

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

<b>Title of Airspace Change Proposal:</b>	Aberdeen Airport Airspace Change		
<b>Change Sponsor:</b>	Aberdeen International Airport Ltd		
<b>ACP Project Ref Number:</b>	ACP-2019-82		
<b>Case study commencement date:</b>	26 January 2024	<b>Case study report as at:</b>	18 April 2024

<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







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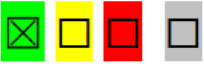
**Guidance**

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 type="checkbox"/> <input 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 has an 84-page Full Options Appraisal document. This includes an assessment of the sponsor's shortlisted options against a qualitative set of criteria, as well as conducted a quantitative analysis of the environmental impacts of these options. These options have then been assessed using a cost benefit analysis, after which the sponsor has selected a preferred option.</p>	<input checked="" type="checkbox"/> <input type="checkbox"/> <input 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>All reasonable costs and benefits have been quantified by the sponsor. These include environmental impacts such as noise and greenhouse gas emissions. Most other impacts have been assessed qualitatively, though some have been quantified, including deployment, infrastructure and operational costs.</p>	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
1.1.3	<p>Where options have been discounted, does the change sponsor clearly set out why?</p> <p>Yes, the sponsor has set out their reasons for discounting their non-preferred options, which were based on complications and an increased safety risk for the T-Bar and curved approaches with T-Bar options.</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	<p>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) The sponsor appears to have considered all reasonable costs expected from this proposal.</p>	


2.1.2	Airport/ANSPs	Not applicable	Qualitative	Quantified	Monetised
	- Infrastructure		X		X
	- Operation		X		X
	- Deployment		X		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	X	X
	- Other(s)	X			
2.1.4	General Aviation	Not applicable	Qualitative	Quantified	Monetised
	- Access		X		
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		
2.1.7	Other (provide details)	Not applicable	Qualitative	Quantified	Monetised
2.2	<b>Are there direct beneficial impacts on air traffic control / management systems? Provide details.</b>   The sponsor states that – 'This option [ <i>the vectors to PBN straight in</i> ] would offer some ATC workload benefits in the event of ILS u/s as VOR approaches do generate higher workload than RNP Approaches.' Arguably, given that the procedures will be utilised by c.5% of arrivals, the benefit in terms of workload will be very small.			   	

2.3	<b>Where impacts have been monetised, what is the overall value (expressed in net present value (NPV)) of the project?</b> The Net Present Value of the proposed option (Vectors to final approach) is -£140,802.	
2.4	<b>Has the sponsor provided an accurate and proportionate assessment of the proposed airspace change impacts?</b> The sponsor has provided a quantitative assessment of the relevant environmental impacts of the proposed airspace change, in this case these are the impacts on noise, tranquillity and greenhouse gases. In addition to this the sponsor has provided a summary of the qualitative impacts of the ACP, covering the relevant impacts from table E2 of CAP1616, with quantified figures included in some cases such as operational, deployment and infrastructure costs. This scale of assessment is proportionate for this ACP.  The TAG assessment to produce the quantified figures in Section 5 of the FOA document have been conducted accurately, as has the Cost Benefit Analysis that brings these impacts together in Section 6.	

3. Changes in air traffic movements / projections				Status			
3.1	<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			
3.1.2	Number of air passengers / cargo	X					
3.1.2	Type of aircraft movements (i.e., fleet mix)		X				
3.1.3	Distance travelled		X				
3.1.4	Operational complexities for users of airspace		X				
3.1.5	Flight time savings / Delays		X				
3.1.6	Other impacts						
3.1.7	<b>Comments:</b>						

3.2	<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 available guidelines (i.e., the Green Book and TAG models) in a proportionate and accurate manner? [B11 and E11] The sponsor has provided a 10-year forecast between 2026-2035, setting out the anticipated number of movements over this period for both fixed wing aircraft and helicopters. This is based on 2022 flight data, and then uses 5-year traffic predictions from Aberdeen's Long Term Business Plan to forecast over the 10-year period. The sponsor has [provided sufficient detail over the methodology used to produce this forecast.</li> <li>Has the sponsor explained the methodology adopted to reach its input and analysis results? [B11 and E11] Yes, the sponsor has set out in detail the methodology used to obtain their analysis results. This can be found in Section 4: 'Full Options Appraisal methodology'. In some circumstances more specific detail on the analysis conducted in harder to obtain from the FOA document itself. One example is a lack of clarity over the inputs used for the noise analysis, where the number individuals experiencing an increase/decrease in day/night noise is only mentioned for the forecast year 2035, and not start year 2027.</li> </ul>	   			
3.3	<b>Has the sponsor developed an assessment of the following environmental aspects?</b>				
		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	<b>What is the monetised impact (i.e., Net Present Value (NPV)) of 3.3? (Provide comments)</b> The Net Present Value of the proposed option (Vectors to final approach) is -£140,802.				   
<b>4. Economic Indicators of the ACP</b>					



4.1	<p><b>What are the qualitative / strategic impacts described in the ACP?</b>  The qualitative impacts of the proposed option of this ACP are described by the sponsor as:</p> <ul style="list-style-type: none"> <li>• improved resilience in the event of ground-based navigation aid outage which may reduce delays and diversions.</li> <li>• provide resilience to the loss of the ILS which could reduce the number of diversions owing to improved minima over the remaining conventional approach procedures.</li> <li>• Some ATC workload benefits in the event of ILS u/s as VOR approaches do generate higher workload than RNP Approaches</li> <li>• Enhanced safety in the event of ILS unserviceability where operators would otherwise be reliant on Non-Precision Approaches (NPA).</li> </ul>	
4.2	<p><b>What is the overall monetised and non-monetised (quantified) impact of the proposed airspace change?</b>  The Net Present Value of the proposed option is -£140,802 over the 10-year appraisal period. This is based on noise impacts, increased greenhouse gas emissions and greater fuel costs, as well as additional deployment, infrastructure and operational costs.</p>	
4.3	<p><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 sponsor has provided a Net Present Value for all 3 of the shortlisted options. The sponsor's preferred option does not have the highest NPV, however information provided by the NPV has been used in their justification, since the sponsor cites the relatively small difference in impact between each option.</p>	
4.3.1	<p><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>  The sponsor's preferred option does not have the highest NPV, this has been justified by the sponsor, citing safety concerns surrounding the other 2 options. This is an acceptable rationale provided that these safety concerns are accepted by the Technical Regulator and ATM Inspector.</p>	
4.4	<p><b>Has the sponsor provided reasonable justification for the proportionality of analysis above?</b>  Yes, the sponsor has included in their Full Options Appraisal, including a quantified appraisal of environmental impacts and a Cost Benefit Analysis, alongside a qualitative assessment of other impacts. The sponsor has included a justification for when some impacts have not been quantified. This level of analysis is in line with CAP1616 requirements for a Level 1 ACP at this stage.</p>	
<p><b>5. Other aspects</b></p>		
5.1		

6. Summary of the Full Options Appraisal & Conclusions			
6.1	The sponsor has provided a Full Options Appraisal which includes a quantified appraisal of the relevant environmental impacts such as noise and greenhouse gas impacts and other factors such as deployment and infrastructure costs, alongside a qualitative assessment of other relevant impacts, against a 'Do Nothing' baseline. These quantified impacts have then been brought together to form a Cost Benefit Analysis for each of the three proposed options. This level of analysis is proportionate with a Level 1 ACP at this stage, and has been conducted accurately.		
Post gateway requirements and/or recommendations			
6.2	n/a		
Decisions Pending – Post Gateway Actions Required			
Issue(s)	Corrective Action(s) for Sponsor	Gateway Recommendation Reference(s)	CAP 1616 Reference(s)
Sponsor Action(s) Taken		Requirement(s) Resolved?	
		<span style="background-color: red; color: white; padding: 2px;">Not Resolved <input type="checkbox"/></span> <span style="background-color: green; color: white; padding: 2px; margin-left: 20px;">Resolved <input type="checkbox"/></span>	

<b>CAA Full Options Appraisal Completed by</b>	<b>Name</b>	<b>Signature</b>	<b>Date</b>
Airspace Regulator (Economist)	[REDACTED]	[REDACTED]	18/03/2024
Airspace Regulator (Environmental)	[REDACTED]	[REDACTED]	18/03/2024