

# CAA CAP 1616 Options Appraisal Assessment (Phase III Final)

<b>Title of Airspace Change Proposal:</b>	Enabling Remotely Piloted Air System Operations Out of RAF Waddington		
<b>Change Sponsor:</b>	Ministry of Defence		
<b>ACP Project Ref Number:</b>	ACP-2019-18		
<b>Case study commencement date:</b>	30/05/2023	<b>Case study report as at:</b>	16/06/2023

<b>Account Manager:</b> [Redacted]	[Grey]	<b>Airspace Regulator (Engagement &amp; Consultation):</b> [Redacted]	[Yellow]	<b>IFP:</b> [Redacted]	[Orange]	<b>OGC:</b> [Redacted]	[Dark Blue]
<b>Airspace Regulator (Technical):</b> [Redacted]	[Green]	<b>Airspace Regulator (Environmental):</b> [Redacted]	[Purple]	<b>Airspace Regulator (Economist):</b> [Redacted]	[Light Blue]	<b>ATM (Inspector ATS Ops):</b> [Redacted]	[Red]

**Instructions**

To aid the SARG project leader's efficient project management, please highlight the "status" cell for each question using one of the four colours to illustrate if it is:

Resolved - GREEN    
 Not Resolved – AMBER    
 Not Compliant – RED    
 Not Applicable - GREY











**Guidance**





The broad principle of economic impact analysis is **proportionality**; is the level of analysis involved proportionate to the likely impact from that ACP. There are three broad levels of economic analysis; qualitative discussion, quantified through metrics, and monetised in £ terms. The more significant the impact, the greater should be the effort by sponsors to quantify and monetise the impact.

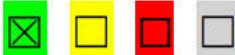

1. Background – Identifying the Do Nothing (DN) /Do Minimum (DM) scenarios		Status
1.1	Are the outcomes of DN/DM scenarios clearly outlined in the proposal?	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
1.1.1	<p>Has the change sponsor produced an Options Appraisal (Phase III - Final) which consists of the Full appraisal with any refinements or changes made as a result of the Stage 3 formal consultation with stakeholders? [E24]</p> <p>Yes, the sponsor explains and summarises how the feedback received from stakeholders and interactions with Protector’s manufacturer led them to refine the airspace design at Stage 3 and Stage 4. The sponsor decided to propose just one airspace design option for consultation which is “two volumes of airspace, the lateral boundaries of which overlap and which are vertically joined. The combined airspace design provides appropriate segregated airspace for the Protector and RAFAT activities”.</p> <p>The final proposed option is then the combined airspace design cross-section WNW/ESE, which consists of:</p> <ul style="list-style-type: none"> <li>• <u>Low airspace design</u>, which is one airspace structure for the airspace in the vicinity of RAF Waddington below FL105; and</li> <li>• <u>Medium airspace design</u>, which is one airspace structure for the airspace in the vicinity of RAF Waddington FL105 - FL195.</li> </ul> <p>This description is in line with the requirement of CAP1616 but it would have been useful to associate these designs to the ones originally described in Stage 2, i.e., Option 1 and Option 7 or 8.</p>	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
2. Impacts of the proposed airspace change		Status
2.1	Are there direct impacts on the following?	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

2.1.1	<i>Examples of costs considered (please add costs that have been discussed, and any reasonable costs that the Airspace Regulator (Technical) feels have NOT been addressed)</i>				
2.1.2	Airport/ANSPs	Not Applicable	Qualitative	Quantified	Monetised
	- Infrastructure	X			
	- Operation	X			
	- Deployment	X			
2.1.3	- Other(s)	X			
	Commercial Airlines/General Aviation	Not Applicable	Qualitative	Quantified	Monetised
	- Training	X			
	- Economic impact from increased effective capacity	X			
2.1.4	- Fuel burn		X	N/A	N/A
	- Other(s)	X			
2.1.5	General Aviation	Not Applicable	Qualitative	Quantified	Monetised
	- Access		X	N/A	N/A
2.1.6	Military	Not Applicable	Qualitative	Quantified	Monetised
			X	N/A	N/A
2.1.7	Wider Society, i.e., wider economic benefits, capacity resilience	Not Applicable	Qualitative	Quantified	Monetised
		X			
2.1.8	Other (provide details)	Not Applicable	Qualitative	Quantified	Monetised
		X			



<b>2.2</b>  	<b>Are there direct beneficial impacts on air traffic control / management systems? Provide details.</b> The sponsor states that the introduction of the proposed change might increase the risk of loss of safe separation / mid-air collision (LoSS/MAC) due to re-routing aircraft creating bottlenecks and it might also increase controller workload due to funnelling, DACS requests.	   
<b>2.3</b>	<b>Where impacts have been monetised, what is the overall value (expressed in net present value (NPV)) of the project?</b> N/A	
<b>2.4</b>	<b>Are the direct impacts on air traffic management analysed accurately and proportionately?</b> The assessment provided at this stage is in line with CAP1616 requirements.	   

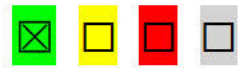
3. Changes in air traffic movements / projections				Status
<b>3.1</b>	<b>If the proposed airspace change has an impact on the following factors, have they been addressed in the proposal?</b>			   
		Not applicable	Qualitative	Quantified / Monetised
3.1.1	Number of aircraft movements		X	X
3.1.2	Number of air passengers / cargo	X		
3.1.3	Type of aircraft movements (i.e., fleet mix)		X	N/A
3.1.4	Distance travelled	X		
3.1.5	Operational complexities for users of airspace		X	N/A
3.1.6	Flight time savings / Delays	X		
3.1.7	Other impacts	X		
3.1.8	<b>Comments:</b> The sponsor provides a qualitative assessment of the impacts that the proposed military change might have on the civil aviation, clarifying that it might affect the GA users when the Protector will require the activation of the segregated airspace for up to 3 days per week during the initial stage.			

<p>3.2</p>	<ul style="list-style-type: none"> <li>Has the sponsor used the most up-to-date, credible and clearly referenced source of data to develop the 10 years traffic forecast and considered the best available guidelines (e.g. the Green Book and TAG models?) in a proportionate and accurate manner? [B11 and E11]</li> </ul> <p>The sponsor has provided a detailed description of both the military and civil aviation activity in the vicinity of RAF Waddington. In respect of civil aviation activity, the area around RAF Waddington is populated by numerous civil airfields and airstrips used for general aviation (GA), gliding, paragliding and parachute activities, including Temple Bruer and Wickenby airfields and the British Parachute School/Skydive Langar. Waddington Flying Club also operates out of RAF Waddington for civilian flying training while RAF Cranwell situated nearby also hosts a popular gliding club. No data on aircraft movements associated with the flying school has been provided but will presumably be subject to Waddington's ATC and military schedule. The airspace within the Medium DA is used infrequently by gliders and occasional aircraft leaving the national air traffic route structure to position for arrivals into the Midlands airports. The sponsor goes on to state that the ACP will not result in an increase in the number of aircraft or a change in their types. Given that this ACP is located in Class G airspace, with no restrictions on which aircraft can enter it, what equipment the aircraft must carry, and the routes taken by the aircraft, the information provided by the sponsor regarding traffic data and forecasts is considered to be sufficient. As explained in the response to the following question below, the sponsor has also provided a rationale and further quantified evidence to support this conclusion.</p> <ul style="list-style-type: none"> <li>Has the sponsor explained the methodology adopted to reach its input and analysis results? [B11 and E11]</li> </ul> <p>The sponsor obtained two assessments from ATC at RAF Waddington with regards to the potential consequential effect of the low airspace design on civil traffic; the first qualitative assessment was provided by air traffic personnel regarding the estimated frequency of civil air traffic passing within 5nm overhead RAF Waddington (approximately 15 daily requests for MATZ and overhead crossings, with a peak of high 20s on busier days) and the second assessment was provided in the form of monthly MATZ crossing statistics for 2019 as supporting quantitative evidence. According to this data, an average of 19 MATZ crossings per week (or approximately 3 per day, maximum being between 6-10 per day assuming 2-3 busy days per week), mostly from GA aircraft are received by ATC. The sponsor rationalises that the majority of civil aircraft will continue to request and obtain a DACS to cross the Low DA, with only a few (unspecified number) requiring re-routing. Other mitigation measures proposed by the sponsor are also expected to minimise impacts. The sponsor therefore concludes that further quantitative assessments would be disproportionate.</p>	 			
<p>3.3</p>	<p><b>Has the sponsor developed an assessment of the following environmental aspects?</b></p> <p>Please refer to the CAA's Environmental Assessment for details.</p>				
<p>3.3.1</p>	<p>Noise</p>	<p>Not applicable</p>	<p>Qualitative</p>	<p>Quantified</p>	<p>Monetised</p>
			<p>X</p>		



3.3.2	Operational diagrams		X		
3.3.3	Overflight		X		
3.3.4	CO2 emissions		X		
3.3.5	Local air quality	X			
3.3.6	Tranquillity	X			
3.3.7	Biodiversity	X			
3.4	<b>What is the monetised impact (i.e., Net Present Value (NPV)) of 3.3? (Provide comments)</b> N/A – The change sponsor only provided high level qualitative assessment of costs and benefits for the preferred low airspace and medium airspace design due to the agreement at Stage 3 between the change sponsor and the CAA that further attempts to provide quantified or monetised analysis would be disproportionate since the impacts on other airspace users and the environment is considered to be low.				

4. Economic Indicators of the ACP		Status
4.1	<b>What are the qualitative / strategic impacts described in the ACP?</b> The proposed airspace change aims to optimises an approach for RPAS to operate from and to RAF Waddington.	
4.2	<b>What is the overall monetised and non-monetised (quantified) impact of the proposed airspace change?</b> N/A – Due to the scaled requirements the sponsor has only provided high level qualitative details of the preferred option and the do-nothing option against the high-level objectives and assessment criteria laid out in CAP 1616 Appendix E Table E2.	
4.3	<b>What is the Net Present Value of the proposed options? Has the sponsor used this information to progress/discount options? Has the sponsor provided the benefits-costs ratio (BCR) of the proposed options and used it to support the choice of the preferred options? [E44]</b> The NPV of the preferred option has not been provided by the change sponsor due to the scaled level of this change proposal. As the CAA and the change sponsor have agreed to scale down the requirements for this ACP at Stage 3, the sponsor has only provided high level qualitative discussion of the preferred option against the do-nothing option. Therefore, there isn't any quantitative analysis or NPV or BCR to support the choice of the preferred option.	
4.3.1	<b>If the preferred option does not have the highest NPV or BCR, then has the sponsor justified the reasons to progress this option? [B50 and E23]</b> N/A – The sponsor has justified that overall benefits of the preferred option will outweigh the benefits of the do-nothing option with high level qualitative discussion provided in the Final Options Appraisal.	

4.4	<p><b>Have the sponsors provided reasonable justification for the proportionality of analysis above?</b></p> <p>Yes, the change sponsor justified the reason why they believe it'd disproportionate for them to derive quantitative or monetised analysis. The change sponsor only provided high level qualitative assessment of costs and benefits for the preferred low airspace and medium airspace design due to the agreement at Stage 3 between the change sponsor and the CAA that further attempts to provide quantified or monetised analysis would be disproportionate since the impacts on other airspace users and the environment is considered to be low.</p>	
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<b>5. Other aspects</b>	
5.1	Nil

<b>6. Summary of the Final Options Appraisal &amp; Conclusions</b>		
6.1	<p>The proposed airspace change aims to optimise an approach for RPAS to operate from and to RAF Waddington. Following up from the Full Options Appraisal, the sponsor has received feedback from stakeholders during the 12-week Consultation and found that no change to the proposed airspace design was required. However, the sponsor has repeated the qualitative analysis that has undertaken in the Full Options Appraisal in the Final Options Appraisal to show no change has applied.</p> <p>The sponsor outlines that the quantitative assessment is limited due to the minimal impact of this ACP on the civil aviation pattern, i.e., 3 flights per week, hence for the purpose of this Stage no TAG tables were developed.</p> <p>In conclusion, the Final Options Appraisal follows CAP1616 requirements and describes how the proposed combined design option performs against the baseline (do-nothing).</p>	
<b>Outstanding issues?</b>		
Serial	Issue	Action required
1	-	-
2		

<b>CAA Final Options Appraisal Completed by</b>	<b>Name</b>	<b>Signature</b>	<b>Date</b>
Airspace Regulator (Economists)	[REDACTED]	[REDACTED]	16/06/2023
Airspace Regulator (Economists)	[REDACTED]	[REDACTED]	25/08/2023
Airspace Regulator (Environmental)	[REDACTED]	[REDACTED]	25/08/2023