

Safety and Airspace Regulation Group

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Airspace Change Proposal - Environmental Assessment

Version: 1.0/2016

Title of Airspace Change Proposal	Swanwick Airspace Improvement Programme (L5250): Airspace Deployment 1 (SAIP)
Change Sponsor	NATS
SARG Project Leader	██████████
Case Study commencement date	18/04/2017
Case Study report as at	22/05/2017
File Reference	

Instructions

In providing a response for each question, please ensure that the 'Status' column is completed using the following options:

- Yes
- No
- Partially
- N/A

To aid the SARG Project Leader's efficient Project Management it may be useful that each question is also highlighted accordingly to illustrate what is:

resolved Green

not resolved Amber

not compliant Red

as part of the AR Project Leader's efficient project management.

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1.	Introduction	<p>This report describes the environmental considerations relevant to the proposed Swanwick Airspace Improvement Programme: Airspace Deployment 1 (SAIP). The Airspace Change Proposal has been submitted by NATS, as part of its obligation to update airspace infrastructure. As part of the ACP process, the sponsor has submitted relevant documents so the environmental impacts of the proposal can be assessed. "Swanwick Airspace Improvement programme (L5250): Airspace Deployment 1", Airspace Change proposal, Major version 1.0, April 2017, is the main supporting document (hereafter "Main document"), where all the aspects of the ACP and requirements of CAP 725 are presented. "SAIP Airspace Deployment 1", ACP Benefits Report, Version 0.1, 5250/RPT/14, A17043, March 2017, (hereafter "Benefits Report", presents detailed information of the benefits declared as result of the ACP. These two documents form the base from which this assessment is made.</p>
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	Guidance to the CAA	Status
2.1	<p>Is the proposal consistent with Government policy and/or guidance from Government to the CAA?</p> <p>Guidance issued to the Civil Aviation Authority sets¹ out a framework for the environmental objectives that the CAA must consider when assessing airspace change proposals. In addition to these objectives, there may be other legitimate operational objectives, such as the overriding need to maintain an acceptable level of air safety, the desire for sustainable development or to enhance the overall efficiency of the UK airspace network, which need to be considered alongside these environmental objectives. The Government looks to the CAA to determine the most appropriate balance between these competing characteristics.</p> <p>Flights over National Parks and AONBs are not prohibited by legislation² as a general prohibition against over-flights would be impractical. Government policy focuses on minimising the over-flight of more densely populated areas below 7,000 feet (amsl), but balances this with CO₂ emissions between 4,000 and 7,000 feet (amsl). However, where it is practical to avoid over-flight of National Parks and AONBs below 7,000 feet (amsl), the Guidance asks that the CAA encourages this.</p>	Yes

¹ DfT, Guidance to the Civil Aviation Authority on Environmental Objectives Relating to the Exercise of its Air Navigation Functions, January 2014

² National Parks and Access to the Countryside Act 1949, National Parks (Scotland) Act 2000, and "Duties on relevant authorities to have regard to the purposes of National Parks, Areas of Outstanding Natural Beauty (AONBs) and the Norfolk and Suffolk Broads Guidance Note", DEFRA 2005.

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3.	Rationale for the Proposed Change	Status
3.1	<p>Does the rationale for the ACP include environmental reasons?</p> <p>As stated by the sponsor, (Page 4, Main document) the introduction of Performance Based Navigation (PBN) can offer operational and environmental benefits through the systemisation of the ATM operation. This ACP, in particular, deals with the introduction of RNAV-1 ATS routes and STARs for Heathrow, Gatwick, Luton, Stansted, Northolt, Cambridge, Birmingham and East Midlands (while keeping RNAV-5 for those aircraft not suitably equipped). The main benefits proposed by the sponsor, as a result of PBN introduction, are: reduction in controller workload (operational benefit), a shortening of routes (environmental) and raising level caps (operational). The shortening of routes should result in a reduction in track miles flown which then requires less fuel and, subsequently, less uplift fuel (fuel needed to carry fuel). Fuel savings translate proportionally into CO₂ emissions reductions. Consequently, the sponsor, on Page 5 of Main document, lists "Reduce CO₂" as the first benefit.</p>	Yes
4.	Nature of the Proposed Change	Status
4.1	<p>Is it clear how the proposed change will operate, and therefore what the likely environmental impacts will be?</p> <p>From the environmental point of view, the shortening of routes can yield two benefits: less fuel required to complete the journey (track fuel) and less fuel needed to carry fuel (uplift fuel) – both resulting in less fuel burn and less CO₂ emissions. A significant proportion of aircraft in the Swanwick airspace, as seen in the density graphs supplied by the sponsor, are currently being tactically vectored. According to the sponsor, tactical vectoring will continue to happen after the airspace change, due to traffic load, proximity of danger areas and their activation above the daily routine altitudes of the Portsmouth danger area complex. In these instances, when tactical vectoring happens, there would not be any fuel savings as the distance flown, before the ACP change and after, would be the same (dictated by tactical vectoring). However, the savings of uplift fuel would still be achieved as it depends solely on the reduction of the flight-plannable route track mileage. Under the proposed design, when aircraft follow the new routes, as opposed to being tactically vectored, both uplift and track fuel savings are achieved as illustrated in the Benefits Report. In terms of environmental dis-benefits, Page 4 of the Main document, Design Principles, states that there are no changes to routes or tracks at or below 7000ft. This pre-empt the need to a) consider local air quality or b) consider changes in noise impacts.</p>	Yes
4.2	<p>Have alternative options been considered, and have the environmental impact of each alternative been assessed?</p> <p>This ACP is presented in order to introduce PBN. PBN will allow systemisation of operational control and closer alignment to flight-planned routes which derives environmental benefits. The sponsor, Chapter 5 Analysis of Options, Main document, states that the only alternative that was considered was the do-nothing scenario, which was rejected as it would not achieve the objectives laid out by NATS, namely,</p>	Yes

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modernisation of the route network and systemisation of traffic flows and optimised efficiency of fuel consumption and time. The airspace in the area is constrained by the level of traffic, danger areas and temporary reserved areas.

5.	Noise	Status
5.1	<p>Has the noise impact been adequately assessed?</p> <p>From the Main document, Page 89, Chapter 10 Environmental Requirements, requirement 27 refers to noise analyses. The change sponsor advises that "as traffic numbers are not expected to change by any noticeable or quantifiable extent and the routes will remain the same below 7000ft, noise analysis has not been undertaken". Changes in airspace design above 7000ft could potentially affect routes below 7000ft by either concentrating traffic in a particular route or display less track dispersion within the same route. The proposal does not clarify whether changes below 7000ft are likely or expected to happen as a result of the new design. The sponsor has clarified this question stating that "each of the routes either terminates at a hold FL70+ or re-connects with the current conventional routes at a point which is above 7000ft. The changes proposed should not encourage carriers to opt for an entirely different route or destination hold, therefore we should see the same volume of traffic arriving at these common joining points/holds as today but spread across the various route options. Therefore there is no reason for there to be any noticeable change below 7000ft." The CAA accepts this argument.</p>	Yes
5.2	<p>Has the noise impact been adequately presented in the consultation and the submitted proposal?</p> <p>No noise impact has been undertaken. See 5.1.</p>	Yes

6.	Emissions	Status
6.1	<p>Has the impact on CO₂ emissions been adequately assessed?</p> <p>The sponsor carried out an analysis of anticipated fuel savings resulting from the changes in route tracks. Modelled fuel savings as a result of new routes being more direct routes have been presented as well as the corresponding savings in uplift fuel and CO₂ emissions. The results of this analysis are presented in the Benefits Report. It presents forecast movements per route and fuel savings of 7.11kt per year based on 2018 traffic and 8.37kt per year based in 2023 traffic. This translates into CO₂ emissions reduction of 22.62kt and 26.63kt in 2018 and 2023 respectively. The impact on fuel burn and CO₂ emissions have been modelled using the NATS Environment Model (NEMO) which uses BADA version 4.2. Nineteen (19) new routes were modelled and compared to current routes. Four (4) new routes did not have any traffic on the two days the sample was taken. However, the total traffic affected by those routes is less than 1%. In addition, there are 9 new routes that were included for route connectivity purposes and show equivalent consumption as the route they replace. The routes included in this assessment, as well as those that are not included, are presented in the appendices of the Benefits Report. The increase in</p>	Yes

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	traffic between 2018 and 2023 is 9% which the sponsor claims is the growth that it would have regardless of the changes.	
6.2	<p>Has the impact on CO₂ emissions impact been adequately presented in the consultation and the submitted proposal?</p> <p>There was no consultation to non-aviation stakeholders. The impact on CO₂ emissions has been adequately addressed. Table 2 and Table 3 of the Benefits Report presents the necessary information (number of movements, distance change, fuel burn savings and CO₂ change). In addition, the Main document of the proposal includes sections on the environmental justification, such as section "2.5 Environmental considerations" addressing fuel burn and noise. Chapter 10 lists the environmental assessment requirements for Airspace Change Proposals as they appear in CAP 725 accompanied by a comment by the sponsor on how they have addressed every requirement on the list.</p>	Yes

7.	Local Air Quality	Status
7.1	<p>Has the impact on Local Air Quality been adequately assessed?</p> <p>In chapter 4 of main document, "Impacts of Airspace Change, 4.1 Net Impacts Summary for Proposed Routes", page 72, where, on Local Air Quality, there is no significant impact based on the fact that there are no changes in any route at or below 7000ft.</p>	Yes
7.2	<p>Has the impact on Local Air Quality been adequately presented in the consultation and the submitted proposal?</p> <p>Under section 4.10 of the Main document the sponsor addresses the local environmental impact.</p>	Yes

8.	Tranquillity	Status
8.1	<p>Has the impact on tranquillity been adequately considered?</p> <p>Tranquillity in the proposal, is in Chapter 4 Impacts of Airspace Change, 4.1 Net Impacts Summary for Proposed Routes, page 72, where, on tranquillity there is no significant impact based on the fact that there are no changes in any route at or below 7000ft.</p>	Yes
8.2	<p>Has the impact on tranquillity been adequately presented in the consultation and the submitted proposal?</p> <p>The CAA is satisfied with the sponsor assumption that it is unlikely to be any impact on tranquillity as a result of the proposed changes because there are no changes at or below 7000ft.</p>	Yes

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9.	Visual Intrusion	Status
9.1	<p>Has the impact of visual intrusion been adequately considered?</p> <p>Visual intrusion in the proposal is discussed in chapter 4 Impacts of Airspace Change, 4.1 Net Impacts Summary for Proposed Routes, page 72, where, on visual intrusion there is no significant impact based on the fact that there are no changes to any route at or below 7000ft. In addition, the sponsor has stated that routes below 7000 ft will not be noticeably affected by an increase of traffic or concentration, as a result of the changes above 7000 ft.</p> <p>Whilst aircraft above 7000ft may on occasion still be visible, this proposal is not expected to change traffic numbers, and that the aircraft affected will not be over-flying new locations. Therefore the CAA accepts that the proposed changes will not contribute to a new or added state of visual intrusion.</p>	Yes
9.2	<p>Has the impact of visual intrusion been adequately presented in the consultation and the submitted proposal?</p> <p>The CAA is satisfied with the sponsor assumption that it is unlikely to be any impact on visual intrusion as a result of the proposed changes because there are no changes at or below 7000ft.</p>	Yes
10.	Biodiversity	Status
10.1	<p>Has the impact upon biodiversity been adequately considered?</p> <p>Among CAP725 list of requirements that the sponsor needs to satisfy, the impact on biodiversity is one of them. It states that while airspace changes are unlikely to have an impact on biodiversity, the change sponsor should remain alert to this possibility and may be required to include it in their environmental assessment. On this occasion, the sponsor has included biodiversity within the wider subject of Environmental Impact, which the sponsor claims is not significant based on the fact that there are no changes at or below 7000ft</p>	Yes
10.2	<p>Has the impact upon biodiversity been adequately presented in the consultation and the submitted proposal?</p> <p>The CAA is satisfied with the sponsor's assumption that there is unlikely to be any impact on biodiversity as a result of the proposed changes because there are no changes at or below 7000 ft.</p>	Yes

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11.	Continuous Descent Approaches	Status
11.1	<p>Has the implementation of, or greater use of, CDAs been considered?</p> <p>Continuous Descent Approaches (CDA) are referenced twice in the main document. Chapter 9 entitled Airspace & Infrastructure Requirements, page 83, presents a list of requirements as given in CAP725. The sponsor states, in addressing this issue, that there will be "No change to any procedures after the hold fixes currently used". In Chapter 10, entitled "Environmental Requirements" the sponsor presents a list of requirements for the Environmental Assessment. Requirement 17 states that "Change sponsors should explain how consideration of CDA and LPLD is taken into account within their proposals". The sponsor states that "The changes will not affect the ability of IFR traffic to perform CDAs & LPLD".</p>	Yes

12.	Impacts Upon National Parks and/or AONBs	Status
12.1	<p>Does the proposed change have an impact upon any National Parks or Areas of Outstanding Natural Beauty (AONBs)?</p> <p>National Parks and AONBs are discussed in the proposal in Chapter 4 Impacts of Airspace Change, 4.1 Net Impacts Summary for Proposed Routes, page 72, where, on National Parks and AONBs, there is no significant impact based on the fact that there are no changes in any route at or below 7000 ft. The CAA is satisfied with the sponsor's conclusion.</p>	No

13.	Traffic Forecasts	Status
13.1	<p>Have traffic forecasts been provided, are they reasonable, and have these been used to reflect the future impact of the proposal?</p> <p>The environmental assessment presented in the Benefits Report shows that the CO₂ emissions analyses have been carried out with forecast traffic for 2018 and 2023 (with a 9% increase in 2023 versus 2018). However, the sponsor states that "growth of traffic does not affect the design". Growth of traffic is not the justification behind this ACP, i.e. the proposal is not being made with the purpose that it will increase traffic over and above the growth that is expected to occur regardless. The results presented reflect the proportional fuel and CO₂ emissions savings that can be achieved with an increase in traffic growth.</p>	Yes

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14.	Consultation	Status
14.1	<p>If undertaken, has evidence of non-aviation stakeholder consultation been provided?</p> <p>Consultation with non-aviation stakeholders was not undertaken as local air quality, noise and other deleterious effects of aviation activity were considered not significant (Main document, sections 3.4.4 and 4.10.) as there will be no changes at or below 7000ft.</p>	N/A
14.2	<p>Has account been taken of the results of the environmental factors raised by consultees or has evidence been provided to indicate why this has not been possible?</p> <p>Not applicable.</p>	N/A

15.	Compliance with CAP 725	Status
15.1	<p>Have all environmental assessment requirements specified in CAP 725 been met, where applicable?</p> <p>The sponsor claims that no changes at or below 7000ft will take place. Local air quality, noise, AONBs, National Parks, biodiversity, tranquility and visual intrusion are typically affected by lower flying aircraft. Therefore, the sponsor has not undertaken a specific environmental analysis with regards to those impacts (Chapter 10, Environmental requirements, items 3 and 4). However, all environmental aspects raised in CAP725 have been adequately addressed in the proposal, and most specifically the CO₂ emissions have been analysed and estimated.</p>	Yes

16.	Other Aspects	Status
16.1	<p>Are there any other aspects of the ACP, that have not already been addressed in this report, that may have a bearing on the environmental impact?</p> <p>No</p>	No

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17.	Recommendations	Status
17.1	<p>Are there any recommendations for the Post-Implementation Review?</p> <p>The rationale to derive an environmental benefit for this ACP is straightforward in that most of the new routes are shorter than those currently in use. Nonetheless, the Post Implementation Review should address the environmental benefits, as stated in this ACP, and confirm that these are still achieved, and if not, which were the unforeseen circumstances that made it so.</p>	Yes

18.	Government Approval	Status
18.1	<p>Is the approval of the Secretary of State for Transport required in respect of the environmental impact of the airspace change proposal?</p> <p>The environmental impact of this proposal is insignificant, and therefore it is reasonable to conclude that approval from the Secretary of State is not required.</p>	No

19.	Conclusions	
19.1	<p>Can an overall environmental benefit be demonstrated (or justified/supported)?</p> <p>The sponsor's main reason for this change is to "update the airspace infrastructure" in a way that offers less interventions from ATC, shortens routes and raises level caps. The shortening of routes brings savings in fuel burn (including as a result of uplifting less fuel and thereby reducing weight) which in turn translates into a reduction of CO₂ emissions.</p> <p>There are no other environmental impacts (e.g. noise, local air quality) expected to result from this proposal.</p>	Yes

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Outstanding Issues	
Serial	Issue
	Action Required
1	
2	

Additional Compliance Requirements (to be satisfied by Change Sponsor)	
Serial	Requirement
1	
2	

Environmental Assessment Sign-off/Approval			Date
Environmental Assessment completed by:	Name	Signature	
Environmental Assessment completed by:	█ Associate Noise Analysis	█	22/05/2017
Environmental Assessment approved by:	█ – Head of Noise Analysis		30/06/2017
Programme Head - Environment Comments:			