

CAA CAP 1616 Options Appraisal Assessment (Phase I Initial)

Title of airspace change proposal	Heathrow SSA 3.2 Degrees		
Change sponsor	Heathrow Airport Ltd		
Project no.	ACP-2017-49		
Case study commencement date	07/02/2020	Case study report as at	28/02/2020

Account Manager: [REDACTED]		Airspace Regulator (Engagement & Consultation): [REDACTED]		IFP: [REDACTED]		OGC: [REDACTED]	
Airspace Regulator (Technical): [REDACTED]		Airspace Regulator (Environmental): [REDACTED]		Airspace Regulator (Economist): [REDACTED]		ATM (Inspector ATS Ops): [REDACTED]	

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: <div> Resolved - GREEN Not Resolved – AMBER Not Compliant – RED Not Applicable - GREY </div>			
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 the options' scenarios clearly outlined in the proposal?		<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
1.1.1	Has the change sponsor produced an Options Appraisal (Phase I - Initial) which sets out how they have moved from the Statement of Need to the airspace change design options? [E12]	Yes, the change sponsor produced the Initial Options Appraisal by listing the comprehensive list of options including the evaluation of options against the design principles.	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
1.1.2	Does the list of options include a description of the change proposal?	Yes, the list of options includes the description for each of the options and the detailed information in terms of the detail of the design for each option is included in the Stage 2A Options Development document.	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
1.1.3	Has the sponsor stated on what criteria the longlist of options has been assessed?	Yes, the sponsor used the criteria list provided under CAP 1616 and in addition to this, the sponsor added ancillary impacts listed under TAG but excluded from CAP 1616 e.g. social impact, distributional impact etc.	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
1.1.4	Where options have been discounted, does the change sponsor clearly set out why?	Yes, the change sponsor provided the explanation where options have been discounted in Stage 2A Options Development.	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
1.1.5	Has the change sponsor indicated their preferred option in the Options Appraisal (Phase I - Initial)? [E8]	Yes, the sponsor indicated there is only one viable option which is Option B2 (Increase RNAV VPA to 3.2°, maintain ILS VPA at 3.0°).	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
1.1.6	Does the Initial Options Appraisal (Phase I - Initial) 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 II - Full)?	At this stage, the Initial Options Appraisal is mostly qualitative and the sponsor has not touched on the further methodology or evidence they will be engaged with as the only anticipated impact of the proposed option is slight reduction in noise. The sponsor stated the rest of criteria assessed will not be a differentiator between the Baseline and the	<input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

		Option B2.	
1.1.7	Does the plan for evidence gathering cover all reasonable impacts of the change? [E12]	Yes, the sponsor provided the qualitative narrative around the impact assessment for all criteria listed in CAP 1616 plus TAG.	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

2. Direct impact on air traffic control		Status			
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.	<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			
2.1.6	Other (provide details)	X			
2.1.7	Comments The sponsor stated infrastructure, operational and deployment costs will not be a differentiator between the Baseline and Option B2. In terms of the infrastructure costs, it is explained that RNAV approaches do not rely on ground-based equipment to determine the final approach vertical and lateral path. As there isn't any requirement for an implementation change of either option, this is neglected. It is also explained that operational and deployment costs won't be affected because IFP design, validation, AIP promulgation and ATC operational instructions and training have already been completed as part of flight trials conducted in 2015 and 2017.				
2.2	Are there direct beneficial impacts on air traffic control / management systems? If so, please provide details and how they have been addressed:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

2.2.1	Examples of benefits considered	Not applicable	Qualitative	Quantified	Monetised
2.2.2	Reduced work-load	X			
2.2.3	Reduced complexity / risk	X			
2.2.4	Other (provide details)	X			
2.2.5	Comments Please see the answers to Question 2.1.7.				
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? Yes, the sponsor analysed all criteria listed for air traffic management under CAP 1616; however, the conclusion is that neither of criteria will be a differentiator between the Baseline and Option B2.			<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	

3. Changes in air traffic movements / projections				Status	
3.1	What is the impact of the ACP on the following and has it been addressed in the ACP proposal?			<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	
		Not applicable	Qualitative	Quantified	Monetised
3.1.1	Number of aircraft movements	X			
3.1.2	Type of aircraft movement		X		
3.1.3	Distance travelled	X			
3.1.4	Area flown over / affected		X		
3.1.5	Other impacts	X			
3.1.6	Comments The proposed option will enable the Vertical Path Angle for all of Heathrow's RNAV approaches increased from 3.0° to 3.2° and the ILS will remain at 3.0°. This change is expected to reduce noise impact. It is explained in the IOA that the benefits may vary depending to location and aircraft type and according to the results of the first and second trials conducted between 2015 and 2017, an average				

	reduction in SEL between 0.25 dBA and 0.74 dBA per aircraft can be expected with the introduction of Option B2.				
3.2	Has the forecasting of traffic done reasonably using best available guidance (e.g. DfT WebTAG, the Green Book, Academic sources...etc?) The sponsor has not provided any traffic forecast as they do not anticipate any benefit in terms of traffic numbers. It is stated that providing the RNAV usage rate remains positive, Option B2 will deliver a net benefit compared to the Baseline, irrespective of traffic volume.				<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
3.3	What is the impact of the above changes (3.1) on the following factors below?				
		Not applicable	Qualitative	Quantified	Monetised
3.3.1	Noise		X	X	N/A
3.3.2	Fuel Burn		X		
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			
3.3.7	Air Quality	X			
3.3.8	Tranquillity	X			
3.4	Are the traffic forecast and the associated impacts analysed proportionately and accurately according to available guidelines (e.g. WebTAG or the Green Book?) The only anticipated impact is stated as noise reduction in case the proposed option B2 is implemented. At this stage, the sponsor only provided the quantitative results collected from first and second steeper approach trials conducted between 2015 and 2017 and the measure provided is the Sound Exposure Levels (SEL) in terms of LAeq as required by WebTAG.				<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
3.5	What is the total monetised impact of 3.3? (Provide comments) N/A				

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	X			
4.1.2	Air Cargo Users	X			
4.1.3	General aviation users	X			
4.1.4	Airlines	X			
4.1.5	Airports	X			
4.1.6	Local communities			X	
4.1.7	Wider Public / Economy	X			
4.1.8	Comments While it is not compulsory for sponsors to quantify the environmental effects of their ACPs at Stage 2, it is encouraged that they do so if they are able. Heathrow have chosen to quantify a number of the effects of this ACP based on trial analysis data, which is wholly “in their gift” while not strictly necessary. The information supplied however does not preclude them from needing to consider (& demonstrate) the full environmental effects at a later stage of the ACP. Clearly any further information supplied should be consistent with that already submitted.				
4.2	How are the above groups impacted by the ACP, especially (but not exclusively) looking at the following factors below:				
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	
4.3	What is the overall monetised impacts associated with 4.1 and 4.2 the above? N/A	
4.4	What are the non-monetised but quantified impacts of the above? (Insert details of description) Please see the answers to Question 3.1.6.	
4.5	What are the qualitative / strategic impacts described above? The strategic impact would be reduction in the noise as explained and evidenced with first and second steeper approach trial results. The Sponsor stated that providing RNAV usage rate remains positive, Option B2 will deliver a net benefit compared to the Baseline.	
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? Yes, the sponsor explained why they anticipated none of the criteria expect noise will be a differentiator between the Baseline and the Option B2 with the narrative provided in the IOA.	<div><div><input checked="" type="checkbox"/></div><div><input type="checkbox"/></div><div><input type="checkbox"/></div><div><input type="checkbox"/></div></div>
4.8	If the BCR is less than 1, are the quantitative and qualitative strategic impacts proportional to the costs of the ACP? N/A	

5. Other aspects	
5.1	Nil

6. Summary of Assessment of Economic Impacts & Conclusions	
6.1	The Sponsor identified only one viable option during Stage 2A in accordance with the established design principles and therefore provided the initial options appraisal that is based on the comparison with the baseline and the Option B2. The assessment provided at this stage is mostly qualitative with some quantified indicators used for noise impact assessment that were provided as an evidence on the First and Second Trial. The premise of the ACP is that it will provide noise benefit to communities living close to the airport. According to the Trial Reports that were published in 2015 and 2017, the sponsor stated there will be an average reduction 0.51 dBA, and hence the change in SEL is unlikely to be perceptible from the ground but the introduction of 3.2° RNAV approaches will be an incremental step to reduce the impact of Heathrow Airport's noise footprint on health and quality of life. The CAA concluded that with the IOA carried out for Stage 2B meets with the minimum requirement of CAP 1616 as the Sponsor provided the options list that includes the 'do nothing' option along with the proposed option B2. Even though there aren't multiple options assessed at this stage, the reasons of discounting other options and the evidences for

	<p>the proposed option are provided from trial reports which evidence the safety of the design for Option B2. The Sponsor also included the criteria for assessing the list of options, and the application of those criteria to the list to develop the shortlist of options. The sponsor has not mentioned what evidence will be collected to develop the Full Options Appraisal. In order to provide further guidance to the sponsor, post feedback gateway will be shared for the criteria that need to be quantified to meet the requirements of CAP 1616 at Stage 3B. The CAA's conclusion is that the sponsor should quantify the impact of fuel burn due to the potential impact of steeper approaches which might increase fuel burn. Along with fuel burn quantification, the sponsor should also provide quantified/monetised analysis for greenhouse gas and costs for commercial airlines as GHG and other costs analysis would be straight forward with an available fuel burn quantification. Thereby, the CAA would be able to validate the benefits from noise is offset by the costs of fuel burn impact.</p>
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Outstanding issues?		
Serial	Issue	Action required
1	-	-
2		

CAA Initial Options Appraisal Completed by	Name	Signature	Date
Airspace Regulator (Economist)			12/02/2020
Airspace Regulator (Environmental)			28/02/2020
Airspace Regulator (Technical)			Click or tap to enter a date.
ATM – Inspector ATS (Ops)			Click or tap to enter a date.