LONDON ASHFORD AIRPORT, LYDD

AMBIENT AIR QUALITY MONITORING

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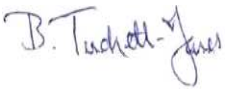
Checked by	**:**	 **.....** **Bethan Tuckett-Jones**
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EXECUTIVE SUMMARY

A six month monitoring survey of nitrogen dioxide, hydrocarbons (benzene, toluene, ethyl-benzene and xylene) and ammonia has been undertaken using diffusion tubes in the vicinity of London Ashford Airport, Lydd (LAA).

Period mean nitrogen dioxide and benzene concentrations for the monitoring period are well below their respective air quality objectives. On the assumption that the monitoring period is representative of the annual mean, it is considered unlikely that the objectives were exceeded in 2006.

Nitrogen dioxide concentrations are highest at roadside sites, indicating that road transport is the primary source of pollution in the vicinity of LAA. The monitored pollutant concentrations at the roadside are consistent with the predictions of the Design Manual for Roads and Bridges (DMRB) Screening Method for present traffic levels. The monitoring data indicate that activities at LAA do not, at present, contribute significantly to nitrogen dioxide pollution levels in the area.

The period mean ammonia concentrations are well within the Environment Agency's environmental assessment levels, and are within the World Health Organisation (WHO) guideline for the protection of vegetation. Ammonia levels are elevated in comparison to levels monitored in the UK National Ammonia Monitoring Network in south-east England, which may indicate the presence of a nearby agricultural source. Activities at LAA are not considered to be a potential source of ammonia.

Monitored concentrations of toluene, ethyl-benzene, and xylene are insignificant in comparison to environmental assessment levels.

INTRODUCTION

1 INTRODUCTION

1.1 Overview

1.1.1 A six month monitoring survey of nitrogen dioxide, hydrocarbons (benzene, toluene and xylene) and ammonia has been undertaken using diffusion tubes in the vicinity of London Ashford Airport (LAA). The monitoring locations, 10 sites, are shown in Figure 1 and these were selected as being representative of the surrounding area. The monitoring covered the period between 22 March 2006 and 30 September 2006.

1.2 Assessment Levels

1.2.1 The UK's National Air Quality Strategy[1, 2] sets out objectives for the concentration of 9 key pollutants, including benzene and nitrogen dioxide, in ambient air. The objectives relevant to the pollutants monitored in this study are summarised below in Table 1.1. The objectives were set for the protection of human health and the monitoring data is assessed against these objectives.

Table 1.1 Air quality objectives relevant to the study

Pollutant	Air Quality Objective		Date to be achieved by
	Concentration	Measured as	
Benzene	16.25 µg/m^3	Running annual mean	31.12.2003
	5.00 µg/m^3	Annual mean	31.12.2010
Nitrogen dioxide[a]	200 µg/m^3 not to be exceeded more than 18 times a year	1 hour mean	31.12.2005
	40 µg/m^3	Annual mean	31.12.2005

a. The objectives for nitrogen dioxide are provisional. These Objectives are equivalent to the EU Limit value to be met by 2010

1.2.2 Ammonia is not, at present, included in the Air Quality Strategy. The monitored concentrations of ammonia are, therefore, assessed against Environmental Assessment Levels (EALs)[3] and the guideline set out by the World Health Organisation (WHO) for the protection of vegetation, as shown in Table 1.2.

[1] Department of the Environment, Transport and the Regions (2000) in partnership with the Scottish Executive, the National Assembly for Wales, and the Department of the Environment for Northern Ireland. The Air Quality Strategy for England, Scotland, Wales and Northern Ireland (Working together for Clean Air)
[2] Department of the Environment, Transport and the Regions (2003) in partnership with the Scottish Executive, the National Assembly for Wales, and the Department of the Environment for Northern Ireland. The Air Quality Strategy for England, Scotland, Wales and Northern Ireland: Addendum
[3] Environment Agency (2003) Integrated Pollution Prevention and Control (IPPC), Horizontal Guidance Note H1, Environmental Appraisal and Appraisal of Best Available Technique (BAT).

Table 1.2 Assessment levels for ammonia

Pollutant	Standard/Guideline		Source
	Concentration	Measured as	
Ammonia	2500 µg/m^3	Hourly mean	IPPC H1
	180 µg/m^3	Annual mean	IPPC H1
	8 µg/m^3	Annual mean	WHO

1.2.3 Toluene, ethyl-benzene and xylene are also not included in the Air Quality Strategy. The monitored concentrations of these pollutants are therefore assessed against Environmental Assessment Levels (EALs), set out in IPPC H1[3]. The assessment levels for hydrocarbons, excluding benzene, are shown in Table 1.3. These pollutants are routinely monitored with benzene and have been included for completeness.

Table 1.3 Assessment levels for hydrocarbons (except benzene)

Pollutant	Standard/Guideline		Source
	Concentration	Measured as	
Toluene	1910 µg/m^3	Annual mean	IPPC H1
Xylene, o-, m-, p- or mixed	4410 µg/m^3	Annual mean	IPPC H1
Ethyl-benzene	4410 µg/m^3	Annual mean	IPPC H1

1.2.4 The UK Air Quality Strategy and WHO guidelines also set a critical level for the oxides of nitrogen, which were not directly monitored in the present study. However, analysis of the relationship between nitrogen dioxide and oxides of nitrogen at monitoring stations throughout the UK give an empirical relationship developed[4] to estimate the concentration of oxides of nitrogen from nitrogen dioxide concentrations. The critical level of oxides of nitrogen is shown in Table 1.4.

Table 1.4 Assessment levels for oxides of nitrogen

Pollutant	Air Quality Objective		Source
	Concentration	Measured as	
Oxides of nitrogen [1]	30 µg/m^3	Annual mean	EU Directives

1. These objectives are for the protection of vegetation and ecosystems, and apply to those parts of the UK which are more than 20km from a conurbation of more than 250,000 people; and greater than 5km distance from industrial sources regulated under Part A of the 1990 Environment Act, motorways and build-up areas of more than 5000 people.

[4] Air Quality Expert Group (2003) Nitrogen Dioxide in the United Kingdom.

METHODOLOGY

2 METHODOLOGY

2.1 Overview

2.1.1 Nitrogen dioxide, benzene and ammonia diffusion tubes were located at the 10 locations shown in Figure 1. The national grid co-ordinates of the monitoring locations are shown in Tables 2, 3 and 4.

2.1.2 Monitoring was undertaken for a period of 6 months, commencing on 22 March 2006. The diffusion tubes, supplied by Gradko International Limited, were changed at (approximately) monthly intervals and returned to the Gradko laboratory for analysis. Gradko participate in the UK National Diffusion Tube Network and the Workplace Analysis Scheme for Proficiency (WASP). In addition, they currently hold UKAS accreditation for analysis of diffusion tubes.

2.2 Nitrogen dioxide

2.2.1 Nitrogen dioxide concentrations were measured at 10 locations (Figure 1). Single tubes were located at 8 locations, and triplicate tubes located at 2 locations. The nitrogen dioxide tubes were prepared using the 20% Triethaolamine (TEA) in water method by Ultra Violet (UV) spectrophotometry. This is a standard measuring technique for nitrogen dioxide.

2.2.2 The nitrogen dioxide results are presented as bias adjusted data, in accordance with the technical guidance Local Air Quality Management (LAQM).TG (03)[5] and the Review and Assessment Helpdesk[6] recommendations. In the absence of local co-location data, the national bias adjustment factor for this laboratory and tube preparation methodology was used i.e. 0.96 based on 12 studies. This factor was provided by the LAQM bias adjustment factor spreadsheet (Version Number: 09/06) published by Air Quality Consultants Ltd.

2.2.3 The monitoring period mean concentrations, over the 6 month period, for each location were calculated using a time weighted method. These period mean concentrations were then used to estimate annual mean concentrations using the methodology set out in LAQM TG(03)[5]. The methodology requires the use of continuous air quality monitoring data from long-term background monitoring sites located within 50 miles of the monitoring sites. Rochester and Lullington Heath stations, part of the Automatic Urban and Rural Network (AURN) national network, were identified as suitable for use in the estimation of annual mean concentrations (Appendix A). Measured concentrations of nitrogen dioxide at these sites were used in the calculation of the correction factor to estimate the 2005 annual average. Finally, the estimated annual average nitrogen dioxide concentrations for 2006 were future projected using the factors provided on the Air Quality Archive website[7].

[5] Department for Environment, Food and Rural Affairs (Defra). 2003b. LAQM TG(03): Technical Guidance: Local Air Quality Management

[6] www.uwe.ac.uk/aqm/review/

[7] www.airquality.co.uk/archive/

2.3 Hydrocarbons

2.3.1 Hydrocarbons were measured at two locations (Figure 1) using tubes supplied by Gradko. The benzene/toluene/ethyl-benzene/xylene (BTEX) diffusion tubes were analysed by thermal desorption / gas chromatography, with an uptake rate of 1.28 ng.ppm ^{1}min^{1}.

2.3.2 The monthly diffusion tube results were averaged, using a time weighted method, to produce a period mean. There are no continuous monitoring stations in the vicinity of LAA on which to base the estimation of annual average concentrations of hydrocarbons. Therefore, the data are presented as period (6 monthly) means.

2.4 Ammonia

2.4.1 Ammonia was measured at two locations (Figure 1), using tubes supplied by Gradko, and analysed by ion chromatography.

2.4.2 The monthly diffusion tube results were averaged, using a time weighted method, to produce a period mean. There are no continuous monitoring stations in the vicinity of LAA on which to base the estimation of annual average concentrations of ammonia. Therefore, the data are presented as period (6 monthly) means.

2.5 DMRB Screening Method for Roadside Concentrations

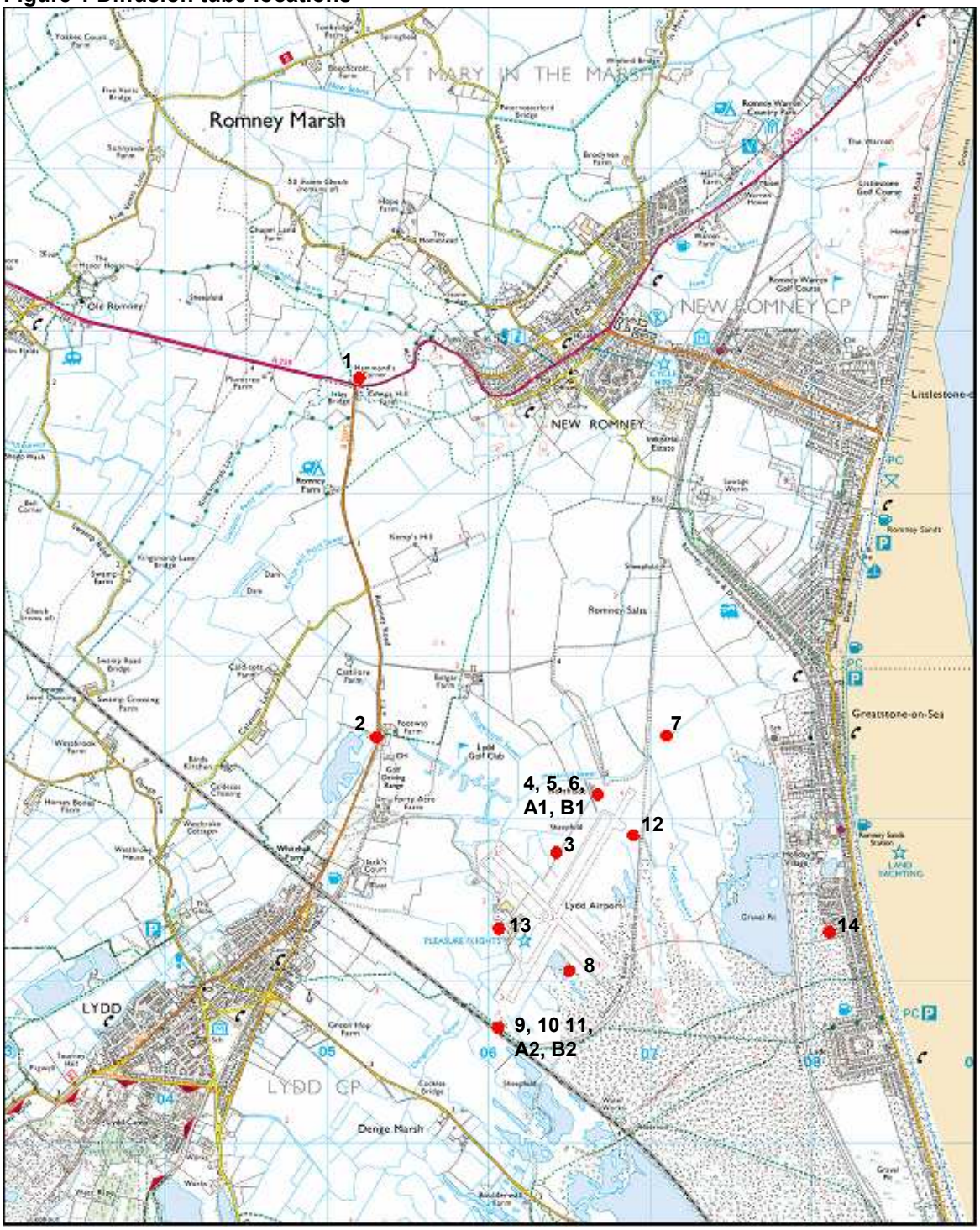
2.5.1 The A259 and B2075 have been identified as potential passenger routes to LAA. Roadside concentrations of pollutants for these routes have been assessed using the DMRB Screening Method[8].

2.5.2 The Screening Method, provided by the Highways Agency in spreadsheet form, requires the input of the distances from receptors to the centreline of relevant road links, traffic data on the road links and the background pollutant concentrations. Relevant road links are defined as those within 200m of the receptor. The traffic data is input as annual averaged daily traffic, speeds and fleet mix (defined as the percentage of light and heavy duty vehicles).

2.5.3 The screening method requires the input of background pollutant concentrations. These have been estimated from the diffusion tube monitoring data undertaken on the airport itself which, given present activity levels, may be considered to be background sites i.e. sites not directly influenced by individual pollutant sources (stacks, roads etc).

[8] Department for Transport. (1994). Design Manual for Roads and Bridges, Volume 11, Part 3, Section 1 Air Quality (Revised February 2003).

Figure 1 Diffusion tube locations



Site No	Location	Pollutant
1	Hammonds Corner	NO_2
2	Foot way Farm B2075	NO_2
3	Anemometer	NO_2
4	Northlade A,	NO_2
5	Northlade B	NO_2
6	Northlade C	NO_2
7	Runway extension	NO_2
8	ILS Localiser	NO_2
9	Railway A	NO_2

Site No	Location	Pollutant
10	Railway B	NO_2
11	Railway C	NO_2
12	210 Runway End	NO_2
13	Carpark	NO_2
14	Greatstone-on-Sea	NO_2
B1	Northlade	Benzene
B2	Railway	Benzene
A1	Northlade	Ammonia
A2	Railway	Ammonia

RESULTS

3 MONITORING RESULTS

3.1 Nitrogen Dioxide

3.1.1 The nitrogen dioxide diffusion tube results are shown in Table 3.1 and can be seen graphically in Figure 2. The monitoring data show it is highly unlikely that there were exceedences of the Air Quality Standards and Objectives at any of the locations in 2005 and 2006.

3.1.2 The nitrogen dioxide diffusion tubes at Northlade and at the Railway were sampled in triplicate (three tubes at the same location). At Northlade, the annual mean concentrations for 2006 for the three tubes have a mean of 14.3µg/m^3 and a standard deviation of 0.26 µg/m^3. At the Railway, the tubes have a mean of 16.4µg/m^3 and a standard deviation of 1.5µg/m^3. These data reflect the adequate consistency of the tube results.

3.2 Hydrocarbons

3.2.1 Benzene, toluene, ethyl-benzene, m+p-xylene[9] and o-xylene[10] diffusion tube results are shown in Tables 3.2 to 3.6, as monthly concentrations and time weighted period means for the two locations. The monitored concentrations are well within the objectives and assessment levels.

3.3 Ammonia

3.3.1 Ammonia diffusion tube results are provided in Table 3.7 as monthly concentrations and time weighted period mean for the two locations. The period mean concentrations are within the assessment level.

[9] Metaxylene and paraxylene
[10] Orthoxylene

Figure 2 Nitrogen dioxide bias adjusted diffusion tube results

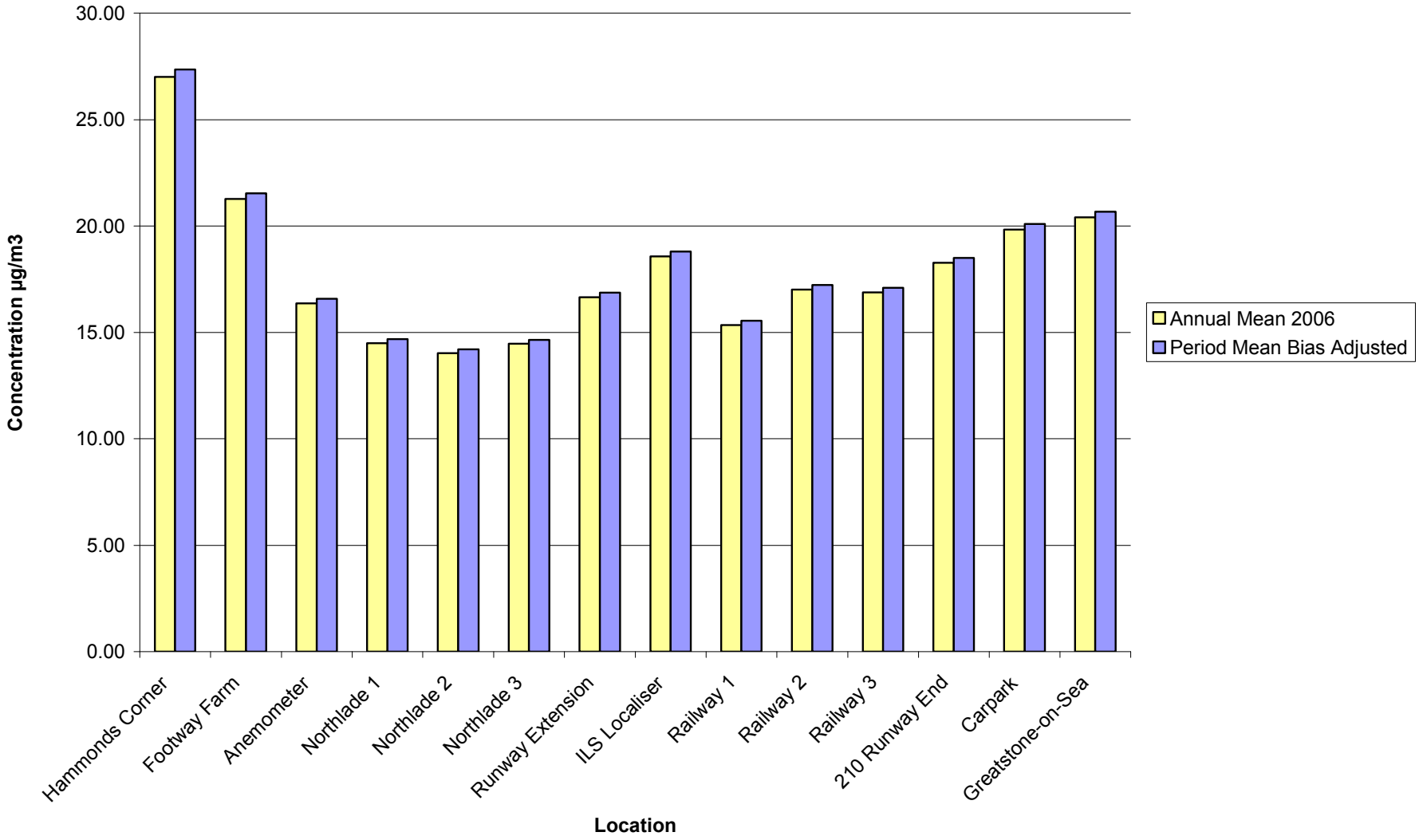


Table 3.1 Monthly mean nitrogen dioxide concentrations from diffusion tube results, period mean and estimated annual mean results 2005 and 2006 in µg/m^3. Assessment level = 40µg/m^3.

Site No	Location	x	y	Month 1	Month 2	Month 3	Month 4	Month 5	Month 6	Time weighted, bias adjusted period mean	Estimated Annual Mean for 2005	Estimated Annual Mean for 2006
1	Hammonds Corner	605197	124715	*25.38*	Void[a]	25.94	33.61	*27.88*	30.93	27.36	27.80	27.01
2	Foot way Farm B2075	605300	122500	21.36	21.73	22.64	26.94	21.08	21.18	21.53	21.88	21.26
3	Anemometer	606412	121791	22.52	11.93	*18.87*	22.42	13.34	15.66	16.57	16.84	16.36
4	Northlade A,	606668	122149	18.25	11.51	*19.09*	22.2	10.25	11.8	14.68	14.92	14.49
5	Northlade B	606668	122149	*15.45*	*12.42*	*19.42*	21.25	*9.97*	11.58	14.20	14.43	14.02
6	Northlade C	606668	122149	Void[a]	16.59	*18.43*	18.3	*9.4*	14.06	14.65	14.89	14.46
7	Runway extension	607094	122513	16.97	15.85	21.03	23.76	12.2	16.93	16.86	17.14	16.65
8	ILS Localiser	606493	121061	19.77	20.76	25.3	21.25	*13.72*	17.26	18.80	19.11	18.57
9	Railway A	606055	120712	19.22	16.44	*12.6*	17.3	13.53	18.78	15.54	15.79	15.34
10	Railway B	606055	120712	20.1	21.49	16.98	19.47	12.63	17.64	17.23	17.51	17.01
11	Railway C	606055	120712	19.04	20.44	17.06	*20.81*	12.58	17.59	17.09	17.37	16.87
12	210 Runway End	606888	121898	14.31	20.32	22.78	21.36	18.27	Void[a]	18.50	18.80	18.26
13	Carpark	606059	121321	21.35	22.97	20.67	24.74	15.72	20.8	20.09	20.41	19.83
14	Greatstone-on-Sea	608100	121300	19.42	25.94	25.51	25.67	14.66	18.29	20.67	21.00	20.41

Results in italic indicate possible tube contamination with spiders and/or webs. These results have not been deemed invalid, but should be treated with caution.

[a] Diffusion tube result invalid due to contamination or missing tube.

Table 3.2 Benzene diffusion tube 6 month mean in µg/m^3. Assessment level = 5µg/m^3.

Site No	Location	x	y	Month 1	Month 2	Month 3	Month 4	Month 5	Month 6	Time weighted period mean
B1	Northlade	606668	122149	0.63	0.56	0.99	0.65	0.48	0.62	0.65
B2	Railway	606055	120712	0.63	0.62	0.68	0.40	0.64	0.68	0.61

Table 3.3 Toluene diffusion tube 6 month mean in µg/m^3. Assessment level = 1910µg/m^3.

Site No	Location	x	y	Month 1	Month 2	Month 3	Month 4	Month 5	Month 6	Time weighted period mean
B1	Northlade	606668	122149	3.46	0.94	0.95	0.71	0.93	1.07	1.37
B2	Railway	606055	120712	2.05	1.18	0.76	0.95	0.79	0.92	1.11

Table 3.4 Ethyl-benzene diffusion tube 6 month mean in µg/m^3. Assessment level = 4410µg/m^3.

Site No	Location	x	y	Month 1	Month 2	Month 3	Month 4	Month 5	Month 6	Time weighted period mean
B1	Northlade	606668	122149	0.33	0.25	0.39	0.26	0.32	0.29	0.30
B2	Railway	606055	120712	0.26	0.30	0.30	0.33	0.29	0.34	0.30

Table 3.5 m+p–xylene[b] diffusion tube 6 month mean in µg/m^3. Assessment level = 4410µg/m^3.

Site No	Location	x	y	Month 1	Month 2	Month 3	Month 4	Month 5	Month 6	Time weighted period mean
B1	Northlade	606668	122149	0.46	0.50	0.38	0.34	0.41	0.58	0.45
B2	Railway	606055	120712	0.34	0.42	0.30	0.53	0.35	0.64	0.42

[b] Metaxylene and paraxylene

Table 3.6 O–xylene[c] diffusion tube 6 month mean in µg/m^3. Assessment level = 4410µg/m^3.

Site No	Location	x	y	Month 1	Month 2	Month 3	Month 4	Month 5	Month 6	Time weighted period mean
B1	Northlade	606668	122149	0.18	0.17	0.18	0.58	0.16	0.26	0.25
B2	Railway	606055	120712	0.16	0.15	0.17	0.32	0.07	0.27	0.19

[c] orthoxylene

Table 3.7 Ammonia diffusion tube 6 month mean in µg/m^3. Assessment level = 8µg/m^3.

Site No	Location	x	y	Month 1	Month 2	Month 3	Month 4	Month 5	Month 6	Time weighted period mean
A1	Northlade	606668	122149	4.75	13.29	2.33	1.43	0.58	12.57	6.03
A2	Railway	606055	120712	1.36	16.33	0.35	3.66	0.13	Void[a]	3.97

[a] Diffusion tube result invalid due to contamination or missing tube.

DISCUSSION

4 DISCUSSION

4.1 Analysis

Nitrogen Dioxide

4.1.2 The monitored period mean and estimated annual mean nitrogen dioxide concentrations are well below the objective of 40µg/m^3 set by the UK NAQS at all monitoring locations. In addition, at locations distant from point sources (as is the case at LAA), it is considered unlikely that the hourly mean objective for nitrogen dioxide will be exceeded if the annual mean concentration is below 60µg/m^3 (the annual mean objective is more stringent than the hourly mean objective[11]). Therefore, it is concluded that neither the annual mean nor hourly mean objectives for nitrogen dioxide are currently exceeded at LAA.

4.1.3 The monitoring results are higher than the background values provided by the National Air Quality Information Archive[7], but are consistent with local rural AURN sites, see Appendix, Table A1.

4.1.4 The highest concentration of nitrogen dioxide was recorded at the roadside site at Hammonds Corner (2006 annual mean = 27.01µg/m^3). The lowest mean concentration was recoded at Northlade (2006 annual mean = 14.0 µg/m^3).

4.1.5 Taking an average over the non-roadside sites (all except Hammonds Corner, Footway Farm and Greatstone-on-Sea), the annual mean background concentration of nitrogen dioxide at LAA is estimated to be 17 µg/m^3 for 2005. With respect to this background level, concentrations are elevated at the roadside sites and in the airport carpark and in Greatstone on Sea. This indicates that the main local source of pollution is road transport.

4.1.6 The concentrations monitored at the roadside sites at Hammonds Corner and Footway Farm are slightly higher but consistent with the concentrations estimated using the DMRB Screening Method and the available traffic data (Table 4.1).

Table 4.1 Comparison of roadside concentrations of nitrogen dioxide from the LAA monitoring and modelling using the DMRB Screening Method.

Location	2005 Estimated Annual Mean	
	Monitored	Modelled (DMRB)
Hammonds Corner	27.8 µg/m^3	25.7 µg/m^3
Footway Farm	21.9 µg/m^3	20.4 µg/m^3

Hydrocarbons

4.1.7 The period mean concentrations of benzene are below the objective of 5µg/m^3, to be met by the end of 2010, at both monitoring sites. On the assumption that this period is representative of the annual mean, it is considered unlikely that the air quality objective for annual mean benzene will be exceeded at the monitoring locations.

[11] Department for Environment, Food and Rural Affairs (2003) Analysis of the relationship between 1-hour and annual mean nitrogen dioxide concentrations at UK roadside and kerbside monitoring sites

4.1.8 As for nitrogen dioxide, the monitored data are slightly above the background values provided by the National Air Quality Information Archive[7], but are comparable to the nearest rural site in the UK Ambient Automatic Hydrocarbon Air Quality Network (Table A2). This indicates that there are unlikely to be significant local sources of benzene at the monitoring sites.

4.1.9 Period mean concentrations of toluene, ethyl-benzene and xylene are insignificant in relation to background levels, and therefore, it is considered highly unlikely that the annual mean assessment levels will be exceeded.

Ammonia

4.1.10 The period mean ammonia concentrations are well within the environmental assessment levels set out in the IPPC H1 guidance (180µg/m^3). On the assumption that this period is representative of the annual mean, it is considered unlikely that the long term environmental assessment level for ammonia will be exceeded at the monitoring locations. No conclusions can be drawn with respect to the short term environmental assessment levels.

4.1.11 The period mean ammonia concentrations are also lower than the guidelines set out by the WHO for the protection of vegetation (8µg/m^3), although individual monthly means are above the guideline value.

4.1.12 Annual ammonia levels, provided by the UK National Ammonia Monitoring Network[12] were reported as 2 - 4µg/m^3 in 2003 in south-east England, interpolated at a 10km resolution. There are currently no data for 2006 available for comparison.

4.1.13 In comparison to 2003, the period mean monitored ammonia concentrations are higher than the levels recorded at sites in the Ammonia Monitoring Network in the south-east of England. However, concentrations of ammonia, of the order of those monitored at LAA, have been recorded by the Ammonia Monitoring Network at other rural locations in the UK during spring and autumn months.

4.1.14 Elevated ammonia levels are generally associated with local sources. Ammonia is emitted directly from fertilisers and indirectly from plants which emit ammonia within the first few weeks after fertilisation when the plant is growing. Agricultural land, receiving high levels of nitrogen fertiliser or manures, normally acts as a source of ammonia. Therefore, ammonia levels are generally highest during the summer months and can peak in the spring and autumn, during periods of manure application.

4.1.15 Activities at LAA are not considered to be potential sources of ammonia. The highest levels of ammonia, recorded during month 2 and 6 (25th April to 24th May and 31st August to 30th September), are potentially related to a local agricultural source.

Vegetation and Ecosystems

4.1.16 The WHO guideline for ammonia of 8µg/m^3 is for the protection of vegetation and ecosystems, termed a critical level. As noted above, the period mean concentrations of ammonia are lower than the critical level.

[12] http://www.cara.ceh.ac.uk/nh3network

4.1.17 The UK Air Quality Strategy and WHO guidelines also set a critical level of 30µg/m^3 for oxides of nitrogen as an annual mean. The regulations also state that the locations selected for monitoring compliance with the objective should be representative of areas of 1000km^2 and, therefore, the limit has no statutory basis in the assessment of micro-scale environments in the vicinity of roads, runways or other stationary and mobile sources of NO_x.

4.1.18 Oxides of nitrogen were not directly monitored in the present study. However, following analysis of the relationship between nitrogen dioxide and oxides of nitrogen at monitoring stations throughout the UK, an empirical relationship has been developed[13] to estimate the concentration of oxides of nitrogen from nitrogen dioxide concentrations. Using this relationship, the estimated annual mean concentration of oxides of nitrogen for 2006 at sites on the airport varies between 18 and 27 µg/m^3. This is within the critical level.

4.1.19 It is therefore concluded that the vegetation within the designated sites near LAA i.e. Dungeness SAC, Northlade SSSI, Dungeness to Pett Level SPA, is unlikely to experience stress at present due to ambient concentrations of either ammonia or oxides of nitrogen.

4.2 Conclusion

4.2.1 Period mean nitrogen dioxide and benzene concentrations for the monitoring period are well below their respective air quality objectives. On the assumption that the monitoring period is representative of the annual mean, it is considered unlikely that the objectives were exceeded in 2006.

4.2.2 Nitrogen dioxide concentrations are highest at roadside sites, indicating that road transport is the primary source of pollution in the vicinity of LAA. Other sites are within the objectives.

4.2.3 The period mean ammonia concentrations are well within the Environment Agency's environmental assessment levels and are within the WHO guideline for the protection of vegetation. Ammonia levels are elevated in comparison to levels monitored in the UK National Ammonia Monitoring Network in south-east England, which may indicate the presence of a nearby agricultural source.

4.2.4 Monitored concentrations of toluene, ethyl-benzene and xylene are insignificant in comparison to environmental assessment levels.

4.3 Recommendations

4.3.1 The monitored nitrogen dioxide concentrations are higher than the background values estimated from the mapped background data in the NAQIA. It is therefore recommended that a full 12 month monitoring program is carried out for NO_2 at the current diffusion tube locations.

[13] Air Quality Expert Group (2003) Nitrogen Dioxide in the United Kingdom.

APPENDIX

APPENDIX

Table A1 AURN sites within 50 miles of Lydd Airport in µg/m^3

Location	Approximate distance from Lydd Airport (miles)	x	y	Type	2005 Annual Mean
Lullington Heath	35	553755	101595	Rural	10.12
Rochester	36	583135	176270	Rural	18.76

Table A2 UK Ambient Automatic Hydrocarbon Air Quality Network in µg/m^3

Location	Approximate distance from Lydd Airport (miles)	x	y	Type	2005 Annual Mean
Harwell	112	448115	186860	Rural	0.42