Air Quality Review and Assessment Progress Report for Hertsmere Borough Council

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Executive Summary

The UK Government published its strategic policy framework for air quality management in 1995 establishing national strategies and policies on air quality, which culminated in the Environment Act, 1995. The Air Quality Strategy provides a framework for air quality control through air quality management and air quality standards. These and other air quality standards and their objectives have been enacted through the Air Quality Regulations in 1997, 2000 and 2002. The Environment Act 1995 requires Local Authorities to undertake air quality reviews. In areas where an air quality objective is not anticipated to be met, Local Authorities are required to establish Air Quality Management Areas and to implement action plans to improve air quality.

Hertsmere Borough Council has completed the first and second round of air quality review and assessments. The Local Authority are now required to proceed to the third round of review and assessment in which sources of emissions to air are to be reassessed to identify whether the situation has changed since the second round, and if so, what impact this may have on predicted exceedences of the air quality objectives.

Each Local Authority must produce a Progress Report by the end of April 2008 covering monitoring data for the 2007 calendar year. This report is the equivalent of the 2006/2007 Progress Report.

This Progress Report follows the guidance provided in LAQM.PRG (03) and provides the latest nitrogen oxides and PM_{10} monitoring results for Hertsmere Borough Council and information on new local developments (if any) that might affect local air quality.

The latest nitrogen dioxide tube results (2007) show that at nine locations where monitoring is taking place, NO_2 concentrations are predicted to exceed the strategy objective of 40 $\mu g/m^3$. At present there are 6 designated AQMA's in Hertsmere, a new area is to be declared at The Broadway, Potters Bar in the near future after a Detailed Assessment was carried out in November 2007. Further investigation needs to be carried out at Southgate Road, Potters Bar and Park Road, Radlett and should be further assessed in the next review and assessment carried out by Hertsmere Borough Council.

The results of the latest PM_{10} monitoring show that there are no locations where concentrations are expected to exceed the air quality objectives in 2007. Though the latest report for Hertsmere Borough Council the Updating and Screening Assessment (USA) carried out in 2006 predicts through a screening tool known as Design Manual for Roads and Bridges (DMRB) that the annual mean and 24 hour mean objectives for 2010 may not be achieved at many roadside receptors in the Borough.

There have been no major new local developments, no significant changes in road traffic conditions in the borough and no new industrial processes since the USA was completed in April 2006.

Contents

1 Introduction

The Environment Act 1995 introduced the Local Air Quality Management (LAQM) system, which requires Local Authorities to undertake regular review and assessment of air quality, with respect to the standards and objectives set in the Air Quality Strategy, and enacted through the Air Quality Regulations in 1997, 2000 and 2002. In areas where an air quality objective is predicted not to be met by the required date, Local Authorities are required to establish Air Quality Management Areas and implement action plans to improve air quality.

Following the second round of air quality review and assessments, now completed in England, Wales and Scotland, each local authority must produce a Progress Report. Progress Reports are prepared between subsequent rounds of review and assessments. The aim is to ensure continuity in the LAQM process.

The third round of air quality review and assessments comprises two steps. The first step is an Updating and Screening Assessment, which updates the Stage 1 and 2 review and assessment previously undertaken for all pollutants identified in the Air Quality Regulations. Where a significant risk of exceedence is identified for a pollutant it will be necessary for the Local Authority to proceed to a Detailed Assessment, equivalent to the previous Stage 2 assessments. Where a Local Authority does not need to undertake a Detailed Assessment, a shorter Progress Report is required instead.

A timetable for future rounds of review and assessment has been set, whereby Updating and Screening Assessments are required every three years, in 2003, 2006 and 2009. In the intervening years, Local Authorities are required to produce a Progress Report. Hence, the need for Hertsmere's 2006 and 2007 Progress Report.

1.1 PURPOSE AND ROLE OF PROGRESS REPORTS

The Progress Report is intended to ensure continuity in the LAQM process. Its objective is to provide an annual review and update on air quality issues, including developments that might be significant to air quality. Any significant developments can then be acted upon immediately, rather than waiting for the next full round of review and assessment. The benefits to Local Authorities are set out in Box 1.1 of the Progress Report Guidance, but these include the following.

- To provide a readily accessible source of up to date information on air quality, which may be useful to Local Authority staff for dealing with enquiries from members of the public, developers carrying out environmental assessments, and to assist in other areas such as transport and land use planning.
- To ensure continuity in maintaining resourcing, capability and staff skills for LAQM within the Local Authority.
- Helping to get maximum value from the monitoring carried out by the Local Authority.

This report is equivalent to a Progress Report for Hertsmere Borough Council as outlined in the Government's published guidance, Part IV of the Environment Act 1995 Local Air Quality Management – Progress Report Guidance LAQM.PRG(03), referred to in this report as the Progress Report Guidance. This progress report considers the following new monitoring data for the calendar years of 1st Jan 2006 to 31st Dec 2006 and 1st Jan 2007 to 31st Dec 2007.

1.2 AIR QUALITY STRATEGY OBJECTIVES

The Air Quality Strategy's standards and objectives are shown in Table 1.2A. The table shows the standards in $\mu g\ m^{-3}$ ($mg\ m^{-3}$ for CO) with the number of exceedences that are permitted (where applicable).

Table 1.2A Objectives included in the Air Quality Regulations 2000 and (Amendment) Regulations 2002 for the purpose of Local Air Quality Management

Pollutant	Air Quality Objective		Date to be achieved by
	Concentration	Measured as	
Benzene			
All authorities	16.25 $\mu g\ m^{-3}$	running annual mean	31.12.2003
Authorities in England and Wales only	5.00 $\mu g\ m^{-3}$	annual mean	31.12.2010
1,3-Butadiene	2.25 $\mu g\ m^{-3}$	running annual mean	31.12.2003
Carbon monoxide			
Authorities in England, Wales and Northern Ireland only	10.0 mg m^{-3}	maximum daily running 8-hour mean	31.12.2003
Authorities in Scotland only	10.0 mg m^{-3}	running 8-hour mean	31.12.2003
Lead	0.5 $\mu g\ m^{-3}$	annual mean	31.12.2004
	0.25 $\mu g\ m^{-3}$	annual mean	31.12.2008
Nitrogen dioxide[a]	200 $\mu g\ m^{-3}$ not to be exceeded more than 18 times a year	1 hour mean	31.12.2005
	40 $\mu g\ m^{-3}$	annual mean	31.12.2005
Particles (PM_{10}) (gravimetric)[b]			
All authorities	50 $\mu g\ m^{-3}$ not to be exceeded more than 35 times a year	24 hour mean	31.12.2004
	40 $\mu g\ m^{-3}$	annual mean	31.12.2004
Authorities in Scotland only[c]	50 $\mu g\ m^{-3}$ not to be exceeded more than 7 times a year	24 hour mean	31.12.2010
	18 $\mu g\ m^{-3}$	annual mean	31.12.2010
Sulphur dioxide	350 $\mu g\ m^{-3}$ not to be exceeded more than 24 times a year	1 hour mean	31.12.2004
	125 $\mu g\ m^{-3}$ not to be exceeded more than 3 times a year	24 hour mean	31.12.2004
	266 $\mu g\ m^{-3}$ not to be exceeded more than 35 times a year	15 minute mean	31.12.2005

a. These objectives are provisional.
b. Measured using the European gravimetric transfer sampler or equivalent.
c. These 2010 Air Quality Objectives for PM10 apply in Scotland only, as set out in the Air Quality (Scotland) Amendment Regulations 2002.

There are new national particles objectives for England, Wales and Greater London. However, these are not currently included in Regulations for the purpose of LAQM. The Government and the Welsh Assembly Government however intends that the new particles objectives will be included in Regulations as soon as practicable after the review of the EU's first air quality daughter directive. The new particles objectives for England, Wales and Greater London are shown in Table 1.2B below. Whilst authorities have no obligation to review and assess against them, they may find it helpful to do so, in order to assist with longer-term planning, and the assessment of development proposals in their local areas. Assessment against these proposed objectives is provided in this report.

Table 1.2B: Proposed new particles objectives for England, Wales and Greater London (not included in Regulations)

Region	Air Quality Objective		Date to be achieved by
	Concentration	Measured as	
London	50 μg/m^3 not to be exceeded more than 10 times a year	24 hour mean	31.12.2010
London	23 μg/m^3	annual mean	31.12.2010
London	20 μg/m^3	annual mean	31.12.2015[a]
Rest of England and Wales	50 μg/m^3 not to be exceeded more than 7 times a year	24 hour mean	31.12.2010
Rest of England and Wales	20 μg/m^3	annual mean	31.12.2010

[a] this objective is provisional.

1.3 CONCLUSIONS OF PREVIOUS REVIEW AND ASSESSMENT

Hertsmere Borough Council have declared six Air Quality Management Areas (AQMAs) for nitrogen dioxide as a result of the first and second round of Review and Assessment. They are:

- Hertsmere No. 1: An area comprising the domestic properties 23-27 Dove Lane and caravan site off A1000 Barnet Road.
- Hertsmere No. 2: An area comprising the domestic property known as Charleston Paddocks, St Albans Road, South Mimms, Potters Bar.
- Hertsmere No. 3: An Area comprising the domestic properties 31-39 Blanche Lane, South Mimms.
- Hertsmere No. 4: An area comprising the domestic properties 12 Grove Place, Hartspring Lane, Aldenham and caravans numbered 1, 2, 3, 4, 7, 8, 55, 56, 57, 58, 59, 60 within Winfield Caravan site, Hartspring Lane.
- Hertsmere No. 5: Comprising domestic dwellings within eight properties on the east side of the A5183 High Street Elstree either side of the junction with the A411.
- Hertsmere No. 6: Comprising domestic dwellings within properties between numbers 133 to 167 High Street on the east side of the High Street opposite the bus station Potters Bar.

Hertsmere Borough Council's Updating and Screening Assessment of June 2006 concluded that the Air Quality Strategy objectives were likely to be met, by the required dates, for the following AQS pollutants:

- carbon monoxide
- benzene
- 1,3-butadiene
- lead
- sulphur dioxide

2 New Monitoring Data

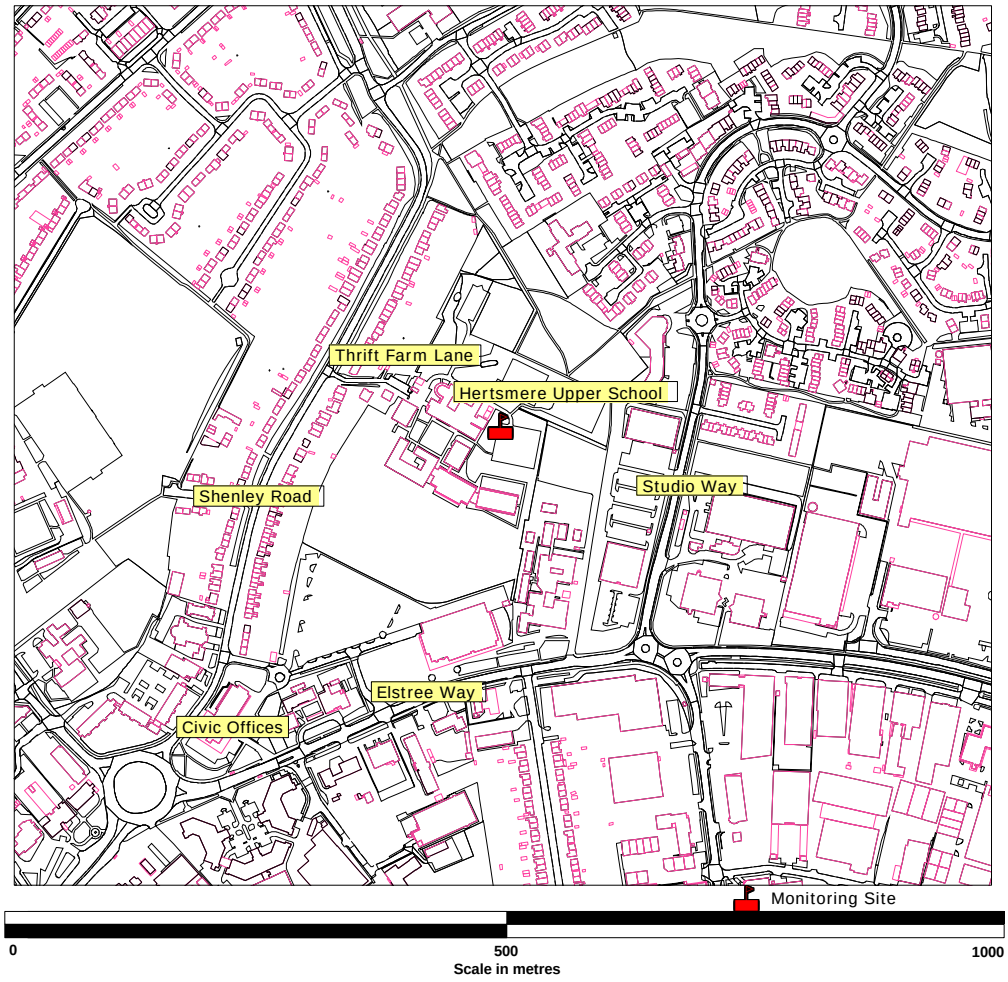
2.1 SUMMARY OF MONITORING UNDERTAKEN

2.1.1 Borehamwood Automatic Monitoring Site, Relocation

Continuous monitoring of nitrogen dioxide, PM_{10} and ozone concentrations has been undertaken at an urban background location at Furzehill School near Elstree in Borehamwood since January 2001. Since 2006 the Hertsmere air quality monitoring station has been relocated to another urban background location at Hertswood Upper School, Borehamwood (OS grid reference 520147E 197357N). A NOx chemiluminescent and a TEOM PM_{10} monitor are being used.

The station is included in the Herts and Beds Air Pollution Monitoring Network, which is operated by the Environmental Research Group at Kings College, London. All data are checked and ratified by the operator prior to release. During 2006 data capture was 44% for NO_2, 52% for PM_{10} and 51% for ozone. Capture rate for 2006 is low due to difficulties during the relocation of monitoring site from Furzehill Road School to Hertsmere Upper School. During 2007 data capture was 96% for NO_2, 93% for PM_{10} and 99% for ozone.

Figure 2.1. The Borehamwood monitoring site



2.1.2 Diffusion Tube Monitoring Sites

Nitrogen dioxide concentrations have been measured at 28 locations in Hertsmere in 2006. Due to a change of supplier from Walsall MBC to Gradko seven of these locations were co-located. In 2007 nitrogen dioxide concentrations had been measured at 32 locations in

Hertsmere. The diffusion tubes are analysed by Gradko and are prepared with 20% triethylamine in water. Details of the locations are provided in Table 2.3.2B and Table 2.3.2C

2.2 NEW MONITORING

2.2.1 New Monitoring

Since the 2004 Hertsmere Detailed Assessment Report, Hertsmere monitoring site has been moved to Hertsmere Upper School, Thrift Farm Lane, Borehamwood. (Hertsmere 2)

2.2.2 Discontinued Monitoring sites

Since the 2004 Hertsmere Detailed Assessment Report was undertaken Hertsmere monitoring site at Furzehill School has been discontinued. (Hertsmere 1)

2.3 MONITORING RESULTS

2.3.1 Automatic NO_2 Results for 2006

Due to the move of the automatic monitoring station (Hertsmere 2) in 2006 the NO_2 capture rate was less than 75% for the year and therefore results do not represent a full year. The results are presented in Table 2.3 below.

The average concentration for the Hertswood School site is below the annual objective for nitrogen dioxide. The original values in ppb have been converted to $\mu g\ m^{-3}$ using a factor of 1.91. The annual average NO_2 objective is generally the most stringent of the NO_2 objectives.

Table 2.3A Summary of continuous nitrogen dioxide ratified data from January 1st 2006 to December 31st 2006.

Concentration, $\mu g\ m^{-3}$	Nitrogen dioxide
Average	N/A
No. of occurrences of hourly mean > 200 $\mu g\ m^{-3}$.	0
Data capture	44%

2.3.2 Automatic NO_2 Results for 2007

The average concentration for the Hertswood School site is below the annual objective for nitrogen dioxide. The original values in ppb have been converted to μg m^{-3} using a factor of 1.91. The annual average NO_2 objective is generally the most stringent of the NO_2 objectives.

Table 2.3B Summary of continuous nitrogen dioxide ratified data from January 1st 2007 to December 31st 2007.

Concentration, μg m^{-3}	
	Nitrogen dioxide
Average	22
No. of occurrences of hourly mean > 200 μg m^{-3}.	0
Data capture	96%

Some of the data in the above table is provisional as it has yet to be fully ratified.

2.3.3 NO_2 diffusion tube results.

There was co-location of 3 diffusion tubes with the Hertsmere School continuous monitor between January and December 2006 and 2007 inclusively (H07, H08, H09). The calculation of the bias adjustment factor is shown in Table 2.3.2A and C below.

Table 2.3.2A Bias correction of NO_2 diffusion tube data for 2006

Average DT concentration (μg/m3) Jan to Dec 06	33
Average CM concentration (μg/m3) Jan to Dec 06	26
Bias adjustment factor = CM/DM	0.98

For the 2006 due to the continuous monitoring station being moved the capture rate for 2006 was less than 75%. Results may not be representative of the full year and should be used for guidance only. In this report, the bias of diffusion data was corrected by taking the bias adjustment factor provided by the University of West England (UWE) on behalf of DEFRA.

A monthly breakdown of concentrations recorded from January to December 2006 is provided in Appendix 1.

Table 2.3.2B. NO_2 diffusion tube results for January 2006 to December 2006 inclusive corrected using the results from the co-location at the Hertswood School site (μg/m^3).

Site	Site Ref	Location	Jan – Dec 2006	Bias corrected
Shenley Road, Borehamwood	HM39	K	38	37
Essex Road, Borehamwood	HM40	B	30	29
Boulevard, Borehamwood	HM41	B	39	38
Mildred Ave, Borehamwood	HM42	B	27	26
Stirling Corner Borehamwood	HM43	B	53	**52**
Monkswood Gdns, Borehamwood	HM44	B	32	31
AQMS 1	HM45	B	30	29
AQMS 2	HM46	B	29	28
AQMS 3	HM47	B	30	29
Elstree Crossroads 1	HM48	K	40	39
Elstree Crossroads 2	HM49	K	39	38
Elstree Crossroads 3	HM50	K	53	**52**
Elstree Crossroads 4	HM51	K	61	**60**
Elstree Crossroads 5	HM52	K	61	**60**
Caldecote Lane, Bushey Heath	HM53	B	25	24
High Road, Bushey	HM54	K	33	32
Highwood Avenue, Bushey garages	HM55	K	28	27
Osprey Close, Garston	HM56	K	33	32
Hartspring Lane, Aldenham,	HM57	K	49	**48**
Pegmire Lane, Aldenham	HM58	K	33	32
Aldenham Grove, Radlett	HM59	K	25	24
Bell Lane, London Colney	HM 60	K	38	37
Blanche Lane, South Mimms	HM61	K	54	**53**
The Broadway, Potters Bar 1	HM62	K	50	**49**
Dove Lane, Potters Bar	HM63	B	46	**45**
Bus Garage 1 Potters Bar	HM64	K	57	**56**
Hatfield Road, Potters Bar	HM65	K	51	**50**
Bus Garage 2, Potters Bar	HM66	K	44	**43**
Bus Garage 3, Potters Bar	HM67	K	44	**43**
Bus Garage 4, Potters Bar	HM68	K	43	**42**
Southgate Road, Potters Bar	HM69	K	61	**60**
Park Avenue, Potters Bar	HM70	B	40	39

Note: numbers in bold indicate an excedence of the NO_2 objective.

The 2006 diffusion tube results show that at eight locations where monitoring is taking place, annual average nitrogen dioxide concentrations exceeded the air quality objective of 40 μg/m^3.

There are at present six air quality management areas (AQMA) in the Borough of Hertsmere. Five of the eight locations identified as exceeding the air quality objective are designated AQMA's HM48 Elstree Crossroads, HM57 Hartspring Lane, HM61 Blanche Lane, HM63 Dove Lane, and HM64 High Street, Potters Bar. The sixth AQMA Charleston Paddocks is at present not being monitored for nitrogen dioxide, as the tube needs to be relocated, therefore it is not exceeding.

The diffusion tubes located at HM62 The Broadway and HM69 Southgate Road showed an exceedence of the 40μg/m^3 objective. These locations are not currently designated AQMA and therefore it is recommended that these areas are assessed further in the next Detailed Assessment.

Further investigation has been done on two designated AQMA's HM48 Elstree Crossroads and HM64 High Street, Potters Bar. The monitoring areas have been extended, Elstree Crossroads extended into Barnet Lane HM52 and Elstree Hill North HM49. Barnet Lane HM52 is exceeding the air quality objective of 40 $\mu g/m^3$. The Elstree Hill North HM49 is not. HM64 High Street, Potters Bar has been extended to Hatfield Road HM65 and is showing an exceedance. Further investigation of these two AQMA's is needed.

In the Detailed Report in August 2004, HM03 Shenley Road (now HM 39) was predicted to exceed the NO_2 objective in 2005 but the site did not represent relevant exposure as it was located at the kerbside rather than on the façade of a house. It was recommended that this site be moved to represent relevant exposure. The site has now been relocated but not enough data has been collected as the tube disappears on a regular basis.

A monthly breakdown of concentrations recorded from January to December 2006 is provided in Appendix 3.

Table 2.3.2C Bias correction of NO_2 diffusion tube data for 2007

Average DT concentration (μg/m3) Jan to Dec 06	45
Average CM concentration (μg/m3) Jan to Dec 06	22
Bias adjustment factor = CM/DM	0.89

Table 2.3.2D. NO_2 diffusion tube results for January 2007 to December 2007 inclusive corrected using the results from the co-location at the Hertswood School site (μg/m^3).

Site	Site Ref	Location	Jan – Dec 2004	Bias corrected
Shenley Road, Borehamwood	HM39	K	43	38
Essex Road, Borehamwood	HM40	B	29	26
Boulevard, Borehamwood	HM41	B	41	36
Mildred Ave, Borehamwood	HM42	B	N/A	
Stirling Corner Borehamwood	HM43	B	57	**51**
Monkswood Gdns, Borehamwood	HM44	B	N/A	
AQMS 1	HM45	B	31	27
AQMS 2	HM46	B	30	27
AQMS 3	HM47	B	31	27
Elstree Crossroads 1	HM48	K	47	**42**
Elstree Crossroads 2	HM49	K	48	**43**
Elstree Crossroads 3	HM50	K	61	**54**
Elstree Crossroads 4	HM51	K	66	**59**
Elstree Crossroads 5	HM52	K	67	**60**
Caldecote Lane, Bushey Heath	HM53	B	26	23
High Road, Bushey	HM54	K	36	32
Highwood Avenue, Bushey garages	HM55	K	29	26
Osprey Close, Garston	HM56	K	N/A	
Hartspring Lane, Aldenham,	HM57	K	48	**43**
Pegmire Lane, Aldenham	HM58	K	38	34
Aldenham Grove, Radlett	HM59	K	25	22
Bell Lane, London Colney	HM 60	K	42	37
Blanche Lane, South Mimms	HM61	K	59	**52**
The Broadway, Potters Bar 1	HM62	K	54	**48**
Dove Lane, Potters Bar	HM63	B	47	**42**
Bus Garage 1 Potters Bar	HM64	K	70	**62**
Hatfield Road, Potters Bar	HM65	K	58	**51**
Bus Garage 2, Potters Bar	HM66	K	50	**44**
Bus Garage 3, Potters Bar	HM67	K	47	**42**
Bus Garage 4, Potters Bar	HM68	K	49	**43**
Southgate Road, Potters Bar	HM69	K	66	**59**
Park Avenue, Potters Bar	HM70	B	41	36
Park Road, junction Radlett 1	HM71	K	54	**48**
Park Road, junction Radlett 2	HM72	K	55	**49**
Park Road, junction Radlett 3	HM73	K	51	**45**
301 Watling Street, Radlett 1	HM74	K	43	38
301 Watling Street, Radlett 2	HM75	K	42	37
301 Watling Street, Radlett 3	HM76	K	40	35
The Broadway, Potters Bar 2	HM77	K	53	**47**
The Broadway, Potters Bar 3	HM78	K	54	**48**
11 The Broadway, Potters Bar 1	HM79	K	N/A	

11 The Broadway, Potters Bar 2	HM80	K	N/A	
11 The Broadway, Potters Bar 3	HM81	K	N/A	
10 Baker Street, Potters Bar 1	HM82	K	46	**41**
10 Baker Street, Potters Bar 2	HM83	K	44	39
10 Baker Street, Potters Bar 3	HM84	K	46	**41**

The 2007 diffusion tube results show that at nine locations where monitoring is taking place, annual average nitrogen dioxide concentrations exceeded the air quality objective of 40 $\mu g/m^3$.

There are at present six air quality management areas (AQMA) in the Borough of Hertsmere. Five of the nine locations identified as exceeding the air quality objective are designated AQMA's HM52 Elstree Crossroads, HM57 Hartspring Lane, HM61 Blanche Lane, HM63 Dove Lane, and HM64 High Street. Monitoring at the sixth AQMA Charleston Paddocks has now restarted due to relocation near the premises but there is insufficient data to report.

A detailed assessment has been carried out at The Broadway, Potters Bar as recommended in previous reports. The detailed assessment carried out recommends that part of The Broadway be declared as an AQMA. HM69 Southgate Road is showing an exceedance and needs further investigation. HM43 Stirling Corner still shows exceedance of the objective but needs further investigation nearer the caravan site on Barnet Lane.

A yearly review of the diffusion tube sites has seen the need for tubes to be placed in Radlett, Park Avenue HM71, 72 and 73 exceeded the air quality objective of 40 $\mu g/m^3$. Watling Street, Radlett HM 74, 75, 76 were below the objective.

2.3.4 PM_{10}

Continuous monitoring of PM_{10} is undertaken at the Hertswood School site. The Hertswood site has been in operation since January 2006. The PM_{10} concentrations recorded at the Hertsmere site up until the end of 2006 were presented in the Herts and Bed Air Pollution Monitoring Network Report. This report presents results for January to December 2006 and January to December 2007

Table 2.3.3A - Annual mean PM_{10} concentrations recorded by the continuous monitor at Hertswood School between January 2006 and December 2006 (gravimetric).

Site	Average PM_{10} conc ($\mu g/m^3$) 2006	Number of exceedences of 24 hour mean (50 $\mu g/m^3$)
Hertswood School, Borehamwood	5	0

A graph is provided in Appendix 1 showing monthly average PM_{10} concentrations recorded at the Hertsmere School site. Data capture at the site during 2006 was 44%.

Table 2.3.3B - Annual mean PM_{10} concentrations recorded by the continuous monitor at Hertswood School between January 2007 and December 2007 (gravimetric).

Site	Average PM_{10} conc ($\mu g/m^3$) 2007	Number of exceedences of 24 hour mean (50 $\mu g/m^3$)
Hertswood School, Borehamwood	6	0

A graph is provided in Appendix 2 showing monthly average PM_{10} concentrations recorded at the Hertswood School site. Data capture at the site during 2007 was 96%.

2.3.5 Ozone

Continuous monitoring of ozone is undertaken at the Hertswood School site. During 2006 and 2007 there were no occurrences of the rolling 8-hour mean being exceeded.

2.3.6 Other pollutants

No monitoring of benzene, 1,3-butadiene, lead, carbon monoxide or sulphur dioxide is currently undertaken in Hertswoood Borough Council.

2.4 COMPARISON WITH AQS OBJECTIVES

2.4.1 Nitrogen Dioxide

The latest monitoring results show that nine locations Stirling Corner Borehamwood, Blanche Lane South Mimms, the Broadway Potters Bar, the Bus Garage High Street Potters Bar, Elstree Crossroads, Hartspring Lane Bushey, Dove Lane Potters Bar, Southgate Road,Potters Bar and Park Road Radlett are likely to exceed the air quality objective of 40 $\mu g/m^3$ in the future. The annual mean NO_2 objective is the most stringent of the NO_2 objectives.

2.4.2 PM_{10}

The continuous monitoring shows that neither the annual mean not the 24 hour mean 2006 and 2007 PM_{10} objectives were exceeded at the Hertswood School site.

The annual mean objective is the most stringent of the provisional 2010 objectives. The Hertsmere School site shows a 2006 annual mean PM_{10} concentration of 5 $\mu g/m^3$ and for 2007 6 $\mu g/m^3$ Therefore with expected reductions in concentrations in future years due to more stringent emission controls it is likely that the 2010 objective will be achieved at this location.

The Air Quality Updating and Assessment reported in 2006 concluded that the proposed annual mean and the 24-hour mean objectives for 2010 may not be achieved at many roadside receptors in the Borough. Predicted by the DMRB screening model.

3 New Developments – Industrial Processes

3.1 PART A INDUSTRIAL PROCESSES

No new Part A industrial processes have been authorised in Hertsmere Borough Council since the Updating and Screening Report in April 2006. None of the above existing processes underwent significant changes likely to increase their emissions by 30% or more, since the last report.

3.2 PART A2 INDUSTRIAL PROCESSES

No Part A2 industrial processes have been authorised in Hertsmere Borough Council since the last Updating and Screening Report in April 2006.

3.3 PART B INDUSTRIAL PROCESSES

In 2006 there were no new Part B processes since the Updating and Screening Report in April. In 2007 there were 19 new Part B industrial processes in Hertsmere. These were dry cleaners, 2 with status current and 17 applications received and permit pending. None of the above existing processes underwent significant changes likely to increase their emissions by 30% or more, since the last report.

3.4 NEW LANDFILL, QUARRYING AND MINERAL PROCESSES

There are no new quarrying or mineral processes taking place in Hertsmere since April 2006 when the Updating and Screening Assessment was produced.

There are no new landfill sites established in Hertsmere BC since April 2006 and April 2007.

3.5 INDUSTRIAL PROCESS CLOSURES

No major industrial processes have closed since the Updating and Screening Assessment was completed.

4 New Developments –Transport

4.1 NEW ROAD DEVELOPMENTS

There have been no significant new road developments in Hertsmere Borough Council since the Updating and Screening Assessment was carried out in April 2006.

4.2 SIGNIFICANT CHANGES TO EXISTING ROADS

4.2.1 Road Layout Changes and Roadworks

There are no new road layouts or roadworks thought to give rise to a significant change in traffic levels or emissions.

There are no new street canyons in Hertsmere Borough Council.

4.2.2 Significant Changes to Annual Average Daily Traffic Flow (AADTF)

There have been no significant changes to road traffic since the USA was completed.

4.3 OTHER TRANSPORT SOURCES

4.3.1 Trains

There have been no significant changes to the activity of trains in Hertsmere Borough Council since the Updating and Screening Assessment was completed. There are no areas where railway engines are run for more than 15 minutes continuously and where members of the public might be exposed.

4.3.2 Airports

There are no airports in Hertsmere or neighbouring authorities that have a throughput of 5 million passengers per year and / or 500,000 tonnes of freight.

4.3.3 Bus stations

The largest bus station within Hertsmere Borough Council has less than 1,000 movements per day, which is the threshold level requiring further investigation.

4.3.4 Shipping

Hertsmere Borough Council is inland and therefore there are no emissions from coastal shipping.

5 New Developments - Residential, Commercial and Public

5.1 NEW HOUSING / COMMERCIAL / PUBLIC DEVELOPMENTS

There have been two new residential housing developments in the Hertsmere Borough area, since the 2006 USA, which could have an impact on local traffic flows. There has been a new housing development in the Furzehill Road area of Borehamwood and at Wall Hall Campus near Aldenham. Both developments are not fully in use at the present time further investigation will take place in the future.

There have been no new commercial or public developments other than the above two.

6 Conclusions and Recommendations

The latest nitrogen dioxide tube results (2007) show that at nine locations where monitoring is taking place, NO_2 concentrations are predicted to exceed the strategy objective of 40 $\mu g/m^3$. At present there are 6 designated AQMA's in Hertsmere, a new area is to be declared at The Broadway, Potters Bar in the near future after a Detailed Assessment was carried out. Further investigation needs to be carried out at Southgate Road, Potters Bar and Park Road, Radlett and should be further assessed in the next review and assessment carried out by Hertsmere Borough Council.

There are two new residential areas developed in the Hertsmere Borough area, it is unlikely that these new developments will cause any significant change to local traffic flows.

There are no new industrial processes that substantially changed emissions since the last review and assessment report. There have been no changes to quarries, mining and landfills in Hertsmere Borough since April 2007.

There have been no significant new road developments in the borough since the 2006 USA was completed.

There are no changes to other transport sources.

7 References

LAQM. PRG(03). Part IV of the Environment Act 1995. Local Air Quality Management Progress Report Guidance. December 2003.

LAQM.TG(03) Part IV of the Environment Act 1995. Local Air Quality Management Technical Guidance. April 2006.

Hertsmere Borough Council (2006) Updating and Screening Assessment. Netcen, AEA Technology, April 2006.

LAQMPGA(05) Part IV of the Environment Act 1995 Local Air Quality Management.

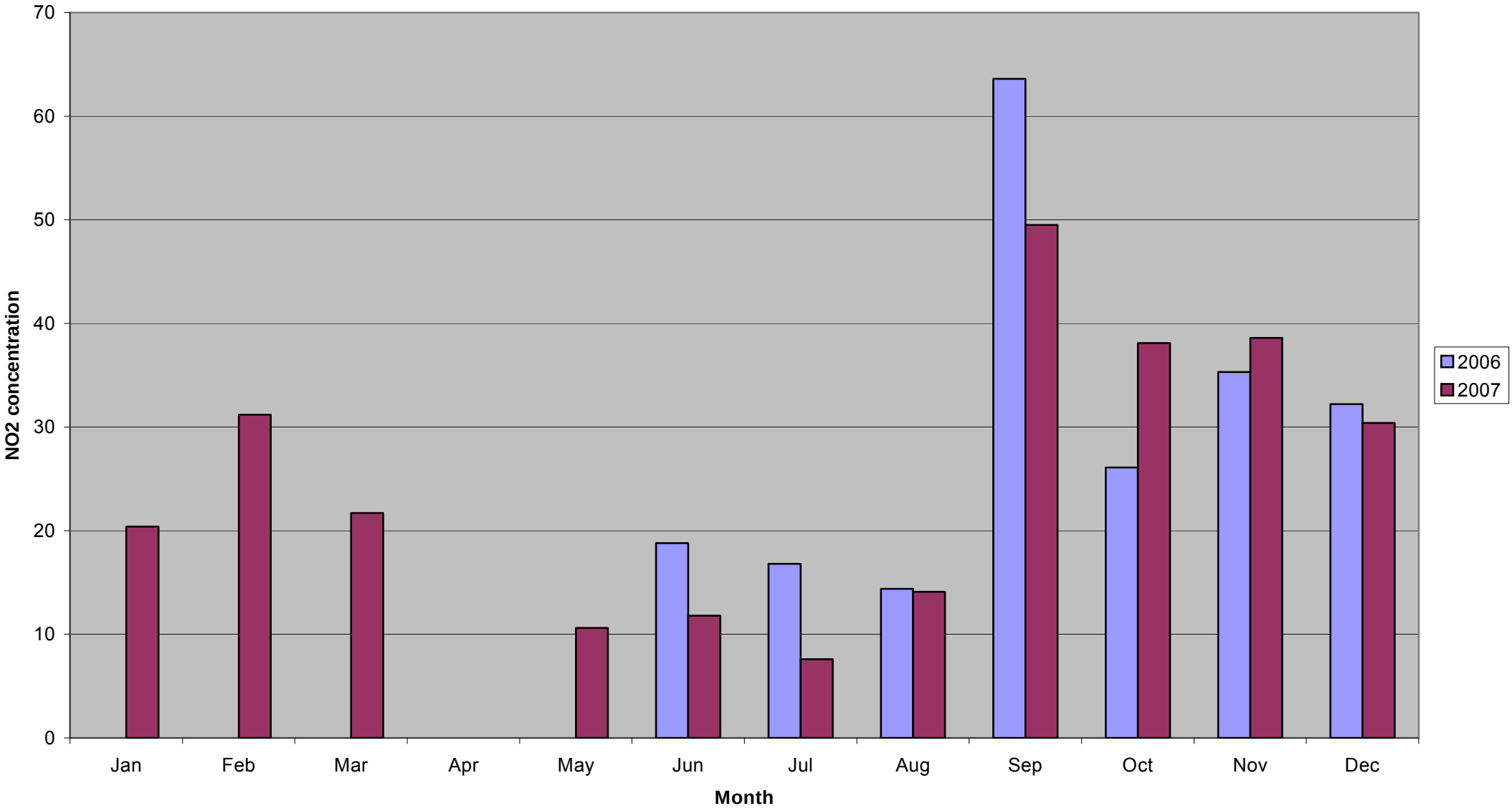
8 Appendices

Appendix 1: Average monthly NO2 concentrations at the Borehamwood site for 2006 and 2007 in $\mu g/m^3$

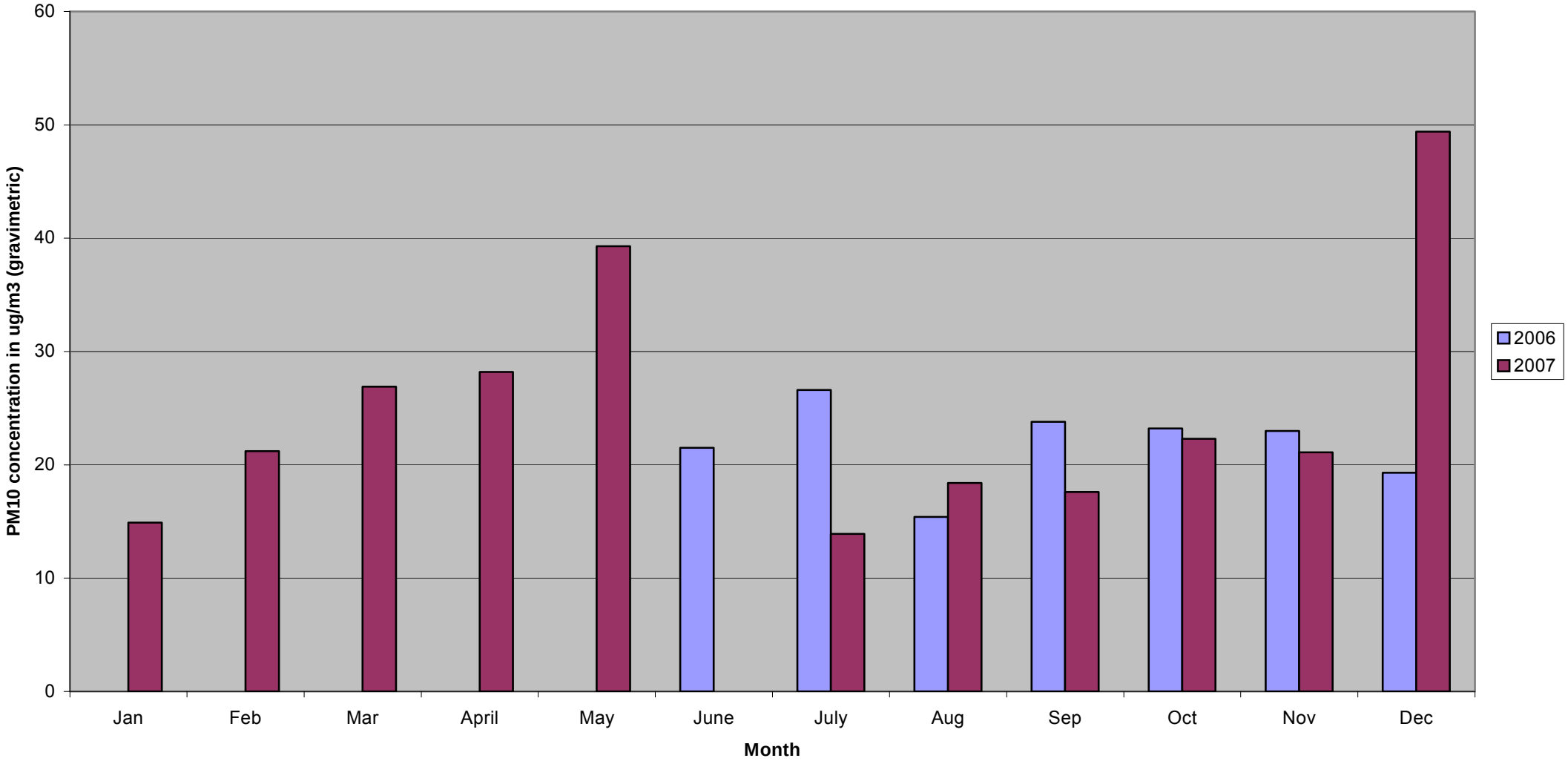
Appendix 2: Average monthly PM_{10} concentrations at the Borehamwood site for 2006 and 2007 in $\mu g/m^3$

Appendix 3: Raw monthly data for NO2 tubes for 2006 and 2007

8.1 APPENDIX 1: AVERAGE MONTHLY NO2 CONCENTRATIONS AT THE BOREHAMWOOD SITE



8.2 APPENDIX 2: AVERAGE MONTHLY PM10 CONCENTRATIONS AT THE BOREHAMWOOD SITE IN UG/M3



8.3 APPENDIX 3: RAW MONTHLY DATA FOR NO2 TUBES

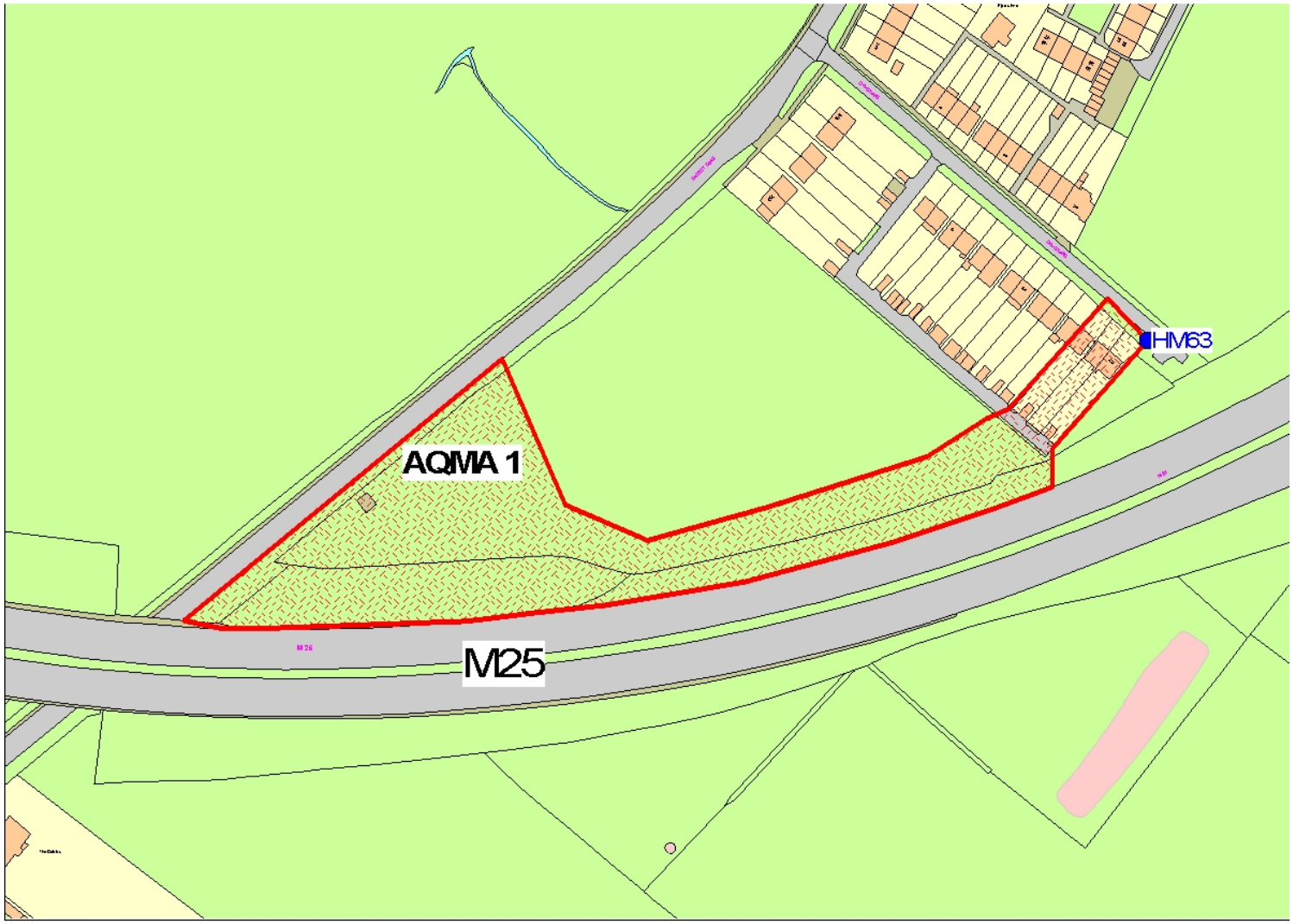
2006	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
HM39		50	36	31			40	33				
HM40	35	41	32	28	26	27	19	25	31	32	36	33
HM41	51	47		38	33	36	35	32	42	37	43	41
HM42	37	38	28	23	23	21	21	21	26	30	28	35
HM43	74	64	51	46	41	50	46	38	56	69	58	53
HM44	46	43	28	27	27	27	21	25	32	35	38	38
HM45	40	38	28	21	23	25	21	21	28	34	44	35
HM46	38	35	27	24	23	16	21	21	29	39	41	34
HM47	40	39	26	26	24	23	23	22	27	37	31	43
HM48	52			38	33	42	29	28	36	46	52	47
HM49	49	43	39	36	36	16	45	32	32	47	47	45
HM50	58	60	43	50	48	59	61	46	52	55	54	50
HM51	54	59	52	54	55	69	77	54	68	64	64	60
HM52	65	62	54	48	52	67	60	56	75	67	70	65
HM53	36	33	27	23	19	20	10	23	24	27	25	29
HM54	46	44	28	27	26		35	29	32	27	33	37
HM55	36	38	26	27	26	27	29	19	24	30	27	25
HM56	43	38	31	26	29	38	36	26	34	35	30	33
HM57	50	55	44	48	46	53	22	45	51	60	62	52
HM58	40		29	34	31	26	22	32	34	35	43	40
HM59	35	32	24	24	20	22	24	21		23	28	26
HM60	51	50	34	38	34	33	31	36	34	36	42	36
HM61	37	62	54	46	58	39	59	48	58	65	63	65
HM62	74	52	44	45			39	38	47	59	51	48
HM63	46	51	52	36	41	40	47	33	56	48	58	49
HM64	40	71	62	54	52	50	64	56	67	66	71	74
HM65	38	59	51	46	43	54	50	44	55		61	57
HM66	40	55	44	40	42	45	16	44	39	52	58	50
HM67	52	43		42	40	48	43	36	46	47	47	
HM68	49			40	39	46	40	35	47	44	46	
HM69	58	74	55	64	63	70	68	55	20	62	81	62
HM70	54	46	32	34	32	37	28	31	42	49	47	55

Raw monthly data for NO2 tubes for 2007

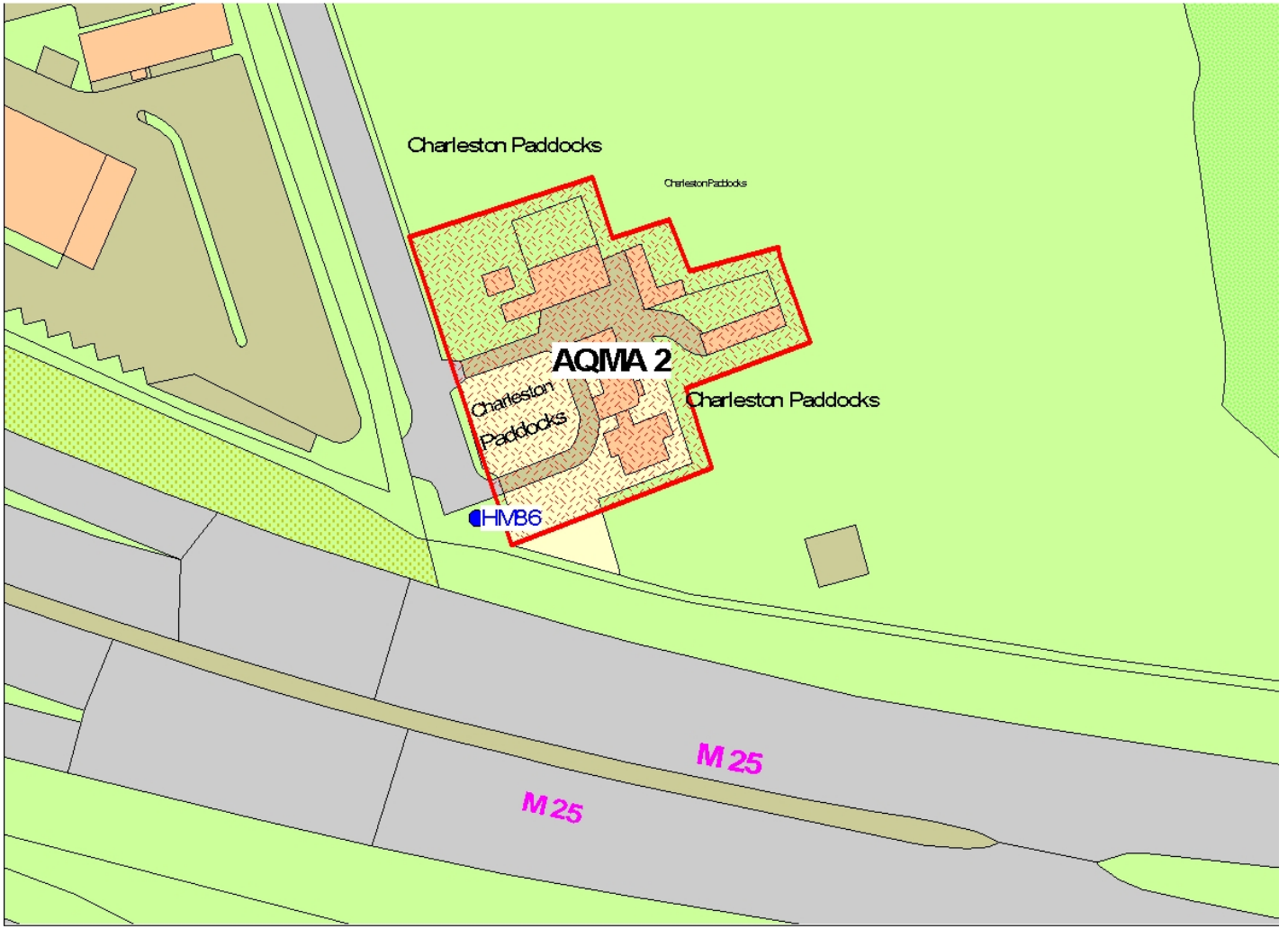
2007	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
HM39					45	42		39			48	
HM40	33	34	20	32	30	24	26	17	26	16	47	44
HM41	41	38	52	45	46	35	38	30	37	25	54	49
HM42	35											
HM43	53	53	81	51	59	51	56	47	57	36	70	70
HM44	38											
HM45	35	32	46	31	27	22	22	22	26	22	45	47
HM46	34	38	47	27	27	23	23	20	24	16	41	47
HM47	43	33	49	28	28	20	25	21	24	21	44	43
HM48	47	38	55	47	47	38	48	35		43	59	61
HM49	45	34	56	52	52	44	49		47	34	54	59
HM50	50	55	67				61	57	60	51	77	71
HM51	60	66	73	60	60	71	77	61	69	51	76	68
HM52	65	57	80	58	70	72	74	66	71	46	78	73
HM53	29	26	38	24	27	17	22	17	23	19	36	37
HM54	37	28	48	39	34	32	34	27	32	26	55	45
HM55	25	26	41	30	34	25	22	21	26	19	41	35
HM56	33											
HM57	52	42	62	47	46	44	55	40	42	21	62	62
HM58	40	37	49	37	32	30	33	32			48	47
HM59	26	21	36	25	24	20	20	18	21	20	35	33
HM60	36	49	46	50	41	43	33	37	38	29	59	49
HM61	65	62	68	60	47	53	59	62	53	35	69	72
HM62	48	48	63	57	56	56	54	45	48	41	71	64
HM63	49	46	62	34	45	38	47	48		30	57	60
HM64	74	74	85	69	72	73	72	62	72	50		
HM65	57	56	67	48			60	63		35	71	64
HM66	50	59	30	50		49	48	50	45	34	73	67
HM67		43	60	50	51		45	43	46	18	57	55
HM68		48	58	46	50		47	45	42	37	58	56
HM69	62	68	78	71	68	69	65	65	61	31	87	73
HM70	55	45	58	39	39	36	37	37	34	13	55	49

8.4 APPENDIX 4: MAPS OF AQMA SHOWING SITES OF DIFFUSION TUBES

8.4.1: Dove Lane

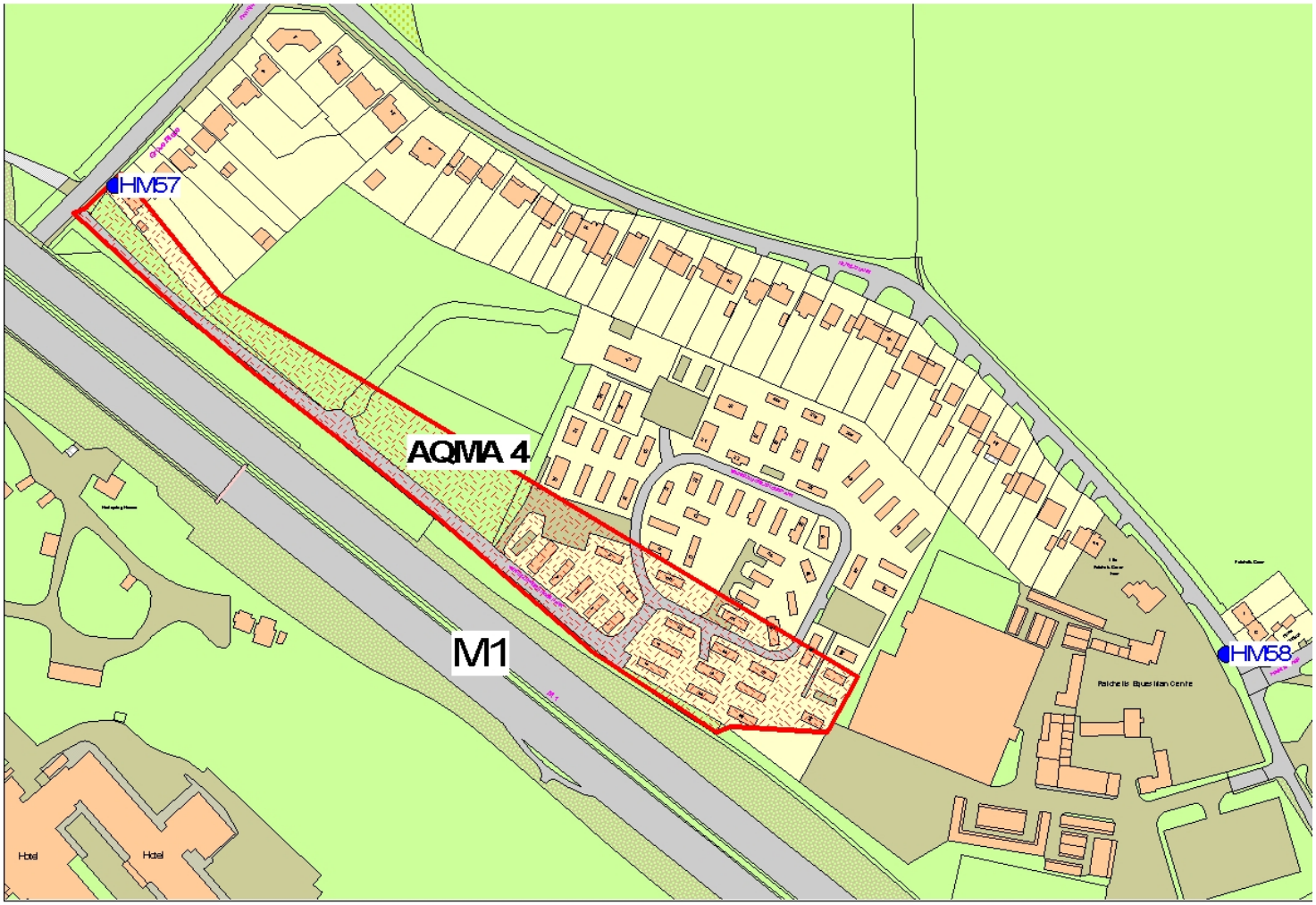


8.4.2: Charleston Paddocks

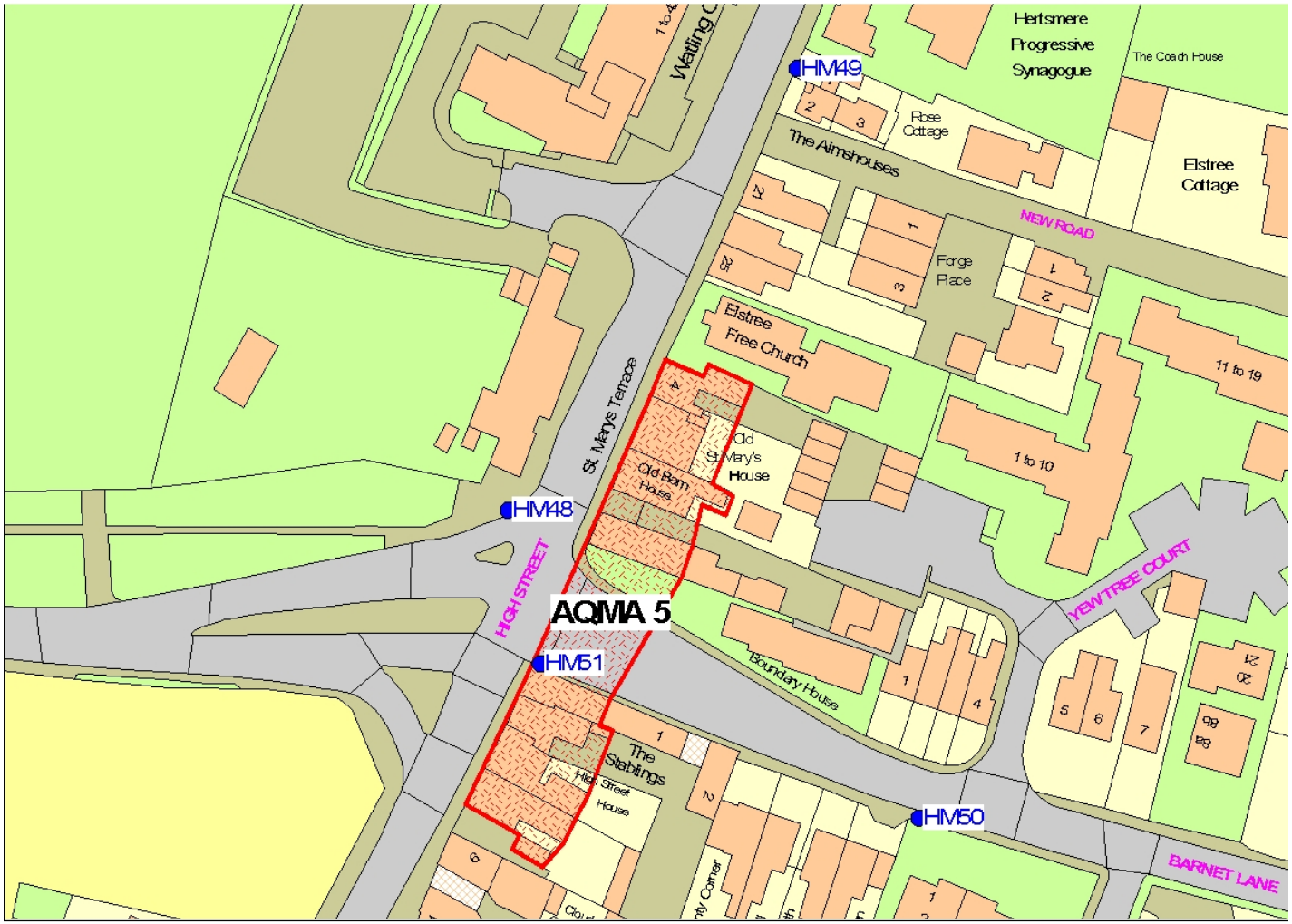


8.4.3 Blanche Lane

8.4.4 Hartspring Lane



8.4.5 Elstree Crossroads



8.4.6 High Street, Potters Bar

8.5 APPENDIX 5: MAP OF HERTSMERE BOROUGH COUNCIL SHOWING NITROGEN DIOXIDE DIFFUSION TUBE SITES

8.6 APPENDIX 6

ADDITIONAL INFORMATION ON AIR QUALITY MANAGEMENT AREAS.

AQMA and Tube No.	Estimated pop	Max. conc. Measured ugm3
Dove Lane – 1 HM63	60	42
Charleston Paddock – 2	2	Inadequate data
Blanche Lane – 3 HM61	18	52
Hartspring Lane – 4 HM57	28	43
Elstree Crossroad – 5 HM48	10	42
High Street, Potters Bar – 6 HM64	12	62

Information required for expected time by which the air quality objective will be met is not available at present. Modelling for the whole borough will be available with the USA 2009.