

Farnborough Airport

Environment Report October – December 2006



Aviation

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TAG Farnborough Airport Ltd

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1. INTRODUCTION

1.1 In continued compliance with the requirements of the agreement in place under Sections 106 and 299A of the Town and Country Planning Act 1990 between TAG Farnborough Airport and Rushmoor Borough Council, TAG hereby submits a report for the fourth quarter of 2006, (October to December 2006) detailing results of environmental monitoring as required by that agreement. In line with the paragraph 2 (t), the content of this report was revised in consultation with Rushmoor Borough Council prior to the publication of the first quarter's report in 2005. The Revised report focuses on the results of environmental monitoring, for background information please refer to Environment Reports published prior to the first Quarter of 2005.

2. NOISE MONITORING

2.1 The two permanent noise monitoring terminals situated at Farnborough College and Twezeldown Racecourse remain in operation. The noise monitor located at Twezeldown Racecourse was out of operation from 12th October to the 23rd October. This was due to a technical problem with the noise monitor, which required the manufacturer to undertake repairs. This has shown configuration problems, which can be seen by the background noise levels over this time period. The portable noise monitor has been located for the duration of this quarter in Robert's Road Mychett.

2.2 Collection of data from the portable monitor has been successful throughout the monitoring period, however there have been no notable measurements from the monitor due to the threshold "trigger" noise level not being reached by aircraft derived noise.

2.3 Figures 1, 2 and 3 below show L_{eq} data for correlated aircraft Events, (E), Total L_{eq} levels and Background (Back) noise, calculated as comparable L_{eq} (A) values, by day of month and NMT for October, November and December respectively. (Zero readings for noise events indicate no aircraft noise events detected during that period.) In line with the planning agreement with Rushmoor the airport was closed on both Christmas Day and Boxing Day. Therefore there were no noise events recorded for aircraft on either of these days.

Figure 1: Noise as L_{eq} Total, Event (E) and Background (Back), by Day of Month and NMT for October 2006.

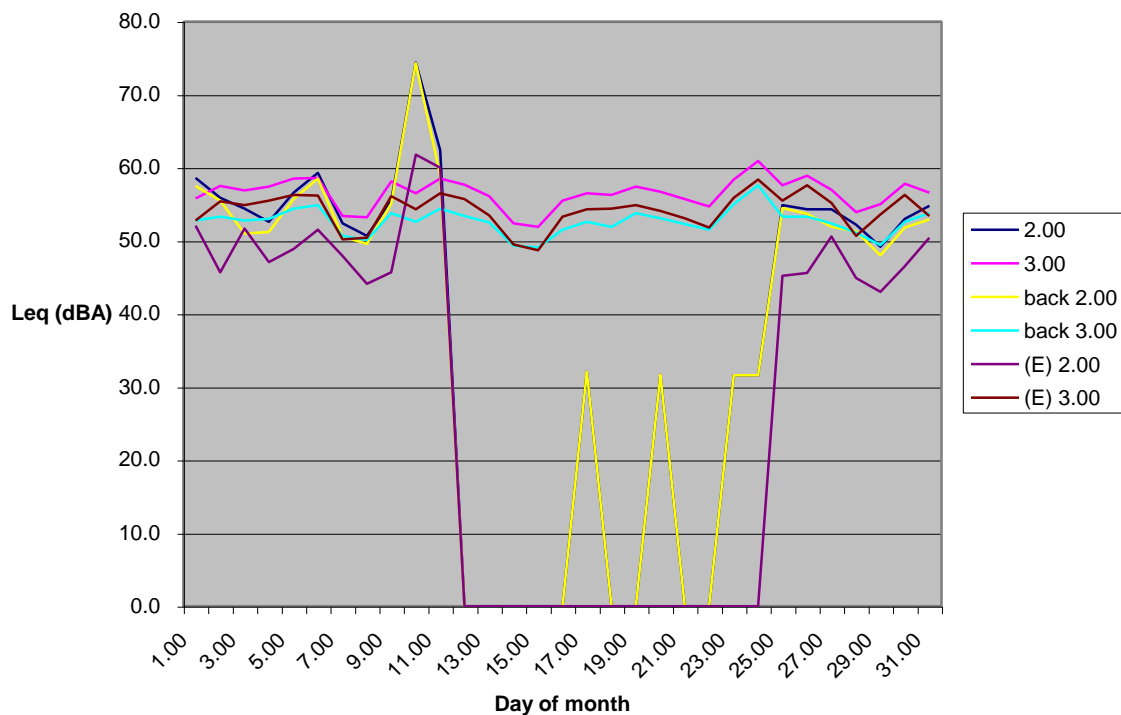


Figure 2: Noise as L_{eq} Total, Event (E) and Background (Back) by day of month and NMT for November 2006.

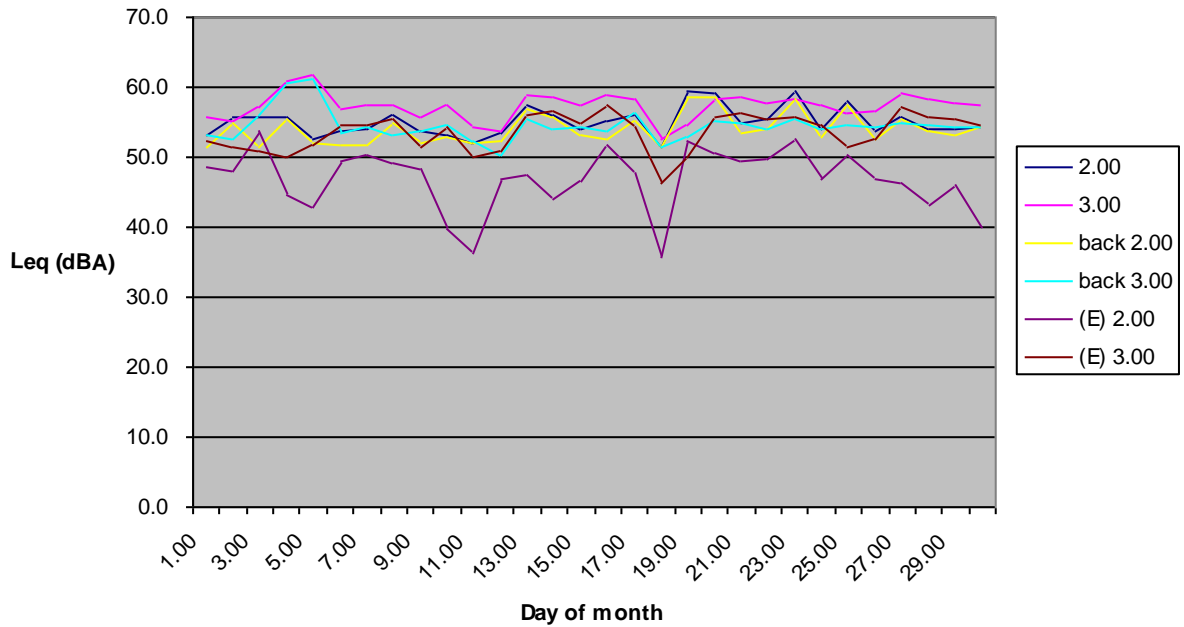
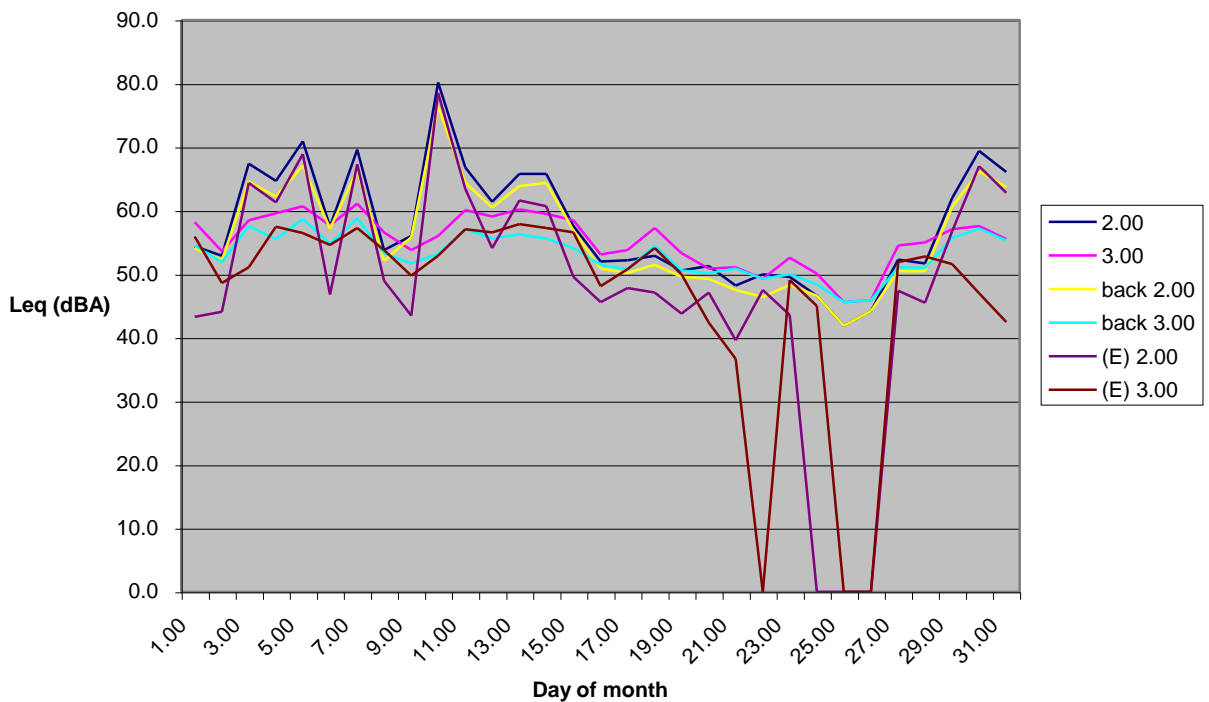


Figure 3: Noise as L_{eq} Total, Event (E) and Background (Back) by day of month and NMT for December 2006.



2.4 Noise contours produced using the FAA’s Integrated Noise Model (INM) for operations covering the entire duration of 2006 are due to be submitted to Rushmoor in mid February in accordance with the requirements of the agreement between TAG and Rushmoor. The results of the modelling exercise undertaken are given below in Table 1, along with those included with the planning agreement.

LEq dB (A)	1997 Control Contours (Km ²)	Actual January – June 2006 (based on 11472 actual movements)	Predicted June – December movements (11898 movements at 2006 mix)
55	9.07	4.10	4.40
60	4.03	1.71	1.81
65	1.70	0.94	0.98

Table 1: Results of INM Modelling exercise

2.5 Use of the L_{eq} contour is internationally recognized as a means of noise measurement. A 66 decibel L_{eq} indicates that the average level of noise during a 16 hour day is 66 decibels. 66 decibels is quieter than the noise of a car traveling at 38mph, heard from about 21 feet away, or from a washing machine and is slightly noisier than a busy general office.

2.6 The 55 dBA used in agreement with Rushmoor, is below that deemed to be the trigger of "low annoyance" in the Wilson Committee Report (1963), a report traditionally used as a method of assessing the probability of annoyance due to aircraft noise. According to research by Schultz on reaction to noise 55dB(A) calculated as a DNL (Day Night Level) is likely to cause less than 5% of the community becoming highly annoyed.

2.7 The FAA’s INM along with ANCONII have been produced to comply with the requirements of ECAC.CEAC Document 29 as specified in the proposed European Noise Directive. This Directive is still to be transposed fully into

UK legislation. It is anticipated that INM will be selected as the European Standard tool for assessing noise impact from aircraft. In its latest assessment TAG has used the latest version of INM, (INM 6.2) to examine aircraft derived noise data. This allows modelling to be carried out using actual flight tracks, (recorded by the airport’s Noise Track Monitoring System, (NTMS), ensures continuity and allows for direct comparison with the requirements of the 106 agreement and other controls.

2.8 Daily L_{eq} Figures are given in Appendix 1.

3. AIRCRAFT MOVEMENTS

3.1 Table 2 shows all aircraft movements over the three-month period by movement category. Figure 4 gives a summary of movements by category, for weekends.

Category	October	November	December	Quarter 4, 2006	Total 2006
Business	1796	1763	1248	4807	20179
Helicopter	107	121	60	288	1186
Subtotal (Planning Agreement Movements)	1903	1884	1308	5095	21365
Flying club	13	0	2	15	393
Military	11	18	4	33	168
Diversion	16	13	23	52	201
Other	243	191	115	549	1830
SBAC	0	0	0	0	1126
Total	2186	2106	1452	5744	25083

Table 2: Movements summary by type.

Figure 4: Weekday Movements* by Type for Quarter 4, 2006

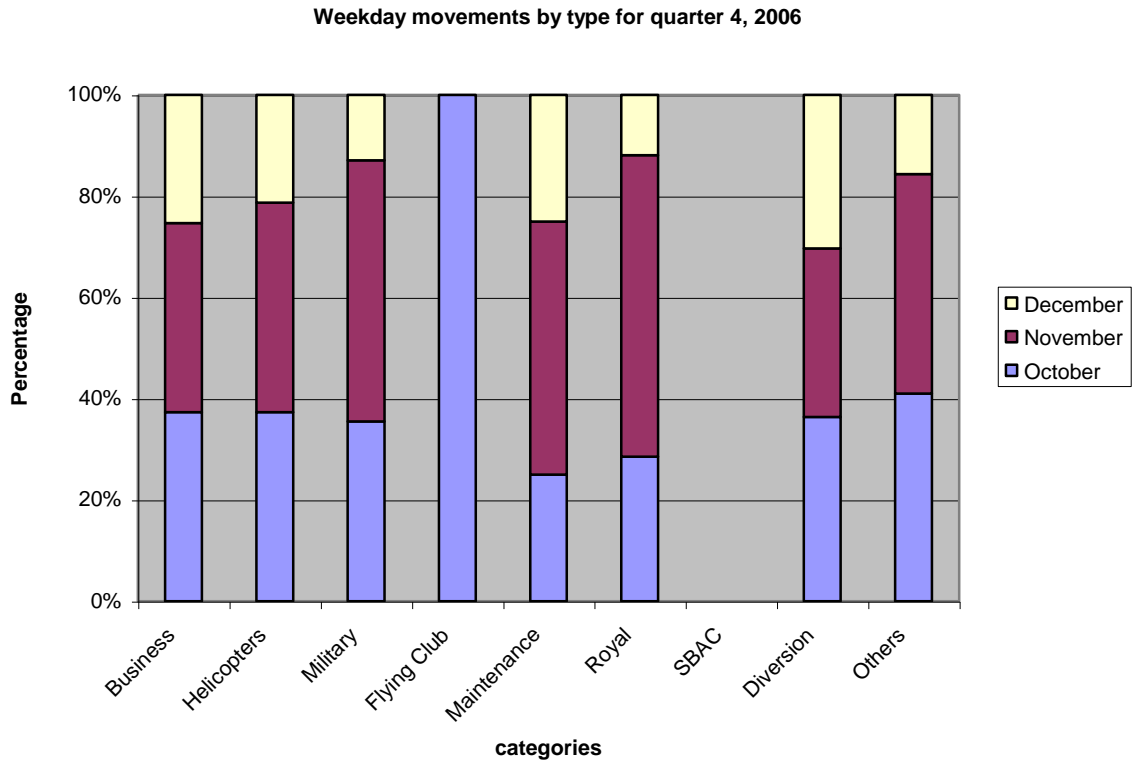
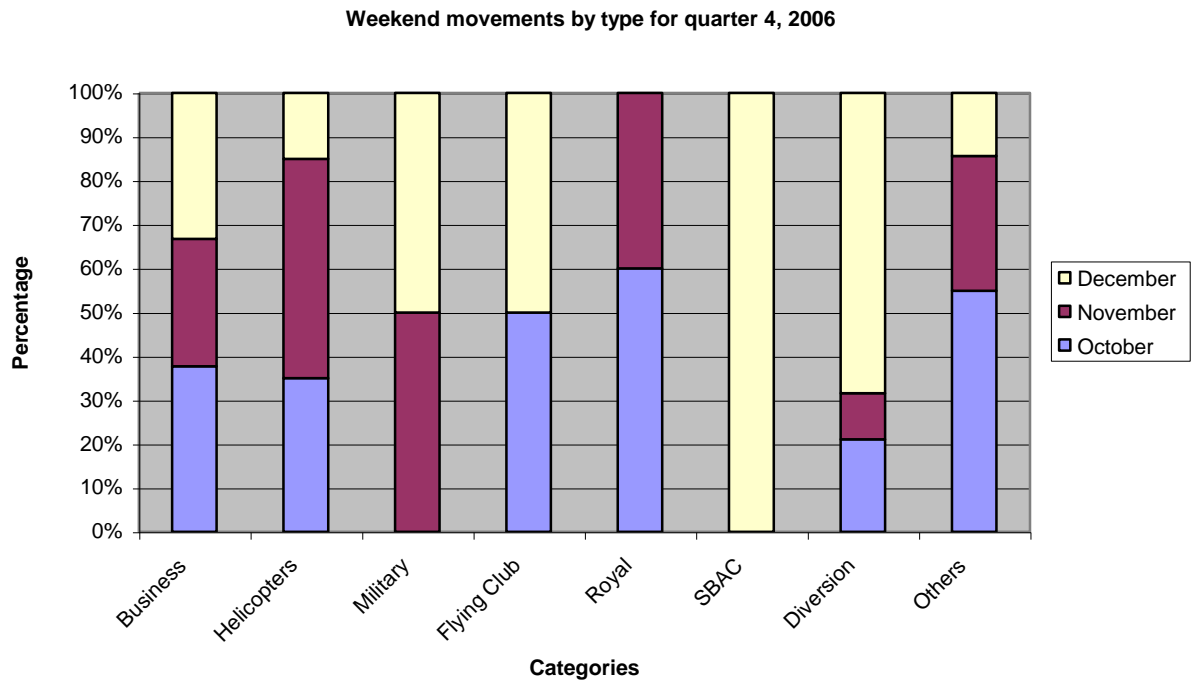


Figure 5: Weekend Movements* by Type for Quarter 4, 2006
*Includes Bank Holidays



3.2 Figures 5 - 8 below give information on runway use, including operation. Operation refers to whether the movement was a Departure or Arrival.

Figure 5: Monthly Movements by Runway Used and Operation October 2006
Key: A – Arrival, D – Departure

Movements by runway and operation, October 2006

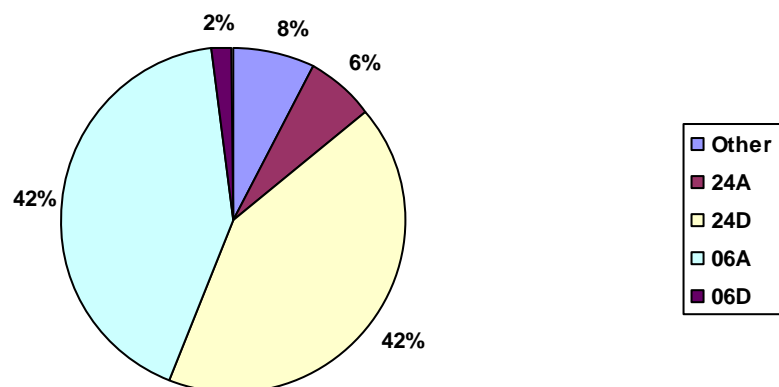


Figure 6: Monthly Movements by Runway Used and Operation November 2006
 Key: A – Arrival, D – Departure, Other – Includes non runway traffic e.g. helicopters

Movements by runway and operation, November 2006

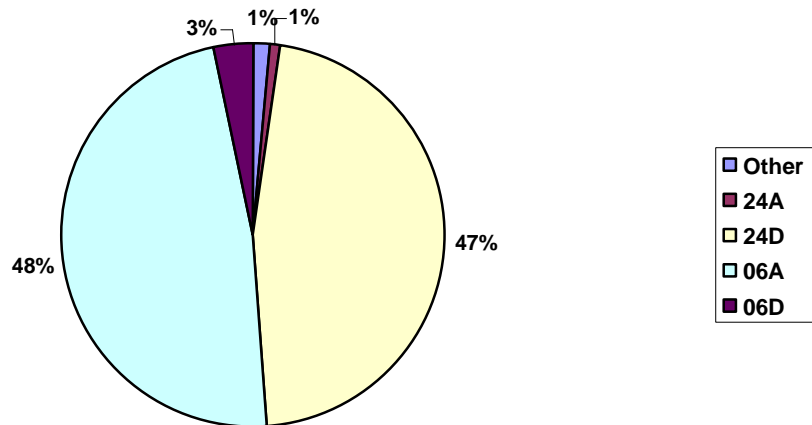


Figure 7: Monthly Movements by Runway Used and Operation December 2006
 Key: A – Arrival, D – Departure, Other – Includes non runway traffic e.g. helicopters.

Movements by runway and operation, December 2006

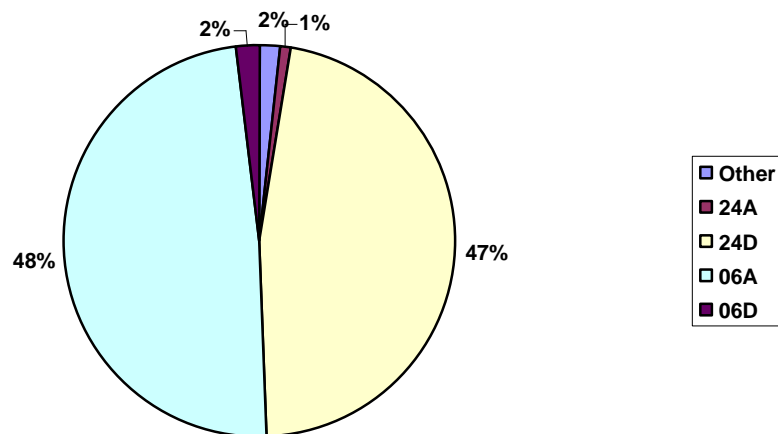
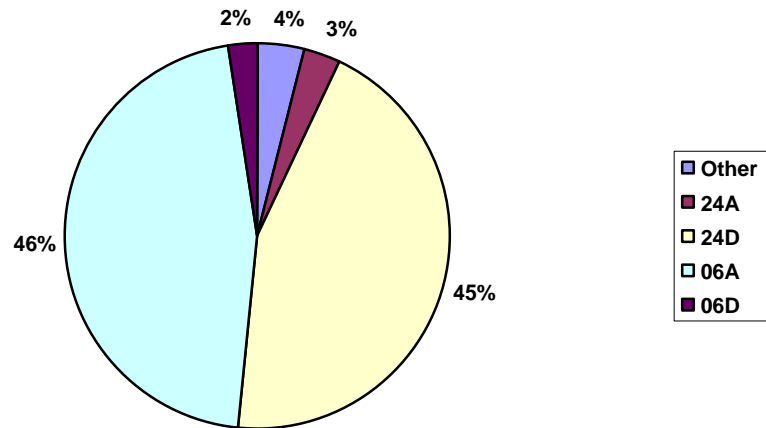


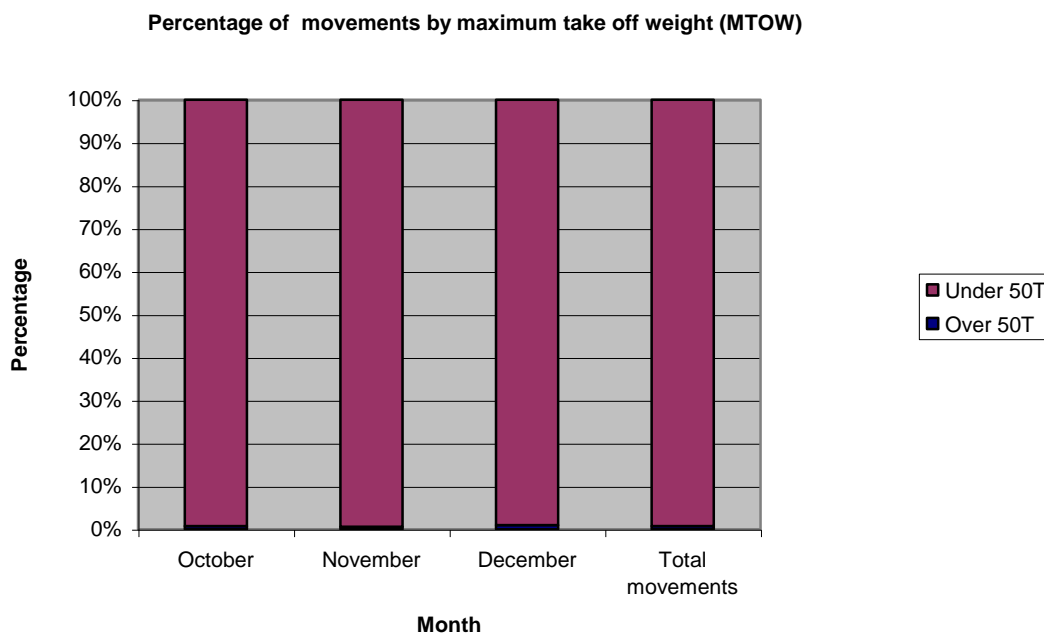
Figure 8. Overall runway usage split for Quarter 4, 2006
 Key: A – Arrival, D – Departure, Other – Includes non runway traffic e.g. helicopters

Movements by runway and operation for 4th quarter, 2006



3.3 The Maximum Take Off Weight (MTOW) is recorded within the NTMS for all fixed wing aircraft. Figure 9 gives a summary of aircraft MTOW for the fourth quarter.

Figure 9: Movements by Maximum Take Off Weight (MTOW) Quarter 4, October –December 2006.



3.4 All civil aircraft using Farnborough during the fourth quarter were compliant with the International Civil Aviation Organisation (ICAO) Chapter 3 classification. Chapter classifications are calculated from aircraft noise measurements made during take-off and landing. The results of monitoring exercises are expressed as a function of aircraft mass and number of engines. All measurements are required to be below the certified noise levels in order to comply with that certification standard. Aircraft not compliant with an ICAO standard may be “hushkitted” (have their original engines adjusted or replaced to comply with the required standard). No “hushkitted” aircraft used the airport during the fourth quarter of 2006.

3.5 A new more stringent ICAO standard, ICAO Chapter 4 has been finalised with all aircraft manufactured from the beginning of 2006 now complying with ICAO Chapter 4. The new classification requires aircraft noise performance as measured by manufacturers to fall by 10dB(A) below that required by Chapter 3.

3.6 Helicopters, light aircraft and military aircraft are not subject to the requirements of the ICAO noise certification scheme.

4.0 AIR QUALITY MONITORING

4.1 The locations of all of the nitrogen oxide diffusion tubes and Learian Streetbox monitors remain as previously reported. To see details of the locations of the monitors please refer to previous reports before the first quarter of 2005. Table 3 gives details of the National Air Quality Objectives applicable to Nox.

Pollutant	Air Quality Objective		Date to be achieved by
	Concentration	Measured as	
Nitrogen Dioxide*	200µg/m ³ when expressed as an hourly mean not to be exceeded more than 18 times a year.	Hourly mean	31/12/2005
4.1 It should be noted that the Nitrogen Dioxide objectives are provisional.			

Table3: *The Air Quality (England) (Amendment) Regulations 2002*

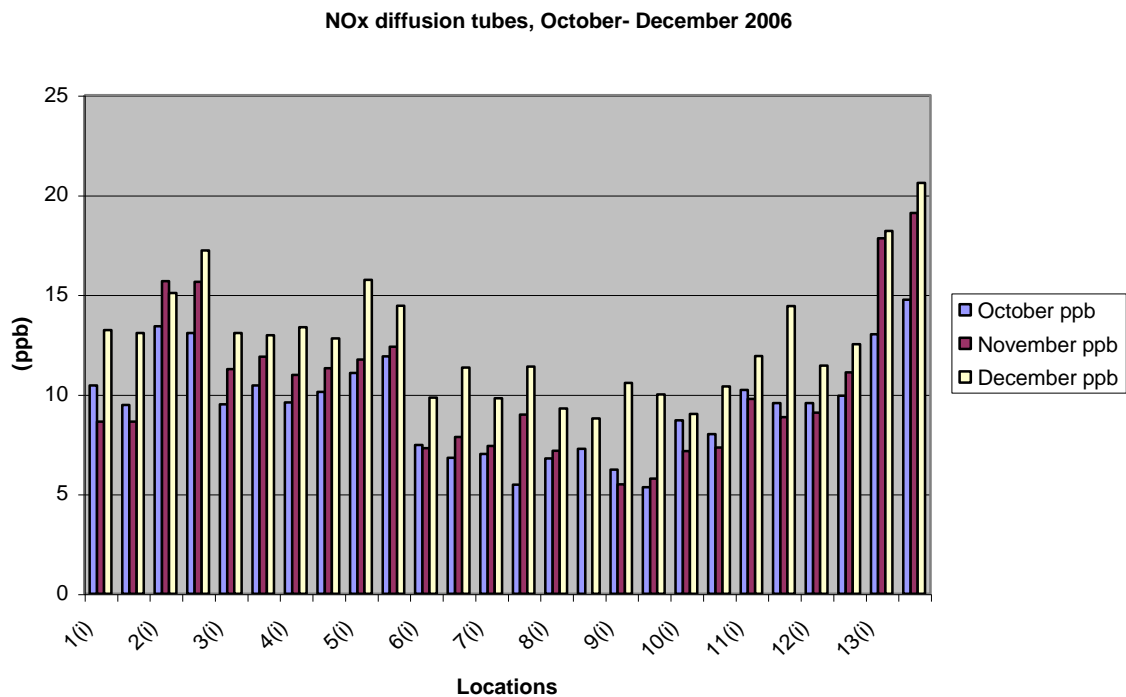
4.2 The results of the air quality survey consist of both raw and manipulated data taken from the diffusion tube laboratory analysis and downloaded computer data from the Learian automatic samplers.

4.3 Nitrogen oxide results taken from the diffusion tubes and Learian Streetbox samplers indicate that NOx levels around the airfield have achieved the objective as set out by the Air Quality Regulations Amendment Regulations 2002. Levels recorded by the monitoring network continue to remain at or below urban background levels. Continuing trends in the results obtained appear to indicate terrestrial sources of NOx as the predominate source of Nox. This is illustrated by the elevated levels consistently recorded for

location 13 adjacent to the M3 motorway. Location 13 lies within Rushmoor’s Air Quality Management Area (AQMA), declared for nitrogen dioxide.

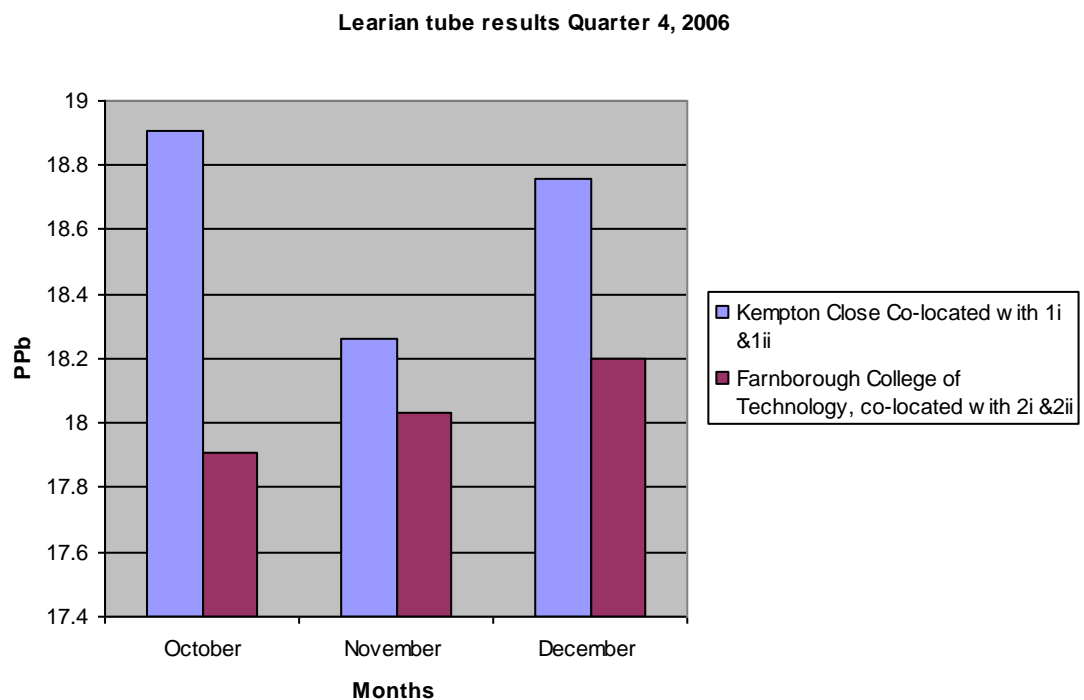
Figure 10: Nitrogen Oxides Diffusion Tube Results Quarter 4, 2006

Key: **ppb** - parts per billion.



4.4 Figure 11 below gives the air quality monitoring results obtained from the two Learian Street Box automatic samplers. The Streetboxes are collocated with diffusion tubes, references as given.

Figure 11: Learian Streetbox results for Quarter 4, October - December 2006.
Key: **ppb** - parts per billion



5. CONCLUSION

- 5.1 Routine monitoring of compliance with noise abatement routes, air quality, noise and aircraft movements continues at the airport. To date all monitoring undertaken has demonstrated compliance with regulatory requirements and those of the planning Consent and agreement granted with Rushmoor.
- 5.2 All movements allowed at the airport are restricted to those permitted by the terms of the planning consent and accompanying agreement.
- 5.4 Nitrogen oxide levels recorded by monitoring remain consistent with previously noted trends. Nitrogen Dioxide levels are naturally elevated over the colder winter months compared with results obtained during the summer, as a result of release of nitrates from the soils and decomposition processes.

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5.5 The activities at the airport remain within those required by the Section 106/299A agreement.



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Appendix 1



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Appendix 2