

ACOG is required to submit the information and advice below (working with the relevant ACP sponsor – in this case NERL).

ACP Reference: ACP-2017-70	Date: 29 Jan 2021
Sponsor: NATS En Route Limited (NERL)	Stage 2 Gateway Date: 26 Feb 2021

1. ACP Interactions

In terms of the potential options contained within this ACP's are they:

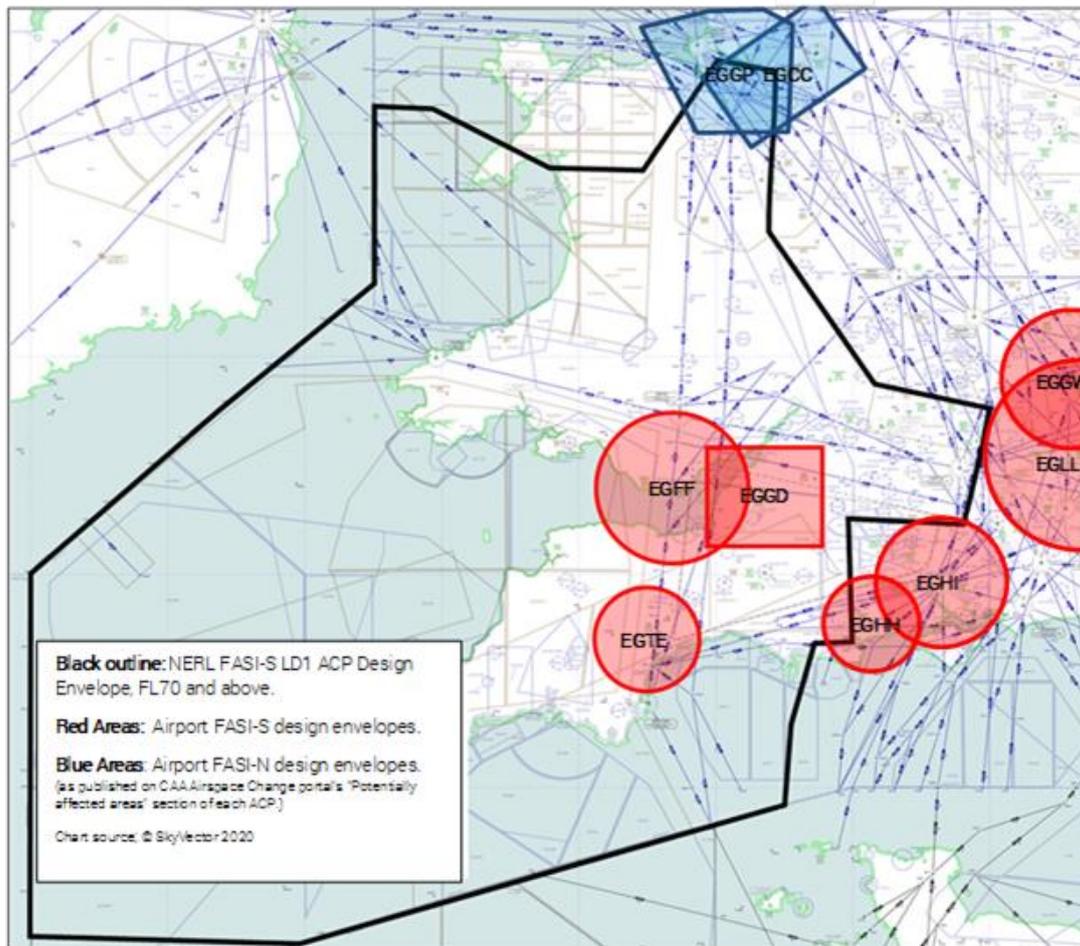
- a) Fully isolated from other sponsors (including airports/NERL) existing operations/procedures or planned airspace change?
- b) Likely to conflict with another sponsors existing operations/procedures?
- c) Likely to conflict with another sponsors planned airspace design options, but mitigations/agreements are possible?
- d) Likely to conflict with another sponsors planned airspace design options, but mitigations/agreements are not possible?

ACP Interactions

1. The potential options contained within the London Airspace Modernisation Programme Deployment 1 (LD1) ACP are **c) likely to conflict with other sponsors planned airspace design options, but in ACOG's view there will be wholly satisfactory mitigations available**. This view is supported by feedback from the interdependent airport ACP sponsors that were engaged by NERL during the development of the proposal.
2. The LD1 ACP is a large scale network airspace change concentrating on the airways structure that extends vertically from a level of FL70 up to the interface with overflying en-route sectors (from FL245). In the course of the airspace modernisation programme the overflying en-route sectors will become Free Route Airspace sectors. The objective of the LD1 ACP is to systemise this portion of the network by deploying new Performance-based Navigation (PBN) routes that are operated on the principle of systemisation (that traffic is safely and efficiently separated by an optimised route design, rather than extensive vectoring by ATC). It is envisaged that some intervention by ATC will be retained in the short to medium term to offer flights the most direct route and mitigate the impact of rigid systemisation on airspace capacity.
3. This form suggests providing a graphical representation of the design envelopes associated with each of the LD1 airspace design options to illustrate how all possible routes considered in the proposal may interact with the current operations and future airspace designs of the interdependent airports. Due to the size and scale of the LD1 area, NERL has not used design envelopes to illustrate the potential options or areas of interdependency. Instead, the lateral extent of the LD1 ACP is set out graphically in Figure 1.

4. ACOG and NERL have assessed the potential interactions with other ACPs by overlaying the lateral extent of the LD1 proposal with the 'potentially affected areas' of future FASI South airport-led ACPs (taken from the CAA Airspace Change Portal). The main flows of traffic covered by the LD1 options are above 7,000ft allowing subsequent low-level airspace designs to be developed in other ACPs that link new departure and arrival routes into the airways structure above.

FIGURE 1: Lateral extent of the LD1 ACP & potentially affected areas of interdependent ACPs



5. The precise scope and nature of the potential conflicts and mitigations will become clearer following the production of the LD1 ACP Full Options Appraisal in Stage 3 and the remobilisation of the three main interdependent FASI South ACPs that sit directly beneath the LD1 area:
- ACP 2018-55: Bristol Airport, Airspace, Departure and Arrival Procedures (paused at the start of Stage 2)
 - ACP 2019-41: Cardiff Airport, FASI South
 - ACP 2018-47: Exeter Airport, Controlled Airspace
6. These ACPs were paused in March 2020 when the Covid-19 pandemic hit and the airport sponsors were forced to cut back on investment and preserve cash to manage the crisis. The airport sponsors have indicated their intention to restart the ACPs using

short-term financial support provided by the Government, which is yet to be approved. If the financial support is not approved there is a strong possibility that one or more of the sponsors will cancel their ACPs. A decision from Government on the provision of financial support is expected in February 2021.

Nature of the interactions

7. The airspace design options included in the LD1 proposal concentrate exclusively on the safe, expeditious flow of traffic above 7000ft. Most importantly, the scope of the airspace design options included in the proposal can connect with any reasonable designs developed in future ACPs below 7000ft. sponsored by Bristol, Cardiff and Exeter. The nature of the interactions with the future airport-led designs will be determined by the orientation and Flight Level of the connecting points to the proposed LD1 airways structure. The higher the airways connecting point, the more flexibility the airport-led designs will have to optimise the link portion of the route from 7000ft to the structure above. For example, if the minimum Flight Level of the connecting points is FL120, future airport-led ACPs will have several thousand feet of climb/descent in which to optimise the link portion of the route. The LD1 Stage 2 material does not indicate the likely altitude of the airways connecting point above 7000ft. This information will be important during Stage 3 for NERL and the airports to make effective trade-off decisions.
8. There will, of course, be many difficult trade-off decisions for the airport-led ACPs below 7000ft, but these are not influenced by the LD1 options. The Airports are responsible for the departure routes (SIDs) and will dictate the design of them up to where they join the ATS route structure. NERL will be flexible and accommodate these future designs. Aircraft operators' flight planning (fuel uplift), track miles, climb and descent profiles, onward integration with Free Route Airspace and ultimately emissions performance may all be affected by the design of the link from the SID to the ATS route structure.
9. The airports to the east of the LD1 area have an interest in how the design options above 7000ft. can enable efficient inbound and outbound connectivity for their operations. For example, the configuration of "additional direct routes" set out in the LD1 options may offer shorter or more resilient flight paths for Gatwick, Bournemouth and Southampton traffic operating to/from the north and west, including connections with the Manchester, Scottish and Irish airspace. These interactions, although of interest to the airports' future ACPs do not create constraints or conflicts for the airspace design options below 7000ft.

2. Engagement

For each design envelope please provide details of engagement with relevant ACP sponsors (including airports/NERL) or those responsible for existing operations/procedures to support your response to Q1.

Engagement with relevant ACP sponsors

10. In the LD1 engagement material, NERL commit that, “There is no question of the network route design above 7,000ft changing the position of air traffic below 7,000ft.” It is also important from a Masterplan perspective that no future airspace design options below 7000ft are unduly constrained. The LD1 proposal must retain the flexibility to accommodate reasonable airport-led design options that are developed after LD1 completes Stage 2.
11. NERL conducted a series of bilateral engagement activities with Bristol, Cardiff and Exeter prior to and during the Covid-19 pandemic that informed the development of the LD1 airspace design options. This engagement produced a broad consensus between NERL and the airports that:
 - A. the LD1 options should progress on the basis that the extant airport arrival and departure routes will remain; and
 - B. All LD1 options can be deployed in a configuration that optimises network performance above 7000ft. while accommodating all reasonable airspace design aspirations included in the airport-led ACPs below 7000ft.
12. Statements from Bristol, Cardiff and Exeter that confirm this consensus are set out in the LD1 Stage 2A Design Options and Evaluation submission.
13. As discussed above in this form, the LD1 options do not create constraints or conflicts with the existing operations of the airports to the east, or their future airspace designs below 7000ft. Some features of the LD1 options may serve as enablers for future airspace designs, amplifying the potential benefits. For this reason, NERL engaged as part of the FASI South Programme, with Bournemouth, Heathrow, Luton, Southampton, Gatwick, Biggin Hill, Farnborough London City, Southend and Stansted. Some of the airports provided high level feedback about the approach to optimising the airspace design above 7000ft. For completeness, NERL also engaged with Birmingham, Blackpool, East Midlands and Manchester airports to the north and east.
14. **None of the airports engaged raised concerns about LD1 imposing unreasonable constraints or conflicts with regards to their current operations or future airspace design options.**

3. Risk Assessment

Please complete an overall risk assessment for this airspace change proposal which includes the potential impact of unresolved interactions and the co-operation commitment of sponsors with whom potential interaction has been identified.

Unresolved interaction impact			
N/A	Low	Medium	High
Risk of lack of co-operation from an interdependent sponsor			
N/A	Low	Medium	High

Please provide further details to support this risk assessment:

15. ACOG have highlighted that the LD1 ACP has potential interactions with Bristol, Cardiff and Exeter. The precise scope and nature of the potential conflicts and mitigations will become clearer following production of the LD1 ACP Full Options Appraisal but at this stage of the process ACOG deem the risk of unresolved interactions to be low.
16. NERL have provided assurance in their Stage 2A Design Options and Evaluation submission that the LD1 design options have the flexibility to accommodate the future design requirements of Bristol, Cardiff and Exeter ensuring that any new SIDs/STARs can be linked into the proposed systemised network.
17. The risk of a lack of cooperation is also considered to be low based on the engagement that has occurred to date and NERL's involvement in the FASI-S programme. NERL have received formal statements from Bristol, Cardiff and Exeter highlighting that there are no objections for the LD1 ACP proceeding to a Stage 2 gateway assessment and that they believe that any dependencies that exist can be managed via continued engagement between sponsors.

Please provide your advice as to whether this proposal could proceed through the Stage 2 Gateway without creating any unintended consequences for ACOG's work on the masterplan. Please explain your reasoning.

18. Based on the risk assessment provided in Section 3 of this pro forma the risk of the LD1 ACP progressing to a Stage 2 gateway assessment is low.
19. The FASI-S programme is currently paused due to the Covid-19 pandemic and at this stage ACOG are not in a position to provide a masterplan. The remobilisation of the UK airspace change programme will allow airport sponsors to restart their existing FASI-S ACPs and allow ACOG to develop a masterplan which demonstrates where interdependencies exist and where coordination between sponsors is required.
20. The LD1 ACP is a large scale network airspace change with the proposal planned to systemise part of the en-route network by deploying new PBN routes. The LD1 ACP design options and associated scope and nature of the potential interactions and

mitigations with other FASI-S ACPs will become clearer during the development of the LD1 ACP Full Options Appraisal. ACOG are content with the LD1 ACP proceeding to a Stage 2 gateway assessment and that this will not affect the production of Iteration 2 of the masterplan.

Confirmation that any relevant mitigation solutions will be assessed quantitatively during the full options appraisal in CAP1616 Stage 3.	Yes	N/A

Sponsor Rep: [REDACTED] Manager, Airspace Change Compliance & Delivery – NERL	Date: 29/01/21
ACOG Rep: [REDACTED] Head of Airport Integration	Date: 29/01/21