

8 November 2006

Dear Sir or Madam

REVIEW OF THE AIRSPACE CHANGE PROCESS - CAP 725 PART B

I would like to take this opportunity to thank all respondents for providing such detailed feedback, in the form of both the questionnaire and written comments, on the proposal to revise the Airspace Change Process as detailed in the *Environmental Assessment of an Airspace Change* (CAP 725 Part B). All of the information received from consultees has been collated into a single *Report on Findings* document which can be downloaded from the CAA website.

The Directorate has carefully reviewed all of the comments and feedback on CAP 725 Part B that were received as a result of the consultation exercise and is now in a position to provide a formal response.

In order to present a succinct response, the Directorate has taken individual comments, identified recurrent themes and then provided responses that are captured in a "Response to Consultees" document. This document can be downloaded from the CAA website using the following link below:

www.caa.co.uk/acpconsultation

It is, however, important to keep in mind the Directorate's assurance that all remaining concepts will be considered and, where appropriate, integrated into the final Airspace Change Process documentation.

For further clarification on the responses for CAP 725 Part B, the reasons for inclusion/exclusion of comments/suggestions or to answer any other queries, please write to me at the address at the foot of this letter.

Over the next few months, the Directorate will be working on all the Airspace Change Process documentation. It is the Directorate's best intention to implement the revised Airspace Change Process with the publication of CAP725 in March 2007.

Yours faithfully



Peter Havelock
Head of Environmental Research & Consultancy Department

1 Introduction

- 1.1 Comments on CAP 725 Part B were received from a wide range of consultation respondents. As anticipated, with such a wide spectrum of interests represented, there are many points of difference between respondents.
- 1.2 For the purposes of this paper, responses have been considered under different themes. The paper indicates the broad intentions of DAP in revising its guidance on environmental assessment. It does not describe detailed consideration of all points raised during the consultation: this is the subject of ongoing work.

2 Legislation

2.1 A number of respondents discussed the white paper *The Future of Air Transport* and other white papers including the Government's revision of its sustainability strategy. Other respondents felt that there was no mention of relevant European regulations and directives.

DAP's response:

Relevant white papers and legislative documents are listed in the references in Part B. Before final publication, DAP intends to repeat a survey of all relevant official documents and will ensure that the list is comprehensive.

2.2 Some respondents made comments about Government policy on the growth of aviation and suggested that the CAA should limit the growth of air traffic on environmental grounds. Other suggestions included proposals for taxes or other economic sanctions on aviation. Some comments contained detailed proposals for types of taxations and uses for the proceeds of taxation. Some respondents discussed aspects of airport finance including cross-subsidies between airports and the auctioning of landing/departure slots.

DAP's response:

Although the CAA advises the Government on many aspects of aviation, it is unable to intervene in aviation policy in the way suggested by some respondents. The subjects of taxation and airport financing are beyond the scope of this consultation.

2.3 Two respondents suggested that the CAA should consider animals, livestock and biodiversity in its assessment of the environmental impact of airspace changes.

DAP's response:

The CAA believes that its statutory obligations in regard to the environmental assessment of airspace changes do not extend to consideration of animals, livestock and biodiversity. These issues do not feature in the guidance from the Department of Transport to the CAA on its environmental objectives. However, the issue will be considered further and advice taken.

2.4 One respondent asked whether all airfields within controlled airspace should review their airspace against environmental impacts.

DAP's response:
The consultation is about changes to airspace rather than a review of the current arrangements.

2.5 One respondent suggested the application of the Town and Country Planning Regulations EIA process.

DAP's response:
The Town and Country Planning Regulations legislation does not apply to airspace changes.

2.6 Several respondents made comments about surface access and other general impacts of the growth of air traffic.

DAP's response:
Consideration of surface access and other effects are outside the scope of this consultation.

3 Principles

3.1 Several respondents requested a definition of environmental benefit.

DAP's response:
There is no clear-cut definition of the term. An authoritative discussion of the difficulties in defining 'environmental benefit' features in an article by the late Professor David Pearce entitled 'Cost-Benefit Analysis and Environmental Policy' published in *Environmental Policy: Objectives, Instruments and Implementation*.

3.2 Many respondents questioned the relative weightings that DAP would apply to different types of environmental impact. One respondent remarked that the requirements appeared mutually exclusive. Others commented that DAP should endeavour to ensure that everyone is equally happy, or suggested that DAP should take into account a wide range of views but should not let a minority prevent a particular action. Some respondents commented on the distributional aspects of environmental impact including the concentration or dispersion of air traffic.

DAP's response:
The application of weights for different aspects of environmental impact implies a mechanistic process in which numbers are calculated, weighted and combined to achieve a single measure of environmental impact that can be minimised by adjusting the inputs to the process. This is currently not possible – and may never be possible. There is no universal agreement on weights for different environmental impacts. Environmental assessment is a complex multi-dimensional problem that is not amenable to a simple weighting technique. The closest approach to this suggestion is economic valuation of environmental impact but there are significant difficulties with this economic approach that are discussed later.

3.3 Some respondents suggested that heights should be used as criteria for screening out the need for environmental assessment to a greater extent than proposed in the consultation document.

DAP's response:

Heights have been used as criteria in the proposed document where there are scientifically justifiable reasons for their use, e.g. in terms of the required accuracy of estimates.

3.4 It was suggested that airspace should be assessed at the outset as falling into limited, moderate or significant environmental impact.

DAP's response:

It would not be appropriate to make the determination of environmental impact at the outset. The proposal makes the assumption that the information on environmental impact that is required as part of DAP's statutory obligations is unlikely to be available at the outset for all but the simplest of airspace changes.

3.5 Some respondents suggested additional principles of environmental assessment. One suggested a new principle 'reflexive' – continually to reassess and question the chosen assumptions and methodologies in the light of results obtained and feedback from focus groups. Another suggested that 'economic valuation of environmental impact' should be added to the principles.

DAP's response:

It is considered that the principles 'adaptive' and 'participative' embrace the spirit of the proposed 'reflexive' principle. The 'rigorous' principle is defined as 'applying the best available scientific knowledge, including methodologies and techniques relevant to the problem under investigation' and extends to the use of economics for environmental assessment.

3.6 Many respondents commented on the level of detail. Some considered that the amount and level of technical detail was excessive especially in relation to the annexes. Some suggested that environmental assessment is best left to experts who do not need any guidance and the document could be cut substantially. Some suggested that this was too detailed for public consumption and a brief overview is all that is required. Others expressed the view that the material was daunting. However, many expressed the view that the document formed useful reference material that explained complex concepts clearly. Many of these respondents were in favour of greater transparency.

DAP's response:

Most Civil Aviation Publications (CAPs) are technical documents and are used by specialists. Although the CAA endeavours to produce CAPs that are readable and relatively easy to understand, it should be appreciated that CAPs deal with complex technical subjects and CAP 725 Part B is no different. The primary purpose of this document is to enable airspace change sponsors to provide sufficient information in the appropriate format to enable the impact on the environment to be assessed. It is recognised that some sponsors may not have appropriately qualified staff to provide this information. In such cases, it will be necessary for sponsors to employ external staff to assist them in producing airspace change proposals. This technical document is designed to describe the requirements clearly to sponsors and their consultants. DAP believes that leaving the subject to specialists and failing to provide adequate guidance to sponsors would be contrary to the requirement for transparency. The fact that the subject matter is complex should not preclude proper consideration of the environmental impact of airspace changes.

3.7 One respondent suggested that the reasons for providing the information contained in the annexes should be explained.

DAP's response:

Following the feedback from consultees, it has been decided that these will be incorporated in the document.

3.8 One respondent suggested that there is no point in DAP trying to demonstrate that it is at the leading edge of environmental matters.

DAP's response:

Section 8 of the Civil Aviation Authority (Air Navigation) Regulations 2001 requires that 'in relation to its air navigation duties, the CAA shall maintain its capability to provide expert technical advice to the Secretary of State on environmental matters'. The CAA has to meet its statutory obligations by maintaining sufficient expertise in this area.

3.9 One respondent commented on the relative sizes of Part A and Part B expressing discontent that Part B was much larger than Part A. The respondent suggested that the size of Part B might be appropriate if it was the product of an environmental agency.

DAP's response:

DAP has responsibility for assessing the environmental impact of airspace changes and must ensure that sufficient guidance is provided to airspace change sponsors. We believe that the guidance is broadly appropriate but will be incorporating various changes as a result of this consultation. We believe that the content is appropriate to the scale of the potential environmental impact, which can potentially affect sizable numbers of people, linked with most airspace changes.

4 Compliance

4.1 Many respondents made suggestions about the level of compliance – the ‘must’, ‘should’ and ‘may’ categorisation. In general, non-aviation respondents favoured a much stricter regime with many more requirements being made compulsory and aviation respondents proposing lower levels of compliance.

DAP’s response:

The requirements for environmental assessment should be proportionate in terms of the airspace change proposed and its potential impact. In line with international guidance on impact assessment, environmental information presented should be relevant, cost-effective, focused and credible. Furthermore, it is suggested that the requirements should be sufficient for the purposes of assessing the environmental impact but, at the same time, not overly excessive. The compliance levels for all aspects of environmental assessment will be reviewed.

5 Forecasting

5.1 Several respondents pointed out the limitations of forecasting. One was concerned that differences between forecasts and subsequent outcomes might provide grounds for airspace changes to be challenged long after implementation.

DAP’s response:

The limitations of forecasting are well understood but it is thought that failing to consider the implications of the growth in air travel would be inconsistent with DAP’s statutory obligations. Forecasts are used in many other public policy areas and no one would pretend that they are likely to be completely accurate. However, they do enable investigation of impacts under a range of assumptions. DAP believes that forecasts are essential to the airspace change process, not only providing justification for changes, but also enabling the impact of changes to be properly considered. It is important that the assumptions underpinning forecasts be clearly explained. Unless actual traffic levels breach binding constraints (e.g. planning agreements, environmental legislation or limits imposed by Government policy) it would not be reasonable to expect the sponsor to be responsible for ensuring that traffic levels matched predictions – many aspects of which lie outside their power to control.

5.2 One respondent suggested that traffic forecasts should be used to assess emissions from surface access to airports and water quality.

DAP’s response:

The environmental impact of surface access traffic and water quality is beyond DAP’s statutory obligations and will not be considered as part of the airspace change process.

5.3 One respondent suggested that traffic forecasts produced should be consistent across different airspace change proposals.

DAP's response:

DAP will give advice and guidance to encourage airspace change sponsors to use appropriate and relevant traffic forecasts based on the best information available. The important issue is not consistency between airspace changes at different locations, but in comparing the before/after and future scenarios associated with a particular change.

6 Noise

6.1 Several respondents were concerned about the emphasis on Leq and SEL metrics. Some challenged the use of the A-weighting frequency filter.

DAP's response:

Extensive review of the scientific literature on noise metrics and aircraft noise suggests that there are no better metrics than Leq and SEL in assessing the impact of aircraft noise in terms of annoyance and sleep disturbance respectively. Many of the objections raised during this consultation have been aired in the past. A review of objections to Leq is presented in DORA Report 9023 - The use of Leq as an Aircraft Noise Index. The CAA is aware of the limitations of noise metrics and takes these limitations into account in assessing the environmental impact of airspace changes. In particular, the CAA understands the limitations of Leq in relation to different operating modes including options for mixed mode operations. In such cases, the application of additional metrics would be required.

6.2 One respondent concluded that the statement that Leq was a good predictor of community annoyance was contradicted by the statement in Appendix C explaining that only about one quarter of inter-individual variance in annoyance can be attributed to the average noise level of exposure.

DAP's response:

The two statements are compatible. The relationship between aircraft noise and annoyance is subject to many statistical confounding factors not least of which being human variability. These confounding factors reduce the correlation between annoyance and aircraft noise. Nonetheless, there appears to be no better metric than Leq in explaining the relationship between aircraft noise and annoyance. That is, other metrics have been shown to exhibit lower correlation between annoyance and aircraft noise than that for Leq. Leq correlates very well both with the average annoyance reported by communities and with the proportion of people who say they are 'Very Much Annoyed'.

6.3 Some respondents were concerned that inclusion of a number of supplementary metrics within the guidance implied that sponsors would be required to use all metrics for their airspace change.

DAP's response:

This would not be appropriate. These are optional supplementary indicators. The requirement is for information that is sufficient to enable adequate environmental assessment of the airspace change.

6.4 Some respondents suggested that the use of L_{den} and L_{night} as specified under European Directive 2002/49/EC be made mandatory for the purposes of environmental assessment of airspace changes.

DAP's response:

Neither the directive nor its transposition to UK law in the Environmental Noise (England) Regulations 2006 requires the use of these metrics for purposes other than a five-yearly assessment in the form of strategic noise maps at major airports and associated action plans. One respondent expressed concern at the lack of scientific evidence to support the evening and night weightings in the L_{den} metric, and DAP shares this concern. Nevertheless, production of L_{den} and L_{night} contours is a legal requirement for five yearly strategic noise mapping but it is not considered appropriate to make their use mandatory for airspace changes.

6.5 A respondent suggested that the height criterion suggested for production of L_{eq} contours implied that there was no significant noise from aircraft above the suggested height.

DAP's response:

The height criterion was proposed because past calculations indicate that the size and shape of L_{eq} contours are not significantly affected by noise from aircraft operating above the proposed height. There is a role for SEL footprints in assessment of noise distribution beyond the contour boundary and this will be clarified.

6.6 One respondent suggested that contours and footprints should be provided to consultees in electronic format on request.

DAP's response:

Where a request was made for data in electronic forms this would seem to be in keeping with the principle of transparency. However, in reality, it is thought unlikely that many consultees would have access to geographical information system (GIS) software required to view these data.

6.7 Some respondents considered that there was no requirement to describe the ANCON aircraft database. Some were uncomfortable with the emphasis on commercial services provided by CAA. One suggested that specifying the model to be used was not lawful. Another respondent stated that both models rely on certificated noise data rather than operational noise measurements. Another suggested that noise should be measured rather than modelled.

DAP's response:

There are two aircraft noise models available to airspace change sponsors - the US Federal Aviation Administration's Integrated Noise Model (INM) and the CAA ANCON model. It is possible to purchase a copy of INM from the FAA. The CAA ANCON model was built and is maintained by the CAA: intellectual property rights reside with the Department for Transport. It is not possible to purchase a copy of the ANCON model. The Department for Transport encourages the CAA to provide ANCON aircraft noise modelling services to third parties on a commercial basis as for any other consultancy supplied by the CAA. Furthermore, the Department for Transport requires DAP to ensure that airspace change sponsors use ANCON for aircraft noise modelling where ANCON is already in use at that airport.

Practical experience has indicated that sponsors and their consultants who use INM would find additional guidance on the use of this model helpful, when it is applied to the UK scenario. This guidance, including recommended settings and database details, will be included in the next revision to CAP 725 Part B. The INM is based on certificated data whereas the ANCON database is based on operational noise measurements collected under real world conditions. As 'standardised' conditions are used for aircraft noise certification, noise estimates based on certification data cannot be guaranteed to match the aircraft noise that people actually hear near airports.

It would not be cost effective to rely on noise measurements simply obtained from a very large array of noise monitors across the area of interest. Measurements alone would not provide a forecast of changes to noise exposure following the introduction of airspace changes. To do this with any accuracy requires an understanding of the generation and atmospheric transmission of aircraft noise.

6.8 Several respondents made reference to PPG 24, especially in the context of night noise exposure contours.

DAP's response:

Planning Policy Guidance Document 24: Planning and Noise is specifically concerned with guidance to local authorities on considerations to be taken into account in determining planning applications. Although directed principally at local planning authorities, the Department for Transport advises that the core principles should inform DAP's consideration of airspace changes. PPG 24 is currently under revision and documentation will be reviewed following publication of the replacement document – PPS 24.

6.9 One respondent asserted that the table in Figure B1 is out of date.

DAP's response:

Figure B1 is presented as an example of the relationship between noise, power and distance and is not intended for use. The data held by the CAA for use in the ANCON model is updated annually.

6.10 One respondent stated that the sleep research quoted in the guidance is 'highly questionable from a personal and anecdotal evidence'.

DAP's response:

The CAA makes its environmental assessment of airspace changes on the basis of published scientific evidence.

6.11 One respondent commented that there appeared to be no guidance on how population counts are derived.

DAP's response:

Further detail on this topic will be provided.

6.12 One respondent suggested that the CAA should offer visible and tangible support for research into new aircraft such as the Silent Aircraft Initiative.

DAP's response:

Although not part of this consultation, the CAA does participate in and support initiatives into new aircraft research. The Silent Aircraft Initiative project recognised the contribution of CAA personnel throughout the project.

6.13 A respondent suggested that the words 'if appropriate' were inappropriate in the context of a sentence discussing safety aspects.

DAP's response:

The sentence in question refers to bird strikes and it is suggested that the issue of bird strikes will not be relevant for all airspace changes. The guidance makes it clear that safety aspects are considered separately from environmental issues and that safety remains the paramount consideration for DAP when determining airspace changes. The Transport Act 2000, the Civil Aviation Authority (Air Navigation) Directions 2001 and CAP 725A all make this clear.

7 Climate Change

7.1 Some respondents opined that climate change is not relevant. One suggested that climate change is due to natural phenomenon rather than human activity.

DAP's response:

The main body of scientific opinion agrees that climate change is an important issue and this has been endorsed by the Government. The subject features in a number of white papers covering transport, energy and the environment – and most recently in The Stern Review: The Economics of Climate Change. The CAA has an obligation to consider the environmental impacts of aviation and it would be unreasonable to exclude one impact that is considered so important by the Government, its scientific advisors and the public.

7.2 It was also suggested that airspace changes form a small contribution to climate change impact and in a global context the UK contribution is small.

DAP's response:

Although currently small the UK aviation emissions contribution is growing rapidly. The European Commission is seeking a reduction of emissions from aircraft by 4-6% per flight through improved airspace management arrangements. Ignoring aircraft emissions and climate change would be contrary to the environmental objectives established for the CAA in respect of its air navigation functions by the Department for Transport. The Department for Transport states that 'DAP is in a position to contribute towards reducing aircraft emissions generally by developing airspace arrangements and procedures that will enable aircraft to climb efficiently, allow direct routings where possible, reduce holding times, and facilitate the consistent use of continuous descent and low power/low drag approach procedures.

7.3 Some respondents were concerned that there appeared to be no multiplier to make allowance for the specific impacts of emissions from aircraft.

DAP's response:

There is much debate in the scientific community about the use of a multiplier for aircraft emissions. In the context of the proposed guidance the use of a multiplier would increase all carbon dioxide data by exactly the same factor. Thus, there would be no effect in considering the relative merits of the future proposal relative to the current situation on comparing one option with another. Of course, if more sophisticated metrics for climate change impact were used then a multiplier would have to be considered. DAP will monitor research activity on the aircraft emissions multiplier issue and will incorporate this when the Government makes a formal recommendation on the appropriate multiplier.

7.4 One respondent suggested a minor modification to the conversion factor used to calculate the mass of carbon dioxide emitted from the mass of kerosene burned.

DAP's response:

The conversion factor is dependent on the chemical formula for kerosene used. As there is no exact chemical formula for kerosene, the conversion factor is dependent on simplifying assumptions about its chemical contents. Accordingly, there are different variations for the chemical formula for the combustion of kerosene but the resulting values for the respective conversion factors are within about 1% of each other.

7.5 A respondent suggested a simplified method for calculating emissions and fuel burned.

DAP's response:

This is under consideration.

8 Local Air Quality

8.1 One respondent suggested that more detail on local air quality is required. It was noted that there was no mention of the Project for the Sustainable Development of Heathrow (PSDH): Air Quality Technical Report.

DAP's response:

At the time the consultation document was published the PSDH air quality panel had yet to publish their report. The contents of the panel's very thorough consideration of air quality issues will be incorporated in the guidance on the environmental assessment of airspace changes. However, while local air quality issues may be taken into account, they are unlikely in most cases to be a significant factor when determining an airspace change proposal.

8.2 One respondent suggested an increase to local air quality assessment height criteria.

DAP's response:

This will be considered.

8.3 Another respondent suggested that the airspace change itself might cause the area beneath the change to trigger air quality management area (AQMA) status.

DAP's response:

Whilst this will be considered, DAP feels that AQMA status is unlikely to be triggered as the majority of local pollution is caused by road traffic and aircraft at heights <1000 feet.

9 Tranquillity and Visual Intrusion

9.1 Many considered that the issue of tranquillity is not adequately addressed. Because there is no commonly agreed definition of tranquillity or method of measurement, some suggested there should be no requirement to consider the issue. Others suggested that research on tranquillity should be undertaken. Yet others proposed that their own recent research into tranquillity should be employed in environmental assessment.

DAP's response:

DAP shares concerns that the definition and measurement of tranquillity is not well established. It is recognised that further refinement of the guidance will be required if scientific knowledge on tranquillity and visual intrusion is significantly developed.

10 Economic Valuation of Environmental Impact

10.1 Some respondents suggested that the use of net present value is irrelevant and others believed that economic techniques were inappropriate. Others welcomed the opportunity to employ economic techniques. One respondent believed the use of economic techniques should be mandatory for environmental assessment.

DAP's response:

DAP believes that economic valuation of environmental assessment can be a useful tool. HM Treasury encourages the use of such techniques by public sector bodies. The Green Book produced by HM Treasury provides guidance on techniques that might be employed. DAP believes that it would be unreasonable to exclude provision for economic valuation of environmental impact of airspace changes within its guidance material.

10.2 Some respondents were concerned about the complexity of economic valuation.

DAP's response:

DAP recognises the complexities and difficulties of applying economic techniques, and the various problems associated with the economic valuation are appreciated. DAP suggests that sponsors may require specialist assistance in using these techniques.

11 Conclusion

11.1 The Directorate of Airspace Policy is grateful for the substantial contribution made by all respondents to the consultation. All suggestions and comments are being carefully considered.

11.2 This paper forms an outline summary of its intentions for CAP 725 Part B. Further work on this document will take place during the next few months.