ACP-2020-092

GATEWAY DOCUMENTATION:
STAGE 2 DEVELOP AND ASSESS

STEP 2B OPTIONS APPRAISAL
(PHASE 1 INITIAL)

Contents

References

1. Stage 2A Options Development
2. Stage 2A Engagement Summary
3. Stage 2A Engagement Evidence
4. Stage 2A Design Options Feedback
5. Stage 2A Design Principle Evaluation
6. CAP1616: https://publicapps.caa.co.uk/cap1616
7. All published documentation related to this ACP are available on the CAA Airspace Change portal: https://airspacechange.caa.co.uk/PublicProposalArea?pID=319

Introduction

This document forms part of the overall submission of Stage 2B of ACP-2020-092, which aims to seek to secure suitable segregated airspace to use during Ex Joint Warrior for highly complex, multi-domain collective training, preparing aircrews for operational service.

The aim of this document is to provide evidence to the CAA that the Change Sponsor has adhered to the process laid out in CAP 1616 for Stage 2B prior to the Develop and Assess Gateway.

This document follows a period of stakeholder engagement at Stage 2A in which stakeholders were asked to comment on the effectiveness of the design options against the design principles. The Stage 2A Options Development document (Ref. 1) was uploaded to the Portal for stakeholders to provide feedback on. To finish Stage 2A the Design Principle Evaluation document (Ref. 5) was also uploaded to the Portal.

There is only one design option in this document, in addition to the baseline 'do nothing' option which is included for comparison. This document should be read in conjunction with Stage 2A Options Development.

Executive Summary

Stakeholders were invited to comment on the type of Design Options proposed to ensure that they are aligned with and able to achieve the Design Principles developed in Stage 1. Stakeholders were also invited to provide any additional feedback of the ACP at this stage as a result of Stage 1. The Engagement Summary (Ref. 2) outlines the methods used to ensure stakeholders were engaged with appropriately and it contains a list of all stakeholders who were engaged with.

As a result of Stage 2A and the Design Principle Evaluation one option was presented along with the 'do nothing' baseline.

Environmental Impacts

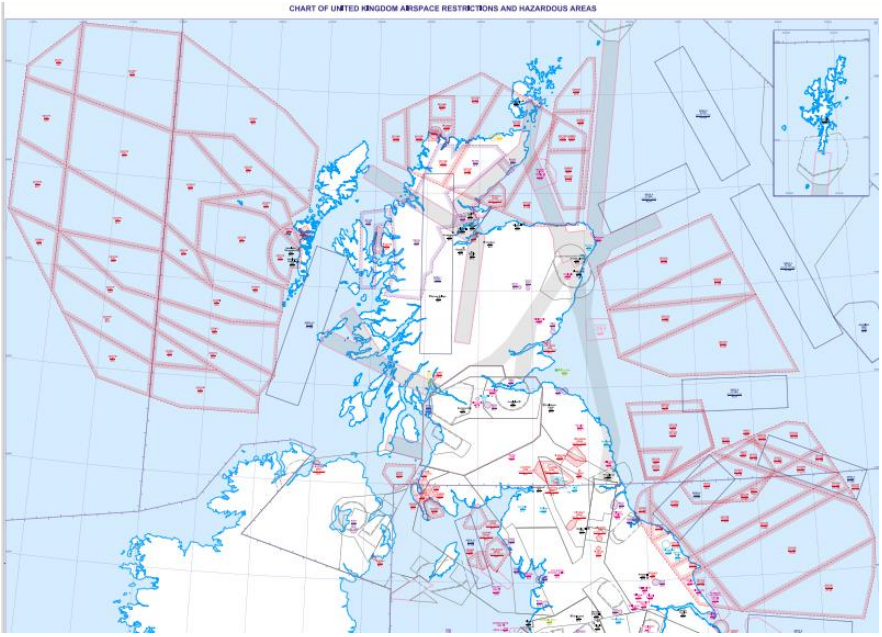
The Air Navigation Directions 2017 enable the CAA to disregard the environmental impacts of military aircraft when the proposal has been submitted by, or on behalf of, the MoD. However, the CO2 emissions of civil aircraft re-routing because of this proposed change must be assessed.

The changes proposed in this ACP affect civil aviation traffic patterns at 7,000 foot or above and is therefore expected to be classified as M2. For the environmental assessment of a level M proposal, the Ministry of Defence need only ever assess the anticipated environmental impacts of the consequential changes on civil aviation patterns.

Options Appraisal

Option 0 – Do Nothing

This option is included for comparison purposes only. We haven't conducted an Ex Joint Warrior without the access to the FJAs for a significant amount of time, therefore we have had to assume the Ex JW activity will be conducted in current MDAs, and assess the option against that.

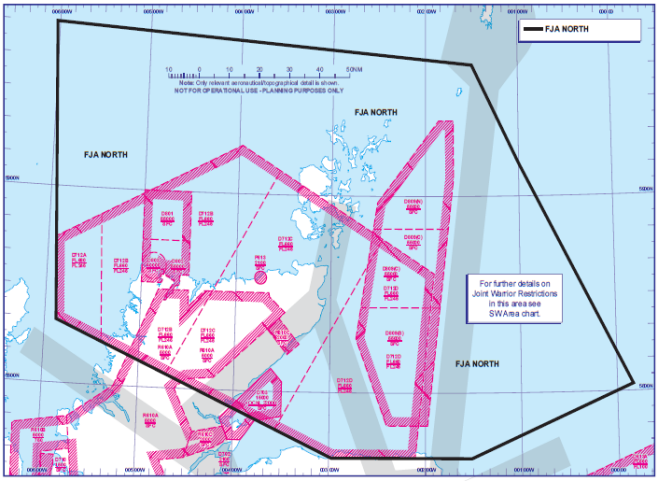


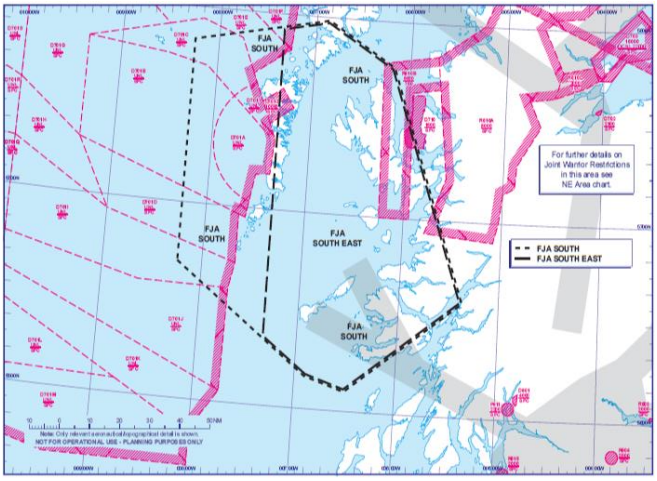
Group	Impact	Level of Analysis
Communities	Noise impact on health and quality of life	Qualitative
Evidence / Analysis		
The current MDA construct features portions of airspace almost exclusively over sea. MDAs likely to be used in the absence of the FJAs are D701, D712, D323, D613, D513. Overland portions of these are not below FL150 therefore there is no affect to those communities. Transits to these areas would be from an Aircraft Carrier (predominately Royal Navy, but also United States Navy and other NATO countries) often situated in the Atlantic, using the current Class G and LFA and would not present any additional traffic. These MDAs are well-established, and routes exist to circumnavigate when they are active, with FBZs established around those in Free Route Airspace.		
Group	**Impact**	**Level of Analysis**
Communities	Air quality	Qualitative
Evidence / Analysis		
The current MDA construct is almost exclusively over the sea at FL150 and above, there is no direct detrimental impact on air quality to communities in the geographical area. Aircraft participating in Large Force Exercises typically operate above FL80, even when the option of going lower is possible, therefore outside the scope of this metric.		
Group	**Impact**	**Level of Analysis**
Wider society	Greenhouse gas impact	Qualitative
Evidence / Analysis		

Any activation of any MDA will mean GAT will have to be routed around, therefore more greenhouses gasses emitted. This is particularly this case with an activation of any area in EG D701 because of the re-routing of commercial airliners going to and from USA/Europe, requiring them to fly longer journeys.		
Group	**Impact**	**Level of Analysis**
Wider society	Capacity / resilience	Qualitative
Evidence / Analysis		
The current MDA construct is well established, with effective control measures and managed by the Military Airspace Management Cell in order to minimise disruption.		
Group	**Impact**	**Level of Analysis**
General Aviation	Access	Qualitative
Evidence / Analysis		
The current MDA construct is well established, with effective control measures and managed by the Military Airspace Management Cell in order to minimise disruption. Access to the airspace is only denied when active, which will only be for specific times, during the exercise.		
Group	**Impact**	**Level of Analysis**
General Aviation / Commercial Airlines	Economic impact from increased effective capacity	Qualitative
Evidence / Analysis		
Outside the scope of this ACP.		
Group	**Impact**	**Level of Analysis**
General Aviation / Commercial Airlines	Fuel Burn	Qualitative
Evidence / Analysis		
It is likely that fuel burn from commercial airlines will be greater if EG D701s* are activated compared to an activation of FJA(N). Due to the routing of commercial airliners going to and from USA/Europe, a significant amount of those routes go through the areas of D701s that don't go through FJA(N) due to their respective geographic locations. This difference is diminished slightly when FJA(S) is activated compared to FJA(N). Other activation of MDAs (712s, or the East coast ones) will have negligible difference in fuel burn. * This is based off a similar size activation of EG D701 as the size of FJA(N), which would often be required due to the representative numbers and tactics used. For example, D701 A,B,C,D,E,G,H,I,Q,R,S,V,W,Y would allow for this.		
Group	**Impact**	**Level of Analysis**
Commercial Airlines	Training Costs	Qualitative
Evidence / Analysis		
No additional training costs to commercial airlines as a result of using the current MDA structure.		
Group	**Impact**	**Level of Analysis**
Commercial Airlines	Other Costs	Qualitative
Evidence / Analysis		
No additional costs to commercial airlines as a result of using the current MDA structure.		
Group	**Impact**	**Level of Analysis**
Airport / Air Navigation Service Provider	Infrastructure Costs	Qualitative
Evidence / Analysis		

No additional infrastructure costs to airports or air navigation service providers as a result of using the current MDA structure.		
Group	**Impact**	**Level of Analysis**
Airport / Air Navigation Service Provider	Operational Costs	Qualitative
Evidence / Analysis		
No additional operating costs to airports or air navigation service providers as a result of using the current MDA structure.		
Group	**Impact**	**Level of Analysis**
Airport / Air Navigation Service Provider	Deployment Costs	Qualitative
Evidence / Analysis		
No additional deployment costs to airports or air navigation service providers as a result of using the current MDA structure.		

Option 1 – Establishing FJA(N) and FJA(S) as per previous dimensions





Group	Impact	Level of Analysis
Communities	Noise impact on health and quality of life	Qualitative
Evidence / Analysis		
CAP1616 states that for aircraft about 7,000 feet, the prioritised environmental impact is CO2 emissions, and an assessment of noise impacts is not normally required. This proposal has the base of the MDA at FL 245, which will significantly reduce/ mitigate all noise effects on the ground. Noise impacts were not a concern in any of the stakeholder engagement that was carried out.		
Group	**Impact**	**Level of Analysis**
Communities	Air quality	Qualitative
Evidence / Analysis		
In accordance with CAP 1616 para B72 this assessment is not required because the proposal will not affect emissions below 1,000 feet.		
Group	**Impact**	**Level of Analysis**
Wider society	Greenhouse gas impact	Qualitative
Evidence / Analysis		
Any activation of any MDA will mean GAT will have to be routed around, therefore more greenhouses gasses emitted. An activation of FJA(S) will likely result in more greenhouse gasses due to its location, disrupting Oceanic traffic, compared to FJA(N). Some of the impact of the extra greenhouse gases emitted will be balanced by suppression of other MDAs, allowing aircraft more directing routing through them.		
Group	**Impact**	**Level of Analysis**
Wider society	Capacity / resilience	Qualitative
Evidence / Analysis		
Our intention with this airspace is that it was also be managed by the Military Airspace Management Cell to minimise disruption. A Letter of Agreement for its use will be drafted up to prevent concurrent activation of airspaces which would affect the network, which was a concern of NATS. Although some routes for commercial flights will be disrupted, other routes will become available because we won't be using the current MDA constructs.		
Group	**Impact**	**Level of Analysis**

General Aviation	Access	Qualitative
Evidence / Analysis		
Our intention with this airspace is that it was also be managed by the Military Airspace Management Cell in order to minimise disruption. Access to the airspace is only denied when active, which will only be for short, specific times, during the exercise. Keeping the activations for only when we will be actively using the airspace will mean access impacts are limited, which was a concern raised by British Gliding Association. The base level of the airspace will be FL245 to reduce the impact on lower-level traffic, thus increasing the overall access to airspace, which was a particular issue raised by British Gliding Association during Stage 1.		
Group	**Impact**	**Level of Analysis**
General Aviation / Commercial Airlines	Economic impact from increased effective capacity	Qualitative
Evidence / Analysis		
Outside the scope of this ACP		
Group	**Impact**	**Level of Analysis**
General Aviation / Commercial Airlines	Fuel Burn	Qualitative
Evidence / Analysis		
Using FJA(N) rather than areas of D701 is likely to reduce fuel burn from commercial airlines. Due to the routing of commercial airliners going to and from USA/Europe, a significant number of those routes go through the areas of D701s which don't go through FJA(N) due to their respective geographic locations. There might not be much different in the amount of fuel burn in an activation of D701 compared to FJA(S) due to them being in roughly the same geographic areas and will therefore block off similar air routes.		
Group	**Impact**	**Level of Analysis**
Commercial Airlines	Training Costs	Qualitative
Evidence / Analysis		
No additional training costs as a result of using this airspace option.		
Group	**Impact**	**Level of Analysis**
Commercial Airlines	Other Costs	Qualitative
Evidence / Analysis		
No additional costs to commercial airlines as a result of using this airspace option.		
Group	**Impact**	**Level of Analysis**
Airport / Air Navigation Service Provider	Infrastructure Costs	Qualitative
Evidence / Analysis		
No additional infrastructure costs to airports or air navigation service providers as a result of using this airspace option.		
Group	**Impact**	**Level of Analysis**
Airport / Air Navigation Service Provider	Operational Costs	Qualitative
Evidence / Analysis		
No additional infrastructure costs to airports or air navigation service providers as a result of using this airspace option.		
Group	**Impact**	**Level of Analysis**
Airport / Air Navigation Service Provider	Deployment Costs	Qualitative

Evidence / Analysis
No additional deployment costs to airports or air navigation service providers as a result of using this airspace option.

Safety Assessment

This section provides a brief, qualitative overview of the impact of this proposal on aviation safety. The evidence feeding into this safety assessment has been obtained from the results of a previous activations of the FJAs. JTEPS have successfully employed several methods in the past to ensure the safety and integrity of the Fast Jet Areas during their use.

Currently, route structures are published and airlines plan to route via ATS routes or flight plannable Directs (DCTs). These are deconflicted from active MDAs where necessary using strategic deconfliction methods and published waypoints. The proposal to use this airspace would result in previously tried and tested waypoints. The Chance Sponsor has conducted a Defence Air Safety Occurrence Report (DASOR) search for any safety incidents relating to military aircraft leaving the FJAs during any of the previous activation of the FJAs for the last 7 years, but there have been no reported safety occurrences.

High energy manoeuvres would take place during Ex Joint Warrior, which require segregation from GAT for the protection of both military exercise traffic and civil aviation. In later stages of the design process, the proposal will look to incorporate a flightplan buffer zone (FBZ) to ensure separation in both time and space. The MDA, routings and FBZ should be made known to Eurocontrol for network visibility reducing the risk of any late notice route changes to aircraft in flight.

The dimensions of the airspace for this ACP have been deliberately chosen to be exactly the same as the previous Fast Jet Areas that have been used during Ex Joint Warrior for over ten years, thus creating a familiarity of the airspace for both the users, the controllers, NATS and the wider airspace community. Because of this familiarity, it will increase the capacity of the pilots using the airspace as they will have a greater awareness of the dimensions, reducing their likeliness of accidently leaving the airspace, reducing the chance of MAC. In addition, ATC agencies (78 Sqn at Swanwick and NATS) are familiar with the airspace and its seasonal activation, reducing the chance of human error and decreasing the chance of MAC. The reduction of the chance of MAC aligns to our highest priority Design Principle, ‘The airspace design must be safe, with any hazards identified and risks mitigated such that they are as low as reasonably practicable and tolerable.’

The FJAs were deliberately constructed to be uncomplex and this proposal has the same attribute. Both airspaces are of a linear shape necessary for efficient air-to-air sorties, with the same planned base height of FL 245 and with only the FJA(S) being divided into a sub-section, FJA South-East, with a single line along the line of longitude 0072W. The reduced complexity increases the capacity of the pilots operating in the airspace and the weapons controller / ATC providing a service in that airspace. The uncomplexity reduces the likelihood of both a military aircraft accidently leaving the segregated airspace or of GAT entering the airspace, thereby reducing the chance of MAC.

Ex Joint Warrior aims to provide a multi-threat training environment where participants take part in collective training in preparation for deployment as a Combined Joint Task Force. Consequently, the pilots who will be flying in the FJAs are professional aviators, who are Operational Conversion Unit (OCU) qualified and use Ex JW as a workup to real world deployment. A good example of this is from Spring 2021, when after participating on Ex JW211, the UK Carrier Strike Group 21, a British-led naval force (with embarked F-35s)

deployed on Operation Fortis, a 28-week deployment around the world. Experienced and professional aviators mitigate some of the likeness of an aircraft accidently leaving the FJAs during high energy manoeuvres, further reducing the risk of using this airspace.

Next Steps

In accordance with CAP 1616 para E12, the Sponsor must identify what evidence will need to be collected, and how, to fill its evidence gaps in order to develop the Full Options Appraisal.

Having completed the initial appraisal either Eurocontrol or NATS (or both) will be approached for modelling to assess the environmental and operational impact to civil aviation. Further consultation with stakeholders and ANSPs will take place in order to create rigorous procedures, which will include a Letter of Agreement to prevent concurrent activation of airspaces which would affect the network.