The Bartlett School, University College London

General Aviation Small Aerodrome Research Study

The National Pilot Survey

T Lober

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Introduction

This document is a descriptive record of the National Pilot Survey undertaken for the GASAR project. It assumes the reader is familiar with the background and objectives of GASAR. As discussed elsewhere, there has been very little research conducted concerning general aviation (GA). Consequently at the planning stage several surveys and activities were identified as possible elements of the project, including a national survey of GA pilots. It was felt a good starting point would be to canvas the perceptions of pilots, about the issues to be addressed by the GASAR project, whilst also building a picture of their general demographics and flying activities.

This process began with the first data collection task conducted for GASAR, which was a small scale postal survey of microlight flyers at Redhill aerodrome in November 2001. Its purpose was to 'pilot' the planned national pilot survey. The questions asked, and range of options used in its mainly multiple choice design, were initially tested on a small group of pilots before being sent to all 110 members of Redhill's 'Cloudbase' mircrolight club. A 45% response rate was achieved and the results were published in January 2002. Apart from establishing the basis of the national survey, the Redhill study explored several questions relating to the main study and identified, for example, the importance of location and training to the vibrancy of a local aerodrome.

During the balance of 2002 the overall GASAR objectives, methodology and plan were developed. These in turn helped to determine the data needed to support the research hypothesis and in particular adapt and refine the types of questions needed to be asked of pilots.

The objectives of the study were to;

- Provide a general demographic outline of GA pilots (age, sex, occupation, location etc.) and a related outline of their aviation based characteristics (aviation qualifications, aircraft flown, experience, type of flying, expenditure etc.).
- Develop several statistics for the proposed socio-economic model (hours flown per pilot, duration of individual flights, costs per hour etc.).
- Explore the reasons why pilots learn to fly and the route taken by professional pilots to gain their qualifications.
- Determine the factors affecting a pilot's choice of aerodrome, including the distance/time from home and the availability of alternative sites.
- Establish the importance given by pilots to key aerodrome features and the extent to which a lack of these features may impact flying behaviors.
- Verify how significant pilots felt land use planning is to the development of aerodromes.

The following will report on the survey in a classical form, describing the method, presenting the results with some discussion and finally drawing conclusions.

Method

As covered in the introduction, the questionnaire was initially developed and trialed at Redhill aerodrome. Several additional questions were added to reflect the review of the GASAR objectives, including a request by the Department of Transport to explore the qualification route taken by professional pilots. In October 2002 the questionnaire was published to approximately 4,000 pilots via "General Aviation", the house magazine of AOPA, the UK's Aircraft Owners and Pilots Association. It was supported by a full page article on the GASAR project, the issues facing aerodromes and a draw for a free headset. The format was a 4 page centre pull out, that could be folded and posted free of charge. Its design allowed for the multiple choice questions to be electronically read and a process of scanning, translation and data compiling was developed (see Appendix A). At the time the editorial advice, based on past experience, was that only a 1% response might be expected, but after a follow up article in the December issue, a total of 476 replies were received, representing a 12% return.

Although AOPA is considered to represent a broad group of aircraft owners and pilots, including glider and microlight pilots, it was apparent from the responses that most of those completing the questionnaire used private light aircraft. In an attempt to both increase the total response and broaden the profile of respondents the questionnaire was translated into a web based format and published on the GAAC internet site (www.gaac.co.uk/survey). Details of the site were then circulated to the two of the main pilot magazines (The Flyer & Pilot) and all the member groups of GAAC, including the glider and microlight associations, BGA and BMAA.

The web based questionnaire resulted in a further 243 responses, taking the combined total to 719 and marginally improving the mix of respondents. However, this was a disappointing outcome as the original survey objective was 2,000, based on a 5% response from an estimated 40,000 pilots. Although various attempts were made to increase the survey's publicity, a decision was made in mid 2003 not to expend any more time or effort improving the response rate. The decision was aided by a revision of the project methodology that placed less emphasis on the data from pilots yet still enabled the calculation of several key statistics needed for the project's economic model.

Despite the low response rate and skew towards private light aircraft users, the following descriptive analysis of pilot demographics, behaviours and attitudes still represents the most complete survey of UK general aviation pilots ever undertaken.

Results and Discussion

1) Comparing Respondents to the Target Population

The objective was to sample the overall population of General Aviation pilots. This inferred achieving a representative response from pilots of different aircraft, geographically spread across the UK, engaged in both leisure and employment based activities. Question A11 asked which types of aircraft respondents normally flew and the results are shown by the following table.

TABLE (1)

Aircraft used by Respondents	Count	Pct of Responses	Pct of Cases
Private helicopter	46	4.3	6.4
Commercial helicopter	8	.7	1.1
Executive jet	11	1.0	1.5
Commercial jet	16	1.5	2.2
Glider motorised glider	81	7.5	11.3
Paraglider hang glider	7	.6	1.0
3 axis microlight SLA	34	3.1	4.7
Flex wing microlight	23	2.1	3.2
Single engine light ac	638	59.0	88.7
Multi-engine light ac	127	11.7	17.7
Multi engine heavy ac	5	.5	.7
Airship balloon	6	.6	.8
Warbird	19	1.8	2.6
Bi-plane	43	4.0	6.0
Gyrocopter	3	.3	.4
Other type A/c used	15	1.4	2.1
Total responses	1082	100.0	150.5

When also asked what one type of aircraft they flew most frequently, the overwhelming response was single engine light aircraft, at 76%. Of the other types the next most flown were gliders, helicopters, multi-engine light aircraft and microlights each at about the 4% level. To assess how representative the results were, they were compared to the range of different aircraft types found in the UK. Table (2), shows the comparison between the survey response

and the percentage of different aircraft types (based on an initial GASAR estimate). Clearly the respondents did not fully mirror the total GA aircraft and hence pilot population.

TABLE (2) Aircraft Type	This Survey Response	No. of Aircraft *
All Conventional Aircraft	86.9	52.0
Glider	4.1	17.0
Helicopter	4.2	7.0
Microlight	4.1	24.0
	100.0%	100.0%

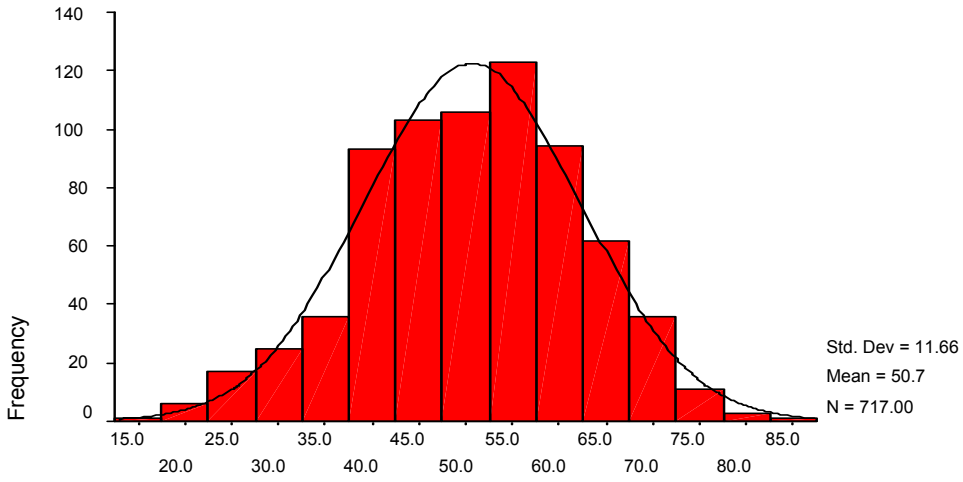
* Source: CAA published data combined with Air Britain Register of UK Gliders

Respondents were also asked if they were in full time employment as pilots. The sample contained responses from sixty nine such pilots, of whom nineteen were full time CAT (Commercial Air Transport) pilots. At this stage of the GASAR project it is not possible to say how the remaining fifty pilots, or 7% of the sample, compared with the general population of GA pilots. The CAA database suggests that 30% of licences are for professional pilots but the split between CAT and GA is not given. In one respect, at least, the sample was more representative; CAA licence data suggest that 4.8% of pilots are female and the corresponding survey figure was 3.7%.

Although it would be possible to fully analyse the geographical spread from the survey using the postcodes provided this has not yet been done. However an initial review has shown there were replies from 682 different postcode districts, with no more than three from any one district. This suggests a satisfactory 24% coverage, given there are approximately 2,900 postcode districts in the UK.

2) Respondent Age and Employment status:
As the chart below depicts, the average age of all respondents was 50.7years assisted by the help of four gentlemen over the age of 80. The average female age was 46 years. 21.7% of respondents indicated they were retired and they, not surprisingly, had a higher average age of 62.4 years, with a range from 42 to 83 years old.

Chart 1: Respondent Age

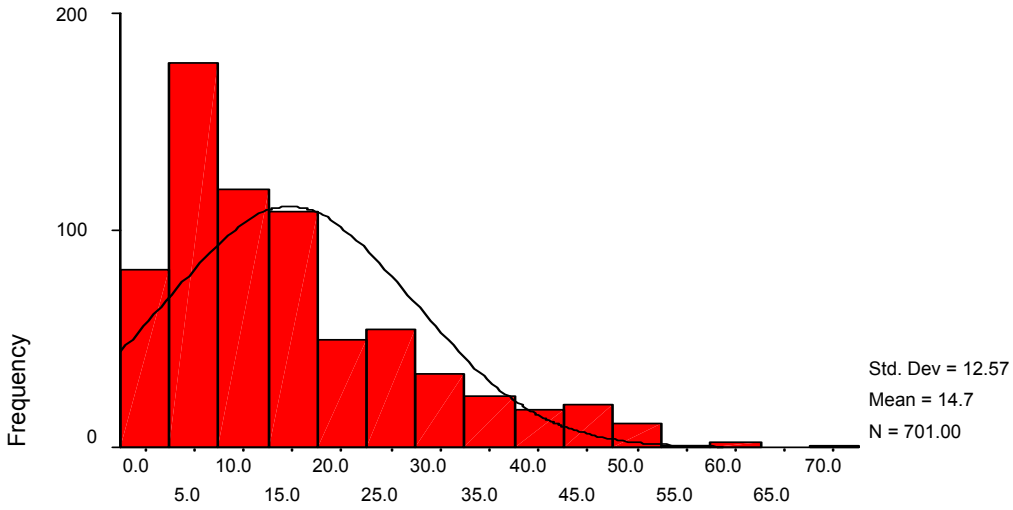


An analysis of respondent job titles, for the first 476 responses received, showed the degree that the survey population was weighted towards the higher social economic groups. Respondents were asked to give either their current title or the one prior to retirement. As Table 3 shows, 92% gave job titles in the top three employment groups.

TABLE 3 : Respondent Employment Groups	%
Managers / Senior Officials	44.1
Professional Occupations	29.7
Associate Professional / Technical Occupations	18.5
Administrative / Secretarial Occupations	2.1
Skilled Trades Occupations	3.5
Personal Service Occupations	0.3
Sales / Customer Service	0.3
Process, Plant / Machine Operatives	0.9
Elementary Occupations	0.5

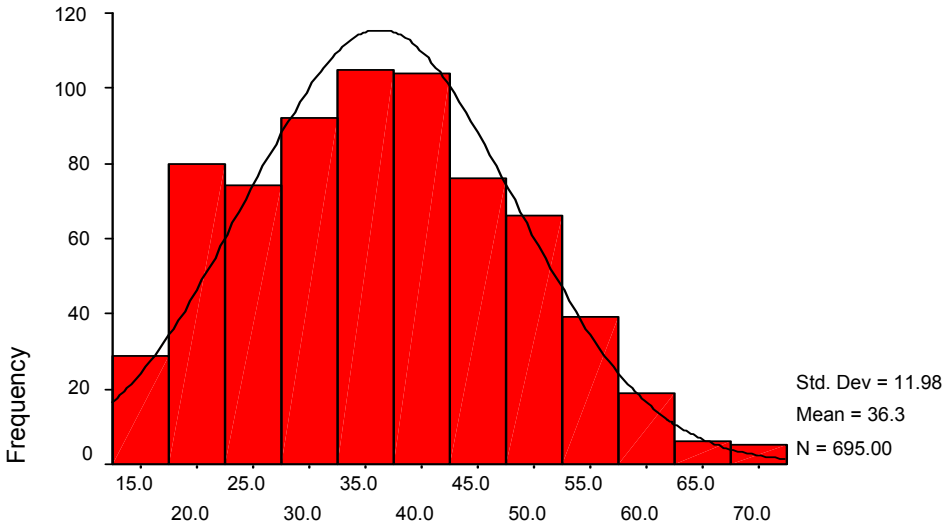
3) Number of Years Flying, Starting Age and Total Hours Flown:
On average respondents had 14.7 years experience as qualified pilots, with three gentlemen contributing over 60 years experience.

Chart 2: Years as a Pilot



Mathematically deducting experience from each pilot's age showed that on average pilots gained their qualification when 36 years old. This is shown by chart 3. The oldest pilot to qualify was 72 years old at the time.

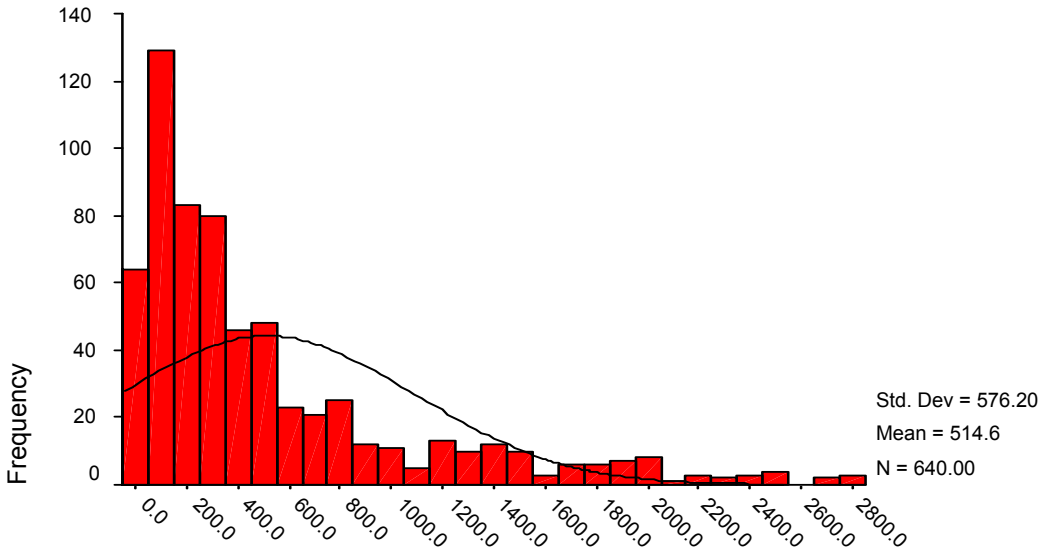
Chart 3: Age when first qualified as a Pilot (as calculated)



25% of those that were now retired said they that had learnt to fly after the age of 50, including two over the age of 65.

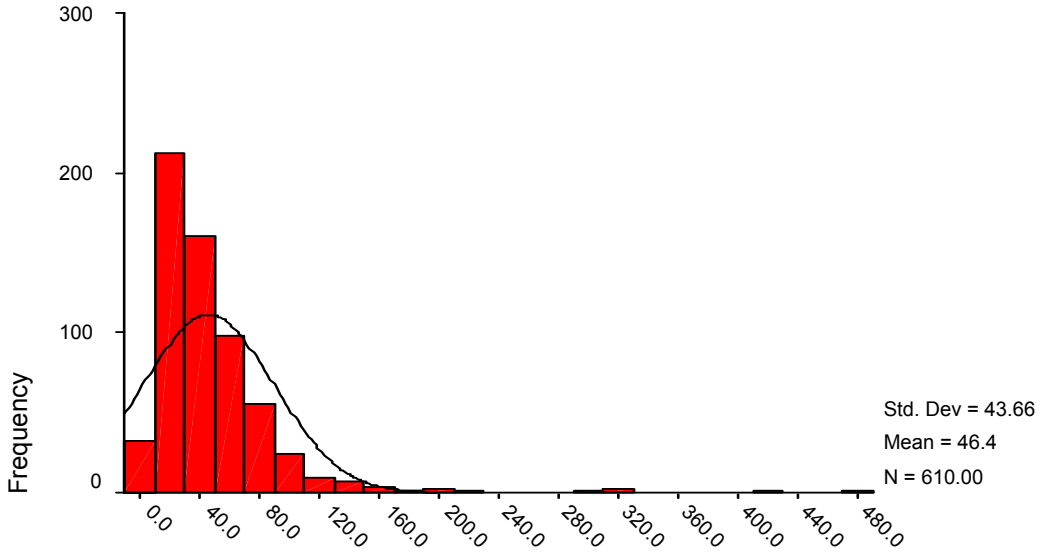
The average number of hours flown since qualifying was 1,358. However this figure cannot be said to represent most general aviation pilots as it was skewed by a minority that had been no doubt been flying civil aviation aircraft as a career. For example 30 individuals had flown more than 10,000 hours, including one with 20,000 hours to his credit. Further inspection of the data revealed that 90% of respondents have flown less than 3,000 hours. The following chart 4 shows the distribution of this group, indicating a more representative average of 514 hours since qualifying.

Chart 4: Hours flown as a Pilot since Qualifying (90% of respondents)



By dividing the number of years that individuals in this particular group had been flying, into the number of hours they have flown, it was possible to estimate their average number of hours flown per year. This is shown in Chart 5 with an average of 46.4 hours.

Chart 5: Average Hours flown per year since Qualifying (90% of respondents)



As will be discussed in Section 5, this statistic, hours flown per year, was identified as necessary for the GASAR economic model, consequently respondents where also asked the direct question “How many hours do you typically fly per year?”.

For the same group, that had flown less than 3,000 hours, the result was an average hours flown per typical year of 57.3 hours. Although this could be rationalised by suggesting pilots fly more as they get older and retire, it is indicative of the possible lack of consistency between responses, first detected in the Redhill survey and further discussed in Section 5.

4) Aviation Qualifications, Aircraft Flown and Ownership.

85.2% of the respondents said they possessed a Private Pilot Licence (PPL). The balance was composed of more or less equal shares of Commercial and Airline (CPL & APL) licences, some of whom also had PPL qualifications. Only three individuals had all three types of licence, whilst twenty six had a PPL and a commercial/airline licence. In all, this represented 28% of pilots with a commercial/airline licence that also had a PPL, suggesting that some had gained a private licence as a route to establishing a career in aviation. Table (4) provides the detail.

TABLE 4

Qualifications	Count	Pct of Responses	Pct of Cases
Single engine	621	20.6	89.6
Multi engine	177	5.9	25.5
Microlight	32	1.1	4.6
Gyrocopter	1	.0	.1
Light aircraft	548	18.2	79.1
Heavy aircraft	28	.9	4.0
Jet	34	1.1	4.9
Helicopter	39	1.3	5.6
Night rating	365	12.1	52.7
Instrument rating	272	9.0	39.2
Instructor	65	2.2	9.4
Examiner	85	2.8	12.3
Tailwheel	26	.9	3.8
Floats	192	6.4	27.7
RT licence	13	.4	1.9
Other	514	17.1	74.2
Total responses	3012	100.0	434.6

The majority of respondents could fly single engine light aircraft using instruments only. Only one was able to fly gyrocopters and only thirty two had specifically qualified to fly microlights. A significant number were able to fly float planes and approximately 10% of respondents could fly either jets or helicopters. These figures further confirm the respondents were not fully representative of most pilots in the UK as, for example, the level of those with a IMC/IR is known to be lower (12% of licence issuances, vs. 39% above).

Question A13 sought to establish the ownership of aircraft flown. Although only 61% felt able to answer this question the result suggests that, apart from those that fly aircraft provided by their employer, most pilots choose, in equal proportions to either to hire, own outright or own through group membership.

TABLE 5

Aircraft Provision	Count	Pct of Responses	Pct of Cases
Hiring	141	29.4	31.8
Provided by employer	51	10.6	11.5
Thro Co-ownership	144	30.1	32.5
Sole Owner	122	25.5	27.5
Other means	21	4.4	4.7
Total responses	479	100.0	108.1

Question A13 also asked, for those that hired, how much it cost and for those in a group, how many members were there. For powered flight, the average hire cost per hour (WET) was £105 and the average group size was 6.8 members.

Those that were registered owners of aircraft were also asked to indicate their aircraft's value. One aircraft was said to be worth £1.5 million and another £50 million! Six others were grouped in the range £400k to £1000k.To calculate a more representative average value these eight were excluded, with the result that the average cost of the remaining 350 aircraft in the sample was £50,000. 80% of aircraft were included within this figure, the most frequently selected option in the question being between £20,000 and £40,000.

5) Flight Duration Estimates

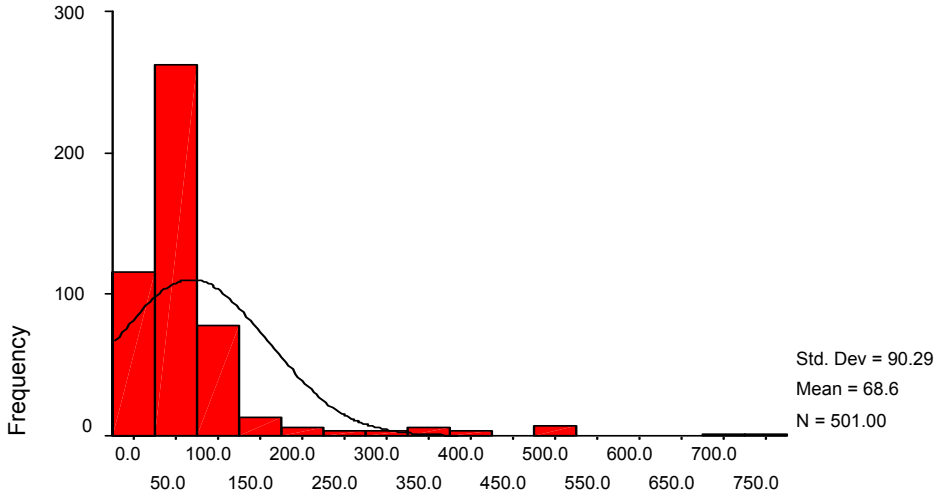
A core objective of the survey was to establish estimates for the average duration of powered GA flights, by aircraft type, as a necessary input into the economic model. It is planned that the total hours flown by GA aircraft on the CAA register will be divided by the average flight duration, for different aircraft types, in order to estimate the total number of powered GA aircraft movements in the UK. In view of its critical role in the Economic Model, the questionnaire was designed to estimate the statistic from two directions:

- Estimate A - to be calculated from the answers to Questions A5 & A7 (how many hours are typically flown per annum and the corresponding number of log book entries recorded).
- Estimate B - a calculation based on Question 12, which set out to sample data regarding the respondent's last five flights (of the most frequently used aircraft type).

The Redhill pilot survey had shown that pilots perceptions of how much they flew did not necessarily match reality (when pilot data was compared to aircraft logbooks). So the questionnaire was designed to enable a cross check of responses using these two different estimates. Inconsistent responses and unreliable respondents could then be filtered out.

A respondent was considered inconsistent if Estimate B exceeded 85% of Estimate A. Cases where the consistency could not be checked, because one set was incomplete or missing, were also filtered out of the calculations. During this process it was noticed that a number of respondents may have assumed a flight to include the return trip. Apart from misunderstandings about return trips there were other inconsistencies, for example one respondent said he flew 40 hours a year involving 100 trips - then provided trip examples exceeding 7 hours duration.

Chart 6: Typical number of Hours flown per year



For both estimates responses from Commercial Air transport pilots were filtered out by deselecting all those employed as CAT pilots and/or piloting flights with more than 15 passengers. The combined effect of the filtering was to reduce the number of cases by 27%. Although a significant reduction in sample size it was felt this greatly improved the reliability of the results. Consequently the following charts provide the results for Questions A5, A7 and A12 based on the remaining 73%. Charts 6 & 7 show that some individuals flew in excess of 700 hours in a typical year and others, not necessarily the same individuals, flew 1000 flights each year. In almost all cases these high activity individuals were earning a living from GA.

Chart 7: Typical Number of Log Book Entries (Flights) per annum

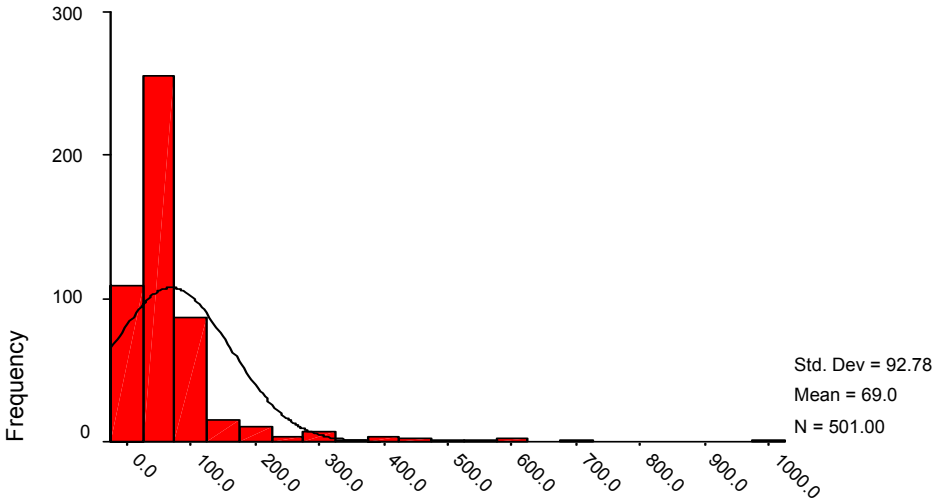
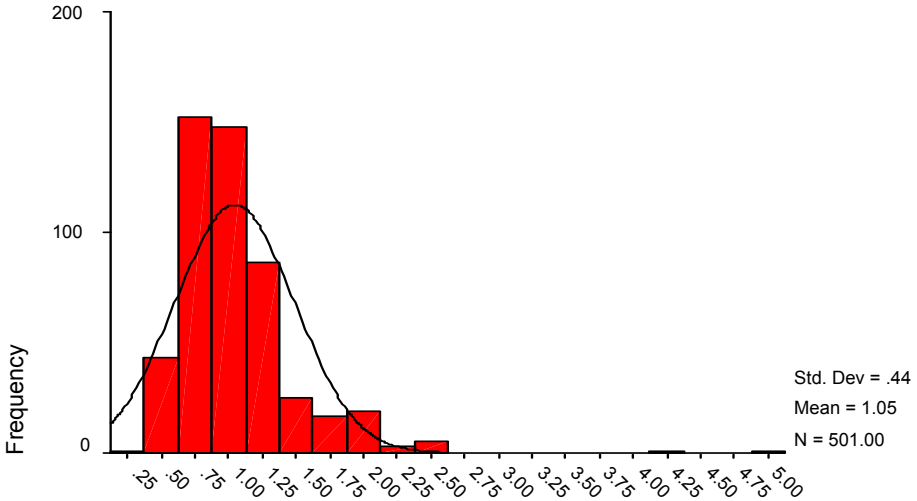


Chart 8 was calculated by dividing the number of hours flown by the number of flights recorded for each respondent. As can be seen the average flight duration, Estimate A, as based on Questions A5 & A7 is 1.05 hours, a figure not significantly different from 1.09 hours which could be obtained by including the inconsistent cases (but still excluding CAT pilots).

Chart 8: Calculated Average Flight Duration from Typical year data



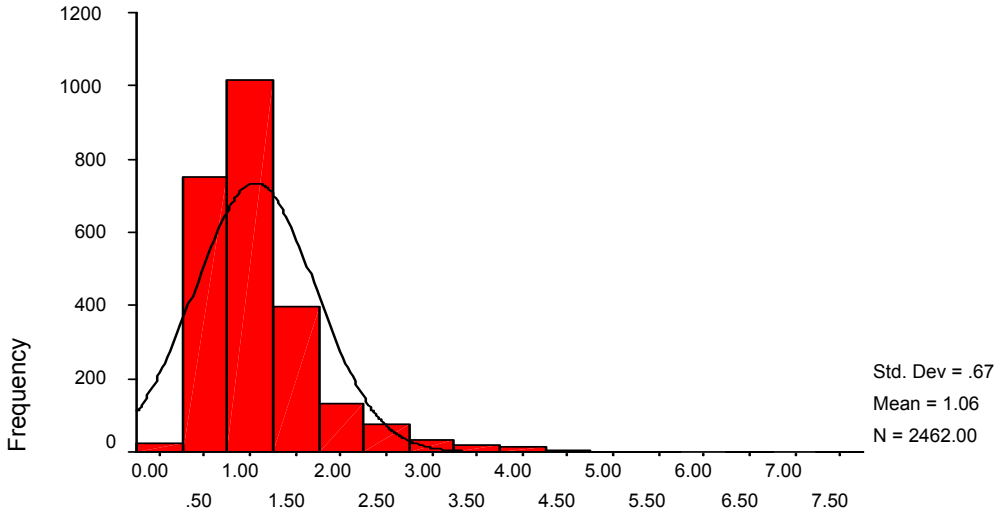
Due to the relative sample sizes, deselecting glider pilots and those employed as GA pilots did not significantly impact this statistic. However separate calculations showed the glider pilot only ratio was, as might be expected, higher at 1.96 hours, although the ratio for employed GA pilots, despite being based on 50% more hours flown per year, equated to 1.03 hrs.

A conclusion reached at this stage, using Questions A5 & A7, was that the average flight duration of just over one hour appeared to fit most GA groups with the exception of glider pilots where the average was nearer two hours.

The next stage was to calculate the same hours per flight statistic using an alternative approach. Question A12 asked respondents to use their logbooks to provide a sample of the last five flights made in the aircraft type they flew most often.

Chart 9 below shows the results, excluding gliders and CAT pilot, for a total of 2,465 flights. The average flight duration was again centred a round one hour figure at 1.06 hours. It is worth highlighting that the range of results reflects the true range of flight times, from 3 minutes to 7¼ hours, unlike the range indicated in the Chart 8 which shows the range of average flight times.

Chart 9: Calculated Average Flight Duration from Typical year data



Results by aircraft type, including gliders, are detailed below in Table 6. The intention is to refine these statistics, particularly for the less represented aircraft types, during the case study phase prior to using the data for economic modelling.

TABLE 6 Flight Duration by type	Hrs/ flight	No. of flights
Private Helicopter	0.75	95
Gliders	2.10	61
3 Axis Microlight	0.85	41
Flex-wing Microlight	1.24	85
Single Engine Light Aircraft	1.06	2003
Multi Engine Light Aircraft	1.32	95
Multi Engine Heavy Aircraft	1.54	25
All others	0.85	88

6) Type and Nature of Flights Sampled

Using the same filtering criteria as for flight duration, other trip statistics were calculated from Question 12 and its sister Question C1. Of the 2,539 flights involved 99% of them carried four or less persons on board. The average was 1.9 persons with a natural minimum of one. Indeed a third of trips had only the pilot on board and a half had just one passenger. Fewer than 9% had three persons on board and less than 5%, four persons. Again glider pilots did not conform to these norms, as three quarters of their flights were solo and the maximum number was understandably two.

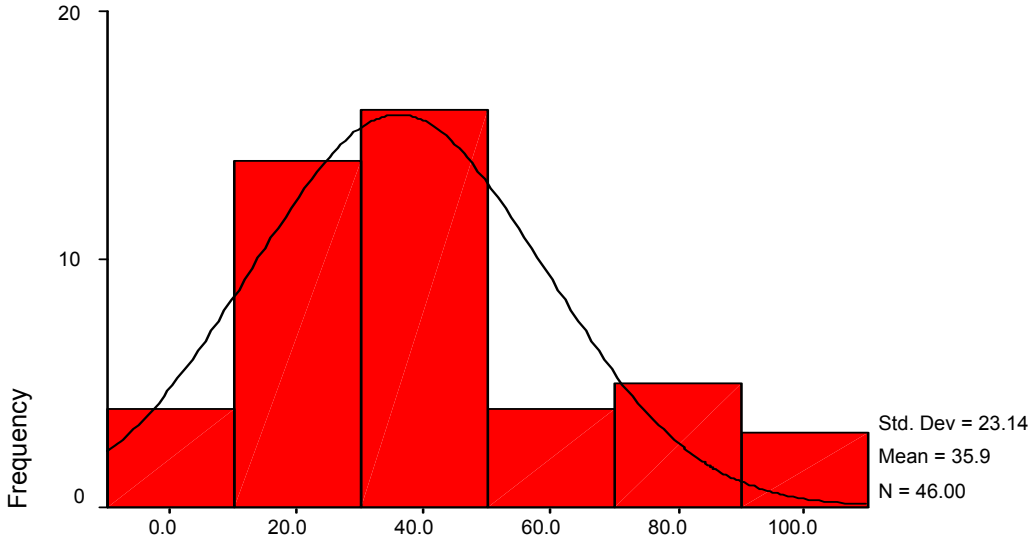
Just over 9% of flights analysed resulted in the pilot staying away from home. Half of these flights were for only one night but some extended beyond two weeks. The average number of nights away, when taken, was 2.4 nights. Perhaps not surprisingly 43% of flights involving staying away were spent outside of the UK. Indeed 16% of flights in the sample involved trips beyond the UK. Of these, a third involved taking off from the UK and landing abroad, a third applied to the return flight, and a third described flights both taking off and landing abroad.

14% of the GA flights were work related, although not necessarily GA work. Further inspection of the overseas flights revealed that 37% of the flights, to and from the UK, were work related. In other words, over 3% of the GA flights analysed involved work overseas.

A surprising 51% of all flights took off and landed back at the same site. This statistic was not influenced by the number of gliders in the sample even though returning to the same airfield might be more normal for gliders. Given the average number of log book entries per year is just under seventy, this means that thirty five would on average involve landing away. Although not all trips would involve just one outbound and one inbound flight or be to different locations, mathematically at least this would suggest the average pilot could visit seventeen other locations.

Whether taking off or landing, approximately 90% of flights were from either an “Airport” or an “Airfield”. Only about 5% involved a “Private Strip” and equally 5% an “Other” site. Less than 0.5% involved a “Heliport” due to the relatively small percentage of helicopters in the sample and the relative scarcity of such sites.

Chart 10: Income from General Aviation Employment



7) Professional Pilots Income, Types of Work and Career Path.

Of the 719 respondents sixty nine said they were in full time employment and that being a pilot was an essential part of their job. Of these sixty nine, nineteen also said their main occupation was flying Commercial Air Transport, leaving fifty (6.9%) employed full time in General Aviation. The average age of this group was 48.2 years old, only 2.5 years younger than the average respondent.

Chart 10 shows the histogram of income from these General Aviation occupations. Four individuals decided not to indicate their earnings and three indicated their income was in access of £80,000 but did not specify a figure so were counted as earning £90,000. Consequently based on this limited sample of 46 cases the average earnings for those employed in General Aviation was calculated to be just under £36,000. In contrast the average income from the

seventeen employed in Commercial Air Transport (and also prepared to supply salary information) was £62,900, nearly 75% higher.

Respondents employed in General Aviation were asked about the type of work they did. The following table shows 51% worked, at least part of the time, as instructors and/or examiners, whilst 17% did air taxi or executive flying, 14% were involved in aircraft testing and 7% in survey work. When asked what type of flying they did the most, the answer for nearly 60% of respondents, was *instructing*.

TABLE 7

Types of GA employment	Count	Pct of Responses	Pct of Cases
Inspection survey	4	6.8	11.4
Aircraft testing	8	13.6	22.9
Instructing	22	37.3	62.9
Examining	11	18.6	31.4
Air taxi	3	5.1	8.6
Executive flying	7	11.9	20.0
Other	4	6.8	11.4
Total responses	59	100.0	168.6

At the request of the Department for Transport, two questions were included to probe how those employed in either CAT or GA became pilots. The first asked which route respondents took to becoming professional pilots. Of the 51 pilots giving a valid response, 32% first decided on an aviation career then learnt to fly. But the balance, a clear 68%, said they had started flying for pleasure then decided to become a professional. Flying for leisure was clearly linked to work as only six pilots in this section said they did not fly for leisure.

The second question asked how respondents gained their qualifications. 18% had learnt via the armed forces, 6% had been employer sponsored, 4% were self sponsored but the majority 69% had chosen the self improver route. Not surprisingly, most of those that had first decided a career in aviation had learnt to fly in the armed forces. Equally, most of those that started flying for pleasure went on to either self sponsor or improve themselves.

8) Reasons for Flying, Types & Cost of Leisure Flying

In addition to the specific questions for professional pilots, Question B2 asked all respondents to identify reasons why they originally learnt to fly, as summarised by Table 8.

TABLE 8

Reason Why Learnt to Fly	Count	Pct of Responses	Pct of Cases
Worked in aviation	60	3.5	8.5
Lived near aerodrome	134	7.7	18.9
Joined air cadets	105	6.1	14.8
To get from A to B	115	6.6	16.2
Interested when young	594	34.3	83.8
Joined the services	71	4.1	10.0
Retirement interest	52	3.0	7.3
To become a professional pilot	89	5.1	12.6
Wanted excitement etc.	246	14.2	34.7
Learnt to fly with friend	132	7.6	18.6
Given air experience ticket	86	5.0	12.1
Another reason	49	2.8	6.9
Total responses	1733	100.0	244.4

As can be seen the most frequently cited reason was that respondents were *Interested when young*. When also asked to highlight the main reason, 58% of respondents gave the same clear

answer. All other reasons were far less significant, with *Wanted excitement* at 9% and *To become a professional pilot* and *To get from A to B* both just under 5%.

Respondents were then asked to select the type of flying they did for leisure, as shown in Table 9. The types of flying listed were not mutually exclusive; since a day trip could involve visiting another aerodrome and training others may well include flying near the base aerodrome. It can be seen that the most popular activities were flying out for a day or more to visit both UK and non UK aerodromes. More structured activities like *Air Racing*, *Aerobatics* and *Precision Flyi*ng were far less common.

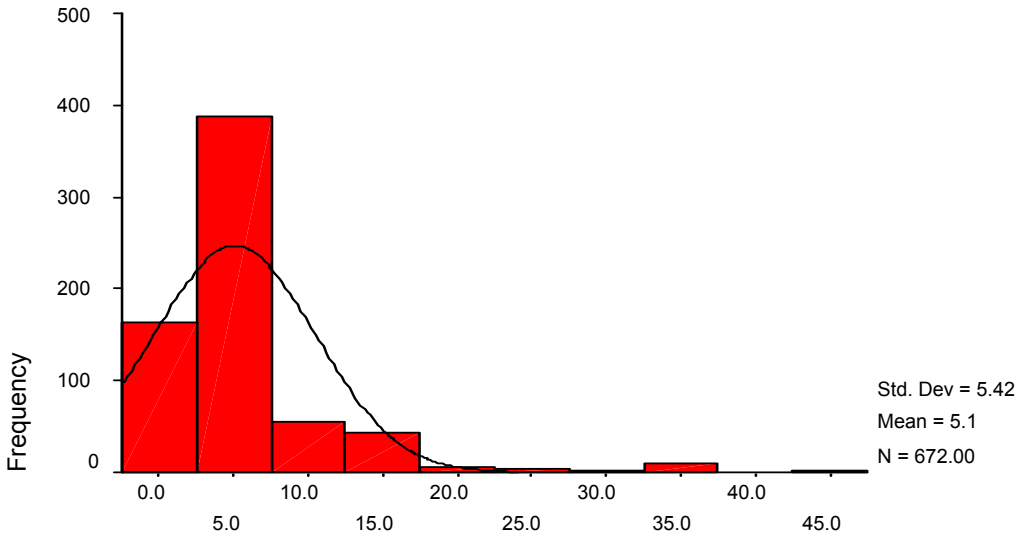
TABLE 9

Types of Leisure Flying Undertaken	Count	Pct of Responses	Pct of Cases
Flying near base aerodrome	549	16.4	78.7
Learn new skills	320	9.6	45.8
Rallies fly ins	288	8.6	41.3
Precision flying	39	1.2	5.6
Day trips	584	17.5	83.7
More than one day trips	375	11.2	53.7
Visit UK aerodromes	549	16.4	78.7
Visit non UK aerodromes	395	11.8	56.6
Aerobatics formation	105	3.1	15.0
Training others	77	2.3	11.0
Air racing	19	.6	2.7
Other	39	1.2	5.6
Total responses	3339	100.0	478.4

When asked which activity they did the most, *Flying near the base aerodrome*, taking *Day trips* and *Visiting UK aerodromes* were by far the most frequently cited options, accounting for 65% of responses.

Question B12 asked respondents to indicate the approximate cost of their flying each year. The overall average was £5,400 per year, but included in this calculation were three individuals that said their flying cost them at least £80,000. Not surprisingly they also owned aircraft valued in millions.

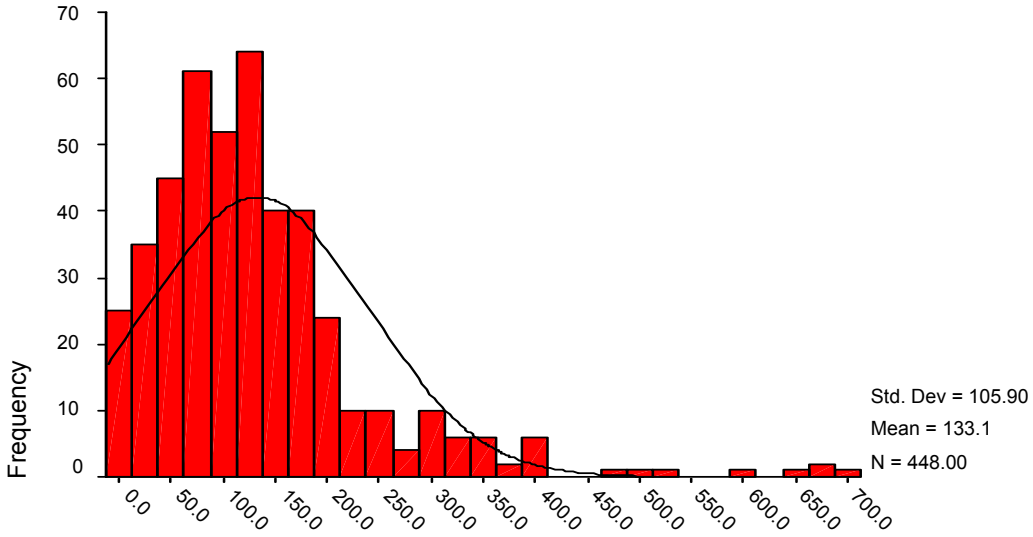
Chart 11: Respondent Estimates of the Cost of Leisure Flying per Year (three £80k cases excluded)



For a more representative figure, Chart 11 excludes these three individuals and so provides a slightly reduced average of £5,100 per year. It is worth noting that included in this figure were twenty eight glider and twenty nine microlight pilots. If calculated separately their costs were £2,400 and £3,100 per year respectively (further work will be undertaken to refine annual costs of flying in the belief people are not always very clear about their costs – whether it is how much they spend on clothing or cars or hobbies).

By dividing the estimated annual cost by the typical hours flown per year it was also possible to estimate the average hourly cost of flying, as illustrated in Chart 12 below.

Chart 12: Estimated Average Cost per Leisure hour.



Using this method, the average cost of leisure flying, when equated to the typical hours flown per year was calculated to be £133 per hour. A similar calculation revealed that the twenty nine glider pilots averaged an hourly cost of £77, a figure perhaps higher than expected. All these cost statistics should be seen as a guide and will need to be further developed during the case study phase.

9) Aerodrome Location & Activity/Expenditure when visiting

In this section CAT pilots were excluded, just in case their responses reflected the situation at either the London terminals or airports overseas. Of the remaining respondents, 92% said they normally set off from their base (i.e. local) aerodrome. The average distance, from where they lived to their base aerodrome, was just over eighteen miles and travelling to it would take just under thirty minutes. 95% lived within fifty miles (or an hour's drive) and only two respondents lived over hundred miles away. These results were very similar to the results of the Redhill pilot survey that showed that the proximity of an aerodrome is a key factor in the level of its use.

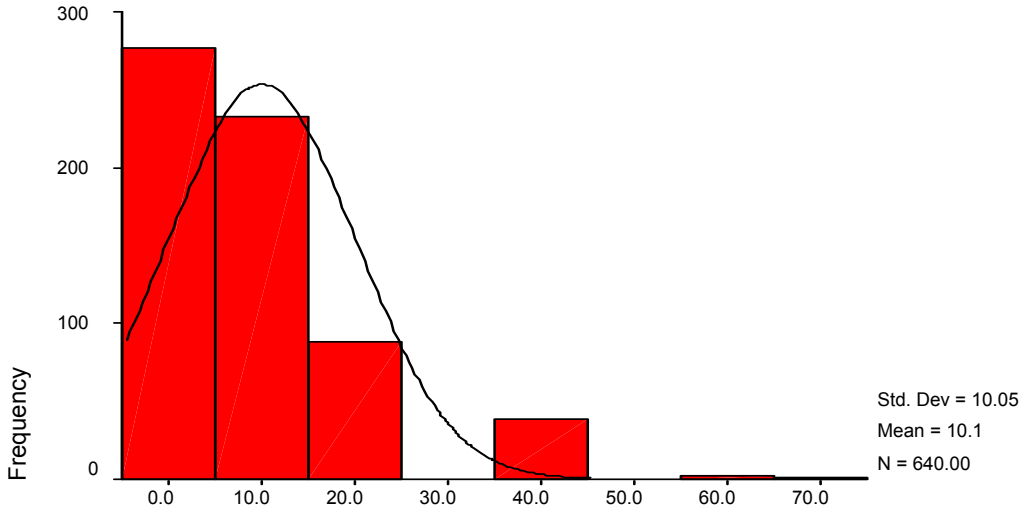
It could be assumed that the use of an aerodrome would also be influenced by the proximity of other similar airfields. A relatively high number of respondents (42%) said there was no other similar facility within the same reach of their home. However a similar number had the choice of one to three other aerodromes and the balance had a range up to as many as thirty!

Those that actually owned an aircraft (and for whom hangarage may have been an issue) were less likely to use a nearby aerodrome. 25% said they did not use a nearby aerodrome and of these, a half were prepared to travel ten miles more than the average distance for those using their local aerodrome.

When considering the use of other aerodromes a significant 17% of respondents said they only ever used their base aerodrome. This statistic was not influenced by glider users who might otherwise have been expected to use just one site. Chart 13 shows that the average number of

different sites used (including the base aerodrome) was ten. Of the total number of respondents, 80% used less than thirteen sites and four individuals used from 40 to 70.

Chart 13: Number of Different Aerodromes typically used each year.



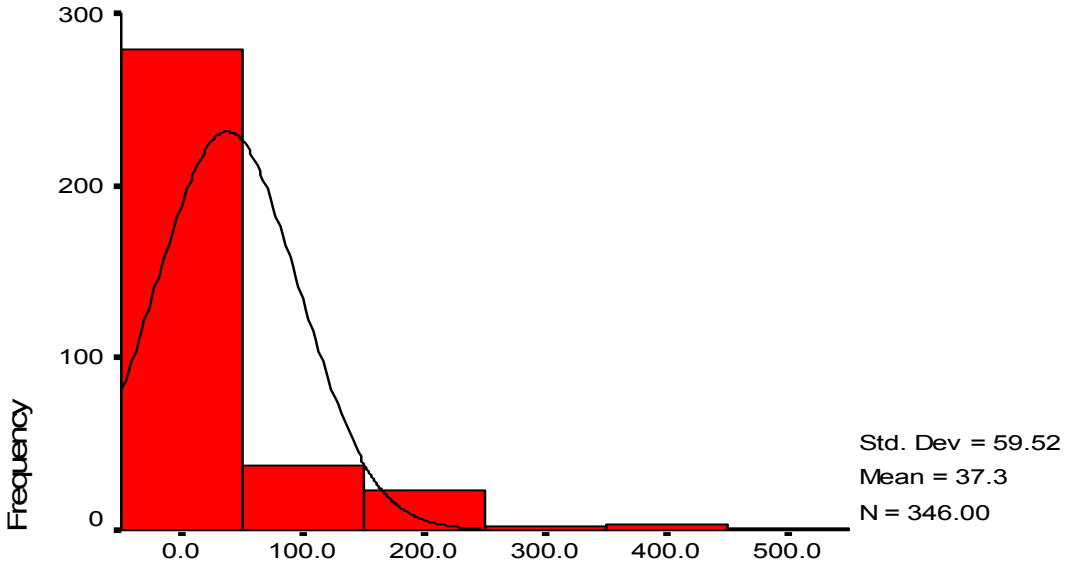
When visiting aerodromes respondents said they engaged in a variety of different activities. Excluding the essential ones of refuelling and paying landing fees, these were identified as in Table10. The most likely activities were to *have a meal or snack*, have a *look around the aerodrome* or *visit the local area*. Nearly 9% either *visited for business* or *waited for others to do their job*. 12% visited for some form of *organised event*. Only 8% simply *booked-in and then departed* - the type of visit least likely to bring any expenditure into the local area.

Table 10

Activity when visiting ADs	Count	Pct of Responses	Pct of Cases
Attend organised events	293	12.5	43.5
Visit for business	169	7.2	25.1
Wait while others do job	37	1.6	5.5
Visit local area	362	15.4	53.8
Have meal	572	24.4	85.0
Book-in & depart	190	8.1	28.2
Stay nearby	211	9.0	31.4
Look around	463	19.7	68.8
Other activity	51	2.2	7.6
Total responses	2348	100.0	348.9

When asked how much they spent on visiting an aerodrome (excluding landing fees and fuel), the average equated to £43. One individual claimed he would spend £2,000 and if not deselected would have somewhat distorted the following Chart 14, which shows a lower estimated average of £37.

Chart 14: Average Spend on Visiting an Aerodrome



Apart from this one individual, thirty others said they spent £150 or more. Not surprisingly those providing the higher levels of expenditure were more likely to be on business and staying in the local area. Unfortunately this question was only answered by half of the respondents, leaving a suspicion that the balance felt unwilling to say how little they actually spent - perhaps they just looked around before departing. If those that did not answer were assumed to spend nothing, a worst case scenario, the average spend would be £20 per visit.

10) Aerodrome Facilities & Impacts

Respondents were asked to select features and facilities of aerodromes were most important to them. Table 11 lists the results:

TABLE 11

Important Facilities	Count	Pct of Responses	Pct of Cases
Snack bar	213	9.3	33.8
Clean toilets	132	5.8	21.0
Available aircraft	79	3.4	12.5
Hard runways	148	6.4	23.5
Emergency service	24	1.0	3.8
Friendly and helpful staff	133	5.8	21.1
Available hangers	163	7.1	25.9
Taxi	66	2.9	10.5
Accommodation	77	3.4	12.2
Overnight car parking	103	4.5	16.3
Ground to air communication	57	2.5	9.0
Multiple runways	205	8.9	32.5
Training school	24	1.0	3.8
Active social club	135	5.9	21.4
Fuel pump	100	4.4	15.9
Maintenance	74	3.2	11.7
Overnight aircraft parking	56	2.4	8.9
Simple joining procedure	80	3.5	12.7
Extended operating hours	222	9.7	35.2
Good grass landing area	108	4.7	17.1
Other facility	71	3.1	11.3
No extra facilities	25	1.1	4.0
Total responses	2295	100.0	364.3

Whilst no feature stood out, the most frequently highlighted were *extended operating hours*, a *snack bar / restaurant* and *multiple runway directions*. Only 1% felt extra facilities were not needed. The same percentage felt an emergency service was well down on the priority list. The need for *taxis*, *Ground to Air communication* and *overnight aircraft parking* faired hardly any better, whilst in the middle ground *clean toilets*, *hard runways*, *friendly staff*, *available hangars* and an *active social club* were seen as reasonably important. When asked to choose one feature that would most improve their base aerodrome, the answers were a little clearer. *Extended operating hours* (11.3%), *hard runways* (10.6%) and *multiple runways* (10.1%) topped the list. *Available hangars* (7.3%) and a *Snack bar / restaurant* (7.1%) were next.

Respondents were asked what difference it would make to their flying if they could have the features that would most improve their aerodrome. A half said it would make no real difference to the number of hours they would fly, whilst conversely 20% said it would increase their flying by more than 50%. Overall the average increase suggested was estimated to be just below 20%. Respondents were also asked why they thought their base aerodrome did not have the features that would improve it. The results are given in Table 12.

TABLE 12

Reasons for Missing feature	Count	Pct of Responses	Pct of Cases
Not enough demand	136	13.2	24.7
Poor management	104	0.1	18.9
Too expensive	278	27.0	50.5
Locals would object	171	16.6	31.0
Staff shortages	45	4.4	8.2
Don't know	48	4.7	8.7
Local authority would refuse	170	16.5	30.9
Other reason	78	7.6	14.2
Total responses	1030	100.0	186.9

The most likely reason was the feature was "Too expensive", perhaps understandably if a respondent had selected *hard runways*. Cross tabulating the results showed this to be more or less the case - "Too expensive" was most frequently associated with *hard runways*, *multiple runways*, *available hangers*, *extended operating hours* and *snack bar / restaurant*. The second most likely reason was "Locals would object" and this was mainly focussed upon *extended operating hours*. In contrast the close third reason "Local Authority would refuse" was most associated with *hard runways* and to a lesser extent *extended operating hours*.

Table 13 shows the response when pilots were asked what they would do if their base aerodrome no longer existed. 11% selected either the *Stop flying altogether* or the *Only fly when abroad* options, but most chose an option to fly from another location.

TABLE 13

Aerodrome no longer existed	Count	Pct of Responses	Pct of Cases
Stop flying altogether	125	7.9	18.4
Only fly when abroad	45	2.8	6.6
Move home & live near to another AD	75	4.7	11.0
Change flying habits / aircraft category	144	9.1	21.2
Use nearby AD with similar facilities	377	23.7	55.5
Use nearby AD with fewer features	345	21.7	50.8
Travel to a more distant AD	451	28.4	66.4
Other option	26	1.6	3.8
Total responses	1588	100.0	233.9

Cross tabulation of these responses against Question A10, that asked how many similar aerodromes were near the respondent's home, revealed the general logic behind the responses. Two thirds of those that *would stop flying*, *fly abroad* or *move home* had no nearby

aerodrome, whilst those that had several nearby aerodromes logically selected the easier options. If they had selected an option that involved relocating to another aerodrome, respondents where then asked to say how much this might affect their flying. 25% felt it would not change the number of hours they flew, whilst 45% felt it would reduce their hours by more than 25% a year. The overall average reduction in hours was estimated to be about 35%.

The final question in the survey sought to find the percentage of pilots that had actually been involved in defending the activities of an aerodrome. A significant 26% of pilots in the survey said they had, lending support to the belief that over time the activities of many aerodromes need defending.

Conclusion

The survey received 719 responses from a wide range of pilots engaged in General Aviation; however, it did not achieve a proportionate mix of all types of pilot. At least four times as many glider and six times as many microlight pilots would have been needed to provide a balanced sample relative to aircraft types. Also, apart from instructors, few professional General Aviation pilots responded. Instead the average respondents were mainly middle aged, professional men that have been flying single engine light aircraft for more than the last decade as a leisure activity. Even so the survey achieved its objective of providing a detailed insight to the demographics, behaviours and attitudes of the pilots surveyed.

Details of respondent's age, sex, occupation and location were obtained along with the type of aircraft, means of ownership and the type of flying undertaken. It also provided the first estimates of several key statistics; including the average expenditure by recreational pilots, the number of members in the average group share, the average annual hours flown by GA pilots, the average duration of GA flights, the percentage of trips abroad, the number of nights away, the number of different aerodromes visited by recreational pilots each year and the average number of passengers involved.

It was found (or perhaps confirmed) that people become pilots because they had been interested in flying when young. Interestingly, most did not learn to fly until middle age, lending support to the idea that flying is a relatively expensive pastime, and affordable only to those with the increased disposable income that the passing years can bring. It was also found that most pilots lived near a suitable aerodrome, suggesting accessibility was also a factor that could influence the decision to take up flying, either as a hobby or a career. The questionnaire after all was not sent to those that might have liked to learn but had no local facility.

Unfortunately the survey failed to attract enough professional pilots to statistically confirm the route by which commercial pilots gain their qualifications. The small number that did respond, however, showed that a third started flying for pleasure then decided to make it a career. Most of these chose the self improver route; a clear indication, if not proof, that GA was for many professional pilots both the starting point and the means of gaining their experience and qualifications. Since this question seems to be critical to the part played by GA in supporting the CAT industry, it deserves to be asked again; only next time it should be directed at a purely professional pilot population.

A useful picture was gained about the activities of GA pilots. The survey confirmed the Redhill finding, albeit with a lower figure of 51%, that many recreational pilots simply take off and land back at their base aerodrome. More research is required into this statistic since it potentially challenges the argument for maintaining a network of suitable, interconnected sites. For those that ventured to other aerodromes, the most likely activities after landing, apart from refueling and paying landing fees, were to have a meal or snack, take a look around or visit the local area. Others visited for business reasons or attended some organized event and some stayed overnight, with the result that the typical average expenditure when visiting was estimated to be less than £37, again excluding fuel and landing fees. From an economic point of view the key

point is that flights involving a land away both spread expenditure to other sites and target it on other GA businesses. A local excursion mainly spends money of fuel and brings half the aerodrome activity of a two way return trip.

Respondents were also asked about aerodrome facilities. The most important ones were *extended operating hours*, *hard runways*, *multiple runway directions, available hangars* and the existence of a *snack bar / restaurant*. Generally these features were not available at all base aerodromes. Respondents where asked what difference it would make if the key facilities they had identified where available. Pilots felt they would fly more often and a figure of +20% was calculated. When asked why their local aerodrome might lack such facilities the most common reason given was that it was too expensive. This was followed by objections from residents and local planners. These responses are rational from a pilot's point of view but may not reflect the reality experienced by aerodrome operators; a point that will be covered during the planned case study exercises. Despite this, they do highlight the significance given to planning authorities and local residents regarding the control of aerodromes. This recognition may have been gained through the fact that over a quarter of pilots said they had at some stage been involved in defending the activities of an aerodrome. Whilst it can not be said that a quarter of aerodromes have therefore been under threat, this latter statistic does suggest that it is not an uncommon situation.

Respondents were asked to consider the impact of the hypothetical closure of their base aerodrome. Most felt they would fly from another aerodrome, only 10% said they would stop flying in the UK and 45% felt it would reduce the number of hours they flew by more than a 25%. By relating these responses to the actual hours flown, it was estimated the net effect on flying hours would be a decrease of 35%. Whilst this response could be taken to reflect what they believe the researcher wants to hear, the other statistics in this report lend credence to the significance of an aerodrome closure.

Clearly location, as with any property is critical. An aerodrome draws its custom from the surrounding districts and its accessibility to potential as well as existing pilots has been shown to be a key aspect of where and why people fly. It would seem logical that if traveling time to an aerodrome is increased, there would be less motivation to fly and so less occasions when a flight is made. Indeed, 42% of all respondents said there was no similar site within the same reach of their home as their current base aerodrome, so for a significant percentage of pilots a closure inherently means greater traveling time. It has also been shown that aerodrome facilities are important to the choice of aerodrome, so even if increased travel times were accepted, moving to an alternative site with less facilities (or more facilities but with increased costs) may not be an option for many.

Arguably this survey has taken a major step towards fulfilling the main GASAR objective "*To significantly increase the body of knowledge about General Aviation in the UK…..*"; even though respondents were regrettably not fully representative of all GA pilots in the UK. Like much exploratory research it raises as many questions as it answers, clearly signaling the scale of the task ahead - to further refine our understanding and to develop a cohesive model of GA activity within the UK.

Appendix A : The National Pilot Questionnaire

PILOT QUESTIONNAIRE

- The questions are intended for qualified pilots living in the UK.
- You will need to refer to your pilot log book(s).
- Use a black ballpoint pen and write clearly using capitals as necessary.
- Multiple choice questions should be answered with a diagonal line ☑ as indicated.
- Personal data will be used for research purposes only and on a strictly confidential basis.
- The term 'aerodrome' is used to describe any type of formal flying site.

Section (A)—Basic data about you and your flying

A1. Age: ☐ yrs.

A2. Sex: Male ☐ Female ☐

A3. Years as a qualified pilot: ☐ .....if less than 12 months indicate here ☐

A4. Total number of hours flown as Pilot in Command (do not include P2, P1/S & Pu/t): P.1 ☐ Hrs.

A5. Typical number of hours flown each year as Pilot in Command: P.1 ☐ Hrs./Year

A6. If an essential part of your employment is being a pilot, how many work related hours did you include when answering question A5? P.1 ☐ Hrs./Year

A7. How many flight entries do you typically record in your log book each year? ☐

A8. Home postcode (omit the last two letters if concerned about anonymity): ☐☐☐☐☐☐☐☐

A9. How far away from your home is the aerodrome you use most often? ☐ miles ☐ minutes

A10. How many similar aerodromes are approximately within the same reach of where you live? ☐

A11. Categories of aircraft you normally pilot (draw a diagonal line ☑ against each option that applies) :

☐ Private helicopter	☐ Glider/motor glider	☐ Single-engine light a/c	☐ Warbird
☐ Commercial helicopter	☐ Paraglider/hang-glider	☐ Multi-engine light a/c	☐ Biplane
☐ Executive Jet	☐ three-axis microlight	☐ Multi-engine heavy a/c	☐ Gyrocopter
☐ Commercial Jet	☐ Flexwing microlight	☐ Airship/balloon	☐ Other (specify).....

Now make a cross ☒ to highlight the <u>one</u> aircraft category you pilot most often.

A12. Using your logbook, summarise your last 5 trips for the aircraft category highlighted with a cross in question A11.

	Recorded Duration Hrs / Mins.	Persons on Board.	Did you stay away from home? Yes	No	If Yes, for how many nights?
1)	☐☐	☐	☐	☐	☐
2)	☐☐	☐	☐	☐	☐
3)	☐☐	☐	☐	☐	☐
4)	☐☐	☐	☐	☐	☐
5)	☐☐	☐	☐	☐	☐

A13. How is the aircraft category highlighted in question *<u>A11</u>* provided?

- ☐ By hiring, as needed .....If so, how much do you normally pay per hour (wet)? £ ☐
- ☐ Through the organisation you work for.
- ☐ As part of a co-ownership group .....If so, how many are there in the group? ☐
- ☐ You are the sole owner.
- ☐ Other (specify) .....

Are you listed in the CAA Aircraft register as an owner for such an aircraft? Yes ☐ No ☐

<u>if **No**, go directly to Section B</u>.....

A14. Approximate market value of the registered aircraft:

☐ < £5,000 ☐ £20,000 to £40,000 ☐ £80,000 to £120,000 ☐ £200,000 to £400,000
☐ £5,000 to £10,000 ☐ £40,000 to £60,000 ☐ £120,000 to £150,000 ☐ £400,000 to £1,000,000
☐ £10,000 to £20,000 ☐ £60,000 to £80,000 ☐ £150,000 to £200,000 ☐ > £1,000,000 (specify).....

A15. Do you use a nearby GA aerodrome as a base for the registered aircraft Yes ☐ No ☐

Section (B)—Multiple choice questions about you and your flying

B1. What are your qualifications? (draw a diagonal line ☒ against each option that applies)

☐ PPL ☐ CPL ☐ ATPL ⇨
☐ Single engine ☐ Multi engine ☐ Microlight ☐ Gyrocopter
☐ Light aircraft ☐ Heavy aircraft ☐ Jet ☐ Helicopter
☐ Night rating ☐ IMC ☐ Instructor ☐ Examiner
☐ Tailwheel ☐ Floats ☐ RT licence ☐ Other (specify).....

B2. Reasons you originally learnt to fly (draw a diagonal line ☒ against each option that applies):

☐ Worked in aviation industry ☐ Interested in flying from an early age ☐ Wanted excitement etc.
☐ Lived near an aerodrome ☐ Through joining the Services ☐ Flew with friend/relative
☐ Joined Air Cadets ☐ Wanted a retirement interest ☐ Given air experience ticket
☐ To get from A to B ☐ To become a professional pilot ☐ Other (specify).....

Now make a cross ☒ to highlight the main reason you learnt to fly.

Office Use

B3. Your general job title (if you are retired, indicate here ☐ then give your title at the time of retiring):

.....

B4. Are you in full time employment? Yes ☐ No ☐

B5. Is being a pilot an essential part of your job? Yes ☐ No ☐

} *if either **No**, go directly to question B11.*

B6. Approximate before tax income from your job:

☐ < £5,000 ☐ £5,000 to £10,000 ☐ £10,000 to £20,000 ☐ £20,000 to £30,000 ☐ £30,000 to £40,000 ☐ £40,000 to £60,000 ☐ £60,000 to £80,000 ☐ > £80,000 (specify).....

B7. Type(s) of flying you do as an essential part of your job:

☐ Inspection/survey work ☐ Emergency services ☐ Oil rig ☐ Aircraft testing
☐ Instructing ☐ Examining ☐ Air taxi/charter ☐ Executive flying
☐ Commercial air transport ☐ Crop spraying ☐ Personal travel A to B ☐ Other (specify).....

Now make a cross ☒ to highlight the type of flying you do most often.

If you have highlighted 'Personal travel A to B' go directly to question B10.

B8. What route did you take to become a professional pilot?

☐ Started flying for pleasure then decided to become professional ☐ Decided on an aviation career then learnt to fly

B9. How did you gain your professional qualifications?

☐ Self-improver/module route ☐ Via the Services ☐ Employer-sponsored full-time training ☐ Self-sponsored full-time training ☐ Other (specify).....

B10. Apart from flying as part of your job, do you also fly for leisure purposes? ☐ Yes ☐ No

If No, go to Section C.

B11. Type(s) of flying you do as a leisure pilot:

☐ Flying near base aerodrome ☐ Learning new skills ☐ Rallies & fly-ins ☐ Precision flying or dawn/dusk
☐ Day trips ☐ More than one day trips ☐ Visiting UK aerodromes ☐ Visiting non-UK aerodromes
☐ Aerobatics/formation ☐ Training others ☐ Air racing ☐ Other (specify) .....

Now make a cross ☒ to highlight the type of leisure flying you do most often

B12. Approximate cost of your leisure flying each year:

☐ < £1,000 ☐ £1,000 to £2,000 ☐ £2,000 to £3,000 ☐ £3,000 to £4,000 ☐ £4,000 to £5,000 ☐ £5,000 to £6,000 ☐ £6,000 to £7,000 ☐ £7,000 to £8,000 ☐ £8,000 to £9,000 ☐ £9,000 to £10,000 ☐ £10,000 to £15,000 ☐ > £15,000 (specify).....

Section (C)—About your choice of aerodromes

C1. Complete the table below for the five trips you had selected for Question A12:

Trip as Shown	Was trip work related?. Yes	No	Was take-off site in the UK? Yes	No	Take-off site was? Airport	Airfield	Heliport	Private strip / pad	Other	Was landing back at the same site Yes	No	If different, site was Airport	Airfield	Heliport	Private strip / pad	Other	Was landing site outside the UK Yes	No
1)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
2)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
3)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
4)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
5)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

If 'Other' column used. specify type of site(s):.....

C2. Do you normally start flights from the same aerodrome (your 'base aerodrome')? Yes ☐ No ☐
If No, for the following questions assume 'base aerodrome' means where you fly from the most.

C3. How many different aerodromes do you use, as a pilot, in an average year?

☐ 1 (base aerodrome) ☐ 2 or 3 ☐ 4 or 5 ☐ 6 to 9 ☐ 10 to 15 ☐ 16 to 25 ☐ 26 to 50 ☐ < 50 (specify).....

C4. When you fly to another aerodrome what do you do (apart from refuelling & paying landing fees)?

☐ Attend organised events ☐ Visit for business purposes ☐ Wait while others do their job ☐ Visit the local area as a tourist ☐ Have a meal/snack if possible ☐ Simply book-in then depart ☐ Stay in a nearby B&B/hotel ☐ Have a look around the aerodrome ☐ Other (specify).....

Now make a cross ☒ to highlight the activity you do most often

C5. How much you spend, at the aerodrome or in the locality, per average visit (excluding landing fees & fuel)?

☐ < £5 ☐ £5 to £10 ☐ £10 to £20 ☐ £20 to £30 ☐ £30 to £50 ☐ £50 to £100 ☐ £100 to £200 ☐ > £200 (specify) .....

C6. What features would improve your base aerodrome?

☐ Snack bar/ restaurant ☐ Clean toilets ☐ Available aircraft to use ☐ Hard runways, taxiways etc ☐ Emergency services ☐ Friendly & helpful staff ☐ Available hangars ☐ Taxi service ☐ Nearby accommodation ☐ Secure overnight car parking ☐ At least ground-to-air communications ☐ Multiple runways for all wind directions ☐ Training school(s) ☐ Active social club ☐ Fuel pumps ☐ Maintenance/repair workshops ☐ Secure overnight aircraft parking ☐ Simple joining procedure ☐ Extended operating hours ☐ Good grass landing area ☐ Other (specify).....

Now make a cross ☒ to highlight the feature that would most improve it.

C7. If your base aerodrome had all the features in the above question, what difference would it make to the number of hours you fly? (Indicate the extra hours you might do compared to now)

☐ Would not change ☐ up to 10% extra ☐ up to 25% extra ☐ up to 50% extra ☐ >50% (specify).....

C8. Why do you think your base aerodrome not have these features?

☐ Not enough demand ☐ Poor management ☐ Too expensive ☐ Locals would object ☐ Staff shortages ☐ Don't know ☐ Local Authority would refuse ☐ Other (specify).....

Now make a cross ☒ to highlight the most significant reason.

C9. Imagine your base aerodrome no longer existed, what options might be open to you?

☐ Stop flying altogether ☐ Only fly when abroad ☐ Move & live nearer to another aerodrome ☐ Change flying habits / category of aircraft ☐ Use a nearby aerodrome with at least similar features ☐ Use a nearby aerodrome with fewer features ☐ Travel to a more distant aerodrome. ☐ Other (specify).....

Now make a cross ☒ to highlight the most likely option.

C10. If you selected any option other than "stop flying altogether" indicate the likely impact on your flying:

☐ Would not change ☐ up to 10% decrease ☐ up to 25% decrease ☐ up to 50% decrease ☐ >50% (specify).....

C11. Have you ever been significantly involved in defending the activities of an aerodrome? Yes ☐ No ☐

Many thanks for finding the time to help with this survey.