

COMMENTS ON NOISE ASPECTS OF THE DFT CONSULTATION DOCUMENT

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27 August 2002

"The consultation is based on six scenarios, identified by the abbreviations RRC SEC, UKC, FG, FL and CG.

The forecast passenger growth under these scenarios is as follows, in million passengers per annum (mppa), with existing traffic stated as 2.2 mppa:

	2015	2030
RRC	7.5	11-14 (mid-point 12.5)
SEC	16.0	26.5
UKC	3.6	3.6
FG	7.1	9.7
FL & CG	No qualitative forecast: FL slightly higher than RRC	

The forecasts in terms of Air Transport Movements (ATMs) for 2030 are as follows, with existing ATMs stated as 43 500. (According to the Environmental Statement (ES), in 1998, EMA had 69,510 aircraft movements.)

	2015	2030
RRC	68 000	123 000
SEC	68 000	239 000

Figures are given for freight for 2030 as 66,000 ATMs plus 4,958 mail ATMs. It is not clear whether these are included in the general forecast quoted above, but if they are not added the forecast indicates a reduction in ATMs for 2015 (compared with 69510 for 1998).

Two new runway options for EMA are considered, a new north wide-spaced runway and a new south wide-spaced runway.

NOISE IMPLICATIONS

Leaving aside effects such as the possible introduction of 'Chapter 4' aircraft through the ICAO Annex 16 noise certification process, the above ATM growth forecasts equate to broad increases in L_{Aeq} levels, of 2 dB for 2015, and 4.5 dB (RRC) or 7.4 dB (SEC) if the base is taken as 43 500. The increases are 2.5 dB and 5.5 dB with a base of 69510 (or 6.5 dB if freight and mail are added to the total). It should be noted that the forecast growth in mppa is higher than the forecast growth in ATMs, indicating higher payloads.

The Consultation document includes the results of noise modelling with an assumption on improvements to the current Chapter 3 aircraft noise standards of -8 dBA. (An alternative assumption of -14 dBA is also made).

A set of daytime noise contours is provided, computed by Halcrow, for three cases, all for 2030. The three cases are all for RRC with the –8 dB assumption.

- Maximum use of existing runway (Figure 4.6)
- New North Wide Spaced Runway (Figure 4.7)
- New South Wide Spaced Runway (Figure 4.8)

The ES daytime air noise contour for 57 dB L_{Aeq} for 2000 is a simple torpedo-shape stretching from just beyond the western end of the motor racing circuit to just east of Sutton Bonington, with only parts of Castle Donington and Kegworth included. The corresponding figure in the ES for 2016 reached the outskirts of Melbourne and includes West Leake. The Figure 4.6 and 4.8 contours have three lobes at each end enclosing the whole of Melbourne to the west and half of East Leake to the east, plus significant parts of Castle Donington and Kegworth. Figure 4.7 includes the whole of East Leake.

If the –8dB assumption were not made, the contours would be very much larger. There is consideration of a –14dB option, which reduces the population within the 57 dB L_{Aeq} contour by about 20%; and within the 63dB L_{Aeq} contour by about 40%.

Areas within the daytime contours are given, although the latest figures used for 'existing' are for 1996. Note that the 'change' column is relative to the 'max use' column, not to the 1996 column as suggested by the caption to the table.

Table 4.28: East Midlands daytime aircraft noise contours 2030 vs existing situation

LAeq (dB)	Area (sq km)					
	1996	Max use	North wide spaced		South wide spaced	
	Total	Total	Total	Change	Total	Change
>54	n/a	78.3	126.4	48.1	146.4	68.1
>57	7.5	44.2	79.1	34.9	89.5	45.3
>60	4.6	25.3	48.6	23.3	51.2	25.9
>63	2.7	15.1	30.5	15.4	27.7	12.6
>66	1.6	9.0	17.4	8.4	15.5	6.5
>69	1.0	5.1	8.7	3.6	8.4	3.3
>72	0.7	2.7	4.5	1.8	4.4	1.7
LAeq (dB)	Population (000s)					
	1996	Max use	North wide spaced		South wide spaced	
	Total	Total	Total	Change	Total	Change
>54	n/a	19.8	24.0	4.2	26.5	6.7
>57	n/a	14.7	19.0	4.3	19.2	4.5
>60	n/a	8.4	10.6	2.2	10.4	2.0
>63	n/a	2.8	6.5	3.7	3.5	0.7
>66	n/a	1.1	1.5	0.4	1.4	0.3
>69	n/a	0.8	0.7	-0.1	0.6	-0.2

>72	n/a	0.5	0.3	-0.2	0.3	-0.2
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The comparable area figures given in EMA's letter of 8 October 2001 are 16.03 sq km within the 57 dB daytime L_{Aeq} contour and 5.50 sq km within the 63 dB daytime L_{Aeq} contour. The comparable population figures for 1996 (quoted in the Rupert Taylor Noise Review) are of the order of 1500 within the 57 L_{Aeq} ; 1000 within the 60 L_{Aeq} contour and 100 within the 63 L_{Aeq} contour.

Population counts for night noise are tabulated in terms of populations within the 90 SEL footprint as follows:

Table 4.29: East Midlands night noise population counts: Easterly operations (thousands)

Runway	Max use	North wide spaced		South wide spaced	
Route	09	09L	09R	09L	09R
Departures					
DTY	4.2	8.5	1.7	8.5	2.6
TNT	4.3	4.3	1.7	4.3	2.4
Average	4.3	6.4	1.7	6.4	2.5
Arrivals					
	2.2	2.2	0.3	2.2	0.1

Table 4.30: East Midlands night noise population counts: Westerly operations (thousands)

Runway	Max use	North wide spaced		South wide spaced	
Route	27	27L	27R	27L	27R
Departures					
DTY	4.7	4.9	3.2	4.9	1.0
TNT	1.4	1.4	4.2	1.4	1.5
Average	3.1	3.2	3.7	3.2	1.3
Arrivals					
	1.3	1.3	0.6	1.3	0.6

The comparable ES figures relate to populations within the L_{Aeq} contours, and not within the 90 SEL footprints. However, the 90 SEL footprint is not sensitive to aircraft numbers, and the above figures are for a B747-400 (without, presumably, the -8dB assumption, although this is not clear) and the 'max use' column can be taken as representative of the existing footprint for this aircraft.

No contours or population/area tables are given in the consultation document, or the supporting reports, for the SEC case. The effects of the SEC case can, however, be assessed by re-labelling all the contours (for the two runway cases) 3 dB higher, and moving all the tabulated data down one line, i.e. on maximum use of the existing runway 24000 people would live within the 57 dB L_{Aeq} daytime noise contour with the north wide-spaced runway. The SEC case would exceed the capacity of a single runway.

The resulting SEC population estimates are as follows:

East Midlands daytime aircraft noise contours 2030 (SEC Case)

LAeq (dB)	Area (sq km)	
	North wide spaced	South wide spaced
	Total	Total
>57	126.4	146.4
>60	79.1	89.5
>63	48.6	51.2
>66	30.5	27.7
>69	17.4	15.5
>72	8.7	8.4
>75	4.5	4.4
LAeq (dB)	Population (000s)	
	North wide spaced	South wide spaced
	Total	Total
>57	24.0	26.5
>60	19.0	19.2
>63	10.6	10.4
>66	6.5	3.5
>69	1.5	1.4
>72	0.7	0.6
>75	0.3	0.3

Overall, these populations are generally greater than the present day figures for all other existing UK airports, except Heathrow, whose present day noise-exposed populations are about ten times those projected for EMA in 2030.

SUMMARY

The consultation document presents a range of forecasts for increases in air transport movements which it refers to as being up to 5 times the existing number. In terms of the actual existing numbers of ATMs the increase is less, and relative to the ES figures is about 3.5 times.

All other things being equal, this would increase noise exposure by up to 6.5 dB relative to 1998 if it is right to add freight and mail to the forecast total (5.5 dB otherwise). The consultation documents include noise contours for the RRC case, assuming aircraft to be 8 dB quieter than 'Chapter 3'. Modern aircraft do tend to have noise levels significantly better than 'Chapter 3', and there are moves to introduce a 'Chapter 4' standard to reflect this. On this basis, the population within the 57 dB LAeq daytime noise contour would increase to about 19,000 from the 1996 figure of 1500, the population within the 60 dB LAeq daytime noise contour would increase to over 10,000 compared with a 1996 figure of 1,000 and the population within the 63 dB LAeq daytime noise contour would increase up to 6,500 compared with a 1996 figure of 100. For the SEC case the populations would be up to 26 500 at 57 dB,

19,200 at 60 dB, 10,400 at 63 dB. Significant numbers of people appear in the very high category of over 75 dB LAeq.

Night noise is assessed in the consultation documents only in terms of 90 SEL footprints, which are not sensitive to ATM numbers, however, the forecast freight ATM figure is similar to the 1998 total ATM figure."

