Operational Service Enhancement Project:-

New Amsterdam/London UIR Crossing Point

Gateway documentation:
Stage 2 Develop and Assess

Options Appraisal
(Phase 1 Initial)
including Safety Assessment
V2.0

Roles

Action	Role	Date
Produced	**Airspace Change Specialist** NATS Airspace Change Compliance & Delivery	January 2022
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Publication history

Issue	Month/Year	Change Requests in this issue
Issue 1.0	November 2021	First issue released to SARG.
Issue 2.0	January 2022	Issue released to SARG following Stage 2 re-submission • The baseline (do nothing) option has been updated • Options 1-5 have been removed following their DP evaluation rejection • A single combined option, Option 6, has been appraised

Contents

1. Introduction

1.1 This document forms part of the document set required in accordance with the requirements of the CAP1616 airspace change process.

1.2 This document aims to provide adequate evidence to satisfy
Stage 2 Develop and Assess Gateway, Step 2B Options Appraisal including Safety Assessment.

1.3 Its purpose is to consider the shortlist of airspace design options which have progressed through the Step 2A (ii) Design Principle Evaluation, to provide comparisons of each option via qualitative assessment.

2. Change Level

2.1 The changes in this ACP will only impact flights over the sea above FL245 and will be contained within existing airspace. Hence, in accordance with the levels as defined in CAP1616, it is expected that this proposal is categorised as a Level 2B change.

2.2 In line with the requirements for a Level 2 change the environmental impact assessment has been conducted on the basis of CO_2 emissions. As there will be no fuel or CO2 disbenefit a WebTAG analysis of this change will not be provided. There will be no impacts to stakeholders on the ground, since this change only impacts airspace above FL245; hence no noise analysis has been undertaken

3. Options Appraisal (Phase 1 Initial)

3.1 This ACP proposes to improve connectivity between the London and Amsterdam UIRs in the southern North Sea following the introduction of Free Route Airspace (FRA) within the Amsterdam UIR. This will be achieved by introducing connectivity from a new COP (introduced by MUAC), situated on the interface between the London and Amsterdam UIRs, to the UK ATS route network through the addition of new Conditional routes (CDRs) as well as a review of the existing connectivity in this region. This will allow more efficient routings, providing fuel savings and reducing CO_2 emissions.

3.2 The baseline (do nothing) option does not achieve any additional connectivity beyond today's operation, and is used as the benchmark against which the benefits of the proposed change can be measured. The Design Principles are either not met, partially met or met by default for this option, i.e. 'no change'. As such this option is not being progressed.

3.3 There is a single design option considered within this document which uses the design concept of connectivity through the use of CDRs to improve the connectivity between the London and Amsterdam UIRs in the Southern North Sea. This is compared against the baseline (do-nothing) scenario. The option selected to be progressed and compared to the baseline do-nothing scenario is:

- Option 6: Combined Options 1 – 5 (Connectivity to UK ATS Network provided through the introduction/amendment of new/extant CDRs).

3.4 The nine other options considered which have not progressed to this stage following design principle evaluation and feedback from Subject Matter Experts (SMEs) are described in the Stage 2 Airspace Change Design Options and Evaluation documentation. It is recommended that this document is read in conjunction with the Stage 2 Airspace Change Design Options and Evaluation documentation, which provides descriptions of each option and evaluates each option against the Design Principles agreed during Step 1B.

3.5 Baseline (Do Nothing) Option – Option 0

The do-nothing option assumes the changes proposed in the ACP are not implemented. Table 1: Options Appraisal – Do Nothing Option below indicates the effects on communities and stakeholders should this be the case.

Group	Impact	Level of Analysis	Evidence
Communities	Noise impact on health and quality of life	Qualitative	This option will not change the trajectories from today's operation. Therefore, there would no change in noise impact from today's operations.
Communities	Air quality	Qualitative	This change will only impact flights above FL245. Government guidance says that aircraft flying higher than 1000 ft are unlikely to have a significant impact on air quality. As there will be no changes in aircraft trajectories below 1,000ft because of this ACP, there will be No change in air quality from today.
Wider society	Greenhouse gas impact	Monetise and quantify	There would be no change in greenhouse gas emissions resulting from this option as aircraft will continue to fly via existing COPs and the available ATS route network as per today's operation. However, long term the lack of the additional connectivity being proposed would have a negative impact on greenhouse gas emissions.
Wider society	Capacity/ resilience	Qualitative	No change from the extant. However, in the long term, the lack of the additional connectivity being proposed would have a negative impact on capacity and resilience, increasing sector complexity, constraining sector capacity and increasing controller workload.
General Aviation	Access	Qualitative	GA access to the higher-level airspace affected by this ACP would remain unchanged.
General Aviation/ commercial airlines	Economic impact from increased effective capacity	Qualitative	There would be no change in the economic impact from increased capacity from today's operation as aircraft will continue to fly via existing COPs and the available ATS route network. However, long term the lack of the additional connectivity being proposed would have a negative impact on the effective capacity
General Aviation/ commercial airlines	Fuel burn	Qualitative	There would be no change in fuel burn from today's operation as aircraft will continue to fly via existing COPs and the available ATS route network. However, long term the lack of the additional connectivity being proposed would have a negative impact on fuel burn.
Commercial airlines	Training cost	Qualitative	There would be no additional training required.
Commercial airlines	Other costs	Qualitative	There would be no additional associated costs for airlines.
Airport/ Air navigation service provider	Infrastructure costs	Qualitative	There would be no additional associated infrastructure costs.
Airport/ Air navigation service provider	Operational costs	Qualitative	There would be no additional associated operational costs.
Airport/ Air navigation service provider	Deployment costs	Qualitative	There would be no additional associated deployment costs.

Table 1: Options Appraisal – Do Nothing Option.

3.6 Design Options 6 – Combined Options 1-5 (Connectivity to UK ATS Network provided through the introduction/amendment of new/extant CDRs).

This design proposal is to introduce new CDRs within the southern North Sea to provide connectivity to a new COP implemented by MUAC following the introduction of FRA within the Amsterdam UIR. Existing connectivity between the London and Amsterdam UIRs is also amended to further improve this interface

Group	Impact	Level of Analysis	Evidence
Communities	Noise impact on health and quality of life	Qualitative	The proposed changes to commercial air traffic are contained within airspace above FL245. As such there are no populations or communities affected by this change
Communities	Air quality	Qualitative	Government guidance says that aircraft flying higher than 1000 ft are unlikely to have a significant impact on air quality. This change is contained within airspace above FL245. There will be no changes in aircraft trajectories below 1,000ft and therefore no significant impact on air quality.
Wider society	Greenhouse gas impact	Quantified	Improving the connectivity between the Amsterdam and London UIRs by implementing Option 6 will provide operators with increased flight plannable options. These options will offer significant track milage savings per flight leading to a reduction in fuel burn and CO_2 emissions.
Wider society	Capacity/ resilience	Qualitative	Improved FRA trajectory planning will benefit ATC and Aircraft operators increasing the resilience of the ATC Network.
General Aviation	Access	Qualitative	GA access to the higher-level airspace affected by this ACP would remain unchanged.
General Aviation/ commercial airlines	Economic impact from increased effective capacity	Quantify	The improved connectivity between the London and Amsterdam UIRs is not driven by increasing capacity but by enabling environmental savings through more efficient routings. This will be realised through the enhancement of the FRA benefits within the Amsterdam UIR this change enables.
General Aviation/ commercial airlines	Fuel burn	Qualitative	There is expected to be a reduction in fuel burn for commercial airlines as the proposed changes will offer significant track milage savings overall per flight. This track milage saving might be made within the London FIR, Amsterdam FIR or both. In some circumstances, aircraft might have a disbenefit within the UK FIR which enables a greater benefit within the Dutch FR FIR or vice versa
Commercial airlines	Training cost	N/A	N/A – there is not expected to be any airline training cost associated with these changes
Commercial airlines	Other costs	N/A	N/A – there are no other known costs which would be imposed on commercial aviation
Airport/ Air navigation service provider	Infrastructure costs	Qualitative and quantitative	There would be no associated infrastructure costs to the ANSP
Airport/ Air navigation service provider	Operational costs	N/A	N/A – this proposal would not lead to changes in operational costs
Airport/ Air navigation service provider	Deployment costs	Qualitative and quantitative	There would be no associated deployment costs

Table 2: Options Appraisal – Option 1-5.

4. Safety Assessment

4.1 Safety Assessment – Do nothing

If there was to be no change to the current connectivity at the London/ Amsterdam UIR interface there would be no foreseeable change to the current safety performance-. This ACP is driven by a desire to reduce routing inefficiencies and improve predictability *based on Flexible Airspace Use principles*, which will enable a reduction in CO_2 emissions and operator fuel costs, not any safety concerns.

4.2 Safety Assessment – Connectivity to UK ATS Network provided through the introduction/amendment of new/extant CDRs.

A qualitative high-level safety appraisal indicates that nothing is presently foreseen with this proposed option that would negatively impact on the level of safety achieved within the current operation.

Improving the connectivity at this interface will allow for the greater use of FRA routing options within adjacent States thereby enabling greater utilisation of airspace currently made unavailable by the existing route connections offered in UK airspace. Consequently, reduction in track milage flown as well as the associated reduction in CO_2 emissions is the primary driver for this proposed change.

NATS' first priority is safety (and transparently demonstrating its commitment to safety). NATS will construct an appropriate safety case in accordance with standard practice during Stage 4.

5. Conclusion and Next Steps

5.1 This proposal has been developed following the submission of a Statement of Need. Its text was:

As part of the introduction of Free Route and Flexible Use Airspace within the Amsterdam Upper Information Region, Maastricht Control have requested the introduction of a new crossing point on the London/Amsterdam boundary to facilitate the transfer of aircraft. This ACP aims to introduce route connectivity to this new reporting point in order to provide improved environmental efficiency. In addition, a review of existing routes between the London/Amsterdam UIR (in the southern North Sea area) will be undertaken to ensure optimal connectivity is provided.

Due to the nature of the request from Maastricht, design options for connection to the new reporting point will be limited; however, all options will be located over the North Sea approximately 150 nm from the UK coast and above 20,000 ft.

10 Design Options were developed in Step 2A of the CAP1616 Airspace change process to deliver the desired outcome. These options were shared with our stakeholders and evaluated against the design principles developed during Step 1B along with a do-nothing option. This evaluation is detailed in in the Step 2 documentation and was used to determine which options were suitable for progression.

This evaluation has led to a single option, Option 6, being progressed to Step 2B for initial options appraisal. This initial Options appraisal has concluded that "Option 6" is suitable for further development and progression to the next stage.

NAT thanks all these stakeholders and looks forward to continuing the development of this proposal.
At Stage 3 we will further develop our remaining design option into a feasible design solution.

5.2 Subject to CAA approval at the Stage 2 Gateway Assessment, this proposal will then move on to Stage 3 – Consult.

End of document