

The CAA's Future Airspace Strategy – Consultation Response Document

1. Introduction.

1.1 The purpose of this document is to provide a synopsis of the responses to the Future Airspace Strategy consultation, which ran from 1 November 2010 until 7 February 2011, and provide the CAA's comments on the analysis of those responses. Overall 93 separate responses were received from the individuals and organisations listed alphabetical at Annex A, and the breakdown of respondents is:

- 25 Groups, including Airport Consultative Committees, Community Action Groups and Environmental Organisations.
- 33 Councils at Parish, Local Authority and County Council level.
- 13 from Airlines, Airports and Air Navigation Service Provider.
- 13 from Industry representative groups and companies.
- 9 from Individuals.

1.2 The responses cover a range of views and issues associated with the FAS and many of them also provided comment on subsequent implementation action or focused on specific issues rather than airspace strategy in the round. Where responses have focused on location specifics the comments have been extrapolated for consideration at the strategic level. Implementation issues and specific airspace design considerations will have to be taken into account during any implementation programmes associated with the FAS. Similarly, some issues raised are not within the gift of the CAA to resolve, such as those issues surrounding the Environmental Guidance to the CAA and suggested changes to Government policy. Nevertheless the CAA will raise and discuss these concerns with relevant organisations.

1.3 This consultation synopsis sets out to highlight the issues for consideration under the relevant questions asked in the consultation document¹ and reproduced below, albeit the questions have been treated as a topic or theme for discussion. In addition to the consultation questions, an 'Additional Comments' section has been added to ensure all the comments and concerns raised are fully captured in this synopsis.

1.4 The re-iteration in this document of comments received from the FAS consultation in no way implies the CAA's agreement or otherwise with the point being made by individuals or organisations. For added clarity the CAA comment to the responses has been printed in italics throughout the document.

2. Additional Comments from the FAS Consultation Responses.

2.1 **These comments are over and above the responses to the consultation questions below.**

¹ The Consultation Documentation can be found at www.caa.co.uk/FAS

- 2.1.1 There was concern expressed with regard to the focus of the FAS on Commercial Air Transport or Airlines with a lack or minimal account being taken of the concomitant needs of private aviation such as, light business, personal or recreational. This point was taken further with attention drawn to the Communication from the European Commission of 11 January 2007 entitled 'Agenda for a Sustainable Future in General and Business Aviation', and the European Parliament resolutions of 3 February 2009 (2008/2134 (INI)) which called upon the Council, Commission, Governments and Parliaments of Member States to act on the 35 resolutions. The resolutions inform member states to take into account the specific needs and interests of General and Business Aviation in the development of future air transport policies with a view to strengthening its competitiveness.
- 2.1.2 **CAA Comment:** *Whilst the main focus of the FAS document is indeed Commercial Aviation this is not at the exclusion of General Aviation or, indeed, any other airspace users. The FAS Vision itself makes the point that there is a need to balance “the needs of all users” and the document does make the point that UK airspace will require modernisation, amongst other things, if we are to “sustain access to sufficient airspace for non Commercial Air Transport users”. It is the CAA intention, in keeping with its statutory obligations, to continue to work with all sectors of the aviation community and balance all their needs.*
- 2.1.3 The view was expressed that the FAS lacked any change in the “continuous unrestricted growth” policy for aviation. Though it refers to “reasonable growth”, the document contains implicit assumptions that any demand for growth is “reasonable”. Nowhere can be found any mechanism by which the CAA can say, or cause to be said, “this demand is unreasonable”. This point was taken further with a statement that rather than calling for new guidance from the Government, the CAA should as regulator take a lead and set for ministers the issues that require to be addressed. This guidance should also highlight the associated funding requirements for research and development. The possibility of EU funding and cooperation on issues which are relevant across the EU need to be explored. There was also concern expressed that there is little evidence in the draft FAS that the CAA feels confident (or is likely to be effective) with its expanded environmental role as envisaged by the Pilling review.
- 2.1.4 **CAA Comment:** *The issue of the ‘Growth Assumptions’ being used in the FAS were questioned a number of times by a range of stakeholders. It is important to stress that airspace strategy and capacity does not drive aviation growth. Rather the FAS considered a range of assumptions about growth and accepted that all the indications were that some growth, and potentially considerable growth, in aviation was extremely likely. The FAS therefore needed to consider that if growth is both permitted and achieved how the airspace could provide the necessary capacity. To investigate and test the capacity of the airspace the three scenarios were used, not because they were necessarily a supported view of growth but because they tested the airspace system and if the airspace system could accommodate these scenarios then the UK could be confident that it could provide the required capacity and performance out to 2030. Even if there were to be limited or no growth in air traffic movements there is still much that can, and should be done, to make the airspace more efficient in line with the FAS vision. As to the issues of ‘reasonable’ or ‘unreasonable’ growth, it is not for the CAA to express a view on this matter, that is up to Government and then for the CAA in its role as an independent regulator to manage the National asset of airspace accordingly. Whilst the CAA has always been proactive in its management of UK airspace and its engagement with other European*

Member States and Institutions, in accordance with UK and European Statute, it is not for the CAA to 'lead' government policy but to provide independent expert advice as necessary. It is worthy of note that a number of other States are actively considering the need for an airspace strategy.

2.1.5 A view was expressed that the FAS should evolve into a Master Plan for UK airspace funded by Central Government and undertaken by DAP, with secondary level support from NERL². If DAP responsibility for such a Master Plan creation (including funding by Government) is not accepted, the alternative is that this responsibility should be delegated to NERL, and that delegation made quite clear in the Future Airspace Strategy. The CAA should be clear that all costs involved in this should be allowable in the regulatory asset base allowed to NERL in its economic regulation of the NATS en-route business.

2.1.6 **CAA Comment:** *The FAS is written within the context of Government policy and as such this view is outside the scope of the FAS and the CAA's current statutory framework. Nevertheless, the view is noted and will be shared and discussed with colleagues at the Department for Transport to support their work on the Aviation Policy Framework.*

3 General.

3.1 The FAS is predicated on modernisation of the UK airspace system – implementing new operational procedures, enabled by technology, to increase the safety and efficiency of ATM. In your opinion what are the main drivers and priorities for the modernisation of the National ATM system that should be considered?

3.1.1 The views on the main drivers and priorities were many and various but in sum were as expressed below.

3.1.2. The main drivers and priorities to be considered for the modernisation of the National ATM system should be a combination of operational and technological improvements. Advances in satellite based technology should be brought into service at a faster rate than currently being achieved. The capability of existing ATM ground systems seems to lag behind that of aircraft airborne avionics and priority should be given to resolving this shortfall to increase operational efficiencies.

3.1.3 **CAA Comment:** *Albeit the above view does not include the environment or safety which are and must remain key drivers in the airspace strategy, it does highlight the issues and challenges faced by the UK ATM system. The FAS needs to be used to drive these very issues. The CAA is keen to capitalise on technological benefits which are necessary to modernise the ATM system; Performance-based Navigation is one such example and we must not forget the importance of achieving greater integration of airborne and ground based systems.*

3.1.4 The key drivers, in no particular order of priority, were seen as:

- An improvement in the overall performance and adequacy of the UK ATM system. This means that whilst there must be adequate controlled airspace for commercial aviation, it is anticipated that with more precise navigation,

² NERL – NATS En Route Limited

there will also be the opportunity for containment and the return of controlled airspace that is no longer necessary.

- A move to a performance-based ATM system with associated targets for the entire system. This should encompass better management of individual business trajectories with the introduction of milestones (i.e. target time of arrival) to monitor the performance of individual flight operations.
- A reduction in airborne holding and increased fuel efficiency.
- Increased capacity and airspace flexibility.
- Safety standards are maintained.
- Environmental improvements achieved through new ATM concepts.
- Congestion “hotspots” addressed.
- That the UK remains internationally competitive.
- That the FAS is implemented quickly and with a focus on the South East of England. (This item was only voiced by those already operating in the south-east.)

3.1.5 CAA Comment: *The CAA would agree that the above list covers the main issues that delivery of the strategy needs to achieve. The order of priorities is a little more complex and there are many overlaps between the drivers, some of which will be self-reinforcing (e.g. targeted capacity enhancements would address congestion hotspots and reduce airborne holding). We would broadly agree that ATM and airspace improvements in the South East will inevitably be a starting point that will provide the greatest overall benefits, with improvements being expanded to cover the whole of UK airspace. Notwithstanding this view the CAA recognises that UK airspace has to be managed as a whole. The CAA has also initiated more detailed work on the benefits and risks associated with the FAS implementation.*

3.1.6 Lastly, but not least in this section it was proposed that a fourth strategic driver – cost efficiency – should be specifically incorporated into the strategy. This would mean that the four strategic drivers of Safety, Capacity, Environment and Cost Efficiency would together drive the efficiency of the aviation sector in future. Delivering cost efficient Air Navigation Services (ANS) is a priority for NERL, as (under licence) the UK’s monopoly en-route Air Traffic Service Provider, and features strongly in the terms of the third price control period (CP3) agreement with the CAA and the European performance targets set out by the EC SES legislation. The cost efficiency of en-route service provision is therefore one of the four key performance indicators in the UK’s National Performance Plan (NPP) for ANS.

3.1.7 CAA Comment: *The CAA would agree the importance of airspace providing value for money, particularly as set out in CP3, European performance targets and the preparation of the UK National Performance Plan. The concept of airspace efficiency, including cost efficiency, is already discussed in the FAS. Cost efficiency is just one of the contexts sitting behind the current three strategic drivers and is a constraint within which any strategy and delivery of a service to a customer has to work. The CAA takes the view that the issues of cost efficiency are already covered*

adequately within the FAS (and elsewhere) without it becoming one of the top level strategic drivers. The issue of airspace efficiency and all that it encompasses is covered later in this document and will be the subject of further work led by the CAA's Regulatory Policy Group.

3.2 From your perspective what are the most significant risks associated with the modernisation of the airspace system to deliver safety, efficiency and environmental benefits?

3.2.1 The most significant risks were seen as:

- Environmental benefits will be rejected in favour of the other strategic drivers and profit.
- **CAA Comment:** *Whilst the CAA recognises that this is a very real concern we have put considerable resource into ensuring that environmental issues, be they local in terms of noise and local air quality, or global in terms of Global Warming and Green House Gas Emissions, are given proper consideration and priority. The three strategic drivers of FAS are "Safety, Capacity and Environment" and whilst some respondents have taken this to mean that environment is considered of lesser priority than Safety and Capacity this is not the case. The CAA has clearly stated that "All changes will need to be justified on the grounds that they will directly reduce the risk and/or contribute to the development of a fundamentally safer system or at the very least maintain current levels of safety whilst delivering benefits in other areas." The last part of this statement was included as it was specifically recognised that changes that delivered environmental benefits but did not deliver safety benefits should be permissible. What the CAA cannot consider is improvements in the system that have a detrimental effect on safety as assessed by the CAA.*
- The juxtaposing of different environmental factors in a trade-off is a false approach. All environmental impacts are costs which must be independently recognised as costs of the system.
- **CAA Comment:** *There are two issues within this point. First the trade-off of environmental factors. The CAA would strongly dispute that it is a false approach. Indeed it is necessary, and seen as necessary by many other respondents, not least local communities, who recognised that there would need to be a trade off between the global issues of Green House Gas emissions and local issues of noise and local air quality. To achieve the best reduction in noise it may be necessary to limit the improvements of emissions that could be achieved closer to airports. It is in this context, of possibly limiting the maximum possible improvements in one area to enable a better improvement in another, that the work needs to progress. Second the issues of environmental impacts being costs of the system. The CAA recognises the logic of this statement and environmental issues, or costs, is just one aspect of the costs of the system that will have to be considered in work being progressed on the concept of airspace efficiency and the potential need for a quantifiable definition and the potential monetisation of aspects of the system.*
- There will be a lack of clarity on who is responsible for the design, delivery and implementation of the Strategy and Airspace Plan. There is an absence

of a national policy framework to drive the changes leading to countless arguments between the main protagonists and subsequent need for guidance which Government may be reluctant to give. This leaves every airspace change having to be debated from 'first principles', causing delay, cost and duplication.

- **CAA Comment:** *One of the purposes of the FAS and its implementation is to provide the roadmap to achieving the Future Airspace Vision and to provide the implementation structure so that these very issues can be exposed, discussed and resolved. That said the CAA does not underestimate the challenge of the task and it will require the determination, cooperation and engagement from all sectors of the aviation community and Government to deliver the improvements envisioned. The FAS is a Strategy it is not an Airspace Plan and the views concerning the production on an Airspace Plan are noted and will be shared with colleagues at the Department for Transport for their consideration during the development work of the Aviation Policy Framework, the scoping document for which the Department for Transport has just published for consultation. Under the current policy there is no scope for the CAA to develop an Airspace Plan as described above.*
- There were several issues or risks raised surrounding the airspace change process and consultation. These points ranged from the view that there would be insufficient information and consultation with affected communities and individuals through to those who considered the current Airspace Change (CAP 725) framework was constraining, time consuming and prohibitively expensive. The view was also expressed that there is an over-adherence to the belief that there must be 'no losers' arising from any airspace changes, leading to a reluctance to initiate changes and slow implementation.
- **CAA Comment:** *The Airspace Charter (CAP724) and the Guidance on the Application of the Airspace Change Process (CAP725) have been drawn up with full engagement and consultation. They are the mechanics by which the CAA ensures that its Statutory obligations are fulfilled and it is difficult to see how the process could be significantly changed without the change in the overarching legislation and guidance to the CAA. The different concerns that various elements of the Aviation Community have with different aspects of the Airspace Change Process are well known but it remains the means of assessing and ensuring the balance that DAP is duty bound to achieve. The CAA will continue to discuss these concerns with the Department of Transport and other stakeholders and where appropriate and possible seek improvements. The cost-benefit framework the Regulatory Policy Group will work on to assess the extent of 'efficiency' improvement from airspace changes will aim to be, quicker, cheaper, more transparent and allow, where appropriate, for explicit consideration of trade-offs.*

3.3 From your perspective what are the most likely benefits to be delivered from the modernisation of the airspace system and what should the relative priorities be?

- 3.3.1 All replies to this question saw safety as the highest priority, or at least of equal priority to delivering environmental benefits and capacity, often expressed in the view that: The FAS should enable airspace changes to be made to achieve environmental benefits even when there would be no significant safety or efficiency gains.

3.3.2 **CAA Comment.** *The CAA agrees with this point and would support such airspace changes, albeit we believe that, based on our experience, the vast majority of changes progressed will deliver improvements across the three strategic drivers of Safety, Capacity and Environment.*

3.3.3 Other key gains were seen as:

- Maintaining or improving safety levels.
- Increased capacity which could be used to accommodate growth aspirations and/or provide a more resilient and predictable ATM service. Key to this is greater clarity around Performance-based Navigation and Continuous Climb and Descent Operations.
- Cost and Environmental benefits from enhanced navigation technologies and changes to operational procedures. This should lead to reduced fuel burn in the take off and approach phases, in particular through reduced holding and reduced maintenance/replacement programmes for aircraft operators. It should also deliver environmental benefits, such as reduced noise to local communities.
- Greatly improved public perception of UK aviation and greatly improved service to the users who operate within in UK airspace.
- The UK continues to attract domestic business, overseas tourists and foreign investors seeking locations in which to site their business.
- Increase in value for money seen in cost reductions to users.

3.3.4 **CAA Comment:** *The CAA would agree that safety is paramount and foresees no change to the principle of facilitating a continuous improvement in safety under the FAS. It is this culture that has delivered significant improvements in aviation safety and reduced risk to those on the ground from aviation accidents, over the last half a century or more, and will do so in the future.*

4. Policy and Regulation.

4.1 What are your views on the European and wider international issues of airspace design and relative importance as set out in the Future Airspace Strategy?

4.1.1 The Future Airspace Strategy must be integrated with the Single European Sky programme and the SESAR initiative. To operate in isolation would be unacceptable. International matters need to be taken fully into account, particularly with regard to equipment interoperability. However, European issues frequently differ from the commercial situation that exists in the UK aviation market. Although Single European Sky II principles are sound in general; they need to be sense checked for applicability within the mature and densely used UK airspace.

4.1.3 Alignment with Europe will be necessary but perhaps operation should be conducted to ICAO standards to be safe, even if those standards are less efficient than could be achieved by non-standard arrangements. There should be a move to adopt ICAO

SARPs as far as possible to achieve uniformity. Any departure from uniformity is an issue for flight deck crew who operate internationally.

- 4.1.4 **CAA Comment:** *The CAA would broadly agree with the above comments and will continue to engage internationally, both within Europe and beyond to ensure that UK airspace development is coherent with European and Global initiatives. The issue of ICAO SARPS and UK filed differences is a complex issue that will need consideration within current and future European workstreams such as Single European Rules of the Air (SERA). However, our general policy is to seek to reduce the number of difference that are filed to ICAO SARPS, both nationally and, in co-operation with our Irish counterparts across the UK/Ireland Functional Airspace Block. We will also work to encourage change to ICAO SARPS where we think this is required and influence positively future rule-making or modifications to be coherent with UK requirements from the outset. The European approach is to minimise differences, but where they exist, for them to be commonly filed European, rather than national differences.*

5 Technology and Operations – Airspace.

5.1 **The FAS aims to optimise the efficiency of the airspace system that may benefit one airport more than another. What are your views of a strategy that may need to balance such benefits and disbenefits and how do you think the relative merits should be evaluated?**

- 5.1.1 There were several points made in response to this question. The issue of the FAS leading to an Airspace Master Plan was made again but in the main the setting of priorities in this context was seen as an issue for central government policy and not for industry or communities to determine, albeit their views must be properly considered. In addition to industry comment the point was made that in assessing relative merits, the impact on those on the ground, living and working in the area affected, should be included in any evaluation.

- 5.1.2 **CAA Comment:** *The CAA will continue to work with stakeholders and the Department for Transport on a broad range of issues including those associated with the impact of any airspace measures that have the potential to lead to a differing level of improvements at different locations. Understanding how these issues are to be evaluated and balanced will be included within our benefits realisation work as we go forward with implementation activities that flow from the Strategy.*

5.2 **What challenges do you envisage arising out of the introduction of greater airspace sharing, in comparison to the current rigid route structure that will enable equitable access to future airspace that balances the needs of all users?**

- 5.2.1 The FAS assumes that flexibility will become a feature of the airspace system of the future but what is needed is a solution that derives the necessary capacity to meet reasonable and foreseeable demand. Not a system that might have capacity with 2 hours notice or only during very limited time frames. Capacity has to be reliable to the consumer. The term 'equitable access' needs to be defined in economic terms, so that the needs of different users are taken into account and 'reconciled' rather than 'balanced'. A 'dumbing down' to ensure everyone's needs are met irrespective of benefit is inappropriate. Some respondents expressed the view that priority should be given to commercial air transport.

- 5.2.2 **CAA Comment:** *The CAA can only operate within its Statutory Duties and endeavours to do so in a balanced and even-handed way even when that is not recognised by all aviation stakeholders. The CAA will continue to balance the needs of all airspace users, as it is required to do by the Transport Act 2000, and does not see this as a ‘dumbing down’, indeed where necessary the CAA does make decision regarding airspace classification and segregated airspace where access is restricted to some airspace users because, on balance, that is the appropriate thing to do. The CAA treats every airspace change proposal on its merits. The airspace efficiency work will consider the potential to improve the evaluation of costs and benefits of airspace change proposals. The CAA will continue to provide airspace of the appropriate classification having regard to its duties under the Transport Act 2000.*
- 5.2.3 With regard to the section on National Defence the FAS highlights the need for further development of the Flexible Use of Airspace concept. However, there was a view that to derive maximum benefit from the use of customer-preferred trajectories careful consideration will have to be taken on how best to integrate military and civil requirements. Within this concept it will be important that the provision of airspace for flight testing is fully accounted for.
- 5.2.4 **CAA Comment:** *The CAA would agree with these views and will engage with appropriate stakeholders on the further development of the Flexible Use of Airspace concept. There will also be a need for additional work on the integration of the military requirements, and those of non-commercial airspace users, as customer-preferred trajectory work is taken forward. The FAS will need to remain flexible and adaptable to ensure that there is appropriate airspace available, for amongst other things, flight testing and emerging requirements such as unmanned aerial systems and space tourism.*
- 5.2.5 From a GA perspective it was felt that fully flexible airspace represents a significant challenge and that the GA community will need to understand and accept the price, bearing in mind that GA does not see itself as the beneficiary of this concept. Gliding and GA needs to be able to fly freely over long distances and across the country. It is understood that major airports will provide potential barriers to free flight. Two or more adjacent barriers will simply concentrate other traffic in the limited space in-between. Future overall strategy must include the need to stand-back and consider creating and maintaining “green belts” in the sky. Otherwise the granting of controlled airspace to a small regional airport might unwittingly shut off recreational aviation in an entire region and prevent free movement across the country as a whole.
- 5.2.6 **CAA Comment:** *The CAA and the FAS recognises the requirements of the wide range of airspace users covered by the umbrella term General Aviation (GA). The FAS vision makes this clear with the statement that the FAS will “...balance the needs of all users...” and whilst there will be some work on how that balance is assessed and achieved the basic principle is derived from legislative requirements. The CAA believes that GA is a beneficiary of the Flexible Use of Airspace concept today and as work is done to develop the concept further and move closer to real-time for airspace allocation this will help to ensure that that airspace is only restricted where absolutely necessary and for the absolute minimum amount of time. There are significant challenges to increasing the dynamism of the airspace safely, not least the need for effective promulgation and notification of changes that can be expected to reach all potential users in a timely manner. As changes are made and new equipment becomes available it is possible that if GA pilots are willing to invest in the*

appropriate equipment then there will be an increase in the volumes of airspace they can easily access. It will be for the individual owner / pilot to decide if the extra access is worth the investment. In this context it is important to remember that controlled airspace does not automatically exclude aircraft but it does set requirements (depending on the classification of the airspace) for entry and if those requirements can be met then access is permitted to all airspace users. As the Flexible Use of Airspace concept is enhanced the CAA will continue to engage with stakeholders and seek to identify new, innovative and effective means of information distribution and availability.

5.3 The FAS proposes significant changes to the UK airspace system. How could the current process for airspace change be strengthened to support a more robust and efficient appraisal, consultation and implementation of the proposals set out in the Strategy?

5.3.1 A range of views were expressed on the Airspace Change Process from the current Airspace Change Proposal system being seen as open, transparent and allowing all parties to make their comments, through to those who saw a process based on local piecemeal proposals which have no linkage to a national strategy or plan. Some believed that the current approach will not enable the necessary increases in airspace capacity to be achieved in the longer term and that an entirely new approach is required. A desirable process was seen by some as a “top down” process using a National Airspace Plan as the driver for airspace changes and to which local airspace changes can contribute, utilising more streamlined consultation processes with appropriate local stakeholders and encompassing relevant environmental considerations.

5.3.2 **CAA Comment:** *The views on the concept of a National Airspace Plan are noted but it remains the case that the FAS is a Strategy and not an Airspace Plan. The views concerning the production on an Airspace Plan are noted and will be shared with colleagues at the Department for Transport for their consideration during the development work for the Aviation Policy Framework. Under the current policy there is no scope for the CAA to develop an Airspace Plan as described. The CAA will discuss the issues surrounding the national policy and the responsibility divide between Government and the Independent Aviation Regulator with the Department of Transport. The complexities of the Airspace Change process are, at least in part, a product of the Guidance to the CAA and without significant changes to the Guidance substantial changes could not be made to the Airspace Change Process. Nevertheless, we will ensure these issues are fully explored with the Department of Transport and within the cost-benefit framework the Regulatory Policy Group will work on to assess the extent of ‘efficiency’ improvement from airspace changes.*

6 Technology and Operations – Communication, Navigation and Surveillance.

6.1 What factors do you consider particularly important when assessing the proposed increased use of future Communication, Navigation and Surveillance (CNS) technologies and infrastructure that underpins many of the aspirations in the FAS? How should the CAA ensure the evolution towards this technological capability is timely and coherent?

6.1.1 The future use of advanced CNS technologies will require careful consideration of costs, implementation timing and allocation. The moves towards Performance-based Navigation (PBN) will be beneficial in assisting the redesign of the airspace but also

requires the development of clear policy and safety protocols within the regulatory framework.

- 6.1.2 The business benefits of such CNS technologies need to be clearly articulated. Without this, it will be a challenge to achieve a consistent uptake in technologies and infrastructure and the safety, environmental and capacity benefits will not be realised. It must also be made far clearer that service standards will become differentiated where there is a lack of investment.
- 6.1.3 **CAA Comment:** *The CAA agrees that advances in CNS technologies will require careful consideration of costs, benefits, implementation timing and allocation. The consideration of these issues will need to start in the FAS Industry Implementation Group, which will own and drive progress against the FAS Implementation Programme and ensure alignment between the delivery plans of the various parties responsible for implementing changes as well as managing the overall cost-benefit case. The CAA is already working on the development of clear policy and safety protocols, and confirmed its intention to mandate B-RNAV (PBN equivalent RNAV 5) on all UK ATS routes at all levels/altitudes in controlled airspace with effect from 7 April 2011 (AIRAC 4/2011). This extension of the B-RNAV requirement is a fundamental enabler in the move towards a total Performance-based Navigation (PBN) environment. The CAA also launched a NATMAC (National Air Traffic Management Advisory Committee) consultation on the "Policy for the Application of PBN in UK/Ireland Airspace" starting in April 2011. The CAA will continue work on PBN and publish information and policy as appropriate. Lastly and not least on this subject is the issue surrounding the access requirements to certain volumes of airspace. These are decisions that cannot be taken lightly and the implications of introducing new equipment will need to be considered carefully during implementation but prior to the issue of any mandate. There will be full consultation and engagement on any such changes that will also need to dovetail with any proposals that may emanate from the European Commission.*
- 6.1.4 It was considered that technological solutions would have sufficient benefit to commercial activity such that equipage costs would be covered by the benefits that accrued. It was felt to be extremely unlikely that recreational GA would be able to justify such equipage costs but their inability to do so would have to be taken into account.
- 6.1.5 There was a view that the commercial development of GA equipment that could provide situational awareness was stunted by a lack of policy and infrastructure and that this could and should be addressed.
- 6.1.6 **CAA Comment:** *Under the Transport Act 2000 the CAA is required, amongst other things "to satisfy the requirements of operators and owners of all classes of aircraft", so the ability of recreational GA to embrace technological solutions will have to be taken fully into account. That said it is possible that technological advances will bring the potential to provide wider access to airspace to recreational GA and they will have to make a judgement as to whether or not any cost of equipage is balanced by that increased access. As for the point about lack of policy and infrastructure limiting situational awareness the CAA will continue to work with the GA community, Air Navigation Service Providers and the Department for Transport on such issues but it has to be recognised that the same cost – benefit considerations are needed as for other technological solutions. The CAA is keen to engage with any stakeholder who has proposals for improvements in the Airspace and Air Traffic Management system*

and there are a number of forums through which this can be done. Due regard will be taken for the potential benefits that may flow through international projects such as SESAR to avoid any duplication or differing requirements.

7. Environment.

7.1 How would you assess the current emphasis on environmental matters within the FAS in relation to safety and capacity?

- 7.1.1 The need for environmental matters to receive high priority was a recurring theme and can be summed up in the statement that environmental gains should be considered as a priority even where there would be no significant improvements in terms of safety or capacity.
- 7.1.2 **CAA Comment:** *The three strategic drivers of FAS are “Safety, Capacity and Environment” and whilst some respondents have taken this to mean that environment is considered of lesser priority than Safety and Capacity, this is not the case. The CAA has clearly stated that “All changes will need to be justified on the grounds that they will directly reduce the risk and/or contribute to the development of a fundamentally safer system or at the very least maintain current levels of safety whilst delivering benefits in other areas.” The last part of this statement was included as it was specifically recognised that changes that delivered environmental benefits but did not deliver safety benefits should not be excluded. What the CAA cannot consider is improvements in the system that have a detrimental effect on safety as assessed by the CAA. The CAA’s commitment to the environment was further reinforced by Andrew Haines, the CAA’s Chief Executive, when speaking at the Westminster Energy Environment & Transport Forum on Tuesday 17 March 2011 where he set out sustainability as the single most important policy issue facing the aviation industry and as reflected in the CAA’s Strategic Plan that was recently the subject of a separate consultation.*
- 7.1.3 It was considered that how environmental damage, e.g. noise impact, is measured was problematic as most of the matrices suggested in the FAS draft at Appendix 4 could not escape criticism. The discussion on noise, and other environmental issues, should be taken forward with non-aviation stakeholders, eg CPRE, AEF and principles such as limiting aircraft numbers, banning night-flights, and preserving tranquil areas put on the agenda.
- 7.1.4 There was a view expressed that the best form of environmental mitigation is prevention and that without the tool of limiting aircraft numbers, any other mitigation will be comparatively ineffective.
- 7.1.5 One respondent considered that in terms of the FAS Vision a more appropriate and equitable word to replace 'reasonable' (demand) would be 'sustainable', which is consistent with the UK Government's 2005 Sustainable Development Strategy. This Strategy acknowledges, for example, environmental limits, the need to improve our environment, public attitudes and values, and the 'polluter pays' principle.
- 7.1.6 **CAA Comment:** *The final arbiter of what is ‘reasonable (demand)’ is the UK Government within the context of any overarching European legislation and international agreements. Government policy on growth in the UK’s aviation industry will be fully applied by the CAA. Given this the word ‘reasonable’ is appropriate and will be retained. Nevertheless, the Strategy cannot exist in isolation of other*

Government policy and it will have to be amended over time to reflect any development or changes to Government policy.

7.1.7 Views were expressed that it would be helpful to adopt guidance that encouraged re-routing flights to avoid nationally designated landscapes such as National Parks and Areas of Outstanding Natural Beauty.

7.1.8 **CAA Comment:** *The current “Guidance to the Civil Aviation Authority on Environmental Objectives Relating to the Exercise of its Air Navigation Functions” states that “Government policy will continue to focus on minimising over-flight of more densely populated areas below 7000ft. However, where it is possible to avoid over-flight of National Parks and AONBs below this altitude without adding to environmental burdens on more densely populated areas, it clearly makes sense to do so”. The Guidance goes on to state that the Directorate of Airspace Policy should: “pursue policies that will help to preserve the tranquillity of the country side where this does not increase significantly the environmental burdens on congested areas”. The guidance already encourages the avoidance of National Parks and AONB, nevertheless, the CAA will engage with the Department of Transport during their work on the Aviation Policy Framework to confirm or amend the Guidance to the CAA as appropriate, taking into account the responses to their consultation and to the FAS consultation. That said, avoiding the large number of National Parks and AONBs that are scattered throughout the UK would be totally impracticable in an airspace system that was still safe, efficient and minimised other forms of environmental impact.*

7.1.9 Many of the respondents addressing environmental issues had concerns with regard to how noise was measured. They considered that the present level of 57dBA Leq metric for 'the onset of annoyance' is too high. The prediction of noise contours by computer models obscures actual noise levels and other solutions such as those below should be considered:

- Rely more on measured noise and less on predicted noise.
- Take more account of noise, including reflected noise, in real places where people may be or where there are plans for them to be.
- Make sure that proper account is taken of actual flight tracks to and from airports.

7.1.10 **CAA Comment:** *Noise issues were raised by many of the respondents to the FAS consultation the key point being a disagreement with how noise is measured and then how those measurements are used. The CAA will discuss these issues with the Department of Transport, but it is for them to make the decision as to whether or not the current arrangements and Guidance to the CAA is changed.*

7.2 How should the FAS address the trade-off between different types of environmental impacts as set out in the document?

7.2.1 This question like the one before generated a lot of strongly stated views which can be summarised as follows: The priority in the vicinity of airports and where communities are over flown should be given to noise reduction. Up-to-date methods of assessing noise annoyance must be included and that these methods should be based upon, *inter alia*:

- The European Directive 2002/49/EC relating to the Assessment and Management of Environmental Noise.
- The WHO Guidelines for Community Noise.
- The 2009 WHO night noise guidelines for Europe.
- The 2007 Attitudes to Noise from Aviation Sources in England study (ANASE)

7.2.2 At the very least metrics used should include the European Lden metric, the maximum noise Lmax metric, the background noise L90 metric as well as the number of noise events. The current over-reliance on the 16 hour 57dBA Leq metric and population count is wholly unacceptable, being based on the out of date 1984 Aircraft Noise Index Study (ANIS Report) on dose/response rates. The method of assessing the impact of noise should not be based solely on the number of people overflowed as was the case in previous airspace change proposals. It should also be based on the levels of noise exposure on the ground and compared with the background noise levels. It is worth noting that as UK airport capacity has grown the number of noise complaints has increased, even when the overall average noise picture (based on the 16 hour 57 dBA Leq metric) has not shown a corresponding increase.

7.2.3 **CAA Comment:** *The above is only a short summary of the range of views and depth of feeling on the noise issue. The key point is a disagreement with how noise is measured and then how those measurements are used, both generally and for specific locations. The CAA will discuss these issues with the Department of Transport, but it is for them to make the decision as to whether or not the current arrangements and Guidance to the CAA are changed. That said the use of Continuous Climb and Continuous Descent Operations, as just one example, have the potential to reduce noise on the ground for any given area as well as delivering operational benefits. Whilst it is important to look at the noise measurement issues we must not lose sight of the fact that many of the technological developments being considered can and will be used to reduce the impact of aviation on the environment both in terms of noise and climate change.*

8. Safety.

8.1 **Do you have any suggestions as to the safety protocols that should apply to FAS to achieve the fundamental principle that, as an absolute minimum, safety levels must be at least maintained in making changes that benefit other aspects of the system and, where possible, changes should contribute to the development of a fundamentally safer system?**

8.1.2 Whilst the vast majority of respondents supported the CAA's approach to Safety one stated that they found the vague references to enhanced safety unhelpful and the system must be redesigned to a specified minimum level of tolerable risk and maintained at that level. More typical comments supported the continued maintenance of the highest levels of safety. Nevertheless there was some concern, from non technical responses, that whilst airspace safety was extremely important the use of public resource to never-endingly force continuous improvement (as implied by the document) is inappropriate and a balance had to be struck on what level of improvement was practicable and affordable.

8.1.3 **CAA Comment:** *The CAA has clearly stated in the FAS that “All changes [will need to be] justified on the grounds that they will directly reduce the risk and/or contribute to the development of a fundamentally safer system or at the very least maintain current levels of safety whilst delivering benefits in other areas.” We are pleased that this approach, as expected, has received overwhelming support but nevertheless recognise the complexity associated with safety and transition to a new airspace system which will require constant review of the safety elements to ensure they are appropriate, effective and affordable. There is a cost to continuously improving safety and we fully recognise this; the safest system in the world could be unaffordable and impractical. Consequently it is appropriate and necessary to strike the right balance, in the widest interests of the general public, to ensure the improvements we seek are proportionate and affordable. It is important to stress that there is a fundamental ‘bottom line’ in that safety will not be compromised and has, at the very least, to be maintained at the existing level if benefits elsewhere are to be realised.*

8.2 What are your views on whether or not the FAS should attempt to set targets against national safety Key Performance Indicators (KPIs) for either, all UK airspace, or specific hotspots as determined by UK operators and air navigation service providers, commensurate with maintaining a ‘Just Culture’?

8.2.1 Answers to this question did not focus on National KPIs and a ‘Just Culture’ as used in current European development work. Nevertheless, there was support for the setting of National KPIs by the regulator rather than for hotspots as determined by operators and air navigation service providers, although the need for addressing hotspots, by some means, was recognised.

8.2.2 **CAA Comment:** *The CAA will continue with its work on the KPIs for the FAS through the internal CAA Safety Performance Indicators (SPI) Safety Management Work. The CAA definition of a Just Culture states:*

- *Individuals are not punished for actions, omissions or decisions taken by them that are commensurate with their experience and training but which result in a reportable event; but*
- *gross negligence, wilful violations and destructive acts are not tolerated.*

This position is in line with the SES Performance Regulation³. The CAA will continue work on a just incident reporting culture in accordance with its European and ICAO responsibilities and within the context of its Mandatory Reporting (MOR) Scheme⁴. We consider this to be extremely important in terms of identifying improvements to the airspace structure and in generally enhancing the efficiency of the airspace arrangements. Under the MOR Scheme any incident which endangers or which, if not corrected, would endanger an aircraft, its occupants or any other person, must be reported to the CAA. Since its inception in 1976, the scheme has been recognised throughout the world as being one of the leading sources of aviation safety data. Vital information from the database has helped maintain safety standards and identify developing occurrence trends. The scheme applies by law to operators of UK-

³ European Commission Regulation 691/2010.

⁴ CAP 382 – the Mandatory Occurrence Reporting Scheme

registered aircraft, maintenance organisations, aerodromes and air traffic service providers in the UK.

8.3 Do you believe that the CAA has the appropriate policies and tools to regulate new concepts and technologies emerging out of the SES initiative and, in particular, SESAR?

8.3.1 Comments were broadly supportive of the CAA and its role but concern was expressed over the future as detailed below.

8.3.2 It was considered that having the right policies and tools was a start and that the CAA did a good job in covering the many issues that emerge from SESAR, SES and other initiatives. However, there was a need to maintain the right people with the necessary understanding of these policies and tools with the ability to continually promulgate them and improve understanding over time to meet the changing needs. The CAA is at a critical point. It has done well to date and has some excellent people but will that be the case in 5 years time as change accelerates. This is a manpower training and resource issue. The CAA has been visibly struggling to cope with an increasing workload in many areas and the industry should be concerned if the government does not support the CAA in matching its capacity to what looks like a growing demand on its resource.

8.3.3 On the other hand some felt that the CAA needed to be far more visible and engaged in SESAR and SES and increase work with EASA to establish how new concepts and technologies will be regulated.

8.3.4 Focusing on DAP it was felt that what was lacking were appropriate policies for airspace planning and for change that was driven by new technologies or concepts of operation. This would need to be allied with effective engagement with the industry and the skills to make changes within relevant timescales. There was also a concern that the CAA did not have the resources or expertise to deal with the rapid pace of developments in the field of ATM technology and European regulation and that DAP needed to develop policies and skills to effect airspace change and planning in a more timely manner.

8.3.5 **CAA Comment:** *The CAA is committed to providing the right people to do the job and to engage with our European partners as needed. The CAA is already considering the full range of issues raised in the consultation in the formulation and consultation on the CAA's Strategic Plan for 2011 to 2016. The CAA is also conducting a review of its international engagement along with that of the Department for Transport to consider how best to engage and influence the international aviation community and State actors. The internal elements of the Airspace Change Process within DAP have recently been subject to external audit and a number of measures are already in hand to improve internal processes and procedures.*

9. Capacity Demand.

9.1 How do you view the conceptual thinking on airspace efficiency as articulated in the FAS, as the basis of a way forward?

9.1.1 There was broad support for the need for work to develop an airspace efficiency framework to help guide and manage trade-off decisions, and that safety should be

prioritised within this framework. There was also a view that environmental issues should be included explicitly and given equal weighting with other issues, such as capacity and access, rather than being treated as secondary concerns. Some respondents suggested that there should be tools to limit aircraft numbers to minimise environmental damage. At the other end of the scale was a view that the conceptual thinking set out in the FAS was no more than a discussion, reaching no tangible conclusions.

9.1.2 More typical was the view that the conceptual thinking on airspace efficiency was sound but significant work would be needed to form a workable definition and the work would need to cover:

- The lack of any conceptual thinking about changing the current Airspace Change framework going forward into the new era of future airspace.
- The lack of any conceptual thinking on legislation required to facilitate the implementation of the FAS.
- The lack of acknowledgement of UK airspace as a key piece of national infrastructure and which requires a proper “top down” policy framework.
- The question of “equitable access” to future airspace for all users which gives no apparent priority to commercial air transport which has been shown by successive studies to be fundamental to the economic position and development of the UK.

9.1.3 There was also concern expressed about the statement in the FAS that “the exclusion from controlled airspace of certain users (i.e. GA and the military) has an associated opportunity cost, which is equivalent to the value that these other users place on operating in those volumes of airspace.” This approach was seen as likely to lead to inflated “values” of reducing delays, increasing the range of choices, etc. The key issue here is how will the ‘balancing the needs of all airspace users’ be managed and judged. Currently the FAS indicates that those decisions will need to be taken but is silent on mechanisms for doing so, this gap needs to be filled.

9.1.4 **CAA Comment:** *The CAA recognises the broad range of views on this topic but all lead to the need for further work to develop a framework for assessing airspace efficiency to help guide and manage trade-off decisions to enable a balancing of the requirements of all airspace users. Work on airspace efficiency, which will need to consider all the points made above, is being progressed under the leadership of the CAA’s Regulatory Policy Group.*

10. Conclusion and Next Steps

10.1 Overall the consultation responses provided a range of views on the topics covered in the FAS which can be grouped into the following themes:

- The Environment, especially the way noise is measured and how those measurements are used; the balance between noise, local air quality and climate change/Green House Gas Emissions and, linked to these, the Government’s Environmental Guidance to the CAA on the performance of its navigation functions.

- The desire that the FAS should only be a step towards a 'National Airspace Plan' owned and funded by Government/the CAA resulting in 'top down' airspace planning and implementation.
 - The efficacy of the current Airspace Change Process in the context of FAS.
 - A need to further develop and take account of the GA requirements within the FAS.
 - Various issues concerning implementation, the realisation of benefits and the coordination of investment plans from across the aviation community.
- 10.2 This Consultation Response Documents attempts to delineate which of the above issues are under the remit of the CAA and those which are the result of statute and Government Guidance and therefore are more appropriately for Government. The CAA will continue to engage with stakeholders as the Strategy work is taken forward into the individual implementation programmes.
- 10.3 A number of the themes in the consultation responses will need further work. The views expressed in the consultation responses were reinforced at a FAS workshop on 14 March 2011, attended by 50 stakeholders representing the breadth of the interested parties from airlines, airports, environmental groups, general aviation and the military. Following the consultation and the supporting workshop, the FAS document is being amended to make clear where further development work is needed and to stress this is a Strategy rather than a detailed implementation plan. This final version of the Strategy will be agreed by the FAS Programme Board and Oversight Group before endorsement by the CAA Board. Following Endorsement the Strategy will be published on the CAA website.
- 10.4 The stakeholder workshop was used to further explore the themes raised in the consultation and outline, for further consideration, the likely areas for further work following the publication of the overarching and high-level FAS. The status of that further work is as follows:
- Effective interoperability between airports and all users of the airspace will be fundamental to delivery the objectives of the FAS. It is necessary to develop a common understanding that can be deployed within all future work in SESII, SESAR and EASA, as a matter of priority.
 - **CAA Comment:** *The importance of this issue is recognised by the CAA and work will be developed within the FAS Industry Implementation Group in partnership with the FAS Programme Board.*
 - There is need for detailed cost benefit analysis (CBA) of the individual technological advances suggested by the FAS
 - **CAA Comment:** *The CAA agrees with this and sees cost-benefit analysis as a key part of the development and implementation work across the whole of the FAS. A common methodology and process to articulate costs and benefits is key to delivery this. Delivery of this methodological framework will be a central part of the airspace efficiency work being taken forward by the CAA's Regulatory Policy Group.*

- There is also a wider issue for cost benefit work and that is ensuring that there is a clear understanding of the effect of any new regulations or mandates that may be implemented.
- **CAA Comment:** *The CAA acknowledges that any new regulatory mandate must be supported by an appropriately detailed appraisal set out in an Impact Assessment which will enable the costs and benefits this issue to be fully articulated.*
- Development of a Performance-based Navigation (PBN) Mandate.
- **CAA Comment:** *The CAA has already commenced work on developing the UK's PBN policy and welcome the support offered in progressing this work a speedily as practically. The CAA recognises that it is vital for its work on PBN to be aligned with any European policy.*

The development of a clear Implementation Plan is necessary, which includes a baseline for equipment.

- **CAA Comment:** *The CAA has already initiated work on confirming the baseline of equipment in use by various users in the UK today and in particular in controlled airspace in respect to navigation capability. This work together with work within the FAS Industry Implementation Group will need to be brought together to provide a detailed and clear Implementation Plan.*
- European initiatives (through SESII/SESAR/EASA) will clearly impact on how we do business in the UK. It is necessary to fully understand how this impact can be harnessed, or, if there are adverse elements, mitigated through our engagement process in various European fora.
- **CAA Comment:** *This is on-going work which the CAA will review with Department for Transport.*
- The responses to the consultation and the issues at the workshop focused on environmental issues particularly with regard to noise measurement and how those measurements are used
- **CAA Comment:** *The issue raised and the range of divergent views will need to be fed into the Government's Aviation Policy Framework development.*
- Cost benefit assessment of maintaining risk As Low As Reasonably Practical (ALARP) and safety As High As Reasonably Practical (AHARP).
- **CAA Comment:** *Risk ALARP and Safety AHARP are complimentary ideals and are effectively embedded legislative requirements under European Law which will be taken forward under the FAS. The intention and deliverable in respect of safety is clear, it will not be compromised.*
- Airspace Efficiency Concept.
- **CAA Comment:** *This work is being led by the Regulatory Policy Group.*

- Support and engagement with the Department of Transport in the development of the Aviation Policy Framework to update and articulate Government Policy for aviation.
- **CAA Comment:** *This engagement can be encompassed under our existing means of approach supported by the FAS consultation responses and associated workshop.*
- Subsequent to the delivery of the Government's Aviation Policy framework consideration will need to be given to the impact of any changes on any Guidance issued to the CAA and on the Airspace Change Process.

10.5 This document was produced by:

Tony Rapson
Policy Coordination
Directorate of Airspace Policy

020 7453 6522
tony.rapson@caa.co.uk

XX May 2011

DRAFT

Alphabetical List of Respondents to the Future Airspace Strategy Consultation

AEF Aviation Environmental Federation
AOA (Airport Operators Association)
AOPA (UK) (Aircraft Owners & Pilots Association)
BAA (British Airports Authority)
BALC (Buckinghamshire Association of Local Councils)
BALPA (British Airline Pilots Association)
Berden Parish Council
BGA (British Gliding Association)
Birmingham Airport
Blackheath Society
BMAA (British Microlight Aircraft Association)
British Airways
Broxted Parish Council
Cheshire East Council
Chiltern Countryside Group
CNP (Campaign for National Parks)
CPRE (Campaign to Protect Rural England)
EANAG (Ealing Aircraft Noise Action Group)
EPUK (Environmental Protection UK)
Essex County Council
Exeter Airport
Farnham Parish Council
Fight The Flights
Flamstead Parish Council
Flitch Green Parish Council
GAA (General Aviation Alliance)
GANG (Gatwick Anti-Noise Group)
GATCOM Gatwick Airport Consultative Committee
Gatwick Airport
Gatwick Area Conservation Campaign
GCBQ (Gatwick Can Be Quieter)
GE Aviation
Great Canfield Parish Council
Great Hallingbury Parish Council
Great Munden Parish Council
Greenwich Society
HACAN ClearSkies
Inmarsat
Jackrell's Farm Aerodrome
LAANC (Local Authorities' Aircraft Noise Council)
LADACAN (Luton and District Association for the Control of Aircraft Noise)
Lake District National Park Authority
Little Hallingbury Parish Council
London Borough of Hounslow
London Borough of Hillingdon
London City Airport
Luton Airport
Luton Airport Consultative Committee
Luton Airport Town & Village Communities Committee

MAG (Manchester Airports Group)
Manchester Airport Consultative Committee
Manuden Parish Council
Marshall Aerospace
Mere Parish Council
Mere Resident's Association
Ministry of Defence
Mobberley Parish Council
Monarch
Moreton, Bobbingworth & the Lavers Parish Council
Much Hadham Parish Council
National Trust
Natural England
NERL (NATS En Route Limited)
Nether Alderley Parish Council
Newport Parish Council (Essex)
Quendon & Rickling Parish Council
Royal Borough of Windsor and Maidenhead
Rushden & Wallington Parish Council
Ryanair
SASIG (Local Authorities Strategic Aviation Special Interest Group)
Sondei Group
Southwark Council
Stansted Airport
Stansted Airport Consultative Committee
Stop Stansted Expansion
Surrey County Council
Takeley Parish Council
UAVS Association (Unmanned Aerial Vehicle Systems)
Ware Town Council
West Midlands Joint Committee
Whepstead Parish Council
Widdington Parish Council
Widford Parish Council
Winsland Consulting
9 Individual Responses