CAP1616 Gateway documentation
Stage 1: Define Gateway

Design Principles

Operational Service Enhancement Project:-
New Amsterdam / London UIR Crossing Point

Roles

Action	Role	Date
Produced	**Airspace Change Specialist** NATS Airspace Change Compliance & Delivery	October 2021
Reviewed Approved	**ATC Lead** NATS	October 2021
Reviewed Approved	**Airspace Implementation Manager** NATS	October 2021
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Issue	Month/Year	Change Requests in this issue
Issue 0.5	October 2021	Document written, considered feedback from engagement exercises. Draft distributed to stakeholders for review.
Issue 1.0	November 2021	Issue submitted to CAA, CAP1616 Stage 1B Gateway

Contents

1. Introduction

1.1 This document forms part of the document requirements of the CAP1616 airspace change process, Stage 1 Define Gateway, Step 1B Design Principles. This document may be read in conjunction with the Step 1A Documentation and the Statement of Need available from the Airspace Change Portal.

1.2 As part of the introduction of Free Route and Flexible Use Airspace (FRA/ FUA) within the Amsterdam Upper Information Region (UIR), Maastricht Upper Area Control (MUAC) have requested the introduction of a new coordination/crossing point (COP) on the London/Amsterdam Flight Information Region (FIR) boundary to facilitate the transfer of aircraft.

1.3 As part of the NATS Operational Service Enhancement Project (OSEP), NATS have commenced an Airspace Change Proposal (ACP)to provide connectivity between the UK ATS route network and this new COP.

1.4 The provision of this connectivity will enable fuel benefits and reduce CO_2 emissions by enabling a reduction in the track milage flown as well as optimises the airspace using FUA principles.

1.5 Within the requirements of the CAP1616 airspace change process, an airspace change sponsor, NATS in this case, needs to identify and communicate the Design Principles (DPs) which are to be applied to the airspace change design.

1.6 Draft DPs have been proposed and distributed via email to stakeholders for feedback and comment, along with some context as to the purpose behind them. This engagement with stakeholders enables NATS to understand the design considerations which are important to them.

1.7 NATS made it clear that these draft DPs were for discussion and that we would welcome feedback to inform the final DPs. Feedback was received from the following 2 Stakeholders:

- MUAC
- MOD

1.8 Internal discussions within NATS determined that no changes were required to the draft DPs

1.9 This document describes how stakeholders' feedback has influenced the DPs for this Airspace Change.

1.10 A provisional priority was assigned to each of the draft DPs prior to distribution based on NATS' interpretation of the importance of each DP and if there was a requirement to adhere to the DP, as in the case of Safety.

1.11 Engagement on specific design concepts/ options will be carried out in Stage 2, with formal consultation occurring in Stage 3. The design concepts will be evaluated against the final DPs as presented herein.

2. Document Layout

2.1 The Executive Summary lists the DPs and their priority assignment.

2.2 Section 4 summarises the feedback received and confirms the priority assignment of each DP.

We asked The original discussion text of a potential DP (we sent this out to stakeholders to provide feedback)

You Said A Summary of how feedback has influenced the DP

We did Amended final DP

This is repeated for each DP.

2.3 Section 5 summarises the engagement activity, number of responses and stakeholders who were included in the engagement.

3. Executive Summary

3.1 The following list summarises the final DPs which have resulted from engagement with relevant stakeholders. Priorities are ranked 1 to 3 with 1 being the highest. These priorities will be considered when the DPs are used to evaluate/rank design options in the later stages of the airspace change process. How the DPs have evolved is described in detail within the following sections.

No	Design Principle	Priority	Category	Notes
1	Maintain or enhance current levels of safety.	1	Safety	
2	Must accord with the CAA's published Airspace Modernisation Strategy (CAP1711) and any current or future plans associated with it.	1	Policy	*The CAA have stated that this DP is required by all change sponsors. CAP1711 describes what airspace modernisation must deliver*
3	The proposed airspace design will maintain or enhance operational resilience of the ATC network.	2	Resilience	
4	The proposed airspace design will produce connection to a new Reporting Point on the London/Amsterdam UIR Boundary to enable optimised routings within the Amsterdam UIR, which is operated as Free Route Airspace.	2	Operational (Airspace Optimisation)	
5	The proposed airspace design will include a review of existing Upper Route connectivity between the London / Amsterdam UIRs (within the southern North Sea) to ensure environmental efficiency is optimised as a result of Free Route Airspace Operations in the Amsterdam UIR.	2	Operational (Airspace Optimisation)	
6	The proposed amendments to the route network will provide a compatible interface with Maastricht Upper Area Control	2	Operational (MUAC Connectivity)	
7	The proposed route amendments will facilitate the reduction of CO_2 emissions per flight.	2	Environmental (CO_2 Emissions)	
8	Minimise environmental impacts to stakeholders on the ground.	2	Environmental (Impact to Stakeholders on the Ground)	

9	The proposed route amendments will have minimal MoD operational impact, commensurate with FUA principles	2	Technical (MoD Requirements)	
10	The proposed changes will be contained within the extant airspace i.e. above FL195 (no additional airspace required).	2	Technical (Minimise CAS)	
11	The proposed airspace design will provide a basis for future Free Route Airspace deployments within the London UIR.	2	Technical (Modernisation)	
12	The design minimises operational impact to airspace users (ATC/ Airlines – Minimal Training)	2	Operational (Training)	

4. Airspace Design Principles: Feedback and Evaluation

4.1 NATS proposed 12 draft Design Principles which could be used to evaluate the design options which address the issue detailed in the statement of need. These Design Principles were shared with 14 stakeholders including 13 NATMAC representatives who represent airspace users identified as potentially being impacted by the change and Maastricht Upper Area Control (MUAC) who are the neighbouring Air Navigation Service Provider (ANSP).

4.2 As well as feedback on NATS's draft Design Principles, stakeholders were invited to propose additional Design Principles they considered necessary for consideration.

4.3 Stakeholders were given 2 weeks to provide feedback on these draft Design Principles. A two week period was considered proportional as this change is expected to provide substantial benefits to airspace users with limited impact to the targeted identified stakeholders.

4.4 No feedback was received through the stakeholder engagement in relation to the wording of the draft DPs.

4.5 No additional Design Principles were proposed by stakeholders.

4.6 It was noted that priorities were not assigned to DPs 10-12 in the draft version of the DPs shared with stakeholders.

4.7 Following internal discussions, NATS confirmed they were content with the wording of the DPs. DPs 10-12 will be assigned priority 2.

4.8 The draft wording distributed to stakeholders will remain unchanged in the final version of the DPs as detailed in the Executive Summary.

5. Engagement Evidence

5.1 NATS has engaged with stakeholders listed in Table 1 below in the development of these DPs. In the initial engagement, feedback was sought on the draft DPs. We received feedback from two stakeholders who were content with the DPs as presented. Table 1 provides a summary of the engagement activity for this proposal. Email engagement evidence is provided in Annex A.

We Asked – Emails to relevant aviation stakeholders

5.2 Emails were sent on 14th September 2021 to 14 organisations, based on National Air Traffic Management Advisory Committee (NATMAC) contacts, and ATC providers. A return date of 27th September 2021 was set. Table 1 identifies all those contacted. A Reminder email was sent on the 21st September 2021.

You Said – Stakeholder Responses

5.3 The response rate was 14.3% (2/14 Stakeholders). These can be seen in Table 1.

5.4 Stakeholders were content with the DPs as presented.

We Did

5.5 Following engagement, the wording of the DPs required no update.

5.6 DPs 10-12 were all assigned priority 2 as this assignment had been omitted from the initial engagement email.

5.7 A draft version of this document was sent to stakeholders on 3rd September 2021. This provided feedback on the two-way engagement and demonstrated the development of the DPs following this engagement.

5.8 Stakeholder Engagement Record

(Note: any other organisation or individual were welcome to provide input into the DP development process.)

	Stakeholder	Initial Engagement Email Annex A	Response to Initial Engagement Email Annex A
NATMAC	Airlines UK	Sent 14/09/2021	
	British Airline Pilots Association (BALPA)	Sent 14/09/2021	
	British Airways (BA)	Sent 14/09/2021	
	Low Fare Airlines	Sent 14/09/2021	
	Heavy Airlines	Sent 14/09/2021	
	Airspace 4 All	Sent 14/09/2021	
	MoD Via Defence Airspace and Air Traffic Management (DAATM)	Sent 14/09/2021	Response, see Annex A4
	Guild of Air Traffic Controllers (GATCO)	Sent 14/09/2021	
	General Aviation Alliance (GAA)	Sent 14/09/2021	
	Aviation Environment Federation (AEF)	Sent 14/09/2021	
	Aircraft Owners and Pilot Association	Sent 14/09/2021	
	Association of Remotely Piloted Aircraft Systems (ARPAS)	Sent 14/09/2021	
	British Business and General Aviation Association (BBGA)	Sent 14/09/2021	
ANSP	NATS[1]		Voted Approve
	MUAC	Sent 14/09/2021	Response, see Annex A5

Table 1: NATS OSEP-MUAC Stage 1B Email Engagement Record

6. Conclusion

6.1 Throughout the DP engagement, we supplied stakeholders with a set of draft DPs, to promote discussion and welcomed their feedback.

6.2 We received no feedback requiring a change to the wording of any DP. Therefore we have concluded the wording of the draft DPs was adequate. Priorities were omitted from DPs 10-12 in the draft design principles engagement email. These 3 DPs have been updated to include priorities and were all assigned priority 2. We circulated the revised DPs to all stakeholders.

[1] As the UK ANSP NATS are listed as a Stakeholder. However, NATS are the sponsor of this change and are not included in external engagement.

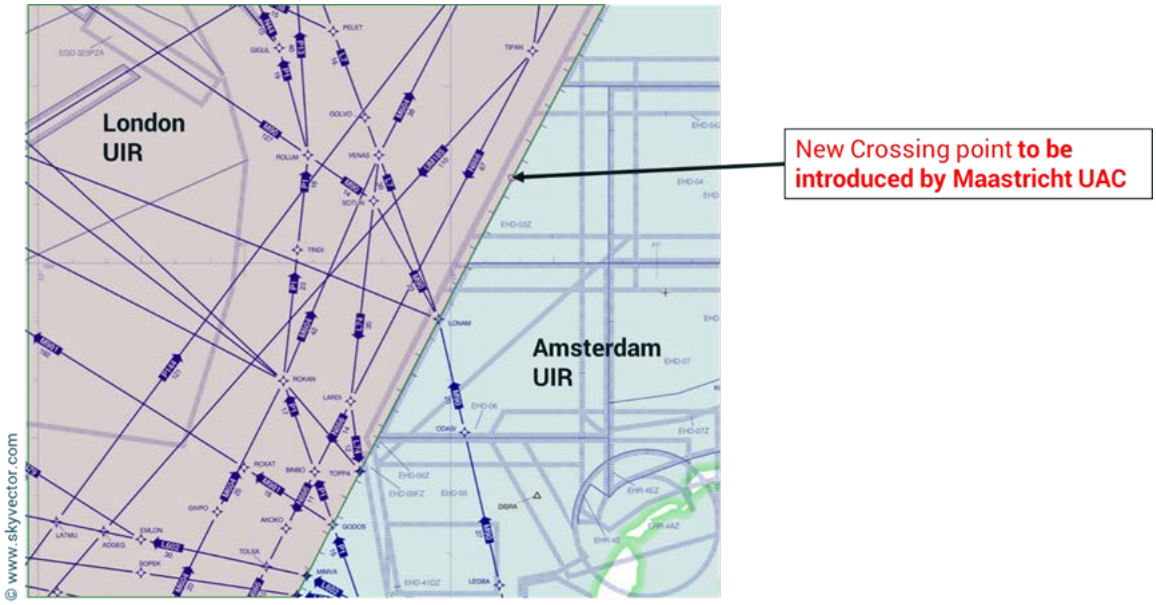
6.3 This evolution has resulted in the list of DP's as detailed in the Executive Summary.

Annex A: Email Engagement Activity

A.1 Initial Engagement e-mail, 14th September 2021

Dear Colleague,

Following a request to introduce a new crossing point by Maastricht Upper Area Control (MUAC), NATS are undertaking an Airspace Change Proposal (ACP) to improve the connectivity between the London and Amsterdam Upper Information Regions (UIRs) following the introduction of Free Route Airspace within the Amsterdam UIR. See figure below:



This ACP is being progressed under the Operational Service Enhancement Project, OSEP which endeavours to deliver a series of small scale changes across NERL airspace. These changes will deliver against one or more of the following areas:

- Enabled fuel savings to customers
- Reduced routing inefficiencies
- Maintain existing levels of safety
- Alleviating capacity hotspots

As part of this process, we would like to involve you in the formulation of the Design Principles (DPs) which will be used during this submission. This is required as part of the UK CAP1616 Airspace Change process.
Further details on this ACP can be found on the CAA portal by following this link.

Below are the draft set of Design Principles for this Airspace Change. Please can you review these and give us your comments.
If you have any suggestions for additional design principles, we will welcome your input.
If you are content with the proposed design principles, please press the “Approve” voting button or reply “Approve”.
If you have comments, please reply to this email and annotate the table below.

#	Design Principle	Category	Priority	Notes	Stakeholder Comments
1	Maintain or enhance current levels of safety.	Safety	1		
2	Must accord with the CAA's published Airspace Modernisation Strategy (CAP1711) and any current or future plans associated with it.	Policy	1	The CAA have stated that this DP is required by all change sponsors. CAP1711 describes what airspace modernisation must deliver	
3	The proposed airspace design will maintain or enhance operational resilience of the ATC network.	Resilience	2		
4	The proposed airspace design will produce connection to a new Reporting Point on the London/Amsterdam UIR Boundary to enable optimised routings within the Amsterdam UIR, which is operated as Free Route Airspace.	Operational (Airspace Optimisation)	2		
5	The proposed airspace design will include a review of existing Upper Route connectivity between the London / Amsterdam UIRs (within the southern North Sea) to ensure environmental efficiency is optimised as a result of Free Route Airspace Operations in the Amsterdam UIR.	Operational (Airspace Optimisation)	2		
6	The proposed amendments to the route network will provide a compatible interface with Maastricht Upper Area Control	Operational (MUAC Connectivity)	2		
7	The proposed route amendments will facilitate the reduction of CO_2 emissions per flight.	Environmental (CO_2 Emissions)	2	As changes are above 7000 ft, the reduction of CO_2emissions will be prioritised	
8	Minimise environmental impacts to stakeholders on the ground.	Environmental (Impact to Stakeholders on the Ground)	2	all changes are above 20000ft and over the sea so noise impact is not a consideration for this ACP	
9	The proposed route amendments will have minimal MoD operational impact, commensurate with FUA principles	Technical (MoD Requirements)	2		
10	The proposed changes will be contained within the extant airspace i.e. above FL195 (no additional airspace required).	Technical (Minimise CAS)			
11	The proposed airspace design will provide a basis for future Free Route Airspace deployments within the London UIR.	Technical (Modernisation)			
12	The design minimises operational impact to airspace users (ATC/ Airlines – Minimal Training)	Operational (Training)			

We would appreciate your feedback for the OSEP-MUAC draft DPs by 27th September 2021. Many thanks for your time.

Best regards

NATS Airspace Change Team

A.2 DP reminder e-mail, 21st September 2021

Dear Colleague,

We recently wrote to you regarding the Design Principles for an Airspace Change Proposal NATS are progressing to provide connectivity between a new COP being introduced by Maastricht Upper area Control, which may affect you (see below). Should you wish to respond we would appreciate your input by 27th September 2021 so that we can consider your feedback.

Best regards

NATS Airspace Change Team

A.3 Final DP e-mail, 3rd September 2021

Dear Colleague,

We recently wrote to you requesting feedback on the draft Design Principles for the OSEP- New Amsterdam / London UIR Crossing Point Airspace Change Proposal.
Thank you to those who responded and provided invaluable feedback to this process.
Please find attached the response document which contains the final version of the Design Principles we will submit to the CAA.

Kind regards

NATS Airspace Change Team.

NATS Public

A.4 Response of DAATM to Draft Design Principle email, 24th September 2021

Good morning,

Please accept this response from DAATM as the combined MOD response regarding the ACP in the subject line.

The MOD believe that the design principles are fit for purpose and have no further comments.

Additionally, the MOD believe that the proposed change will have a negligible impact on MOD operations. However, we wish to remain a stakeholder throughout this ACP and look forward to working with you on it as the stages progress.

Please do not hesitate to contact me if you have any further questions.

Regards

[redacted]

[redacted] | Sqn Ldr | SO2 Airspace Operations | Defence Airspace and Air Traffic Management | [redacted]

A.5 Response of MUAC to Draft Design Principle email, 27th September 2021

Dear Colleague,

On behalf of Maastricht UAC, we agree with these design principles and do not have any requests for further design principles to be added.

Kind regards,

EUROCONTROL [redacted]
Airspace & Network Planning Coordinator – DECO Sector Group
Air Traffic Controller – Team D4
E-mail: [redacted]

EUROCONTROL
Maastricht Upper Area Control Centre
Horsterweg 11
6199 AC Maastricht-Airport
THE NETHERLANDS
www.eurocontrol.int

Annex B: References

Reference	Description	Link
1	CAA Airspace Change portal for ACP-2019-055	Link
2	Statement of Need	Link
3	Assessment Meeting Minutes	Link

Annex C: Glossary of Terms

ACP	Airspace Change Proposal
ANSP	Air Navigation Service Provider
ATC	Air Traffic Control
ATS	Air Traffic Service
CAA	Civil Aviation Authority
CAP	Civil Aviation Publication
CAP1616	Document providing guidance on the regulatory process for changing airspace design including community engagement requirements.
CDR	Conditional Route
CO_2	Carbon Dioxide
COP	Coordination Point
DA	Danger Area
DAATM	Defence Airspace Air Traffic Management
DP	Design Principle
FIR	Flight Information Region
FRA	Free Route Airspace
FUA	Flexible Use Airspace
MoD	Ministry of Defence
MUAC	Maastricht Upper Area Control
NATMAC	National Air Traffic Management Advisory Committee
NATS	UK Air Navigation Service Provider
OSEP	Operational Service Enhancement Project
UIR	Upper Information Region
CAS	Controlled Airspace