CAA CAP 1616 Options Appraisal Assessment (Phase I Initial)

Title of airspace change proposal	SAIP AD6		
Change sponsor	NATS		
Project no.	ACP 2018-65		
Case study commencement date	18/11/2019	**Case study report as at**	29/11/2019

Account Manager: N/A		**Airspace Regulator (Engagement & Consultation):**		**IFP:** Pam Adams		**OGC:**	
Airspace Regulator (Technical)		**Airspace Regulator (Environmental):**		**Airspace Regulator (Economist):**		**ATM (Inspector ATS Ops)**	

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 submitted their Initial Options Appraisal that sets out what the sponsor expects the scale of impact might be described in a qualitative manner and with some numerical analysis and assumptions, available for each individual option.	☒ ☐ ☐ ☐
1.1.2	Does the list of options include a description of the change proposal?	Yes, the sponsor provided the detailed description for each individual option - both upper and lower options.	☒ ☐ ☐ ☐
1.1.3	Has the sponsor stated on what criteria the longlist of options has been assessed?	Yes, the sponsor used a similar table of CAP 1616 Table E2 to allow comparison of the options versus baseline scenario and the assessment of each criteria/impact listed in Table E2 CAP 1616.	☒ ☐ ☐ ☐
1.1.4	Where options have been discounted, does the change sponsor clearly set out why?	Yes, the Design Principle Evaluation document clearly demonstrates the options that were rejected due to one or multiple design principles have not been met by the specified option.	☒ ☐ ☐ ☐
1.1.5	Has the change sponsor indicated their preferred option in the Options Appraisal (Phase I - Initial)? [E8]	Yes, the sponsor said at this stage their preferred option is to combine option 1.4 with 2.5, 2.7, 2.8 and 2.9 due to less complexity which is anticipated to significantly reduce the number of controller interactions.	☒ ☐ ☐ ☐
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)?	Yes, the Initial Options Appraisal indicates for the next stage, design combinations will be updated and the sponsor use them to quantify the likely noise impacts in greater detail where possible, refining the methodology to do so using the	☒ ☐ ☐ ☐

		Government's WebTAG tools and guidance. It is also mentioned that the initial fuel burn calculation methodology will be refined by taking into account expected holding reduction and improved height profiles using appropriate WebTAG tools and guidance.	
1.1.7	Does the plan for evidence gathering cover all reasonable impacts of the change? [E12]	Yes, however the sponsor hasn't clearly touched on whether they plan to provide traffic forecasts for a period of at least 10 years from the intended year of implementation or they plan to conduct a more detailed quantified analysis on economic impact from increased effective capacity as outlined in CAP 1616 Appendix B & E. It might be worthwhile to point out such development and additional evidence would be required as well under CAP 1616.	☒ ☐ ☐ ☐

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	They have considered the requirement for extra controllers, the associated support staff and training. 2.3 and 2.4 Controller vectoring to runway 08 and 26 respectively, from upper option 1.4 – 2.5, 2.7, 2.8 and 2.9 PBN routes to final approach, from upper option 1.4 – '*This proposal is expected to require significant air traffic controller training, in the order of 120-150 controllers and c.50 assistants at NATS Swanwick, the extensive use of the NATS simulator facility, and 28 controllers & 5 assistants at Luton Airport*'				
		Not applicable	Qualitative	Quantified	Monetised
2.1.2	Infrastructure changes	X			
2.1.3	Deployment	X			
2.1.4	Training		X	X	

2.1.5	Day-to-day operational costs / workload / risks	X			
2.1.6	Other (provide details)	X			
2.1.7	Comments				
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		
2.2.3	Reduced complexity / risk		X		
2.2.4	Other (provide details)	X			
2.2.5	Comments – Very limited qualitative statement, such as 'reduce the likelihood of needing to apply flow regulation measures' and 'Holding is likely to be significantly reduced'. All the options are stated as increasing 'capacity and resilience'.				
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?** The direct costs and benefits on air traffic management analysed accurately and proportionately in terms of the listed criteria/impact listed in Table E2 of CAP 1616 in a qualitative manner and the CAA concluded it is proportionate as the minimum requirement for this stage is qualitative assessment of the options in comparison with the baseline option.				☒ ☐ ☐ ☐

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	X			
3.1.2	Type of aircraft movement		X		
3.1.3	Distance travelled		X	X	
3.1.4	Area flown over / affected		X	X	
3.1.5	Other impacts	X			

3.1.6 Comments

The sponsor described all the lower options and upper option 1.4 in terms of the corresponding aircraft movement and further explained the expected direction/vectoring from the controllers for each individual option.

The sponsor assessed the impact of fuel burn and greenhouse gas emissions through some assumptions and work out the changes in average track distances for the shortlisted options. According to their initial assessment, lower options are predicted to increase track distances consequently bringing disbenefits compared with today.

The sponsor detailed the overflown areas not only in terms of the air quality and historic environment impact analysis but also the noise impact assessment by providing their estimation on the population overflown using the CAA definition of overflight as defined in CAP 1498.

Lower Option 2.7 PBN North of Leighton Buzzard to Runway 08 (easterly) will require a small piece of extra CAS (class A) 4,500ft to 5,500ft; if a safety case for containment of 2nm could be made, then the volume would be approx 3.2nm sq. As a result of extra CAS, the behaviour of GA may change; it may impact deps from Cranfield of RWY21.

All other impact as a result of the Upper Option CAS extension are described as maybe having an impact on higher GA and the Sponsor does not expect to request Class A.

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 the forecasting of traffic at this stage and it is highlighted in this Assessment to point out one of the requirements for the next stage would be traffic forecasts for a period of at least 10 years from the intended year of implementation.

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	
3.3.2	Fuel Burn		X	X	X
3.3.3	CO2 Emissions		X	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 traffic forecast has not been provided by the sponsor at this stage and the associated impacts were analysed mainly in a qualitative manner. The sponsor provided a high-level assessment for noise and fuel burn and CO2e emissions; the numbers of total overflown and fuel cost increase were reported for each lower option.**				
3.5	**What is the total monetised impact of 3.3? (Provide comments)** The initial monetisation assessment is only conducted for the fuel burn impact. The below analysis shows sponsor's estimated additional fuel burn from an arriving A320 via upper option 1.4 and for each lower option and the monetised value of cost for each.				

TOTALS PER FLIGHT				
Opt	Total track length increase (nm)	A320 fuel increase at FL160 (kg)	CO2 equiv increase (mt)	Fuel cost increase £
2.3	19.2	142.1	0.45	£ 68.27
2.4	25.2	186.5	0.59	£ 89.60
2.5	19.2	142.1	0.45	£ 68.27
2.7	20.2	149.5	0.48	£ 71.82
2.8	27.2	201.3	0.64	£ 96.71
2.9	23.2	171.7	0.55	£ 82.49

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	X	X
4.1.4	Airlines		X	X	X
4.1.5	Airports		X	X	X
4.1.6	Local communities		X		
4.1.7	Wider Public / Economy		X	X	
4.1.8	Comments The sponsor stated lower options would increase effective capacity and consequently would have a positive economic impact on commercial air traffic compared with the baseline do-nothing options 1.1-2.1/2.2. The sponsor also estimated the total track length would increase with the lower option implementations bringing disbenefits compared with today.				

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	Positively
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)** The sponsor estimated population overflown using the CAA definition of overflight as defined in CAP 1498 and the results were reported as follows:	

		Option	Total overflown 0-7000ft
Easterlies	2.1	Do nothing Runway 08 (>10 times per day)	288,000
	2.7	RWY08 RNAV1 transition north of Leighton Buzzard	53,850
	2.5	RWY08 RNAV1 transition south of Leighton Buzzard	42,250
	2.3	Vectors from new Luton stack to Runway 08	139,000
Westerlies	2.2	Do nothing Runway 26 (>10 times per day)	162,900
	2.9	RWY26 Straight in RNAV1 transition	32,450
	2.8	RWY26 S-bend RNAV1 transition	71,850
	2.4	Vectors from new Luton stack to Runway 26	144,050

			0-4000ft				0-7000ft	0-4000ft	4-7000ft
		Option	Schools	Hospitals	Places of worship	Registered historic parks and gardens	National Parks	AONB	AONB
Easterlies	2.1	Do nothing Runway 08 (>10 times per day)	5	0	8	2	0	Chilterns	Chilterns
	2.7	RWY08 RNAV1 transition north of Leighton Buzzard	2	0	5	1	0	Chilterns	Chilterns (lesser extent than today)
	2.5	RWY08 RNAV1 transition south of Leighton Buzzard	2	0	6	1	0	Chilterns	Chilterns (lesser extent than today)
	2.3	Vectors from new Luton stack to Runway 08	5	0	8	2	0	Chilterns	Chilterns
Westerlies	2.2	Do nothing Runway 26 (>10 times per day)	13	0	12	2	0	0	0
	2.9	RWY26 Straight in RNAV1 transition	9	0	8	0	0	0	0
	2.8	RWY26 S-bend RNAV1 transition	9	0	8	1	0	0	0
	2.4	Vectors from new Luton stack to Runway 26	13	0	12	2	0	0	0

	For the quantified fuel burn/CO2e emissions analysis, please refer to the answer provided to the Question 3.5.
4.5	**What are the qualitative / strategic impacts described above?** The sponsor aims to reduce the complexity of Luton Airport arrivals and their interacting relationship with Stansted arrivals, in turn reducing the controller workload and assuring a safe operation for the future with the implementation this project.
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 provided comparisons of each option via qualitative analysis and where possible a high-level quantified and monetised analysis and avoided the need for expensive detail as the designs are not yet fully developed. The CAA concluded their approach is in line with the CAP 1616 Stage 2. ☒ ☐ ☐ ☐
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	-

6. Summary of Assessment of Economic Impacts & Conclusions	
6.1	The sponsor pointed out the current situation in which Luton and Stansted traffic use the same arrival routes and holding capacity which causes increased complexity as traffic levels increase. Therefore, with this project the sponsor aims to improve complexity, workload and delays in relation to arrival traffic at Luton and, as a consequence Stansted. Taking into account the first phase of the options appraisal, the high-level assessment of environmental assessment reveals the disbenefits of the lower options. Therefore, it is crucial for the sponsor to develop their analysis into a more detailed quantified and monetised analysis not only for environmental impacts but mainly for the economic impact from increased effective capacity as the sole aim of the project is to avoid increased complexity by increasing the efficiency. It is very important for the sponsor to show and evidence with the cost-benefit analysis that the proposed/preferred options would have a positive economic impact on commercial air traffic as stated in the Initial Options Appraisal.
Outstanding issues?	

Serial	Issue	Action required
1	-	
2	-	

CAA Initial Options Appraisal Completed by	Name	Signature	Date
Airspace Regulator (Economist)			29/11/2019
Airspace Regulator (Environmental)			29/11/2019
Airspace Regulator (Technical)			29/11/2019
ATM – Inspector ATS (Ops)	N/A		Click or tap to enter a date.