York Aviation

DEPARTMENT FOR TRANSPORT

THE ECONOMIC VALUE OF GENERAL AVIATION IN THE UK

Final Report

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DEPARTMENT FOR TRANSPORT

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SUMMARY OF KEY FINDINGS

The total economic impact of GA on the UK economy is around £3.0 billion of Gross Value Added (GVA) and supports in excess of 38,000 jobs

1. For the purposes of this research, we have taken a broad definition of 'general aviation' (GA) to refer to all flying activity other than that undertaken by commercial air transport operating to a schedule and military flying. GA therefore includes business aviation.

2. While there are some difficulties in combining the quantitative outputs from the different pieces of analysis undertaken in this study, primarily relating to uncertainty around the extent to which benefit is retained within the UK and to which different strands of analysis interlink, a reasonable estimate can be made of the total impact on the UK from activities associated with GA. In Gross Value Added terms, this total includes:

   - an economic footprint from GA flying operations of £1.1 billion;
   - the export component of GA manufacturing of around £1.1 billion;
   - the additional wider benefits deriving from the use of business aviation of at least £0.8 billion.

3. Combining these figures would suggest a total economic impact on the UK economy of around £3.0 billion of GVA. While this figure should be regarded with some caution, we believe it provides a reasonable representation of the magnitude of the total impact of GA activities on the UK economy.

4. We also estimate that there are around 9,700 jobs supported by GA flying activity in the UK, measured at the aerodrome level, and around 28,400 jobs supported by GA manufacturing, making a total in excess of 38,000 jobs supported.

The wider economic and social impacts of GA are significant.

5. Significant wider economic impacts arise from the use of GA aircraft for business purposes such as air taxis and the additional connectivity this offers over either commercial air transport or surface transport modes. Business aviation in particular offers major benefits to users in facilitating inward investment or supporting export markets. This can take the form of corporately owned aircraft, fractional ownership, chartered air taxis, or the use of private aircraft for business purposes.

6. Quantifying this wider economic value, in terms of the long run impact on inward investment, trade and productivity, is extremely difficult given the lack of data. However, as an illustration of the potential based on a series of assumptions, we estimated that there could be a long run impact on UK GDP of around £815 million per annum from business aviation alone (noted in the figures above).

7. There could also be benefits that arise from GA flying in terms of enhancing quality of life and the physical and mental wellbeing of participants as they pursue their GA flying activity. The sporting activities undertaken by some sub-sectors of GA flying also form part of the wider socio-economic benefits of sporting activity generally. However, these impacts cannot sensibly be quantified.

8. The use of GA by the emergency services such as the Police and Air Ambulance also contributes important benefits to society.

However, there has been a decline in activity in the sector in recent years

9. There has been a significant decline in flying activity in the UK GA sector in recent years. CAA aerodrome movement data shows a decline in aero club and private flying of around 45% since 2005 at the reporting airports. By contrast, business aviation and air taxis have experienced growth in movements of around 7% since 2005. Whilst this market is recovering from the recession, there is evidence of more sluggish growth in recent years and a slight fall in 2013, although anecdotally 2014 is reported as seeing an upturn.

10. A further perspective is provided by the number of flying hours by UK registered aircraft recorded by the CAA (and supplemented by hours recorded by the British Gliding Association). The decline in hours flown by light aircraft is particularly marked, with fixed wing aircraft from 751kg to 5,700kg down by 50% on 2005, and fixed wing aircraft of under 750kg down by 35%.

11. This clearly has an implication for the economic impact of the sector. A previous study identified the economic value of GA to the UK economy at around £1.4 billion in 2005, which equates to around £1.7 billion at 2013 prices. This suggests that the fall in the economic value of the sector since 2005 in real terms has been around 39%.

12. There is perhaps no single overriding reason for the decline, but clearly the recession had a significant impact, with business travel falling and disposable incomes heavily squeezed. However, there are other factors which may have contributed in some degree, including costs, the age of the fleet, the lack of new student pilots and the burden of regulation, particularly that imposed by the European Aviation Safety Agency (EASA).

Reviving the GA sector to 2005 levels could add a further £0.7 billion to the economic footprint

13. The strong link between the economic value of the GA sector and the level of activity suggests that if GA can be re-invigorated then the economic contribution of the sector could be increased and potentially reach levels similar to those observed in the pre-recession era. By way of demonstration, if flying hours were to increase to levels similar to that seen in 2005, the economic footprint of the sector, based on the current valuation, would be around £1.8 billion (rather than the £1.1 billion referred to above).

14. We considered constraints that may be holding the sector back in terms of being able to return its economic footprint to pre-recession levels and what opportunities may exist to encourage a return to growth. In this report, we have given particular consideration to issues such as the strategic network of GA aerodromes in the UK, flying training, business aviation, and product innovation.

15. The CAA's current and future work programme to address the regulatory burden on the sector clearly remains critical, but it may not be sufficient in itself. There is a significant threat to the future of GA flying from 'disruptive technologies' such as drones and advanced computer flight simulators. The industry must evolve or risk continued decline. Attracting new student pilots into the GA sector is fundamental to its future. The sector also needs to consider its image and market itself in such as way as to broaden its appeal to younger people.

Recommendations for Government consideration

16. We set out a number of recommendations, aimed at improving the economic contribution of the sector, for consideration by Government in the table below.

Recommendations for Government	
Planning and the Strategic Network of UK Aerodromes	
A	Government should consider preparing and publishing, in consultation with the GA industry and other relevant stakeholders, policy guidance for local authorities in dealing with planning issues affecting aerodromes; this guidance should explicitly acknowledge the strategic network of UK aerodromes as a national asset and the aim should be to bring a consistent approach to decisions taken by local planning authorities and, thereby, to offer specific protection to the strategic network. We have provided an initial framework of issues that might be considered in drawing up such guidance.
B	We believe that there is a particular role for Local Enterprise Partnerships (LEPs) in supporting the positive economic benefits that derive from local aerodromes and that Government should take steps to promote a more 'joined up' approach between the strategies of LEPs and the planning system.
C	Government and local authorities should encourage GA aerodromes to be proactive in engaging with their local communities, with local planners, and with other local stakeholders (such as LEPs) to identify and promote the social and economic value of the activities undertaken on their sites, as well as mitigating the adverse environmental impacts of their operations as far as possible.

Training	
D	Training is a critical component of the health of the GA sector. Without new student pilots feeding thorough, the industry may continue to decline. Government should consider ways in which it can support GA training providers and make it easier for student pilots to take up flying. Specifically, further consideration should be given to: • the case for lifting VAT on some forms of flying training; • the case for exploiting the provisions of EU Directive 2003/96/EC to allow fuel used for flight training in a commercial organisation to qualify for fuel duty relief; and • encouraging practical links between local GA aerodromes, training providers, and other Government training initiatives such as those in the STEM subjects.
Business Aviation/Air Taxis	
E	Government should recognise more explicitly the economic importance to the UK of the business aviation sector, both in terms of its direct economic footprint and the wider and often unseen benefits it can bring to the UK economy. Consultation with the industry on matters such as APD and Border Controls should be improved so that ways can be found to alleviate the constraints on the business aviation sector and thus facilitate its growth and economic impact. The use of air taxis for business purposes could be facilitated by more robust support for a strategic network of aerodromes in the UK.
Regulation	
F	The work of the CAA, and its GA Unit, to date has brought significant benefits to the sector in lifting regulatory constraints and has been welcomed by the industry as a whole. Government should continue to support the current and future work programme of the CAA and its dealings with EASA in this area and ensure the CAA's work is adequately resourced.
Product Innovation	
G	The GA sector must find ways of marketing itself to a newer, younger generation of students, without which it will continue to decline. Product innovation is a key component of this as young people find it increasingly less attractive to take up flying in increasingly ageing aircraft. The CAA's consultation on easing airworthiness and operational approval for experimental light aircraft designs is a positive step forward and Government should consider whether there are other opportunities to encourage and support the GA manufacturing industry in the UK as it develops new and innovative aircraft designs more likely to appeal to the younger market;

Future Monitoring

17. Our research has also flagged up a lack of accessible and robust data that covers the whole of the GA sector. We believe that the routine monitoring of the UK GA sector in future whether by Government or by any other party will prove to be extremely difficult unless this issue is addressed. We, therefore, recommend that consideration be given to incorporating this into the CAA's future programme of work.

18. Ultimately, our research has shown that the economic contribution of the sector is directly linked to the volume of flying undertaken so the simplest proxy measure for the health of the sector is the number of flying hours, to which all other measures would be secondary. However, we have also made recommendations for other areas of data collection which will assist with monitoring the future health of the sector.

1 INTRODUCTION

The Objectives of the Study

1.1 General aviation (GA) is an integral part of the UK aviation sector: more than 95% of all aircraft on the UK register are engaged in GA activities and yet it is a sector which is often overlooked in terms of its economic importance. Only one study, from 2006, has previously evaluated the sector's overall economic contribution. More recently, the Government has recognised that the sector has become seriously over-burdened with regulation and, in response, launched the GA Red Tape Challenge to ask the industry how best to reduce this burden and stimulate renewed growth. As part of the Government's initiatives, the Department for Transport appointed York Aviation LLP (YAL) in September 2014 to undertake refreshed economic research into the value and growth opportunities of the sector, which was one of the recommendations of the GA Challenge Panel.

1.2 The principal aim of this economic research was to:

- identify, as a baseline, the contribution the GA sector makes to the UK economy;
- identify opportunities, including policy interventions, to grow the sector's contribution to the UK economy; and
- if possible within the timeframe and budget, recommend measures against which the health of the GA sector can be monitored in future.

1.3 The research was also intended to consider the economic impact of GA in each of its main sub-sectors and the distribution of the sector's economic impact at a regional level. The wider socio-economic benefits from GA were also to be evaluated. We were also asked to give particular consideration to any constraints that may be holding back the sector in terms of maximising its economic impact and any opportunities there may be to support and grow the sector.

1.4 We have undertaken this study at a time when the GA sector has been facing a number of difficulties, not only from the impacts of the general economic recession from 2009 onwards, but also from the pressures of the rising costs of flying, increasing regulation at the European level and the declining number of student pilots entering the sector. These and other factors have led to a significant decline in the number of hours being flown by GA aircraft in recent years, which has consequences for the sector's economic footprint.

Our Approach

1.5 For the purposes of this research, and in accordance with the terms of reference which are attached at Appendix E, we have taken a broad definition of 'general aviation' to refer to all flying activity other than that undertaken by commercial air transport operating to a schedule and military flying. Although there are varying technical definitions given by the International Civil Aviation Organisation (ICAO) and the European Aviation Safety Agency (EASA), the definition given above seems to be the simplest interpretation and is the same as that adopted by the UK Civil Aviation Authority (CAA) in its 2006 'Strategic Review of General Aviation in the UK'. For the avoidance of doubt, the definition we have adopted includes 'business aviation' in its commonly accepted meaning[1].

1.6 In developing our approach to this research, we examined the only other previous research into the economic impact of GA in the UK by Terry Lober of University College London, which was undertaken in a suite of studies as part of the General Aviation Small Aerodromes Research (GASAR) project jointly sponsored by the Department for Transport and the General Aviation Awareness Council (GAAC). The various supporting studies, undertaken by Lober over several years, culminated in a report of February 2006 which estimated that the annual direct economic contribution of GA to the UK economy in 2006 was £1.4 billion, a figure which was seen at that time as reasonable by the CAA in its subsequent 'Strategic Review of General Aviation' of July 2006.

1.7 In addition, a number of other studies have helped to increase understanding of the particular economic value of one segment of the GA sector, namely business aviation, notably the work undertaken by PwC and Oxford Economics for the European Business Aviation Association (EBAA). However, while this sector is a core driver of the economic value of GA, it is only one part of the whole sector.

1.8 One of the key challenges in assessing the economic value of the sector is the availability of comprehensive information about GA. The GA sector is a diverse part of the UK air transport industry and, although it is the largest part of the air transport industry in the UK in terms of movements or numbers of aircraft operated, it is a segment about which little data is collected and where the huge diversity of activity means that obtaining common data across sub-sectors can be challenging.

[1] We cite a more complete definition of business aviation in Section 3 of this report.

1.9 We, therefore, considered a number of potential approaches to estimating economic impact and concluded that the most effective approach, in the light of the available data and the timescale for the study, would be to use an adapted version of the approach undertaken by Lober in the studies leading up to his 2006 report. This approach focuses on estimating the expenditure of users on the operation of GA aircraft, based primarily on the numbers of UK registered aircraft in the CAA G-INFO database and their utilisation, but also taking account of aircraft on foreign registers operating in the UK. At the time of the previous study, Lober's assessment was that there is insufficient consistent financial or 'input/output' data across the sector to attempt any other approach and we concur with his view today. However, our approach goes beyond that adopted by Lober in seeking to use our 'map' of the sector to produce a more disaggregated assessment of the individual sub-sectors within GA and the value of GA across different UK regions. We explain our specific methodology in more detail in Section 5 of this report.

1.10 In the light of the paucity of data on the sector, we have supplemented the 'top down' approach to economic modelling outlined above with a number of surveys within the sector which were intended to act as a supplement to and a cross check of our economic modelling and analysis of the sector as a whole. We surveyed aerodromes and also, through the British Business & General Aviation Association (BBGA), a number of other operators in the sector as well as a range of active pilots in the GA community through the offices of the Honourable Company of Air Pilots (HCAP) and the Aircraft Owners & Operators Association (AOPA).

1.11 We have also undertaken extensive consultations throughout the period of the research and have met with or spoken to well over 50 representative individuals, companies and organisations to gather data and views.

1.12 We have also set out a few case studies of aerodromes and operators in the sector that are particularly illustrative or representative of constraints or opportunities that we have identified in the course of our research.

Structure of the Report

1.13 We have organised this report into the following sections:

- **Section 2** sets out the **Policy Context** in which the sector is operating;
- **Section 3** considers the issues involved in **Mapping the Sector**;
- **Section 4** examines the current **Market Overview**;
- **Section 5** sets out the **Economic Value of GA Operations** and individual sub-sectors of activity;

- **Section 6** considers the **Wider Socio-Economic Benefits** of the GA sector;
- **Section 7** sets out the **Constraints & Opportunities** that we have identified during our research and our **Recommendations** in relation to these;
- **Section 8** sets out our **Conclusions**.

2 POLICY CONTEXT

Introduction

2.1 In this section, we consider the existing Government policy context in which the GA sector is operating and the recent initiatives by Government to lift the burden of excessive regulation on the sector. We will comment in greater detail on specific policy issues and ideas in Section 7 of this report.

Government Policy

Planning Policy

2.2 The National Planning Policy Framework (NPPF) was published in March 2012 and makes reference to the value of local airports and airfields as follows:

"When planning for ports, airports and airfields that are not subject to a separate national policy statement, plans should take account of their growth and role in serving business, leisure, training and emergency service needs. Plans should take account of this Framework as well as the principles set out in the relevant national policy statements and the Government Framework for UK Aviation."[2]

Aviation Policy

2.3 The Aviation Policy Framework (APF) was published in March 2013 and specifically highlights the role of general and business aviation in supporting economic growth:

"The business and general aviation (GA) is important to the UK. Its contribution to the economy has been estimated at £1.4 billion per annum. The sector delivers vital services, including search and rescue, mail delivery, life-saving (organ) transport, law enforcement, aerial survey and environmental protection flights, as well as underpinning the training of future pilots, ground-based aircraft engineers and technicians. The sector also covers a wide range of activities, from corporate business jets and commercial helicopter operations through to recreational flying in small private aircraft, including gliders. A Civil Aviation Authority (CAA)-initiated and chaired strategic review of the sector has acknowledged its growing economic importance…"[3]

2.4 The APF also makes reference to the maintenance of a viable network of business and general aviation, which is worth quoting in full here:

[2] National Planning Policy Framework, March 2012, paragraph
[3] Aviation Policy Framework, March 2013, paragraph 1.12

"Across the UK there is a network of aerodromes of varying sizes, from airports in Northern Ireland, Scotland, Wales and regional airports in England to small business and general aviation (GA) airfields into which GA aircraft can readily gain access. While almost all of these are privately owned and operated, maintaining access to such a national network is vital to the continuing success of the sector.

Business and general aviation connects many UK and international destinations that do not have, and are unlikely to develop, scheduled air services or other direct transport links. GA aerodromes can also complement commercial air transport and provide increased connectivity at important hubs such as London. These links are particularly important for local businesses. Ninety-six per cent of city pairs served by business aviation have no scheduled connection.

Given the importance of this GA network, while recognising that in congested airports this may not be appropriate, we encourage airport operators to ensure that GA aircraft are able to continue to enjoy equitable access to their airports and in doing so take account of the needs of all users, alongside other relevant considerations.

We will also carefully consider any EU legislative proposals affecting the GA sector that may emerge in the future and will seek to ensure that they are based on the principles of proportionality and subsidiarity and appropriate for the type of aircraft to which they apply. In addition, we support the CAA's review of the regulatory approach to recreational aviation, which is also aimed at ensuring that UK safety regulation is proportionate.

The planning system also has a bearing on the operation of small and medium-sized aerodromes. The National Planning Policy Framework (NPPF) is intended to simplify the Government's overarching planning policy, but the underlying planning principles in respect of airfields remain unaltered. The NPPF states "when planning for ports, airports and airfields that are not subject to a separate national policy statement, plans should take account of their growth and role in serving business, leisure, training and emergency service need. Plans should take account of this framework as well as the principles set out in the relevant national policy statements and the Government Framework for UK Aviation".

Where a planning application is made that is likely to have an impact on an existing aerodrome's operations, the economic benefit of the aerodrome and its value to the overall aerodrome network as well the economic benefits of the development will be considered as part of the application process. However, these benefits will be balanced against all other considerations. This is also something which could be considered by airport consultative committees (ACCs) where appropriate (see Chapter 4)."[4]

2.5 We will comment further on this policy and its relationship with the NPPF in Section 7 of this report.

[4] Aviation Policy Framework, March 2013, paragraphs 1.86 to 1.91.

The Airports Commission

2.6 The Airports Commission was set up in September 2012 and tasked with examining the scale and timing of any requirement for additional capacity to maintain the UK's global hub status. The Commission presented an Interim Report in December 2013 which noted, under the theme of 'promoting the use of under-utilised capacity' and in the context of the South East market, that pressures may be created for the business aviation market at some London airports (e.g. Luton) as these airports become more congested over time.

2.7 In its Interim Report, the Commission recommends, at paragraph 5.99, that:

"Government policy should promote the benefits of smaller airports in the London and South East system for accommodating business and general aviation"

and in paragraph 5.100 that:

"local authorities should support the development of smaller local airports and, alongside consideration of their environmental impacts, also give due consideration to the positive benefits they can bring to the local and regional economy."[5]

2.8 The Airports Commission is due to present its Final Report in mid 2015.

The General Aviation Red Tape Challenge

2.9 The Government's General Aviation Red Tape Challenge, launched in 2013, set out to find opportunities to deregulate the sector. The Government committed to remove any unnecessary burdens and to *"making the UK the best country in the world for General Aviation"*. As part of this commitment, the General Aviation Challenge Panel was established in November 2013 to identify some of the key regulatory constraints on GA but also to consider wider opportunities to support the growth of the GA sector. The Panel's Final Report, published in May 2014, set out a range of recommendations for reform but also noted a lack of up-to-date economic research into the sector as a limiting factor in its ability to identify growth projects. The Panel's recommendation was for the Government to update research into the economic value of GA, which has led to the present study.

[5] Airports Commission Interim Report, paragraph 5.99.

2.10 The Government prepared a Response to the Panel Report, which was published in October 2014, during the course of our research. This response addressed a number of issues raised by the Panel and set out the work programme being undertaken and proposed by the CAA and its newly formed GA Unit to address these issues. The Response also noted that it had been agreed that a short study into the economic value of GA should be undertaken, the terms of reference for which are set out in Appendix E of this report. The response also identified a timetable for action which would lead to a comprehensive strategy for GA to be published in Spring 2015. A Ministerial 'Star Chamber' has also been set up to oversee and ensure delivery of the programme.

3 MAPPING THE SECTOR

3.1 Central to any assessment of the economic value of the GA sector is an effective overview of the sector and the activity being undertaken within its component parts. GA encompasses a very wide range of aviation activities undertaken by a very large number of individuals and organisations, using a diverse range of aircraft, in a wide range of different places, some of which are licensed by the CAA and some which are not. Mapping the sector is, therefore, a way of understanding how these various components fit together and interact to make up the sector as a whole.

3.2 We have drawn together this sector map on the basis of industry knowledge and information gained from discussions with key stakeholders and we have divided the map into three main sections:

- Final Consumers (End Users);
- Aviation-Specific Supply Chain;
- Wider Influences/Other Actors.

3.3 We set out below further detail about each component of the sector map and provide commentary on each sub-sector based on consultations with representative groups.

Final Consumers

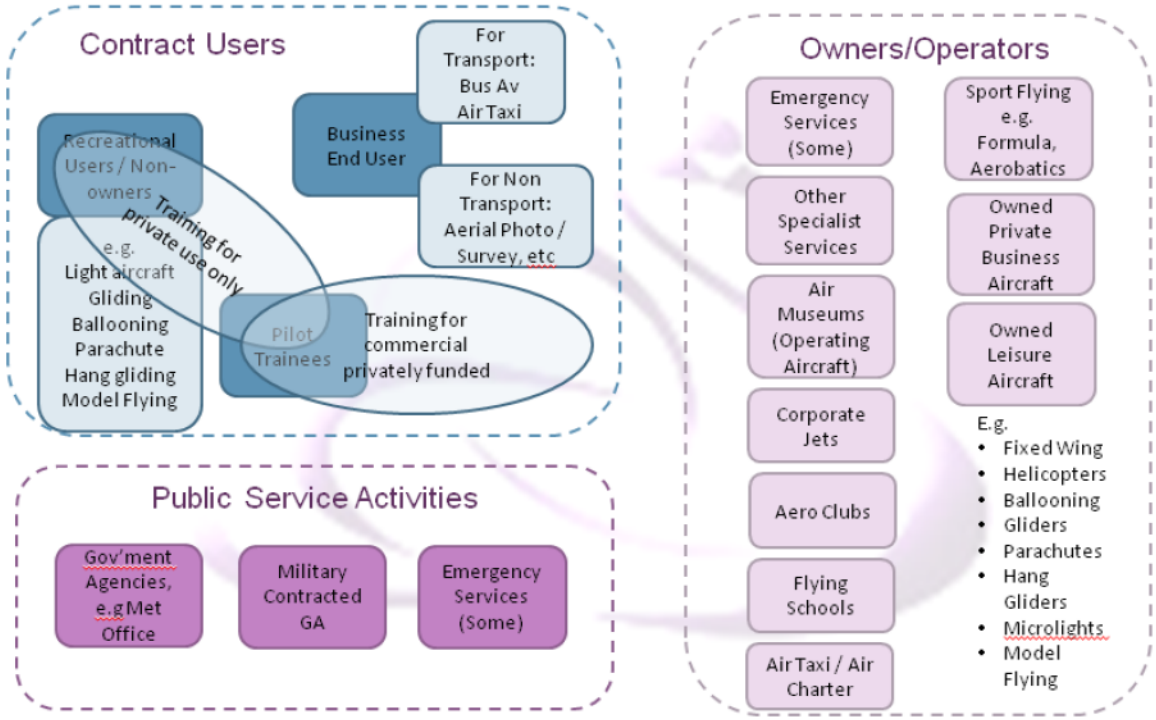
3.4 The 'final consumers' or 'end users' of GA represent the various individuals, companies, and organisations that use flying to conduct recreational or business activity. It is the expenditure of these end users on the various activities they undertake which forms the basis of our economic assessment (our methodology is set out in more detail in Section 5 and in Appendix B). It is important to note that our overall approach to estimating economic impact covers the whole of the GA sector but, where sufficiently fine-grained data has been available, we have also estimated the economic impact of specific sub-sectors.

3.5 This part of the map is set out in **Figure 3.1** below and is divided up into:

- Owners and Operators;
- Contract Users; and
- Public Service Activities.

3.6 We address each of these in turn.

Figure 3.1: Sector Map – Final Consumers



Owners & Operators

3.7 This component of the sector map includes:

- private owners and operators of aircraft of various types, including fixed wing aircraft and microlights, rotorcraft (including gyroplanes), as well as gliders, hang gliders, balloons and model aircraft;
- owners of aircraft used or hired for business purposes such as corporate jets and air taxi/charter companies or businesses that own or operate aircraft including air museums that also operate aircraft;
- aero clubs and associations that operate aircraft, including historic aircraft;
- flying training schools;

- ✈ sports flying, including air racing and aerobatics;
- ✈ some emergency services such as air ambulances that are operated by charities, and some specialist activities such as aircraft used for agricultural purposes.

3.8 A substantial proportion of GA flying is recreational and undertaken in 2 or 4 seat single piston-engine aircraft or light twin-engine aircraft. Such aircraft might be owned by private individuals or by a group of private individuals or might be owned by a flying training school and used for training but also leased out to members for private purposes.

3.9 It should be noted that, a substantial number of private owners and operators of GA aircraft within the UK have placed their aircraft on the US register and operate under FAA regulation, although this has to be done through a third party as UK citizens are not allowed to own an N-registered aircraft directly. There are various reasons why this is done, including the ability to use a US-obtained Instrument Rating in the UK, less onerous maintenance regulation, and the ability to add certain kinds of equipment to the aircraft. However, such foreign registration also has implications for the economic assessment, as it is important not to underestimate the level of activity in the UK when using data based solely on the UK register. We return to this point in Section 5.

3.10 A great deal of flying by the end users is purely for leisure purposes and may involve a flight that starts and ends at the same aerodrome, or visits to other aerodromes. Light aircraft are also frequently used for personal and business transport purposes in order to make a journey from A to B, although the extent to which this takes place is difficult to determine with accuracy as journey purpose is not recorded in any database. Nevertheless, it is important to note, at this point, that the use of light aircraft by the GA pilot and his passengers can be more than just a recreational or sporting activity and can serve a wider transport function for personal or business purposes. This has implications for the preservation of a strategic network of GA aerodromes around the country, which we explore further in later sections of this report.

3.11 As we have already noted in the introduction to this report, we are taking the term 'general aviation' to encompass the business aviation sector, including where aircraft are hired for business purposes as 'air taxis' or 'ad hoc air charters' (as well as the operation of company owned aircraft). This is clearly a very important sector in economic terms and we outline its main characteristics in more detail below under the heading of 'contract users'.

3.12 Most GA is regulated in some way by the CAA, but some recreational flying activity is regulated by a combination of oversight by the CAA and an appropriate representative body. For example, amateur-built aircraft are overseen by the Light Aircraft Association, microlights by the British Microlight Aircraft Association, balloons and airships by the British Balloon and Airship Club, and parachuting by the British Parachute Association.

3.13 As part of the GA Red Tape Challenge, the CAA has been seeking opportunities to further de-regulate GA by taking a risk-based, proportionate approach. Amongst other initiatives the CAA has already:

- deregulated all small single seat microlights less than 300 kg;
- allowed pilot controlled runway lighting at licensed aerodromes;
- successfully negotiated with EASA a 5 year extension of the UK Instrument Meteorological Conditions (IMC) rating;
- permitted the use of 8.33 KHz hand-held radios in Permit to Fly aircraft;
- reduced the Instrument Rating training requirement from full screens fitted to the aircraft to a pilot-worn vision limiting device;
- delegated some gyroplane regulation to other organisations and also removed the over flight restrictions on type approved gyroplanes;
- developed the GA policy framework to deliver a better, transparent and more proportionate approach to the regulation of GA; for example, this framework allowed the first paid passenger flight in a Spitfire aircraft without the need for the operator to hold an Air Operator Certificate (AOC);
- allowed US/Canadian approved modifications to be installed in a non-EASA aircraft in the UK without separate UK approval;
- developed the framework to delegate airworthiness oversight to the general aviation community (and is currently working with aircraft associations to allow this delegation to take place).

3.14 We are aware that some de-regulation comes with an increase in liabilities to the associations or directly to the operators, which has not been entirely welcome in all cases, but in general there is strong support for the CAA's work.

3.15 We outline below some key characteristics of the 'owner-operator' sectors of GA that have representative organisations with whom we have consulted.

Microlights

3.16 The British Microlight Aircraft Association (BMAA) represents the microlight flying interests of its membership, currently numbering around 3,700 albeit down from a peak of around 4,000. Members fly 2,000 regulated microlights and another (estimated) 200 deregulated microlights[6].

3.17 Microlight aircraft come in many shapes and sizes. Some are very simple with low performance and limited flight instrumentation and equipment. Others are more complex with flight performance that rival many of the traditional 'light aircraft' designs and are equipped with modern radio aids and navigation equipment. All are relatively inexpensive to purchase and operate. Some aircraft classed as microlights in the UK are known as Light Sports Aircraft in the US and each come with associated pilot licences and medical requirements that are less than full the PPL requirements.

3.18 All microlights are currently flown for the purpose of recreation with the exception of those used for flight training and testing, although the BMAA would like to see permission granted for microlights to be used for commercial activities such as aerial surveys or inspections, as is the case in some other European countries.

Gliders

3.19 The British Gliding Association told us it has 82 gliding clubs, with around 9,000 members, of which around 7,000 are regular participants and around 6,000 are active pilots, although these numbers are 'flat-lining' at present.

3.20 Cross-country gliding and racing is becoming an increasingly popular part of the sport and, in the hands of a skilled pilot, a modern glider can climb from one to five thousand feet in six minutes and then glide for many miles. However, this kind of activity usually aims to start and end at the same site after routing past various turning points across country.

3.21 Gliding is a sport rather than a transport mode. Its primary benefit as a recreational activity is to the physical and mental health of its participants. The sport receives no Government funding, although participants pay tax on their activities. The sport fosters a strong community spirit and is largely run by volunteers.

[6] The airworthiness of single-seat microlights is now de-regulated. Unlike two-seat microlights, single-seat microlights do not require a Permit to Fly to fly legally.

Home-built aircraft

3.22 The Light Aircraft Association (formerly the Popular Flying Association) is the representative body in the UK for amateur aircraft construction, recreational and sport flying. It oversees the construction and maintenance of homebuilt aircraft, under an approval from the CAA. The LAA makes recommendations for and revalidates 'Permits to Fly', although the CAA is the issuing body. 'Permit to Fly' aircraft may not be operated commercially and are, at present, limited to day time VFR[7] operation in UK airspace only (although IFR and night flying may be permitted in future), and must be UK registered.

3.23 The LAA represents the interests of over 8,000 pilot, amateur builder, vintage aircraft owner and enthusiast members. It oversees over 2,500 operational aircraft, including some microlights and autogyros, and another 1,700 aircraft under construction. The annual LAA rally (last held at Sywell Aerodrome) attracts close to 2,000 visiting GA aircraft and is the largest such event of its type in Europe.

3.24 One of the original aims of the LAA, which was founded after the end of the Second World War, was to make flying more affordable to ordinary people. Given the decline in GA flying that has taken place in recent years, which we examine in more detail in the next section, it plays an important role in welcoming new members to the GA community and sustaining affordable flying as far as it can. The decline in the number of private pilots is, therefore, of great concern to the Association, as is the shortage of basic engineering skills in the sector, an issue to which we return later in this report.

Historic Aircraft

3.25 The UK has a rich aviation heritage and there are a significant number of GA pilots and owners operating historic aircraft. There are also a number of businesses that offer experiences in historic aircraft. The types of aircraft operated vary significantly from historic, vintage, veteran, heritage to war-bird aircraft.

3.26 The sector is represented in the UK by the Historic Aircraft Association, which currently has around 150 active pilot and engineer members. These aircraft are particularly important in supporting the UK's thriving air display sector.

Helicopters & Gyroplanes

3.27 The British Helicopter Association (BHA) is the trade body for helicopter operators, covering both commercial and private owners, as well as supporting services such as manufacturers and insurance companies. The UK has one of the world's largest helicopter sectors.

[7] Visual Flight Rules (IFR is Instrument Flight Rules)

3.28 Recent growth in the sector has been driven by the emergency services (Police and Air Ambulance), as well as by private operators. Helicopter charter services are now starting to show signs of growth, having been hit hard by the economic downturn. In many cases, private owners make their helicopters available to commercial operators to undertake training or charter work in order to reduce the costs of ownership. Future growth could be driven, in the first instance, by large operators with better control over fixed costs.

3.29 The BHA told us that, as with other sectors, EASA regulation lacks an understanding of the sector, particularly in the UK. The cost of regulation is disproportionate to the income of businesses, such as requirements for more than one pilot in an aircraft when historically only one has been needed in the UK. Paperwork, time, and costs have also increased significantly. This is pushing private operators who do not need an AOC towards the N-register (US), as the regulatory costs are less expensive.

Balloons & Airships

3.30 The British Balloon and Airship Club (BBAC) is the umbrella organisation for ballooning activities in the UK, focusing on regulation and licensing, and sitting alongside the British Association of Balloon Operators (BABO), with its emphasis more towards trade issues for commercial operators.

3.31 This sector is not currently growing in the UK. Corporate sponsorship generated growth in the early 1990s, but declined with the economic downturns over the years and has not recovered sufficiently to generate growth. The sector has shown further decline over the last seven years, following the most recent economic downturn, which particularly impacted on the number of balloon passengers which is seen as discretionary expenditure. The UK does, however, have more registered balloons than other countries within the EU and there are presently around 150-200 commercially licensed balloon pilots in the UK. Growth in the sector is increasingly being led by export activities, both of expertise and equipment, with a number of firms setting up operations to suit tourism in international markets.

3.32 Historically, relationships with the CAA have been very good and the BBAC felt that the CAA correctly recognises the differences between balloons and fixed wing aircraft in the way it regulates. However, it was also felt that the same is not true of EASA, where a pragmatic view is not being taken. In principle, BBAC supports the idea of European regulation to bring about good international standards, but feels that the way this is being done is not appropriate. There are now requirements for operators to maintain balloons and provide paperwork on a par with operators of commercial airliners. Paperwork that used to take ten minutes to complete now takes two hours, with obvious cost implications.

Air Ambulances

3.33 The Association of Air Ambulances (AAA) represents all the air ambulance operators across the UK, which are themselves charities, flying a total of 33 aircraft. There is a direct relationship between the level of operations and the level of charitable donations given and, over the last 5 years, a 12% increase in donations has equated directly to a 12% increase in spend by the sector with the result that there is now a broader and more successful network of air ambulances in the UK. Plans to nationalise the service, which would have reduced the number of aircraft, have now been abandoned and the AAA prefers the charity model to a Government-funded system because coverage can be maximised under the existing arrangements. The recent removal of VAT on the sector is likely to increase the level of spend further.

3.34 The AAA told us they would like to see clearer and more concise guidance on regulation as, presently, the legislation is applied inconsistently across operators and regions. The CAA presently requires AOC holders to make representations to it for approval rather than giving clear guidance in the first instance, which increases costs to the sector. EASA's involvement now makes things less clear because its standards do not necessarily reflect the type of air ambulance operations seen in the UK.

Hang Gliding & Paragliding

3.35 Hang gliding and paragliding are among the cheapest available types of flight and cover a wide array of equipment, including powered and non-powered activities. The British Hang Gliding and Paragliding Association (BHPA) represents the sector and told us that people are increasingly wanting 'quick hits' or 'kicks' from flying, and do not necessarily have the time to give up to training for other types of flying activity. This means that paragliding and hang gliding can be a good way into other forms of manned flight.

3.36 Although there is some regulation by the CAA, such as when microlights are used for towing, most of the sector is unregulated. The BHPA would like to see some further regulation of the sector, at least to instil basic knowledge through a formalised training program, particularly for powered activities where presently anybody can charge for basic, non-mandatory lessons. These activities have the potential to interfere with other aviation activities and could pose a safety risk and leave the sector vulnerable to negative public opinion if an incident were to occur. By contrast, non-powered activities tend to have a more formalised training structure through clubs and schools, albeit non-mandatory.

Model Aircraft

3.37 The British Model Flying Association (BMFA) has one of the largest memberships of any GA activity with around 35,000 members at present, a slight decline on the peak of 37,000 members, although the BMFA indicates that this is most likely just a natural fluctuation rather than the start of a decline in the sport. Two thirds of these members join through the 850 associated clubs in the UK, whilst the remainder join directly. The BMFA provides guidance on the legal obligations of the sport, including obligations under the Air Navigation Order and noise regulations. It also provides insurance cover for members. There is a degree of regulation and testing applied to larger models, and these tests are undertaken by the Large Model Association.

3.38 Activity takes place in locations ranging from basic farmers' fields right through to purpose built facilities, whilst a number of clubs operate from Crown Estate and MOD bases. In many cases, the activities of clubs require 800 to 900 acres for flying. Despite the diversity of sites in use, access is increasingly being restricted, particularly to MOD bases which are being placed off limits to the sport, despite the facilities still being adequate for flying models.

Contract Users

3.39 Contract users purchase flying time from the aircraft owners and operators for private recreational use or for business purposes, such as from air taxi operators. Contract uses also include trainee pilots, whether training for private purposes only or with the objective of flying for commercial purposes or, ultimately, for the airlines. Contract users also include organisations that purchase flying services such as aerial surveys or photography.

The Business Aviation Sector

3.40 There is no single, universally agreed definition of business aviation (BA), although there is a common understanding of the type of operations it encompasses. The International Business Aviation Council (IBAC) provides useful definitions across four broad categories:

- *Commercial* - the commercial operation or use of aircraft by companies for the carriage of passenger or goods as an aid to the conduct of their business and the availability of the aircraft for whole aircraft charter, flown by a professional pilot(s) employed to fly the aircraft (e.g. air taxi companies);
- *Corporate* - the non-commercial operation or use of aircraft by a company for the carriage of passengers or goods as an aid to the conduct of company business, flown by a professional pilot(s) employed to fly the aircraft;

- *Owner-Operated* - the non-commercial operation or use of aircraft by an individual for the carriage of passengers or goods as an aid to the conduct of his/her business;

- *Fractional Ownership* - the operation or use of aircraft operated by an entity for a group of owners who jointly hold minimum shares of aircraft time operated by the entity.

3.41 The third part of this definition would encompass the use of light aircraft by private pilots for business purposes, to which we have referred above.

3.42 In all these cases, the common characteristic of business aviation is the ability to fly at short notice, to a bespoke schedule and itinerary, and to airports that may not be served by commercial scheduled flights. This flexibility is a key feature of business aviation and makes it less a luxury and more a high-value business tool. Other advantages include more productive use of time whilst in the air; shorter journey times to destination; less congested airports; and increased privacy and security. These advantages are becoming more and more valuable in the modern business world as the pressure on commercial airports becomes greater and the time it takes to process passengers through check-in, immigration and security increases.

3.43 Consultations with the British Business & General Aviation Association (BBGA) and with business aviation operators reveal that business aviation is now not simply the preserve of high net worth individuals (although this group can also be economically very significant) but is also used by businesses to fulfil a complex itinerary at an overall cost saving when compared with the use of scheduled airlines. We provide an illustration of this in Section 6 (Table 6.1) of this report.

3.44 A key issue in assessing the economic contribution of this sector is the fact that much of the activity is carried out by aircraft not on the UK register and, to a substantial degree, by aircraft not operationally based in the UK. Obtaining clear and comprehensive data on this breakdown is not straightforward, as we discuss further later in the report. The economic contribution from UK based aircraft, regardless of registration, is significantly different from that of aircraft based overseas, although both elements contribute to the substantial wider benefits that derive from business aviation activity.

Public Service Activities

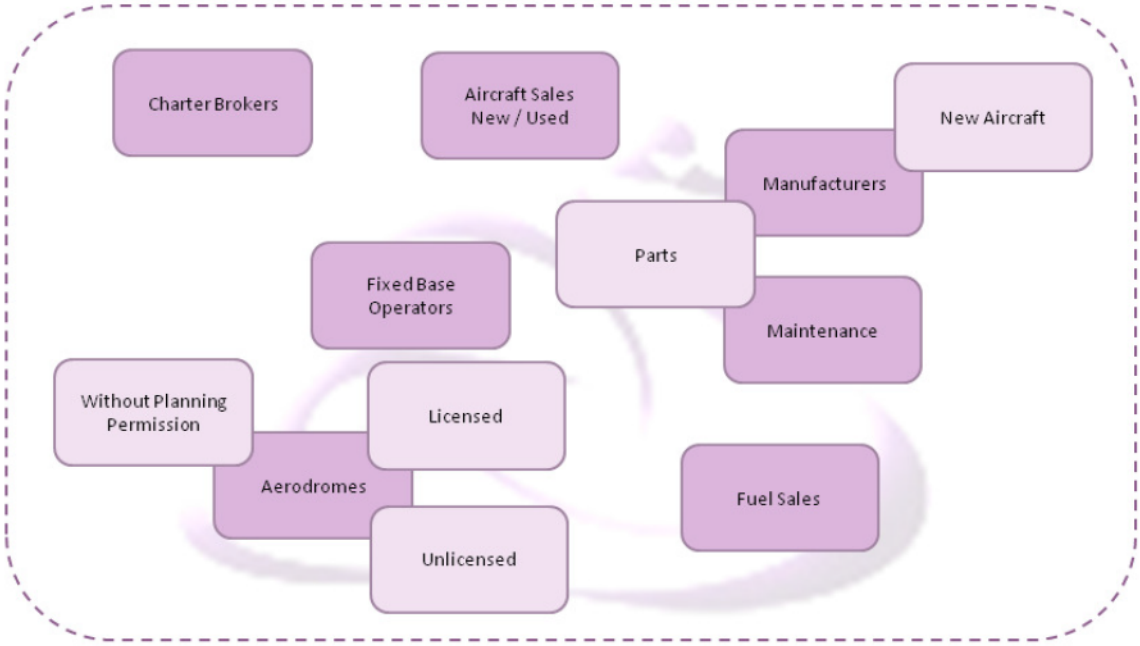
3.45 Public service users include publicly funded emergency services such as the National Police Air Service, but also services provided by GA operators to the military ('special mission' operations), and to organisations such as the Met Office.

3.46 The National Police Air Service (NPAS) provides vital air support services to the Police including searching for missing persons, vehicle pursuits, tracking and locating offenders, public order command and control and many more. NPAS helicopters are also frequently used for medical evacuation purposes when the air ambulances may not be available. NPAS saw its first full year of operation in 2013/14, being formed by amalgamating the air support services previously provided by individual Police forces around the UK. NPAS now services 36 forces with 22 aircraft operating from 19 bases around the country.

The Aviation Specific Supply Chain

3.47 The aviation-specific supply chain forms the second component of the sector map, as set out in **Figure 3.2** below, and includes organisations that supply goods and services to the end users identified above. It, therefore, includes aerodromes – a critical component of the GA sector which we examine in more detail later in this report. It also includes aircraft manufacturers, maintenance organisations, and fuel suppliers.

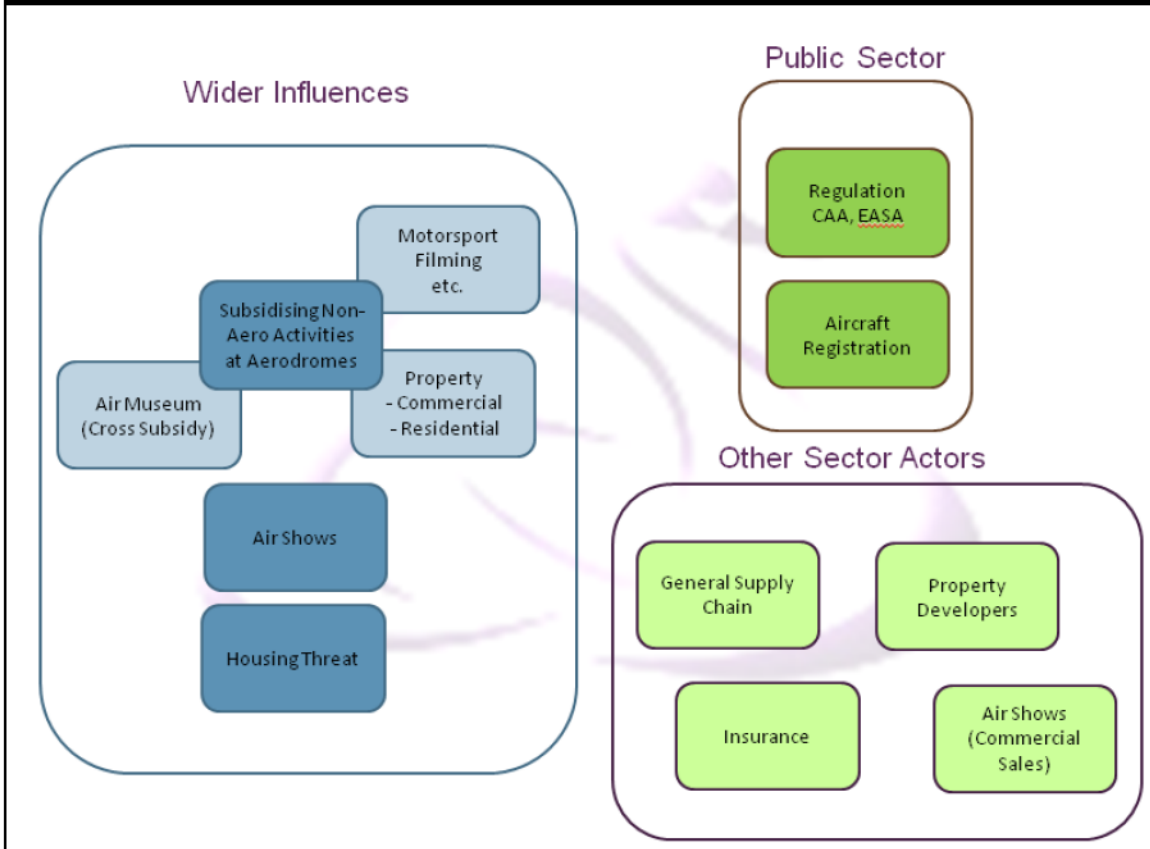
Figure 3.2: Sector Map – Aviation Specific Supply Chain



Other Actors

3.48 The third component of the sector map set out in **Figure 3.3** below includes wider influences on the sector, such as regulatory bodies like the CAA and EASA, as well as ancillary activities such as air museums, air shows, and non-aeronautical activities at aerodromes that support or subsidise the aeronautical operations. Where possible and relevant, we have taken such activity into consideration in our economic analysis.

Figure 3.3: Sector Map – Other Actors



Conclusion

3.49 We have set out a map of the UK GA sector in terms of end users, supply chain sub-sectors, and other actors impacting in the sector. Clearly, this is very wide group of interests represented by a large number of different organisations and including a wide range of activities, albeit all ultimately related to flying. The broad extent of the sector makes it challenging to assess as a uniform whole but, in the next section, we explore the current status of the market from a number of different perspectives in order to assess its current position.

4 MARKET OVERVIEW

Introduction

4.1 There is an inherent difficulty with establishing the current state of the GA market in the UK in any sort of detail because of a lack of consistent and comprehensive data gathered by a single source. There are definitional and data collection issues, whichever data set is used and this can explain why data may appear to show different trends. We have endeavoured to be as clear as possible on the limitations in the data in this report and have made reasoned adjustments where our consultations revealed additional factors which needed to be taken into account.

4.2 The most comprehensive set of data is stored on the CAA's G-INFO database and includes information about the number of hours flown by UK registered aircraft of all types including commercial aircraft, and it is this source that we have made most use of in our economic analysis and which we analyse in more detail below. However, there is also a significant number of non-UK registered aircraft flying within the UK and these are not monitored by the CAA, so estimates for flying hours from other sources have to be made to supplement the primary data.

4.3 We begin our analysis with available data on aircraft movements and then provide a more comprehensive view using data from the G-INFO database on flying hours, numbers of aircraft on the UK register, and the age and value of the fleet.

Aircraft Movement Data

CAA UK Airport Statistics

4.4 One view of the market would be provided by data on movements by GA aircraft (i.e. take-offs and landings) at UK aerodromes. However, there is no single source of information that covers all aerodromes in the UK and it appears that some smaller aerodromes do not always keep records of aircraft movements themselves.

4.5 The CAA does collect aircraft movement data from a limited number of the larger 'reporting' aerodromes, but these aerodromes are not necessarily representative of the sector as a whole, being made up largely of airports that also have scheduled commercial services. Biggin Hill, which is now exclusively a GA and BA aerodrome, does report to the CAA, but Farnborough, which is almost exclusively BA, does not. This illustrates a need to consider whether other aerodromes (perhaps all licensed aerodromes) should be required to report to the CAA, a point to which we return in the concluding section of this report.

4.6 We set out the CAA data for the reporting aerodromes for the last 5 years and for 2005 (the reference year for the previous GASAR Study) in **Table 4.1** below, with the compound annual growth rate (CAGR) for the period from 2005 to 2013. Care should be taken in interpreting the categories defined by the CAA because 'air taxi' refers to what is commonly called business aviation where an aircraft is hired for personal or business transport, whereas 'business aviation', in this case refers to transport in corporately owned aircraft.

Table 4.1: CAA UK Airport Statistics from Reporting Airports

	2005	2009	2010	2011	2012	2013	CAGR
Aero Club	601,766	426,723	339,854	325,382	314,016	299,265	-8.36%
Private	227,766	201,429	184,113	173,926	162,834	155,383	-4.67%
Air Taxi	72,113	70,740	67,301	70,165	73,744	75,245	0.53%
Business	59,571	62,772	62,097	65,001	66,800	65,084	1.11%

Source: CAA UK Airport Statistics

4.7 This data suggests that a significant fall has taken place in aero club and private flying, at least at the reporting aerodromes, with aero club movements down around 30% since 2009 and private movements down around 23%. Declines in these segments since 2005 have been even more dramatic, with falls of 50% and 32% respectively. These two categories, when taken together, appear to be down by around 45% overall since 2005.

4.8 By contrast, business aviation and air taxis, taken together, have experienced growth of around 7% since 2005, although It should be recognised that these sectors will be influenced to some degree by the activities of overseas operators and growth in movements will not necessarily translate to greater UK-based economic activity because the bulk of economic value would be generated by the owners and maintenance providers, overseas. The CAA data for business aviation shows a slight fall in 2013.

4.9 Comparable data for Farnborough Airport, one of the UK's premier business aviation airports, is available separately from the website of the Airport's Consultative Committee and we set this data out in **Table 4.2**.

Table 4.2: Farnborough Airport Movements 2009 to 2013						
2005	2009	2010	2011	2012	2013	CAGR
18,469	22,779	23,511	25,027	25,822	24,761	3.73%
Source: Farnborough Airport Consultative Committee Reports						

4.10 This indicates overall growth in business aviation movements at Farnborough of more than 30% since 2005, with a compound annual growth rate of almost 4%, although this masks more sluggish growth in recent years and a slight fall in 2013, indicating a relatively static market at present. When coupled with the trends shown at the larger 'reporting' airports, such as Luton and Stansted which are significant players in the larger end of the business aviation spectrum, and the dominance of London in the market, it seems reasonable to assume that these trends are representative of the performance of the sector overall.

Eurocontrol Data for Business Aviation

4.11 Data for business aviation aircraft is also captured by Eurocontrol, which monitors flying by the various aircraft type within the EU and classifies 'business aviation' by aircraft type accordingly[8]. As before, we set out in **Table 4.3** below the data for 2005 and for the last five years.

Table 4.3: Business Aviation Movements in the UK and EU27							
	2005	2009	2010	2011	2012	2013	CAGR
UK	116,241	123,412	129,543	132,040	129,684	127,386	1.15%
EU27	579,310	595,951	623,498	635,923	606,980	591,128	0.25%
Source: Eurocontrol (STATFOR Database)							

4.12 This shows the UK performing slightly better than the EU27 countries as a whole over the period from 2005 and, in both cases, there has been an increase in business aviation movements over 2009 and 2005, with the 2013 figure for the UK almost 10% higher than for 2005 and surpassing 2009 levels. However, there has also been a fall in movements in 2013 which suggests that the market may not yet have completely recovered from the setbacks experienced during the recession.

[8] A few of the aircraft types that Eurocontrol designate as 'business aviation aircraft' could also potentially be used by regional scheduled carriers and the data does not match that given for UK reporting airports plus Farnborough, indicating that the overall numbers need to be treated with some caution, although the trend shown is likely to be representative overall.

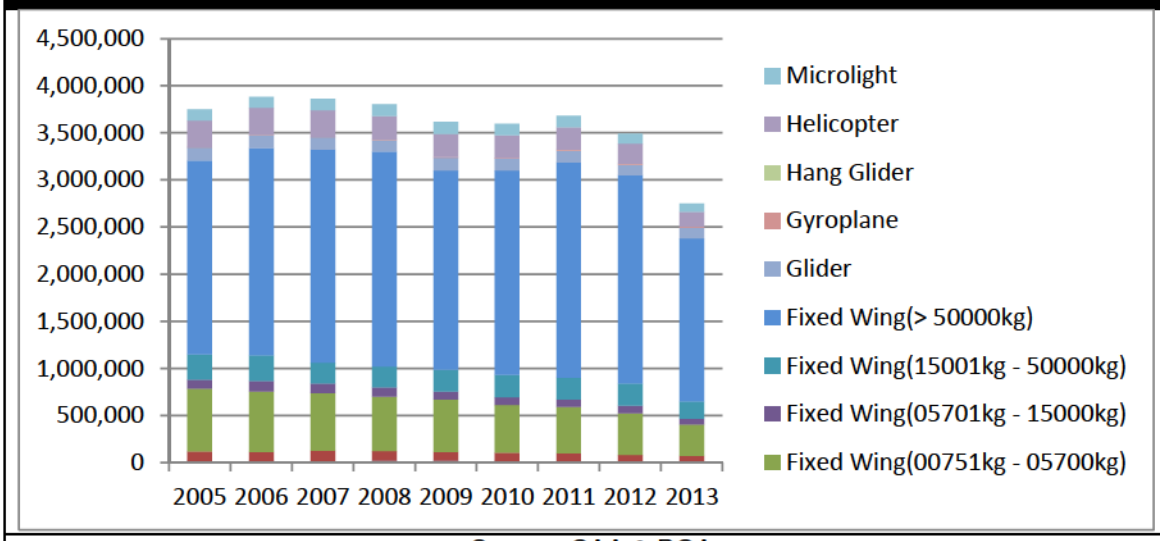
4.13 We also spoke to a number of operators in the business aviation market who confirmed this view. Farnborough Airport felt that the business aviation market in Europe is still sluggish in 2014 although 'corporate America' was beginning to travel again. A similar comment was made by Fayair (a fixed base operator at Stansted) and consultations with other business aviation operators (including Netjets, London Executive Aviation, and Blink Aviation) paint a similar picture of a relatively static market in the UK and Europe at the present time, albeit with some optimism for recovery over the next few years. The overall numbers may mask a trend towards growth in the number of larger BA aircraft, not always UK based or UK registered, flying longer sectors.

4.14 By contrast, CAA survey data for business passengers on scheduled commercial flights between 2010 and 2013 suggests a reasonably healthy recovery with 7.8% growth at London Heathrow over that period, 6.5% growth at London City, and 2.9% growth at Gatwick. This would suggest that there may be other issues impeding a substantial pick up in the business aviation market overall compared with the commercial aviation sector.

Flying Hours

4.15 A different perspective is provided by the number of flying hours recorded by the CAA (and supplemented by hours recorded by the British Gliding Association). We set these out in **Figure 4.1** below.

Figure 4.1: Total Flying Hours by all UK Aircraft 2005 to 2013



Source: CAA & BGA

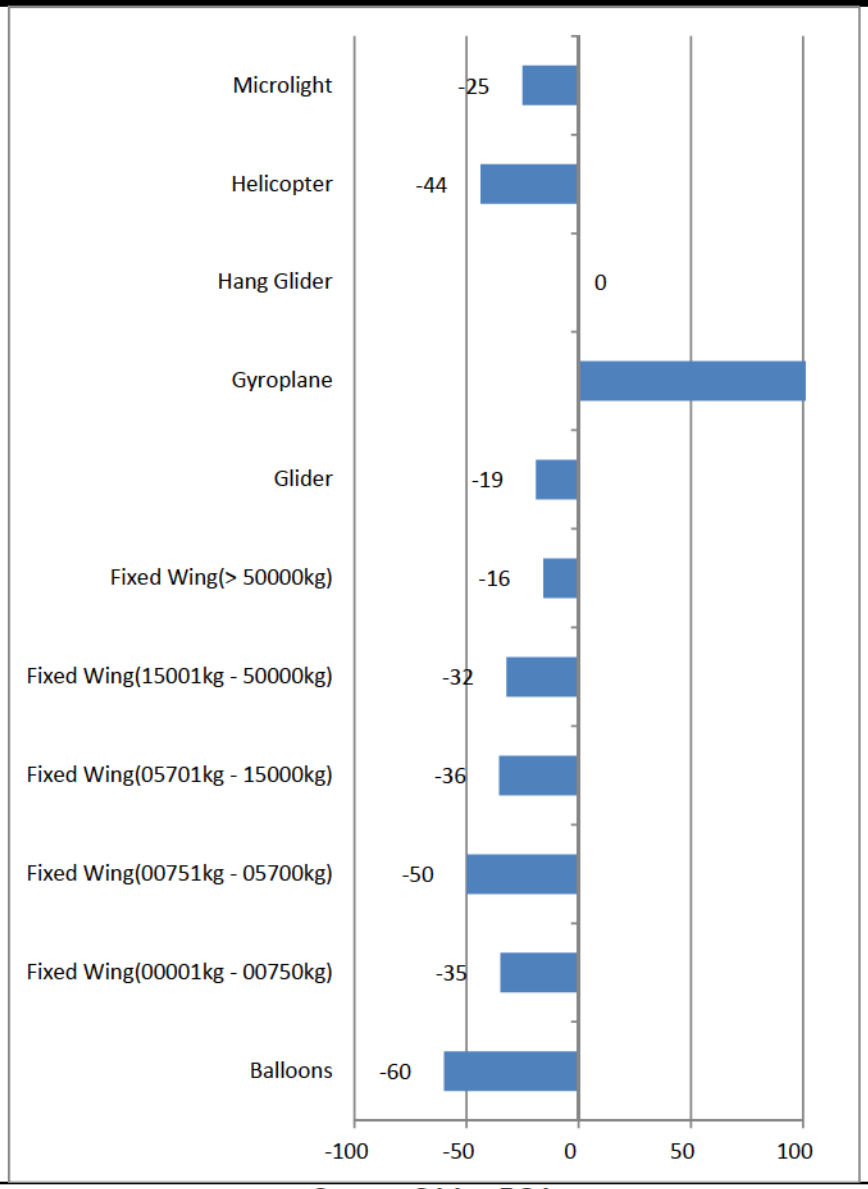
4.16 This shows total flying hours by all aircraft in all sectors as recorded by the CAA and estimated by the BGA. It suggests that overall there has been a significant decline in recent years with 2013 showing a particular drop. GA, by dint of its position as the largest activity by volume of movements or number of aircraft, is a significant part of that decline.

4.17 Since 2005 and the GASAR review, total hours flown by UK registered aircraft and gliders has dropped by around 27%. However, this figure is somewhat misleading. The largest aircraft sector in terms of flying hours is fixed wing aircraft of over 50,000 tonnes, a sector dominated by commercial air transport and one that has performed rather better than the sector as a whole. If we remove this sector, the pattern is of even greater concern. Activity has dropped by nearly 40% since 2005. In **Figure 4.2** we set out the change in some of the aircraft segments in more detail.

4.18 This makes clear the extent of the decline in activity in relation to a number of aircraft type segments that are key to GA. The impact on light aircraft flying is particularly evident with fixed wing aircraft from 751kg to 5,700kg down by 50% on 2005, and fixed wing aircraft of under 750kg down by 35%. Larger aircraft categories that include significant numbers of business jets and other business aviation aircraft are also down over 30%, but we recognise that this may not be entirely representative of trends in this sector specifically where it appears that there may have been an increase in flying by non-UK registered aircraft. This would be consistent with the broader trends in movement numbers seen in the airport data reported above.

4.19 Other important GA segments are also down significantly, for instance ballooning at 60% and helicopter flying at around 44%.

Figure 4.2: Decline in Flying Hours by UK Registered Aircraft since 2005



Source: CAA & BGA

4.20 We also obtained data on flying hours from other countries to see whether this pattern of decline in the GA sector is reflected internationally. Data for the USA, France and Australia is set out in **Table 4.4** below.

Table 4.4: General Aviation Flying Hours (000s) in USA, France & Australia from 2005									
	2005	2006	2007	2008	2009	2010	2011	2012	%
USA	26,982	27,705	27,852	26,009	23,763	24,802	N/A	24,403	-9.6%
France	645	619	597	569	582	557	583	N/A	-9.6%
Australia	804	795	832	866	885	818	769	N/A	-4.4%
Source: FAA, Australian Government Statistics, & GAMA Statistical Databook									

4.21 This shows consistent declines in GA flying hours in all three countries, although the decline in recent years is not quite as marked as it is in the UK.

Licence Holders

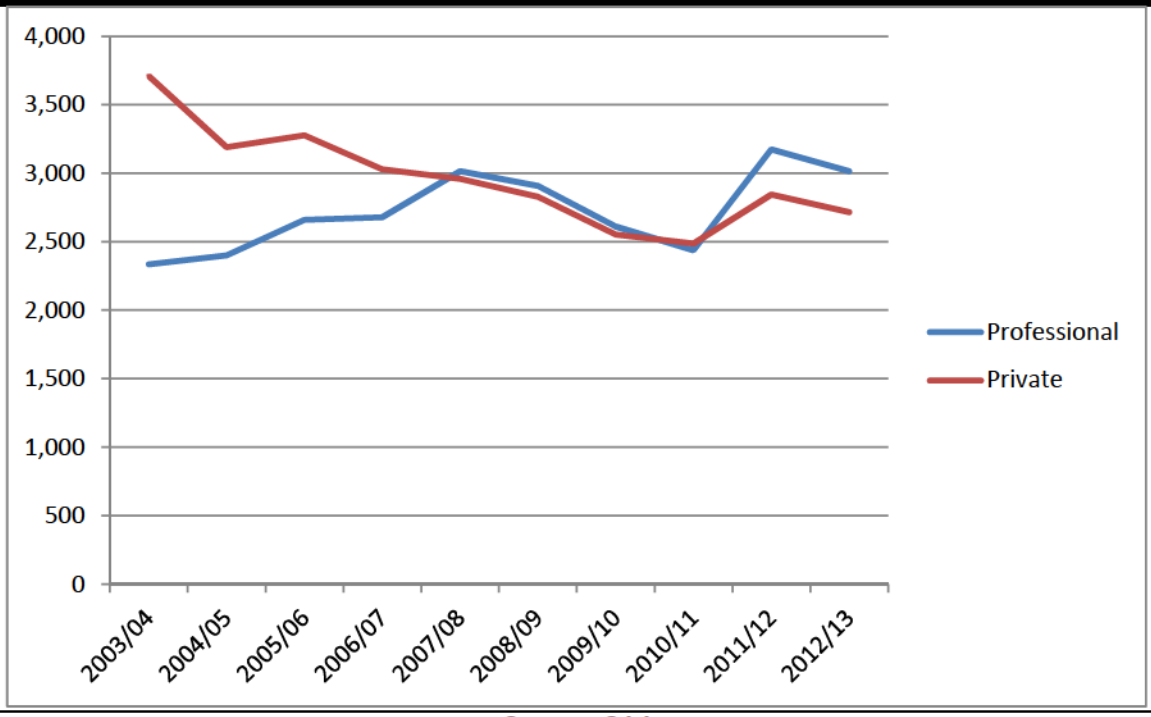
4.22 A further perspective is provided by the number of Private Pilot Licence (PPL) holders as recorded by the CAA, although care should be taken with this data as the number of licence holders does not necessarily reflect the extent to which they fly.

Table 4.5: UK PPL holders 2005, 2008 & 2012			
	2005	**2008**	**2012**
Aeroplane	20,458	20,127	19,966
Helicopter	2,525	2,620	2,012
Total	22,983	22,747	21,978
Source: CAA			

4.23 The CAA data in **Table 4.5** shows a steady, albeit small, decline in the number of PPL licence holders. Data from the General Aviation Manufacturers Association (GAMA) on the number of private pilots in the USA also shows a decline of around 35% between 1990 and 2012, suggesting that the overall decline in the number of pilots undertaking GA flying is not confined to the UK.

4.24 **Figure 4.3** below shows the number of private and professional licences issued by the CAA over the last 10 years. This also shows a decline in the private sector, although there appears to be a levelling off over the last 2 to 3 financial years.

Figure 4.3: CAA issued Pilot Licences last 10 yrs

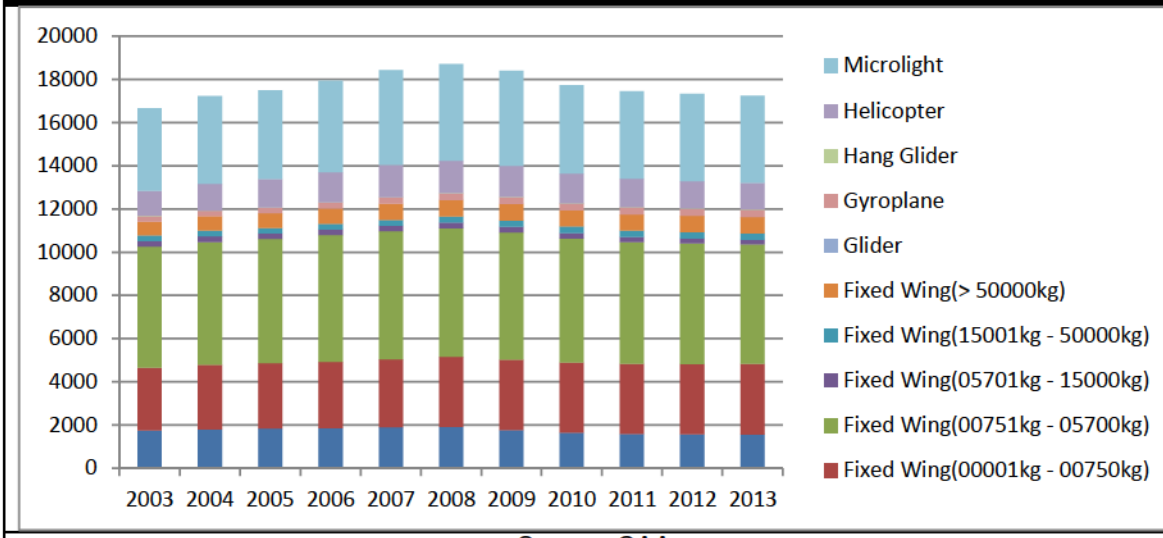


Source: CAA

Size of the UK Fleet

4.25 Another indicator of the health of the sector is the size of the UK fleet, which we set out in **Figure 4.4** below, and again this offers some concerning evidence as regards the health of the GA sector in total.

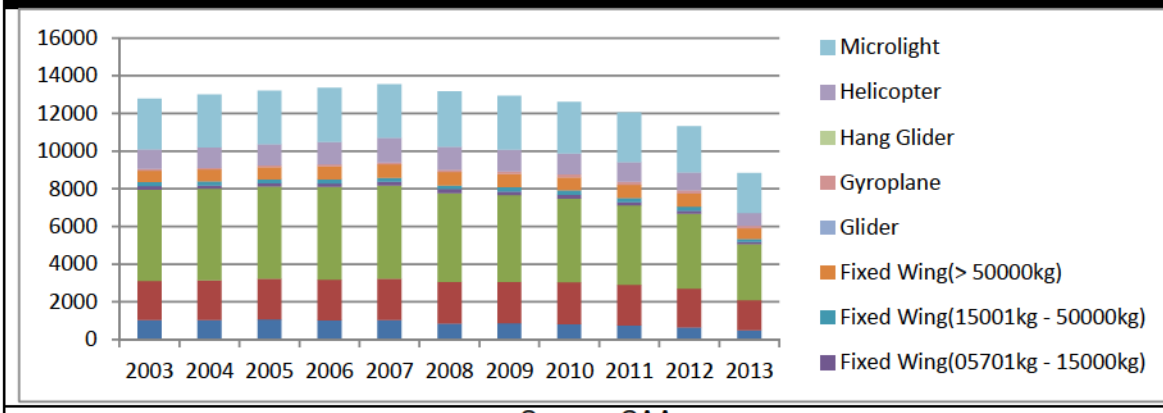
Figure 4.4: Size of the UK Aircraft Fleet



Source: CAA

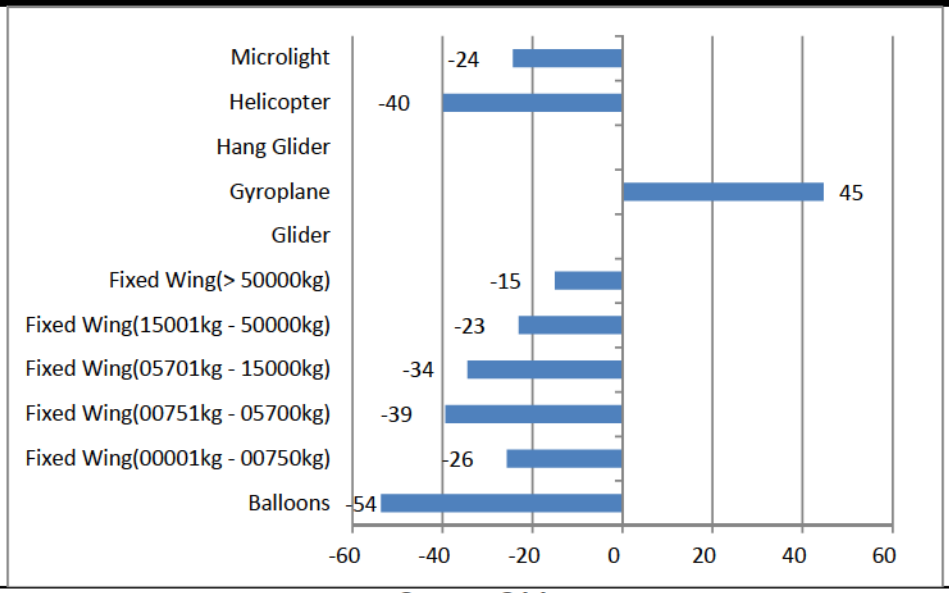
4.26 Clearly, the overall size of the fleet has declined in recent years. Light aircraft (less than 5,700kg) and helicopter numbers have declined by around 6% since 2005, while balloons have declined by around 16%. Equally, some segments have shown growth, notably microlights and larger fixed wing aircraft. However, this again only shows a partial picture and it is helpful to consider the number of active aircraft as well, i.e. those with flying hours recorded within the year, which we set out below.

Figure 4.5: Active Aircraft on the UK Register



Source: CAA

Figure 4.6: Decline in Active Aircraft since 2005



Source: CAA

4.27 This analysis reflects more clearly the patterns observed in terms of flying hours. There are significant declines across many aircraft segments and particularly in some of the key segments for the GA sector.

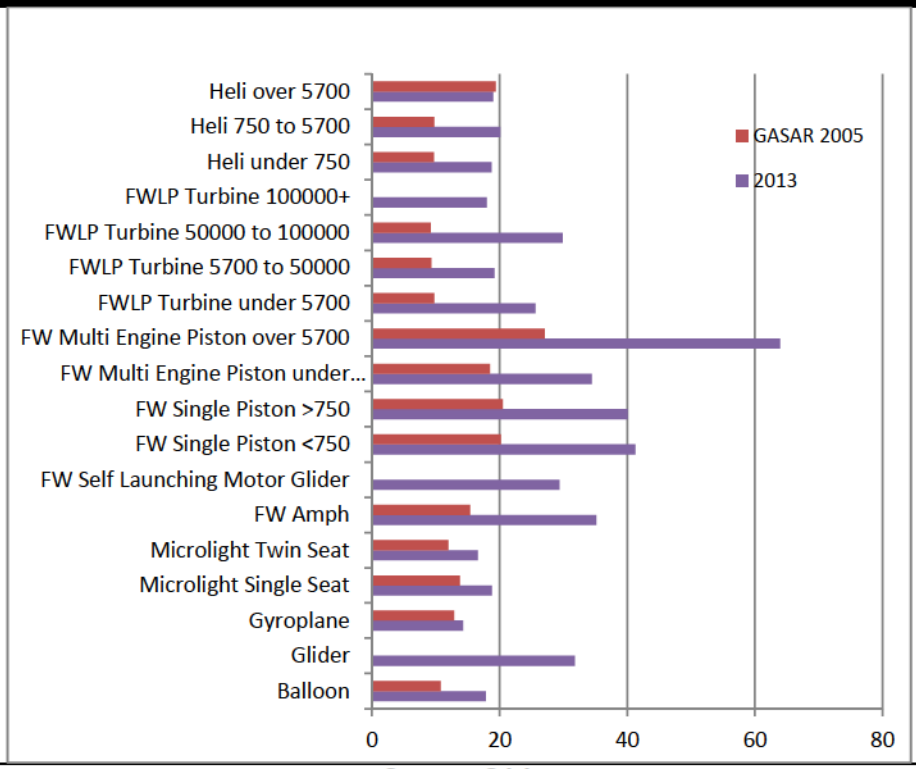
4.28 It is worth noting the issue of foreign registered aircraft operating in the UK at this point. There is anecdotal evidence to suggest that the number of these aircraft is increasing. At the time of the GASAR study, it was estimated that there were around 900 such GA aircraft based in the UK. However, using data provided by Aerodata[9], we now estimate that this number has increased in 2013 to just over 1,000 and this may offset some of the drop that has been seen in UK registered aircraft. We are also aware of increased activity by visiting business aviation aircraft at the larger end of the market.

[9] http://www.aerodata.org/

Age and Value of the UK Fleet

4.29 The figures below provide a useful indicator of the recent levels of investment in the GA sector. **Figure 4.7** shows the 2013 average ages of aircraft in the GA fleet calculated from the CAA G-INFO database and compares these with the same values calculated as part of the GASAR Study in 2005. This shows that in almost all categories there has been a substantial increase in the average age. This suggests, in turn, that there may have been a lack of investment in recent years, which reinforces the messages from the analysis of activity overall.

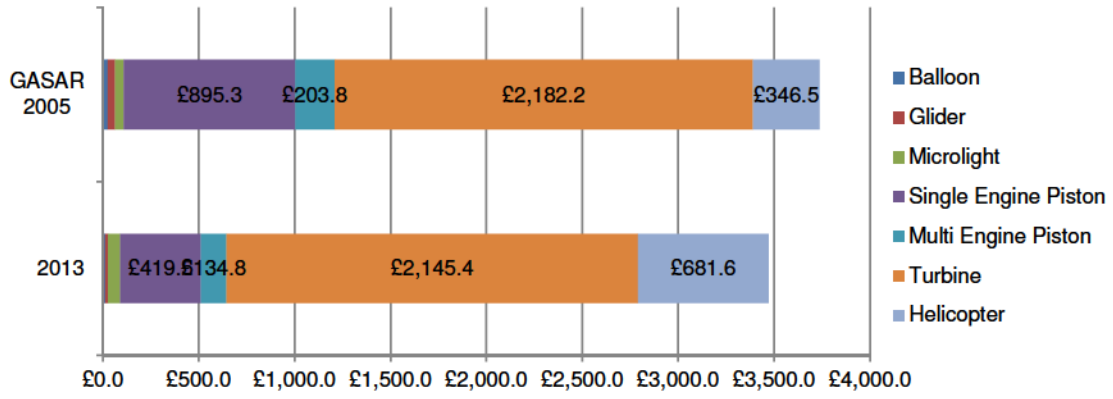
Figure 4.7: Average Age of GA Aircraft



Source: CAA

4.30 **Figure 4.8** shows an estimate of the value of the GA fleet operating in the UK in 2013 (including foreign registered aircraft) and compares this with the same information from the GASAR report. This assessment of the value of the fleet was built up from the estimated value for individual aircraft in the GA fleet using data on aircraft advertised for sale on Global Plane Search to define example price and depreciation curves for different aircraft types. Our analysis was based on an examination of adverts for around 1,000 different aircraft.

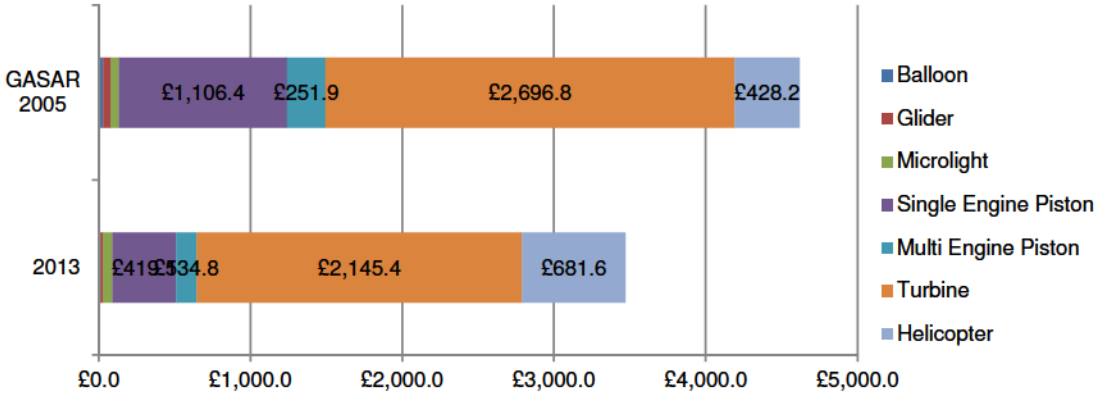
Figure 4.8: Value of the GA Fleet (£m at Current Prices)



Source: York Aviation

4.31 This analysis again demonstrates the lack of investment in the fleet in recent years. As age has increased, particularly in relation to light aircraft, aircraft values have declined. It is also possible that values have declined following the recession. The overall impact has been a decline in the value of the fleet. **Figure 4.9** again considers the value of the GA fleet but this time at constant prices (2014). This emphasises further the apparent decline in the value of the fleet.

Figure 4.9: Value of the GA Fleet (£m at Constant 2014 Prices)



Source: York Aviation

Reasons for Decline

4.32 The overall message is clear: there has been a significant decline in activity and investment across the UK GA sector in recent years. This will clearly have an implication for the economic impact of the sector, which we consider in the next section of this report. But what are the principal causes of this decline and how might it be reversed?

4.33 Clearly the impact of the recession has had a significant impact on GA flying, with business travel falling and disposable incomes heavily squeezed. However, there are other factors which may have contributed in some degree to the decline. These include:

- **Regulation** – the burden of regulation, particularly that imposed by EASA, has long been acknowledged as a deterrent to private flying, imposing an increasing cost burden on the sector at a time when disposable incomes have been falling. The Government's Red Tape Challenge and the recent initiatives taken by the CAA to cut red tape and reduce the regulatory burden have been welcomed by the industry but it is acknowledged that there is still work to be done in this area;

- **Costs** – aviation fuel prices have close to doubled since 2005, albeit there have been dramatic falls very recently. These increases had the effect of increasing the economic value per hour flown but has a negative effect on the level of flying activity undertaken, as demonstrated by the data set out in this section. The cost of gaining a Private Pilot's Licence (PPL) is now typically around £8,000 (more for a helicopter PPL) and for those wishing to progress to the commercial sector the costs can reach anywhere from £60,000 to £100,000, all of which has to be self-funded;

- **Age of the Fleet** – an ageing aircraft fleet is unattractive to prospective young pilots, which the GA sector depends on for continuing growth. Some consultees cited the burden of regulation being one of the reasons why the UK light aircraft manufacturing sector has contracted so much, although there are a few small companies (e.g. e-GO aeroplanes and Swift Aircraft) working on new and cheaper-to-operate aircraft which could appeal to the younger generation;

- **Lack of New Student Pilots** – the average age of student pilots has increased to the 40 to 60 age range as this age group tends to have more disposable income than younger people;

4.34 There is perhaps no single overriding reason why the GA sector in the UK has declined to such an extent in recent years, but rather a range of factors sometimes working in combination to deter users from flying and new student pilots from entering the sector.

4.35 In Section 7 of this report, we consider the constraints and opportunities for the sector in more detail and also some potential actions or policy interventions that might improve the flow of new student pilots into the sector and thereby maintain or increase its economic footprint.

4.36 It should be noted that the declines in the sector are not universal and there are sub-sectors which are showing signs of growth. In particular, the business aviation sector overall is showing greater resilience, albeit that much of this is using non-UK based aircraft.

4.37 We now turn to an analysis of the current economic value of the sector.

5 THE ECONOMIC VALUE OF GA OPERATIONS IN THE UK

5.1 In this section, we set out our estimate of the economic value of GA to the UK economy in 2013, the last full year for which appropriate statistics are available.

5.2 The primary focus of our work has been on estimating the economic value of through an examination of the expenditure of end users on GA activities as the final product in the value chain. This is essentially the same methodology as that adopted by Terry Lober in the GASAR Socio-Economic Study published in February 2006[10], as set out in our proposal to undertake this work. We did consider other methodological approaches, as set out in Appendix B.

5.3 We have also sought to produce a more granular analysis of the impact of the sector than considered by Lober, which considers the economic contribution of individual sub-sectors within GA and also to consider the spatial distribution of GA's economic 'footprint' within the UK.

5.4 We have then considered in more detail two sectors related to GA activity in the UK but which are, ultimately, part of the supply chain to GA rather than directly part of the sector itself. These are:

- UK aerodromes;
- GA related manufacturing in the UK.

5.5 It is important to note, at the outset, that this part of the analysis is concerned with the economic value of the GA flying activity itself, not the wider benefits of such activity, which we consider further in Section 6. As such, the impact derives almost entirely from the activity of aircraft based in the UK (as distinct from UK registered aircraft), with non-based aircraft necessarily making a more limited contribution in these terms. We discuss later how we have adjusted for these impacts.

[10] General Aviation Small Aerodrome Research Study: An Estimate of the Annual Direct Socio-Economic Contribution of GA to the UK economy – T. Lober, The Bartlett School, University College London (2006).

Methodology

5.6 As we have described above, GA is a hugely diverse and disparate sector in terms of the activity that it covers. It is also generally poorly researched and there are large segments of activity for which little, if any, data is collected and it is also reasonable to say that, where representative organisations collect information for individual sub-sectors, such data is often inconsistent with the data collected by others or is potentially duplicative. This means that there are substantial methodological challenges in undertaking any assessment of the economic value of the sector as a whole.

5.7 Conventional economic impact methodologies that focus on an analysis of the financial activity of firms in the sector, through input-output type approaches, are largely redundant in this case as they cannot deal with the significant raft of activity that relates to privately owned and operated aircraft and it is also extremely difficult to identify the proportion of activity that relates to GA within corporate activities. This fundamental issue was recognised by the original GASAR Socio-Economic Study and which substantially shaped that work. In the progress of this study, we have reached the same conclusion and, in some areas, data availability has in fact worsened since the GASAR study, with a number of the sources used by Lober no longer in existence[11].

5.8 Lober's solution to the issue was to focus on the unit of activity relating to GA for which a reasonably complete dataset existed - individual aircraft and their associated flying hours, as detailed within the CAA G-INFO database - and to identify the final value of services offered by companies operating these aircraft or the personal expenditure relating to aircraft that were in private ownership. This analysis was then extrapolated to consider relevant aircraft that were based in the UK but not detailed on the G-INFO database, namely gliders and non-UK registered aircraft.

5.9 Our current research takes the same approach, using the G-INFO database and the records of aircraft and hours recorded within it as the basis for analysis, before extending the scope to include gliders not included within the register and non-UK registered aircraft, based on an analysis of data within the Aerodata database. This approach has the advantage of being directly comparable with the original GASAR study. As with the original GASAR work, we have then used assumptions derived from a range of sources to value a range of expenditures relating to the aircraft within our dataset, namely:

- ✈ Insurance;

[11] This primarily relates to a reduction in the scope of activity by some key representative organisations, which probably ultimately relates to the recession and a need to return core value to members.

- Hangarage / Parking;
- Fuel;
- Maintenance;
- Gross Operating Margin for company owned aircraft – this is designed to reflect businesses administrative overheads, loans servicing costs, depreciation and pre-tax profit, which reflects their capital investment;
- Private Financing Costs – namely the interest paid on loans to purchase aircraft or the interest foregone on savings and depreciation of the asset;
- Landing Fees;
- Pre / Post Flight Expenses;
- Used Aircraft Sales Costs;
- Incremental Investment in New Aircraft.

5.10 We have also considered expenditures relating to a number of other GA activities that are not included within the G-INFO database, for instance model flying, or others that might not be fully reflected within the G-INFO data[12], for instance parachuting, hang gliding, paragliding and similar, and the impact of air shows (drawing particularly on work currently being undertaken by the British Air Display Association).

5.11 Our analysis has drawn data from a wide range of other sources:

- 'Aircraft Cost Calculator' has provided a range of information on operating costs for different aircraft types;
- 'Global Plane Search' has provided information on the used values of a wide range of GA aircraft, including balloons, microlights and helicopters;
- our survey work with BBGA members, aerodromes and members of AOPA and the Honourable Company of Air Pilots has provided perspectives on a number of issues and real world data on aircraft operating costs;
- aircraft manufacturer and GA community representative organisation websites have provided data on activity, aircraft performance, operating costs and values;

[12] This latter group is difficult because at least some flying activity related to these parts of GA is recorded within the database but there are likely to be costs relating to these activities or expenditure that does not directly relate to the operation of the aircraft within the G-INFO database that is a central part of activity.

- ✈ our consultations with a wide range of bodies have enabled us to collect information on the nature of activity and, in some cases, the scale of activity.

5.12 A more detailed explanation of our approach, the assumptions used and the key sources of data, is set out in Appendix B. In broad terms, our methodology is based on the estimated cost per flying hour for different aircraft types multiplied by the flying hours. We have taken account of the estimated number of non-UK registered aircraft based in the UK as set out above and, whilst we recognise that there is some degree of uncertainty, we believe the estimate to be reasonable. We do not have precise data for the number of flying hours for these aircraft so we have assumed that it is similar to UK registered aircraft but it is possible that they could fly more or, indeed, less. We are also aware that there appears to be some increase in flying hours undertaken by non-UK based aircraft, although this cannot be quantified and we set out below the implications for our results.

5.13 It is important to emphasise that our methodology is heavily assumption driven, as was the original GASAR methodology, and clearly represents a simplification of the costs and expenditure relating to the sector. However, the approach is proportionate to the budget and timescales available for the exercise. At the same time, we have drawn information from a wide range of sources and we believe that the assumptions adopted are reasonable and that the overall results are robust in terms of the order of magnitude.

5.14 We are aware of a number of other studies that have considered the value of GA in other countries, for instance the work recently undertaken by PwC in the United States[13] and a study on behalf of FNAM[14] in France in 2013. While there are some differences, at least optically, in the approaches these studies have taken, we believe that the methodology used here is broadly consistent. Particularly, we note the use of multipliers to reflect indirect and induced impacts elsewhere. The application of such multipliers would, we believe, represent double counting given the approach taken here. By focussing on final expenditure as our metric for impact, indirect and induced effects are subsumed within the final price paid and, consequently, a further allowance should not be made. Other studies have sought to isolate the unique direct value added from final expenditure and, consequently, the application of multipliers is appropriate.

[13] Contribution of General Aviation to the US Economy in 2013, PwC, February 2015.
[14] Fédération Nationale de l'Aviation Marchande.

The Economic Value of GA Operational Activity in 2013

5.15 In **Table 5.1**, we have set out our estimate of the economic value of GA flying to the UK economy in 2013 based on the methodology described. This has been split initially between the value associated with aircraft owned by organisations of some sort and aircraft owned by private individuals or groupings of private individuals. It should be recognised that the former group includes a wide range of activities, from flying training to aero clubs to emergency services to business aviation companies. This basic split provides a reference point back to the previous GASAR socio-economic work to enable comparison. A more defined split of activities within the sector is discussed further below.

5.16 This analysis identifies the total economic value for the sector in 2013 as around £1.1 billion. This value is driven primarily by organisation-owned aircraft, which account for around £782 million of this value. Privately owned aircraft account for a substantially smaller but significant £270 million.

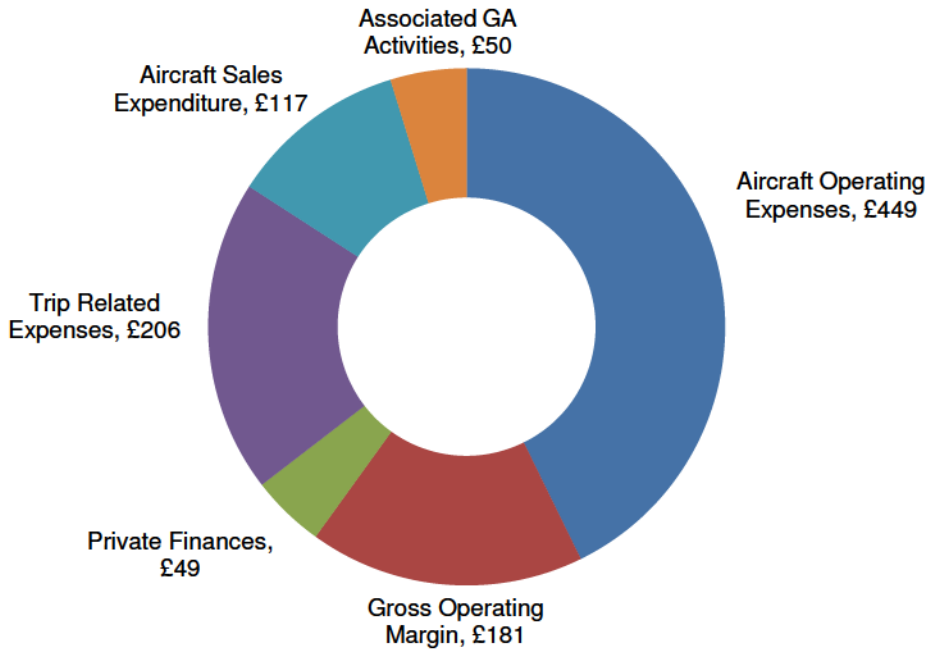
Table 5.1: The Economic Value of GA in the UK in 2013

	Organisation Owned Aircraft	Privately Owned Aircraft	Total
Aircraft Operating Expenses (£m)			
Insurance	£74	£36	£110
Hangarage / Parking	£22	£32	£54
Fuel	£134	£33	£167
Maintenance	£96	£23	£119
Gross Operating Margin (£m)			
	£181		£181
Private Finances (£m)			
Financing		£16	£16
Depreciation		£33	£33
Trip Related Expenses (£m)			
Landing Fees	£63	£12	£74
Pre and Post Flight Expenses	£98	£34	£132
Aircraft Sales Expenditure (£m)			
Aircraft Sales Expenses	£22	£6	£28
Incremental Aircraft Investment	£55	£34	£89
Associated GA Activities (£m)			
	£37	£13	£50
Total *(£m)*	**£782**	**£270**	**£1,051**

Source: York Aviation (note that figures may not sum due to rounding)

5.17 **Figure 5.1** shows the relative importance of the different broad value categories in driving the overall result. This demonstrates that the core driver of value is aircraft operating expenses, accounting for around £449 million in economic value in 2013. The next largest category is Trip Related Expenses at around £206 million.

Figure 5.1: Economic Value Drivers in 2014 *(£m)*



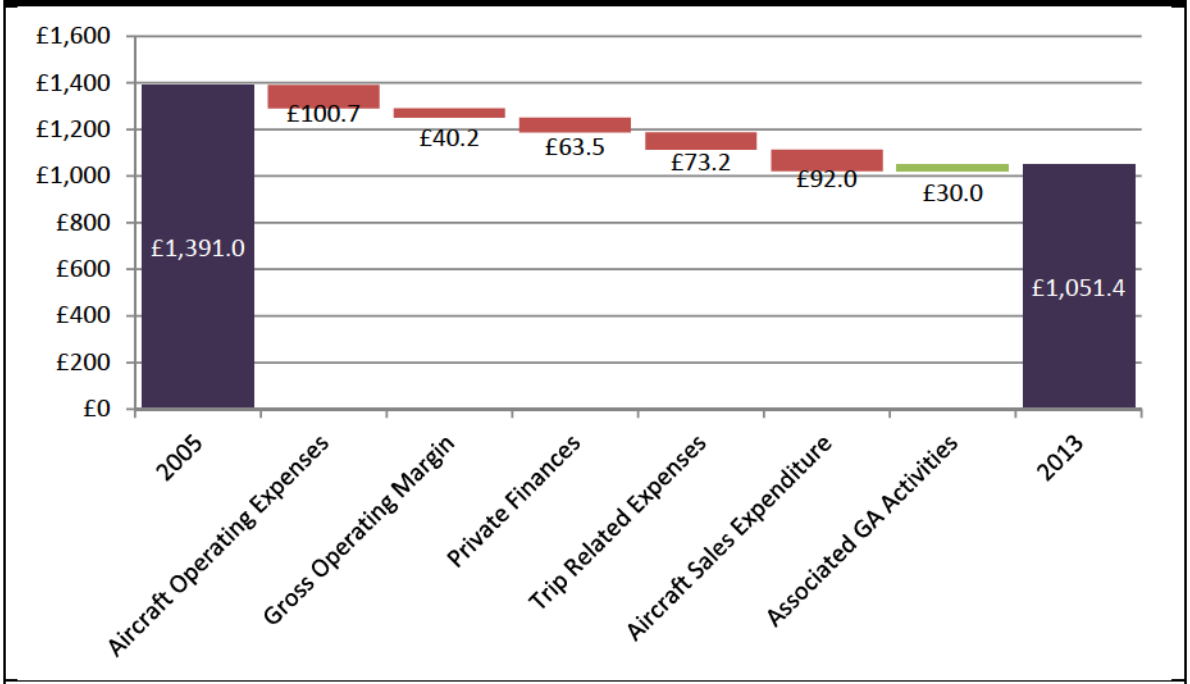
Source: York Aviation

5.18 We should note at this point that we recognise that there will be expenditure in the UK, e.g. handling or maintenance expenditures, associated with non-UK based aircraft over and above our estimates of the expenditure by the UK based fleet. However, some of the expenditure noted above by the UK based fleet will actually take place outside the UK. We have not been able to identify the quantum of either set of expenditure within the scope of this research, but it is reasonable to assume that the implications will be broadly neutral, or at least within the tolerance of error of the estimate, on the overall assessment of the economic value of the sector in the UK.

Comparison with 2005

5.19 The original GASAR Socio-Economic Study identified the economic value of GA to the UK economy at around £1.4 billion in 2005. Our latest analysis suggests that even in nominal terms the economic value of the sector has declined. **Figure 5.2** examines the drivers of the decline in value.

Figure 5.2: GA Economic Value 2013 vs 2005 (nominal prices)



Source: T. Lober and York Aviation

5.20 The decline in the total economic value of GA in the UK is not driven by a significant change in any one area of the analysis but across the range of areas. Intrinsically, this makes sense. The economic value of the sector is driven to a very large extent by the activity within it and, as we have discussed in some detail in the previous section, activity has dropped significantly since 2005. The reasons for this decline in activity are also discussed above but it is perhaps worth reiterating a number of points here:

- the recession has substantially impacted on disposable income and reduced people's ability to fly for pleasure to the same extent even if they continue to fly;

- similarly, the recession has impacted on business travel, both in terms of volumes and in terms of firms becoming more 'cost conscious'. This has resulted in a downturn in business aviation activity;

- lack of investment in the fleet has seen the average age of aircraft increase and a fall in the numbers of new aircraft being purchased. This has resulted in declines in the value of depreciation and aircraft sales expenditure;

- rising fuel prices have made flying more expensive on a per hour basis and reduced activity. Conversely, the rise in fuel price has increased expenditure per hour and, thereby, ameliorated some of the loss in value.

5.21 The sole area of growth since the 2005 assessment is in the allowance we have made for the impact of 'other GA activity'. This 'other' category includes activities that are very difficult to account for accurately without significant additional research beyond the scope of the present study such as:

- air displays and rallies;

- model flying;

- parachuting, paragliding and hang gliding;

- other miscellaneous expenditure such as on GA related publications

- activities relating to the operation of member associations.

5.22 In our view, the original GASAR Study probably underestimated this element of the sector and, while making a precise and consistent assessment of this activity is very difficult, there is significant evidence to support a higher allowance being made. For instance, the emerging research being undertaken by the British Air Display Association on the economic impact of air displays in the UK suggests associated visitor expenditure of around £64 million per annum. While it would not be appropriate to suggest that all of this figure should accrue to the GA sector, given that air displays are, ultimately, a mix of military and GA flying with no means of determining the criticality of either, even adopting an assumption that 50% of this expenditure relates to GA results in an annual estimate of £32 million per annum, substantially above the GASAR estimate of £20 million per annum for all other GA activity. Similarly, model flying is not effectively captured through the basic methodology but involves over 36,000 people who pay insurance for their aircraft, buy fuel, and build aircraft. Parachuting involves over 50,000 people in the UK and, whilst the flying of aircraft associated with parachuting is captured by the modelling, it is reasonable to suggest that there are equipment and insurance costs to individual participants that are not captured. Overall, therefore, this would seem to suggest that the GASAR allowance of £20 million was substantially too low. We have, therefore, made an allowance of £50 million to cover these harder to define activities, but this may ultimately be conservative.

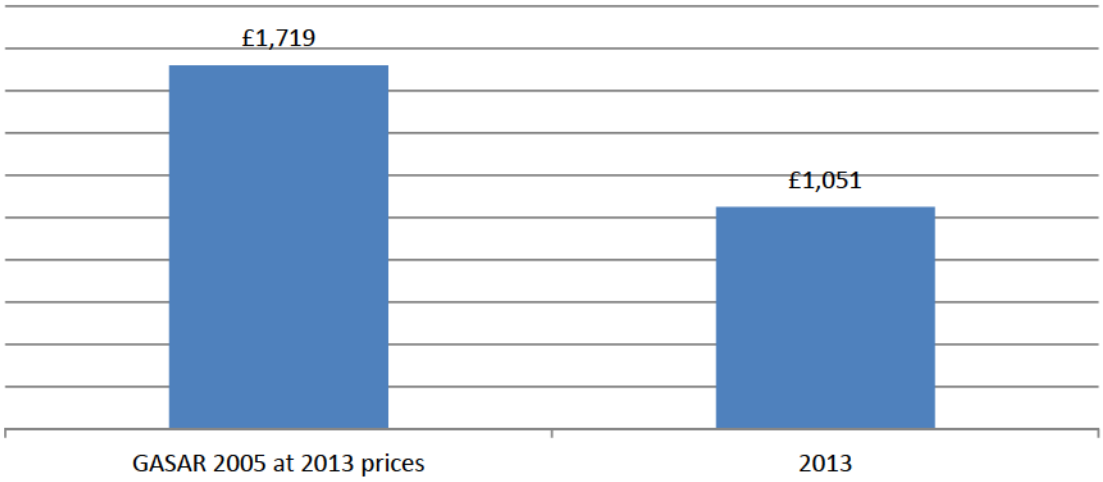
5.23 The decline in economic value does, however, need to be set in context and it is helpful to consider a number of further analyses:

- ✈ the change in the real economic value of GA;
- ✈ the economic value per hour flown, both in real and nominal terms.

5.24 In **Figure 5.3**, the change in GA's real economic value between 2005 and 2013 by adjusting the 2005 assessment to 2013 prices using HM Treasury GDP deflators. This results in an economic value for GA in 2005 at 2013 prices of around £1.719 billion. This suggests that the fall in the economic value of the sector in real terms has been around 39%. This is broadly similar to the fall in activity that has been observed.

5.25 It is, however, interesting to note that in both real and nominal terms the economic value of GA per hour flown has increased since 2005. This is likely to have been driven primarily by the increase in fuel prices observed over the period. The relevant values per hour flown are shown in **Figure 5.4**.

Figure 5.3: Change in the Real Economic Value of GA 2005 to 2013 (£m)



Source: T Lober, HM Treasury and York Aviation

Figure 5.4: Economic Value of GA per Hour Flown

Source: T Lober, HM Treasury and York Aviation

5.26 The strong link between the economic value of the GA sector and the level of activity does suggest that if flying in the sector can be re-invigorated then the economic contribution of the sector can be increased and potentially reach levels similar to those observed in the pre-recession era. By way of demonstration, if flying hours were to increase to levels similar to that seen in 2005, the economic value of the sector based on the current valuation would be around £1.8 billion. We address potential actions that could return the sector to growth in Section 7.

GA Sub Sectors

5.27 As part of our assessment of the economic value of GA, we have sought to make estimates of the economic value of a range of sub-sectors operating within the overall whole. At the outset, it should be said that this is problematic given the breadth and diversity of the sector in terms of activity and the availability of consistent data. As a consequence, the results set out below should be viewed as broad estimates only and we have not set out the individual components that make up the economic value of each sub-sector as we have above. Although we believe that the estimates are reasonable in the round, there is potentially significant margin for error at an individual value component level.

5.28 The estimates are derived by seeking to classify each GA aircraft within the G-INFO database and those identified via Aerodata into a single sub-sector. This is clearly not perfect as neither database provides information on how an aircraft is used. Instead, we have had to make judgements based on the types of aircraft and their ownership. Where aircraft are owned by an organisation of some type, this has involved making an assessment of how an aircraft is likely to be used given the nature of the organisation. There is, therefore, a degree of subjectivity within these assumptions and it should also be recognised that, in some cases, the activities undertaken by an organisation are not known or are highly varied and there is no indication of the potential use of the aircraft.

5.29 It should also be recognised that, in some cases, organisations use aircraft for more than one activity. Aeroclubs are a particular example of this issue, where an aircraft may be used by a member for pleasure flying one day but for flight training the next. There is no effective way of assessing how this activity is split on a consistent basis across the fleet and, consequently, there is an inevitable potential for a degree of 'fuzziness' around the boundaries of sub-sectors, which clearly impacts on the potential accuracy of the assessment for any given sub-sector. This is a particular issue to be noted in relation to Hang Gliding, Parachuting and Sky Diving, where the aircraft flying relating to this sector is identifiable within the G-INFO database but other parts of the value of the sector are likely to fall within the 'Other GA Activities' sub-sector.

5.30 The sub-sectors for which we have estimated an economic value build on the sector map discussed in Section 3 but they are not the same and they are not as disaggregated. The sub-sectors are largely defined by a balance between the availability of data and trying to provide a reasonable feel for activity of different types across the GA sector.

5.31 Our estimates for the different sub-sectors of GA in 2013 are set out in **Table 5.2**.

Table 5.2: The Economic Value of GA Sub-Sectors in 2013 (£m)	
Business Aviation	£565
Personal Fixed Wing Flying	£182
Helicopter Flying (non Business Aviation)	£59
Other GA Activities	£50
Other Business Flying	£48
Flying Training	£42
Emergency Services	£35
Microlight Flying & Gyroplanes	£33
Gliding	£26
Ballooning	£9
Hang Gliding, Parachuting and Sky Diving	£4
Total	**£1,051**
Source: York Aviation (note that figures may not sum due to rounding)	

5.32 By far the largest sub-sector in terms of economic value is, perhaps unsurprisingly, business aviation, accounting for around £565 million in economic value in the UK in 2013. This is followed by personal fixed wing flying at around £182 million in 2013, which will include people flying for pleasure and individuals using private aircraft for business travel.

5.33 Other sub-sectors, such as flying training, emergency services, gliding, other business flying and helicopter flying, contribute between £26 million and £59 million. Ballooning is a relatively small sector contributing around £9 million in value. The aircraft flying associated with Hang Gliding, Parachuting and Sky Diving accounts for around £4 million but this is likely to be a significant underestimate of the sub-sector as a whole, with non-aircraft related activity being subsumed within Other GA Activities.

5.34 It is also important to be clear about what is being measured here. The economic value of these sectors is to a large extent a reflection of the level of activity. Simply because a sector is 'smaller' does not mean that it is intrinsically worth less to the individuals involved. It is also does not necessarily mean that the issues facing any particular sub-sector are more or less important. As we will discuss below, many of the issues that face GA are common across different sub-sectors and it is important to recognise that there is interplay between the different sub-sectors and that all are important in contributing to the health and diversity of the sector and to the overall economic value of the sector.

Geographic Distribution of Impact

5.35 Again, building on our overall assessment of the economic value of GA, we have sought to provide an assessment of the geographic distribution of the sector's economic value across the UK. This has been based on the ownership address data held within the G-INFO database. For aircraft identified but not listed within the G-INFO database, the distribution has been assumed to be similar. As with the other estimates within this report, this is not a perfect approach as the address of the owner is not necessarily a perfect indicator of the location or pattern of use of the aircraft. However, given the data available, the approach seems sensible and the patterns observed appear to be reasonable given the qualitative evidence collected during the study.

5.36 In **Table 5.3**, we have set out the geographic distribution of GA's economic value across the UK nations and regions. This has been split between the value associated with aircraft owned by organisations and those that are privately owned.

Table 5.3: Geographic Distribution of GA's Economic Value in 2013 (£m)				
	Organisation Owned Aircraft	Privately Owned Aircraft	Total	% of Total
North East	£16	£5	£21	2%
North West	£59	£21	£80	8%
Yorks & the Humber	£49	£18	£67	6%
East Midlands	£27	£22	£48	5%
West Midlands	£34	£18	£52	5%
East of England	£68	£38	£106	10%
South East	£309	£71	£380	36%
London	£65	£20	£85	8%
South West	£110	£31	£140	13%
England	£736	£242	£978	93%
Scotland	£37	£15	£52	5%
Wales	£5	£8	£12	1%
Northern Ireland	£4	£5	£9	1%
Total	£782	£270	£1,051	100%
Source: York Aviation (note that figures may not sum due to rounding)				

5.37 The economic value of the sector is heavily focussed in the South of England, with around 54% of total value concentrated in the Greater South East alone. This reinforces the messages received around the geographic distribution of the sector from stakeholders. Otherwise, the sector delivers significant economic value in most of the English regions, with the exception of the North East, where activity is limited.

5.38 It is also noticeable that there is limited activity in either Wales or Northern Ireland, which means that the economic value of the sector in both areas is relatively small. GA in Scotland, however, delivered economic value in excess of £50 million in 2013.

Key Supply Chain Sectors

5.39 We have also considered the economic value associated with two key sectors associated with GA:

- GA aerodromes in the UK;
- GA UK manufacturing.

5.40 We have looked at these key supply chain sectors individually because of their importance to the overall GA sector, but it is important to note that our analysis of the economic impact of aerodromes in the UK is not additional to the overall economic footprint of GA identified above, but is subsumed within it. This is because the approach we have taken to identifying economic value, in terms of the final expenditure of users, includes the expenditures incurred by users at the aerodromes therein. Similarly, GA manufacturing will be included in the estimate of the overall economic footprint to the extent that it is part of the supply chain to end users in the UK. However, analysis suggests that GA manufacturing in the UK is heavily export driven and this suggests, in turn, that the great majority of this impact will be additional to the £1.1 billion economic footprint described above.

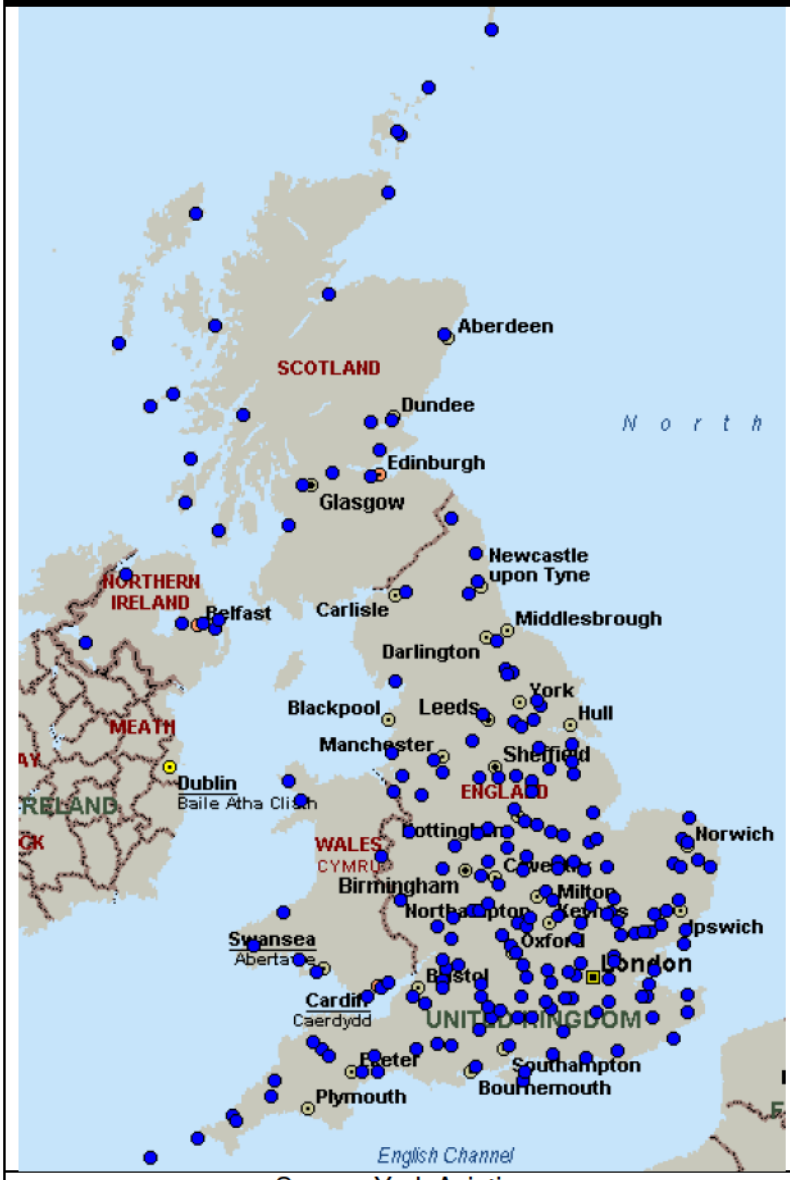
The Economic Impact of UK GA Aerodrome Activity

5.41 We identified a total of 499 aerodromes across the UK using data from the Lober study, as well as the latest editions of Pooleys' UK Flight Guide and Lockyear's Farm Strips Flight Guide. There are other 'landing sites' across the UK that are not officially listed, but these will almost certainly be small grass fields or farm strips with few facilities[15]. We are confident, therefore, that the sites we have identified constitute the main sites in the UK that contribute to the sector's economic value.

5.42 The regions with the most aerodromes overall are the South East, with 15% of the total, and the East of England, with 16%. However, when the smaller grass strips are excluded the South East is shown to have most (23%) of the larger aerodromes, with the North East (2%) having the fewest. **Figure 5.5** shows the broad geographical distribution of the aerodromes surveyed from which the concentration in the South East can be clearly seen.

[15] We are also aware that GA flying is occasionally permitted at MOD airfields.

Figure 5.5: Geographical Distribution of Aerodromes Surveyed



Source: York Aviation

5.43 For the previous GASAR research, Terry Lober identified 374 aerodromes, but only considered England and did not include any aerodromes in Scotland, Wales, or Northern Ireland. Considering England alone, we have identified 385 aerodromes, which is broadly comparable to the previous figure, although direct comparisons can be misleading as some airports, including London Stansted, were excluded from the GASAR analysis for reasons that are not clear.

5.44 The GASAR Study also undertook an exercise to classify the aerodromes identified into 6 categories (A to F), using a complex cluster analysis technique and applying some 20 criteria relating to infrastructure and levels of activity[16]. We set out the six categories identified by Lober in **Table 5.4** below with a brief explanation of each.

Table 5.4: GASAR Research Aerodrome Categories

Category	Description
A	Includes regional airports such as Manchester and Birmingham that serve the commercial sector as well, but also includes Farnborough. Two of the category A airports have since closed (Bristol Filton, Kent Manston, and others (such as Coventry and Blackpool) have closed to commercial traffic.
B	These are major GA Aerodromes (such as Biggin Hill) that generally do not serve the commercial scheduled sector. All are CAA licensed and most have hard-surfaced runways with ATC and navigational aids, maintenance and fuel facilities and a relatively large number of resident aircraft. Many also have resident training schools.
C	These were described as 'developed GA Aerodromes' and include aerodromes such as Wellesbourne and Turweston. Many are licensed and around half have grass runways but have fewer facilities than category B aerodromes.
D	These were described as 'basic GA Aerodromes'. Generally this category is similar to category C but with even less infrastructure and less evidence of usage. Many of these aerodromes are operated by clubs and many are used by gliders or microlights.
E	These were described as 'developed airstrips' and are generally unlicensed grass strips in rural areas with few facilities.
F	These are very basic farm strips airstrips with a short grass runway, few if any facilities, and are usually privately owned.

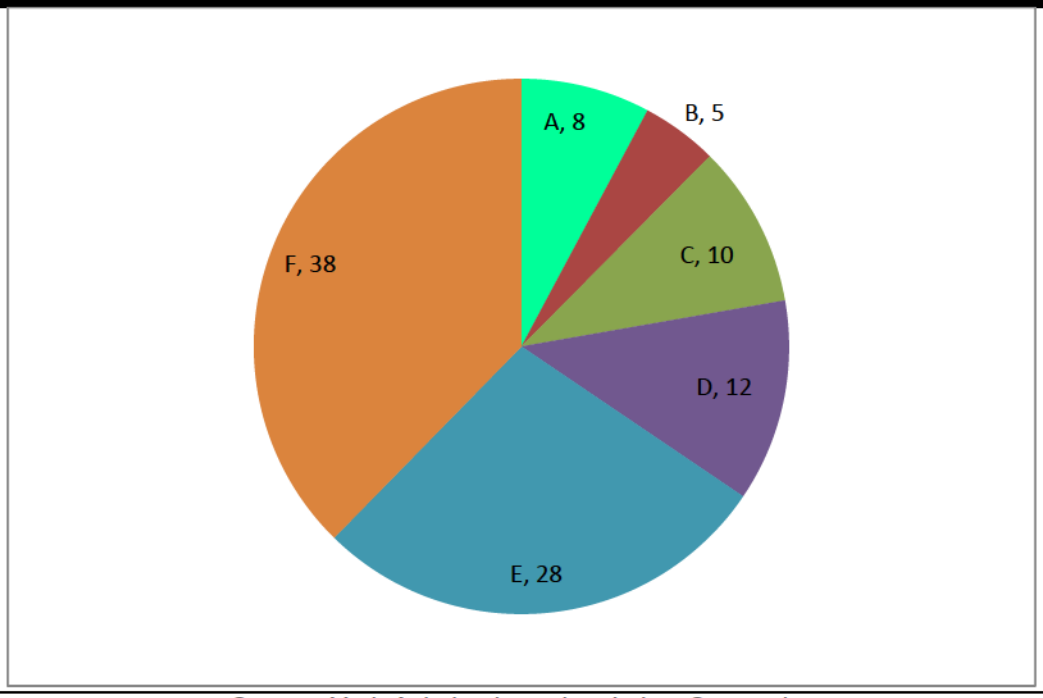
Source: T. Lober

[16] GASAR Aerodrome Categorisation Study, T. Lober, 2004.

5.45 In general, this categorisation provides a useful means of placing aerodromes in order of size and relative importance and we have, thus, retained it in our research. We have also assigned a category to the additional aerodromes in Scotland, Wales and Northern Ireland. However, this categorisation was done some years ago and some aerodromes have since increased their levels of activity and infrastructure whilst others have either closed or reduced their levels of activity. As a result, it is arguable that some aerodromes ought now to be placed in different categories, but we feel that this is likely to be a low proportion of the total and that the categories themselves are still a useful means of apportioning the analysis.

5.46 The percentages of aerodromes by category are set out in **Figure 5.6**.

Figure 5.6: Percentages of Aerodromes by Category



Source: York Aviation based on Lober Categories

5.47 As can be seen, by far the largest categories are E and F, which are the smaller grass strips with relatively few facilities. These smaller aerodromes make up two thirds of the overall total.

5.48 We, therefore, surveyed almost all of the aerodromes in categories A, B, C, and D, and a selection of aerodromes in categories E and F on the assumption that the levels of activity at these smaller airstrips would be broadly similar across the categories. In total, 212 surveys were sent out. Of these, a total of 79 were returned (a 37% response rate) and the response rates from aerodromes in categories A to C were all over 30%. We also obtained a reasonable spread of responses from the various categories and across the UK regions. A copy of all surveys used is contained in Appendix D.

5.49 The survey requested information relating to levels of aircraft activity at each aerodrome and we set out in **Tables 5.5 and 5.6** below the percentage distribution of fixed and rotary wing movements by type. As can be seen, Category A and B aerodromes, as might be expected, have the largest proportion of business aviation movements, with rotary wing (helicopter) flights showing a greater proportion of business flights than fixed wing at aerodromes of categories A to C. Conversely, there is a greater proportion of training flights at lower category aerodromes (except Category F) than at the higher categories.

Table 5.5: Percentage of Fixed Wing Movements by Type at Aerodromes Returning Surveys

Category	Training	Private	Business
A	25%	45%	29%
B	48%	32%	21%
C	52%	45%	3%
D	48%	41%	10%
E	58%	41%	1%
F	0%	100%	0%
Total	46%	41%	14%
Source: York Aviation Survey Data			

Table 5.6: Percentage of Rotary Wing Movements by Type at Aerodromes Returning Surveys

Category	Training	Private	Business
A	12%	31%	57%
B	48%	18%	34%
C	52%	23%	24%
D	67%	20%	13%
E	72%	28%	1%
F	0%	0%	0%
Total	50%	19%	30%
Source: York Aviation Survey Data			

5.50 The aerodrome survey also asked for information on the number of direct GA-related employees working on the aerodrome site, including those working for companies other than the aerodrome owners, split by full-time and part-time. We then calculated the full time equivalent (FTE) employee numbers for each aerodrome that provided information.

5.51 To make an estimate of the employment levels at all of the identified aerodromes across the UK (i.e. including those that did not return a survey), we calculated an average FTE number by category of aerodrome supplying information and applied this average to the remaining aerodromes. We then made some adjustments before applying the averages across the range of aerodromes to adjust for data included airports that may not be typical of other aerodromes in a particular category. For example, Farnborough Airport has a much higher level of GA related employment on its site than is typical for other Category A airports so we excluded it from the averages applied to other airports, although Farnborough's actual employment numbers are included in the final total.

5.52 Based on the survey data, we calculated an estimated FTE employment level at all the aerodromes identified by category and by region. We then took the average GVA per filled job by UK region from Office of National Statistics (ONS) data (adjusted to 2013 values) and applied this to the estimated number of FTE jobs[17]. The results are set out in **Table 5.7**.

5.53 It is clear that the South East again dominates in terms of employment and, consequently, also in terms of GVA impact, but this is perhaps unsurprising given the concentration of larger airports and aerodromes serving GA in this region. At the other end of the scale, the estimate for the North East is very low and reflects the lower number of aerodromes and airstrips in this region.

[17] Using headline regional GVA per filled job values implies that there are regional variations in GA productivity, which may not necessarily be the case. However, data at this level of detail is not available. Equally, however, this could also slightly understate the GVA impact as we know that GVA per filled job in the commercial aviation sector is higher than the headline average.

Table 5.7: Regional Distribution of GA Aerodrome Economic Impact		
Region	**Estimated Employment**	**Estimated GVA (£m)**
East of England	290	12
East Midlands	170	6
North East	30	1
Northern Ireland	60	2
North West	140	6
Scotland	310	13
South East	3,920	185
South West	230	9
Wales	100	4
West Midlands	140	6
Yorkshire & Humber	160	6
Total UK (Direct)	5,550	251
Indirect & Induced	4,160	151
Total	**9,710**	**401**
Source: York Aviation (note that figures may not sum due to rounding)		

5.54 Nevertheless, on the basis of these estimates, this sub-sector of GA has a significant economic footprint with around 5,550 direct full time equivalent employees and around £251 million of direct GVA. When indirect and induced effects are added[18] the total impact across the UK is around 9,700 employees and around £401 million of GVA. It should be made clear at this point that:

- this economic impact of aerodromes is identified separately here but is included in the estimate of the overall economic footprint of GA and therefore not additive;
- as stated earlier, the approach used here to examine GA aerodromes is different from that used for GA as a whole as it focuses on estimating the direct value added by the sub-sector rather than the total expenditure on final goods and services. Hence, it is appropriate to apply multiplier effects whereas for the GA sector as a whole these effects should be reflected within the final value of the goods and services purchased.

The Impact of GA Aircraft Manufacturing in the UK

5.55 The manufacturing of GA aircraft undertaken in the UK is limited to a relatively small number of firms and is dominated by Bombardier based in Northern Ireland, which manufactures a range of business aviation jets for the global market. There are, however, also a number of smaller manufacturers producing a range of different aircraft, such as:

[18] We have used a composite indirect and induced multiplier based on the work undertaken by Oxford Economics in their study 'Economic Benefits from Air Transport in the UK'.

- ✈ Cameron Balloons;
- ✈ Britten-Norman;
- ✈ Swift Aircraft;
- ✈ e-Go aeroplanes;
- ✈ The Light Aircraft Company;
- ✈ Flylight;
- ✈ P&M Aviation;
- ✈ Europa Aircraft.

5.56 These companies are, of course, supported by a range of component suppliers, some of which are located within the UK.

5.57 As with the other elements of this assessment, consistent detailed data on the economic value of GA aircraft manufacturing in the UK is not available. The activity is largely subsumed within the wider activity of the UK's aerospace industry, which produces aircraft and components for the commercial and military sectors as well. This makes accurate disaggregation very difficult.

5.58 We have, therefore, worked with production data from the Eurostat PRODCOM database and identified the sales and export values of segments of the sector that are likely to wholly or primarily related to GA activity. This is, ultimately, likely to be an underestimate of the total value of GA manufacturing as it is not possible to isolate GA component manufacture in some key categories. This has been combined with the results of research undertaken PwC in 2008 on the economic impact of business aviation, which examined indirect and induced multipliers for business aviation manufacturing in the UK, and information from UK Input Output Tables on the relationship between output and Gross Value Added (GVA) in the aerospace industry.

5.59 As with our separate evaluation of aerodromes, the approach used to examine GA manufacturing is different from that used for GA as a whole. Whereas it is appropriate to apply multiplier effects to the direct GVA associated with GA manufacturing to capture the economic value generated in the supply chain and through income expenditure effects, for the GA sector as a whole these effects should be reflected within the final value of the goods and services purchased.

5.60 Our estimates of the economic footprint of GA aircraft manufacturing are expressed in terms of employment and GVA are set out in **Table 5.8**.

Table 5.8: Employment and GVA Impact of GA Manufacturing in the UK		
	Employment	**GVA (£m)**
Direct	10,100	£310
Indirect & Induced	18,300	£977
Total	**28,400**	**£1,287**
Source: York Aviation		

5.61 Based on this approach, we estimate that GA related aircraft manufacturing accounted for around £1.3 billion in GVA in 2013 and supported approximately 28,400 jobs. In the wider context of this report, this economic activity is particularly interesting as activity is heavily export driven. We believe that it is reasonable to assume that at least 85% of this value (around £1.1 billion) may be export driven and would therefore be additional to the economic value associated with GA flying operations described above.

5.62 This assessment is broadly consistent with the estimate of the impact of business aviation manufacturing undertaken by PwC in its 2008 study, assuming as seems reasonable that business aviation will account for the great majority of impact. This identified an impact in the UK on GVA of around €2.6 billion (approximately £1.8 billion at 2008 exchange rates) and 38,000 jobs. The decline most likely reflects the loss of one of the two largest business aviation manufacturers since that time, Hawker Beechcraft, and potentially general recessionary impacts.

6 WIDER SOCIO-ECONOMIC IMPACTS

6.1 In this section, we consider the potential wider socio-economic impacts that might be associated with GA and the particular role of some of its sub-sectors. At the outset, it is helpful to consider what is meant by wider socio-economic impacts and how these relate to the economic value for GA set out in Section 5.

6.2 Broadly, we have considered these impacts to be benefits to either individual users or the economy or society as a whole that are not effectively valued within the payment for GA goods and services described in Section 5. This implies that they should be considered to be over and above the economic value of GA that we have so far described. However, this definition also hints at a key issue in considering these impacts. Their position outside of the price transaction around GA means that they are inherently difficult to value in monetary terms, a position which is further exacerbated by the limited nature of data on the GA sector. However, we recognise that these impacts are potentially significant and important in overall economic value of the sector terms.

6.3 It is perhaps helpful to briefly draw a parallel with commercial aviation at this point. Commercial aviation in the UK is a well researched sector, with a significant amount of data available on the behaviours and characteristics of the various actors in the market (passengers, airlines, airports, etc.). It is also fair to say that the link between commercial aviation growth and inward investment or trade development is well established and widely accepted. However, despite this substantially greater base of evidence and data, effective methodologies to value these wider impacts remain in their infancy and are as yet not widely accepted.

6.4 Given these difficulties, what we have set out below is an evidence base that draws on a range of quantitative and qualitative indicators and does in some cases make some 'what if' based assessments of potential impacts of the GA sector. These estimates should, however, be viewed with caution and be seen as indicators of the directions of effect and potential magnitude.

6.5 We have organised this discussion under a number of key headings:

- ✈ Business Connectivity Impacts;
- ✈ Benefits of Leisure Flying;
- ✈ Public Services Impacts;
- ✈ Supporting Commercial Aviation and Aerospace.

Business Connectivity Impacts

6.6 Probably the largest potential source of wider economic impacts relates to the use of GA aircraft for business air travel and the additional connectivity this offers over either commercial air transport or surface modes.

6.7 Air travel has long been recognised as a key long term productivity driver for national and regional economies. Travelling by air offers the ability to reach distant markets much more quickly and efficiently than via other means of transport, which ultimately enables increased flows of trade, knowledge, labour and investment. This exposure to larger markets is beneficial in terms of competition and productivity. In this report, we have not attempted to set out the logic behind these benefits or set out the generic evidence for the existence of these effects. These are well documented elsewhere (see paragraph 6.9). Instead, we have considered the particular role that GA plays in supporting such benefits through the specific connectivity it provides over and above that offered by commercial air services.

6.8 We have considered this specifically in relation to two sub-sectors of GA:

- business aviation – this is meant in a broad sense to include corporate travel via owned or chartered aircraft that operate to on-demand schedules and destination patterns. It would include both fixed wing and helicopter travel and would also include the air taxi sector. This is a well-recognised segment of the GA market and has been the subject of significant pieces of research[19];
- business travel use of private aircraft – the precise number of business trips made by individuals or small groups using privately owned aircraft is unknown but anecdotal evidence, including our consultations with operators and GA associations, suggests that such trips make up a significant minority of flights in private aircraft. Again, these could be fixed wing or rotary aircraft. Unlike the established business aviation sub-sector, this element of the market is perhaps less well recognised and is certainly less well researched.

The Wider Economic Impacts of Business Aviation

6.9 The 2008 PwC study for the European Business Aviation Association on the Economic Impact of Business Aviation in Europe summarised the wider socio-economic impacts of business aviation under five headings:

[19] e.g. The Economic Impact of Business Aviation in Europe, PwC, 2008; and The Role of Business Aviation in the European Economy, Oxford Economics, 2012.

- flexibility and convenience – business aviation operates on demand and to a schedule defined by its users. It, therefore, enables business travellers to fly exactly when they want to and to airfields as close to their destinations as possible. A particular benefit cited by users is the ability to fulfil multiple destination schedules that would simply not be possible using commercial air transport;

- time savings – for many users, the time savings associated with business aviation are the single most important feature of the services. They enable high net worth individuals and key decision makers to use their highly valuable time more effectively as well as allowing more productive use of working time more generally. Time savings not only relate to the flexibility and convenience described above but also because of the tendency for business aviation to use smaller less congested airports where security processing and transit from aircraft to car and vice versa is fast and efficient, particularly compared to major airports offering commercial aviation services;

- cost savings – an interesting finding from the PwC study was that for some users, and in some circumstances, business aviation can in fact be a cheaper alternative to commercial aviation. This primarily occurs when companies need groups of employees to travel to locations that are difficult and expensive to reach via commercial air services;

- deal facilitation – PwC identified that business aviation plays an important role in deal facilitation, enabling senior staff to travel to sign or negotiate investment, merger or alliance deals with relatively little disruption to their schedules. The research identified that there would be significant loss of opportunities and potential deals without the ability to travel to meet clients quickly and efficiently;

- perceived safety advantages – there were advantages expressed in terms of the safety and security of business aviation compared with commercial aviation, although, particularly in relation to safety, these comments related to travel in specific parts of the world and not necessarily the UK.

6.10 These messages were largely reinforced by the Oxford Economics research for EBAA in 2012[20] but this study also used a range of statistics to help illustrate the role that business aviation plays supporting business connectivity. It identified that:

- 96% of city pairs served by business aviation in Europe had no daily scheduled connection, demonstrating the flexibility, convenience and potential time savings offered by business aviation;

[20] The Role of Business Aviation in the European Economy, Oxford Economics for EBAA, 2012.

- 70% of business aviation flights used smaller regional airports with less than 100 departures per day compared to 40% for commercial aviation; again showing how business aviation can save time by using less congested airports and get closer to end destinations;

- survey work cited suggests that around two thirds of executives believe that face to face meetings are crucial to completing mergers and acquisitions. Business aviation is a vital tool for senior executives in enabling to make those meetings happen;

- the value of time for business aviation users may be eight to fifteen times higher than for business users on scheduled business services, which emphasises the criticality and value of the time savings offered by business aviation;

- by examining the revenues generated by business related trips on business class commercial services and through business aviation, Oxford Economics estimated that each passenger on a business aviation flight generates the same economic benefit as nine business passengers on a scheduled flight. This emphasises the extent to which business aviation is important in deal making and investment decisions that have long run benefits for economies.

6.11 Our discussions as part of this research have reaffirmed the importance of business aviation as a tool for business people and, ultimately, a driver of deals, investment and trade. As part of our discussions with BBGA, the Association provided an example of a typical schedule for a business aviation trip and compared the time taken for this trip with that which would be required to undertake the same itinerary using commercial services. This is set out by way of illustration in **Table 6.1**.

6.12 The time saving associated with this relatively simple schedule is dramatic. Using a business aircraft would enable a business person to complete the schedule 30 hours faster than using scheduled airlines. Even if we discount the lost time associated with the overnight stay required for the scheduled airline option, there is a saving of 17 hours. By way of illustration, using the average value of time for a UK business air passenger of £82.31[21], the business aviation aircraft schedule would save each passenger £1,400 of time (based on 17 hours saved). However, using Oxford Economics' findings, which suggested that the value of time for business aviation users may be eight to fifteen times higher, would imply a time saving of between £11,200 and £21,000, more than justifying any cost premium.

[21] Department for Transport, SERAS Supporting Documentation, 'Rules and Modelling: A Users Guide to SPASM', January 2002, Halcrow Group Limited and Scott Wilson Kirkpatrick and Company Limited, paragraphs B33-B35. Updated to 2013 prices with HM Treasury GDP deflators.

Table 6.1: A Typical Business Aviation Schedule – Business Aviation vs. Scheduled Airlines			
Scheduled Airline		**Business Aircraft**	
Day 1		**Day 1**	
Leave Home	**0445**	Leave Home	**0615**
Park Heathrow	0515	Check in Farnborough	0645
Check in Heathrow	0545	Depart Farnborough	0700
Depart Heathrow Air France 2471	0700	Arrive Paris Le Bourget(LBG)	0850
Arrive Paris Charles de Gaulle(CDG)	0905	Meeting in Paris	0920 to 1050
Meeting in Paris	0935 to 1105	Check in LBG	1120
Check in CDG for AF 2210 (First available flight to Hamburg)	1325	Depart LBG for Flensburg	1130
Depart CDG for Hamburg	1525	Arrive Flensburg	1245
Arrive Hamburg	1700	Meeting Flensburg	1245 to 1415
Drive to Flensburg		Check in Flensburg	1420
Arrive Flensburg	1900	Depart Flensburg	1430
Overnight stay		Arrive Edinburgh	1445
Day 2		Meeting Edinburgh	1450 to 1620
Meeting Flensburg	0800 to 0930	Check in Edinburgh	1625
Drive to Hamburg	0930	Depart Edinburgh	1635
Check in Hamburg	1105	Arrive Farnborough	1735
Depart Hamburg to Edinburgh via Paris (on AF1711/AF5052)	1525	Arrive Home	**1805**
Arrive Edinburgh	1720		
Meeting Edinburgh	1730 to 1900		
Check in	1905		
Depart Edinburgh on BMI 55	2050		
Arrive Heathrow	2205		
Arrive Home	**2235**		
Source: BBGA.			

6.13 The business aviation sector also includes what may be private flying by high net worth individuals who expect personal service, privacy and discretion in their activities. Whilst this may be related to leisure (e.g. sporting pursuits), these high net worth individuals are often investors and whose spending in the UK is valuable in its own right. However, it is important to point out that such trips make up only a part of the activity encompassed within the business aviation category. It is impossible to distinguish the purpose of such trips, which often include both business and leisure activities.

6.14 Estimating the total wider economic value of business aviation in the UK in terms of its long run impact on inward investment, trade and productivity is extremely difficult given the paucity of data on the numbers of travellers and the nature and type of movements. However, we have undertaken an illustrative exercise based on a series of assumptions about business aviation movements in the UK and a relationship between business travel and long run total factor productivity from the commercial aviation sector identified by Oxford Economics in its work for Transport for London[22].

6.15 Using CAA statistics for reporting aerodromes and separate data for Farnborough Airport, we have identified an estimate of the number of movements by business aviation and air taxi aircraft in the UK in 2013 of around 165,000[23]. Using the CAA's G-INFO database, we have estimated that the average number of seats on a business aviation aircraft in the UK is around 12 and we have assumed a load factor of around 75%. We have conservatively assumed, in the absence of reliable data, that around 50% of recorded movements relate to business activities. Adjusting for domestic movements, we have therefore estimated that business aviation carried around 640,000 business passengers in 2013[24]. This compares to an estimated 37 million business passengers on scheduled commercial flights.

6.16 The Oxford Economics research identified a relationship between the number of business air travellers and air freight relative to GDP (referred to as the connectivity index) and UK total factor productivity. This relationship suggests that a 10% increase in business air travellers and air freight relative to GDP would result in a 0.5% increase in UK GDP. If we treat the 640,000 business passengers estimated to be using business aviation services in the UK as an addition to the existing UK base of business passengers and air freight in 2013, this results in a 1.1% increase in the connectivity index. This would suggest a long run impact on UK GDP of around £815 million per annum from such business aviation passengers. In other words, the wider impact on GDP from business aviation may well in fact be larger than the sub-sector's economic value as set out in Section 5.

6.17 This estimate does need to regarded with some caution. The relationship derived by Oxford Economics relates to commercial aviation usage and we cannot be certain that is it directly applicable to business aviation passengers. However, if anything, given the findings of the research undertaken by Oxford Economics on business aviation specifically, it might be suggested that such a relationship might actually underestimate the value of business aviation usage.

[22] Impacts on the UK Economy through the Provision of International Connectivity – Oxford Economics for Transport for London (2013).
[23] There will be a small number of business aviation flights at smaller, non-reporting aerodromes but the total number of these is not believed to be large in overall terms.
[24] This excludes business passengers travelling on smaller private aircraft, as discussed below. Estimating the number on such flights is not possible.

6.18 Overall, our analysis would suggest that business aviation is an important provider of business connectivity for the UK economy and that wider economic impacts from this connectivity may be substantial.

Business Travel Use of Private Aircraft

6.19 The use of private aircraft by individuals or small groups for business travel or by high net worth individuals to support their wider travel needs (which often relate indirectly to business) is much less well understood and researched. Surveys returned by AOPA members and the Honourable Company of Air Pilots members as part of this work suggested that around 30% of respondents used their aircraft for business travel, at least to some degree. However, it is probably reasonable in most cases to suggest that the motivations and benefits from use are much the same as those observed in the business aviation sector, i.e. the convenience and flexibility, the time savings, the ability to operate complex schedules, deal facilitation, and the privacy and security of private flying.

6.20 Our discussions with aerodromes, as part of this work, identified a number of examples of individuals that were believed to use their aircraft in this way regularly and some of these examples are set out below in **Table 6.2**. This evidence is of course largely anecdotal but it does provide further evidence that GA aircraft are important in supporting business travel and the wider benefits that that travel brings.

6.21 Putting a value on the wider economic impact of this flying is largely impractical as so little is known about the volume of activity and the journeys that are being made. We have, however, in a similar vein to the BBGA business aviation example described above, identified an example itinerary that helps to articulate how private aircraft could be used for business travel and the time savings that might accrue.

Table 6.2: Examples of Individuals Using Private Aircraft for Business Travel

- Business Person A keeps a helicopter here and uses it regularly for business transport to a roof-top pad in London;
- High Net Worth Individual A, with business interests in the UK, keeps a helicopter here with five pilots on standby 24/7.
- Company A, operating in a niche sector of the construction industry, bases a helicopter at this aerodrome;
- Business Person B owns a PC12 (single engine turboprop with 6 to 9 seats) based at the aerodrome and is involved in international marketing and advertising having co-founded an international digital marketing agency in the UK;
- Business Person C uses this aerodrome for business transport around the UK. He is the joint founder of a computer company and a philanthropist, donating millions into a UK educational trust;
- Business Person D is a wealthy Canadian living in London, Geneva and Vancouver, now occupied mostly with philanthropy. He frequently flies direct from this aerodrome to an aerodrome just outside Geneva close to his home.
- Business Person A is a supplier to a major retailer and uses a private aircraft to meet with his client in the local area of the aerodrome – *"it makes a lot of sense from a business perspective. There are massive benefits to me in terms of time savings"*.
- The owner of a major retail company keeps a Beech 90 there and the founder of one of the UK's leading homebuilders keeps a Dassault Falcon there.

Source: York Aviation

6.22 The example set out in **Table 6.3** shows a schedule for a business person based in Surrey with a series of three meetings in Northern England. Using a light private aircraft enables the individual to complete the itinerary in a single day trip. Travelling by train this is simply not sensibly possible and the result is a significant time saving for the business person.

Table 6.3: Example UK Business Trip Schedule			
Train		**Private Aircraft**	
Leave Home	0615	Leave Home	0615
Depart Guildford Station	0653	Depart Dunsfold	0700
Arrive Sheffield	1041	Arrive Netherthorpe Airfield	0810
Taxi to Meeting	1055	Taxi to Meeting	0840
Depart Meeting	1225	Leave Meeting	1010
Taxi to Station	1240	Taxi to Netherthorpe	1040
Depart Sheffield	1247	Depart Netherthorpe	1055
Arrive Hull	1421	Arrive Beverley Airfield	1120
Taxi to Meeting	1430	Taxi to Meeting	1155
Depart Meeting	1600	Depart Meeting in Hull	1325
Taxi to Station	1610	Taxi to Beverley Airfield	1400
Train to Liverpool	1639	Depart Beverly Airfield	1415
Arrive Liverpool	1908	Arrive Liverpool Airport	1505
Overnight Stay		Taxi to Liverpool	1535
Day 2		Depart Meeting in Liverpool	1705
Depart Meeting in Liverpool	1030	Taxi to Liverpool Airport	1735
Taxi to Station	1040	Depart Liverpool Airport	1750
Train to Guildford	1047	Arrive Dunsfold	1910
Arrive Guildford	1433	Arrive Home	1955
Arrive Home	1500		
Source: York Aviation.			

6.23 Using a private aircraft results in a saving of just over 19 hours. Again, if we exclude the non-working time resulting from the overnight stay, this saving is reduced to around 8 hours of productive working time.

6.24 The ability to use private aircraft in this way, or indeed air taxis and other forms of business aviation aircraft generally, is dependent on a network of aerodromes operating in the UK that offer the opportunity to access particular areas quickly and easily. This is an issue we consider further in the following section.

6.25 One recommendation of the GA Challenge Panel may be particularly relevant here: the implementation of enhanced navigational capability enabled via the established EGNOS programme should be recognised and implemented to assist GA and improved regional access to aerodromes[25]. The potential use of light turbine single engine aircraft such as the PC 12, Piper Malibu, TBM, Cessna Caravan etc. could also bring new standards of accessibility to some remoter GA airfields enabling wider business use.

6.26 A further point made in the Government's response to the GA Challenge Panel is the scope for GA to use some military airfields around the UK subject to meeting specific requirements at applicable sites[26]. It was noted that the Ministry of Defence (MOD) has agreed to engage and work with the Department for Transport (DfT) to examine whether access can be enhanced for GA flights to military airfields where possible and to identify any specific issues which might be constraining GA users from making the most of the opportunities offered by this arrangement. Such access could further enhance business connectivity.

Benefits of Leisure Flying

6.27 Leisure flying associated with GA can take many different forms and involve a wide range of different aircraft types, from balloons to gliders to microlights to historic aircraft and light aircraft. It should be recognised that the primary economic benefits associated with pleasure flying relate to the economic footprint of the sector described in Section 5. Pleasure flying does not ultimately support the types of wider connectivity effects described in relation to business travel using business aviation or private aircraft. However, this does not mean that such leisure-related flying activity does not have a wider socio-economic impact.

6.28 The impacts of pleasure flying relate more to the physical and mental 'well-being' of the individual. Taking part in GA pleasure flying enhances participants' quality of life, which ultimately has long term benefits to society. These benefits to health come through a number of paths:

- flying involves physical activity to a greater or lesser extent, depending on the nature of the particular activity. For instance, hang gliding is more physically demanding than flying a light aircraft. Whilst this might lead to the view that some parts of the GA sector are more valuable than others from this perspective, this is not the case. The sheer diversity of activity and the different levels of physical activity are in fact a great strength in terms of the ability of the sector to deliver wider benefit. GA offers opportunities to a huge range of people of different physical abilities;

[25] GA Challenge Panel Report, May 2014, recommendation 9iv, page 44.
[26] Government Response to the GA Red Tape Challenge Panel Report , October 2014, page 24.

- leisure flying is a form of relaxation for many participants, which ultimately provides long term mental health benefits. However, the role it plays in supporting lifelong learning and continuing skills development should also not be forgotten. The continuing requirement to maintain skills and update knowledge to retain pilot licences for many types of aircraft provides a stimulus for ongoing personal development. Similarly, the self-build sector, model flying and others require the continued use and application of engineering skills.

6.29 It is interesting to note that a number of GA sub-sectors refer to their flying activity as a sport, for instance gliding, parachuting, hang gliding and paragliding. This reference is a helpful way of thinking about the wider socio-economic benefits of pleasure flying. If we think about GA pleasure flying activities as a sport and then about the beneficial wider socio-economic benefits that sport brings to society, the benefits can be easily understood.

Case Study – Gliding

- *Gliding is a significant part of the GA community. The British Gliding Association (BGA) told us that there are 84 clubs in the UK with some 9,000 members, of which 7,000 are regular participants and around 6,000 are active pilots. Gliding is the "affordable way of flying", being significantly cheaper than powered flight.*
- *Cross country gliding is a very popular element of the sport and usually involves a 'triangular' course passing defined waypoints and returning to home base, but sometimes requires landing at an alternative aerodrome or in a field if the conditions are unfavourable. In the hands of an experienced pilot, and with the right conditions, a glider can cover as much as 300 kilometres in a single trip.*
- *BGA regards gliding as a sport activity rather than a transport mode, and its primary social benefit is as a recreational activity, providing physical and mental health benefits to participants. Although its direct and indirect benefits are captured in our economic assessment as a sub-sector of GA, its wider benefits form a component of the larger and significant economic benefits that derive from sports activity in the UK.*
- *Wider benefits are also derived from tourism impacts. An example of these benefits would be The Scottish Gliding Centre (SGC). The SGC operates with a combined turnover of around £0.4M. The club is typical in that it is open to all and, weather permitting, provides a national, regional and community asset that is open all year round and encourages visitors to the area.*
- *A conservative estimate of visitor spending in the region is £100 per bed night and, during one year, the SGC recorded 407 person-weeks booked (167 glider-weeks) equivalent to 2,849 bed nights. This equates to £0.29M of income to the local tourist economy. These visitors support local bed and breakfast establishments, hotels, restaurants and other leisure facilities, as well as playing a significant part in the finances of the club.*

- *The SGC represents 64% of gliding membership in Scotland. However, their reliance on visitors is much less than other clubs in Scotland. Making the assumption that a gliding club's financial turnover is directly proportional to the size of its membership, and allowing for their increased percentage reliance on visitors, the value of visitors to the Scottish tourist industry as a whole is conservatively estimated at £0.45M per annum.*

Source: British Gliding Association.

6.30 As noted in the example above, there may be wider tourism related benefits from some aviation activities. However, we believe these are largely encompassed within our quantitative assessment of 'other activities' as set out in the previous section.

6.31 The wider importance of GA's contribution to quality of life in terms of making the UK an attractive place to live and work should also be considered. The UK is increasingly home to a multinational labour force and competes to attract highly skilled individuals to come and live in the country. Ensuring that people have access to pastimes that interest them, which may include for some flying aircraft for pleasure, is an important element in the UK's competitive position.

Public Services Impacts

6.32 As we have described above, the UK emergency services are key users of GA aircraft, with NPAS being the largest single on-shore helicopter user in the UK. As with pleasure flying the wider impacts of this activity do not relate to additional connectivity and, hence, the impacts on investment and trade that are often considered to be the wider economic impacts of commercial aviation. The impacts from the use of GA by the emergency services relate instead more to socio-economic benefits to society stemming from the ability to undertake activities more quickly and efficiently than would otherwise be possible, thereby providing better services or saving ground based resources, which can then be used elsewhere or savings made. In the context of the emergency services, this could mean lives saved or improved outcomes in terms of serious injuries.

6.33 These potential wider benefits are difficult to measure in a quantifiable form. However, the NPAS Annual Report for 2013/14 provides a number of case study examples of how Police aircraft have been used and the positive outcomes that have occurred.

Case Study: Examples of the Use of GA Aircraft by the Police

Crew Save Man in the Severn *- a request was made to search for a missing suicidal male near to the river Severn, Ham area of Tewkesbury. As the aircraft arrived on scene, reports came in of a body in the Severn floating down stream. The crew quickly spotted the male in the river and seeing no other police units in the area made the quick decision to land. Tactical Flight Officers (TFOs) saw a man floating towards a fallen tree and ran out onto the tree and managed to grab the man before he went under it. The TFOs hung onto the male for nearly 20 minutes until Severn Area Rescue arrived and pulled the man out. Without the intervention of the helicopter crew, this male would have more than likely drowned.*

Armed Robber Apprehended *- in September 2013, whilst en route back to its base from a mutual aid task, an NPAS crew monitored on a radio talk group that a vehicle was being followed by a patrol vehicle in the Blandford area of Dorset and had failed to stop. Although unknown at the time, it transpired that this vehicle had been stolen earlier during a knifepoint robbery. The aircraft diverted to the area and intercepted the vehicle, giving commentary whilst the subject vehicle was pursued. An enforced stop was subsequently conducted by the ARV and traffic officers and the subject arrested. The involvement of the helicopter in this scenario allowed police patrols to give distance to subject vehicle, thereby, reducing risk to other road users. It also provided the force incident commander with a real time overview of the situation to assist their threat assessment, planning and decision making in dealing with an armed offender in a high risk area of policing.*

Absconded Male Located *- in March 2014, NPAS was tasked to search for a wanted male near to his home address. He had been arrested but had slipped police handcuffs and escaped whilst being transferred to court earlier that day. The aircrew located the male, but he made off when ground units attended. NPAS saw the absconder hiding in a hedgerow of a rear garden. They directed ground officers to him and he was arrested.*

Critically Injured Man Air Lifted to Hospital *- a male jumped off cliffs at Exmouth and sustained serious life-threatening injuries. He was located by the aircraft at the base of the cliffs. Paramedics and ground units were directed to the scene and the pilot landed the aircraft in difficult circumstances on the beach. The male was airlifted to hospital. Paramedics fed back that the male would have died en route to hospital if he had been moved over ground and transported by road.*

Source: National Police Air Service Annual Report 2013/14.

Supporting Commercial Aviation and Aerospace

6.34 The positive link between GA and the wider commercial aviation and aerospace sector is one that is often mentioned.

6.35 It has been suggested that GA provides a 'breeding ground' for future commercial pilots offering a way in to flying that ultimately feeds growth in the commercial sector, increasing supply and reducing the overall costs of training faced by the commercial sector. This would be a benefit to the commercial sector and would constitute a positive externality. However, it is important to look at this issue a little more closely.

6.36 There can be little argument that the expected growth in the demand for air travel in the future is going to result in an increased demand for commercial pilots. What is perhaps at issue is the extent to which GA is likely to act as a feeder for these demands. Currently, our discussions with consultees would suggest that relatively few PPL trainees go on to the commercial sector. The trend amongst airlines currently is very much to recruit pilots through the major integrated schools, which provide a route to a commercial licence that bypasses any need to acquire a PPL. It is also important to consider how training is funded. The great majority of recruits have funded their own training and hence, in terms of the airlines' costs, it makes no difference the route via which they have reached their licence. It would, therefore, seem very difficult to suggest that commercial aviation currently receives a spin-off benefit from GA via this route. What is possibly true is that the heritage of the UK aviation sector, of which GA is a key part, has encouraged entry to the commercial sector and, to some degree, improved supply over time. This effect may still be in place. We explore issues around the opportunities to grow GA training activities further in Section 7.

6.37 Conversely, there is some anecdotal evidence to suggest that GA does continue to act as a way into the broader commercial aerospace sector. The manufacture and maintenance of GA aircraft offers either a career or a pastime for a number of young people and this involves the development of engineering skills, particularly, which in turn have broader applicability in the commercial aerospace sector. Our consultations have identified that there is a flow, especially of young people, who start out in GA and then move on to the commercial aerospace sector. In some ways, this is a problem for the GA sector in that it means that people are being lost from the sector, particularly at the younger end of the age spectrum, which may have a detrimental effect over time (and indeed may already be having such an effect). However, to the extent that the skills acquired in the GA sector mean that individuals are 'part trained' or to the extent that young people have been able to develop broader work skills, this is a spin-off benefit to the commercial sector. The extent of this benefit is very hard to gauge as there is very limited data on the effect. However, on balance, we suggest that the effect on commercial aviation is probably relatively small.

Conclusion

6.38 In this section, we have demonstrated the substantial potential wider benefits associated with GA flying. While these benefits are often difficult to quantify effectively, particularly given the lack of data on some aspects of GA activity, they are clearly important and in some areas substantial.

6.39 Business aviation and the use of privately owned aircraft for business travel provides a valued addition to the connectivity provided by commercial air services, offering time savings, greater flexibility and convenience, potentially cost savings in some circumstances, deal facilitation and perceived safety and security benefits. Using a series of assumptions, we have estimated that the long term impact on UK productivity from business aviation alone may result in an annual impact on UK GDP of around £815 million.

6.40 Pleasure flying, while not offering benefits of a similar nature, does offer physical and mental health benefits and supports lifelong learning and personal development. Similarly, while it is difficult to estimate the impact of GA flying by the emergency services, there are clear benefits in terms of efficiency and capability.

6.41 The potential positive impact on commercial aviation is currently limited. In our view, given the recruitment practices of the major airlines and the fact that pilots fund their own training, there appears to be no significant positive externality to commercial aviation in terms of pilot supply. However, GA's contribution to the UK's aviation heritage is likely to be still increasing the attractiveness of the profession and improving labour supply to some degree.

6.42 The impact on commercial aerospace is again difficult to estimate. However, there is anecdotal evidence to suggest that GA engineering offers a pathway for young people to move in to the commercial aerospace sector. To the extent that the skills acquired in the GA sector mean that individuals are 'part trained' or to the extent that young people have been able to develop broader work skills, this is a spin-off benefit to the commercial sector.

7 CONSTRAINTS & OPPORTUNITIES

Introduction

7.1 In this section, we consider a number of constraints and opportunities that could be relevant to maximising the economic benefit potential of the GA sector in the UK. We conclude the section with a number of policy intervention recommendations for consideration by Government.

7.2 In the course of our research, many of the same issues were identified by consultees that had previously been highlighted by the GA Challenge Panel in the recommendations contained in its Final Report of May 2014. To a large extent, these related to the continuing burden of regulation faced by the GA sector and the Government's Response to the Panel's Final Report has already addressed many of these, as has the continuing and ambitious programme of work being undertaken by the CAA through its GA Unit. The implementation of these reforms and recommendations is also being overseen by the General and Business Aviation Strategic Forum (GBASF), which in turn reports to the cross-departmental Ministerial Star Chamber.

7.3 The Government's Response to the Panel Report noted these developments and that the current position would be developed further in the light of the economic research and would lead to the development of a wider Government Strategy for GA early in 2015. In particular, the Response noted that our research could provide a useful insight into the importance of GA aerodromes and related planning issues as well as issues affecting the training sector.

7.4 We, therefore, focus primarily in this section on three key constraints/opportunities which we believe are important for the economic recovery and growth of the GA sector in the UK. These are:

- ✈ planning issues & the network of UK aerodromes;
- ✈ training issues; and
- ✈ issues relating to business aviation.

7.5 We also make reference to a number of other issues that may be relevant to the continuing health of the sector, some of which have previously been identified by the GA Challenge Panel.

Planning Issues and the Network of UK Aerodromes

7.6 A flight at altitude in good visibility across the UK will reveal to the careful observer a landscape littered with airports and small aerodromes. To some extent, this is a legacy of the time when Europe was at war and new airfields regularly sprang up across the country. Some of these are now disused or are used for other activities, but many are still active as GA aerodromes and some have turned into major airports. There is also a network of small farm strips across the UK, not always clearly visible from altitude but which also provides important access for smaller aircraft.

7.7 In recent times, there has been much debate about regional airports in the UK and the difficulties they face in sustaining viable operations. A number of regional airports such as Sheffield City, Plymouth, Bristol Filton, and Manston have closed completely and others such as Glasgow Prestwick and Durham Tees Valley are known to be experiencing some financial difficulties. Most recently, Blackpool Airport closed to commercial traffic but has subsequently re-opened to GA flights. Some commentators have claimed that there are too many regional airports in the UK competing for business and that these closures are to be accepted as the workings of the competitive market. Nonetheless, what is clear is that today's generation has inherited a significant asset in the network of airports and aerodromes across the country and that this asset is now under threat.

7.8 The larger regional airport closures have been given significant exposure in the press, but what is less well known is that a number of smaller GA aerodromes have also closed in recent times. There is an emerging gradual pattern of closures across the whole of the country. In the 1990s, Leavesden and Hatfield aerodromes, in Hertfordshire, and Ipswich Airport, in Suffolk, closed. More recently, Hucknall aerodrome, in Nottinghamshire, and Panshanger aerodrome, in Hertfordshire, have also closed. Others are under threat, as we outline below.

7.9 CAA data on the number of licensed aerodromes also shows a decline in the last few years as is set out in **Table 7.1** below[27]. Data on unlicensed aerodromes is not available, but a similar pattern might be expected.

[27] The CAA allowed flying training to take place at unlicensed aerodromes from 2010, as a result of which some aerodromes chose to become unlicensed, although this may not account for all of the decline in numbers.

Table 7.1: Number of CAA Licensed Aerodromes 2008 to 2014						
2008	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**
144	144	138	134	129	128	124
Source: CAA						

7.10 The reasons for these closures vary according to the local circumstances of each aerodrome. For the most part, the closure of an aerodrome arises from the difficulty in sustaining viable operations and/or alternative more profitable uses of the site, for example for housing development. There is a widely held view in the sector that the planning system does not accord sufficient weight to the need to retain a viable network of GA aerodromes. Whilst we recognise that a balance needs to be struck and each planning decision taken on its merits, at the present time there does not appear to be sufficient account taken of the economic and social benefits of retaining a local aerodrome as part of the overall network when faced with alternative uses for an apparently brownfield site for redevelopment.

7.11 A further consideration is the need for modernisation of facilities at many aerodromes. New regulatory standards and technological developments in aircraft design often require aerodromes to improve their facilities to enable modern aircraft to be handled. This may require hard surfacing of previously grass runways or the development of modern hangars to house aircraft which could previously have been parked outside. Furthermore, such developments are costly so requiring aerodromes to develop ancillary revenue streams, sometimes through non-aeronautical developments on site, in order to provide the essential funds to allow the aerodrome to be maintained to modern standards. The need for such enabling development and essential modernisation work seems little understood, with the assumption often being made that there will be no detriment to current operations if such development is not allowed. This is simply not true as the failure to allow essential modernisation work, the development of facilities for modern aircraft and/or appropriate revenue generating enabling development is likely to push even more airports into loss making positions with a severe risk of closure. At the very least, the lack of modern facilities would reduce the attractiveness of the UK as a location for GA activity. The issues particularly arise in the cases of the substantial number of the UK's smaller aerodromes which lie in Green Belt.

7.12 We are aware of many GA aerodromes that have experienced protracted difficulties with the planning system, with local planning authorities according little or no weight to the need for modernisation, followed by lengthy and costly appeal processes often with a negative outcome. This presents a high regulatory burden for smaller aerodromes, which are essentially small businesses often operating on a 'shoe string'. For example, Elvington Airfield near York was refused planning permission on appeal for hangar development necessary to sustain on-going aviation activity due to concerns about the interaction with a nearby Special Protection Area (SPA) and Redhill Aerodrome in Surrey has been refused permission, on the grounds largely of in principle harm to the Green Belt, for an all-weather runway that was necessary to enable it to handle more modern aircraft, without which its long term viability is at risk. This risk was not considered sufficient to constitute very special circumstances sufficient to overcome Green Belt objections. Others, such as Yearby, Popham, and North Coates have their operations threatened by nearby wind turbine developments. Many others, such as Wellesbourne near Stratford-upon-Avon, are deeply concerned about a future potential change of use of their sites for housing development and the consequent loss of the aerodrome.

Case Study – Wellesbourne Mountford Aerodrome

Wellesbourne is a large village by the A429, located around 6 miles south of Warwick and 5 miles east of Stratford-upon-Avon. RAF Wellesbourne Mountford Airfield was first built in 1941 and is now a thriving licensed general aviation airfield with a hard surfaced runway of 917 metres, 66 based aircraft, 37,000 movements in 2013, and around 80 employees on the site. It is a base for Heliair (one of the UK's largest light helicopter companies) as well as a number of flying schools, a museum, and a well preserved Vulcan Bomber. A popular local market is also held on the site.

Stratford-on-Avon District Council has received a proposal from a developer to build 1,600 houses on the airfield. This proposal was submitted with the intention of being included in Stratford's Core Strategy, the final form of which is due to be published very shortly. So far, the Council has not voted to include the development as one of its preferred options. Currently, policy AS.9 C is "to retain the established flying functions at Wellesbourne Airfield". Thus far, the local authority has recognised the value of the airfield and the current policy is to "retain the established flying functions at Wellesbourne Airfeld".

However, the concern still exists that the developers will seek to bring the site forward for housing at the Examination in Public stage, once the Core Strategy is submitted to the Secretary of State, with some chance of success given the priority afforded by current planning policy to housing.

7.13 A further concern is that there does not appear to be a consistent approach adopted across the UK, with some local authorities appearing to favour aviation activities whilst others do not. Hence, outcomes can vary between locations, so undermining the concept of a national network of aerodromes. This gives rise to a legitimate concern as to whether the planning system is operating consistently and effectively in relation to UK aerodromes, whether it is properly taking into account the current and potential economic value of local aerodromes, and whether it is achieving the correct balance between national and local concerns.

Case Study – Sywell Aerodrome

Sywell is a licensed general and business aviation aerodrome located around 6 miles north east of Northampton and close to the M1 motorway. The Airport is operated by Sywell Aerodrome Ltd. and offers hangarage and maintenance for users. There are flying schools catering for fixed-wing, microlights and helicopters and there is an on-site hotel, conference facilities, and a museum.

Like many other aerodromes with grass runways, Sywell had been experiencing problems with waterlogging in the winter period and originally applied to its local planning authority for planning permission to construct an all-weather (i.e. hard surfaced) runway in February 1999, supported by an Environmental Statement (ES). After a period of around two years the application had still not been determined and so the aerodrome appealed the application on the grounds of non-determination.

In November 2001 the aerodrome submitted a second application and in March 2002 the local planning authority voted to approve this, subject to a number of conditions restricting aircraft movements and a Section 106 agreement. As a result of this the appeal relating to the first application was withdrawn. However, in September 2002 a local opposition group mounted a legal challenge to the approval of the second application by way of judicial review. The High Court determined that there had been some procedural errors in the local planning authority's decision-making process and the appeal was upheld.

In June 2003 Sywell Aerodrome began work on a third planning application, which was submitted in June 2004, along with a revised ES. This was also appealed by the aerodrome on the grounds of non-determination in March 2005 and a Public Inquiry was held in July 2006, which ran for two weeks. The Inspector allowed the appeal, subject to certain conditions, and his report was dated November 2006. But it was another year before planning permission was finally granted in November 2007. Work commenced in 2008 and the new all-weather runway was finally opened in February 2010.

In all, it took almost nine years from the first planning application in February 1999 to planning permission being granted in November 2007.

Current Policy Context

7.14 When the National Planning Policy Framework (NPPF) was published in March 2012, support was given to facilitating the growth of aerodromes in general terms when it stated that:

"When planning for ports, airports and airfields that are not subject to a separate national policy statement, plans should take account of their growth and role in serving business, leisure, training and emergency service needs. Plans should take account of this Framework as well as the principles set out in the relevant national policy statements and the Government Framework for UK Aviation." [28]

7.15 At that time, the Aviation Policy Framework (APF) had not been finalised and it appears to be implied in the NPPF that the issue of local airfields might be more specifically addressed in the final version of the APF.

7.16 Although supportive of the principle of *"Maintaining a viable network of business and general aviation"*[29], the APF, published in March 2013, again only expresses support in general terms, referring back to the NPPF language:

"The planning system also has a bearing on the operation of small and medium-sized aerodromes. The National Planning Policy Framework (NPPF) is intended to simplify the Government's overarching planning policy, but the underlying planning principles in respect of airfields remain unaltered. The NPPF states "when planning for ports, airports and airfields that are not subject to a separate national policy statement, plans should take account of their growth and role in serving business, leisure, training and emergency service need. Plans should take account of this framework as well as the principles set out in the relevant national policy statements and the Government Framework for UK Aviation".[30]

7.17 The APF does, however, go on to re-iterate in the following paragraph the need for *"the economic benefit of the aerodrome and its value to the overall aerodrome network…."* to be taken into consideration, although it is not specific about how this should be done or how the 'aerodrome network' is to be defined.

[28] National Planning Policy Framework, March 2012, paragraph 33.
[29] Aviation Policy Framework, March 2013, Heading at paragraph 1.86.
[30] Ibid, paragraph 1.90.

Key Planning Issues

7.18 The GA Challenge Panel felt that *"greater weight should be given in national, local and regional planning to the value of GA airfields including the benefits of a network of GA airfields"*.[31] The Panel felt that greater local safeguarding of aerodromes was one way of achieving this, as well as reviewing the brownfield site status of aerodromes, and potentially protecting aerodromes as 'assets of community value' under Part 5, Chapter 3, of the Localism Act 2011.

7.19 In its Response to the Panel, the Government referred back to the Aviation Policy Framework, in which it states that maintaining access to such a national network is vital to the continuing success of the sector, and that further consideration would be given to this issue in the light of the current economic research. The Response also re-iterated the Government's belief that planning matters should be considered by local communities working within the broad framework of national planning policy and the Aviation Policy Framework.

7.20 There are, therefore, a series of statements from Government which acknowledge in general terms the potential economic benefit of local GA aerodromes, their role in a national strategic network, and the need for local planning to take these issues into account. However, there seems to be a sense of circularity in these statements, which cross-refer to each other rather than being developed into more specific policy or guidance. Whilst clearly supportive, in general terms, of local GA aerodromes, they do not define what is meant by a 'strategic network' of aerodromes or what steps local planning authorities should take to evaluate economic benefit in the context of such a network.

7.21 This lack of clarity manifests itself in judgements made at a local level which are not applied consistently across the country and which affect the future of local aerodromes in different ways. Some local planning authorities clearly accord greater weight to the actual and potential economic value of aerodromes than do others. Some appear to view local aerodromes principally in the context of an environmental or noise problem, with economic benefits being accorded much less weight.

7.22 Fundamentally, there are a number of factors which may lead to a failure to give sufficient weight to the potential contribution of an aerodrome and the requirements necessary to secure ongoing viability of a strategic network of aerodromes supporting a vibrant GA sector when reaching a judgement as to the planning balance in each specific case. These are:

[31] GA Challenge Panel Final Report, May 2014, page 41.

- a lack of recognition for the, in principle, policy support for the growth of the sector, which implies not merely safeguarding what exists now but creating the conditions for growth in activity, subject of course to specific environmental considerations;

- a failure to recognise that aviation is a dynamic sector and that aerodromes need to modernise their facilities in order to either maintain activity levels or to secure growth;

- a lack of recognition of the marginal financial viability of many small general aviation aerodromes and the critical dependence on additional revenue generating activities, not always directly aviation related, to provide financial support to enable core aviation activities to be maintained.

7.23 Within the context of the NPPF and how it is interpreted by local planning authorities and planning inspectors, this can manifest itself in two specific ways:

- the presumption that because an aerodrome is a brownfield site it is, thus, a prime contender for conversion to housing and related uses to meet local house building targets (e.g. Wellesbourne). Such uses may be inherently more profitable than the continuation of the airfield use so the planning system offers little or no protection to the maintenance of a network of GA aerodromes in these circumstances;

- overly prescriptive interpretation of Green Belt policy, which can result in:

  - refusal of essential updating of aerodrome facilities, such as the upgrading of grass runways (e.g. at Redhill) simply due to a location in the Green Belt, or

  - overly restrictive limitations on acceptable uses which act as a potential blockage to ancillary development necessary to provide financial support to ongoing aerodrome operations (e.g. Gloucestershire).

7.24 The General Aviation Awareness Council (GAAC) has been very proactive in supporting aerodromes confronted with planning issues and in advising local planning officers both of the importance of a GA airfield as a part of their local business, transport and economic infrastructure, and the recognition of this in the National Planning Policy Framework. But the work of the GAAC could be greatly facilitated by greater clarity and policy guidance from Central Government.

7.25 There is, of course, a potential conflict between Government intervention at a national level and the Government's desire to devolve decisions to a local level as much as possible. We also recognise a reluctance to issue prescriptive guidance in this context. However, we do believe that the lack of such guidance is effectively acting as a constraint on the sector as the network of aerodromes and the quality of facilities which they are able to provide appears likely to become increasingly degraded if greater clarity as to the weight to be accorded to such factors is not provided. In order to alleviate this constraint, we believe that Government should:

- provide greater clarity in policy statements about what is meant by a 'strategic network of GA aerodromes' and how such a network might be defined, as well as the economic benefits that derive from such a network that should be taken into account by local planning authorities;
- provide more specific policy guidance to local planning authorities as to the issues that should be taken into account when evaluating the current and potential economic and social benefits of an aerodrome during the process of evaluating planning applications or considering a change of use;
- as part of this policy guidance, local planning authorities should not automatically consider active airfields to be brownfield sites for redevelopment without first actively considering the benefits locally and nationally of retaining aviation uses; advice on the treatment of aerodromes as established uses in Green Belt should be provided which promotes the need for a flexible approach to development necessary to support ongoing viability and growth, provided that the overarching principles of the openness of the major part of the aerodrome site within Green Belt are not compromised.

7.26 We also believe that there is an opportunity for other stakeholders, including GA aerodromes themselves in some cases, to take a more proactive role in supporting the wider network. We develop these ideas further below.

Defining a Strategic Network of Aerodromes

7.27 The first key finding of the 2006 Eddington Transport Study was that:

"There is clear evidence that a comprehensive and high-performing transport system is an important enabler of sustained economic prosperity: a 5 per cent reduction in travel time for all business and freight travel on the roads could generate around £2.5 billion of cost savings – some 0.2 per cent of GDP."[32]

7.28 It is also generally agreed that the principal focus for transport connectivity is for people and goods to move between major conurbations, towns or cities, although there is also a value in connecting the more remote regions of the UK to such conurbations, towns and cities.

[32] The Eddington Transport Study, the Case for Action, 2006, page 5.

7.29 The value of commercial air services has long been recognised in supporting this connectivity, but the value of the air connectivity provided by GA (including business aviation) is less frequently recognised. This report has demonstrated the economic value of GA as a sector, but there is an additional value to the connectivity it provides which we have touched upon in previous sections. The difficulty is that there is virtually no data available on which to quantify the current economic benefit of such connectivity, although we know it exists from anecdotal evidence provided to us during the course of our research and we have attempted, in the previous section, to make an illustrative estimate of the potential impact in this area.

7.30 The network of GA aerodromes around the UK and the connectivity provided should, therefore, be seen as a national asset, providing economic benefit to the country as a whole. During the course of our research, we identified 499 aerodromes of varying sizes around the country, but we know there is likely to be greater number of landing sites than this. Whilst many of these aerodromes are used for 'A to A' flying (as opposed to being used for journeys from 'A to B'), they do also provide a network of actual and potential connectivity by air which can be of economic value to people who wish to use them for business purposes.

7.31 This connectivity can be provided by private individuals who fly their own aircraft or a hired aircraft, with or without passengers, between large or smaller aerodromes for business purposes. It also applies to the larger business aviation operators who should be able to access airports and aerodromes near to where their clients wish to go. The pressure on capacity at larger airports often means that business aviation is the first to be 'squeezed out' as demand for commercial services increases. The rationale is that there are relatively fewer passengers carried by business aviation flights, but this approach fails to recognise that the relative economic contribution of the passengers carried by business aviation flights can be very significant, if, for example, they are major investors in UK PLC. It is important, therefore, for any network of UK aerodromes to be able to accommodate business aviation flights at appropriate facilities in sufficiently close proximity to large cities.

7.32 It is outside the scope of this report to consider the position of each individual aerodrome in the UK or to define which aerodrome should be considered as a key component of the strategic network and which should not. The previous GASAR research undertaken by Terry Lober in 2006 placed aerodromes in one of six categories, and this could be seen as an attempt to 'rank' aerodromes by size and facilities. Although we have retained Lober's categories in our analysis as a useful means of distinguishing the many different kinds of aerodromes around the country, we would not necessarily see it as a means of evaluating an aerodrome's strategic position within the national network or that a larger aerodrome is necessarily more important strategically or locally than a smaller one. For example, a small farm strip might fall into a low category in terms of facilities and infrastructure but, if it is situated in an area that is not well served by other transport modes, it could still provide important connectivity for a private flyer wishing to access a local business. The definition of a strategic network of aerodromes should, therefore, give consideration to other locational factors as well as an aerodrome's facilities. We believe that Central Government could provide some guidance as to what issues should be considered at a local level when assessing an aerodrome's position in the context of a national strategic network as well as in terms of the specific local issues which need to be considered. We now turn to what form such guidance might take.

Guidance on Assessing an Aerodrome

7.33 Recognition that a 'strategic network' of GA aerodromes exists gives legitimacy to national policy statements concerning the network. This means that many, but possibly not all, of the literally hundreds of aerodromes around the country should, thus, be seen as a significant national economic asset and accorded due consideration as such, with implications beyond simply the local ones. However, at the same time, there is a clear emphasis from Central Government on planning decisions being taken at a local level. The aim of the Localism Act 2011 was to devolve more decision-making powers from Central Government back into the hands of individuals, communities and councils and the NPPF sets out to provide a framework within which local people and their accountable councils can produce their own distinctive local and neighbourhood plans, which reflect the needs and priorities of their communities.

7.34 At first, this seems to present a conflict in terms of the issuing of specific national guidance in relation to aerodromes. Nevertheless, there are precedents (for example in relation to the closure of railway lines) for Central Government issuing planning guidance that supports interpretation of national policy at a local level. Recently, Lord Taylor of Goss Moor led an external review of government planning practice guidance which found that the existing guidance was unwieldy in its current form and recommended that it be shorter but retain key elements, be more accessible, and more useful to everyone using the planning system. This Government guidance is now available as a web based resource[33]. Guidance of this kind could take various forms, but we set out in **Table 7.2** below a potential framework for analysis of relevant issues when an aerodrome development or change of use is to be evaluated by a local planning authority. If the answers to the questions for consideration outlined below were all positive, then it is likely that the aerodrome in question should be considered to be an important part of the strategic network. This would have implications not just for whether it would be acceptable for an aerodrome to be closed and the site developed for alternative uses but also for consideration of the acceptability of development proposed by the aerodrome to support its on-going viability and ultimate growth.

Table 7.2: Framework of Issues for Consideration in the Context of Local Aerodrome Development or Proposed Changes of Use

Consultation	Comprehensive consultation should take place prior to planning decisions affecting a local aerodromes and should include the views of the aerodrome itself (and any representative organisations) but should also include the local community and local business organisations, as well as the relevant Local Enterprise Partnership (LEP).
The scale of activity	The planning system should evaluate the scale and type of flying activity and take into account the social and economic benefit that the aerodrome's activity affords its local community, including the direct impact of its operations and, in particular if any wider business needs are being served by the aerodrome.
The facilities the aerodrome offers that are unique to the locality and may not be available elsewhere within a reasonable distance.	Such facilities may include a surfaced runway of significant length, or aircraft hangars, or aerodrome lighting and navigational aids that may offer a unique service to the local area.

[33] See http://planningguidance.planningportal.gov.uk/

Alternatives	Are equivalent or better aerodrome facilities available within a reasonable distance?
Extent of alternative surface access modes	Does the aerodrome provide access to local areas that may not be well served by other modes of surface transport?
The aerodrome's proximity to major economic centres	Is the aerodrome located within proximity of major cities, towns or economic centres generating a need for air connectivity?
Is the aerodrome licensed?	Licensed aerodromes may be providing opportunities for the carriage of passengers in aircraft that may not otherwise be available.
Safety	Does the aerodrome provide an important diversion airfield for other GA users?
Training	Does the aerodrome offer training for student pilots that may not otherwise be available within a reasonable distance?
Viability	Will the development or proposed change of use affect the viability of the aerodrome operator? Is the proposed development necessary enabling development to secure the on-going future of the aerodrome?
Other community services	Does the aerodrome also host non-aeronautical activities that are of benefit the local community?

7.35 We do not claim that the above framework is comprehensive and it would need much further development and discussion with stakeholders. We also recognise that some or all of these factors may be taken into account now when planning decisions affecting aerodromes are taken. However, there is no systematic checklist that ensures a consistent approach when the balance in planning decisions affecting the ongoing operation and enhancement of aerodrome facilities is being considered. Hence, we believe that such a framework offers a starting point for the development of potential Government guidance on planning issues which could bring a much needed level of consistency to the approach taken by local planning authorities in relation to aerodromes and, thereby, offer greater protection to the strategic network of aerodromes across the UK.

7.36 We also believe that local planning authorities should not treat active airfields as brownfield sites automatically eligible for redevelopment without first explicitly considering the advantages of retaining the aviation activity. This current difficulties originally arose because of changes to the wording of a Planning Policy Statement (PPS3) on housing, which had formerly excluded airfields from consideration, but which omitted this exclusion in a revision of 2006, leaving it open for local planning authorities to treat airfields as brownfield sites suitable for redevelopment.

7.37 A further issue is the approach to Green Belt policy as discussed above, the effects of which are illustrated in the Case Study of Redhill Aerodrome below.

Case Study - Redhill Aerodrome

Redhill Aerodrome is located in the Green Belt, to the south east of Redhill in Surrey. Aviation activity at Redhill dates back to 1934. It now provides general aviation services for both fixed-wing aircraft and helicopters, including the Surrey Air Ambulance and the National Police Air Service (NPAS). However, fixed-wing aircraft movements have suffered a severe decline in recent years from a peak of 48,890 in 1998 to less than half that number in 2011 and around a third in 2012. This decline is related to the usability of the grass runways, which have to be regularly closed when made soft by wet weather, and can be less suitable for more modern aircraft types. This also leads to uncertainty for current operators and deters new operators.

The Aerodrome submitted a proposal for a hard-surfaced 'all weather' runway in 2011 and this was refused planning permission by the local authorities on Green Belt and highway grounds. A second, slightly modified, application was submitted in 2012. This estimated that the net impact from this proposal would be 140 additional aviation-related jobs and £12.4m additional local Gross Value Added (GVA). Wider economic benefits to local business could also arise from the development. Conversely, if the development could not go ahead, there would be a serious threat to the continuing viability of the Aerodrome.

This application was again refused by the local authorities on the grounds of constituting inappropriate development in the Green Belt. The Aerodrome appealed and a Public Inquiry was held in early 2014. However, the appeal was dismissed by the Planning Inspector who considered that the harm to the Green Belt, by reason of the inappropriate development, was not outweighed by the benefits to the local economy. The risk of the closure of the Aerodrome was accorded a limited amount of weight.

The Inspector concluded that "the other considerations, when taken together, do not clearly outweigh the potential harm to the Green Belt and the other identified harm. Very special circumstances to justify the development do not exist." The Inspector's interpretation of the National Planning Policy Framework (NPPF) was successfully challenged by the Aerodrome in the High Court, but this was subsequently overturned in the Court of Appeal. The issue concerned whether the words "any other harm" in

paragraph 88 of the NPPF referred to any other harm to the Green Belt alone, as found by the High Court Judge, or whether other harm relevant for planning purposes (such as harm to landscape character, adverse visual impact, noise disturbance or adverse traffic impact) could also be taken into consideration, as the Inspector had done. The Court ruled that the Inspector's approach had been correct and the dismissal of the Appeal was allowed to stand.

The blanket application of Green Belt policy places the sustainability and viability of the Aerodrome at risk. If the facilities cannot be modernised to accommodate new technology aircraft, the existing cluster of aviation related businesses on the aerodrome will find it increasingly difficult to remain in business to the point where the continued operation of the Aerodrome may no longer be viable. The economic benefits of aviation and the need to maintain a strategic network of general aviation aerodromes appear not to be treated currently as sufficient to meet the 'very special circumstances' test in relation to Green Belt.

The Role of Other Stakeholders

7.38 Although the ideas presented above to support a national strategic network of aerodromes are mainly concerned with what Government and Local Government could do, this does not mean there is no role for other local stakeholders. In particular, we believe that Local Enterprise Partnerships (LEPs) are well placed to take a proactive role, in their capacity as partnerships between local authorities and businesses, driving sustainable economic growth and determining priorities for investment in local facilities and infrastructure. The economic benefits that derive from the aerodromes within their geographical remit are a key component of this. LEPs potentially have a valuable role in articulating the economic case for retention or growth of activity at an aerodrome as well as potentially providing financial support for some developments, which could help to underpin economic viability.

7.39 However, at present, support from a LEP does not necessarily translate into support through the planning system, with something of a disconnect between economic and planning policies in respect of aerodromes and what is needed to secure their economic potential at a local level.

Case Study – Gloucestershire Airport

Gloucestershire Airport is the busiest GA aerodrome in the UK and regularly voted the best in operational terms by the Airport Operators Association. Its local LEP, GFirst, is supportive of the economic importance of the airport, with the GFirst Strategic Economic Plan for Gloucestershire recognising its role as an enabler for growth in the wider economy and sees growth opportunities in and around the Airport site, which lies at the heart of the Growth Zone. Specifically, the LEP's Strategic Economic Plan aims to optimise the potential contribution and benefit which Gloucestershire Airport can make to the local economy by:

"Supporting the development of proposals, including alternative governance models and access to investment funding, to ensure the airport remains the most successful in the UK; and, Identifying and highlighting opportunities to encourage ancillary activities and related development of land within and adjacent to the airport boundary."

The Airport is located in Green Belt and, whilst acknowledging the GFirst support for the airport and the need for ancillary development within the airport boundary, the submitted Core Strategy for Cheltenham, Gloucester and Tewkesbury does not address the need for such development in land use terms.

This highlights that support from a LEP is not sufficient presently to overcome the threat of planning restrictions either constraining the growth of an aerodrome or, potentially, preventing development essential to secure its ongoing viability even where there are acknowledged strong local benefits from ensuring that an airport can thrive.

7.40 For their part, GA aerodromes should be proactive in engaging with their local community and with local planners to identify and promote the social and economic value of the activities undertaken on their sites, as well as mitigating environmental impacts where possible. They should also seek to engage with local schools and educational establishments to offer training opportunities to young people. Where appropriate, aerodrome safeguarding maps should be agreed with local authorities to protect the aerodrome activity. We recognise that many GA aerodromes already do this extremely well (see Case Study below) but some could do more. However, this does not obviate the need for a more supportive planning environment for aerodromes and their benefits across the UK as a whole.

Case Study - City Airport & Heliport Manchester

City Airport & Heliport, formerly known as Barton Aerodrome, is a licensed general aviation aerodrome located around 6 miles west of the city of Manchester and around 10 miles north of the much larger Manchester Airport. It currently has grass runways and handled around 28,000 aircraft movements in 2013, with over 60 based aircraft. The Heliport is a dedicated premium helicopter facility and business centre established in 2012 and used by private helicopters but also by Sky and the BBC, the Police and Air Ambulance, Network Rail, and pipeline inspection operators. The Aerodrome is owned by Manchester Ship Canal Developments (a joint venture between Peel and Manchester City Council), which acquired it in 2002, since when more than £0.25 million has been invested in new facilities.

There are good relations with the Local Planning Authority (Salford) whose Core Strategy states (at para. 14.58) "The aerodrome has a valuable general aviation role, serving business, recreational, training and emergency service needs, not just for Salford but also for the wider sub-region. This helps to reduce pressures on the nearby Manchester Airport. It will be important to ensure that Barton Aerodrome continues to function effectively as a general aviation facility for Greater Manchester, balancing the potential to increase its contribution to local economic growth with the desirability of protecting and enhancing its distinctive heritage interest."

Community relations are very strong and there is an effective Consultative Committee in place. The Aerodrome hosts a 'Family Fun Day' with aircraft flying in from other aerodromes, which attracts visitors in the thousands. The Aerodrome also offers one week work experience placements to school, college and university students living within a 30 mile radius of the Aerodrome, to spend time in the Air Traffic Services and Operations Department. Places are in high demand.

Training

7.41 The economic health of the GA sector in the UK is very much tied to the number of new pilots being trained and we referred in Section 4 (Table 4.5) to the reducing number of private pilot licence holders in the UK. Unless the number of new pilots being trained can return to something like previous levels, the GA industry may continue to decline. Training is, therefore, a critical component for the health of the sector

The Decline in New Student Pilots

7.42 Several reasons for the decline in new students were put forward by consultees. Chief amongst these were:

- cost - as mentioned in Section 4, it now costs around £8,000 to achieve a Private Pilot's Licence (PPL) in the UK[34] and, for those wishing to progress to the commercial sector, the costs can reach anywhere from £60,000 to £100,000, all of which has to be self-funded;

- the price of fuel used by GA (which is taxed) has also been a contributory factor to increased costs[35];

- the application of VAT on flying training in the UK, unlike many other countries, which it is claimed makes the UK relatively uncompetitive;

- the increasing availability of other, cheaper leisure activities, including leisure pursuits undertaken overseas and now much more easily accessible through low fares air travel;

- the fact that flying is not seen as the exciting leisure pursuit (or potential career) that it used to be - some mentioned the ageing aircraft fleet operated by many flying training schools which can deter younger people used to a more 'high tech' world.

7.43 As part of the GA Red Tape Challenge, the CAA asked a member of the GA Challenge Panel, Edward Bellamy, to undertake some research into the process of obtaining a PPL in the UK, including costs and regulatory requirements. The CAA published the results of this research in September 2014[36], which concluded, inter alia, that:

- the current process of obtaining a PPL is essentially 'fit for purpose' and not overly burdened by regulation; however,

- the EASA requirement for flight training schools teaching PPL students to be formally accredited as Approved Training Organisations (ATOs) is *"a significant burden with an unclear safety benefit"*;

- there is a need to make information and guidance about the different routes into flying for prospective students clearer and easier to access;

- the extent of the theoretical knowledge required for a PPL should be reviewed;

[34] It is difficult to establish precise comparisons with other countries, but anecdotal evidence suggests that the equivalent cost in the USA could be around half of this, although other costs such as flights and accommodation would be incurred by students from the UK.
[35] At the time of preparing this report, the price of crude oil has been plummeting and this has been feeding through to the price of aviation fuel (Avgas), although perhaps not to the same extent as prices at the pumps for motor vehicles because the costs of production and distribution of Avgas are relatively higher.
[36] CAP 1216, The PPL Review: a review of private and recreational flight training in the UK.

- costs and regulation relating to initial and continuing airworthiness of aircraft should be reviewed to encourage the introduction of newer and more efficient aircraft to the training market;

- the Government should consider the issue of VAT of flight training and using the provisions of EU Directive 2003/96/EC to allow fuel used for flight training in a commercial organisation to qualify for fuel duty relief, as is the case is a number of other EU states.

7.44 The CAA welcomed the research and noted that some of its recommendations already form part of its GA programme, but that others would require a longer term strategy and collaboration with international partners such as EASA and other EU member states.

7.45 This issue of flight training and its importance as a feed from GA into the commercial sector was addressed as far back as 2006 in the CAA's Strategic Review of GA. It noted:

"During recent debates, it has been argued that GA plays a critical role in the training of airline pilots, and that this effectively represents a positive externality for airlines – airlines get the benefit of employing trained pilots whose training costs they have not met. A further point made in these debates was that the GA sector faces increasing pressures and rising costs and is in decline, and that this could threaten the future supply of pilots to commercial airlines. Others have suggested an opposite position; that there is no benefit to commercial airlines from the GA sector, that pilots could and would be trained anywhere, and that UK airlines are not therefore dependent on a healthy UK GA sector for pilots."[37]

7.46 The CAA concluded, at that time, that there was no significant positive externality from the training of pilots under the current UK system. However, the CAA did not directly address the issue of VAT on flying training and the arguments for and against.

7.47 The GA Challenge Panel Report of May 2014 noted that:

"The Panel sees a significant market for attracting overseas customers to the UK to undertake pilot training, which is by definition GA. The Government could provide targeted support to UK flight schools to encourage more activity in this area to underwrite UK GA renaissance, for example at some regional airports and using regional development funds. Both Airbus and Boeing forecast the need for some 500,000 new pilots over the next 20-30 years to meet the demand of new aircraft orders and pilot retirement. The Panel believe the UK could gain a larger share of that market, which would help UK GA."

[37] Strategic Review of General Aviation, CAA, 2006, paragraph 2.18.

"The Panel believes that a reduction/exemption in flying training VAT would increase flight training activity in the UK, help underwrite UK GA and significantly increase overall economic activity and employment in associated supporting industry such as maintenance and aircraft sales.... Panel also believes that there is a serious equity issue with arrangements for training funding. Industry sponsorship has all but disappeared and airlines are relying on enough people who wish to become commercial pilots to fund their own training, costing in excess of £100,000 Additionally there are no loans available on a 'student' basis, trainees borrowing money have to use commercially secured loans."[38]

7.48 We comment on some of the issues raised by the CAA and the Panel below.

Links with the Commercial Sector

7.49 The connection between the training of GA pilots and the supply of pilots to the commercial sector is something of a grey area. Prima facie, there is a fairly clear divide between those who gain a PPL for purely leisure purposes and those who set out to become a commercial airline pilot. The route between the two is difficult and costly. Many choose the so called 'Integrated Route'; self-funding their training at a large training organisation (e.g. CTC Aviation or CAE Oxford) starting from scratch to gaining a full ATPL[39] over a continuous period of around two years at a cost of between £60,000 and £100,000 and with no job guarantee at the end of it. Others choose the 'Modular Route', funding each incremental element of training when they can afford it, which obviously takes longer. In both cases, funding has to be secured by the student pilots and does not come from the airlines (although airlines will sometimes underwrite loans).

7.50 We were told by several operator consultees that the market for pilots is very soft at the moment and has been for some while, although the industry is acknowledged to be highly cyclical. Netjets, for example, has not recruited any pilots since 2008 and Flybe released 200 pilots in 2013. Yet many also talk of a looming shortage of pilots that will manifest itself in a short time period. CTC Aviation believes there is a shortage even now and forecasts that 235,000 new pilots will be needed globally over the next 7 years. Boeing says nearly 27,000 new pilots will be required globally each year up to 2033.

[38] GA Challenge Panel Final Report, May 2014, page 45.
[39] Air Transport Pilot's Licence

7.51 However, at least at the moment, airlines that need new pilots seem to be recruiting through the larger integrated schools, mostly using the Multi Crew Pilot Licence (MPL) integrated route. In this way, new pilots bypass the main UK GA sector almost completely by doing their practical flying abroad (often in the USA) and the rest of the training in simulators specific to a particular airline type. Virgin Atlantic has recently announced a new MPL scheme, in association with CTC, to train around 50 cadets for their fleet of Airbus A330 aircraft. easyJet and Qatar Airways have a similar arrangement with CTC to train around 36 pilots each year. In total, CTC take on around 200 to 300 candidates each year but, despite the very high cost of training, which has to be personally funded, they receive between 4,000 and 8,000 applications for these places.

7.52 It is difficult to know how many GA private pilots trained at ordinary flying schools remain as such and how many go on to qualify as commercial pilots and then to become airline pilots, as there are is no reliable data readily available. However, it is clear that some certainly do take this route and those that do tend to amass the required number of flying hours by becoming instructors or by working abroad before being able to apply to the airlines. However, the flying schools we spoke to estimated that only 20% to 25% are taking this route at present and there is no clear evidence that the reduction in qualified private pilots in the GA sector is affecting UK airline pilot recruitment in any fundamental way, at least at present. However, given the looming shortage of pilots referred to above, this situation could rapidly change and the commercial sector could very quickly become reliant on the GA sector for a feed of new pilots.

7.53 The development of low-level Instrument Flight Rules (IFR) routes and the move towards single engine IFR (single pilot) commercial operations, would offer some potential to stimulate the flight training system in the UK as these pilots would not need to go through the MPL system.

Training and VAT

7.54 We concur with the GA Challenge Panel that there could be a significant market for attracting overseas student pilots to the UK and some of the consultees we spoke to confirmed that overseas students formed a proportion of their intake, although there had occasionally been problems with obtaining visas, which the flying schools found difficult to overcome.

7.55 The industry has been calling for the abolition of VAT on flying training for many years and the Government has previously turned down the request (last time in the late 1990s). If training were funded directly by airlines, the VAT could be refunded, but no UK airline does this now and all require future pilots to self-fund their training. The argument appears to be that flying training provides a personal benefit (in the form of a PPL) so it must be subject to VAT, although the MPL licence does not confer any such personal benefit, being specific to an airline type and so could be exempted.

7.56 However, if there is no clearly identifiable positive externality and pilot training is undertaken for leisure or with a view to professional employment, the economic case for special tax treatment might be weak unless very strong arguments in favour could be made. It is extremely difficult to estimate what the net effect of the abolition of VAT on flying training would be in terms of additional economic benefits set against the loss of revenue to the Treasury, as there is no information about the price elasticity of demand without significant further research being undertaken. Nevertheless, we agree with the Panel that the abolition of VAT on training would help prospective pilots with costs, would also help the flying schools to attract more business, including potentially from abroad, and, perhaps above all, would give a much needed fillip to the entire UK GA industry in bringing new student pilots into the sector. However, significant further detailed research would be required to support a specific cost benefit analysis into whether this would be value for money.

7.57 There are other factors which influence the choice for commercial pilot training to be undertaken abroad. These relate principally to the weather and the ability to fly regularly day by day to maximise training efficacy and efficiency. Concern was also expressed about the level of congestion in UK air space which was not conducive to high intensity pilot training. Such factors could not be overcome by simply reducing the cost of training, although it would tilt the balance to a degree.

Engineering Training

7.58 Many consultees also cited a severe shortage of qualified aircraft engineers within the GA sector and we are aware that this is a problem that affects commercial aviation as well. Those engineers who do work on GA aircraft are an ageing population. One consultee told us *"the whole of GA is getting older"*.

7.59 In the aerospace sector, the shortage of engineering skills has long been acknowledged, and some of the issues around engineering training were raised by the GA Challenge Panel, to which the Government has responded. We detected some views, however, that there is a perception that the aerospace industry has been more successful than 'lower-level' GA maintenance and engineering in attracting young people.

7.60 We believe that there is an opportunity for GA airfields and maintenance firms to work more closely with local education providers to provide work experience and apprenticeships. Some already do this, but more could. For example, there are opportunities to link with the Government's STEM (Science, Technology Engineering and Mathematics) programmes, which aim to increase young people's skills to provide employers with relevant skills and ensure the UK's place as a leader of science-based research and development.

Aviation Services Skills Council

7.61 We were told by BBGA of an initiative to set up an Aviation Services Skills Council, which will focus specifically on aviation services (as opposed to aerospace related skills) and we believe this is worthy of further consideration as it could increase the focus on supporting the development of skills within the general aviation sector and in raising the profile of the sector more generally.

Case Study – Cotswold Airport Scholarship Scheme

Cotswold Airport, one of the larger GA aerodromes in the country, has raised its intake of scholars from 10 to 12 for its 2015 Aviation Scholarship. The scheme, which was introduced seven years ago provides teenagers from 14–18 years of age living in the Gloucestershire/Wiltshire area with the opportunity to experience all career options available within the aviation sector. The ethos is to provide them that vital initial experience that will put them on the first rung of the ladder to their chosen career path. Funded by Cotswold Airport's owner, the Scholarship programme has already helped change the lives of over 60 previous scholars, helping them embark on a career in an aviation based industry, whether it be military, commercial flying, engineering or air traffic control. During the scholarships, students receive tuition at the airport`s aviation ground school, including flying lessons, experiencing at first-hand the work of air traffic controllers, flying instructors and engineers, whilst receiving guidance from aviation professionals.

Business Aviation Issues

7.62 Discussions with business aviation operators, airports and fixed base operators (FBOs) have identified two principal issues which could potentially serve to impede the sector from delivering fully the wider connectivity benefits which we have described in Section 6.

Air Passenger Duty

7.63 The inclusion of business aviation flights within the scope of Air Passenger Duty (APD) has been cited by some operators as a reason for the sluggish performance of the market. It is asserted anecdotally that some high worth individuals are now travelling to other European cities, e.g. Paris, as a consequence so impacting adversely on spending and investment in the UK. At the very least, the imposition of APD is an additional cost to businesses which have opted to use business aviation to enhance productivity, so reducing the benefits to some degree.

7.64 It is very difficult to evaluate the extent to which the imposition of APD on the business aviation sector has impacted on the levels of flying. However, that some impact has occurred is almost certainly the case and it will be more difficult to recover the sector to pre-recession levels as a result.

Border Force

7.65 The other major concern is the changes being proposed by Border Force to the services which they provide to FBOs. Whereas clearance of business aviation passengers was previously seen as part of the overall service at airports, FBOs will shortly be required to pay by the hour for officers to be located in their terminals or, alternatively have to take passengers to the terminal for clearance, so undermining one of the principal advantages of the use of business aviation in terms of the speed and ease of transit through the airport. One FBO operator told us that securing the provision of dedicated Border Force officers would represent an additional cost to their business of around £800,000 a year across two airports for a dedicated service. The alternative of taking clients to the main passenger terminal is seen as unacceptable and negating much of the value of using business aviation. Overall, there is an over-riding concern that the combined effect of security procedures and immigration is damaging the 'first impression' of the UK, which can be an important factor in the decisions of individuals to come to the country, whether strictly for business reasons or to pursue some high value leisure activity. In other countries, remote and streamlined clearance procedures are more often readily available. Both of the major FBOs which we spoke to highlighted concerns about the Border Force service and basis of costing to be the number one impediment to growth in high value business aviation activity.

Other Issues

Regulation

7.66 Our consultations did not uncover any issues relating to regulation that were substantially different from those already identified by the GA Challenge Panel in its Final Report of May 2014 and we do not repeat all of these issues here, although they continue to be relevant to the economic contribution of the sector and are relevant constraints to be overcome if that contribution is to be optimised. The GA Challenge Panel noted in its report:

"Given that the EU is taking more aviation safety regulation into EU competence, the Panel recommends that the CAA should adjust its role and oversight accordingly. They recommend that the CAA supports EASA's approach to make regulation "simpler, lighter and better". In addition, they encourage the CAA to recognise the benefits of harmonisation of rules and standards as a means to improve safety by reducing uncertainty. The Challenge Panel encourages the CAA to meet their commitment to avoid gold-plating to ensure that there are no organisational gaps between implementation of regulations between the EU and the UK, in order to create a consistent system of aviation safety regulation. Finally, to facilitate the implementation of regulatory initiatives, it recommends that the CAA ensures cooperation and coordination with other NAAs."[40]

7.67 In its Response to this the Government noted:

"We welcome the CAA's development of a GA Policy Framework, the work of the new GA Unit, its commitment to improving the way that safety for GA is regulated, and the work done to date in deregulating some areas, and delegating responsibilities in others."

"The Government, in partnership with the CAA, will seek to support and influence EASA to achieve their stated aim of 'simpler, lighter, better' rules for GA."[41]

7.68 The recommendations of the Panel and the Government's Response have all been generally welcomed by the GA community. The CAA is also making significant progress in addressing the regulatory burden on GA with 32 projects already delivered and 56 current projects being addressed with more in the pipeline and set out in the GA Programme. However, many consultees felt that there was still considerable work to do to reduce the regulatory burden and some were sceptical that EASA had yet grasped the connection between reducing the level of regulation and supporting the growth of the sector.

7.69 Releasing greater economic value from the GA sector in the UK will continue to be to large degree dependent on further progress being made with removing the burden of regulation on the sector.

Airspace

7.70 Similarly, our consultations did not bring to light any issues relating to the use of airspace that were substantially different from those already identified by the GA Challenge Panel, which noted:

[40] GA Challenge Panel Final Report, May 2014, page 7.
[41] Government response to the General Aviation red tape Challenge Panel Report, October 2014, pages 9 and 12.

"To improve the regulation of UK airspace, the Panel has made recommendations as to how it should be regulated equitably as a shared resource. Building on their assertion in the interim report that the volume of controlled airspace granted following an Airspace Change Proposal is frequently larger than necessary, it recommends that the CAA should have more involvement in, and improve the airspace design process. The Panel believes that some airspace changes are often not consistent with the level of activity or potential risk. They also recommend a requirement on the CAA to undertake regular reviews of existing controlled airspace. Finally, in recognition of concerns that increases in controlled airspace unnecessarily restrict GA use and access, the Panel recommends that the beneficiaries of controlled airspace should meet the costs of servicing it."[42]

7.71 A number of consultees in the GA community expressed concern at the increasing level of controlled airspace in the UK and there is already a high level of instances where GA pilots infringe controlled airspace inadvertently. However, the business aviation community takes a slightly different view of the value of controlled airspace and seeks to formalise arrangements around key aerodromes, such as Farnborough. This highlights the extent to which the diversity of the sector sometimes makes it difficult to obtain a cohesive view on some issues.

7.72 The Government's Response to the GA Challenge Panel highlighted the treatment of airspace as a 'shared national asset'. A number of practical initiatives and improvements have already been proposed by the CAA and by Government, but a better recognition of the economic value of the wide variety of GA flights may also contribute to a better understanding of the importance of sharing airspace equitably between users

Product Innovation and Marketing the Sector

7.73 Whilst addressing the issues we have identified above may help to revive the GA sector in the UK, and thereby increase its economic footprint, it may not be sufficient in itself. There is a significant threat to the future of GA flying from 'disruptive technologies' such as the increasing availability of Unmanned Aerial Vehicles (drones) and even from advanced computer flight simulators, challenging existing business models.

[42] GA Challenge Panel Report, May 2014, page 7.

7.74 Attracting new student pilots into the GA sector is fundamental to its future and the sector as a whole needs to consider its image and market itself in such a way as to broaden its appeal to younger people. Some parts of the industry already do this quite well, but more may need to be done across the whole sector. Whilst we have emphasised the actual and potential benefits to business of GA flying, the entry to the industry starts with the recreational appeal of flying for fun. Research undertaken by AOPA in the USA suggested that 65% of consumers start learning to fly for purely recreational purposes, 29% as a route towards the commercial sector, and the rest for business or other reasons. The cost of an aircraft has risen much faster than average incomes, which also has an impact on the market.

7.75 If young people are to be attracted to learning to fly for fun, the route into the sector must be made as attractive and as easy as possible. This means lowering the regulatory barriers and putting the consumer's interests first. The introduction of the National Private Pilot Licence (NPPL) in 2002, in response to the GA community's demand for a private pilots' licence that was less demanding to attain and maintain, was a positive step and perhaps needs to be better marketed as a route into flying.

7.76 The industry must evolve or risk continued decline. New product innovation is vital to growth and overall industry health. When innovation stops, industries stop growing, decline, or get replaced by other products and industries that do keep innovating and growing. The unintended consequences of (often well-intended) regulation can stifle the innovation process and kill new product development. Supporting small companies in the UK that are creating new, cheaper-to-operate aircraft with a modern look and feel would be one way of encouraging this innovative approach. Regulators need to review the requirements that manufacturers have to comply with. EASA is working on new standards that may allow a return to factory built 2 to 4 seat aircraft.

7.77 The CAA is actively supporting this with the launch of a consultation in November 2014 aimed at reducing the red tape and financial burdens associated with securing airworthiness and operational approval for new light aircraft designs. This proposal to simplify the initial testing process for experimental aircraft in the UK will benefit small-scale aircraft designers and manufacturers, as well as encouraging the growth of aerospace excellence in new design concepts. The relaxation of the rules on light aircraft development could also benefit the evolution of more environmentally friendly aerospace technologies, and offer an easier route into the aerospace sector for young skilled engineers. The main objective, however, is to reverse the decline in the number of new aircraft designed and developed in the UK over recent years.

7.78 It may also be worth giving some consideration to how the GA sector as a whole is represented. This was a point previously raised by the CAA in its Strategic Review of General Aviation in 2006, when it noted that:

"GA needs to co-ordinate and present itself better in order to put its case more effectively. Its ability to lobby would be improved if it could coalesce around a smaller number of groups for interface with Government and regulator."[43]

7.79 In the course of our research, we encountered many different trade bodies and associations, all doing good work to promote GA, but all with slightly different concerns and emphases. This is unsurprising given the wide diversity of the sector. However, it was evident that there were overlaps and duplications and there are occasions when it may benefit the interests of GA as a whole if the sector were able to speak with a single authoritative voice, and with the support of all the other representative organisations, on the key issues that affect the whole of the sector. We recognise that this may require a certain level of additional funding, as many trade bodies face significant financial pressures, but the result could lead to more effective promotion of and lobbying for the interests of the GA sector.

Recommendations for Government

7.80 We draw together in **Table 7.3** a series of recommendations for Government consideration, based on our evaluation of the constraints and opportunities for the GA sector:

Table 7.3: Recommendations for Government

Planning and the Strategic Network of UK Aerodromes	
7A	Government should consider preparing and publishing, in consultation with the GA industry and other relevant stakeholders, policy guidance for local authorities in dealing with planning issues affecting aerodromes; this guidance should explicitly acknowledge the strategic network of UK aerodromes as a national asset and the aim should be to bring a consistent approach to decisions taken by local planning authorities and thereby to offer specific protection to the strategic network. We have provided an initial framework of issues that might be considered in drawing up such guidance.
7B	We believe that there is a particular role for Local Enterprise Partnerships (LEPs) in supporting the positive economic benefits that derive from local aerodromes and that Government should take steps to promote a more 'joined up' approach between the strategies of LEPs and the planning system .

[43] Strategic Review of General Aviation in the UK, CAA, 2006, paragraph 6.25.

7C	Government and local authorities should encourage GA aerodromes to be proactive in engaging with their local communities, with local planners, and with other local stakeholders (such as LEPs) to identify and promote the social and economic value of the activities undertaken on their sites, as well as mitigating the adverse environmental impacts of their operations as far as possible.
Training	
7D	Training is a critical component of the health of the GA sector. Without new student pilots feeding thorough the industry may continue to decline. Government should consider ways in which it can support GA training providers and make it easier for student pilots to take up flying. Specifically, further consideration should be given to: • the case for lifting VAT on some forms of flying training; • the case for exploiting the provisions of EU Directive 2003/96/EC to allow fuel used for flight training in a commercial organisation to qualify for fuel duty relief; and • encouraging practical links between local GA aerodromes, training providers, and other Government training initiatives such as those in the STEM subjects.
Business Aviation/Air Taxis	
7E	Government should recognise more explicitly the economic importance to the UK of the business aviation sector, both in terms of its direct economic footprint and the wider and often unseen benefits it can bring to the UK economy. Consultation with the industry on matters such as APD and Border Controls should be improved so that ways can be found to alleviate the constraints on the business aviation sector and thus facilitate its growth and economic impact. The use of air taxis for business purposes could be facilitated by more robust support for a strategic network of aerodromes in the UK.
Regulation	
7F	The work of the CAA and its GA Unit to date has brought significant benefits to the sector in lifting regulatory constraints and has been welcomed by the industry as a whole. Government should continue to support the current and future work programme of the CAA and its dealings with EASA in this area and ensure the CAA's work is adequately resourced.

Product Innovation	
7G	The GA sector must find ways of marketing itself to a newer, younger generation of students, without which it will continue to decline. Product innovation is a key component of this as young people find it increasingly less attractive to take up flying in increasingly ageing aircraft. The CAA's consultation on easing airworthiness and operational approval for experimental light aircraft designs is a positive step forward and Government should consider whether there are other opportunities to encourage and support the GA manufacturing industry in the UK as it develops new and innovative aircraft designs more likely to appeal to the younger market.

8 CONCLUSIONS

Overall

8.1 In this concluding section, we summarise the key findings of our research and give consideration to ways in which the health of the GA sector could be monitored going forward.

Key Findings

8.2 The UK GA sector is an integral part of the UK aviation sector with more than 95% of all aircraft on the UK register engaged in GA activities and yet it is a sector which is often overlooked in terms of its economic importance. It is represented by a large number of different organisations and includes a wide range of activities, albeit all ultimately related to flying. The diversity of the sector, whilst being a strength, does occasionally lead to some lack of focus on the overall benefits of the sector and how its overall growth may best be secured.

8.3 Our analysis of CAA data has shown that there has been a very significant decline in activity and investment across the GA sector in recent years. The impact on light aircraft flying is particularly evident with hours flown by fixed wing aircraft from 751kg to 5,700kg down by 50% since 2005, and fixed wing aircraft of under 750kg down by 35%. There has been some recovery in the business aviation sub-sector, in part driven by the operation of larger aircraft types often not on the UK register nor based in the UK. This decline in overall activity probably has no single overriding cause but stems from a variety of reasons including the burden of regulation, increasing costs (especially of fuel), an ageing fleet and a decline in the numbers of new student pilots entering the sector. Clearly, however, the decline has implications for the economic impact of the sector.

8.4 Our analysis has identified the economic footprint from GA flying operations in 2013 at around £1.1 billion. By far the largest sub-sector in terms of economic value is business aviation, accounting for around £565 million in economic value in the UK in 2013. The economic value of the sector is heavily focussed in the South of England, with around 54% of total value concentrated in the Greater South East alone. However, as a consequence of the reduction in the amount of flying, there has been a fall in economic value of the sector overall in real terms since the previous 2005 assessment by around 39%, although in both real and nominal terms the economic value of GA per hour flown has increased since 2005.

8.5 We have also considered the economic footprint of airports and aerodromes that handle GA in the UK and estimate that this sub-sector supports around 9,700 employees and around £401 million of GVA, which we believe is largely subsumed within the overall estimate of the economic footprint of the GA sector.

8.6 We also estimate that GA related aircraft manufacturing accounted for around £1.3 billion in GVA in 2013 and supported approximately 28,400 jobs. The available data on GA manufacturing suggests that it is heavily export driven. We believe that it is reasonable to assume that at least 85% of this value (around £1.1 billion) may be export driven and would therefore be additional to the economic value associated with GA flying operations described above.

8.7 Furthermore, we have identified significant wider benefits of GA activity to either individual users or the economy or society as a whole that are not included in the estimates above. Perhaps the most significant of these arises from the value of connectivity that comes from the use of general and business aviation, including the use of private aircraft and air taxis by individuals or small groups to support their business travel needs. These benefits of business connectivity are very difficult to quantify, but we estimate they could have a long run impact on UK GDP of the order of at least £815 million per annum, which is an even larger impact than the sub-sector's quantifiable economic value.

8.8 There are further social benefits that arise from GA flying in terms of enhancing quality of life, which ultimately has long term benefits for the physical and mental well-being of participants. The sporting activities undertaken by some sub-sectors of GA flying also form a part of the wider socio-economic benefits of sporting activity generally, and the use of GA by the emergency services also contribute important benefits to society.

8.9 We have also considered constraints that may be holding the sector back in terms of being able to return its economic impact to pre-recession levels and opportunities for further growth. The on-going and future planned work of the CAA in addressing the regulatory burdens on the sector is critical in this regard, but we have also given particular consideration to issues relating to GA aerodromes, training, business aviation, product innovation, and the marketing of the GA sector as a whole. We have set out some recommendations for Government consideration at the end of Section 7, but we also believe that the sector needs to reflect on how it markets itself, in particular to broaden its appeal to young people so that new student pilots can be encouraged to learn to fly.

Monitoring Mechanisms

Data Availability

8.10 The terms of reference for this study also called for consideration of measures by which the performance of the GA sector could be monitored in future.

8.11 Our present research has flagged up a lack of accessible, consistent and robust data that covers the whole of the GA sector. This is something that has long been acknowledged and was also recognised by the CAA in its 2006 Strategic Review of General Aviation, in which it recommended that:

"CAA to set up a working group, with GA representation, to look at options for improving the data that is available in relation to GA activity."[44]

8.12 It does not appear that significant progress has been made since that time in collecting data. In fact, it would appear that there is even less data available today in some areas than was the case in 2006. However, we are also conscious that the collection of data could be seen as yet another bureaucratic burden on the industry if its value and purpose are not recognised by those supplying the data. The CAA's new GA Unit is probably best placed to initiate discussions with the industry on this subject, so that a common understanding of the need for and value of data collection can be established.

8.13 A starting point might be the collection of aircraft movement data from all CAA licensed aerodromes. Given that many larger aerodromes already collect this data, it should not be a particularly onerous requirement to supply it to the CAA. Currently, the CAA does not collect movement data from all licensed aerodromes, only from some. The rationale for determining which aerodromes are included and which are not also seems to be unclear. For example, Biggin Hill is a reporting aerodrome but Farnborough is not. It may be that the original criterion for inclusion in the statistics was whether an airport had scheduled commercial services, but this does not now apply, for example, to Biggin Hill.

8.14 We are aware that, in July 2014, the CAA launched a project called AvStats (Aviation Statistics) which will deliver a re-vamped statistics system, replacing the current system that has been in operation since 1988. The intention is for this new system to go live in Autumn 2015 and, whilst the primary objective seems to be to introduce an improved IT interface for users, this might also be an opportunity to review the kind of data that is collected and its value.

8.15 The other key data source is the CAA's G-INFO database, which has formed the basis of our current economic analysis. G-INFO is a very large and unwieldy database in spreadsheet form and does not currently generate regular analytical reports. There is also no official data source covering aircraft operating in the UK that are not on the G-register and no easy way of extracting this in a consistent form from Eurocontrol data. It is, therefore, important to any routine monitoring of the health of the sector going forward to review this data source and its usability and to find a mechanism for capturing the growing activity by aircraft not on the UK register.

[44] Strategic Review of General Aviation in the UK, CAA, paragraph 1.1.

8.16 We believe that the routine monitoring of the sector in future whether by Government or by any other party will prove to be extremely difficult unless the issue of data collection is addressed. We therefore recommend that consideration be given to incorporating this issue into the CAA's future programme of work.

Key Performance Indicators

8.17 Provided that the data availability issues can be tackled, we would suggest that the following key performance indicators might form the basis of a set of metrics by which the health of the sector could be monitored:

- number of GA movements at all UK licensed aerodromes by category (e.g. business aviation and air taxis, training, private etc.) and by aircraft type, monitored on a monthly and annual basis; this information is already collected from a few commercial airports but not from all licensed aerodromes;
- flying hours by UK registered aircraft by aircraft type, category, and weight; this information is already held in the G-INFO database, but we would propose that an easier to understand summary analysis be published on a regular basis;
- flying hours by non-UK registered aircraft operating within the UK; this information is not currently available and we recognise that this may be difficult to achieve, but an examination of potential sources such as Aerodata, aircraft registration companies in the UK or Eurocontrol should be undertaken;
- activities of flying training schools in terms of numbers of students embarking on an NPPL or PPL qualification, numbers obtaining licences, numbers of PPL license that lapse because of insufficient hours, and numbers going on to gain additional ratings or further qualifications such as the CPL; some of this information is already held by the CAA;
- average age of the UK GA fleet by type and numbers of new aircraft types gaining certifications; this could be derived from the G-INFO database;
- the health of the 'strategic network of aerodromes' should also be monitored although we recognise that there are difficulties with identifying a comprehensive list of all aerodromes within the UK, as we discovered during the course of our research. Nevertheless, it would be of great benefit if there were a central source of information on the numbers of flying sites in the UK, their key characteristics in terms of infrastructure and activity, their geographical location, and the proportion of the total that are fully licensed. A comprehensive central resource such as this does not currently exist.

8.18 Ultimately, our research has shown that the economic contribution of the sector is directly linked to the volume of flying undertaken so the simplest proxy measure for the health of the sector is the number of flying hours, to which all other measures would be secondary.

APPENDIX A

LIST OF ORGANISATIONS CONSULTED

Aerodromes	Blackpool (GA operator) Denham Derby Airfield Enniskillen Aerodrome Farnborough Gloucestershire Hucknall Manchester City (Barton) Nympsfield (Bristol & Gloucester Gliding Club) Oban Redhill Rochester Wellesbourne
Airlines	Flybe
Associations	Airport Operators Association AOPA (Aircraft Owners & Pilots Association) Association of Air Ambulances British Association of Balloon Operators British Air Display Association British Balloon and Airship Club British Business & General Aviation Association British Gliding Association British Hang Gliding and Paragliding Association British Helicopter Association British Medical Pilots Association British Microlight Aircraft Association British Model Flying Association British Parachute Association British Precision Pilots Association British Rotorcraft Association British Women Pilots Association CAA CAA Aircraft Registration Unit CAA General Aviation Unit Flight Training News Flying Farmers Association Formula Air Racing Association General Aviation Alliance General Aviation Awareness Council General Aviation Manufacturers Association General Aviation Safety Council Guild of Air Pilots and Air Navigators Helicopter Club of Great Britain Historic Aircraft Association Honourable Company of Air Pilots

	Light Aircraft Association
	National Police Air Service (NPAS)
FBOs	Fayair
	Harrods Aviation
	London City Airport & Northolt Jet Centre
Flight Training Orgs	Command Pilot Training (Coventry)
	Cranfield School of Flying
	CTC Aviation Group Ltd
	Multiflight Flight Training
Manufacturers	General Aviation Manufacturers Association
	Icon Aircraft
Operators	Blink
	Hangar 8
	London Executive Aviation
	Netjets

APPENDIX B

ECONOMIC VALUE METHODOLOGY

In this appendix, we provide a more detailed explanation of the methodology used to calculate the economic value of GA as expressed in Section 5 of this report.

The approach used is essentially the same as that used by Professor Terry Lober in the original GASAR socio-economic study undertaken in 2006[45]. The approach is to some degree unusual but it is so for good reasons. Conventionally, studies of economic sectors tend to draw on input-output information, information collected from relevant companies within a sector or from published reports and accounts. However, GA presents considerable challenges in this regard. Input-output data is nowhere near to specific enough in terms of sectoral activity to make an assessment and the sheer number of actors and the diversity of the individuals and companies involved makes attempting either a survey route or published data route impractical and fraught with problems. It was also important to find a technique that could be used across the GA community. Trying to value individual subsectors separately was felt to be a potentially inaccurate approach as the potential for double counting is high, either through misallocation of companies or individuals across different sectors or because of potential internal transactions within the GA sector distorting the value calculations.

The approach taken by both Terry Lober and this study has, therefore, been based on assessing the consumption of goods and services relating to GA by end customers, rather than by buyers and sellers in the supply chain. In terms of services, what is being purchased is access to aircraft, either as a means of transport, as tool to undertake other activities, personal development or for recreation. The goods purchased within the process are aircraft or parts thereof. The services relate in large part to those purchased on the ground, including particularly at airports. The value associated with GA is therefore built up using identified expenditures and revenues. We discuss these in more detail below.

We recognise that other methodologies have been used, particularly in assessing the impact of business aviation, but these would not have been suitable for application to the whole GA sector given its diversity. However, we did consider alternatives before settling on an updated version of the Lober approach for this study.

The other key issue to be faced in undertaking this assessment is how to measure the level of activity to which expenditures and revenues relate. As we have described in Section 4, this is not simple. Data on GA activity is difficult to come by, patchy and inconsistent. We have, therefore, worked from the point of consumption data that we believe is the most complete view available across the GA sector. That is the aircraft hours flown by UK based aircraft as recorded in the CAA G-INFO database. This data on activity has been supplemented in two primary ways:

- with estimates of flying hours from the British Gliding Association, originally provided as part of the Red Tape Challenge process. A significant number of gliders are not currently registered within the G-INFO database;

- with an additional approximately 1,000 aircraft that are not UK registered but are believed to be based within the UK. These aircraft have been identified via the Aerodata database, which contains information on around 1.8 million aircraft

[45] Although the approach we have taken is essentially the same as that used by Terry Lober, some of the data sources are different. We would not, however, expect this to introduce any form of systematic bias into the analysis and, consequently, we believe that the overall comparability with the Lober study is good.

worldwide. These aircraft are assumed to be used in a similar way to equivalent aircraft within the G-INFO database.

The key building block of our approach has, hence, been the operating expenditures and revenues related to flying activity by aircraft whose operations are based in the UK, regardless of the registration of the aircraft.

The direct economic benefit generated by the hours flown by non-UK registered aircraft operating into the UK, but which are also based overseas, comes only from the expenditure they incur whilst in the UK (on handling fees, landing charges etc.) and we have not specifically taken that expenditure into account. But at the same time, UK based aircraft also incur expenditure whilst on the ground overseas which, equally, we have not accounted for, because of the lack of robust data. However, we believe it is reasonable to assume that these expenditures will be largely net neutral in terms of the impact on the UK economy.

We have also assumed that the flown hours of non-UK registered aircraft based in the UK are, on average, similar on a per aircraft basis to the hours flown by UK registered aircraft. We believe this is a reasonable assumption given the data available. We are aware that it would be possible, using data sourced from Eurocontrol and WingX, to undertake a detailed analysis of the likely numbers of foreign registered aircraft operating into and out of the UK by tracking their movements to deduce where they are based and in so doing also track their hours flown. However, this would have been an extensive and relatively costly exercise in excess of 10% of the overall budget and it was considered that to widen the scope of the project and obtain additional procurement clearances to undertake this research could have compromised the deadlines set. However, it is a piece of analysis that could still be considered at some stage in the future if greater precision in the estimate of the contribution of non-UK registered based flying was required.

Our analysis of the G-INFO database is what allows us to report on sub-sectors within the GA community. We have undertaken an extensive exercise to clean commercial and military related aviation out of the G-INFO dataset and then to subsequently classify each aircraft in terms of the sub-sectors described in Section 5:

- Business Aviation
- Personal Fixed Wing Flying
- Helicopter Flying (non Business Aviation)
- Other GA Activities
- Other Business Flying
- Flying Training
- Emergency Services
- Microlight Flying & Gyroplanes
- Gliding
- Ballooning
- Hang Gliding, Parachuting and Sky Diving

As discussed in Section 5, this approach does not provide a perfect definition of each subsector. For instance, aircraft may be used for multiple purposes or it may be unclear as to how a corporate owner actually uses an individual aircraft. Crucially, it is also not possible to identify the journey purpose in relation to many flights by privately operated aircraft. There is, therefore, a degree of 'fuzziness' around these sub-sector definitions.

Consistent with Terry Lober's original approach, a slightly different approach has been adopted in evaluating GA flying for aircraft owned by businesses and those owned by private individuals. This relates to how businesses and individuals treat or account for costs and revenues. Lober explained the reasoning for this difference in approach as follows:

"Although, each of these costs can be estimated from details of the aircraft involved, as will be shown in the following section [referring to Operating Costs, Financing Costs and Depreciation as the basis for aircraft flying costs]*, it was not clear at first how to estimate other costs associated with flying, particularly the overheads and profit generated by companies and sole traders. Indeed during the case study phase almost none of the participants were prepared to divulge information about overheads and profit levels (except to complain about the impact of costs). Also, whilst profit was clearly the difference between sales and expenditure, it could not be assumed that businesses consistently included reserves for depreciation or expected their profits to be greater than if they had simply invested their capital in a savings account. The conclusion was that the only costs, which could reliably be allocated to businesses, were operating costs. How businesses absorbed financing, depreciation and overhead costs (advertising, rents, staff etc.), and then produced a pre tax profit was not accessible from the research data.*

Consequently, a methodology was developed that overcame these issues, by deducing gross operating margins from sales and costs. In this report the gross operating margin is defined as the difference between sales and operating costs. Out of this margin, businesses are assumed to pay their administrative overheads, service loans and accrue depreciation funds, hopefully leaving a pre-tax profit, which reflects their capital investment.

A slightly different approach was applied to private pilots that own an aircraft, either personally or through a group share scheme. They do not incur any administrative costs or generate profit, but they should take into consideration depreciation and financing costs. The only difference being that instead of providing funds from sales to replace their aircraft, they must draw upon their personal finances – either by saving to offset depreciation, or taking out a loan and then paying interest. In this report the costs of depreciation and financing will be calculated directly for those operating private aircraft, whilst for businesses, it will be assumed these costs are funded by gross operating margins."[46]

Essentially, Gross Operating Margin is used to make an estimate of the costs and revenues for corporately owned aircraft that are outside of the direct operating later described. These include allowances for fixed costs, depreciation, financing and similar, along with the profit element accruing.

Further costs to the end user associated with flying are then added to the direct expenditure on aircraft flying. These include:

[46] General Aviation Small Aerodrome Research Study - An estimate of the annual direct socio-economic contribution of GA to the UK economy – Terry Lober (2006).

- Trip Related Costs – this includes landing fees but also pre and post flight expenses, such as travel to and from aerodromes, expenditure at the destination on meals, attractions or accommodation and similar[47];

- Aircraft Sales Expenditure – incremental investment in the fleet and the costs associated with selling existing aircraft;

- Associated GA Activity – expenditure associated with other GA activities not fully covered by the estimates of aircraft flying activity.

It is also helpful at this point to be clear as to the status of indirect and induced multiplier effects within this approach. In our view, as this approach focuses on the final value of the goods and services associated with GA to the end consumer, multiplier effects should be reflected within the price that is paid. We have not, therefore, included an additional element to our analysis. However, in Section 5, we do specifically consider the economic impact of two supply sectors to GA, aerodromes and aircraft manufacturing. These assessments are based on more conventional approaches to assessing economic impact and focus purely on the value added by companies within the relevant sector. It is, therefore, appropriate to apply multipliers in these circumstances.

Below, we set out our approach to estimating each of the elements of the GA economic value set out in Section 5 and the key sources used. It should be emphasised that this approach is heavily assumption driven, reflecting the data availability and diversity of the sector. It clearly includes significant simplifications compared the realities of the GA market. However, overall we believe that the methodologies and assumptions present a sensible picture in the round.

Estimating Operating Expenses

Aircraft Insurance

The annual insurance payment has been estimated based on information insurance premiums for a wide range of different aircraft types taken from:

- the Aircraft Cost Calculator (ACC) website;
- Manufacturers' websites;
- Information on aircraft values derived from Global Plane Search;
- Information from our survey work with BBGA members, AOPA and HCAP members.

The exact level of premium for any given aircraft is clearly dependent on a wide variety of different factors, including aircraft type, weight, value, liability limits, pilot age and qualifications, purpose of use, number of seats and attitude to hull value insurance. Given the huge range of aircraft and potential operators and pilots, it was clearly impractical to seek to identify an individual premium for each aircraft based on offered rates by insurers. We have, instead, identified a relationship between expected insurance premiums identified within aircraft cost calculator and maximum take-off weight for a range of different aircraft types. These have then be compared to and where appropriate adjusted based on the insurance data collected through our survey work and through data on a number of aircraft manufacturers' websites on typical rates. This has included examining

[47] The latter elements of trip related costs could be considered to be a wider tourism related effect associated with GA. However, for consistency with the GASAR work, we have included them in the main economic value calculation.

the potential costs relating to hull insurance based on typical rates compared to aircraft values. To derive an estimated value for aircraft in the GA fleet, we have used data on aircraft advertised for sale on Global Plane Search to definition example price and depreciation curves for different aircraft types. This included examination of adverts for around 1,000 different aircraft.

Hangarage and Parking

Lober observed that hangarage and parking costs are also subject to influence by a wide variety of factors. Floor space costs vary significantly around the country, the level of utilisation of space differs from aerodrome to aerodrome, aircraft manoeuvrability can influence cost as can simple demand. Overall, however, the key factor appears to be aircraft size. This is borne out by analysis of the ACC data and the data collected from our survey work. Based primarily on our analysis of our survey work, we have defined an approximate cost per kilo per annum for an aircraft. This has then been applied to each aircraft in the fleet to provide an overall estimate of expenditure on aircraft parking.

Fuel

Fuel consumption by the fleet has been estimated based on average fuel consumption per hour. Using data from ACC and from manufacturers' websites, we have developed a series of relationships between fuel consumption per hour and maximum take off weight, depending on aircraft type and engine type.

The cost of Avgas in the UK was estimated based on averages observed on thehangar.co.uk website. An average cost of £2.01 per litre was identified. Jet A1 prices were collected from around 10 major UK aerodromes spread across the country and an average identified of £0.94 per litre. Both of these were accurate at the time of our research.

Maintenance

Maintenance rates per hour for each aircraft were identified based on data from ACC. This has been cross-checked against data received as part of our surveys with BBGA, AOPA and HCAP. We have identified a relationship between maintenance costs per hour and maximum take-off weight for different engine and aircraft types. This has then been used to estimate the maintenance costs relating to each aircraft in the fleet. Where aircraft types were not specifically covered by ACC, we have assumed rates would be similar to piston aircraft (the cheapest category) adjusting for take-off weight.

Gross Operating Margins (Aircraft Owned by Organisations)

The Gross Operating Margins assumed by Lober in his original work have been retained in this study. These original margins were derived by Lober from comparing charter rates and hire costs to identified operating costs for a number of sample aircraft. Lober observed that there were substantial differences in margins based on engine and aircraft type and indeed there appears to have been some volatility in the findings. A brief analysis to attempt to update these margins for this research again identified similar apparent volatility and as a result for consistency, the same margins have been adopted. The cost plus margins are:

- Turbine aircraft – 80%;
- Helicopters – 16%;
- Other Aircraft 10%.

Financing Costs (Private Aircraft)

The cost of financing a privately owned aircraft is assumed to be a function of capital value and the interest rate. The capital value of each aircraft, as described above, has been derived based on a series of example price and depreciation curves identified using advertising data from Global Plane Search. The interest rate applicable, as in the original GASAR work, 1.5% above the prevailing base rate (2%). This may ultimately be somewhat lower than those observed for aircraft funded by loans. However, equally, for those funded via individuals savings the rate may be too high. Hence, in the round it is probably reasonable.

Depreciation Costs (Private Aircraft)

The depreciation costs to private owners are again based upon the example price and depreciation curves identified through the analysis of advertising data from Global Plane Search. To estimate depreciation, we have simply aged the entire privately owned fleet by one year and compared the capital value of each aircraft to its 2013 estimated value.

Landing Fees

The number of movements by each aircraft is not recorded in the G-INFO database and, as discussed in other parts of this report, detailed accurate data on aircraft movements across the sector is very hard to come by. We have, therefore, assumed that the number of movements per hour flown identified by the original GASAR study (through some of its broader work on the GA sector), and identifiable from the socio-economic report, remains valid. This is inherently reasonable as it is unlikely that the length or nature of journeys has changed fundamentally since 2005. This information has then been used to calculate the estimated number of movements by each aircraft within the dataset.

The landing fees for these movements have then been estimated based on an analysis of the published charges at a range of GA airfields across the UK. A per movement rate has been estimate for aircraft in a series of weight bands up to 5,700 kg but for larger aircraft a cost per tonne has been identified.

Pre / Post Flight Expenses

Estimating what pilots and their passengers might spend pre / post flight is difficult but we have made an estimate based on two factors:

- expenditure on travel to / from airfields – previous research by Lober in another of the GASAR studies identified from a survey of pilots that, on average, they travelled around 18 miles to reach an aerodrome. Based on this, an assumption that journeys to airfields will generally be by car and that the average car occupancy will around 1.5, and an assumed £0.45 per mile based HMRC mileage rates, we have identified a travel cost per movement of around £6.08 for pilots;

- expenditure at destinations – for passengers we have developed an estimated expenditure at destinations based on typical UK expenditures per trip taken the Day Visits 2014 Annual Report from Visit Britain of £34. We have then identified characteristics for aircraft above and below 5,700kg to reflect their likely usage and the need to factor expenditure to reflect a number of issues:

    - the likely load factor on the aircraft in terms of passengers. This is assumed to be 75% in both cases;

- the extent to which trips might not involve landing at another airfield. This is likely to be significant for lighter aircraft, which might be involved in for instance training, simply flying for the sake of flying or aerobatics. Hence, the number of trips is reduced by 50%. This is not assumed to be a significant for larger aircraft, which are likely to be primarily used for transport;

- a further assumption is made that movements to / from very small aerodromes would not generate significant expenditure as these would not offer the same local facilities as larger aerodromes. Lober estimated these movements to make up around 16% of the total. We have assumed that this applies only to smaller aircraft.

One final point in relation to expenditure at the end destination relates to additionality. In our view, we have adopted relatively conservative assumptions that ultimately reflect what is likely to be additional expenditure generated by GA based trips. It could be argued that certainly for business aviation the expenditure per trip by visitors should be much higher. However, it should be recognised that a significant proportion of that expenditure is likely to occur whether or not GA is used and consequently including its value is difficult and potentially misleading.

Aircraft Sales Expenditure

Incremental Aircraft Investment

Expenditure on new aircraft represents an investment in the GA fleet that increases economic value to the extent that it results in net increase in capital value. Analysis of the G-INFO database suggests that around 340 new aircraft were registered in 2013 (around 1.8% of the fleet) but that around 440 were retired since 2012 (around 2.4%). There was, therefore, a net decline in the number of aircraft in the fleet. However, as the new aircraft are likely to be worth more than those retired (other things being equal), there is still potentially a positive investment in the value of the fleet. Based on this analysis and our example price and depreciation curves, we have estimated the increase in the value of the fleet from these changes by calculating 1.8% of the 'as new' value of the GA fleet and then netting of 2.4% of the depreciated value of the GA fleet.

Used Aircraft Sales Expenditure

Based on the data collected in this research, we have not been able to effectively estimate the rate of ownership turnover in the GA fleet. Lober, based on broader research, estimated the turnover rate at around 16%. We have used this as the basis for our calculation and assumed commission of around 5%. Overall, these assumptions seem reasonable and proportionate given the relatively small impact of the effect.

Associated GA Activities

As described in Section 5, Associated GA Activities is essentially an allowance to cover a range of other GA activities that are either not covered or not effectively covered by the remainder of the methodology. In our view, the original GASAR study probably underestimated this element of the sector and, while making a precise and consistent assessment of this activity is very difficult, there is significant evidence to support a higher allowance being made. For instance, the emerging research being undertaken by the British Air Display Association on the economic impact of air displays in the UK suggests associated visitor expenditure of around £64 million per annum. While it would not be

appropriate to suggest that all of this figure should accrue to the GA sector given that air displays are ultimately a mix of military and GA flying with no means of determining the criticality of either, even adopting an assumption that 50% of this expenditure relates to GA results in an annual estimate of £32 million per annum, substantially above the GASAR estimate of £20 million per annum for all other GA activity. Similarly, model flying is not effectively captured through the basic methodology but involves over 36,000 people who pay insurance for their aircraft, buy fuel, and build aircraft. Parachuting involves over 50,000 people in the UK and, while the flying of aircraft associated with parachuting is captured by the modelling, it is reasonable to suggest that there are equipment and insurance costs to individual participants that are not captured. Overall, therefore, this would seem to suggest that the GASAR allowance of £20 million was substantially too low. We have therefore made an allowance of £50 million to cover these harder to define activities, but this may ultimately be conservative.

APPENDIX C

GLOSSARY

AAA	Association of Air Ambulances
AIP	Aeronautical Information Publication
ACC	Aircraft Cost Calculator
AOA	Airport Operators Association
AOPA	Aircraft Owners and Pilots Association
AOC	Air Operators Certificate
APD	Air Passenger Duty
APF	Aviation Policy Framework
ATM	Air Transport Movement
ATO	Approved Training Organisation
ATPL	Air Transport Pilot's Licence
AVGAS	Aviation Gasoline
BABO	British Association of Balloon Operators
BADA	British Air Display Association
BBAC	British Balloon and Airship Club
BBGA	British Business & General Aviation Association
BGA	British Gliding Association
BHA	British Helicopter Association
BHPA	British Hang Gliding and Paragliding Association
BMAA	British Microlight Aircraft Association
BMFA	British Model Flying Association
BPA	British Parachute Association
BPPA	British Precision Pilots Association
CAA	Civil Aviation Authority
CAGR	Compound Annual Growth Rate
CAT	Commercial Air Transport
CPL	Commercial Pilot's Licence
DCLG	Department for Communities & Local Government
DfT	Department for Transport
EASA	European Aviation Safety Agency
EBAA	European Business Aviation Association
EGNOS	European Geostationary Navigation Overlay Service
FAA	Federal Aviation Administration
FBO	Fixed Base Operator
FFA	Flying Farmers Association
FTE	Full Time Equivalent
FTO	Flight Training Organisation
GAA	General Aviation Alliance
GAAC	General Aviation Awareness Council

GBASF	General & Business Aviation Strategic Forum
GA	General Aviation
GAMA	General Aviation Manufacturers Association
GASAR	General Aviation Small Aerodromes Research (Project)
GASCo	General Aviation Safety Council
GBASF	General and Business Aviation Strategic Forum
GDP	Gross Domestic Product
GPS	Global Positioning System
GVA	Gross Value Added
HAA	Historic Aircraft Association
HCAP	Honourable Company of Air Pilots
IBAC	International Business Aviation Council
ICAO	International Civil Aviation Organisation
IFR	Instrument Flight Rules
ILS	Instrument Landing System
IMC	Instrument Meteorological Conditions
IR	Instrument Rating
LAA	Light Aircraft Association
LEP	Local Enterprise Partnership
LPA	Local Planning Authority
MOD	Ministry of Defence
MPL	Multi Crew Pilot's Licence
MTOW	Maximum Take Off Weight
NATS	National Air Traffic Services
NPAS	National Police Air Service
NPPF	National Planning Policy Framework
NPPL	National Private Pilot's Licence
ONS	Office for National Statistics
PPG	Planning Policy Guidance
PPL	Private Pilot's Licence
PPS	Planning Policy Statement
RAeS	Royal Aeronautical Society
SLMG	Self Launching Motor Glider
SPA	Special Protection Area
STATFOR	Statistics & Forecasts (Eurocontrol Database)
STEM	Science, Technology Engineering & Mathematics
UAV	Unmanned Aerial Vehicle
VFR	Visual Flight Rules
VLJ	Very Light Jet

VMC	Visual Meteorological Conditions
YAL	York Aviation LLP

APPENDIX D

SURVEYS

York Aviation

Department for Transport

GENERAL AVIATION RESEARCH PROJECT 2014

AIRPORT/AERODROME SURVEY

Ref No:

The Department for Transport has recently commissioned York Aviation to undertake research into the economic impact of the general aviation (GA) sector in the UK. The term 'general aviation' is here taken to refer to any and all flying activity other than commercial (scheduled) air transport and military flights. It therefore includes business aviation.

York Aviation is a specialist firm of air transport consultants with extensive experience of providing economic impact and policy advice to airports and government agencies, including clients in the general and business aviation sectors.

The need for this research has been identified by the General Aviation Challenge Panel set up by the Government at the end of 2013 as part of the drive to identify wider opportunities to support the growth of the GA sector. The main requirements of the research are to:

- identify, as a baseline, the contribution the general aviation sector makes to the UK economy; and
- identify opportunities, including policy interventions, to grow general aviation's contribution to the UK economy; and
- recommend measures against which the health of the general aviation sector can be monitored in future.

A key element of the research is to gather up-to-date data from airports/aerodromes that serve the GA market. We would therefore be grateful for your responses to the questions that follow. The questionnaire is intended to be completed by the airport/aerodorme manager or his/her representative. We realise that there are many different kinds of airports and aerodromes serving the GA community and that not all the questions may be relevant in every case, but please answer as many questions as you can. Where precise data is not readily available, we would prefer if you could provide estimates rather than no response at all.

Any information you provide will be treated in the strictest confidence and will be seen by employees of York Aviation only, who will aggregate up all data received in its report to the Department for Transport. No individual airport or aerodrome's information will be identified and under no circumstances will there be disclosure of any financial or other information to any third parties.

We are distributing this questionnaire by post or by email where postal addresses have not been obtainable. A stamped-addressed envelope is provided for postal returns, but we are also happy to receive electronic replies and a special email address has been set up for this which is ga@yorkaviation.co.uk You can also request an electronic version of this questionnaire through this email address, ask questions about the survey, or send additional comments or information. If you wish to speak to York Aviation please contact 01625 614051.

Please return this questionnaire by **Monday 27 October 2014.**

Your assistance is much appreciated.

Your Airport/Aerodrome

Please state the full name(s) of your airport/aerodrome:

.....

Please indicate (by ticking the relevant box) if the airport or aerodrome is owned by:

A company registered in the UK	
A company registered outside the UK	
A private individual (s) or a trust	
The local council	
Other (please specify in the box below)	

Please indicate (by ticking the relevant box) who manages the airport/aerodrome:

The airfield owner (or an appointed manager)	
A third-party operations company	
A flying club or school	
Another aviation-related business	
Other (please specify in the box below)	

Is/are the airfield's runway(s) hard-surfaced or grass or a mixture of both?

.....

Is the airport/aerodrome licensed by the CAA or unlicensed?

.....

Does your airport/aerodrome operate under the '28 Day Rule', or hold a Certificate of Lawful Use? Please add any other explanatory comments or relevant information in the box below:

Operational Information

How many GA movements (of all types) were recorded at your airport/aerodrome in each of the years shown below? Please show touch and go movements separately if possible. Please give estimates if exact data is not available.

Year	Total GA Movements (excl touch and go's)	(touch & go's)
2011		
2012		
2013		

Please indicate the number of GA movements by type or category in 2013 (excluding touch and go's). Please give an estimated percentage of the total, if the number of movements is not known.

2013	No of movements	(or) Est. Percentage of Total
Fixed Wing Training		
Fixed Wing Private		
Fixed Wing Business/Air Taxi		
Total Fixed Wing		
Rotary Wing Training		
Rotary Wing Private		
Rotary Wing Business/Air Taxi		
Total Rotary Wing		
Other (please specify below)		

Please indicate what percentage of the total GA movements at your airport/aerodrome were made by visiting (non-based) aircraft? Please give an estimated percentage if the precise figure is not known.

…….....

Please indicate the number and type of based GA aircraft at your airport/aerodrome in 2013.

Type of GA aircraft	No of based aircaft
Single-engine piston	
Multi-engine piston	
Jets	
Helicopters	
Gliders	
Microlights/gyrocopters	
Airships/Balloons	
Other (please specify below)	

How many based GA aircraft are normally kept in hangars at your airport/aerodrome? Please give an approximate percentage of the total if the exact figure is not known.

.....

What percentage (if any) of the based GA aircraft at your airport/aerodrome are NOT on the UK (G-) register?

.....

Is there is limit on the permitted number of GA movements at your airport/aerodrome? If so, please state what this is and how it applies.

.....

Is this limit imposed by planning conditions or Section 106 Agreement or is it self-imposed?

.....

Please add any other explanatory comments or relevant information in the box below:

Employment

How many employees on the airport/aerodrome site are currently employed in activity relating to GA? If possible, please give a split according to the categories below, but otherwise please give the total. Please give an approximate figure or an estimate if the exact figure is unknown.

Airport/Aerodrome	Full-time	
	Part-time	
Others (operators, FBOs etc.)	Full-time	
	Part-time	
Flying School/Training Organisation	Full-time	
	Part-time	
TOTAL GA-related employment on site	**Full-time**	
	Part-time	

(Full-time is 30 or more hours a week and part-time less than 30 hours per week).

Financial

In order to estimate economic impacts of the GA sector we need to understand the level of sales turnover and income of your airport/aerodrome in the areas set out in the box below. Please give approximate figures or estimates where exact data is not readily available. We appreciate that your charging structure might merge some of these items (e.g. deals relating to fuel and landing fees combined), but please give best estimates. ***Any data supplied will remain strictly confidential.***

Gross Sales Turnover from all aviation-related activities (including any scheduled commercial air services, if applicable at your airport)?	
What percentage of the above is purely related to GA activity?	
Gross Sales Turnover from non-aviation activities?	
What level of gross income do you receive from landing fees for GA aircraft?	
What level of gross income do you receive from parking charges for GA aircraft?	
What level of gross income do you receive from hangar charges for GA aircraft?	
What level of gross income do you receive from fuel sales to GA aircraft?	

Please tell us if your airport/aerodrome is profitable?.....

Constraints and Opportunities

Please indicate below any significant constraints or opportunities you think there are for your business, or on the general and business aviation markets more generally, at present.

We would very much like to follow up this research with a few case studies. If you would be prepared to help with this, and potentially allow us to visit to your airfield, please provide a contact name, telephone number, and email address below :

Contact name:……

Telephone Number:…..…….:.....

email address:…….....

Thank you for helping with this research. If you have additional comments, please attach a further note, or send an email to ga@yorkaviation.co.uk

Please return this questionnaire in the envelope provided by **Monday 27 October 2014.**

York Aviation

Department for Transport

GENERAL AVIATION RESEARCH PROJECT 2014

THE HONOURABLE COMPANY OF AIR PILOTS MEMBERS SURVEY

Ref No:

The Department for Transport has recently commissioned York Aviation to undertake research into the economic impact of the general aviation (GA) sector in the UK. The term 'general aviation' is here taken to refer to any and all flying activity other than commercial (scheduled) air transport and military flights. It therefore includes business aviation.

The need for this research has been identified by the General Aviation Challenge Panel set up by the Government at the end of 2013 as part of the drive to identify wider opportunities to support the growth of the GA sector. The main requirements of the research are to:

- identify, as a baseline, the contribution the general aviation sector makes to the UK economy; and
- identify opportunities, including policy interventions, to grow general aviation's contribution to the UK economy; and
- recommend measures against which the health of the general aviation sector can be monitored in future.

As part of this work, we are keen to get perspectives from GA pilots from across the spectrum of activity and also to try to collect some basic financial data that will help us to understand the economic value of GA flying. We realise that GA is a highly diverse sector of aviation and that not all the questions may be relevant in every case, but please answer as many questions as you can. Where precise data is not readily available, we would prefer if you could provide estimates rather than no response at all.

Any information you provide will be treated in the strictest confidence and will be seen by employees of York Aviation only, who will aggregate up all data received in its report to the Department for Transport.

We are distributing this questionnaire by email with the kind assistance of the The Honourable Company of Air Pilots. We would be grateful if you could send responses to ga@yorkaviation.co.uk. If you wish to speak to York Aviation please contact 01625 614051.

Please return this questionnaire by **Friday 28th November 2014.**

Your assistance is much appreciated.

Your Details

Name
Email
Tel:

Your Flying

1. What kind of flying licence do you currentkly hold and in which country did you complete your initial training?.....

2. Are you working towards another licence or rating and if so which?.....

3. For what purpose do you fly? (Please tick all that apply)

Leisure / Pleasure transport between places	☐
Leisure / Pleasure as a hobby or pasttime	☐
For business travel	☐
As an instructor	☐
As an emergency services pilot	☐
As Business Aviation / Corporate / Air Taxi pilot	☐
To acquire a private pilot's licence	☐
To acquire a commercial pilots licence or ATPL	☐
Other (Please specify):	☐

……

4. Approximately how many hours have you flown in the last 12 months?

   Within or to/from the UK……..Elsewhere……

5. Has the number of number of hours you fly grown or fallen over recent years?

   ……..

6. What are the main aircraft types that you fly?

Your Aircraft

7. Do you own your own aircraft?

Yes (go to Question 9)	☐
No (go to Question 8)	☐

8. Who do the aircraft you fly belong to?

Flight Training School ☐
Aeroclub ☐
Air charter firm ☐
Employer's aircraft ☐
Other (please specify) ☐

……..
Please go to Question 13

9. What type(s) of aircraft do your own?

Aircraft 1	
Aircraft 2	
Aircraft 3	
Aircraft 4	

10. Is / are your aircraft registered in the UK (i.e. have G-registration)?

Yes ☐
No ☐
Mixed ☐

If no / mixed, please indicate which register the aircraft is on and why?

11. Approximately how many hours and trips have you flown in each of your aircraft in the last 12 months? Do we need to define 'trips'?

	Hours	Trips
Aircraft 1		
Aircraft 2		
Aircraft 3		
Aircraft 4		

12. Approximately how much do you spend on each of the following items for each of your aircraft each year?

	Insurance	Hangarage / Parking	Fuel	Maintenance	Landing Fees
Aircraft 1					
Aircraft 2					
Aircraft 3					
Aircraft 4					

Airfields you Use

13. Which aerodrome is your aircraft based at or where do you fly from most regularly?

14. Which other aerodromes in the UK do you regularly fly to?

15. What factors are most important to you in considering which aerodromes to fly to?

16. Do you think there is a shortage of suitable aerodromres for your aircraft in some areas of the UK? If so which areas?

Your Views on General General Aviation Issues

17. Do you think General Aviation in the UK is growing or declining? What do you think is the reason for this trend?

18. What do you think are the key challenges and threats facing General Aviation in the UK at present?

19. What do you think are the key benefits to the economy and society from General Aviation flying?

Thank you for helping with this research. If you have additional comments, please attach a further note, or send an email to ga@yorkaviation.co.uk

Please return this questionnaire in the envelope provided by **Friday 28th November 2014.**

York Aviation

Department for Transport

GENERAL AVIATION RESEARCH PROJECT 2014

SURVEY of BBGA MEMBERS

Ref No:

The Department for Transport has recently commissioned York Aviation to undertake research into the economic impact of the general aviation (GA) sector in the UK. The term 'general aviation' is here taken to refer to any and all flying activity other than Commercial Air Transport and the Military. ***It therefore includes business aviation.***

York Aviation is a specialist firm of air transport consultants with extensive experience of providing economic impact and policy advice to airports and government agencies, including clients in the GA and BA sectors. The need for this research has been identified by the General Aviation Challenge Panel set up by the Government at the end of 2013 as part of the drive to identify wider opportunities to support the growth of general and business aviation. The main requirements of the research are to:

- identify, as a baseline, the contribution the general and business aviation sector makes to the UK economy; and

- identify opportunities, including policy interventions, to grow the sector's contribution to the UK economy; and

- recommend measures against which the health of the sector can be monitored in future.

A key element of the research is to gather up-to-date data from companies operating in the sector and we are grateful to the British Business & General Aviation Association (BBGA) for helping us with the distribution of this questionnaire. We firmly believe that your responses will help in raising the profile of the general and business aviation sector at Government level and in highlighting issues of concern. For this reason we have allowed space for comments on any constraints or opportunities on your business that you might wish to highlight, which we can in turn highlight in our report to the Department for Transport. We realise that there are many different kinds of company in the sector and that not all the questions may be relevant in every case. However, please answer as many questions as you can. Where precise data is not readily available, we would prefer if you could provide estimates rather than no response at all.

Any information you provide will be treated in the strictest confidence and will be aggregated up in the report to the Department for Transport. NO INDIVIDUAL COMPANY'S INFORMATION WILL BE IDENTIFIED in any report and under no circumstances will there be a disclosure of any financial or other information from individual companies to any third parties.

Please return this questionnaire to BBGA by **Friday 14 November 2014.**

Your assistance is much appreciated.

Your Company

Please state the name of your company:

.....

Please indicate if your company is…. (tick all that apply):

Registered in the UK	
Registered outside the UK	
A manufacturer of aircraft or aircraft components	
A business aviation/air taxi operator	
A provider of chartered aerial work	
A Flight Training Organisation	
An Engineering or MRO company	
An Fixed Base Operator (FBO)	
A supplier to the aviation GA industry	
An airfield or heliport	
Other (please specify…)	

Does your business involve the operation/management/lease of aircraft used for general or business aviation purposes? If so, please indicate how many of each aircraft type you normally or currently operate/manage/lease?

Type	**Numberof a/c**
Single engine piston	
Multi engine piston	
Jets	
Helicopters	
Gliders	
Microlights/gyrocopters	
Airships/Balloons	
Other (please specify below)	

How many of the above aircraft are NOT registered in the UK (i.e. are not G-registered)?

Type	Number
Single engine piston	
Multi engine piston	
Jets	
Helicopters	
Gliders	
Microlights/gyrocopters	
Airships/Balloons	
Other (please specify below)	

Please add any other explanatory comments or relevant information in the box below:

Location and Employment

How many staff does your company currently (or typically) employ in activity relating wholly or mainly to general or business aviation?

Full time	
Part Time	

(Full-time is 30 or more hours a week and part time less than 30 hours per week).

If your company operates at multiple locations (including at UK airfields), please indicate the number of people employed at each location in activity relating wholly or mainly to general or business aviation (locations not in the UK can be aggregated into a single 'non-UK' line).

Location (please give name and/or postcode)	Full Time	Part Time

Financial

What is your gross sales turnover for the most recent financial year relating to general or business aviation?

.....

If your company **exports** products or services relating to general or business aviation, what is the percentage of turnover that is due to such exports?

.....

If your company **imports** products or services relating to general or business aviation, what is the percentage of turnover that is needed to recover the cost of such imports?

.....

If you operate or lease aircraft, please indicate approximately how much you spend per annum on fuel:

.....

If you operate or lease aircraft, please indicate approximately how much you spend per annum on maintenance:

.....

If you operate or lease aircraft, please indicate approximately how much you spend per annum on aircraft insurance:

.....

Constraints, Opportunities & Wider Benefits

Please indicate below any significant constraints or opportunities you think there are for your business, or on the GA and BA markets more generally, at present.

Please tell us if you think there are wider benefits to the UK economy that arise from of your operations and if possible give examples.

Thank you for helping with this research. If you have additional comments, please attach a further note or email ga@yorkaviation.co.uk

We would like to follow up this research with a few specific case studies. If you would be prepared to help with this please provide a contact name and number and email address below:

Contact name:……

Telephone no…….:.....

email address:…….. .....

APPENDIX E

TERMS OF REFERENCE (EXTRACT)

INTRODUCTION

The Department for Transport (DfT) continually strives to ensure that the evidence base underpinning policy decisions is up to date. The General Aviation Red Tape Challenge, held in Spring 2013, sought public views on opportunities to deregulate the sector, which is typically seen as being over-regulated and burdened with regulatory principles designed in accordance with the needs of commercial air transport, not GA. There is now a need to update the Government's understanding of the economic value of General Aviation.

PURPOSE

This document sets out the work requirement for research to understand the value of general aviation to the UK economy and which sectors this value derives from. It will also consider the potential for growth in these sectors, what policy interventions could do to affect this impact and what metrics would be appropriate to track the sector's performance.

BACKGROUND TO THE AUTHORITY

General Aviation (GA) is aviation that is neither military aviation nor commercial air transport. It is a diverse sector, including business jets, aerial work (e.g. aerial photography), flight training, and leisure activities (e.g. recreational light aircraft flying, hot air balloons etc). In 2006, the Civil Aviation Authority concluded that the sector contributes around £1.4billion directly to the UK economy, though major changes in the UK's economy and in the regulation of GA mean that this figure is likely out of date.

In its response to the GA Red Tape Challenge, Ministers committed not only to deregulate the sector, but to "make the UK the best country in the world for General Aviation". The sector is facing several threats, including closure of small airfields and declining levels of flight training in the UK. At the same time the sector is seen as having potential to contribute much more to the UK economy – the UK GA sector has a long history and an international reputation for high standards, and high attendance at airshows demonstrates public enthusiasm for the sector. The Government has already taken some steps to securing external policy advice on growth opportunities for GA, inviting an independent Challenge Panel to identify growth opportunities for the sector. The Panel's interim report noted that existing economic research was out of date and that there were gaps in the current data on GA. Their final report, published in May 2014, notes a lack of up to date economic research as a limiting factor in their ability to identify growth projects.

BACKGROUND TO REQUIREMENT/OVERVIEW OF REQUIREMENT

The general aviation sector consists of civil aviation activity other than commercial air transport. This encompasses a broad range of activities, from business jets, to aerial photographers, to recreational gliding.

The general aviation sector benefits the UK economy in multiple ways. The sector provides direct economic benefits, for instance through generating employment at regional airports and business links, and also indirect benefits such as those that are likely to accrue in aircraft manufacturing.

There is evidence that indirect benefits from business aviation constitute around 24% of business aviation's GVA in Europe . Furthermore, research suggests that in Europe the

business aviation sector contributes to around 164,000 jobs as well as €9bn of value through aviation aircraft manufacturing.

Previous research has been undertaken into the value of the general aviation sector. The strategic review of general aviation in the UK, carried out by the CAA in 2006, concluded that the estimate made by Terry Lober that the General Aviation sector contributed around £1.4 billion directly to the UK economy in 2005 was reasonable. On this basis general aviation would represent around 8% of the economic contribution of UK commercial aviation. Lober's findings seem to roughly correspond to the total value of the aviation industry in 1999, when a study by Oxford Economics suggested that the value of the total industry equalled around £10.4 billion. Both studies however are likely to be out of date, as the economy faced multiple recessions since 1999, and the general economic climate has shifted substantially since 2005. As such, it is deemed necessary to update the evidence base on general aviation, particularly by looking at the contribution general aviation makes to the UK economy, and identifying opportunities to grow this contribution.

SCOPE OF REQUIREMENT

The main requirements of the research are to:

- Identify, as a baseline, the contribution the general aviation sector makes to the UK economy; and
- Identify opportunities, including policy interventions, to grow general aviation's contribution to the UK economy; and
- If possible within the timeframe and budget, recommend measures against which the health of the general aviation sector can be monitored in future.

In order to understand where in the general aviation sector and its supply chain growth areas might exist, it will be necessary to update the existing evidence base on the value of general aviation to the UK economy. It is also necessary to identify which sectors this value derives from, and to examine the current planning system and development of a strategic network of airfields for business and recreational aviation purposes. Lober's study found that the business aviation sector makes up the biggest share of general aviation's contribution to the UK economy. Updated economic research might identify what proportion of the remaining contribution comes from flight training, from recreational aviation, and from the wide variety of other forms of aviation that make up general aviation, including but not limited to:

- flying displays;
- aerial agricultural work;
- aerial photography;
- medical transport;
- civil Search & Rescue and law enforcement; and
- aerial Survey

The research should also consider the potential for growth in the various sectors, and what opportunities (including policy interventions) there are to grow the contribution of general aviation to the UK economy. The research will have to take into account whether there are any structural market changes to be expected that will impact on future growth, for instance due to demographic shifts in the UK population. The research should also take into account the fact that the Airports Commission noted the need for flexibility in the system supporting business aviation and the need for Government Policy to promote the benefits of smaller

airports in London and the South East system for accommodating business and General Aviation

The economic research should furthermore look at whether GVA from the UK sector goes to UK companies or whether this goes to foreign companies. Furthermore, it should aim to identify opportunities to increase inward investment on, for instance, flight training and business aviation. This will help target opportunities to increase the contribution of general aviation to the UK economy. It would be helpful if the research could also look at regional economy impacts of inward investment and general aviation activity.

We encourage tenderers to develop their own proposals to address the requirements of the research, but it is likely that this research will follow at least in part the previous methodology used by Terry Lober, Oxford Economics and PWC. In 2008, PWC combined desk research with interviews with more than 40 representatives of the industry ranging from component manufacturers and aircraft assemblers to business aviation operators and airports. .For any survey work the successful tenderer would be expected to identify key representatives of the industry and develop an appropriate questionnaire. It is expected that the tenders reflect this requirement.

Depending on the final specification of the research, the value and benefits of the sector can be measured in multiple ways. First of all, the research could look at the number of direct and indirect jobs supported by general aviation. Secondly, it could look at GVA both directly and indirectly. Thirdly, it could look at the value general aviation provides to its users. Tenderers should consider the appropriateness of their methodology in addressing the requirement.