

CAA PIR Review Report

Airspace Change Proposal Title	London Airspace Modernisation Programmes 2, Deployment 1.1 (LD 1.1)
Airspace Change Proposal Reference	2017-070
Change Sponsor(s)	NATS
CAA Decision Date	26 Oct 2022
Implementation Date	23 Mar 2023
ACP Level	Level 2B
<p><i>Instructions</i></p> <p>In providing a response to each question and/or status, the following colour coding should be used:</p> <ul style="list-style-type: none"> HAS RESULTED IN THE EXPECTED IMPACTS AND/OR OUTCOMES HAS NOT RESULTED IN THE EXPECTED IMPACTS AND/OR OUTCOMES See Part B.2 POINTS TO NOTE/ISSUE TO HIGHLIGHT See Part B.3 if required 	
<p>Executive Summary</p> <p><i>Insert bullet statements to provide the PIR approver with a brief summary of the key facts relating to why there is a PIR requirement and the key dates relating to this element of the CAP1616 process – this should cover the following:</i></p> <p>CAA Decision</p> <p>From CAP 2481, Airspace Change Decision: <i>After consideration of the impacts and benefits identified in the Sponsors' proposal as described in this document and the documents referred to in it, the CAA has decided to approve the proposed systemisation of the ATS route network for the South-West of England and most of Wales, which encompasses the introduction of new RNAV 1 STARs, revision of existing STARs, revision of SIDs, the introduction of a new hold and removal of redundant holds and the introduction of new waypoints associated with ATS route realignment. Full details of the reason for the CAA's decision can be found in the CAA documents referred to in paragraph 40 above. By way of summary only, the CAA has made this decision for the following reasons:</i></p>	

3.2 The CAA's primary duty is to maintain a high standard of safety, and this is to have priority over the application of all our other statutory duties in s70 Transport Act 2000. The CAA has concluded that an airspace change, which targets a reduction in the complexity as a result of increased systemisation within the airspace region covered by this ACP and a reduced reliance on ATC interaction, constitutes a positive contribution to meeting this duty. Furthermore, the request for dispensation from the CAA Buffer Policy for ATS routes adjacent to Special Use Airspace has been subject to extensive and rigorous hazard identification analysis by the Sponsor and MOD.

3.3 In making our decision the CAA has taken into account the identified anticipated positive impact in reducing carbon emissions. The ACP will reduce average per flight greenhouse gas emissions by 11 kgCO₂e, which, the Sponsor has assessed will lead to an overall reduction of 5,208 tCO₂e in 2033. These cumulative changes proposed within this ACP reflect a reduction in the average CO₂ produced per flight aligning with the altitude-based priorities. Furthermore, the design reflects a net reduction in CAS, whilst through the adoption of Performance Based Navigation principles this should increase capacity within the remaining CAS whilst reducing Air Traffic Controller workload.

3.4 In making our decision the CAA has also noted that it is anticipated there will be no additional adverse impact (as that is described the CAA's LD1.1 Environmental Assessment) on the noise experienced, as a consequence, of the change proposed.

3.5 In making our decision the CAA has also noted the impact of the proposed change on the requirements of operators and owners of all classes of aircraft. Systemisation of the ATS route network is aimed at optimising flight profiles and reducing interactions between aircraft. In addition, realignment of some ATS routes will deliver fuel efficiencies and has the potential to increase capacity. Development of the ACP through close engagement with Bristol, Cardiff, Exeter and other aerodromes has been aimed at ensuring connectivity with airport arrival and departure routes into the proposed systemised route structure.

3.6 Noting our duty to take account of the interests of any person in relation to the use of airspace the CAA has taken into account the fact that the proposal is anticipated to deliver a net reduction in the volume of CAS by c108nm³. Although volumes of CAS have increased laterally in some CTAs this has been offset by the raising of base levels and resulting increased volumes of Class G airspace.

Conditions

3.7 It is a condition of our decision to approve the proposal that the Sponsor meet the following conditions prior to implementation:

i) **FBZ Dispensation:** The Change Sponsor is to provide full details including the management decision processes of the operating procedures to be employed by the UK Airspace Management Cell for determining whether a reduced buffer for HEM activities which are positively managed by ATC to 1nm is acceptable. Without this information the CAA is unable to confirm acceptance of dispensation to the SUA Safety Buffer Policy for HEM activities positively managed by ATC to be reduced to 1nm.

ii) **RAF Fairford:** The Sponsor should include detail of the solution which would allow faster climbing aircraft departing RAF Fairford to avoid potential level offs to be incorporated in the Letter of Agreement with RAF Brize Norton.

iii) **Letters of Agreement (LOAs):** Draft LoAs shall be finalised and signed before implementation. Confirmation of this action is to be provided to the CAA. Where this is not achieved extant LoAs would still apply, thereby requiring analysis of any safety or operational

implications.

iv) Aerodata: The Change Sponsor is to address all remaining minor amendments to the aerodata spreadsheets to the satisfaction of the CAA prior to submission of the Change Request to AIS.

Specific data requirements for the PIR:

- To monitor the volume of traffic and types of aircraft using the airspace compared with the forecast.*
- To monitor the preferred trajectories of aircraft and airline operators that are most frequently operating within the airspace.*
- To monitor the fuel savings achieved by the aircraft and airline operators that are most frequently operating within the airspace.*
- The evidence for the simulator validation of the STARs demonstrates flyability of the procedures laterally, however in various cases failed to demonstrate that the demands of the vertical profile can be met. The descent can be challenging in some conditions based on aircraft weight and weather conditions (especially in tail wind conditions) which will necessitate pilot intervention e.g. increase drag.*

Currently, STAR descents are routinely managed by ATC whereby clearance is required before an aircraft can descend. Therefore, it is recommended that the operations of these procedures are monitored on an ongoing basis and reviewed during the PIR.

PIR chronology

- The CAA received a revised Statement of Need (SoN) from NATS En Route Ltd (NERL) on 2nd Nov 2017, followed by a revised SoN on 5th Feb 2018 after further consideration by the sponsor. It stated that the network at the time did not exploit modern navigation technology and did not provide capacity for long-term growth in aviation. They wished to redesign the airspace to provide optimal alignment and connectivity of the ATS route with each airport's airspace structure such that network capacity would not be a significant constraint on airport capacity, whilst minimising environmental impacts.
- An assessment meeting was held on on 23rd Feb 2018 with the sponsor.
- Following the Develop and Assess Gateway, where it was confirmed that the ACP would have no influence on the low-level route below 7000ft, it was determined that the proposal would progress as a Level 2a ACP.
- On 28th Oct 2022 the CAA approved ACP 2019-012, with conditions. The CAA is satisfied the conditions were met.
- PIR Data report was requested by the CAA on 22nd Mar 2023, data report received from NATS in Jun 2025.
- The initial PIR document set was published on 6th Jun 2025 and a 'feedback window' was opened until 4th Jul 2025.

- During the period from 1 March to 9 April 2023, there were 34 days with industrial action impacting air transport in Europe, particularly France. French Industrial action displaced traffic through and around West airspace to avoid French regulations. A EUROCONTROL paper detailed the impact on UK airspace during that period. The impact to the UK was that at least 8% of all flights were delayed, adding an average 24 mins + delay to each of those delayed flights. Cancellations were up by 62% compared to a normal day.
- A NATS systems incident on Bank Holiday weekend in August 2023 created 3 days of disruption to flights. Due to this, the year-on-year comparison data has been adjusted for both pre and post implementation to remove this date period from the datasets so they are comparable. Brief explanation of relevant factors relating to the chronology of the PIR; ie key dates and what if anything has impacted the timeline
- The PIR data report on the Portal can be found [here](#).
- This airspace change was implemented in conjunction with ACP-2019-012 (FRA D2) as the West Airspace Change.
- Both changes are for the same lateral airspace, with the LD1.1 ACP encompassing 7,000ft – FL245 and the FRA D2 ACP encompassing FL245+.
- The interdependencies between these two ACPs are such that the data provided for the PIR has assessed impacts across the entire airspace, for both ACPs, as providing separate data would be too complex and could arise in duplicate counting. Cumulative benefit assessments were included within the ACP submission. The CAA is content with that approach.

PIR conclusion

- Only write this conclusion once you have written the rest of the document.
 - **The CAA has confirmed that the implemented airspace change satisfactorily resulted in the expected impacts and outcomes and the airspace change is confirmed. The change has maintained a high level of safety in the area and, whilst the environmental benefits were not as high as predicted, the overall result is a net benefit in reduction in CO2 emissions.**

Post implementation review data that the CAA has considered in reaching its PIR conclusions

A.1	Safety Data	
A.1.1	The CAA has reviewed the PIR safety data, service provision explanation, resourcing data and infringement data to ensure that a high standard of safety has been maintained during the data collection period (23rd Mar 2023 – 22 Mar 2024). For the PIR period it was considered that the introduction of the LD1.1 airspace had no bearing on any of the number of Mandatory Occurrence	

	<p>Reports (MORs) that were recorded in the whole area of operation. There were no losses of separation and no Airprox¹ events related to the introduction of the LD1.1 airspace reported during the review period. The data also shows that there have been no serious incidents² and, of the incidents that were reported that occurred in the associated airspace, the CAA is satisfied that the design of the implemented airspace was not the root cause of the event.</p> <p>The CAA is satisfied that the implementation of ACP 2017-070 (LD1.1) maintains a high standard of safety within the airspace sectors which the airspace changes intended to benefit.</p>
A.2	Service provision/resource
A.2.1	No additional resource was allocated as result of the airspace change. Traffic levels remained similar in the year after implementation.
A.3	Utilisation of continuous climb operations and continuous descent operations
A.3.1	This ACP did not implement any new departures, therefore CCO or CDO data is not relevant to this PIR.
A.4	Infringements because of the change
A.4.1	The CAA is satisfied that the data provided shows that changes to airspace classification, through the amendment of CAS as part of this ACP, did not increase the risk of infringements. Proposed new CAS volumes were offset by raising the base levels of some existing CAS; the change resulted in a net decrease of CAS by ~108 cubic nm.
A.5	Traffic figures (air transport movements)
A.5.1	The actual traffic figures over the year review period were slightly less over the year after the implementation versus the year before. NATS has removed the data for the Aug bank holiday from both comparison years to discount the NATS systems incident in Aug 2023. The month-on-month breakdown shows the greatest decrease for the initial months after the change was implemented (end of March, April and May) due to flight planning issues with coding the RAD restrictions introduced by the non-planning zones in West FRA, the French industrial action and heavily south about oceanic tracks initially.
A.6	Traffic dispersion comparisons
A.6.1	This was not required for this PIR.

¹ ICAO DOC 4444 – a situation in which [full text removed] the safety of the aircraft involved may have been compromised.

² CAP382 Para 8.3 - An incident involving circumstances indicating that an accident nearly occurred.

A.7	Operational Feedback	
A.7.1	<p>NATS reported a few issues in the first month after implementation concerning airlines not flight planning as expected. NATS conducted some targeted engagement and created a simplified version of the Standard Route Document (SRD) to mitigate the issues that arose. They reported no issues post the SRD's implementation.</p> <p>NATS report that Air Traffic Controllers (ATC) are positive to the operating conditions post change with Situational Awareness and Workload surveys reporting that the sectors feeling quieter, even with increased flights up to Mar 25.</p> <p>There have been no significant issues at the Dublin and Shannon interfaces. Engagement with Brest is positive. Initial restrictions on route availability were due to be updated in Feb 2024 with more availability and less crossing tracks inside London FIR.</p>	
A.8	Denied access	
A.8.1	NATS report that is no evidence of any refusals of access within the relevant airspace.	
A.9	Utilisation of standard instrument departures/standard instrument arrivals/instrument flight procedures	
A.9.1	The airspace change does not involve STARS, SIDS or IFP therefore utilisation of these is not required for this PIR.	
A.10	Letters of agreement	
A.10.1	The CAA is satisfied that the agreed LoAs required to safely manage the changes implemented are being utilised accordingly.	
A.11	Environmental factors	
A.11.1	<p>As this ACP concerns airspace above 7000ft, noise, local air quality, tranquillity and biodiversity data is not required for this PIR. Fuel and CO2 emissions are in scope for this PIR.</p> <p>The LD1.1 proposal anticipated a decrease in annual fuel burn of 1,637 tonnes equating to a decrease of 5,208 tonnes of CO2e in the first year. As part of the PIR data request, the sponsor has provided combined data for both the LD1.1 and FRA2 airspace changes as interdependencies between the airspace would make it too complex to separate. The LD1.1 ACP predicted combined (FRA2 and LD1.1) annual fuel savings of 3,808 tonnes and 12,111 CO2e tonnes.</p> <p>The actual reported figures (combined) are an annual fuel burn saving of 1,189 tonnes and annual CO2e reduction of 3,779 tonnes. The table shows that per flight, there was a slight reduction in fuel (2.7kg) and CO2e (8.6kg). Flight track miles have</p>	

	reduced by an average of 3.3NM per flight. Fast time simulations prior to the change based on 2018 traffic behaviours had predicted a small fuel benefit (8kg per flight). The margin of error for per flight fuel burn is +/- 5kg for this type of analysis. Given this, and the difficulty in particular in predicting Free Route flight behaviours, it is assessed that the actual fuel /CO2e benefits realised are in line with those predicted prior to the change.	
A.12	International obligations	
A.5.1	There were no international obligations identified as part of this ACP.	
A.13	Ministry of Defence operations	
A.13.1	To cater for fast climbing aircraft from RAF Fairford, NATS engaged further with RAF Brize Norton and 78 Sqn to establish a coordination arrangement. Dispensation to the SUA (Special Use Airspace) Buffer Policy for HEM (High Energy Manoeuvres) activities through liaison arrangements; activities positively managed by ATC could reduce the buffer from 5nm to 1nm. The MoD have confirmed the change resulted in no unforeseen impacts on their operations.	
A.14	Stakeholder feedback	
A.14.1	No stakeholder feedback was received. The PIR data sheet was uploaded to the ACP portal on 6 Jun 25 for a 28 day period; no feedback was received.	

PART B – CAA Confirmation of the Airspace Change Proposal			
B.1	Taking the above information into account, has the airspace change resulted in the expected impacts and outcomes?		YES
B.5	Regulator's Signature		
Technical Regulator / Account Manager			12 Jan 26

<p>B.5</p>	<p>Airspace Regulation Principal - PIR approver:</p> <p>The decision set out specific data requirements for the PIR:</p> <ul style="list-style-type: none"> • The evidence for the simulator validation of the STARs demonstrates flyability of the procedures laterally, however in various cases failed to demonstrate that the demands of the vertical profile can be met. The descent can be challenging in some conditions based on aircraft weight and weather conditions (especially in tail wind conditions) which will necessitate pilot intervention e.g. increase drag. • Currently, STAR descents are routinely managed by ATC whereby clearance is required before an aircraft can descend. Therefore, it is recommended that the operations of these procedures are monitored on an ongoing basis and reviewed during the PIR. <p>On review of the PIR data and assessment I could not find that this had been directly addressed. However, given the safety data I feel that this would have addressed these elements.</p> <p>For this reason, I concur that this ACP has met its objectives as approved, and the airspace change is confirmed.</p>		
<p>Airspace Regulation Principal</p>	<p>[REDACTED]</p>	<p>[REDACTED]</p>	<p>14th Jan 2026</p>