

AMBIENT NOISE SURVEY 2006

In 1981 before the last public enquiry in to the development of Stansted Airport the Environmental Health section of Uttlesford DC carried out a survey into the ambient noise levels at 18 sites at locations around the airport and the wider area. This information was used to give the consultants acting for the Council information on the possible impact of additional development at the airport and increased aircraft movements.

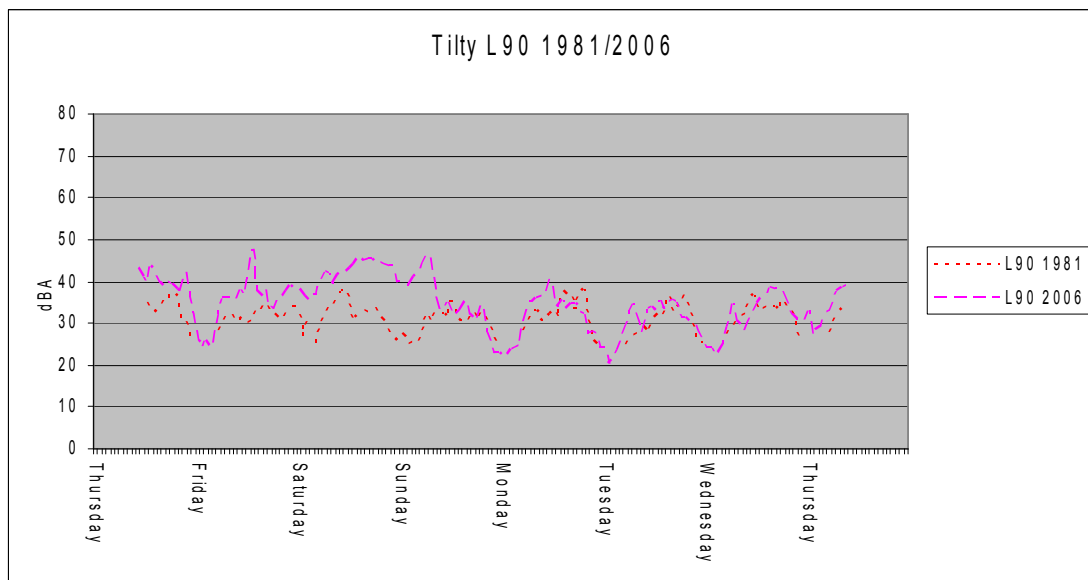
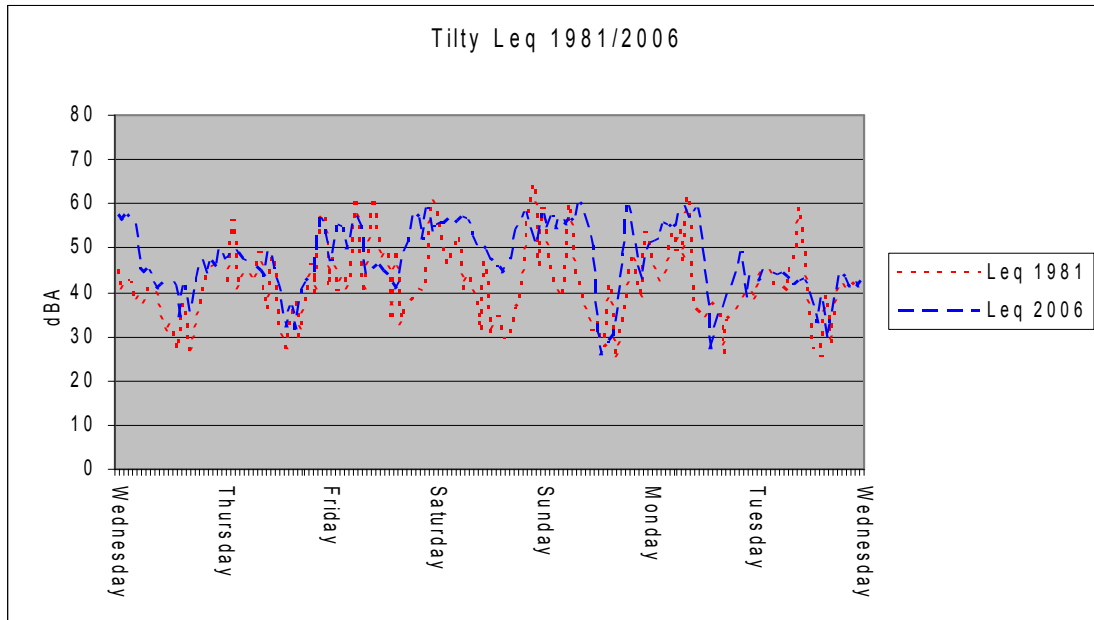
In preparation for an anticipated application for an additional runway at Stansted, seven of these sites were revisited and a new series of noise readings taken over a week long period at each site. The sites chosen to be revisited were in the main locations that would be affected by a new runway to the south east of the existing one and it is intended to carry out a second phase of the study at a number of new sites once BAA Stansted announce their preferred option for the runway.

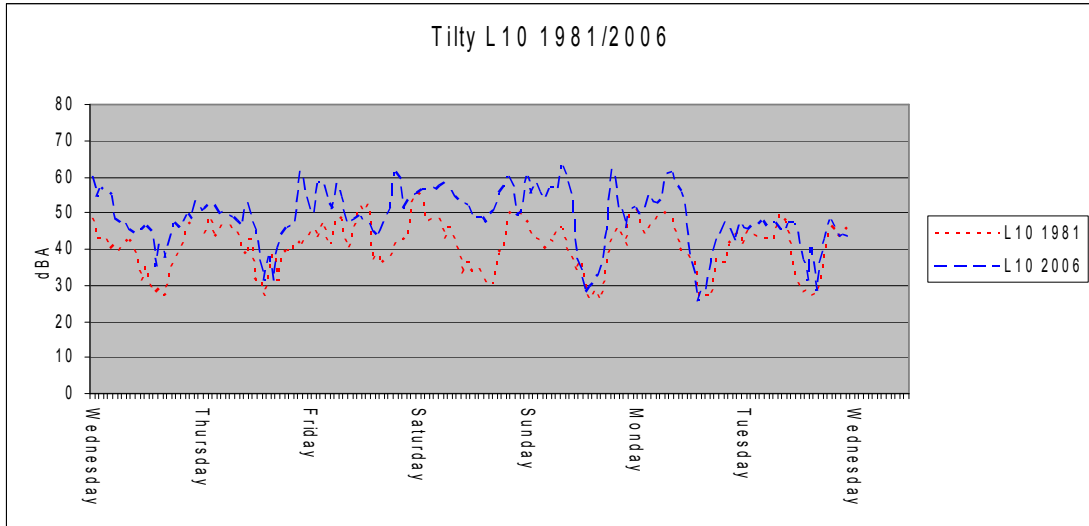
The 1981 study measured a wide range of Ln parameters and hourly L_{eq} measurements, the new study measured L10, L90 and hourly L_{eq} . The runway orientation in 1981 is not known but weather conditions including wind direction were recorded and BAA Stansted provided runway use data for the 2006 study. During this summer period there were runway resurfacing works taking place which closed the airport on Saturday and Sunday nights from midnight to 6am and reduced the length of the runway on Monday to Wednesday nights which restricted the types of aircraft which could operate between those times.

The two data sets provide a contrast between the two survey periods but are not directly comparable and only represent a 'snap shot' of the noise climate, but as a series do show changes to the ambient noise levels in the past 25 years and can be used to draw some generalised conclusions. The 2006 data can also be used to give an indication of the accuracy of modelled contours for aircraft using the airport now that summer westerly and summer easterly 16hr air noise contours are available. The data can also be used to characterise the difference between the use of runway 05 and 23 on the sites.

Tilty

It was not possible to use the exact same location due to redevelopment of the original site at The Grange, however a new site closer to the church was used which was about 400 metres to the east (Map ref 559946 226434). This site is under the Clacton departure route on runway 05 and to the south east of landing aircraft on runway 23.





Runway Use

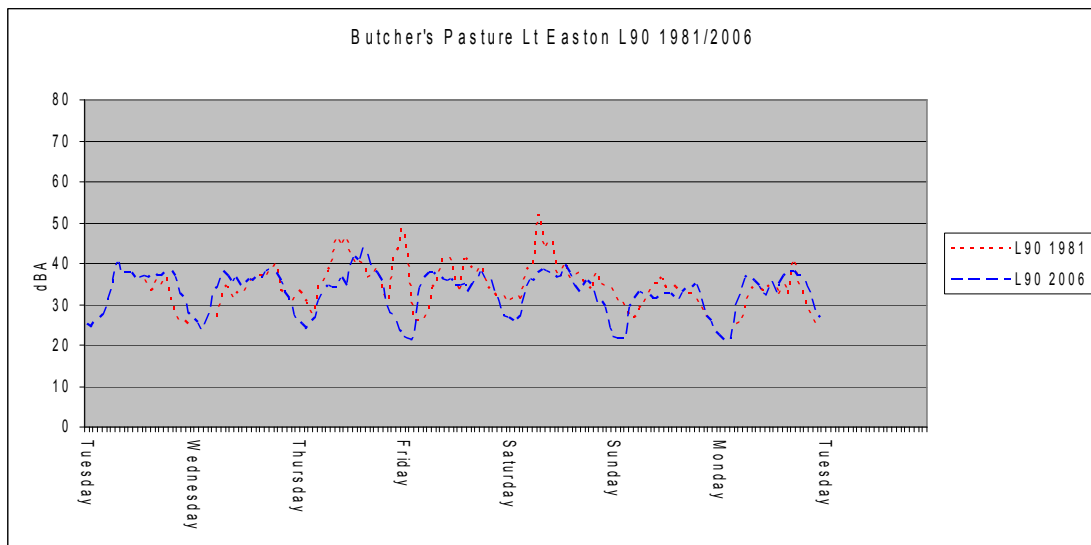
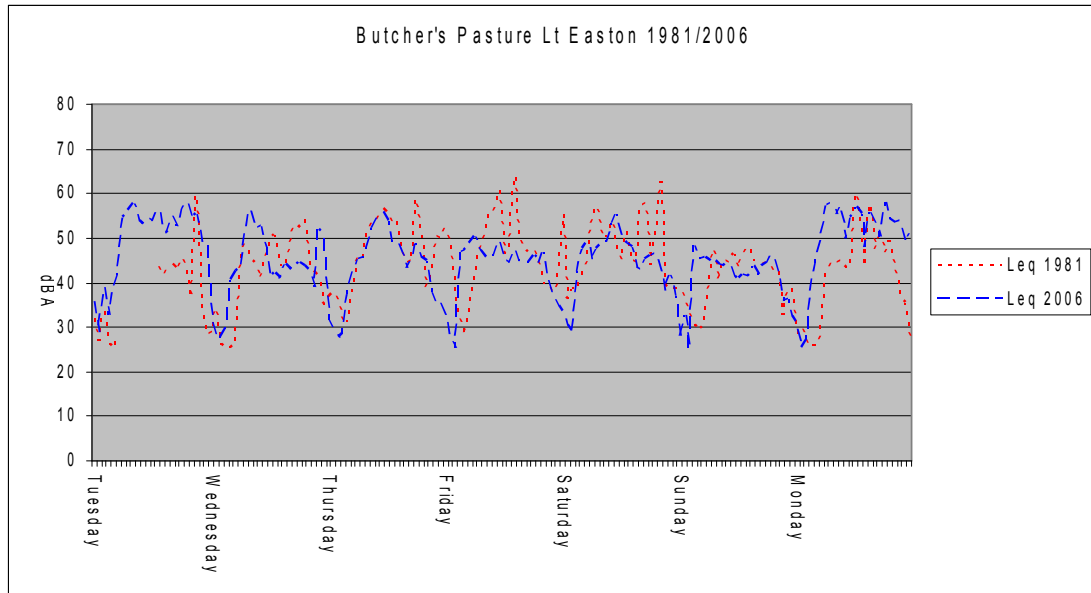
DATE	RUNWAY 23	RUNWAY 05
09/08/2006 Wednesday	191 arrivals and 186 departures	124 arrivals and 125 departures
10/08/2006 Thursday	209 arrivals and 211 departures	
11/08/2006 Friday	245 arrivals and 252 departures	38 arrivals and 36 departures
12/08/2006 Saturday		267 arrivals and departures 254
13/08/2006 Sunday		270 arrivals and 286 departures
14/08/2006 Monday	24 arrivals and 36 departures	282 arrivals and 276 departures
15/08/2006 Tuesday	298 arrivals and 301 departures	7 arrivals
16/08/2006 Wednesday	102 arrivals and 104 departures	205 arrivals and 210 departures.

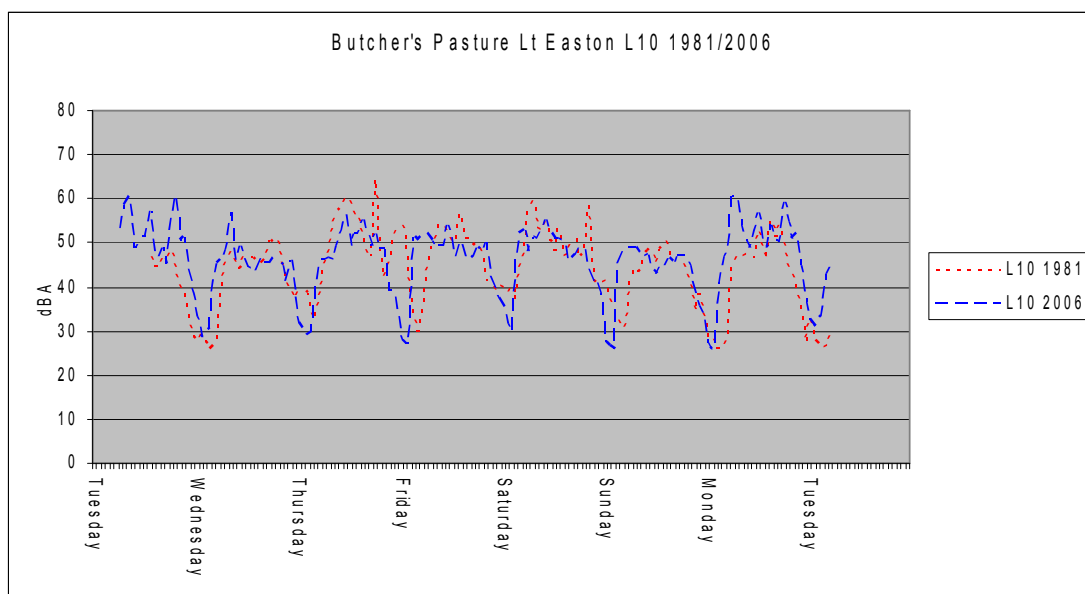
The site is shown to be between 54 and 57 dBA L_{eq} contour levels on the 2004 summer easterly 16hr day contour map and there is a close correlation with our 2006 data. When the runway 05 was in use the day time L_{eq} is fairly constant corresponding with a regular increased ambient noise level with little change from hour to hour, when the runway was in use on 23 the levels reduced showing some peaks but generally a constant level. The night time levels were lowest when the runway was in use on 23.

In 1981 the weather data shows mostly easterly winds which would indicate the 05 runway being used. In 2006 on the Saturday and Sunday when the 05 runway was in use there is about a 10 dBA increase in the background L_{90} level. The L_{eq} data for 1981 shows a number of peaks which could be interpreted as a few noisy aircraft movements compared with 2006 when there are many more aircraft which are less noisy but when taken together increase the noise climate.

Butcher's Pasture, Little Easton

It was possible to use the same site as was used in 1981 (map ref 560842 224183), the location is overflown by aircraft when runway 05 is in use lying between the Clacton and Dover departure routes. Landing aircraft on runway 23 are about 4kms to the north west of the site.





Runway Use

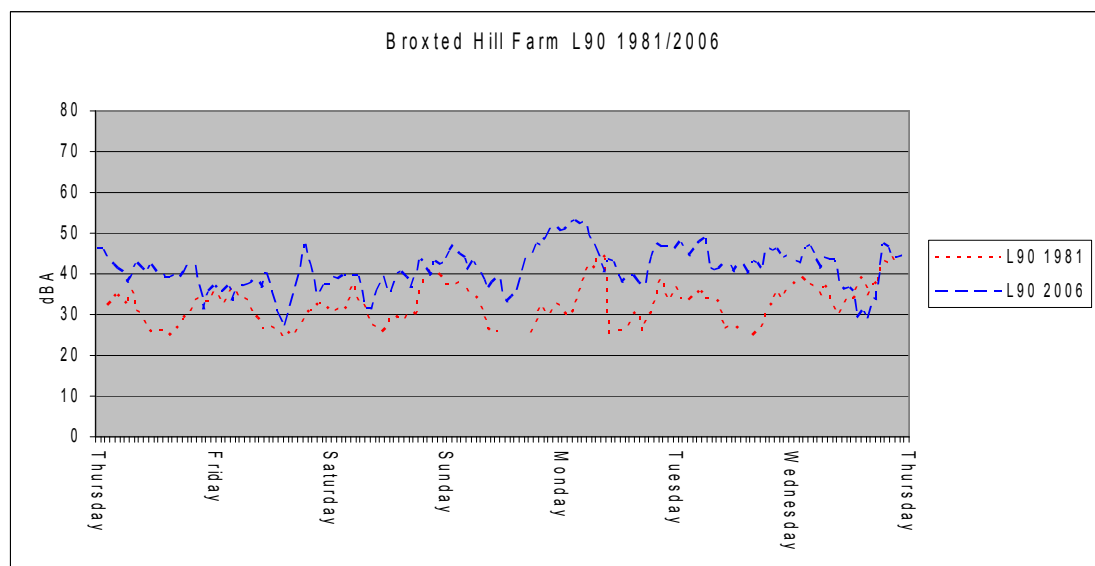
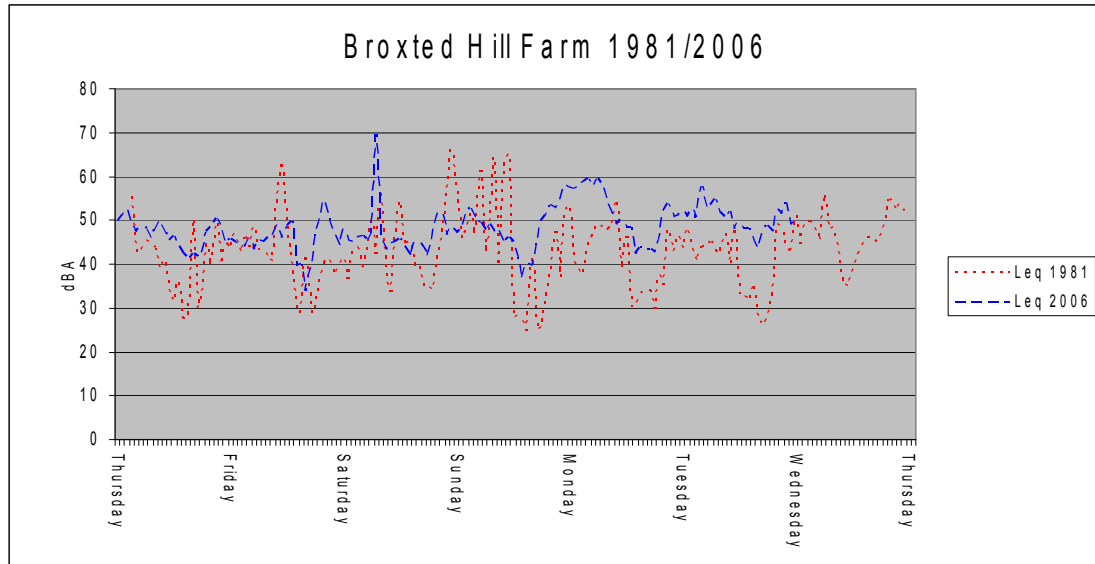
DATES	RUNWAY 23	RUNWAY 05
20/07/2006 Thursday	ALL	
21/07/2006 Friday	314 arrivals and 325 departures	1 arrival
22/07/2006 Saturday	277 arrivals and 272 departures	2 arrivals
23/07/2006 Sunday	283 arrivals and 286 departures	
24/07/2006 Monday	2 arrivals	307 arrivals and 318 departures
25/07/2006 Tuesday		296 arrivals and 301 departures
26/07/2006 Wednesday	186 arrivals and 234 departures	123 arrivals and 78 departures
27/07/2006 Thursday	216 arrivals and 234 departures	57 arrivals and 56 departures

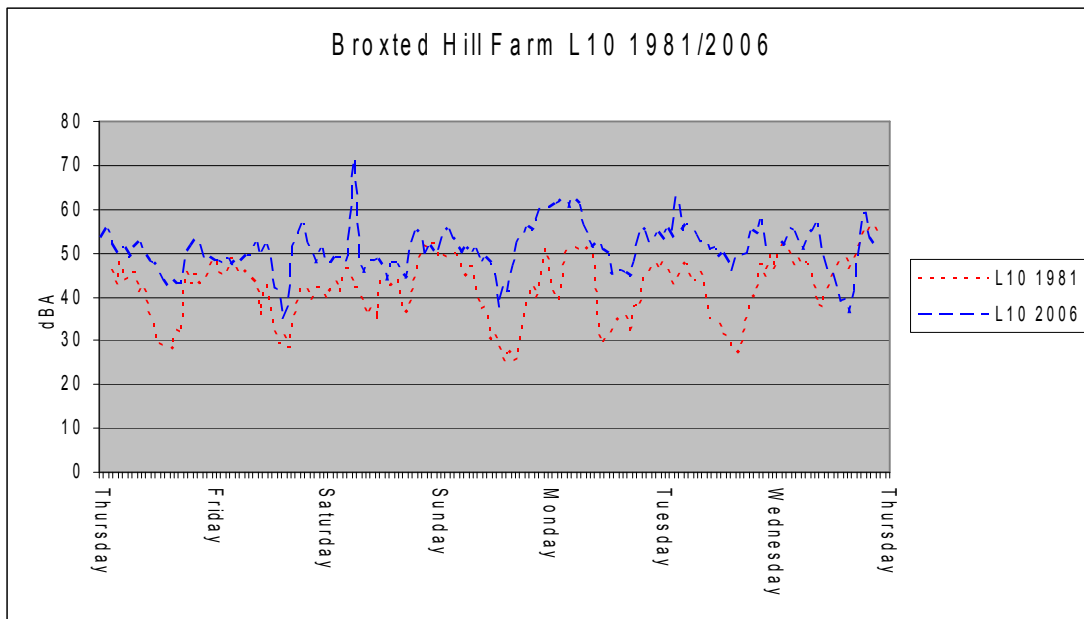
The site is shown as being just outside the 54 dBA L_{eq} contour on the 2004 summer easterly 16hr day contour map and there is a close correlation with our 2006 data. When aircraft were using runway 05 there was an approximate increase in the L_{eq} levels of 8dBA when compared to runway 23.

The weather data for 1981 indicates mostly south westerly winds when runway 23 is likely to have been in use. The 1981 data shows some high peaks but at this distance from the airport it would be unwise to assume that these were due to aircraft movements. Backgrounds levels show little change over the 25 year interval but it must be remembered that the site is some 5km flying distance for departing aircraft from the end of the runway and modern aircraft will be at a greater height, and therefore distance, than they were in 1981.

Broxted Hill, Broxted

It was possible to use the same site as in 1981 (map ref 559023 224947), the location is over flown by aircraft using runway 05 on the Dover route and is 2.2kms to the south east of aircraft arriving on runway 23.





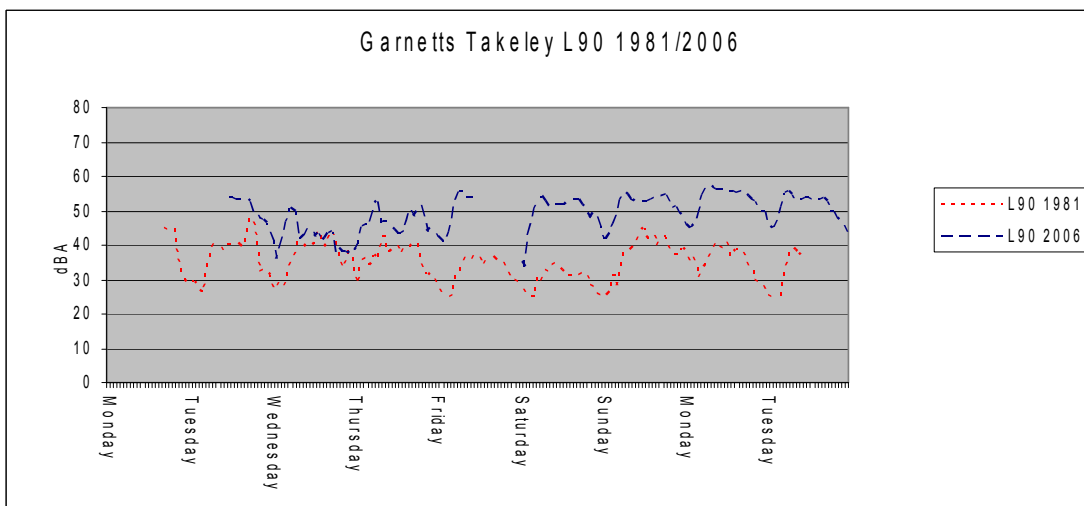
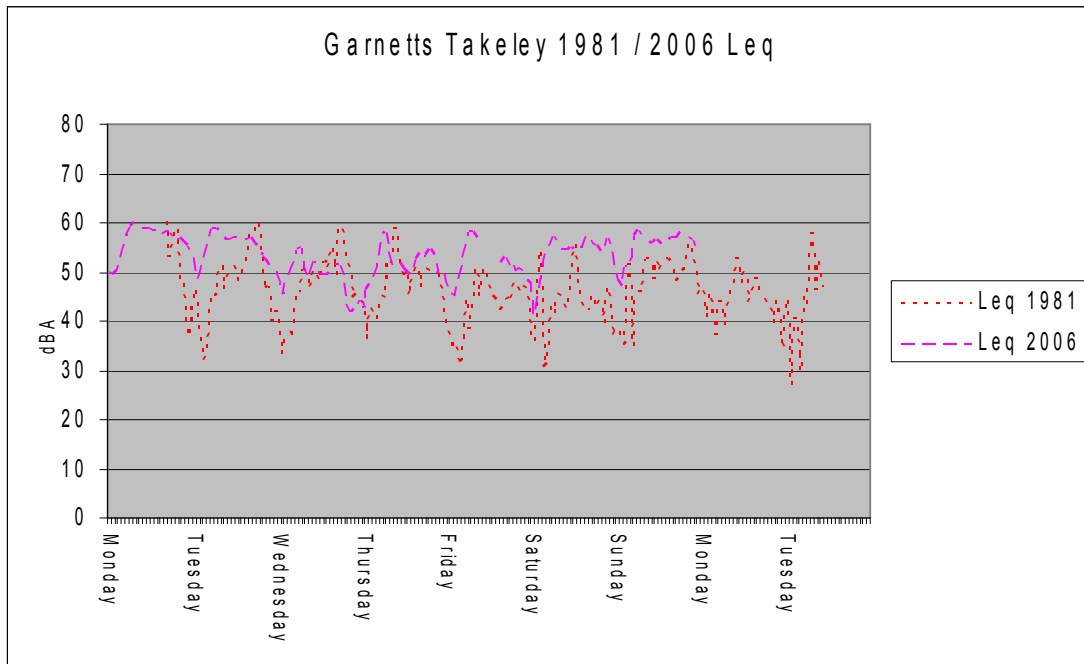
DATES	RUNWAY 23	RUNWAY 05
23/08/2006 Wednesday	317 arrivals and 316 departures	
24/08/2006 Thursday	307 arrivals and 311 departures	2 arrivals and 1 departure
25/08/2006 Friday	317 arrivals and 325 departures	1 arrival
26/08/2006 Saturday	282 arrivals and 270 departures	1 arrival
27/08/2006 Sunday	275 arrivals and 286 departures	1 arrival
28/08/2006 Monday	317 arrivals and 314 departures	
29/08/2006 Tuesday	314 arrivals and 316 departures	
30/08/2006 Wednesday	309 arrivals and 321 departures	8 arrivals and 2 departures

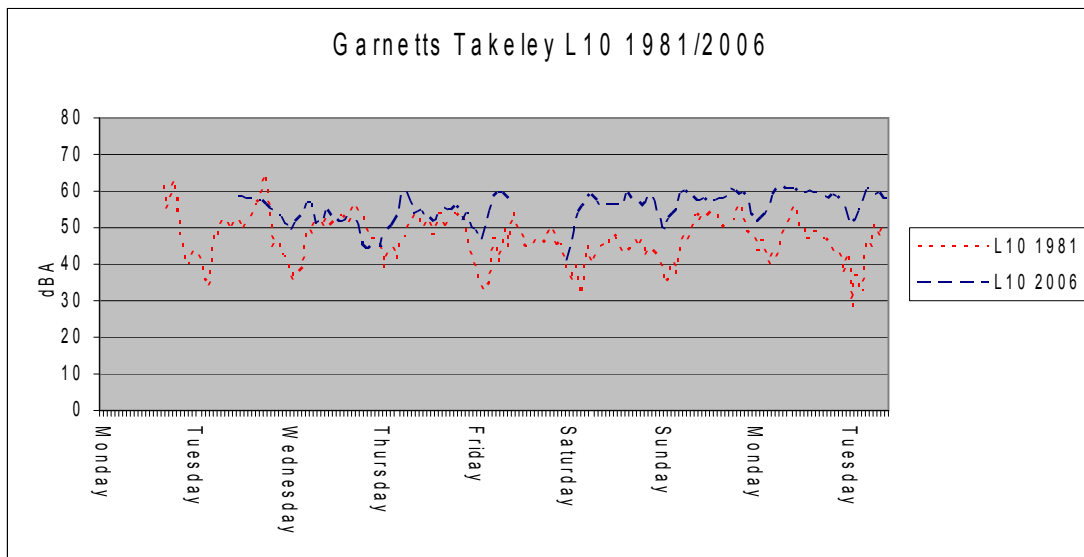
The use of runway 23 for the whole of the period has limited the observations that can be made but on the 2004 summer westerly 16hr day contour map the location is some distance outside the 54dBA L_{eq} contour and the 2006 data suggests a figure around 50dBA L_{eq} which is consistent with the modelled results.

The weather data for 1981 also suggests that runway 23 was in use over the monitoring period. Night time noise levels in 2006 are noticeably higher than in 1981 with the L_{90} level being raised by about 10dBA. The day time L_{eq} levels for 2006 are elevated by about 8dBA when runway 23 was in use.

Garnetts, Takeley

The same site in the rear garden of one of the bungalows was used as in 1981 (map ref 555893 221705). The site is not directly over flown but is some 2.2kms SE from the centre line of the runway and the centre point of the runway with aircraft taking off on both runways influencing ambient noise levels. Since 1981 the A120 has been relocated between the airport and the Garnetts and will have had a major impact on back ground levels in 2006.



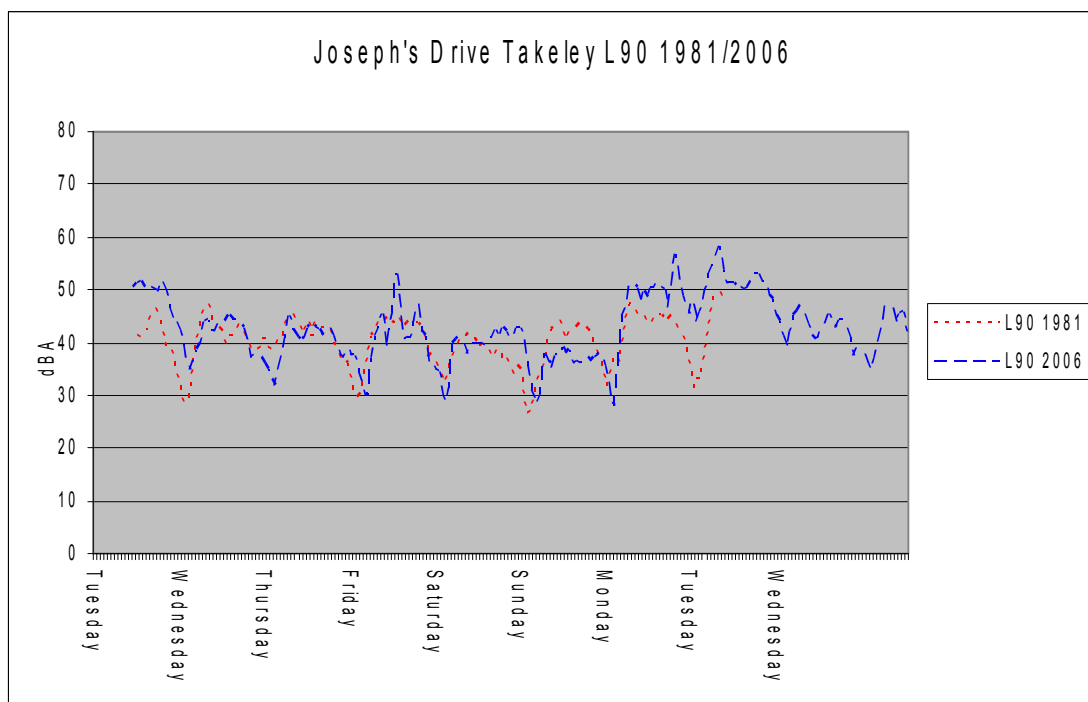
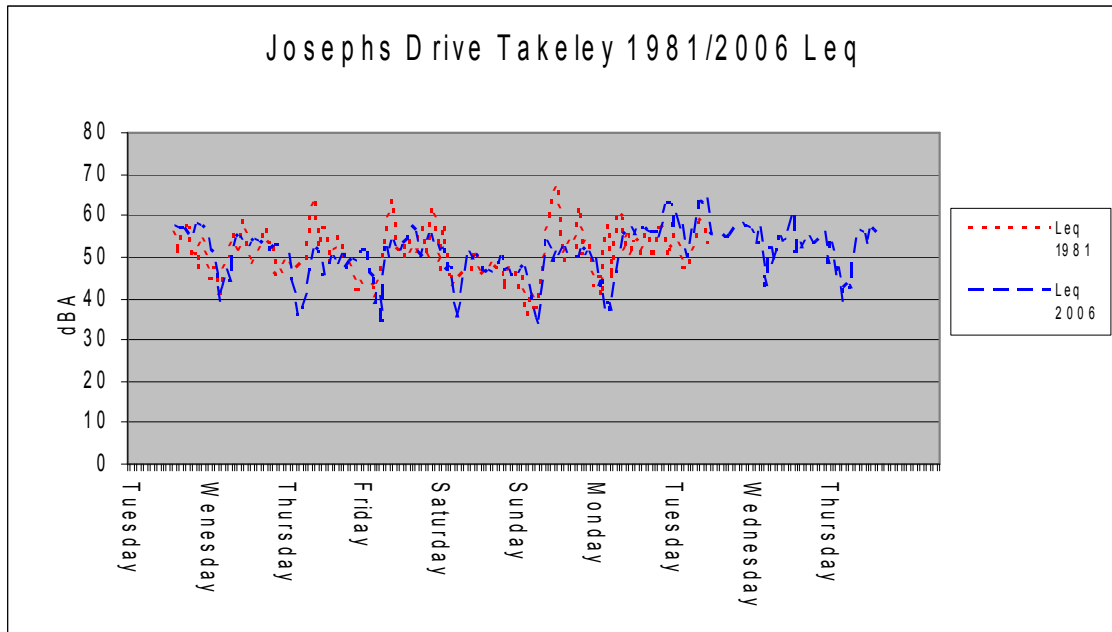


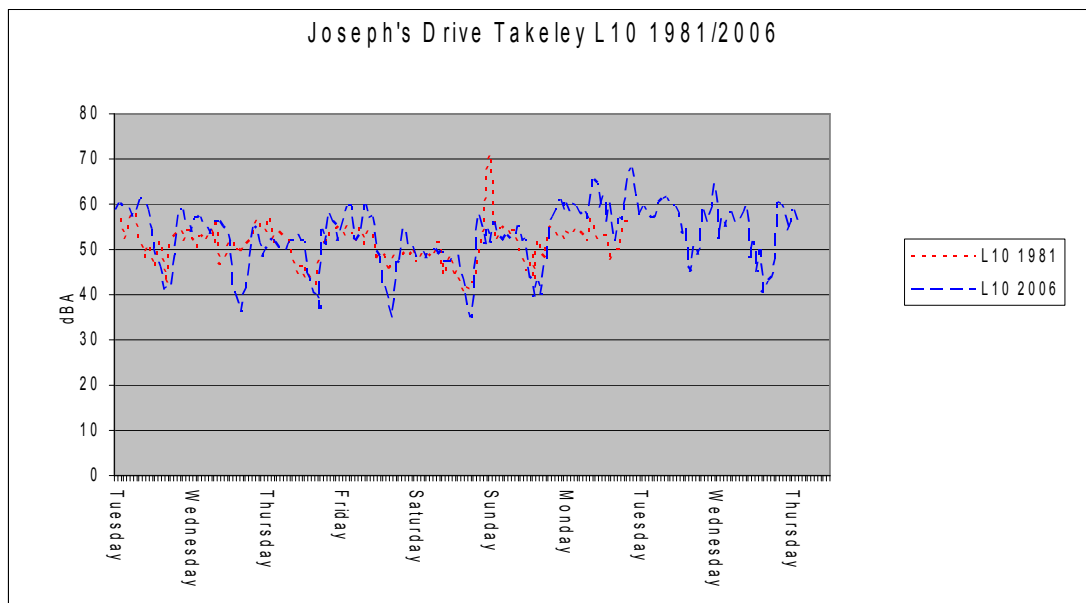
DATES	RUNWAY 23	RUNWAY 05
28/07/2006 Thursday	311 arrivals and 305 departures	8 arrivals and 4 departures
29/07/2006 Friday	269 arrivals and 262 departures	5 arrivals and departures 2
30/07/2006 Saturday	282 arrivals and 283 departures	
01/08/2006 Sunday	295 arrivals and 295 departures	2 arrivals
02/08/2006 Monday	299 arrivals and 308 departures	
03/08/2006 Tuesday	1 arrivals	315 arrivals and 308 departures
04/08/2006 Wednesday	1 departures	319 arrivals and 316 departures

The construction of the A120 between the site and the airport has introduced a noise source which is so dominant that it is not possible to draw any inference from the two sets of data.

Joseph's Drive, The Street, Takeley

The same site in the rear garden of one of the houses was used as in 1981 (map ref 554555 221325). The site is not over flown and lies some 1.6kms to the SE of the centre line of the runway at its SW end. The site is likely to be affected by airport and aircraft noise regardless of the runway which is in use. Since 1981 the A120 has been relocated between the airport and Joseph's Drive and will have had an impact on back ground levels in 2006.



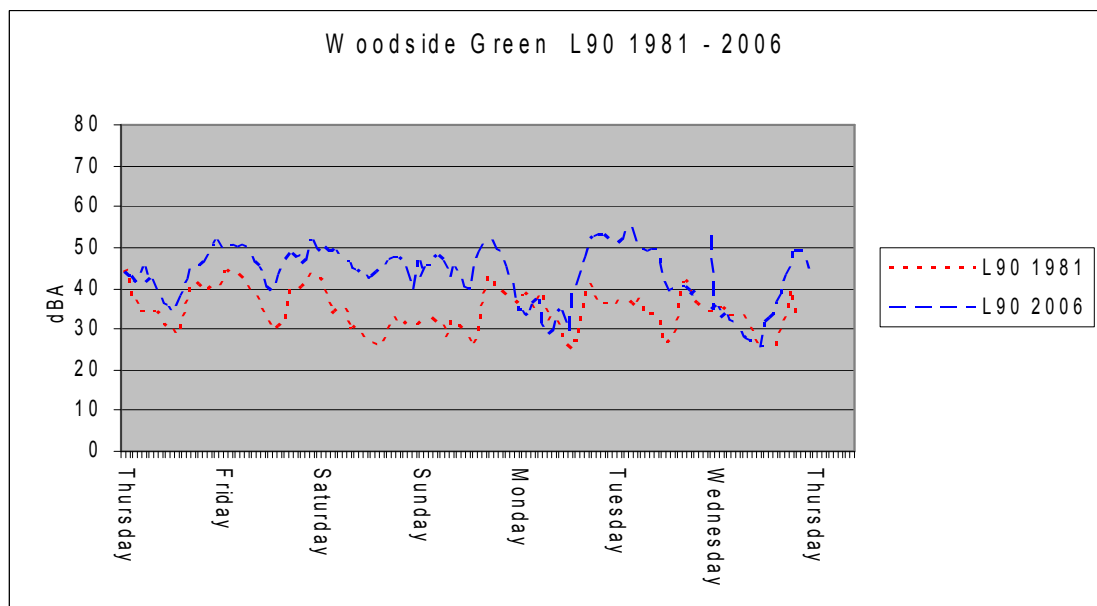
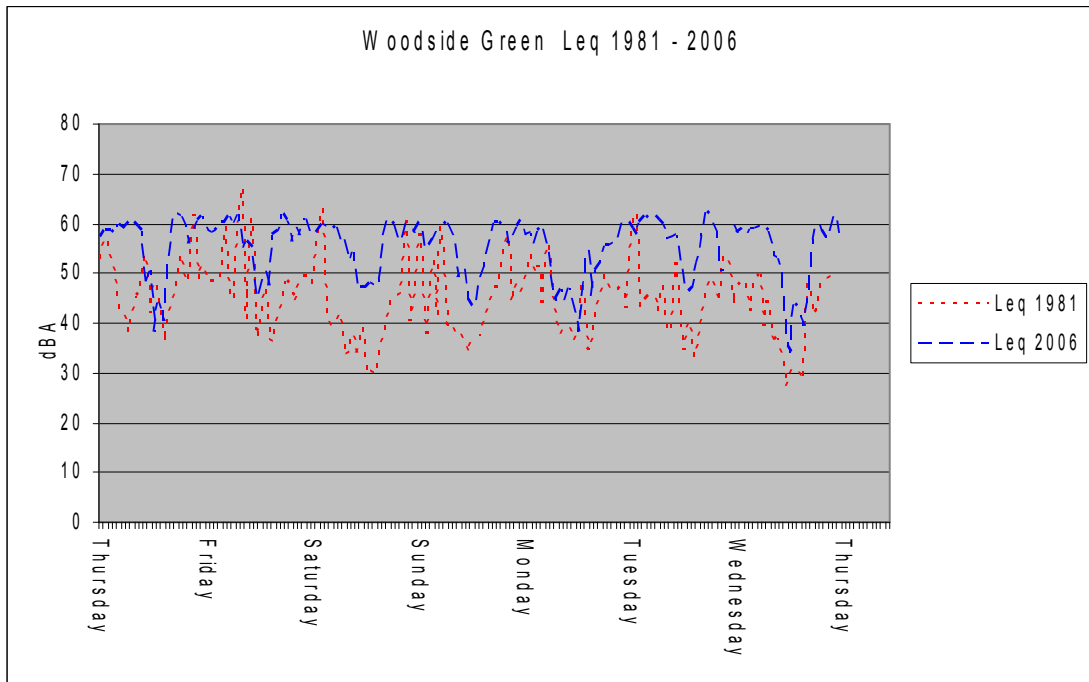


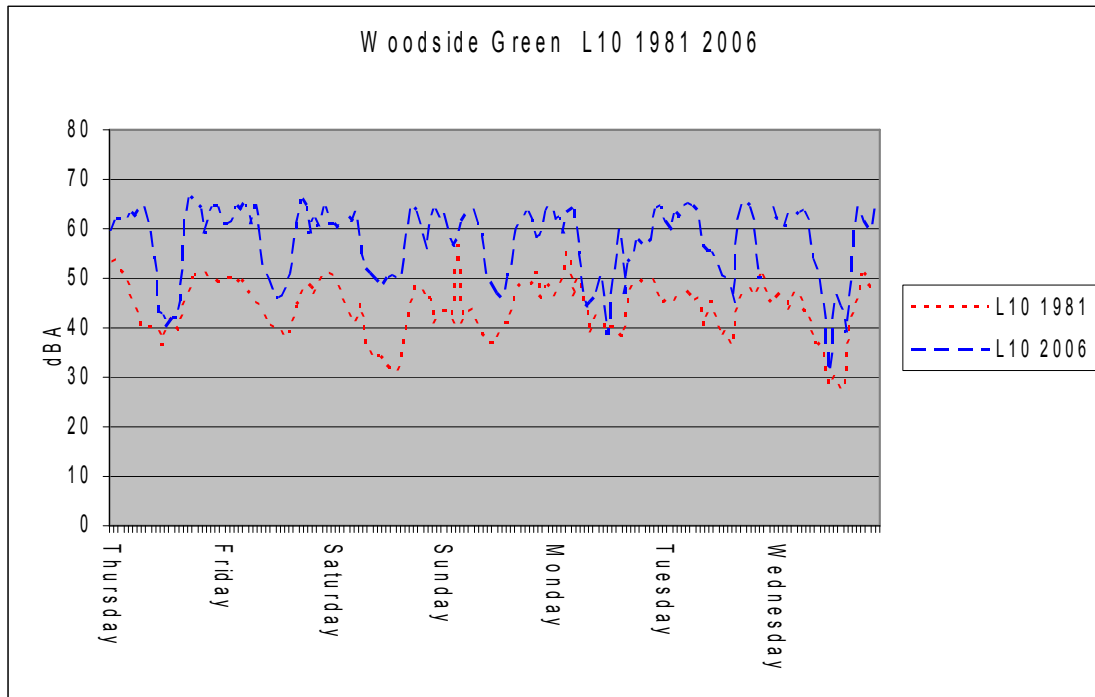
DATES	RUNWAY 23	RUNWAY 05
19/09/2006 Tuesday	311 arrivals and 317 departures	1 departures
20/09/2006 Wednesday	324 arrivals and 331 departures	
21/09/2006 Thursday	308 arrivals and 309 departures	
22/09/2006 Friday	313 arrivals and 323 departures	
23/09/2006 Saturday	106 arrivals and 140 departures	170 arrivals and 117 departures
24/09/2006 Sunday	267 arrivals and 277 departures	
25/09/2006 Monday	265 arrivals and 218 departures	44 arrivals and 87 departures
26/09/2006 Tuesday	305 arrivals and 310 departures	
27/09/2006 Wednesday	321 arrivals and 321 departures	
28/09/2006 Thursday	314 arrivals and 316 departures	

The construction of the A120 between the site and the airport will have affected the noise climate at this location, however the road is in a cutting at this point and the effect of traffic noise is not as dominant as at the Garnetts' site. The previous route of the A120 passed within 50m of the monitoring site but would have been masked to some extent by the buildings. The results from the two sets of data are very similar and may be explained by a nett reduction in the road noise but an increase in the airport and aircraft related noise which has maintained the noise climate at a similar level between the two monitoring periods.

Woodside Green, Great Hallingbury

It was not possible to use the 1981 site so a new site was found within about 150m of the original location (map ref 551984 218276). The site is within the swathes of the Dover and Clacton routes when the 23 runway is in use, and about 2kms to the SW of landing aircraft when they are about 3kms from the runway when using 05.





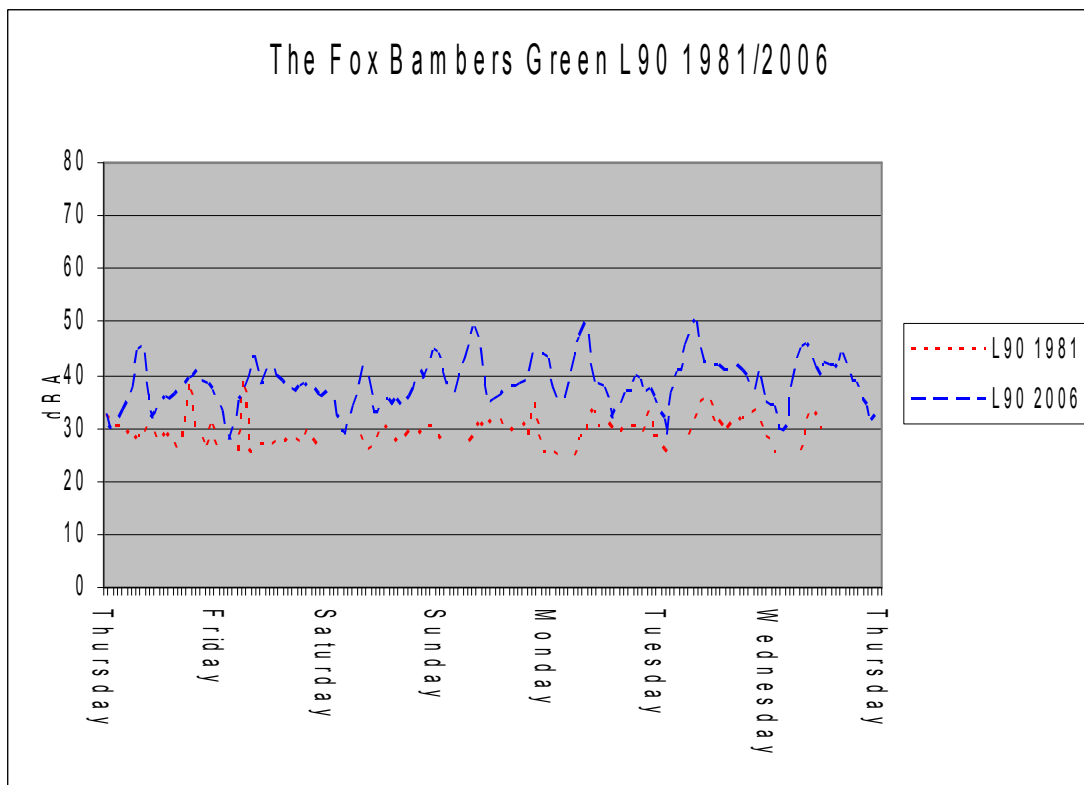
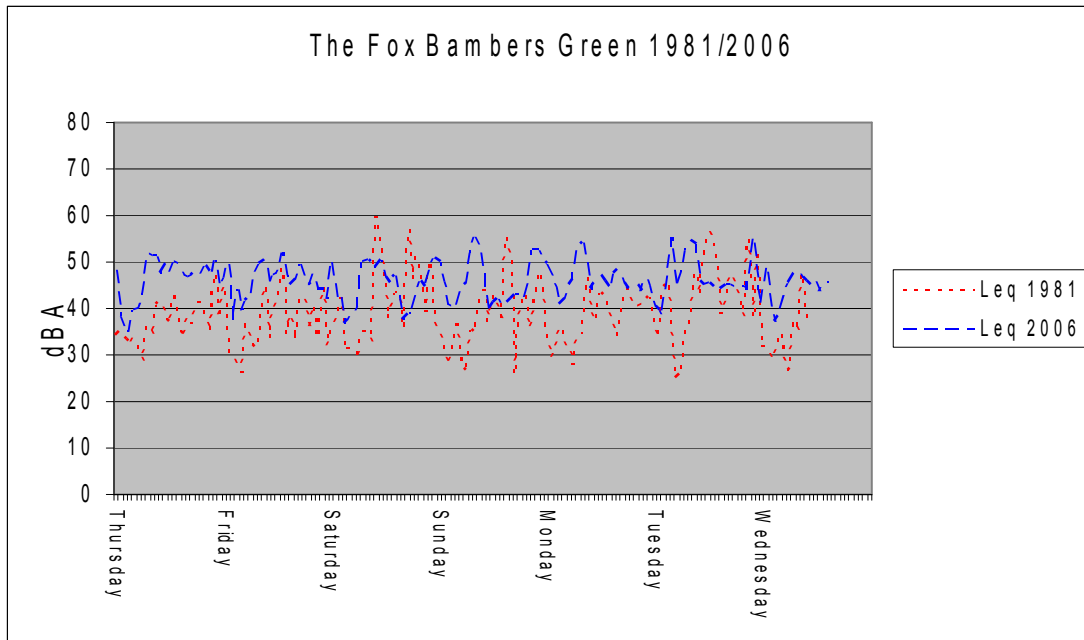
DATES	RUNWAY 23	RUNWAY 05
18/10/2006 Wednesday	303 arrivals and 314 departures	
19/10/2006 Thursday	289 arrival and 275 departures	21 arrivals and 31 departures
20/10/2006 Friday	310 arrivals and 315 departures	
21/10/2006 Saturday	257 arrivals and 255 departures	
22/10/2006 Sunday	260 arrivals and 265 departures	
23/10/2006 Monday	199 arrivals and 227 departures	87 arrivals and 71 departures
24/10/2006 Tuesday	231 arrivals and 200 departures	84 arrivals and 100 departures
25/10/2006 Wednesday	190 arrivals and 196 departures	123 arrivals and 125 departures.

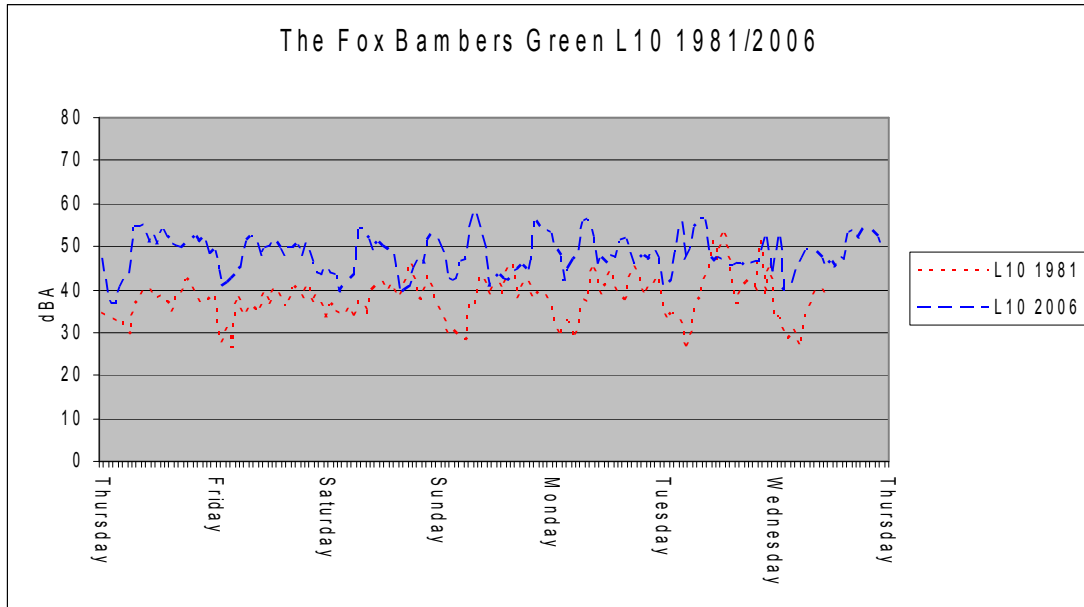
The 2004 modelled baseline contour for westerly approaches on runway 23 predicts 16hr daytime L_{eq} levels of between 57dB A L_{eq} and 54dB A L_{eq} which correlates reasonably well with our observed data.

The weather data for 1981 indicates westerly winds so runway 23 was most likely to have been in use. The hourly L_{eq} data for 1981 shows some high peaks which are not in the hourly L10 data indicating a very few noisy events lasting for less than 6 minutes each hour. In contrast the 2006 data shows both L_{eq} and L10 are much more similar indicating a steady level of noise some 10dB A higher than 1981. L90 figures indicate about an 8dB A increase over the 1981 data.

Bambers Green, Takeley

It was possible to use the same location as in 1981 (map ref 557463 223134), the site is 2.5kms to the SE of the north easterly end of the runway. It is not over flown but lies between the runway and the Dover departure route when runway 05 is in use.





DATES	RUNWAY 23	RUNWAY 05
07/09/2006 Thursday	247 arrivals and 213 departures	65 arrivals and 104 departures
08/09/2006 Friday		312 arrivals and 317 departures
09/09/2006 Saturday		268 arrivals and 255 departures
10/09/2006 Sunday	102 arrivals and 145 departures	172 arrivals and 137 departures
11/09/2006 Monday	293 arrivals and 301 departures	6 arrivals and 3 departures
12/09/2006 Tuesday	270 arrivals and 273 departures	32 arrivals and 30 departures
13/09/2006 Wednesday	312 arrivals and 326 departures	10 arrivals and 5 departures
14/09/2006 Thursday	304 arrivals and 311 departures	17 arrivals and 6 departures

The construction of the A120 has brought the road 1km nearer to this location but still some 800m away and is not thought to be a dominant source of noise during the day. The weather data for 1981 indicates runway 05 in use on Thursday and Friday and 23 as the most likely for the rest of the monitoring period.

There is an approximate 8dBA increase in background noise levels over the 25 year period. The L_{eq} data for 1981 shows some high peaks during the day and consistently low levels at night, in contrast the 2006 data shows L_{eq} levels relatively steady during the day, particularly when runway 05 was in use, and night time levels some 10dBA higher although road noise may be more dominant at this time.