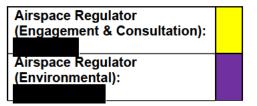
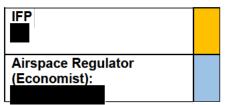


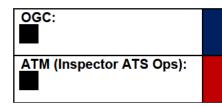
## CAA CAP 1616 Options Appraisal Assessment (Phase II Full)

Title of Airspace Change Proposal:	Enabling RPAS and RAFAT Operations out of RAF Waddington		
Change Sponsor:	MoD		
ACP Project Ref Number:	ACP-2019-18		
Case study commencement date:	18/07/2022	Case study report as at:	03/08/2022

Account Manager:	
Airspace Regulator (Technical):	







## 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. Ba	ckground – Identifying the impact of the shortlist of options (	(including Do Nothing (DN) / Do Minimum (DM))	Status		•
1.1	Are the outcomes of DN/DM and DS scenarios clearly outlin	ned in the proposal?	$\boxtimes$		
1.1.1	Has the change sponsor produced an Options Appraisal (Phase II - Full) which sets out how Initial appraisal is developed into a more detailed quantitative assessment, moving from qualitatively defined shortlist options to the selected preferred option? [E23]	Yes, the sponsor explains how the feedback received from stakeholders and interactions with Protector's manufacturer led them to refine the airspace design and to propose "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".			
		The final proposed option is then the Combined airspace design cross-section WNW/ESE, which consists of:  • Low airspace design, which is one airspace structure for the airspace in the vicinity of RAF Waddington below FL105; and	$\boxtimes$		
		<ul> <li>Medium airspace design, which is one airspace structure for the airspace in the vicinity of RAF Waddington FL105 - FL195.</li> </ul>			
		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 Stage2, i.e., Option 1 and Option 7 or 8.			
1.1.2	Does each shortlist option include the impacts in comparison to the 'do nothing / do minimum' option, in particular: -all reasonable costs and benefits quantified -all other costs and benefits described qualitatively -reasons why costs and benefits have not been quantified	Yes, the sponsor assesses the combined airspace design against the Do-Nothing and includes both a qualitative and a quantitative assessment where possible.	$\boxtimes$	<u> </u>	
		It is worth noting that the limited quantitative assessment is provided to justify the limited impact this airspace change is going to have, hence, to			

		scope out any further quantification and monetisation.  The assessment is in line with CAP1616 requirements outlined in Table E2			
1.1.3	Where options have been discounted, does the change sponsor clearly set out why?	The sponsor does not explicitly state why Option 7 or 8 have been discounted or whether the medium level design is a combination of the two above mentioned. However, the justification provided when describing the new combined options and their graphic representation outline the physical/geographical feasibility of these design options.		$\boxtimes$	
1.1.4	Has the change sponsor indicated their preferred option in the Options Appraisal (Phase II - Full)? [E23]	The preferred option is the Combined airspace design cross-section WNW/ESE	$\boxtimes$		
1.1.5	Does the Full Options Appraisal (Phase II - Full) detail what evidence the change sponsor will collect, and how, to fill in any evidence gaps and how this will be used to develop the Options Appraisal (Phase III - Final)? Does the plan for evidence gathering cover all reasonable impacts of the change?	The sponsor has provided a detailed description of the data and information collected until this point and it does not seem that there are any data gaps to be covered in the next stage	$\boxtimes$		

2. Dir	2. Direct impact on air traffic control				
2.1	Are there direct cost impacts on air traffic control / management systems?  If so, please provide below details of the factors considered and the level in which this has been analysed.				
2.1.1	2.1.1 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)			gulator (Technical)	
		Not applicable	Qualitative	Quantified	d Monetised
2.1.2	Infrastructure changes	Х			
2.1.3	Deployment	Х			
2.1.4	Training	х			
2.1.5	Day-to-day operational costs / workload / risks	х			

2.1.6	Other (provide details)				
2.1.7	Comments: The sponsor states that there will not be additional infrastructural, deployment and training costs that might affect the civil aviation because of the implementation of the proposed change.				
2.2	Are there direct beneficial impacts on air traffic control / management of so, please provide details and how they have been addressed:	nt systems?			
2.2.1	Examples of benefits considered	Not applicable	Qualitative	Quantified	Monetised
2.2.2	Reduced work-load		Х	N/A	N/A
2.2.3	Reduced complexity / risk		Х	N/A	N/A
2.2.4	Other (provide details)				
2.2.5	Comments: 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.				
2.3	Where monetised, what is the net monetised impact on air traffic control (in net present value) over the project period?  N/A				
2.4	Are the direct impacts on air traffic management analysed accurately and proportionately?  The assessment provided at this stage is in line with CAP1616 requirements.				

3. Ch	3. Changes in air traffic movements / projections				
3.1	1 What is the impact of the ACP on the following and has it been addressed in the ACP proposal?				
		Not applicable	Qualitative	Quantified	Monetised
3.1.1	Number of aircraft movements		Х	х	N/A
3.1.2	Type of aircraft movement		Х	N/A	N/A
3.1.3	Distance travelled	х			

3.1.4	Area flown over / affected		x	N/A	N/A
3.1.5	Other impacts				
3.1.6	Comments: The sponsor provides a qualitative assessment of the impacts that the promight affect the GA users when the Protector will require the activation of stage.				
3.2	Has the forecasting of traffic done reasonably using best available g Academic sourcesetc?)  The sponsor has provided the annual aircraft movements for RAF Waddin (approximately 9,000 per year). The sponsor estimates that a reduction in (7,200). 18% of these movements are practice diversions by military aircraprovided the statistics for MATZ crossing requests for 2019 obtained from average of 6-10 MATZ crossing requests are received per day, mostly from The sponsor has also described the various airspace users in the vicinity of frequency of such operations and the height at which they might be using ISTAR fleet; Waddington Flying Club using PA28 and Tecnam P2008JC; from RAF Cranwell's No3 and No 6 Flying Training School (FTS) and som and RAF Quick Reaction Alert (QRA) from RAF Coningsby; two FTS and T Mk 1 and Robin DR400 aerotow from RAF Syerston; other MOD and US paragliding and parachute activity especially from Temple Bruer and Wick position for Midlands airports.	gton for 2017 (12 movements of an aft from RAF Cran Waddington ATC m GA aircraft. of RAF Waddingto airspace. These a Embraer Phenom he gliders; combat RAF Central Glidi SAFE military airc	,431) to 2018-202 ound 20% is likely well. The sponsor which suggest the on, indicated the liter are the RAFAT, Pr 100, Tutor and 12 ready squadrons ng School operations	for 2022 has also at an  kely otector, UK 20TP Prefect, Typhoons ng the Viking on, gliding,	
	The sponsor goes on the state that the ACP will not result in an increase i types. Given that this ACP is located in Class G airspace, the information and forecasts is considered to be sufficient.	provided by the s			
3.3	<ul> <li>What is the impact of the above changes (3.1) on the following factor</li> <li>Noise impact: the sponsor states that the majority of airspace users we need to route around the segregated airspace when this is unavailable movements) with minimal change to the areas overflown. As the sponsaircraft impacted, the overall noise impact is stated to be negligible as</li> <li>Fuel burn and GHG emissions: the sponsor states that the proposed lemissions for those GA users that cannot or do not use the DACS and Air quality: the sponsor states that while two AQMAs are situated in Lie</li> </ul>	ill request and obtome. However, these sor does not antic compared to todate ow level airspaced are required to re	e numbers are esti cipate an increase ay's scenario. option might lead eroute.	mated to be very lin the aircraft numeron to a small increas	ow (less than 30 lbers or types of e in fuel burn and

	<u>Tranquillity and Biodiversity:</u> the sponsor states that no AONBs or NPs local stakeholders and therefore the impact on these metrics is considered.			itive areas were id	dentified so far by
		Not applicable	Qualitative	Quantified	Monetised
3.3.1	Noise		х	N/A	N/A
3.3.2	Fuel Burn		х	N/A	N/A
3.3.3	CO2 Emissions		Х	N/A	N/A
3.3.4	Operational complexities for users of airspace	Х			
3.3.5	Number of air passengers / cargo	Х			
3.3.6	Flight time savings / Delays	х			
3.3.7	Air Quality		х	N/A	N/A
3.3.8	Tranquillity		Х	N/A	N/A
3.4	Are the traffic forecast and the associate impact analysed proportionately and accurately according to available guidelines (e.g. WebTAG or the Green Book?)  The sponsor has provided the annual traffic figures for RAF Waddington from 2017-2021 with an estimate for 2022 along with statistics for MATZ requests in 2019. The sponsor has also described the airspace users and aircraft types using the airspace around RAF Waddington along with their frequency, flight patterns and operating altitudes.				
3.5	What is the total monetised impact of 3.3? (Provide comments) N/A			1	

4. Benefits of ACP				Status	
4.1	Does the ACP impact refer to the following groups and how they are impacted by the ACP?				
		Not applicable	Qualitative	Quantified	Monetised
4.1.1	Air Passengers	х			
4.1.2	Air Cargo Users	х			

4.1.3	General aviation users		х	х	N/A
4.1.4	Airlines	х			
4.1.5	Airports	х			
4.1.6	Local communities		х		
4.1.7	Wider Public / Economy	х			
4.1.8	Comments:  Local communities: the sponsor states that the overall impact on communities is expected to be very low, especially as most aircraft will be able to obtain a DACS.  The sponsor states that the proposed airspace change might affect general aviation (GA) user access that will be maximised by the ability to obtain a crossing service (e.g. DACS).				
4.2	How are the above groups impacted by the ACP, especially (but not	exclusively) look	ing at the follow	ing factors belov	<b>v</b> :
4.2.1	Improved journey time for customers of air travel	N/A			
4.2.2	Increase choice of frequency and destinations from airport	N/A			
4.2.3	Reduced price due to additional competition because of new capacity	N/A			
4.2.4	Wider economic benefits	N/A			
4.2.5	Other impacts	N/A			
4.2.6	Comments: Nil				
4.3	What is the overall monetised impacts associated with 4.1 and 4.2 th N/A	ne above?			
4.4	What are the non-monetised but quantified impacts of the above? (Insert details of description)  N/A				
4.5	What are the qualitative / strategic impacts described above?  N/A				
4.6	What is the overall monetised benefits-costs ratio (BCR) of the policy? Is it more than 1?  N/A				
4.7	Have the sponsors provided reasonable justification for the proportionality of analysis above?				

4.8		itative strategic impacts proportional to the costs of the ACP?			
	N/A				
5. Ot	her aspects				
5.1	Nil				
6. Su	mmary of Assessment of Economic Impacts & Conclus	ions			
0.4	The proposed airchace change aims to optimises an appr	pach for RPAS to operate from and to RAF Waddington. Following up from the Initial			
6.1		m both stakeholders and Protector's manufacturer and decides to update the			
	Option 7 or Option 8 and it would be worth clarifying t	ow and medium airspace level, it is not clear if the sponsor has preferred to use his point before going to consultation.			
		mited 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 tab	les were developed.			
	In conclusion, the FOA follows CAP1616 requirements and describes how the proposed combined design option performs against the baseline (Do-nothing).				
Outstan	Outstanding issues?				
Serial	Issue	Action required			
1					

CAA Full Options Appraisal Completed by	Name	Signature	Date
Airspace Regulator (Economist)			03/08/2022