FUTURE AIRSPACE STRATEGY FOR THE UK 2011 TO 2030

A Consultation Response from the General Aviation Alliance

INTRODUCTION

1. This response sets out the views of the 9 member organisations of the General Aviation Alliance (GA Alliance) which represent some 72,000 subscription paying members and covers the majority of the sport and recreational aviation element of the GA sector. The FAS draft V2 sets out the background to CAT operations and develops airspace requirements to enable CAT to operate more effectively and efficiently in the future. Whilst the draft proposes that the FAS will meet the needs of all airspace users, it does not set out or discuss the airspace requirement for GA operations so it is unable to address this properly. We have therefore produced a draft Operational Requirement for Airspace for GA Operations which is at Annex A to this response.

2. Generally the FAS looks to technology to enable it to meet its vision but it is difficult to visualise how this might enable non-CAT traffic to share airspace in the way described and this throws up further fundamental challenges and risks. If GA is not to be excluded, as alluded to in para 25, these issues need to be recognised now and taken forward on a common basis with CAT provisions. This will make the work more complex and introduce additional risks of its own but the GA community needs DfT, DAP and NATS to buy in to taking GA with it at the outset otherwise it is almost certain to be excluded from access to important airspace. So our first question must be; do you buy in?

3. In our view we should jointly develop a table of issues and risks associated with integrating GA into the FAS. Meanwhile we have worked through the paper and set out individual comments using FAS headings. Where an issue is fully covered in our comments on the Executive Summary we have not repeated them for Parts 1, 2 and 3 but have tried to include across reference. We have not answered your specific consultation questions because they are very broad and we do not have the resources to deal with them at this early stage.

4. We have a major disagreement with you on what the demand modelling demonstrates and we set that out in some detail later.

Executive Summary

Vision - para 4, Section 1.2

5. We recognise the issues that the strategy seeks to address and support the intention that airspace should not become a restricting factor for (all) airspace users. The omission of this adjective in the paper could be taken to suggest that the vision only applies to the CAT airspace users and we would welcome your confirmation that this is not the case. With that caveat we agree and support the FAS vision.

Strategic Drivers – Para 5, section 1.3

6. We support the headline strategic drivers in Section 1.3 para 20. In considering how these that will achieve the vision in para 5 and section 1.2, it is apparent that the draft is written from a CAT viewpoint alone. We are sure that you would want modernisation to improve safety for all airspace users and to that end we would hope that the impact of changes will be assessed in relation to the whole aviation sector. The section on capacity deals specifically with CAT demand but we believe you intend that the future availability of airspace should not be a constraint on all users' demands. It is important to us that the changes introduced as a result of FAS do not negatively impact our sector by increasing the existing constraints. We note particularly the reference to the Committee on Climate Change statement that demand growth in aviation to 2050 cannot exceed 60% of current levels if emission levels are not to exceed 2005 levels; we refer to this later.

7. There is a further risk associated with the introduction para 20, third bullet in that SESAR may not deliver any practicable or affordable solutions for non-CAT traffic that will enable it to operate safely in the shared airspace you envisage. We are aware that SESAR is currently developing an operational concept for GA traffic but we believe they are taking a much less visionary approach than the UK.

8. We agree the environmental aim.

Airspace Efficiency

9. Turning to Airspace Efficiency (executive summary para 6), putting a meaning to airspace efficiency would be very useful. Looking at the bullet on Access to Airspace you suggest that the opportunity cost relates to the value put on access to it by GA and the military. We do not agree that this is a correct definition. Opportunity cost is properly defined as the benefit (in monetary terms) lost by a user in taking one option rather than the next best option. In the case of airspace availability, it is invalid to treat revenue or profit-making organisations (e.g. airlines, air traffic control organisations, licensing authorities, etc) and non-profit groups (e.g. GA, military) in the same way. Calculating the benefit to (say) an airline of an increase in available airspace is very simple to do and you could define the opportunity cost of the access to that airspace provided to CAT in the pursuit of its business. Expressing the loss to (say) GA of that airspace in financial terms cannot be done in any meaningful manner. However and more importantly, whatever the opportunity cost of access to airspace might be, it does not seem to be relevant to defining airspace efficiency in itself Unless you intend to produce a model of efficiency related to income produced by the regulator we would be strongly opposed to such economic modelling. However, that should be quite a different matter to developing a measure of operational efficiency in the allocation and use of airspace; we would like to work with you in developing such a measure of airspace efficiency but first we need to understand your position on applying opportunity costs to the whole range of airspace users. We refer to this later.

Key Areas

10. Aligning with Europe. Alignment with Europe as described in Para 8 will be necessary but as was highlighted in the first meeting of the NATMAC FAS WG, our airspace is used by aircraft and aircrew from around the World and operations should, perhaps, be conducted to ICAO standards to be safe, even if those standards are less efficient than could be achieved by non-standard arrangements. There appears to be some tension here.

11. National Policy. As you say the national (and European) policies outside aviation will impact this work and we think it would be prudent to make a set of assumptions that can be used to test the sensitivity of airspace policy to changes in the underlying aspirations of governments and the EU.

12. Defence and Security. We have no comment.

Modelling – Introduction Para 11, Part 1 Section 1.5 and Appendix 1

Moving to Demand Modelling, we have considerable difficulty with this whole concept. You aver that a range of airspace demand scenarios have been developed that aim to cover a range of plausible but challenging futures. The model is said to give an idea of the challenge faced by the airspace system in terms of the number of flights per day and you conclude that this shows that airspace will be a limiting factor. To be blunt, it does no such thing.

13. You model 3 scenarios which use a single forecast growth in passenger demand (that is to say a single assumption) of some 3% PA to test the principles of FAS. The scenarios assume different airport runway configurations in the Southeast but they all use the same assumptions about passenger demand and just change the distribution of the airports in the South-East through which the passengers are assumed to pass. Thus although there is some difference in the distribution of terminal airspace traffic and perhaps some minor difference in the size of aircraft used there is little difference in the total number of flights used by each scenario. It is therefore unsurprising that the growth in the number of flights extracted at the end of the modelling process is much the same for all 3 outcomes. What this model actually shows is that national traffic and airspace demand is insensitive to changes in airport configuration in the Southeast.

14. As far as the total number of flights is concerned, this is a circular model that when used this way merely outputs the data that was input; 3% in 3% out. Appendix 1 para 17 states that "these forecasts define the demand problem for UK airspace – an increase of 80% by 2030". Note that it is the forecasts quoted here which are actually the input data to the models not the output data. Indeed Appendix 1 Para 21 clearly states that the output of the models confirms "the overall pattern of demand development in Southeast England". It does not and cannot say anything about the total number of flights in UK airspace.

15. We do not accept that these models have any utility in testing the FAS or in reaching the conclusions that you have. However, this will not be apparent to decision makers as the data that reveals this in an appendix, behind a paragraph in the body of the document which is itself behind the description in the executive summary. Buried thus it will not be read by many who will think this work supports the fundamental tenet on with the strategy is based. That is not to say that the strategy is wrong; but it is clear that this modelling does not support it in any way.

16. We would now like to examine the 3% PA growth figure used as input to the models and set out by you as the basis of the strategy. The Executive Summary Para 5 puts an environmental limit on CAT growth of 60% by 2050 (although you recognise that this is not yet government policy) which equates to a growth rate of just 1.18% PA. Applying your chosen rate of 3% would result in a growth of 80% by 2030 and 160% by 2050 resulting in a traffic forecast that is some 2½ times the sustainability limit suggested earlier. These simple calculations challenge the statement on Para 12 that "the growth between 2008 and 2080 could potentially reach 4 million flights, an increase of 80%". To obtain an increase of 80% over a period of 72 years requires an annual growth rate of just 0.82% which is wildly different to the 3% modelled. A growth rate of 3% to 2080 would see the current 2.2m flights per annum increase, not to the 4m flights stated but to 18.48m which is an average of 50,000 flights per day. We think you need to look again at growth rates, assumptions and the modelling.

17. We also doubt that airport infrastructure growth could actually support 3% traffic growth for any length of time particularly in the areas where there is substantial population density. We think that these assumptions are an important foundation of the FAS but your use of them to conclude that a particular course is needed does not seem valid. Perhaps they should be revisited so that a robust baseline is available before any work starts in earnest. Perhaps variations in infrastructure should be used initially as a sensitivity test to determine if the scope of FAS is correct.

Modernisation

18. We support your division of the modernisation areas (para 13) but see some difficulties ahead:

19. Airspace Structure If the management of UK airspace structures is to become more flexible it may no longer accord with the ICAO divisions and definitions and we have heard that there will be opposition to regional differences on safety grounds.

20. Communication. The aspiration to change to new communication technologies again presents the issue of standardisation worldwide for CAT operations. For GA this is less of an issue but raises the concern that Eurocontrol is likely to mandate 8.33khz equipments and it would be unacceptable to force a GA-wide re-equipment that is known to be only a temporary measure. To put figures on that we estimate are about 1000 turbojet airliners on the UK register and about 280 turboprops. Subtracting that from the number of radio licences issued suggests there are about

10,800 GA radio installations, almost all being 25khz sets. UK GA has ten times the problem of UK CAT

21. In its report on *User Requirements for Air Traffic* Services dated 8 May 09, IATA set out their strong opposition to being forced to fit equipments to meet standards that are not stable, are not deployed worldwide and not essential to safe operations. UK GA supports that policy for all airspace users.

22. Navigation. The removal of ground based navigation aids has already begun but the EASA and the UK CAA does not appear to have begun to adapt flight training requirements to match the reality of navigation policy. We think that this should be taken forward in parallel and should be driven by DAP.

23. Surveillance. Today, aircraft can and do transmit precise positional information to ATS and whilst the use of source data derived from space based systems may refine that but will not change it fundamentally. We do not agree that such data increases the situational awareness of both parties. Currently GA does not receive any situational awareness from transponder data unless it is passed by ATS using VHF Com. We are aware that the UK currently has the capability to retransmit the transponder derived air picture on 1090mhz but does not do so; we return to this later. Commercial developments of GA equipments that could provide situational awareness are stunted by this lack of policy and infrastructure and we believe this could and should be addressed in the near term.

High Level Characteristics

24. 4D trajectories (para 18). This is the first place that you introduce the concept of "preferred trajectory" in upper airspace and retaining a "highly systemised" terminal structure. This is important to GA and we need to understand the proposed structure rather better.

25. Flexible/Dynamic management (para 19). We understand the first 2 phases of the roadmap but the leap to fully flexible airspace represents a significant challenge and GA is sceptical. Before GA is able to "buy in" it will need to understand and accept the price, bearing in mind that GA is not the beneficiary of this concept. Although a longer term aspiration, at the moment UK GA does not yet "buy in".

26. Definition of CAT (para 20). Using the term "CAT" to refer to airspace users who make scheduled flights in the airways is at odds with the SESAR terminology which uses the phrase "airlines". CAT as defined in EU law is broader, and the needs of some CAT airspace users (e.g. low-level rotorcraft CAT) may be significantly divergent from those of the airlines. For future compatibility with SESAR and others it might be better to amend this phraseology.

27. Increased use of systems (para 21). Whilst it is easy to write that "technologies will manage conflicts whilst controllers manage the network strategically" this will be a great practical and safety challenge in such a

short time (commencing in 10 years time). We do not agree that "increases in airspace capacity cannot be achieved without complementary increases in airport capacity". It is true that increased airspace capacity cannot be fully utilised without increased traffic but airfield infrastructure is not a direct driver of airspace capacity. Moreover, new traffic may or may not use UK airfields – BAA recently stated that limiting airport capacity in the SE would drive traffic to Europe and not to regional UK airports, something the Lord Mayor of London said this week had already happened. The decision chain on airport development seems to be disconnected from what you propose for airspace development so perhaps you should recognise that and plan the variable into the vision. Finally, we think airport capacity should be a factor in your growth modelling. Airlines are reluctant to commit resources to regional airports because main airports offer less economic risk, less seasonal variation (which is very expensive) and greater margins. Thus it is not only the UK-wide airport capacity that should be considered but also the distribution related to population density. It should be quite possible to model this important variable.

Risks

28. SESAR. If the vision of multi-use airspace is going to be realised the most difficult area is going to be GA. We could exclude GA from flexible use airspace but that is just establishing class A rules everywhere. SESAR is indeed looking at GA but we don't think that it is working towards enabling GA to interoperate safely and efficiently in flexible airspace. Rather it seems to be just looking at how it can make GA benign so that CAT can operate without constraint; we would like to be proven wrong. As SESAR is looking at the GA issue now, urgent action is needed to manage this risk

29. Safety and Transition. Because of the international nature of CAT, the proposed transition from controller to pilot responsibility would demand a worldwide change of equipment, training and culture amongst airlines. Is IATA with you on this and if not how can you proceed?

30. Alignment of Industry Investment. This risk seems to be expressed in national terms and does not extend beyond the narrow confines of CAT operations. Investment will be an issue for the whole domestic sector and for airlines worldwide and this should be set out in the risk analysis.

Political and Operational Risks

31. UK/Ireland FAB. We have no comments on this.

32. Environmental Priorities. We see the environmental issues as fundamental to this work and cannot see how it can proceed without guidance or at the least, a set of robust assumptions.

33. Allocation of Airspace Capacity – Executive Summary Para 25 and Section 1.3 para 26. Whilst this may be true it is perhaps the most alarming and at the same time instructive paragraph in the consultation document. Decoding the nuance this seems to say that GA will be excluded from airspace for the benefit of CAT and this failure of the vision appears to be

accepted at the outset. We refer back to our introductory proposition that the drafting group should buy in to integrating GA into the strategy and recognising and accepting the attendant issues, costs and risks that will arise. We think you should perhaps reconsider your position here.

PART 1

34. Section 1.1 para 13 (and this should be inserted as a risk in para 23): Maintaining and improving safety requires a total system approach. In overall terms, ATM-induced risks are a small part of the overall safety management issues. There is a significant danger that both the opportunity cost of equipage to meet ATM-centric mandates and a lack of access to airspace required to optimise the safety of flight causes an overall deterioration in safety for certain classes of airspace user, particularly GA.

35. We are not sure we understand what Para 48 is saying.

36. Para 55: Whilst there could be a GA led programme to develop technology to support FAS, a national programme is likely to conflict with the SESAR led programme for SES. However we would like to discuss how such a programme might be managed and funded.

37. Para 62 second bullet is particularly relevant to GA because of the number and variety of platforms.

PART 2

38. Para 96 does not seem to be correct. We do not think that Continuous Descent Operations (CDOs) are in place at the main London airports but Continuous Descent Approaches (CDAs) are. The difference is that your definition of a CDO is a minimum thrust descent to touchdown. The DfT code of practice defines CDAs at these airports as a descent with no level flight or one phase of level flight not longer than 2.5nm and 'level flight' is interpreted as any segment of flight having a height change of not more than 50ft over a track distance of 2nm or more. A CDA is a local noise control method and is quite different from your proposed CDO. However, we do strongly support the concept of the CDO.

39. Para 96 is important to GA and ties in with Part 1 para 55 on technology development for GA.

40. Para 118 is a key enabler for the delivery of benefits to GA. Current airspace classification (for example the class A lower airways) permanently excludes certain user classes, when in reality the airspace could be made available for the majority of the time without conflict with other users. Conversely, air traffic services that might enhance safety are sometimes not made available where they could be, because of the low average density of traffic.

41. Table 1 left column includes a requirement for a harmonised transition altitude in CAS. Why not outside CAS as well? Otherwise the next item on simplifying CAS boundaries becomes more complex and risky.

42. Table 1 right column says (2020+) "Cost of equipment might become more accessible enabling some GA to use flexible and dynamic structures". This is unacceptable as a starting point. The architecture and systems associated with flexible and dynamic airspace structure must be developed with the needs of all airspace users in mind. There must be simple enablers that go a substantial way to allowing equitable access, without requiring highly complex equipment.

43. Para 141 envisages a need for B-RNAV for IFR in all controlled airspace in the "short term". While B-RNAV is undoubtedly a facilitator for navigation on the modern ATS route structure in, the structure of UK airspace means that some lower level flights may be conducted outside controlled airspace, with short crossings of Class D CTRs/CTAs, almost always under radar control. B-RNAV is unnecessary, and should not be required, for such crossings.

44. Para 142 on space based navigation refers to the impact on GA. GA is in urgent need of a roadmap towards space based navigation. Equipment developments and use will follow but nothing can develop properly without a policy.

45. Para 144: In view of the practical lack of availability of BaroVNAV for GA, the provision of SBAS is of particular significance for GA, as it provides a safer alternative (LNAV/VNAV and LPV) to conventional non-precision at smaller airfields where ILS is unavailable. It should also be included as a potential benefit in Table 7 (Navigation, Safety).

46. We agree the statement in para 152 about development of ADS-B as a means of reducing collisions. We understand that NATS already has the capability to rebroadcast the transponder derived air picture on ADSB 1090 MHz that could be used by GA aircraft but it does not do so. Meanwhile systems are being developed in an uncoordinated way. In particular, the mandate to equip with Mode S Transponders has led to a significant proportion of GA without a cost-effective upgrade path to ADS-B. The introduction of ADS-B as an alternative (not *in addition*) to Mode S is important. We strongly agree that "GA could be a focus for the creation of a cooperative environment and therefore their engagement and support of this development work is key". In Table 3, we emphasise the risk of the GA community lacking a cost-effective mechanism by which to comply. This is an area where early engagement may significantly mitigate the risk.

47. There seems to be some reverse logic in para 162 where the aspirations of FAS, which has the potential to provide a substantial public good, are limited by a government policy on controlling VHF Com use by pricing. Perhaps the policy should be challenged if it is impeding progress and safety?

48. Section C (Communication) omits mention of the use of data links to provide other safety critical information. Meteorological information in particular has a key role to play in the safety of GA, and communication systems must be developed with affordability and coverage that provides

this as a safety benefit. It should also be included in Table 7 (Communication, Safety).

49. Section T (ATM Capability): We acknowledge the role that trajectory management has to play in capacity and efficiency for high-ATM-complexity situations. It is key that mandates for airborne equipment with such capability is strictly limited to the situations (geographical areas, levels and times) in which it is a genuine enabler, to preserve access and thus optimise the safety of airspace users who are unable to comply.

PART 3

50. In Section 3.1 general recommendations, we strongly support your position "that in developing standardised Rules of the Air, and harmonising the application of the ICAO airspace classifications across Europe, the UK airspace system is not adversely affected, in particular through the removal of national variants that enhance safety". This requires a willingness of EASA to acquire a thorough understanding of the principles underlying national variants, a willingness that has been lacking in the current SERA consultation process.

51. The SPIs discussed in paragraphs 185-9 appear to focus on loss of separation. This ignores the opportunity for the ATM system to enhance the safety of, in particular, GA users who are not currently direct users of the system, by provision of safety related information. It also ignores the potential for the ATM system to endanger those users by preventing access to the airspace that would optimise their safety.

52. We note the discussion on airspace efficiency in Section 3.2 and particularly the options for defining airspace efficiency. Our earlier comments on the proper meaning of opportunity cost apply here too. In discussing the situation where CAT gains economic benefit from the expansion of airspace whilst GA may need to incur costs to maintain access, you stop short of considering how the balance should be obtained. As you have said elsewhere in the document, access to new CAS by CAT represents a private good and in that case the beneficiary should bear the costs incurred. That private good does have an opportunity cost being the benefit (in monetary terms) lost by taking one option (using the new CAS) rather than the next best option (to continue with the existing CAS). Clearly any costs of providing equipment to GA aircraft to permit the CAS to operate as intended would need to be borne by the beneficiary. We look forward to a full debate on this issue as the strategy develops. This section refers to a need for bodies making ACPs to develop their options. However, these are often limited by the rules on airspace design and operation which currently seems to have no flexibility resulting in large volumes of CAS being established when traffic levels are quite low. Perhaps the concept of adding flexibility to airspace design might be considered in this section.

53. Section 3.4: The US market provides the platform for the development of almost all advanced equipment for GA, through the scale associated with the size of the market. Thus the adoption of common (NextGen and SESAR) technology enablers for ATM is critical in providing a cost-effective

path to participation for GA. If Europe, or in particular the UK, decides to standardise in a way that is incompatible with the N America, the effect will be damaging to UK GA.

John Brady

For the General Aviation Alliance

6 February 2011

Annex A:

The Operational Requirement For Airspace For GA Operations – Draft #3