CAA CAP 1616 Options Appraisal Assessment (Phase I Initial)

Title of Airspace Change Proposal:	Bristol Airport FASI		
Change Sponsor:	Bristol Airport		
ACP Project Ref Number:	ACP-2018-55		
Case study commencement date:	17/06/2022	**Case study report as at**:	22/07/2022

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

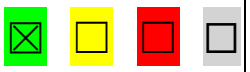
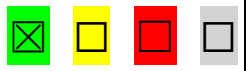
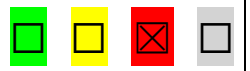
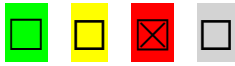
To aid the SARG project leader's efficient project management, please highlight the "status" cell for each question using one of the four colours to illustrate if it is:

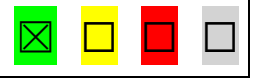
Resolved - GREEN Not Resolved – AMBER Not Compliant – RED Not Applicable - GREY

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 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?**		☒ ☐ ☐ ☐
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 sponsor describes how the proposed airspace change is going to differ from the current situation, making sure that the design options developed align with the requirements in the Statement of Need. However, the sponsor acknowledges that the proposed design options are not mature enough for a final option and that this step will be covered in Stage 3.	☒ ☐ ☐ ☐
1.1.2	Does the list of options include a description of the change proposal?	Yes. In the Step 2A documents, the sponsor provides a description of the change proposal, including the Do-Nothing, and a list of 8 Hold and 40 Standard Instrument Departure (SID) (23 for Runway 09 and 17 for Runway 27. Each option has been assessed against the DPs and the one surviving the discounting mechanism are taken forward to the Initial Options Appraisal (IOA): - 4 options for a Hold, - 14 options for Runway 09 SIDs, and - 13 options for Runway 27 SIDs. All these options have been qualitatively assessed and are taken to Stage 3.	☒ ☐ ☐ ☐
1.1.3	Has the sponsor stated on what criteria the longlist of options has been assessed?	In Step 2A, the sponsor assigns to each Design Principle a Priority (A, B and C, where A is the highest) and defines a discounting methodology: - DP1 (encompassing safety, assigned highest priority A) such that any design option that does this DP is discounted. - any design option that does not meet a Priority A Design Principle is discounted and not taken forward; and	☒ ☐ ☐ ☐

		- design options may progress if Design Principles of any priority are fully or partially met.	
1.1.4	Where options have been discounted, does the change sponsor clearly set out why?	The sponsor does not discount options nor draws conclusions at the end of the IOA but explains that this is because options can be redefined in the next stage. This is acceptable since those are the guidelines sponsors have received within the Masterplan process. Evidence from the sponsor: *"At this point in the process, we have not rejected any of the design options based on the outcome of this Initial Options Appraisal. Where negative impacts have been identified, such as an increased noise impact, there is ample opportunity for the options to be further refined and impacts reduced later in the process. Similarly, there is not currently enough quantitative information required for us to identify a "preferred" option(s) at this point in the process".*	
1.1.5	Has the change sponsor indicated their preferred option in the Options Appraisal (Phase I - Initial)? [E8]	No, the sponsor does not use the IOA to discount any other options nor to identify their preferred option(s) but provides a robust justification for doing so (see Q1.1.4 above).	
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)?	No information available.	
1.1.7	Does the plan for evidence gathering cover all reasonable impacts of the change? [E12]	No information provided.	

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.**	

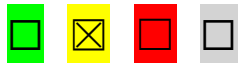
2.1.1	*Examples of costs considered (please add costs that have been discussed, and any reasonable costs that the Airspace Regulator (Technical) feels have NOT been addressed)*				
		Not applicable	Qualitative	Quantified	Monetised
2.1.2	Infrastructure changes		x	N/A	N/A
2.1.3	Deployment		x	N/A	N/A
2.1.4	Training		x	N/A	N/A
2.1.5	Day-to-day operational costs / workload / risks		x	N/A	N/A
2.1.6	Other (provide details)				
2.1.7	**Comments:** The sponsor states that the proposed airspace change will not lead to additional training or other costs for airlines, nor it is expected to change airport or ANSP operational costs. In the initial deployment phase, there will be some system engineering amendment (internal ATC system adaptation changes only) but after that period, this ACP is not expected to change airport or ANSP infrastructure. Some deployment costs might be required for training air traffic controllers and assistants at NATS Swanwick and Bristol airport with use of the NATS simulator facilities at both locations. The sponsor anticipates that *"training may also be required at Cardiff Airport if design changes impact upon their operation"*. In addition, the sponsor states as follows:" *support staff are required to run the simulator – planning, training staff, data preparation and testing, pseudo pilots, safety analysts, outputs to be recorded and reported etc. Some staff may only require briefings. There may be occasions where the reduced availability of operational controllers during their conversion training could mean operational rostering becomes a factor when considering continuous service delivery."*				
2.2	**Are there direct beneficial impacts on air traffic control / management systems?** **If so, please provide details and how they have been addressed:**				
2.2.1	*Examples of benefits considered*	Not applicable	Qualitative	Quantified	Monetised
2.2.2	Reduced work-load		x	N/A	N/A
2.2.3	Reduced complexity / risk		x	N/A	N/A
2.2.4	Other (provide details)				
2.2.5	**Comments:** Nil				

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?** Due to the level assigned to this ACP and its complexity, the qualitative statements provided are fair at this stage. The sponsor anticipates that a higher level of details and coordination with neighbouring airports will be provided at the next stage.	☒ ☐ ☐ ☐

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?**				☐ ☐ ☒ ☐
		Not applicable	Qualitative	Quantified	Monetised
3.1.1	Number of aircraft movements		Not provided		
3.1.2	Type of aircraft movement		Not provided		
3.1.3	Distance travelled		Not provided		
3.1.4	Area flown over / affected		x	N/A	N/A
3.1.5	Other impacts				
3.1.6	**Comments:** The sponsor provides information of the areas that might be overflown if the proposed airspace change is taken forward but does not provide information on the number and type of aircraft.				
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 provides an indication of how the traffic that might be affected by the proposed airspace change, by stating that the airport is expected to reach 10 million passengers in 2024 and 12 million in 2030. The sponsor mentions the traffic split between the two runways (1/3 of the total traffic on RNW27 and the remaining 2/3 of traffic uses RNW09) but not prediction on future traffic.				☐ ☒ ☐ ☐

3.3	**What is the impact of the above changes (3.1) on the following factors below?** The sponsor provides a high-level qualitative assessment of the environmental impacts, including Noise, CO_2 and fuel burn, however the justification provided for the biodiversity is not complete because it is stated that, due to its altitude, the proposed airspace changes is not going to have an impact on biodiversity because "they do not involve ground infrastructure changes". This is not correct because biodiversity can be impacted also from other changes not strictly ground infrastructures. The sponsor has provided an assessment against noise, local air quality, fuel burn and greenhouse gases. An assessment of the impacts upon tranquillity has been provided within the noise assessment for each option; however, these assessments should be separated for the Full Options Appraisal at Stage 3. Regarding biodiversity the sponsor states that "*airspace changes at the altitudes proposed here are unlikely to have an impact on biodiversity because they do not involve ground infrastructure changes"*. This ACP is scaled as Level 1 and as per the Statement of Need has potential to impact airspace from the surface to 20,000ft. As per CAP1616 Para B80; "*the change sponsor should include in its consultations and engagement potential biodiversity implications associated with design options under consideration, and should be mindful of such potential impacts as are identified by stakeholders".* Therefore, at Stage 3 the sponsor should provide an assessment of the impacts upon biodiversity against each option and this assessment should take account of local circumstances. The sponsor has assessed each option relative to the baseline, stating whether an option performs better, worse or the same. However, the sponsor has not provided an assessment of the impacts of the baseline itself. Without a clear assessment of what are the impacts of the current situation that is the baseline, it is not easy to understand the potential impacts of the proposed change and therefore corroborate any conclusions made by the sponsor. The methodology used to assess the options against the baseline is therefore not understood (CAP1616 Para B11/E11).

		Not applicable	Qualitative	Quantified	Monetised
3.3.1	Noise		x	N/A	N/A
3.3.2	Fuel Burn		x	N/A	N/A
3.3.3	CO2 Emissions		x	N/A	N/A
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	N/A	N/A
3.3.8	Tranquillity and Biodiversity		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 sponsor provides an indication of how the traffic that might be affected by the proposed airspace change, stating that the airport is expected to reach 10 million passengers in 2024 and 12 million in 2030, this is referenced in the Appendix G within the assessment of CAP2091 requirements. The methodology used to assess the options against the baseline is not understood as the baseline has not been properly assessed (i.e., no change from today). Therefore, the conclusions made by the sponsor regarding an option's performance against today cannot be corroborated.	
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	N/A	N/A
4.1.4	Airlines		x	N/A	N/A
4.1.5	Airports		x	N/A	N/A
4.1.6	Local communities		x	N/A	N/A
4.1.7	Wider Public / Economy		x	N/A	N/A
4.1.8	**Comments:** The sponsor provides a high-level qualitative assessment of how the proposed airspaces change will interact with the neighbouring airports, i.e., Cardiff, Exeter and Birmingham and London traffic, and the potential impact on GA users and MoD. The sponsor refers to local communities within the IOA, predominantly relating to Bristol, Bath and Weston-Super-Mare. Further location specific context is not provided within the sponsor's assessments.				
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	Improve network resilience and connectivity
4.2.5	Other impacts	
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?** N/A	
4.5	**What are the qualitative / strategic impacts described above?** The aim of this ACP is to modernise the arrival and departure routes at Bristol airport, making sure that this is in line with the FASI-South programme and the Airspace Modernisation Strategy (AMS).	
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?** This ACP is a Level 1 and the sponsor has provided a qualitative assessment of the impacts at this stage, which is the minimum requirement as per CAP1616.	☒ ☐ ☐ ☐
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 proposed airspace change aims to modernise Bristol's arrival and departure routes, updating some of the associated airspace structures up to 7,000ft. This ACP is in line with the FASI-South programme and follows the guidelines of the airspace modernisation strategy (AMS).

	The sponsor has developed a comprehensive list of options that have been assessed against the Design Principles (DPs) within the Design Principle Evaluation, resulting in a shorter list of options taken forward to the Step 2B for the initial Options Appraisal (IOA). A total of 8 Hold, 40 Standard Instrument Departure (SID) (respectively 23 for Runway 09 and 17 for Runway 27) design options were developed and evaluated withing the DPE, including the current situation, i.e., do nothing option, then though the DPE exercise, this list was reduced to: - 4 options for a Hold, - 14 options for Runway 09 SIDs, and - 13 options for Runway 27 SIDs. The sponsor provides a qualitative assessment of the impacts for the above mentioned design options within the IOA. These options have been assessed against the baseline, i.e. Do-Nothing, but given the limited information available within the description of the Do-Nothing, it is not clear what the impacts of the proposed options will be The sponsor has not discounted any option as a result of the IOA nor has expressed an initial indication of the preferred option(s); however, acknowledging that these design options are not mature enough and that they will be combined in an airport option at the next stage, the sponsor provides a robust justification about its decision of not discounting any option.

Outstanding issues?

Serial	Issue	Action required
1	Baseline	The current baseline ('Bristol Airport Baseline Option (do nothing)') has been described only in very high-level qualitative terms and against itself rather than being a qualitative description of the current operation (as per CAP 1616 E12). Whilst this has met the minimum requirement of the process at this stage, the baseline must be further articulated in absolute terms and described to ensure all impacts are clear, cohesive and consistent against the current operation. In particular the impacts of today must be clear and understandable and therefore corroborate the conclusions made when compared against options. Given that the documentation proposes to take almost all options through to Stage 3A Final Options Appraisal, the CAA does not consider that the way in which the baseline has been described in the proposal has affected the outcome of the Initial Options Appraisal and is therefore content for these issues to be addressed at Stage 3A.
2	CAP1616 Para B11/E11	The methodology used to assess the options against the baseline is not understood as the baseline has not been properly assessed (i.e., no change from today). Therefore, the conclusions made by the sponsor regarding an option's performance against today cannot be corroborated.

3	Tranquillity Assessment	At Stage 3 the tranquillity assessment must be separated from the noise assessment.
4	Biodiversity Assessment	At Stage 3 an assessment of the impacts upon biodiversity must be provided against each option and this assessment must take account of local circumstances.

CAA Initial Options Appraisal Completed by	**Name**	**Signature**	**Date**
Airspace Regulator (Economist)	[redacted]	[redacted]	22/07/2022
Airspace Regulator (Environmental)	[redacted]		22/07/2022
Airspace Regulator (Technical):	[redacted]		22/07/2022