

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

<b>Title of airspace change proposal</b>		Cotswold Airport (Kemble) RNAV IAPs	
<b>Change sponsor</b>		Kemble Air Services	
<b>Project no.</b>		ACP-2016-18	
<b>Case study commencement date</b>	15/01/2020	<b>Case study report as at</b>	31/01/2020

<b>Account Manager:</b> [REDACTED]	[GREY]	<b>Airspace Regulator (Engagement &amp; Consultation):</b> [REDACTED]	[YELLOW]	<b>IFP:</b>	[ORANGE]	<b>OGC:</b>	[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

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

**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.

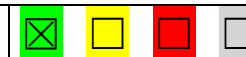
1. Background – Identifying the impact of the shortlist of options (including Do Nothing (DN) / Do Minimum (DM))		Status	
1.1	Are the outcomes of DN/DM and DS scenarios clearly outlined in the proposal?	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>	
1.1.1	<p>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]</p>	<p>Yes, the sponsor produced the Full Options Appraisal. However, this is not a detailed quantitative assessment and the reason claimed for that is the sponsor elected to analyse the environmental impacts on communities and wider society upfront where due to very small number of in-scope aircraft only which constitutes 0.7% of the total movements at the airport. The Sponsor produced the cost benefit analysis but there is some misleading information e.g. discount rates used, the conflicting data from the Initial Options Appraisal and lack of evidence and narrative on the calculation.</p>	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>
1.1.2	<p>Does each shortlist option include the impacts in comparison to the 'do nothing / do minimum' option, in particular:</p> <ul style="list-style-type: none"> <li>-all reasonable costs and benefits quantified</li> <li>-all other costs and benefits described qualitatively</li> <li>-reasons why costs and benefits have not been quantified</li> </ul>	<p>The viable options, which are Option 1 and Option 2 were assessed qualitatively only and the sponsor justified the reason of not carrying out a quantitative analysis with the small magnitude of the proposed change and added that it was hard for them to gather statistically viable measurement, particularly when in-scope aircraft measured against the total movements. In terms of the quantification of environmental impact through WebTAG, the sponsor stated it wasn't possible for them to conduct the analysis due to negligible change.</p> <p>The only quantified analysis was provided for cost benefit analysis which was stated to be option independent. However, the CAA is not able to</p>	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>

		validate the figures provided and spotted the same discount rate was used for future years which means that sponsor presented the nominal values rather than real values. In addition to this, when compared with the same cost benefit chart provided on the Initial Options Appraisal, there was insufficient explanation as to why the figures have been changed for community and airspace users or how the figures were estimated.	
1.1.3	Where options have been discounted, does the change sponsor clearly set out why?	The discounted options are Do Nothing option and Option 3 and the reason of discounting was that these did not align with the design principles.	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
1.1.4	Has the change sponsor indicated their preferred option in the Options Appraisal (Phase II - Full)? [E23]	The sponsor stated that Option 1 was assessed as the best option to meet the SoN and Design Principles.	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
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?	With regards to operational costs, the Sponsor provided the narrative around ownership of the RNP approach and stated this is yet to be estimated using data from similar aerodromes with an RNP approach. Apart from this, the Sponsor has not touched on other evidence they will collect.	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

2. Direct impact on air traffic control		Status			
2.1	<b>Are there direct cost impacts on air traffic control / management systems?</b> If so, please provide below details of the factors considered and the level in which this has been analysed.	<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>				
		Not applicable	Qualitative	Quantified	Monetised

2.1.2	Infrastructure changes	X			
2.1.3	Deployment	X			
2.1.4	Training	X			
2.1.5	Day-to-day operational costs / workload / risks		X	N/A	N/A
2.1.6	Other (provide details)		X	X	X
2.1.7	<p>Comments</p> <p>The Sponsor stated the implementation and design of the RNP approach would cost around £100K and some of the cost would be reclaimed following DfT directives. The components for design and implementation cost were listed as below.</p> <ul style="list-style-type: none"> <li>- IAP Design</li> <li>- IAP Validation</li> <li>- Safety Assessment</li> <li>- Airspace Change and Consultation</li> <li>- Certification</li> <li>- Own ANSP Training</li> <li>- AIP Publication</li> </ul> <p>The cost of ownership of the RNP approach was also expected to be relatively small in comparison to other conventional approaches which require ground navigation infrastructure. However, the sponsor stated this was yet to be estimated using data from similar aerodromes with an RNP approach once they have been approved.</p>				
<b>2.2</b>	<b>Are there direct beneficial impacts on air traffic control / management systems?</b>	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>			
 	<b>If so, please provide details and how they have been addressed:</b>				
2.2.1	<i>Examples of benefits considered</i>	Not applicable	Qualitative	Quantified	Monetised
2.2.2	Reduced work-load	N/A			
2.2.3	Reduced complexity / risk	N/A			
2.2.4	Other (provide details)		X	N/A	N/A

2.2.5	<p>Comments</p> <p>The Sponsor stated that Option 2 might mitigate any effect on RAF Brize Norton’s capacity. Both options are stated as providing an improvement for nearby glider operations where in-scope aircraft inbound to Kemble from the west are placed onto a defined approach that avoids the normal glider operating areas.</p> <p>The benefits described will require validation as part of the safety assessment (safety case) acceptance process.</p>
2.3	<p><b>Where monetised, what is the net monetised impact on air traffic control (in net present value) over the project period?</b></p> <p>N/A</p>
2.4	<p><b>Are the direct impacts on air traffic management analysed accurately and proportionately?</b></p> <p>Impacts on air traffic control were assessed qualitatively as it is not considered proportionate to carry out a quantitative assessment for the negligible costs and benefits of the change.</p>



3. Changes in air traffic movements / projections				Status			
3.1	<b>What is the impact of the ACP on the following and has it been addressed in the ACP proposal?</b>			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Not applicable	Qualitative	Quantified	Monetised		
3.1.1	Number of aircraft movements		X	X	X		
3.1.2	Type of aircraft movement		X	N/A	N/A		
3.1.3	Distance travelled	N/A					
3.1.4	Area flown over / affected		X	N/A	N/A		
3.1.5	Other impacts	N/A					
3.1.6	<p>Comments</p> <p>The Sponsor stated in the Full OA that the main aim of this proposal is to increase the Airport’s operational capacity by allowing in-scope aircraft to land at the airport in bad weather and/or when their own operational procedures would otherwise preclude a landing at an airport without a defined approach. As a result of such capacity increase, the Sponsor provided the expected increase in their revenues for the next ten years by providing the traffic forecast for 2020-2029. In addition to the net financial benefit to the Airport, the Sponsor also mentioned the marginal benefit to the local community with the expected increase in demand for hotel and taxi and indirect impacts such as increase in employment opportunities within the Airport or MRO.</p>						




					<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	
<b>3.2</b> 	<b>Has the forecasting of traffic done reasonably using best available guidance (e.g. DfT WebTAG, the Green Book, Academic sources...etc?)</b> Yes, the Sponsor provided the 10-year forecast by using their recorded 2018 and 2019 data for in-scope arrivals and the forecast figures account for additional aircraft arrivals that were cancelled due to bad weather or operational limitations. The Sponsor's aim is for all planned arrivals from in-scope aircraft to be able to make an approach; the traffic forecast is provided with that respect, which is considered to be in line with best practice.					<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<b>3.3</b> 	<b>What is the impact of the above changes (3.1) on the following factors?</b>					
		Not applicable	Qualitative	Quantified	Monetised	
3.3.1	Noise		X			
3.3.2	Fuel Burn		X	N/A	N/A	
3.3.3	CO2 Emissions		X			
3.3.4	Operational complexities for users of airspace		X			
3.3.5	Number of air passengers / cargo	X				
3.3.6	Flight time savings / Delays		X	N/A	N/A	
3.3.7	Air Quality		X			
3.3.8	Tranquillity		X			
<b>3.4</b> 	<b>Are the traffic forecast and the associate impact analysed proportionately and accurately according to available guidelines (e.g. WebTAG or the Green Book?)</b> The associated impact was analysed proportionately but not accurately because the Sponsor did not consider the time impact but provided only the nominal figures for their forecasted revenue, which is not entirely in line with the guidance. Also, the costs of implementation mentioned in the FOA is missing in the economic analysis chart is; the purpose of such analysis is to show all associated costs and benefits throughout the analysis. The economic analysis					<input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

	chart provides the given figures for net community benefit; the Sponsor did not carry out any quantified analysis for environmental impact and it is unclear how the given figures represent the impact on the community. It is concluded that it is an oversight and those figures would have accidentally placed for net community instead of net airspace users benefit. However, the quantification for the impact on net airspace users was not explained either.																																																																																																								
<b>3.5</b>	<p><b>What is the total monetised impact of 3.3? (Provide comments)</b></p> <p>The Sponsor provided the economic analysis of the impact of a Defined Approach against the Baseline. According to the cost benefit table available below, the analysis applies for both Option 1 and Option 2. The Sponsor has shown the same revenue for the baseline which is £0.283 million. Then the Sponsor added the number of cancelled and missed approaches on the total number of the baseline in-scope landings. With the increased number of arrivals estimated for the following three years, the revenue is expected to increase to £0.348 million. For the following years, the Sponsor also considered an initial and following shift in growth with an expected revenue increase by £0.219 million for 2023-2025 and £0.068 million for 2026-2029.</p>																																																																																																								
	<table border="1"> <thead> <tr> <th rowspan="2">Description</th> <th colspan="2">Baseline</th> <th colspan="3">Implementation</th> <th colspan="3">Initial Growth</th> <th colspan="4">Growth with Hangar availability</th> </tr> <tr> <th>2018</th> <th>2019</th> <th>2020</th> <th>2021</th> <th>2022</th> <th>2023</th> <th>2024</th> <th>2025</th> <th>2026</th> <th>2027</th> <th>2028</th> <th>2029</th> </tr> </thead> <tbody> <tr> <td>Estimated Number of in-scope IAP Landings</td> <td>191</td> <td>198</td> <td>251</td> <td>251</td> <td>251</td> <td>396</td> <td>396</td> <td>396</td> <td>487</td> <td>487</td> <td>487</td> <td>487</td> </tr> <tr> <td>Discount Factor</td> <td>1</td> <td>1</td> <td>1</td> <td>1</td> <td>1</td> <td>1</td> <td>1</td> <td>1</td> <td>1</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>Net Community Benefit (£M)</td> <td>0</td> <td>0</td> <td>0</td> <td>0.1</td> <td>0.1</td> <td>0.2</td> <td>0.2</td> <td>0.2</td> <td>0.3</td> <td>0.3</td> <td>0.3</td> <td>0.3</td> </tr> <tr> <td>Net Airspace Users Benefit (£M)</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> </tr> <tr> <td>Net Sponsor Benefit (£M)</td> <td>0.283</td> <td>0.283</td> <td>0.348</td> <td>0.348</td> <td>0.348</td> <td>0.567</td> <td>0.567</td> <td>0.567</td> <td>0.635</td> <td>0.635</td> <td>0.635</td> <td>0.635</td> </tr> <tr> <td>Value (£M)</td> <td>0.283</td> <td>0.283</td> <td>0.348</td> <td>0.448</td> <td>0.448</td> <td>0.767</td> <td>0.767</td> <td>0.767</td> <td>0.935</td> <td>0.935</td> <td>0.935</td> <td>0.935</td> </tr> </tbody> </table>	Description	Baseline		Implementation			Initial Growth			Growth with Hangar availability				2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	Estimated Number of in-scope IAP Landings	191	198	251	251	251	396	396	396	487	487	487	487	Discount Factor	1	1	1	1	1	1	1	1	1	1	1	1	Net Community Benefit (£M)	0	0	0	0.1	0.1	0.2	0.2	0.2	0.3	0.3	0.3	0.3	Net Airspace Users Benefit (£M)	0	0	0	0	0	0	0	0	0	0	0	0	Net Sponsor Benefit (£M)	0.283	0.283	0.348	0.348	0.348	0.567	0.567	0.567	0.635	0.635	0.635	0.635	Value (£M)	0.283	0.283	0.348	0.448	0.448	0.767	0.767	0.767	0.935	0.935	0.935	0.935	
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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
4.1.1	Air Passengers	X		

4.1.2	Air Cargo Users	X			
4.1.3	General aviation users		X	N/A	N/A
4.1.4	Airlines		X	N/A	N/A
4.1.5	Airports	X			
4.1.6	Local communities		X		
4.1.7	Wider Public / Economy		X	N/A	N/A
4.1.8	<p>Comments</p> <p>The Sponsor stated in the Full OA that there are no air transport movements, passenger numbers or cargo carried as an outcome of this proposal. However, GA users are expected to benefit from the proposal as it would allow CAT to avoid capacity constrained areas and avoid consequential delay and cost but the Sponsor considered this was not quantifiable due to unknown volume for capacity increase.</p> <p>The Full OA states that the only nearby major commercial airport is Bristol Airport and that there is no airspace impact on their operations.</p> <p>In terms of wider society benefits, the Sponsor claimed the proposal would likely yield a positive NPV, which reflects a benefit of CO2 emissions reduction against the current baseline. However, this is not justified with a quantitative analysis because the sponsor considered it was not proportionate to attempt to monetise any fuel burn reductions due to the low number of in-scope aircraft movement.</p>				
<b>4.2</b>	<b>How are the above groups impacted by the ACP, especially (but not exclusively) looking at the following factors below:</b>				
4.2.1	Improved journey time for customers of air travel	Positively			
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	Positively			
4.2.5	Other impacts	N/A			
4.2.6	<p>Comments</p> <p>Please see the answers to Questions 3.4 and 4.1.8.</p>				



4.3	<b>What is the overall monetised impacts associated with 4.1 and 4.2 the above?</b> Please see the answers to Question 3.5.	
4.4	<b>What are the non-monetised but quantified impacts of the above? (Insert details of description)</b> N/A	
4.5	<b>What are the qualitative / strategic impacts described above?</b> Please see the answers to Question 3.1.6.	
4.6	<b>What is the overall monetised benefits-costs ratio (BCR) of the policy? Is it more than 1?</b> N/A	
4.7	<b>Have the sponsors provided reasonable justification for the proportionality of analysis above?</b> Yes	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
4.8	<b>If the BCR is less than 1, are the quantitative and qualitative strategic impacts proportional to the costs of the ACP?</b> N/A	

<b>5. Other aspects</b>	
5.1	-

<b>6. Summary of Assessment of Economic Impacts &amp; Conclusions</b>	
6.1	In the Full Options Appraisal, the Sponsor provided the 10-year forecast along with the economic analysis of the impact of a defined approach against the baseline. According to this, Option 1 and Options 2 are identical in terms of the total costs and benefits of the RNP approach. The total benefit of delivering defined approaches is expected to increase the revenue by £65K in 2020 and by £652 in 2029. However, the Sponsor used the nominal figures instead of using real figures which means that the effect of inflation has been neglected. The reported discount factor, net community and sponsor benefit figures along with the total NPV figures need revising by applying the correct discount rates as outlined in CAP1616 Appendix E39.

The Sponsor reported the figures that represent marginal benefit to the local community, which is available in Figure 2.0 of the Full Options Appraisal. The Sponsor explained that the figures account for an economic ripple felt through increased hotel use, taxi use and potentially an increase in employment opportunities within the airport or MRO. However, the evidence regarding Sponsor's calculation of those figures is missing in the submission and the CAA is not able to validate the figures.

<b>Outstanding issues?</b>		
Serial	Issue	Action required
1	Discount rates used in Figure 2.0 are not correct.	The Sponsor should revise Figure 2.0 as it needs amendment according to the issues explained in the Full OA Assessment.
2	There is insufficient explanation and evidence to justify the monetisation for Net Community Benefit reported under Figure 2.0.	The Sponsor should explain the figures reported for Net Community Benefit in detail and provide the evidence for the calculated benefit.

<b>CAA Full Options Appraisal Assessment Completed by</b>	<b>Name</b>	<b>Signature</b>	<b>Date</b>
Airspace Regulator (Technical)	██████████	████████████████████	10/02/2020
Airspace Regulator (Economist)	██████████	████████████████	31/01/2020
Airspace Regulator (Environmentalist)	██████████	██████████	11/02/2020
ATM – Inspector ATS (Ops)	██████████	████████████████████	13/02/2020