



## **OFFICER REPORT TO LOCAL COMMITTEE (Epsom and Ewell)**

### **CONSIDERATION OF THE EFFECTS OF CIVILIAN HELICOPTER TRAFFICE OVER-FLYING THE BOROUGH**

**1 DECEMBER 2008**

#### **KEY ISSUE**

The impact of noise produced on the ground by civilian helicopters overflying communities and areas of open space within the Borough.

#### **SUMMARY**

Background information going back to 1982 is presented and analysed for Epsom and Ewell. More recent work addressing the same issue in adjacent Boroughs is highlighted.

#### **OFFICER RECOMMENDATIONS**

**The Local Committee (Epsom and Ewell) is asked to note the contents of the report, and particularly the following significant points:**

- (i) Environmental complaints arising from the over-flights of civilian helicopters in the South London area should be logged centrally, co-ordinated, taken seriously and dealt with swiftly and effectively by civil servants. Complaints data must be published regularly – at least on an annual basis.
- (ii) The London Assembly report recommended that Battersea Heliport should establish a consultative committee; the LB of Wandsworth however appears to be the sole local authority presence within that

structure. It is suggested that Surrey authorities might submit a request for the provision of copies of all future committee minutes.

- (iii) The London Assembly authors also think it is vital that the Department for Transport (DfT) should begin reviewing its guidance to the Civil Aviation Authority (CAA) so that the environmental impact of helicopter operations would, in future be included within its areas of responsibility – at the moment ‘safety’ is the CAA’s overriding consideration.
- (iv) The London Assembly would like to see provided financial incentives to encourage operators to invest in quieter helicopters. This initiative appears worthy of support. At the moment the tax allowance regime is not as generous as for fixed-wing business aircraft.
- (v) The random monitoring by the CAA of the heights, speeds and track keeping achievements of civilian helicopter traffic operating in this area of North Surrey would represent a huge improvement in the understanding of the problem. The names of poorly performing operators should be published on a regular basis.

## 1 INTRODUCTION AND BACKGROUND

- 1.1 It is currently very difficult to assess (for example on a national basis) the impact across any community of relatively high speed helicopter flights at restricted altitudes. This report will consider such over-flights across the Borough of Epsom and Ewell of civilian, non-emergency helicopters within daylight hours.
- 1.2 It is also impossible to find a recommended unit to describe the impact of successive noise signatures on the ground generated by repeated helicopter flights. In order to utilise successfully the widely used energy equivalent exposure concept (written Leq), government advice is that a minimum of around two movements per average hour is needed on a fairly regular and predictable basis across the 16 hour period beginning 0700 hours.
- 1.3 It would thus be very difficult to conduct and present the results of any social survey in areas clear of heliports since the recommended output of such studies is to plot the percentage of highly or very much annoyed resident respondents against some form of acoustic exposure unit.
- 1.4 In fact it is over a quarter of a century since the CAA last conducted a combined noise and social survey<sup>1</sup> in the Epsom area. It was in 1982 that such a study was conducted beneath the Gatwick – Heathrow helicopter shuttle link in the Woodcote Park area of the Borough. Over this community 20 helicopter shuttle over-flights per day were spread

across a 13 hour day, seven days a week, and right throughout the year, beginning at around 0715 hours. Adverse comments were received from residents experiencing individual sideline noise peaks of around 62 dB (A); residents beneath the centerline of the route experienced typical noise peaks nearer 70 dB (A) . When the 28 passenger helicopter was battling against adverse winds its noise signature (and the duration of that signature) both increased noticeably. The different tonal qualities exhibited by such an adversely affected helicopter over-flight would also increasingly draw one's attention to the more labored passage of the event.

- 1.5 A subsequent CAA report<sup>2</sup> that emerged a decade later, informed us that 20% of Woodcote Park residents reported themselves 'very much annoyed' with the 20 over-flights each day (plus those over-flights of a few residual helicopters that were in evidence before the heli-link shuttle began and were there throughout its 5 year period of operation and beyond).
- 1.6 As a point of interest the shuttle was nominally flown at the maximum permissible altitude of around 2400 ft above mean sea level; this equates to heights nearer 2200 ft above local ground level in the Woodcote area.
- 1.7 Nowadays it is estimated (by the writer who has lived on the Woodcote Estate for 31 years) that helicopters are generally not flown at this sort of altitude. The worst case noise exposures in the Woodcote part of the Borough are experienced during horse race meetings, motorized Goodwood festivals and during the trade days of the Farnborough Air Show.
- 1.8 In July this year during the first few trade days of the Air Show, Woodcote Park was subjected to a considerable intensity of over-flights. These operations tended to be 'tidal' – with greater E – W traffic from the heliport at Battersea in the morning for 2 to 3 hours, and the reverse being true in the afternoon. A worst case flow of eleven events per hour was noted between 3 and 4pm on the afternoon of Tuesday 15<sup>th</sup> July 08. More generally seven events per peak hour were noted over the first 2.5 days of this year's Show.
- 1.9 A significant proportion of these Farnborough helicopter over-flights was performed by the Sikorsky S-76; this is a 30 year old basic design and can exhibit a distinctive, rather low frequency, noise signature on approach, especially at higher cruise speeds.
- 1.10 For residents on the ground it is noise from the approach phase which is the most noticeable with helicopters, since the main rotor disc is 'tipped' slightly downwards and angled towards the ground during this phase ( in order to achieve forward motion). With the S-76, the tail rotor will briefly add to this approach noise as the craft passes overhead across a community. At this overhead point the noise from the tail rotor disc will be directed directly downwards.

- 1.11 More modern small to medium helicopters can be designed with a tail rotor contained by what is known as a 'fenestron' cowl. This circular structure completely encloses the tail rotor; it can be equipped with panels of acoustic absorbent. It is understood that such fenestron designs are limited to small/medium helicopters (typically providing up to ten passenger places), presumably due to the greater power needed as helicopters get larger and heavier. Some Police and air ambulance helicopters utilize this shrouded tail rotor concept; clearly such a tail rotor design offers distinct advantages in terms of all round safety when landing in an emergency situation.
- 1.12 In August this year a 'helicopter for hire' service was noted (on Sunday 10<sup>th</sup>), when the same sightseeing machine went over Epsom some eight times before lunch. It has (perhaps coincidentally) been reported to the writer that adverts for sightseeing flights were spotted during this period just over the County and Borough border in Malden Rushett.
- 1.13 Since however central government always expresses air noise exposures on an average 92 day, 16 hour basis (in fact in the summer between 0700 and 2300 hrs, and from mid June to mid September), both the Farnborough and sightseeing helicopter movements would be greatly reduced in daily intensity by the 92 day averaging process, making it very difficult to plot social survey results against a meaningful expression for air noise exposure. It is thus seen as very unlikely that the CAA could ever be persuaded to repeat the 1982 study in the Epsom area. The same may be true of the Priest Hill/Ewell Downs area of the Borough.
- 1.14 Bordering the southern edge of the London Control Zone (like Woodcote Park), the Ewell Downs area suffers the additional disadvantage of being at the southern extremity of heli-route H7. This heads south from Barnes and also crosses Nonsuch Park as well as other areas of relatively open space within various London Boroughs.
- 1.15 It is thought the origins of this heliroute structure goes back to the 1960s, when there would have been a far higher proportion of single engine helicopters (such as the Bell 206 Jet Ranger and Hughes 500) operating in this part of Northern Surrey.
- 1.16 Route H7 was intended to thread through communities, from the Thames at Barnes, passing over areas of open ground where a pilot could land a stricken helicopter in relative safety. The nominal width of the H7 corridor is around half a mile. This assumes no corner cutting at the southern end of the heliroute.
- 1.17 Information from the LB Richmond on Thames indicates that, weather permitting, altitudes of 2000ft. should be flown on that section of H7 closest to the Priest Hill area. Typical quoted helicopter maximum cruise speeds seem to be in the region of 175 mph (or around 150 knots). One possible noise containment measure<sup>5</sup> is for the pilot to consider actually lowering the helicopter cruise-speed by 5-10 knots

when travelling over noise sensitive areas. Whilst lowering the community noise 'peak' by an unspecified amount, such a move would have the disadvantage of slightly prolonging the duration of the helicopter flyover. An improvement in tonal qualities exhibited by the noise profile could also arise from such a move so that, overall, such a speed reduction could prove advantageous to residents on the ground.

- 1.18 The last CAA noise study<sup>2</sup> was published in 1994; five Thameside sites were selected during 1992 Farnborough week; three of these were near the bridges at Putney, Wandsworth and Battersea. Average helicopter noise exposures appear slightly higher at these riverside locations than was the case in Woodcote Park in 1982. An exposure is made up of the number of daily events, their average duration and average 'peak' noise.
- 1.19 More recently the London Assembly conducted an opinion survey of public reaction to helicopter over-flights, and published a report<sup>3</sup> two years ago. It is worth noting that some Surrey residents contributed opinions to the study. Importantly this report (entitled 'London in a spin') presented a number of recommendations – some of which are worthy of direct consideration in this Borough.

## **2 ANALYSIS**

- 2.1 In October 2006 the London Assembly put forward for consideration some 14 separate recommendations for the containment of the impact of helicopter operations. Several of these recommendations requested a swift response from the DfT, DEFRA and the CAA which does not appear to have taken place over the intervening two years. It may be that the appropriate air noise specialists working at these agencies are fully engaged on the proposed expansion of runway, terminal and air space capacities for the international airports in the South East.
- 2.2 At least a Consultative Committee has been set up at Battersea's London Heliport with the intention, as a top priority, of addressing the concerns of local residents about helicopter movements and noise. Only the host local authority is mentioned in the recommendation – the London Borough of Wandsworth.
- 2.3 The document points out the importance of operational altitude as well as the actual physical design of helicopter airspace in the London area. One very important point made by the London Assembly team is that helicopters are now actually permitted to fly lower over London. In 2005 the Secretary of State for Transport approved an amendment to reduce the minimum altitude for helicopters from 1500 to 1000 ft. This variation was made in order to bring the UK in line with the recommendations of the International Civil Aviation Organization (ICAO). Evidently residents in London over-flown by helicopters at lower altitudes complained of increased 'peak' noise from events; additionally the 'startle' potential of a noise peak will tend to increase with reduced operational altitudes. This

is because the helicopter noise signature will rise out of the acoustic background at a steeper rate the lower the altitude of the over-flight.

- 2.4 Currently our own Civil Aviation Authority seems unable to restrict aerial activity over any particular place or, at any particular time, for environmental reasons; operational safety is the CAA's overriding consideration.
- 2.5 The London Assembly environmental team think that greater financial incentives are required in order to get operators to invest in more modern, quieter craft. Chief amongst these incentives would be to increase the write-down allowance of helicopters from 6% to that of executive aircraft. This is said to stand at 25% for the fixed wing machine; both allowances are likely to be functions of hours flown rather than overall (yearly) duration of ownership.

### **3 OPTIONS**

- 3.1 Economically there is little chance of the local authorities mounting speed, height, track or noise surveys of helicopter operations in the Epsom area. The offending over-flights are both unpredictable and spasmodic in nature and would require a considerable investment both in equipment and operator time if the types, noise, heights, speeds and tracks were to be identified scientifically. It is only during the Farnborough Air Show and some horse race meetings that multiple flights are guaranteed on a given day.
- 3.2 It therefore seems likely that local authorities must group together to lobby the DfT and DEFRA for environmental improvements in respect of low level helicopter over-flights. It is known for example that Reigate and Banstead BC Environmental Health Officers were surprised at the adverse reaction of their Banstead residents to helicopter noise during a 2006 Borough- wide study performed by the MORI polling organization<sup>4</sup>.

### **4 CONSULTATIONS**

- 4.1 None

### **5 FINANCIAL AND VALUE FOR MONEY IMPLICATIONS**

- 5.1 There are none.

### **6 EQUALITIES AND DIVERSITY IMPLICATIONS**

- 6.1 There are none.

## **7 CRIME AND DISORDER IMPLICATIONS**

- 7.1 This report does not consider nor seek to contain the community impact of over-flying police helicopters; neither does it consider the impact of military or air ambulance helicopters.

## **8 CONCLUSION AND RECOMMENDATIONS**

- 8.1 Conventional social survey techniques are not appropriate in this particular exposure situation because there are, paradoxically, insufficient helicopter movements across this Borough, (bearing in mind that the DfT traditionally likes to average all aerial exposures across the 16hr period beginning 0700 and over a 92 day summer period starting mid-June).
- 8.2 Anecdotal evidence from local residents should however be gathered on an official basis and analyzed in order to identify the extent of the helicopter exposure problem (types of machine, times of day, weekdays, weekends, seasons etc.).
- 8.3 Reigate and Banstead Borough Council could be approached to see how that authority successfully attracted government funding in order to get the MORI organization to identify and rank noise problems across the Borough. Clearly it is impacted by a considerable range of transportation noise sources – M25, M23,A23, A217, Gatwick Airport (including the express rail service), Redhill Aerodrome, as well as by over-flying helicopters.
- 8.4 Battersea Heliport's Consultative Committee secretariat should also be approached with a request that appropriate Surrey authorities receive the approved minutes of all future consultative committee meetings.

## **9 REASONS FOR RECOMMENDATIONS**

- 9.1 Minimum expenditure course of action.

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**BACKGROUND PAPERS:**

1. Directorate of Research ( Civil Aviation Authority)  
1982 Helicopter Disturbance Study: Main Report:  
DR Report 8304; Sept 1983.
2. Dept of Transport: London Heliport Study: noise sub  
group report; Nov 1994.
3. London Assembly Environment Committee report  
entitled 'London in a Spin'  
A review of helicopter noise: Oct 2006
4. MORI Research Report for R & B Borough Council  
(status unknown)  
Borough-wide survey of (resident) attitudes to  
ambient Noise: March to April 2005  
Revise draft 21<sup>st</sup> June 2006
5. BHAB (The British Helicopter Advisory Board)  
Handbook 2008/9.  
Page 221: Pilot's code of conduct  
Bullet number 9 of 10.

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