2011 Air Quality Progress Report for London Borough of Ealing

In fulfillment of Part IV of the
Environment Act 1995
Local Air Quality Management

August 2014

www.ealing.gov.uk

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London Borough of Ealing 2011 Progress Report

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Executive Summary

In fulfilment of its Local Air Quality Management duties, the London Borough of Ealing commissioned AECOM Ltd to compile its 2011 Air Quality Progress Report. This Progress Report documents changes in monitored pollutant concentrations within the Borough since the publication of the London Borough of Ealing's 2010 Progress Report. New local developments and planning applications which have the potential to affect air quality are also summarised, along with relevant local air quality policies, strategies, Local Transport Plans and Climate Change initiatives.

In 2010 the London Borough of Ealing undertook monitoring at six continuous monitoring sites and 124 NO_2 diffusion tube sites within the Borough.

The results from the air quality monitoring show annual mean concentrations of nitrogen dioxide remain in exceedence of the AQS objective within the AQMA. Exceedences occurred at five of the six monitoring stations and at 99 diffusion tube sites. The highest annual mean concentration was recorded at the Hanger Lane Gyratory site (91.5 µg/m^3). The 1-hour nitrogen dioxide was also exceeded at this continuous monitoring site and potentially at 24 of the diffusion tube sites.

The annual mean and daily mean objectives for PM_{10} were exceeded at one continuous monitoring station, Horn Lane. The annual mean concentration in 2010 at the Horn Lane site was 41.5 µg/m^3.

In conclusion, the results of this 2011 Progress Report indicate that a Detailed Assessment is not currently required and the existing Air Quality Management Area should be retained.

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Appendices

1 Introduction

1.1 Description of Local Authority Area

The London Borough of Ealing, located in west London, is home to over 300,000 people and covers approximately 55 square kilometres. The Borough consists of seven main areas: Acton, Ealing, Greenford, Hanwell, Northolt, Perivale and Southall. It comprises of both urban and rural areas, has a large number of parks and open spaces, as well as large amounts of housing, commercial and industrial areas. The Borough contains more than 13,000 businesses and includes half of the largest industrial and business park in London, Park Royal.

The Council regulates 84 Part B industrial and other minor processes. There are two Part A installations within the Borough; Vale Europe Ltd and GW Neale Ltd. The main source of air pollution comes from busy and congested roads, including the A40, A406, A4020, A4127 and A4000 that run through the Borough.

The whole Borough has been declared an Air Quality Management Area (AQMA) for nitrogen dioxide (NO_2) and particulate matter less than 10 µm in diameter (PM_{10}).

1.2 Purpose of Progress Report

This report fulfils the requirements of the Local Air Quality Management (LAQM) process as set out in Part IV of the Environment Act (1995), the Air Quality Strategy for England, Scotland, Wales and Northern Ireland 2007 and the relevant Policy and Technical Guidance documents. The LAQM process places an obligation on all local authorities to regularly review and assess air quality in their areas, and to determine whether or not the air quality objectives are likely to be achieved. Where exceedences are considered likely, the local authority must then declare an Air Quality Management Area (AQMA) and prepare an Air Quality Action Plan (AQAP) setting out the measures it intends to put in place in pursuit of the objectives.

Progress Reports are required in the intervening years between the three-yearly Updating and Screening Assessment reports. Their purpose is to maintain continuity in the LAQM process.

They are not intended to be as detailed as Updating and Screening Assessment Reports. However, if the Progress Report identifies the risk of exceedence of an Air Quality Objective, the Local Authority (LA) should undertake a Detailed Assessment immediately, and not wait until the next round of Review and Assessment.

1.3 Air Quality Objectives

The air quality objectives applicable to LAQM in England are set out in the Air Quality (England) Regulations 2000 (SI 928), The Air Quality (England) (Amendment) Regulations 2002 (SI 3043), and are shown in Table 1.1. This table shows the objectives in units of micrograms per cubic metre µg/m^3 (milligrammes per cubic metre, mg/m^3 for carbon monoxide) with the number of exceedences in each year that are permitted (where applicable).

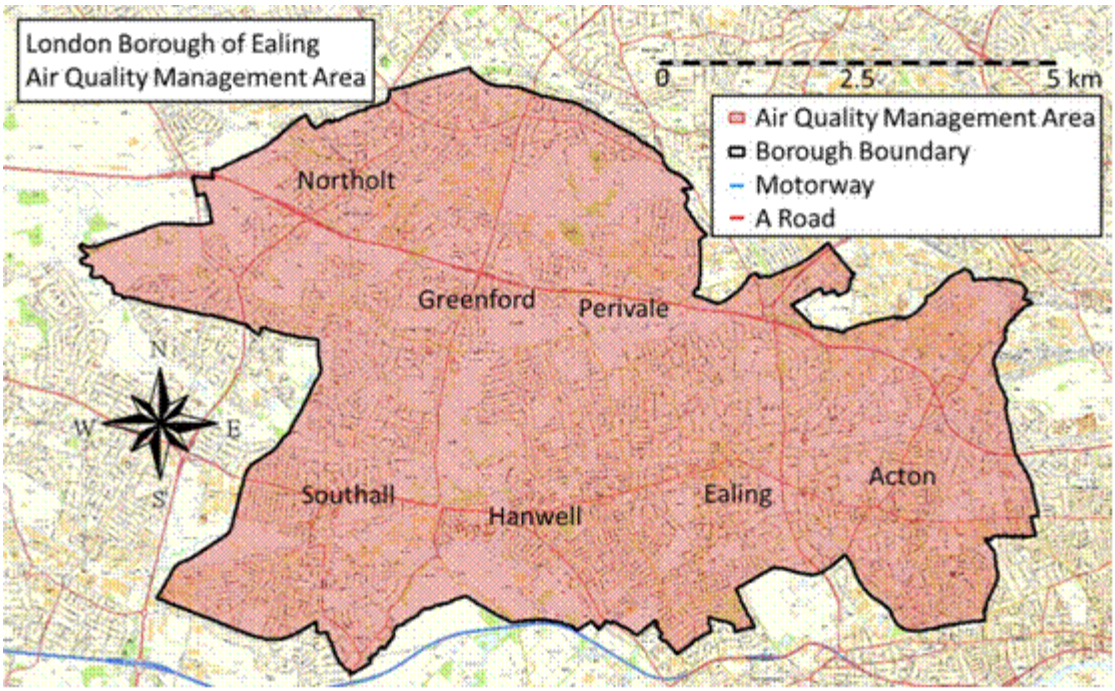
Table 1.1 Air Quality Objectives included in Regulations for the purpose of LAQM in England

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
1,3-Butadiene	2.25 µg/m^3	Running annual mean	31.12.2003
Carbon monoxide	10 mg/m^3	Running 8-hour mean	31.12.2003
Lead	0.50 µg/m^3	Annual mean	31.12.2004
	0.25 µg/m^3	Annual mean	31.12.2008
Nitrogen dioxide	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
Particulate Matter (PM_{10}) (gravimetric)	50 µg/m^3, not to be exceeded more than 35 times a year	24-hour mean	31.12.2004
	40 µg/m^3	Annual mean	31.12.2004
Sulphur dioxide	350 µg/m^3, not to be exceeded more than 24 times a year	1-hour mean	31.12.2004
	125 µg/m^3, not to be exceeded more than 3 times a year	24-hour mean	31.12.2004
	266 µg/m^3, not to be exceeded more than 35 times a year	15-minute mean	31.12.2005

A Borough-wide Air Quality Management Area (AQMA) was declared in 2000 as a result of exceedences of the NO_2 and PM_{10} air quality objectives. An Air Quality Action Plan (AQAP)[1] was subsequently published in 2003.

The outcomes of previous rounds of LAQM review and assessment are summarised in Table 1.2. The latest Updating and Screening Assessment report produced by the London Borough of Ealing[2] highlighted the need to maintain the AQMA and continue monitoring of nitrogen dioxide and PM_{10} concentrations within the Borough.

Figure 1.1 Map of AQMA Boundaries



[1] London Borough of Ealing (2003) *London Borough of Ealing Air Quality Action Plan*
[2] London Borough of Ealing (2012) Fifth Round Updating and Screening Assessment for London Borough of Ealing.

Table 1.2 Summary of Previous Rounds of Review and Assessment

Report	Date produced	Outcome
Stage 1 and 2	May-99	Need for Stage 3 for NO_2, PM_{10}, SO, CO and Pb.
Stage 3	Jan-00	Need to declare AQMA for NO_2 and PM_{10}.
Stage 4	Dec-00	Declaration of whole Borough AQMA for NO_2 and PM_{10}
Air Quality Action Plan	Apr-03	Action Plan adopted.
USA 2004	Apr-04	Detailed assessment for PM required for EWS Goods Yard, Horn Lane.
USA 2006	Apr-06	AQMA retained for whole Borough.
Detailed Assessment of PM_{10}	May-06	AQMA retained for whole Borough.
Progress Report 2007	Apr-07	No other sources require detailed assessment.
Progress Report 2008	Apr-08	No other sources require detailed assessment.
USA 2009	Jun-09	AQMA retained and additional monitoring required.

2 New Monitoring Data

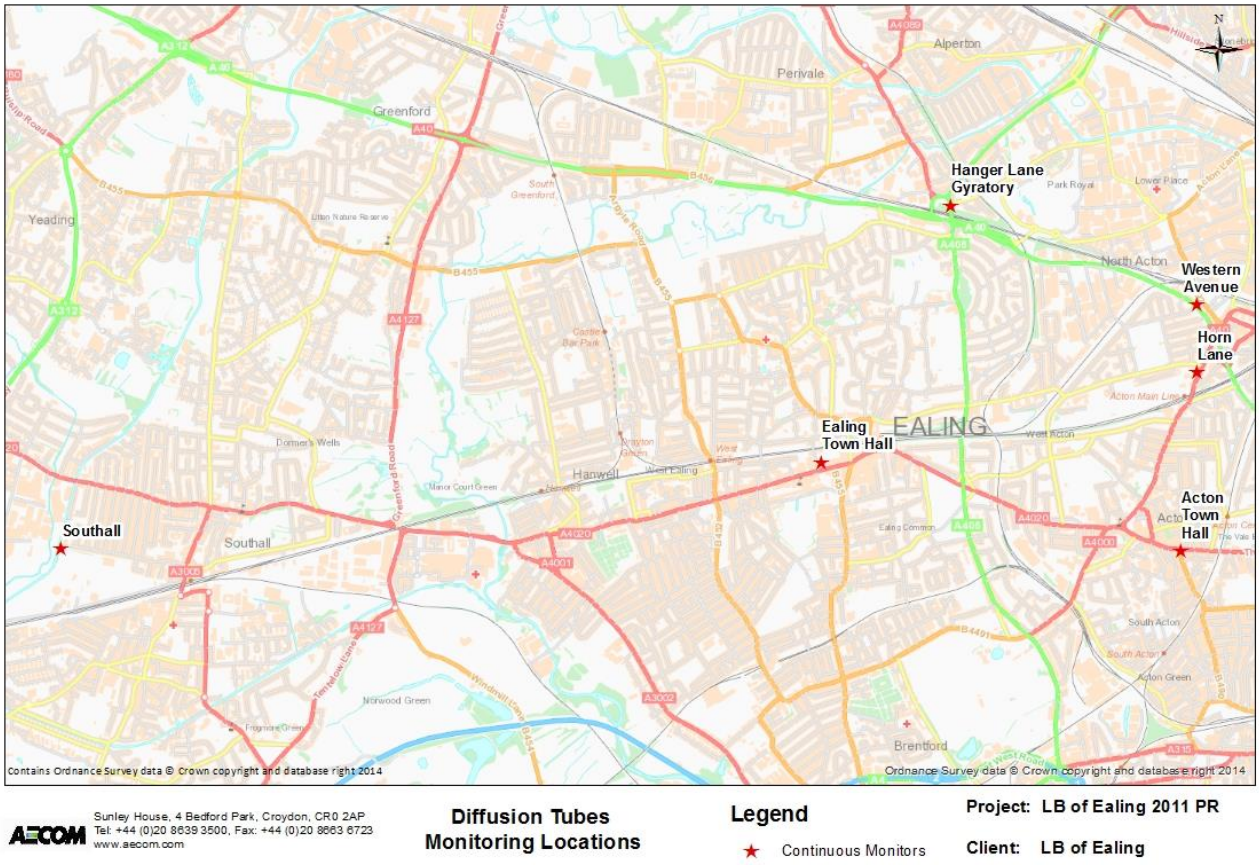
2.1 Summary of Monitoring Undertaken

2.1.1.1 Automatic Monitoring Sites

In 2010 the London Borough of Ealing currently operated six automatic monitoring stations. Three were situated at roadside sites, one at an industrial site, and two at urban background locations.

During 2010, all sites were operated as part of the London Air Quality Network[3]. Details of the relevant Quality Assurance / Quality Control (QA/QC) procedures that were followed during the monitoring are provided in Appendix A. **Error! Reference source not found.** and Table 2.1 provide details of the automatic monitoring sites located in the Borough.

Figure 2.1 Map of Automatic Monitoring Sites



[3] LAQN (2012) London Air Quality Network, Available online: www.londonair.org.uk. Accessed: 28/4/2014

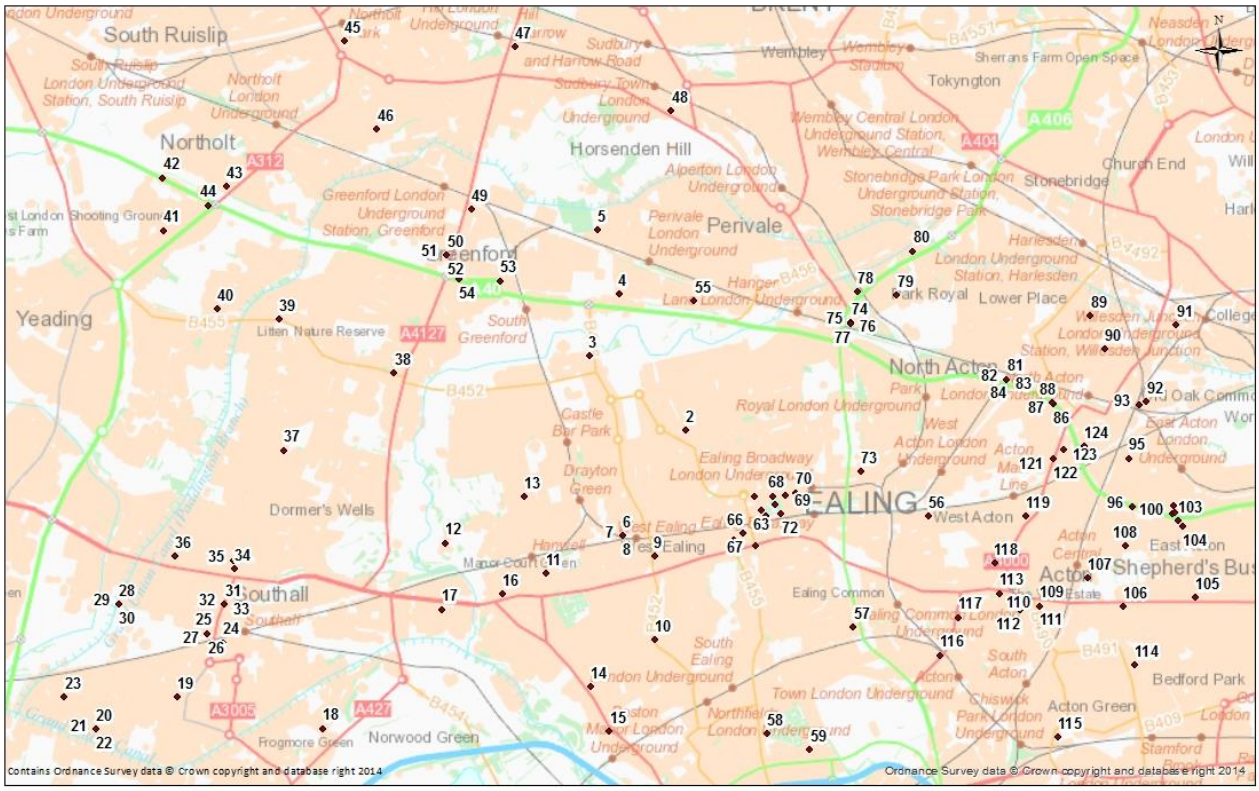
Table 2.1 Details of Automatic Monitoring Sites

Site Name	Site Type	X OS Grid Reference	Y OS Grid Reference	Pollutants Monitored	In AQMA?	Monitoring Technique	Relevant Exposure? (Y/N with distance (m) from monitoring site to relevant exposure)	Distance to Kerb of Nearest Road (m) (N/A if not applicable)	Does this Location Represent Worst-Case Exposure?
Hanger Lane Gyratory	Roadside	518537	182708	NO_2, PM_{10}	Y	Chemiluminescence, TEOM	Y (4)	3	Y
Horn Lane	Industrial	520432	181428	NO_2, PM_{10}	Y	Chemiluminescence, TEOM	Y (8)	2.5	Y
Southall	Urban Background	511677	180071	NO_2, PM_{10}, $PM_{2.5}$, O_3	Y	Chemiluminescence, FDMS	Y (17)	N/A	N
Acton Town Hall	Roadside	520304	180054	NO_2, PM_{10}, $PM_{2.5}$, O_3	Y	Chemiluminescence, TEOM, FDMS	Y (4)	3	Y
Ealing Town Hall	Urban Background	517541	180738	NO_2, O_3, CO, SO_2	Y	Chemiluminescence	Y (0)	N/A	Y
Western Avenue	Roadside	520430	181950	NO_2, PM_{10}	Y	Chemiluminescence, TEOM	Y (4)	4	Y

2.1.2 Non-Automatic Monitoring Sites

The London Borough of Ealing monitored annual mean nitrogen dioxide concentrations using passive diffusion tubes at 124 sites located throughout the Borough. **Error! Reference source not found.** and Table 2.2 provides details of the diffusion tube sites operated within the Borough during 2010.

Figure 2.2 Map of Non-Automatic Monitoring Sites



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Diffusion Tubes Monitoring Locations

Project: LB of Ealing 2011 PR

Client: LB of Ealing

Table 2.2 Details of 2010 Non- Automatic Monitoring Sites

Site No.	Address	Site type	Easting	Northing	Pollutants Monitored	Relevant Exposure? (Y/N with distance (m) to relevant exposure)	Distance to kerb of nearest road (N/A if not applicable)	Does this location represent worst-case exposure?
1	6 Castlebar Road, Ealing, W5 2DP	K	517636	181079	NO2	Y (L - 6m)	0.80	Y
2	12 Castlebar Hill, Ealing,W5 1TE	B	516992	181698	NO2	Y (F)	2.20	Y
3	1-4 Peal Gardens, West Ealing, W13 OBA	R	516089	182400	NO2	Y (F)	5.00	Y
4	2 Horsenden Lane South, Greenford, UB6 8AB	R	516368	182978	NO2	Y (F)	5.00	Y
5	Perivale Wood, r/o 36-38 Sunley Gardens, Greenford,UB6 7PE	B	516166	183578	NO2	Y (F)	N/A	N
6	Opposite No.40 Manor Road, West Ealing, W13 OJA	R	516405	180710	NO2	N (L)	5.00	N
7	Opposite No.40 Manor Road, West Ealing, W13 OJA	R	516405	180710	NO2	N (L)	5.00	N
8	Opposite No.40 Manor Road, West Ealing, W13 OJA	R	516405	180710	NO2	N (L)	5.00	N
9	1 Kirn Road, West Ealing, W13 0UB	R	516700	180522	NO2	Y (F)	5.00	Y
10	14 Balfour Road, West Ealing, W13 9TN	K	516700	179735	NO2	Y (L - 3m)	0.80	Y
11	20 Church Road, Hanwell, W7 1DR	NR	515680	180360	NO2	Y (F)	25.00	Y
12	Brent Lodge Park, Church Road, Hanwell,W7 3BP	B	514740	180643	NO2	Y (F)	N/A	N
13	Hobbayne First School, Greenford Avenue, Hanwell, W7 1HA	B	515477	181081	NO2	Y (F)	46.00	Y
14	200 Boston Road, Hanwell, W7 2AA	K	516100	179300	NO2	Y (L)	0.60	Y

Site No.	Address	Site type	Easting	Northing	Pollutants Monitored	Relevant Exposure? (Y/N with distance (m) to relevant exposure)	Distance to kerb of nearest road (N/A if not applicable)	Does this location represent worst-case exposure?
15	6 Boston Gardens, Boston Road, Hanwell, W7 2AN	NR	516277	178882	NO2	Y (F)	5.00	Y
16	189 Uxbridge Road, Hanwell, W7 3TH	NR	515276	180163	NO2	Y (L)	15.00	Y
17	Ealing Hospital, Uxbridge Road, Southall, UB1 3HW	NR	514705	180022	NO2	Y (L)	1.00	Y
18	Minterne Avenue, Southall, UB2 4HN	R	513588	178907	NO2	Y (L)	3.00	N
19	19-21 Western Road, Southall, UB2 5HA	NR	512230	179200	NO2	Y (F)	7.00	Y
20	Brent Road Garages, Brent Road, Southall, UB2 5JX	K	511468	178898	NO2	N (L)	0.60	N
21	Brent Road Garages, Brent Road, Southall, UB2 5JX	K	511468	178898	NO2	N (L)	0.60	N
22	Brent Road Garages, Brent Road, Southall, UB2 5JX	K	511468	178898	NO2	N (L)	0.60	N
23	134 Brent Road, Southall, UB2 5LD	R	511173	179203	NO2	Y (F)	3.00	N
24	2 Merrick Road, Southall, UB2 4AU	NR	512657	179712	NO2	Y (F)	14.00	N
25	Junction of The Straight & The Crescent, Southall, UB1 1BE	R	512514	179795	NO2	N (L)	3.00	Y
26	Junction of The Straight & The Crescent, Southall, UB1 1BE	R	512514	179795	NO2	N (L)	3.00	N
27	Junction of The Straight & The Crescent, Southall, UB1 1BE	R	512514	179795	NO2	N (L)	3.00	N

Site No.	Address	Site type	Easting	Northing	Pollutants Monitored	Relevant Exposure? (Y/N with distance (m) to relevant exposure)	Distance to kerb of nearest road (N/A if not applicable)	Does this location represent worst-case exposure?
28	Blair Peach School, Beaconsfield Road, UB1 1DD(***AQMS***) (**Tri**)	B	511680	180071	NO2	Y (O)	N/A	Y
29	Blair Peach School, Beaconsfield Road,UB1 1DD (***AQMS***) (**Tri**)	B	511680	180071	NO2	Y (O)	N/A	Y
30	Blair Peach School, Beaconsfield Road, UB1 1DD(***AQMS***) (**Tri**)	B	511680	180071	NO2	Y (O)	N/A	N
31	Hambrough Primary School, South Road, Southall,UB1 1SF	NR	512673	180069	NO2	Y (F)	10.75	N
32	Hambrough Primary School, South Road, Southall,UB1 1SF	NR	512673	180069	NO2	Y (F)	10.75	Y
33	Hambrough Primary School, South Road, Southall,UB1 1SF	NR	512673	180069	NO2	Y (F)	10.75	Y
34	11 The Broadway, Southall, UB1 3PX	R	512768	180400	NO2	Y (F)	5.00	Y
35	7 Greenford Avenue, Southall, UB1 2AA	NR	512753	180478	NO2	Y (F)	8.95	Y
36	McDonalds Drive thru, Uxbridge Road, Southall, UB1 3EG	NR	512206	180522	NO2	N (L)	15.00	Y
37	Jubilee Gardens Library, Jubilee Gardens, Southall, UB1 2TJ	B	513229	181513	NO2	N (L)	0.70	Y
38	205 Windmill Lane, Greenford, UB6 9DW	NR	514259	182234	NO2	Y (F)	8.50	Y
39	301 Ruislip Road, Greenford,UB6 9SE	NR	513182	182741	NO2	N (L)	10.00	N
40	2 Shadwell Drive, Northolt, UB5 6DB	K	512603	182837	NO2	Y (L -7m)	1.00	N
41	2 Bengarth Road, Northolt, UB5 5LF	K	512100	183571	NO2	N (L)	5.00	Y

Site No.	Address	Site type	Easting	Northing	Pollutants Monitored	Relevant Exposure? (Y/N with distance (m) to relevant exposure)	Distance to kerb of nearest road (N/A if not applicable)	Does this location represent worst-case exposure?
42	John Chilton School, Compton Crescent, Northolt, UB5 5LD	B	512097	184066	NO2	Y (F)	76.00	Y
43	143 Church Road, Northolt, UB5	K	512690	183983	NO2	Y (L - 5m)	1.00	Y
44	Rear of 191 Church Road, Northolt, UB5 5BE	B	512519	183808	NO2	Y (L)	8.00	Y
45	126 Petts Hill, Northolt, UB5 4NW	NR	513794	185348	NO2	Y (F)	9.42	Y
46	173 Castle Road, Northolt, UB5 4SG	K	514102	184521	NO2	Y (L-7m)	0.50	Y
47	1502 Greenford Road, Greenford, UB6 0HR	NR	515395	185292	NO2	Y (L)	6.00	Y
48	81 Whitton Avenue East, Greenford, UB6 0QD	K	516858	184691	NO2	Y (L - 6m)	1.00	Y
49	914 Greenford Road,Greenford,UB6 8QN	R	514985	183770	NO2	Y (L)	44.00	Y
50	Oldfield Primary School, Oldfield Lane North, Greenford,UB6 8PR	B	514753	183342	NO2	Y (F)	30.00	Y
51	Oldfield Primary School, Oldfield Lane North, Greenford, UB6 8PR	B	514753	183342	NO2	Y (F)	30.00	Y
52	Oldfield Primary School, Oldfield Lane North, Greenford, UB6 8PR	B	514753	183342	NO2	Y (F)	30.00	Y
53	17 Runnymede Gardens, Greenford, UB6 8SX	K	515255	183098	NO2	Y (L)	15.00	Y
54	12 Blenheim Close, Greenford, UB6 8ET	K	514866	183116	NO2	Y (L)	36.00	Y
55	St John Fisher Primary School, Thirlmere Avenue, Perivale, UB6 8EF	B	517072	182912	NO2	Y (F)	48.00	Y
56	2 Oakley Avenue, Ealing, W5 3SD	K	519264	180893	NO2	Y (L - 5m)	14.00	Y
57	85 St Pauls Close, Ealing, W5 3JX	K	518562	179852	NO2	Y (L)	0.60	Y

Site No.	Address	Site type	Easting	Northing	Pollutants Monitored	Relevant Exposure? (Y/N with distance (m) to relevant exposure)	Distance to kerb of nearest road (N/A if not applicable)	Does this location represent worst-case exposure?
58	South Ealing Cemetery, Popes Lane, Ealing, W5 4NA	B	517750	178860	NO2	Y (F)	32.00	N
59	Clayponds Hospital, Sterling Place, Ealing, W5 4RN	B	518153	178709	NO2	Y (F)	N/A	N
60	14 Bond Street, Ealing, W5 5AA	R	517644	180613	NO2	Y (F)	5.00	Y
61	8 Spring Bridge Road, London W5 2AA	R	517745	180827	NO2	Y (F)	5.00	Y
62	opposite 1a Haven Green, W5 2UU	K	517745	180901	NO2	N (L)	0.60	N
63	Gordon Road, Ealing,W5 2UU	K	517703	180952	NO2	Y (L - 2m)	0.70	Y
64	Perceval House, 14/16 Uxbridge Road, Ealing, W5 2HL	NR	517440	180677	NO2	Y (F)	25.00	Y
65	Ealing Town Hall, New Broadway, Ealing, W5 2HL	B	517534	180737	NO2	Y (F)	40.00	N
66	Ealing Town Hall, New Broadway, Ealing, W5 2HL	B	517534	180737	NO2	Y (F)	40.00	N
67	Ealing Town Hall, New Broadway, Ealing, W5 2HL	B	517534	180737	NO2	Y (F)	40.00	N
68	Haven Green Court, Haven Green, Ealing, W5 2UZ	B	517803	181082	NO2	Y (F)	20.00	Y
69	Woodville Road, Ealing, W5 2SF	K	517928	181088	NO2	Y (L-6m)	1.00	Y
70	21 Haven Lane, Ealing, W5 2HZ	R	518022	181114	NO2	Y (F)	5.00	Y
71	Middle of Haven Green, Ealing,W5 2UP	NR	517834	181000	NO2	Y(L)	N/A	Y

Site No.	Address	Site type	Easting	Northing	Pollutants Monitored	Relevant Exposure? (Y/N with distance (m) to relevant exposure)	Distance to kerb of nearest road (N/A if not applicable)	Does this location represent worst-case exposure?
72	8 Central Buildings, The Broadway, Ealing, W5 2NT	K	517887	180914	NO2	Y (L-4m)	1.00	Y
73	57 Woodville Gardens, Ealing, W5 2LN	K	518633	181314	NO2	Y (L-5m)	1.00	Y
74	Fernlea House, Hanger Lane, Ealing,W5 1EF (***AQMS***) (**Tri**)	R	518541	182707	NO2	Y (F)	5.00	Y
75	Fernlea House, Hanger Lane, Ealing,W5 1EF (***AQMS***) (**Tri**)	R	518541	182707	NO2	Y (F)	5.00	Y
76	Fernlea House, Hanger Lane, Ealing,W5 1EF (***AQMS***) (**Tri**)	R	518541	182707	NO2	Y (F)	5.00	Y
77	Fernlea House, Hanger Lane, Ealing,W5 1EF	K	518540	182700	NO2	Y (L-9)	1.00	Y
78	opposite 41 Park Avenue, Park Royal, NW10 7EX	R	518600	183000	NO2	N (L - 7m)	4.00	Y
79	6 Brentmead Gardens, Park Royal, NW10 7DS	R	518970	182964	NO2	N (L - 7m)	2.50	N
80	1 Iveagh Avenue, Park Royal, NW10 7DL	R	519117	183379	NO2	Y (L)	3.00	Y
81	Wendover Court, Western Avenue, W3 0TG-3rd Floor	NR	519997	182178	NO2	Y (F)	7.00	Y
82	Wendover Court, Western Avenue, W3 0TG-2nd Floor	NR	519997	182178	NO2	Y (F)	7.00	Y
83	Wendover Court, Western Avenue, W3 0TG - 1st Floor	NR	519997	182178	NO2	Y (F)	7.00	Y
84	Wendover Court, Western Avenue, W3 0TG - Ground Floor	NR	519997	182178	NO2	Y (F)	7.00	N

Site No.	Address	Site type	Easting	Northing	Pollutants Monitored	Relevant Exposure? (Y/N with distance (m) to relevant exposure)	Distance to kerb of nearest road (N/A if not applicable)	Does this location represent worst-case exposure?
85	322 Western Avenue, Acton, W3 OPL (***AQMS***) (***Tri***)	R	520430	181950	NO2	Y	5.00	Y
86	322 Western Avenue, Acton, W3 OPL (***AQMS***) (***Tri***)	R	520430	181950	NO2	Y	5.00	Y
87	322 Western Avenue, Acton, W3 OPL (***AQMS***) (***Tri***)	R	520430	181950	NO2	Y	5.00	Y
88	326 Western Avenue, Acton, W3 0PL	NR	520426	181958	NO2	Y (F)	11.35	N
89	94 North Acton Road, Park Royal, NW10 7AY	R	520780	182775	NO2	Y (F)	4.00	Y
90	INCO, Bashley Road, Park Royal, NW10 6SL	R	520915	182464	NO2	N (F)	5.00	N
91	39 Old Oak Lane, Park Royal, NW10 6EJ	NR	521587	182684	NO2	Y (F)	6.14	Y
92	27 Wells House Road, Park Royal, NW10 6ED	R	521305	181966	NO2	Y (F)	5.00	Y
93	101 Wells House Road, Acton, NW10 6EA	R	521238	181942	NO2	Y (F)	5.00	Y
94	4 St Andrews Road, Acton, W3 7NE	K	521381	180946	NO2	Y (L- 6m)	0.80	Y
95	John Perryn School, Long Drive, Acton,W3 7PD	K	521139	181436	NO2	Y (L)	0.80	Y
96	98 Western Avenue, Acton, W3 7TZ	NR	521173	180981	NO2	Y (F)	10.00	Y
97	54 Western Avenue, Acton, W3 7TZ	NR	521391	180922	NO2	Y(F)	10.00	Y
98	6 Western Avenue, Acton, W3 7UD	R	521549	180923	NO2	Y (F)	5.00	Y
99	53 Old Oak Common Lane, Acton, W3 7DD	NR	521573	180932	NO2	Y (F)	6.00	Y
100	57 Old Oak Common Lane (PO), Acton,W3 7DD	NR	521557	180996	NO2	Y (F)	11.00	Y
101	18 Old Oak Common Lane, Acton, W3 7EJ	R	521602	180856	NO2	Y (L)	1.00	Y

Site No.	Address	Site type	Easting	Northing	Pollutants Monitored	Relevant Exposure? (Y/N with distance (m) to relevant exposure)	Distance to kerb of nearest road (N/A if not applicable)	Does this location represent worst-case exposure?
102	18 Old Oak Common Lane, Acton, W3 7EJ	R	521602	180856	NO2	Y (L)	1.00	Y
103	18 Old Oak Common Lane, Acton, W3 7EJ	R	521602	180856	NO2	Y (L)	1.00	Y
104	171 Old Oak Road, Acton, W3 7HH	R	521646	180800	NO2	Y (F)	4.00	Y
105	29-40 Vale Court, The Vale, Acton, W3 7SA	R	521761	180132	NO2	Y (L-6m)	4.00	Y
106	177A The Vale, Acton,W3 7RD	K	521088	180046	NO2	Y (L-3.5m)	1.50	Y
107	Maples Nursery, East Churchfield Road, Acton, W3 7LL	NR	520754	180316	NO2	Y (F)	10.00	Y
108	East Acton Primary School, East Acton Lane, Acton, W3 7HA	NR	521112	180617	NO2	Y (F)	11.00	Y
109	Acton Town Hall, High Street, Acton, W3 6NE (***AQMS) (Tri)***	R	520306	180055	NO2	Y	5.00	Y
110	Acton Town Hall, High Street, Acton, W3 6NE (***AQMS) (Tri)***	R	520306	180055	NO2	Y	5	Y
111	Acton Town Hall, High Street, Acton, W3 6NE ***(AQMS) (Tri)***	R	520306	180055	NO2	Y	5	Y
112	35-61Church Road, Acton, W3 8QE	NR	520128	180016	NO2	Y (F)	10	Y
113	216 High Street, Acton, W3 9NN	R	519928	180173	NO2	Y (F)	5	Y
114	Southfields First & Middle School, Southfields Road, Chiswick, W4 1BD	B	521200	179500	NO2	Y (F)	5	Y
115	42 Acton Lane, Chiswick, W4 5ED	K	520481	178826	NO2	Y (F)	5	Y
116	124 Gunnersbury Lane, Acton, W3 9BA	K	519373	179593	NO2	Y(L-5m)	1.00	Y

Site No.	Address	Site type	Easting	Northing	Pollutants Monitored	Relevant Exposure? (Y/N with distance (m) to relevant exposure)	Distance to kerb of nearest road (N/A if not applicable)	Does this location represent worst-case exposure?
117	48 Gunnersbury Lane, Acton,W3 8EG	K	519547	179948	NO2	Y(L-10m)	1.00	Y
118	19 Lantry Court, Lexden Road, Acton, W3 9PE	B	519883	180459	NO2	Y (L)	N/A	N
119	156 Horn Lane,Acton,W3 6PH	NR	520180	180896	NO2	Y (F)	6.00	N
120	317 Horn Lane, Acton,W3 0BU (***AQMS***) (***Tri***)	R	520432	181428	NO2	Y	5.00	Y
121	317 Horn Lane, Acton,W3 0BU (***AQMS***) (***Tri***)	R	520432	181428	NO2	Y	5.00	Y
122	317 Horn Lane, Acton,W3 0BU (***AQMS***) (***Tri***)	R	520432	181428	NO2	Y	5.00	Y
123	5 Leamington Park, Acton, W3 6TJ	NR	520532	181517	NO2	Y(F)	11.00	Y
124	12 Jenner Avenue, Acton,W3 6EQ	R	520724	181552	NO2	Y(L -11M)	1.00	Y

Notes: For 'Site Type' NR = Near Road, R = Roadside, B = Background and K = Kerbside.

In Relevant Exposure column, diffusion tubes located on residential façades are shown with an F in brackets, those on lampposts with an L in brackets and those on other street furniture with an O in brackets.

2.2 Comparison of Monitoring Results with Air Quality Objectives

2.2.1 Nitrogen Dioxide (NO_2)

Automatic Monitoring Data

In 2010 the London Borough of Ealing increased its number of automatic monitoring stations, opening the stations at Horn Lane (industrial) and Western Avenue (roadside). This resulted in a total of six automatic monitoring stations in operation which measured NO_2: Southall, Hanger Lane Gyratory, Horn Lane, Western Avenue, Acton Town Hall and Ealing Town Hall, the results from which in recent years are shown in Table 2.3 and Table 2.4.

Data capture was low at Western Avenue and Horn Lane in 2010 (59.9% and 70% respectively). As data capture was below 75% the monitored annual mean NO_2 concentration at these sites required annualisation in accordance with the methodology in Box 3.2 in LAQM.TG (09). Details of these calculations can be found in Appendix A.

Exceedances of the 40 µg/m^3 annual mean objective were observed at five of the six monitoring stations (Hanger Lane Gyratory, Horn Lane, Western Avenue, Acton Town Hall and Ealing Town Hall) in 2010. The highest annual mean concentration in 2010 (91.5 µg/m^3) was recorded at the Hanger Lane Gyratory site.

Monitored hourly mean NO_2 concentrations at the Hanger Lane Gyratory site also exceeded the 1-hour NO_2 objective in 2010, as in previous years, with 134 exceedances of the hourly NO_2 standard of 200 µg/m^3 recorded, compared to the 18 permitted. The 99.8th percentile of hourly mean NO_2 concentrations recorded at Hanger Lane Gyratory was 231 µg/m^3 in 2010, which was calculated as data capture at this site was less than 90%. No other sites monitored exceedances of the 1 hour NO_2 objective.

Error! Reference source not found. shows trends in monitored NO_2 concentrations at each of the automatic monitoring sites over the last six years, which indicates concentrations appear to have remained relatively constant at all sites.

Table 2.3 Results of Automatic Monitoring for NO_2: Comparison with Annual Mean Objective

Site ID	Site Type	Within AQMA?	Valid Data Capture 2010 % [a]	Annual Mean NO_2 Concentration ($\mu g/m^3$)				
				2006	2007	2008	2009	2010
Hanger Lane Gyratory	Roadside	Y	87.1	**95**	**90**	**103**	**93**	**91.5**
Horn Lane	Industrial	Y	70.0 [a]	-	-	-	-	**66.3**
Southall	Urban Background	Y	99.4	33	31	31	31	30.8
Western Avenue	Roadside	Y	59.9 [a]	-	-	-	-	**67.1**
Ealing Town Hall	Urban Background	Y	93.9	**40**	39	**40**	**40**	**43.8**
Acton Town Hall	Roadside	Y	93.0	**63**	**57**	**59**	**62**	**55.4**

Notes: In bold, exceedence of the NO_2 annual mean AQS objective of $40\mu g/m^3$

[a] Where data captures are less than 75%, data have been annualised.

Figure 2.3 Trends in Annual Mean NO_2 Concentrations Measured at Automatic Monitoring Sites

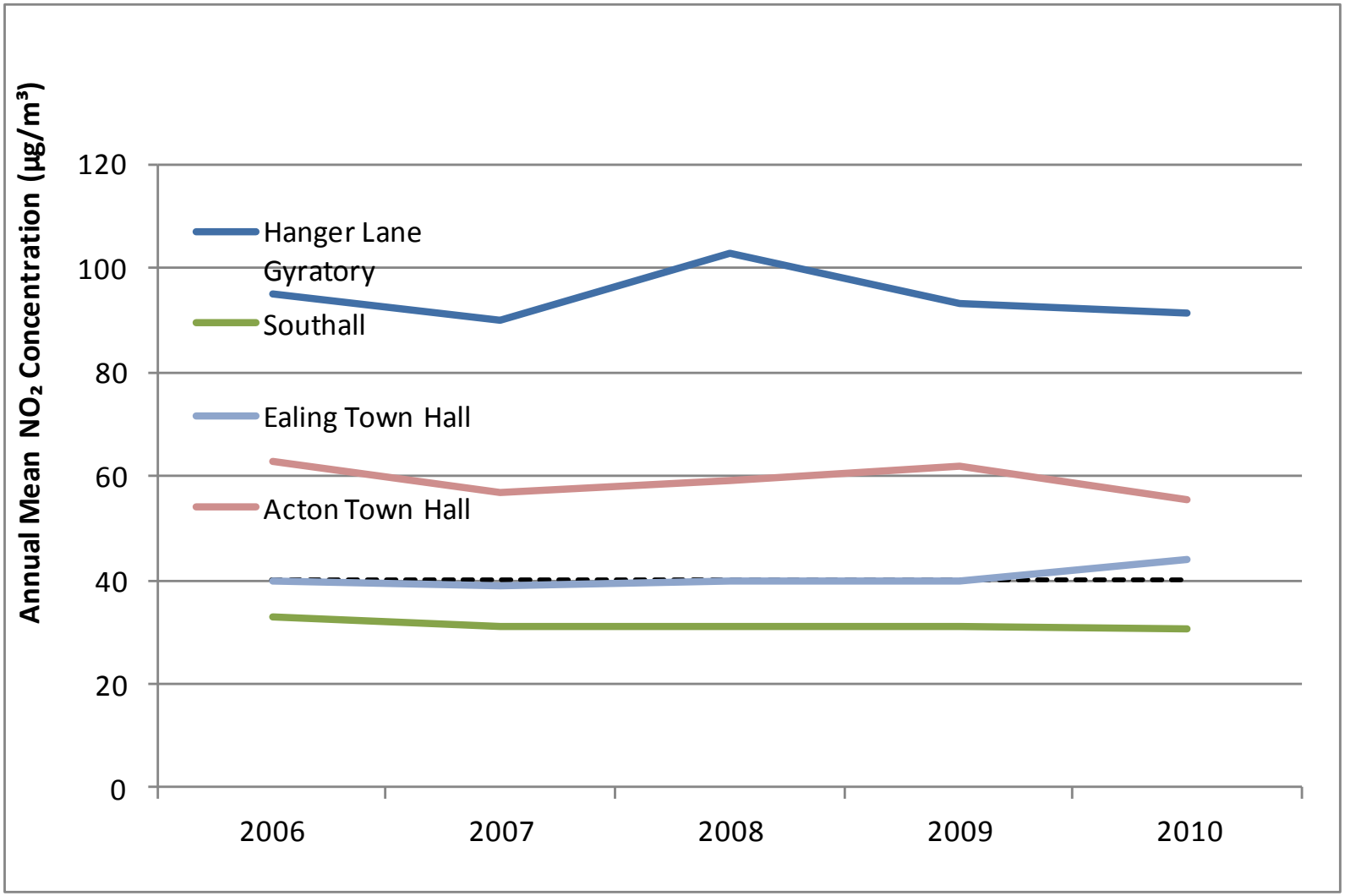


Table 2.4 Results of Automatic Monitoring for NO_2: Comparison with 1-hour Mean Objective

Site ID	Site Type	Within AQMA?	Valid Data Capture for Monitoring Period % [a]	Number of Hourly Means > 200µg/m^3				
				2006	2007	2008	2009	2010
Hanger Lane Gyratory	Roadside	Y	87.1	**244**	**64**	**84**	**166**	**134 (231)**
Horn Lane	Industrial	Y	70.0	-	-	-	-	0 (138)
Southall	Urban Background	Y	99.4	0	0	0	0	0
Western Avenue	Roadside	Y	59.9	-	-	-	-	9 (185)
Ealing Town Hall	Urban Background	Y	93.9	0	8	1	0	1
Acton Town Hall	Roadside	Y	93.0	**29**	**31**	**45**	13	4

Notes: In bold, exceedence of the NO_2 hourly mean AQS objective (200µg/m^3 – not to be exceeded more than 18 times per year)

Where data capture for the full calendar year was less than 90%, the 99.8th percentile of hourly means is shown in brackets.

Diffusion Tube Monitoring Data

In 2010 the London Borough of Ealing network of diffusion tubes numbered 124, including 13 triplicate sites. The diffusion tubes were prepared and analysed by Gradko (using the 20% Triethanolamine in acetone method). Details of the QA/QC procedures applied to the diffusion tube results are summarised in Appendix A. Data capture for the diffusion tubes was generally high with only one tube requiring annualisation, details of monthly concentrations can be found in Appendix B.

In total, 99 of the diffusion tubes recorded concentrations greater than the 40 µg/m^3 air quality objective in 2010. Of the tubes exceeding the annual mean air quality objective, 24 recorded a value above 60 µg/m^3. Concentrations greater than 60 µg/m^3 indicate a risk of the 1-hour NO_2 objective being exceeded.

The results for 2010 are shown in Table 2.5 and results from 2006 to 2010 for the locations at which monitoring was undertaken in 2010 are shown in Table 2.6.

The maximum recorded value in 2010 was 82.8 µg/m^3 at diffusion tubes co-located with the AQMS Fernlea House, Hanger Lane, Ealing. This location has recorded concentrations above 80 µg/m^3 in the previous four years.

Table 2.5 Results of NO_2 Diffusion Tubes 2010

Site ID	Site Name	Site Type	Grid Ref		Annual Mean NO_2 Concentration			Data Capture (%)
			X	Y	Raw ($\mu g/m^3$)	Local Bias Adjusted ($\mu g/m^3$)	National Bias Adjusted ($\mu g/m^3$)	
1	6 Castlebar Road, Ealing, W5 2DP	K	517636	181079	**56.2**	**57.3**	**52.1**	100
2	12 Castlebar Hill, Ealing,W5 1TE	B	516992	181698	32.0	32.3	31.2	100
3	1-4 Peal Gardens, West Ealing, W13 OBA	R	516089	182400	38.3	39.1	35.5	100
4	2 Horsenden Lane South, Greenford, UB6 8AB	R	516368	182978	**58.9**	**60.1**	**54.6**	100
5	Perivale Wood, r/o 36-38 Sunley Gardens, Greenford,UB6 7PE	B	516166	183578	25.4	25.7	24.8	91.7
6	Opposite No.40 Manor Road, West Ealing, W13 OJA	R	516405	180710	40.0	**40.8**	37.1	100
7	Opposite No.40 Manor Road, West Ealing, W13 OJA	R	516405	180710	38.3	39.1	35.6	91.7
8	Opposite No.40 Manor Road, West Ealing, W13 OJA	R	516405	180710	39.0	39.8	36.2	91.7
9	1 Kirn Road, West Ealing, W13 0UB	R	516700	180522	**56.8**	**57.9**	**52.6**	100
10	14 Balfour Road, West Ealing, W13 9TN	K	516700	179735	35.5	35.9	34.7	100
11	20 Church Road, Hanwell, W7 1DR	NR	515680	180360	39.5	**41.9**	38.7	100
12	Brent Lodge Park, Church Road, Hanwell, W7 3BP	B	514740	180643	29.1	29.4	28.4	75

Site ID	Site Name	Site Type	Grid Ref		Annual Mean NO_2 Concentration			Data Capture (%)
			X	Y	Raw ($\mu g/m^3$)	Local Bias Adjusted ($\mu g/m^3$)	National Bias Adjusted ($\mu g/m^3$)	
13	Hobbayne First School, Greenford Avenue, Hanwell, W7 1HA	B	515477	181081	33.3	33.6	32.5	100
14	200 Boston Road, Hanwell, W7 2AA	K	516100	179300	**46.0**	**46.4**	**46.9**	83.3
15	6 Boston Gardens, Boston Road, Hanwell, W7 2AN	NR	516277	178882	37.2	39.5	36.5	100
16	189 Uxbridge Road, Hanwell, W7 3TH	NR	515276	180163	**46.6**	**49.4**	**45.7**	100
17	Ealing Hospital, Uxbridge Road, Southall, UB1 3HW	NR	514705	180022	**45.8**	**46.3**	**44.7**	100
18	Minterne Avenue, Southall, UB2 4HN	R	513588	178907	**42.0**	**42.8**	38.9	100
19	19-21 Western Road, Southall, UB2 5HA	NR	512230	179200	**40.5**	**43**	39.8	100
20	Brent Road Garages, Brent Road, Southall, UB2 5JX	K	511468	178898	**53.5**	**54.6**	**49.6**	100
21	Brent Road Garages, Brent Road, Southall, UB2 5JX	K	511468	178898	**55.5**	**56.6**	**51.4**	91.7
22	Brent Road Garages, Brent Road, Southall, UB2 5JX	K	511468	178898	**51.2**	**52.3**	**47.5**	91.7
23	134 Brent Road, Southall, UB2 5LD	R	511173	179203	**51.1**	**52.2**	**47.4**	100
24	2 Merrick Road, Southall, UB2 4AU	NR	512657	179712	**43.1**	**45.7**	**42.3**	100
25	Junction of The Straight & The Crescent, Southall, UB1 1BE	R	512514	179795	**41.8**	**44.3**	**41.0**	100

Site ID	Site Name	Site Type	Grid Ref		Annual Mean NO_2 Concentration			Data Capture (%)
			X	Y	Raw ($\mu g/m^3$)	Local Bias Adjusted ($\mu g/m^3$)	National Bias Adjusted ($\mu g/m^3$)	
26	Junction of The Straight & The Crescent, Southall, UB1 1BE	R	512514	179795	**41.5**	**43.9**	**40.7**	100
27	Junction of The Straight & The Crescent, Southall, UB1 1BE	R	512514	179795	**42.1**	**44.6**	**41.3**	100
28	Blair Peach School, Beaconsfield Road, UB1 1DD ***(AQMS) (Tri)***	B	511680	180071	31.0	31.3	30.3	100
29	Blair Peach School, Beaconsfield Road, UB1 1DD (***AQMS) (Tri)***	B	511680	180071	30.2	30.5	29.5	100
30	Blair Peach School, Beaconsfield Road, UB1 1DD ***(AQMS) (Tri)***	B	511680	180071	27.7	28.0	27.1	100
31	Hambrough Primary School, South Road, Southall,UB1 1SF	NR	512673	180069	**50.7**	**53.7**	**49.7**	100
32	Hambrough Primary School, South Road, Southall,UB1 1SF	NR	512673	180069	**51.2**	**54.3**	**50.3**	100
33	Hambrough Primary School, South Road, Southall,UB1 1SF	NR	512673	180069	**49.2**	**52.2**	**48.3**	100
34	11 The Broadway, Southall, UB1 3PX	R	512768	180400	**69.1**	**70.5**	**64.1**	100
35	7 Greenford Avenue, Southall, UB1 2AA	NR	512753	180478	37.0	39.2	36.3	100
36	McDonalds Drive thru, Uxbridge Road, Southall, UB1 3EG	NR	512206	180522	**40.4**	**41.2**	37.4	100
37	Jubilee Gardens Library, Jubilee Gardens, Southall, UB1 2TJ	B	513229	181513	36.0	36.3	35.1	83.3

Site ID	Site Name	Site Type	Grid Ref		Annual Mean NO_2 Concentration			Data Capture (%)
			X	Y	Raw ($\mu g/m^3$)	Local Bias Adjusted ($\mu g/m^3$)	National Bias Adjusted ($\mu g/m^3$)	
38	205 Windmill Lane, Greenford, UB6 9DW	NR	514259	182234	**41.8**	**44.3**	**41.0**	100
39	301 Ruislip Road, Greenford,UB6 9SE	NR	513182	182741	**42.0**	**44.6**	**41.2**	100
40	2 Shadwell Drive, Northolt, UB5 6DB	K	512603	182837	**41.7**	**42.1**	**40.7**	91.7
41	2 Bengarth Road, Northolt, UB5 5LF	K	512100	183571	**47.0**	**48.0**	**43.6**	100
42	John Chilton School, Compton Crescent, Northolt, UB5 5LD	B	512097	184066	**51.0**	**51.6**	**49.8**	100
43	143 Church Road, Northolt, UB5	K	512690	183983	**64.5**	**65.8**	**59.8**	100
44	Rear of 191 Church Road, Northolt, UB5 5BE	B	512519	183808	**41.7**	**42.1**	**40.7**	100
45	126 Petts Hill, Northolt, UB5 4NW	NR	513794	185348	39.9	**42.3**	39.1	100
46	173 Castle Road, Northolt, UB5 4SG	K	514102	184521	35.1	35.9	32.6	83.3
47	1502 Greenford Road, Greenford, UB6 0HR	NR	515395	185292	**49.0**	**52.0**	**48.1**	91.7
48	81 Whitton Avenue East, Greenford, UB6 0QD	K	516858	184691	**43.2**	**44.1**	40.0	100
49	914 Greenford Road,Greenford,UB6 8QN	R	514985	183770	**42.3**	**43.2**	39.2	100
50	Oldfield Primary School, Oldfield Lane North, Greenford, UB6 8PR	B	514753	183342	**41.4**	**41.8**	**40.4**	100

Site ID	Site Name	Site Type	Grid Ref		Annual Mean NO_2 Concentration			Data Capture (%)
			X	Y	Raw ($\mu g/m^3$)	Local Bias Adjusted ($\mu g/m^3$)	National Bias Adjusted ($\mu g/m^3$)	
51	Oldfield Primary School, Oldfield Lane North,Greenford,UB6 8PR	B	514753	183342	**40.9**	**41.3**	39.9	100
52	Oldfield Primary School, Oldfield Lane North, Greenford, UB6 8PR	B	514753	183342	38.1	38.5	37.2	100
53	17 Runnymede Gardens, Greenford, UB6 8SX	K	515255	183098	**77.8**	**79.3**	**72.1**	91.7
54	12 Blenheim Close, Greenford, UB6 8ET	K	514866	183116	**45.5**	**48.3**	**44.7**	100
55	St John Fisher Primary School, Thirlmere Avenue, Perivale, UB6 8EF	B	517072	182912	**41.0**	**41.4**	40.0	100
56	2 Oakley Avenue, Ealing, W5 3SD	K	519264	180893	38.9	39.7	36.1	91.7
57	85 St Pauls Close, Ealing, W5 3JX	K	518562	179852	39.9	**40.3**	39.0	100
58	South Ealing Cemetery, Popes Lane, Ealing, W5 4NA	B	517750	178860	32.3	32.6	31.6	100
59	Clayponds Hospital, Sterling Place, Ealing, W5 4RN	B	518153	178709	35.8	36.1	34.9	100
60	14 Bond Street, Ealing, W5 5AA	R	517644	180613	**53.2**	**54.3**	**49.4**	83.3
61	8 Spring Bridge Road, London W5 2AA	R	517745	180827	**66.9**	**68.2**	**62.0**	58.3
62	opposite 1a Haven Green, W5 2UU	K	517745	180901	**52.4**	**53.5**	**48.6**	100
63	Gordon Road, Ealing,W5 2UU	K	517703	180952	**44.9**	**45.8**	**41.6**	100

Site ID	Site Name	Site Type	Grid Ref		Annual Mean NO_2 Concentration			Data Capture (%)
			X	Y	Raw ($\mu g/m^3$)	Local Bias Adjusted ($\mu g/m^3$)	National Bias Adjusted ($\mu g/m^3$)	
64	Perceval House, 14/16 Uxbridge Road, Ealing, W5 2HL	NR	517440	180677	**40.6**	**43.1**	39.9	100
65	Ealing Town Hall, New Broadway, Ealing, W5 ***(AQMS) (Tri)***	B	517534	180737	**41.7**	**44.2**	**40.9**	100
66	Ealing Town Hall, New Broadway, Ealing, W5 ***(AQMS) (Tri)***	B	517534	180737	**41**	**43.4**	**40.2**	100
67	Ealing Town Hall, New Broadway, Ealing, W5 ***(AQMS) (Tri)***	B	517534	180737	**41**	**43.4**	**40.2**	100
68	Haven Green Court, Haven Green, Ealing, W5 2UZ	B	517803	181082	40.0	**42.4**	39.2	100 (91.7)
69	Woodville Road, Ealing, W5 2SF	K	517928	181088	**41.9**	**42.7**	38.8	100
70	21 Haven Lane, Ealing, W5 2HZ	R	518022	181114	39.3	**40.1**	36.4	100
71	Middle of Haven Green, Ealing,W5 2UP	NR	517834	181000	**48.1**	**51.0**	**47.2**	83.3
72	8 Central Buildings, The Broadway, Ealing, W5 2NT	K	517887	180914	**65.1**	**66.4**	**60.4**	100
73	57 Woodville Gardens, Ealing, W5 2LN	K	518633	181314	**52.8**	**56.0**	**51.8**	91.7
74	Fernlea House, Hanger Lane, Ealing,W5 1EF ***(AQMS) (Tri)***	R	518541	182707	76.3	**77.9**	**70.8**	100
75	Fernlea House, Hanger Lane, Ealing,W5 1EF ***(AQMS) (Tri)***	R	518541	182707	**77.1**	**78.6**	**71.5**	100
76	Fernlea House, Hanger Lane, Ealing,W5 1EF ***(AQMS) (Tri)***	R	518541	182707	**74.6**	**76.1**	**69.2**	100

Site ID	Site Name	Site Type	Grid Ref		Annual Mean NO_2 Concentration			Data Capture (%)
			X	Y	Raw ($\mu g/m^3$)	Local Bias Adjusted ($\mu g/m^3$)	National Bias Adjusted ($\mu g/m^3$)	
77	Fernlea House, Hanger Lane, Ealing, W5 1EF	K	518540	182700	**81.2**	**82.8**	**75.3**	91.7
78	opposite 41 Park Avenue, Park Royal, NW10 7EX	R	518600	183000	**46.8**	**49.6**	**45.9**	100
79	6 Brentmead Gardens, Park Royal, NW10 7DS	R	518970	182964	**40.1**	**40.5**	39.2	100
80	1 Iveagh Avenue, Park Royal, NW10 7DL	R	519117	183379	**46.7**	**49.5**	**45.8**	91.7
81	Wendover Court, Western Avenue, W3 0TG- 3rd Floor	NR	519997	182178	**65.1**	**69.0**	**63.8**	58.3
82	Wendover Court, Western Avenue, W3 0TG- 2nd Floor	NR	519997	182178	**64.5**	**68.4**	**63.3**	100
83	Wendover Court, Western Avenue, W3 0TG - 1st Floor	NR	519997	182178	**64.9**	**68.8**	**63.7**	91.7
84	Wendover Court, Western Avenue, W3 0TG - Ground Floor	NR	519997	182178	**63.6**	**67.4**	**62.4**	100
85	322 Western Avenue, Acton, W3 OPL ***(AQMS) (Tri)***	R	520430	181950	**71.0**	**72.4**	**65.8**	100 (75.0)
86	322 Western Avenue, Acton, W3 OPL (***AQMS) (Tri)***	R	520430	181950	**71.7**	**73.1**	**66.4**	100 (75.0)
87	322 Western Avenue, Acton, W3 OPL ***(AQMS) (Tri)***	R	520430	181950	**66.6**	**67.9**	**61.7**	88.9 (66.7)
88	326 Western Avenue, Acton, W3 0PL	NR	520426	181958	**59.0**	**62.6**	**57.9**	83.3

Site ID	Site Name	Site Type	Grid Ref		Annual Mean NO_2 Concentration			Data Capture (%)
			X	Y	Raw ($\mu g/m^3$)	Local Bias Adjusted ($\mu g/m^3$)	National Bias Adjusted ($\mu g/m^3$)	
89	94 North Acton Road, Park Royal, NW10 7AY	R	520780	182775	**40.5**	**42.9**	39.7	100
90	INCO, Bashley Road, Park Royal, NW10 6SL	R	520915	182464	**43.8**	**44.6**	**40.6**	100
91	39 Old Oak Lane, NW10 6EJ	NR	521587	182684	**55.6**	**56.7**	**51.5**	91.7
92	27 Wells House Road, Park Royal, NW10 6ED	R	521305	181966	**43.0**	**43.4**	**42.0**	100
93	101 Wells House Road, Acton, NW10 6EA	R	521238	181942	36.5	36.9	35.6	100
94	4 St Andrews Road, Acton, W3 7NE	K	521381	180946	**49.7**	**50.7**	**46.1**	100
95	John Perryn School, Long Drive, Acton,W3 7PD	K	521139	181436	**40.7**	**41.1**	39.8	100
96	98 Western Avenue, Acton, W3 7TZ	NR	521173	180981	**53.9**	**57.1**	**52.9**	100
97	54 Western Avenue, Acton, W3 7TZ	NR	521391	180922	**54.3**	**57.6**	**53.3**	100
98	6 Western Avenue, Acton, W3 7UD	R	521549	180923	**78.3**	**79.8**	**72.6**	91.7
99	53 Old Oak Common Lane, Acton, W3 7DD	NR	521573	180932	**55.2**	**56.3**	**51.2**	100
100	57 Old Oak Common Lane, Acton,W3 7DD	NR	521557	180996	**55.4**	**56.5**	**51.4**	100
101	18 Old Oak Common Lane, Acton,W3 7EJ	R	521602	180856	**75.3**	**76.9**	**69.9**	91.7

Site ID	Site Name	Site Type	Grid Ref		Annual Mean NO_2 Concentration			Data Capture (%)
			X	Y	Raw ($\mu g/m^3$)	Local Bias Adjusted ($\mu g/m^3$)	National Bias Adjusted ($\mu g/m^3$)	
102	18 Old Oak Common Lane, Acton,W3 7EJ	R	521602	180856	**73.7**	**75.2**	**68.3**	100
103	18 Old Oak Common Lane, Acton,W3 7EJ	R	521602	180856	**74.5**	**76.0**	**69.1**	100
104	171 Old Oak Road, Acton, W3 7HH	R	521646	180800	**50.8**	**51.8**	**47.1**	100
105	29-40 Vale Court, The Vale, Acton, W3 7SA	R	521761	180132	**42.4**	**45.0**	**41.6**	100
106	177A The Vale, Acton,W3 7RD	K	521088	180046	**60.4**	**61.6**	**56**	100
107	Maples Nursery, East Churchfield Road, Acton, W3 7LL	NR	520754	180316	37.8	38.1	36.9	100
108	East Acton Primary School, East Acton Lane, Acton, W3 7HA	NR	521112	180617	35.6	37.8	34.9	100
109	Acton Town Hall, High Street, Acton, W3 6NE (***AQMS) (Tri)***	R	520306	180055	**53.9**	**54.9**	**49.9**	100
110	Acton Town Hall, High Street, Acton, W3 6NE (***AQMS) (Tri)***	R	520306	180055	**52.8**	**53.9**	**49.0**	100
111	Acton Town Hall, High Street, Acton, W3 6NE (***AQMS) (Tri)***	R	520306	180055	**51.8**	**52.8**	**48.0**	100
112	35-61Church Road,Acton,W3 8QE	NR	520128	180016	37.3	39.6	36.6	100

Site ID	Site Name	Site Type	Grid Ref		Annual Mean NO_2 Concentration			Data Capture (%)
			X	Y	Raw ($\mu g/m^3$)	Local Bias Adjusted ($\mu g/m^3$)	National Bias Adjusted ($\mu g/m^3$)	
113	216 High Street, Acton, W3 9NN	R	519928	180173	**<u>63.6</u>**	**<u>64.9</u>**	**59.0**	91.7
114	Southfields School, Southfields Road, Chiswick, W4 1BD	B	521200	179500	35.8	36.1	34.9	83.3
115	42 Acton Lane, Chiswick, W4 5ED	K	520481	178826	**56.1**	**57.2**	**52.0**	100
116	124 Gunnersbury Lane, Acton, W3 9BA	K	519373	179593	**50.1**	**51.1**	**46.4**	100
117	48 Gunnersbury Lane, Acton,W3 8EG	K	519547	179948	**51.0**	**52.0**	**47.3**	100
118	19 Lantry Court, Lexden Road, Acton, W3 9PE	B	519883	180459	33.1	33.4	32.3	100
119	156 Horn Lane,Acton,W3 6PH	NR	520180	180896	**48.4**	**49.4**	**44.9**	83.3
120	317 Horn Lane, Acton,W3 0BU ***(AQMS) (Tri)***	R	520432	181428	**58.4**	**59.6**	**54.2**	83.3
121	317 Horn Lane, Acton,W3 0BU **(AQMS) (Tri)**	R	520432	181428	**56.0**	**57.1**	**51.9**	83.3
122	317 Horn Lane, Acton,W3 0BU **(AQMS) (Tri)**	R	520432	181428	**57.5**	**58.6**	**53.3**	83.3
123	5 Leamington Park, Acton, W3 6TJ	NR	520532	181517	**46.6**	**47.5**	**43.2**	100
124	12 Jenner Avenue, Acton,W3 6EQ	R	520724	181552	**51.9**	**52.9**	**48.1**	91.7

Notes: For Site Type NR = Near Road, R = Roadside, B = Background and K = Kerbside

In bold, exceedence of the NO_2 annual mean AQS objective of $40\mu g/m^3$

Underlined, annual mean > $60\mu g/m^3$, indicating a potential exceedence of the NO_2 hourly mean AQS objective

Table 2.6 Results of NO_2 Diffusion Tubes (2006 to 2010)

Site No.	Address	Site Type	Within AQMA?	Annual Mean NO2 Concentration (µg/m3) - Adjusted for Bias				
				2006	2007	2008	2009	2010
1	6 Castlebar Road, W5 2DP	K	Y	**N/D**	**N/D**	**N/D**	**47.6**	**56.7**
2	12 Castlebar Hill, Ealing,W5 1TE	B	Y	36.1	34.8	29.6	35.1	32.0
3	1-4 Peal Gardens, West Ealing, W13 OBA	R	Y	**41.1**	**49.3**	**44.3**	37.3	38.7
4	2 Horsenden Lane South, Greenford, UB6 8AB	R	Y	**65.8**	**71.1**	**66.5**	**58.0**	**59.5**
5	Perivale Wood, r/o 36-38 Sunley Gardens, Greenford,UB6 7PE	B	Y	35.9	26.2	24.2	31.1	25.4
Average (5,6,7)	Opposite No.40 Manor Road, West Ealing, W13 OJA (Tripplicate Average)		Y	N/D	**55.6**	**47.8**	**40.1**	**40.4**
6	Opposite No.40 Manor Road, West Ealing, W13 OJA	R	Y	N/D	**57.4**	**48.0**	**40.0**	**40.4**
7	Opposite No.40 Manor Road, West Ealing, W13 OJA	R	Y	N/D	**54.1**	**47.0**	39.9	38.7
8	Opposite No.40 Manor Road, West Ealing, W13 OJA	R	Y	N/D	**55.5**	**48.5**	**40.5**	39.4
9	1 Kirn Road, West Ealing, W13 0UB	R	Y	**54.2**	**65.8**	**58.3**	**50.0**	**57.3**
10	14 Balfour Road, West Ealing, W13 9TN	K	Y	37.4	37.8	32.6	38.6	35.5
11	20 Church Road, Hanwell, W7 1DR	NR	Y	**41.0**	**43.6**	**40.1**	37.1	**41.1**
12	Brent Lodge Park, Church Road, Hanwell,W7 3BP	B	Y	31.1	27.6	26.3	29.9	29.1

Site No.	Address	Site Type	Within AQMA?	Annual Mean NO2 Concentration (µg/m3) - Adjusted for Bias				
				2006	2007	2008	2009	2010
13	Hobbayne First School, Greenford Avenue, W7 1HA	B	Y	38.1	34.3	30.1	34.2	33.3
14	200 Boston Road, W7 2AA	K	Y	**55.9**	**74.0**	**62.9**	**48.0**	**46.4**
15	6 Boston Gardens, Boston Road, Hanwell, W7 2AN	NR	Y	39.3	**43.4**	38.9	**49.7**	38.7
16	189 Uxbridge Road, Hanwell, W7 3TH	NR	Y	**45.2**	**50.0**	**48.5**	**48.1**	**48.5**
17	Ealing Hospital, Uxbridge Road, Southall, UB1 3HW	NR	Y	**51.4**	**50.9**	**43.0**	**46.8**	**45.8**
18	Minterne Avenue, Southall, UB2 4HN	R	Y	35.9	**47.1**	39.3	34.4	36.4
19	19-21 Western Road, Southall, UB2 5HA	NR	Y	**43.6**	**44.1**	**41.1**	39.3	**42.2**
Average 20, 21,22)	Brent Road Garages, Brent Road, Southall, UB2 5JX	K	Y	**59.2**	**70.9**	**60.8**	**50.7**	**53.9**
20	Brent Road Garages, Brent Road, Southall, UB2 5JX	K	Y	**58.3**	**72.2**	**58.4**	**50.2**	**54.0**
21	Brent Road Garages, Brent Road, Southall, UB2 5JX	K	Y	**62.1**	**68.5**	**62.6**	**50.5**	**56.0**
22	Brent Road Garages, Brent Road, Southall, UB2 5JX	K	Y	**57.1**	**72.1**	**61.3**	**50.8**	**51.7**
23	134 Brent Road, Southall, UB2 5LD	R	Y	**53.4**	**71.1**	**59.3**	**48.9**	**51.7**
24	2 Merrick Road, Southall, UB2 4AU	NR	Y	**46.4**	**50.3**	**40.9**	**40.9**	**44.8**
Average (25, 26, 27)	Junction of The Straight & The Crescent, Southall, UB1 1BE		Y	N/D	**46.6**	**44.7**	**44.5**	**43.4**

Site No.	Address	Site Type	Within AQMA?	Annual Mean NO2 Concentration (µg/m3) - Adjusted for Bias				
				2006	2007	2008	2009	2010
25	Junction of The Straight & The Crescent, Southall, UB1 1BE	R	Y	N/D	**46.8**	**46.6**	**44.4**	**43.4**
26	Junction of The Straight & The Crescent, Southall, UB1 1BE	R	Y	N/D	**48.1**	**44.2**	**45.5**	**43.1**
27	Junction of The Straight & The Crescent, Southall, UB1 1BE	R	Y	N/D	**45.5**	**45.9**	**44.8**	**43.8**
Average(28, 29, 30)	Blair Peach School, Beaconsfield Road, Southall, UB1 1DD(*Triplicate Average*)			35.4	31.5	30.1	33.2	29.6
28	Blair Peach School, Beaconsfield Road, Southall, UB1 1DD(***AQMS***) (**Tri**)	B	Y	36.4	32.1	29.1	33.8	31.0
29	Blair Peach School, Beaconsfield Road, Southall, UB1 1DD (***AQMS***) (**Tri**)	B	Y	35.2	31.2	31.8	31.1	30.2
30	Blair Peach School, Beaconsfield Road, Southall, UB1 1DD(***AQMS***) (**Tri**)	B	Y	34.7	30.7	29.3	33.9	27.7
Average(31, 32, 33)	Hambrough Primary School, South Road,Southall,UB1 1SF			**53.1**	**56.1**	**52.6**	**47.2**	**52.4**
31	Hambrough Primary School, South Road,Southall,UB1 1SF	NR	Y	**51.9**	**55.7**	**51.0**	**46.7**	**52.7**
32	Hambrough Primary School, South Road,Southall,UB1 1SF	NR	Y	**53.4**	**54.4**	**53.0**	**47.6**	**53.3**
33	Hambrough Primary School, South Road,Southall,UB1 1SF	NR	Y	**53.8**	**58.2**	**51.9**	**48.4**	**51.2**
34	11 The Broadway, Southall, UB1 3PX	R	Y	**75.6**	**90.7**	**77.2**	**68.1**	**65.8**
35	7 Greenford Avenue, Southall, UB1 2AA	NR	Y	38.1	38.4	39.5	35.8	38.5
36	McDonalds Drive thru, Uxbridge Road, Southall, UB1 3EG	NR	Y	**46.7**	**54.9**	**52.8**	**40.9**	**40.8**

Site No.	Address	Site Type	Within AQMA?	Annual Mean NO2 Concentration (µg/m3) - Adjusted for Bias				
				2006	2007	2008	2009	2010
37	Jubilee Gardens Library, Jubilee Gardens, Southall, UB1 2TJ	B	Y	**41.0**	35.7	37.6	39.2	36.0
38	205 Windmill Lane, Greenford, UB6 9DW	R	Y	**45.3**	**50.9**	**43.6**	**40.3**	**43.5**
39	301 Ruislip Road, Greenford,UB6 9SE	R	Y	**47.5**	**54.4**	**48.5**	**42.3**	**43.7**
40	2 Shadwell Drive, Northolt, UB5 6DB	K	Y	**48.8**	**47.3**	**42.3**	**48.4**	**41.7**
41	2 Bengarth Road, Northolt, UB5 5LF	K	Y	**52.0**	**60.9**	**51.3**	**45.2**	**47.5**
42	Northolt Primary School, Compton Crescent, UB5	B	Y	**57.4**	**54.5**	**44.1**	**52.6**	**51.0**
43	143 Church Road, Northolt, UB5	K	Y	**78.9**	**87.8**	**66.3**	**61.0**	**65.1**
44	Rear of 191 Church Road, Northolt, UB5 5BE	B	Y	**45.2**	**47.1**	**44.8**	**42.1**	**41.7**
45	126 Petts Hill, Northolt, UB5 4NW	NR	Y	**41.0**	**43.4**	37.1	38.5	**41.5**
46	173 Castle Road, Northolt, UB5 4SG	K	Y	**40.5**	**54.0**	**41.2**	35.7	35.5
47	1502 Greenford Road, Greenford, UB6 0HR	NR	Y	**58.7**	**67.7**	**56.2**	**50.8**	**51.5**
48	81 Whitton Avenue East, Greenford, UB6 0QD	K	Y	**41.1**	**49.1**	38.6	**40.8**	**43.6**
49	914 Greenford Road,Greenford,UB6 8QN	R	Y	**46.1**	**59.5**	**47.3**	**40.8**	**42.7**
Average (50, 51, 52)	Oldfield Primary School, Oldfield Lane North, Greenford, UB6 8PR			**46.4**	39.5	39.5	**48.3**	**40.1**

Site No.	Address	Site Type	Within AQMA?	Annual Mean NO2 Concentration (µg/m3) - Adjusted for Bias				
				2006	2007	2008	2009	2010
50	Oldfield Primary School, Oldfield Lane North, Greenford, UB6 8PR	B	Y	**44.6**	39.8	39.0	**48.9**	**41.4**
51	Oldfield Primary School, Oldfield Lane North, Greenford, UB6 8PR	B	Y	**47.4**	37.7	38.9	**48.3**	**40.9**
52	Oldfield Primary School, Oldfield Lane North,Greenford,UB6 8PR	B	Y	**47.1**	**42.6**	**40.7**	**47.6**	38.1
53	17 Runnymede Gardens, Greenford, UB6 8SX	K	Y	**86.7**	**101.5**	**86.7**	**70.4**	**78.5**
54	12 Blenheim Close, Greenford, UB6 8ET	K	Y	**42.9**	**49.8**	**42.5**	38.4	**47.4**
55	St John Fisher Primary School, Thirlmere Avenue, Perivale, UB6 8EF	B	Y	**50.7**	**44.1**	**44.4**	**45.9**	**41.0**
56	2 Oakley Avenue, Ealing, W5 3SD	K	Y	**49.0**	**51.4**	**43.1**	39.6	39.3
57	85 St Pauls Close, Ealing, W5 3JX	K	Y	36.7	33.9	32.1	35.6	39.9
58	South Ealing Cemetery, Popes Lane, Ealing, W5 4NA	B	Y	34.3	35.2	30.9	34.8	32.3
59	Clayponds Hospital, Sterling Place,Ealing,W5 4RN	B	Y	37.7	35.9	33.2	34.7	35.8
60	14 Bond Street, Ealing, W5 5AA	R	Y	**58.5**	**83.1**	**61.6**	**50.9**	**53.8**
61	8 Spring Bridge Road, London W5 2AA	R	Y	N/D	N/D	N/D	N/D	**67.5**
62	opposite 1a Haven Green, W5 2UU	K	Y	N/D	N/D	N/D	**44.9**	**52.9**
63	Gordon Road, Ealing,W5 2UU	K	Y	N/D	N/D	N/D	39.7	**45.4**

Site No.	Address	Site Type	Within AQMA?	Annual Mean NO2 Concentration (µg/m3) - Adjusted for Bias				
				2006	2007	2008	2009	2010
64	Perceval House, 14/16 Uxbridge Road, Ealing, W5 2HL	NR	Y	**41.5**	**43.8**	39.1	36.0	**42.3**
Averae (65, 66, 67)	Ealing Town Hall, New Broadway, Ealing, W5 2HL *(Tripplicate Average)*			**40.5**	**42.1**	**52.4**	**55.8**	**42.9**
65	Ealing Town Hall, New Broadway, Ealing, W5 (***AQMS***)	B	Y	37.6	**41.8**	**52.5**	**52.5**	**43.4**
66	Ealing Town Hall, New Broadway, Ealing, W5 (***AQMS***)	B	Y	**40.8**	**42.2**	**52.0**	**59.1**	**42.6**
67	Ealing Town Hall, New Broadway, Ealing, W5 (***AQMS***)	B	Y	38.7	**41.6**	**52.6**	**55.8**	**42.6**
68	Haven Green Court, Haven Green, Ealing, W5 2UZ	B	Y	N/D	N/D	N/D	N/D	**41.6**
69	Woodville Road, Ealing, W5 2SF	K	Y	N/D	N/D	N/D	**40.8**	**42.3**
70	21 Haven Lane, Ealing, W5 2HZ	R	Y	N/D	N/D	N/D	36.3	39.7
71	Middle of Haven Green, Ealing,W5 2UP	NR	Y	N/D	N/D	N/D	**44.9**	**50.0**
72	8 Central Buildings, The Broadway, Ealing, W5 2NT	K	Y	**75.6**	**90.7**	**77.2**	**68.1**	**65.8**
73	57 Woodville Gardens, Ealing, W5 2LN	K	Y	**50.6**	**54.3**	**46.8**	**47.9**	**54.9**
Averge (74, 75, 76)	Fernlea House, Hanger Lane, Ealing,W5 1EF (***AQMS***) *(Tripplicate Average)*			**79.1**	**93.7**	**79.7**	**73.1**	**76.8**
74	Fernlea House, Hanger Lane, Ealing,W5 1EF (***AQMS***)	R	Y	**78.5**	**93.3**	**79.1**	**71.6**	**77.1**
75	Fernlea House, Hanger Lane, Ealing,W5 1EF (***AQMS***)	R	Y	**79.9**	**92.6**	**80.7**	**73.2**	**77.8**

Site No.	Address	Site Type	Within AQMA?	Annual Mean NO2 Concentration (µg/m3) - Adjusted for Bias				
				2006	2007	2008	2009	2010
76	Fernlea House, Hanger Lane, Ealing,W5 1EF (***AQMS***)	R	Y	**78.9**	**96.2**	**79.4**	**74.5**	**75.4**
77	Fernlea House, Hanger Lane, Ealing,W5 1EF	K	Y	**88.1**	**102.2**	**96.1**	**79.1**	**82.0**
78	opposite 41 Park Avenue, Park Royal, NW10 7EX	R	Y	**48.6**	**52.6**	**51.7**	**64.4**	**48.7**
79	6 Brentmead Gardens, Park Royal, NW10 7DS	R	Y	**49.4**	**41.9**	38.5	**43.0**	**40.1**
80	1 Iveagh Avenue, Park Royal, NW10 7DL	R	Y	**44.6**	**55.7**	**46.1**	**43.3**	**48.6**
Average(81, 82 ,83, 84)	Wendover Court, Western Avenue, W3 0TG- 3rd Floor	NR	Y	**58.8**	**66.5**	**58.0**	**57.6**	**67.2**
81	Wendover Court, Western Avenue, W3 0TG- 3rd Floor	NR	Y	**54.6**	**61.9**	**65.3**	**55.7**	**67.7**
82	Wendover Court, Western Avenue, W3 0TG- 2nd Floor	NR	Y	**60.7**	**69.1**	**56.9**	**58.0**	**67.1**
83	Wendover Court, Western Avenue, W3 0TG - 1st Floor	R	Y	**61.6**	**63.8**	**58.7**	**58.0**	**67.5**
84	Wendover Court, Western Avenue, W3 0TG - 1st Floor	NR	Y	**59.6**	**69.2**	**54.1**	**58.5**	**66.1**
Average (85, 86, 87)	322 Western Avenue, Acton, W3 OPL (***AQMS***) (*Tripplicate Average*)			N/D	N/D	N/D	N/D	**70.8**
85	322 Western Avenue, Acton, W3 OPL (***AQMS***) (***Tri***)	R	Y	N/D	N/D	N/D	N/D	**71.7**
86	322 Western Avenue, Acton, W3 OPL (***AQMS***) (***Tri***)	R	Y	N/D	N/D	N/D	N/D	**72.4**
87	322 Western Avenue, Acton, W3 OPL (***AQMS***) (***Tri***)	R	Y	N/D	N/D	N/D	N/D	**67.3**

Site No.	Address	Site Type	Within AQMA?	Annual Mean NO2 Concentration (µg/m3) - Adjusted for Bias				
				2006	2007	2008	2009	2010
88	326 Western Avenue, Acton, W3 0PL	NR	Y	N/D	N/D	N/D	**52.0**	**61.4**
89	94 North Acton Road, Park Royal, NW10 7AY	R	Y	**45.6**	**47.4**	**42.2**	39.0	**42.1**
90	INCO, Bashley Road, Park Royal, NW10 6SL	R	Y	**40.0**	**49.2**	**42.6**	**40.4**	**44.2**
91	39 Old Oak Lane, NW10 6EJ	NR	Y	**58.4**	**66.7**	**55.3**	**52.1**	**56.1**
92	27 Wells House Road, Park Royal, NW10 6ED	R	Y	**43.9**	**42.0**	**40.8**	**40.9**	**43.0**
93	101 Wells House Road, Acton, NW10 6EA	R	Y	**43.0**	38.8	36.6	**43.0**	36.5
94	4 St Andrews Road, Acton, W3 7NE	K	Y	**59.2**	**70.4**	**56.2**	**48.0**	**50.2**
95	John Perryn School, Long Drive, Acton,W3 7PD	K	Y	**43.7**	39.7	32.1	**52.6**	**40.7**
96	98 Western Avenue, Acton, W3 7TZ	NR	Y	**51.9**	**59.5**	**56.0**	**51.9**	**56.0**
97	54 Western Avenue, Acton, W3 7TZ	NR	Y	**58.4**	**58.4**	**53.5**	**54.0**	**56.5**
98	6 Western Avenue, Acton, W3 7UD	R	Y	**80.6**	**106.7**	**80.5**	**72.1**	**79.1**
99	53 Old Oak Common Lane, Acton, W3 7DD	NR	Y	**65.3**	**78.9**	**66.5**	**57.3**	**55.7**
100	57 Old Oak Common Lane, Acton,W3 7DD	NR	Y	**63.6**	**78.2**	**65.8**	**52.9**	**56.0**
Average (101, 102, 103)	18 Old Oak Common Lane, Acton,W3 7EJ			**72.6**	**90.6**	**76.8**	**62.9**	**75.1**

Site No.	Address	Site Type	Within AQMA?	Annual Mean NO2 Concentration (µg/m3) - Adjusted for Bias				
				2006	2007	2008	2009	2010
101	18 Old Oak Common Lane, Acton,W3 7EJ	R	Y	**71.8**	**90.0**	**77.3**	**67.2**	**76.1**
102	18 Old Oak Common Lane, Acton, W3 7EJ	R	Y	**71.8**	**91.4**	**74.1**	**60.3**	**74.4**
103	18 Old Oak Common Lane, Acton, W3 7EJ	R	Y	**74.1**	**90.5**	**78.9**	**61.2**	**75.3**
104	171 Old Oak Road, Acton, W3 7HH	R	Y	**51.7**	**67.6**	**52.1**	**45.2**	**51.3**
105	29-40 Vale Court, The Vale, Acton, W3 7SA	R	Y	N/D	N/D	N/D	N/D	N/D
106	177A The Vale, Acton,W3 7RD	K	Y	N/D	N/D	N/D	N/D	N/D
107	Maples Nursery, East Churchfield Road, Acton,W3 7LL	NR	Y	**42.7**	**40.2**	33.6	38.8	37.8
108	East Acton Primary School, East Acton Lane, Acton	NR	Y	36.4	**45.1**	34.0	31.6	37.0
Average (109, 110, 111)	Acton Town Hall, High Street, Acton, W3 6NE (AQMS) (*Tripplicate Average*)			**58.2**	**68.2**	**57.1**	**48.3**	**53.3**
Average (109, 110, 111)	Acton Town Hall, High Street, Acton, W3 6NE (***AQMS***) (***Tri***)***)***	R	Y	**58.1**	**67.1**	**57.1**	**48.3**	**54.4**
110	Acton Town Hall, High Street, Acton, W3 6NE (***AQMS***) (***Tri***)	R	Y	**59.3**	**71.0**	**58.8**	**49.4**	**53.3**
111	Acton Town Hall, High Street, Acton, W3 6NE ***)*** (***AQMS***) (***Tri***)	R	Y	**57.3**	**65.1**	**55.3**	**47.4**	**52.3**
112	35-61 Church Road,Acton,W3 8QE	NR	Y	36.1	**43.0**	36.9	33.4	38.8

Site No.	Address	Site Type	Within AQMA?	Annual Mean NO2 Concentration (µg/m3) - Adjusted for Bias				
				2006	2007	2008	2009	2010
113	216 High Street, Acton, W3 9NN	R	Y	**70.1**	**83.7**	**66.4**	**55.9**	**64.3**
114	Southfields First & Middle School, Southfields Road, Chiswick, W4 1BD	B	Y	39.4	**43.2**	39.1	38.9	35.8
115	42 Acton Lane,Chiswick, W4 5ED	K	Y	**53.5**	**73.1**	**65.4**	**50.7**	**56.7**
116	124 Gunnersbury Lane, Acton, W3 9BA	K	Y	**50.7**	**66.1**	**51.2**	**44.5**	**50.6**
117	48 Gunnersbury Lane, Acton,W3 8EG	K	Y	N/D	N/D	N/D	N/D	N/D
118	19 Lantry Court, Lexden Road, Acton, W3 9PE	B	Y	39.4	34.7	33.3	**67.0**	33.1
119	156 Horn Lane,Acton,W3 6PH	NR	Y	**56.3**	**67.3**	**56.1**	**45.1**	**48.9**
Average (120,121, 122)	317 Horn Lane, Acton,W3 0BU (***AQMS***) (Tripplicate Average)		Y	N/D	N/D	N/D	N/D	**57.9**
120	317 Horn Lane, Acton,W3 0BU (***AQMS***) (***Tri***)	R	Y	N/D	N/D	N/D	N/D	**59.0**
121	317 Horn Lane, Acton,W3 0BU (***AQMS***) (***Tri***)	R	Y	N/D	N/D	N/D	N/D	**56.6**
122	317 Horn Lane, Acton,W3 0BU (***AQMS***) (***Tri***)	R	Y	N/D	N/D	N/D	N/D	**58.0**
123	5 Leamington Park, Acton, W3 6TJ	NR	Y	**54.2**	**62.6**	**52.3**	**44.2**	**47.1**
124	12 Jenner Avenue, Acton,W3 6EQ	R	Y	**58.0**	**70.8**	**57.4**	**48.9**	**52.4**

Notes: For Site Type NR = Near Road, R = Roadside, B = Background and K = Kerbside

In bold, exceedence of the NO_2 annual mean AQS objective of 40µg/m^3

Underlined, annual mean > 60µg/m^3, indicating a potential exceedence of the NO_2 hourly mean AQS objective

[a] 2009 data bias adjusted using national factors of 0.89 for roadside and kerbside sites, 0.90 for near road sites and 1.02 for urban background sites. The bias adjustment methodologies for earlier years are presented in previous LAQM reports.

[b] 2010 data bias adjusted using locally derived factors of 1.02, 1.06 and 1.01. See Appendix A.

Figure 2.4 to Figure 2.11 show trends in annual mean NO_2 concentrations recorded at a number of diffusion tubes sites where monitoring has been undertake at the same location in the LB of Ealing from 2005 to 2010. The general trend appears to be a slight reduction in annual mean concentrations over the five year period.

Figure 2.4 Trends in Annual Mean Nitrogen Dioxide Concentrations Measured at Diffusion Tube Monitoring Sites

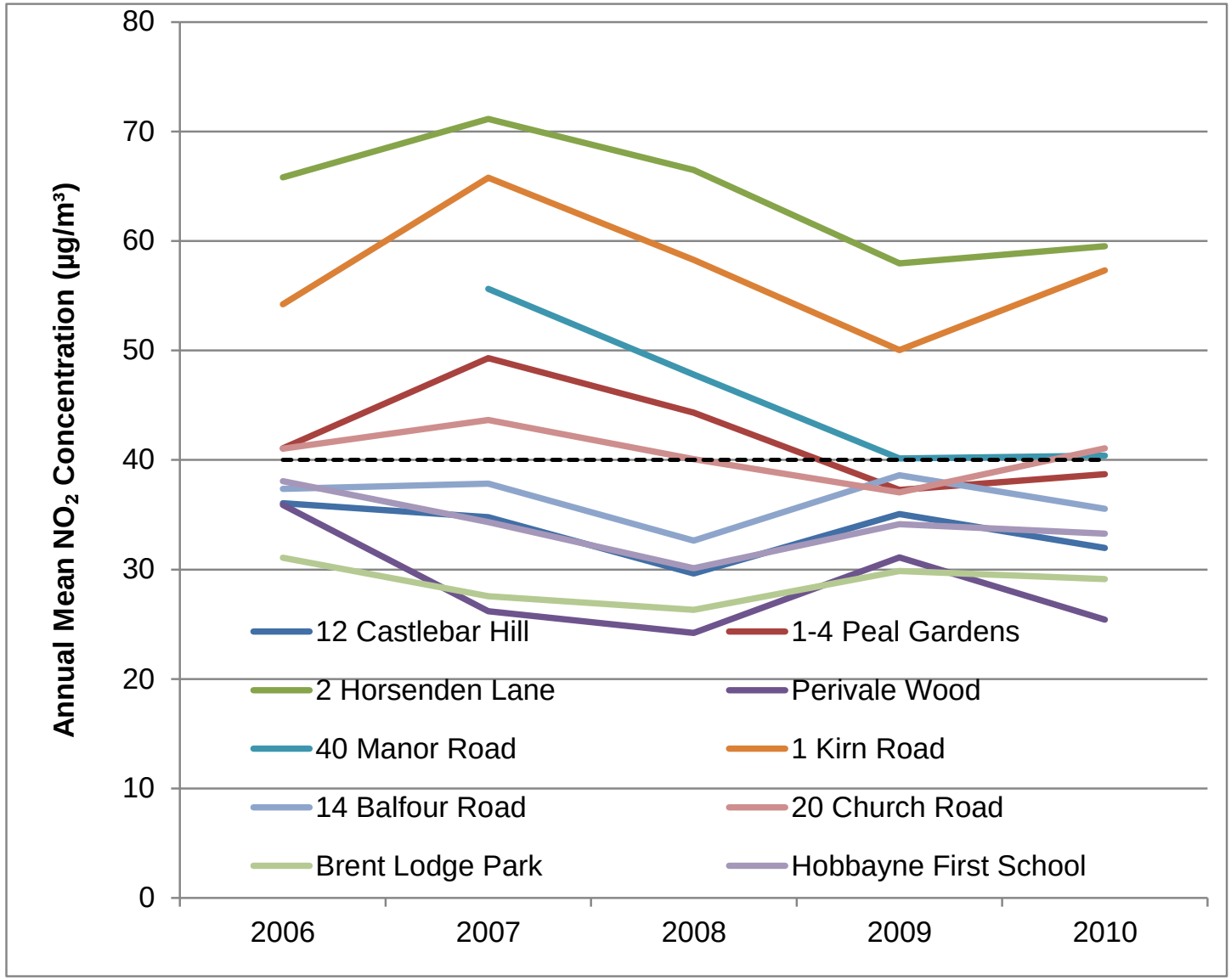


Figure 2.5 Trends in Annual Mean Nitrogen Dioxide Concentrations Measured at Diffusion Tube Monitoring Sites

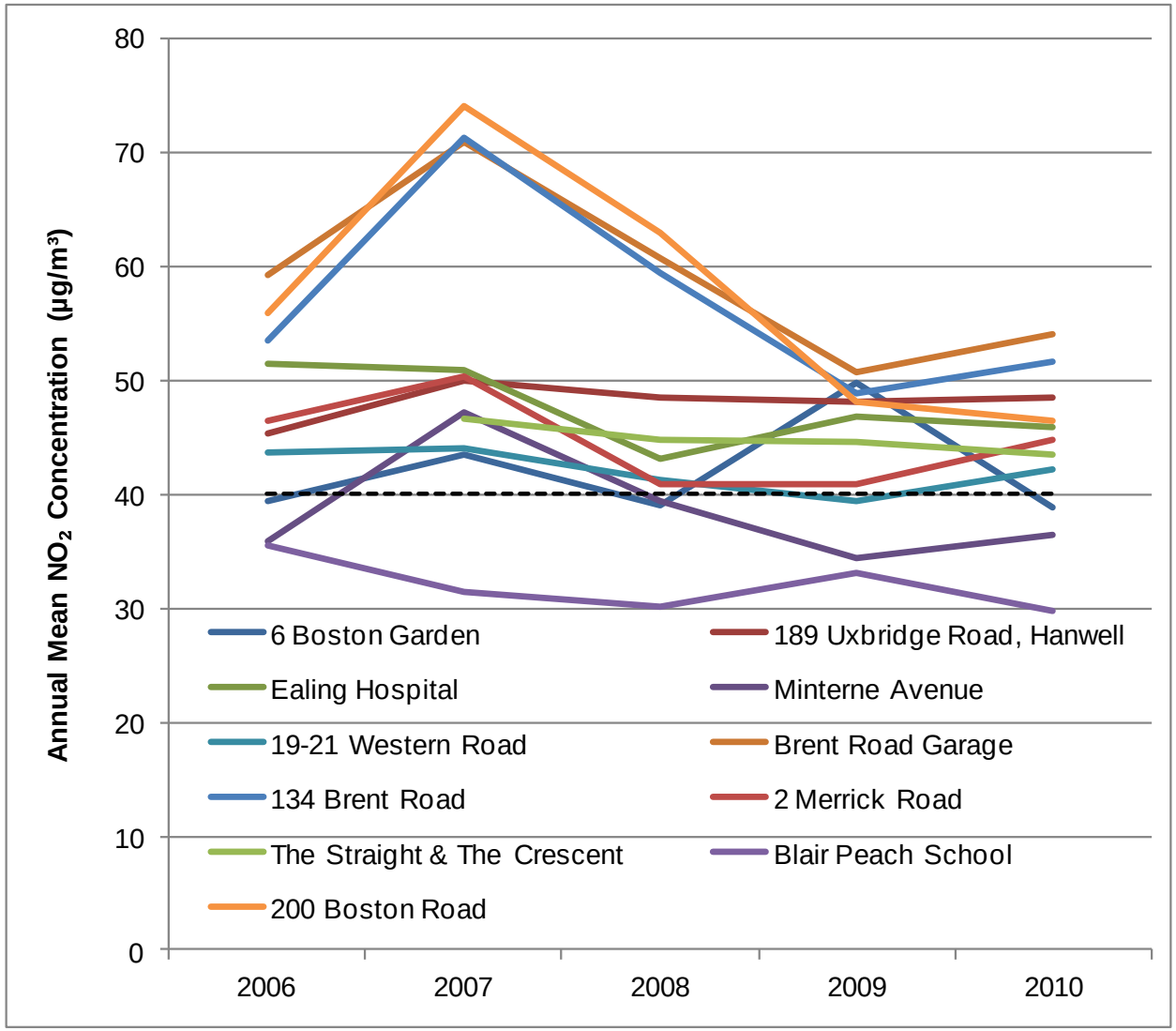


Figure 2.6 Trends in Annual Mean Nitrogen Dioxide Concentrations Measured at Diffusion Tube Monitoring Sites

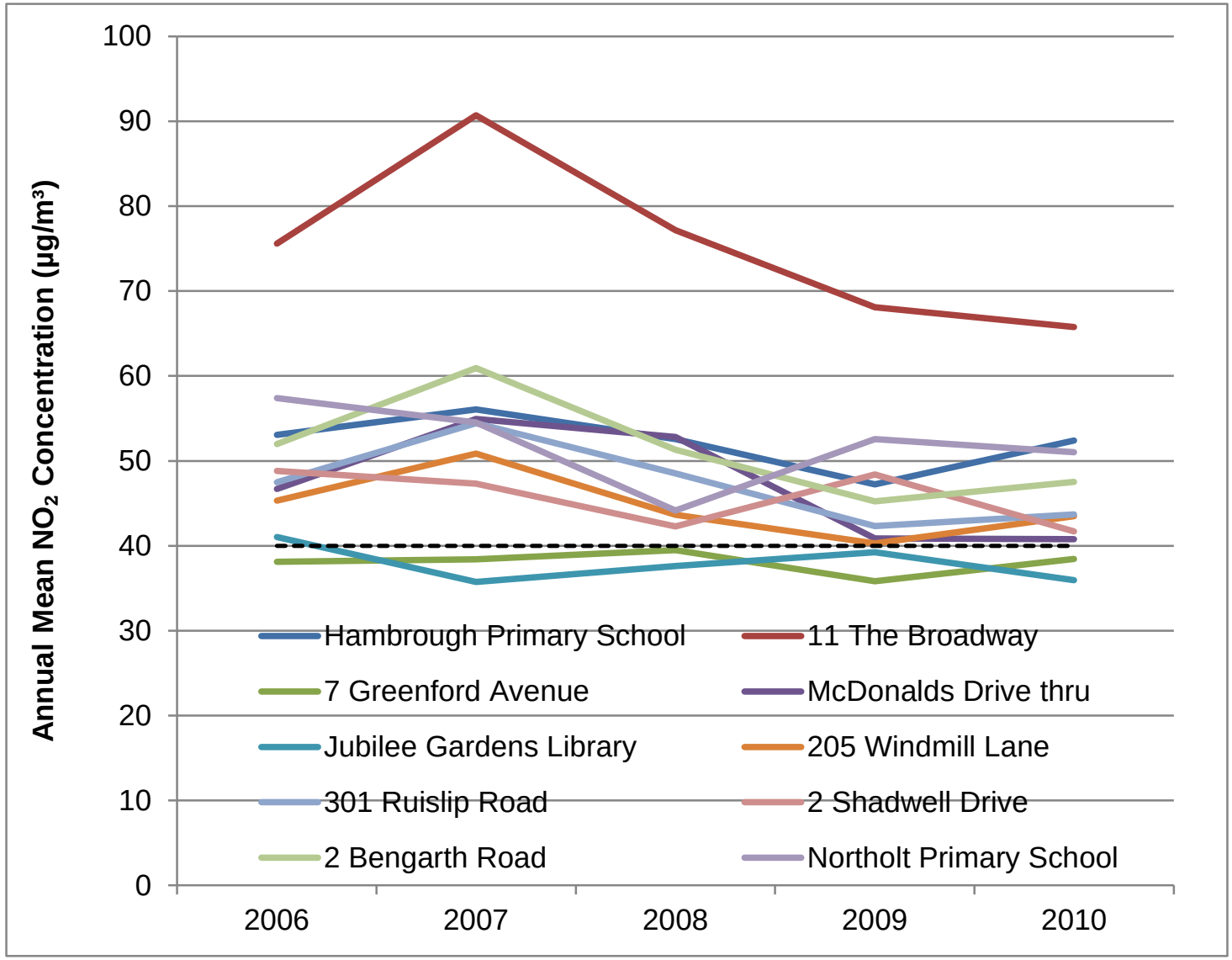


Figure 2.7 Trends in Annual Mean Nitrogen Dioxide Concentrations Measured at Diffusion Tube Monitoring Sites

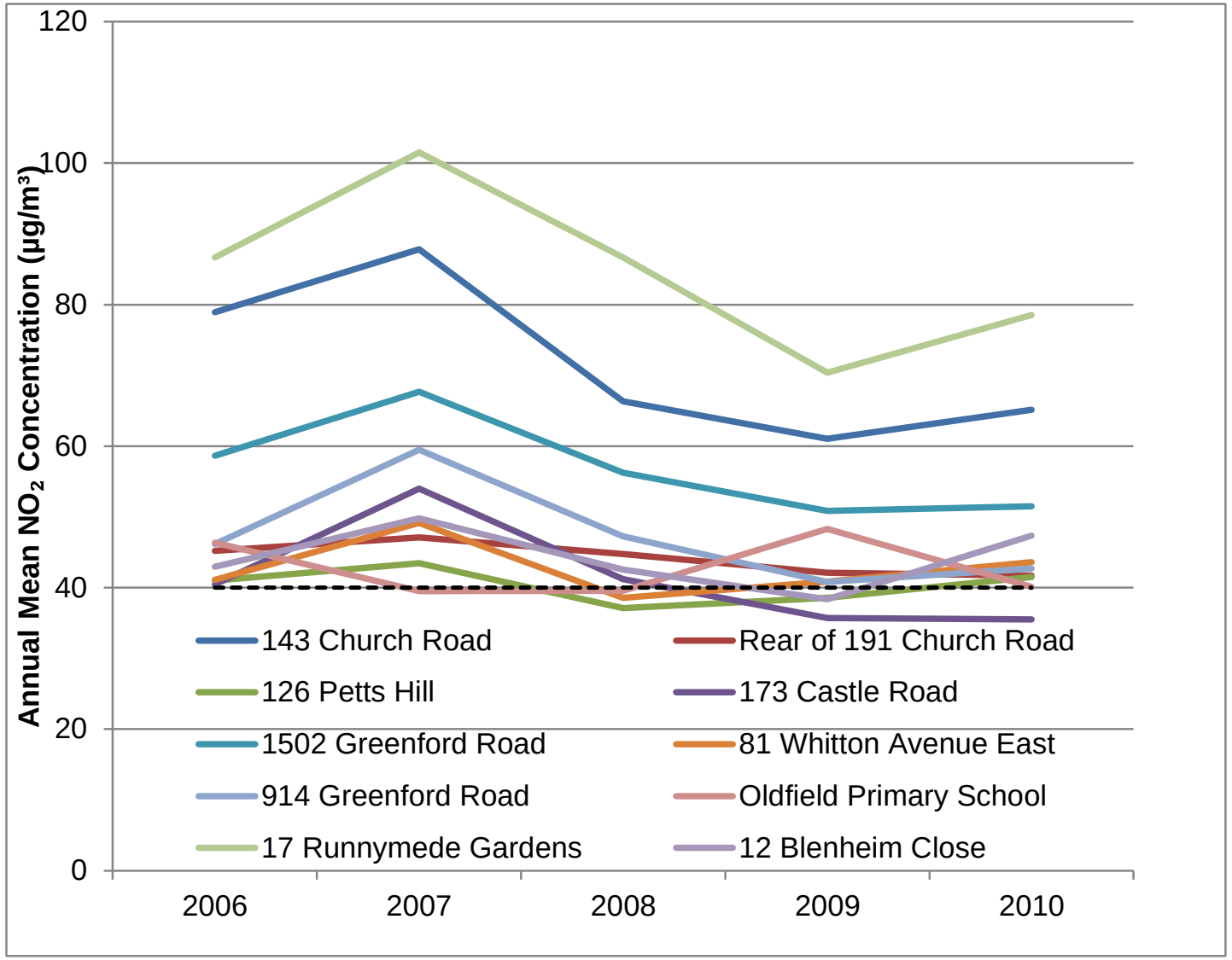


Figure 2.8 Trends in Annual Mean Nitrogen Dioxide Concentrations Measured at Diffusion Tube Monitoring Sites

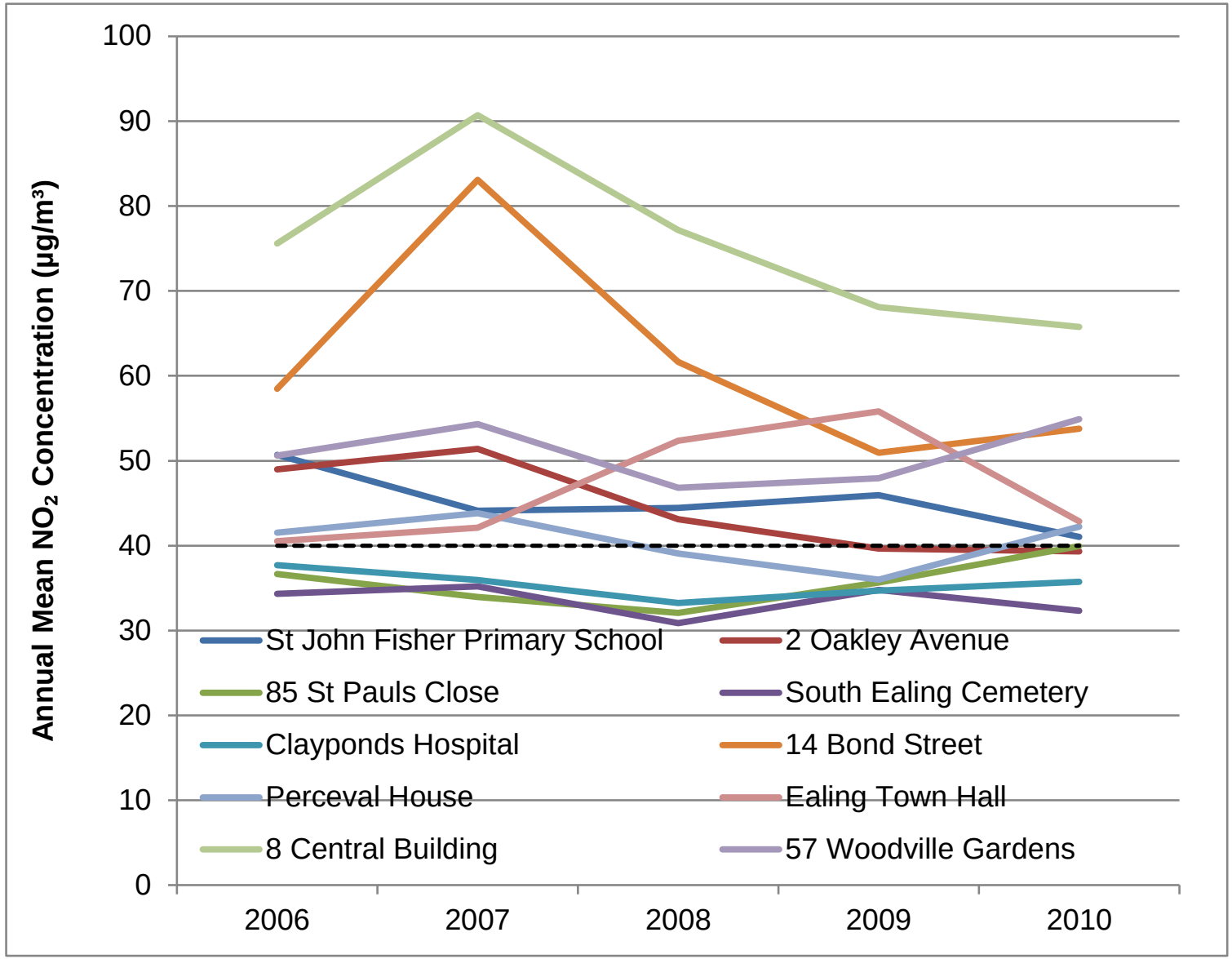


Figure 2.9 Trends in Annual Mean Nitrogen Dioxide Concentrations Measured at Diffusion Tube Monitoring Sites

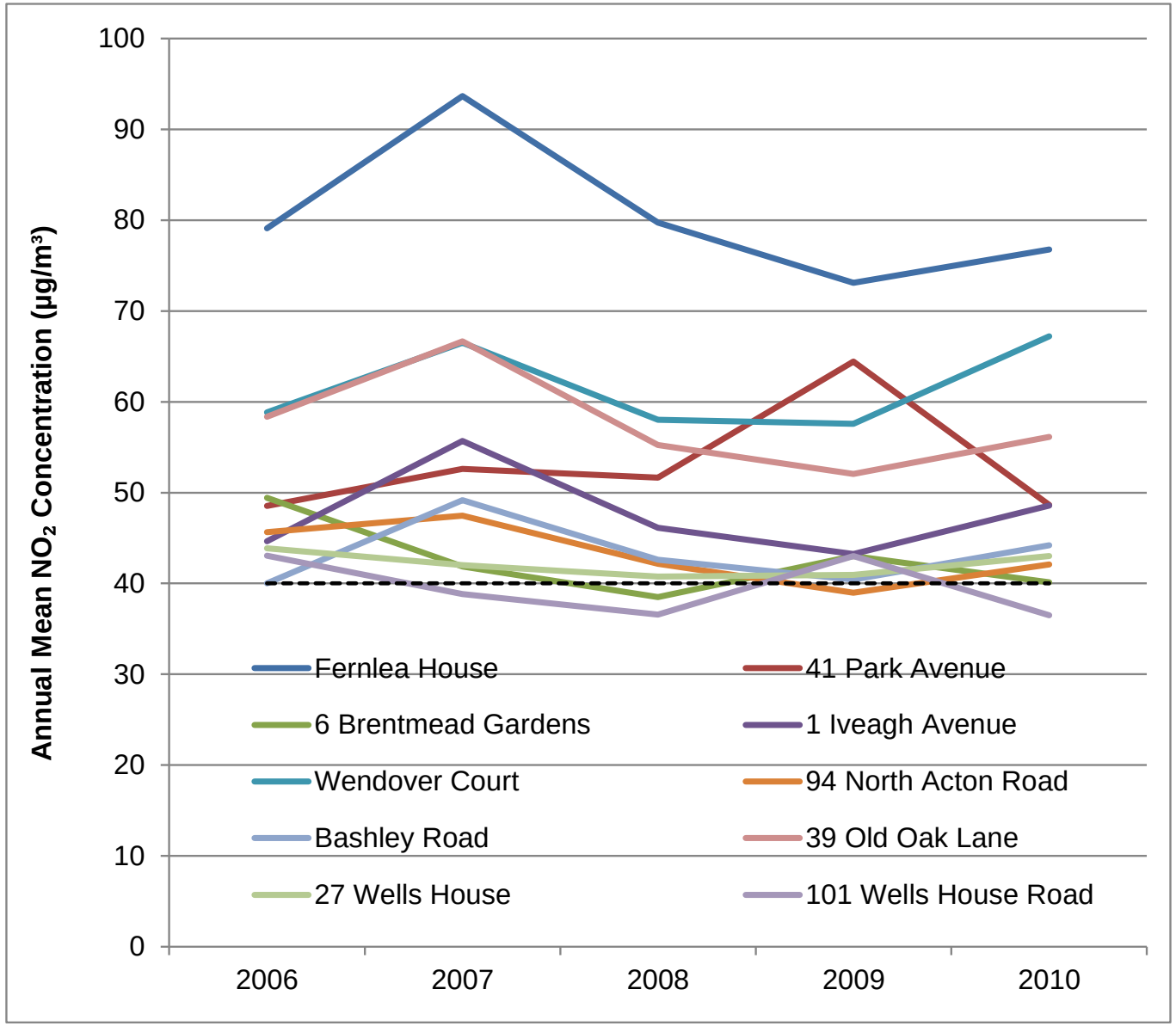


Figure 2.10 Trends in Annual Mean Nitrogen Dioxide Concentrations Measured at Diffusion Tube Monitoring Sites

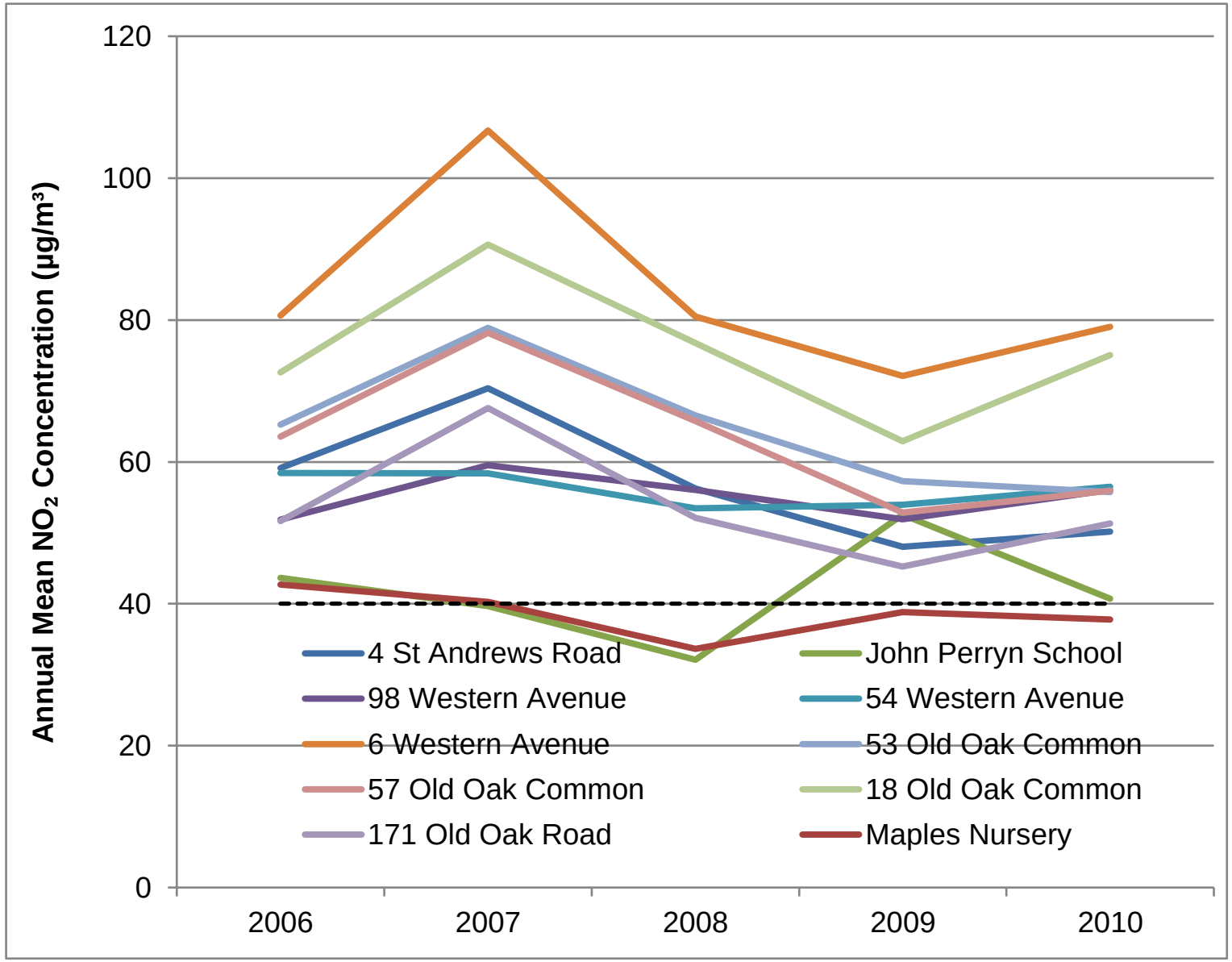
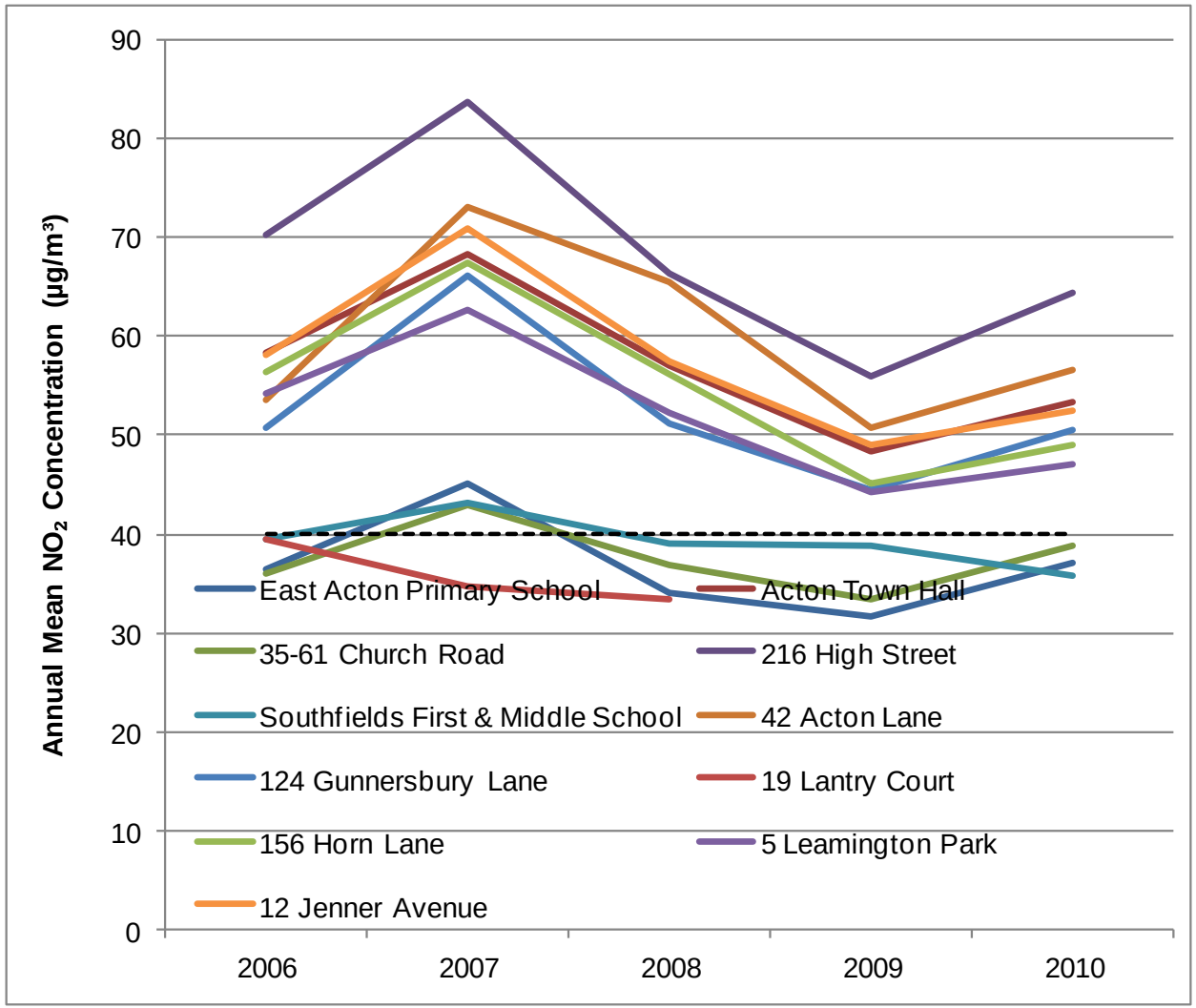


Figure 2.11 Trends in Annual Mean Nitrogen Dioxide Concentrations Measured at Diffusion Tube Monitoring Sites



2.2.2 Particulate Matter (PM_{10})

PM_{10} concentrations were measured at five locations in the LB of Ealing, as shown in Table 2.7. TEOMs were used to monitor PM_{10} at all sites (except for Acton town hall where an FDMS was also used in 2010). Where applicable therefore, monitoring data has been corrected for the use of TEOMs using the Volatile Correction Model[4].

Concentrations in 2010 at all sites except for the industrial site at Horn Lane were found to meet the annual mean objective of 40 µg/m^3. The highest annual mean PM_{10} concentration occurred at Horn Lane, with a value of 41.5 µg/m.

Figure 2.12 shows the trends in PM_{10} concentrations between 2006 and 2010 for the five monitoring locations, which appear to suggest that annual PM_{10} concentrations have remained relatively stable over this period.

Apart from the exceedance of the annual mean particulate matter (PM_{10}) objective (40 µg/m^3) at Horn Lane no further exceedances were recorded at the monitoring sites in Ealing in 2010, as shown in Table 2.8. The daily mean PM_{10} air quality objective (50 µg/m^3, not to be exceeded more than 35 times a year) was also achieved at all monitoring sites apart from Horn Lane. There were 91 days when average PM_{10} concentrations were above 50 µg/m^3 at Horn Lane in 2010.

[4] Volatile Correction Model http://www.volatile-correction-model.info/Default.aspx Accessed:24/4/2014

Table 2.7: Results of Automatic Monitoring for PM_{10}: Comparison with Annual Mean Objective

Site ID	Site Type	Within AQMA?	Valid Data Capture 2010 %	Confirm Gravimetric Equivalent (Y or N/A)	Annual Mean PM_{10} Concentration ($\mu g/m^3$)				
					2006	2007	2008	2009	2010
Horn Lane	Industrial	Y	95.6	Y	-	-	**42**	38.6	**41.5**
Southall	Urban Background	Y	96.5	Y	25	24	20	19.9	20
Acton Town Hall	Roadside	Y	85	Y	30	30	26	25.5	24.1
Acton Town Hall (FDMS)	Roadside	Y	71[a]	Y	27	26	23	21.5	24.4

Notes: In bold, exceedence of the PM_{10} annual mean AQS objective of $40\mu g/m^3$

[a] Where data captures are less than 75%, data have been annualised.

Figure 2.12 Trends in Annual Mean PM_{10} Concentrations

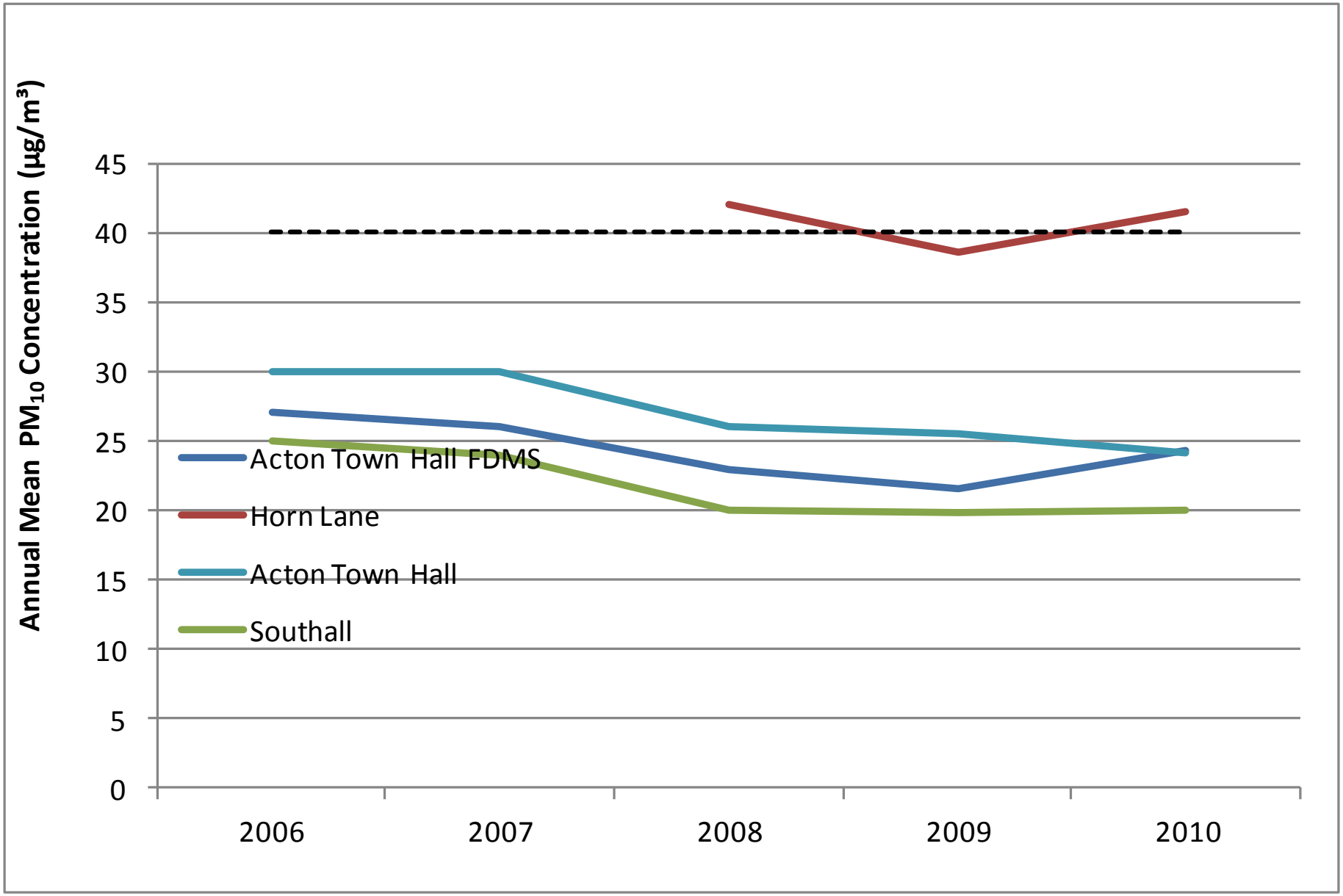


Table 2.8 Results of Automatic Monitoring for PM_{10}: Comparison with 24-hour Mean Objective

Site ID	Site Type	Within AQMA?	Valid Data Capture 2010 % [b]	Confirm Gravimetric Equivalent (Y or N/A)	Number of Daily Means > 50µg/m^3				
					2006	2007	2008	2009* [c]	2010* [c]
Horn Lane	Industrial	Y	95.6	Y	-	-	**103**	**71 (60)**	**91**
Southall	Near Road	Y	96.5	Y	4	15	4	4	2
Acton Town Hall	Roadside	Y	85	Y	20	26	22	13	7 (24)
Acton Town Hall FDMS	Roadside	Y	71	Y	24	27	14	8 (30)	6 (31)

Notes: In bold, exceedence of the PM_{10} daily mean AQS objective (50µg/m^3 – not to be exceeded more than 35 times per year)

Where data capture for the full calendar year was less than 90%, the 90.4th percentile of 24-hour means is shown in brackets

2.2.3 Sulphur Dioxide (SO_2)

The London Borough of Ealing operated one site (Ealing Town Hall) that monitored sulphur dioxide in the Borough in 2010. Table 2.9 shows that there were no measured exceedences of the sulphur dioxide objectives at the Ealing Town Hall monitoring site.

Table 2.9: Results of Automatic Monitoring of Sulphur Dioxide: Comparison with Annual Mean Objective

Site ID	Site Type	Within AQMA?	Valid Data Capture for Monitoring Period %	Valid Data Capture 2010 %	15-minute Objective (266 µg/m^3, not to be exceeded more than 35 times a year)	24-hour mean (125 µg/m^3, not to be exceeded more than 3 times a year)	1-hour mean (350 µg/m^3, not to be exceeded more than 24 times a year)
Ealing Town Hall	B	N	95.4	89.2	0 (37.6)	0 (31.3)	0 (35.7)

Values in brackets are the 99th percentile for the 24-hour objective, 99.7th percentile for the 1-hour objective and 99.9th percentile for the 15-minute objective, which are presented where data capture was <90%.

2.2.4 Carbon Monoxide

The London Borough of Ealing operated one site (Acton Town Hall) that measured carbon monoxide in 2010. Table 2.11 shows that there were no measured exceedences of the carbon monoxide objective at the Acton Town Hall automatic monitoring site during 2010.

Table 2.10: Results of Automatic Monitoring of Carbon Monoxide in 2010

Site ID	Site Type	Within AQMA?	Valid Data Capture 2010 %	Maximum Daily Running 8-Hour Mean Concentration (mg/m^3)	Number of exceedences
Acton Town Hall	B	N	96.9	2.9	0

2.2.5 Benzene

The London Borough of Ealing operated three roadside passive diffusion tube sites that measured benzene within the Borough. The diffusion tubes were prepared and analysed by Gradko and the concentrations are given in The London Borough of Ealing operated one site (Acton Town Hall) that measured carbon monoxide in 2010. Table 2.11 shows that there were no measured exceedences of the carbon monoxide objective at the Acton Town Hall automatic monitoring site during 2010.

Table 2.10. Between 2003 and 2010 concentrations have declined steadily and are well below the objective level.

Table 2.11: Results of Benzene Diffusion Tubes between 2008 and 2010

Site Ref.	OS Grid Ref		Site Type	Annual Average Benzene Concentrations µg/m^3		
	X	Y		2008	2009	2010
Hanger Lane Gyratory	518540	182700	R	1.8	2.1	1.6
Church Road	512676	183993	R	1.4	1.7	1.4
Acton Town Hall	520306	180055	B	1.1	1.6	1.3

2.2.6 Other Pollutants Monitored

2.2.6.1 Ozone (O_3)

Ozone monitoring is conducted at the Acton Town Hall and Ealing Town Hall automatic monitoring stations. Local objectives for improving ground level ozone are not included in the Air Quality Regulations as it is considered to be a regional pollutant. The UK Air Quality Strategy does however suggest a running 8-hour average of 100µg/m^3 should not be exceeded more than 10 times per year. Ozone concentrations at this site were found to be lower than the suggested criteria in 2010.

Table 2.12 Results of Automatic Monitoring for O_3

Site ID	Site Type	Within AQMA?	Valid Data Capture 2010 %	Number of 8 Hour running mean > 100µg/m^3 2010
Acton Town Hall	Roadside	N	94.3	0

Ealing Town Hall	Background	N	98.5	0

2.2.7 Summary of Compliance with AQS Objectives

The London Borough of Ealing has examined the results from air quality monitoring in the Borough.

Annual mean and hourly mean concentrations of nitrogen dioxide remain in exceedence of the air quality objectives at numerous locations within the current borough-wide AQMA.

Measured PM_{10} concentrations exceeded the annual mean objective at the industrial Horn Lane continuous monitoring site; the same is true for the daily mean PM_{10} objective.

The basis for the declaration of the current AQMA therefore remains unchanged and the AQMA should remain.

3 New Local Developments

LB of Ealing confirms that there are no new or newly identified local developments which may have an impact on air quality within the Local Authority area.

LB of Ealing confirms that all the following have been considered:

1. **Road traffic sources**
2. **Other transport sources**
3. **Industrial sources**
4. **Commercial and domestic sources**
5. **New developments with fugitive or uncontrolled sources.**

4 Local / Regional Air Quality Strategy

A number of air quality projects have been undertaken by the London Borough of Ealing in recent years. In 2010 the Mayor of London Air Quality Strategy details a strategy to protect Londoners' health and increase their quality of life by cleaning up the capital's air. The strategy promotes the use of the following methods to improve air quality in London:

6. Age limits for taxis

7. Promoting low-emission vehicles (such as electric cars)

8. Promoting eco-driving

9. New standards for the Low Emission Zone

10. Retrofitting older buses

11. Targeted measures for areas where air quality is poor.

12. Using the planning system to reduce emissions from new developments.

13. Retrofitting homes and offices to make them more energy efficient.

5 Planning Applications

There are a number of large developments in the LB of Ealing that have received planning permission for a first phase of multi phase schemes. The largest of these developments are documented below.

Havelock estate, Southall

900 residential homes with first phase approved by the council and construction due to begin in summer 2014. The developer for this scheme is Catalyst Housing. Construction is due to be completed by 2025.

Copley Close Estate, West Ealing

The council's 2008 estates review highlighted that Copley Close needs a lot of work to bring it up to the government's Decent Homes standard. The LB of Ealing proposes the demolition of the current 76 units and the construction of 211 new residential units. This redevelopment is due to be constructed with the planning application currently in the consultation phase.

South Acton Estate, Acton

A house redevelopment scheme with a total of 2,600 residential properties over 11 phases due for completion in 2026. LB of Ealing granted the phase 3 planning application in March 2014. The first two phases are currently under construction.

Green Man Estate, West Ealing

Redevelopment of the Green Man Estate in West Ealing due to be completed from 2009 – 2018 over four phases. Currently phase one and two are in construction and the planning application is being prepared for phase three. The phase four planning application with be submitted. Once completed the development will comprise of 706 new residential properties, a new gym, community cafe, energy centre and 401 car parking spaces. The project includes the demolition of the 464 current properties and multi-storey car park on site.

Southall Gasworks development

This is an 85 acre Brownfield site which is seeking planning permission for 20,000sqm of residential, 14,200sqm for non-food retail, 5,850sqm of food retail, 1,750sqm of Class A3-A5 uses; 650sqm of hotel, 3,000 sqm of conference and banqueting, 24,450sqm of multi-storey car park, 2,550sqm of health care facilities, 3,450sqm of education facilities, 3,500sqm of office/studio units, 390sqm of sports pavilion, 600sqm of energy centre, associated car and cycle parking, landscaping, public realm, open space and children's play-space. Phase one is due for completion in 2019.

Thames Tunnel-Acton Storm Tanks, Canham Road, Acton

Construction is assumed to start in 2018 and be complete by 2021. Work includes construction of underground structures to connect the existing Acton Storm Relief combined sewer overflow to a shaft approximately 31 m deep and with an internal diameter of approximately 15 m. As of March 12th 2014 the Secretary of State has 3 months in which to make their decision on the acceptance or refusal of the Thames Tideway Tunnel project.

High Speed 2 (HS2)

Construction is due to begin on the North Acton and Park Royal section of HS2 railway line in 2018.

6 Air Quality Planning Policies

The London Borough of Ealing Unitary Development Plan (UDP) was adopted on October 2004. The policy context for this chapter of the Plan for the Environment is set by the government's Urban White Paper, by planning policy guidance on waste, renewable energy, pollution and flood risk (PPGs 10, 23, 25 and PPSs 10 and 22), and Regional Planning Guidance for South East England. In addition the London Plan outlines the policy directions proposed by the Mayor of London.

These raise a number of key issues that need to be taken into account in this chapter:

- The Urban White Paper of 2000 calls for the development of 'previously developed' land, where needed to fulfil regeneration objectives, and to more effectively maintain the existing urban environment – making it cleaner, safer and more attractive, improving air quality, protecting open space, dealing with contamination, and bringing empty property into use.
- Development should be located and designed to enable more sustainable use of natural resources, in the supply of food, water, energy, minerals and timber, in the effective management of waste, the promotion of renewable energy sources and to assist in reducing pollution of air, land and water.
- The Council has a responsibility to encourage the provision of new sites for recycling and composting facilities, enable residents and businesses to separate and store materials for recycling, and protect existing sites so that they are available for the needs of the new 'resource recovery' economy. This will be part of the authority's function in providing a waste plan for the area. The Greater London Authority (GLA) is pledged to support this.
- The GLA will safeguard wharves and rail transfer stations that are, or can be made viable for the movement of materials, aggregates, recyclable and residual waste.
- The GLA will encourage re-use of existing buildings and building materials, and the maximum recycling of construction and demolition waste.

There is increasing public and professional concern about the deterioration and even destruction of vital environmental assets. There is a clear role for positive planning to contribute to the arrest of this neglect and lead to a significant improvement of environmental quality for this generation and for future generations.

Some aspects will require an international response, but others can be addressed on a more local scale. Local authorities have a key role to play in environmental protection and the promotion of sustainable development in co-ordination with those managing public utilities, agencies promoting development and voluntary organisations. The Adopted 2004 Plan for the Environment deals specifically with the role of the town planning system in this.

The following policies address these issues and contribute to global sustainability, the proper management of natural resources, and a better local environment in the present and future.

2.6 Air Pollution and Quality

1. *"The Council will seek reductions in the level of the air pollutants referred to in the National Air Quality Strategy, and will seek to achieve the statutory limits and consider the tolerability of any increased air pollution when considering proposals for development.*
2. *Development proposals will be considered for their effect on air quality and the exposure of people to air pollutants. A formal Air Quality Assessment will be required where there is the potential for significant increases in air pollutants. Permission will be refused where development hinders the achievement of local air quality objectives, or there is likely to be a significant increase in air pollutants. Developments will not be permitted in areas where air quality objectives are not currently being achieved, unless the effects on people can be demonstrated as acceptable in relation to air quality objectives.*
3. *The cumulative effect of individual developments will be taken into account, both in terms of impact and remedial measures."*

The Air Quality Strategy for England, Scotland, Wales and Northern Ireland sets standards and objectives for a number of pollutants, including nitrogen dioxide, benzene, carbon monoxide and particulates. Development and transport have effects on air quality and pollution both in the local and global environments. The land use planning process needs to ensure that developments do not result in a net increase in such pollutants, and the Council will therefore require an Air Quality Assessment in cases where there is potential for significant increase. Non - polluting developments undertaken in areas already identified as having poor air quality raise issues of exposure, where they will be occupied for significant parts of the day. The Council will expect mitigation measures to be brought forward, where these are appropriate to secure an acceptable development.

Air Quality Assessments should be carried out in a manner agreed with the Council, to ensure compatibility of data collection and modelling, in order to comply with the Council's Review and Assessment of Air Quality. The circumstances where such an Assessment is required are set out in Table 2A as shown below (For further guidance see also SPG 3).

Table 2A

Air Quality Assessments will be required in the following cases:

1. Where there will be a significant increase in:

   • The number of vehicle trips;
   • Polluting industrial activity;
   • Incineration or other energy from waste processes;
   • Activities with polluting emissions.

2. All development proposals involving new floorspace, in areas identified as having poor air quality, which are to be occupied for significant parts of the day.

This policy is a specific response to the issues raised by the Air Quality Strategy for England, Scotland, Wales and Northern Ireland. There are other policies in the plan, which, as a by-product of their main purpose, have positive impacts in terms of air quality. In addition, there are other Council policies that are outside the scope of the Plan for the Environment (which is restricted to town planning powers), but which illustrate the range of air quality issues affecting development in the Borough. These measures will be implemented in the context of the Ealing Air Quality Strategy and Action Plan, which will indicate the full range of actions open to the Council, including:

I. Encourage non-polluting forms of transport, particularly cycling and walking;

II. Encourage non-polluting and efficient forms of energy generation, at suitable local sites;

III. Encourage the reduction/elimination of harmful emissions from manufacturing/ industry and other processes in the borough;

IV. Require that new developments / renovation minimise dust from building works;

V. Require that suppliers to major sites reduce the number of journeys without a load, (e.g. encouraging recycling or disposal on return trips and/or local delivery as part of an improved logistics regime);

VI. Promote awareness of air quality issues so individuals can contribute to improvements.

2.9 Energy

The Council will:

1. *"Encourage environmentally sensitive forms and schemes of energy efficiency and generation (as an integral part of a development or for the generation of energy for use elsewhere), particularly where locally sourced consistent with national and local renewable energy targets. No significant harm should be caused to landscape, nature conservation or historic features within or immediately adjacent to the site;*
2. *Expect all major developments (above a threshold of 1,000 sq m or 10 dwellings) to incorporate equipment for renewable power generation so as to provide at least 10% of their predicted energy requirements*;*
3. *Seek application of energy efficiency principles and environmentally sensitive forms of energy generation wherever suitable for new development and other schemes with new floorspace, in their location, layout, design, and orientation."*

The Government's Climate Change Programme sets a target for 10% of the UK's electricity requirements to be met from renewable sources by 2010. RPG 9 advises authorities to use their development control and building regulation processes to seek to influence incorporation of appropriate renewable energy heating or power systems in the design of new developments. These requirements will need planning powers in addition to the Building Regulations.

All proposals for land use, transport, development, renovation and the Council's own activities need to demonstrate that energy efficiency and conservation are major considerations. This relates to aspects of building design, construction, layout and maintenance, as well as efficiency in the execution of the project, e.g. in the transportation of materials and the co-ordination of building work.

In many cases solar panels, heat pumps, biomass systems and combined heat and power appliances (and other equipment) are permitted. The Council will consider applications for renewable energy installation in terms of both the immediate impacts on the local environment and its wider contribution to reducing greenhouse gases. Provided there is no significant harm to landscape, nature conservation or historic features, permission can normally be recommended. As will be clear from the policies on waste management which follow this section, proposals for energy from waste schemes which are based on incineration, are not necessarily considered to be a source of renewable energy.

Aspects of energy conserving design include, in descending order of efficiency:

I. Maximising passive solar gain (by location and orientation);

II. Natural ventilation;

III. Thermal insulation;

IV. Energy efficient domestic appliances and boilers;

V. Solar panels, including photovoltaic cells and cladding;

VI. Micro-wind.

Research by the Greater London Authority indicates that each of these techniques can be utilised successfully in an urban context, but 'passive solar' design (PSD) has particularly strong potential for new developments, where the technique can be incorporated at preliminary layout stage, prior to submission of a detailed application. Prime examples of PSD energy efficiency include utilisation of the maximum heat gain for living and bedrooms in housing, and avoiding the need for air conditioning in workplaces. Larger extensions for dwellings and workplaces can also benefit from PSD. New buildings should aim to achieve the highest standards of energy efficiency and conservation, as measured by the Building Research Establishment standard assessment of building energy efficiency (BREEAM), or an equivalent standard of energy efficiency and management.

The London Plan 2008

Policy 4 A.19 Improving air quality

The Mayor will, and boroughs should, implement the Mayor's Air Quality Strategy and achieve reductions in pollutant emissions and public exposure to pollution by:

- improving the integration of land use and transport policy and reducing the need to travel, especially by car (see Policy 3C.1)
- promoting sustainable design and construction (Policy 4A.3)
- promoting sustainable construction to reduce emissions from the demolition and construction of buildings (Policy 4A.22)
- ensuring at the planning application stage, that air quality is taken into account along with other material considerations, and that formal air quality assessments are undertaken where appropriate, particularly in designated Air Quality Management Areas
- seeking to reduce the environmental impacts of transport activities by supporting the increased provision of cleaner transport fuels, including hydrogen, particularly with respect to the refuelling infrastructure

- working in partnership with relevant organisations, taking appropriate steps to achieve an integrated approach to air quality management and to achieve emissions reductions through improved energy efficiency and energy use. (Policy 4A.7)

Mayor of London Air Quality Strategy 2010

The Mayor will work with strategic partners to ensure that the spatial, transport and design policies of this plan support his Air Quality Strategy. In accordance with the objectives of the National Air Quality Strategy, the Mayor's Air Quality Strategy seeks to minimise the emissions of key pollutants and to reduce concentrations to levels at which no, or minimal, effects on human health are likely to occur. The Mayor's strategy provides guidelines on policies for DPDs and refers to applicable documents.

It also gives guidelines on air quality assessments and outlines steps local authorities can take to improve air quality. Other Mayoral initiatives such as the Low Emissions Zone and the Congestion Charge Zone also make contributions to improving air quality.

7 Local Transport Plans and Strategies

This is a statutory document prepared by each London Borough under the Greater London Authority Act 1999, and sets out the policy context and proposals of the Borough for the implementation of the Mayor of London's Transport Strategy.

The main relevant policy in terms of air quality in the second Local Implementation Plan (LIP) for transport strategies and plans[5] is LIP Objective 4 i.e. 'Improve quality of life for residents, businesses and visitors to the borough, protecting and enhancing the urban and natural environment'. Other policies that affect air quality are:

- *Objective 2 – Increase sustainable travel capacity and key links in the borough*
- *Objective 3 - Smooth the flow of traffic and improve journey time reliability for all road-users, particularly bus passengers, cyclists and pedestrians*
- *Objective 5: - Promote healthy travel behaviour through a shift to more walking and cycling."*

The LIP notes roads which are known as particularly poor areas for air quality, these areas include road corridors with heavy vehicle flows such as the A40, A406 and A4020 (Uxbridge Road).

[5] LB of Ealing, Transport Strategies and Plans. Available at: http://www.ealing.gov.uk/info/100011/transport_and_streets/620/transport_strategies_and_plans/2 Accessed 28/4/2014

8 Climate Change Strategies

The London Borough of Ealing set out its Climate Change policy for 2011 to 2014 in a document released on September 18th 2008. This strategy aimed to reduce Ealing borough's contribution to climate change with a target to achieve a 10% reduction in per capita carbon dioxide emissions by 2010/11 from a 2005 baseline.

The adopted development management plan[6] for LB of Ealing sets out the updated Climate change strategy as Policy 5.2.

Policy 5.2: Minimising Carbon Dioxide Emissions: Planning Decisions

- *"With regards to planning permission, all major new-build residential developments are required to achieve the following standards under the Code for Sustainable Homes, or equivalent:*
    - *2012 onwards - Level 4*
    - *2016 onwards - Level 5*
- *all other new residential development in Ealing must achieve Code for Sustainable Homes Level 4 as a minimum.*
- *major residential developments consisting of the refurbishment of existing buildings, including the conversion of existing buildings to form flats, are required to achieve a BREEAM Domestic Refurbishment Scheme rating of Excellent, or equivalent.*
- *major non-residential developments are required to achieve a minimum Very Good rating under the most up-to-date BREEAM or equivalent scheme and make reasonable endeavours to achieve Excellent and Outstanding.*
- *other new development including residential extensions and conversions should undertake energy efficiency improvements up to 10% of the value of the proposed works."*

[6] Adopted Development Management Plan (2013)

9 Implementation of Action Plans

The LB of Ealing is in the process of updating its Air Quality Action Plan. The updated plan is due to be published in 2014 / 2015.

10 Conclusions and Proposed Actions

10.1 Conclusions from New Monitoring Data

In 2010 the London Borough of Ealing undertook monitoring at six continuous monitoring sites and 124 NO_2 diffusion tube sites within the Borough.

The results from the air quality monitoring show annual mean concentrations of nitrogen dioxide remain in exceedence of the AQS objective within the AQMA. Exceedences occurred at 99 diffusion tube sites and at five of the six automatic monitoring stations. The highest concentrations were at Hanger Lane Gyratory (91.5 µg/m^3). The 1-hour nitrogen dioxide was also exceeded at this continuous monitoring site and potentially at 24 of the diffusion tube sites.

The annual mean and daily mean objectives for PM_{10} were exceeded at one continuous monitoring station, Horn Lane. The annual mean concentration in 2010 at the Horn Lane site was 41.5 µg/m^3.

The basis for declaration of the AQMA with regards to NO_2 and PM_{10} remains unchanged and the borough-wide AQMA should therefore remain.

10.1.1 Proposed Actions

On the basis of the findings of the Progress Report the LB of Ealing proposes the following actions:

- Submit an Action Plan Progress Report and an Updating and Screening assessment in 2012, in accordance with the LAQM Review and Assessment process.

- Continue to operate a network of diffusion tubes and continuous monitoring sites throughout the Borough to monitor NO_2 and PM_{10} concentrations in the Borough.

- Maintain the extent of the existing AQMA for NO_2 and PM_{10}.

11 References

[1] London Borough of Ealing (2003), London Borough of Ealing Air Quality Action Plan.

[2] London Borough of Ealing (2009), Fourth Round Updating and Screening Assessment for London Borough of Ealing.

[3] London Air Quality Network (2012). Available online: www.londonair.org.uk. Accessed: 28/4/2014.

[4] Volatile Correction Model http://www.volatile-correction-model.info/Default.aspx. Accessed: 24/4/2014.

[5] LB of Ealing - Local Plan. Available at: http://www.ealing.gov.uk/info/200921/local_plans. Accessed: 28/4/2014

[6] LB of Ealing, Adopted Policies map. Available at: http://www.ealing.gov.uk/info/200921/local_plans/1513/policies_map. Accessed 28/4/2014

[7] LB of Ealing, Transport Strategies and Plans. Available at: http://www.ealing.gov.uk/info/100011/transport_and_streets/620/transport_strategies_and_plans/2 Accessed 28/4/2014.

[8] Adopted Development Management Plan (2013).

[9] Defra, National Diffusion Tube Bias Adjustment Factor Spreadsheet, Spreadsheet Version Number: 03/14. Available at http://laqm.defra.gov.uk/bias-adjustment-factors/national-bias.html.

[10] Defra, WASP – Annual Performance Criteria for NO_2 Diffusion Tubes used in Local Air Quality Management (LAQM). Available at http://laqm.defra.gov.uk/diffusion-tubes/qa-qc-framework.html

[11] Volatile Correction Model. Available at: http://www.volatile-correction-model.info/Default.aspx Accessed 28/4/2014

Appendices

Appendix A: QA:QC Data

QA/QC of diffusion tube monitoring

The diffusion tubes were supplied and analysed by Gradko International Ltd. To maintain consistency with previous monitoring the preparation method used was 20% v/v triethanolamine in water. Gradko International Ltd. participate in the Health and Safety Laboratory's Workplace Analysis Scheme for Proficiency (WASP) scheme, which provides a Quality Assurance / Quality Control framework for local authorities carrying out diffusion tube monitoring as a part of their local air quality management process. Gradko International Ltd. achieved a Performance Criteria Score of "Good" in the laboratory performance testing rounds during 2010[7].

[7] WASP – Annual Performance Criteria for NO_2 Diffusion Tubes used in Local Air Quality Management (LAQM), 2008 onwards, and Summary of Laboratory Performance in Rounds 105-10. September 2010. Available from http://laqm1.defra.gov.uk .

Diffusion Tube Bias Adjustment Factors

Figure A.1 National Bias Adjustment Factor Calculation, Roadside and Kerbside Sites Gradko 2010

Analysed By[1]	Method To undo your selection, choose (All) from the pop-up list	Site Type	Local Authority	Length of Study (months)	Diffusion Tube Mean Conc. (Dm) (µg/m^3)	Automatic Monitor Mean Conc. (Cm) (µg/m^3)	Bias (B)	Tube Precision[6]	Bias Adj Factor (A) (Cm/Dm)
Gradko	20% TEA in Water	R	Nottingham CC	12	45	43	4.9%	G	**0.95**
Gradko	20% TEA in Water	R	Nottingham CC	12	44	41	6.3%	G	**0.94**
Gradko	20% TEA in Water	K	South Lakeland DC	12	46	42	8.1%	G	**0.92**
Gradko	20% TEA in Water	R	Gedling BC	12	43	39	9.1%	G	**0.92**
Gradko	20% TEA in Water	R	Dudley MBC	12	42	45	-5.9%	G	**1.06**
Gradko	20% TEA in Water	R	Dudley MBC	10	47	46	2.4%	G	**0.98**
Gradko	20% TEA in Water	R	Carlisle CC	12	41	33	25.5 %	G	**0.80**
Gradko	20% TEA in Water	R	Nottingham CC	12	45	43	4.9%	G	**0.95**
Gradko	20% TEA in Water	R	Nottingham CC	12	44	41	6.3%	G	**0.94**
Gradko	20% TEA in Water	K	Wandsworth Council	11	136	162	-16.4 %	G	**1.20**
Gradko	20% TEA in Water	R	Newtownabbey BC	11	36	35	4.3%	G	**0.96**
Gradko	20% TEA in Water	R	Cheshire East Council	12	58	45	29.2 %	G	**0.77**

Analysed By[1]	Method To undo your selection, choose (All) from the pop-up list	Site Type	Local Authority	Length of Study (months)	Diffusion Tube Mean Conc. (Dm) (μg/m^3)	Automatic Monitor Mean Conc. (Cm) (μg/m^3)	Bias (B)	Tube Precision[6]	Bias Adj Factor (A) (Cm/Dm)
Gradko	20% TEA in Water	R	Cheshire East Council	11	30	30	-1.8%	G	**1.02**
Gradko	20% TEA in Water	R	Gateshead Council	9	38	34	10.4 %	G	**0.91**
Gradko	20% TEA in Water	R	Gateshead Council	9	35	33	6.0%	G	**0.94**
Gradko	20% TEA in Water	R	Gateshead Council	9	34	34	-0.6%	G	**1.01**
Gradko	20% TEA in Water	R	Gateshead Council	9	32	35	-9.9%	G	**1.11**
Gradko	20% TEA in Water	R	Gosport BC	10	31	23	35.3 %	na	**0.74**
Gradko	20% TEA in Water	R	Rhondda Cynon Taf CBC	10	35	35	0.4%	G	**1.00**
Gradko	20% TEA in Water	R	South Norfolk Council	9	28	17	63.7 %	G	**0.61**
Gradko	20% TEA in Water	R	Chelmsford BC	12	33	21	55.0 %	G	**0.65**
Gradko	20% TEA in Water	R	Chelmsford BC	10	37	32	14.6 %	G	**0.87**
Gradko	20% TEA in Water	R	Wokingham BC	10	37	36	4.1%	G	**0.96**
Gradko	20% TEA in Water	R	West Dunbartonshire Council	9	22	22	0.1%	G	**1.00**
Gradko	20% TEA in Water	R	Scarborough BC	12	35	29	18.2 %	G	**0.85**
Gradko	20% TEA in Water	R	Sandwell MBC	11	45	45	-0.9%	na	**1.01**

Analysed By[1]	Method To undo your selection, choose (All) from the pop-up list	Site Type	Local Authority	Length of Study (months)	Diffusion Tube Mean Conc. (Dm) (µg/m^3)	Automatic Monitor Mean Conc. (Cm) (µg/m^3)	Bias (B)	Tube Precision[6]	Bias Adj Factor (A) (Cm/Dm)
Gradko	20% TEA in Water	R	Sandwell MBC	11	37	36	2.0%	na	**0.98**
								Average	**0.93**

Table 11.1: National Bias Adjustment Factor Calculation, Near-Road Sites

Analysed By[1]	Method To undo your selection, choose (All) from the pop-up list	Site Type	Local Authority	Length of Study (months)	Diffusion Tube Mean Conc. (Dm) (mg/m^3)	Automatic Monitor Mean Conc. (Cm) (mg/m^3)	Bias (B)	Tube Precision[6]	Bias Adjustment Factor (A) (Cm/Dm)
Gradko	20% TEA in Water	UC	Nottingham CC	12	40	40	-1.0%	G	**1.01**
Gradko	20% TEA in Water	UC	Nottingham CC	12	40	40	-1.0%	G	**1.01**
Gradko	20% TEA in Water	UC	Belfast CC	11	38	35	8.4%	P	**0.92**
								Average	**0.98**

Table 11.2: National Bias Adjustment Factor Calculation, Urban Background Sites

Analysed By[1]	Method To undo your selection, choose (All) from the pop-up list	Site Type	Local Authority	Length of Study (months)	Diffusion Tube Mean Conc. (Dm) (□g/m^3)	Automatic Monitor Mean Conc. (Cm) (□g/m^3)	Bias (B)	Tube Precision[6]	Bias Adjustment Factor (A) (Cm/Dm)
Gradko	20% TEA in Water	UB	Luton Borough Council	12	37	34	9.8%	G	**0.91**
Gradko	20% Tea in Water	UB	Wandsworth Council	12	47	53	-9.9%	P	**1.11**
Gradko	20% TEA in Water	UB	LB Ealing	10	39	41	-3.8%	G	**1.04**
Gradko	20% TEA in Water	UB	Sandwell MBC	11	31	28	11.4%	na	**0.90**
Gradko	20% TEA in Water	UB	Sandwell MBC	10	22	21	8.1%	na	**0.93**
								Average	**0.98**

Factor from Local Co-location Studies

Table 11.3: Local Bias Adjustment Factor Calculation, Ealing Town Hall

Checking Precision and Accuracy of Triplicate Tubes

AEA Energy & Environment
From the AEA group

Diffusion Tubes Measurements										Automatic Method		Data Quality Check	
Period	Start Date dd/mm/yyyy	End Date dd/mm/yyyy	Tube 1 µgm^{-3}	Tube 2 µgm^{-3}	Tube 3 µgm^{-3}	Triplicate Mean	Standard Deviation	Coefficient of Variation (CV)	95% CI of mean	Period Mean	Data Capture (% DC)	Tubes Precision Check	Automatic Monitor Data
1	08/01/2010	05/02/2010	46.9	45.5	51.8	48	3.3	7	8.3	54.1	99.4047619	Good	Good
2	05/02/2010	05/03/2010	47.8	46.6	46.9	47	0.6	1	1.6	54.6	99.25595238	Good	Good
3	05/03/2010	01/04/2010	44.0	44.5	44.0	44	0.3	1	0.8	42.1	86.41975309	Good	Good
4	01/04/2010	29/04/2010	44.3	40.7	41.9	42	1.8	4	4.6	45.3	99.70238095	Good	Good
5	29/04/2010	04/06/2010	35.3	32.3	34.3	34	1.5	4	3.8	36.5	99.76851852	Good	Good
6	04/06/2010	02/07/2010	39.5	36.0	33.8	36	2.9	8	7.2	33.0	85.26785714	Good	Good
7	02/07/2010	05/08/2010	23.1	26.1	23.8	24	1.6	6	3.9	26.4	99.50980392	Good	Good
8	05/08/2010	03/09/2010	28.8	30.0	30.2	30	0.7	2	1.8	27.9	98.99425287	Good	Good
9	03/09/2010	01/10/2010	38.4	46.6	41.3	42	4.1	10	10.3	37.8	96.875	Good	Good
10	01/10/2010	04/11/2010	43.8	40.3	41.5	42	1.8	4	4.4	48.3	88.84803922	Good	Good
11	04/11/2010	01/12/2010	47.8	46.5	53.5	49	3.7	7	9.2	59.0	52.77777778	Good	or Data Capture
12	01/12/2010	07/01/2011	60.7	56.5	48.7	55	6.1	11	15.1	64.3	99.54954955	Good	Good
13													
										Overall survey -->		Good precision	Good Overall DC

It is necessary to have results for at least two tubes in order to calculate the precision of the measurements

(Check average CV & DC from Accuracy calculations)

Site Name/ ID:	EA 1 Ealing Town Hall

Precision: 12 out of 12 periods have a CV smaller than 20%

Accuracy (with 95% confidence interval) without periods with CV larger than 20%

Bias calculated using 11 periods of data

Bias factor A	1.06 (0.99 - 1.14)
Bias B	-5% (-12% - 1%)
Diffusion Tubes Mean:	40 µgm^{-3}
Mean CV (Precision):	5
Automatic Mean:	43 µgm^{-3}
Data Capture for periods used:	96%
Adjusted Tubes Mean:	43 (40 - 46) µgm^{-3}

Accuracy (with 95% confidence interval) WITH ALL DATA

Bias calculated using 11 periods of data

Bias factor A	1.06 (0.99 - 1.14)
Bias B	-5% (-12% - 1%)
Diffusion Tubes Mean:	40 µgm^{-3}
Mean CV (Precision):	5
Automatic Mean:	43 µgm^{-3}
Data Capture for periods used:	96%
Adjusted Tubes Mean:	43 (40 - 46) µgm^{-3}

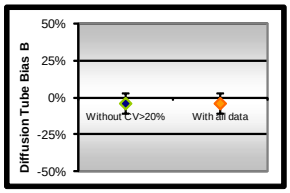


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Table 11.4: Local Bias Adjustment Factor Calculation, Acton Town Hall

Checking Precision and Accuracy of Triplicate Tubes

AEA Energy & Environment
From the AEA group

Diffusion Tubes Measurements										Automatic Method		Data Quality Check	
Period	Start Date dd/mm/yyyy	End Date dd/mm/yyyy	Tube 1 µgm^{-3}	Tube 2 µgm^{-3}	Tube 3 µgm^{-3}	Triplicate Mean	Standard Deviation	Coefficient of Variation (CV)	95% CI of mean	Period Mean	Data Capture (% DC)	Tubes Precision Check	Automatic Monitor Data
1	08/01/2010	05/02/2010	66.9	68.9	66.1	67	1.5	2	3.7	67.9	84.22619048	Good	Good
2	05/02/2010	05/03/2010	66.7	69.3	66.4	67	1.6	2	3.9	61.3	92.55952381	Good	Good
3	05/03/2010	01/04/2010	58.9	56.8	45.9	54	7.0	13	17.3	52.0	98.91975309	Good	Good
4	01/04/2010	29/04/2010	59.5	59.7	53.7	58	3.4	6	8.4	63.9	99.70238095	Good	Good
5	29/04/2010	04/06/2010	55.6	53.2	52.5	54	1.6	3	4.1	51.6	96.41203704	Good	Good
6	04/06/2010	02/07/2010	49.7	43.4	48.5	47	3.3	7	8.3	46.6	97.4702381	Good	Good
7	02/07/2010	05/08/2010	37.8	37.7	41.0	39	1.9	5	4.7	33.1	98.65196078	Good	Good
8	05/08/2010	03/09/2010	40.8	45.1	43.8	43	2.2	5	5.4	41.1	62.78735632	Good	or Data Capture
9	03/09/2010	01/10/2010	51.3	47.2	52.0	50	2.6	5	6.5	47.6	99.10714286	Good	Good
10	01/10/2010	04/11/2010	41.4	42.5	49.8	45	4.6	10	11.4	51.4	99.50980392	Good	Good
11	04/11/2010	01/12/2010	49.2	56.7	51.3	52	3.8	7	9.5	63.7	93.82716049	Good	Good
12	01/12/2010	07/01/2011	68.4	53.4	50.1	57	9.8	17	24.3	66.0	82.20720721	Good	Good
13													
										Overall survey -->		Good precision	Good Overall DC

It is necessary to have results for at least two tubes in order to calculate the precision of the measurements

(Check average CV & DC from Accuracy calculations)

Site Name/ ID:	EA 2 Acton Town Hall

Precision: 12 out of 12 periods have a CV smaller than 20%

Accuracy (with 95% confidence interval) without periods with CV larger than 20%

Bias calculated using 11 periods of data

Bias factor A	1.02 (0.95 - 1.11)
Bias B	-2% (-10% - 5%)
Diffusion Tubes Mean:	54 µgm^{-3}
Mean CV (Precision):	7
Automatic Mean:	55 µgm^{-3}
Data Capture for periods used:	95%
Adjusted Tubes Mean:	55 (51 - 60) µgm^{-3}

Accuracy (with 95% confidence interval) WITH ALL DATA

Bias calculated using 11 periods of data

Bias factor A	1.02 (0.95 - 1.11)
Bias B	-2% (-10% - 5%)
Diffusion Tubes Mean:	54 µgm^{-3}
Mean CV (Precision):	7
Automatic Mean:	55 µgm^{-3}
Data Capture for periods used:	95%
Adjusted Tubes Mean:	55 (51 - 60) µgm^{-3}

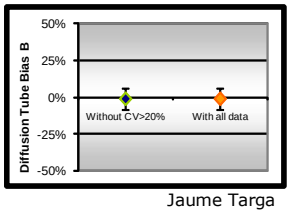

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Table 11.5: Local Bias Adjustment Factor Calculation, Southall (Blair Peach School)

Checking Precision and Accuracy of Triplicate Tubes

AEA Energy & Environment
From the AEA group

Diffusion Tubes Measurements										Automatic Method		Data Quality Check	
Period	Start Date dd/mm/yyyy	End Date dd/mm/yyyy	Tube 1 µgm^{-3}	Tube 2 µgm^{-3}	Tube 3 µgm^{-3}	Triplicate Mean	Standard Deviation	Coefficient of Variation (CV)	95% CI of mean	Period Mean	Data Capture (% DC)	Tubes Precision Check	Automatic Monitor Data
1	08/01/2010	05/02/2010	43.1	42.8	36.4	41	3.8	9	9.4	44.5	99.70	Good	Good
2	05/02/2010	05/03/2010	49.2	39.7	38.4	42	5.9	14	14.6	41.2	99.11	Good	Good
3	05/03/2010	01/04/2010	28.4	28.0	28.3	28	0.2	1	0.5	28.7	99.69	Good	Good
4	01/04/2010	29/04/2010	29.8	27.2	29.0	29	1.4	5	3.4	30.1	99.55	Good	Good
5	29/04/2010	04/06/2010	23.9	24.4	24.9	24	0.5	2	1.3	22.0	97.34	Good	Good
6	04/06/2010	02/07/2010	20.9	22.0	22.1	22	0.7	3	1.7	20.7	97.62	Good	Good
7	02/07/2010	05/08/2010	20.1	21.1	19.1	20	1.0	5	2.5	16.4	99.39	Good	Good
8	05/08/2010	03/09/2010	24.1	25.6	23.0	24	1.3	5	3.2	18.7	97.70	Good	Good
9	03/09/2010	01/10/2010	29.1	29.4	16.2	25	7.5	30	18.7	26.3	100.00	Poor Precision	Good
10	01/10/2010	04/11/2010	25.1	26.7	29.0	27	2.0	7	4.9	31.2	99.88	Good	Good
11	04/11/2010	01/12/2010	39.3	37.4	29.3	35	5.3	15	13.3	39.5	100.00	Good	Good
12	01/12/2010	07/01/2011	39.2	38.2	36.9	38	1.1	3	2.9	42.3	99.89	Good	Good
13													
											Overall survey -->	Good precision	Good Overall DC

It is necessary to have results for at least two tubes in order to calculate the precision of the measurements

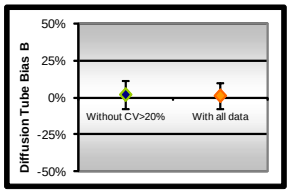
(Check average CV & DC from Accuracy calculations)

Site Name/ ID:	EA 7 Southall (Blair Peach)

Precision: 11 out of 12 periods have a CV smaller than 20%

Accuracy (with 95% confidence interval) without periods with CV larger than 20%	
Bias calculated using 11 periods of data	
Bias factor A	1.01 (0.93 - 1.12)
Bias B	-1% (-11% - 8%)
Diffusion Tubes Mean:	30 µgm^{-3}
Mean CV (Precision):	6
Automatic Mean:	30 µgm^{-3}
Data Capture for periods used:	99%
Adjusted Tubes Mean:	30 (28 - 34) µgm^{-3}

Accuracy (with 95% confidence interval) WITH ALL DATA	
Bias calculated using 12 periods of data	
Bias factor A	1.02 (0.93 - 1.12)
Bias B	-2% (-10% - 7%)
Diffusion Tubes Mean:	30 µgm^{-3}
Mean CV (Precision):	8
Automatic Mean:	30 µgm^{-3}
Data Capture for periods used:	99%
Adjusted Tubes Mean:	30 (28 - 33) µgm^{-3}



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National Diffusion Tube Bias Adjustment Factors

Bias adjustment is effectively a calculated factor which shows whether diffusion tubes are over or under reading ambient concentrations and therefore allows for a correction to be made.

The London Borough of Ealing used the national factor for Gradko as given on the review and assessment help desk website[8]. The diffusion tube preparation method is 20% TEA/Water.

Discussion of Choice of Factor to Use

The results of the three co-location studies were used to calculate a local bias adjustment factor (Ealing Town Hall, Acton Town Hall and Blair Peach School, Southall). Data from Western Avenue and Horn Lane were not used due to insufficient data capture. The triplicate tubes at Hangar Lane are not strictly co-located with the continuous monitor and so this comparison was also excluded.

The AEA Diffusion Tube Precision Accuracy Bias Spreadsheet [9] tool was used to calculate bias adjustment factors for each co-location site. Continuous monitoring data was sourced from the London Air Quality Network (LAQN) website.

[8] Defra, National Diffusion Tube Bias Adjustment Factor Spreadsheet, Spreadsheet Version Number: 03/14. Available at http://laqm.defra.gov.uk/bias-adjustment-factors/national-bias.html

Data capture rates for the continuous analysers at Acton Town Hall in August and November at Ealing Town Hall were low and so were excluded from the bias adjustment calculation. The September data for Blair Peach School (Southall) were rejected on the grounds of poor tube precision.

Table 11.6: Summary of Continuous Monitoring Data and Local Bias Adjustment Factors, 2010

Site Name	Site Type	Annual Mean NO_2 Concentration ($\mu g/m^3$)	Data Capture (%)	Bias Adjustment Factor
Ealing Town Hall	Near Roadside	43.8	92.8	1.06
Acton Town Hall	Roadside / Kerbside	53.7	93.1	1.02
Southall (Blair Peach School)	Urban Background	30.1	99.1	1.01

Notes: Data from Ealing Town Hall and Acton Town Hall ratified to 18/02/2010; Data from Southall ratified to 11/02/2010;

Bias adjustment factors were also sourced from the national Spreadsheet of Combined Bias Adjustment Factors [10] for comparison purposes. However, due to the acceptable data capture in the local co-location studies, the local bias adjustment factors in Table 11.6 have been applied to all of the raw diffusion tube data according to the site type designation.

Table 11.7: Summary of National Bias Adjustment Factors, 2010

Site Type Designation	Number of Studies	Bias Adjustment Factor
Roadside & Kerbside	27	0.93
Near Road (Urban Centre)	3	0.98
Urban Background	5	0.98

Note: Figures taken from Spreadsheet of Combined Bias Adjustment Factors (Version 04.2011).
Inputs used: Analysed By – Gradko International Ltd; Method – 20% TEA in Water; Year – 2010.

[9] AEA Diffusion Tube Precision Accuracy Bias Spreadsheet. Downloaded from http://laqm1.defra.gov.uk/review/tools/no2/precision 14/02/2011.
[10] Spreadsheet of Diffusion Tube Bias Adjustment Factors Version 04.11. Downloaded from http://laqm.defra.gov.uk/bias-adjustment-factors/national-bias.html on 04/04/2011.

Short-term to Long-term Data adjustment

As data capture for 2010 was low for both NO_2 and PM_{10} at the Western Avenue and at Horn Lane for NO_2 continuous monitoring sites, seasonal adjustment factors were calculated to estimate the annual mean concentration from the measured period mean. In accordance with LAQM.TG(09) guidance, period and annual mean concentrations were calculated from three nearby background AURN monitoring sites having data capture rates of greater than 90%. This was done by using the mean annual mean / period mean ratio. For Western Avenue the calculated ratio was 1.34 for NO_2 and 1.06 for PM_{10}. Details of these calculations are presented below. For Horn Lane the calculated ratio was 1.04for NO_2. Details of these calculations are presented below.

Table 11.8: Short-Term to Long-Term Monitoring Data Adjustment Horn Lane Continuous Monitoring Site 2010 NO_2

Site	Annual Mean Concentration (µg/m^3)	Period Mean Concentration (µg/m^3)	Ratio
Harrow - Stanmore NO_2	26.47	18.33	1.44
Kensington and Chelsea - North Ken NO_2	36.62	28.25	1.30
Wandsworth - Town Hall	52.88	42.97	1.23
Average			**1.34**

Table 11.9: Short-Term to Long-Term Monitoring Data Adjustment Western Avenue Continuous Monitoring Site 2010 NO_2

Site	Annual Mean Concentration (µg/m^3)	Period Mean Concentration (µg/m^3)	Ratio
Harrow - Stanmore NO_2	26.47	25.33	1.04
Kensington and Chelsea - North Ken NO_2	36.62	37.09	0.99
Wandsworth - Town Hall	52.88	51.47	1.03
Average			**1.04**

Table 11.10: Short-Term to Long-Term Monitoring Data Adjustment Western Avenue Continuous Monitoring Site 2010 PM_{10}

Site	Annual Mean Concentration (µg/m^3)	Period Mean Concentration (µg/m^3)	Ratio
Bent - St Mary's	19.85	18.17	1.09
Barnet-Finchly	20.01	18.73	1.07
Kensington and Chelsea - North Ken	20.33	19.60	1.04
Average			**1.06**

Appendix B: Monthly NO_2 Diffusion Tube Results

Table B.1: Raw Monthly NO_2 Diffusion Tube Results, 2010 ($\mu g/m^3$)

Site ID	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Average - National Bias
1	70.7	65.1	57.1	53.0	53.9	53.1	36.7	44.5	52.6	60.2	66.7	60.3	52.1
2	42.1	43.4	34.4	30.8	24.7	24.7	20.0	25.3	30.6	30.3	39.4	38.0	31.2
3	43.8	47.1	40.8	42.3	34.5	33.1	26.1	30.6	37.7	37.2	39.7	47.0	35.5
4	74.2	56.6	63.0	63.0	53.2	55.2	58.8	55.7	66.5	57.1	56.6	47.5	54.6
5	Lost	29.7	24.8	26.1	21.8	21.6	19.2	19.8	27.1	22.2	36.0	31.3	24.8
Average (5,6,7)													36.3
6	54.4	54.5	41.8	36.2	33.9	34.9	22.8	29.7	38.1	40.4	47.4	46.5	37.1
7	No data	50.2	39.2	39.6	36.4	33.6	26.4	30.1	44.6	34.2	38.4	49.1	35.6
8	No data	54.5	41.3	40.3	33.6	34.9	25.2	29.8	38.0	33.3	47.6	50.4	36.2
9	111.9	64.6	56.2	51.9	46.7	51.9	39.8	37.3	47.8	65.4	54.4	53.1	52.6
10	46.5	50.9	36.0	34.9	34.5	27.4	18.3	26.6	29.2	34.9	46.3	41.0	34.7
11	48.9	47.9	41.0	38.4	35.6	33.4	29.8	29.6	37.5	38.6	52.2	40.9	38.7
12	34.9	34.9	Lost	24.5	23.0	21.6	Lost	Lost	25.9	30.1	34.6	32.7	28.4
13	44.0	39.9	33.9	33.2	27.0	25.1	21.6	25.0	32.8	31.0	44.3	41.2	32.5
14	61.4	Lost	Lost	44.4	50.1	39.1	35.6	36.6	45.5	39.5	56.2	51.4	42.6
15	45.0	46.7	38.7	34.2	35.6	32.6	27.3	28.9	37.1	39.1	42.5	38.9	36.5
16	60.9	57.7	52.0	44.8	42.0	41.0	35.5	36.3	53.4	37.4	48.1	50.2	45.7
17	50.2	58.0	47.3	44.6	43.9	43.2	29.6	35.8	44.7	40.3	57.9	54.4	44.7

Site ID	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Average - National Bias
18	107.5	50.3	38.1	36.0	33.7	29.7	22.8	29.9	35.4	29.3	46.8	44.4	38.9
19	54.0	53.0	39.2	39.8	39.0	29.4	28.5	31.8	41.0	38.5	48.1	44.4	39.8
Average (20, 21,22)													49.5
20	61.3	70.9	59.7	53.1	55.0	53.1	45.9	42.5	58.1	40.5	51.0	51.0	49.6
21	69.3	73.9	58.6	51.2	54.9	Lost	46.2	44.7	53.7	54.1	55.7	47.7	51.4
22	65.3	55.1	59.0	51.2	48.6	Lost	43.6	47.1	52.6	37.8	55.3	48.1	47.5
23	56.4	60.6	55.0	48.8	41.9	36.2	40.3	39.1	49.0	70.5	57.7	58.2	47.4
24	48.2	50.0	44.5	39.5	42.9	41.9	36.9	35.2	40.2	40.1	43.9	53.8	42.3
Average (25, 26, 27)													41.0
25	53.0	57.8	44.7	39.5	33.7	30.7	31.8	30.6	41.7	39.3	51.9	46.6	41.0
26	61.1	55.9	42.3	41.0	36.1	32.8	28.4	31.2	41.7	36.8	46.5	43.6	40.7
27	55.1	51.5	46.5	37.3	34.6	34.5	32.3	32.0	40.0	43.3	49.7	48.3	41.3
Average (28, 29, 30)													28.9
28	43.1	49.2	28.4	29.8	23.9	20.9	20.1	24.1	29.1	25.1	39.3	39.2	30.3
29	42.8	39.7	28.0	27.2	24.4	22.0	21.1	25.6	29.4	26.7	37.4	38.2	29.5
30	36.4	38.4	28.3	29.0	24.9	22.1	19.1	23.0	16.2	29.0	29.3	36.9	27.1
Average(31, 32, 33)													49.4
31	60.9	63.4	60.1	55.3	50.1	46.0	39.3	39.9	46.1	40.4	58.1	48.8	49.7

Site ID	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Average - National Bias
32	50.2	66.2	57.4	49.8	53.2	52.7	41.2	41.2	51.8	43.9	61.6	45.8	50.3
33	53.5	67.8	55.6	49.9	43.0	50.0	39.1	40.8	45.2	43.9	52.5	49.3	48.3
34	59.0	64.5	62.1	65.6	63.3	63.2	54.2	65.4	80.4	66.2	68.9	68.6	60.4
35	48.6	55.2	37.6	36.5	29.8	25.9	29.1	27.7	37.4	27.4	48.0	40.6	36.3
36	49.8	40.0	39.9	45.2	33.7	31.1	32.2	40.0	40.2	42.1	46.9	43.6	37.4
37	49.6	Lost	38.7	31.8	29.8	28.2	24.9	26.3	33.0	Lost	51.3	45.9	35.1
38	49.8	51.1	45.2	44.5	42.4	41.5	28.6	34.9	37.7	34.7	48.5	42.8	41.0
39	43.9	58.7	39.3	40.3	39.1	36.2	27.8	39.8	38.5	36.5	51.8	52.3	41.2
40	52.7	55.1	50.6	35.0	Lost	26.7	36.3	33.9	38.0	36.6	45.1	48.5	40.7
41	57.3	63.9	44.7	45.6	39.8	35.5	35.8	38.4	42.0	50.3	42.7	68.6	43.6
42	65.5	73.2	47.1	47.5	47.0	39.4	31.8	36.9	44.2	41.5	68.0	70.3	49.8
43	65.4	72.4	74.3	56.4	58.0	72.1	60.3	51.6	60.8	56.4	69.2	76.8	59.8
44	48.3	55.3	43.2	45.8	38.7	35.7	29.2	35.0	36.8	41.4	42.3	48.5	40.7
45	52.3	50.5	38.9	35.6	30.0	33.5	32.1	36.6	40.3	40.6	44.0	44.3	39.1
46	Lost	46.5	38.7	Lost	29.3	27.7	22.1	28.6	37.4	33.6	46.7	40.9	32.6
47	57.4	68.4	53.3	44.8	61.9	50.9	39.1	41.2	48.6	46.6	54.0	45.8	47.3
48	55.8	50.4	41.5	46.9	38.5	33.1	25.2	28.8	41.4	44.9	59.2	52.6	40.0
49	47.0	46.6	44.2	45.7	36.7	37.9	37.0	32.6	34.5	40.6	53.8	51.0	39.2
Average (50, 51, 52)													39.2
50	49.2	45.5	46.4	44.2	35.0	32.1	35.7	36.0	42.9	40.2	46.8	42.4	40.4

Site ID	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Average - National Bias
51	49.0	50.5	42.9	44.3	30.6	32.4	36.8	34.7	45.5	34.7	42.4	46.6	39.9
52	46.3	39.6	43.5	31.1	30.0	31.4	34.7	37.6	39.1	35.3	42.6	45.8	37.2
53	101.5	82.6	Lost	78.5	47.5	83.4	62.3	71.1	86.4	80.6	83.0	78.5	72.1
54	57.1	52.8	44.4	54.0	40.8	39.1	28.9	38.7	40.6	42.9	54.3	53.0	44.7
55	53.8	44.0	47.4	37.2	33.8	33.8	33.5	32.5	41.2	43.4	50.3	41.2	40.0
56	54.3	49.7	40.0	Lost	30.4	34.4	24.8	32.8	38.6	35.3	41.4	46.4	36.1
57	105.2	52.3	37.0	31.6	30.8	25.0	19.6	23.2	30.2	33.3	45.1	45.7	39.0
58	41.6	38.3	30.7	27.4	28.7	25.7	22.6	28.1	34.7	29.3	42.1	38.5	31.6
59	81.4	40.7	32.8	30.5	26.5	24.1	23.3	27.1	28.7	29.5	41.3	43.4	34.9
60	63.1	61.4	58.1	49.2	Lost	Lost	40.7	47.7	55.6	47.9	54.2	54.7	49.4
61	No data	No data	No data	No data	No data	59.8	53.9	67.7	77.2	66.8	71.4	71.1	62.0
62	65.2	63.1	66.2	56.0	52.2	40.8	28.7	43.8	46.4	54.8	56.7	55.1	48.6
63	44.5	55.0	50.5	50.7	42.3	35.7	36.7	31.7	40.9	42.6	56.2	52.2	41.6
64	49.3	49.5	42.7	47.1	38.3	37.0	24.9	31.4	37.8	35.3	49.6	44.6	39.9
Average (65, 66, 67)													40.4
65	46.9	47.8	44.0	44.3	35.3	39.5	23.1	28.8	38.4	43.8	47.8	60.7	40.9
66	45.5	46.6	44.5	40.7	32.3	36.0	26.1	30.0	46.6	40.3	46.5	56.5	40.2
67	51.8	46.9	44.0	41.9	34.3	33.8	23.8	30.2	41.3	41.5	53.5	48.7	40.2
68	No data	49.6	44.0	44.1	35.3	33.9	28.7	33.3	36.8	39.3	45.5	49.4	39.2
69	48.0	57.5	51.3	39.1	35.4	34.3	32.4	33.6	42.9	35.4	45.9	46.5	38.8

Site ID	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Average - National Bias
70	50.6	46.6	44.0	41.5	35.8	31.8	27.2	29.9	36.5	38.8	46.0	43.0	36.4
71	55.6	57.8	52.3	43.3	44.5	38.3	Lost	42.0	Lost	36.9	50.9	59.4	47.2
72	59.0	64.5	62.1	65.6	63.3	63.2	54.2	65.4	80.4	66.2	68.9	68.6	60.4
73	69.9	70.2	58.5	Lost	46.8	50.3	35.1	34.8	56.6	42.9	55.5	60.2	51.8
Average (74, 75, 76)													70.5
74	75.5	75.7	100.2	78.5	67.3	67.9	82.9	62.0	93.2	72.8	70.5	69.5	70.8
75	87.0	84.2	95.4	71.9	67.3	66.2	83.5	61.9	79.3	81.8	69.8	76.4	71.5
76	70.5	70.6	102.1	81.3	70.8	64.3	85.3	67.9	80.0	73.6	67.3	61.7	69.2
77	85.3	88.8	97.8	92.0	65.2	84.6	Lost	70.5	Lost	54.2	110.7	62.9	75.3
78	56.2	59.7	60.3	50.9	33.3	39.7	37.4	38.5	35.0	56.6	45.8	48.0	45.9
79	50.0	48.2	42.7	39.1	32.2	30.6	27.8	32.8	39.6	41.0	47.6	50.0	39.2
80	47.0	56.5	49.6	50.8	Lost	46.4	35.5	38.4	44.3	49.0	46.9	49.2	45.8
Average (81, 82 ,83, 84)													63.3
81	78.8	74.1	67.6	62.8	64.2	65.7	42.1	Lost	Lost	Lost	Lost	Lost	63.8
82	64.2	80.6	68.1	74.2	61.9	60.0	46.1	50.5	59.0	68.8	76.0	64.6	63.3
83	77.5	Lost	74.3	72.9	62.2	64.5	43.8	53.7	63.8	56.1	80.1	65.5	63.7
84	72.9	79.7	62.7	68.4	65.8	56.3	45.6	52.8	51.8	76.4	65.7	64.8	62.4
Average (85, 86, 87)													64.7
85	No data	No data	No data	81.3	56.8	63.0	60.9	69.6	79.6	65.7	81.3	81.0	65.8

Site ID	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Average - National Bias
86	No data	No data	No data	68.4	61.0	60.1	66.1	76.6	79.8	84.7	77.1	71.1	66.4
87	No data	No data	No data	72.9	60.8	62.2	63.8	62.3	73.3	Lost	59.8	77.7	61.7
88	No data	62.5	72.9	68.0	55.1	61.3	43.5	49.9	56.4	64.8	Lost	55.9	57.9
89	45.1	42.6	42.3	42.2	35.5	33.5	29.4	33.5	40.7	39.0	47.0	54.7	39.7
90	48.3	46.3	44.0	45.2	34.4	37.4	32.3	37.7	42.3	38.1	60.4	58.9	40.6
91	65.3	69.3	68.5	Lost	46.0	47.6	43.6	49.4	51.3	56.6	66.9	46.8	51.5
92	48.5	57.4	43.0	49.2	44.2	37.8	26.5	31.6	36.6	52.5	42.1	46.8	42.0
93	45.5	46.0	35.6	39.3	30.8	30.5	25.1	28.6	30.6	37.7	40.3	47.9	35.6
94	67.9	49.9	58.3	49.6	42.6	42.4	44.7	45.2	54.6	37.3	55.4	48.0	46.1
95	48.8	52.1	45.1	40.9	36.2	37.6	27.2	29.4	34.7	44.3	43.5	48.9	39.8
96	54.5	59.6	63.4	53.0	49.7	50.5	42.8	52.1	50.5	48.6	66.5	55.7	52.9
97	60.1	60.4	61.9	49.8	44.5	47.6	47.5	53.0	51.9	48.3	65.5	61.2	53.3
98	87.3	90.0	74.4	79.6	67.1	95.5	Lost	42.5	87.4	72.8	83.0	81.5	72.6
99	64.5	72.7	62.5	48.4	44.1	48.8	55.0	54.5	58.9	58.6	56.2	38.0	51.2
100	63.6	59.8	57.3	47.0	45.2	50.3	51.3	52.0	55.2	53.2	57.0	73.0	51.4
Average (101, 102, 103)													69.1
101	80.2	90.5	76.9	76.0	66.5	82.6	55.3	70.4	67.1	79.6	No Data	83.7	69.9
102	81.8	92.4	73.0	80.0	69.9	77.3	55.7	72.8	79.6	56.0	68.3	77.7	68.3
103	70.0	92.3	69.0	72.9	73.6	81.0	53.3	71.0	81.2	66.2	67.5	96.3	69.1
104	59.7	65.5	54.7	44.5	45.4	50.5	30.3	43.1	49.1	53.4	58.2	55.5	47.1

Site ID	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Average - National Bias
107	45.0	47.1	37.0	37.4	37.9	32.6	27.3	32.7	40.8	34.0	39.7	41.6	36.9
108	40.5	46.0	36.7	38.4	33.1	32.4	29.7	33.1	31.0	28.8	40.9	36.9	34.9
Average (109, 110, 111)													49.0
109	66.9	66.7	58.9	59.5	55.6	49.7	37.8	40.8	51.3	41.4	49.2	68.4	49.9
110	68.9	69.3	56.8	59.7	53.2	43.4	37.7	45.1	47.2	42.5	56.7	53.4	49.0
111	66.1	66.4	45.9	53.7	52.5	48.5	41.0	43.8	52.0	49.8	51.3	50.1	48.0
112	49.0	54.9	38.6	34.9	36.3	30.4	23.4	29.1	33.6	30.9	48.1	38.9	36.6
113	63.9	77.8	59.8	62.9	45.5	75.5	45.8	57.8	60.1	Lost	77.3	73.6	59.0
114	43.6	49.7	38.6	34.7	Lost	Lost	20.3	28.0	32.4	26.5	41.5	42.5	34.9
115	70.9	67.8	53.6	52.8	61.7	52.1	47.9	47.3	58.7	53.3	59.8	47.2	52.0
116	110.3	57.3	50.7	44.7	46.4	39.5	29.1	36.9	43.3	42.0	47.0	53.5	46.4
118	42.4	45.0	35.3	34.1	29.5	25.5	22.7	26.1	33.1	30.0	35.2	37.9	32.3
119	63.5	63.1	Lost	53.5	31.3	42.2	32.9	41.1	48.5	58.5	Lost	49.8	44.9
Average (120,121, 122)													53.1
120	No data	No data	70.4	75.9	52.5	51.1	43.6	51.0	59.0	58.6	58.7	63.3	54.2
121	No data	No data	61.5	74.4	48.1	50.4	50.5	48.9	59.2	57.0	54.0	56.5	51.9
122	No data	No data	60.9	67.7	53.6	47.0	42.9	51.7	58.2	59.5	64.6	68.5	53.3
123	54.2	60.9	57.2	47.5	22.5	44.3	34.9	37.3	52.5	46.4	51.9	49.5	43.2
124	57.3	57.6	54.2	47.0	42.3	47.0	45.3	45.8	54.5	Lost	62.2	57.8	48.1