the FOA, it has been determined that Doncaster Airport falls under category D in accordance with CAP 2091 guidance.

Modelled Noise Metrics

AEDT Noise Metrics

- 6.3.14 The noise metrics presented in Table 35 were generated using AEDT version 3.0g, these are the L_{Aeq} primary metrics and the number above contours which are secondary metrics, as described in CAP1616i.

Table 35: Modelled Noise Metrics

Metric	Description
$L_{Aeq,16hr}$	The L_{Aeq} for daytime noise measured between 07:00 and 23:00hrs measured over a 92-day summer period from 16 June to 15 September inclusive.
$L_{Aeq,8hr}$	The L_{Aeq} for nighttime noise measured between 23:00 and 07:00hrs measured over a 92-day summer period from 16 June to 15 September inclusive.
N65	The number of aircraft events above 65 dB $L_{A_{Smax}}$ measured between 07:00 and 23:00hrs, measured over the 92-day summer period from 16 June to 15 September inclusive
N60	The number of aircraft events above 60 dB $L_{A_{Smax}}$ measured between 23:00 and 07:00hrs, measured over the 92-day summer period from 16 June to 15 September inclusive.

Overflight Contours

- 6.3.15 The CAA's 48.5-degree definition of overflight outlined in CAP1498²² has been used to generate the overflights contours. This means that an overflight occurs when 'an aircraft in flight passing an observer at an elevation angle of 48.5° from the ground at an altitude below 7000ft'. While overflight contours are not considered a noise metric, they are considered an event-based metric as they provide the number of times a location may be considered to be overflown. Overflights can be used to assess the frequency of aircraft events that occur that may be perceived by individuals at a given location.

A.3 Model Input

Airfield

- 6.3.16 Doncaster Sheffield Airport's airfield information has been obtained from the latest Aeronautical Information Publication (AIP)²³.

²² CAP1498: Definition of Overflight (2017)

²³ <https://www.aurora.nats.co.uk/htmlAIP/Publications/2023-09-07-AIRAC/html/eAIP/EG-AD-2.EGNC-en-GB.html>

6.3.17 In Table 36 below are summarised the input parameters required to define the runway for the noise model, including:

- Runway length and width;
- Runway end coordinates;
- Displaced approach thresholds; and
- Runway elevation.

Table 36: Airfield Information

Airfield	Modelled Information
Runway 02-20	Length (ft) = 9495 Width (ft) = 197
Runway End 02	Lat: 53.464167 Lon: -1.010000 Displaced Approach Threshold (ft): 492 Elevation (ft): 52.4
Runway End 20	Lat: 53.486111 Lon: -0.998050 Displaced Approach Threshold (ft): 492 Elevation (ft): 25.9

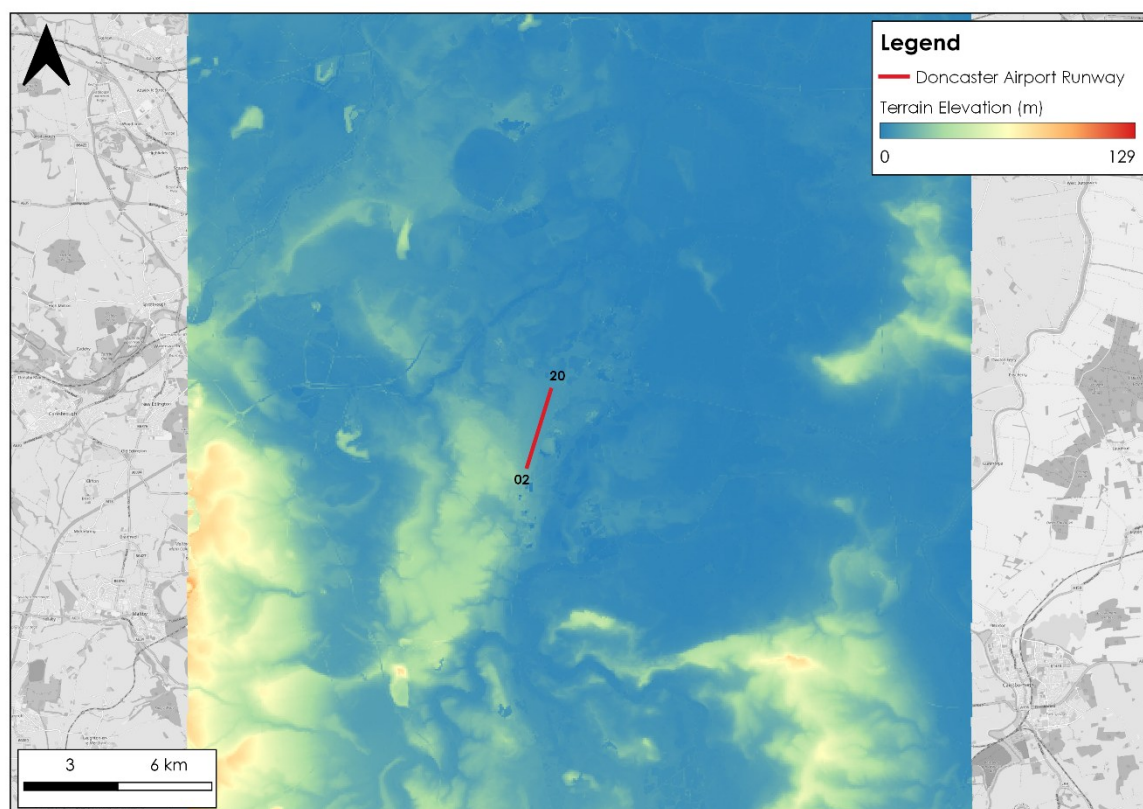
Local Terrain

6.3.18 All modelling has taken into account local terrain conditions as these can influence the propagation of noise between the aircraft and the receiver. A terrain file has been generated using the latest DTM Lidar data from the Department for Environment Food & Rural Affairs data services platform and incorporated in AEDT.

6.3.19 The terrain file has been clipped to the extent that accounts for the noise levels associated with all metrics generated by the model and has been re-sampled from a resolution of 1m to 50m to align with the resolution of the noise calculation grid.

6.3.20 A visual representation of the terrain file is presented in Figure 11.

Figure 11: Modelling terrain



Air Transport Movements

6.3.21 CAP1616i requires sponsors to include a 'current day' scenario or baseline scenario which takes actual flight data and is typically based on the present data available at the point of commencing the FOA. In the case of Doncaster this data is not available as the airport has not been operating since 2022. In addition, CAP1616i requires sponsors to assess forecast scenarios, in particular year 1 of implementation and year 10 after implementation against the baseline of the same two years. In the case of Doncaster airport, the forecast years will be assessed without the comparison with the baseline scenarios. The scenarios evaluated "with airspace change" will be for the 2028 and 2037 assessment years.

6.3.22 Doncaster forecasting team has provided the number of [Air Transport Movements](#) (ATMs) from year 2028 until 2037 for passengers and cargo. As CAP1616i requires the noise exposure contours to be generated for the average summer day period, the annual ATMs have been scaled to reflect the average 92-day ATMs based on the following assumptions:

- For 2028, the distribution of summer ATMs has been estimated based on 2022 data. In 2022, 18% of ATMs occurred between January and March. Therefore, it was assumed that the summer ATM were 41% of the remaining 82%; and
- For all remaining years it has been assumed a 41% of the yearly ATMs.

6.3.23 Table 37 summarises the total annual and 92-day ATMs from the opening year until the year post implementation.

Table 37: Air Traffic Movements Growth Assumptions

Year	PATMs	CATMs	ATMs	92 day PATMs	92 day CATMs	92 day ATMs
2028	1002	839	1841	337	282	619

2029	2172	1720	3892	896	710	1606
2030	4095	2125	6220	1690	877	2567
2031	5667	2500	8167	2338	1032	3370
2032	6951	3096	10047	2868	1277	4146
2033	7297	3692	10989	3011	1523	4534
2034	7510	4137	11647	3099	1707	4806
2035	7729	4140	11869	3189	1708	4897
2036	7956	4140	12096	3283	1708	4991
2037	8189	4140	12329	3379	1708	5087

Fleet mix and aircraft profiles

Fleet mix

6.3.24 Doncaster airport future fleet mix is presented in Table 38 which shows each aircraft type and its assumed contribution to the total ATMs. For the forecast aircraft types to be used in freight operations (marked with an asterisk) is assumed an equal distribution of the total cargo ATMs. The fleet mix assumptions are the same for both assessment options.

Table 38: Fleet Mix Assumptions

Aircraft Type	Year 2028	Year 2037
B788	1.0%	0.0%
B789	0.6%	1.6%
B737 Max	2.5%	2.5%
B737-800	15.3%	15.3%
A320-200	34.1%	0.0%
A320neo	9.7%	43.2%
A321-200	4.9%	0.0%
A321neo	25.2%	29.5%
A321 XLR	0.7%	0.7%
ATR72-600	2.4%	2.4%
B777-200ER	0.7%	0.0%
B777-300ER	0.5%	1.2%
E190	2.4%	2.4%
A380	0.0%	1.2%
ATR72-600*	20%	20%
B737*	20%	20%
A300*	20%	20%

Aircraft Type	Year 2028	Year 2037
B747*	20%	20%
B777*	20%	20%

Flight profiles

6.3.25 Flight profiles define the procedures that aircraft follow in the vertical plane above the ground track, specifying parameters such as altitude, speed, thrust and engine power settings at various distances from the runway. Separate vertical flight profiles are available for arrivals and departures for each aircraft type. Flight profiles may be standard, as published by EASA (European Union Aviation Safety Agency)²⁴ through the ANP database²⁵, or adjusted based on local track-keeping data to more accurately reflect actual flight operations.

6.3.26 The level of sophistication applied in the noise modelling is determined by CAP 2091, published by the CAA. For this ACP, the noise modelling category E was adopted, meaning that only the standardised reference values published by EASA were used to define the aircraft flight profiles. These standard profiles are included within the AEDT software database and were applied directly, without modification, for the FOA noise assessment.

Route usage and Modal split

Route usage

6.3.27 The Doncaster forecasting team has provided the assumptions of the probability of aircraft using the airport's various approach and departure routes, necessary for the noise modelling. The list of airport origin and destinations has also been provided and has been used to develop the aircraft departure stages. The information has been received for Option 2 and Option 3 for both assessment years, see Table 39 below.

Table 39: Route Allocation Percentages for each Year and Option

Route Name	Runway	Op. type	Option 2		Option 3	
			2028	2037	2028	2037
Vectored West	20	A	39.4%	39.4%	7.9%	2%
Vectored East	20	A	23.0%	23.0%	4.6%	1.1%
Vectored East	02	A	37.6%	37.6%	7.5%	1.9%
RNP West	20	A	-	-	31.5%	37.4%
RNP East	20	A	-	-	18.4%	21.9%
RNP East	02	A	-	-	30.1%	35.7%
Upton	02	D	17.8%	18.4%	15.0%	18.4%
Rogag	02	D	18.2%	18.8%	15.4%	18.8%
Rogag Omni	02	D	1.0%	0.4%	3.8%	0.4%
Upton Omni	02	D	1.0%	0.4%	3.8%	0.4%

²⁴ European Aviation Safety Agency (EASA) is the centrepiece of the European Union's strategy for aviation safety. Its mission is to promote the highest common standards of safety and environmental protection in civil aviation. <https://www.easa.europa.eu/en/the-agency/faqs/agency>

²⁵ Aircraft Noise and Performance (ANP) information verified and published by EASA according to Regulation (EU) No 598/2014 to support aircraft noise modelling. <https://www.easa.europa.eu/en/domains/environment/policy-support-and-research/aircraft-noise-and-performance-anp-data>

Upton	20	D	28.9%	29.8%	24.1%	29.8%
Rogag	20	D	30.1%	31.0%	25.5%	31.0%
Rogag Omni	20	D	1.5%	0.6%	6.1%	0.6%
Upton Omni	20	D	1.5%	0.6%	6.3%	0.6%

Modal Split

6.3.28 As long-term average runway usage data for the airport are not available, the most recent Figures from the 2022 summer period have been used, which are reflected by the route allocation percentages presented above. Doncaster Airport has a single runway that can operate from both directions depending on the wind, which define the modal split.

6.3.29 The modal split used for the FOA noise assessment is:

- 38% from Runway 02; and
- 62% from Runway 20.

Track digitisation and dispersion

6.3.30 The proposed aircraft tracks have been provided by the airport forecast team, along with instructions for applying lateral dispersion to the centrelines. The total swathe width for each route has been determined either from the 2022 local track-keeping data or from information supplied by the airport. The percentage of movements allocated to each track follows the distribution across seven subtracks as illustrated in ECAC Doc 29. This lateral dispersion has been applied directly within the AEDT software which automatically generates dispersed tracks adjacent to the centreline and applies the percentage of movements to each.

6.3.31 Two airspace design options have been produced, Option 2 and Option 3, and are shown in Figure 12 and Figure 13 respectively. Each Figure set shows both the centreline tracks and the dispersed-track design.

Figure 12: Option 2 Mean Tracks on the left and Dispersed Tracks on the right

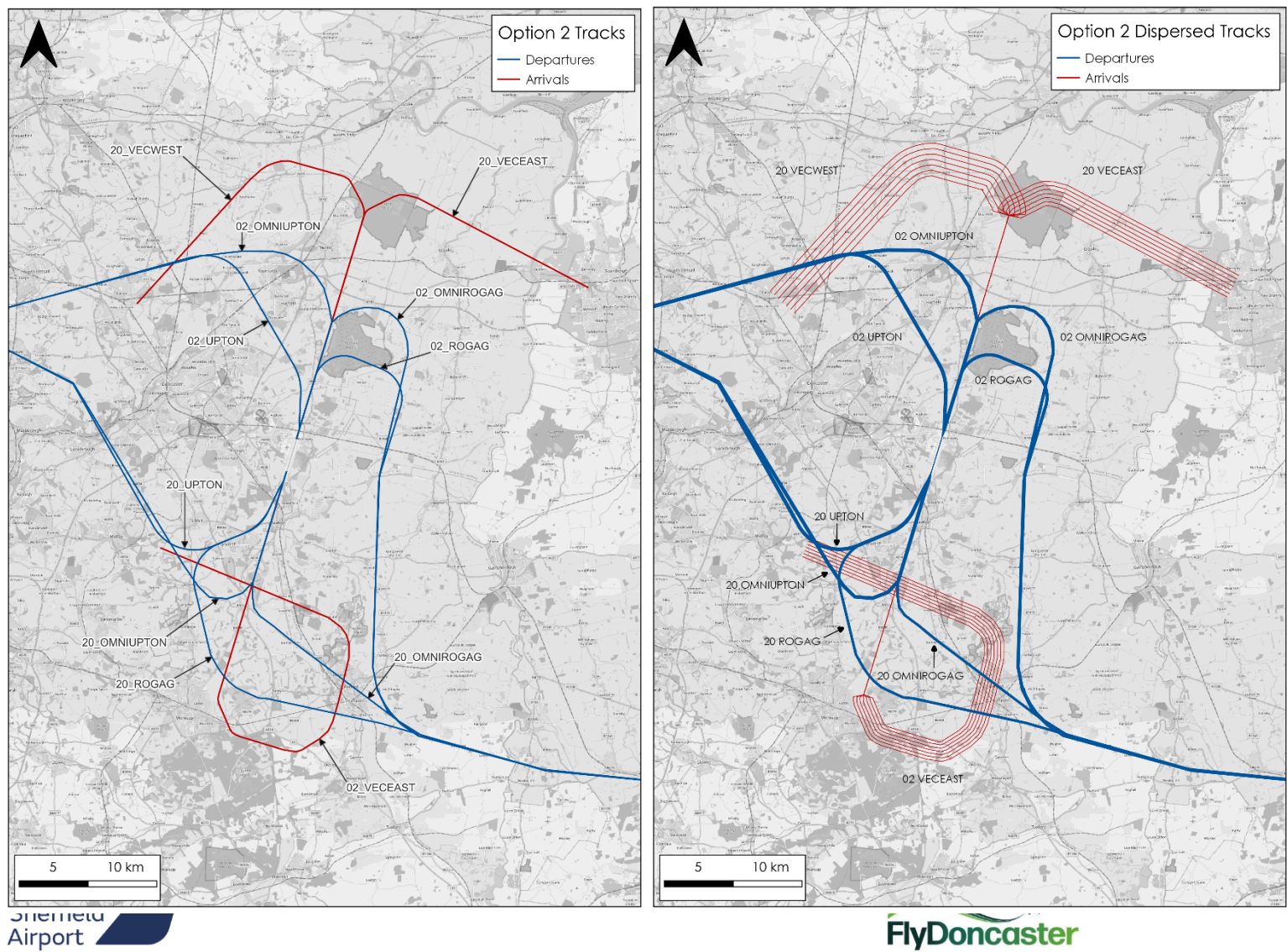
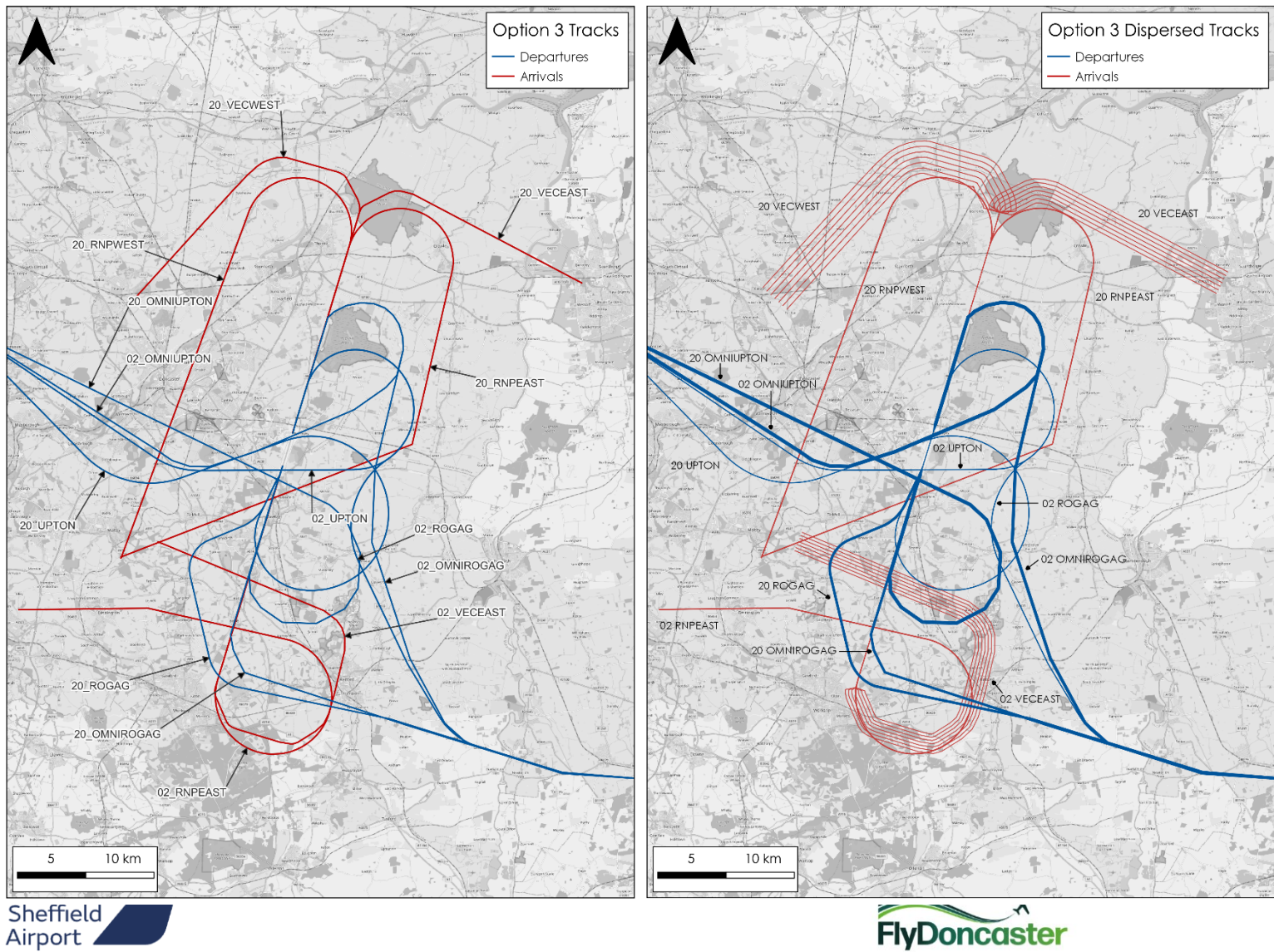


Figure 13: Option 3 Mean Tracks on the left and Dispersed Tracks on the right



Population datasets

6.3.32 Population datasets have been provided by Doncaster Airport. The dataset is produced by CACI and the version used for this study is the May 2026. Two different sets of population datasets have been provided at different level of granularity:

- Historic population data for year 2025 at Postcode level; and
- Population forecast of year 2028 and 2037 at Output Area level.

6.3.33 The datasets have been provided in CSV format, and they include households and population count for each year. It should be noted that the number of people in care homes is included in the census, and since CACI is based on census data, care homes population is already reflected in the dataset. CACI data counts have also been provided for the points of interest, i.e. schools, hospitals and places of worship.

6.3.34 The datasets did not include point coordinates of the postcode; therefore, the 2025 CACI data at postcode level has been merged with look up table from the Office for National Statistics (ONS) Open Geography portal²⁶ which provide coordinates for each postcode for all UK. The same process has been done to derive the point coordinates of schools, hospitals and places of worship.

6.3.35 The forecast population data were provided at Output Area (OA) level, the smallest standard census geography in England. As each OA can encompass multiple postcodes, the data needed to be allocated across postcodes for use in the noise assessment. Since only 2025 postcode level data were available, the following assumptions were applied:

- The postcodes for 2028 and 2037 were assumed to be the same as in 2025;
- For Output Areas where all postcodes had population in 2025, the proportion of population in each postcode in 2025 was used to distribute the 2028 and 2037 populations.
- For Output Areas with one or more postcodes having zero population in 2025, the population for 2028 and 2037 was divided equally among the postcodes within that Output Area.

6.3.36 The lookup table from the ONS portal, which also provides the Output Area ID for each postcode, was used to link the forecast population data at OA level to the 2025 postcode coordinates.

6.3.37 The local planning development data have been considered and incorporated into the assessment by adding the new dwellings to the CACI households forecast. The average population per household was then applied to these dwellings to include their forecast population within the CACI 2028 and 2037 population per postcode.

A.4 Air Noise Assessment

TAG Assessment

6.3.38 Tag (Transport Analysis Guidance) assessment is one of the primary metrics stated in CAP 1616i and it is the measure of the noise exposure adopted by the Department for Transport to facilitate the appraisal and development of transport interventions.

6.3.39 In the context of aviation projects, TAG supports assessment and decision-making by quantifying the costs and benefits of airspace change options through the monetisation of impacts associated with

²⁶htt <https://geoportal.statistics.gov.uk/datasets/077631e063eb4e1ab43575d01381ec33/about>

aircraft noise exposure. For each 1 dB change in either the $L_{Aeq,16hr}$ and $L_{Aeq,8hr}$ metrics, TAG assigns a monetary value to the change with respect to the following health impacts:

- Amenity (annoyance)
- Acute Myocardial Infarction;
- Dementia;
- Stroke; and
- Sleep Disturbance.

6.3.40 In line with CAA guidance regarding the application of TAG, applicability begins at the day and night-time Lowest Observed Adverse Effect Levels (LOAELs) of 51 dB $L_{Aeq,16hr}$ and 45 dB $L_{Aeq,8hr}$ respectively.

6.3.41 The monetary values included in the February 2026 TAG workbook version (corresponding to the Data Book v2.02 (December 2025) have been used to calculate the total costs for noise exposure in 1 dB increments.

6.3.42 After correspondence with the CAA the TAG outputs have been calculated using a 2025 base year and a discount rate of 1.5% to reflect the health discount rate included in the Greenbook²⁷.

6.3.43 TAG assessments are presented as an overall net present value (NPV, £) along with NPVs for different health effects for each design, as shown in Table 40: Option 2 and Option 3 TAG below.

Table 40: Option 2 and Option 3 TAG

TAG Results		
Health Impacts	Option 2	Option 3
Amenity	£-1,176,274	£-1,238,888
AMI	£-2,080	£-2080
Dementia	£-304,415	£-321,183
Stroke	£-201,641	£-212,743
Sleep Disturbance	£-5,169,595	£-5,209,686
Total £ from LOAEL	-£6,854,005	-£6,984,581

²⁷ <https://www.gov.uk/government/publications/green-book-supplementary-guidance-discounting>

Noise Assessment Result Tables

Option 2

$L_{Aeq,16hr}$ and $L_{Aeq,8hr}$ Noise Metrics

Table 41: 2028 and 2037 92-Day Summer Daytime, Option 2 $L_{Aeq,16hr}$

Population, Area (km ²) - Option 2				
$L_{Aeq,16hr}$	2028		2037	
Contour	Population	Area	Population	Area
51 dB	100	2.4	3,400	13.8
54 dB	0	1.3	1,300	7.6
57 dB	0	0.8	200	4
60 dB	0	0.5	100	2.1
63 dB	0	0.3	0	1.2
66 dB	0	0	0	0
69 dB	0	0	0	0

Table 42: 2028 and 2037 92-Day Summer Night-time, Option 2 $L_{Aeq,8hr}$

Population, Area (km ²) - Option 2				
$L_{Aeq,8hr}$	2028		2037	
Contour	Population	Area	Population	Area
45 dB	700	5.9	13,500	32.8
48 dB	200	3.1	4,900	18.1
51 dB	0	1.7	2,300	10
55 dB	0	0.8	300	4.3
57 dB	0	0.6	200	2.8
60 dB	0	0.4	0	1.5
63 dB	0	0.2	0	0.9

Table 43: 2028 and 2037 92-Day Summer Daytime, Option 2 $L_{Aeq,16hr}$ Sensitive Buildings

Sensitive Buildings - Option 2						
$L_{Aeq,16hr}$	2028			2037		
Contour	Hospitals	Schools	Places of Worship	Hospitals	Schools	Places of Worship
51 dB	0	0	0	0	0	0
54 dB	0	0	0	0	0	0
57 dB	0	0	0	0	0	0
60 dB	0	0	0	0	0	0

Sensitive Buildings - Option 2						
L _{Aeq,16hr}	2028			2037		
Contour	Hospitals	Schools	Places of Worship	Hospitals	Schools	Places of Worship
63 dB	0	0	0	0	0	0
66 dB	0	0	0	0	0	0
69 dB	0	0	0	0	0	0

Table 44: 2028 and 2037 92-Day Summer Night-time, Option 2 L_{Aeq,8hr} Sensitive Buildings

Sensitive Buildings - Option 2						
L _{Aeq,8hr}	2028			2037		
Contour	Hospitals	Schools	Places of Worship	Hospitals	Schools	Places of Worship
45 dB	0	0	0	0	4	0
48 dB	0	0	0	0	0	0
51 dB	0	0	0	0	0	0
55 dB	0	0	0	0	0	0
57 dB	0	0	0	0	0	0
60 dB	0	0	0	0	0	0
63 dB	0	0	0	0	0	0

N65 and N60 Noise Metrics

Table 45: 2028 and 2037 92-Day Summer Daytime, Option 2 N65

Population, Area (km ²) - Option 2				
N65	2028		2037	
Rate	Population	Area	Population	Area
5	0	0	29,800	75.5
10	0	0	22,500	46.7
20	0	0	2,900	11.6
50	0	0	0	0

Table 46: 2028 and 2037 92-Day Summer Night-time, Option 2 N60

Population, Area (km ²) - Option 2				
N60	2028		2037	
Rate	Population	Area	Population	Area
5	0	0	16,500	41.4
10	0	0	800	4.4

Population, Area (km ²) - Option 2				
N60	2028		2037	
Rate	Population	Area	Population	Area
20	0	0	0	0

Table 47: 2028 and 2037 92-Day Summer Daytime, Option 2 N65 Sensitive Buildings

Sensitive Buildings - Option 2						
N65	2028			2037		
Rate	Hospitals	Schools	Places of Worship	Hospitals	Schools	Places of Worship
5	0	0	0	0	8	0
10	0	0	0	0	5	0
20	0	0	0	0	0	0

Table 48: 2028 and 2037 92-Day Summer Night-time, Option 2 N60 Sensitive Buildings

Sensitive Buildings - Option 2						
N65	2028			2037		
Rate	Hospitals	Schools	Places of Worship	Hospitals	Schools	Places of Worship
5	0	0	0	0	2	0
10	0	0	0	0	0	0
20	0	0	0	0	0	0

Overflight Day and Overflight Night

Table 49: 2028 and 2037 92-Day Summer Daytime, Option 2 Overflight Day

Population - Option 2		
Overflight Day	2028	2037
Rate	Population	Population
5	0	59,400
10	0	10,900
20	0	0
50	0	0

Table 50: 2028 and 2037 92-Day Summer Night-time, Option 2 Overflight Night

Population- Option 2		
Overflight Night	2028	2037
Rate	Population	Population
5	0	1,200

Population- Option 2		
Overflight Night	2028	2037
Rate	Population	Population
10	0	0
20	0	0

Option 3 **$L_{Aeq,16hr}$ and $L_{Aeq,8hr}$ Noise Metrics***Table 51: 2028 and 2037 92-Day Summer Daytime, Option 3 $L_{Aeq,16hr}$*

Population, Area (km ²) - Option 3				
$L_{Aeq,16hr}$	2028		2037	
Contour	Population	Area	Population	Area
51 dB	100	2.4	3,800	14.1
54 dB	0	1.3	1,400	7.6
57 dB	0	0.8	200	4
60 dB	0	0.5	100	2.1
63 dB	0	0.3	0	0
66 dB	0	0	0	0
69 dB	0	0	0	0

Table 52: 2028 and 2037 92-Day Summer Night-time, Option 3 $L_{Aeq,8hr}$

Population, Area (km ²) - Option 3				
$L_{Aeq,8hr}$	2028		2037	
Contour	Population	Area	Population	Area
45 dB	600	5.9	11,400	32.9
48 dB	200	3.1	5,100	18.5
51 dB	0	1.7	2,500	10.2
55 dB	0	0.8	300	4.4
57 dB	0	0.6	200	2.8
60 dB	0	0.4	0	1.5
63 dB	0	0.2	0	0.9

Table 53: 2028 and 2037 92-Day Summer Daytime, Option 3 $L_{Aeq,16hr}$ Sensitive Buildings

Sensitive Buildings - Option 3						
$L_{Aeq,16hr}$	2028			2037		
Contour	Hospitals	Schools	Places of Worship	Hospitals	Schools	Places of Worship
51 dB	0	0	0	0	0	0
54 dB	0	0	0	0	0	0
57 dB	0	0	0	0	0	0
60 dB	0	0	0	0	0	0
63 dB	0	0	0	0	0	0

Sensitive Buildings - Option 3						
L _{Aeq,16hr}	2028			2037		
Contour	Hospitals	Schools	Places of Worship	Hospitals	Schools	Places of Worship
66 dB	0	0	0	0	0	0
69 dB	0	0	0	0	0	0

Table 54: 2028 and 2037 92-Day Summer Night-time, Option 3 L_{Aeq,8hr} Sensitive Buildings

Sensitive Buildings - Option 3						
L _{Aeq,8hr}	2028			2037		
Contour	Hospitals	Schools	Places of Worship	Hospitals	Schools	Places of Worship
45 dB	0	0	0	0	3	0
48 dB	0	0	0	0	0	0
51 dB	0	0	0	0	0	0
55 dB	0	0	0	0	0	0
57 dB	0	0	0	0	0	0
60 dB	0	0	0	0	0	0
63 dB	0	0	0	0	0	0

N65 and N60 Noise Metrics*Table 55: 2028 and 2037 92-Day Summer Daytime, Option 3 N65*

Population, Area (km ²) - Option 3				
N65	2028		2037	
Rate	Population	Area	Population	Area
5	0	0	30,200	80.3
10	0	0	15,600	43.2
20	0	0	2,900	12.4
50	0	0	0	0

Table 56: 2028 and 2037 92-Day Summer Night-time, Option 3 N60

Population, Area (km ²) - Option 3				
N60	2028		2037	
Rate	Population	Area	Population	Area
5	0	0	16,600	44.8
10	0	0	800	4.3
20	0	0	0	0

Table 57: 2028 and 2037 92-Day Summer Daytime, Option 3 N65 Sensitive Buildings

Sensitive Buildings - Option 3						
N65	2028			2037		
Rate	Hospitals	Schools	Places of Worship	Hospitals	Schools	Places of Worship
5	0	0	0	0	7	0
10	0	0	0	0	3	0
20	0	0	0	0	0	0

Table 58: 2028 and 2037 92-Day Summer Night-time, Option 3 N60 Sensitive Buildings

Sensitive Buildings - Option 3						
N65	2028			2037		
Rate	Hospitals	Schools	Places of Worship	Hospitals	Schools	Places of Worship
5	0	0	0	0	2	0
10	0	0	0	0	0	0
20	0	0	0	0	0	0

Overflight Day and Overflight Night*Table 59: 2028 and 2037 92-Day Summer Daytime, Option3 Overflight Day*

Population - Option 3		
Overflight Day	2028	2037
Rate	Population	Population
5	0	130,700
10	0	10,900
20	0	400
50	0	0

Table 60: 2028 and 2037 92-Day Summer Night-time, Option 3 Overflight Night

Population- Option 3		
Overflight Night	2028	2037
Rate	Population	Population
5	0	1,000
10	0	0
20	0	0

Noise Contour Maps

Figure 14-01: 2028 LAeq,16h Summer Noise Contours - Option 2

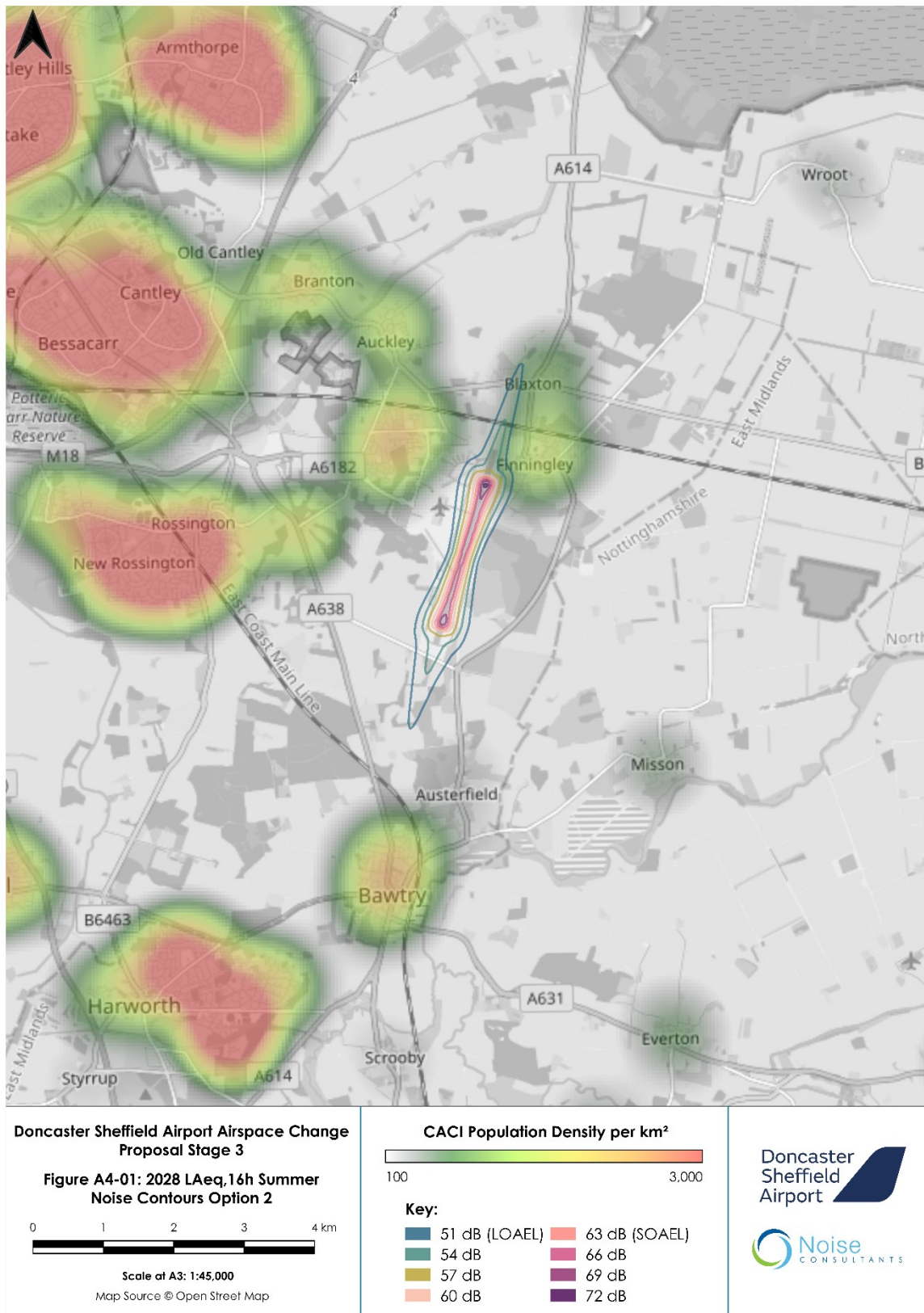


Figure 15 (A4-02): 2028 LAeq,16h Summer Noise Contours - Option 3



Figure 16 (A4-03): 2037 LAeq,16h Summer Noise Contours - Option 2

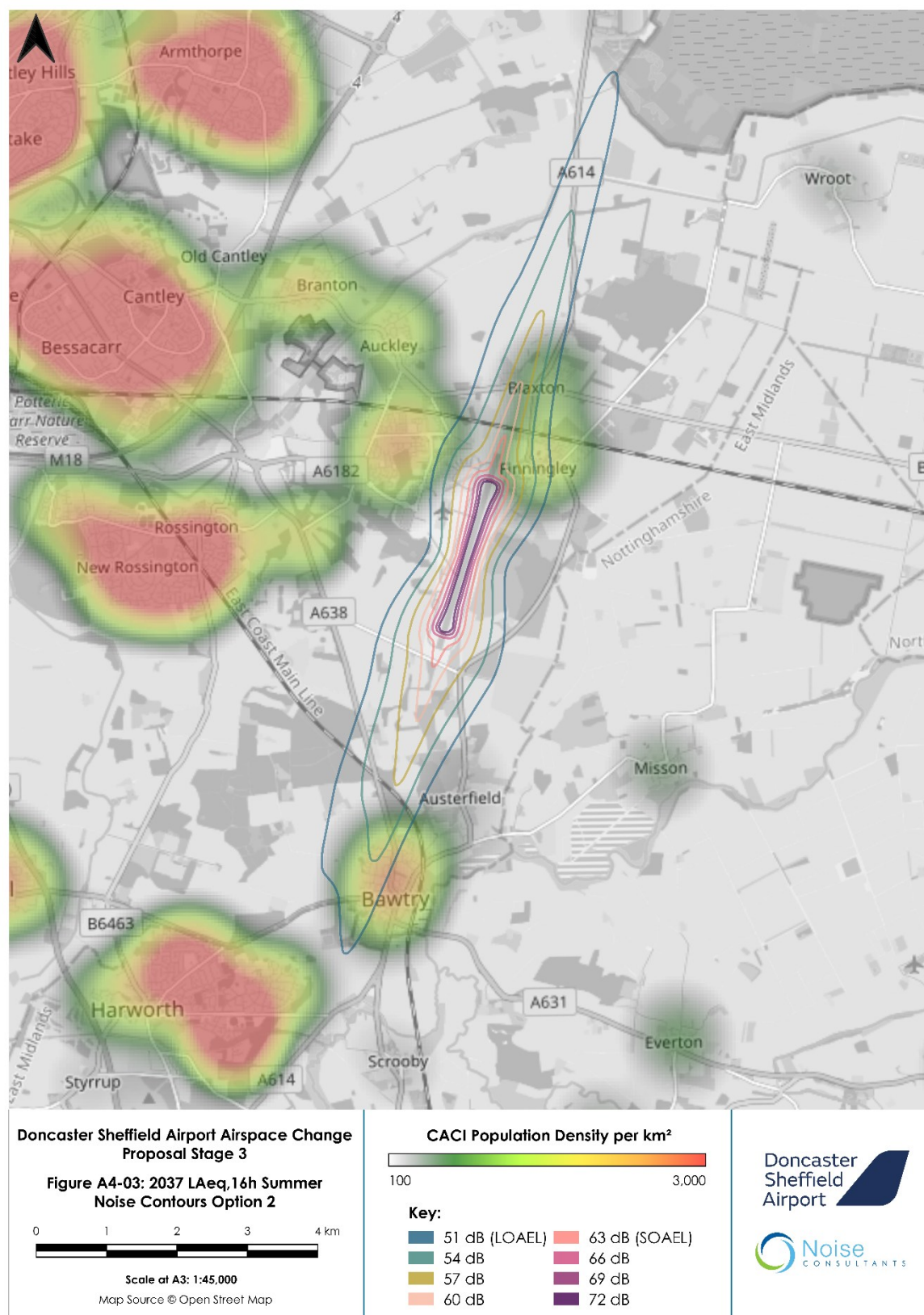


Figure 17 (A4-04): 2037 LAeq,16h Summer Noise Contours - Option 3

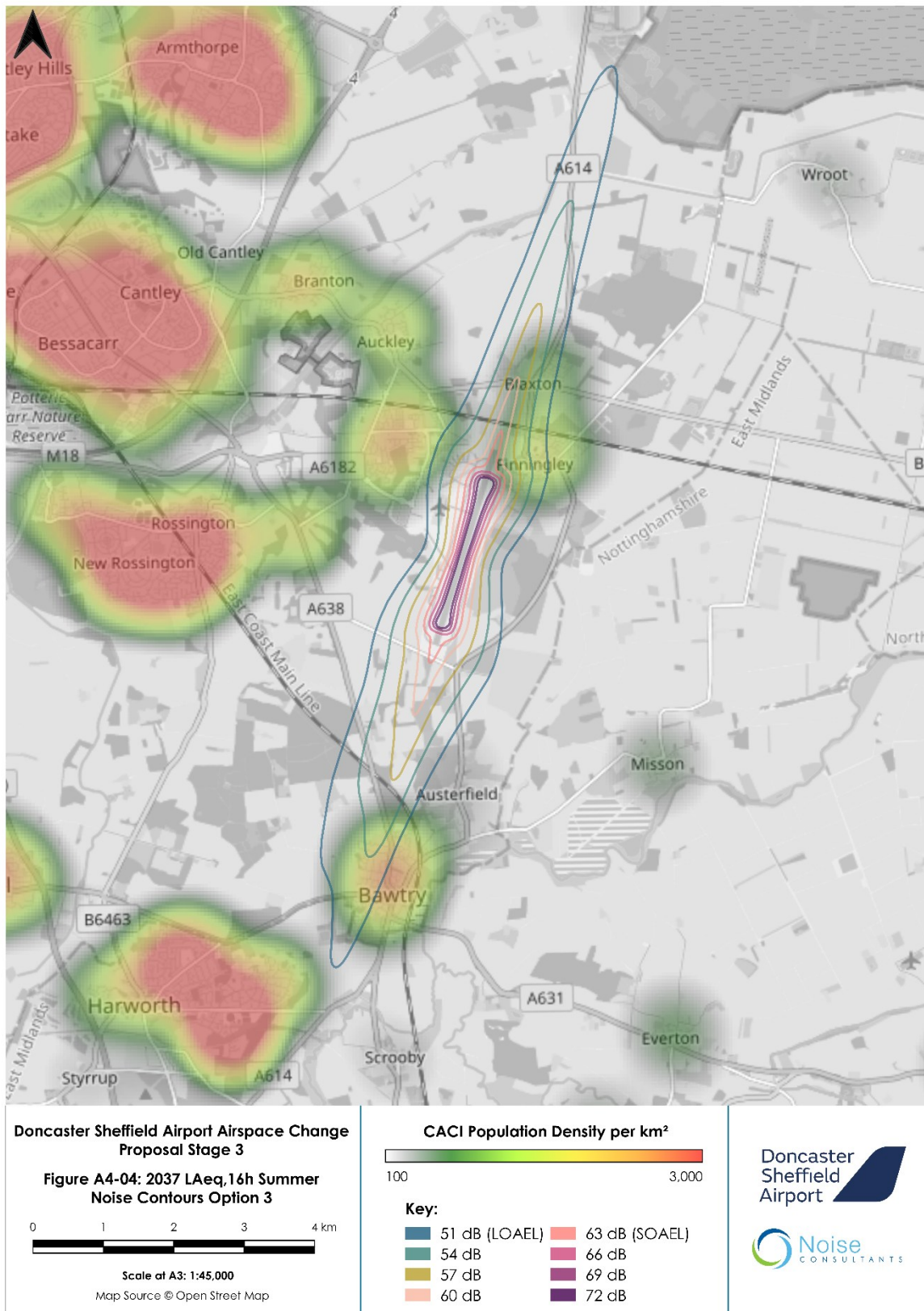


Figure 18 (A4-05): 2028 LAeq,8h Summer Noise Contours - Option 2



Figure 19 (A4-06): 2028 LAeq,8h Summer Noise Contours - Option 3



Figure 20 (A4-07): 2037 LAeq,8h Summer Noise Contours - Option 2



Figure 21 (A4-08): 2037 LAeq,8h Summer Noise Contours - Option 3



Figure 22 (A4-09): 2037 N65 Summer Noise Contours - Option 2

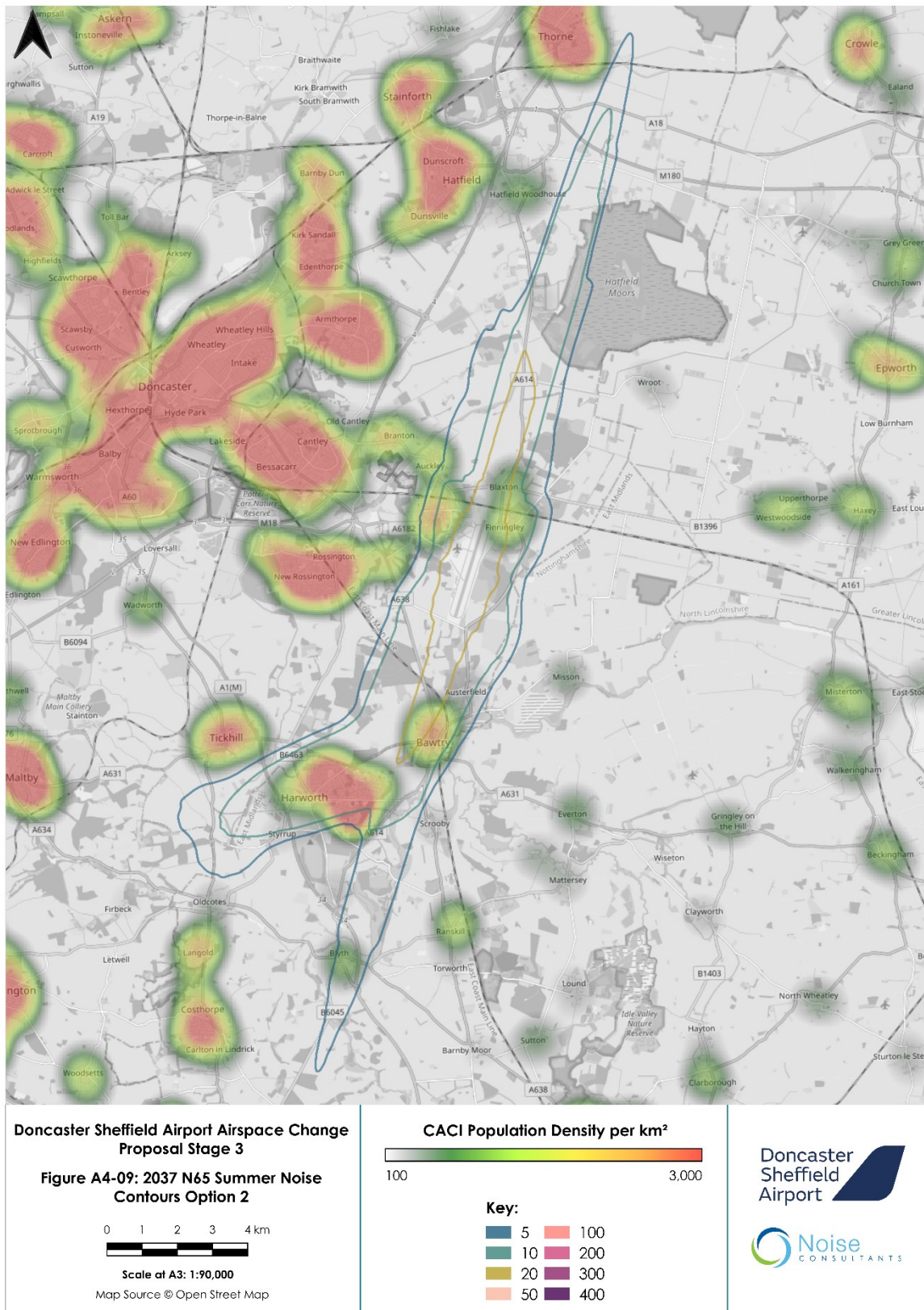


Figure 23 (A4-10): 2037 N65 Summer Noise Contours - Option 3

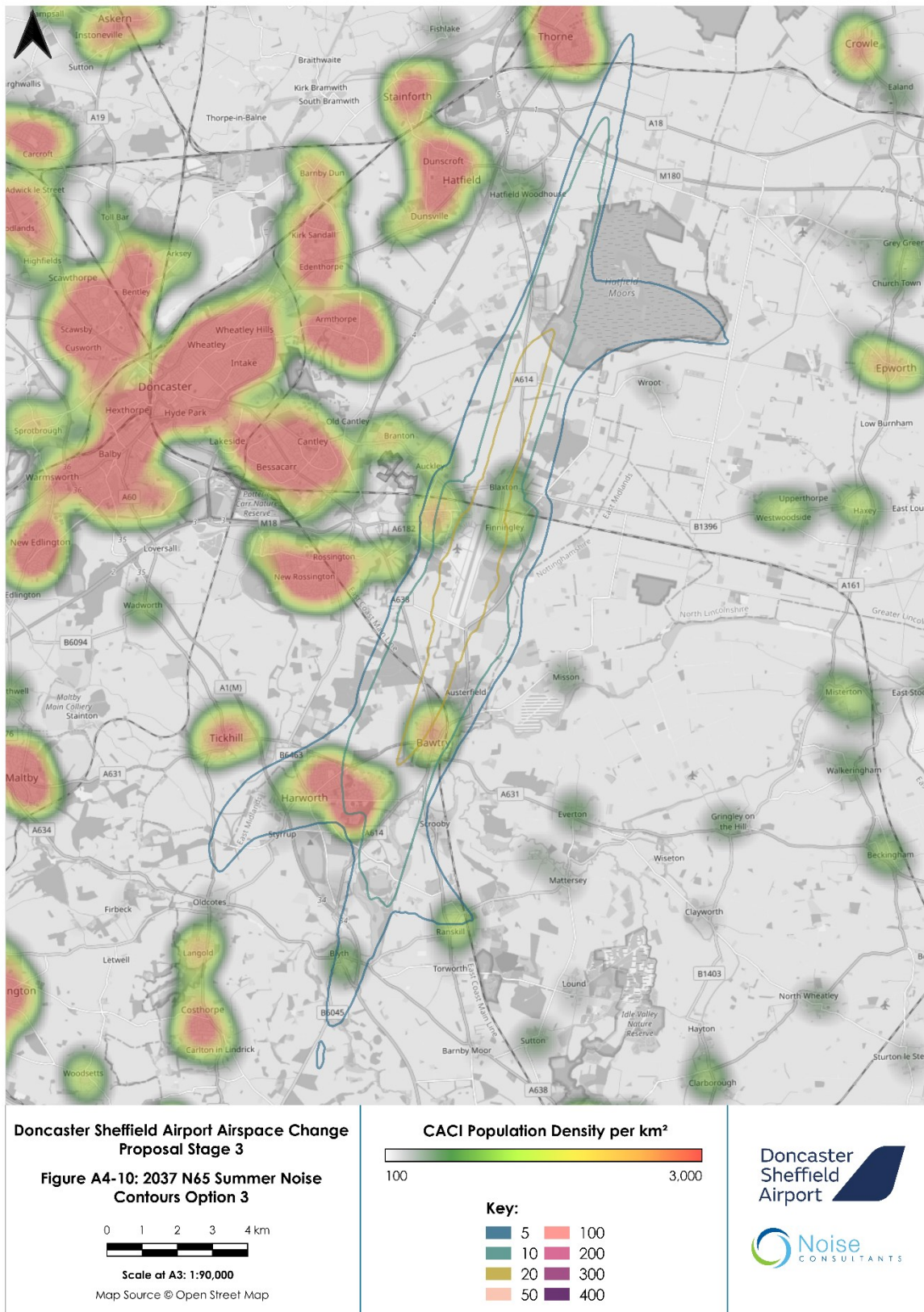


Figure 24 (A4-11): 2037 N60 Summer Noise Contours - Option 2



Figure 25 (A4-12): 2037 N60 Summer Noise Contours - Option 3



Figure 26 (A4-13): 2037 Overflights Day Summer Noise Contours - Option 2

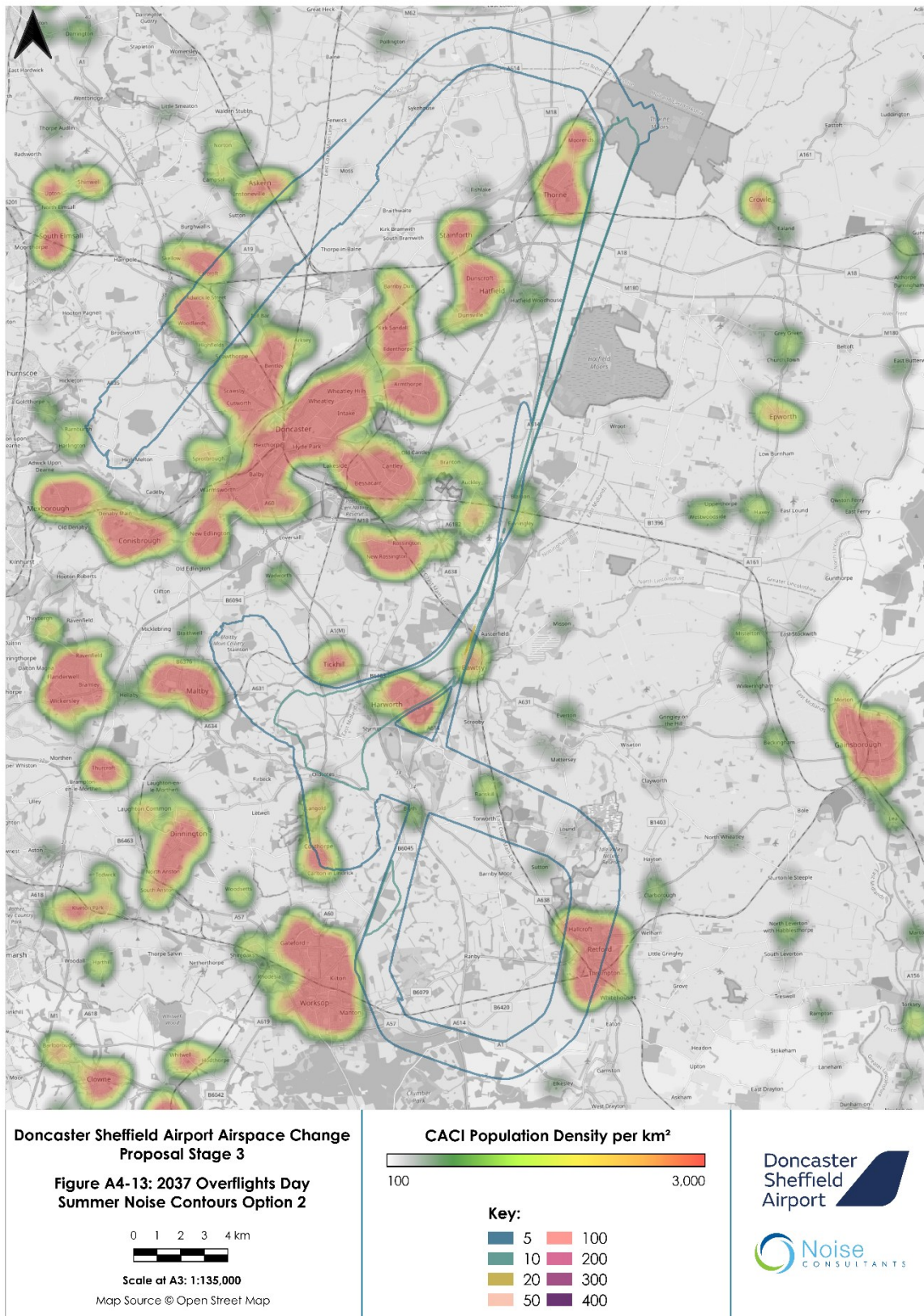


Figure 27 (A4-14): 2037 Overflights Day Summer Noise Contours - Option 3

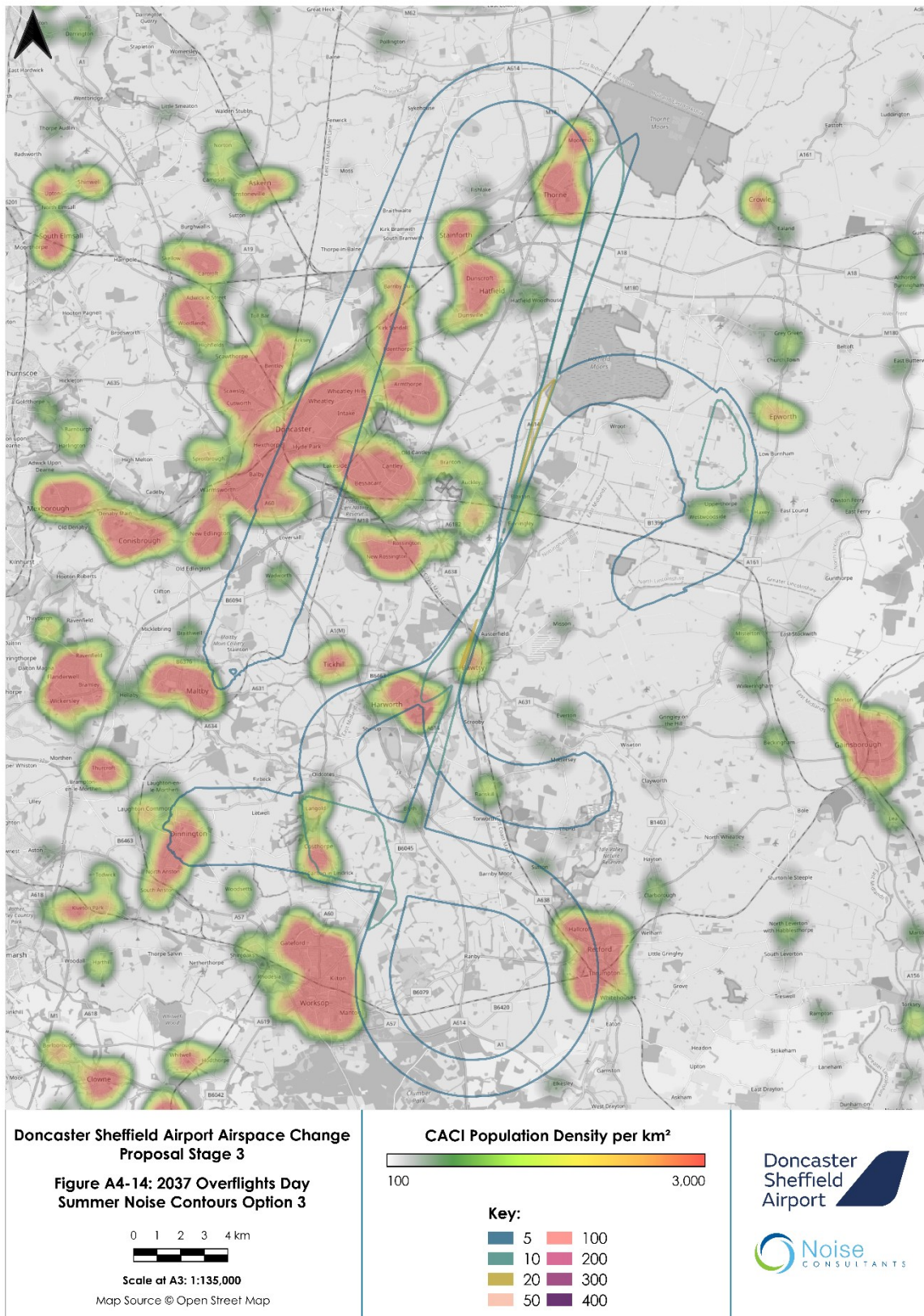


Figure 28 (A4-15): 2037 Overflights Night Summer Noise Contours - Option 2

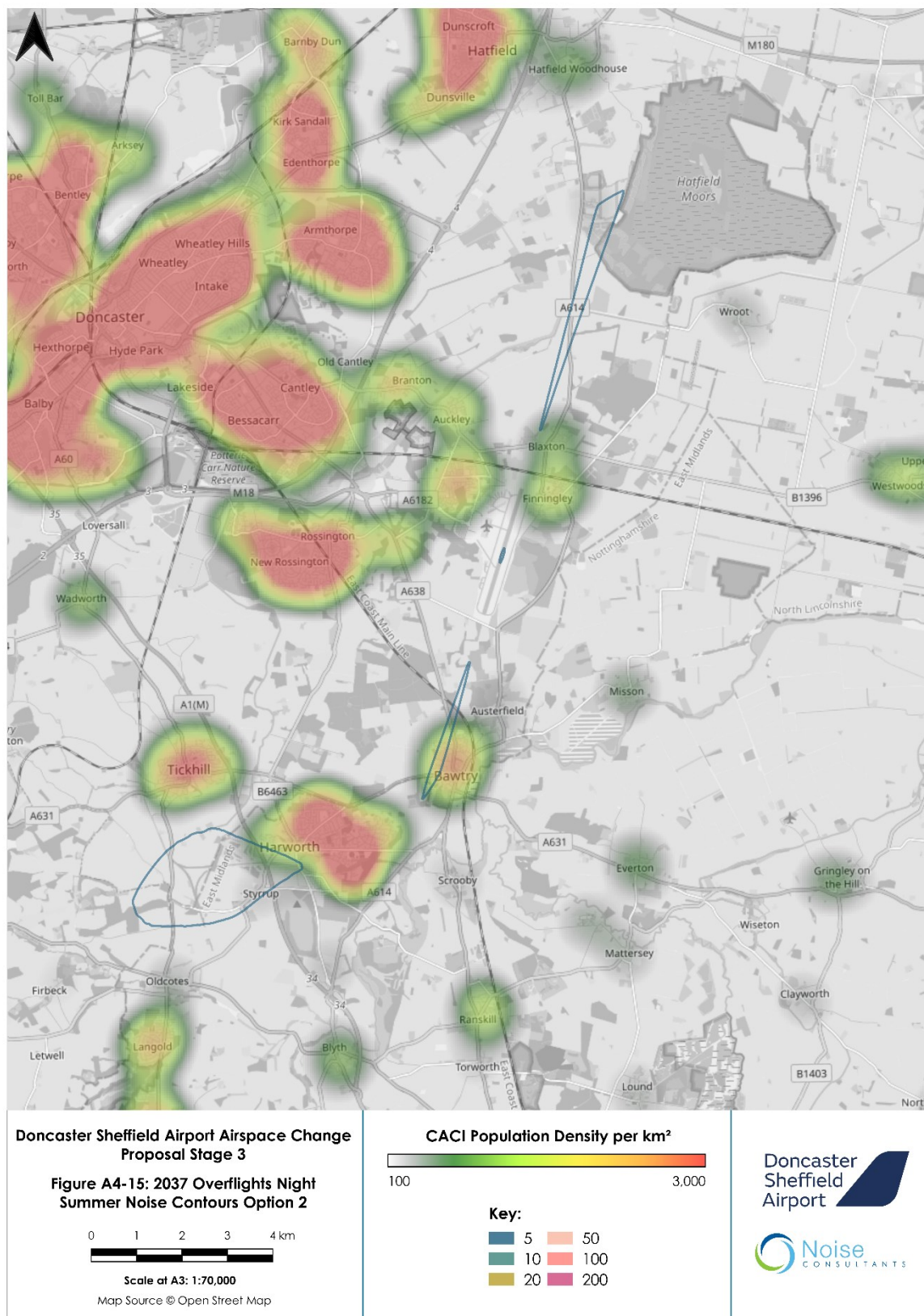
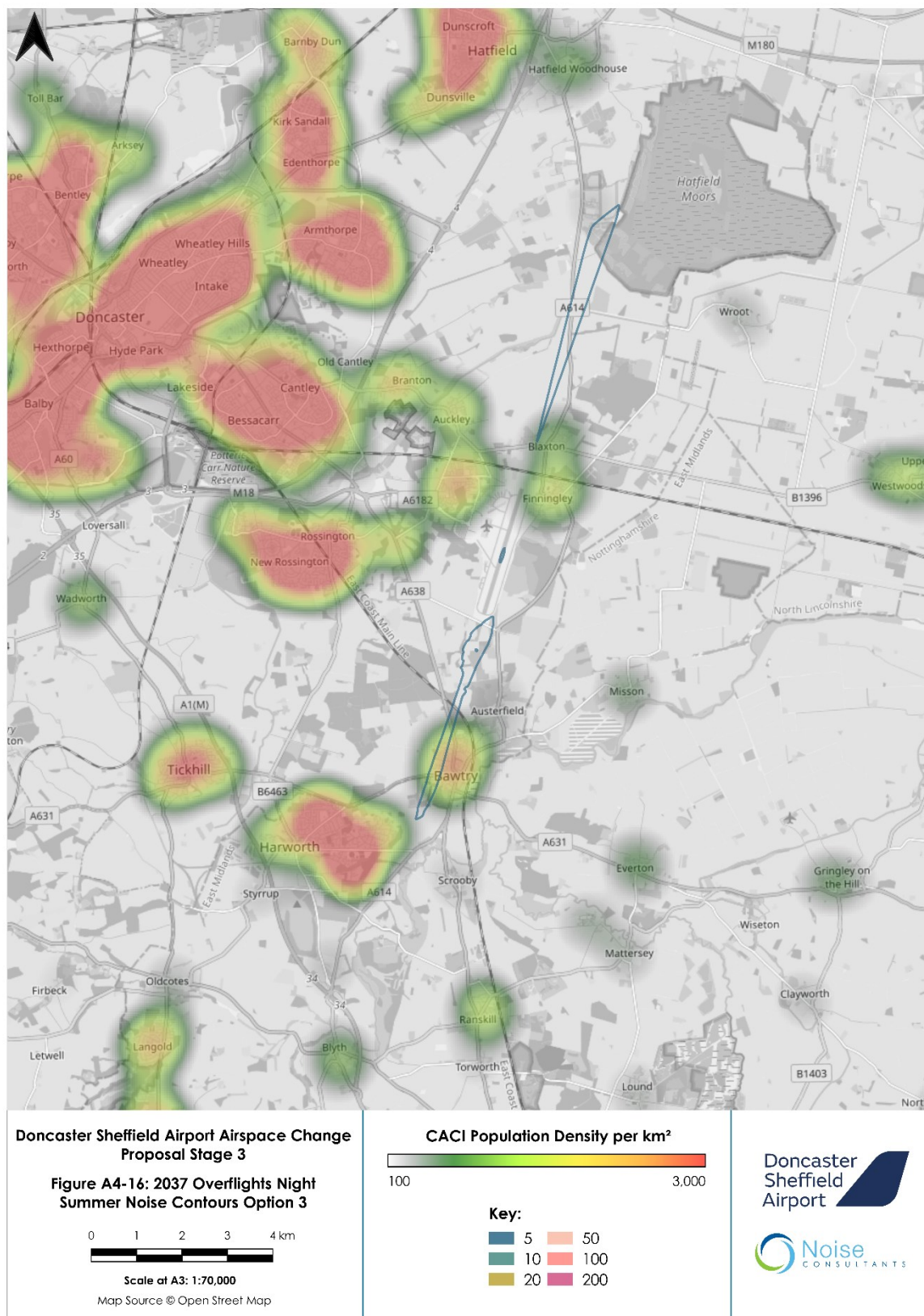


Figure 29 (A4-16): 2037 Overflights Night Summer Noise Contours - Option 3



Appendix B. HRA assessment

B.1 Introduction

Overview

6.3.44 City of Doncaster Council (CDC) has appointed Logika Group Ltd. (Logika) to prepare this Shadow Habitats Regulations Assessment (HRA) Report for the Airspace Change Proposal (ACP) for Doncaster Sheffield Airport (DSA).

6.3.45 This report has been produced to assist the Competent Authority (the Civil Aviation Authority (CAA)) with the necessary ecological information regarding the ACP for DSA to identify Likely Significant Effects (LSEs) upon the qualifying features of European sites²⁸ in light of their duties under the Conservation of Habitats and Species Regulations 2017 (as amended). This HRA Report then provides the information necessary to determine whether any LSE identified may result in adverse effects on the integrity on one or more European sites.

Background to the Airspace Change Proposal

6.3.46 DSA is located around 6 miles southeast of Doncaster and 19 miles east of Sheffield. DSA closed in 2022 after the previous airport operator withdrew. This led to the CAA removing the controlled airspace and flight procedures which supported the airports operations.

6.3.47 In March 2024, CDC secured a 125-year lease for the site, and began work to reinstate the airport licence, establish a local air traffic control service, and prepare for scheduled passenger and cargo services to return from 2027/28.

6.3.48 To restore the controlled airspace and procedures needed for DSA to reopen safely and bring passenger and cargo flights back to the region, CDC are sponsoring an ACP – ACP-2024-039. The ACP will enable commercial transport operations at DSA.

6.3.49 The reopening of DSA is the centrepiece of South Yorkshire Airport City (SYAC), a major regional growth programme designed to restore aviation services and unlock thousands of new jobs across advanced manufacturing, engineering, logistics and green technologies. The project is being delivered through a partnership between national government, the South Yorkshire Mayoral Combined Authority and CDC. The airport's return forms part of the Governments wider devolution agenda, demonstrating how locally led, nationally supported investment can deliver regeneration, skilled employment and long-term prosperity.

Airspace Change Proposal Process

6.3.50 To date, the ACP has developed based on assessments, discussions and engagement with CAA and relevant stakeholders, including Councils and Authorities, Industry Stakeholders such as Airports and Airlines, Community Groups and Environmental Organisations/ Groups. A set of Design Principles have been developed alongside the identification of options for the ACP which have been developed based on feedback received from stakeholders.

6.3.51 The Airspace Change Process follows a staged approach, as shown in Figure 30. At the time of writing, the ACP is at Stage 3 (consultation preparation), which appraises the options that have been brought forward from the Stage 2 Initial Options Appraisal. In Stage 3, options are refined, appraised in detail and

²⁸

then shortlisted ahead of undertaking a public consultation. Following consultation, the responses are reviewed to consider how they could influence the final design.

- 6.3.52 Stage 4 comprises the development of a final design option following the consultation and engagement. The final proposal is then submitted to CAA for consideration. The CAA as part of Stage 5 reviews and assesses the final ACP, culminating in CAA deciding on whether or not to approve the ACP. Stage 6 guides the implementation of the ACP, and finally Stage 7 allows for a review of the Airspace Change to determine if it has, or has not, produced the expected impacts and outcomes.

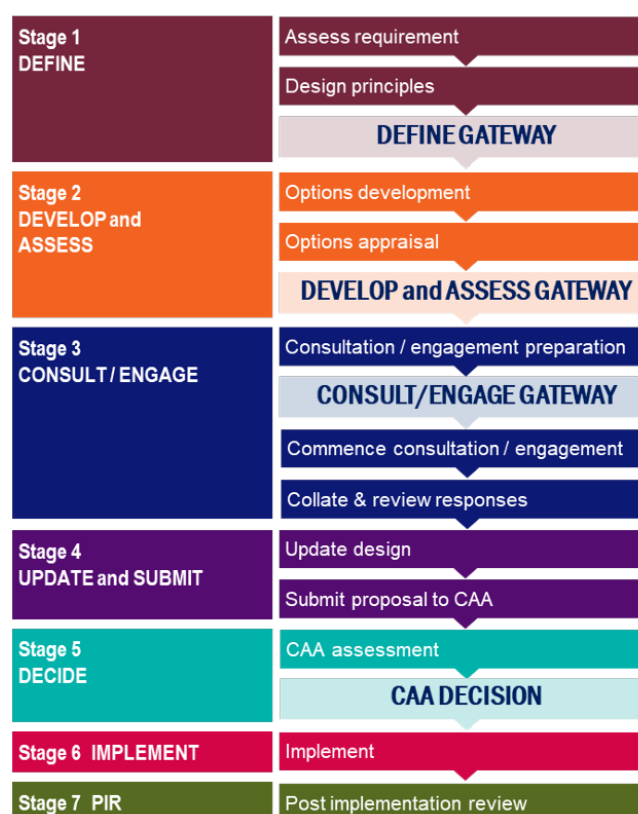


Figure 30: Overview of the Airspace Change Process²⁹

Purpose of this report

- 6.3.53 This Shadow HRA presents the information necessary for the competent authority to fulfil their duties under the Conservation of Habitats and Species Regulations 2017 (as amended) (known as the “Habitats Regulations”).
- 6.3.54 The ACP will involve the change in how aircraft use the airspace around Doncaster Sheffield Airport. This change in pattern of airspace usage could result in LSE on European sites³⁰, changes to the extent of current effects on European sites or the avoidance of current effects.
- 6.3.55 Council Directive 92/43/EEC on the conservation of wild fauna and flora (known as the Habitats Directive) and Directive 2009/147/EC on the conservation of wild birds (known as the Birds Directive)

²⁹ Figure 2 taken from CAA, Airspace Change Process CAP 1616 version 5.1, 2025

³⁰ European sites are Special Areas of Conservation (SAC) and Special Protection Areas (SPA). As a matter of Government policy proposed SACs, potential SACs, Ramsar site and areas secured as sites compensating for damage to a European site are also treated in the same manner.

have been transposed into English legislation through the Habitats Regulations. These regulations provide, among other things, a framework for the protection of European sites.

- 6.3.56 The Habitats Regulations defines the approach for the assessment of the implications for European sites as a result of the implementation of proposed plans and projects. This process is known as a "Habitats Regulations Assessment". There are a number of guidance documents/web-based information provided by Government agencies that describe the process. The most relevant for the DSA ACP are:

- Habitats Regulations Assessment: protecting a European site (2021)^{31,32}; and
- Appropriate assessment – Guidance on the use of Habitats Regulations Assessment (2019)³³.

- 6.3.57 In determining whether or not a plan or project can be adopted or consented, the competent authority must comply with Regulation 63 of the Habitat Regulations:

"63(1) A competent authority, before deciding to undertake, or give any consent, permission or other authorisation for, a plan or project which –

Is likely to have a significant effect on a European site or a European offshore marine site (either alone or in combination with other plans or projects), and

Is not directly connected with or necessary to the management of the site,

must make an appropriate assessment of the implications for the site in view of that site's conservation objectives."

"63(2) A person applying for any such consent, permission or other authorisation must provide such information as the competent authority may reasonably require for the purposes of the assessment or to enable it to determine whether an appropriate assessment is required."

"63(5) In the light of the conclusions of the assessment, and subject to regulation 64, the competent authority may agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the European site or the European offshore marine site (as the case may be)."

"64(1) If the competent authority is satisfied that, there being no alternative solutions, the plan or project must be carried out for imperative reasons of overriding public interest (which subject to paragraph (2), may be of a social or economic nature), it may agree to the plan or project notwithstanding a negative assessment of the implications for the European site or the European offshore marine site (as the case may be)."

"68 Where in accordance with 64 –

- A plan or project is agreed, notwithstanding a negative assessment of the implications for a European site or a European offshore marine site, or
- A decision, or a consent, permission or other authorisation, is affirmed on review, notwithstanding such an assessment,

The appropriate authority must secure that any necessary compensatory measures are taken to ensure that the overall coherence of Natura 2000 is protected."

- 6.3.58 In order to undertake an assessment that accords with legislation, a staged process has developed over time that has been shaped by guidance and case law³⁴.

- 6.3.59 There are three recognised stages to the HRA process. These being:

³¹ Department for Environment, Food & Rural Affairs, Natural England, Welsh Government and Natural Resources Wales (2021); Habitats Regulations Assessment: protecting a European site, last updated December 2023.

³² At the time of writing it is noted that the Government is consulting on an updated version of this guidance. The aim of the update is to make the guidance clearer and more usable, as opposed to changing the process fundamentally.

³³ Department for Levelling Up, Housing and Communities and Ministry of Housing, Communities & Local Government (2019); Appropriate assessment – Guidance on the use of Habitats Regulations Assessment.

³⁴ Note the stages described in this HRA Screening report with regards assessment methodology are not the same as the airspace change proposal stages described in CAP 1616i.

- Stage 1 – Screening³⁵. This stage identifies LSE that may occur due to the implementation of a plan or project alone or in-combination with other plans and projects in the absence of mitigation. If LSE are identified, assessment at Stage 2 is required. In the event that no LSE are identified, no further assessment or stages are necessary;
- Stage 2 – Appropriate assessment. This stage focuses on establishing, beyond reasonable scientific doubt, whether any of the LSE may adversely affect the integrity of a European site in light of its conservation objectives, either alone or in combination with other plans and projects; where no adverse effect on site integrity is identified Stage 3 is not necessary.
- Stage 3 – Derogation. This stage considers an assessment of alternatives. Where an adverse effect on site integrity is concluded, it is necessary to determine whether there are alternatives to the proposed plan or project that would avoid or lessen the effects on a European site(s). It also considers Imperative Reasons of Overriding Public Interest (IROPI). Where there are no alternative solutions available, an IROPI assessment is undertaken to determine the need for the plan or project with respect to the type and scale of the public benefit.

6.3.60 The ACP can be considered “a project” with reference to the Habitats Regulations making it necessary for the competent authority to undertake an appropriate assessment of LSE on European sites as a result of the project alone and in-combination with other plans and projects. This Shadow HRA covers Stages 1 and 2 only.

B.2 Stage 1: HRA Screening Methodology

6.3.61 The basis for the HRA screening methodology described in this report is taken from case C-127/02 of the CJEU, known as the ‘Waddenzee decision’. Paragraph 44 of the decision states “In the light, in particular, of the precautionary principle.....such a risk exists if it cannot be excluded on the basis of objective information that the plan or project will have significant effects on the site concerned.”

6.3.62 Guidance on the screening stage has been provided by the Government who describe it as a simple assessment to check if a proposal:

“is directly connected with or necessary for the conservation management of a European site; risks having a significant effect on a European site on its own or in combination with other proposals”.

6.3.63 As the ACP is not directly connected to the conservation management of European sites it must be assessed in terms of the risk of significant effects on European sites it poses, either alone or in combination with other plans programmes or projects.

6.3.64 Consideration of Stage 2 – Appropriate Assessment is only required if one or more LSE are identified at the screening stage. Those potential effects discounted must be done so on the basis that there is no identifiable effect pathway or there is objective and scientific information available that supports the decision.

6.3.65 Proposed or potential mitigation measures cannot be considered during the screening stage in accordance with the judgement made in Case C-323/17 (known as ‘People over Wind’) in 2018. Therefore, the screening assessment below does not take into account any measures or policy that are specifically intended to reduce harmful effects on a European site(s).

6.3.66 To identify potential effects, it is necessary to understand what effects the potential changes in the ACP could have on the qualifying features (and the habitats and species that support them both within and outside of a site boundary (i.e. functionally linked land, as per Case C-461/17) of European sites.

³⁵ The Early Screening Criteria in CAP 1616i (available <https://airspacechange.caa.co.uk/documents/download/8415>) outline the need for the HRA process to proceed in detail. This HRA Screening report is the first part of the detailed assessment for Doncaster Sheffield Airport ACP.

- 6.3.67 As the airspace change process considers multiple options for changes to airspace configuration this HRA screening considers all potential options. The outcome can then be used to differentiate between options (with regards LSE on European sites) and potentially inform refinement where possible or necessary.
- 6.3.68 To identify European sites that could potentially be affected by changes in the use of airspace, precautionary Zones of Influence (Zol) have been defined.
- 6.3.69 The Chartered Institute of Ecology and Environmental Management (CIEEM) defines the Zol in their Ecological Impact Assessment guidelines (2018)³⁶ as:
- "The 'zone of influence' for a project is the area over which ecological features may be affected by biophysical changes as a result of the proposed project and associated activities".*
- 6.3.70 The Zol used within this screening assessment are those that were identified by the Habitats Regulations screening assessment undertaken by the CAA of their Airspace Change Masterplan (CAA, 2023)³⁷, with a precautionary increase applied where necessary based on project specific information. These Zol have been derived from peer-reviewed scientific literature and systematically collected and verified data. These Zol have also been subject to review by consultees (including Natural England) and amended to reflect commentary received prior to the finalisation of CAA, 2023. Each potential effect associated with airspace change and the corresponding Zol are described in Table 61.

Table 61: Potential effects and Zones of Influence

Impact	Potential Effect	Zone of Influence (measured as linear distance at ground level)	Justification
Increases in the atmospheric concentration and deposition of nitrogen	Direct toxicity to flora and fauna and changes in habitat composition including reduction in floristic diversity; resulting in degradation of designated habitats and species. Degradation of habitats supporting designated features of European sites.	21km ³⁸ from airfield boundary	All aircraft, whether departing or arriving, will be at altitudes greater than 3,000ft when more than 21km ³⁹ from an airfield. This is a precautionary Zol with UK's Air Quality Expert Review Group suggesting that ground level effects are unlikely to be detectable once an aircraft is above 100m (~330ft), but with assessment typically being undertaken out to 1,000m (~3,300ft).
Aircraft collision with wildlife (birds and bats)	Death or injury to individual animals reducing the fitness	13km from airfield boundary	CAA data shows that between 2012 and 2016 ~97% of bird strikes reported in the

³⁶ CIEEM (2018) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine version 1.3 (updated September 2024). Chartered Institute of Ecology and Environmental Management, Winchester

³⁷ CAA (2023) Airspace Change Master Plan CAP 2527 Habitats Regulations Screening Assessment. CAA, Crawley.

³⁸ d

³⁹ The 21km is greater than the 18km Zol described in CAP 1616i. This is based on precautionary flight tracks modelled specifically for Doncaster Sheffield Airport.

Impact	Potential Effect	Zone of Influence (measured as linear distance at ground level)	Justification
	of the local population. Detrimental effects to migratory routes.		UK or Channel Islands occurred under 1,500ft (215 of 7,101 recorded incidences across a 4 year period were recorded above this altitude). However, there is a 13km safeguarding area for wildlife hazard management specified by the CAA. Therefore, this is considered to be an appropriate distance for HRA screening purposes. Birds flying at high altitude on migration are not accounted for within the Zol as data (see Appendix D of CAA, 2023) clearly shows that collisions at altitude enroute are rare occurrences
Presence of aircraft / aircraft noise	Disturbance of designated features (or fauna supporting designated features) resulting in a reduction in the fitness of individuals and local population	21 km from airfield boundary	All aircraft, whether departing or arriving, will be at altitudes greater than 3,000ft when more than 21km from an airfield. This is precautionary based on the upper range of recorded disturbance to birds within the scientific literature and does not take account of lateral distances from individual flightlines.

- 6.3.71 Following the identification of European sites that lie within the Zol, it is necessary to understand the location of the flight path options considered in the ACP (both in terms of linear pathway and altitude profile) and whether they cross the European sites identified or come within 1km of their boundaries. This information is then used to determine whether a LSE may be realised.
- 6.3.72 The identification of other plans and projects that may operate in-combination with the ACP could include those associated with airspace change at other airports or ground-based developments that may interact with changes associated with aircraft operation (e.g. nitrogen deposition from aircraft may act in-combination with nitrogen deposition from increases in road traffic).

- 6.3.73 The approach taken within this Habitats Regulations screening assessment is to firstly identify flight paths that potentially interact with European sites and then consider the plans and projects that may act in combination based on their geographical location.

B.3 Screening Assessment

Identification of European sites

- 6.3.74 There are three European sites that lie within the ZOI identified in Table 61. These are Thorne Moor SAC, Hatfield Moor SAC and Thorne and Hatfield Moors SPA. Details of these designations are provided in Table 62 and shown on Figure 31.

Table 62: European sites within Zones of Influence

European site	Distance from Doncaster Sheffield Airport (km)	Qualifying features
Thorne Moor SAC	14.58	7120 Degraded raised bogs still capable of natural regeneration
Hatfield Moor SAC	4.66	7120 Degraded raised bogs still capable of natural regeneration
Thorne and Hatfield Moors SPA	4.66	Nightjar <i>Caprimulgus europaeus</i> - 66 breeding pairs

- 6.3.75 Conservation objectives for these European sites are provided in Annex A.

Flight path options and overflight

- 6.3.77 All potential flight path options being considered as part of the ACP, other than a 'without airspace change' option (known as Option 1) which would see no commercial flights operating from DSA, would see aircraft on departure and arrival above all three of the European sites described in Table 62 (Doncaster Sheffield Airport Airspace Change Proposal - ACP-2024-039). These flights could be operating at altitudes lower than 3,000ft and therefore the potential LSE described in Table 61 all apply.
- 6.3.78 Figure 31 and Figure 32 show flight paths for Option 2 and Option 3.

Figure 31 Option 2

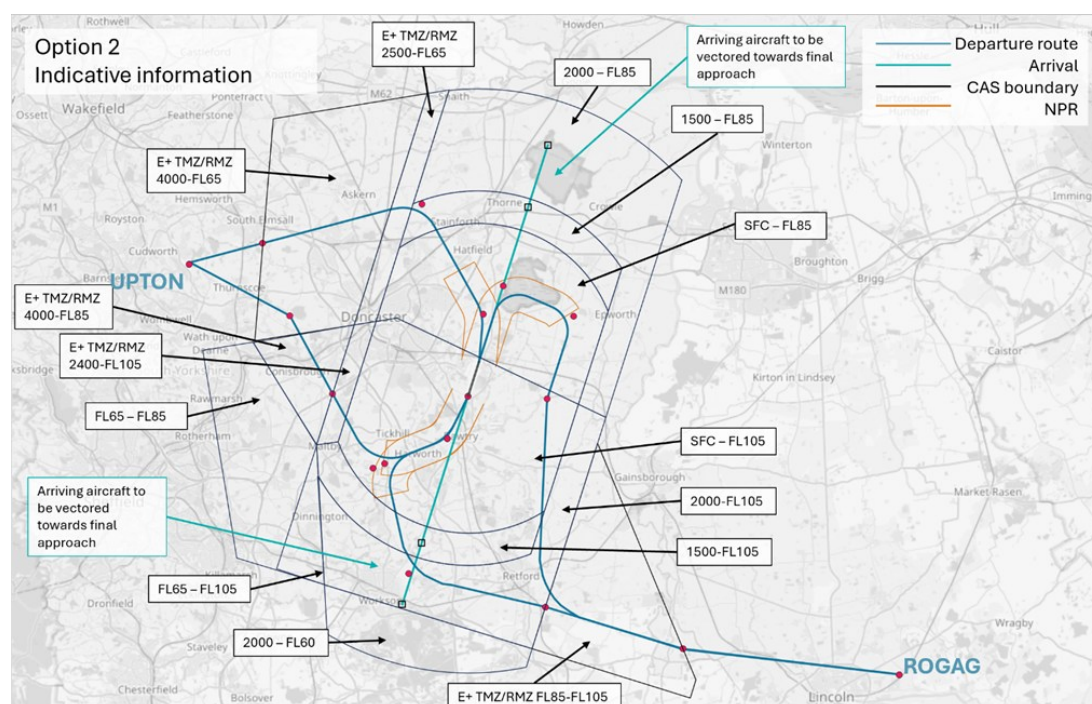
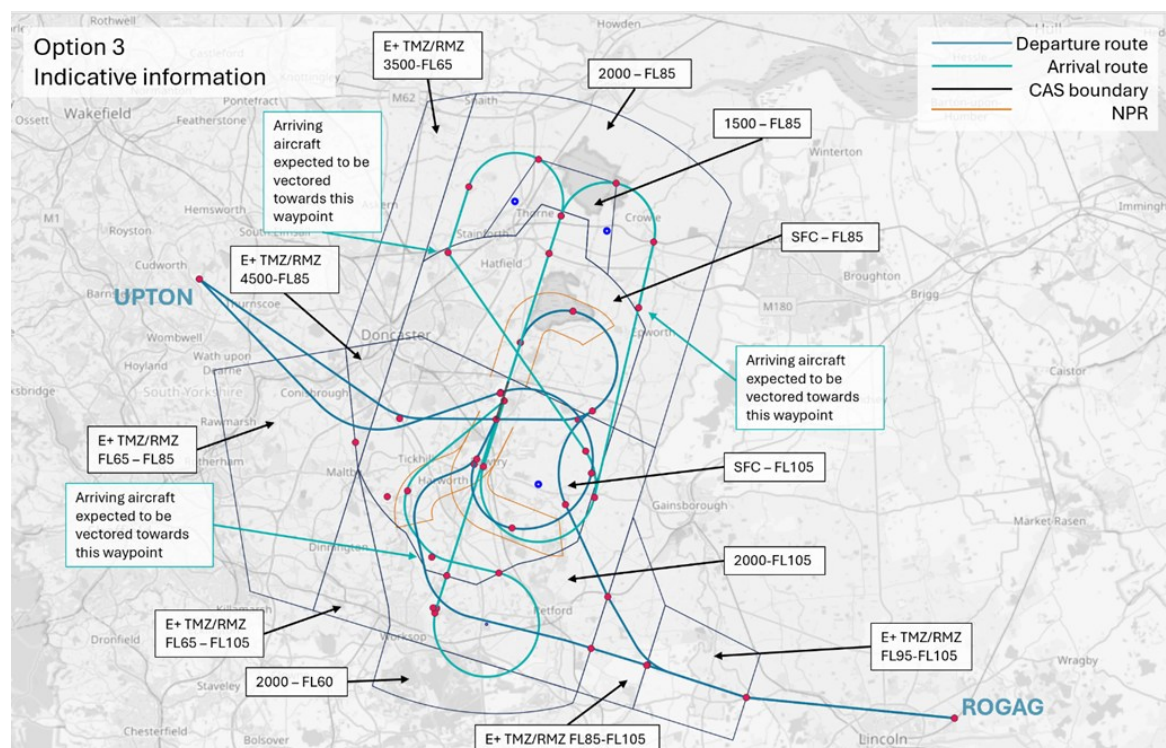


Figure 3-2 Option 3

Figure 32 Option 3



- 6.3.79 Both Option 2 and Option 3 would directly overfly Hatfield Moor for both Standard Instrument Departures (SID) and on final approach. Thorne Moor would not be overflown by aircraft departures for either option but would be overflown by aircraft on final approach.
- 6.3.80 The Site Improvement Plan for Thorne and Hatfield Moors⁴⁰ outlines pressures on the habitats and species present within the designation. These pressures include the potential effects of atmospheric nitrogen deposition and disturbance. The potential for airspace change, to contribute to current challenges at the European sites identified will be driven by the design of the airspace that will be considered in greater detail at the next stage of assessment.
- 6.3.81 For plans and projects to act in-combination with regards increase in the atmospheric concentration and deposition of nitrogen, developments delivering increases in road traffic need to be considered, should there be roads within 200m of a European site. Although Thorne and Hatfield Moors do have roads within 200m of their boundaries they are providing farm access, access to a gas compressor station or the Lindholme Prison Estate. None of these accesses would be expected to see an uplift in traffic based on the housing allocations and other development described within the Doncaster Local Plan 2015 - 2035. Therefore, plans and projects acting in-combination with regards decreases in air quality can be discounted.
- 6.3.82 Disturbance due to overflight of aircraft and potential for individual injury or death of birds due to bird strike are not elements that would act in-combination with other potential threats to designated features of the three European sites identified.

⁴⁰ Natural England (2014) Site Improvement Plan: Thorne and Hatfield Moors. Available at [Site Improvement Plan: Thorne and Hatfield Moors - SIP246](#)

B.4 Stage 2: Appropriate Assessment

6.3.83 The following sections consider the Sites and LSEs identified in the Stage 1 Screening stage as described in Section B.3.

Reductions in air quality

6.3.84 The Habitats Regulations Assessment Screening Report of the Airspace Change Masterplan CAP 2527⁴¹ (see Appendices B to D), describes the potential effects on European sites of changes to airspace. Appendix C discusses when aerial emissions from aircraft are likely to have an impact at ground level.

6.3.85 The designated features are sensitive to nitrogen, as described in the Site Improvement Plan for Thorne and Hatfield Moors, however CAP 1616i (paragraph 7.4) notes '*Due to the effects of mixing and dispersion emissions from aircraft above 1,000ft above aerodrome level (AAL) are unlikely to have a significant impact on air quality.*'

6.3.86 Similarly, CAP 2527 (Appendix C) quotes the UK's Air Quality Expert Group (2004) '*Around a third of all NOx emissions from the aircraft (including ground level emissions from auxiliary power units, engine testing etc, as well as take-off and landing) occur below 100m in height. The remaining two-thirds occur between 100 and 1000m and contribute little to ground-level concentrations*'.

6.3.87 As none of the designated sites identified in proximity to DSA are overflown at an altitude of 1,000ft or less the potential for reductions in air quality can be discounted. This is because the background concentrations of NOx or the amount of nitrogen deposited would not be detectable above the background rate.

6.3.88 No adverse effects on Thorne Moor SAC, Hatfield Moor SAC or Thorne and Hatfield Moors SPA is predicted due to emissions generated from aircraft overflight associated with the operation of either Option 2 or Option 3 at DSA.

Aircraft collision with wildlife

6.3.89 The majority of bird strikes recorded (85%) in the UK take place below 500ft, with a further 97% taking place below 1,500ft (CAA, 2025)⁴². Therefore, aircraft operating from DSA are most likely to suffer a bird strike in very close proximity to the airfield and not over the Thorne and Hatfield Moors SPA. However, it is acknowledged that nightjar from the SPA will frequently leave the designated areas to fulfil other needs (e.g. for foraging).

6.3.90 Nightjar can fly at high altitudes (at 1,000's of feet) where commercial flights operate, although this is typically on migration (Norevik et al., 2021)⁴³. However, following arrival on breeding grounds flight activity (both for reasons of display, commuting and hunting) is at relatively low levels. Nightjar are nocturnal so this flight activity takes place during hours of darkness, and mostly during periods where no flights would be operating from DSA.

6.3.91 Nightjar are foraging and breeding in open habitats with some trees and bushes, such as heathland, forest clearings and young woodland. These habitats do not occur close to the end of the runway at DSA and it is therefore very unlikely that a nightjar is present close enough to the airport, whilst undertaking

⁴¹ CAP 2527 has been superseded as the Airspace Change Masterplan is no longer progressing in the same manner. However, the information contained remains relevant for HRA purposes.

⁴² CAA (2025) UK reported Birdstrikes 2023 & 2024. Civil Aviation Authority, London. Available at [Uk Reported Birdstrike 2023-2024](#)

⁴³ Norevik, G., Åkesson, S., Andersson, A., Bäckman, J. & Hedenström, A. (2021) Flight altitude dynamics of migrating European nightjars across regions and seasons. Journal of Experimental Biology 25. Available at [Flight altitude dynamics of migrating European nightjars across regions and seasons - PMC](#)

typical behaviour (when present on breeding grounds), to be at risk of collision with an aircraft. It is also notable that the authors have not been able to identify any records of nightjar being hit by commercial aircraft.

- 6.3.92 The number of bird strikes recorded in the UK is relatively small compared to the number of air transport movements per year. The CAA reports that in 2023 there were 1,675 confirmed bird strikes and 1,691 in 2024 across the UK (range per month of 4 to 14 bird strikes per 10,000 air transport movements). The majority of bird strikes are of gulls and pigeons, with no strikes of nightjar recorded in these years. This demonstrates that the rate of occurrence is so low that the populations of birds using either the Thorne and Hatfield Moors SPA are not at threat from accidental collision with aircraft.
- 6.3.93 No adverse effects on Thorne and Hatfield Moors SPA are predicted due to potential bird strike of nightjar by aircraft associated with the operation of either Option 2 or Option 3 at DSA.

Disturbance

- 6.3.94 The potential for disturbance of designated species to occur is low. Thorne and Hatfield Moors SPA supports breeding nightjar, a species that is migratory (only occurring in the UK during the summer) and nocturnal. This means that foraging activity would mostly take place during the period when very few or no aircraft are operating. During the day this species typically remains still to avoid detection, as opposed to reacting to disturbance agents such as dog walkers. Nightjar are known to breed on sites close to or within busy areas such as by motorways (e.g. the M3 motorway as it passes through Chobham Common) and in areas used for military training (including live fire such as the Pirbright Ranges). Further, this species has been shown to have increased in number within the Thorne and Hatfield Moors SPA following large scale habitat management works as part of the 'Restoring the Humberhead Peatlands' project⁴⁴. This increase took place during a period when DSA was still operational and therefore these increases were despite overflight.
- 6.3.95 Bird disturbance from overflight typically takes place at altitudes below 1,640ft (500m) (see CAP 2527 Appendix B). Aircraft on approach maybe under this altitude when crossing above Hatfield Moor. However, due to the nature of nightjar (their tendency to remain in situ in the presence of disturbance agents, their nocturnal nature and examples of them thriving in disturbed environments - including when DSA was previously operating) no adverse effect is predicted due the operation of either Option 2 or Option 3 at DSA.

B.5 Summary

- 6.3.96 Three European sites were identified as being at risk of LSE during the Stage 1 Screening Assessment. Consideration of these LSE at Stage 2 discounted any adverse effects operating on the designated features of these European sites. Therefore, it is concluded that no European sites would be compromised by any options within the airspace change process for DSA.

Annex A: Conservation Objectives

Thorne Moor SAC and Hatfield Moor SAC

- 6.3.97 With regard to the SAC and the natural habitats and/or species for which the site has been designated (the 'Qualifying Features' listed below), and subject to natural change;

⁴⁴ AfterLIFE plan - Restoring Humberhead Peatlands (LIFE13/NAT/UK/000451). Available at [AfterLIFE-Plan.pdf](#)

6.3.98 Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring;

- The extent and distribution of qualifying natural habitats
- The structure and function (including typical species) of qualifying natural habitats, and –
- The supporting processes on which qualifying natural habitats rely

6.3.99 Qualifying Features: H7120. Degraded raised bogs still capable of natural regeneration

Thorne and Hatfield Moors SPA

6.3.100 With regard to the SPA and the individual species and/or assemblage of species for which the site has been classified (the 'Qualifying Features' listed below), and subject to natural change;

6.3.101 Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the aims of the Wild Birds Directive, by maintaining or restoring;

- The extent and distribution of the habitats of the qualifying features
- The structure and function of the habitats of the qualifying features
- The supporting processes on which the habitats of the qualifying features rely
- The population of each of the qualifying features, and,
- The distribution of the qualifying features within the site.

6.3.102 Qualifying Features: A224 *Caprimulgus europaeus*; European nightjar (Breeding).

Appendix C. Air Quality

C.1 Pollutants of Concern

6.3.103 The main air pollutants of concern in relation to airport activity are nitrogen dioxide (NO₂) and fine particulate matter (PM₁₀ and PM_{2.5}). Defra has set Air Quality Objectives for nitrogen dioxide and PM₁₀; local authorities have a duty to work towards complying with these objectives. The objectives apply at locations where members of the public are likely to be regularly present and are likely to be exposed over the averaging period of the objective. Defra explains where these Objectives will apply in its Local Air Quality Management Technical Guidance. The annual mean objectives for nitrogen dioxide and PM₁₀ apply at the façades of residential properties, schools, hospitals etc. The 24-hour mean objective for PM₁₀ applies at the same locations as the annual mean objective, as well as in gardens of residential properties and at hotels. The 1-hour mean objective for nitrogen dioxide applies wherever members of the public might regularly spend 1 hour or more, including outdoor eating locations and pavements of busy shopping streets. For PM_{2.5}, the objective set by Defra for local authorities is to work toward reducing concentrations without setting any specific numerical value. In the absence of a numerical objective, it is convention to assess local air quality impacts against the limit value of 20 µg/m³. The relevant air quality criteria for this assessment are provided in Table 63.

Table 63 Air Quality Criteria for Nitrogen Dioxide, PM₁₀ and PM_{2.5}

Pollutant	Time Period	Value
Nitrogen Dioxide	1-hour Mean	200 µg/m ³ not to be exceeded more than 18 times a year
	Annual Mean	40 µg/m ³
PM ₁₀	24-hour Mean	50 µg/m ³ not to be exceeded more than 35 times a year
	Annual Mean	40 µg/m ³
PM _{2.5}	Annual Mean	20 µg/m ³

6.3.104 Defra has also set targets for PM_{2.5} concentrations in England under the Environment Act (2021) (Table 64). Achieving these targets is the responsibility of Defra. The most recent interim targets published in the 2025 Environmental Improvement Plan aim to meet the Annual Mean Concentration Target (AMCT) 10 years early, by December 2030, with the interim Population Exposure Reduction Target (PERT) being a reduction of 30% by December 2030.

Table 64 Environment Act PM_{2.5} Targets

Metric	Target	Target year
Annual Mean Concentration Target (AMCT)	Interim target: 10 µg/m ³	2030
	Legally binding target: 10 µg/m ³	2040
Population Exposure Reduction Target (PERT)	Interim target: 30% reduction in exposure compared to 2018	2030
	Legally binding target: 35% reduction in exposure compared to 2018	2040

C.2 Baseline Data

6.3.105 Monitored concentrations of nitrogen dioxide for 2018–2023 are summarised in Table 65. The locations where the monitoring takes place are shown in Figure 33, which also shows the location of the Air Quality Management Area.

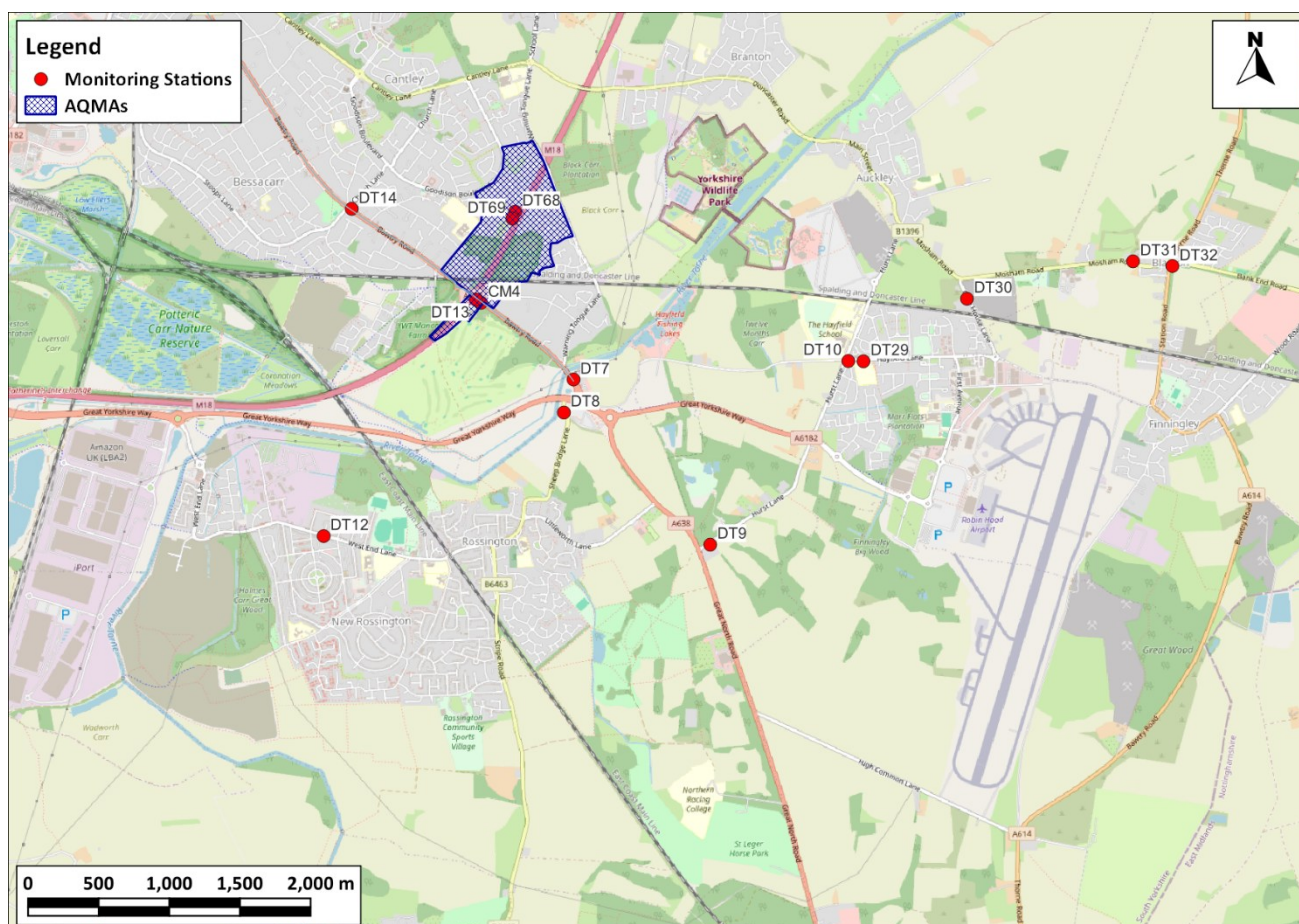


Figure 33 Air quality monitoring stations

6.3.106 Contains data from [OpenStreetMap](https://www.openstreetmap.org/).

Table 65 Monitored nitrogen dioxide concentrations ($\mu\text{g}/\text{m}^3$)

Site ID	Site Name	Site Type	2018	2019	2020	2021	2022	2023
CM4	A638 Bawtry Road, Bessacarr	Roadside	28.1	-	-	-	-	-
DT7	A638 Bawtry Rd	Roadside	-	30.1	24.6	24.4	26.9	22.7
DT8	Sheep Bridge Lane adj. A6182	Kerbside	26	23.1	17.5	17.7	18.6	16.1
DT9	Hurst Lane nr junc. A638 Bawtry Rd	Roadside	27	20	15.3	15.2	17.9	14.1
DT10	Hayfield Lane Auckley nr Hurst Lane	Kerbside	22	22	-	17.5	17.9	15

Site ID	Site Name	Site Type	2018	2019	2020	2021	2022	2023
DT12	West End Lane Rossington	Roadside	27	26.4	-	23.7	22.6	19.9
DT13	A638 Bawtry Road Bessacarr	Roadside	41	38.3	28.8	30.6	29.6	26.3
DT14	A638 Bawtry Road Bessacarr	Roadside	37	37.3	28.9	29.9	31.1	26.4
DT29	Hayfield Lane Auckley	Roadside	16	15.9	-	11.7	15.7	12.9
DT30	Gate House Lane Auckley	Roadside	19	16	13.6	14.2	14.3	12.4
DT31	B1396 Mosham Road Blaxton	Roadside	16	14.1	11.6	11.2	13.1	10.5
DT32	A614 Station Road Blaxton	Roadside	19	15.4	13	19.2	21.3	20.4
DT68	High Grove Court nr M18 Bessacarr	Roadside	-	-	16.4	16.9	16.5	14.1
DT69	Footbridge adj M18 Bessacarr	Roadside	-	-	18.2	18.7	17.3	15.1

- 6.3.107 Monitoring data for 2018 and 2019 includes the contribution from DSA as operating at the time (in 2019 there were approximately 23,000 aircraft movements and approximately 1.4 million passengers),
- 6.3.108 Monitored concentrations in 2020 and 2021 were substantially affected by the Covid-19 pandemic, which reduced activity, resulting in generally lower concentrations of air pollutants across the UK. Apart from that, there is a general trend of concentrations falling between 2018 and 2023; this is found in most parts of the country, and is attributable largely to the reduction in emissions from newer road vehicles and other measures to reduce emissions. DT32 is an exception to this trend, with higher concentrations in 2021–2023 than 2018–2019; the reasons for this are unclear but are unlikely to be related to DSA which was closed from 2022.
- 6.3.109 The monitored annual mean nitrogen dioxide concentration in 2018 at DT13, close to both the M18 motorway and the A638 Bawtry Road, was 41 $\mu\text{g}/\text{m}^3$, slightly above the Air Quality Objective of 40 $\mu\text{g}/\text{m}^3$. From 2019 onwards, concentrations have been below the Objective, and in 2022 and 2023 were less than 75% of the Objective; this reduction is too large to be attributable to the closure of DSA, and is consistent with trends elsewhere. At all other locations, monitored concentrations were below the Objective in every year since 2018. At monitoring stations close to the airport, concentrations were well below the Objective, being at most 22 $\mu\text{g}/\text{m}^3$ (55% of the Objective),
- 6.3.110 The only monitoring for PM_{10} or $\text{PM}_{2.5}$ near the airport was at CM4, which closed in 2019. PM concentrations for this monitoring station are not currently available in Doncaster Council's publications.
- 6.3.111 Defra publishes maps of background concentrations, which cover the whole of the UK on a 1x1 km grid and represent concentrations away from major roads or point sources. Background concentrations of nitrogen dioxide, PM_{10} and $\text{PM}_{2.5}$ around DSA in 2028 and 2037 are shown in Figure 34 to Figure 39. All concentrations are well below the respective Air Quality Objectives and targets, and are lower in 2037 than 2028.

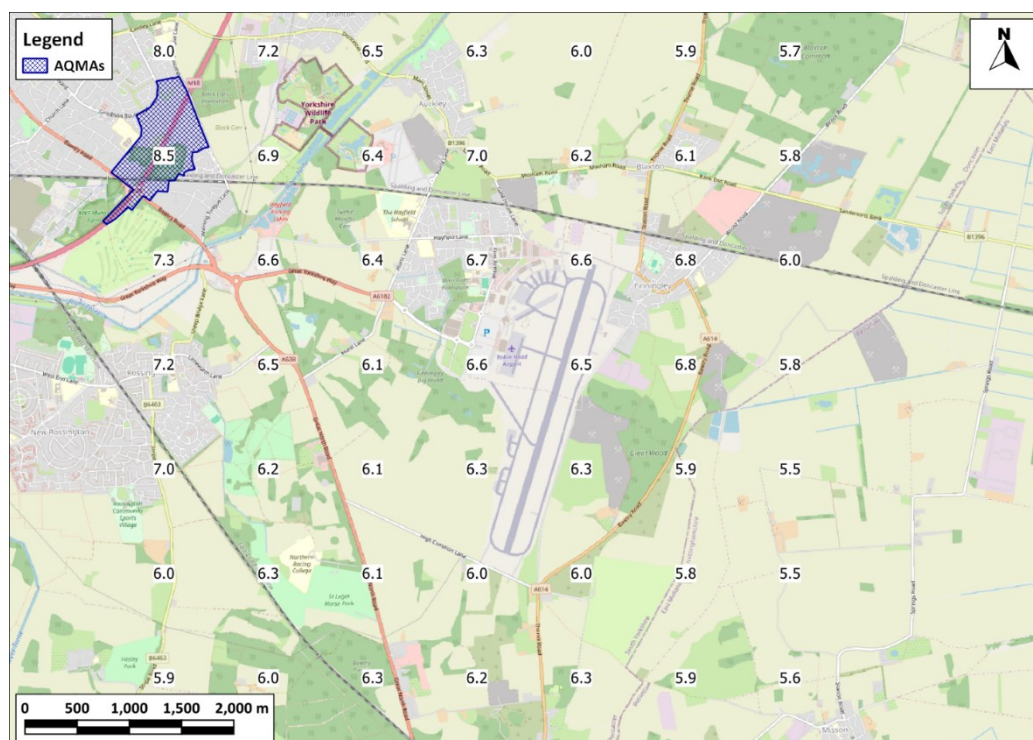


Figure 34 Defra background NO₂ concentrations, 2028 (µg/m³)

Contains data from [OpenStreetMap](#).

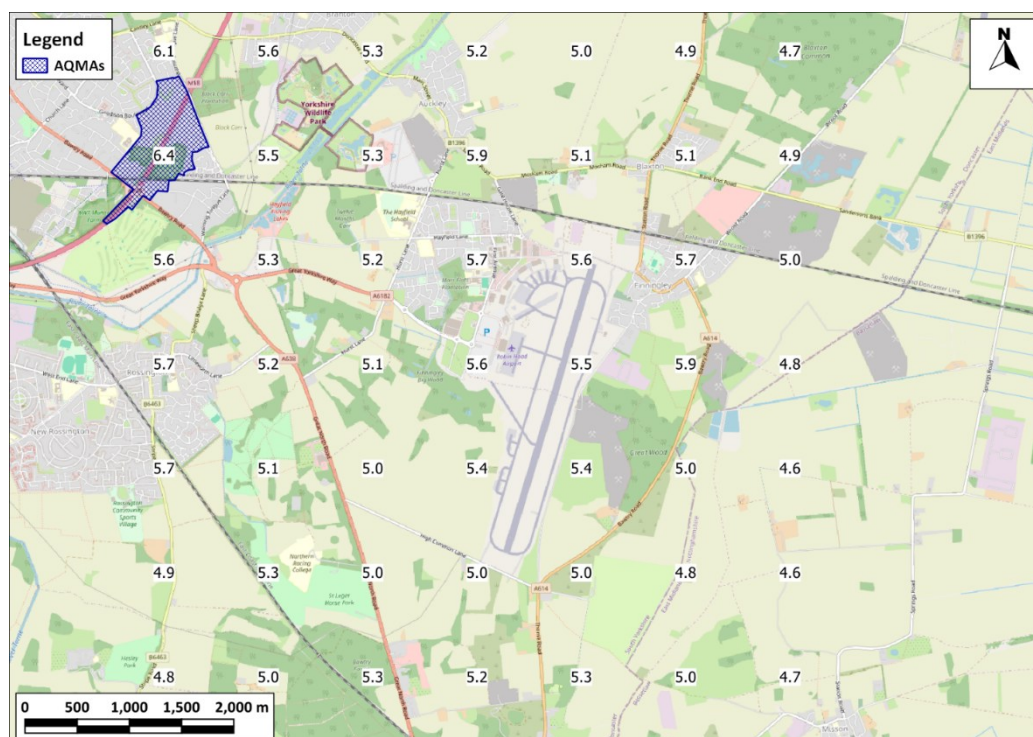


Figure 35 Defra background NO₂ concentrations, 2037 (µg/m³)

Contains data from [OpenStreetMap](#).

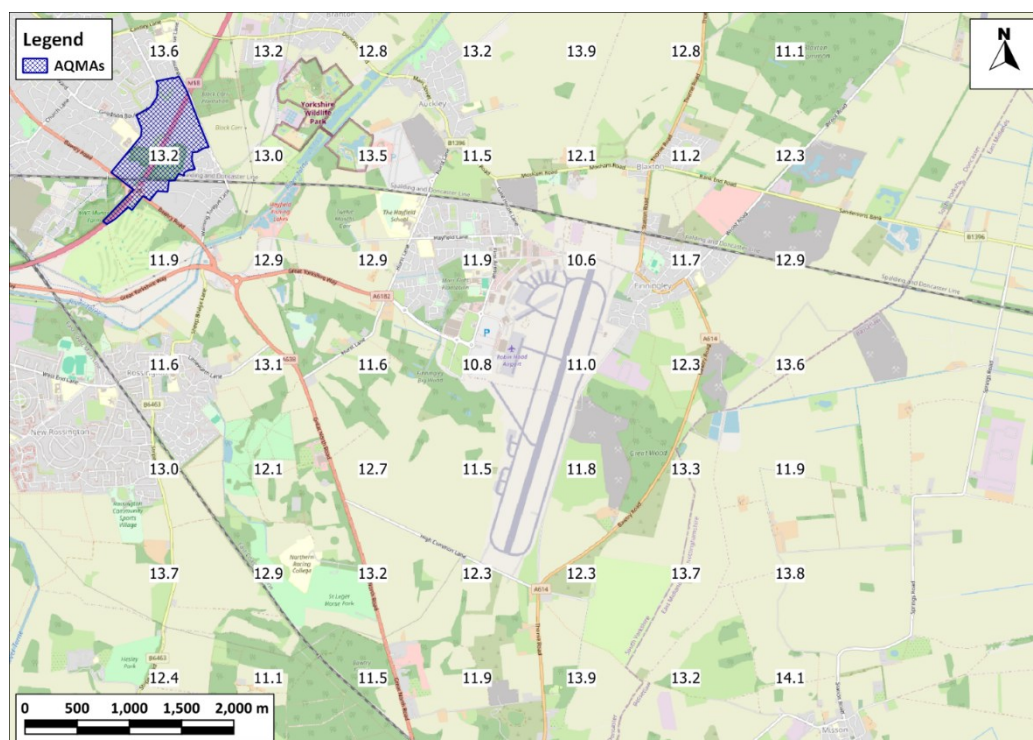


Figure 36 Defra background PM_{10} concentrations, 2028 ($\mu g/m^3$)

Contains data from [OpenStreetMap](#).

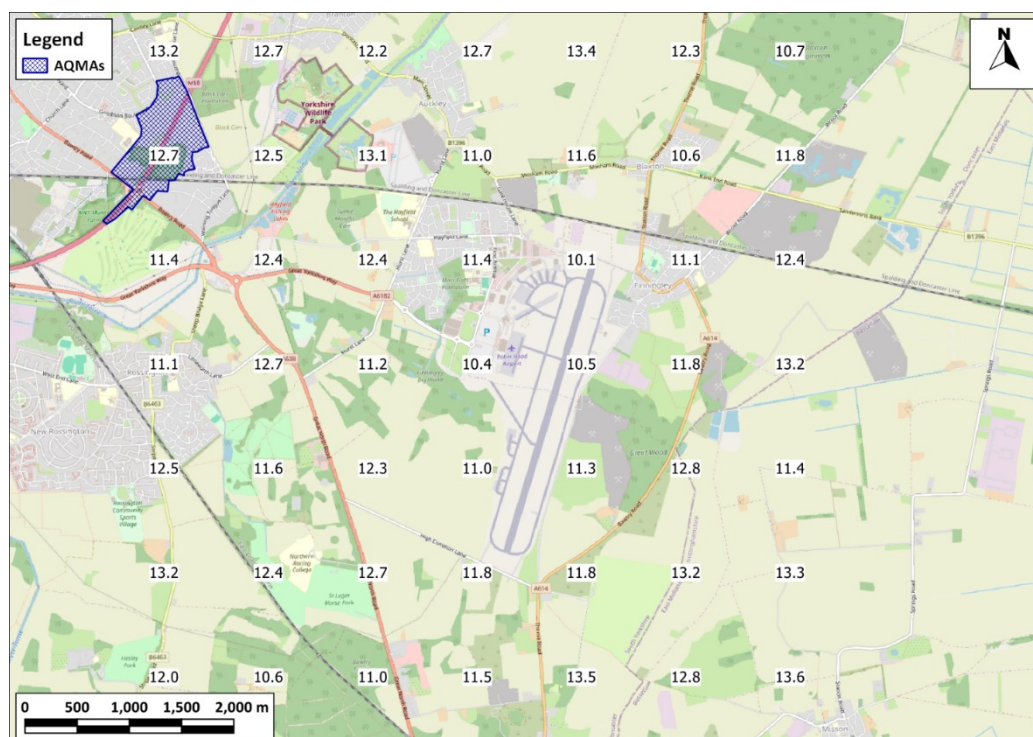


Figure 37 Defra background PM_{10} concentrations, 2037 ($\mu g/m^3$)

Contains data from [OpenStreetMap](#).

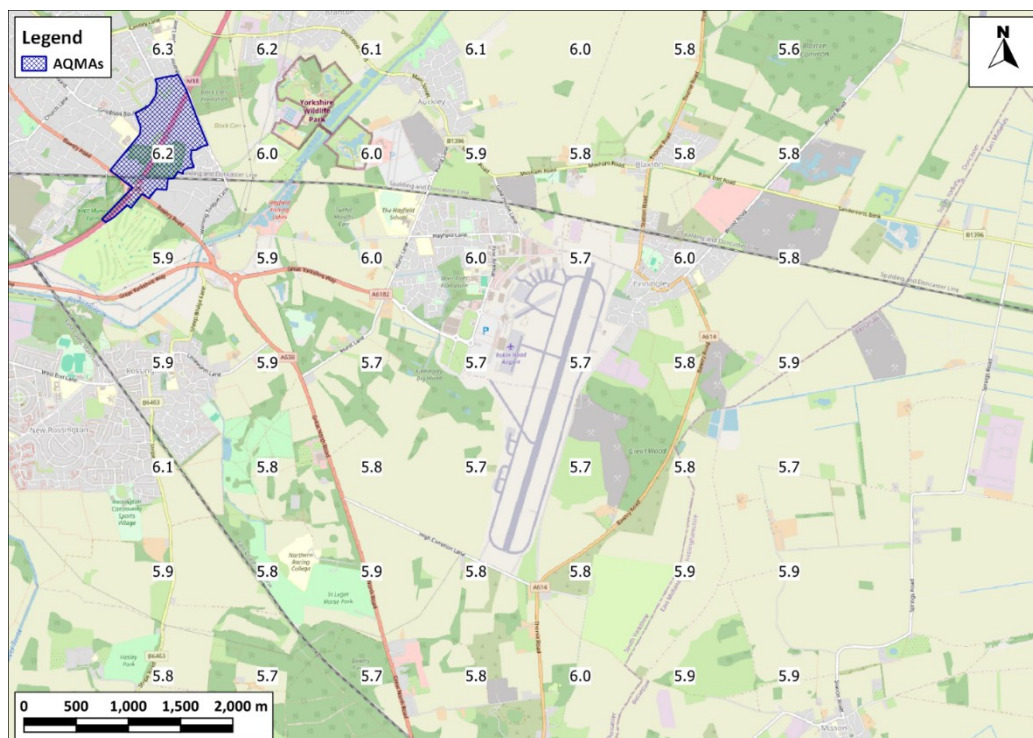


Figure 38 Defra background $PM_{2.5}$ concentrations, 2028 ($\mu g/m^3$)

Contains data from [OpenStreetMap](#).

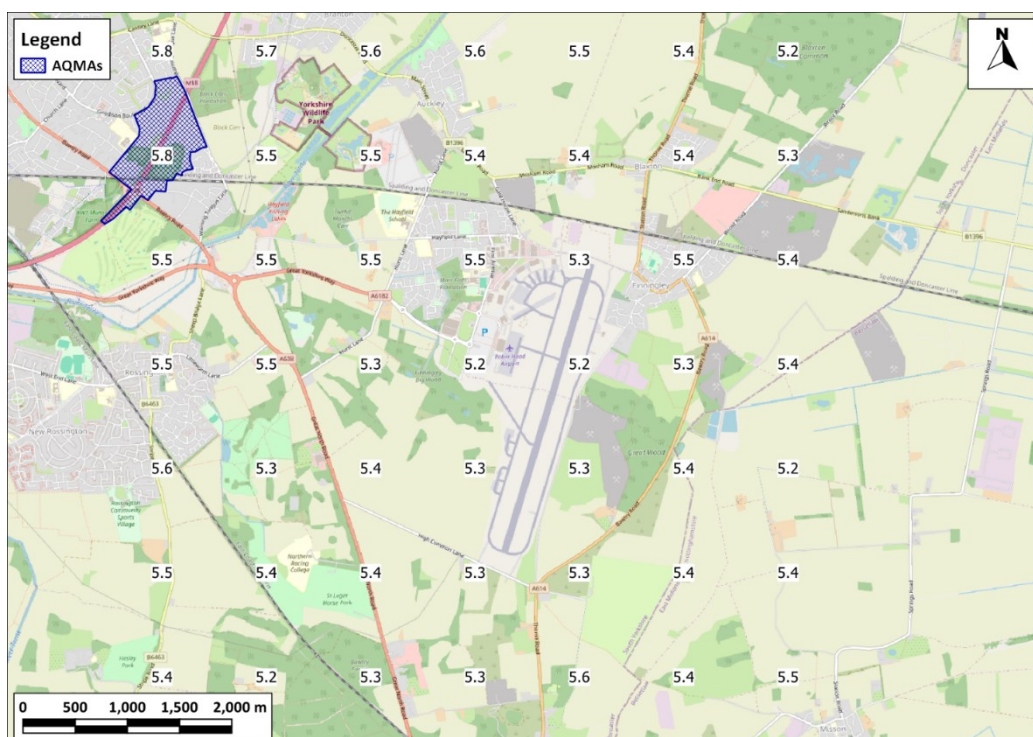


Figure 39 Defra background $PM_{2.5}$ concentrations, 2037 ($\mu g/m^3$)

Contains data from [OpenStreetMap](#).

Appendix D. Greenhouse Gas Emissions

D.1 Introduction

6.3.112 This report presents the Greenhouse Gas (GHG) Full Options Appraisal of the Doncaster Sheffield Airport (DSA) Airspace Change. The appraisal has been prepared to meet the requirements of Chapter 6 of the CAA's Environmental Assessment Requirements and Guidance for Airspace Change Proposals, CAP 1616i⁴⁵.

6.3.113 The report is structured across 3 sections as follows;

1. Full Options Appraisal: Methodology;
2. Full Options Appraisal: Results; and
3. Full Options Appraisal: Findings.

D.2 Full Options Appraisal: Methodology

Greenhouse Gas Assessment: Quantitative

6.3.114 GHG emissions from air transport movements at DSA have been assessed quantitatively for:

- Option 2: Refinement of the 2022 design due to stakeholder feedback or to align with CAA policy;
- Option 3: Use of Radius-to-Fix to create less restrictive CAS structures and to aid future MTMA integration.

6.3.115 There is no baseline position as the airport is currently closed with no operational flights. As such the baseline carbon emissions are assumed to be zero.

Methodology

Scope

6.3.116 GHG emissions have been modelled for aircrafts operating from DSA for the Landing and Take Off (LTO) cycle, including all aircraft movements up to 10,000 ft for departures and 6,000 ft for arrivals. These altitudes are automatically provided through the Aviation Environmental Design Tool (AEDT) database for each specific aircraft profile.

6.3.117 The envelope of the GHG emissions assessment is capped at 10,000 ft for departures and 6,000 ft for arrivals as above at these altitudes it is not anticipated there will be material differences between Option 2 and Option 3, and any differences in emissions will be an artefact of variables unrelated to the operation of the airspace such as flight origin/destination.

6.3.118 Outputs from the AEDT version 3.0g were used in this modelling. These outputs include:

- Number of movements by aircraft type and period of the day;
- Recorded movement distance per use of runways, arrival and departure routes.
- Associated fuel burn of each movement.

6.3.119 The individual representative aircraft movement datasets for each aircraft type from the AEDT Tool is based on recorded movements at the airport for 1 day that represents the average 92-day summer period. The modal split of these movements are detailed in the DSA Full Options Appraisal document Section 4.5. To summarise, there are two modes of operation at DSA by default, and they are Easterly

⁴⁵ <https://www.caa.co.uk/publication/download/20867>

(accounting for 37.6% of the movements at DSA) and Westerly (62.4% of the movements at DSA). This runway usage split was scaled from the 92-day summer to present complete annual runway usage.

- 6.3.120 The forecasted future fleet forecasts are set out in the DSA Full Options Appraisal document Section 4.4. This forecast fleet mix is outlined for Year 1 (2028) and Year 10 (2037) but is dependent on ongoing engagement with future operators.

Modelling Methodology

- 6.3.121 Using the representative aircraft movement datasets, a representative fuel burn intensity factor was calculated for each aircraft type per movement length (lbs/nautical mile).
- 6.3.122 The runway type and associated track length for each arrival and departure movement for Options 2 and 3 were then applied to the representative aircraft movement data to estimate fuel burn by aircraft type and route. Using the annual forecast ATM data (presented in Section 4.3 of the DSA Full Options Appraisal document) annual total movement distance was calculated for each assessment year.
- 6.3.123 Fuel burn estimates were calculated for the assessment years of implementation (2028) and Year 10 (2037), representing the years required under CAP1616i Chapter 6.6. A fuel burn intensity per ATM was calculated for these years to enable annualisation of the data across the full appraisal period.
- 6.3.124 Fuel burn intensity factors were linearly interpolated between the 2028 and 2037 baseline values and multiplied by the annual ATM forecast.
- 6.3.125 The calculated annual fuel burn values were converted from lbs to tonnes by dividing the lbs of fuel burn by 2204.6226 to convert to tonnes. The tonnes of fuel burn value was converted to CO₂e using a recognised GHG conversion factor of 3.18 TCO₂e/t of fuel, on the assumption that all fuel is jet-A1, sourced from 2025 UK Department for Energy Security and Net Zero (DESNZ) Greenhouse Gas Reporting Conversion Factors.
- 6.3.126 Using the CO₂e calculations, GHG emissions have also been monetised using the Department for Transport's Transport Analysis Guidance (TAG) greenhouse gas workbook to provide an indication of the cost associated with forecasted emissions over the appraisal period.

Assumptions

- 6.3.127 In accordance with CAP1616i chapter 6.3 modelling assumptions must be included in airspace change proposals, the assumptions used during this methodology are outlined below:
- Movement data sets used within calculations is reflective of future operations;
 - Fuel burn scales proportionately with route length and ATM growth;
 - Forecasted fleet mix changes and operational efficiencies occur linearly between 2028 and 2037; and
 - Destination for freight movements was unavailable at the time of assessment, as such the proportion of flights categorised as 'traded' under the UK ETS has been calculated against the same proportions of UK and non-UK passenger ATMs.

Modelled Outputs

CO₂e Emissions

- 6.3.128 The mass of carbon dioxide equivalent (CO₂e) emitted for both options 2 & 3 has been calculated by multiplying the mass of aviation fuel burned during the annual flight movements by a factor of 3.18 kg of CO₂e per kg of fuel.

- 6.3.129 This is the latest 2025 GHG conversion factor for aviation turbine fuel published for Department for Energy Security and Net Zero (DESNZ) for company reporting of greenhouse gas emissions⁴⁶.

Traded & Non-Traded Emissions

- 6.3.130 Since 2012, CO₂e emissions from flights within the European Economic Area (EEA), including domestic flights within participating states, have been included in the EU Emissions Trading System (EU ETS) and UK Emissions Trading Scheme (UK ETS) which is the post-Brexit. Therefore, CO₂e emissions subject to inclusion within the UK ETS have been categorised as 'traded', and the remainder categorised as 'non-traded'.
- 6.3.131 Non-traded emissions include those associated with international flights that are not traded under the UK ETS.
- 6.3.132 The traded and non-traded status for CO₂e considers only the UK ETS and does not take into account any other emissions trading or offsetting systems, such as EU ETS or CORSIA.

TAG Assessment

- 6.3.133 In alignment with the DESNZ guidance on greenhouse gas emissions valuation, the change in emissions (from the existing baseline to either Option 2 or 3) has been valued using the TAG Greenhouse Gasses Workbook covering the period from opening (2028) up to and including after 10 years (2037). This takes into account the traded and non-traded status of the emissions in the UK ETS as described above. The TAG assessment results are summarised in an appendix of the DSA Full Options Appraisal document.

Fuel Burn Assessment- Quantitative

- 6.3.134 Fuel burn is calculated using the methodology described under the GHG emissions section above.
- 6.3.135 Once fuel burn has been calculated as described in the GHG section, it is then monetised by assuming a cost per tonne of jet fuel of £963.53. This value had been calculated from the jet fuel price of \$1 286.31⁴⁷ per tonne and a currency conversion rate of 1USD = GBP 0.7491 from Reuters⁴⁸ (both as of 15/05/2026). It should be noted the cost of jet fuel is particularly high due to current political events and may not be reflective of the cost across the entire appraisal period.

D.3 Full Options Appraisal: Results

- 6.3.136 Throughout this document, data shown in tables has been rounded to whole numbers. This includes any totals shown, and numbers stated within the narrative, which are always calculated using unrounded data, and then rounded for display. Therefore, adding up data items may result in a different number than that presented as the total.

GHG Assessment: Quantitative

Existing Baseline

- 6.3.137 At present, the airport is unlicensed, which means it cannot handle commercial flights with fare-paying passengers or undertake flying training involving larger aircraft. Currently the number of DSA ATMs per year is zero. Without the Airspace Change, this baseline description would be expected to remain the same for the 'without airspace change' scenario years of 2028 and 2037.

⁴⁶ <https://www.gov.uk/government/publications/greenhouse-gas-reporting-conversion-factors-2025>

⁴⁷ <https://www.iata.org/en/publications/economics/fuel-monitor/>

⁴⁸ <https://www.reuters.com/markets/currencies/>

GHG Emissions Existing Baseline vs Option 2 & 3

6.3.138 Table 66 below details the annual carbon emissions for the existing baseline and both Options 2 and 3, it demonstrates annual CO₂e in the opening year and each year until 2037 (year 10). The table also provides a cumulative total over the 10 years.

Table 66: GHG emissions for the existing baseline and Options 2 and 3, 2028 to 2037.

Year	CO ₂ e (Kilo Tonnes)		
	Existing Baseline	Option 2	Option 3
2028 (Opening Year)	0	4,567	5,261
2029	0	9,566	11,021
2030	0	15,146	17,451
2031	0	19,701	22,700
2032	0	24,006	27,663
2033	0	26,005	29,970
2034	0	27,296	31,460
2035	0	27,544	31,750
2036	0	27,794	32,042
2037 (year 10)	0	28,048	32,337
Cumulative 2028 to 2037	0	209,673	241,655

Table 67 below provides the same data as kg CO₂e per flight.

Table 67: Kg CO₂e per flight for the existing baseline and both Option 2 and Option 3 2028 to 2037.

Year	Kg CO ₂ e per flight		
	Existing Baseline	Option 2	Option 3
2028 (opening year)	0	2,481	2,858
2029	0	2,458	2,832
2030	0	2,435	2,806
2031	0	2,412	2,779

2032	0	2,389	2,753
2033	0	2,366	2,727
2034	0	2,344	2,701
2035	0	2,321	2,675
2036	0	2,298	2,649
2037 (Year 10)	0	2,275	2,623
Cumulative 2028 to 2037	0	23,779	27,403

6.3.139 Annex B provides GHG emissions for the existing baseline and both Option 2 and Option 3 from 2028 to 2037 broken out into traded and non-traded emissions.

Fuel Burn Assessment: Quantitative

6.3.140 Fuel burn has been calculated based on the GHG modelling and fuel costs using jet fuel price as detailed in the methodology.

Fuel Burn Existing Baseline vs Option 2 and Option 3

6.3.141 Table 68 below details the annual total flight fuel burn and costs for the existing baseline and both Options 2 and 3, and the change in the opening year and each year until 2037 (year 10). The table also provides a cumulative total over the 10 years.

Table 68: Full flight fuel burn and fuel costs for the existing baseline and both Options 2 & 3.

Year	Annual Jet fuel (tonnes)			Annual Fuel Cost (£)		
	Existing Baseline	Option 2	Option 3	Existing Baseline	Option 2	Option 3
2028 (opening year)	0	1,436	1,654	0	1,383,869	1,594,118
2029	0	3,008	3,466	0	2,898,610	3,339,291
2030	0	4,763	5,488	0	4,589,289	5,287,491
2031	0	6,195	7,138	0	5,969,216	6,877,998
2032	0	7,549	8,699	0	7,273,640	8,381,810
2033	0	8,178	9,424	0	7,879,422	9,080,766
2034	0	8,584	9,893	0	8,270,475	9,532,383
2035	0	8,662	9,984	0	8,345,826	9,620,199
2036	0	8,740	10,076	0	8,421,579	9,708,517
2037 (Year 10)	0	8,820	10,169	0	8,498,321	9,798,013
Cumulative 2028 to 2037	0	65,935	75,992	0	63,530,247	73,220,584

D.4 Full Options Appraisal Findings

- 6.3.142 CAP1616i states that 'Change sponsors must consider and demonstrate how the design and operation of the design options will impact greenhouse gas emissions.'
- 6.3.143 With the future baseline scenario without an airspace change proposal being DSA remain non-operational, DSA's increase in greenhouse gas emissions will be significant with either Option 2 or 3.
- 6.3.144 As a comparison between the two options the number of movements remain the same however Option 3 will result in higher carbon emissions by 14.2% compared to Option 2 due to reasons such as; higher fuel burn intensity per ATM, higher number of runway routes with increased track lengths and thus higher total annual fuel burn.
- 6.3.145 The results of the assessment lead to the following key findings:
1. The GHG emissions (and fuel use) in the opening year (2028) are marginally lower with Option 2;
 2. The GHG emissions (and fuel use) in year 10 (2037) are marginally lower with Option 2; and
 3. The cumulative GHG emissions (and fuel use) over the 10-year period are marginally lower with Option 2.

Annex B: Detailed GHG Emission Results

Table 69: Detailed GHG Emission Results

Year	Annual ATM's	GHG Emissions (TCO ₂ e)					
		Option 2			Option 3		
		Traded	Non-Traded	Total	Traded	Non-Traded	Total
2028	1,841	2,800	1,767	4,567	3,535	1,726	5,261
2029	3,892	4,980	4,586	9,566	6,285	4,736	11,021
2030	6,220	9,018	6,128	15,146	11,377	6,074	17,451
2031	8,167	12,186	7,514	19,701	15,369	7,331	22,700
2032	10,047	14,926	9,080	24,006	18,818	8,845	27,663
2033	10,989	16,205	9,800	26,005	20,425	9,545	29,970
2034	11,647	17,048	10,248	27,296	21,481	9,979	31,460
2035	11,869	17,243	10,302	27,544	21,720	10,030	31,750
2036	12,096	17,440	10,354	27,794	21,962	10,079	32,042
2037	12,329	17,641	10,407	28,048	22,208	10,129	32,337
TOTAL		129,487	80,186	209,673	163,181	78,473	241,655

Appendix E. The case for Controlled Airspace (CAS)

E.1 The Case for Controlled Airspace

6.3.146 This section considers only the justification for the establishment of Controlled Airspace at DSA, not the justification for the associated size or classification of the CAS.

6.3.147 There are a range of international and UK CAA policies, processes and guidance surrounding the establishment of controlled airspace and the provision of Air Traffic Services (ATS). Those considered in this section are:

- SARG Policy 126: Policy for the Design Controlled Airspace Structures
- CAP 778 Policy and Guidance for the Design and Operation of Departure Procedures in UK Airspace
- ICAO Annex 11
- CAP2304: Applications for instrument approach procedures to aerodromes without Approach Control and/or with a non-instrument runway
- SARG Policy 127: Policy Statement for the Classification of UK Airspace
- Air Navigation Order
- CAP 774: UK Flight Information Services
- CAP744: Air Traffic Controllers – Licensing
- CAP493 Manual of Air Traffic Services
- CAP1711 Airspace Modernisation Strategy 2023-1040

6.3.148 This makes for a rather confusing regulatory landscape, but this section aims to summarise the various policies, processes and guidance which supports DSA's need for CAS. Note that the justification for the establishment of CAS at DSA is not predicated on reaching any specific level of forecast Air Transport Movements (ATMs,) but is to enable the safe and efficient operation of scheduled commercial air transport within a busy and complex section of UK airspace, close to other large commercial air transport airports and significant general aviation activity⁴⁹, as demonstrated in the description of the current day scenario in the [Stage 1 Design Principle submission document](#).

Controlled Airspace

6.3.149 Controlled Airspace is airspace of defined dimensions within which Air Traffic Control (ATC) service is provided in accordance with the airspace classification. Its purpose is to create a known air traffic environment to achieve the objectives of the ATC service to prevent collisions between aircraft and to expedite and maintain an orderly flow of traffic⁵⁰.

6.3.150 Air Navigation Service Providers (ANSPs) should seek to review and examine particular elements or procedures of a specific operation and their functional system. The purpose being to ensure that the

⁴⁹ [Statement of Need Version 2.0](#)

⁵⁰ CAA Policy for the Design Controlled Airspace Structures

ANSP can provide its services in a safe, efficient, continuous and sustainable manner, consistent with any foreseen level of overall demand for a given airspace⁵¹.

- 6.3.151 The review should include the airspace design and volume, associated ATS routes and/or SIDs and STARs and the associated ATS arrangements, to ensure that this airspace satisfies changing safety, operational and environmental conditions and requirements and meets the following principle:

"Sponsors must seek to ensure the amount of controlled airspace is the minimum required to maintain a high standard of air safety and, subject to overriding national security or defence requirements, that the needs of all airspace users is reflected on an equitable basis".

- 6.3.152 ICAO Annex 11 states that the provision of air traffic services shall be determined by considering the types and density of air traffic, meteorological conditions and any other factors. It states that due to the number of elements involved, it has not been possible to develop specific data to determine the need for air traffic services in a given area or at a given location.

There is therefore no threshold set for a volume of ATMs that warrants CAS, it is based on the mixture (e.g. numbers, types, speeds etc) of air traffic operating in the airspace. For example, you could have an airport with a higher number of commercial ATMs in a part of the country with very low traffic density that can operate safely without CAS, compared to an airport with a lower number of ATMs operating in a busier piece of airspace that does warrant CAS protection.

The classification and designation of ATS airspaces follows a determination of the need for air traffic services. When it has been determined that ATS will be provided in particular portions of the airspace or at particular aerodromes, then those portions of the airspace or those aerodromes shall be designated in relation to the air traffic services that are to be provided⁵².

- 6.3.153** The ANSP therefore needs to first determine which air traffic services are to be provided and, where applicable, set out the case for CAS to ensure that they can provide its services in a safe, efficient, continuous and sustainable manner. This includes identifying the airport requirements for Standard Instrument Departures (SIDs) and/or Instrument Approach Procedures (IAPs) and the appropriate service provision to ensure that the risk of airborne conflict remains As Low As Reasonably Practicable (ALARP).

Air Traffic Service

- 6.3.154 The Air Navigation Order Article 183 requires that in the case of an aerodrome (other than a Government aerodrome) for which there is equipment providing, aid for holding, aid for let-down or aid for an approach to landing by radio or radar, is promulgated, an Approach Control Service is to be provided. An Approach Control Service can only be provided by Air Traffic Control Officers (ATCOs), as opposed to Flight Information Service Officer (FISOs).
- 6.3.155 The UK permits an Approach Control Service to be provided outside CAS⁵³, and it also permits RNP Approaches outside CAS, without an Approach Control Service within CAP2304 but there is no provision in that document for Instrument Landing System (ILS) approaches in Class G airspace, without an approach control service being provided⁵⁴.

⁵¹ CAA Policy for the Design Controlled Airspace Structures

⁵² CAA Policy for the Design Controlled Airspace Structures

⁵³ Note paras 4.17.13 and 4.7.14

⁵⁴ CAP2304 Page 7 states that the document provides policy, guidance and AMC6 to assist those aerodromes to apply for the implementation of a Required Navigation Performance (RNP) approach

- 6.3.156 The description of the current day scenario surrounding DSA illustrates a frequent prevalence of other airspace users in the area of operation that DSA will provide an Air Traffic Service. This supports the requirement for the provision of a surveillance-based Approach Control Service to future DSA operators.
- 6.3.157 DSA proposes both RNP and ILS⁵⁵ approaches and their air traffic controllers will have Aerodrome Control Instrument (ADI) rating Endorsements and Approach Control Surveillance rating with Radar (RAD) endorsement.
- 6.3.158 UK regulations currently allow Approach Control units in Class G airspace to provide UK Flight Information Services via a Procedural Service, Deconfliction Service, Traffic Service or Basic Service along with an Alerting Service. A Procedural, Traffic and Deconfliction Service can only be provided by ATCOs and provision of a Traffic or Deconfliction service requires ATCOs to have an Approach Control Surveillance (APS) rating. CAP493 could be construed to declare these services as an Approach Control Service⁵⁶ as it falls within the relevant section in the document, but the description of the services provided in Class G airspace does not use the word 'control' and when ATCOs provide UK FIS they do not declare to be providing an Approach Control Service. CAP1711⁵⁷ says that the UK intentions are for future air traffic service provision to be "aligned with ICAO standards and recommended practises and procedures for air navigation and hence air traffic control service is provided only in controlled airspace".
- 6.3.159 CAP744 defines an Approach Control Service as an Air Traffic Control service for arriving, departing or transiting controlled flights. A controlled flight is any flight which is subject to an air traffic control clearance. An Air Traffic Control Service can only be provided within controlled airspace. These are therefore Approach Control Units in Class G airspace, but they are not providing an Approach Control Service.
- 6.3.160 It is therefore debatable as to whether the provision of UK FIS constitutes an Approach Control Service, as required by the Air Navigation Order Article 183. With regards to a Deconfliction Service, the pilot only receives traffic information accompanied with a heading and/or level instructions aimed at achieving a planned deconfliction minima against all "observed" aircraft and the avoidance of other traffic is ultimately the pilot's responsibility.
- 6.3.161 ICAO Annex 11 makes a clear distinction between an air traffic control service and a flight information service. An Approach Control Service is an Air Traffic Control Service (as per CAP744) and those portions of the airspace where it is determined that air traffic control services will be provided to IFR flights shall be designated as control areas or control zones. A flight information service is provided for the purpose of giving "advice". ICAO flight information services does not recognise the provision of an Approach Control Service in uncontrolled airspace.
- 6.3.162 CAP1711a⁵⁸ states the UK's intention is to adopt ICAO flight Information services⁵⁹. It goes on to state that *"The CAA does not automatically equate the adoption of ICAO FIS with the need for every air navigation service provider currently providing UK Flight Information Services Deconfliction Services and Procedural Service to IFR traffic in Class G airspace to require a control zone (CTR). The expectation as a starting assumption is that air navigation service providers will manage their traffic in Class G using ICAO FIS. Any perceived need for the provision of air traffic control service and the associated notification of a CTR will require an airspace change proposal in accordance with CAP 1616"*.

⁵⁵ CAT I for runway 02 and CAT II/III for runway 20

⁵⁶ CAP493 Section 3: Chapter 1: Approach Control

⁵⁷ Chapter 5 Use case 2: Air traffic service provision

⁵⁸ Chapter 3 Element 4

⁵⁹ ICAO FIS does not recognise Basic Service, Traffic Service, Deconfliction Service or Procedural Service. The provision of separation for IFR movements requires an air traffic control service inside controlled airspace.

- 6.3.163 CAP1711⁶⁰ states that the UK intentions are for future air traffic service provision to be “*aligned with ICAO standards and recommended practises and procedures for air navigation and hence air traffic control service is provided only in controlled airspace*”.
- 6.3.164 Furthermore, Annex A of the CAA Policy for the Design Controlled Airspace Structures is now aligned with ICAO, also stating “those portions of the airspace where it is determined that air traffic control (ATC) service will be provided to Instrument Flight Rules (IFR) flights shall be designated as control areas (CTA) or control zones (CTR)”.
- 6.3.165 DSA, through robust safety led assessment of risk and requirements, seeks to ensure the risk of airborne conflict in the areas where an ATS will be provided is ALARP, by providing an Air Traffic Control Service, which, to unequivocally comply with current and future regulations, will be required to be provided within controlled airspace.

Standard Instrument Departures

- 6.3.166 DSA are also proposing SIDs for a number of reasons:

1. Statement of Need

The Statement of Need contains an objective of re-establishing SIDs. From a safety and operational standpoint, reintroducing controlled airspace and associated procedures will provide essential protection and systemisation for commercial traffic, at critical phases of flight and ensure safe interactions with other airspace users.

2. Enhanced Safety

CAA's Post Implementation Review (PIR) of the original implementation of Controlled Airspace at Robin Hood Airport Doncaster Sheffield (RHADS), June 2017, explains that prior to the establishment of CAS at the airport, there was a known issue with commercial air transport operating in the then Class G airspace coming into conflict with unknown traffic, particularly in critical areas of flight perceived as high risk such as departure (and arrival). Specifically, the original CAS proposal sought to enhance safety by protecting commercial air transport in the critical departure and arrival phases of flight through containment of procedures within controlled airspace. It also states that the introduction of SIDs with connectivity to the airways structure undoubtedly reduces controller workload, planning complexity for pilots and delivers operational and environmental benefits to airports users to and from the airport.

3. Noise and Environmental Performance

DSA's Planning Permission requires Noise Preferential Routings (NPRs) for departures and radar tracking to assist in monitoring adherence to the NPR. The NPRs were arrived at through consultation in 2018 and one of our design principles is that the airspace change proposal should not modify DSA's previous NPRs unless required for safety or airspace integration purposes. The NPR track keeping would be very challenging without associated PBN SIDs.

The introduction of SIDs allows continuous climb within managed routes that are preferred for minimising disruption to the local community and the realisation of environmental benefits. These benefits are further realised by comparison with the likely increase in the fuel burn, CO₂ emissions and noise that would be incurred whilst providing the highest level of service (Deconfliction Service) outlined in CAP 774. The deconfliction service requirements are for an ATCO providing the service to seek to achieve 5 nm laterally or 3000ft vertically from uncoordinated (unknown) traffic. In the

⁶⁰ Chapter 5 Use case 2: Air traffic service provision

areas around DSA the traffic density is such that there are multiple opportunities for large commercial aircraft during arrival and departure, to come into conflict (less than the deconfliction minima) with unknown traffic. This requires the ATCO to use vectoring to avoid the unknown traffic which is likely to result in increased track miles to the IAP or enroute fix and subsequently increases noise, fuel burn and CO₂ emissions.

4. Existing and Future MTMA Integration

DSA's air traffic will need to integrate with the existing network airspace design and, where possible, the emerging MTMA network design. The latter is striving to achieve a systemised environment allowing minimal ATCO intervention, which will be achieved through the provision of closely spaced PBN routes. The ability to procedurally deconflict DSA's arrivals and departures routes from each other together with those of Leeds Bradford Airport and Manchester Airport is essential to enable the most efficient airspace integration throughput, without one airport imposing delays on another due to non-separated routings.

- 6.3.167 Current UK policy⁶¹ is that a SID provides a specified IFR departure procedure that should remain wholly within controlled airspace and that permit connectivity with the en-route ATS route system.

Safety/Airprox history

- 6.3.168 As explained already in paragraph 4.7.3 the justification for the establishment of CAS at DSA is not predicated on reaching any specific level of forecast Air Transport Movements (ATMs) but is to enable the safe and efficient operation of scheduled commercial air transport within a busy and complex section of UK airspace, close to other large commercial air transport airports and significant general aviation activity.
- 6.3.169 In July 2008, Robin Hood Airport Doncaster Sheffield (RHADS) implemented controlled airspace after an airspace change to "to introduce Control Zones (CTRs) and Control Areas (CTAs) to maintain a high standard of safety and, where possible, enhance flight safety, improve the operations of airspace users to and from the airport, reduce air traffic controller workload and interactions, and minimise the environmental impacts of these operations upon local communities."
- 6.3.170 In 2017 the CAA published their Post Implementation Review (PIR) of the ACP⁶².
- 6.3.171 The PIR states that "There was a known issue with commercial air transport operating in the then Class G airspace coming into conflict with unknown traffic, particularly in areas of flight perceived as high risk such as climb-out and arrival. A significant factor in the justification for the CTRs in particular were the numbers of Airprox⁶³ involving CAT in the vicinity of the airfield since commercial operations had begun, including one Category B assessment."
- 6.3.172 The CAA's PIR report presented some data⁶⁴ on the number of filed Airprox reports in the vicinity of the airport for the 3 years prior to the controlled airspace implementation to the end of 2014. This is presented in Figure 40.

⁶¹ CAA Policy for the Design Controlled Airspace Structures

⁶² <https://www.caa.co.uk/media/v15pp0jn/20170512-doncaster-pir.pdf>

⁶³ "A situation in which, in the opinion of a pilot or air traffic services personnel, the distance between aircraft as well as their relative positions and speed have been such that the safety of the aircraft involved may have been compromised."

⁶⁴ Figure 1 of the PIR

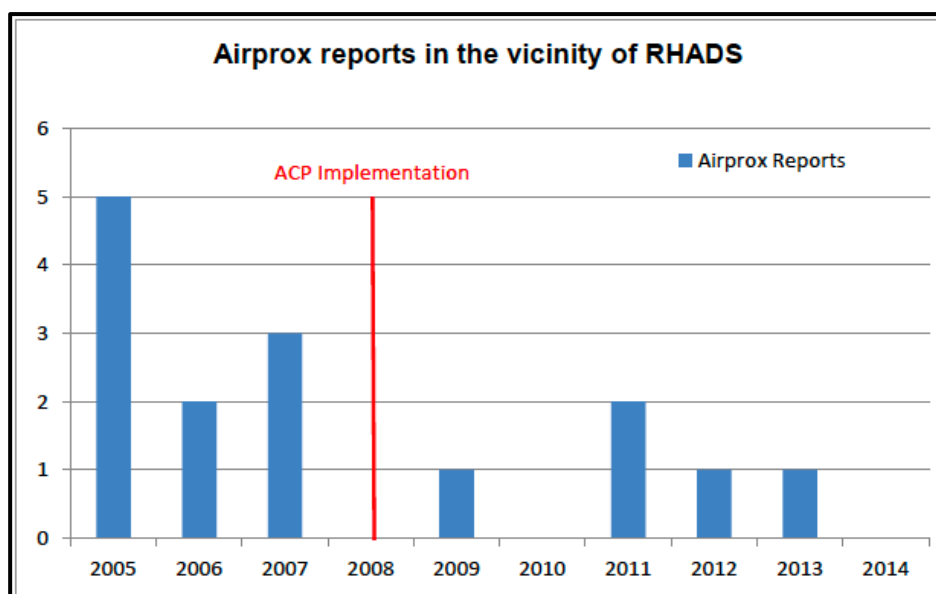


Figure 40: Table from CAA's RHADS PIR, showing Airprox trend v CAS implementation

- 6.3.173 The PIR also presented data on RHADS Annual Passenger Movements across a similar period⁶⁵ and the PIR also states *"in the opinion of the CAA, 1mppa⁶⁶ is considered a suitable benchmark for the looking at the possible requirement for CAS at RHADS"*.
- 6.3.174 However, there is no data presented by the CAA to support this opinion. Whilst the PIR was published nearly 8 years ago and noting that, as set out above, CAA policy has evolved since then, there is no CAA policy statement surrounding a specific threshold of annual passenger movements that justifies a requirement for controlled airspace.
- 6.3.175 CAA policy is aligned with ICAO in that Air Navigation Service Providers (ANSPs) should seek to review and examine particular elements or procedures of a specific operation and their functional system. The purpose being to ensure that the ANSP can provide its services in a safe, efficient, continuous and sustainable manner, consistent with any foreseen level of overall demand for a given airspace. The word 'demand' in this context is not associated with the demand by one particular airspace user.
- 6.3.176 Notwithstanding this, the 1 mppa Figure has been highlighted to us by some stakeholders in support of their arguments that DSA cannot justify controlled airspace. CDC have therefore expanded on the CAA's PIR analysis from 2005 and extended it through to the end of 2022 when DSA ceased operations. The analysis considers all Airprox filed within 10nm of the RHADS CTA lateral boundary that involved a Doncaster flight.
- 6.3.177 Figure 41 shows the number of filed Airprox involving an RHADS movement from 2005 to 2022⁶⁷ mapped against the number of passengers operating from the airport.

⁶⁵ 2005-2016

⁶⁶ Million passengers per annum

⁶⁷ There was one airprox in 2022 which involved an RHADS movement with an unknown object. This airprox was excluded from the analysis as controlled airspace could not be considered to be a mitigating or attributing factor.

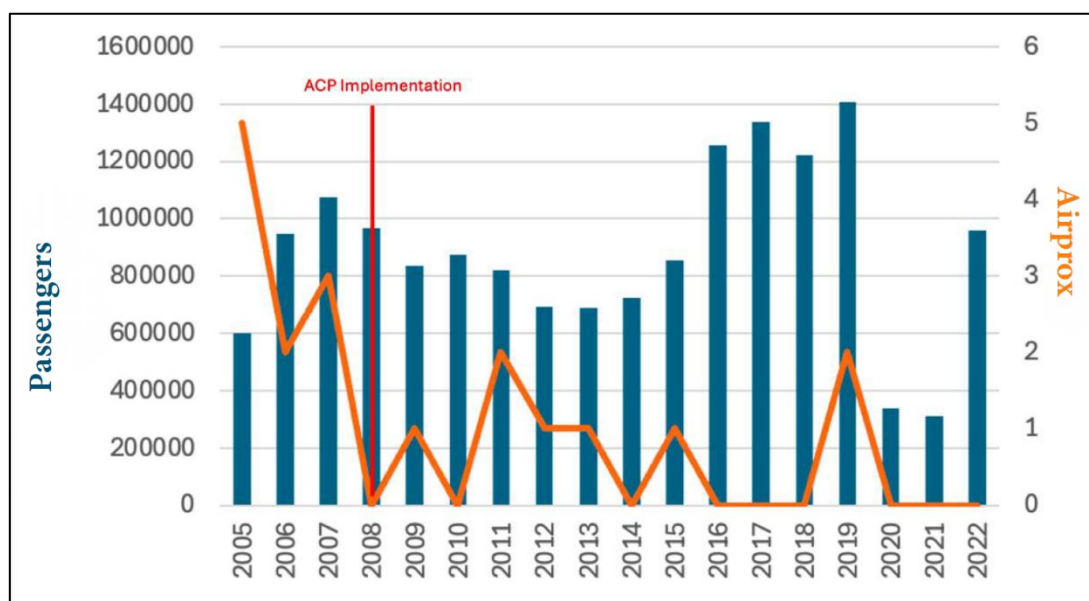


Figure 41: RHADS Airprox trend v Passenger Numbers

- 6.3.178 The extended analysis showed there were more filed Airprox involving RHADS movements in the 3 years prior to establishing controlled airspace than in the following 15 years. In 2005-2007 there was one airprox per 262,217 RHADS passenger movements. In 2008-2022 there was one airprox per 1,661,495 RHADS passenger movements.
- 6.3.179 That analysis covered the trend for RHADS movements but did not consider any Airprox trends for the wider airspace user community. Figure 42 therefore presents the number of Airprox reports filed each year, in total, within 10nm of RHADS' previous controlled airspace boundary. This considers all Airprox, not just those involving RHADS movement and extends back to 2000, ahead of the opening of RHADS.

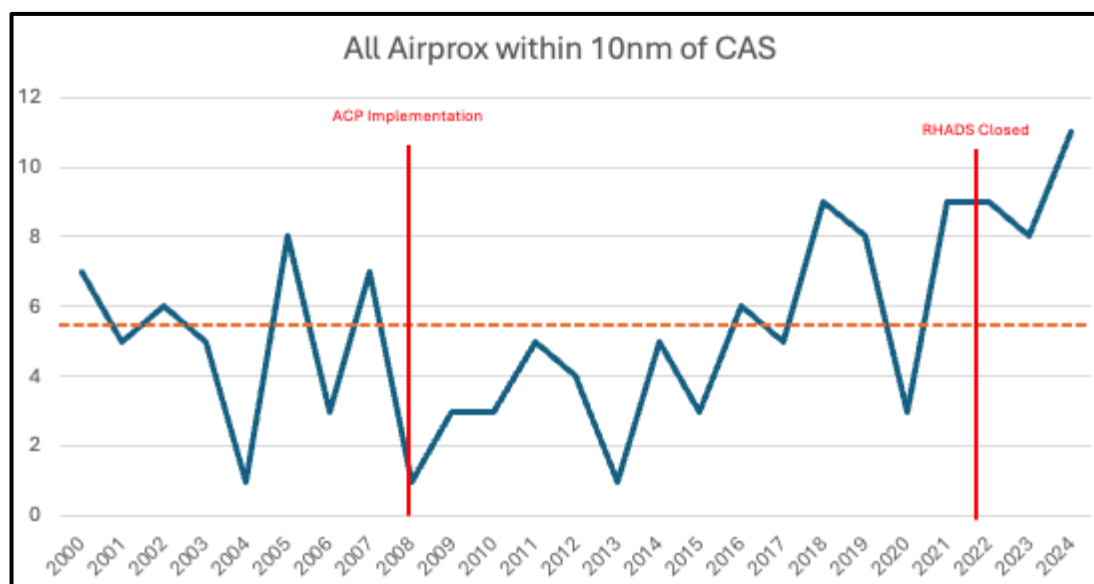


Figure 42: All Airprox trend within 10nm of CAS boundaries 2000-2024

- 6.3.180 In the case of the airspace surrounding DSA, there is clearly not a rationale that supports the case that there should be a threshold for passenger movements reached to justify a requirement for controlled

airspace, nor is there evidence that the implementation of CAS had a negative impact on other airspace users which resulted in increased Airprox reports as a result of the implementation of the CAS. With the exception of 2020 (Covid), there has been an increase in the number of filed reports but this trend has continued since the closure of the CAS 2022⁶⁸.

- 6.3.181 It is not only the safety of the commercial air traffic that is enhanced but also the safety of other airspace users that could otherwise legitimately operate in the same airspace volume (beyond an ATZ) with no transponder and without being in receipt of any air traffic service.

⁶⁸ Data for 2025 not available at the time of writing.

Appendix F. Existing Airspace User Activity

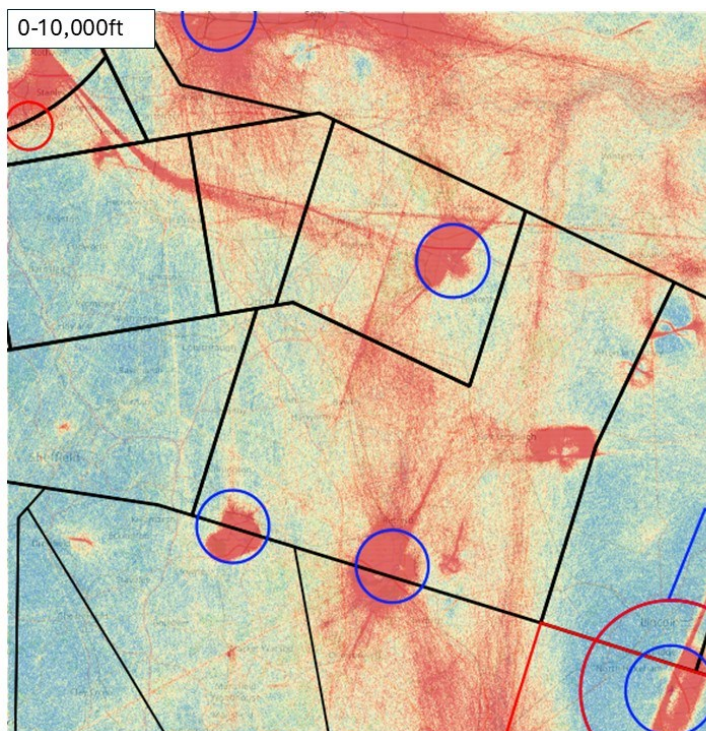
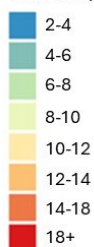
- 6.3.182 When reviewing the images within this appendix, please pay careful attention to the key, the altitude bands and the title of the image to see the time period of the data. The same data is presented in various formats to aid understanding.

F.1 Secondary Surveillance Radar data comparisons

May-Oct 2025

Mode S Traffic only
No DSA CAS
No RAF Scampton MATZ or EGR313
EGD324A/B

Total No. of Transponding Flights in the
6-month period in the 10,000ft band

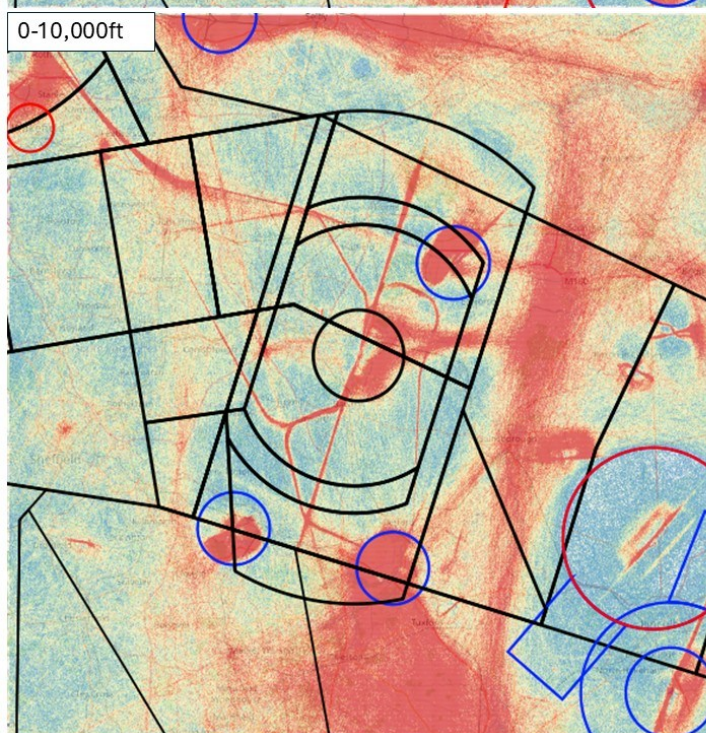
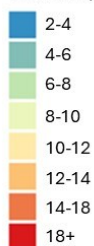


— CAS
— ATZ/MATZ
— Restricted/Danger

May-Oct 2022

Mode S Traffic only
RHADS CAS
RAF Scampton MATZ/EGR313
No EGD324A/B

Total No. of Transponding Flights in the
6-month period in the 10,000ft band

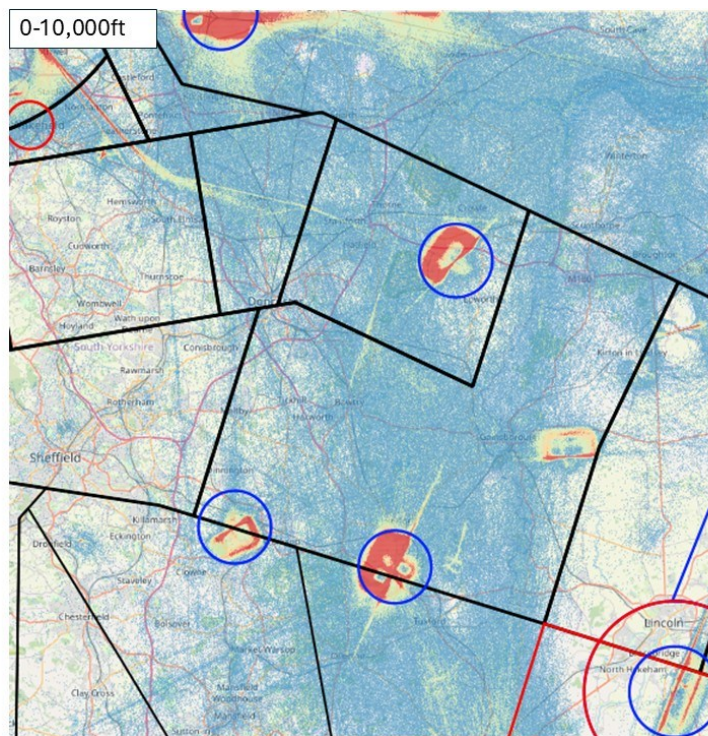


— CAS
— ATZ/MATZ
— Restricted/Danger

May-Oct 2025

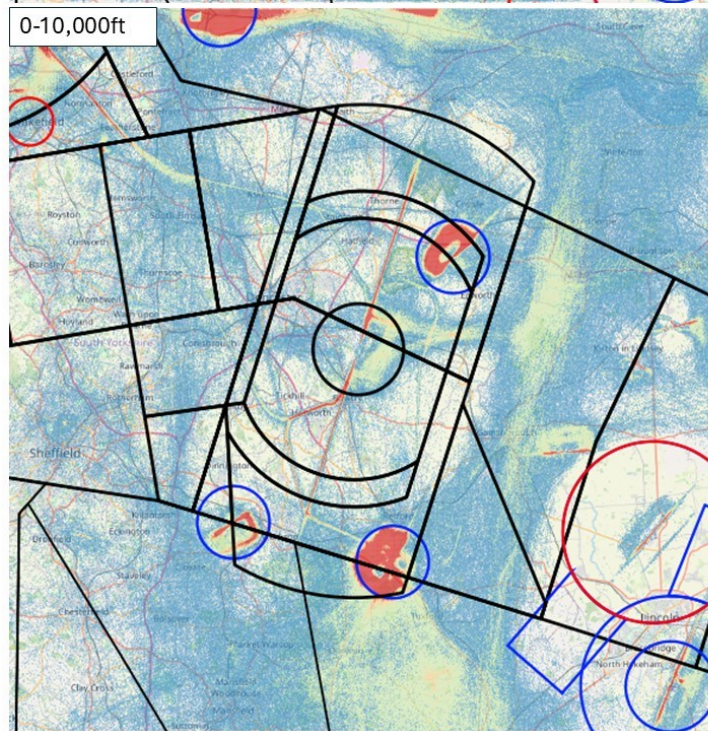
Mode S Traffic only
No DSA CAS
No RAF Scampton MATZ or EGR313
EGD324A/B

Total No. of Transponding Flights in the
6-month period in the 10,000ft band

**May-Oct 2022**

Mode S Traffic only
RHADS CAS
RAF Scampton MATZ/EGR313
No EGD324A/B

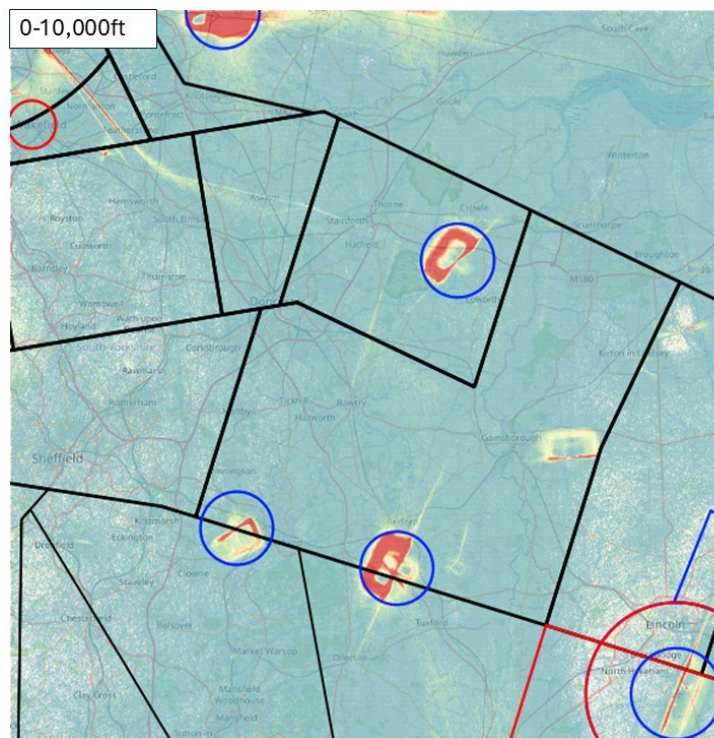
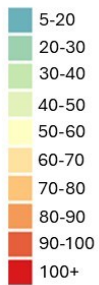
Total No. of Transponding Flights in the
6-month period in the 10,000ft band



May-Oct 2025

Mode S Traffic only
No DSA CAS
No RAF Scampton MATZ or EGR313
EGD324A/B

Total No. of Transponding Flights in the
6-month period in the 10,000ft band

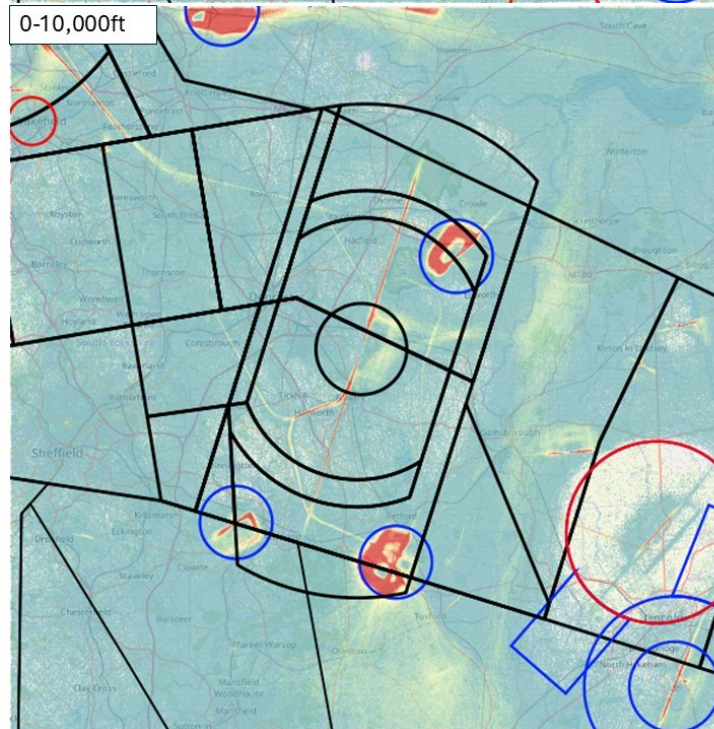
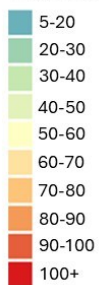


— CAS
— ATZ/MATZ
— Restricted/Danger

May-Oct 2022

Mode S Traffic only
RHADS CAS
RAF Scampton MATZ/EGR313
No EGD324A/B

Total No. of Transponding Flights in the
6-month period in the 10,000ft band

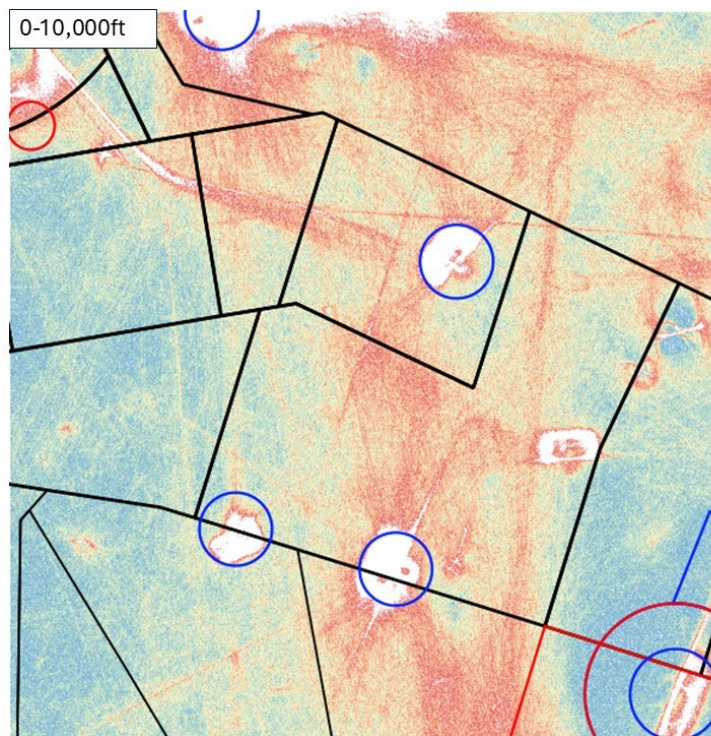
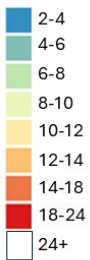


— CAS
— ATZ/MATZ
— Restricted/Danger

May-Oct 2025

Mode S Traffic only
 No DSA CAS
 No RAF Scampton MATZ or EGR313
 EGD324A/B

Total No. of Transponding Flights in the
 6-month period in the 10,000ft band

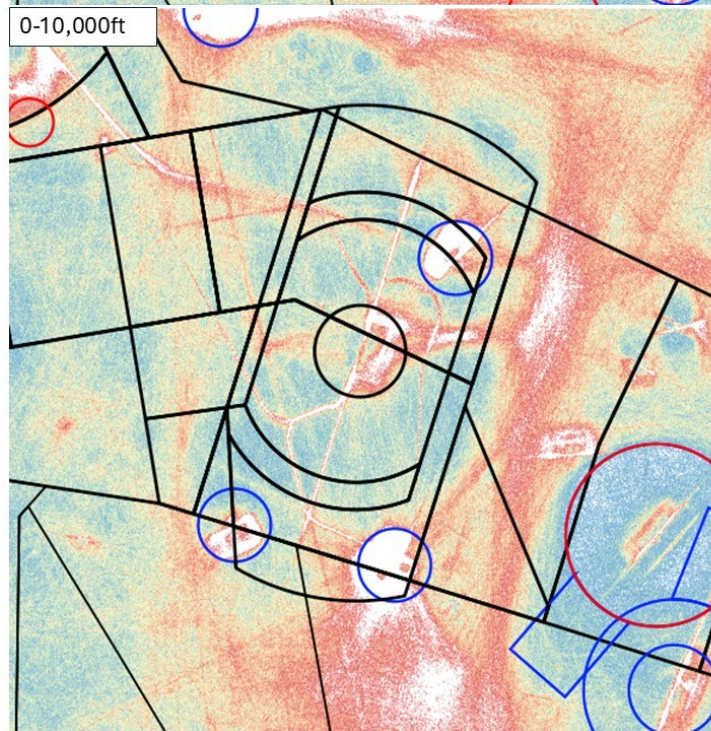
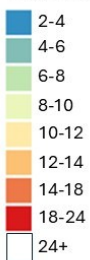


— CAS
 — ATZ/MATZ
 — Restricted/Danger

May-Oct 2022

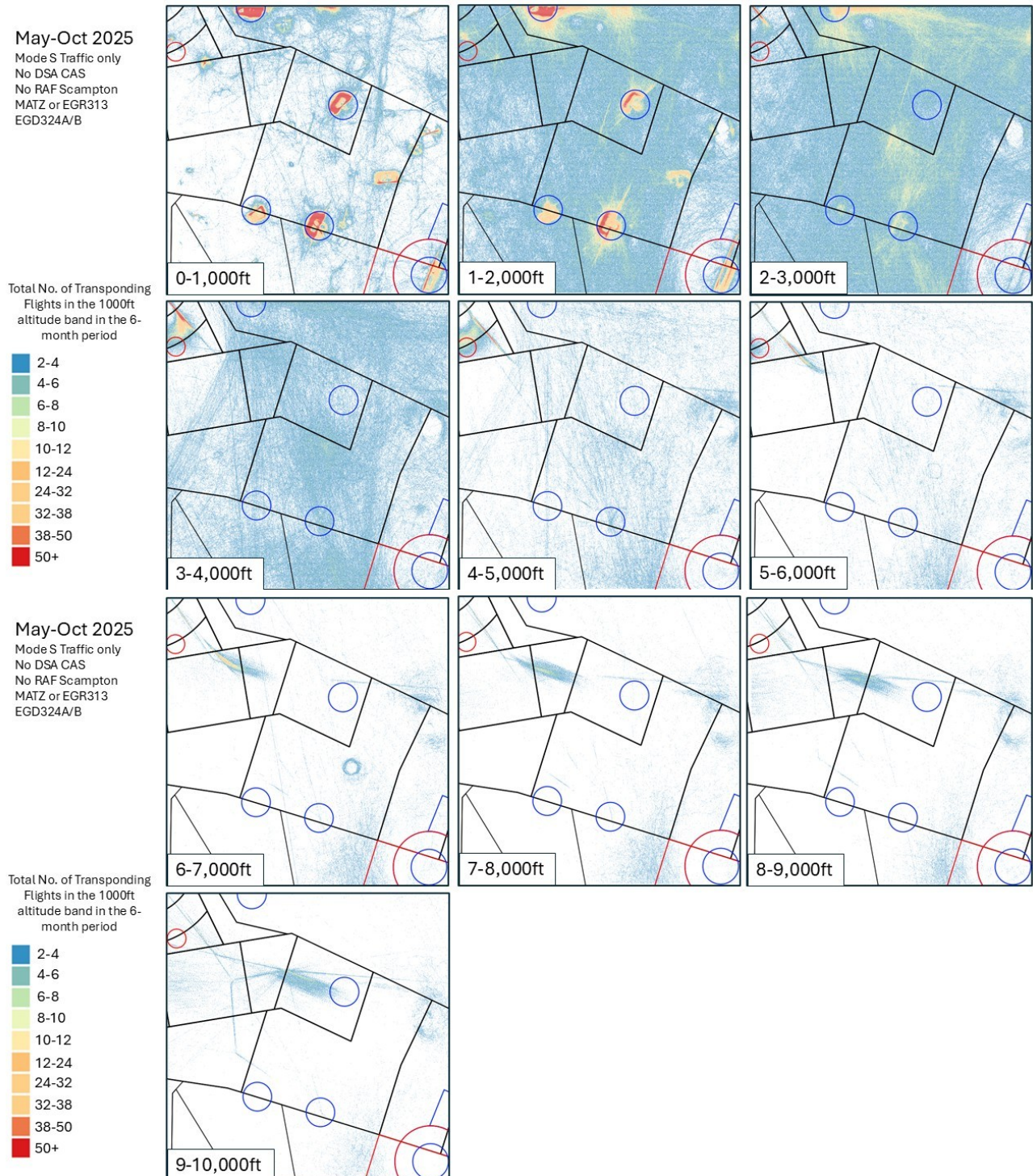
Mode S Traffic only
 RHADS CAS
 RAF Scampton MATZ/EGR313
 No EGD324A/B

Total No. of Transponding Flights in the
 6-month period in the 10,000ft band



— CAS
 — ATZ/MATZ
 — Restricted/Danger

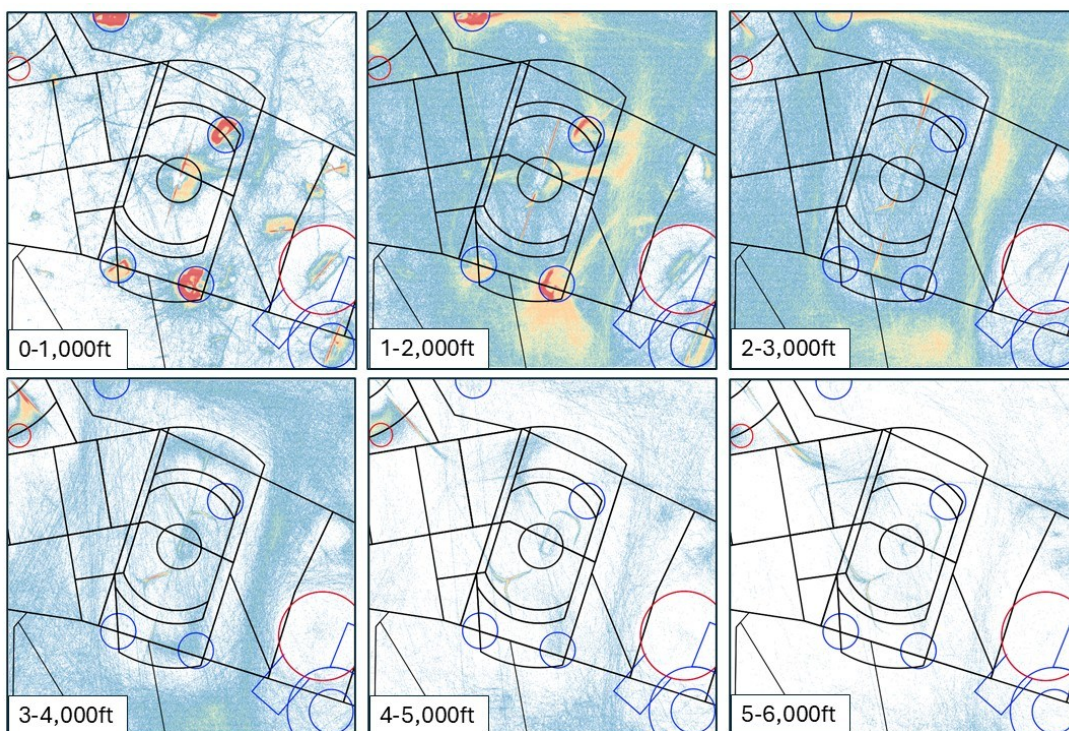
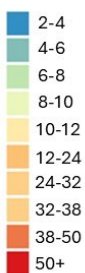
F.2 Secondary Surveillance Radar data comparisons (1000ft bands)



May-Oct 2022

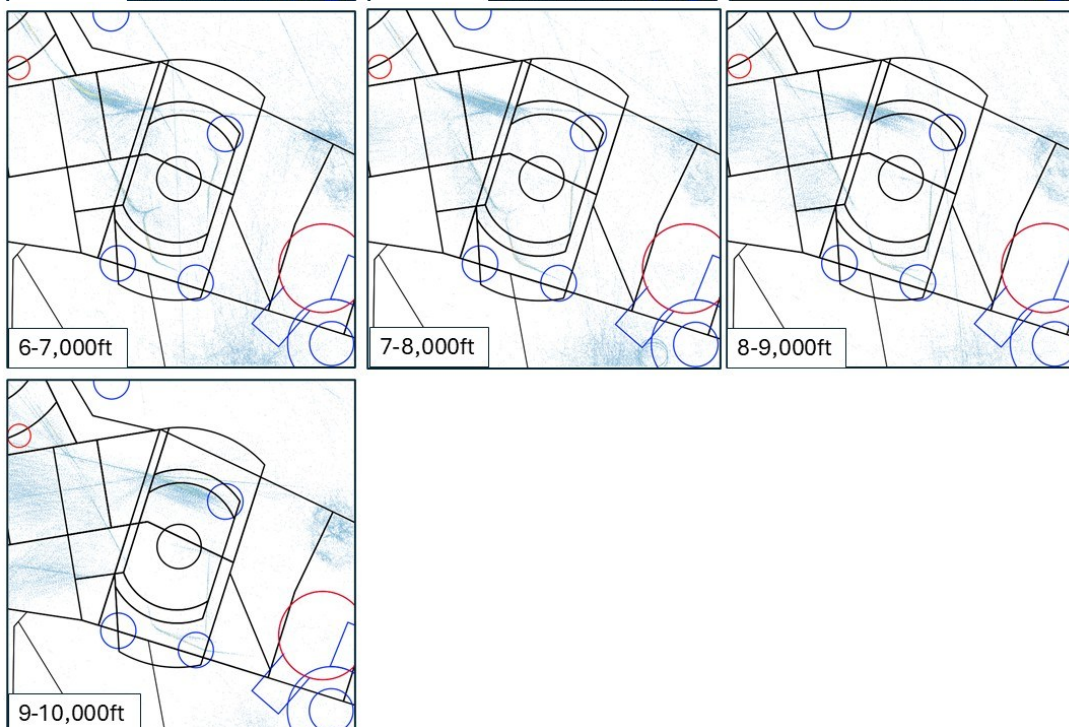
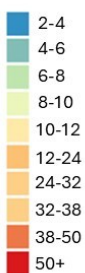
Mode S Traffic only
RHADS CAS
RAF Scampton MATZ
/EGR313
No EGD324A/B

Total No. of Transponding
Flights in the 1000ft
altitude band in the 6-
month period

**May-Oct 2022**

Mode S Traffic only
RHADS CAS
RAF Scampton MATZ
/EGR313
No EGD324A/B

Total No. of Transponding
Flights in the 1000ft
altitude band in the 6-
month period



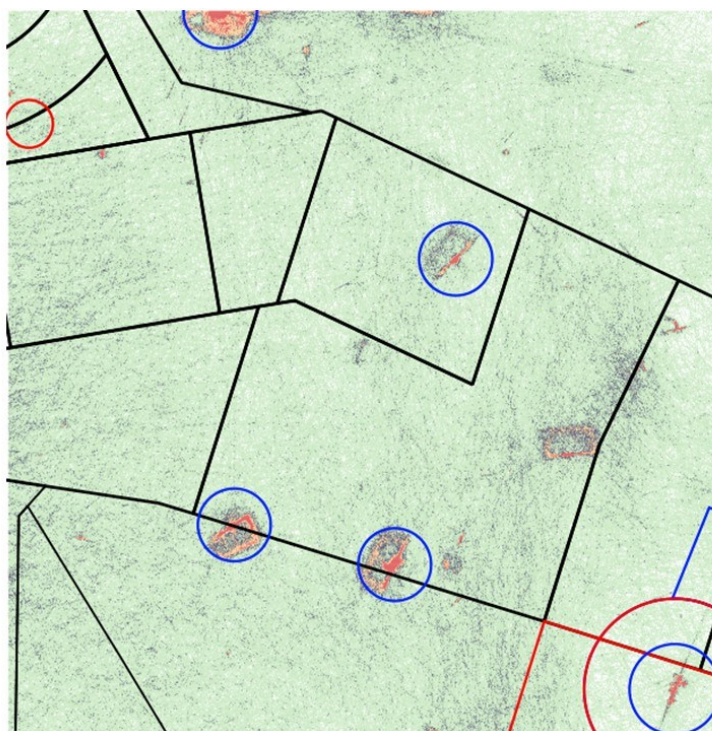
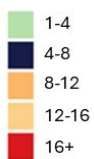
F.3 Primary radar data comparisons

The following pages show primary radar data comparisons between May – Oct 2025 and May – Oct 2022.

May-Oct 2025

Primary Traffic only
No DSA CAS
No RAF Scampton MATZ or EGR313
EGD324A/B

Total No. of non-Mode S Transponding
Flights in the 6-month period in the
10,000ft band

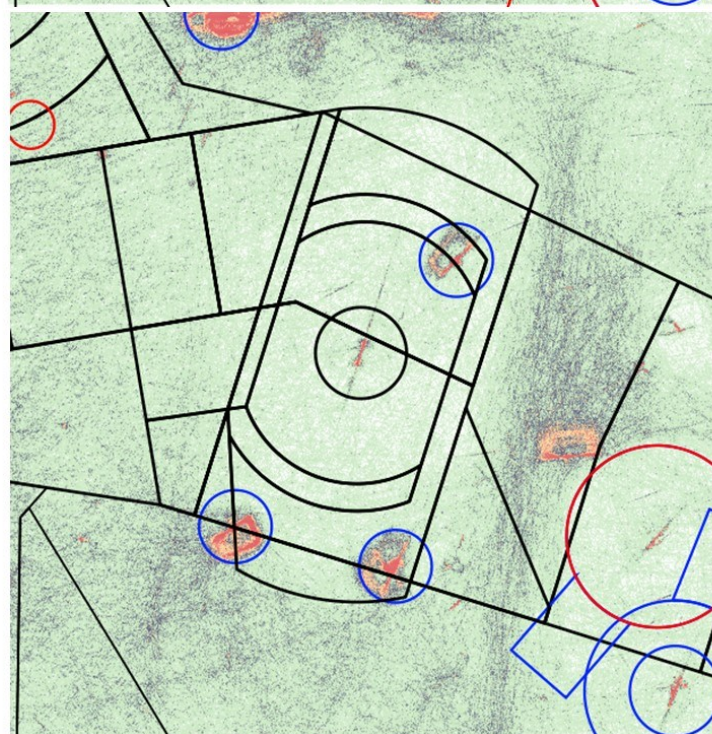
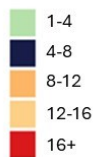


— CAS
— ATZ/MATZ
— Restricted/Danger

May-Oct 2022

Primary Traffic only
RHADS CAS
RAF Scampton MATZ/EGR313
No EGD324A/B

Total No. of non-Mode S Transponding
Flights in the 6-month period in the
10,000ft band

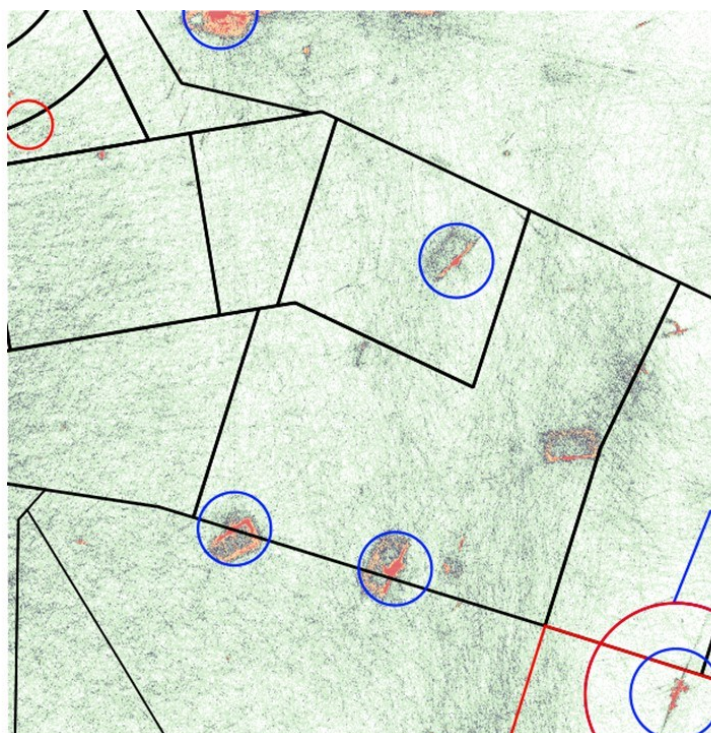
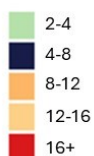


— CAS
— ATZ/MATZ
— Restricted/Danger

May-Oct 2025

Primary Traffic only
 No DSA CAS
 No RAF Scampton MATZ or EGR313
 EGD324A/B

Total No. of non-Mode S Transponding
 Flights in the 6-month period in the
 10,000ft band

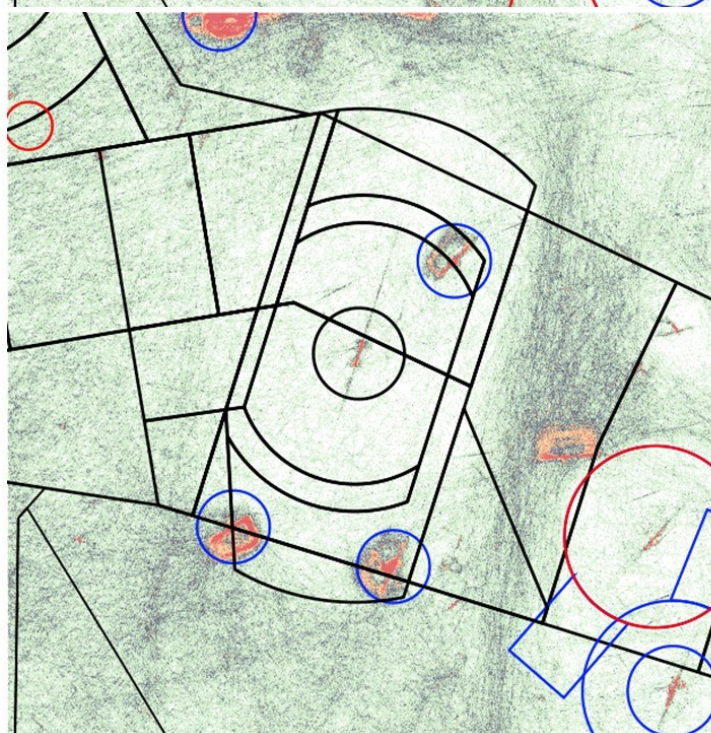
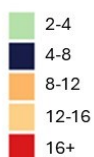


— CAS
 — ATZ/MATZ
 — Restricted/Danger

May-Oct 2022

Primary Traffic only
 RHADS CAS
 RAF Scampton MATZ/EGR313
 No EGD324A/B

Total No. of non-Mode S Transponding
 Flights in the 6-month period in the
 10,000ft band

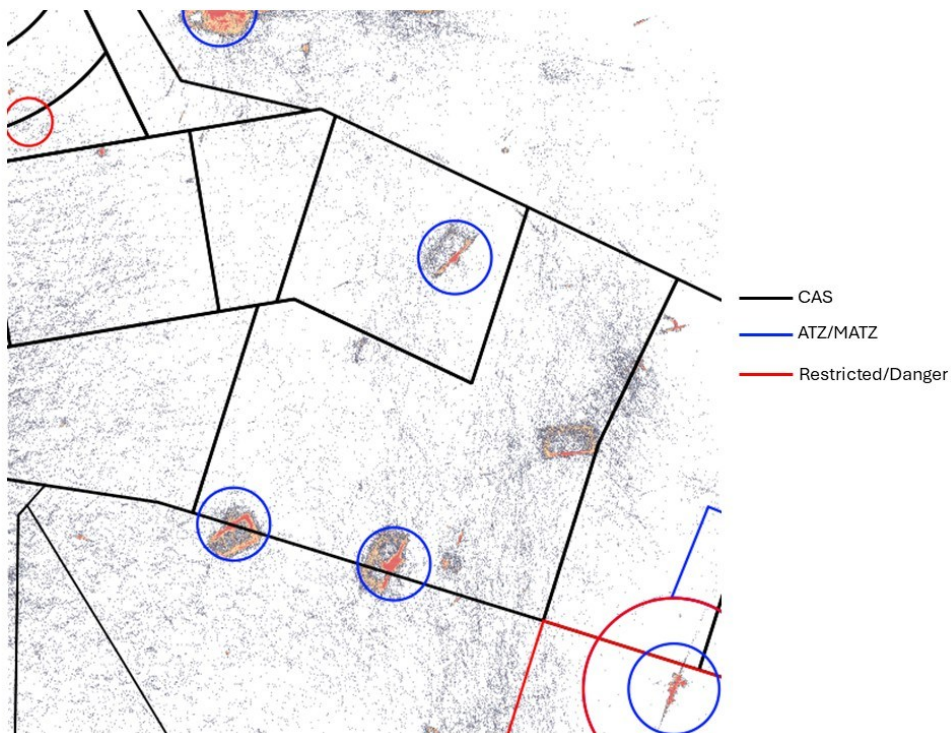
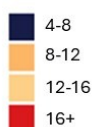


— CAS
 — ATZ/MATZ
 — Restricted/Danger

May-Oct 2025

Primary Traffic only
 No DSA CAS
 No RAF Scampton MATZ or EGR313
 EGD324A/B

Total No. of non-Mode S Transponding
 Flights in the 6-month period in the
 10,000ft band

**May-Oct 2022**

Primary Traffic only
 RHADS CAS
 RAF Scampton MATZ/EGR313
 No EGD324A/B

Total No. of non-Mode S Transponding
 Flights in the 6-month period in the
 10,000ft band

