



Farnborough Airport

**Farnborough Traffic:
Safety Enhancement via Heathrow SID Reprofiling**

Proposed Airspace Development

Framework Briefing: Minutes

15th June 2012, CAA House, Kingsway, London



Action	Position	Name	Date
Produced	NATS Airspace Change Specialist (on behalf of TAG Farnborough)	[REDACTED]	10/8/2012
Accepted	NATS GM ATC Representing TAG Farnborough Airport	[REDACTED]	10/8/2012
Accepted	Case Officer, Controlled Airspace Section, CAA DAP	[REDACTED]	

CAA DAP Attendees	NATS Attendees (representing TAG Farnborough Airport)
[REDACTED] <i>Regulatory Case Officer</i>	[REDACTED] <i>General Manager ATC, TAG Farnborough Airport</i>
[REDACTED] <i>Environmental Expert</i>	[REDACTED] <i>Airspace Change Specialist (Directorate of International Affairs/Solutions Development)</i>
[REDACTED] <i>Airspace Policy Coordination & Consultation</i>	

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1 Introduction

- 1.1 These are the minutes of the framework briefing (FWB) for the Farnborough Traffic: Safety Enhancement via Heathrow SID Reprofiling proposal.
- 1.2 Actions will be summarised in Section 6 of this document.
- 1.3 A separate document will record the FWB Agreements. Acceptance of both documents by DAP is an agreement 'in principle' that the process undertaken thus far, and the proposed process herein, meets the requirements of the CAP725 airspace change process.
- 1.4 For the avoidance of doubt, the sponsor for this proposal is TAG Farnborough Airport ("TAG"), using NATS staff as consultant representatives. Should any of the elements of this document or the Record of Agreement change significantly as the plans/processes develop, TAG (through the NATS consultants) will provide the rationale for change to DAP and seek further agreement in principle for the revisions.

2 The FWB Presentation: Objectives, Benefits, Changes

- 2.1 A PowerPoint slideshow was presented by [REDACTED] and [REDACTED], and DAP members interacted throughout. A copy of this slideshow has been supplied to [REDACTED].
- 2.2 The benefit being sought by this development is as follows:
 1. **Primary Objective** of the development:
 - o Farnborough Safety: To keep as much traffic within extant CAS for as long as possible (example – reduce typical length of ATSOCAS for a Rwy 24 arrival from circa 30-40nm to circa 3-6nm).
 2. **Additional benefits** expected, but consequential to the Primary Objective – these are not considered to be Objectives:
 - o Blackbushe Safety: Same benefit as above, to jet traffic. Less likelihood of traffic interactions;
 - o Fair Oaks Safety: Less likelihood of traffic interactions;
 - o RAF Odiham Safety: Less likelihood of traffic interactions;
 - o GA Safety: Less mixing of fast/heavy jet types with light GA types;
 - o LTC Safety (TC SW): Lower workload when handling Farnborough traffic and/or Blackbushe jet traffic;
 - o Farnborough Fuel/CO₂: Rwy 24 arrivals would stay higher longer, Rwy 06 departures would climb higher earlier, both are less likely to be given extreme vectors (all three items are assumed to be more fuel-efficient than current day operations); and
 - o Gatwick Fuel/CO₂: Future potential to raise Gatwick SID termination levels for certain SIDs (below the reprofiled Heathrow SIDs).
- 2.3 Changes are planned to include:
 1. Raising of the climb profile of certain Heathrow SIDs, in order to provide 3nm and 1000ft separation from...
 2. ...defined portions of extant CAS which would be delegated from LTC to Farnborough during specified periods.
 3. Note that no new CAS is required for this development.

3 The FWB Presentation: Stakeholder Engagement

- 3.1 As part of the process, TAG has been engaging with key aviation and environmental stakeholders through a number of meetings, and will continue to do so.
- 3.2 Pre-consultation engagement planned to be carried out is listed below - this is not an exhaustive list:
1. Farnborough Airport Consultative Committee (FACC) – additional meetings/discussions/agreements in principle with the FACC’s Quiet Flying Programme (QFP) Team re: technicalities and potential impacts
 2. Heathrow Airport Ltd (HAL), part of BAA – additional meetings/discussions/agreements in principle re: impact of SID reprofiling on their customers (see next point)
 3. Specific HAL air operators identified following the analysis of the likely effect of SID reprofiling – engagement/discussions/agreements in principle
 4. Gatwick Airport Ltd, part of Global Infrastructure Partners (GIP) - agreement in principle re: lack of likely impact on Gatwick operations;
 5. Local aerodromes such as RAF Odiham, Blackbushe, Fair Oaks, Lasham and others.

4 The FWB Presentation: Formal Consultation Plan

- 4.1 The current plan for formal consultation was discussed.

Stakeholder Identification for Formal Consultation

- 4.2 The formal 12 week consultation exercise is proposed to include electronic distribution of consultation material to the following:

Aviation stakeholder groups:

1. NATMAC members
2. Heathrow (HAL) via NATS’ GM ATC
3. HAL air operators identified as specifically affected by the change (BAW, VIR, MAU, SAA) – pre-engagement is planned
4. Gatwick (GIP) via NATS’ GM ATC
5. Farnborough-based air operators
6. Aerodrome operators local to Farnborough airport (DAATM-SO1 to be consulted regarding RAF Odiham, pre-engagement is planned)

Environmental stakeholder group:

7. Members of the FACC – pre-engagement is planned. See also the Appendix at the end of this document, including a note about the FWB-mentioned “Quiet Flying Programme”, or QFP.

- 4.3 TAG has not been advised of any stakeholder groups that have registered an interest in this airspace change directly to the CAA. Hence if there are any such groups the CAA should notify TAG of their details via the NATS consultant representatives.

Media Notification of Formal Consultation

- 4.4 Since consultation is only envisaged with specifically-identified stakeholders and these will be individually canvassed, media notification will not be required.

Consultation Document

- 4.5 The consultation document is planned to comprise one document suitable for all stakeholders. The document will be available electronically to all stakeholders from the TAG Farnborough website (Community Engagement page, at time of writing the URL is <http://www.tagfarnborough.com/CommunityEngagement/tabid/65/Default.aspx> though this URL may change if the website is updated), and paper copies will be provided only if requested. [REDACTED]
- 4.6 The document will contain information regarding the following:
1. Minimal likelihood of changes to the Farnborough Rwy 24 arrival (and Rwy 06 departures) traffic pattern in the summer
 2. Expectation that there would be a “tightening” of the distribution in the winter
 3. Minimal expectation that Rwy 24 departures and Rwy 06 arrivals would be affected by this proposal (no change).
 4. Due to this proposal, the vast majority of Farnborough Rwy 24 arrivals and Rwy 06 departures would be 600ft higher than today, as they would remain inside CAS (arrivals) or join CAS (departures) at the lowest useable altitude above the extant base, rather than flying at least 100ft below the extant base as per current operations.
 5. Noise impact (or lack thereof) of Heathrow SID reprofiling.
- 4.7 The consultation document will be produced in English only.
- 4.8 DAP will be given the opportunity to review and comment on the draft consultation material prior to publication.

TAG Response to Objections/Feedback

- 4.9 Responses to the consultation exercise will be acknowledged with a standard reply, as soon as possible after receipt. Responses to questions raised will be given where TAG considers that additional information is necessary for respondents to provide their representations.
- 4.10 All relevant issues raised will be collated and documented, along with the TAG response, into a Consultation Feedback Report. Once the consultation period has closed, this Feedback Report will be sent to all stakeholders who responded to the consultation, and will be made available for download via the TAG Farnborough website.
- 4.11 All responses to the consultation exercise will be provided to DAP as part of the ACP documentation set.
- 4.12 Where stakeholders object on the basis that they do not believe growth in aviation should be accommodated (locally or nationally), TAG proposes that such queries fall into the category of “those that cannot be addressed by the Change Sponsor”. These objections will be copied to the DAP as part of the ACP documentation set.

5 The FWB Presentation: Environmental Analysis

- 5.1 As stated in para 2.1 items 1 and 2, fuel/CO₂ saving is not an objective of this proposal, merely a beneficial consequence.
- 5.2 Logical arguments were presented stating there should be no quantifiable fuel/CO₂ benefit required for this proposal.

- 5.3 There would be no effect on the Farnborough LAeq16hr (57dB) noise contours, as per slide 11 of the PowerPoint presentation shown at the framework brief.
- 5.4 This proposal is being progressed on the assumption that there will be no impact on Heathrow L_{eq} as the proportion of aircraft for which a higher climb gradient is required is expected to be too small to influence the contours¹. This is subject to that conclusion being supported by the current ERCD workstream regarding the generic impact of "Increases in SID Gradients on CAP725 Noise Metrics". The workstream is not part of this proposal but is a dependency. Further consideration of the Heathrow noise analysis requirement will be necessary should the ERCD work fail to support the above assumption.
- 5.5 A brief discussion occurred re: no other LTMA departures, arrivals or transits would be impacted, and there would be no impact outside the LTMA.

6 Actions for the Record of Agreement document

- 6.1 A separate "FWB Record of Agreement" document will be supplied by [REDACTED] in due course, for negotiation and agreement between all parties.
- 6.2 Section 2 was agreed by all to be an accurate reflection of the Objectives, Benefits and Changes part of the FWB.
- 6.3 Section 3 was agreed by all to be an accurate reflection of the Stakeholder Engagement part of the FWB.
- 6.4 Section 4 was agreed by all to be an accurate reflection of the Formal Consultation Plan part of the FWB, with outstanding actions as follows:
- 6.4.1 [REDACTED] to supply the full list of aviation and environmental stakeholders to [REDACTED] (action closed, see Appendix below);
- 6.4.2 [REDACTED] will pre-brief DAATM-SO1 on this proposal.
- 6.5 Section 5 was agreed by all to be an accurate reflection of the Environmental Analysis part of the FWB, with outstanding actions as follows:
- 6.5.1 [REDACTED] requested a typical track fuel/CO₂ analysis using the NATS KERMIT model (see paras 5.1 and 5.2).
[REDACTED] will provide a brief outline of a proposed methodology as part of the FWB Record of Agreement;
- 6.5.2 **All** acknowledge the dependency on the ERCD workstream described in para 5.4 – the results will affect the Formal Consultation Plan;
- 6.5.3 Whilst not specifically mentioned within the FWB, [REDACTED] requests an action on [REDACTED] to state that a local air quality analysis is not required – TAG contends that there is no possibility of the implementation of this proposal causing pollutants to breach legal limits.

7 AOB

- 7.1 There being no further business to discuss, the FWB meeting was closed.

¹ Analysis by NATS (on behalf of TAG Farnborough) of Heathrow departures on these SIDs showed that only a few individual flights, operated by four airlines (to be engaged & consulted as per para 4.2 item 3), on very hot days, would be impacted by the proposed increase in gradient to circa 8% (slides 21-23 of the PowerPoint presentation).

Appendix - Stakeholder List (expanded from para 4.2)

FARNBOROUGH AERODROME CONSULTATIVE COMMITTEE (May 2012)

CHAIRMAN

Mr P. Riley

SECRETARY

Mr J. Gregory

ADVISOR

Mr D. Foster - NATS

USERS

Mr B. O'Reilly - TAG

Mr R. Walker – TAG

Mr M. Thomas – TAG

Mr W. Epton – WJE Associates

Mr M. Khalek – GAMA Aviation

Mr J. Copley – Farnborough Aerospace Consortium

John Porter – FAC (Reserve)

Jimmy Chestnutt – North Hants Chamber of Commerce

Mr R. Dean - Farnborough International Ltd

LOCAL AUTHORITIES

Cllr P. Taylor – Rushmoor Borough Council

Cllr R. Dibbs – Rushmoor Borough Council

Cllr M. Tennant – Rushmoor Borough Council (Reserve)

Cllr Hawkins – Surrey Heath Borough Council

Cllr Glyn Carpenter – Surrey Heath Borough Council (Reserve)

Cllr P. Isherwood – Waverley Borough Council

Cllr V. Duckett- Waverley Borough Council (Reserve)

Cllr J. Radley – Hart District Council

Cllr Chris Simmons – Hart District Council

Cllr S. Ambler – Hart District Council (Reserve)

Cllr R. Muschamp – Hampshire County Council

Cllr. D Appleton- Hampshire County Council (Reserve)

Cllr C. Pitt – Surrey County Council

LOCAL INTERESTS

Cllr A Norgrove – Ash Parish Council

Cllr D Argent – Crondall Parish Council

John Bennison - Church Crookham Parish Council

Michael Burford – Church Crookham (Reserve)

Mrs J. Radley – Fleet and Crookham Civic Society

Ms D. Moss – Fleet and Crookham Civic Society (Reserve)

Mr G. Marks – Farnborough Airport Residents' Association

Mr. G Brothers– Farnborough Airport Residents Association (Reserve)

Mr K. Daly – Mytchett, Frimley Green and Deepcut Society

Mr P. Hill – Farnborough College of Technology

Cllr D Attfield – Farnham Town Council

Next meetings planned 4 Oct 2012 and 7 March 2013 – potentially, an extra meeting in Dec 2012 could be convened if required. Pre-engagement will occur by the first date here.

The Quiet Flying Programme (QFP) was initiated by TAG in 2007 to work with the Residents Associations that comprise some elements of the Farnborough Aerodrome Consultative Committee (Local Interests, above). The work concluded in 2011 after the members decided that no more could be done under the current operation and with constraints of the existing airspace.

Farnborough-based operators:

51 North
Acropolis Aviation
Bookajet
Euro Flight Services
Cessna
Econet Wireless
Executive Jet Charter
European Skytime
Execujet Europe
GAMA
Gexair
Global Jet
Greyscape
GX Holdings
Head Start Aviation
Triar
International Jet Club
Liberty Global
LEA
LOWA
Manhattan Air
Pan Gulf Aviation
TAG Aviation UK
Tak
ZC Aviation

Other significant operators:

Netjets
Vistajet
Grantex Aviation
BAe Corporate Travel
BAe Systems Marine
Eastern Airways
Dubai Air Wing
Qatar Amiri Flight
Abu Dhabi Amiri Flight
Premier Aviation
Harrods Aviation

Non-NATS aerodrome operators local to Farnborough:

(Relevant NATS units will be consulted internally via NATS GMs and are not listed here)

Blackbushe
Fairoaks
RAF Odiham (via DAATM-SO1)
RAF Odiham Gliders (direct engagement)
Lasham Gliders
Lasham ATC (heavy maintenance engineering base with occasional air traffic provision)
Tongham
Frensham
Ascot Heliport

Intentionally Blank



Farnborough Airport

**Farnborough Traffic:
Safety Enhancement via Heathrow SID Reprofiling**

Proposed Airspace Development

Framework Briefing: Record of Agreement

15th June 2012, CAA House, Kingsway, London



Action	Position	Name	Date
Produced	NATS Airspace Change Specialist (on behalf of TAG Farnborough)	[REDACTED]	10/08/2012
Accepted	NATS GM ATC Representing TAG Farnborough Airport	[REDACTED]	10/08/2012
Accepted	Case Officer, Controlled Airspace Section, CAA DAP	[REDACTED]	

CAA DAP Attendees:	NATS Attendees:
[REDACTED] <i>Regulatory Case Officer</i>	[REDACTED] <i>General Manager ATC, TAG Farnborough Airport</i>
[REDACTED] <i>Environmental Expert</i>	[REDACTED] <i>Airspace Change Specialist (Directorate of International Affairs/Solutions Development)</i>
[REDACTED] <i>Airspace Policy Coordination & Consultation</i>	

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- 1.1 [REDACTED] agreed that the contents, methodology, illustrations, logic, analysis and data contained within the PowerPoint presentation and the Minutes (copy already supplied to [REDACTED]) was adequate to proceed with the development of the proposal (subject to the actions below).
- 1.2 **All** agreed that the proposed increase in gradient of certain Heathrow SIDs would be the only AIP change as a direct result of this proposal – all other changes would be internal NATS procedures and covered by changes to MATS Part 2s and LoAs/MoUs (drafts to be supplied as part of the ACP).
- Easterly MID and SAM SIDs require new 4000ft and 5000ft level-by restrictions
 - Westerly MID SIDs require new 4000ft and 5000ft level-by restrictions
 - Westerly DVR and DET SIDs require new 4000ft level-by restrictions
- 1.3 **MINUTES ACTION 6.4.1**
[REDACTED] supplied **all** with the full list of aviation and environmental stakeholders within the Appendix of the Minutes document, and [REDACTED] agreed that this list was adequate.
- 1.4 **MINUTES ACTION 6.4.2**
[REDACTED] has pre-briefed DAATM-SO1 regarding this proposal (specifically regarding RAF Odiham).
- 1.5 **MINUTES ACTION 6.5.1**
[REDACTED] will provide, as part of the consultation document and ACP, a calculation of the fuel/CO₂ effect per nm of the proposal on a typical Farnborough-type jet flying 600ft higher than today. This effect would be the same for a Rwy 06 departure as it would for a Rwy 24 arrival – in either case they would fly level for the same distance at a “round thousand” altitude rather than at a “CAS base minus 100ft” altitude as per current day operations. This new altitude would be 600ft higher than today. [REDACTED] agreed that this methodology would satisfy the action.
- 1.6 [REDACTED] and [REDACTED] agreed that there would be no effect on the Farnborough LAeq16hr (57dB) noise contours, as per slide 11 of the PowerPoint presentation shown at the FWB.
- 1.7 **MINUTES ACTION 6.5.2**
All agreed that this proposal is being progressed on the assumption that there will be no impact on Heathrow L_{eq} as the proportion of aircraft for which a higher climb gradient is required is expected to be too small to influence the contours. This is subject to that conclusion being supported by the current ERCD workstream regarding the generic impact of “Increases in SID Gradients on CAP725 Noise Metrics”. This work is not part of the Farnborough project but is a dependency. Further consideration of the Heathrow noise analysis requirement will be necessary should the ERCD work fail to support the above assumption.
- 1.8 **All** agreed that no other LTMA departures, arrivals or transits would be impacted, and there would be no impact outside the LTMA.
- 1.9 **MINUTES ACTION 6.5.3**
[REDACTED] confirms that local air quality analysis is not required for this development.
- 1.10 [REDACTED] stated that the “Quick Win” process would apply to this proposal, and the Stage 5 Regulatory Decision would most likely take 5-8 weeks instead of the normal 16 weeks, for the following reasons:
1. No new CAS is required as a result of this proposal;
 2. Lateral and vertical distribution of most tracks will not be affected;

3. Changes to vertical distribution of affected tracks will make tracks higher, not lower;
4. Changes to lateral distribution of affected tracks are unlikely to be noticed by stakeholders on the ground (see charts and mitigations in the previously-supplied PowerPoint presentation);
5. The proposal could be returned to its previous state (or a pseudo version retaining the safety benefit) if a robust challenge was forthcoming post-implementation.

1.11 The ACP is planned to be implemented on Thursday 27th June 2013 at the earliest. This provisional timeline assumes:

- A 12 week consultation starting Monday 1st October 2012 and ending Monday 24th December 2012 ;
- An 8 week Stage 5 Regulatory Decision, submitted to DAP on Monday 28th Jan 2013, decision Monday 1st April 2013;
- AIRAC promulgation during May 2013.

This provisional timeline is agreed by **all**, along with the understanding that (should issues arise) the date would push back to a later AIRAC date.

1.12 [REDACTED] agree that the Tables below reflect the requirements and proposed work for the Environmental Assessment of this development.

Annex A: Environmental Requirements

1.13 This section details the proposal to fulfil the required elements of an Environmental Assessment to be submitted for the Airspace Classification Change airspace development, based upon CAP 725 – Appendix B (30 March 2007).

1.14 The requirements in this section are grouped by the degree of compliance expected from airspace change sponsors in following this guidance:

1. **Must** – change sponsors are to meet the requirements in full when this term is used.
2. **Should** – change sponsors are to meet these requirements unless there is sufficient reason which must be agreed in writing with the DAP case officer and the circumstances recorded in the formal airspace change documentation.
3. **May** – change sponsors decide whether this guidance is appropriate to the circumstances of the airspace change.

Table A1. Sponsors MUST provide:

Requirement		Ref.	Page	NATS proposed offering
A technical document containing a comprehensive and complete description of the airspace change including the environmental impact will be required and must be produced for all airspace changes.	General	Para 25	B-6	This will be provided for the consultation & ACP
The environmental assessment must include a high quality paper diagram of the airspace change in its entirety as well as supplementary diagrams illustrating different parts of the change. This diagram must show the extent of the airspace change in relation to known geographical features and centres of population	Airspace Design	Para 28	B-7	This will be provided for the consultation & ACP
The Change Sponsor must provide DAP with a complete set of coordinates describing the proposed change in electronic format using World Geodetic System 1984 (WGS 84). In addition, the Sponsor must supply these locations in the form of Ordnance Survey (OS) national grid coordinates.	Airspace Design	Para 30	B-7	Draft WGS84 coordinates of the delegated volumes of extant CAS will be provided for the consultation & ACP, however no new CAS is proposed. OS coordinates will not be supplied.
This electronic version must provide a full description of the horizontal and vertical extent of the zones and areas contained within the airspace change. It must include coordinates in WGS 84 that define the centre lines of routes including airways, standard instrument departures (SID), standard arrival routes (STAR), noise preferential routes (NPR) or any other arrangement that has the effect of concentrating traffic over a particular geographical area.	Airspace Design	Para 30	B-7	This will be provided for the consultation and ACP as follows: Illustrations showing expected effects on Farnborough traffic distribution under certain conditions (e.g. summer vs. winter) Draft Heathrow SID plates showing how the new gradients would apply

CAP 725 – Environmental Assessment Checklist

Change Sponsors must provide a description of the vertical distribution of traffic in airways, SIDs, STARs, NPRs and other arrangements that have the effect of concentrating traffic over a particular geographical area	Airspace Design	Para 32	B-7	This will be provided for the consultation & ACP
Change Sponsors must include traffic forecasts in their environmental assessment.	Traffic Forecasts	Para 35	B-8	This will be provided for the consultation & ACP
Information on air traffic must include the current level of traffic using the present airspace arrangement and a forecast. The forecast will need to indicate the traffic growth on the different routes contained within the airspace change volume.	Traffic Forecasts	Para 35	B-8	This will be provided for the consultation & ACP
The sources used for the forecast must be documented.	Traffic Forecasts	Para 35	B-8	This will be provided for the consultation & ACP
Change Sponsors must produce $L_{eq, 16 \text{ hours}}$ noise exposure contours for airports where the proposed option entails changes to departure and arrival routes for traffic below 4,000 feet agl based on the published minimum departure and arrival gradients. Under these circumstances, at least three sets of contours must be produced: Current situation – these may already be available as part of the airport’s regular environmental reporting or as part of the airport master plan; Situation immediately following the airspace change; and Situation after traffic has increased under the new arrangements (typically five years after implementation although this should be discussed with the DAP Project Leader).	Noise	Para 44	B-11	Not required for this proposal (no effect as per para 1.6 above, and working assumption of para 1.7 above)
Contours must be portrayed from 57 dBA $L_{eq, 16 \text{ hours}}$ at 3 dB intervals.	Noise	Para 48	B-12	n/a
SEL footprints must be used when the proposed airspace includes changes to the distribution of flights at night below 7,000 feet agl and within 25 km of a runway. Night is defined here as the period between 2300 and 0700 local time. If the noisiest and most frequent night operations are different, then footprints should be calculated for both of them. A separate footprint for each of these types should be calculated for each arrival and departure route. If SEL footprints are provided, they should be calculated at both 90 dBA SEL and 80 dBA SEL.	Noise	Para 56	B-13	n/a
Change Sponsors must demonstrate how the design and operation of airspace will impact on emissions. The kinds of questions that need to be answered by the sponsor are: Are there options which reduce fuel burn in the vertical dimension, particularly when fuel burn is high e.g. initial climb? Are there options that produce more direct routeing of aircraft, so that fuel burn is minimised? Are there arrangements that ensure that aircraft in cruise operate at their most fuel-efficient altitude, possibly with step-climbs or cruise climbs?	Climate Change	Para 102	B-22	Covered by para 1.5 above.

CAP 725 – Environmental Assessment Checklist

<p>Change Sponsors must produce information on local air quality <u>only</u> where there is the possibility of pollutants breaching legal limits following the implementation of an airspace change. The requirement for local air quality modelling will be determined on a case by case basis as discussed with the DAP Project Leader and ERCD. This discussion will include recommendations of the appropriate local air quality model to be used. Concentrations should be portrayed in microgrammes per cubic metre ($\mu\text{g.m}^{-3}$). They should include concentrations from all sources whether related to aviation and the airport or not. Three sets of concentration contours should be produced:</p> <p>Current situation – these may already be available as part of the airport’s regular environmental reporting or as part of the airport master plan;</p> <p>Situation immediately following the airspace change; and</p> <p>Situation after traffic has increased under the new arrangements – typically five years after implementation although this should be discussed with the DAP Project Leader.</p>	Local Air Quality	Para 115	B-25	Not required for this proposal, provided Action 1.9 is agreed.
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Table A2. Sponsors SHOULD provide:

Requirement		Ref.	Page	NATS proposed offering
<p>In order to ensure that the various areas for environmental assessment by DAP are addressed, Change Sponsors should submit the documentation with the following clearly defined sections:</p> <p>Description of the airspace change (refer to 28 – 33);</p> <p>Traffic forecasts (refer to 34 – 38);</p> <p>An assessment of the effects on noise (refer to Sections 4 and 5);</p> <p>An assessment of the change in fuel burn/CO₂ (refer to Section 6);</p> <p>An assessment of the effect on local air quality (refer to Section 7); and</p> <p>An economic valuation of environmental impact, if appropriate (refer to Section 9).</p>	General	Para 2	B-1	<p>This will be provided for the consultation & ACP</p> <p>Will be provided</p> <p>Not required for this proposal (no effect as per para 1.6 above, and working assumption of para 1.7 above)</p> <p>Covered by para 1.5 above.</p> <p>Not required for this proposal, provided Action 1.9 is agreed.</p> <p>This will not be provided for the ACP, see Table A3</p>
Environmental assessment should set out the base case or current situation so that changes can be clearly identified.	General	Para 19	B-4	See Table A1 above
Environmental assessment should follow the Basic Principles listed in CAP 725.	General	Para 20	B-4	See Table A1 above
The proposal should consider and assess more than one option, then demonstrate why the selected option meets safety and operational requirements and will generate an overall environmental benefit or, if not, why it is being proposed.	Airspace Design	Para 29	B-7	The proposal will consider options analysed regarding the shape of delegated CAS, which in turn would impact the Heathrow SID gradient required to achieve 3nm/1000ft separation
Change Sponsors should provide indications of the likely lateral dispersion of traffic about the centre line of each route. This should take the form of a statistical measure of variation such as the standard deviation of lateral distance from the centre line for given distances along track in circumstances where the dispersion is variable.	Airspace Design	Para 31	B-7	This will be provided for the consultation & ACP in the form of illustrative maps/charts

CAP 725 – Environmental Assessment Checklist

For departing traffic, sponsors should produce profiles of the most frequent type(s) of aircraft operating within the airspace. They should show vertical profiles for the maximum, typical and minimum climb rates achievable by those aircraft.	Airspace Design	Para 32	B-7	Covered by para 1.5 above.
A vertical profile for the slowest climbing aircraft likely to use the airspace should also be produced.	Airspace Design	Para 32	B-8	Covered by para 1.5 above.
All profiles should be shown graphically and the underlying data provided in a spreadsheet with all planning assumptions clearly documented.	Airspace Design	Para 32	B-8	Covered by para 1.5 above.
Change Sponsors should explain how consideration of CDA and LPLD is taken into account within their proposals	Airspace Design	Para 33	B-8	Will be provided
Typically, forecasts should be for five years from the planned implementation date of the airspace change. There may be good reasons for varying this – for example, to use data that has already been made available to the general public at planning inquiries, in airport master plans or other business plans	Traffic Forecasts	Para 36	B-8	Will be provided
Traffic forecasts should contain not only numbers but also types of aircraft. Change Sponsors should provide this information by runway (for arrivals/departures) and/or by route with information on vertical distribution by height/altitude/flight level as appropriate.	Traffic Forecasts	Para 38	B-9	Will be provided – though no change to the traffic mix is expected due to the proposal
The contours should be produced using either the UK Aircraft Noise Contour Model (ANCON) or the US Integrated Noise Model (INM) but ANCON must be used when it is currently in use at the airport for other purposes.	Noise	Para 46	B-12	n/a
Terrain adjustments should be included in the calculation process (i.e. the height of the air routes relative to the ground are accounted for).	Noise	Para 47	B-12	n/a
Contours should not be produced at levels below 54 dBA $L_{eq, 16 \text{ hours}}$ because this corresponds to generally low disturbance to most people.	Noise	Para 48	B-12	n/a
A table should be produced showing the following data for each 3 dB contour interval: Area (km ²); and Population (thousands) – rounded to the nearest hundred.	Noise	Para 49	B-12	n/a

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<p>It is sometimes useful to include the number of households within each contour, especially if issues of mitigation and compensation are relevant:</p> <p>This table should show cumulative totals for areas/populations/households. For example, the population for 57 dBA will include residents living in all higher contours.</p> <p>The source and date of population data used should be noted adjacent to the table. Population data should be based on the latest available national census as a minimum but more recent updated population data is preferred.</p> <p>The areas calculated should be cumulative and specify total area within each contour including that within the airport perimeter.</p>	Noise	Para 50	B-12	n/a												
<p>Contours for assessment should be provided to DAP in both of the following formats:</p> <p>Electronic files in the form of a comma delimited ASCII text file containing three fields as an ordered set (i.e. coordinates should be in the order that describes the closed curve) defining the contours in Ordnance Survey National Grid in metres:</p> <table border="0"> <thead> <tr> <th>Field</th> <th>Field Name</th> <th>Units</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Level</td> <td>dB</td> </tr> <tr> <td>2</td> <td>Easting</td> <td>six figure easting OS national grid reference (metres)</td> </tr> <tr> <td>3</td> <td>Northing</td> <td>six figure northing OS national grid reference (metres)</td> </tr> </tbody> </table> <p>Paper version overlaid on a good quality 1:50 000 Ordnance Survey map. However, it may be more appropriate to present contours on 1:25 000 or 1:10 000 Ordnance Survey maps.</p>	Field	Field Name	Units	1	Level	dB	2	Easting	six figure easting OS national grid reference (metres)	3	Northing	six figure northing OS national grid reference (metres)	Noise	Para 51	B-13	n/a
Field	Field Name	Units														
1	Level	dB														
2	Easting	six figure easting OS national grid reference (metres)														
3	Northing	six figure northing OS national grid reference (metres)														
<p>SEL footprints for assessment should be provided to DAP in both of the following formats:</p> <p>Electronic files in the form of a comma delimited ASCII text file containing three fields as an ordered set (i.e. coordinates should be in the order that describes the closed curve) defining the footprints in Ordnance Survey National Grid in metres:</p> <table border="0"> <thead> <tr> <th>Field</th> <th>Field Name</th> <th>Units</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Level</td> <td>dB</td> </tr> <tr> <td>2</td> <td>Easting</td> <td>six figure easting OS national grid reference (metres)</td> </tr> <tr> <td>3</td> <td>Northing</td> <td>six figure northing OS national grid reference (metres)</td> </tr> </tbody> </table> <p>Paper version overlaid on a good quality 1:50 000 Ordnance Survey map. However, it may be more appropriate to present footprints on 1:25 000 or 1:10 000 Ordnance Survey maps.</p>	Field	Field Name	Units	1	Level	dB	2	Easting	six figure easting OS national grid reference (metres)	3	Northing	six figure northing OS national grid reference (metres)	Noise	Para 57	B-14	n/a
Field	Field Name	Units														
1	Level	dB														
2	Easting	six figure easting OS national grid reference (metres)														
3	Northing	six figure northing OS national grid reference (metres)														

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Change Sponsors should estimate the total annual fuel burn/mass of carbon dioxide in metric tonnes emitted for the current situation, the situation immediately following the airspace change and the situation after traffic has increased under the new arrangements – typically five years after implementation. Sponsors should produce estimates for each airspace option considered.	Climate Change	Para 106	B-23	Covered by para 1.5 above.
Change Sponsors should provide the input data for their calculations including any modelling assumptions made. They should state details of the aircraft performance model used including the version numbers of software employed.	Climate Change	Para 107	B-23	Covered by para 1.5 above.
Where the need to provide additional airspace capacity, reduce delays or mitigate other environmental impact results in an increase in the total annual fuel burn/ mass of carbon dioxide in metric tonnes between the current situation and the situation following the airspace change, Sponsors should provide justification.	Climate Change	Para 108	B-23	n/a
Contours for assessment should be provided to DAP in similar formats to those used for noise exposure contours. Where Change Sponsors are required to produce concentration contours they should also produce a table showing the following data for concentrations at 10 $\mu\text{.m}^{-3}$ intervals: Area (km^2); and Population (thousands) – rounded to the nearest hundred.	Local Air Quality	Para 116	B-25	n/a
The source and date of population data used should be noted adjacent to the table. Population data should be based on the latest available national census as a minimum but more recent updated population data is preferred.	Local Air Quality	Para 117	B-25	n/a

Table A3: Sponsors MAY provide:

Requirement		Ref.	Page	NATS proposed offering
It is considered unlikely that airspace changes will have a direct impact on animals, livestock and biodiversity. However, Change Sponsors should remain alert to the possibility and may be required to include these topics in their environmental assessment.	General	Para 18	B-4	NATS contends that the nature of this airspace change will not affect flora and fauna.
It may be appropriate for Change Sponsors to produce a more general description of the airspace change and the rationale for its proposal in an easy-to-read style for public consumption. If such an additional separate document is produced, it must contain details of the environmental impact of the proposal.	General	Para 25	B-6	Consultation is proposed with aviation specialists and the Farnborough Airport Consultative Committee (FACC) who are "aviation-aware".
Sponsors may supply the outputs from simulation to demonstrate the lateral dispersion of traffic within the proposed airspace change or bring forward evidence based on actual performance on a similar kind of route. It may be appropriate for Sponsors to explain different aspects of dispersion e.g. dispersion within NPRs when following a departure routeing and when vectoring – where the aircraft will go and their likely frequency	Airspace Design	Para 31	B-7	No simulation is currently planned – if this changes, DAP will be notified
In planning changes to airspace arrangements, sponsors may have conducted real and/or fast time simulations of air traffic for a number of options.	Traffic Forecasts	Para 34	B-8	n/a
It may also be appropriate to provide forecasts further into the future than five years: examples are extensive airspace changes or where traffic is forecast to grow slowly in the five-year period but faster thereafter.	Traffic Forecasts	Para 36	B-8	n/a
It may be appropriate for Change Sponsors to outline the key factors [affecting traffic forecasts] and their likely impact. In these circumstances, Sponsors should consider generating a range of forecasts based on several scenarios that reflect those uncertainties – this would help prevent iterations in the assessment process.	Traffic Forecasts	Para 37	B-8	n/a
Types of aircraft may be given by aircraft type/engine fit using ICAO type designators. If this is not a straightforward exercise, then designation by the UK Aircraft Noise Contour Model (ANCON) types or by seat size categories would be acceptable	Traffic Forecasts	Para 38	B-9	All traffic using the airport must be Chapter 4/Stage 4 Noise compliant before the proposed implementation date. (Airshow & certain propeller aircraft are exempt)
Change Sponsors may include the 54 dBA <small>Leq, 16 hours</small> contour as a sensitivity analysis but this level has no particular relevance in policy making.	Noise	Para 48	B-12	n/a

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Requirement		Ref.	Page	NATS proposed offering
<p>It is sometimes useful to include the number of households within each contour, especially if issues of mitigation and compensation are relevant:</p> <p>Where Change Sponsors wish to exclude parts of the area within contours, for example, excluding the portion of a contour falling over sea – this may be shown additionally and separately from the main table of data; and</p> <p>Sponsors may include a count of the number of schools, hospitals and other special buildings within the noise exposure contours.</p>	Noise	Para 50	B-12	n/a
<p>Contours for a general audience may be provided overlaid on a more convenient map (e.g. an ordinary road map with a more suitable scale for publication in documents). The underlying map and contours should be sufficiently clear for an affected resident to be able to identify the extent of the contours in relation to their home and other geographical features. Hence, the underlying map must show key geographical features, e.g. street, rail lines and rivers.</p>	Noise	Para 53	B-13	n/a
<p>SEL footprints may be used when the airspace change is relevant to daytime only operations. If SEL footprints are provided, they should be calculated at both 90 dBA SEL and 80 dBA SEL.</p>	Noise	Para 56	B-14	n/a
<p>SEL footprints for a general audience may be provided overlaid on a more convenient map (e.g. an ordinary road map with a more suitable scale for publication in documents). The underlying map and footprints should be sufficiently clear for an affected resident to identify the extent of the footprints in relation to their home or other geographical features. Hence, this underlying map must show key geographical features, e.g. streets, rail lines and rivers. Calculations should include terrain adjustments as described in the section on L_{eq} contours</p>	Noise	Para 58	B-14	n/a
<p>Change Sponsors may use the percentage highly annoyed measure in the assessment of options in terminal airspace to supplement L_{eq}. If they choose to use this method, then the guidance on population data for noise exposure contours set out should be followed. Sponsors should use the expression and associated results in calculating the number of those highly annoyed. If they wish to use a variant method, then this would need to be supported by appropriate research references.</p>	Noise	Para 65	B-15	n/a

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Requirement		Ref.	Page	NATS proposed offering
Change Sponsors may use the L _{DEN} metric but, if they choose to do so, they must still produce the standard L _{eq, 16 hours} contours as previously described. If airspace change sponsors wish to use the L _{DEN} metric they must do so in a way that is compliant with the technical aspects of the Directive and any supplementary instructions issued by DEFRA. Sponsors should note the requirement for noise levels to be calculated as received at 4 metres above ground level. In particular, the guidance on how contours are to be portrayed, as described in the section dealing with L _{eq} contours applies. Calculations should include terrain adjustments as described in the section on L _{eq} contours. An exception regarding L _{DEN} contours is the production of a table showing numerical data on area, population and households which should be presented by band (e.g. 55 dBA to 60 dBA) rather than cumulatively as for UK L _{eq} contours (e.g. >55 dBA). Change Sponsors should make it clear where areas/counts are by band or cumulative.	Noise	Para 67 & 69 & 70	B-15 & B-16	n/a
Change Sponsors may use the L _{Night} metric within their environmental assessment and consultation. If they do so, SEL footprints must also be produced. Calculations should include terrain adjustments as described in the section on L _{eq} contours.	Noise	Para 73	B-16	n/a
Change Sponsors may use difference contours if it is considered that redistribution of noise impact is a potentially important issue.	Noise	Para 78	B-17	n/a
Change Sponsors may use PEI as a supplementary assessment metric.	Noise	Para 85	B-19	n/a
Change Sponsors may use the AIE metric as a supplementary assessment metric. If the sponsor uses PEI as a supplementary metric then AIE should also be calculated as both metrics are complementary.	Noise	Para 87	B-19	n/a
Change Sponsors may vary the information displayed in Operations Diagrams providing that the diagram is a fair and accurate representation of the situation portrayed.	Noise	Para 88	B-20	n/a
Change Sponsors may use maximum sound levels (L _{max}) in presenting aircraft noise footprints for public consumption if they think that this would be helpful. This does not replace the obligation to comply with the requirement to produce sound exposure level (SEL) footprints, where applicable.	Noise	Para 95	B-21	n/a
Change Sponsors may produce diagrams portraying maximum sound event levels (L _{max}) for specific aircraft types at a number of locations at ground level beneath the airspace under consideration. This may be helpful in describing the impact on individuals. It is usual to include a table showing the sound levels of typical phenomenon e.g. a motor vehicle travelling at 30 mph at a distance of 50 metres.	Noise	Para 96	B-21	n/a

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Requirement		Ref.	Page	NATS proposed offering
<p>Change Sponsors may wish to conduct an economic appraisal of the environmental impact of the airspace change, assessing the economic benefits generated by the change. If undertaken, this should be conducted in accordance with the guidance from HM Treasury in the Green Book (HM Treasury, 2003). If Change Sponsors include a calculation of NPV then they must show financial discount rates, cash flows and their timings and any other assumptions employed. The discount rate must include that recommended in the Green Book currently set at 3.5%. Additionally, other discount rates may be used in a sensitivity analysis or because they are representative of realistic commercial considerations</p>	<p>Economic Valuation</p>	<p>Para 124 & 126</p>	<p>B-27</p>	<p>NATS does not propose to undertake economic appraisal of environmental impact of the airspace change.</p> <p>Given that there is no established methodology that is widely accepted as resolving the above issues, and considering the requirements of CAP725 Annex B paragraph 20 in terms of cost-effectiveness and credibility, NATS does not propose to attempt to develop and apply methodologies as part of this development.</p>

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