

Future Airspace Strategy Implementation- ScTMA

Gateway Documentation:
Stage 3 Consultation Document Summary
ACP-2019-74

NATS

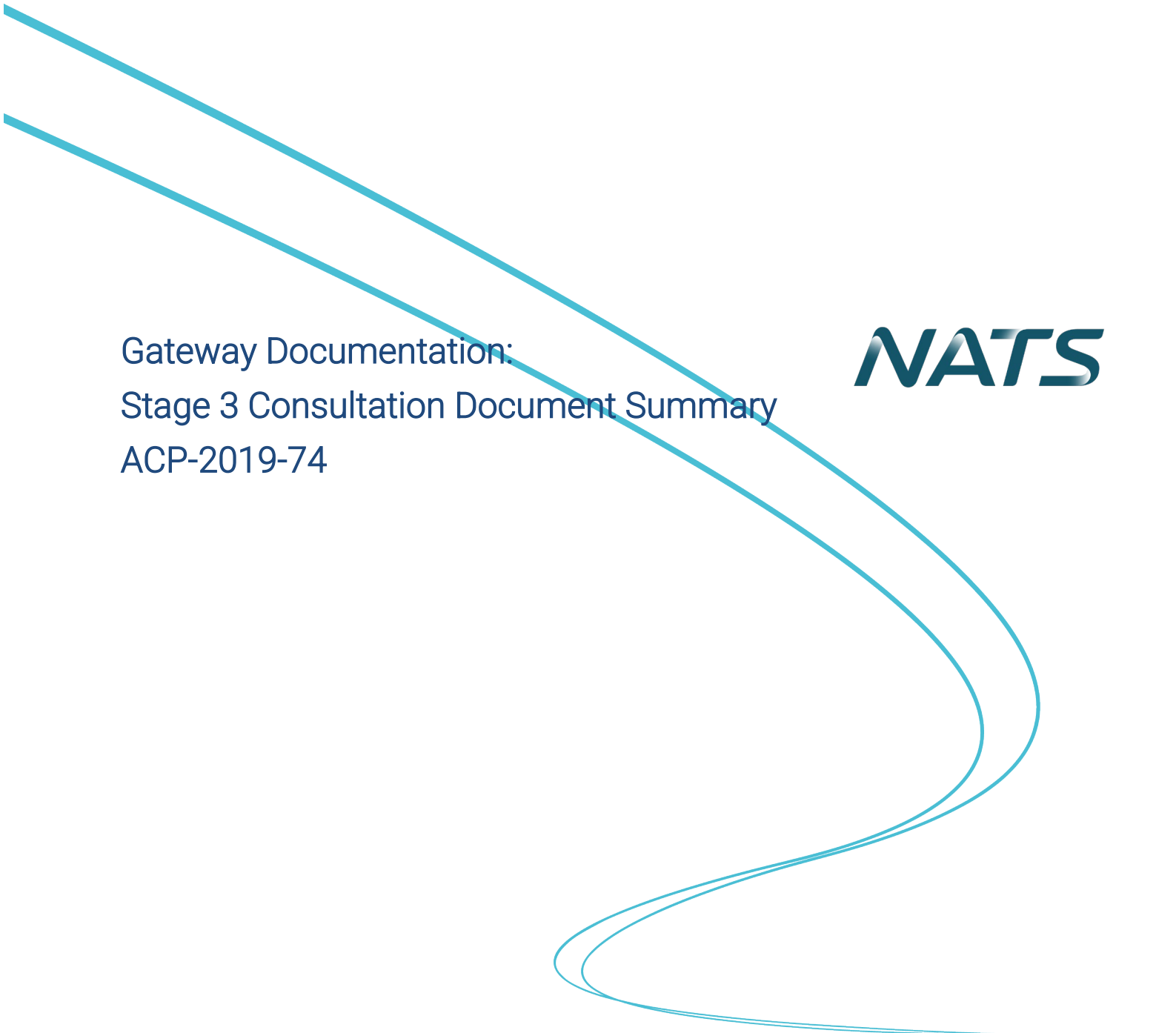
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Roles

Action	Role	Date
Produced	Airspace Change Specialist Airspace Change Compliance & Delivery	August 2025
Reviewed Approved	Manager Airspace Change Compliance & Delivery Airspace Change Compliance & Delivery	August 2025
Reviewed Approved	Airspace Implementation Manager Airspace & Future Operations	August 2025
Reviewed Approved	Head of Airspace Development Airspace & Future Operations	August 2025

Change History

Issue	Month/Year	Changes this issue (most recent first)
Version 4.0	August 2025	Section 7 updated to remove duplication of Scottish Airspace Modernisation sponsor list and inclusion of a systemwide benefit value. Note added to section 3.12 on implementation timeframe,
Version 3.0	August 2025	Updated following Cluster Gateway July 2025 including: - Change history Added. - Consultation Dates updated. - Figure 13 Caption updated. - Inclusion of a new section summarising the benefits of Scottish Airspace Modernisation.
Version 2.5	July 2025	Updated document relating to an identified design error relating to the STRAT SID from Edinburgh airport
Version 2.0	December 2024	Updated Document following Gateway Feedback. Updates include: Clarification that the presented Fuel and CO₂e figures are for the cluster.
Version 1.0	August 2024	Original submission to CAA for Gateway Assessment.

Referenced Documents

Ref No	Name and description	Links
1	Future Airspace Strategy Implementation-ScTMA- Progress through CAP1616	Link
2	Stage 1: Assessment Meeting Presentation	Link
3	Stage 1: Assessment Meeting Minutes	Link
4	Stage 1: Design Principles	Link
5	Stage 2: Design Options and Evaluation	Link
6	Stage 2: Initial Options Appraisal including Safety Appraisal	Link
7	Stage 3: Consultation Strategy	Link
8	Stage 3 Full Options Appraisal	Link
9	CAP1616 Edition 5: Airspace Change Process	Link
10	CAA Airspace Modernisation Strategy (CAP1711)	Link
11	CAP1385: CAA Policy on Performance-based Navigation (PBN): Enhanced Route Spacing Guidance	Link
12	Policy for the Design of Controlled Airspace Structures	Link
13	UK Government Department for Transport's 2017 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 (abbreviated to ANG2017)	Link
14	SARG Policy 133: Policy for the Establishment and Operation of Special Use Airspace	Link
15	CAP1617: Planned and Permanent Redistribution of Air Traffic	Link
16	CAP785B: Implementation and Safeguarding of Instrument Flight Procedures (IFPs) in the UK	Link
17	SARG Policy 117: Policy for ATS Provision Within Controlled Airspace by Units not Notified as the Controlling Authority	Link
18	ICAO Annex 11 to the Convention of International Civil Aviation: Air Traffic Services	Link
19	Stage 3: Consultation Document (full version)	Link
20	Treasury Green Book Annex A6	Link
21	CAP1616i: Environmental Assessment Requirements and Guidance for Airspace Change Proposals	Link
22	ACOG's Public Engagement Exercise	Link
23	Airspace Change Masterplan Iteration 3 Scotland	Link

1. Introduction

1.1 Background

- 1.1.1 This document provides a summary of the consultation document prepared by NATS En Route Ltd (NERL) on its proposals for Scottish Airspace Modernisation. It aims to provide a simplified and more accessible explanation of the NERL proposals so that non-aviation stakeholders can more easily respond to the consultation. The full consultation document is available on the NERL Citizen Space page [here](#), and can be read in addition to this document for those who would like to see the details. The stakeholders primarily affected by NERL's proposed changes are the users of the airspace. However, because the NERL Airspace Change Proposal (ACP) is one of three interlinked proposals – the other two being put forward by Edinburgh Airport and Glasgow Airport – NERL expects more interest from the general public than might normally be the case.
- 1.1.2 These proposed changes contribute to the Scottish Airspace Modernisation programme¹, which is part of a UK-wide airspace modernisation programme co-sponsored by CAA and DfT set out in a Masterplan developed by the Airspace Change Organising Group (ACOG).
- 1.1.3 Today's airspace has been largely unchanged since the 1950s when there were fewer than 1m flights per year in UK airspace, compared with 2.5m in 2019 and projections of 3m by 2030. Modernising it is an important part of the Government's transport policy and involves airlines, airports, air traffic control and other aviation stakeholders. The changes described herein are therefore aligned with the DfT's and CAA's Airspace Modernisation Strategy (CAP1711, Reference 10).
- 1.1.4 NERL's proposed change is to Scottish network airspace above 7,000 ft. Edinburgh Airport and Glasgow Airport are redesigning their arrival and departure routes below 7,000 ft.
- 1.1.5 This Scottish cluster of ACPs includes:
- Future Airspace Strategy Implementation North (FASI-N)- Scottish Terminal Manoeuvring Area (ScTMA) (ACP-2019-74). (This ACP)
 - FASI-N-Edinburgh Airport Airspace (ACP-2019-32)
 - FASI-N-Glasgow Airport Airspace (ACP-2019-46)
- 1.1.6 So that everyone who might be affected by these changes gets the chance to offer feedback, airspace change sponsors follow the CAA's CAP 1616 Airspace Change Process (Reference 9). NERL has now reached the consultation stage with an airspace design that is mature enough to provide sufficient detail for stakeholders to understand the impact of the proposals.

1.2 What are 'airspace' and 'Air Traffic Service (ATS) routes'?

- 1.2.1 Aircraft currently navigate using on-board equipment that follows a mix of ground-based navigation aids and satellite navigation aids (such as GPS (Global Positioning System)). Due to improvements in aviation technology, ground-based navigation aids are being phased out.
- 1.2.2 To ensure commercial airlines navigate safely from take-off to landing, they follow Air Traffic Service (ATS) routes – which are essentially 'roads in the sky', contained within 'controlled airspace'. Air traffic controllers provide a service to these flights to ensure safety and to manage high traffic volumes.
- 1.2.3 There are different types of controlled airspace as described in Section 4.
- 1.2.4 There are also many flights outside of controlled airspace, usually by light aircraft, which can operate without the direction of an air traffic controller using the principles of 'see and avoid' to prevent collisions with other aircraft.

¹ Scottish Airspace Modernisation is the cluster's working group name for Future Airspace Strategy Implementation North (FASI-N).

1.3 The Scope of this Airspace Change.

- 1.3.1 The scope of this proposal includes the Scottish Terminal Control Area (ScTMA). A terminal control area is the name given to an area of airspace with more than one airport in close proximity such as Edinburgh Airport and Glasgow Airport. The existing TMA is shown in Figure 1 in orange.
- 1.3.2 This proposal also includes changes higher and further away from the respective airports to facilitate changes to the TMA. The potential extent of these changes is shown in Figure 1 in red. It covers southern Scotland (approximately south of a line connecting Montrose – Oban) and northern England (approximately north of a line between Barrow in Furness and Newcastle).
- 1.3.3 NERL is modernising the airspace between 7,000 ft and 25,000 ft, which airlines use to climb to their cruising level on departure and to descend from cruise level to land.



Figure 1: Lateral extent of the NERL sponsored ScTMA ACP changes (red shape) and the existing ScTMA (yellow shape).

- 1.3.4 Not all the airspace within the lateral limits of the change is controlled airspace.
- 1.3.5 This ACP seeks to improve the ScTMA by introducing a modern airspace design which will:
- Remove the dependency on ground-based navigation aids
 - Deliver improved track keeping conformance to ATS routes – which enables the distance between routes to be safely minimised based on approved airspace design criteria (CAP1385, Reference 11)
 - Enable more direct and fuel efficient flight routings within a given volume of airspace; and reduce air traffic controller workload per flight, by reducing radio transmissions. This will further enhance safety by enabling controllers to handle the forecast increase in flights

- Enable environmental benefits such as reduced CO₂e² emissions
 - Minimise the amount of controlled airspace required.
- 1.3.6 In addition to modernising the existing ATS routes, one of the important changes proposed is new ScTMA arrival and departure routes overhead the Firth of Forth, which will offer substantial benefits including:
- Direct routes for aircraft to/from the east
 - Delivering enabled fuel savings for airlines and reducing emissions by offering more direct routes
 - Enabling Edinburgh Airport to move some of their routes, which are below 7,000 ft, over the water whereas they fly over the land today.
- 1.3.7 For various reasons, aircraft arriving at an airport cannot always land immediately. This could be because multiple aircraft have arrived at the same time and need to be safely separated; or the weather may not be suitable for an immediate landing, for example it could be too windy, or the visibility too low. As a result, aircraft may have to 'hold'.
- 1.3.8 NERL is proposing new/revised Standard Arrival Routes (STARs) for Edinburgh Airport and Glasgow Airport above 7,000 ft, as well as the holds. The airports are proposing new routes from the hold to the respective runway. Glasgow Prestwick Airport's STARs, above 7,000 ft, also require updating as part of this ACP.
- 1.3.9 In addition, new/revised Standard Instrument Departure Routes (SIDs) have been proposed by Edinburgh Airport and Glasgow Airport. NERL is proposing new/revised connectivity to these updated procedures so that there is a seamless interface between the airports' proposals and NERL's.
- 1.3.10 NERL has taken this opportunity to conduct a thorough review of the controlled airspace required in line with the latest policy (Reference 12), and our operational procedures, to deliver benefits to other airspace users³ where possible, for example by reducing restrictions on airspace.
- 1.3.11 The proposed changes are all at or above 7,000 ft hence, in accordance with UK Government guidance (Reference 13), mitigation of noise impacts to stakeholders on the ground has not been prioritised. Assessment of environmental impact is limited to greenhouse gas emissions.
- 1.3.12 Although NERL is consulting on a single design option which is explained later in this document and, in full, in the Consultation Document (chapters 6 and 7) (Reference 19), NERL will welcome feedback on the proposed design option. This feedback will be used to inform the final proposed design.
- 1.3.13 The "baseline" option has been discounted as it does not provide the benefits associated with modernised airspace. However, it is included for comparison purposes.

1.4 Consultation Participation

- 1.4.1 The purpose of this consultation is to ensure that stakeholders who could be either positively or negatively affected by these changes are made aware of this ACP and given the opportunity to submit feedback.
- 1.4.2 The consultation begins on 00:01 hrs 20 October 2025, and ends 23:59 hrs 25 January 2026 (14 weeks).
- 1.4.3 For full details on how to respond to this consultation see Chapter 8.
- 1.4.4 Subject to approval by the CAA, implementation of the airspace change would occur no earlier than Q1 2027.⁴

² CO₂e is Carbon Dioxide equivalent emissions with the same global warming potential as another greenhouse gas

³ Other airspace users, includes the military, business jets, leisure flyers, drones and space flights.

⁴ The expected year for implementing the proposed changes (currently 2027) could shift. This depends on the UK Government's priorities for airspace modernisation and the capacity of the aviation industry to manage the introduction of major changes safely and efficiently.

2. Airspace Modernisation in Scotland

2.1 Scottish 'Free Route Airspace'

- 2.1.1 Free Route Airspace is airspace without ATS routes, at higher levels (above 25,000 ft). This enables flights to fly direct routes across UK airspace. Below 25,000 ft, flights are generally being positioned to land or depart an airport using 'roads in the sky' to ensure traffic remains safely separated. Therefore, Free Route Airspace is only appropriate at higher levels of flights.
- 2.1.2 In December 2021 NERL introduced the first deployment of Free Route Airspace into UK airspace. This airspace structure extends from ~25,500 ft to ~66,000 ft and covers the north, west, east and southwest portion of the lateral limits of this proposed change, see Figure 2.
- 2.1.3 Free Route Airspace over the rest of Scotland is expected to be complete before the ScTMA changes described herein. In this document set it is therefore assumed to exist already; however, if this does not happen, connection to upper routes will be retained until such time as they are removed by the completion of Free Route Airspace.

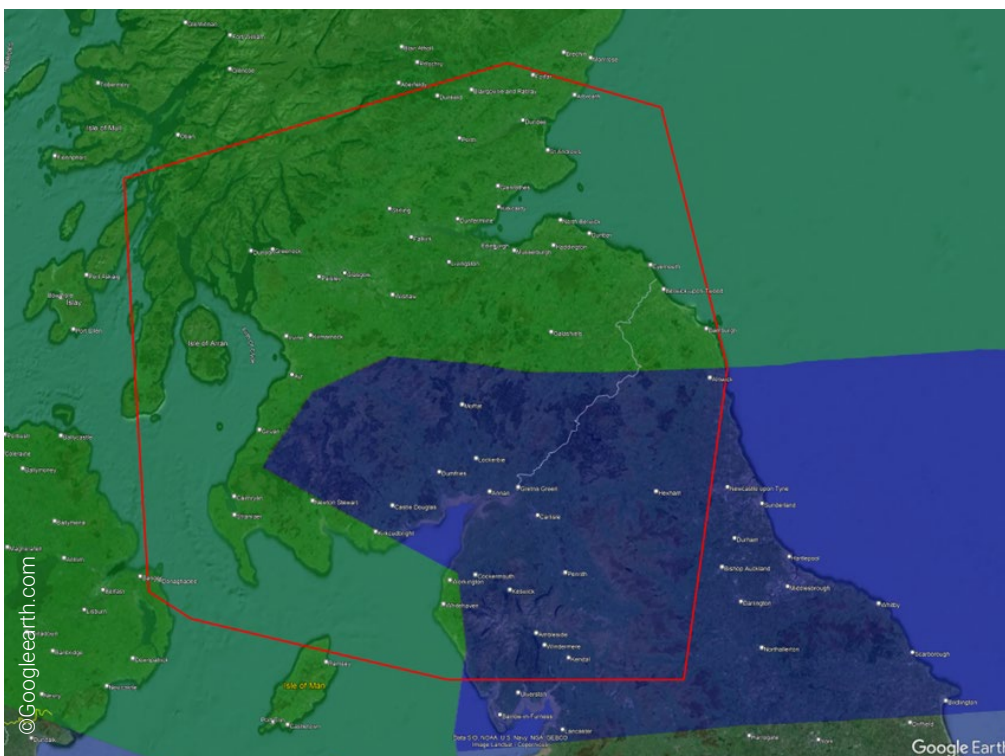


Figure 2: Location of existing UK Free Route Airspace airspace (green overlay), planned FRA Deployment 3 (blue overlay) and the lateral limits of this ACP (red polygon)

2.2 Other affected airspace

- 2.2.1 This airspace also provides connectivity to the northerly North Atlantic Tracks⁵ and to airports located in the north of Scotland. This proposed change will not alter that.
- 2.2.2 In 2019, there were approximately 331,000 traffic movements within this airspace. The impact of the Coronavirus pandemic significantly reduced flights across the whole of the UK and Europe between 2020 - 2022; however, by 2023 air traffic had recovered to 92% of 2019 levels in the UK and continues to increase.

⁵ The routes across the Atlantic from the UK to North America.

2.3 Scottish Cluster ACP Alignment

- 2.3.1 Within the lateral limits of this change, Edinburgh Airport and Glasgow Airport are pursuing separate but coordinated ACPs. These seek to make various changes which will alter lower level routes (procedures contained either partially or fully in airspace below 7,000 ft).
- 2.3.2 Some procedures will connect to the NERL changes where they transition between the higher en-route airspace (at and above 7,000 ft) and the lower airspace (below 7,000 ft),⁶
- 2.3.3 Airport procedures which cross between the airspace above and below 7,000 ft, will be covered in the respective airports' consultations. The description of the procedure track above 7,000 ft is also included in the NERL Consultation Document (Reference 19) for information.
- 2.3.4 For these procedures which cross between the airspace above and below 7,000 ft, a point has been identified by the airports where aircraft are expected to be above 7,000 ft; this is where the NERL description will then start / end, explaining the portion of the procedure that targets an aviation audience⁷ only.
- 2.3.5 The proposed system-wide Scottish Airspace Modernisation proposals were identified and agreed through simulations and workshops between NERL, Edinburgh Airport and Glasgow Airport. This ensures that each ACP is fully compatible with the surrounding airspace as well as with the new options proposed by each sponsor.
- 2.3.6 While NERL acknowledges that the changes described within this ACP may affect aircraft tracks below 7,000 ft, the proposed route changes in this submission are in airspace at, and above, 7,000 ft. Any changes in aircraft tracks below 7,000 ft will be captured within the corresponding airport's proposal.

2.4 Coordinated Approach to Consultations/Rationale

- 2.4.1 The Scottish cluster of ACPs share limited interdependencies, with no collective impacts below 7,000 ft. Stakeholders who might be affected by the development of the overall system or specific aspects of the component ACPs should be consulted in a coordinated manner. Therefore, ACOG, working with Edinburgh Airport, Glasgow Airport and NERL, has developed a proportionate approach to coordinating consultations.
- 2.4.2 This will be guided by a set of common principles organised into four themes; audience, approach, materials and length, in line with the CAP1616 process. These principles were developed collaboratively and engaged on in ACOG's Public Engagement Exercise (Reference 22) which ran from 29 January to 10 March 2024.
- 2.4.3 Further detail around the execution of these principles can be found in ACOG's Consultation Framework (CAF) Document (Appendix 1 of the Masterplan Iteration 3 Scotland, Reference 23).

⁶ A SID2FL is an instrument flight procedure (IFP) which passes through the transition altitude (TA). At departure, aircraft report their height based on the pressure at the departure airport. The transition altitude is when an aircraft's height is now measured in Flight Levels (FL). Within ScTMA, the TA is 6,000 ft and the current day SIDs stop below this point.

⁷ The users of the airspace at / above 7,000 ft are, by their nature, aviation users (commercial, military, and non-commercial). As NERL's ACP does not include designs below 7,000 ft, NERL will only be targeting aviation audiences.

3. Key Technical Details

- 3.1.1 Although the primary stakeholders for NERL's proposal are the aviation community, it is important that other interested, but non-expert, parties can understand what is in the proposal to help them respond to the consultation if they wish to do so. To aid this understanding a Key Technical Details section is included within the Full Consultation Document (See Consultation Document Chapter 3, Reference 19).

4. Current Airspace

4.1 Overview of Current Airspace

- 4.1.1 NERL provides air traffic control services within UK en-route airspace, typically at or above 7,000 ft, within the London and Scottish Flight Information Regions⁸.
- 4.1.2 The vertical boundaries of the existing controlled airspace structures reflect the levels the aircraft will be within these airspace structures. For example, in the vicinity of an airport, controlled airspace will extend to the surface to allow aircraft to land and take-off safely. Further away from an airport the base of controlled airspace will be higher.
- 4.1.3 Figure 3 shows the controlled airspace classifications within the current day ScTMA.

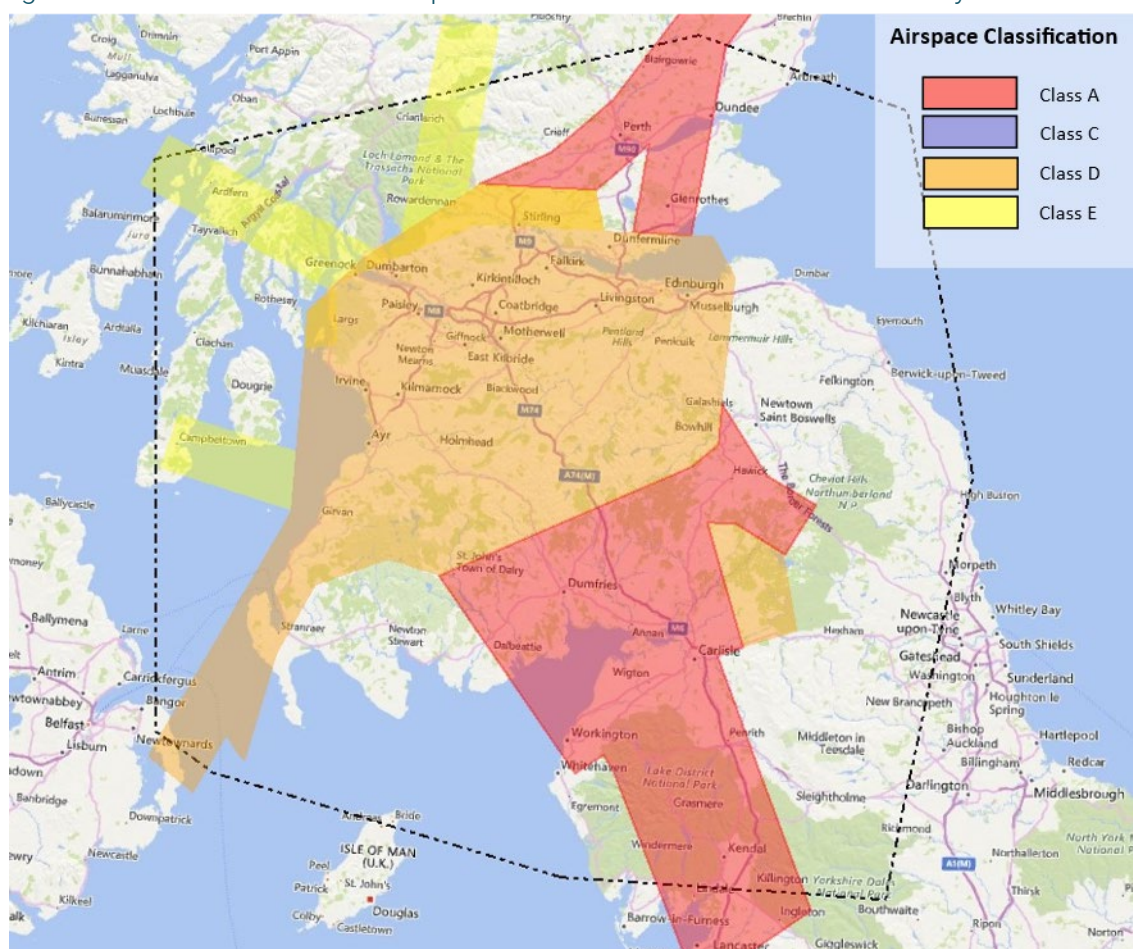


Figure 3: ATC Playback image of the Airspace classification of the lowest airspace structures between FL70 and FL195 for the principal flows serving the ScTMA.

- 4.1.4 The existing routes and procedures within scope of this ACP are all contained within Control Areas (CTAs).
- 4.1.5 The airspace also contains many areas designated as Special Use Airspace (SUA). These areas include, but are not limited to, Temporary Reserved Areas, Danger Areas, Restricted Areas and Prohibited Areas. These are areas where normal flights cannot occur due to the activities taking place within them. Their restrictions can vary in terms of time and days, but all act as constraints on any proposed design.
- 4.1.6 Figure 4 shows the SUAs in the vicinity of the ScTMA ACP that will have the greatest impact on airspace routings.

⁸ Although described as London and Scottish Flight Information Regions, these two areas cover the whole of the UK airspace.

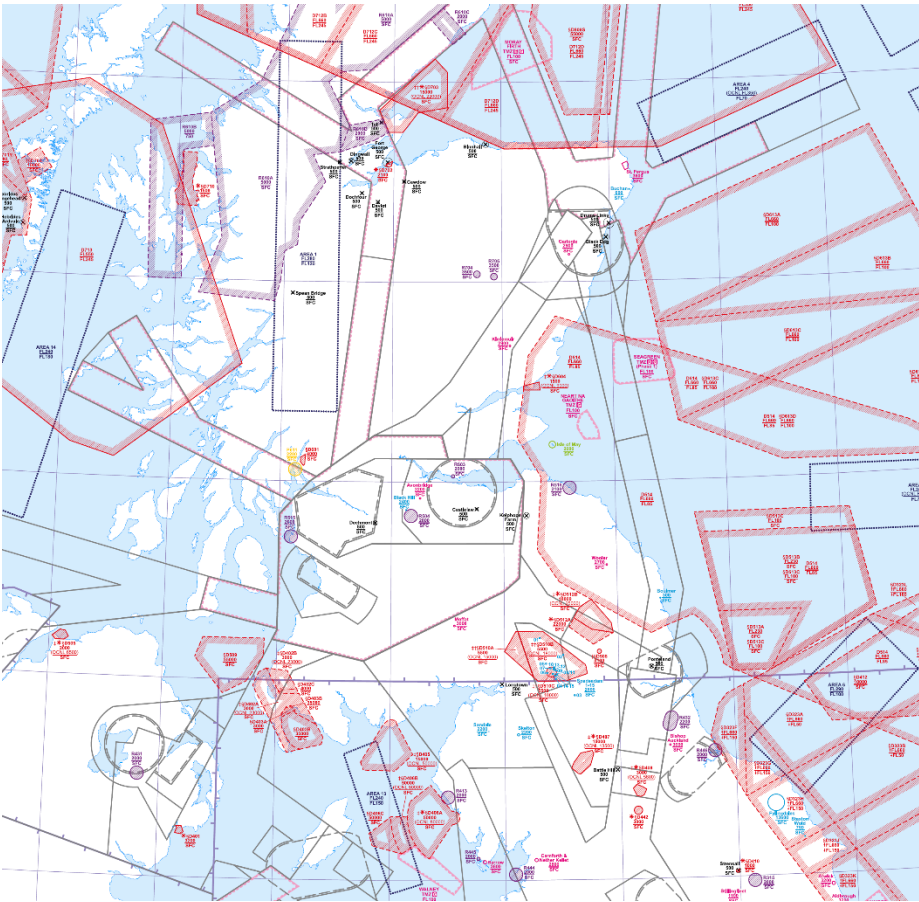


Figure 4: Red polygons show SUA airspace above FL70 in the vicinity of the ScTMA change. (ENR 6-75).

- 4.1.7 The lateral limits of SUAs may require updating to accommodate the proposed design. Details of the proposed changes and their effects are included within the full Consultation Document (Chapters 6 and 7) (Reference 19).
- 4.1.8 The ScTMA airspace is connected to the wider ATS network via eight distinct traffic flows (marked A – H in Figure 5) each contained within Control Areas. These routes are predicated on historic ground-based navigation aids and do not offer optimised routings in and out of the ScTMA.

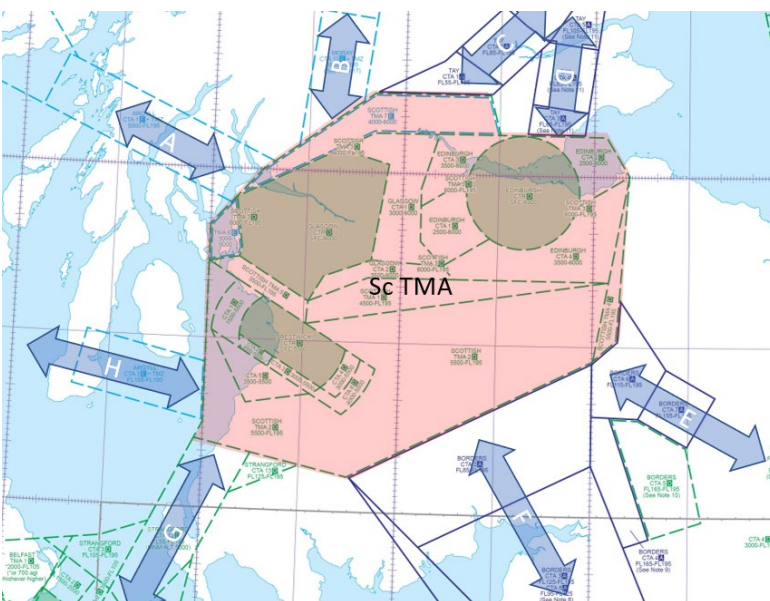


Figure 5: Adapted Airspace map (Chart Of United Kingdom ATS Airspace Classifications - SFC-FL195 (ENR 6-7)) showing the traffic flows (blue arrows) which converge on the ScTMA (red shape) and the CTAs which contain them.

4.2 Air Traffic Services Route Network

- 4.2.1 The airspace affected by this ACP contains several ATS routes which are shown in Figure 6. These routes extend up to 25,500 ft; above this level is assumed to be Free Route Airspace.

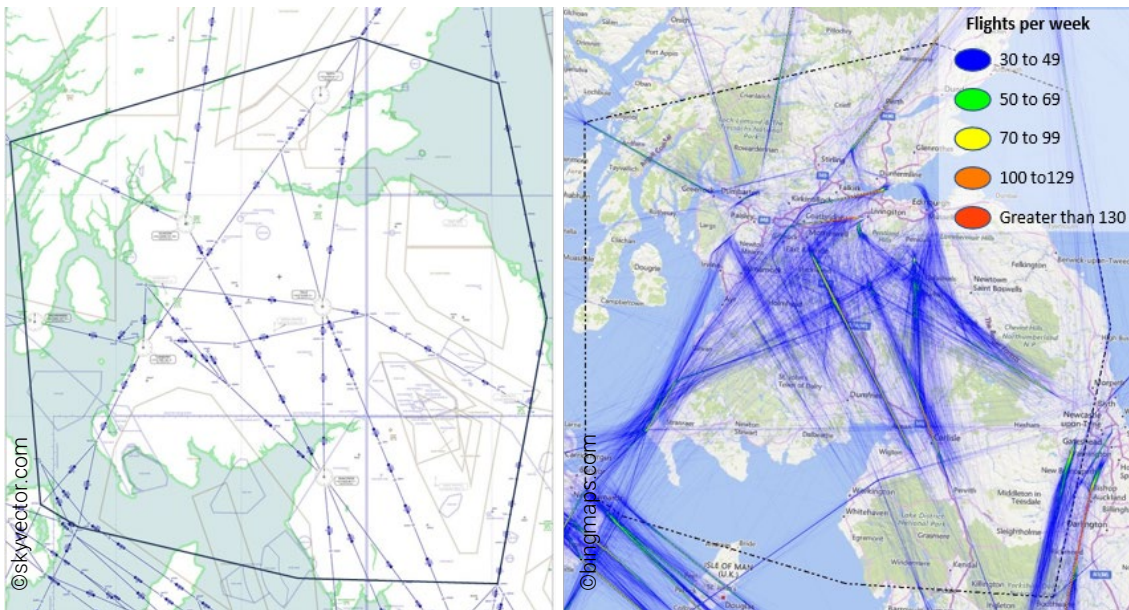


Figure 6: Left Figure- Lower ATS route structure (7,000 ft – 25,000 ft) within the ScTMA ACP area. Right Figure 6- the density of flights (7,000 ft – 25,000 ft, Aug 16-30 2023) (Source: ATC Playback).

- 4.2.2 Aircraft flight plan to fly along the published ATS route structure, although the availability of these can be affected by factors such as weather or SUA activity. So the ATS route network currently limits the efficiency of the airspace by not always enabling the most direct routings.
- 4.2.3 Figure 6 shows the density of traffic flows that clearly align with the ATS network. However, down the “spine” (Flow F in Figure 5), there is a high level of controller intervention and vectoring⁹ required to ensure both the safety and efficiency of the airspace.

4.3 Holding

- 4.3.1 As indicated above (Para 1.3.7), there are various reasons why an aircraft cannot land at its destination immediately and will use a hold.
- 4.3.2 Currently, there are seven holds (at or above 7,000 ft) within ScTMA airspace, these are listed in Table 1. They include three for Glasgow Airport, one for Edinburgh Airport, one shared between Edinburgh Airport and Glasgow Airport and two for Glasgow Prestwick Airport.
- 4.3.3 Only the holds serving Edinburgh Airport and Glasgow Airport are proposed to change within this ACP.

⁹ Vectoring involves an air traffic controller providing specific directions (horizontal or vertical) to aircraft, while making sure they are safely separated from other aircraft.

Airport	Hold	Levels	Vicinity
Edinburgh	TARTN	7,000 ft – 14,000 ft	Westloch
Edinburgh/Glasgow	STIRA	7,000 ft – 14,000 ft	Tullibody
Glasgow	LANAK	7,000 ft – 14,000 ft	Birkenshaw
Glasgow	FYNER	7,000 ft – 14,000 ft	Kilbride more
Glasgow	FOYLE	7,000 ft – 14,000 ft	Gartmore
Prestwick	TRN	6,000 ft – 9,000 ft	Turnberry
Prestwick	SUMIN	6,000 ft – 9,000 ft	Polgown

Table 1: Published terminal holds within the lateral limits of the ScTMA ACP.

4.3.5 The location of the extant holds and the STARs serving them is shown in Figure 7 below:

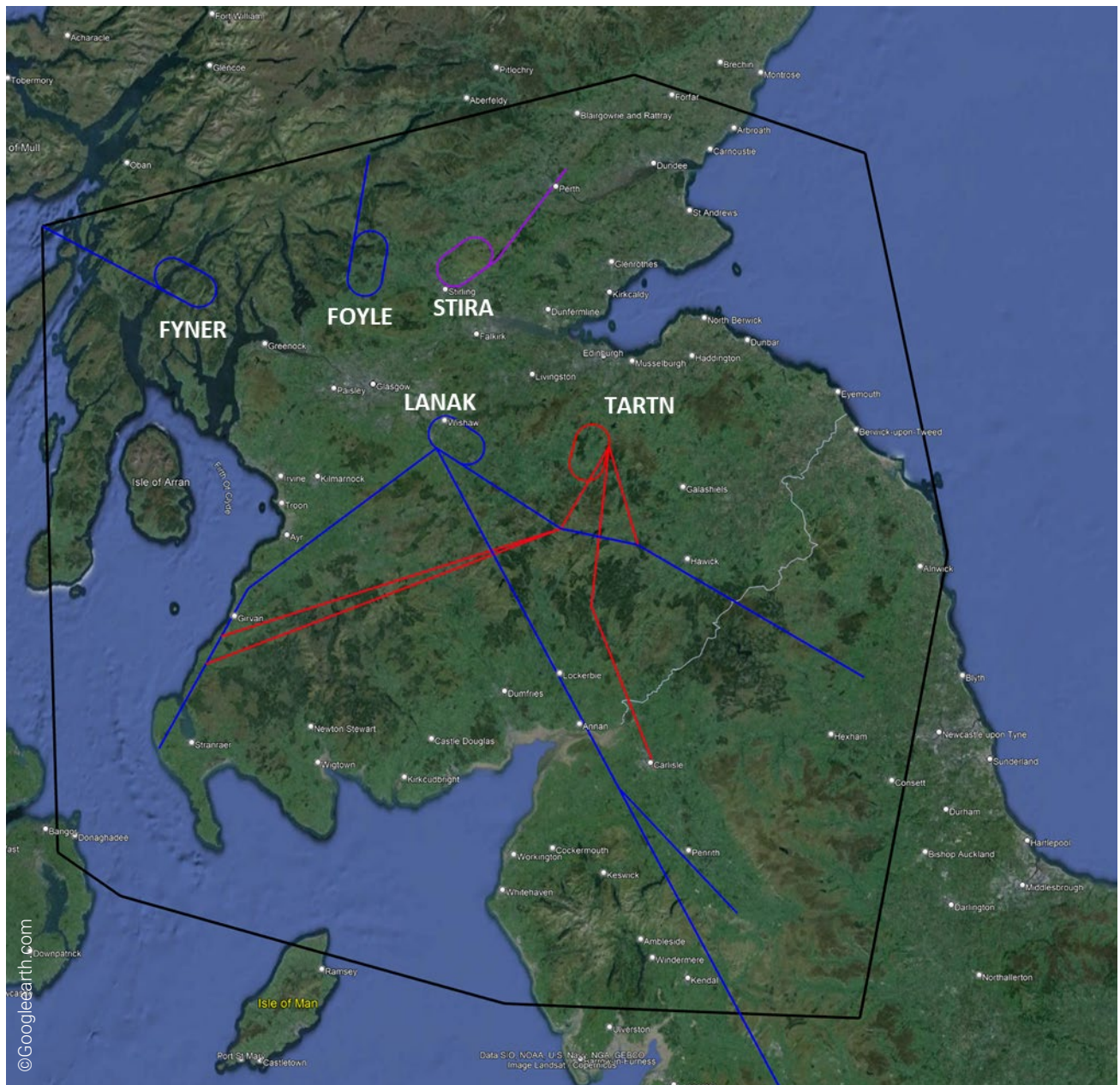


Figure 7: Location of the extant Edinburgh Airport and Glasgow Airport terminal holds. Edinburgh Airport's holds and STARs are red, Glasgow Airport's holds and STARs are blue and the shared hold and STAR is purple.

4.4 Current Usage

4.4.1 In 2023, 202,801 flights entered the Scottish Airspace Modernisation change area. (Based on ground to 25,500 ft). These flights, broken down into Edinburgh Airport, Glasgow Airport, Glasgow Prestwick Airport movements and overflights¹⁰ are shown in Table 2. The 2023 movement data is based on flight plan data owned by Eurocontrol¹¹.

4.4.2 The 2023 data is the most recent full year data available.

Edinburgh Airport	Glasgow Airport	Glasgow Prestwick Airport	Overflights	Total
115,423	68,408	8,714	10,256	202,801

Table 2: Breakdown of 2023 traffic numbers which is impacted by this change.

4.4.3 For a description of the operators using this airspace please refer to the full Consultation Document (chapter 5.8) (Reference 19).

4.4.4 The most common aircraft types in this airspace in 2023, were single-aisle twin engine jets such as the Airbus A320 and Boeing B737.

4.4.5 The forecast traffic volume for Edinburgh Airport, Glasgow Airport and overflights is expected to increase over the 10-year period following implementation of the proposed change. The forecast growth for 2027 and 2036 is shown in Table 3. This forecast increase in traffic is not, however, dependent on this ACP.

Year	Edinburgh Airport	Glasgow Airport	Overflights	Total
2027	147,539	90,862	20,190	258,591
2036	169,828	96,490	21,560	287,878

Table 3: Forecast growth of traffic affected by this change; 2027 (implementation year) to 2036 (10 years post implementation).

¹⁰ Flights that travel through the ScTMA airspace but do not arrive or depart Edinburgh Airport, Glasgow Airport or Glasgow Prestwick Airport.

¹¹ Eurocontrol are an international organisation dedicated to supporting and improving European air traffic management. More details can be found here: <https://www.eurocontrol.int/>

5. Proposed Design

5.1 Design Overview

5.1.1 The NERL design is summarised below; where applicable there is reference to the airports' designs. Full details of the NERL proposal can be found in chapter 6 of the Consultation Document (Reference 19). For full details of the airports' proposals below 7000 ft, please refer to the relevant airport consultation.

5.1.2 The proposed ScTMA airspace design is divided into two distinct areas:

- ATS route network between the lower airspace and Free Route Airspace (7,000 ft to 25,500 ft)
- ScTMA airport connectivity (above 7,000 ft), including holds, arrival routes and departure connectivity. This has three sub-sections:
 - Connectivity to airport departure route end points
 - Connectivity to airport arrival structures
 - Airport arrival structures, i.e. holds.

5.2 Proposed ATS and Departure Routes

5.2.1 Most aircraft arriving and departing Edinburgh Airport and Glasgow Airport (~80% and ~67% respectively based on 2023 planned departures) plan to fly above 25,000 ft and expect to use Free Route Airspace. Therefore, a key part of the proposed ATS route design is to enable more efficient routes to/from Free Route Airspace.

5.2.2 The proposed design includes a combination of retained existing routes, revised routes and new routes, see Figure 8.

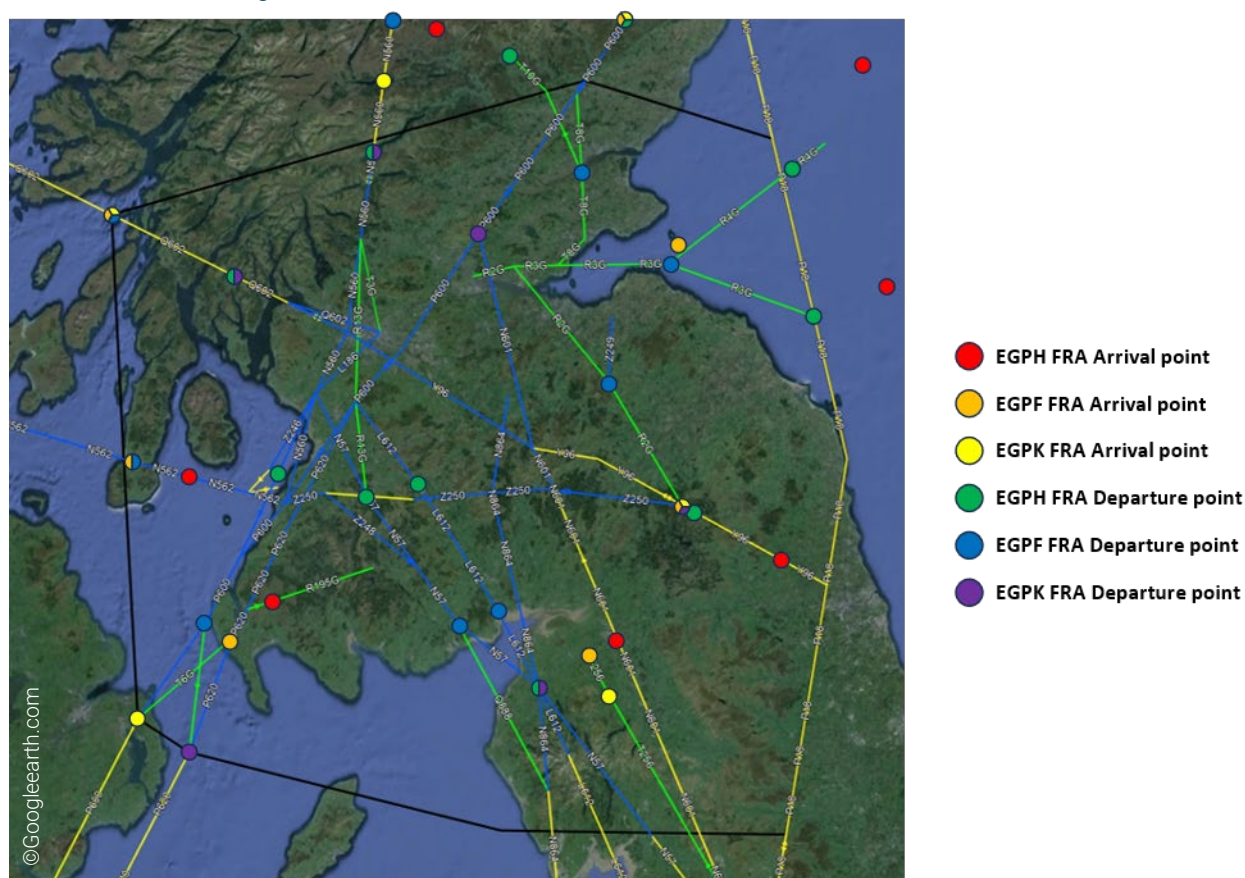


Figure 8: Proposed ATS route structure within the ScTMA. Retained existing routes are shown in yellow, modified route sections in blue and new routes in green.

5.2.3 Figure 9 shows the modelled airport Standard Instrument Departure routes (coloured lines) including their end point and altitude¹²; and the location aircraft are expected to reach by 7,000 ft (red or yellow polygon).

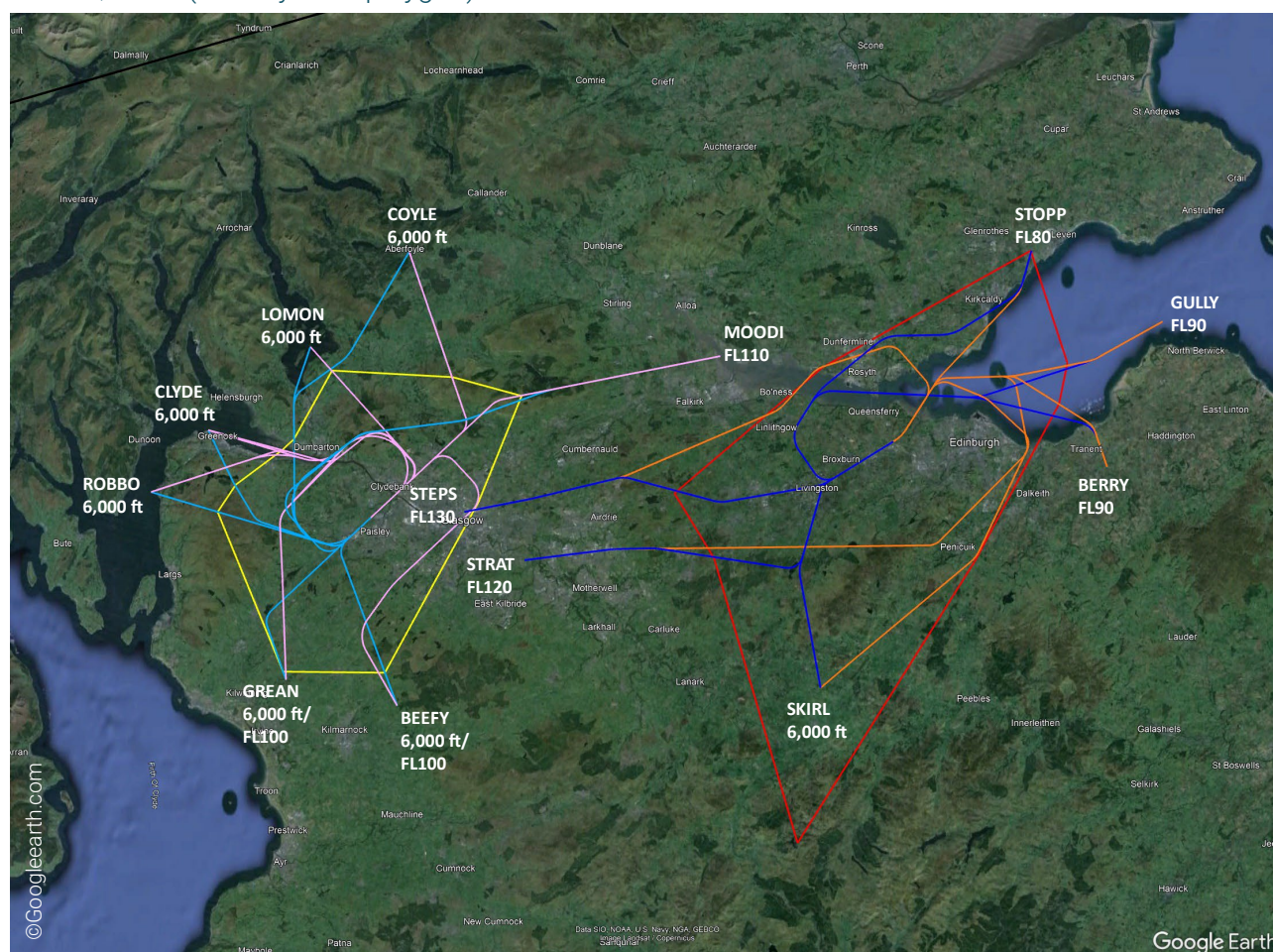


Figure 9: Proposed SID end levels where the airport departure procedures will join the ATS Network. Glasgow Airport SIDs are shown for westerly (light blue) and easterly (pink) operations and Edinburgh Airport SIDs are shown for westerly (dark blue) and easterly (orange) operations. The yellow box shows where Glasgow Airport expect their departures to reach 7,000 ft and the red box shows where Edinburgh Airport expect their departures to reach 7,000 ft.

- 5.2.4 It should be noted that in aviation, reporting points are given names that are 5 letters long, and not replicated within a set distance to avoid navigational errors and confusion, for example ROBBO or CLYDE.
- 5.2.5 Route names and waypoints are subject to change, and any referred to in this document set are working names only. Finalised route names will be provided with the final ACP submission following any consultation-led design updates.
- 5.2.6 The proposed Firth of Forth connectivity provides direct access into and from Free Route Airspace to the east of the ScTMA and should enable substantial environmental benefits such as reduced emissions through more direct routings for aircraft. The other proposed Air Traffic Service updates connect with the surrounding existing ATS route network.
- 5.2.7 The proposed design for the airspace also plans to introduce 'systemisation'.

¹² The shown design includes Edinburgh Airports (Pre-FOA Option 1A&1C) and Glasgow Airports (Option 5) Standard Instrument Departures (SIDs) and arrival transitions. The presented fuel and CO₂e analysis was undertaken on this system wide pre-FOA design to inform the FOA analysis for the cluster. Following the FOA, the airports may update and proceed with a design that is different to the fully analysed design shown herein below 7,000 ft. However, consistent with the methodology described in the Masterplan, the airports' FOAs will be completed by comparing their designs to the analysed design to provide differences to the baseline.

- 5.2.8 Systemised airspace, and a redistribution of flights within the ScTMA airspace, should resolve some existing conflicts¹³ between departures and arrivals. This allows the network design to keep aircraft safe with less ATC intervention.
- 5.2.9 The proposed ATS route spacing is based on CAA requirements and is therefore fully compliant with relevant policies (CAP1385 (Reference 11), ANG2017 (Reference 13) and CAP1617 (Reference 15)). This should provide an efficient, deconflicted network which will yield safety and capacity benefits, and enable environmental benefits.
- 5.2.10 Some controlled airspace has been identified as no longer required and the ACP proposes releasing (Reclassifying as Class G airspace) this.
- 5.2.11 The airspace classification has been reviewed and selected to maximise access whilst maintaining a safe and efficient airspace environment.
- 5.2.12 The following benefits and considerations should be noted for this proposal:

Benefits

- Greater access to and from Free Route Airspace
- Enabling substantial environmental benefits through more efficient flight plan routes
- Predicted reduction in ATC complexity in key areas
- Predicted reduction in controller intervention
- Alternative routes to mitigate impact of SUA activity
- A predictable network flow for Edinburgh Airport and Glasgow Airport arrivals and departures
- Reduced Class A airspace and improved airspace access for other airspace users

Considerations

- Additional controlled airspace may be required in some areas (mitigated by releasing controlled airspace in other areas)
- Dependent on 3 NM¹⁴ without coordination being agreed.

5.3 Proposed Arrival Routes

- 5.3.1 Aircraft approaching Edinburgh Airport, Glasgow Airport and Glasgow Prestwick Airport will do so using a defined arrival path known as a Standard Arrival Route (STAR). The proposed STARs have been designed to ensure that Continuous Descent Operations¹⁵ (CDO) are achieved and are described in the Consultation Document (Section 6.2). This should deliver environmental benefits such as a reduction in emissions and noise impact.
- 5.3.2 After the STAR, aircraft will follow a transition to the runway. These are part of the corresponding airports' consultations. However, the portion of the arrival transition where aircraft are expected to be at and above 7,000 ft is included in NERL's full Consultation Document (chapter 6) (Reference 19).
- 5.3.3 The existing and proposed STARs serving Edinburgh Airport (Figure 10), Glasgow Airport (Figure 11) and Glasgow Prestwick Airport (Figure 12) are shown below.
- 5.3.4 Interactions between arrival transitions and other procedures were identified during ACOG's Consultation Framework part 1 work and are described within Appendix 3 of the masterplan iteration 3- Scotland (Reference 23). The resolution of these interactions includes height restrictions within the STARs to ensure procedures remain safely separated. Full details are described within ACOG's Consultation Framework part 2 which is included on our Citizen Space page [here](#).

¹³ A confliction is where two or more aircraft would come closer than the required minima without ATC intervention.

¹⁴ A Nautical mile is equivalent to 1852 m. This is different to a statute mile which is 1609 m.

¹⁵ A Continuous Descent Operation is one which does not include any periods of level flight between exiting the ATS route network and the runway. This creates a smooth descent profile (like walking down a slope) rather than a stepped approach (like using the stairs).

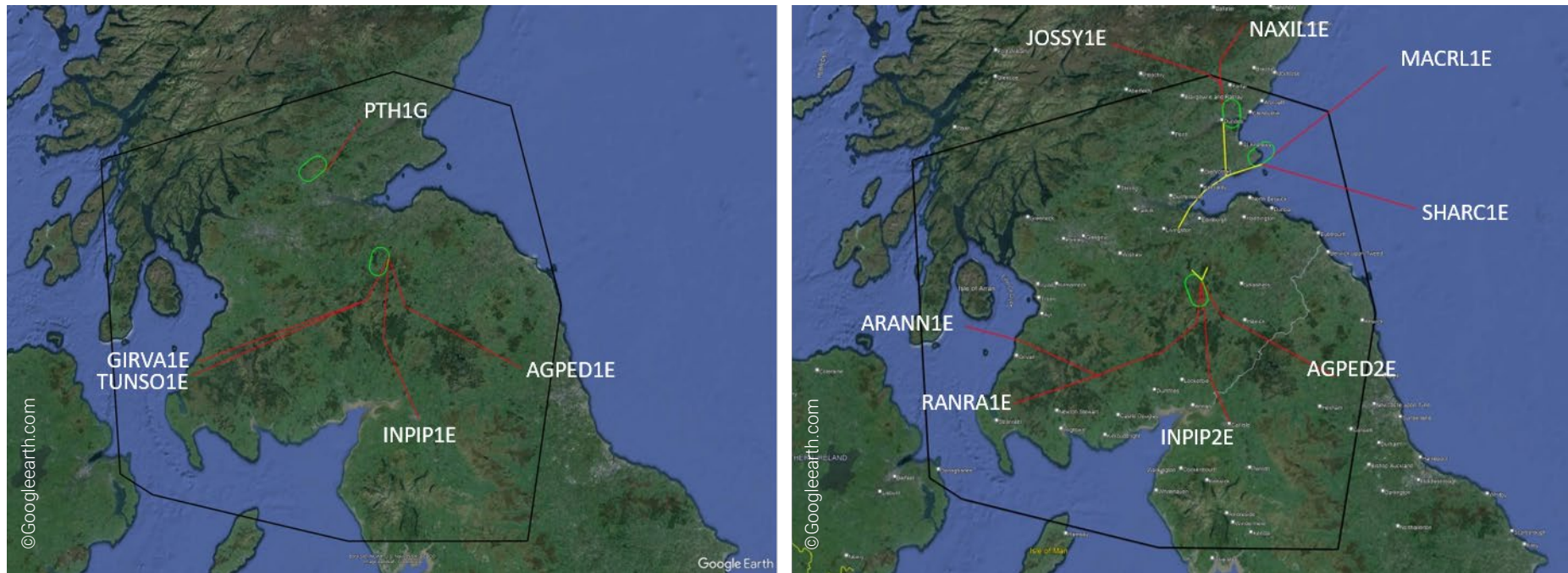


Figure 10: Left image: Existing STARs serving Edinburgh Airport. Right image: Proposed STARs serving Edinburgh Airport, the arrival transitions above 7,000 ft are shown in yellow.



Figure 11: Left image: Existing STARs serving Glasgow Airport. Right image: Proposed STARs serving Glasgow Airport, the arrival transitions above 7,000 ft are shown in yellow.

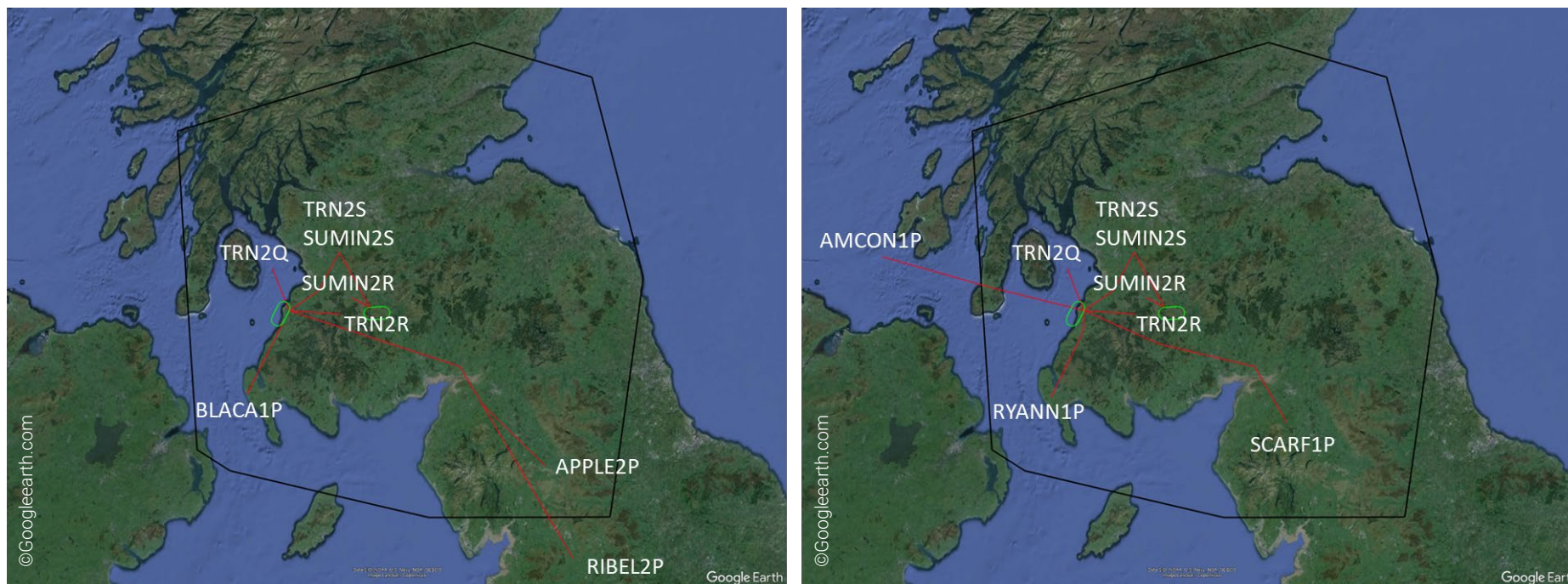


Figure 12: Existing STARs serving Glasgow Prestwick Airport (left image) and proposed STARs serving Glasgow Prestwick Airport (right image).

5.4 Proposed Holds

- 5.4.1 CAP785B (Reference 16) stipulates that all STARs are required to terminate with a hold. Edinburgh Airport and Glasgow Airport are responsible for clearing aircraft from the hold to follow the approved flight path to the runway, therefore it is a requirement that holds are situated within the 40 NM operating range of their radar feed. Additionally, it is desirable that the expected track of holding aircraft remains within this threshold to ensure an accurate radar picture is held by the airports' air traffic controllers (ATCOs).
- 5.4.2 It is proposed to increase the number of holds to three for Edinburgh Airport (STOBS, WORM2 and TART3) and reduce the number of holds to three for Glasgow Airport (FYNER, COYLE and LESMA). There will be no shared holds.
- 5.4.3 The proposed locations of these holds should reduce the impacts of aircraft holding. This will be achieved by either:
- Relocating the holds further from the airports. This allows the lowest level of the hold to be raised, keeping aircraft at a higher altitude and reducing fuel burn and noise, or
 - Relocating the holds so that they overfly less populous areas
- 5.4.4 The proposed locations of the holds are shown in Figure 13 below:

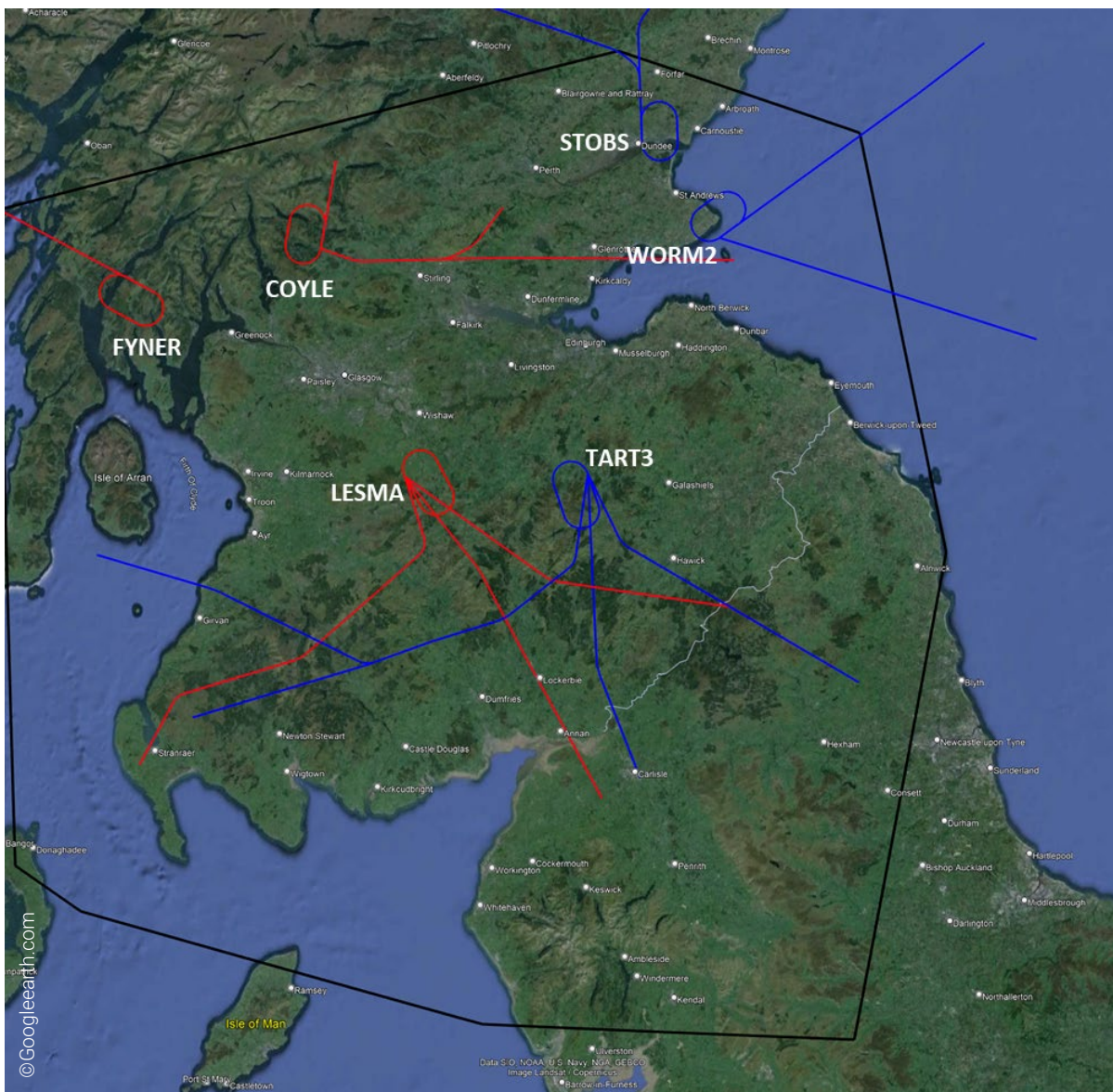


Figure 13: Location of the proposed Edinburgh Airport and Glasgow Airport holds. Edinburgh Airport's holds and STARs are blue, Glasgow Airport's holds and STARs are red,

5.5 Controlled Airspace

- 5.5.1 The classification and volume (horizontal and vertical dimensions) of the controlled airspace within the system wide ScTMA has been reviewed. This has led to several revisions to the existing controlled airspace.
- 5.5.2 The most notable NERL airspace changes are:
- New controlled airspace overhead the Firth of Forth. This will predominantly be above the typical altitudes used by General Aviation and will enable a reduction of traffic to the south of the current ScTMA
 - Realignment to provide improved access for Portmoak gliding and Strathallan Glenrothes parachuting
 - Additional controlled airspace to ensure proposed procedures are within controlled airspace
 - Changes to the vertical limits, in some areas, to release controlled airspace that is no longer required
 - Reclassification of controlled airspace volumes to ensure the most appropriate classification is used.

5.6 Special Use Airspace

- 5.6.1 To deliver this proposed design certain SUA volume will require updating to ensure the airspace design remains safe and efficient. This airspace will affect military traffic and aircraft flying at high altitudes and NERL strongly advises that these stakeholders read the full Consultation Document (Reference 19).

6. Impact of this Proposal

6.1 Fuel and CO₂e

- 6.1.1 An assessment has been made of the potential impacts for enabled fuel burn and CO₂e emissions, per flight, up to the flight information region boundary.
- 6.1.2 Table 4 compares the proposed system-wide design (the combination of NERL and airports' preferred design options, Edinburgh Airport Pre-FOA option 1A&1C and Glasgow Airport option 5, combined. with the baseline (without airspace change). The data is shown for 2027 (the planned year of implementation) and 2036 (10 years following implementation).

Year	Without Airspace Change		With Airspace Change		Difference from baseline	
	Fuel (kg)	CO ₂ e (kg)	Fuel (kg)	CO ₂ e (kg)	Fuel (kg)	CO ₂ e (kg)
2027	1,936	6,158	1,912	6,079	-25	-79
2036	1,969	6,260	1,938	6,163	-31	-97

Table 4: Average fuel and CO₂e impacts per flight for the proposed system wide design vs. the baseline option.

- 6.1.3 It should be noted that a system-wide design that could deliver less benefit in terms of fuel burn and CO₂e emissions remains a possibility depending on the options progressed by the airport sponsors following the coordinated consultation. As all the proposed airport design options join the NERL network design at the same location, laterally and vertically, the airport option selected will have negligible impact on the fuel and CO₂e emissions resulting from the network design.
- 6.1.4 The data indicates that the option will reduce the predicted average flight plan fuel burn by 25 kg and CO₂e by 79 kg per flight in the implementation year increasing to a 31 kg of fuel and 97 kg of CO₂e reduction in 2036.
- 6.1.5 Annually, this represents a predicted enabled fuel saving in 2027 of 6 kT¹⁶ increasing to 8 kT in 2036, and a CO₂e saving of 18 kT in 2027 increasing to 25 kT in 2036. This CO₂e saving is equivalent to the emissions from the power used by over 5,000 average family homes per year in the UK in the first year of implementation.¹⁷
- 6.1.6 Some routes will have a greater benefit than others and a small proportion may show a disbenefit. However, on average, the design option provides fuel and CO₂e savings compared to the baseline.
- 6.1.7 Implementation of this ACP may result in a small increase in the distances flown for particular routes. However, the data demonstrates that any disbenefit through increased track mileage is offset by improved Continual Descent Operations (CDOs) and Continual Climb Operations (CCOs)¹⁸.
- 6.1.8 For a breakdown of the fuel and CO₂e impacts for arrival and departure aircraft and indicative fuel/CO₂e impacts for the most frequent city pairs, please see the full Consultation Document (chapter 7.1) (Reference 19).

¹⁶ kT means a kilo-tonne, which is 1,000 tonnes, or 1,000,000 kilograms.

¹⁷ The average UK family home energy use produce 3.5 T CO₂e p.a. <https://www.theccc.org.uk/wp-content/uploads/2019/06/ESC-Living-Carbon-Free-CCC.pdf>

¹⁸ A Continuous Climb Operation is one which does not include any periods of level flight between departing the runway up to their flight plan height. This creates a smooth climb profile (like walking up a slope) rather than a stepped approach (like using the stairs).

6.2 Holding

- 6.2.1 The more efficient design of system-wide airspace is forecast to reduce total holding, which will deliver environmental and capacity benefits.
- 6.2.2 Assessment showed the potential impacts of holding for the proposed system-wide design and the baseline. Table 5 shows expected holding data for 2027 (the planned year of implementation) and 2036 (10 years following implementation).

Year	Traffic Flow	Without Airspace Change		With Airspace Change		Difference from baseline	
		% Flights Holding	Average Duration	% Flights Holding	Average Duration	% Flights Holding	Average Duration
2027	Glasgow Arrivals	28	00:04:11	19	00:03:19	-9	-00:00:52
	Edinburgh Arrivals	37	00:03:36	33	00:03:36	-4	00:00:00
2036	Glasgow Arrivals	30	00:04:38	18	00:03:13	-12	-00:01:25
	Edinburgh Arrivals	43	00:04:22	41	00:04:13	-2	-00:00:09

Table 5: Forecast holding for Edinburgh Airport and Glasgow Airport arrivals for the baseline and preferred option for year of implementation and 10 years post implementation.

- 6.2.3 The data indicate that the percentage of flights holding and the average holding duration is forecast to reduce for both airports. This is also attributable to the more efficient airspace design, by increasing capacity. It also reduces fuel burn and CO₂e emissions, by minimising aircraft track miles.

6.3 Airspace Capacity

- 6.3.1 Controllers can safely handle a certain amount of flights at any given time. The number of flights is related to the complexity of the airspace. By reducing network complexity, air traffic controller workload decreases and consequently they can handle more aircraft. Therefore, the airspace capacity is increased.
- 6.3.2 Increasing capacity reduces airline delay and cost¹⁹. While airspace capacity is not easily quantifiable, an approximation of delay and cost provides an indication airspace capacity.
- 6.3.3 The quantified Net Present Value²⁰ (NPV) delay cost²¹ for the years 2027 to 2036 is shown in Table 6, for the baseline, option and difference.

¹⁹ Delay costs the airlines based on additional fuel burn (either for holding or to take an alternative longer route to avoid the congestion), additional staff hours, potential additional airport charges, knock-on impact to the next flight, passenger delay compensation and so forth.

²⁰ Net present value is a financial metric that seeks to capture the total value of an investment opportunity.

²¹ Including a discount rate of 3.5% as per the standard rate given in the Treasury Green Book Annex A6 (Reference 20).

Year	Baseline (£)	Option (£)	Difference (£)
2027	4,090,894	3,100,934	-989,959
2028	4,271,444	3,233,916	-1,037,528
2029	4,435,105	3,354,357	-1,080,748
2030	4,582,813	3,462,955	-1,119,858
2031	4,715,459	3,560,372	-1,155,087
2032	4,833,893	3,647,240	-1,186,652
2033	4,938,924	3,724,162	-1,214,762
2034	5,031,325	3,791,711	-1,239,614
2035	5,111,828	3,850,432	-1,261,396
2036	5,181,133	3,900,845	-1,280,287
Total	47,192,818	35,626,924	-11,565,891

Table 6: Quantified Net Present Value delay costs for the ScTMA airspace change.

6.3.5 The data show that over the 10 years following implementation, the proposed system-wide design is expected to save airlines ~£11.6m through a reduction in delays. This will be achieved by reducing complexity and improving the efficiency and capacity of the airspace.

6.4 Airlines

6.4.1 The proposed change is expected to have a positive impact for commercial airlines.

6.4.2 It should lead to increased airspace capacity and enable increased flexibility in flight planning by offering more route options than today.

6.4.3 The proposed option should reduce airline operating costs by:

- Enabling airlines to improve climb and descent profiles, which would be more fuel efficient than today
- Reducing holding time and frequency, which reduces cost of delay.

6.5 Controlled Airspace Volume

6.5.1 The Scottish Airspace Modernisation proposals involve significant changes to the existing controlled airspace volumes and classifications for all sponsors. It is therefore misleading to consider the NERL airspace volume in isolation; while the proposed changes to the NERL airspace volume may show a reduction or increase in CAS, when considered alongside the airports' proposals this airspace may have been adapted within the airport's ACP. i.e the total volume of CAS may not change. Therefore, it is more informative to consider the airspace as a whole.

6.5.2 The existing ScTMA airspace below 19,500 ft (including NERL and the airports) has a controlled airspace volume of 36,369.8 NM³. The proposed system-wide design increases controlled airspace to 37,028.7NM³. This is a net increase of ~1.7% or 658.8NM³.

6.5.3 The NERL proposal introduces new arrival and departure routes over the Firth of Forth which will require a significant quantity of new controlled airspace (~1,332.6NM³ within the NERL airspace).

6.5.4 Some existing routes and procedures that were not previously contained within controlled airspace are now proposed to be contained. This increases the safety of the airspace by making sure that all aircraft in proximity of these procedures are under ATC surveillance.

6.5.5 However, NERL can fully release ~673.8NM³ within the design.

6.6 Controlled Airspace Classification

- 6.6.1 5,296.2NM³ of Class A airspace has been released or downgraded to a lower classification. This has been achieved due to the simplified, systemised airspace design and relocating flights onto the Firth of Forth routes.
- 6.6.2 The net airspace volumes for the system wide design (below 19,500 ft) for the ScTMA update are shown below. Table 7 shows the volume per airspace classification. Table 8 shows the volume per airspace type.

Airspace Classification	Extant Volume (NM ³)	Option Volume (NM ³)	Difference (NM ³)
A	6,714.0	1,417.8	-5,296.2
C	N/A	3,713.2	+3713.2
D	17691.7	19,307.5	+1615.8
E	11,964.2	12,590.1	+626.0
Total	36,369.8	37,028.7	+658.8

Table 7: Total volume of airspace in the extant and proposed design split by airspace classification.

Airspace Type	Extant Volume (NM ³)	Option Volume (NM ³)	Difference (NM ³)
CTR	773.2	737.6	-35.5
TMA	9,467.3	9,512.3	+45.1
CTA	26,129.4	26,778.7	+649.3
Total	36,369.8	37,028.7	+658.8

Table 8: Total volume of airspace in the extant and proposed design split by type.

6.7 General Aviation

- 6.7.1 General Aviation (GA) mainly operates in uncontrolled airspace below 6,000 ft, which is out of scope of this proposal. An exception to this is the gliding community who regularly use airspace which may be affected by this proposal.
- 6.7.2 Based on earlier General Aviation engagement NERL has raised the lowest level of controlled airspace where feasible, and lowered the airspace classifications. This should help to improve access to previously controlled airspace for General Aviation.
- 6.7.3 The Northumbria, Portmoak and Scottish Lower Temporary Reserved Areas (Gliding) are proposed to be amended increasing availability and accessibility.
- 6.7.4 Other than gliding, there is expected to be limited impact on General Aviation. The reduction in Class A airspace and increase in Class G airspace, improves access for these users.

6.8 MoD

- 6.8.1 The NERL ScTMA project has engaged at all stages with the MoD and the proposed NERL design is not expected to have unacceptable impact on MoD operations. The design is dependent on some military SUA boundary changes as described in "SUA Updates" in chapter 6 of the full Consultation Document (Reference 19).

6.9 New Entrants

- 6.9.1 The NERL ScTMA proposed design does not provide any features specifically to enable new entrant operations such as drones, air taxis and space operations, as no requirement was identified during the previous CAP1616 stages. The proposed change does not prohibit new entrants.

6.10 Safety

- 6.10.1 The proposed design takes advantage of the navigation technology available on modern aircraft to improve track adherence.
- 6.10.2 ATC can monitor the track keeping of all aircraft by radar; the trajectory flown should be the same or very close to the flight-planned trajectory (unless controller intervention is required). Hence it should be easier for ATC to identify any unauthorised deviation from the flight planned trajectory.
- 6.10.3 The changes proposed are aimed at reducing ATC workload and increasing situational awareness that should deliver a safety benefit.

6.11 Habitats Regulations Assessment

- 6.11.1 CAP1616i (Reference 21) provides a Habitats Regulations Assessment (HRA) – Early Screening Criteria. The changes proposed within this ACP do not require completion of a HRA as they are not in the airspace at or below 3,000 ft.

7. Summary of the System-wide benefits of Scottish Airspace Modernisation

- 7.1.1 The NERL proposal forms part of the wider Scottish Airspace Modernisation proposal along with Edinburgh Airport and Glasgow Airport. The Airspace Change Organising Group (ACOG) have produced the CAF2 document which provides information on how the options presented by the ACP sponsors for consultation work together as a system. This has shown that the overall net cluster-wide benefit (using the Government's method for monetising benefits) is c. £130m over 10years. For a qualitative breakdown of cluster wide benefits see Table 2, and for full details please see ACOG's CAF2 document.
- 7.1.2 Table 9 below provides an overview of the overall expected Scottish Airspace Modernisation benefits. This table is taken from the ACOG CAF2 document.

Stakeholder Group	Expected Benefits
For local communities	The priority for airspace modernisation at lower altitudes is to limit and, where possible, reduce the total adverse effects of aircraft noise on people. Modernisation is expected to deliver an overall reduction in adverse effects from noise by moving flight paths to where they effect fewer people. However, as this overall benefit can only be achieved by the redistribution of noise between different areas, it may lead to disruption for some communities living under new flight paths.
For the environment	Airspace modernisation is expected to reduce the average environmental impact of each flight in the ScTMA. This is to help the UK to move towards its commitment to net zero emissions while maintaining the aviation sector in Scotland. The Government set out its proposed approach to reach net zero aviation by 2050 in its 2021 Jet Zero consultation and expects a significant proportion of the required emissions reductions will come from improving the efficiency of the existing aviation system, including aircraft, airports as well as airspace.
For airlines	Additional airspace capacity will accommodate predicted growth with less delay, while maintaining and enhancing high levels of safety. Modernisation will also improve flight efficiency, enabling the airlines to capitalise on the performance of their modern fleets of aircraft.
For airports	Modernisation is expected to reduce delays on the ground pre-departure caused by capacity constraints in the airspace and for Glasgow Airport to increase runway throughput during busy periods.
For passengers and the wider economy	Fewer flight delays and service disruptions are expected to save time and improve the passenger experience. The capacity to accommodate predicted growth with less delay will lead to more choice, better value, and enhanced global connections.
For other airspace users	Modernisation offers opportunities for other airspace users to access volumes of airspace that are not required by commercial air transport through the reclassification of unused controlled airspace as uncontrolled, and by more effective airspace sharing.
For the Military	Airspace modernisation will continue to ensure that Military operators have access to suitably sized and sited areas of airspace to fulfil defence and national security objectives, recognising that new Military aircraft and weapons platforms often require larger volumes of airspace in which to train and maintain operational readiness.

Table 9: Replicated table from ACOG's Description of the proposed system-wide design for the Scottish (ScTMA) Cluster of the Airspace Change Masterplan detailing the "Expected benefits of airspace modernisation in the ScTMA organised by stakeholder group."

8. Reversion Statement

- 8.1.1 Should the proposal be approved and implemented, reverting to the pre-implementation state would be complex and very difficult.
- 8.1.2 The scale of the changes proposed to the airspace structures, ATS routes and the interdependencies with the low-level airport-led airspace changes would make reversion particularly complicated.
- 8.1.3 In the unlikely event of unexpected issues caused by this proposal, short notice changes could be made via Notice to Aviation (NOTAM) or by adding RAD restrictions whilst a permanent solution is found. For a permanent reversion, the changes would have to be reversed via a future AIRAC date. Large scale airspace changes are only implemented a maximum of four times a year with lengthy lead times to allow for appropriately thorough testing and preparation activities to take place.

9. Consultation Participation

9.1 How to Respond

- 9.1.1 NERL welcomes feedback on the proposed changes from anyone who would like to make their views known. Whilst NERL are primarily targeting aviation stakeholders, the consultation is also open to the general public.
- 9.1.2 The consultation is planned to begin at 00:01 on 20 October 2025 and end at 23:59 on 25 January 2026, a period of 14 weeks.
- 9.1.3 The NERL consultation material is available on the CAA's airspace change consultation portal at:
- <https://consultations.airspacechange.co.uk/nats/sctma>
- 9.1.4 The list of stakeholders targeted for this consultation is given in the Consultation Strategy (Reference 7) Appendix B. These stakeholders have been directly informed of this consultation.
- 9.1.5 A feedback questionnaire is provided for the NERL change on the consultation portal:
- <https://consultations.airspacechange.co.uk/nats/sctma>
- 9.1.6 It is preferred that responses are made via the portal.
- 9.1.7 Edinburgh Airport and Glasgow Airport consultation material can be accessed through their Citizen Space pages which can be reached via the Scottish Airspace Modernisation Website:
- <https://www.scottishairspacemodernisation.co.uk>
- 9.1.8 Please note that when submitting feedback you will be asked to provide the following information:
- Your name, and your role if you are responding on behalf of an organisation.
 - Your contact details (email)
 - A feedback category: SUPPORT NO COMMENT AMBIVALENT OBJECT
- 9.1.9 Please give your reasons for supporting or objecting to the proposal.
(For example: the impacts and benefits it may have on your flights or organisation, and how often you would be affected.)
- 9.1.10 If this proposal does not affect your operation, please respond, as that in itself is useful.
- 9.1.11 You may upload a document as part of your response.
- 9.1.12 Responses will be publicly visible, following moderation, by being published on the NERL Citizen Space page, in line with CAP1616 requirements.
- 9.1.13 All responses will be analysed, with any common themes extracted and summarised. NERL will actively monitor the consultation portal and will formally respond to any queries. Any generic queries will be added to the FAQ section.

9.2 What Happens with the Responses, and What Happens Next

- 9.2.1 Responses will be uploaded to the consultation portal. Should any responses contain commercially sensitive data, NERL will redact that information as part of our moderating practice.
- 9.2.2 On completion of the consultation, NERL will analyse the feedback and produce a feedback report. This will summarise themes arising from the feedback, alongside NERL's response to any issues raised. The feedback report will be uploaded onto the consultation portal. Any new requirements identified will be considered in the ongoing design process, leading to the production of a formal ACP. The ACP will detail the final design being submitted and make reference to any changes that have been made to take account of consultation feedback.
- 9.2.3 Subject to achieving approval, NERL plans to implement the final version of this proposal no sooner than early 2027.

10. Glossary

	Altitude	The vertical distance of an aircraft from mean sea level.
	Height	The measured vertical distance from the ground.
ACOG	Airspace Change Organising Group	ACOG's role is to coordinate the delivery of key aspects of the UK Government's Airspace Modernisation Strategy.
ACP	Airspace Change Proposal	A request from a 'change sponsor', usually an airport or a provider of air navigation services (including air traffic control), to change the notified airspace design.
AFEP	Airspace Flight Efficiency Partnership	A Forum to engage with Airlines on Airspace Change and Flight Efficiency.
agl	Above Ground Level	Vertical distance with reference to the ground.
AIP	Aeronautical Information Publication	A publication issued by or with the authority of a state and containing aeronautical information of a lasting character essential to air navigation.
AIRAC	Aeronautical Information Regulation and Control	AIRAC defines a series of common dates and an associated standard aeronautical information publication procedure for States
AMP	Airspace Masterplan	The Masterplan identifies where airspace changes are needed to support the delivery of the Airspace Modernisation Strategy.
AMS	Airspace Modernisation Strategy	The strategy sets out the ends, ways and means of modernising airspace.
amsl	Above Mean Sea Level	Vertical distance with reference to mean sea level.
ANSP	Air Navigation Service Provider	An organisation that provides the service of managing the aircraft in flight or on the manoeuvring area of an airfield and which is the legitimate holder of that responsibility.
AONB	Area of Outstanding Natural Beauty	A designated exceptional landscape whose distinctive character and natural beauty are precious enough to be safeguarded in the national interest.
ATC	Air Traffic Control	A service provided by ground-based air traffic controllers who direct aircraft on the ground and through a given section of controlled airspace and can provide advisory services to aircraft in non-controlled airspace.
ATCO	Air Traffic Controller	Skilled personnel responsible for the safe, orderly, and expeditious flow of air traffic in the global air traffic control system.
ATS	Air Traffic Services	A service which regulates and assists aircraft in real-time to ensure their safe operations.
BGA	British Gliding Association	The governing body for the sport of gliding in the UK.
CAA	Civil Aviation Authority	The UK aviation regulator which oversees and regulates all aspects of civil aviation in the United Kingdom.
CAF	Cumulative Analysis Framework	A guidance developed by ACOG to change sponsors for capturing cumulative and collective impacts of an airspace change.
CAP1385	CAA Performance-based Navigation (PBN): Enhanced Route Spacing Guidance	Guidelines for the spacing requirements of UK ATS routes.

CAP1616	CAA Airspace Change Process	The CAA's guidance on the regulatory process for changing the notified airspace design and planned and permanent redistribution of air traffic.
CAP1711	CAA Airspace Modernisation Strategy	See AMS.
CAS	Controlled Airspace	Generic term for the airspace in which an air traffic control service is provided as standard; note that there are different sub classifications of airspace that define the particular air traffic services available in defined classes of controlled airspace.
CCO	Continuous Climb Operations	A Continuous Climb Operation is one which does not include any periods of level flight between departing the runway up to their flight plan height. This creates a smooth climb profile (like walking up a slope) rather than a stepped approach (like using the stairs).
CDO	Continuous Descent Operations	An aircraft operating technique in which an arriving aircraft descends from an optimal position with minimum thrust and avoids level flight to the extent permitted by the safe operation of the aircraft and compliance with published procedures and ATC instructions.
CDR	Conditional Route	A non-permanent ATS route or portion thereof which can be planned and used under specified conditions.
CFMU	Central Flow Management Unit	The Eurocontrol unit which manages air traffic flow and capacity across Europe, optimizing airspace utilization.
CO ₂	Carbon Dioxide	A greenhouse gas produced by burning aviation fuel.
ConOps	Concept of Operations	A document describing the characteristics of a proposed system from the viewpoint of an individual who will use that system.
CTA	Control Area	A Controlled Airspace extending upwards from a specified limit above the earth.
DA	Danger Area	An airspace of defined dimensions within which activities dangerous to the flight of aircraft may exist at specified times.
DAATM	Defence Airspace Air Traffic Management	The MoD focal point for all Defence Airspace policy, including airspace related to the UK Low Flying.
DCT	Direct	(Direct) Waypoint to waypoint routing, which does not use an airway. DCT's are published in the RAD appendix 4.
DfT	Department for Transport	The United Kingdom government department responsible for aviation throughout the UK (aviation is not a devolved power).
DP	Design Principle	These encompass the safety, environmental and operational criteria and strategic policy objectives that the change sponsor aims for in developing the airspace change proposal.
DVOR	Doppler VHF Omnidirectional Range	A ground-based Navigation Aid that allows the airborne receiving equipment to derive the magnetic bearing from the station to the aircraft.
EGPD	Aberdeen Airport	ICAO code for Aberdeen Airport.
EGPF	Glasgow Airport	ICAO code for Glasgow Airport.
EGPG	Cumbernauld Airport	ICAO code for Cumbernauld Airport.
EGPH	Edinburgh Airport	ICAO code for Edinburgh Airport.
EGPK	Glasgow Prestwick Airport	ICAO code for Glasgow Prestwick Airport.

EGPN	Dundee Airport	ICAO code for Dundee Airport.
FAS	Future Airspace Strategy	A forerunner of the AMS.
FASI-N	Future Airspace Strategy Implementation North	An airspace project within the FAS modernising airspace in the north of the UK.
FIR	Flight Information Region	Flight Information Region (Airspace below FL255).
FL	Flight Level	An aircraft's altitude at standard air pressure (1013 hPa), expressed in hundreds of feet.
FLOPSC	Flight Operations Performance and Safety Committee	An airport committee that deals with aspects impacting flight and operational safety at the airport and includes base captain representation for the fleets.
FoF	Firth of Forth	The estuary of Scotland's River Forth. It flows into the North Sea, between Fife to the north, and West Lothian, the City of Edinburgh and East Lothian to the south.
FRA	Free Route Airspace	A specified airspace within which users may freely plan a route between a defined entry point and a defined exit point.
ft	feet	The standard measure for vertical distances used in air traffic control.
GA	General Aviation	All civil aviation operations other than scheduled air services and non-scheduled air transport operations for remuneration or hire. 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 and private corporate jet flights.
GB-0180	Strathaven Airfield	ICAO Designator for Strathaven Airfield.
HoA	Head of Airspace	
hPa	Hectopascal	The international unit for measuring atmospheric or barometric pressure.
IAF	Intermediate Approach Fix	The point at which an aircraft begins its approach to the airfield. Typically located at the end of a STAR.
IAP	Instrument Approach Procedures	A series of predetermined manoeuvres by reference to flight instruments with specified protection from obstacles from the initial approach fix, or where applicable, from the beginning of a defined arrival route to a point from which a landing can be completed
IFP	Instrument Flight Procedures	A published procedure used by aircraft flying in accordance with the instrument flight rules which is designed to achieve and maintain an acceptable level of safety in operations and includes an instrument approach procedure, a standard instrument departure, a planned departure route
IFR	Instrument Flight Rules	Rules which allow properly equipped aircraft to be flown under instrument meteorological conditions.
JFADT	Joint Future Airspace Design Team	A collaborative body between NATS and the MoD. JFADT is responsible for the development and coordination of UK National ATM initiatives, including airspace change proposals (ACPs).
kg	Kilogram	The kilogram is the international unit for measuring mass.
LAA	Light Aircraft Association	A NATMAC member representing Light Aircraft users.

LAC	London Area Control	The unit which manages the en-route traffic in the London Flight Information Region. This includes en-route airspace over England and Wales up to the Scottish border.
LOCP	Lead Operator Carrier Panel	A group of the lead operators within UK airspace.
MoD	Ministry of Defence	
MTMA	Manchester TMA	TMA surrounding the Manchester group airports.
NAT(s)	North Atlantic Track(s)	A structured set of transatlantic flight routes that stretch from eastern North America to western Europe across the Atlantic Ocean, within the North Atlantic airspace region.
NATMAC	National Air Traffic Management Advisory Committee	A group of organisations representing various users of the UK Airspace.
NATS	UK ANSP	The UK's licenced air traffic service provider for the en route airspace that connects with UK airports and with the airspace of neighbouring states. Also the air navigation service provider at various UK airports.
NavAid	Ground-Based Navigation Aid	Published Navigation aid used by aviation.
NERL	NATS En-route Ltd.	See NATS.
NM	Nautical Mile	Aviation measures distances in nautical miles. One nautical mile (NM) is 1,852 metres. One road mile ('statute mile') is 1,609 metres, making a nautical mile about 15% longer than a statute mile.
NOTAM	Notice to Aviation	A notice containing information concerning the establishment, condition or change in any aeronautical facility, service, procedure or hazard, the timely knowledge of which is essential to personnel concerned with flight operations.
NP	National Park	An area set aside by a national government for the preservation of the natural environment.
NPV	Net Present Value	A financial metric that seeks to capture the total value of an investment opportunity.
NSA	National Scenic Area	An area designated in Scotland as having outstanding scenic value in a national context.
OAC	Oceanic Area Control	The unit which manages the en-route traffic within Oceanic Flight Information Region.
OPA	Operational Partnership Agreement	A forum to engage with airlines on NATS Operations.
PA	Prohibited Area	An airspace of defined dimensions, above the land area or territorial waters of a state, within which the flight of aircraft is prohibited.
PBN	Performance Based Navigation	A generic term for modern standards for aircraft navigation capabilities including satellite navigation (as opposed to 'conventional' navigation standards).
RA	Restricted Area	An airspace of defined dimensions above the land areas or territorial waters of a State, within which the flight of aircraft is restricted in accordance with specific conditions.

RAD	Route Availability Document	A flight-planning document providing information on routes available.
RC	Radar Corridor	Routes that allow aircraft to cross controlled airspace with minimum disturbance to controllers and other aircraft.
RNAV	Area Navigation	A method of instrument flight rules navigation that allows an aircraft to choose any course within a network of navigation beacons, rather than navigate directly to and from the beacons.
ScACC	Scottish Area Control	The unit which manages the en-route traffic within the Scottish Flight Information Region.
ScTMA	Scottish Terminal Manoeuvring Area	TMA surrounding the Scottish group airports.
SFC	Surface	Ground level.
SID	Standard Instrument Departure	A published route with climb for aircraft to follow straight after take-off.
SME	Subject Matter Expert	A person who is an authority in a particular area or topic.
SoN	Statement of Need	Sets out what issue or opportunity an airspace change seeks to address.
SPIG	Safety Performance Improvement Group	A group of SMEs who assess the overall safety and operational implications of changes.
SRD	Standard Route Document	A list of published recommended routings between waypoints within UK airspace.
SSR	Secondary Surveillance Radar	Equipment that relies on transponder replies to detect aircraft.
STAR	Standard Arrival Route	A published route for arriving traffic. In today's system these bring aircraft from the route network to the holds (some distance from the airport at high levels), from where they follow ATC instructions (see Vector) rather than a published route. Under PBN it is possible to connect the STAR to the runway via a Transition.
SUA	Special Use Airspace	Areas of airspace wherein activities must be confined because of their specific nature, or wherein limitations are imposed upon aircraft operations that are not a part of those activities, or both.
TA	Transition Altitude	The altitude at or below which the vertical position of an aircraft is controlled by reference to altitudes.
TMA	Terminal Control Area	An area of airspace normally established at the confluence of ATS Routes in the vicinity of one or more major aerodromes.
TRA	Temporary Reserved Area	A defined volume of airspace that is temporarily reserved for a particular use which can be activated as and when required.
UIR	Upper Information Region	Upper Information Region (Airspace above FL255).
VFR	Visual Flight Rules	A set of rules that govern the operation of aircraft in Visual Meteorological Conditions (conditions in which flight solely by visual reference is possible).

11. Questionnaire

About you

- 1) What is your name? (Required)
- 2) What is your email address? (Required)
- 3) Please enter your postcode (most relevant to your response home/ work/ organisation etc).
UK only - if responding from outside the UK please complete the next question instead
- 4) If responding from outside the UK, please supply an address or location description.
- 5) Who are you representing? (Required)
 - a. I am responding as an individual
 - b. I am responding on behalf of an organisation.
- 6) Please note all responses will be published. Are you happy for your name to be included in the response publication? (We will not publish email addresses)
 - a. Yes- I want my response to be published with my name.
 - b. No- I want my response to be published anonymously.

If NERL identifies that your response may impact one or both of the Scottish Airspace Modernisation Airports during our collation and analysis of responses, we will share your response with the appropriate sponsor(s) in full. Should the appropriate sponsor confirm your response is relevant, and that they had not received the response from you directly, they will publish your response on their Citizen Space page, with or without your name, depending on your answer to the question above.

Organisation Details (Only if answer this section if you answered option b to question 5)

- 7) What is your organisation name?
- 8) What is your position/title?

Your Feedback

- 9) To what extent do you support or object to the airspace changes described in this proposal?
 - a. Support- I support the changes
 - b. No Comment- I neither support or object
 - c. Ambivalent- I have mixed feelings
 - d. Object- I object to the proposed changes
 - e. Not answered

10) To what extent do you agree or disagree that the proposed option modernises the ScTMA Network design?

- a. Strongly Agree
- b. Agree
- c. Neutral
- d. Disagree
- e. Strongly Disagree
- f. Don't know

Please provide a rationale

11) To what extent do you agree or disagree that the environmental benefits achieved due to the proposed new Firth of Forth connectivity justifies the Controlled Airspace (CAS) requirements to the east of the ScTMA?

For Further information on the environmental Benefits, please see Sections 7.1 and 7.7 of the Consultation Document.

- a. Strongly Agree
- b. Agree
- c. Neutral
- d. Disagree
- e. Strongly Disagree
- f. Don't know

Please provide a rationale

12) To what extent do you agree or disagree that that the proposed airspace classifications for Terminal Control Areas (TMAs) and Control Areas (CTAs) are suitable to the airspaces' proposed use?

For further information on the proposed CAS see the Controlled Airspace (CAS) section of the Consultation Document (6.2.80 - 6.2.176)

- a. Strongly Agree
- b. Agree
- c. Neutral
- d. Disagree
- e. Strongly Disagree
- f. Don't know

Please provide a rationale

13) To what extent do you agree or disagree that the proposed airspace volumes are sufficient to deliver a safe and efficient Air Traffic Service (ATS)?

For further information on the proposed CAS see the Controlled Airspace (CAS) section of the Consultation Document (6.2.80 - 6.2.176)

- a. Strongly Agree
- b. Agree
- c. Neutral
- d. Disagree
- e. Strongly Disagree
- f. Don't know

Please provide a rationale

- 14) To what extent do you agree or disagree that the proposed airspace will have a net beneficial impact on general aviation airspace users (due to improved access to sport areas)?

For further information on the GA impact see sections 7.5.8-12 of the Consultation Document.

- a. Strongly Agree
- b. Agree
- c. Neutral
- d. Disagree
- e. Strongly Disagree
- f. Don't know

Please provide a rationale

- 15) Do you agree or disagree with our assumptions on climb and descent gradients used to assign Free Route Airspace (FRA) Arrival and Departure Points? Please select one option for Arrivals and one option for Departures.

Departure routes have been designed using a 7% climb gradient and arrival routes have been designed using 3% descent gradient.

- | | |
|---------------------------------|-----------------------------------|
| a. Arrival Gradients Agree | d. Departure Gradients Agree |
| b. Arrival Gradients Disagree | e. Departure Gradients Disagree |
| c. Arrival Gradients Don't Know | f. Departure Gradients Don't Know |

Please provide a rationale

- 16) If you have any feedback on the system wide proposal, please use the box below to give us your thoughts:

The NERL Airspace Change Proposal (ACP) forms part of a wider project to modernise Scottish Airspace. As part of the development of the ACP, we have worked with Edinburgh Airport and Glasgow Airport to design the system wide airspace. More information can be found here ([Annex F](#)).

Please provide a rationale

- 17) If you have any other comments on the NERL proposal, please provide your feedback here

MoD

18) Were you answering on behalf of the MoD?

- a. Yes
- b. No

MoD Questions

19) Does the MoD agree or disagree with the proposal to redefine the lateral dimensions of the Temporary Reserved Areas (TRAs) as set out within the consultation document and thereby facilitate new ingress and egress routings for the ScTMA with associated environmental benefits as a result?

- a. Agree
- b. Disagree

Please provide a rationale

20) Does the MoD agree or disagree with the proposal to redefine the lateral dimensions of EG D514 and thereby facilitate a permanent access routing to the north of Edinburgh, noting the Flexible Use Airspace principle of conditionality for the Firth of Forth ingress and egress routings subject to EG D514 activation?

- a. Agree
- b. Disagree

Please provide a rationale

21) Does the MoD agree or disagree with the airspace access arrangements proposed for Leuchars, the details of which will be set out in an Letter of Agreement (LOA) between Units?

- a. Agree
- b. Disagree

Please provide a rationale

End of Future Airspace Strategy Implementation- ScTMA Stage 3 Consultation Document Summary