

Removal of the En-Route Dependencies from the Barkway (BKY) DVOR

Airspace Change Decision

CAP 1993

Published by the Civil Aviation Authority, 2021

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First published 2021

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Chapter 1

Executive Summary

Objective of the Proposal

- 1.1 In line with the agreed European Navigation Strategy, NATS En-Route Ltd (NERL) has submitted plans for the progressive rationalisation of elements of the UK's ground-based navigation infrastructure for which it is responsible under the terms of its operating licence. One element of this rationalisation is the phased reduction of the network of "Doppler VHF Omni Range" (DVOR) ground-based radio navigation aids¹ from 46 to 19.
- 1.2 The CAA supports the overall concept of navigation infrastructure rationalisation and is content that a reasonable reduction in the number of DVORs will have no significant effect on safe and efficient ATM operations in the UK. Such rationalisation is now possible due to the increasing use of space-based navigation systems and wider transitioning to a Performance Based Navigation (PBN) environment, using 'Area Navigation' (RNAV) capabilities onboard aircraft.
- 1.3 NATS currently operates 46 DVOR navigation aids around the UK. These were installed between 1982 and 1991 and are now operating significantly beyond their 15-year design life. The requirement for all aircraft flying in the en-route airways system to carry RNAV avionics as from April 2011 means that NATS is no longer required to operate all 46 DVORs to support en-route operations.
- 1.4 A National Air Traffic Management Advisory Committee (NATMAC) consultation on the rationalisation of the DVOR infrastructure from 46 to 19 sites was undertaken in 2008. To accommodate the concerns raised about specific impacts on particular aircraft operators, it was agreed that NATS would undertake an impact assessment prior to the withdrawal of each individual navigation aid. The target date for the physical withdrawal of the navigation aids has been deferred to allow stakeholders more time to take appropriate action, as in many cases individual airport operators will need to submit ACPs to change/remove any remaining airport-specific procedures reliant on those navigation aids which have been identified for withdrawal.
- 1.5 This rationalisation strategy is consistent with the UK Airspace Modernisation Strategy and UK-Ireland PBN Policy. The reduced DVOR infrastructure of 19 sites will be maintained for transition and fall-back purposes until the decision is taken that it is no longer needed.

¹ A DVOR is a ground-based navigation aid that enables equipment on board aircraft to determine the distance from the navigation aid and on what compass bearing. They are relatively large pieces of equipment, consisting of a ring of antennas. The photograph in Appendix B shows an example.

- 1.6 A Distance Measuring Equipment (DME) infrastructure will remain as part of the PBN implementation. This means that in some cases all the navigation equipment may be removed from a site while in others only the DVOR will be removed.
- 1.7 This proposal concerns the amendment and withdrawal of en-route flight procedures managed by NATS, which will enable the future removal of the Barkway (BKY) DVOR navigation aid. It does not include the removal of individual airports' flight procedures or the physical navigational aid.
- 1.8 Additionally, NATS has proposed a number of technical and administrative changes to route names and descriptions as part of the ongoing maintenance of the UK Aeronautical Information Publication (AIP). These changes will have no impact on the actual routes flown by aircraft as they relate to harmonised flight planning procedures.
- 1.9 A summary of the proposed changes is provided at Appendix A.

Summary of the decision made

- 1.10 The CAA has decided to approve the proposed changes to remove the en-route dependencies from the BKY DVOR navigation aid.
- 1.11 The CAA has also approved the technical amendments and administrative changes to route names and descriptions included within this proposal as part of the ongoing maintenance of the UK AIP.
- 1.12 None of the changes described within this document will have any impact on the tracks flown by aircraft within the UK.

Next steps

- 1.13 Implementation of the revised airspace, technical amendments and administrative changes will be notified through a single AIRAC cycle (AIRAC 05/2021) and will become effective on 20 May 2021.
- 1.14 The CAA's Post Implementation Review (PIR)² of the changes approved by the CAA in this decision will commence at least one year after implementation of those changes. It is a condition of the CAA's approval that the sponsor provides data required by the CAA throughout the year following implementation to carry out that PIR. In due course, the sponsor will be advised of the specific data sets and analysis required, and the dates by when this information must be provided. There is an update to the CAA's PIR requirements in response to COVID-19 on the CAA website.

² PIR is the seventh stage of the CAA's airspace change proposal process.

Chapter 2

Decision Process and Analysis

Chronology of the Proposal Process

Statement of Need and Assessment Meeting

- 2.1 The Sponsor submitted an initial Statement of Need (SoN) in March 2019, which was subsequently revised in August 2019. An Assessment Meeting was held on 30 April 2020 at which NATS outlined the following aims for the ACP:
- Reduce reliance on ground-based DVOR navigation aids, in line with agreed UK and international policies.
 - Undertake administrative changes to route names and descriptions as part of ongoing maintenance of the UK AIP.
- 2.2 The CAA determined that the proposal was in scope of the ACP process and assessed the proposal as Level 2C based on the following criteria; no changes below 7000ft; no new Controlled Airspace and no changes to aircraft tracks over the ground.
- 2.3 Version 3 of the SoN was submitted in May 2020 as an action from the Assessment Meeting. The SoNs, agenda and minutes of the Assessment Meeting, together with a copy of a slide presentation, were published on the CAA Website.

Process followed to arrive at the Proposal's Design Principles

- 2.4 The fundamental aim of the en-route phase DVOR Rationalisation Programme is to remove the en-route dependencies on the DVORs while having no material impact on aircraft operations, including both safety and the tracks of aircraft across the ground.
- 2.5 As this aim has been long-established at a strategic level, the Sponsor proposed a set of Design Principles (DPs) for the DVOR Rationalisation Programme as a whole, on the basis that it would be most efficient to develop a 'toolbox' of options at the start and then select those tools that are relevant to each individual proposal. Since these additional DPs are purely technical in nature, they were agreed between NATS and the CAA without further formal consultation.
- 2.6 Due to the simple nature of the proposal and the lack of any material safety, operational, environmental or economic impact, the CAA agreed that the Sponsor could submit the material for Stages 2 and 3 together for consideration at a 'Multi-Gateway' meeting.

Define Gateway

- 2.7 A Define Gateway assessment was conducted on 29 May 2020. The CAA was content that the DPs had been developed through appropriate engagement and that the requirements of CAP1616 had been met.
- 2.8 The following statement was uploaded to the CAA Airspace Change Portal:
- ‘The CAA has completed the Define Gateway Assessment and is satisfied that the change sponsor has met the requirements of the Process up to this point. The CAA approves progress to the next Step.’*

Options development and appraisal

- 2.9 The Sponsor considered 4 different designs including a ‘do nothing’ baseline. Each option was evaluated against the DPs and an Initial Options Appraisal completed. The ‘do nothing’ and 2 other options were rejected due to not meeting a sufficient number of DPs.

Develop and Assess Gateway

- 2.10 A Develop and Assess Gateway assessment was conducted on 26 June 2020. The CAA determined that this was a Level 2C airspace change, and that the options presented had been developed and assessed in a satisfactory manner.

Consult Gateway

- 2.11 An initial aviation community consultation on the strategy for the DVOR Rationalisation Programme as a whole was undertaken via the National Air Traffic Management Advisory Committee (NATMAC) in 2008, and NATMAC has been informed of progress since then.
- 2.12 Although there has been some slippage to the timescales originally anticipated in 2008, the aims of the DVOR Rationalisation Programme have not changed and remain fully aligned with agreed UK, European and global policies and equipage mandates to reduce reliance on outdated ground-based navigation aids as the primary navigation tool. As such, the aviation industry has not needed to be consulted on specific cases to remove en-route procedures.
- 2.13 There will be no discernible impacts below 7,000ft to people on the ground. As such, the Sponsor considered that there was no requirement for a full public consultation on this proposal.

- 2.14 A Stage 3 Gateway assessment was conducted on 26 June 2020 immediately after the Stage 2 assessment, after which the following statement was uploaded to the CAA Airspace Change Portal:

'The CAA accepts the approach used to progress this ACP through stages 2 and 3. Given the issue that is being addressed it is accepted that there is only one suitable design option that will meet the previously accepted Design Principles. The CAA also accepts that there is no requirement for a consultation as the selected option will not change aircraft tracks. The CAA has completed the combined Develop and Assess/Consult Gateway Assessment (26/06/20) and is satisfied that the change sponsor has met the requirements of the Process up to this point. The CAA confirms that this is a Level 2C ACP, and approves progress to the next Step.'

Proposal update and submission to CAA

- 2.15 The sponsor submitted version 1 of the final proposal to the CAA on 3 July 2020, which was subsequently uploaded to the CAA Airspace Change Portal. The sponsor also submitted an updated engagement evidence document that detailed the recent engagement activities conducted specific to this proposal.
- 2.16 During the CAA review of the proposal, a typographical error was identified where references to one of the affected procedures was incorrect. This was highlighted to the Sponsor on 11 August 2020 and rectified immediately with the upload of version 1.1 of the submission.
- 2.17 Additionally, the initial IFP report queried a matter relating to speed restrictions that introduced a need for a further slight amendment to the proposal; this was uploaded to the ACP portal on 5 February 2021 as version 1.2.

Secretary of State call-in

- 2.18 The DfT Call in window was opened on 20 July 2020 for public review and closed on 17 August 2020; there were no responses received.

Public Evidence Session and written statements

- 2.19 In accordance with CAP1616, Public Evidence Sessions are not required for Level 2C proposals.

CAA analysis of the material provided

2.20 As a record of our analysis of this material the CAA has produced the following:

- Economic Assessment.
- Environmental Assessment.
- Operational Assessment.

2.21 The CAA Assessments will be published on the CAA Airspace Change Portal.

CAA consideration of factors material to our decision whether to approve the change

Explanation of Statutory Duties

2.22 The CAA's statutory duties relating to air navigation are laid down in Section 70 of the Transport Act 2000.

Conclusions in respect of safety

2.23 The CAA's primary duty for air navigation is to maintain a high standard of safety in the provision of air traffic services and this takes priority over all other duties³.

2.24 In this respect, with due regard to safety in the provision of air traffic services, the CAA is satisfied that the proposal maintains a high standard of safety for the following reasons:

- There are no proposed changes to airspace structures.
- Airport procedures are unaffected.
- Aircraft tracks over the ground are unaffected.
- Administrative aspects of routes are aligned with standard practice.
- Unused airspace objects are removed.
- The changes to the routes have been assessed against international and UK standards.

³ Transport Act 2000, Section 70(1)

Conclusions in respect of securing the most efficient use of airspace

- 2.25 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 traffic⁴.
- 2.26 The CAA considers that the most efficient use of airspace is defined as that which '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'.
- 2.27 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.
- 2.28 In this respect the CAA is satisfied that efficient use of airspace is unaffected by this proposal as no changes to aircraft behaviours are introduced. Airspace efficiency can potentially be improved in the future due to the reduced reliance on ground-based navigation aids.

Conclusions in respect of aircraft operators and owners

- 2.29 The CAA is required to satisfy the requirements of operators and owners of all classes of aircraft⁵.
- 2.30 In this respect the CAA is satisfied that there will be no discernible alteration to the current traffic flows or access to airspace as a result of this proposal.

Conclusions in respect of the interests of any other person

- 2.31 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 generally⁶.
- 2.32 In this respect the CAA considers that the proposal will not be discernible to other persons.

⁴ Transport Act 2000, Section 70(2)(a)

⁵ Transport Act 2000, Section 70(2)(b)

⁶ Transport Act 2000, Section 70(2)(c)

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

- 2.33 In performing the statutory duties, the CAA is obliged to take account of the extant guidance provided by the Secretary of State⁷, namely the 2017 Guidance to the CAA on Environmental Objectives.
- 2.34 In this respect the CAA is satisfied that there will be no material environmental benefits or disbenefits as a result of this proposal.

Integrated Operation of Air Traffic Services

- 2.35 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 services⁸.
- 2.36 In this respect the CAA is content that this proposal will not impact the operational requirements of Crown or other air traffic service providers.

Interests of National Security

- 2.37 The CAA is required to take account of the impact any airspace change may have upon matters of national security⁹.
- 2.38 In this respect the CAA is satisfied that the proposal has no impact on national security.

International Obligations

- 2.39 The CAA is required to take account of any international obligations entered into by the UK and notified by the Secretary of State¹⁰.
- 2.40 In this respect the CAA is satisfied that the proposal has no impact on international obligations.

⁷ Transport Act 2000, Section 70(2)(d)

⁸ Transport Act 2000, Section 70(2)(e)

⁹ Transport Act 2000, Section 70(2)(f)

¹⁰ Transport Act 2000, Section 70(2)(g)

Chapter 3

CAA Regulatory Decision

Decision

- 3.1 Noting the anticipated impacts on the material factors we are bound to take account of, the CAA has decided to approve the implementation of the proposal to remove the en-route dependencies from the BKY DVOR navigation aid, and the technical amendments and administrative changes to route names and descriptions.

Conditions

- 3.2 The Sponsor is required to provide their CAA ATS Inspector with a Hazard Analysis for this change prior to implementation.

Period Regulatory Decisions Remain Valid for Implementation

- 3.3 This change is scheduled to be notified and implemented as part of Aeronautical Information Regulation and Control (AIRAC) schedule 05/2021, notified by a single AIRAC period. The Sponsor is to discuss with the CAA any anticipated delays to implementation so that any potential impacts can be assessed.

Implementation

- 3.4 The revised airspace is expected to become effective on 20 May 2021. Any queries are to be directed to the SARG Project Lead via airspace.policy@caa.co.uk.

Post Implementation Review

- 3.5 In accordance with the CAA standard procedures, the implications of the change will be reviewed after at least one full year of operation, at which point, CAA staff will engage with interested parties to obtain feedback and data to contribute to the analysis.
- 3.6 Table H1 in CAP 1616 Appendix H references the information that will be required as part of the PIR for this ACP, this will include; safety data, service provision/resource issues, operational stakeholder feedback and utilisation data. The collection of this data is subject to guidance on the CAA website in response to COVID-19.

Civil Aviation Authority

February 2021

APPENDIX A

Summary of Proposed Changes

AIRSPACE OBJECT	CHANGE
ASKEY 1K STAR	Withdraw
ASKEY 2H STAR	Withdraw
ASKEY 3G STAR	Withdraw
ASKEY 5F STAR	Withdraw
LOREL 2H STAR	Withdraw
LOREL 3G STAR	Withdraw
LOREL 5F STAR	RNAV5 replication Slight amendment to route Re-designate as LISTO 1L
ABBOT 1A STAR	RNAV5 replication Re-designate as BKY 1X
SPEAR 1M STAR	Withdraw
SPEAR 2H STAR	RNAV5 replication Slight amendment to route Re-designate as FINMA 1S
SPEAR 2L STAR	RNAV5 replication Slight amendment to route Re-designate as LISTO 1S
JACKO 1H STAR	Re-designate as HON 1C
JACKO 1M STAR	Withdraw
JACKO 2L STAR	Re-designate as LISTO 1C
BKY Hold	Withdraw

APPENDIX B

Example of a DVOR



Photo Courtesy of NATS