

Safety and Airspace Regulation Group


Title of Airspace Change Proposal	BRIZE NORTON ACP
Change Sponsor	RAF Brize Norton
SARG Project Leader	[REDACTED]
Case Study commencement date	13 AUGUST 2020
Case Study report as at	06 NOVEMBER 2020
File Reference	ACP-2014-12

Instructions

In providing a response for each question, please ensure that the 'Status' column is completed using the following options:

- **Yes**
- **No**
- **Partially**
- **N/A**

To aid the SARG Project Leader's efficient Project Management it may be useful that each question is also highlighted accordingly to illustrate what is:

resolved  **not resolved**  **not compliant**  as part of the AR Project Leader's efficient project management.

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Airspace Change Proposal - Operational Assessment

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1.	Justification for change and “Option Analysis”	Status
1.1	<p>Is the explanation of the proposed change clear and understood?</p> <p>RAF Brize Norton (BZN) is seeking to introduce airspace to provide additional protection to aircraft departing, approaching or operating in the vicinity of BZN and contain PAN-OPS procedures within Controlled Airspace (CAS), whilst also improving the interaction between BZN and London Oxford Airport (LOA).</p> <p>The proposal is to implement a new airspace structure comprising the following:</p> <ul style="list-style-type: none"> • An increased Class D Control Zone (CTR), • Class D and Class E+ Control Areas (CTAs)¹ surrounding the CTR to allow for containment the new RNAV (GNSS) procedures, connectivity to the airways network. <ul style="list-style-type: none"> ○ Some CTAs have Class E+ airspace with Class D airspace above. <p>This will be achieved through the following objectives:</p> <ul style="list-style-type: none"> • The introduction of new RNAV procedures (these do not form part of the ACP as this is a MOD aerodrome). • The introduction of a new airspace structure to protect the new procedures and provide protection for BZN activity whilst providing connectivity with the airways network. • 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. • LOAs with neighbouring aerodromes. 	YES
1.2	<p>Are the reasons for the change stated and acceptable?</p> <p>BZN's stated aim is to enhance safety and improve efficiency at the aerodrome through the amendment of the shape and volume of CAS and the development of new RNAV arrival and departure procedures (Safety Case Pt 2, 3.1), and</p> <p>To improve the interaction of BZN and LOA flight procedures, in particular the arrivals to RWY 25 at BZN vs departures from RWY 19 and MAP at LOA.</p>	PARTLY

¹ Some of the CTAs are now Class E CAS, with the addition of an element of conspicuity, provided by either a radio call or by displaying a transponder code. These areas have been referred to as Class E + to reflect that they are associated with a Radio Mandatory Zone (RMZ) and/or Transponder Mandatory Zone (TMZ).

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- Station based aircraft (including pax carrying aircraft) must currently transit busy Class G airspace prior to joining Q63.
- MoD adopted PANS-OPS to replace APATC1 Procedures – design criteria for SIDs and STARs often of greater lateral dimensions than APATC1. CTR does not meet recommendations of CAA CAS containment policy PANS-OPS not currently contained within CTR
- Arrival and departure (PANS OPS) operate to the margins or outside the CTR.

The reasons for the change are stated but evidence to support the proposal does not appear conclusive for the following reasons:

- The ACP repeatedly reaches back to an ATKINS report of 2012 which identifies the risk of a MAC as high
 - airprox/MOR reports for the 8-year period are not numerous in number – the statistics presented include reference to incidents that are not related to unit-based aircraft – some are civ/civ.
 - the MAC risk from 2012 does not take account of changes (update) in aircraft performance and equipage.
 - disparity between unit radar pattern statistics quoted in the formal submission and safety assessments.
 - 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

Training requirements within the CTR cited as a key driver for the change. Justification is that MOD activity training activity is classed core activity.

1.3

Have all appropriate alternative options been considered, including the ‘do nothing’ option?

YES

Options considered during the design process included the following:

- Do nothing
- Do minimal
- Other airspace design options including: Transponder Mandatory Zone (TMZ), Class E airspace + TMZ, and Radio Mandatory Zone (RMZ)
- Minimal change to Class D airspace
- Establish Class D CAS comprising a CTR and CTAs to provide airways connectivity.

Consultation in 2017/18 proposed increasing the volume of the existing Class D CTR and introduction of additional Class D CTAs.

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	<p>The initial design was modified to try and mitigate negative responses as outlined in the Consultation Feedback Report published in Oct 2018.</p> <p>The revised proposal replaced some of the proposed Class D airspace with airspace aimed at being less restrictive to other airspace users, such as Class E. CAS levels have also been adjusted to try and further mitigate objections from other airspace users.</p> <p>Stakeholder Feedback events in Dec 2018, Sep and Nov 2019 resulted in numerous airspace combinations being considered (Class E, TMZ/RMZ, Class E with TMZ and/or RMZ) before the final design was submitted in this proposal.</p>		
1.4	<p>Is the justification for the selection of the proposed option sound and acceptable?</p> <p>The revised proposal includes a mixture of Class D and Class E + conspicuity TMZ/RMZ airspace. The mix of airspace and CAS levels have been adjusted post consultation to try and mitigate objections from stakeholders and other airspace users.</p> <p>However, Safety Case Part 1, 2.1 states '<i>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</i>'.</p> <p>CAA Comment:</p> <ul style="list-style-type: none"> • Noting the statement from the Safety Case it is difficult to see how the proposed airspace design, based on a mosaic of 16 sectors of different airspace classifications, shapes, levels and volumes, will not exacerbate the risk of incursion. • The proposed airspace does not fully contain following RNAV procedures: <ul style="list-style-type: none"> ○ RNAV 25 SID MALBY ○ RNAV Transition SIREN ○ RNAV 07 SID MALBY 1B • The option does not fully mitigate the Brize Norton/London Oxford coordination issues related to some RWY combinations. <ul style="list-style-type: none"> ○ BZN long procedure to RWY25 and the LOA RWY19 departures. ○ BZN conventional NDB procedure and LOA RWY 01 procedure. ○ BZN RWY 25 RNAV approach and the LOA RWY 01 final approach. • Justification for the increased volume of airspace is not well supported by airprox data, movements stats or CAS excursion stats. 	PARTLY	

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2.	Airspace Description and Operational Arrangements	Status
2.1	<p>Is the type of proposed airspace clearly stated and understood?</p> <p>The proposal contains a clearly labelled diagram indicating the classification and levels associated with each proposed block of airspace.</p>	YES
2.2	<p>Are the hours of operation of the airspace and any seasonal variations stated and acceptable?</p> <p>The hours of operation of all sections of airspace are H24. The proposal does not contain any seasonal variations.</p>	YES
2.3	<p>Is any interaction with adjacent domestic and international airspace structures stated and acceptable including an explanation of how connectivity is to be achieved? Has the agreement of adjacent States been secured in respect of High Seas airspace changes?</p> <p>BZN has agreed to develop a Special Instruction (SI) that provides details of airspace sharing arrangements for the Class D airspace above 6,000 ft with NATS, which would allow NATS S23 autonomous use of the airspace up to the Class A airway.</p>	YES
2.4	<p>Is the supporting statistical evidence relevant and acceptable?</p> <p>The sponsor has provided station movements statistics, including detail of IFR approaches. However, some statistics quoted in the submission are not substantiated or can be perceived as misleading. For example; Para 3.6.2 Pg 12 states that BZN aircraft conduct up to 30 IFR approaches each day in addition to 20 route inbound flights whilst the Safety Case states that between 40 and 50 IFR approaches are conducted each day. The actual movements statistics provided do not confirm this and in fact the numbers are considerably lower.</p> <ul style="list-style-type: none"> • Not all the AIRPROX stats are relevant as several refer to civ/civ airproxes or civ/mil airproxes involving non unit-based aircraft. • Statistics to show how often aircraft left CAS are drawn from Nov 2012 and Jan 2014 – nothing more recent. • The aircraft fleet mix at BZN has been updated and modernised over the last 5-10 years and now consists of more capable and manoeuvrable aircraft than those in operation during the period reflected by the stats. • Likelihood of an element of double-accounting in station movement stats. 	PARTLY
2.5	<p>Is the analysis of the impact of the traffic mix on complexity and workload of operations complete and satisfactory?</p> <p>Impacts are largely based on historical data related to older less capable aircraft. There is mention of tactical training requirements and the need to conduct non-standard training flights within the CTR and this is accepted but is this still the case with improved aircraft with enhanced simulation and a move by the MOD to do more training synthetically?</p>	PARTLY

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	<p>The submission does not contain any reference to simulation or modelling of the traffic mix or the complexity of the operations (including ATC) under the proposed ACP conditions. The proposed increased volumes of airspace of varying levels and classes, together with potential for increased requests for transits/access to the airspace will likely increase demand and add complexity to the provision of ATS.</p> <p>Station movement stats are provided which illustrate that although the unit is H24 the level of traffic at weekends is lower than on weekdays. Statistics for non-unit based traffic are not provided.</p>	
<p>2.6</p>	<p>Are any draft Letters of Agreement and/ or Memoranda of Understanding included and, if so, do they contain the commitments to resolve ATS procedures (ATSD) and airspace management requirements?</p> <p>The following LoAs are complete or in progress, however no LoAs were included in the submission:</p> <p><u>RAF Benson</u>: LoA being developed to formalise how the 2 units will operate together if the proposal is successful.</p> <p><u>RAF Fairford</u>: Although the tower is staffed by ATCOs from ISAF, any aircraft operating from RAF Fairford are handled by BZN ATCOs. Any proposed changes to the airspace arrangements will not impact this enduring arrangement and the existing LoA will be reviewed and update in accordance with standard procedures.</p> <p><u>Cotswold (Kemble) Airport</u>: BZN intends to handle aircraft departing Cotswold Airport to join CAS at MALBY and will provide clearances as required to first enter the BZN CAS. Aircraft inbound to Cotswold will be handled in a similar way to today; a service will be provided upon request, until the aircraft is able to change to Cotswold Information. New versions of the LoA are currently being developed that will capture both the BZN ACP and the Cotswold Airport ACP outcomes.</p> <p><u>Gloucestershire Airport</u>: BZN currently handles aircraft departing Gloucestershire Airport wishing to join CAS and this proposal is not seeking to change this. Gloucestershire Airport raised some concerns about the position of the RNAV IAF on the Gloucestershire Airport procedure in relation to the newly proposed airspace. A LoA is currently being developed between the two Airports to establish working practices.</p> <p><u>RAF Little Rissington</u>: RAF Little Rissington is a 2Gp Glider airfield just outside the current BZN Class D Airspace. The site conducts winch-launched Glider Ops up to 2,000 ft above ground level with soaring taking place in the overhead and local area up to 1,000 ft below the height of the cloud base. There is an extant LoA between BZN and RAF Little Rissington to describe the interactions between the units and to reduce the inadvertent penetration of their gliding area by traffic flying through the local area. A new LoA in principle has already been agreed in between the units detailing the changes required on both parties to ensure operations can continue if the BZN ACP is successful.</p>	<p align="center">YES</p>

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	<u>NATS</u> : Agreements being developed with NATS for airspace sharing / joining procedures. BZN has agreed to develop a Special Instruction (SI) that provides details of airspace sharing arrangements for the Class D airspace above 6,000 ft with NATS, which would allow NATS S23 autonomous use of the airspace up to the Class A airway.	
2.7	Should there be any other aviation activity (low flying, gliding, parachuting, microlight site etc) in the vicinity of the new airspace structure and no suitable operating agreements or ATC Procedures can be devised, what action has the sponsor carried out to resolve any conflicting interests?	PARTLY
	Provision is made to accommodate non-radio equipped aircraft and non-transponder equipped aircraft but access to the airspace will be subject to pre-notification and in some instances may be refused/not available.	
2.8	Is the evidence that the Airspace Design is compliant with ICAO SARPs, Airspace Design & FUA regulations, and Eurocontrol Guidance satisfactory?	PARTLY
	The data presented in the Part 2 Safety Case report shows that the applicable requirements of ICAO Annex 10 are met <ul style="list-style-type: none"> • Safety Case Pt2 – 2.3.2 The sponsor has highlighted where proposed procedures do not accord with the CAA Containment Policy.	
2.9	Is the proposed airspace classification stated and justification for that classification acceptable?	YES
	The proposal encompasses airspace of varying classifications. Efforts have been made to ensure that the proposed airspace is accessible to as many airspace users as possible, but access may be subject to aircraft operators meeting some specific conditions/equipage.	
2.10	Within the constraints of safety and efficiency, does the airspace classification permit access to as many classes of user as practicable?	PARTLY
	The CTR is Class D airspace (as current). GA can enter with an ATC clearance but compliance with ATC instructions is mandatory. The CTAs are either Class D or Class E+ conspicuity airspace: <ul style="list-style-type: none"> ○ Class D: GA can enter with a clearance but compliance with ATC instructions is mandatory. ○ Class E+: No ATC clearance is required, but aircraft must have a transponder or radio and comply with the conspicuity requirements of either the RMZ/TMZ. Arrangements to permit access to the airspace for non-radio equipped aircraft form part of this ACP.	
2.11	Is there assurance, as far as practicable, against unauthorised incursions? (This is usually done through the classification and promulgation)	PARTLY

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	<p>It is intended that the airspace change will be promulgated through the AIRAC cycle (AIP and charts), Skywise and the decision promulgated on the CAA website as appropriate.</p> <p>If the ACP is successful, the sponsor intends to distribute a Class D and Class E+ guidance document to local stakeholders.</p> <p>However, Safety Case Part 1, 2.1 states '<i>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</i>'.</p> <p>CAA Comment: Noting the statement from the Safety Case it is difficult to see how the proposed airspace design, based on a mosaic of 16-sectors of varying airspace classifications, shapes, levels and volumes, will not potentially exacerbate the risk of incursions.</p>	
2.12	<p>Is there a commitment to allow access to all airspace users seeking a transit through controlled airspace as per the classification, or in the event of such a request being denied, a service around the affected area?</p> <p>Availability of sufficient ATC resource to meet the task forms part of this ACP.</p>	YES
2.13	<p>Are appropriate arrangements for transiting aircraft in place in accordance with stated commitments?</p> <p>Standard VFR crossing routes and VRPs <u>will be developed</u> to support the new airspace structure (Safety Case, Pt 3). Standard IFR crossing points <u>will be developed</u> to support the new CAS design (Safety Case, Pt 3).</p>	PARTLY
2.14	<p>Are any airspace user group's requirements not met?</p> <p>Since final engagement activities were undertaken in 2019 the sponsor has received correspondence/objections to the proposal (cc'd to CAA) from the LAA and numerous GA operators. Objections are generally focussed around the following topics:</p> <ul style="list-style-type: none"> • the proposal cuts off much of the central south of England to a significant number of GA pilots. • a large number of air sports clubs, gliding clubs and GA airfields and operating sites will become unviable. • the majority of gliders, balloons, paragliders, hang gliders and a minority of other GA types are not fitted with a transponder and will be excluded from the revised airspace design. <p>Letters of complaint</p> <ul style="list-style-type: none"> • Bristol and Gloucestershire Gliding Club (Nympsfield) – dated 4 Aug 2020 – impact on glider cross country for non-transponder acft. 	PARTLY
2.15	<p>Is any delegation of ATS justified and acceptable? (If yes, refer to Delegated ATS Procedure).</p>	N/A

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<p>2.16</p>	<p>Is the airspace structure of sufficient dimensions with regard to expected aircraft navigation performance and manoeuvrability to contain horizontal and vertical flight activity (including holding patterns) and associated protected areas in both radar and non-radar environments?</p> <p>The Runway 25 Long Procedures nominal track and containment areas are all outside. This was accepted from the outset by BZN as the volume of airspace required to contain these procedures had a significant impact on the General Aviation (GA) community, but it complicated further the interaction and separation criteria required between BZN and neighbouring London Oxford Airport. The default procedure will be the 'short' procedure for Runway 25; the long procedures will only be used when operationally essential and subject to coordination with London Oxford Airport. <i>Included as part of the consultation.</i></p> <p>Containment of the procedures is less than recommended by the CAA Containment Policy; in some cases, such as the RNAV 07 SID MALBY 1B, the containment area extends outside of this final version of the airspace. However, the nominal track is contained. The overall design provides less containment than policy suggests should be provided, but the volume of airspace was reduced as a result of feedback from stakeholders after consultation. This was accepted by BZN as a compromise to the overall design and has resulted from amended designs post consultation.</p> <p>Runway 07 MAP goes straight ahead through the LOA overhead.</p> <p>Containment is improved when compared to the current situation. See attached: Brize Norton Containment Diagram</p>	<p align="center">PARTLY</p>
<p>2.17</p>	<p>Have all safety buffer requirements (or mitigation of these) been identified and described satisfactorily (to be in accordance with the agreed parameters or show acceptable mitigation)? (Refer to buffer policy letter).</p>	<p align="center">N/A</p>
<p>2.18</p>	<p>Do ATC procedures ensure the maintenance of prescribed separation between traffic inside a new airspace structure and traffic within existing adjacent or other new airspace structures?</p>	<p align="center">NO</p>

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	<p>The design of the new published IFPs will ensure lateral and/or vertical separation between BZN IFPs and LOA IFPs.</p> <p>However, if BZN use the “long” approach to RWY25 and LOA are departing from RWY19 there is potential for prescribed separation to not be achieved. Coordination between BZN and LOA will be required to effect prescribed separation being maintained.</p> <p>The “long” procedure to RWY 25 passes through the LOA overhead, active daily with holding aircraft at the ‘OX’ NDB and using the existing IFP for RWY 19 and 01 and their associated MAPs. The short procedure presents conflict with the ‘OX’ hold (inbound track 098 degrees left turn). While the likelihood of OXF RWY 01 and BZN RWY 25 mode of operations is low, the Letter of Agreement is the key for this stage of the ACP to present appropriate Safety Assurance for operations at LOA and BZN. Additionally, the ACP makes no reference to the proposed RNP approaches to RWY 01 and 19 at LOA which will conflict with the BZN RWY 25 “long” and “short” procedures. The MAP for these being west of LOA and using the holding area west of the ‘OX’ (Inbound track 098 degrees, Left Hand).</p> <p>The Letter of Agreement between BZN and LOA would need to establish how standard separation is applied and achieved within Class D airspace (BZN CTR), Class E+ Airspace (BZN CTR 1 and CTR 6) and Class G airspace with appropriate Safety Assurance if any reduced separation is to be applied. While the BZN ACP paragraph 8.2.3 proposes a method of conflict resolution using a form of primacy, the details of that proposal have not been provided.</p>	
2.19	<p>Is the airspace structure designed to ensure that adequate and appropriate terrain clearance can be readily applied within and adjacent to the proposed airspace?</p>	YES
	<p>Terrain clearances are appropriate for aircraft operating within the proposed airspace.</p>	
2.20	<p>If the new structure lies close to another airspace structure or overlaps an associated airspace structure, have appropriate operating arrangements been agreed?</p>	PARTLY
	<p>LoAs are already in existence with several neighbouring airfields and other ANSPs. CONOPS and New LoAs are being worked up where appropriate, including with London Oxford and NATS.</p> <p>BZN has agreed to develop a Special Instruction (SI) that provides details of airspace sharing arrangements for the Class D airspace above 6,000 ft with NATS, which would allow NATS S23 autonomous use of the airspace up to the Class A airway.</p>	
2.21	<p>Where terminal and en-route structures adjoin, is the effective integration of departure and arrival routes achieved?</p>	YES

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Airspace has been designed specifically to address integration of departure and arrival routes for airways joiners/leavers. BZN has agreed to develop a Special Instruction (SI) that provides details of airspace sharing arrangements for the Class D airspace above 6,000 ft with NATS, which would allow NATS S23 autonomous use of the airspace up to the Class A airway.

3.	Supporting Resources and CNS Infrastructure	Status
3.1	<p>Is the evidence of supporting CNS infrastructure together with availability and contingency procedures complete and acceptable? The following are to be satisfied:</p> <ul style="list-style-type: none"> ▪ Communication: Is the evidence of communications infrastructure including RT coverage together with availability and contingency procedures complete and acceptable? Has this frequency been agreed with AAA Infrastructure? <p>BZN ATC communications system complies with the applicable requirements of Defence Standard 00-972 Part 2: Communications</p> <p>However, no evidence is contained to illustrate that landline communications are optimised for communication with Oxford under the proposed ACP.</p>	PARTLY
	<ul style="list-style-type: none"> ▪ Navigation: Is there sufficient accurate navigational guidance based on in-line VOR or NDB or by approved RNAV derived sources, to contain the aircraft within the route to the published RNP value in accordance with ICAO/ Eurocontrol Standards? Eg. Nav aids – has coverage assessment been made eg. a DEMETER report, and if so, is it satisfactory? <p>The RNAV IFPs have been designed in accordance with CAP 785 Approval Requirements for Instrument Flight Procedures for use in UK Airspace [Reference 15] and ICAO Document PANS-OPS 8168 [Reference 16] by a CAA approved design organisation.</p>	YES
	<ul style="list-style-type: none"> ▪ Surveillance: Radar Provision – have radar diagrams been provided, and do they show that the ATS route / airspace structure can be supported? <p>The airspace related to this ACP falls within the existing Brize Norton radar coverage.</p> <ul style="list-style-type: none"> • BZN non-cooperative surveillance system is compliant with the applicable requirements of Defence Standard 00-972 Part 3: Surveillance” • BZN cooperative surveillance system is compliant with the applicable requirements of Defence Standard 00-972 Part 3 Part 3: Surveillance” 	YES
3.2	<p>Where appropriate, are there any indications of the resources to be applied, or a commitment to provide them, in line with current forecast traffic growths acceptable?</p>	YES

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BZN has committed to provision of sufficient resource (controllers) to meet the demands associated with any increase in ATS requests resulting from the increase in CAS. The ACP is not predicated on any increase in unit traffic levels.

4.	Maps/Charts/Diagrams	Status
4.1	<p>Is a diagram of the proposed airspace included in the proposal, clearly showing the dimensions and WGS84 co-ordinates? (We would expect sponsors to include clear maps and diagrams of the proposed airspace structure(s) – they do not have to accord with AC&D aeronautical cartographical standards (see CAP725), rather they should be clear and unambiguous and reflect precisely the narrative descriptions of the proposals. AC&D work would relate to regulatory consultation charts only).</p> <p>Diagrams of the proposed airspace are included along with WGS84 co-ordinates</p>	YES
4.2	<p>Do the charts clearly indicate the proposed airspace change?</p> <p>Charts clearly indicate the volumes, class and levels of the proposed airspace change.</p>	YES
4.3	<p>Has the Change Sponsor identified AIP pages affected by the Change Proposal and provided a draft amendment?</p> <p>Complete.</p>	YES

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5.	Operational Impact	Status
5.1	<p>Is the Change Sponsor’s analysis of the impact of the change on all airspace users, airfields and traffic levels, and evidence of mitigation of the effects of the change on any of these, complete and satisfactory? Consideration should be given to:</p> <p>a) Impact on IFR GAT, on OAT or on VFR general aviation traffic flow in or through the area.</p> <p>Positive impact on IFR and OAT</p> <p>VFR: The sponsor has or is making provision for the airspace to be accessible to as many airspace users as possible. However, the sponsor has not attempted to provide analysis on the likely impact of the changes on all user groups other than to suggest that it is not their intent to compromise the activities of other airspace users.</p> <ul style="list-style-type: none"> ○ Potential for choke points to be created from eastern zone boundary to Weston on Green area – through Oxford overhead and adjacent to Benson MATZ. ○ The proposal does not include evidence of likely numbers of other airspace users that might choose to avoid the proposed CAS. <p>Brize Norton is a LARS unit and provision of LARS will continue.</p>	PARTLY
	<p>b) Impact on VFR Routes.</p> <p>The sponsor has stated (p80 of the formal submission) that in the absence of published VFR routes they have not attempted to predict the number of GA aircraft that may choose to route around the proposed airspace and therefore be classed as affected by the change.</p> <p>By proposing Class E+ conspicuity airspace for much of the lower portions of airspace the sponsor has made the airspace as accessible to as many other airspace users as is possible and provision is available by special arrangement to enable access for those who cannot meet the airspace requirements.</p> <p>CAA Comment: Potential impacts noted are as follows:</p> <ul style="list-style-type: none"> ○ Individual but relatively small portions of Class E+ CTA with differing base levels might present too daunting a picture to some GA airspace users and result in their choosing to avoid the airspace where possible. 	

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	<ul style="list-style-type: none"> Where GA pilots choose to avoid these small portions of Class E+ CTAs it may causing some funnelling. If they choose to avoid the airspace vertically due to the VFR rules, the base level of the CTA and terrain it leaves a very small envelope for the GA pilot to fly through. <p>The ACP potentially introduces a 'choke point' east of the proposed CTR Class D (SFC-6000 feet) and Weston-on-the-Green area D129 (SFC – FL120) for aircraft planning to/from the south or south east of the UK in Class G airspace. This presents challenges to LOA where the likelihood of conflict with unknown aircraft in Class G Airspace, particularly in the LOA Overhead and RWY 19 approach, may increase.</p>	
	<p>c) Consequential effects on procedures and capacity, ie on SIDS, STARS, holds. Details of existing or planned routes and holds.</p> <p>If BZN use the "long" approach to RWY25 and LOA are departing from RWY19 there is potential for prescribed separation to not be achieved. Coordination between BZN and LOA will be required to effect prescribed separation being maintained.</p> <p>Provision of Standard separation within Class D and Class E+ Airspace, see Para 2.18 including the proposed RNP IFP at LOA within the LOA ACP.</p>	PARTLY
	<p>d) Impact on Airfields and other specific activities within or adjacent to the proposed airspace.</p> <p>The proposal highlights the impact on local airfields (RAF Benson, RAF Fairford, Cotswold (Kemble) Airport, Aston Down and Nympsfield Gliding Clubs, Gloucestershire Airport and RAF Little Rissington).</p> <p>The impact on London Oxford operations has been considered throughout, with the 2 ACPs being develop independently but with interaction between the units at the forefront of the design process.</p> <p>The Letter of Agreement with Gloucestershire should ensure the use of UK FIS "Procedural Service" and provision of Standard Separation between IFR flights in Class E+ Airspace (BZN CTA7) when aircraft are conducting IFP to Runway 27 at Gloucestershire Airport.</p> <p>For LOA see Integration of BZN and LOA operations in Paragraph 2.18 and paragraph 5.1 (b) above.</p>	PARTLY
	<p>e) Any flight planning restrictions and/ or route requirements.</p>	N/A

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	<p>From a Flight Planning perspective, aircraft will join and leave CAS at the same points and transfer of control and communication will be handled in the same way as it is today.</p> <p>Aircraft not joining the airways network will leave the CAS and continue within Class G under a LARS and will continue en-route as per current procedures.</p>
5.2	<p>Does the Change Sponsor Consultation letter reflect the likely operational impact of the change?</p> <p>The changes to the initial airspace design that have been developed post consultation are so significant as to mean that details of the 'operational impact of the change' contained in the original consultation letter are not fully representative of those impacts that may result from the final proposal.</p>

PARTLY

6.	Economic Impact	Status
6.1	<p>Is a provisional economic impact assessment to all categories of operations and users likely to be affected by the change included and acceptable? (This may include any forecast capacity gains and the cost of any resultant additional track mileage).</p>	N/A

7.	Recommendations / Conditions / PIR Data Requirements
7.1	<p>Are there any Recommendations which the change sponsor <u>should try</u> to address either before or after implementation (if approved)? If yes, please list them below.</p> <p><i>GUIDANCE NOTE: Recommendations are something that the change sponsor <u>should try</u> to address either before or after implementation, if indeed the airspace change proposal is approved. They may relate to an area in which the change sponsor is reliant upon a third party to actually come to an agreement and consequently they do not carry the same 'weight' as a Condition.</i></p> <ul style="list-style-type: none"> All draft LoAs need to be finalised and signed, prior to implementation (normal practice).
7.2	<p>Are there any Condition(s) which the change sponsor <u>must fulfil</u> either before or after implementation (if approved)? If yes, please list them below.</p>

YES

YES

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GUIDANCE NOTE: Conditions are something that the change sponsor **must fulfil** either before or after implementation, if indeed the airspace change proposal is approved. If their proposal is approved, change sponsors **must** observe any condition(s) contained within the regulatory decision; failure to do so **will usually** result in the approval being revoked. Conditions should specify the consequence of failing to meet that condition, whether that be revoking the ACP or some alternative.

- Completion of development of Standard VFR crossing routes and VRPs to support the new airspace structure (Safety Case, Pt 3).
- Completion of development of Standard IFR crossing points to support the new CAS design (Safety Case, Pt 3).

7.3

Are there any specific requirements in terms of the data to be collected by the change sponsor for the Post Implementation Review (if approved)? If yes, please list them below.

YES

GUIDANCE NOTE: PIR data requirements concerns any specific data which the change sponsor should be instructed to collate post-implementation, if indeed the airspace change proposal is approved. Please use this section to list any such requirements so that they can be captured in the regulatory decision accordingly.

The following specific sections of CAP1616 Table H1 should apply to this ACP for PR data collection.

- Safety Data
- Service Provision/Resource Issues
- Infringement Statistics
- Traffic Figures
- Operational Feedback
- Denied Access Statistics
 - This should account for denial of access to the IAPs as well as entry to the TMZ.
- Utilisation of SIDs/STARs/IFP. Note: to include as far as reasonably practical use of the MAP and any inability to maintain compliance with published IAP.
- Letter of Agreement.
- Impact on environmental factors. Note: to be based upon any observed or reported matters.
- Impact on Ministry of Defence operations.
- Stakeholder feedback. NOTE: To include comments/complaints relating to the use or impact of the IAPs. Examples of sources include MORs, DASORs, routine and ad-hoc meetings, emails, social media. Provided in machine readable format wherever possible.

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Case Study Conclusions – To be completed by SARG Project Leader	Yes/No
Has the Change Sponsor met the SARG Airspace Change Proposal requirements and Airspace Regulatory requirements above?	PARTLY
<p>This ACP was progressed under CAP725 in line with direction from DfT. Although the CAP725 process was followed the period between the end of consultation (April 2018) and final submission (July 2020) was significant. Furthermore, in response to consultation feedback the proposed final airspace change differs significantly from that consulted upon. Although engagement activities with targeted stakeholders was undertaken in the intervening period the sponsor chose not to reconsult with all stakeholders consulted as part of the full consultation phase.</p>	

Third Party Approval	Yes/No
Is the approval of the SoS for Transport required in respect of the Environmental Impact of the airspace change?	NO
Is the approval of the MoD required in respect of National Security issues surrounding the airspace change?	NO

General Summary
<p>This ACP has been in progress for an extended period, due largely to the MOD's lack of dedicated resource, elongated post consultation engagement activities and lengthy period re-evaluating the initial design. Although the final proposal does reflect the outcomes that the ACP is seeking to achieve, its clarity is hampered by inclusion of significant historical detail and reference to reports and data that do not reflect the current unit aircraft fleet and associated operating procedures and are therefore not especially relevant.</p> <p>The ACP is largely predicated on improving the safety of RAF Brize Norton based military aircraft, both those flying instrument patterns (actual and training) and for those routing to/from the national airways structure. The ACP includes a proposal for increased volumes of Class D airspace and the introduction of some Class E + airspace (which reflects additional RMZ/TMZ regulation applies).</p>

The final submission does reflect that the sponsor has significantly modified the initial design that was consulted upon. The driver for these changes is clearly an attempt to mitigate some of the objections from other airspace users, primarily those related to the proposed increased volume of Class D airspace and perceived impact on other airspace users. The amended option will impact on the deliverability of some of the desired outcomes; namely achieving the desired level of reduced coordination with London Oxford Airport ATC staffs. Furthermore, the complexity of the final design, including CTA's with varying and sometimes low base levels potentially increases the risk of confusion and infringement by other airspace users.

Comments & Observations

The ACP sought the following:

- to introduce airspace to provide additional protection to aircraft departing, approaching or operating in the vicinity of BZN
- to contain PAN-OPS procedures within Controlled Airspace (CAS),
- improve the interaction between BZN and London Oxford Airport (LOA).

The final proposal indicates that if approved this ACP will likely, through introduction of increased volumes of regulated airspace and improved associated air picture, provide additional protection to aircraft departing and operating in the vicinity of Brize Norton. However, it is evident that containment of all the PAN-OPS procedures is not achievable and it does not adequately achieve the reduced coordination between Brize Norton and London Oxford Airport.

Supporting Data: Some of the data offered in support of the ACP is not directly related to issues that the ACP is seeking to be addressed. Some of the airprox stats are related to civ/civ incidents (not involving unit-based aircraft) and not directly related to the scope of this ACP. Furthermore, it is difficult to gain a clear picture of unit intensity from the unit movement stats provided. Whilst it is acknowledged that Brize Norton is an H24 unit levels of intensity are not uniform and there may be extended periods of limited military movements, particularly at weekends. Units statistics have been presented in a way that makes determining actual movement figures difficult (risk of double accounting airways leavers/joiners stats with instrument approach circuit stats – they may be the same aircraft). The data and statistics do not conclusively support the proposal.

Proposed Airspace: Despite attempts to make the airspace more accessible the final design is complex and involves numerous segments of airspace of different volumes, levels and classes. The final design is inconsistent with comments in the Safety Case Part 1, 2.1 which highlights the existing issue that '*General Aviation (GA) pilots have interpreting the boundary of the current airspace*'. The complexity of the design may lead to the airspace being avoided in toto by some operators, lead to areas of funnelling or increased infringement.

Procedures: Interaction of instrument procedures for Brize Norton and London Oxford does not deliver the level of desired reduction in coordination between the ATC staffs. Modelling of the feasibility of operating under the proposed structure has not been conducted and the submission does not contain an estimate of increased levels of R/T that may result from proposal.

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Environmental Information: The sponsor has acknowledged that as a Military Unit they are not required to provide an environmental assessment of the proposed ACP. However, it is evident that the sponsor has referenced anticipated environmental benefits that might be delivered as a consequence of the ACP such as reduced emissions/fuel use from more direct routing but has omitted to try and quantify any negative impact that results from potential rerouting of GA and other airspace users. Reference to environmental factors is therefore not balanced.

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Operational Assessment Sign-off/ Approvals	Name	Signature	Date
Operational Assessment completed by:	[Redacted]	[Redacted]	24 Nov 2020
Operational Assessment approved:	[Redacted]	[Redacted]	17/12/2020

Mgr AR Comments: The final submitted proposal from BZN results from input from multiple stakeholders, however the *'operational impact'* presented to the CAA is significantly different to that consulted; I would anticipate a significantly different proposal to be followed up by a supplementary consultation to ensure its potential impacts on other users are understood by the sponsor. I accept it is not possible to predict accurately where autonomous VFR GA may or may not route following a change, but there is little documented attempt to understand potential impacts on VFR users in surrounding Class G. I agree with the Airspace Regulator's (Technical) consideration of some potential displacement to the east of the new airspace, but I also think the base levels of Class E plus TMZ, CTAs 3, 4, and with that airspace classification's understandably more restrictive VMC criteria below 3,000ft amsl, could also be challenging for Class G users – particularly as the ground rises to the NW of BZN. Whilst commendable that the airspace design tries hard to 'enable access' to as many users as possible, and not an approach to be lost (Class E is an effective tool), I think it is overly complex and consequently prone to infringement; one of the proposal's stated aims was to make it less prone to this. I accept that the interactions between certain conflicting BZN and OXF IFP can be managed tactically through LoA and supporting ATC Operational Procedures. BZN have, in some instances, assured themselves that operations where IFP protected areas are not fully contained by Controlled Airspace (note: the nominal tracks are contained) are still safe. I think a revised proposal, potentially making use of this flexibility, that is less complex and looks at identified areas, like the base levels immediately west of the CTA is possible, but not recommended for implementation as it stands.

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Hd AAA Decision/ Approval	Name	Signature	Date
Hd AAA Decision:	[REDACTED]	[REDACTED]	21/01/2021

Hd AAA Comments: This application is not approved for the reasons explained by the Mgr AR above. In summary:

1. Significant changes have been made to the design submitted from the earlier iteration, but no consultation was carried out on what was demonstrably a significant change from that which had previously been consulted upon. We would expect this to have been carried out, not least because it almost certainly would have highlighted:
2. That the final design is overly complex, thus liable to cause confusion and infringement and:
3. That areas of Class E CTA to the west of the airfield demonstrate a lack of clear understanding of the impact of this change on other airspace users and the VMC rules in class E that would have applied to those that sought to avoid the airspace.