Safety and Airspace Regulation Group

UK Civil Aviation Authority

Airspace Change Decision
BRIZE NORTON CLASS D CTR/CTA

CAP 2089

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Executive summary

Objective of the Proposal

1. Royal Air Force (RAF) Brize Norton (BZN) is seeking to introduce additional volumes of Controlled Airspace (CAS) to facilitate direct connectivity with the national airways structure, to provide better containment of instrument approach procedures and to reduce the need for often complex and time-consuming coordination between BZN and London Oxford Airport (LOA) Air Traffic staffs to integrate instrument traffic to respective aerodromes.

Summary of the decision made

2. The CAA has considered the submitted material and has decided not to approve the ACP, for reasons including that the proposal does not make a compelling and safe case for the creation of these new blocks of CAS and that the proposal does not adequately resolve the integration of IFP with LOA. Furthermore, the CAA has concluded that the airspace design included in the final proposal is significantly different from the option presented as the preferred option during consultation, and that further consultation should have been undertaken with all stakeholders to better record and assess the impacts of this final proposal.

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

3. 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.

4. This information is set out in [Annex C].

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

5. The proposed change, its justifications and objectives are set out in full in the Sponsor's documents submitted to the CAA and are published on the CAA's website. The proposal is seeking to achieve the following aims:

    a. Reduce the risk of a mid-air collision between a BZN based aircraft and a General Aviation (GA) aircraft within 20 nautical miles of BZN.

    b. To introduce new procedures in a way that enables the UK to meet its international obligations whereby all new instrument flight procedures are designed to an ICAO standard aRea NAVigation (RNAV) specification.

    c. To reduce the requirement for complex interaction between BZN Air Traffic Control (ATC) staff and LOA ATC staff to effect coordination between instrument approaches.

6. It is proposed that this will be achieved through the following objectives:

    a. Introduction of additional volumes of Class D airspace, combined Class E plus conspicuity (Transponder Mandatory Zone (TMZ) and/or Radio

Mandatory Zone (RMZ) airspace[1] and one area of combined TMZ/RMZ airspace, thereby providing direct connectivity between the existing BZN CTR and the national airways structure and delivering improved containment of instrument flight procedures in CAS.

b. A revised Concept of Operations (CONOPs) Letter of Agreement (LoA) to define the procedures used between BZN and LOA within their common area of interest based upon improved airspace design.

c. The introduction of RNAV (GNSS) approach procedures[2].

Chronology of Proposal Process

Framework Briefing

8. Notwithstanding that the CAA introduced a new airspace change process on 2 January 2018 (known as CAP 1616) this proposal has been developed and is assessed in accordance with the CAA's airspace change process known as CAP 725. This is in accordance with a transition policy developed with the Department for Transport and consulted on in 2016 and confirmed in 2017[3].

9. A Framework Briefing took place at CAA House, London on 11 September 2014 at which the sponsor provided outline detail of the airspace change proposal, the options considered and the preferred option to amend the structure of existing Class D airspace.

10. The CAA emphasised the need for a more comprehensive level of detail to support the justification narrative, including that data-gathering of evidence to support the change proposal should continue as the ACP is developed. The CAA also indicated that BZN should facilitate a meeting with LOA who were undertaking their own separate (but related) ACP and should ensure early engagement with local and national representatives of organisations such as

[1] Under this arrangement, aircraft operating under Visual Flight Rules (VFR) may enter the Class E CAS without a clearance from Air Traffic Control (ATC) providing they comply with either the RMZ or TMZ rules.
[2] The CAA does not regulate the changes to Military IFP as they are changes to the Mil AIP. However, the airspace required to contain them is a change to the UK AIP and therefore a CAA decision.
[3] Letter from Acting Head of Aviation Policy Division, Aviation Directorate, DfT to Chief Executive, CAA entitled Military Environmental Impacts in Airspace Changes dated 21 December 2016.

General Aviation (GA), Light Aircraft Association (LAA) and British Gliding Association (BGA) communities.

11. It was stated that revised or new Letters of Agreement (LoAs) or Memorandums of Understanding (MoUs) with neighbouring aerodromes and regional aviation organisations would be required to mitigate any possible effects of new airspace design.

12. The CAA pointed out that LOA had a pre-framework briefing meeting scheduled with the CAA for 17th September 2014 for their own ACP. Although details of the LOA application were not known, stakeholders would rightly expect a joint and coordinated airspace solution between RAF Brize Norton and LOA, given the complex interactions and interdependencies between the respective airspace structures, and the CAA would insist that this was the case.

13. The sponsor outlined that the ACP was intended to future-proof the introduction of future navigational requirements, albeit that it was accepted that full containment of RNAV procedures was not being sought.

14. The sponsor provided an ACP timeline which include a target decision date of end December 2015.

15. Due to a number of factors, not least the difficulty associated with coordinating airspace design development for the two neighbouring airfields, the initial proposed ACP timeline was re-evaluated and extended.

Consultation

16. A public consultation took place between 15 December 2017 and 5 April 2018. The consultation document[4] was emailed to 714 organisations and individuals including local aerodromes, NATS, local airspace users and national bodies representing all UK aviation interests. National bodies such as the General Aviation Alliance (GAA), British Microlight Aircraft Association (BMAA) and BGA were represented through the National Air Traffic Management Advisory Committee (NATMAC). The consultation document was made available online

[4] Available on the CAA website RAF Brize Norton consultation document

through BZN's website[5] and the 714 consultees were contacted predominantly via email; however, some organisations were contacted using online forms or via letter. Two stakeholder drop-in events were facilitated. The consultation was widely discussed as a standing agenda item at the Oxfordshire Area of Intense Aerial Activity (AIAA) Users Working Group (now known as the Oxfordshire Regional Airspace Users Working Group or RAUWG). In addition, local authorities and Members of Parliament that represent affected areas were consulted.

17. Responses were received from 48 of the targeted organisations and an additional 1598 responses were received from individuals and other parties[6].

Documents considered by the CAA

18. In assessing the proposal and making this decision, the CAA has taken account of:

    a. RAF Brize Norton Consultation – Issue 1 dated 15 December 2017.

    b. RAF Brize Norton Airspace Change Proposal (Consultation Feedback Report) – Issue 1 dated 3 October 2018.

    c. Oxford RAUWG Minutes for meeting held 14 November 2018

    d. Stakeholder Engagement Meeting – 17 September 2019

    e. GAA Engagement – 22 November 2019

    f. RAF Brize Norton Airspace Change Safety Case Part 1 (Safety Requirements) – Issue 2 dated 26 June 2020.

    g. RAF Brize Norton Airspace Change Safety Case Part 2 (Design Substantiation) – Issue 1 dated 26 June 2020.

[5] On 1st March 2018 the RAF Brize Norton website was updated as part of a larger RAF-wide website update. RAF Brize Norton arranged for London Oxford Airport (LOA) to host the BZN Consultation Document whilst the RAF website was updated. Enquiries were re-directed to the relevant information in its alternate location. The consultation material was restored to the new site on 2nd March 2018.

[6] Available on the CAA website RAF Brize Norton consultation feedback report

h. RAF Brize Norton Airspace Change Safety Case Part 3 (Transition to Service) – Draft B dated 26 June 2020.

i. RAF Brize Norton Proposal Document; 04 August 2020; Issue 1.

j. Proposal for Revised Airspace and Instrument Flight Procedures; 04 August 2020.

k. RAF Brize Norton Consolidated Stakeholder Engagement Log.

l. Raw data submitted by RAF Brize Norton including stakeholder consultation responses received by email/letter and outgoing and incoming email correspondence.

m. Stakeholder correspondence received by the CAA direct.

n. RAF Brize Norton Operational Assessment

o. RAF Brize Norton Consultation Assessment

p. RAF Brize Norton Environmental Assessment

CAA Analysis of the Material provided

19. 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. 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

20. BZN planned to conduct their consultation between 15 December 2017 and 22 March 2018. The consultation commenced on 15 December 2017 but following stakeholder feedback that images contained within the materials were distorted the consultation length was extended by two-weeks to take account of the publication of additional images on the BZN website. The consultation closed on 5 April 2018. The time extension provided a total continuous consultation length of sixteen weeks.

21. The raw response data has been checked against the conclusions outlined in the sponsor's consultation feedback report. The sponsor has adequately identified and captured the key themes from their consultee feedback, and these have been accurately outlined in their consultation feedback report. Ninety-seven percent of stakeholders who responded to the consultation objected to the proposals and the highest proportion of objections were received from individuals within the general aviation community. Ten stakeholders (0.6%) supported the proposals.

22. The CAA has made the following assessment of the consultation:

    a. The consultation took place when the proposal was at a formative stage. The consultation document stated that any comments were welcome on the proposal, both positive and negative. The sponsor modified the proposal in the light of objections received.

b. The consultation material was presented clearly, written in a suitable manner for both aviation and non-aviation stakeholders and outlined the potential impacts that needed to be considered. The sponsor facilitated two sessions open to all stakeholders to provide information on the airspace change proposal and responded to requests for information and clarification throughout the consultation.

c. The sponsor provided appropriate time, namely sixteen weeks from 15 December 2017 to 5 April 2018, to allow considered responses.

d. The product of the consultation has been taken into account by the sponsor. Objections and alternative proposed solutions were considered by the sponsor which led to modifications being made to the proposal consulted on.

23. 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.[7] In summary the CAA has concluded that the quality of BZN's consultation and response to consultation feedback was sufficient for the CAA to proceed to consider whether to approve the change requested.

24. The significant number of objections received from the GA community led to the change sponsor re-considering their airspace design in order to mitigate the concerns raised. In doing so the change sponsor demonstrated that they were prepared to be influenced and where appropriate modify their design in response to stakeholder feedback. As a result, their consultation can be deemed to have been "meaningful".

25. In October 2018 the sponsor met with some aviation stakeholders and representatives of organisations including the GAA, BGA and British Microlight Aircraft Association (BMAA), presented a revised airspace design to them and received informal feedback. In December 2018 members of the GAA presented a counter proposal which was considered in full but not accepted by the sponsor. The sponsor re-examined some of their previously discarded options to try to mitigate the concerns raised by the GAA. In September 2019 a further revised

[7] Available on the CAA website RAF Brize Norton ACP | UK Civil Aviation Authority (caa.co.uk)

airspace design was presented at an engagement event to the same stakeholders targeted for the October 2018 event. The change sponsor's final re-design encompassing modifications to the airspace classification, volumes and levels of the airspace design was presented to the GAA in November 2019 following the GAA's request for a meeting. The sponsor confirmed this re-design as their final design but agreed to consider reducing the volume of Class D airspace and increasing the volume of Class E plus conspicuity airspace by horizontally splitting the airspace at a specified level[8].

26. The final design was not the subject of a second consultation. Significant changes have been made to the design submitted from the earlier iteration, but no further consultation was carried out on what was demonstrably a significant change from that which had previously been consulted upon. It is likely that a second consultation would have better identified the anticipated impacts of the modified procedures particularly given the complexity of the proposed structures and procedures for airspace users.

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

Explanation of statutory duties

27. Pursuant to the Civil Aviation Authority (Air Navigation Directions) 2017, as amended in 2018 and 2019 ("the Directions"), it is one of the CAA's air navigation functions to decide whether to approve a proposal for a permanent change to airspace design. The CAA's statutory duties when carrying out its functions under the Directions are contained in section 70 of the Transport Act 2000 (the Transport Act). Those duties include taking account of Guidance to the CAA on Environmental Objectives relating to the exercise of its air navigation functions. In accordance with guidance given to the CAA by the Secretary of State, the

[8] So that one volume of airspace sat immediately above the other volume of airspace

version of Guidance on Environmental Objectives relevant to the consideration of this proposal is the 2014 Guidance[9].

28. These functions, the law and policy framework in which they are carried out are set out in more detail in [Annex C]. 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 application of section 70(2) and (3).

29. 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.

30. Where an airspace change proposal satisfies some of the factors in section 70(2) but not others, this is referred to as a conflict within the meaning of section 70(3).

31. In the event of a conflict, the CAA will apply the factors in the manner it thinks is reasonable having regard to them as a whole. The CAA should give greater weight to duties that require it to "secure" something than to those that require it to "satisfy" or "facilitate".

32. The CAA regards the term to "take account of" as meaning that the duty in question may or may not be applicable in a particular case and the weight the CAA will place on such factors will depend heavily on the circumstances of the individual case, giving the CAA discretion to apply the appropriate expert judgment when balancing all factors. 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

33. 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[10].

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

[10] Transport Act 2000, Section 70(1).

34. In this respect, with due regard to safety in the provision of air traffic services, the CAA is not satisfied that the proposals maintain a high standard of safety for the following reasons:

    a. The base level of CTAs 3, 4, and 5 (all at 1800ft) coupled with the understandably more restrictive VMC criteria below 3,000ft amsl, could prove challenging for those airspace users choosing to operate in Class G airspace below the CTAs. This could be particularly evident in areas adjacent to high ground over the Cotswolds to the NW of BZN and where the proposed new airspace abuts existing airspace structures such as the Kemble ATZ.

    b. The final design is overly complex, comprising 15 different airspace segments and encompassing CTA's with varying base levels. Such complexity is liable to cause confusion and is consequently prone to infringement. The airspace design is therefore not consistent with one of the proposal's stated aims [11] which was to make it less prone to infringement.

    c. A significant amount of stakeholder feedback suggested that the complexity of the airspace design may cause some airspace users to avoid the new areas of CAS and lead to potential choke points through displacement of GA aircraft, specifically over Oxford City and towards/within Benson MATZ. Although the sponsor has acknowledged the hazard [12] the mitigations proposed are based largely on assumptions. The sponsor's Risk Tolerability matrix quantifies the level of risk of choke points as 'the consequence and/or likelihood is of concern'.[13]

    d. The proposed airspace construct and consequent interaction of instrument procedures for BZN and LOA does not deliver the desired reduction in potentially complex and time-consuming coordination and interaction

[11] Safety Case Part 1, 2.1 states 'BZN also suffers a significant number of CTR incursions that have provided cause for concern and potentially demonstrates the difficulty General Aviation (GA) pilots have interpreting the boundary of the current airspace'.
[12] BZN ACP Safety Case Part 1 Issue 2 – Hazard 10.
[13] The ACP Final submission states that RAF Brize Norton Aviation Support Risk Register (ASRR) and the Battlespace Management Safety Management Manual (BM SMM) Risk Registers record the current levels of service to unit-based aircraft as inherently safe.

between the respective ATC staffs. Modelling of the feasibility of operating under the proposed airspace design structure has not been conducted and the submission does not contain an estimate of increased levels of Radio Telephony (R/T) that may be required to service the airspace.

Conclusions in respect of securing the most efficient use of airspace

35. 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.[14]

36. 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.

37. 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.

38. In this respect, whilst BZN-based aircraft operating to/from BZN would benefit from more direct routeing to/from the national airways structure and increased containment of instrument flight procedures there is, as acknowledged by the sponsor, potential for significant impact on other airspace users[15]. The size and classification of the proposed airspace is disproportionate when considering the BZN movement statistics[16], which do not provide compelling evidence that benefits to the expeditious flow of unit-based aircraft will outweigh the disbenefit to the flow of other air traffic in this busy airspace, especially at weekends. Furthermore, CTR excursion statistics, deviation from published procedures and

[14] Transport Act 2000, Section 70(2)(a).
[15] 'No environmental modelling has been conducted. This benefit should be countered with a potential dis-benefit of aircraft that choose to avoid the airspace' (RAF Brize Norton ACP Submission - footnote 8).
[16] There is clear disparity between the actual movements statistics provided for the period April 2019 to September 2019, the final submission which cites up to 30 Instrument Flight Rules approaches each day and the Safety Case Part 1 which suggests between 40-50 Instrument Flight Rules (IFR) approaches each day.

airprox data provided in the Consultation document[17] do not conclusively support the proposal.

39. The change in classification of airspace from Class G to Class D and/or Class E plus conspicuity (TMZ or RMZ) could through lack of radio or transponder equipage or due to non-familiarity with or the complexity of the airspace, result in some airspace users choosing to avoid the new volumes of airspace. The resulting risk of choke points or sub-optimal routes for GA is recognised in the BZN ACP Safety Case Part 1 Issue 2 – Hazard 10.

40. 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 Airspace Modernisation Strategy[18], (the AMS), which replaced the Future Airspace Strategy. The AMS reflects the UK's relevant international obligations in this area.

41. In this respect, the new RNAV procedures submitted as part of this ACP have not been formally assessed against this requirement as they are regulated by the Military Aviation Authority.

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

42. 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.

43. 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. As set out in the CAA's ERCD's Environmental Assessment

[17] RAF Brize Norton Consultation – Issue 1 dated 15 December 2017.
[18] CAP 1711 Airspace Modernisation Strategy.pdf (caa.co.uk)

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[19].

44. The CAA has made the following assessment with respect to the anticipated environmental impact of the proposal:

45. MOD sponsored ACPs are not required to undertake environmental assessment unless their proposals impact on civil traffic. No quantitative assessment has been made of the impact on CO_2 emissions. However, the sponsor has provided a qualitative description of the expected effect on CO_2 in that the ACP should reduce the number of avoiding action turns and re-routes due to unknown conflicting traffic, that will contribute to the objective of reducing CO_2 emissions

46. The sponsor qualitatively assessed the impact of the proposal on Air Quality, on the basis of the fact that the number of aircraft flying locally (including at and below 3,00ft in the vicinity of any Air Quality Management Areas (AQMA).

47. West Oxfordshire has declared 2 AQMA's in their area; 1. Chipping Norton AQMA and 2. Witney AQMA; neither are considered likely to be impacted by this proposed change. 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.

48. In accordance with Direction 9 of the Directions, in proposals submitted by or on behalf of the MoD, the CAA must not take into account any impacts on the environment resulting from the use of aircraft by or on behalf of the armed forces of the Crown. Therefore, the sponsor is only required to conduct an Environmental Assessment to the extent their proposal impacts on any civil airspace and civil airspace operations; the sponsor has provided a qualitative description that recognises this. The sponsor did undertake a quantitative assessment of noise exposure at Brize Norton for summer 2017, in order to demonstrate that the population exposed to at least 54 dB L_{Aeq16h} was less than

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

10,000 people, such that the proposal could continue to follow the 2014 Air Navigation Guidance and therefore remain under CAP 725[20].

Conclusions in respect of environmental impact

49. 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

50. The CAA is required to satisfy the requirements of operators and owners of all classes of aircraft.[21]

51. In this respect the requirements of the gliding community, and GA operators at surrounding airfields have not been satisfied or suitably mitigated. Following consultation and in response to significant negative feedback the original proposal was subject to major redesign. Stakeholder feedback to consultation showed that 769 responses offered alternative solutions to the original design of which 161 responses (21%) suggested RMZ, TMZ or Class E as a possible alternative. Although subsequent targeted engagement [22] took place with representatives of some airspace user national bodies, further consultation across the whole stakeholder community would have better identified and recorded the impacts of the modified procedures on other airspace users, particularly given the complexity of the proposed airspace design and procedures.

52. The proposed airspace design can restrict access for some operators (those without a transponder and or radio) and the proposal fails to provide adequate evidence that such restrictions will not lead to choke points or sub-optimal routes for some GA traffic. The requirement to be equipped to access the Class D, or Class E plus conspicuity airspace, places increased costs or restrictions on

[20] CAA letter to RAF Brize Norton dated 6 April 2018 - Transition Policy
[21] Transport Act 2000, Section 70(2)(b).
[22] Engagement meetings on 17 September 2019 and 22 November 2019.

aircraft operators for access to the airspace and a change sponsor should make reasonable endeavours to mitigate this.

53. The complexity of the airspace design is assessed as being a potentially prohibitive factor for some airspace users which, due to the increased volumes being proposed, will necessitate potentially lengthy re-routes for those electing to avoid. Furthermore, the base levels of some of the CTAs, particularly those adjacent to areas of high ground, introduce increased risk to those choosing to remain clear of the CAS.

Conclusions in respect of the interests of any other person

54. 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.

55. 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.

56. 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.

57. In this respect, the proposal may satisfy this requirement. The proposal does not seek to introduce any new procedures or traffic patterns for BZN. However, analysis of the impact on communities and other persons resulting from potential change in operations by other airspace users was not presented.

Integrated operation of ATS

58. 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.[23]

59. In this respect the proposal has only partially[24] delivered its aim of resolving integration issues associated with BZN and LOA IFPs and associated MAPs. Significant controller intervention and coordination remains fundamental to the Letter of Agreement (LoA) between the 2 units to resolve overlap of the following procedures:

    a. BZN long procedure to RWY25 and the LOA RWY19 departures.

    b. BZN conventional NDB procedure and LOA RWY 01 procedure.

    c. BZN RWY 25 RNAV approach and the LOA RWY 01 final approach.

    d. BZN RWY 25 long (conventional and RNAV arrivals) also overlap with LOA RWY 19 MAP.

Interests of national security

60. The CAA is required to take into account the impact any airspace change may have upon matters of national security.[25] There are no impacts for national security.

61. In this respect, the proposal satisfies this requirement.

International obligations

62. The CAA is required to take into account any international obligations entered into by the UK and notified by the Secretary of State.[26] 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

[23] Transport Act 2000, Section 70(2)(e).
[24] RAF Brize Norton Airspace Change Safety Case Part 2 – Design Substantiation (Table – A2)
[25] Transport Act 2000, Section 70(2)(f).
[26] Transport Act 2000, Section 70(2)(g).

aircraft are certified and approved to fly RNAV-1 procedures in accordance with their own States' national regulations.

63. In this respect, the proposal was not predicated on the approval of the RNAV procedures, which as described above, are regulated by the MAA, not the CAA.

CAA's Regulatory Decision

64. Noting the anticipated impacts on the material factors we are bound to take into account, **we have decided not to approve the proposal** to introduce the additional volumes of Controlled Airspace in the area surrounding RAF Brize Norton, because the submission fails to satisfy several of the CAA's statutory obligations as detailed above and in the Operational Assessment.

65. Whilst the safety argument to protect station-based aircraft in the critical stages of flight is acknowledged, the complexity of the final proposed design exacerbates the risk of confusion and infringement. In addition, the proposal to introduce areas of Class E plus conspicuity CTAs with low base levels to the west of the airfield, adjacent to areas of high ground, demonstrates a lack of clear understanding of the impact of this change on other airspace users and the challenge of adhering to VMC rules that would have applied to those that sought to avoid the airspace. Furthermore, the movements statistics, CTR excursion and airprox data provided did not conclusively support the proposal.

66. The proposal failed to provide evidence of resolving integrated operational issues of the proposed airspace with LOA. The proposal does not adequately resolve controller interactions associated with the inbound and outbound IFR procedures and associated MAPs. The draft LoA is included in the proposal which encompasses the tactical operation of the conflicting procedures of BZN and LOA is not sufficient to solve the integration without continued and significant controller interaction.

67. The impact of this change on other airspace users would likely have been better understood if a further consultation had been undertaken following the significant airspace redesign from that proposed during consultation. As a result, the proposal does not adequately take into account the impacts on stakeholders, particularly other airspace users.

68. Overall, the ACP fails to satisfactorily address the objectives and aims of the ACP as set out by BZN in the SoN.

Civil Aviation Authority

[*February 2021*]

Annex A

Conditions

There are no conditions associated with this Regulatory Decision.

Annex B

Diagrams relating to change

Extract from BZN Final Submission – showing the final proposed airspace design.

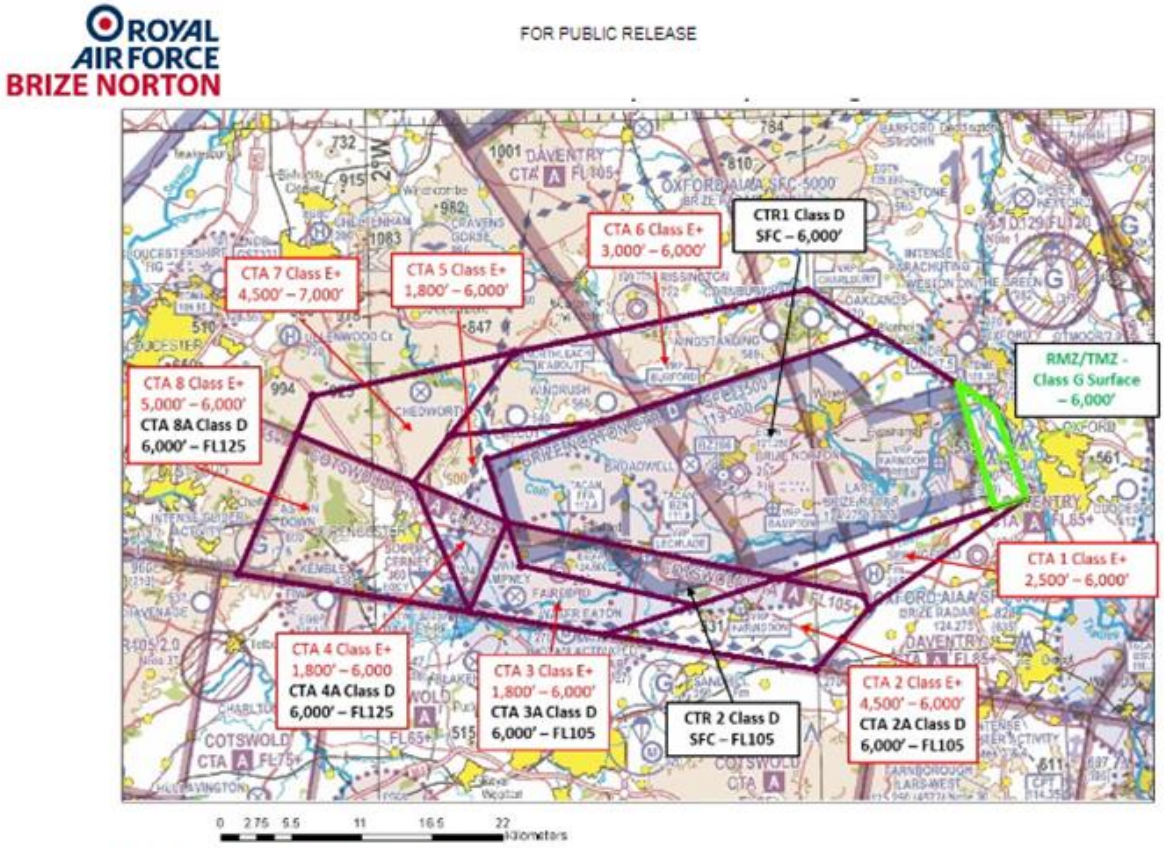

Figure 13 - RAF Brize Norton Final Airspace Design

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, in the Directions[27], given the CAA the function to decide whether to approve proposals to change the design of airspace. The CAA via its statutory air navigation functions is required to consider proposals to permanently change the structure of UK airspace design in accordance with its published strategy[28], procedures and policy for the design and classification of UK airspace.

C1. 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.

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:

a. It secures the most efficient use of airspace consistent with the safe operation of aircraft and the expeditious flow of air traffic.

b. It satisfies the requirements of operators and owners of all classes of aircraft.

c. 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.

d. It takes account of any guidance on environmental objectives given to the CAA by the Secretary of State.

[27] https://www.caa.co.uk/uploadedFiles/CAA/Content/Standard_Content/Commercial_industry/Airspace/Airspace_change/2017%20Directions%20as%20amended%20by%202018%20and%202019%20Directions.pdf

[28] CAP 1711 Airspace Modernisation Strategy.pdf (caa.co.uk)

e. It facilitates the integrated operation of air traffic services provided by or on behalf of the armed forces and other air traffic services.

f. It takes account of the interests of national security.

g. 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.[29]

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 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)[30] 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

[29] https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/269527/air-navigation-guidance.pdf.
[30] Of which RNAV-1 is a type.

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:

a. 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;

b. 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;

c. 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;

d. 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;

e. 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

f. 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. Any airspace change that a sponsor asks the CAA to approve follows a seven-stage process known as the CAA's airspace change process.[31] A summary of that process is available on the CAA's website[32] 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 include a written consultation, questionnaires or surveys, using representative groups

[31] Published in CAP 724 https://www.caa.co.uk/CAP724 and CAP 725 https://www.caa.co.uk/CAP725
[32] http://www.caa.co.uk/Commercial-industry/Airspace/Airspace-change/Airspace-Change/.

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:

a. the operational need for, objectives and feasibility of the changes proposed;

b. our analysis of the anticipated environmental benefits and impacts if the change were made; and

c. 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 CO_2 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.[33] 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.

[33] 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

The UK's International Obligations relating to Performance-Based Navigation are subject to frequent amendments and updating. The latest Policies and Regulations can be found on the CAA website at the link below.

Policies and regulations for Performance-Based Navigation | UK Civil Aviation Authority (caa.co.uk)

Annex E

Glossary

A		
	ACP	Airspace change process
	AIAA	Area of Intense Aerial Activity
	AIP	Aeronautical Information Publication
	AMS	Airspace Modernisation Strategy
	AMSL	Above mean sea level
	ANO	Air Navigation Order
	ANSP	Air Navigation Service Provider
	AONB	Area of Outstanding Beauty
	APD	Approved Procedure Designer
	ATC	Air Traffic Control
	ATCOs	Air Traffic Control Officers
	ATM	Air Traffic Management
	ATS	Air Traffic Service
	ATZ	Aerodrome Traffic Zone
B	BGA	British Gliding Association
	BZN	Brize Norton
C	CAA	Civil Aviation Authority
	CAS	Controlled airspace
	Class D Airspace	Class D airspace is for IFR and VFR use. An ATC clearance is needed and compliance with ATC instructions is mandatory. Control areas around aerodromes are typically class D and a speed limit of 250 knots applies if the aircraft is below FL 100 (10,000 feet).

	Class E Airspace	Class E airspace is for IFR and VFR use. IFR aircraft require ATC clearance and compliance with ATC instructions is mandatory for separation purposes. VFR traffic does not require clearance to enter class E airspace but must comply with ATC instructions.
	Class G Airspace	Class G airspace is for IFR and VFR use. No ATC clearance is required to fly, and pilots can fly aircraft where and when they choose, providing they follow aviation legislation and there are no other restrictions.
	CONOPS	Concept of Operations
	CTA	Control Area
	CTR	Control Zone
D	dB	Decibel units
	dBA	Decibel units measured on an A-weighted scale
	DfT	Department for Transport
	DER	Departure end of runway
E	EASA	European Aviation Safety Agency
	ERCD	Environmental Research and Consultancy Department
F	FWB	Framework Briefing
G	GA	General Aviation
	GNSS	Global Navigation Satellite System
I	ICAO	International Civil Aviation Organisation
	IFP	Instrument flight procedure
	IFR	Instrument flight rules
	ILS	Instrument landing system
L	LAA	Light Aircraft Association
	Leq	Equivalent continuous sound level
	LoA	Local operating agreement
	LTMA	London Terminal Control Area
N	NADP	Noise abatement departure procedures

	NATMAC	National Air Traffic Management Advisory Committee
	NPR	Noise preferential route
	NMS or nms	Nautical miles
P	PANS OPS	Procedures for air navigation services operations
	PBN	Performance-based navigation
	PIR	Post implementation review
R	RAF	Royal Air Force
	RMZ	Radio Mandatory Zone
	RNAV	Area Navigation
	RNP	Required navigation performance
	R/T	Radio telephony
S	SARG	Safety and Airspace Regulation Group (CAA)
	SEL	Sound exposure level
	SID	Standard instrument departure
	STAR	Standard terminal arrival route
T	TC	Terminal Control - NATS ATC Unit
	TMZ	Transponder Mandatory Zone
V	VFR	Visual Flight Rules