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TAG Farnborough ACP Response
British Gliding Association

The British Gliding Association (BGA) represents some 84 gliding clubs and 7,000 pilots. While this is the official BGA response we expect that many clubs and individuals will, due to the fundamental threat to our activities, also formally respond to the ACP with their own more site specific and personal perspectives. The BGA is committed to rigorous and objective evaluations of new proposals; our record shows that we regularly support airspace changes - where they are reasonably justified.
We, and our member clubs, have been involved in many discussions with TAG Farnborough in the period leading up to the issue of the current proposal. Unfortunately, and despite many alternative suggestions, those discussions have not led to a justifiable or acceptable design of airspace for all users and for the avoidance of doubt we confirm our total opposition to the proposal.
The response tool provided in the ACP is highly restrictive, requiring inputs along only very narrow lines of questioning. To provide a full and proper assessment we have therefore been compelled to write our response in the form of this document which below gives our more detailed reasons for objecting.

Summary

From TAG's publically available information we understand that their business is the exclusive provision of Business Jet travel for a small number of privileged users. After reading the proposal we are forced to conclude that TAG's motivation for proposing the changes is simply one of convenience and exclusivity for its own operation.
TAG traffic movements represent a very small minority of users of relevant local airspace. The ACP completely fails to assess the impact of the proposed changes on other users who will suffer greatly increased risk to life, business and freedom. We also believe that the ACP's presentation of environmental and noise claims is likely to mislead the average reader.
We consider that the proposal presents a one-sided view of aviation requirements in the area and that it should be rejected in full by a regulator whose duty is to consider the needs and safety of *all* airspace users.

Categories of More Detailed ACP Analysis

Below we consider under separate headings the issues of "**Airspace Users and Future Numbers**", "**Airspace Design**", "**Safety**", "**Noise**", "**Environmental**" and "**Operational and Commercial Impacts**".

1 Airspace Users and Future Numbers

A casual reader of the proposal might suppose that TAG Farnborough's traffic made up the majority of flying activity in the area. Nothing could be further from the truth. Even excluding transit traffic it is quite clear that Farnborough traffic makes up only a few percent of flights in the affected area. Simply summing the most recent data for annual movements at Lee on Solent, Shoreham, Southdown, Goodwood, Lasham, Odiham, Farnborough, Blackbushe and Fairoaks equates to 252,500. Even this total does not include the many, many, other movements that take place in the area each year from airfields such as Popham, White Waltham, Wycombe Air Park, Redhill, Biggin Hill, or transiting aircraft from further afield. The proposal seeks to create a huge swathe of controlled airspace for the sole convenience of a less than 10% minority.

Casual readers might also expect that Farnborough flights carry large numbers of paying passengers. Again nothing could be further from the truth. Despite requests for data on passenger numbers TAG Farnborough have been unable to provide it. They have asked us to use the estimate in TAG Farnborough's long term plan which assumes 2.6 passengers per flight. It has been estimated that some 45% of movements are in fact empty of passengers; merely aircraft repositioning flights.

We note that the ACP predicts a rapid growth in numbers against a background of currently declining numbers. This phenomenon is not new; TAG's previous predictions have been gross over-estimates and we have elsewhere noted a trend of over-inflated predictions being used to attempt to justify CAS with recent examples at Doncaster and Norwich among the worst.

We also believe that the UK's airspace is a finite and valuable asset which merits a strategic rather than a piecemeal approach. In dealing with disparate commercial entities the Davies Commission has highlighted the difficulty of arriving at a nationally optimal airport structure for London. The same may be true of airspace and any system which granted airspace simply on the basis of current or projected numbers of aircraft or passengers could not arrive at a strategically sensible solution for UK plc.

2 Airspace Design

Despite many detailed pre-ACP discussions we simply do not understand why TAG want to dangle new controlled airspace under the largely empty airspace above it. Nor can we track the design back to any of the reasons quoted in the proposal. It is inefficient by design compared to the current and efficient tactical routings that Terminal Control give Farnborough aircraft most of the time. On the few occasions that Terminal Control require Farnborough flights to leave controlled airspace a few miles early they receive a full radar de-confliction service. Considering that 45% of the time flights have no passengers and the other 55% carry an average of 2.6 passengers the current system represents a proportionate and balanced mode of operation.

Strategically the proposal could hardly have been made at a more inappropriate time. Major influences of LAMP, FAS and SERA all introduce significant impacts or uncertainties.

LAMP has many potential benefits. Replacement of outdated performance profiles with those that reflect modern airliner abilities leads to improved flows for CAT while reducing fuel, cost and emissions. It also minimizes the footprint of CAS which greatly benefits light aviation. Unfortunately TAG's operations have not been integrated into LAMP although the ACP (para 1.5) incorrectly implies that they have been.

The CAA's Future Airspace Strategy (FAS) is addressing improvements to UK airspace using an enlightened approached that should benefit all users. However TAG's proposal creates new *low level* CAS for the use of business jets whose *performance capabilities vastly exceed* those of CAT. This runs entirely contrary to the principles of FAS, and to the work that the CAA and others are trying to do to build on this through the FASVIG.
Currently projected SERA rules mean that an even higher proportion of VFR flights will be forced to stay out of controlled airspace, further exacerbating the risk of conflict in choke-points which are inevitably created by TAG's proposals (see 3.3 below).
Our difficulty in understanding the true motivation or justification for TAG's proposals has been reinforced by the outright rejection of the following options that were tabled during pre-consultation discussions:-

- Serious consideration of the use of a small RMZ, a tool specifically put in place by the CAA to avoid the disproportionate impact of any airport trying to move directly from Class G to Class D airspace. We deeply regret that the potential use of an RMZ appears to have been simply dismissed by TAG Farnborough on the grounds that "it would still not provide adequate predictability and controllability". Perhaps that desire by such a minority airspace user for "control" is in itself telling?
- Acceptance of a 10 knot tailwind when landing on runway 24 (just as Heathrow does now) and when easterly winds are greater than 10 knots using a circle-to-land technique on 06. These two measures would at a stroke reduce the landing movements on runway 06 to only 400 a year and with them the perceived need for 06 procedures and airspace.
- Integration with LAMP phase 2**.** LAMP will mandate continuous climbs and descents of all planes into Heathrow and Gatwick. The climbs will generally be much steeper than the current but outdated legacy procedures. The resulting newly available airspace might well be of value to TAG, whose principal difficulty appears to be the integration of its traffic into the upper levels.
- More education of all class G operators and pilots near Farnborough. Amazingly this was not believed to be a good alternative despite the fact that it would improve everyone's understanding of mutual requirements.
- Use of a modern style of approach (Tel Aviv 26 RNAV to visual approach is a very useful example). This would be ideally suited to the good weather situations when other Class G activities are greatest, requires low workload for pilots and requires minimal airspace. This is a modern day solution that works routinely for business jet and airliner alike. We simply do not understand why this too should have be rejected.

3 Safety

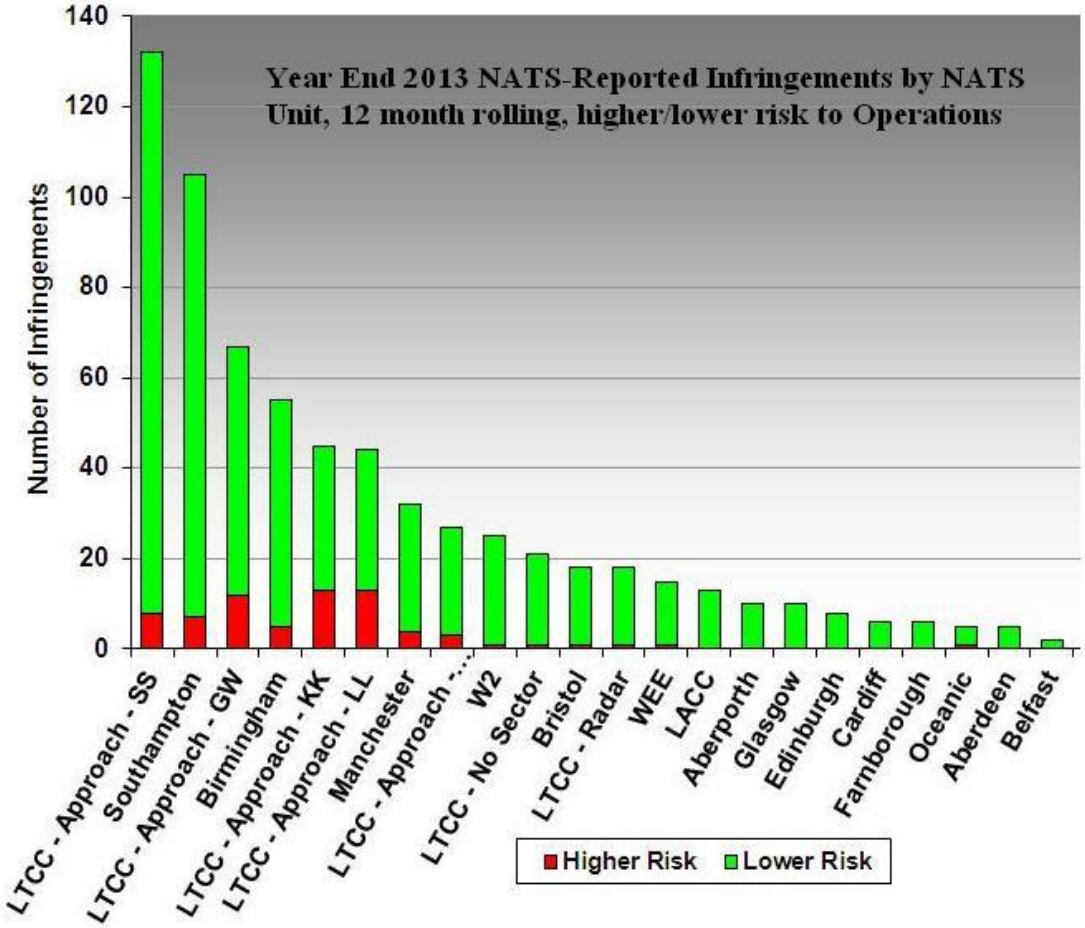
We find the absence of aviation safety considerations in the ACP to be an extraordinary omission. We would have expected an extensive and professionally resourced proposal (which runs to more than 200 pages) to present the implications of the proposal for safety and to register and respond to concerns raised during pre-consultation discussions.

For the benefit of all airspace users and to provide decision making context for the regulator we demonstrate below that:

- there is no need for new controlled airspace to protect Farnborough traffic
- implementation of the proposed new class D airspace would have very serious adverse consequences for the safety of other airspace users

3.1 Infringements

NATS infringement data has Farnborough in joint 18th position in the UK league table for 2013 with only 8 infringements, none of which were medium or high risk incidents.



3.2 Airprox Data

An analysis of the 1,880 reports on the Airprox Board website from mid-2003 to 2013 shows there were 10 airprox involving aircraft inbound to or outbound from Farnborough in class G airspace in the areas in which Farnborough seek class D airspace.

Of those ten, five stemmed from controller errors. One was because the flight paths of two aircraft whose pilots were both in contact with Farnborough triggered a TCAS warning. One was with an aircraft that happened to have come from Farnborough but was en route in airspace that would remain class G according to the Farnborough proposal. One was near Fairoaks at 1100ft at night with a helicopter that had departed from Farnborough. That leaves 2 random encounters in 10 years with aircraft descending to land or climbing out of Farnborough in the regions where TAG seek controlled airspace. One (class B) was with a glider south east of Lasham, both pilots saw each other, and both took evading action. The other (class C) was near Guildford when the pilot of an aircraft inbound to Farnborough saw a hang glider 1 mile away and took evading action.

To put one class B airprox and one class C airprox from random encounters in this class G airspace in context, in the same 10 years:

- There were 3 class B airprox and 60 class C airprox in the London area *in controlled airspace* between pairs of CAT aircraft.

- In all areas from 2003 to 2012 the total numbers of airprox in which at least one aircraft was CAT were 492 class C, 41 class B, and 3 class A.

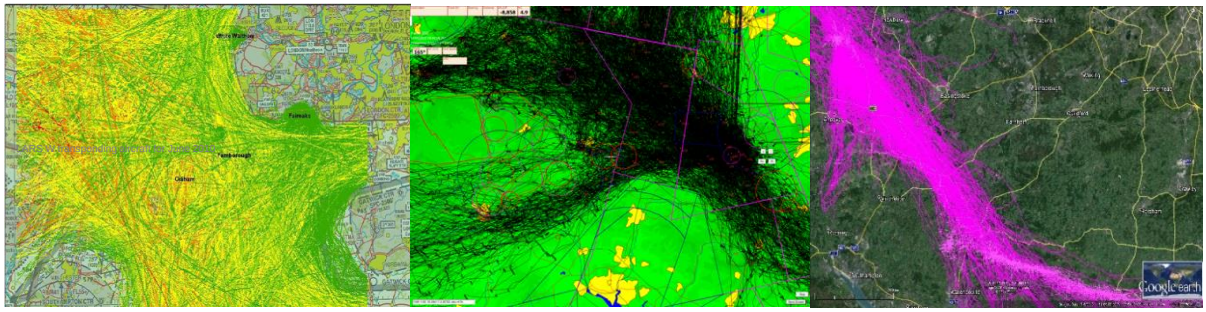
Thus the airprox record provides no justification for the proposed changes to airspace classification.

3.3 Impact on VFR traffic

The Airspace and Safety Initiative, chaired by the CAA, commissioned QinetiQ to model traffic flows in order to enhance safety of airspace users operating outside controlled airspace. The resulting report noted that "… *any changes to the size and shape of controlled airspace will result in an equal and opposite change to the size and shape of uncontrolled airspace*… ", and "*To properly assess such changes, the level of traffic in both controlled and uncontrolled (i.e. Class G) airspace needs to be understood*". The study assumed that all gliders, >80% of microlights, and 70% of light single aircraft **would route around CAS** rather than transit it.

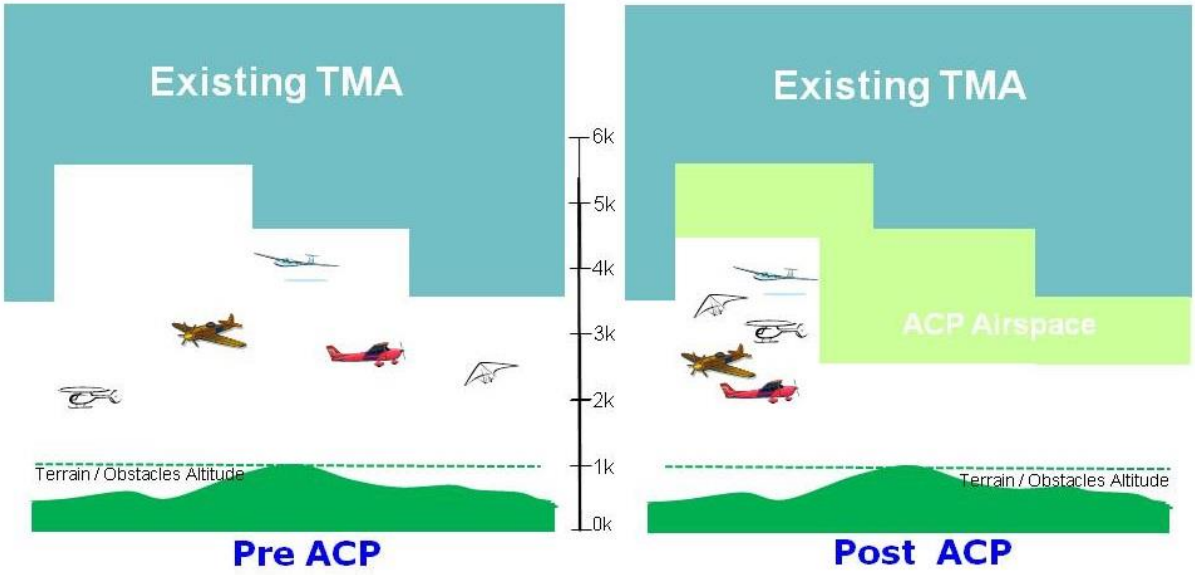
It is also clear that forthcoming SERA changes will force yet further avoidance and exclusion of traffic from class D airspace.

We have therefore given urgent consideration to the impact on traffic flows that would arise if the proposal were to be approved.

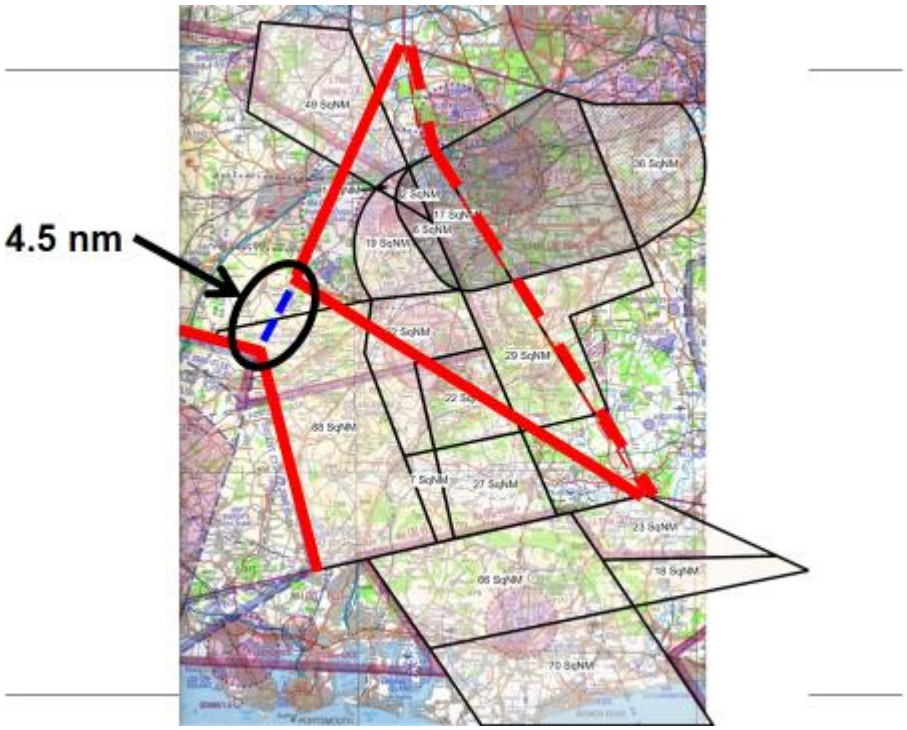


The above graphics illustrate current airspace traffic flows from aircraft using a Farnborough LARS, gliding flight recorder data and hang-gliding and paragliding flight recorder data respectively. However quantitative data is required in order to assess the rate at which aircraft would come into close proximity to each other. A CAA/Industry Olympic Airspace working group looked at transit traffic flow levels in the same area, and concluded that it would be reasonable to expect about 70 aircraft movements per hour - 35 in each direction - during an active aviation day.

Northeast of the Solent CTA there is an already busy area (Southampton airspace is the second most infringed as seen in graph at 3.1 above). The cross sectional view below illustrates the severely constricting impact of the proposal.



The proposed airspace would therefore force traffic into a constricted venturi.



After mathematically processing the *numbers of transit traffic alone* with the airspace profiles proposed by TAG we find that conflict risk for *transit traffic alone* can be summarised as follows:-

- there would be approximately 35 instances per hour of aircraft coming to within 1500m horizontally, or 300m vertically of each other
- there would be approximately 9 instances per hour of aircraft coming within 750m horizontally, or 150m vertically of each other

This would lead to **a potential increase in the risk of collisions *to transit traffic alone* by a factor of between 2 and 2.5 depending on the particular area**.

However this area, immediately adjacent to Lasham, is also heavily used by gliders. Lasham is Europe's largest gliding site, has more than 60,000 movements per year and is routinely capable of launching large numbers of gliders in a short period. It is clear that in order to properly assess the impact of the proposed changes (a requirement of CAP 725) a comprehensive study of all traffic flows and congestion in this area must be made. It is not our responsibility to carry out such a study, nor do we have the data or resources to do so. The responsibility is TAG's. However we do estimate that any properly carried out analysis that included all (rather than solely transit) traffic is likely to predict a totally unacceptable **order of magnitude increase in potential collisions**.

The basic quantitative assessment confirms our initial impression that the proposed airspace would create a very severe choke point in airspace that is already a busy and strategically vital area for transit and general GA use.

4 Noise

We see the ACP as failing to give adequate noise information. It uses none of the primary assessment methods detailed in CAP725, relying instead on operational diagrams which "should only be used as a supplementary method of presenting information on noise impacts … they have the potential to confuse".

Thus individuals are required to assimilate a large number of existing and proposed operational diagrams, decipher the hourly flight tables, work out likely altitudes, tabulate likely noise levels and then compare to an abstract noise level table.

Anyone struggling with the above task will likely rely on the ACP's highlighted written "sound-bites" such as noise benefits (less overflights) to "almost 1 million people". What is *not* stated is how many people would be overflown *more*, or how often the majority of those stated to benefit are currently over-flown? This is impossible to determine from the ACP. On the basis of the information presented, it is considered that the majority of the numbers of people quoted will see marginal benefits, with reductions of less than 1 flight per day.

For some reason the ACP chooses not to address in detail those populations likely to be most impacted by the proposed changes. These include residential areas in close proximity to the airport, those under approach paths where overflights will be lower in the future and

therefore louder, and areas directly under proposed departure/arrivals routes which will see a large number of aircraft where there are currently none (or very few at high altitude).

Given the ACP's highly selective treatment of this subject we are led to suspect that the positive impacts are negligible and that the negative impacts on people on the ground are significant and unwelcome.

5 Environmental

The ACP document provides scant context of overall environmental matters. This is perhaps unsurprising when we consider the fundamental nature of the Farnborough operation. No figures are given in the ACP but our research suggests that for a nominal route of 500 nm (e.g. Geneva) indicative carbon dioxide emissions per passenger would be:-

By scheduled airline jet at 83% occupancy	66 kg
By mid-size business jet with 3 passengers	1,378 kg

This analysis ignores the high proportion of empty repositioning flights. If for example the above example were to assume repositioning and just a single passenger on board CO2 emissions per passenger would further increase, moving from a factor of 20 times to one of 120 times that for normal air travel.

Starting from that context it is unfortunate that a proposal which advocates efficiency states that CO2 emissions flights at Farnborough, Bournemouth and Southampton will in fact increase. By following prescribed longer and lower routes inside the proposed airspace emissions as well as noise inevitably increase.

Here we note a discrepancy in that the ACP states a desire to keep aircraft higher for longer while the actual airspace design only offers the opposite – hence the amount of new lower airspace.

There is also a total absence of any mention or consideration of the fuel and emissions impact of light aircraft being forced to route around the proposed airspace.

Thus the (undisputed) facts are that the ACP represents an environmentally retrograde step.

6 Operational and Commercial Impacts

We were surprised to read in the ACP that "on balance, the majority of stakeholders have had their requirements met by the proposed designs."

We believe that there are a number of operational and commercial issues that have been inadequately addressed.

Radio Issues

We also expect communication difficulties. Currently most users of the Farnborough frequency can only get a Basic service due to controller workload. As a result those who are transponder equipped transit the area using the Farnborough squawk (4572) while listening for any required calls on 125.250. In a Class D future all they would have to get clearances. During summer months Lasham alone often has more than 150 movements an hour. If every movement was to call as recommended the RT frequency would be totally overloaded leaving no-one with an effective service. The ACP fails to satisfactorily address this known issue.

Risk of infringement of the new ACP and other surrounding airspace.

In an earlier consultation for its transponder code Farnborough claimed to prevent more than 800 infringements a year. Given the actual number of infringements reported this seems to be a surprisingly large number. However with significantly less class G airspace to fly in and fewer aircraft talking on the radio due to the ones that are talking requiring clearances, aircraft would be funnelled into small gaps between Farnborough, Heathrow, Gatwick and Solent airspace. We believe that the effect of this, coupled with a significant increase in the complexity of airspace boundaries, is likely to increase airspace infringements.
In addition to obvious safety concerns the commercial consequences of such infringements could be serious. The economic impact of an interruption of operations for just a few minutes at either Heathrow or Gatwick would be dramatic and the proposed airspace greatly increases that probability.

Proposed VFR crossing routes of class D
These routes closely follow land features, would all be at low heights, would be frequently impossible under SERA VFR rules and often have opposing traffic on the same route at the same height. We do not understand how this could be seen to be a safe or sensible arrangement.

Impact on Gliding
There are many gliding clubs in the affected area and specific impacts on each club are included in their individual responses to the proposal.
Gliding clubs are largely run by volunteers and their sustainability depends critically on their membership. The proposed airspace would create problems which would likely see many of the more than 1,000 club pilots in the area decide to either fly elsewhere, or, more likely, give up the sport completely. At least three clubs would either significantly scale back, or need to completely stop, operations.
The proposed airspace would also have a disastrous effect on the ability to run gliding competitions anywhere in the region.
Lasham Gliding Society regularly runs regional and national gliding competitions and the club has recently been awarded the 2017 European Gliding Championships. If the ACP were to be approved Lasham would find it very difficult to hold any form of gliding competition, and it would be impossible to host the 2017 European Championships.
Investment plans for new airfield infrastructure, aircraft fleets, and youth development programmes are already being scaled back or deferred given the uncertainty that now exists around the ACP.
In summary this development has the potential to completely undermine gliding throughout a vital region for the sport.

Conclusion
After detailed examination of the above categories our assessment of the ACP is quite clear:-

1 Numbers – it would give the area's minority airspace user *control* over aviation which makes up more than 10 times more than its own movements. ***Simply disproportionate and unjustified.***

2 Airspace design – it would create un-strategic swathes of prohibitive CAS in strategically vital areas for Class G use by everyone else. ***Simply disproportionate and unjustified****.*

3 Safety – it addresses a situation without current safety, airprox or infringement problems and by creating the mother of all choke points radically increases the risk of conflict for all

other airspace users – and then fails to even mention the problem. ***Simply negligent and unpardonable***.

4 Noise – the ACP highlights (likely minor) reductions for some while making the overall and individual increases (from longer, lower, concentrated pattern) hard to assess for those most affected. ***Where the public most deserve clarity and openness only obfuscation is provided***.

5 Environment – it further increases the emissions of what is already a profligate business. ***An inconvenient truth.***

6 Impacts on others – it disregards expressed concerns of other operators – some will be irretrievably damaged and others will be put out of business. ***A totally one-sided proposal which ignores the bona-fide interests of many other stakeholders***.

We therefore urge TAG Farnborough to withdraw this flawed and unjustified proposal. Should they choose to continue with the proposal we urge the regulator to act in the interests of overall aviation safety and sustainability by simply rejecting it in total.

John Williams
BGA Airspace Committee Chairman