

Glasgow Prestwick Airport Airspace Change Proposal - Departure and Arrival Routes

CAP 1738



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Chapter 1

Executive summary

Objective of the Proposal

1. To introduce RNAV Instrument Flight Procedures to mitigate the removal of navigation aids currently used for the extant arrival and departure procedures.

Summary of the decision made

2. The CAA approves the implementation of the proposed Instrument Flight Procedures including seven Standard Instrument Departure routes (SIDs), three Omni-Directional Departure routes (ODDs) and three Instrument Approach Procedures (IAPs). The CAA also approves the redesignation of three STARs which terminate at the TRN VOR.

Next steps

3. The CAA's Post Implementation Review (PIR) of the changes approved by the CAA in this decision will commence at least one year after implementation of those changes. It is a condition of the CAA's approval that the sponsor provides data required by the CAA throughout the year following implementation to carry out that PIR. In due course, the sponsor will be advised of the specific data sets and analysis required, and the dates by when this information must be provided. The PIR is the seventh stage of the CAA's airspace change proposal process and will consider whether *"the anticipated impacts and benefits, set out in the Airspace Change Proposal, have actually been delivered"*. The policy states that if those impacts and benefits have not been delivered then the review should

“ascertain why and ... determine the most appropriate course of action”.¹ (See [Annex C] paragraph 22 for more information.)

¹ There are therefore a wide range of possibilities for the conclusions of a PIR; they include a rejection of the proposal, the imposition of further requirements on the proposal, and the making of wider recommendations, albeit that the success of the proposal is not dependent upon them.

Chapter 2

Decision Process and Analysis

CAA's Role

The CAA's role in airspace change decisions, the legal framework, the policy background and relevant UK international obligations

4. It is necessary to understand the CAA's role in airspace change decisions, the legal framework, the policy background and relevant UK international obligations in order to understand the decision[s] the CAA has taken.
5. This information is set out in [Annex C].

Aims and Objectives of the proposed change – CAA decision on objective

- Maintain or improve the level of safety for departures and arrivals to Glasgow Prestwick Airport;
- Minimise the noise impact on overflown population, particularly below 4,000ft;
- Increase the efficiency of departure and arrival routes to Glasgow Prestwick Airport, such as through enabling CDAs;
- Introduce PBN routes in accordance with CAA Future Airspace Strategy FAS recommendations;
- Improve the accuracy and predictability of tracks flown;
- Not to increase the overall volume of controlled airspace;
- Accord with the DfT environmental objectives relating to noise impact and CO2 emissions;
- Minimise exposure of new populations to noise and visual impacts;
- Minimise low level over-flight of National Scenic Areas, National Parks and other tranquil areas;
- Minimise impact on military operations.

6. In this part of the record of the CAA's decision, the CAA formally records that these aims and objectives of the change proposed are objectives which it endorses and, subject to the terms of the regulatory and policy framework set out in [Annex C], the CAA will seek to approve changes to the UK airspace structure that meet the aims and objectives of this proposal.

Chronology of Proposal Process

Framework Briefing

7. The Framework Briefing took place on 23 February 2017 at CAA House in London. The sponsor set out the airspace issues which need to be resolved and how they intended to engage and consult with stakeholders to establish the most effective solution to the identified issue.

Consultation

8. The sponsor's stakeholder consultation launched on 14 June 2017 by written correspondence to all identified stakeholders and ran for 12 weeks. The notification to NATMAC did not go out for a further two weeks so NATMAC representatives were permitted an additional 2 weeks to respond.
9. The sponsor issued a press release on 15 June 2017 to make a wider audience aware of the consultation.
10. The sponsor held three public exhibitions on 22 June, 27 June and 05 July 2017.
11. On 01 July 2017, the sponsor sent reminders to all stakeholders about the consultation and again on 06 September 2017, a week before the consultation closed.
12. The consultation closed on 13 September 2017 and the sponsor's consultation feedback report, explaining the feedback they had received and how they were going to respond to it, was published on 13 October 2017.

Submission of Airspace Change Proposal

13. The CAA received the sponsor's Airspace Change Proposal on 18 October 2017 along with its associated references and noise contour diagrams. The

files with the technical design report for the Instrument Flight Procedure designs was received by the CAA on 09 Feb 2018, at which point the regulatory decision period began.

Documents considered by the CAA

14. In assessing the proposal and making this decision, the CAA has taken account of:
- a. *Glasgow Prestwick Airport RNAV1 Routes Airspace Change Proposal Issue 2 and associated references*
 - b. *Glasgow Prestwick Airport Consultation Document*
 - c. *Glasgow Prestwick Airport Consultation Feedback Report*
 - d. *Glasgow Prestwick Airport – New Routes ACP Noise Assessment*
 - e. *Letter regarding redesignation of STARs*

CAA Analysis of the Material provided

15. As a record of our analysis of this material the CAA has produced:
- An **Operational Assessment** which is designed to brief the decision maker whether the proposal is fit for purpose. This assessment contains:
 - The CAA's assessment of the airspace change proposal justification and options considered.
 - The CAA's assessment of the proposed airspace design and its associated operational arrangements. An assessment of the design proposal is produced to illustrate whether it meets CAA regulatory requirements regarding international and national airspace and procedure design requirements and whether any mitigations were required to overcome design issues.
 - The CAA's assessment of whether adequate resource exists to deliver the change and whether adequate communications, navigation and surveillance infrastructure exists to enable the change to take place.

- The CAA's assessment of whether maps and diagrams explain clearly the nature of the proposal.
- The CAA's assessment of the operational impacts to all airspace users, airfields and on traffic levels and whether potential impacts have been mitigated appropriately.
- The CAA's conclusions are arrived at after a CAA Case Study. An Operational Assessment is completed for all airspace change proposals and forms a key part in the CAA's decision-making process as to whether a proposal is approved or rejected. The Operational Assessment will also include any recommendations for implementation such as conditions that should be attached to an approval, if given.
- An **Environmental Assessment** which reviews the Environmental Assessment provided by the sponsor requesting the change. The review assesses whether the sponsor has provided the data and information that had been agreed at the Framework Briefing or in subsequent correspondence, and must be provided as part of the proposal. The requirements are based on the guidance in CAP 725 (see [3]). Those requirements have been designed to facilitate the assessments that the CAA must make when considering the environmental impact of the change. The CAA reviews the assessments made by the sponsor as part of the proposal to determine if they have been undertaken properly and the conclusions are reasonable. The CAA will check a sample of the sponsor's results and may, in some cases, undertake its own analysis. The CAA then prepares a report summarising the environmental impacts of the proposal outlining the anticipated impacts of the change if it were to be implemented, for consideration along with all the other material by the CAA decision maker.
- A **Consultation Assessment** designed to brief the CAA decision maker on whether the proposal has been adequately consulted upon in accordance with the CAA's regulatory requirements, the Government's guidance principles for consultation and the Secretary of State for Transport's Air Navigation Guidance. The assessment will confirm whether the change sponsor has correctly identified the issues arising from the consultation and has responded to those issues appropriately. The assessment will rely, in

part, on a comparison of the sponsor's consultation feedback report against the actual responses provided by consultees.

CAA assessment and decision in respect of Consultation

16. The consultation document was clear, written in plain-English and was suitable for all audiences. It included an “Overview” section which clearly articulated the need for change as well as documenting the regulatory process that needs to be followed. The consultation document also offered detailed explanations of the flightpaths currently in use, those which are being proposed (clearly indicating the “preferred” and “alternative” options) and instructions on how stakeholders could participate in the consultation.
17. The consultation was supported by a well-designed “Airspace Change microsite” which, along with the consultation document and electronic/printable versions of the feedback form had a number of sub-pages that provided further information on the airspace change process, the consultation timeline, Frequently Asked Questions (FAQ’s) and an area where a variety of supporting materials (e.g. summary leaflet, exhibition panels, high resolution images) could be accessed.
18. Pro-active steps were taken by the change sponsor to ensure that the consultation was promoted to raise awareness beyond those stakeholders that were specifically targeted.
19. The change sponsor produced a comprehensive ‘Consultation Feedback Report’ which clearly documented the methodology that was applied by them throughout the consultation, the feedback received and the conclusions/next steps. The CAA is therefore satisfied that the Consultation meets regulatory requirements.
20. The CAA’s full assessment of the consultation is contained in the CAA’s Consultation Assessment referred to above and published on the CAA’s website.² In summary the CAA has concluded that the quality of BAL’s

² www.caa.co.uk/Commercial-industry/Airspace/Airspace-change/Decisions/Birmingham-Airport-Runway-15-departure-routes/

consultation and response to consultation feedback was sufficient for the CAA to proceed to consider whether to approve the change requested.

CAA Consideration of Factors material to our decision whether to approve the change

Explanation of statutory duties

21. It is one of the CAA's air navigation functions given to it by the Secretary of State to consider, and if applicable, approve changes to the structure of UK airspace. The CAA's statutory duties and functions are contained in Section 70 of the Transport Act 2000 (the Transport Act), the CAA (Air Navigation) Directions 2001, as varied in 2004 (the 2001 Directions), and the 2014 Guidance to the CAA on Environmental Objectives relating to the exercise of its air navigation functions (the 2014 Guidance).³
22. These functions, the law and policy framework in which they are carried out are set out in more detail in [3]. In summary, the CAA's primary duty under Section 70(1) of the Transport Act requires that the CAA exercises its air navigation functions so as to maintain a high standard of safety in the provision of air traffic services. This duty takes priority over the material considerations set out in Section 70(2).
23. Where an airspace change proposal satisfies all of the material considerations identified in Section 70(2) and where there is no conflict between those material considerations, the CAA will, subject to exceptional circumstances, approve the airspace change proposal.
24. Where an airspace change proposal satisfies some of the material considerations in Section 70(2) but not others, this is referred to as a conflict within the meaning of Section 70(3).
25. In the event of a conflict, the CAA will apply the material considerations in the manner it thinks is reasonable having regard to them as a whole. The CAA will

³ Revised in 2014 by the Department for Transport
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/269527/air-navigation-guidance.pdf

give greater weight to material considerations that require it to “secure” something than to those that require it to “satisfy” or “facilitate”.

26. The CAA regards the term to “take account of” as meaning that the material considerations in question may or may not be applicable in a particular case and the weight the CAA will place on such material considerations will depend heavily on the circumstances of the individual case. The analysis of the application of the CAA’s statutory duties in this airspace change proposal is set out below.

Conclusions in respect of safety

27. The CAA’s primary duty is to maintain a high standard of safety in the provision of air traffic services and this takes priority over all other duties.⁴ In this respect, with due regard to safety in the provision of air traffic services, the CAA is satisfied that the proposals maintain a high standard of safety for the following reasons:

- a. The procedures continue to be contained within controlled airspace, providing a known traffic environment and integration of IFR and VFR traffic.
- b. The proposed procedures have been simulated in conjunction with NATS Prestwick Centre and Glasgow airport to ensure that the procedures work in practice.
- c. Air Traffic Control procedures have been developed to continue co-ordination between Glasgow Prestwick Airport, Glasgow Airport and NATS Prestwick Centre, ensuring safe integration of Prestwick traffic into the enroute network.
- d. The CAA ATS Inspector assigned to oversee the ATS operation at Glasgow Prestwick Airport is content that the introduction of the new procedures and the ATS operation will continue to maintain a high level of safety.

⁴ Transport Act 2000, Section 70(1).

28. CAA's Safety and Airspace Regulation Group's Instrument Flight Procedure (SARG IFP) regulators' analysis reached the view that all designs, in the final form proposed, were compliant with extant regulations.

Conclusions in respect of securing the most efficient use of airspace

29. The CAA is required to secure the most efficient use of the airspace consistent with the safe operation of aircraft and the expeditious flow of air traffic.⁵
30. The CAA considers that the most efficient use of airspace means the use of airspace that secures the greatest number of movements of aircraft through a specific volume of airspace over a period of time so that the best use is made of the limited resource of UK airspace. It is therefore concerned with the operation of the airspace system as a whole.
31. The CAA considers the expeditious flow of air traffic to involve each aircraft taking the shortest amount of time for its flight. It is concerned with individual flights.
32. The proposed changes will improve the efficiency of the airspace by enabling systemised flows of traffic which require less controller intervention in the flight.
33. It is the CAA's view that the introduction of RNAV-1 procedures and technology is necessary in order to ensure the most efficient use of UK airspace. This is reflected in more detail in the CAA's Future Airspace Strategy.⁶ The CAA's Future Airspace Strategy reflects the UK's relevant international obligations in this area. These are set out in detail in [Annex D].
34. This proposal will allow aircraft to continue to arrive and depart from Prestwick airport in a systemised manner, once the relevant navigation aids have been removed from service, rendering current conventional procedures unavailable.

⁵ Transport Act 2000, Section 70(2)(a).

⁶ <http://www.caa.co.uk/Commercial-industry/Airspace/Future-airspace-strategy/Future-airspace-strategy/>.

Conclusions in respect of taking into account the Secretary of State's guidance to the CAA on environmental objectives

35. As set out in more detail in [Annex C], the CAA has a duty to consider a number of material considerations when deciding whether or not to approve a change to the structure of UK airspace including the anticipated impact of the change proposed on the environment. We do so for two reasons:
36. Firstly, we needed to form an opinion on whether the change will have the significant environmental impacts identified in paragraph 9 of the 2001 Directions from the Secretary of State to the CAA in order to decide whether the Secretary of State's consent would be needed to promulgate the change should the CAA agree to the airspace change proposal, or whether the decision was solely a matter for the CAA.
37. In our opinion the proposed change is not anticipated to have the significant environmental impacts identified in paragraph 9 of the 2001 Directions. This is because the overall exposure of any individual or community to noise on the ground is not anticipated to increase to a level that exceeds 57dB LA_{eq16 hour}, where the increase in the level of exposure to noise in itself exceeds 3dB as a result of the proposed change. (The relevant CAA policy on this test is set out in paragraph C21 [Annex C]). As set out in the CAA's ERCD's Environmental Assessment this is because it is anticipated that the proposed changes to departure routes will have no impact upon the airport's L_{EQ} noise contours.⁷
38. Secondly, we need to assess the anticipated environmental impact of the proposed change that we have been asked to decide on, in order to take it into account together with the other material considerations, such as making the most efficient use of airspace, the requirements of operators and owners or the interests of others in relation to the use of airspace and so on.
39. With regard to this second reason for an environmental assessment, the CAA sets out its analysis of the environmental impact of the proposed change below (and in more detail in the Environmental Assessment Report). The CAA has

⁷ Noise contours are used to represent on a map the location of places affected by different average noise levels.

made the following assessment with respect to the anticipated environmental impact of the proposal:

40. With regard to CO², emissions have been considered in terms of reducing track mileage wherever possible, in keeping with the government set priorities of minimising noise below 4,000ft. The overall effect of these considerations is that there is an increase in emissions of 23.2 tonnes fuel (or 73.9 tonnes CO₂ over 6000flights per year. The increase in track distances that have caused this increase is mainly associated with the updated design that has been proposed.
41. With regard to Local air Quality, the proposal has no impact on flight paths below 1000ft therefore there will be no impact on local air quality.
42. With regard to AONBs and National Parks, the proposed routes do not overfly any National Parks or National Scenic Areas.
43. The CAA's ERCD has assessed the anticipated impact of aircraft noise that results from the changes proposed and in so doing had regard to the altitude-based priorities as given to the CAA by the Secretary of State in the 2014 Air Navigation Guidance to CAA on Environmental Objectives (set out in [3] to this decision) and also the guidance in respect of the environmental impact of new technology of the type that is the subject of this proposal as follows:

“With PBN, the overall level of aircraft track-keeping is greatly improved for both approach and departure tracks, meaning aircraft will be more concentrated around the published route. This will mean noise impacts are concentrated on a smaller area, thereby exposing fewer people to noise than occurs with equivalent conventional procedures.

...Concentration as a result of PBN is likely to minimise the number of people overflown, but is also likely to increase the noise impact for those directly beneath the track as they will be overflown with greater frequency than if the aircraft were more dispersed.

...The move to PBN will require the updating of existing route structures such as Standard Instrument Departures (SIDs), Standard Terminal Arrival Routes (STARs) and Initial Approach Procedures (IAPs). Updating individual routes in terminal areas can fall into one of two categories: “replication” where the existing

route alignment is preserved as much as possible whilst catering for the greater navigational accuracy of PBN, or “redesign” where seeking to optimise the introduction of PBN will require consideration of a different alignment.”

44. The initial climb straight ahead from Runway 30 is extended due to the design selection to place a flyover waypoint for the first turn. This brings departing aircraft closer to Troon than previously.
45. There is a predicted increase in the size of the Leq countours in line with the predicted increase in aircraft movements.
46. In line with the Air Navigation Guidance 2014, the CAA has considered the potential for ‘respite’ options⁸. As the proposal aims to minimise those overflown (apart from where the design criteria for the proposed design mean that it is not possible), and that the number of aircraft movements is relatively low, respite routes would only serve to potentially increase the number of people overflown.

Conclusions in respect of environmental impact

47. For the reasons set out in this decision, the CAA acknowledges the anticipated environmental impact of the proposed change and has taken this into account when weighing the factors that the CAA is required by statute to consider when making its decision whether to agree to the change proposed.

Conclusions in respect of aircraft operators and owners

48. The CAA is required to satisfy the requirements of operators and owners of all classes of aircraft.⁹
49. The introduction of the proposed procedures at the airport means that there will continue to be enroute connectivity once the relevant navigational aids have been removed from service.
50. The proposal includes procedures for aircraft which will not be equipped to be able to utilise the new procedures.

⁸ Respite is planned and predictable alleviation from aircraft noise. One example of respite is having SIDs taking different routes to the same UK exit point which are used at different times. Respite can be designed into airspace structures more easily once aircraft tracks are predictably concentrated on to safely separated routings, enabling the use of them to be alternated or varied. There is currently no agreed minimum distance between routes such that alternating their use would result in acceptable respite.

⁹ Transport Act 2000, Section 70(2)(b).

51. There is no proposed change to the classification or dimensions of controlled airspace and access to the airspace will remain as it is today.
52. Where design criteria have allowed, more efficient routes have been proposed, particularly for departures to the east.

Conclusions in respect of the interests of any other person

53. The CAA considers the words “any person (other than an operator or owner of an aircraft)” to include airport operators, air navigation service providers, members of the public on the ground, owners of cargo being transported by air, and anyone else potentially affected by an airspace change proposal.
54. The CAA is required to take account of the interests of any person (other than an owner or operator of an aircraft) in relation to the use of any particular airspace or the use of airspace generally. The CAA examined a number of anticipated impacts, some of which attracted feedback during the consultation process outlined above.
55. This decision document deals above with consideration of the anticipated environmental impact on the public on the ground in the paragraphs relating to the environmental impact of the proposed change below.

Integrated operation of ATS

56. The CAA is required to facilitate the integrated operation of air traffic services provided by or on behalf of the armed forces of the Crown and other air traffic services.¹⁰ There will be no change to the provision of ATS as a result of this change.

Interests of national security

57. The CAA is required to take into account the impact any airspace change may have upon matters of national security.¹¹ There are no impacts for national security.

¹⁰ Transport Act 2000, Section 70(2)(e).

¹¹ Transport Act 2000, Section 70(2)(f).

International obligations

58. The CAA is required to take into account any international obligations entered into by the UK and notified by the Secretary of State.¹² The UK's international obligations that relate to the introduction of RNAV-1 or performance-based navigation are set out in Annex D. With regard to replication procedures, all foreign operators will be able to fly the new procedures providing the crews and aircraft are certified and approved to fly RNAV-1 procedures in accordance with their own States' national regulations.

¹² Transport Act 2000, Section 70(2)(g).

Chapter 3

CAA's Regulatory Decision

59. Noting the anticipated impacts on the material factors we are bound to take into account described in [Chapter 2 (see [CAA Consideration of Factors material to our decision whether to approve the change])], we have decided to approve the introduction of the proposed SIDs, ODDs and IAPs because without the introduction of the SIDs and ODDs, the airport would not be able to operate as it does today, allowing IFR flights to depart from the airport in a safe and efficient way.
60. The introduction of the procedures is in accordance with the CAAs Future Airspace Strategy which aims to modernise the UK airspace and ATM infrastructure through significant technological improvements by 2030, to make a more efficient use of airspace.
61. The proposal includes provision for those aircraft not equipped to fly the RNAV procedures and as the aircraft fleet modernises over time, more aircraft will be able to utilise them. This ensures that owners and operators of all classes of aircraft continue to be able to utilise the airport's facilities once the proposed change has taken place.
62. While the design of the new procedures takes aircraft closer to Troon on the departures from runway 30 due to the initial flyover waypoint, the design decision was made to ensure a safe departure that met design criteria that excludes a turn before the departure end of the runway (DER).

Civil Aviation Authority

29 November 2018

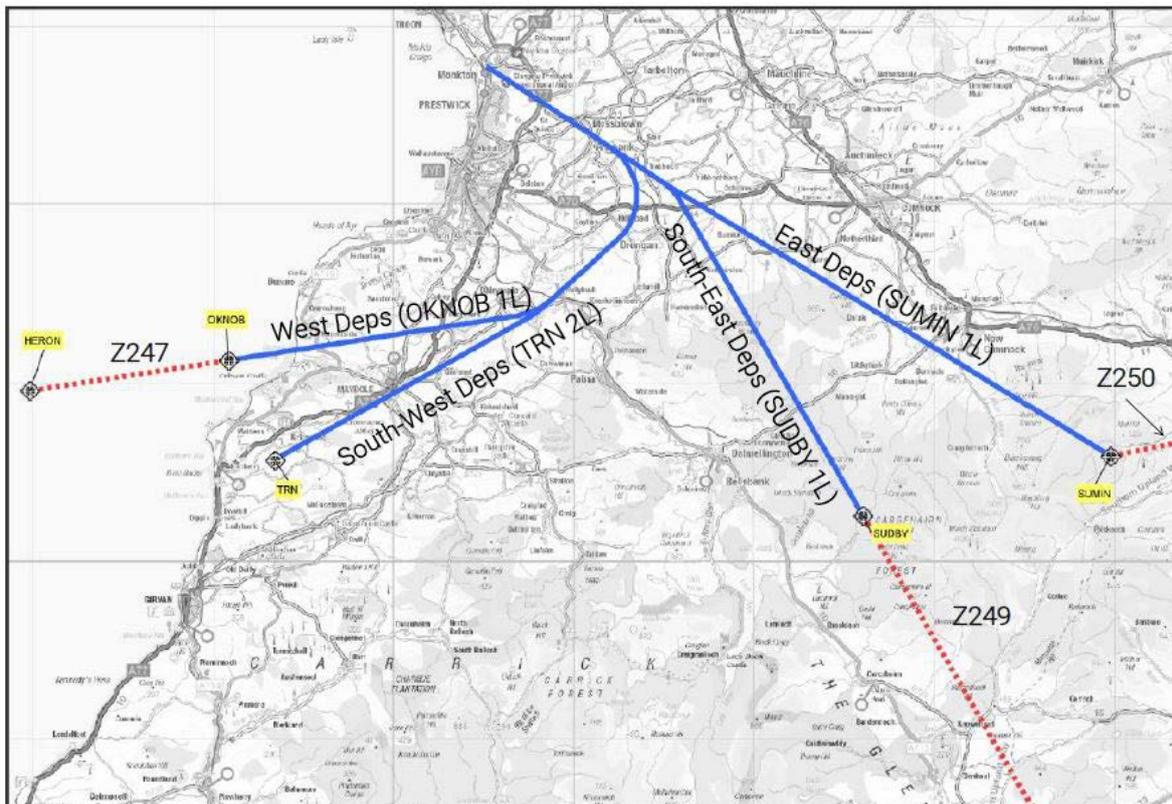
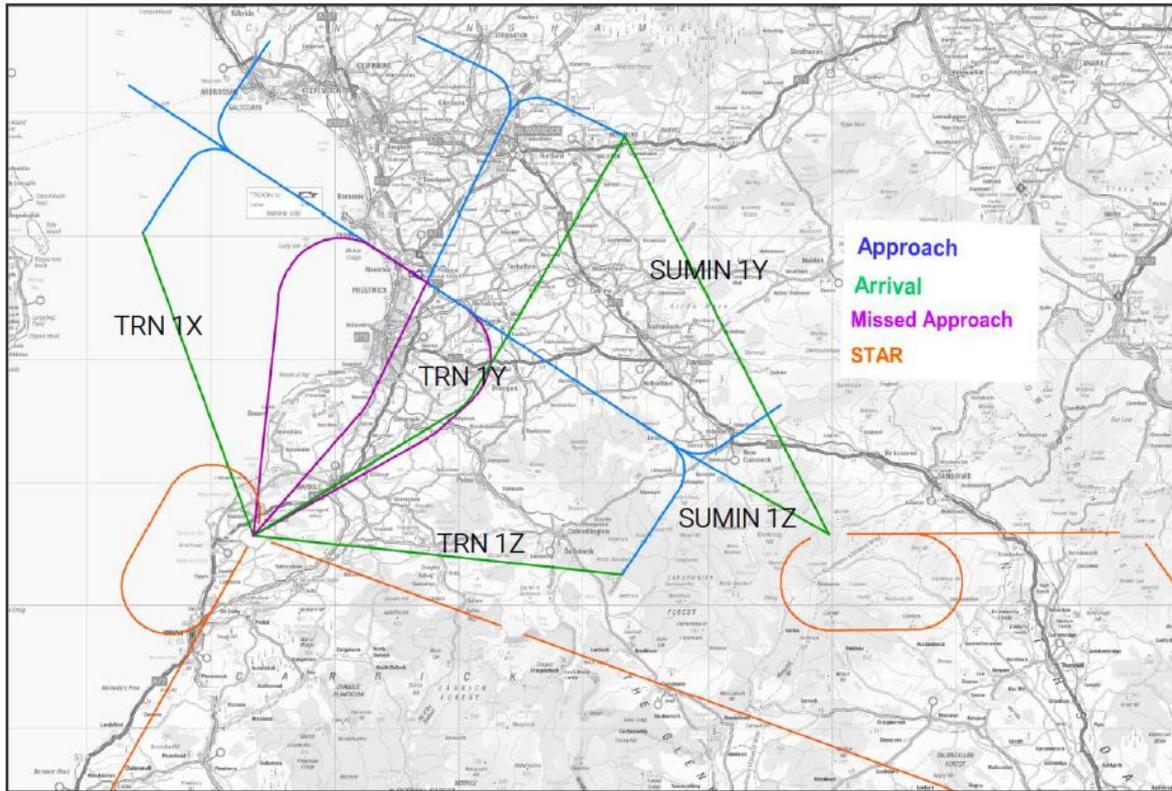
Annex A

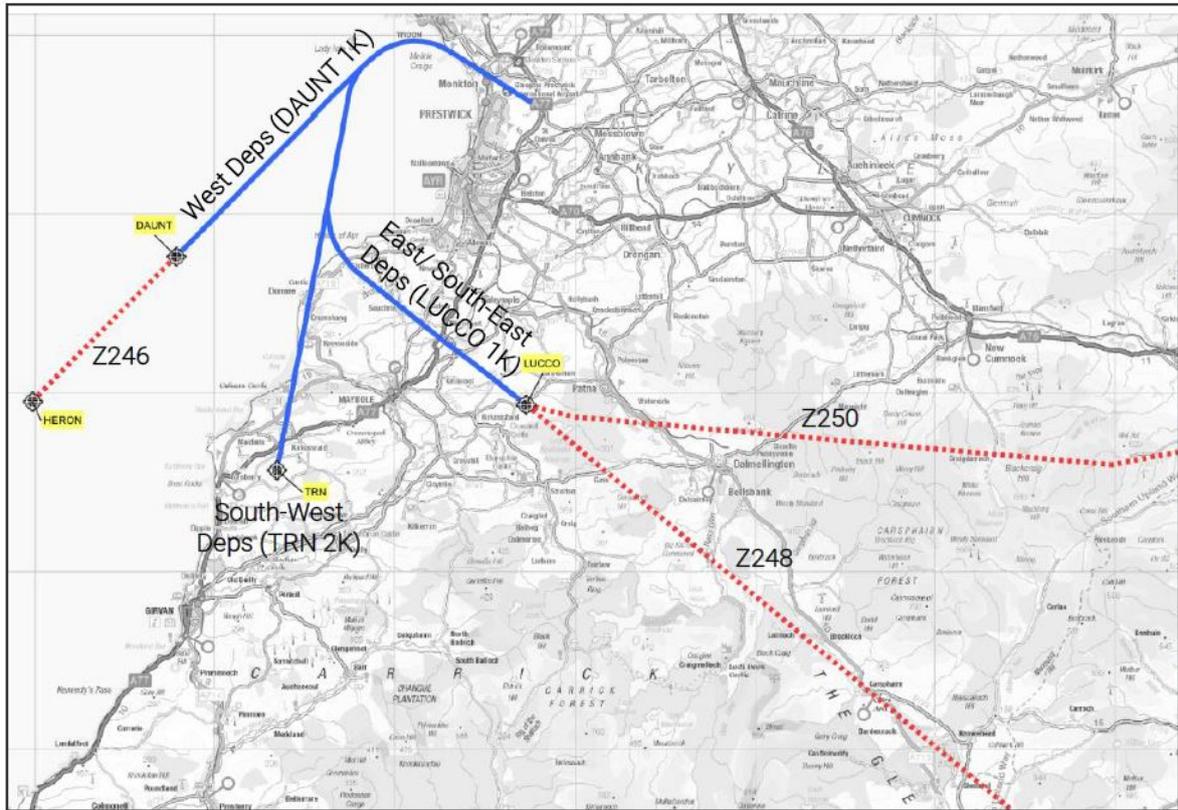
Conditions

No conditions have been made in relation to this decision.

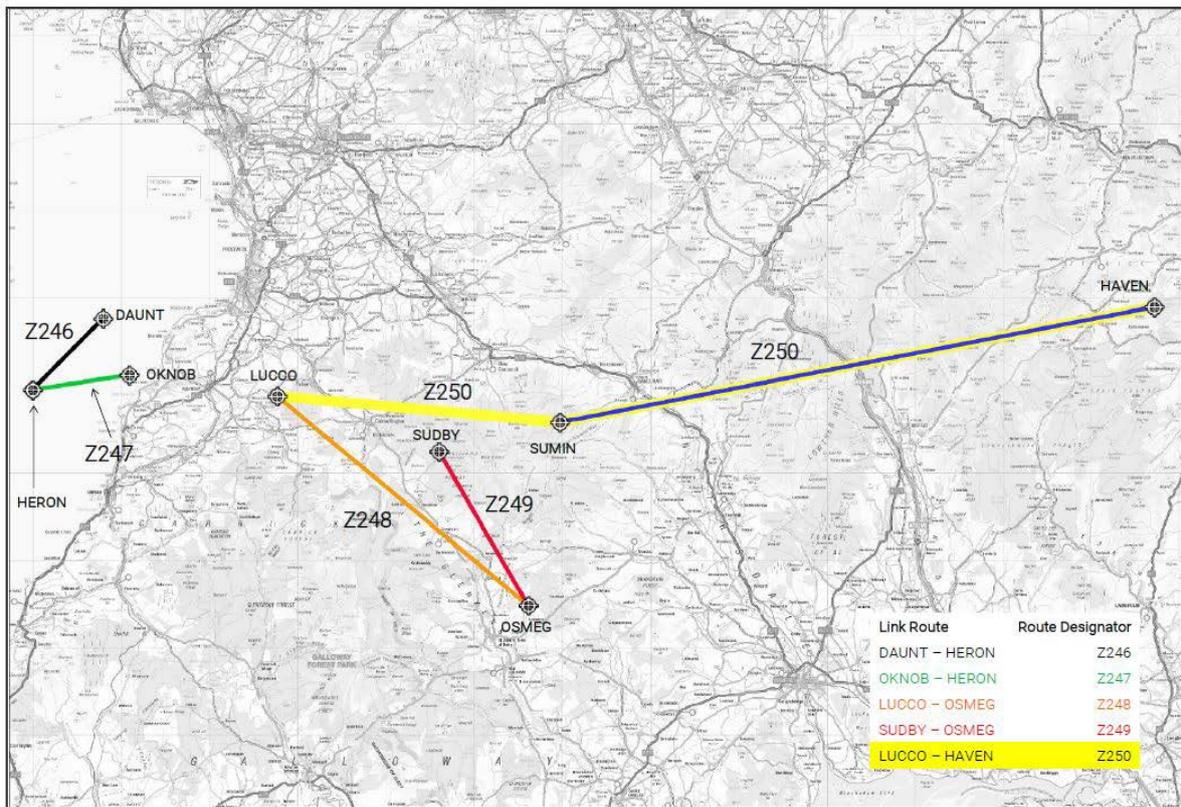
Annex B

Diagrams relating to change





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Annex C

The CAA's role in airspace change decisions, the legal framework, the policy background and relevant UK international obligations

- C1. The Secretary of State has given the CAA functions that relate to the structure and design of airspace in the Air Navigation Directions dated 2001 (amended in 2004).¹³ In particular these Directions require the CAA to develop and enforce a policy for the sustainable use of UK airspace. By virtue of this function the CAA has developed its Future Airspace Strategy (known as FAS)¹⁴ which is an initiative started by the CAA to create a joined-up UK airspace and air traffic management (ATM) modernisation programme across the many different stakeholder groups involved. The goal of FAS is to modernise the UK airspace and ATM infrastructure through significant technological improvements by 2030, to make a more efficient use of airspace (thereby providing airspace capacity benefits), as well as secure environmental (noise and emissions) and safety benefits.
- C2. One means by which the CAA delivers the aims of FAS is via its statutory air navigation function to consider proposals from air navigation service providers and/or airports to change the structure of UK airspace (including the published instrument flight procedures) published in the UK's Aeronautical Information Publication (AIP).
- C3. By Section 70 of the Transport Act 2000 (the Transport Act), the CAA is under a general duty in relation to air navigation to exercise its functions so as to maintain a high standard of safety in the provision of air traffic services. That duty is to have priority over the CAA's other duties in this area of work.

¹³ The Civil Aviation Authority (Air Navigation) Directions 2001 (incorporating Variation Direction 2004).

¹⁴ <http://www.caa.co.uk/Commercial-Industry/Airspace/Future-airspace-strategy/Future-airspace-strategy>.

- C4. Noting that priority, the CAA's duties in relation to air navigation is to exercise its functions in the manner it thinks best so that:
- It secures the most efficient use of airspace consistent with the safe operation of aircraft and the expeditious flow of air traffic.
 - It satisfies the requirements of operators and owners of all classes of aircraft.
 - It takes account of the interests of any person (other than an operator or owner) in relation to the use of any particular airspace or airspace generally.
 - It takes account of any guidance on environmental objectives given to the CAA by the Secretary of State.
 - It facilitates the integrated operation of air traffic services provided by or on behalf of the armed forces and other air traffic services.
 - It takes account of the interests of national security.
 - It takes account of any international obligations of the UK notified to the CAA by the Secretary of State.
- C5. Where there is a conflict of these material considerations (other than safety, which must always take priority), the CAA must apply them as it thinks reasonable having regard to them as a whole.
- C6. The CAA must exercise its functions in this area so as to impose on providers of air traffic services the minimum restrictions consistent with the exercise of those functions.
- C7. The CAA will approve an airspace change proposal that best satisfies all of the material considerations (where safety is not in issue), or all the material considerations that are engaged. Where a change would satisfy some of the material considerations, but would be contrary to the fulfilment of others, then there is a conflict within the meaning of Section 70 of the Transport Act. In reaching a decision in such circumstances, the CAA will apply its expertise to all the relevant information before it and use its judgement to strike a fair balance between the material considerations.

- C8. In striking that balance the CAA relies on the wording of Section 70 which indicates the relative importance of any given factor.
- C9. In the instance of conflict, the CAA will usually offer suggestions to the sponsor of a proposal as to how the conflict might be mitigated or resolved, including encouraging the sponsor to engage with affected stakeholders in determining how the desired outcome might be achieved.
- C10. The CAA considers the most efficient use of airspace to be that use of airspace that secures the greatest number of movements of aircraft through a specific volume of airspace over a period of time so that the best use is made of the limited resource of UK airspace. It is therefore concerned with the operation of the airspace system as a whole.
- C11. The CAA considers the expeditious flow of air traffic to involve each aircraft taking the shortest amount of time for its flight. It is concerned with individual flights.
- C12. The CAA considers the words “any person (other than an operator or owner of an aircraft)” to include airport operators, air navigation service providers, members of the public on the ground, owners of cargo being transported by air, and anyone else potentially affected by an airspace proposal.
- C13. The Secretary of State has given the CAA specific guidance on environmental objectives within the meaning of Section 70 of the Transport Act.¹⁵
- C14. The 2014 Guidance includes the following:

The CAA's primary objective is to develop a “safe, efficient airspace that has the capacity to meet reasonable demand, balances the needs of all users and mitigates the impact of aviation on the environment”.

...

In December 2012, the industry-led FAS Industry Implementation Group launched its plan for delivering Phase 1 of the FAS up to c2025. A

¹⁵ https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/269527/air-navigation-guidance.pdf.

considerable component of the plan is the need to redesign UK's terminal airspace to make it more efficient by using new procedures such as Performance-Based Navigation (PBN)¹⁶ and better queue management techniques.

- C15. The 2014 Guidance states the need to balance environmental factors against other factors:

The purpose of the Guidance is to provide the CAA and the aviation community with additional clarity on the Government's environmental objectives relating to air navigation in the UK. However, when considering airspace changes, there may be other legitimate operational objectives, such as the overriding need to maintain an acceptable level of air safety, the desire for sustainable development, or to enhance the overall efficiency of the UK airspace network, which need to be considered alongside these environmental objectives. We look to the CAA to determine the most appropriate balance between these competing characteristics.

- C16. The need to strike a balance specifically in relation to noise is stated as follows:

The Government has made it clear therefore that it wants to strike a fair balance between the negative impacts of noise and the economic benefits derived from the aviation industry.

- C17. The 2014 Guidance also states the Government's overall policy to limit the number of people significantly affected by aircraft noise.

- C18. The 2014 Guidance states that the CAA should keep in mind the following altitude-based priorities:

- In the airspace from the ground to 4000ft AMSL the Government's environmental priority is to minimise the noise impact of aircraft and the number of people on the ground significantly affected by it;

¹⁶ Of which RNAV-1 is a type.

- where options for route design below 4000ft AMSL are similar in terms of impact on densely populated areas the value of maintaining legacy arrangements should be taken into consideration;
- in the airspace from 4000ft AMSL to 7000ft AMSL, the focus should continue to be minimising the impact of aviation noise on densely populated areas, but the CAA may also balance this requirement by taking into account the need for an efficient and expeditious flow of traffic that minimises emissions;
- in the airspace above 7000ft AMSL, the CAA should promote the most efficient use of airspace with a view to minimising aircraft emissions and mitigating the impact of noise is no longer a priority;
- where practicable, and without a significant detrimental impact on efficient aircraft operations or noise impact on populated areas, airspace routes below 7000ft AMSL should, where possible, be avoided over Areas of Outstanding Natural Beauty and National Parks as per Chapter 8.1 of the 2014 Guidance; and
- all changes below 7000ft AMSL should take into account local circumstances in the development of airspace structures:

The concept of altitude-based priorities reflects the Government's desire that only significant environmental impacts should be taken into account when considering the overall environmental impact of airspace changes. Any environmental impacts that are not priorities based on the above altitude-based criteria do not need to be assessed since the assumption is that they would not be significant.

C19. Subject to Section 70 of the Transport Act, the CAA is directed by the Secretary of State to perform its air navigation functions in the manner that it thinks best calculated to take into account the following:

- The Secretary of State's guidance on the Government's policies on sustainable development and on reducing, controlling and mitigating the impacts of civil aviation on the environment and the planning policy guidance it has given to local planning authorities.

- The need to reduce, control and mitigate as far as possible the environmental impacts of civil aircraft operations, and in particular the annoyance and disturbance caused to the general public arising from aircraft noise and vibration, and emissions from aircraft engines.
- At the local, national and international levels, the need for environmental impacts to be considered from the earliest possible stages of planning and designing, and revising, airspace procedures and arrangements.

C20. The CAA is also specifically directed, where changes are proposed to the design or the provision of airspace arrangements, or to the use made of them, to:

- Where the changes might have a significantly detrimental effect on the environment, advise the Secretary of State of the likely impact and of plans to keep it to a minimum.
- Where such changes might have a significant effect on the level or distribution of noise and emissions in the vicinity of an airport, ensure that the manager of the airport, users of it, any local authority and any organisation representing the interests of person in the locality have been consulted.
- Where such changes might have a significant effect on the level or distribution of noise and emissions under the arrival tracks and departure routes followed by aircraft using an airport but not in its immediate vicinity, or under a holding area set aside for aircraft waiting to land at an airport, ensure the manager of the airport and each local authority in the areas likely to be significantly affected by the changes have been consulted.

C21. Further, the CAA is specifically directed where such changes might have one or more of these effects the CAA shall refrain from promulgating a change without first securing the approval of the Secretary of State. The Secretary of State has given no further direction nor guidance on the interpretation of these directions. Therefore the CAA proceeds on the basis that (a) the overall exposure to noise must increase to a level that exceeds 57dB LA_{eq}16 hour as a result of the changes proposed; and (b) the increase in the level of exposure

to noise must in itself exceed 3dB. The 57dB figure is drawn from the Government's own Aviation Policy Framework¹⁷ (paragraphs 3.12 to 3.19 of the APF), in which it is stated that the Secretary of State would continue to treat the 57dB LAeq 16 hour contour as the average level of daytime aircraft noise marking the approximate onset of significant community annoyance. The 3dB figure is one that has been used in the Government's APF in relation noise policy (i.e. as a trigger for acoustic insulation).

C22. Any airspace change that a sponsor asks the CAA to approve follows a seven stage process known as the CAA's airspace change process.¹⁸ A summary of that process is available on the CAA's website¹⁹ and is also shown here.

The seven-stage process of an airspace change

Stage 1 – framework briefing

We meet with the organisation that is considering proposing an airspace change to discuss their plans, the operational, environmental and consultation requirements for proposing a change and set out the how the CAA process will run.

Stage 2 – proposal development

The organisation that is considering proposing the airspace change begins to develop design options and researches who needs to be consulted. They will also conduct an initial environmental assessment of the proposals which will need to be more detailed if, and by the time, the organisation proceeds with its proposal and prepares for consultation. It is recommended that the organisation invites a cross-section of parties who may be affected by the change to form a Focus Group to help with the development of the design options.

Stage 3 – preparing for consultation

The organisation that is considering proposing the airspace change decides on the most appropriate consultation method needed to reach all consultees. This could

¹⁷ https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/153776/aviation-policy-framework.pdf.

¹⁸ Published in CAP 724 <https://www.caa.co.uk/CAP724> and CAP 725 <https://www.caa.co.uk/CAP725>

¹⁹ <http://www.caa.co.uk/Commercial-industry/Airspace/Airspace-change/Airspace-Change/>.

include a written consultation, questionnaires or surveys, using representative groups and open/public meetings. We will provide advice to the organisation on the scope and conduct of the consultation but it remains their responsibility to ensure that the appropriate level of consultation is undertaken. Consultations should normally last for at least 12 weeks with consideration given to longer timescales where feasible and sensible. Consultation documents should be clear about the objectives of the proposal, what is being proposed, how the change would affect various stakeholders, the expected advantages and disadvantages of the proposals to all stakeholders, the consultation process and the scope to influence. If a single design option is being consulted upon, the document should state what other options were considered and why these were discarded.

Stage 4 – consultation and formal proposal submission

When the consultation is launched the organisation that is considering proposing the airspace change should make every effort to bring it to the attention of all interested parties. The organisation must ensure that accurate and complete records of all responses are kept. Following the consultation, the organisation collates and analyses all responses to identify the key issues and themes. There may be airspace design modifications in light of the consultation responses which results in the need for further consultation. The organisation is required to publish feedback to consultees. If the organisation decides it will submit a formal airspace change proposal to us to then its feedback document must include information on how the final decision on the option selected was reached. In addition to publishing the feedback report the organisation sends all the consultation responses to the CAA within its formal proposal submission.

Stage 5 – our decision

We undertake a detailed assessment of the proposal and may ask for clarification or supplementary information from the organisation requesting the change. Our assessment covers:

1. the operational need for, objectives and feasibility of the changes proposed;
2. our analysis of the anticipated environmental benefits and impacts if the change were made; and
3. an assessment of the consultation carried out by the organisation proposing the change and of the responses received to that consultation.

Our conclusions in these three areas inform our decision whether to approve or reject the proposal. When making our decision the law requires us to give priority to safety but then to balance the need for the most efficient use of airspace with the needs of operators of aircraft and the environmental effect of aviation (including noise and CO₂ emissions). The means by which we assess and balance the environmental impact within our decision making process is set out in government policy which we implement. We normally aim to make our decision within 16 weeks of having all the information we need.

Stage 6 – implementation

If a change is approved then changes to airspace procedures and structures are timed to start on internationally specified dates which occur every 28 days on so called AIRAC-dates.²⁰ This ensures that the aviation community, as a whole, is aware of the changes and can prepare. In addition, the organisation that proposed the change should publicise the airspace change to members of the local community and other stakeholder groups who were consulted earlier in the process.

Stage 7 – operational review

Around 12 months after a change is implemented we will start a review of the change to assess whether the anticipated impacts and benefits, set out in the original airspace change proposal and decision, have been delivered and if not to ascertain why and to determine the most appropriate course of action. Once complete we will publish the review on our website.

²⁰ An internationally agreed system for the regulated co-ordination of aeronautical information updates and publication that occurs every 28-days on specified dates which apply globally.

Annex D

UK's International Obligations relating to Performance-Based Navigation

- A. In 2010, the International Civil Aviation Organisation (ICAO) Assembly agreed Resolution A37-11 on PBN Global Goals. The Assembly Resolution requires States to complete a PBN implementation plan to achieve:
- the implementation of RNAV-1 and RNP operations (where required) for en-route and terminal areas according to established timelines and intermediate milestones; and
 - the implementation of approach procedures with vertical guidance for all instrument runway ends, either as the primary approach or as a back-up for precision approaches by 2016.
- B. The Assembly Resolution is not a mandate and the UK has agreed with the ICAO that whilst making every effort to meet the 2016 date, the implementation of approach procedures at all instrument runway ends may take longer.
- C. The European Commission Implementing Regulation (EU) No 716/2014 on the Establishment of the Pilot Common Project supporting the implementation of the European Air Traffic Management Master Plan sets out six air traffic management functionalities to be deployed in pursuance of the Single European Air Traffic Management Research programme. In the UK, the RNP 1 PBN specification is mandated for terminal airspace and the RNP APCH PBN specification for approaches at Heathrow, Gatwick, Stansted and Manchester Airports from 1 January 2024. This implementation must be co-ordinated and synchronised to ensure that the international performance objectives are met.
- D. The European Commission, through the European Aviation Safety Agency (EASA), is also proposing PBN-related legislation for much earlier implementation. EASA Notice of Proposed Amendment 2015-01 (consulted on from January to February 2015) proposes implementation of PBN across the European Air Traffic Management Network with application in terminal airspace and en-route airspace from December 2018 and in

approach operations by January 2024. The specification of PBN to be applied is RNP 1 in terminal airspace and Advanced RNP in the en-route. Any application is conditional on there being a performance objective. The instrument approach requirement is effectively a mandate for implementing the RNP APCH on all Instrument Flight Rules (IFR) runways. Publication of the Opinion from EASA is anticipated by early 2016.

- E. In order to encourage PBN equipage and use, the CAA published Aeronautical Information Circular (AIC) Y092/2014 in December 2014 requiring mandatory equipage to an RNAV-1 PBN specification by November 2017 for all aircraft operating in to and out of the five major London airports plus Southend, Farnborough and Biggin Hill.
- F. In summary, the UK is under an obligation to ICAO, the European Commission and EASA to transition to PBN-based procedures in all flight phases. Whilst the European mandate is some years away, RNAV-1 is seen as a transitory step to achieve this objective.