CAA CAP 1616 Options Appraisal Assessment (Phase III Final)

Title of Airspace Change Proposal:	Keevil BVLOS (Permanent)		
Change Sponsor:	MOD		
ACP Project Ref Number:	ACP-2021-006		
Case study commencement date:	04/11/2022	**Case study report as at:**	03/01/2023

Account Manager: [redacted]	**Airspace Regulator (Engagement & Consultation):** [redacted]	**IFP:** N/A	**OGC:** Nil
Airspace Regulator (Technical): [redacted]	**Airspace Regulator (Environmental):** [redacted]	**Airspace Regulator (Economist):** [redacted]	**ATM (Inspector ATS Ops):** N/A

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.

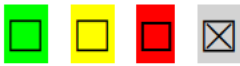
1. Background – Identifying the Do Nothing (DN) /Do Minimum (DM) scenarios			Status
1.1	**Are the outcomes of DN/DM scenarios clearly outlined in the proposal?**		☒ ☐ ☐ ☐
1.1.1	Has the change sponsor produced an Options Appraisal (Phase III - Final) which consists of the Full appraisal with any refinements or changes made as a result of the Stage 3 formal consultation with stakeholders? [E24]	Yes, the sponsor has duly produced the Final Options Appraisal which consists of the Full appraisal with further detailed information gathered to refine the shortlist of options as a result of the Stage 3 formal consultation with stakeholder feedback.	☒ ☐ ☐ ☐

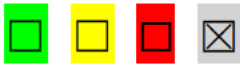
2. Impacts of the proposed airspace change					Status
2.1	**Are there direct impacts on the following?**				☒ ☐ ☐ ☐
2.1.1	*Examples of costs considered (please add costs that have been discussed, and any reasonable costs that the Airspace Regulator (Technical) feels have NOT been addressed)*				
2.1.2	Airport/ANSPs	Not Applicable	Qualitative	Quantified	Monetised
	- Infrastructure	X			
	- Operation	X			
	- Deployment	X			
	- Other(s)	X			
2.1.3	Commercial Airlines/General Aviation	Not Applicable	Qualitative	Quantified	Monetised
	- Training	X			
	- Economic impact from increased effective capacity	X			
	- Fuel burn	X			

	- Other(s)	X			
2.1.4	General Aviation	Not Applicable	Qualitative	Quantified	Monetised
	- Access		X	X	N/A
2.1.5	Military	Not Applicable	Qualitative	Quantified	Monetised
		X			
2.1.6	Wider Society, i.e., wider economic benefits, capacity resilience	Not Applicable	Qualitative	Quantified	Monetised
			X	X	N/A
2.1.7	Other (provide details)	Not Applicable	Qualitative	Quantified	Monetised
		X			

2.2	**Are there direct beneficial impacts on air traffic control / management systems? Provide details.** The Final Options Appraisal indicates that there isn't any direct beneficial impacts for airports or ANSPs associated with the proposed option.	☐ ☐ ☐ ☒
2.3	**Where impacts have been monetised, what is the overall value (expressed in net present value (NPV)) of the project?** N/A	
2.4	**Are the direct impacts on air traffic management analysed accurately and proportionately?** N/A	☐ ☐ ☐ ☒

3. Changes in air traffic movements / projections			**Status**
3.1	**If the proposed airspace change has an impact on the following factors, have they been addressed in the proposal?**		☒ ☐ ☐ ☐
	Not applicable	Qualitative	Quantified / Monetised

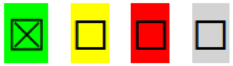
3.1.1	Number of aircraft movements	X		
3.1.2	Number of air passengers / cargo	X		
3.1.3	Type of aircraft movements (i.e., fleet mix)	X		
3.1.4	Distance travelled		X	N/A
3.1.5	Operational complexities for users of airspace		X	N/A
3.1.6	Flight time savings / Delays	X		
3.1.7	Other impacts	X		
3.1.8	**Comments:** The Final Options Appraisal states that there may be some reduction in traffic at North of Keevil in case either Option 2 or Option 3 is implemented and a resultant increase to the current use of the Keevil airspace by those pilots who are currently avoiding the overhead due to the VFR chart or glider activity. It also states for these options that pilots may choose to cross through the overhead as the proposed DA (Danger Area) enables a crossing service. As a result, route length, fuel consumption and aircraft congestion would slightly be reduced at North of Keevil. The Stage 3 Environmental Impact Assessment indicated that any additional airspace around Keevil may require an additional 0.7Nm worth of fuel per aircraft type. It is also mentioned that pilots will incur a cost for additional training should pilots not currently qualified to operate an airband radio choose to apply for a Flight Radio Telephony Operators License (FRTOL) in order to benefit from any crossing services. The Sponsor estimated the cost to gain a FRTOL approximately £250 and purchase of the airband radio as £200 in case pilots will choose to use any associated crossing services. Following on from this information, the Final Options Appraisal revealed the additional data obtained through SkyDemon heatmaps that the traffic at all altitudes between 2018 and 2020, which reaffirms the conclusion derived from the 2-week flight data collection in the Full Options Appraisal and that pilot behaviour is generally to avoid the Keevil overhead. So, most aircraft are routing North of the airfield and a minority following the railway line to the South. The Sponsor assessed in the Final Options Appraisal that there may be some reduction in traffic North of Keevil and a resultant increase to the current use of the Keevil airspace by those pilots who are currently avoiding the overhead due to glider activity. Therefore, it's concluded that pilots may choose to cross through the overhead using a crossing service which will slightly reduce their route length, fuel consumption and aircraft congestion North of Keevil.			
3.2	- 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] The Sponsor has not predicted an increase in traffic numbers at previous stages and in order to support their prediction two-week flight data collection through utilised ADS-B and FLARM data has been used which shows that most traffic at Keevil is transiting and a result fluctuates. However, the sponsor explained that consultation suggested that the electronic conspicuity data gathered in the Full Options Appraisal was insufficient and it has been advised during consultation that some additional data sources should be utilised along with ADS-B and FLARM. In addition to this, it's been also			

	suggested that the data period should be looking into a longer term as 2 week flight data is concluded to be insufficient. Therefore, the sponsor utilised from SkyDemon heatmap in the Final Options Appraisal and evidenced traffic at all altitudes between 2018 and 2020. As explained also in the question above, the sponsor succeeded to explain their rationale not to predict any increase in traffic numbers in the vicinity of Keevil. So, it's concluded for this proposal that the traffic forecast is not required due to the limited data available for the gliding activity in the area. - Has the sponsor explained the methodology adopted to reach its input and analysis results? [B11 and E11] The sponsor has chosen to monitor air traffic movements using electronic conspicuity data over 2 year period in order to assess traffic patterns and the impact of funnelling effect between Salisbury Plain and the Bristol CTR. Due to a very few number of aircraft movements and gliding activity revealed from the BGA Ladder and electronic conspicuity data as reported in the IOA, the sponsor concluded it'd not be proportional to estimate any increase for the traffic in the next 10 year period.	
3.3	**Has the sponsor developed an assessment of the following environmental aspects?**	

		Not applicable	Qualitative	Quantified	Monetised
3.3.1	Noise	X			
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	**What is the monetised impact (i.e., Net Present Value (NPV)) of 3.3? (Provide comments)** N/A – The sponsor stated it'd be disproportionate for this proposal to provide Cost Benefit Analysis due to the unavailability to collect sufficient quantitative data to quantify environmental and economic impacts. The IOA also stated WebTAG A3 did not provide useful data due to the majority of the metrics required being unknown.

4. Economic Indicators of the ACP	**Status**

4.1	**What are the qualitative / strategic impacts described in the ACP?** In order to comply with current MAA regulation, segregated airspace is required to facilitate BVLOS operation of military RPAS between Keevil and EG D123; the principal operating airspace already utilised for military BVLOS activity. According to the Full Options Appraisal outcome, the Sponsor concluded that Option 2 – Design 1 (simple designs with multi point) is the best option guarantees regulatory compliance for BVLOS operations stating that it will have a minor impact on the majority of air users.	
4.2	**What is the overall monetised and non-monetised (quantified) impact of the proposed airspace change?** **N/A -** Despite the limited quantitative study undertaken, due to the class of airspace the Sponsor cannot accurately estimate the frequency or type of aircraft flying in the vicinity of Keevil or where and at what height they will overfly those on the ground. It is therefore not possible for the Sponsor to model noise or other environmental impacts quantitively.	
4.3	**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]** N/A – The CBA requirement for this proposal has been scaled down due to the reasons explained in the questions above. As the majority of metrics were concluded to be unknown by the sponsor, it'd be disproportionate for them to estimate a BCR or NPV and hence to provide a meaningful CBA.	
4.3.1	**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]** N/A – The sponsor has not monetised the impact and hence NPV and BCR are not available in the Final Options Appraisal but the sponsor explained their rationale as to why they believe it'd be disproportionate for them to carry out a CBA. Therefore, the discounting is based on the preference of the majority of the stakeholders.	
4.4	**Have the sponsors provided reasonable justification for the proportionality of analysis above?** Yes, the sponsor provided the robust rationale to justify why the options appraisal has been scaled down and why it was not possible for them to quantify and monetise the impacts for this proposal. In terms of noise, it is stated that powered aircraft passing through the area would not exceed 30 per day and therefore unlikely to result in adverse impacts (i.e. those above exceed the LOAEL). Besides, the Sponsor underlined that due to an undetermined number and type of aircraft transiting through the Class G airspace, no data was able to be collected to accurately determine noise impact or GHG emissions to set a base standard. The Sponsor used additional sources of electronic conspicuity data to support the evidence they reported in the Full Options Appraisal which affirms their conclusion with the change in the traffic that reveals a very few, if any commercial traffic would be impacted.	

5. Other aspects	
5.1	-

6. Summary of the Final Options Appraisal & Conclusions	
6.1	The Final Options Appraisal conducted for the proposed options for enabling BVLOS RPAS operations from Keevil Airfield was in line with the outlined requirements of CAP1616 Appendix E. The Sponsor adopted a proportionate approach and scaled down the process for the Final Options Appraisal to evaluate the qualitative and quantitative discussion provided for environmental and economic impacts. It is stated that due to the lack of quantifiable information available for noise and traffic figures along with the aircraft type, it wasn't possible for the Sponsor to come up with a reasonable Cost Benefit Analysis for this stage. As also outlined on the questions above, the Sponsor basically stated that powered aircraft passing through the Keevil area would not exceed 30 per day and therefore unlikely to result in adverse impacts. Besides, the Sponsor underlined that due to an undetermined number and type of aircraft transiting through the Class G airspace, no data was able to be collected to accurately determine noise impact or GHG emissions to set a base standard. The Sponsor used additional data and looked other sources of electronic conspicuity data as advised during the consultation. So, along with ADS-B and FLARM data, the sponsor utilised also SkyDemon heatmap showing the tracks of all their users in the region over a two-year period. So, the sponsor succeeded in improving the findings of the Full Options Appraisal where there was only two week period ADS-B and FLARM data was available. The Final Options Appraisal provides sufficient information and quantitative data that reaffirms the previous findings of the sponsor in the previous stages. Therefore, it is concluded by the CAA that the Final Options Appraisal is conducted in a proportionate and transparent manner.

Outstanding issues?

Serial	Issue	Action required
1		
2		

CAA Final Options Appraisal Completed by	Name	Signature	Date
Airspace Regulator (Economist)	[redacted]	[redacted]	03/02/2023
Airspace Regulator (Environmental)	[redacted]		03/02/2023