

# The London Borough of Hillingdon



Updating and Screening Assessment, 2015

## Document Control

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## Executive Summary

This report fulfils the requirements of the Local Air Quality Management 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.

This document is the London Borough of Hillingdon's sixth Updating and Screening Assessment. Results from monitoring by the Council are presented and sources of air pollution are identified. The USA determines those changes since the last assessment, which could lead to the risk of an air quality objective being exceeded.

The LB of Hillingdon has examined the results from monitoring in the borough. The results from the Updating and Screening Assessment highlight a number of continued exceedences within the existing Air Quality Management Area (AQMA). Concentrations outside of the AQMA remain below the objective. There is no requirement to proceed to a Detailed Assessment for any pollutant.

The Updating and Screening Assessment has not identified any significant changes in emissions sources within the Hillingdon area. There have been a number of new industrial and commercial sources of emissions, but there is no requirement to proceed to a Detailed Assessment at any location.

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## 1 Introduction

### 1.1. Description of Local Authority Area

Hillingdon is, geographically, the second largest local authority in London and has approximately 250,000 residents. Parts of the borough to the north of the A40 are semi-rural, with Ruislip as the district centre. The south of the borough is more densely populated, urban in character, and contains the metropolitan centre of Uxbridge and the towns of Hayes and West Drayton. It also contains numerous important transport links. As well as being home to Heathrow Airport the borough is crossed by the M4 and the A40 and bordered to the west by the M25 and to the east by the A312, attracting traffic into the borough and encouraging traffic to pass through it. These roads generate a significant air pollution burden for the Borough.

### 1.2. Purpose of Report

This report fulfils the requirements of the Local Air Quality Management 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.

The objective of this Updating and Screening Assessment is to identify any matters that have changed which may lead to risk of an air quality objective being exceeded. A checklist approach and screening tools are used to identify significant new sources or changes and whether there is a need for a Detailed Assessment. The USA report should provide an update of any outstanding information requested previously in Review and Assessment reports.

### 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  $\mu\text{g}/\text{m}^3$  (milligrams per cubic metre,  $\text{mg}/\text{m}^3$  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 $\mu\text{g}/\text{m}^3$	Running annual mean	31.12.2003
	5.00 $\mu\text{g}/\text{m}^3$	Running annual mean	31.12.2010
1,3-Butadiene	2.25 $\mu\text{g}/\text{m}^3$	Running annual mean	31.12.2003
Carbon monoxide	10.0 $\text{mg}/\text{m}^3$	Running 8-hour mean	31.12.2003
Lead	0.5 $\mu\text{g}/\text{m}^3$	Annual mean	31.12.2004
	0.25 $\mu\text{g}/\text{m}^3$	Annual mean	31.12.2008
Nitrogen dioxide	200 $\mu\text{g}/\text{m}^3$ not to be exceeded more than 18 times a year	1-hour mean	31.12.2005
	40 $\mu\text{g}/\text{m}^3$	Annual mean	31.12.2005
Particles (PM <sub>10</sub> ) (gravimetric)	50 $\mu\text{g}/\text{m}^3$ , not to be exceeded more than 35 times a year	24-hour mean	31.12.2004
	40 $\mu\text{g}/\text{m}^3$	Annual mean	31.12.2004
Sulphur dioxide	350 $\mu\text{g}/\text{m}^3$ , not to be exceeded more than 24 times a year	1-hour mean	31.12.2004
	125 $\mu\text{g}/\text{m}^3$ , not to be exceeded more than 3 times a year	24-hour mean	31.12.2004
	266 $\mu\text{g}/\text{m}^3$ , not to be exceeded more than 35 times a year	15-minute mean	31.12.2005

#### 1.4. Summary of Previous Review and Assessments

An Air Quality Management Area (AQMA) was declared in 2003 for the exceedences of the nitrogen dioxide annual mean objective, which covers all areas within the borough to the south of the Chiltern-Marylebone railway line (Figure 1.1). The Council later developed an Air Quality Action Plan (LB of Hillingdon, 2004), setting out measures to improve air quality in the Borough. These target emissions from the major sources of road traffic in the borough and also includes measures relating to Heathrow Airport and industrial emissions.

Annual reviews of air quality have shown that levels of nitrogen dioxide (NO<sub>2</sub>) have not changed significantly over recent years. There is however a good record of implementation of the Action Plan measures in areas for which the Council has control. An obvious problem arises because the most important sources in the Borough (the airport and the major road



network) are not under the control of the Council. A summary of previous review and assessment is shown in Table 1.2.

**Table 1.2: Details of Automatic Monitoring Sites**

Round of Assessment	Conclusions
<b>Round 1</b>	Modelling and monitoring indicated that the annual mean NO <sub>2</sub> and 24-hour mean PM <sub>10</sub> would exceed the objectives. In May 2001, an AQMA was declared for these two objectives. However, further modelling indicated that the objectives for PM <sub>10</sub> were being met. Therefore, the original AQMA was revoked and a new AQMA declared only for NO <sub>2</sub> . This AQMA was extended to cover all of the A40 corridor and the Chiltern-Marylebone Railway line.
<b>Round 2</b>	The 2003 USA concluded that exceedances of the annual mean NO <sub>2</sub> AQS objective were still occurring and high concentrations of PM <sub>10</sub> were confined to busy traffic corridors where there was no exposure so there was no requirement for a Detailed Assessment. In 2004 the Council published the final version of the Air Quality Action Plan.
<b>Round 3</b>	Reporting concluded exceedances of the annual mean NO <sub>2</sub> AQS objective were still occurring within the existing AQMA. Outside of the AQMA no exceedances for any pollutants were recorded. No Detailed Assessments were required.
<b>Round 4</b>	Reporting concluded exceedances of the NO <sub>2</sub> annual mean AQS objective were still occurring within the existing AQMA. Outside of the AQMA no exceedances for any pollutants were recorded. No Detailed Assessments were required. A study of pollutants around Heathrow indicated little or no improvement in concentrations over the past few years.
<b>Round 5</b>	The 2012 USA concluded exceedances of the annual mean NO <sub>2</sub> AQS objective were still occurring within the existing AQMA. Outside of the AQMA no exceedances for any pollutants were recorded. No Detailed Assessments were required. The 2013 Progress Report results from both monitoring and assessment of sources in the Borough indicated that outside of the existing AQMA air quality objectives at locations of relevant exposure were being met. Therefore, there was no need to proceed to a Detailed Assessment. The 2014 Progress Report concluded that there were no exceedances of any pollutants outside of the existing AQMA. As such, there was no need for a detailed assessment.

Figure 1.1: Map of AQMA Boundary



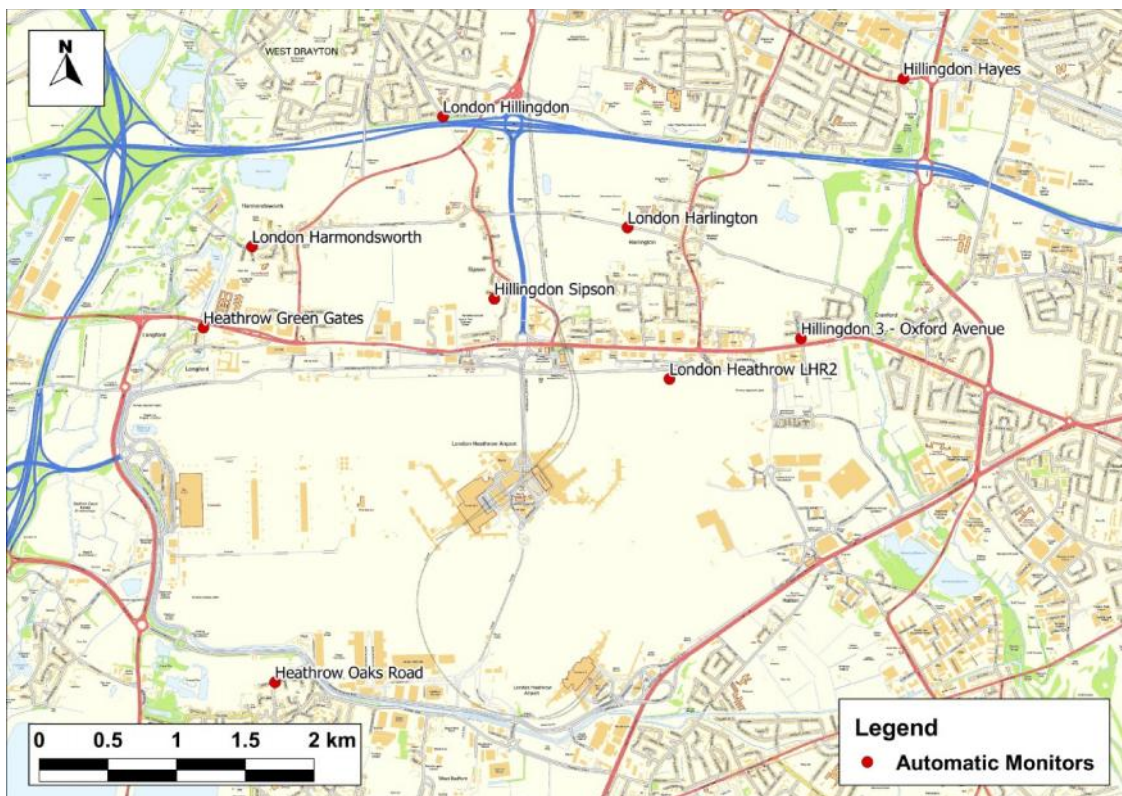
## 2 New Monitoring Data

### 2.1. Summary of Monitoring Undertaken

#### 2.1.1. Automatic Monitoring Sites

There were 9 automatic continuous monitors in operation within the LB of Hillingdon during 2014. London Heathrow LHR2, London Harlington, Heathrow Green Gates and Heathrow Oaks Road form the Heathrow Airport monitoring network (Heathrow Oaks Road is included for completeness, as it is in the District of Spelthorne, but close to the boundary of the LB of Hillingdon). Hillingdon 1 (South Ruislip), Hillingdon 3 (Oxford Avenue), Hillingdon Sipson, London Harmondsworth and Hillingdon Hayes form the Borough monitoring network, whilst London Hillingdon is part of Defra's AURN network. Figure 2.1, Figure 2.2 and Table 2.1 give details of the automatic monitoring sites.

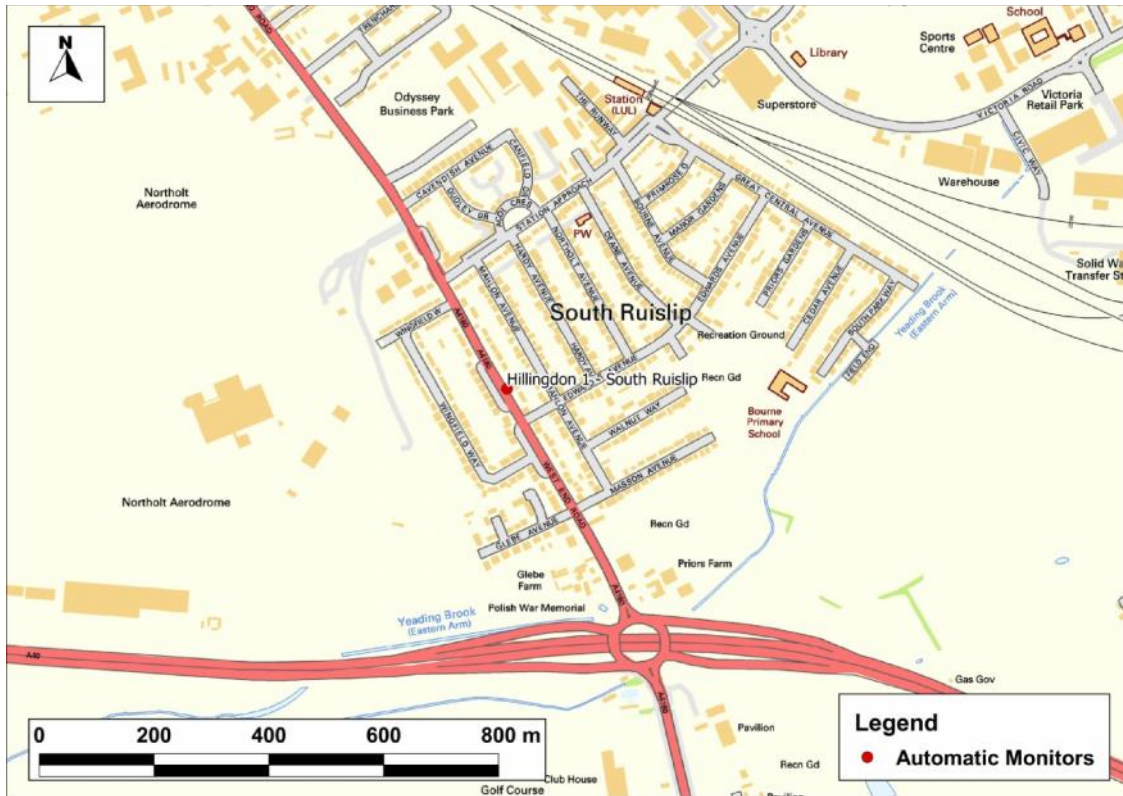
Details of the QA/QC procedures carried out on the automatic monitoring stations are presented in Appendix A.



**Figure 2.1: Map of Automatic Monitoring Sites around Heathrow Airport**

Heathrow Oaks Road is in the District of Spelthorne. It is included as it is close to the southern boundary of the LB of Hillingdon.





**Figure 2.2: Location of the South Ruislip Automatic Monitoring Site**

**Table 2.1: Details of Automatic Monitoring Sites**

Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutants Monitored	In AQMA?	Monitoring Technique	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?
London Heathrow LHR2	Airport	508600	176700	NO <sub>2</sub> , PM <sub>10</sub> , PM <sub>2.5</sub>	Yes	Chemiluminescence TEOM	N	N/A (inside airport)	No
London Hillingdon	Suburban	506951	178605	NO <sub>2</sub> , O <sub>3</sub>	Yes	Chemiluminescence	Y	3m (30m to M4)	Yes
Hillingdon 1 – South Ruislip	Roadside	510857	184917	NO <sub>2</sub> , PM <sub>10</sub>	Yes	Chemiluminescence TEOM	Y (14m)	2.5m	Representative of exposure on this road
Hillingdon 3 – Oxford Avenue	Roadside	509557	176994	NO <sub>2</sub> , PM <sub>10</sub>	Yes	Chemiluminescence TEOM	Y (8m)	18m to A4 Bath Road (5m to Oxford Avenue)	Yes (for emissions from Bath Rd and Airport)
London Harlington	Airport	508295	177800	CO, NO <sub>2</sub> , O <sub>3</sub> , PM <sub>10</sub> , PM <sub>2.5</sub>	Yes	Chemiluminescence TEOM FDMS	N	8m	No (Background location)
Hillingdon Sipson	Urban Background	507325	177282	NO <sub>2</sub>	Yes	Chemiluminescence	Y	9m from nearest residential façade	Yes
London Harmondsworth	Roadside	505561	177661	NO <sub>2</sub> , PM <sub>10</sub>	Yes	Chemiluminescence BAM	Y (20m)	1m	Yes
London Harmondsworth Osiris	Urban Background	505671	177605	PM <sub>10</sub> , PM <sub>2.5</sub> , PM <sub>1</sub>	Yes	Optical	Y	N/A	No
Heathrow Green Gates	Airport	505207	177072	NO <sub>2</sub> , PM <sub>10</sub> , PM <sub>2.5</sub>	Yes	Chemiluminescence TEOM	N	N/A (background for the airport) (62m to airport boundary)	No (Background location)
Heathrow Oaks	Airport	505729	174496	NO <sub>2</sub> , PM <sub>10</sub> ,	Yes	Chemiluminescence	N	5m	No

Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutants Monitored	In AQMA?	Monitoring Technique	Relevant Exposure? <i>(Y/N with distance (m) to relevant exposure)</i>	Distance to kerb of nearest road <i>(N/A if not applicable)</i>	Does this location represent worst-case exposure?
Road <sup>a</sup>				PM <sub>2.5</sub>		TEOM			
Hillingdon Hayes	Roadside	510303	178882	NO <sub>2</sub> , PM <sub>10</sub>	Yes	Chemiluminescence BAM	Y (15m)	5m	Yes

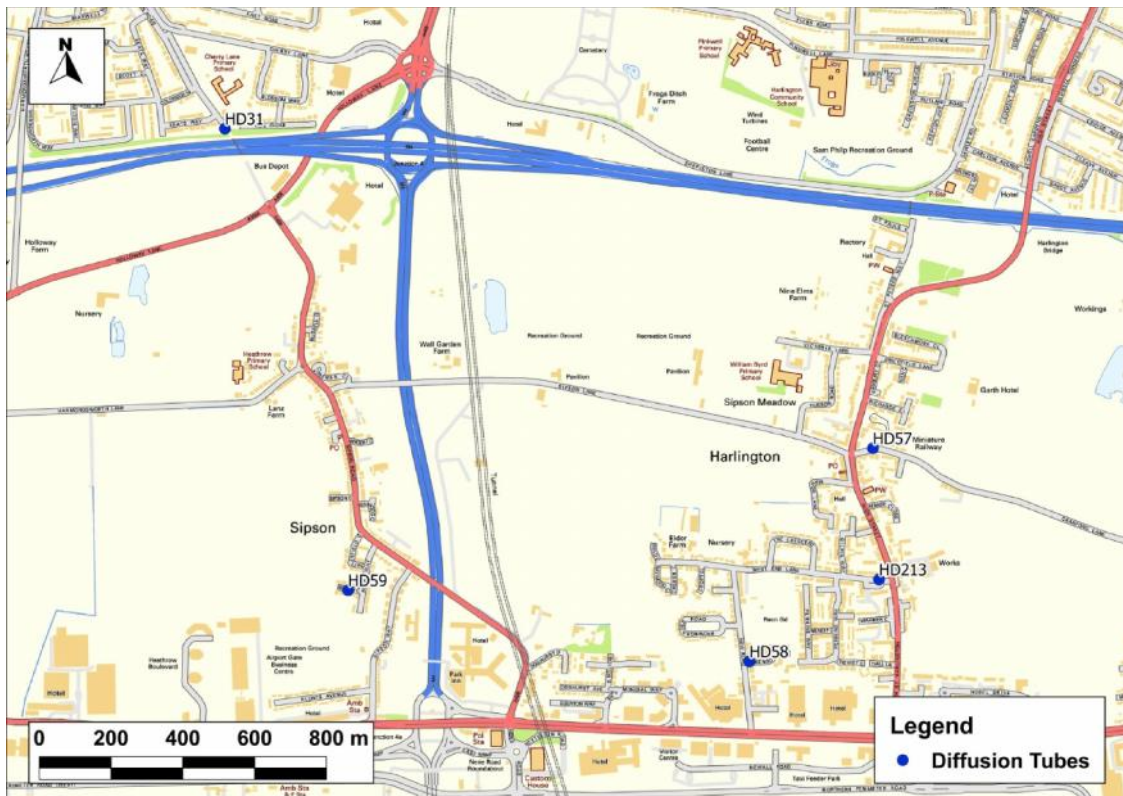
<sup>a</sup> This site is in the District of Spelthorne. It is included as it is close to the southern boundary of the LB of Hillingdon.

### 2.1.2. Non-Automatic Monitoring Sites

The LB of Hillingdon also monitored annual mean concentrations of nitrogen dioxide using passive diffusion tubes at 39 locations across the borough during 2014. Co-location studies have been undertaken at two of the automatic monitors (a triplicate study at London Hillingdon and a duplicate study at Hillingdon 1 – South Ruislip).

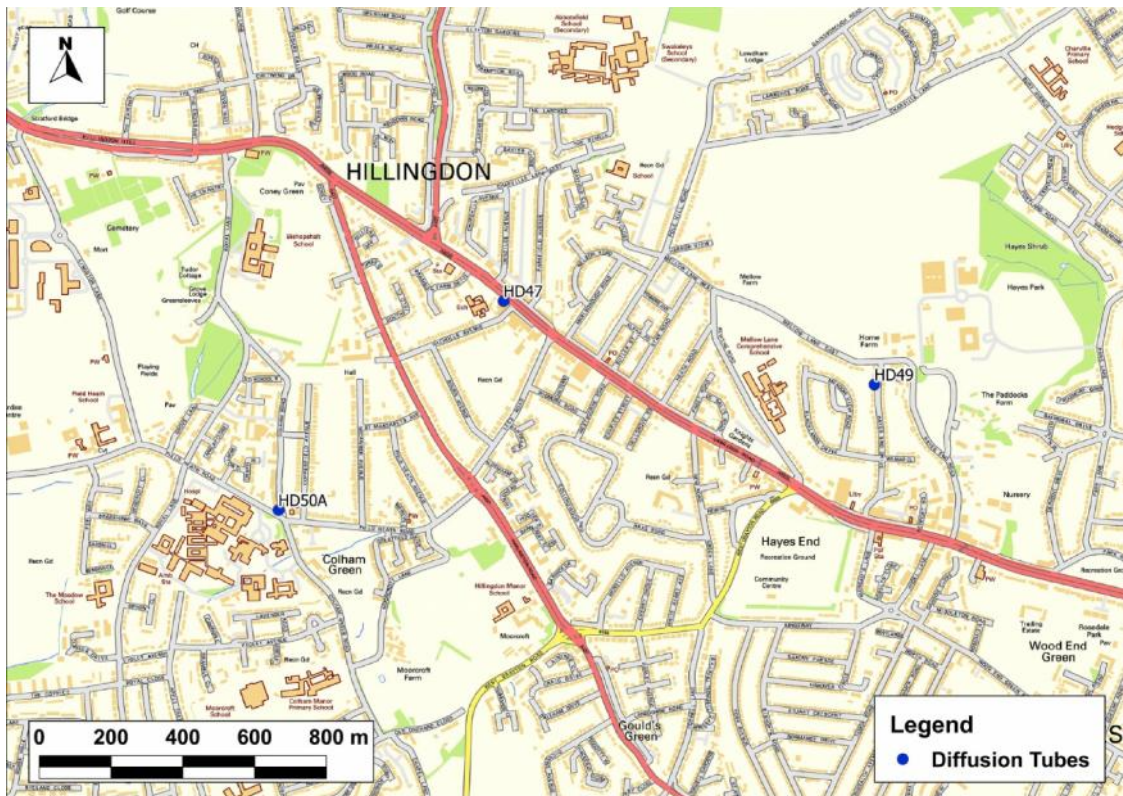
The 2013 diffusion tube network described in the 2014 Progress Report remained in place across the borough during 2014 with the commencement of monitoring at two additional sites within the grounds of Botwell Primary School in 2014.

The locations of the diffusion tube monitoring sites in operation during 2014 are shown in Figure 2.3 to Figure 2.12. Details of the sites are provided in Table 2.2.

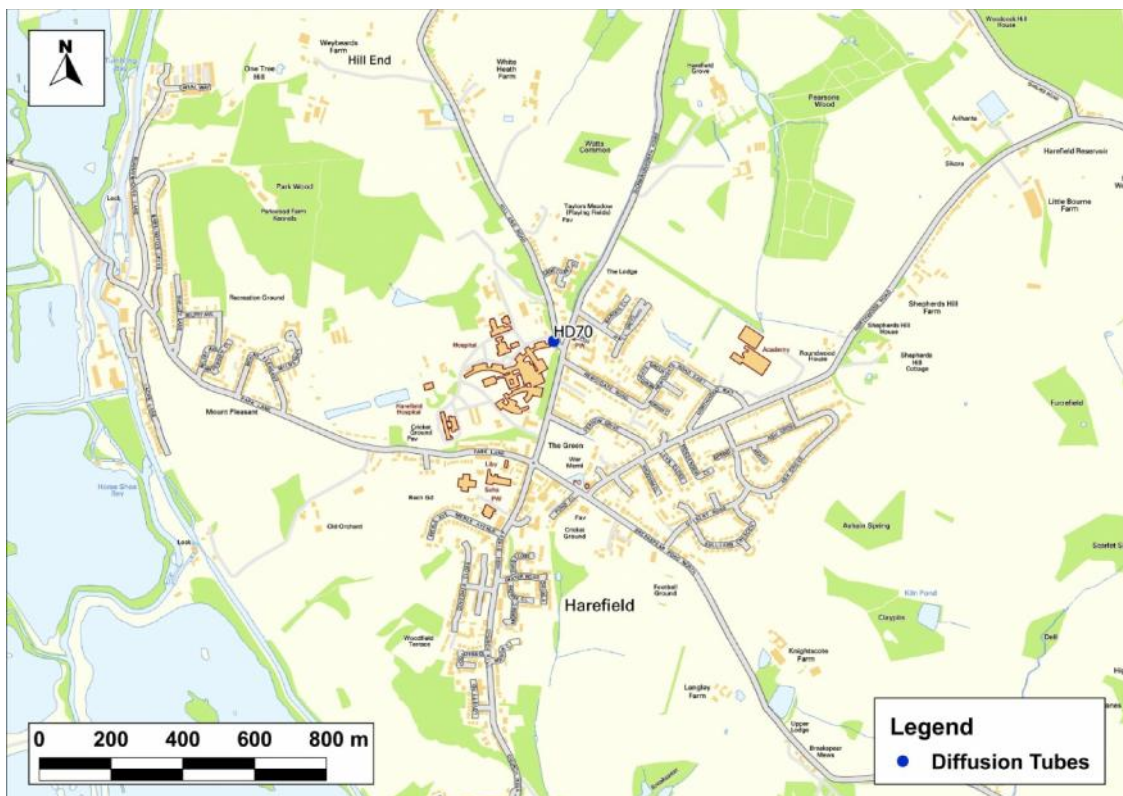


**Figure 2.3: Map of Non-Automatic Monitoring Sites in Harlington and Sipson**



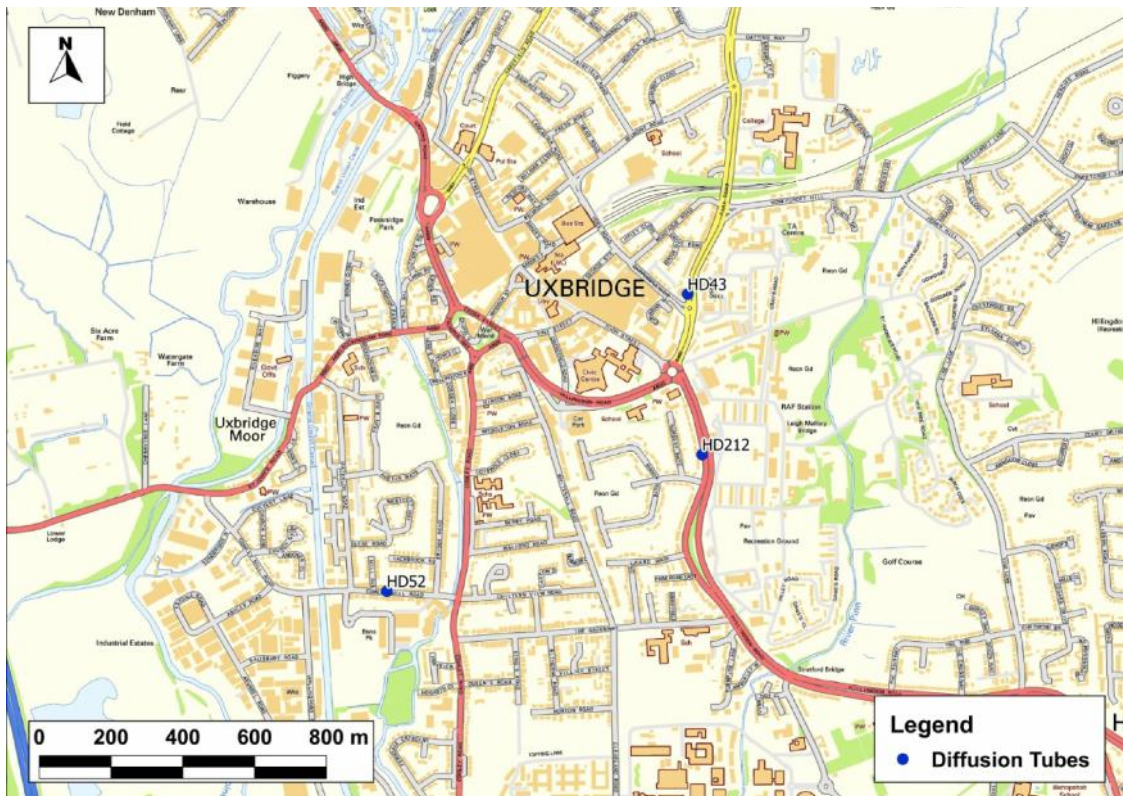


**Figure 2.4: Map of Non-Automatic Monitoring Sites in Hillingdon**

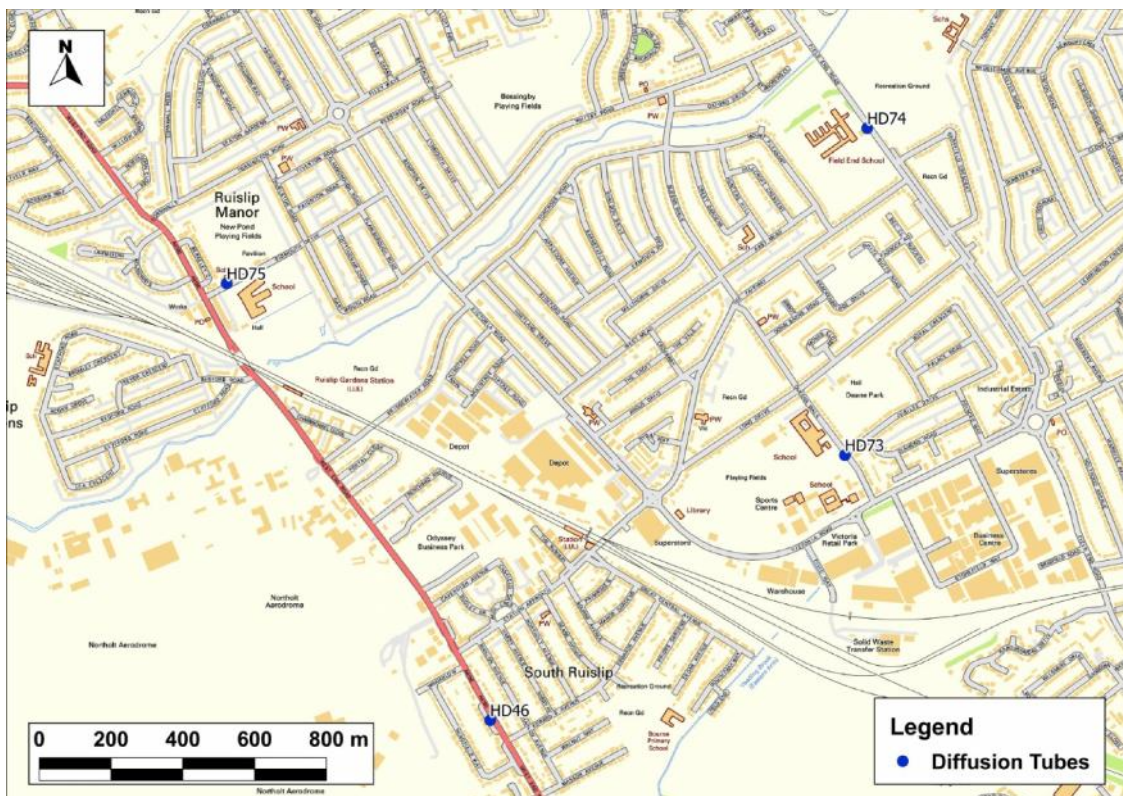


**Figure 2.5: Map of Non-Automatic Monitoring Sites in Harefield**



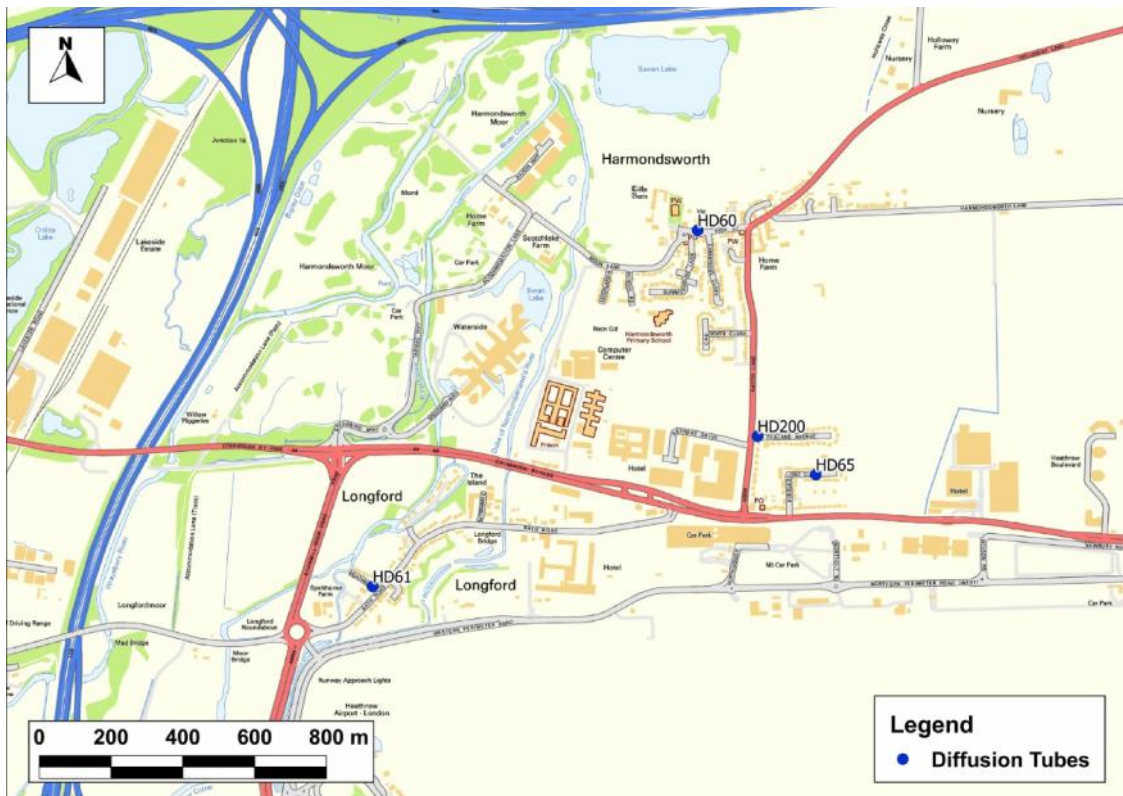


**Figure 2.6: Map of Non-Automatic Monitoring Sites in Uxbridge**

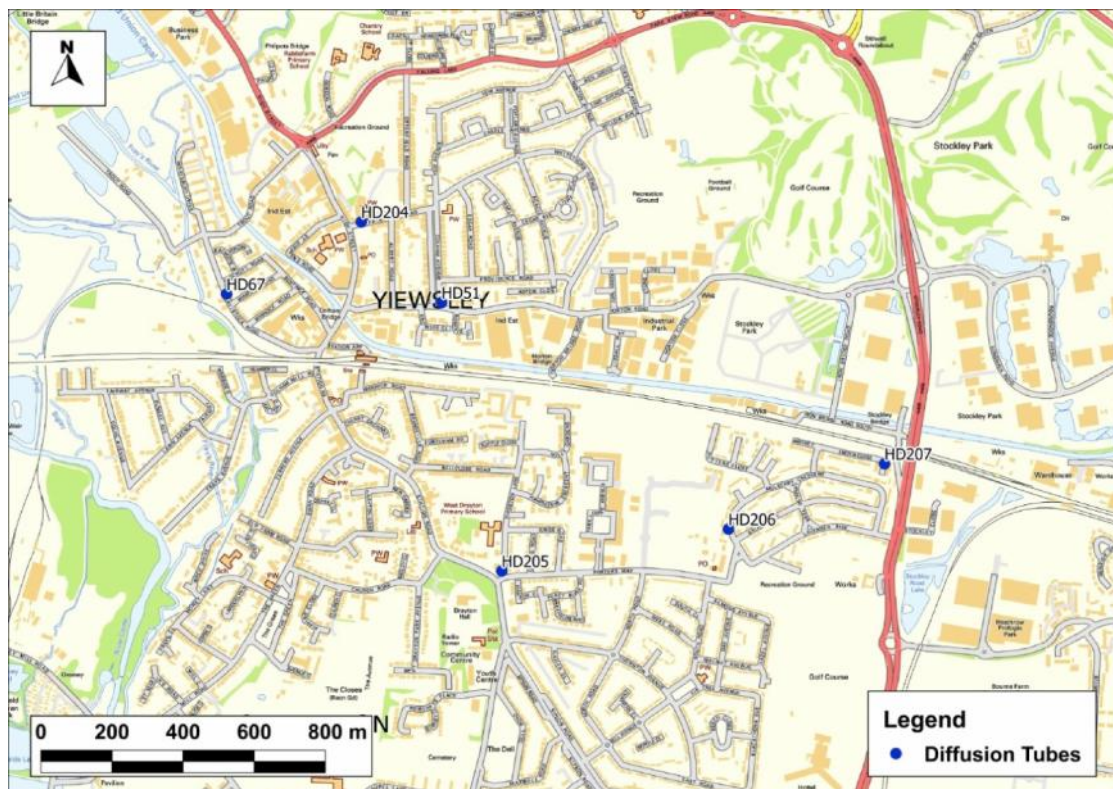


**Figure 2.7: Map of Non-Automatic Monitoring Sites in South Ruislip**



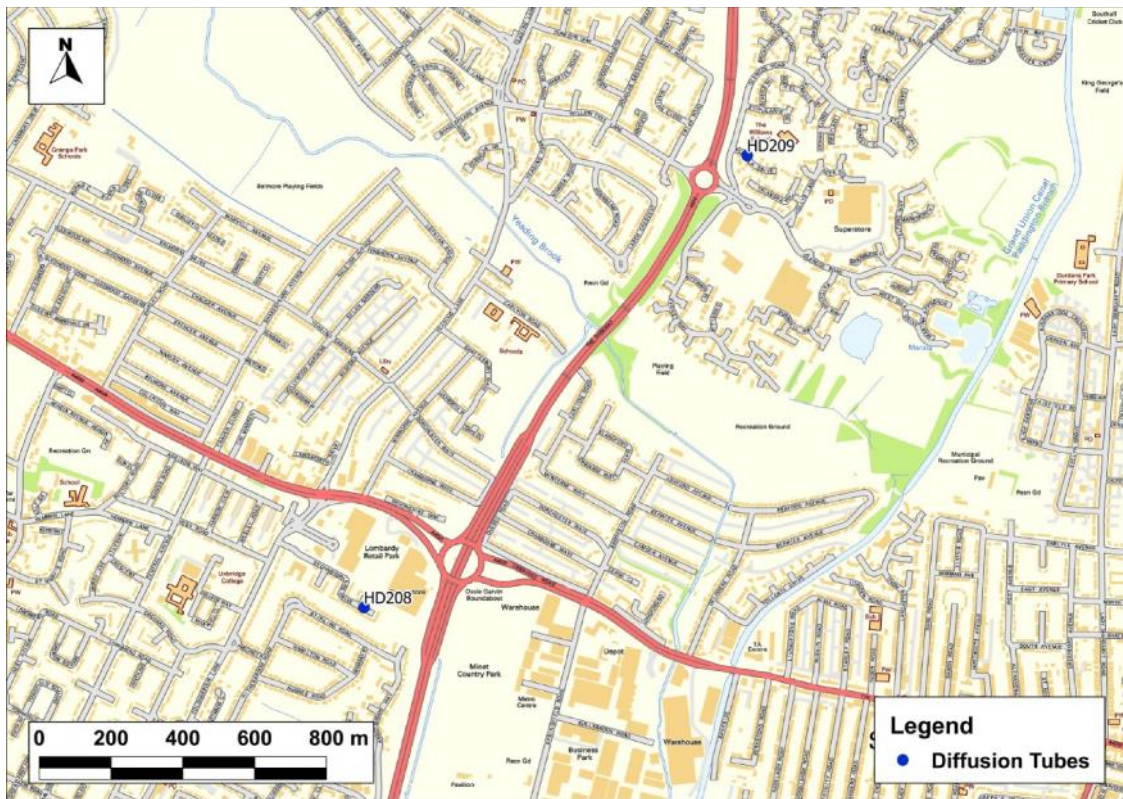


**Figure 2.8: Map of Non-Automatic Monitoring Sites in Harmondsworth and Longford**





**Figure 2.9: Map of Non-Automatic Monitoring Sites in Yiewsley**



**Figure 2.10: Map of Non-Automatic Monitoring Sites in Hayes**

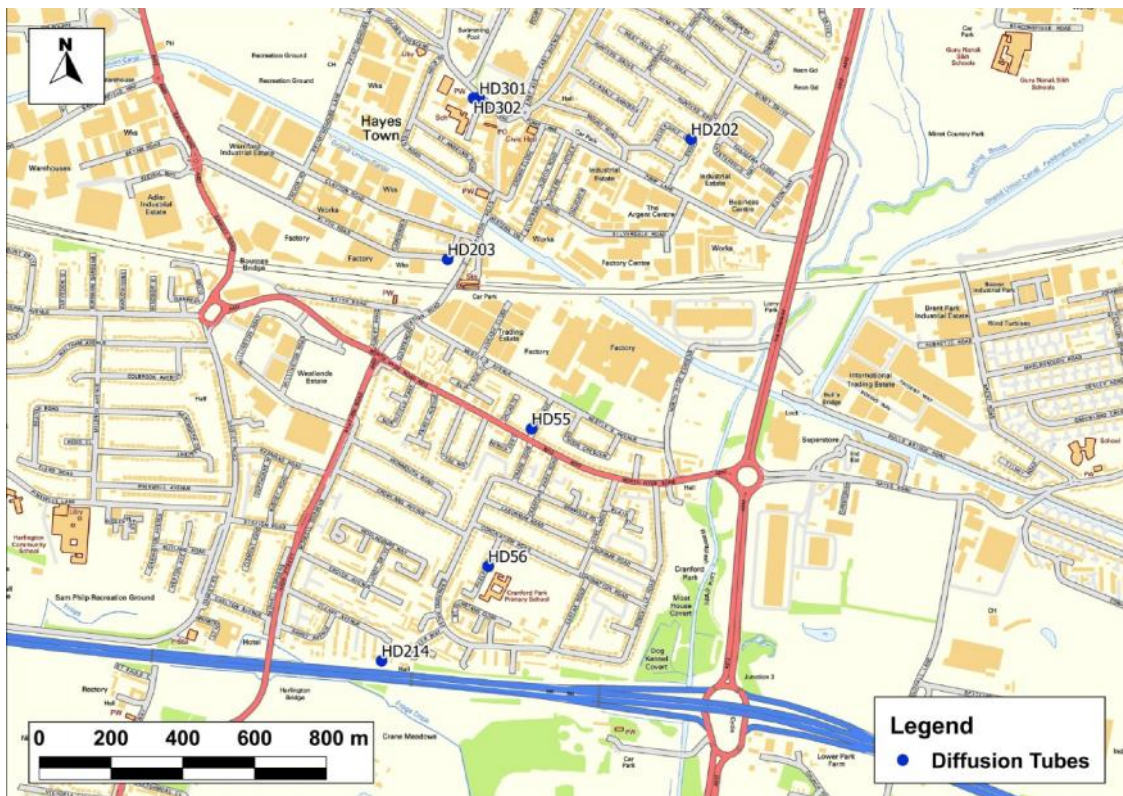




Figure 2.11: Map of Non-Automatic Monitoring Sites in Hayes

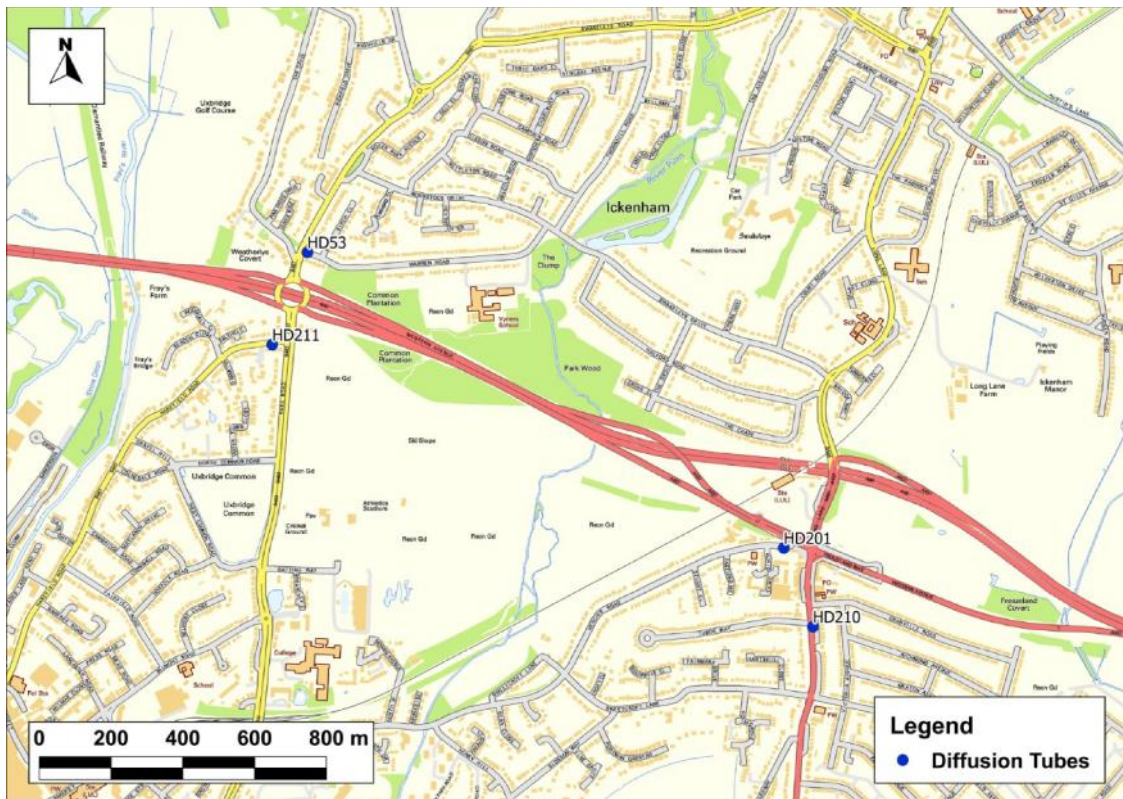


Figure 2.12: Map of Non-Automatic Monitoring Sites in Ickenham

**Table 2.2: Details of Non-Automatic Monitoring Sites**

Site ID	Location	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutants Monitored	In AQMA ?	Co-located with a Continuous Analyser? (Y/N)	Relevant Exposure? (distance to exposure)	Distance to kerb of nearest road	Does this location represent Worst-case exposure?
HD31	AURN Monitoring Station, Sipson	Roadside	506951	178605	NO <sub>2</sub>	Y	Y	Yes (0m)	30m from M4	Co-location site
HD43	Uxbridge Day Nursery, Park Road, Uxbridge (on wire Fence)	Roadside	505995	184057	NO <sub>2</sub>	Y	N	Yes (0m)	4m	Yes
HD46	South Ruislip Monitoring Station, West End Road	Suburban	510837	184917	NO <sub>2</sub>	Y	Y	Yes (14m)	2.5m	Representative of a road
HD47	Hillingdon Primary School, Uxbridge Road, Hillingdon (on wire fence)	Roadside	507617	182506	NO <sub>2</sub>	Y	N	Yes (0m)	5m	Representative of a road
HD49	83 Hayes End Drive, Hayes End, Middlesex (on drain pipe)	Background	508650	182274	NO <sub>2</sub>	Y	N	Yes (7m)	7m	No-background
HD50A	Hillingdon Hospital Monitoring Station, Colham Road (Near John Rich House on former junction to Pield Heath Road)	Roadside	506990	181925	NO <sub>2</sub>	Y	N	Yes (7m)	2m	Representative of a street
HD51	Top of Colham Avenue (4), Yiewsley (lamp post at end of road)	Background	506334	180266	NO <sub>2</sub>	Y	N	Yes (0m)	4m	Yes-nearest residential to busy road

Site ID	Location	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutants Monitored	In AQMA ?	Co-located with a Continuous Analyser? (Y/N)	Relevant Exposure? (distance to exposure)	Distance to kerb of nearest road	Does this location represent Worst-case exposure?
HD52	Lamp post near 101 Cowley Mill Road, Uxbridge	Background	505157	183231	NO <sub>2</sub>	Y	N	Yes (95m)	1m	Representative of a road
HD53	Warren Road, Ickenham, Uxbridge (1st lamp post on left)	Background	506241	185652	NO <sub>2</sub>	Y	N	Yes (1m)	23m	Yes-nearest residential to busy road
HD55	Harold Avenue, (first lamp post on left)	Roadside	509917	179015	NO <sub>2</sub>	Y	N	Yes (4m)	30m	Yes-nearest residential to busy road
HD56	15 Phelps Way, Hayes (lamp post outside of)	Background	509796	178633	NO <sub>2</sub>	Y	N	Yes (7m)	1.5m	Representative of a road
HD57	25 Cranford Lane, Harlington (lamp post on the left after car park)	Background	508756	177717	NO <sub>2</sub>	Y	N	Yes (7m)	1m	Yes-nearest residential to busy road
HD58	Brendan Close, Harlington (1st lamp post on the left)	Background	508412	177124	NO <sub>2</sub>	Y	N	Yes (0m)	1m	Representative of a road
HD59	Bomber Close (7), Sipson (1st lamp post on left)	Background	507294	177322	NO <sub>2</sub>	Y	N	Yes (8m)	1m	Representative of a road
HD60	Harmonsworth Green, Harmondsworth (lamp post outside nursery)	Background	505753	177760	NO <sub>2</sub>	Y	N	Yes (0m)	1m	Representative of a street
HD61	Heathrow Close, Longford (1st lamp post on the right)	Background	504848	176770	NO <sub>2</sub>	Y	N	Yes (0m)	2m	Representative of a street

Site ID	Location	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutants Monitored	In AQMA ?	Co-located with a Continuous Analyser? (Y/N)	Relevant Exposure? (distance to exposure)	Distance to kerb of nearest road	Does this location represent Worst-case exposure?
HD65	28 Pinglestone Close, Sipson, Middlesex (on drainpipe)	Background	506082	177081	NO <sub>2</sub>	Y	N	Yes (0m)	4m	Representative of a street
HD67	31 Tavistock Road (on lamp-post outside house)	Background	505729	180290	NO <sub>2</sub>	Y	N	Yes (3m)	1m	Representative of a street
HD70	Harefield Hospital, Hill End Road (lamp-post outside entrance)	Background	505291	190935	NO <sub>2</sub>	N	N	Yes (0m)	5m	Representative of a street
HD73	Queensmead School, South Ruislip. (lamp-post opposite Jubilee Drive) (outside AQMA)	Background	511825	185655	NO <sub>2</sub>	N	N	Yes (0m)	1m	Representative of a street
HD74	Field End Road/Field End School, S.Ruislip. 3rd Lamp-post south of school entrance (outside AQMA)	Roadside	511887	186565	NO <sub>2</sub>	N	N	Yes (8m)	1m	Yes
HD75	Sidmouth Drive, South Ruislip (2nd lamp-post from West End Road outside Nursery) (outside AQMA)	Background	510103	186133	NO <sub>2</sub>	N	N	Yes (4m)	2m	Yes - nearest receptor to busy road
HD200	49 Zealand Avenue Lamp Post	Roadside	505920	177188	NO <sub>2</sub>	Y	N	Yes (8m)	13m	Yes
HD201	Near 3 Hercies Road, Lamp Post	Roadside	507568	184830	NO <sub>2</sub>	Y	N	Yes (3m)	1m	Yes

Site ID	Location	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutants Monitored	In AQMA ?	Co-located with a Continuous Analyser? (Y/N)	Relevant Exposure? (distance to exposure)	Distance to kerb of nearest road	Does this location represent Worst-case exposure?
HD202	49 Silverdale Gardens, Hayes Lamp Post	Background	510361	179820	NO <sub>2</sub>	Y	N	Yes (9m)	14m	Yes
HD203	Blyth Road, Hayes Lamp Post	Roadside	509683	179486	NO <sub>2</sub>	Y	N	Yes (6m)	2m	No
HD204	Side of 104 Yiewsley High Street (front of 1A Fairfield Road) Lamp Post	Background	506108	180493	NO <sub>2</sub>	Y	N	Yes (9m)	37m	No
HD205	1 Porters Way (corner with Kingston Lane) Lamp Post	Background	506503	179510	NO <sub>2</sub>	Y	N	Yes (12m)	9m	No
HD206	5-7 Mulberry Crescent, West Drayton Lamp Post	Background	507141	179628	NO <sub>2</sub>	Y	N	Yes (10m)	2m	No
HD207	35 Emden Close, West Drayton Lamp Post	Background	507580	179812	NO <sub>2</sub>	Y	N	Yes (7m)	60m	No
HD208	Side of 50 St. Christopher's Drive Lamp Post	Background	510761	180766	NO <sub>2</sub>	Y	N	Yes (5m)	180m	No
HD209	29 Pendula Drive, Hayes Lamp Post	Background	511828	182023	NO <sub>2</sub>	Y	N	Yes (10m)	79m	No
HD210	340 Long Lane, Uxbridge Lamp Post	Roadside	507649	184611	NO <sub>2</sub>	Y	N	Yes (18m)	2m	Yes
HD211	198 Harefield Road, Uxbridge Lamp Post	Background	506143	185395	NO <sub>2</sub>	Y	N	Yes (9m)	33m	No
HD212	59 Hillingdon Road,	Roadside	506035	183611	NO <sub>2</sub>	Y	N	Yes (12m)	1.5m	Yes



Site ID	Location	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutants Monitored	In AQMA ?	Co-located with a Continuous Analyser? (Y/N)	Relevant Exposure? (distance to exposure)	Distance to kerb of nearest road	Does this location represent Worst-case exposure?
	Uxbridge Lamp Post									
HD213	10 West End Lane, Harlington Lamp Post	Background	508773	177352	NO <sub>2</sub>	Y	N	Yes (11m)	33m	No
HD214	R/O 130 Cleave Avenue, Hayes Lamp Post	Background	509499	178370	NO <sub>2</sub>	Y	N	Yes (18m)	27m	No
HD301	Botwell House RC Primary School (Other Sign)	Roadside	509771	179934	NO <sub>2</sub>	Y	N	Yes (10m)	3m	Representative of a road
HD302	Botwell House RC Primary School (Side-fence)	Background	509755	179934	NO <sub>2</sub>	Y	N	Yes (10m)	N/A	No

## 2.2. Comparison of Monitoring Results with AQ Objectives

### 2.2.1. Nitrogen Dioxide

#### Automatic Monitoring Data

Table 2.3 shows the annual mean concentrations of nitrogen dioxide at all automatic monitors within the borough, with exceedences of the annual mean objective highlighted in bold. A comparison of the number of exceedences of the hourly mean nitrogen dioxide objective at each site is provided in Table 2.4. Data capture was greater than 75% at all sites, with the exception of the Oxford Avenue automatic monitor which only recorded data for 46% of the year in 2014. As such, the data for the period of operation at the Oxford Avenue monitor have been annualised following the procedure outlined in Appendix A1.

Exceedences of the annual mean nitrogen dioxide objective have consistently been, and continue to be, recorded at the Heathrow LHR2, London Hillingdon, South Ruislip and Hillingdon Hayes sites. The annual nitrogen dioxide concentrations for the last five years are shown in Figure 2.13 for all the automatic monitoring sites in the borough. There are no clear trends in the data, with concentrations at most sites remaining stable over the time period. The hourly mean nitrogen dioxide objective has not been exceeded at any of the sites in the last five years.

**Table 2.3: Results of Automatic Monitoring of Nitrogen Dioxide: Comparison with Annual Mean Objective (2010 – 2014)**

Site ID	Site Type	Within AQMA?	Valid Data Capture 2014 % <sup>a</sup>	Annual Mean Concentration –g/m <sup>3</sup>				
				2010 <sup>b</sup>	2011 <sup>b</sup>	2012 <sup>b</sup>	2013 <sup>b</sup>	2014
London Heathrow LHR2	Airport	Y	95.3	49.6	52	47.7	47.9	46.4
London Hillingdon	Suburban	Y	98.1	53.6	55	57.1	52.8	57.5
Hillingdon 1 – South Ruislip	Roadside	Y	97.6	46.9	42	52.0	45.0	44.4
Hillingdon 3 – Oxford Avenue	Roadside	Y	46.1	41.0	44	44.0	39.2	36.7 <sup>c</sup>
London Harlington	Airport	Y	95.2	34.5	34	34.5	37.1	36.5
Hillingdon Sipson	Urban Background	Y	99.1	38.3	37	35.2	36.5	36.6
London Harmondsworth	Roadside	Y	96.5	30.5	31	31.8	30.4	29.2 <sup>d</sup>
Heathrow Green Gates	Airport	Y	96.7	41.2	35	33.4	33.5	35.1
Heathrow Oaks Road	Airport	Y	99.3	37.2	39	30.3	34.2	32.6
Hillingdon Hayes	Roadside	Y	95.3	54.3	55	45.9	47.0	52.9
<b>Objective</b>				<b>40</b>				

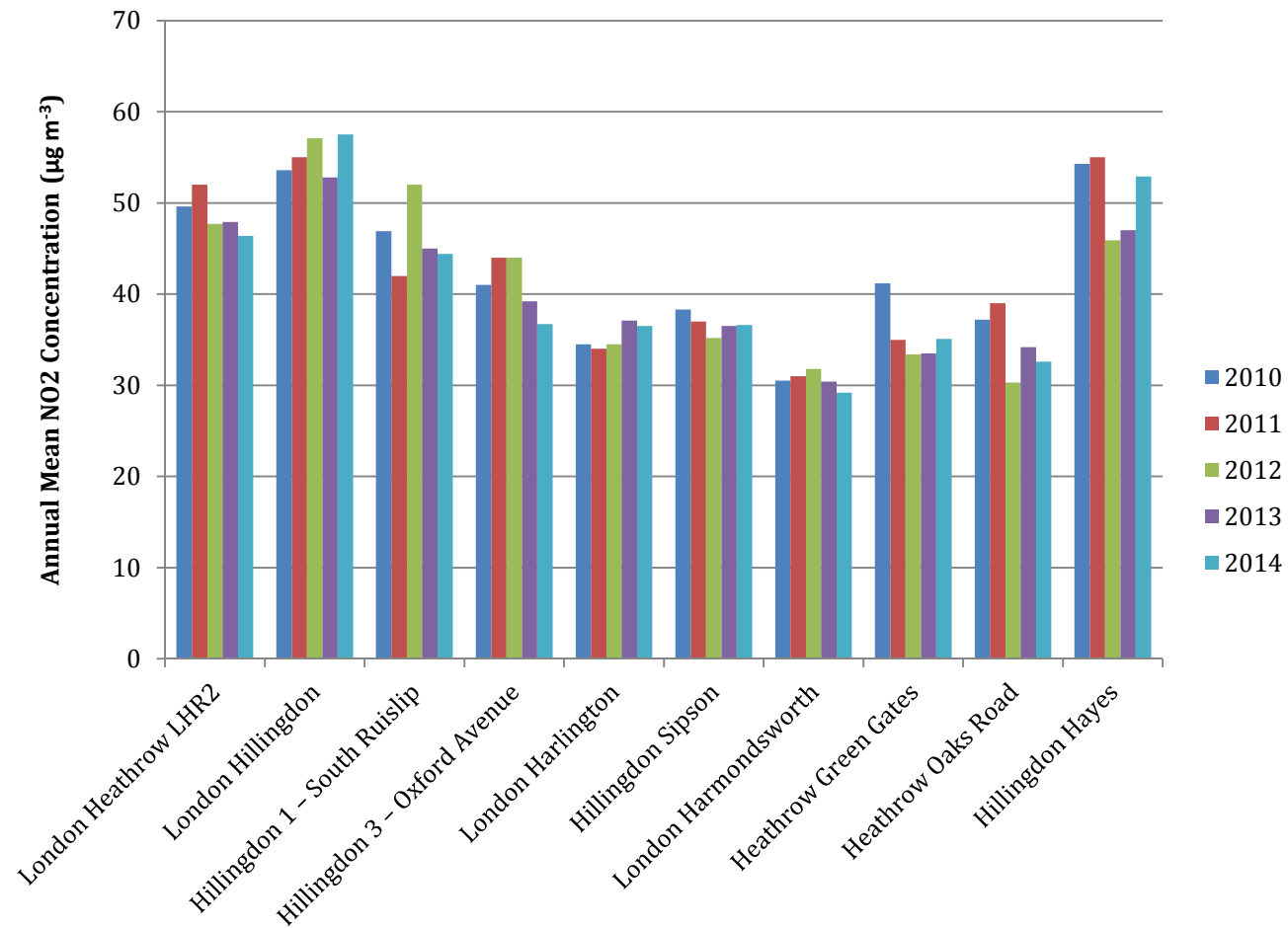
<sup>a</sup> i.e. data capture for the full calendar year (e.g. if monitoring was carried out for six months the maximum data capture for the full calendar year would be 50%.)

<sup>b</sup> Data for previous years taken from the latest Progress Report (LB of Hillingdon, 2014).

<sup>c</sup> Has been “annualised” as in Box 3.2 of TG(09) due to low data capture.

<sup>d</sup> Result is provisional for the period 01/07/14 to 31/12/14.

**Figure 2.13: Trends in Annual Mean Nitrogen Dioxide Concentrations measures at Automatic Monitoring Sites (2010-2014)**



**Table 2.4: Results of Automatic Monitoring for Nitrogen Dioxide: Comparison with 1-hour mean Objective (2010 – 2014)**

Site ID	Site Type	Within AQMA ?	Valid Data Capture 2014 % <sup>a</sup>	Number of Exceedences of Hourly Mean (200 ~g/m <sup>3</sup> ) <sup>b</sup>				
				2010 <sup>c</sup>	2011 <sup>c</sup>	2012 <sup>c</sup>	2013 <sup>c</sup>	2014
London Heathrow LHR2	Airport	Y	95.3	2 (154)	0	0	3	0
London Hillingdon	Suburban	Y	98.1	0	0	0	0	0
Hillingdon 1 – South Ruislip	Roadside	Y	97.6	7	0	14	0	0
Hillingdon 3 – Oxford Avenue	Roadside	Y	46.1	1 (142)	0	0 (124)	1 (132)	0 (124)
London Harlington	Airport	Y	95.2	0	0	0	5 (172)	0
Hillingdon Sipson	Urban background	Y	99.1	0	0	0	0	0
London Harmondsworth	Roadside	Y	96.5	0 (101)	0	0 (123)	0	0 <sup>d</sup>
Heathrow Green Gates	Airport	Y	96.7	0	0	0	0	0
Heathrow Oaks Road	Airport	Y	99.3	0	0	0	0	0
Hillingdon Hayes	Roadside	Y	95.3	15	15	2	4	2
<b>Objective</b>				<b>18</b>				

<sup>a</sup> i.e. data capture for the full calendar year (e.g. if monitoring was carried out for six months the maximum data capture for the full calendar year would be 50%.)

<sup>b</sup> If the period of valid data is less than 90%, include the 99.8<sup>th</sup> percentile of hourly means in brackets.

<sup>c</sup> Data for previous years taken from the latest Progress Report (LB of Hillingdon, 2014).

<sup>d</sup> Data is provisional for the period 01/07/14 to 31/12/14.

### **Diffusion Tube Monitoring Data**

The nitrogen dioxide diffusion tube data for 2014 are summarised in Table 2.5. The full dataset (monthly mean values) are included in Appendix B. The results were multiplied by a bias adjustment factor of 0.97, which was obtained from the latest version of the national database of co-location studies for tubes prepared and analysed by Gradko International (50% TEA in acetone) during 2014.

Data capture of less than 9 months occurred at three of the sites (HD59, HD60 and HD207). It has not been possible to annualise the data recorded at these sites as the diffusion tube changeover dates were not available at the time of preparation of this report. Exceedences of the annual mean nitrogen dioxide objective were recorded at 13 of the diffusion tube sites, all of which lie within the existing AQMA. None of the sites experienced annual mean concentrations exceeding  $60 \mu\text{g}/\text{m}^3$ , which would be indicative of potential exceedences of the hourly mean nitrogen dioxide objective.

Results for the last five years are presented in Table 2.6. Of the sites with five years of continuous data, there are no clear trends at any of the sites with concentrations recorded at most sites remaining stable.

**Table 2.5: Results of Nitrogen Dioxide Diffusion Tubes in 2014**

Site ID	Site Type	Within AQMA?	Triplicate or Co-located Tube?	Data capture 2014 (Number of Months)	Data with less than 9 months has been annualised (Y/N)	Confirm if data has been distance corrected (Y/N)	Annual mean concentration (Bias Adjustment factor = 0.97)
							2014 (-g/m <sup>3</sup> )
HD31	Roadside	Y	Triplicate and Co-located	12 months	n/a	N	<b>46.8</b>
HD43	Roadside	Y	N	10 months	n/a	N	<b>45.9</b>
HD46	Roadside	Y	Duplicate and Co-located	12 months	n/a	N	<b>46.2</b>
HD47	Roadside	Y	N	10 months	n/a	N	32.1
HD49	Background	Y	N	12 months	n/a	N	26.2
HD50A	Roadside	Y	N	12 months	n/a	N	<b>42.1</b>
HD51	Background	Y	N	12 months	n/a	N	36.3
HD52	Background	Y	N	12 months	n/a	N	37.2
HD53	Background	Y	N	12 months	n/a	N	<b>46.4</b>
HD55	Roadside	Y	N	10 months	n/a	N	39.6
HD56	Background	Y	N	10 months	n/a	N	35.0
HD57	Background	Y	N	12 months	n/a	N	39.5
HD58	Background	Y	N	12 months	n/a	N	<b>41.7</b>
HD59	Background	Y	N	6 months	N	N	33.3 <sup>a</sup>
HD60	Background	Y	N	6 months	N	N	31.6 <sup>a</sup>
HD61	Background	Y	N	11 months	n/a	N	36.9
HD65	Background	Y	N	12 months	n/a	N	33.7

Site ID	Site Type	Within AQMA?	Triplicate or Co-located Tube?	Data capture 2014 (Number of Months)	Data with less than 9 months has been annualised (Y/N)	Confirm if data has been distance corrected (Y/N)	Annual mean concentration (Bias Adjustment factor = 0.97)
							2014 (~g/m <sup>3</sup> )
HD67	Background	Y	N	10 months	n/a	N	30.4
HD70	Background	N	N	11 months	n/a	N	23.5
HD73	Background	N	N	11 months	n/a	N	27.8
HD74	Roadside	N	N	11 months	n/a	N	29.1
HD75	Background	N	N	12 months	n/a	N	28.4
HD200	Roadside	Y	N	12 months	n/a	N	<b>40.4</b>
HD201	Roadside	Y	N	10 months	n/a	N	<b>42.3</b>
HD202	Background	Y	N	10 months	n/a	N	35.1
HD203	Roadside	Y	N	9 months	n/a	N	<b>46.3</b>
HD204	Background	Y	N	11 months	n/a	N	39.3
HD205	Background	Y	N	11 months	n/a	N	<b>41.5</b>
HD206	Background	Y	N	11 months	n/a	N	34.6
HD207	Background	Y	N	8 months	N	N	37.7 <sup>a</sup>
HD208	Background	Y	N	12 months	n/a	N	30.2
HD209	Background	Y	N	12 months	n/a	N	33.3
HD210	Roadside	Y	N	12 months	n/a	N	<b>50.4</b>
HD211	Background	Y	N	11 months	n/a	N	38.4
HD212	Roadside	Y	N	12 months	n/a	N	<b>44.9</b>
HD213	Background	Y	N	11 months	n/a	N	39.4



Site ID	Site Type	Within AQMA?	Triplicate or Co-located Tube?	Data capture 2014 (Number of Months)	Data with less than 9 months has been annualised (Y/N)	Confirm if data has been distance corrected (Y/N)	Annual mean concentration (Bias Adjustment factor = 0.97)
							2014 (~g/m <sup>3</sup> )
HD214	Background	Y	N	12 months	n/a	N	50.0
HD301	Roadside	Y	N	10 months	n/a	N	38.9
HD302	Background	Y	N	12 months	n/a	N	38.5
<b>Objective</b>							<b>40</b>

<sup>a</sup> Annual mean concentrations based on diffusion tube data at sites with less than 9 months of data capture have not been annualised as diffusion tube changeover dates were not available at the time of preparation of this report.

**Table 2.6: Results of Nitrogen Dioxide Diffusion Tubes (2010 to 2014)**

Site ID	Site Type	Within AQMA?	Annual mean concentration (adjusted for bias) ~g/m <sup>3</sup>				
			2010 (Bias Adjustment Factor = 0.99) <sup>a</sup>	2011 (Bias Adjustment Factor = 0.93) <sup>a</sup>	2012 (Bias Adjustment Factor = 1.01) <sup>a</sup>	2013 (Bias Adjustment Factor = 1.00) <sup>a</sup>	2014 (Bias Adjustment Factor = 0.97)
HD31	Roadside	Y	44.9	44.7	46.3	43.0	46.8
HD43	Roadside	Y	49.7	43.4	45.2	47.1	45.9
HD46	Roadside	Y	47.3	42.4	46.5	45.4	46.2
HD47	Roadside	Y	34.3	30.0	31.1	32.8	32.1
HD49	Background	Y	27.0	25.6	25.8	25.2	26.2
HD50A	Roadside	Y	-	-	40.7	39.4	42.1

Site ID	Site Type	Within AQMA?	Annual mean concentration (adjusted for bias) ~g/m <sup>3</sup>				
			2010 (Bias Adjustment Factor = 0.99) <sup>a</sup>	2011 (Bias Adjustment Factor = 0.93) <sup>a</sup>	2012 (Bias Adjustment Factor = 1.01) <sup>a</sup>	2013 (Bias Adjustment Factor = 1.00) <sup>a</sup>	2014 (Bias Adjustment Factor = 0.97)
HD51	Background	Y	34.2	33.1	36.2	34.0	36.3
HD52	Background	Y	36.2	33.3	37.0	38.1	37.2
HD53	Background	Y	<b>41.0</b>	<b>40.5</b>	<b>44.6</b>	<b>40.3</b>	<b>46.4</b>
HD55	Roadside	Y	<b>40.2</b>	37.8	38.0	38.5	39.6
HD56	Background	Y	35.8	35.2	36.7	35.1	35.0
HD57	Background	Y	38.4	36.5	39.3	37.5	39.5
HD58	Background	Y	39.8	39.4	40.0	38.1	<b>41.7</b>
HD59	Background	Y	33.8	34.4	35.8	35.2	33.3 <sup>b</sup>
HD60	Background	Y	31.1	29.4	32.1	30.8	31.6 <sup>b</sup>
HD61	Background	Y	37.3	34.9	34.1	37.1	36.9
HD65	Background	Y	32.4	32.5	38.2	31.2	33.7
HD67	Background	Y	31.6	30.1	29.2	29.5	30.4
HD70	Background	N	25.5	23.9	25.4	23.8	23.5
HD73	Background	N	27.4	26.3	27.8	26.8	27.8
HD74	Roadside	N	31.3	28.4	28.5	28.3	29.1
HD75	Background	N	29.0	27.7	29.0	28.2	28.4
HD200	Roadside	Y	-	-	37.6	<b>41.3</b>	<b>40.4</b>
HD201	Roadside	Y	-	-	<b>42.8</b>	<b>41.7</b>	<b>42.3</b>
HD202	Background	Y	-	-	33.3	35.5	35.1
HD203	Roadside	Y	-	-	<b>48.1</b>	<b>43.0</b>	<b>46.3</b>

Site ID	Site Type	Within AQMA?	Annual mean concentration (adjusted for bias) ~g/m <sup>3</sup>				
			2010 (Bias Adjustment Factor = 0.99) <sup>a</sup>	2011 (Bias Adjustment Factor = 0.93) <sup>a</sup>	2012 (Bias Adjustment Factor = 1.01) <sup>a</sup>	2013 (Bias Adjustment Factor = 1.00) <sup>a</sup>	2014 (Bias Adjustment Factor = 0.97)
HD204	Background	Y	-	-	38.7	37.9	39.3
HD205	Background	Y	-	-	<b>41.9</b>	39.6	<b>41.5</b>
HD206	Background	Y	-	-	29.4	28.9	34.6
HD207	Background	Y	-	-	30.5	34.9	37.7 <sup>b</sup>
HD208	Background	Y	-	-	29.6	29.3	30.2
HD209	Background	Y	-	-	34.5	31.6	33.3
HD210	Roadside	Y	-	-	<b>49.9</b>	<b>47.9</b>	<b>50.4</b>
HD211	Background	Y	-	-	33.5	35.6	38.4
HD212	Roadside	Y	-	-	38.4	36.3	<b>44.9</b>
HD213	Background	Y	-	-	<b>40.2</b>	<b>40.1</b>	39.4
HD214	Background	Y	-	-	<b>49.5</b>	<b>44.1</b>	<b>50.0</b>
HD301	Roadside	Y	-	-	-	-	38.9
HD302	Background	Y	-	-	-	-	38.5
<b>Objective</b>					<b>40</b>		

<sup>a</sup> Data for previous years taken from the latest Progress Report (LB of Hillingdon, 2014).

<sup>b</sup> Annual mean concentrations based on diffusion tube data at sites with less than 9 months of data capture have not been annualised as diffusion tube changeover dates were not available at the time of preparation of this report.

### 2.2.2. PM<sub>10</sub>

As shown in Table 2.7, there were no exceedences of the annual mean objective (40 µg/m<sup>3</sup>) for PM<sub>10</sub> at any of the automatic monitors across the borough in 2014, or for any previous year since 2010.

There was an exceedence of the 24-hour mean objective, which permits a maximum of 35 days with average concentration above 50 µg/m<sup>3</sup>, at the Hillingdon Hayes automatic monitor in 2014. There have been no other exceedences of the 24-hour mean PM<sub>10</sub> objective at any automatic monitoring site in the borough in the last five years.

There are no clear trends in the annual mean PM<sub>10</sub> concentrations across the monitoring sites over the last five years, although the Hillingdon Hayes monitor has consistently recorded increasing concentrations.

**Table 2.7: Results of Automatic Monitoring of PM<sub>10</sub>: Comparison with Annual Mean Objective (2010 – 2014)**

Site ID	Site Type	Within AQMA ?	Valid Data Capture 2014 % <sup>a</sup>	Confirm Gravimetric Equivalent (Y or NA)	Annual Mean Concentration ~g/m <sup>3</sup>				
					2010 <sup>b</sup>	2011 <sup>b</sup>	2012 <sup>b</sup>	2013 <sup>b</sup>	2014
London Heathrow LHR2	Airport	Y	95.2	Y	23.8	25.0	24.8	24.6	18.6
Hillingdon 1 South Ruislip	Roadside	Y	94.7	Y	22.4	24.0	24.1	22.6	23.2
Hillingdon 3 Oxford Avenue	Roadside	Y	97.1	Y	20.4	23.0	22.4	21.0	21.5
London Harlington	Airport	Y	87.7	Y	19.7	22.0	17.7	20.0	19.6
London Harmondsworth	Roadside	Y	90.3	Y	17.8	21.0	19.7	21.9	21.0 <sup>c</sup>
London Harmondsworth Osiris	Urban Background	Y	97.4	NA	23.5 <sup>d</sup>	- <sup>e</sup>	- <sup>e</sup>	17.4 <sup>d</sup>	12.1 <sup>d</sup>
Heathrow Green Gates	Airport	Y	98.5	Y	20.0	21.0	20.8	20.4	17.0
Heathrow Oaks Road	Airport	Y	96.9	Y	21.8	24.0	21.3	21.0	18.2
Hillingdon Hayes	Roadside	Y	89.6	Y	23.5	25.0	25.4	29.4	34.5
<b>Objective</b>					<b>40</b>				

<sup>a</sup> i.e. data capture for the full calendar year (e.g. if monitoring was carried out for six months the maximum data capture for the full calendar year would be 50%.)

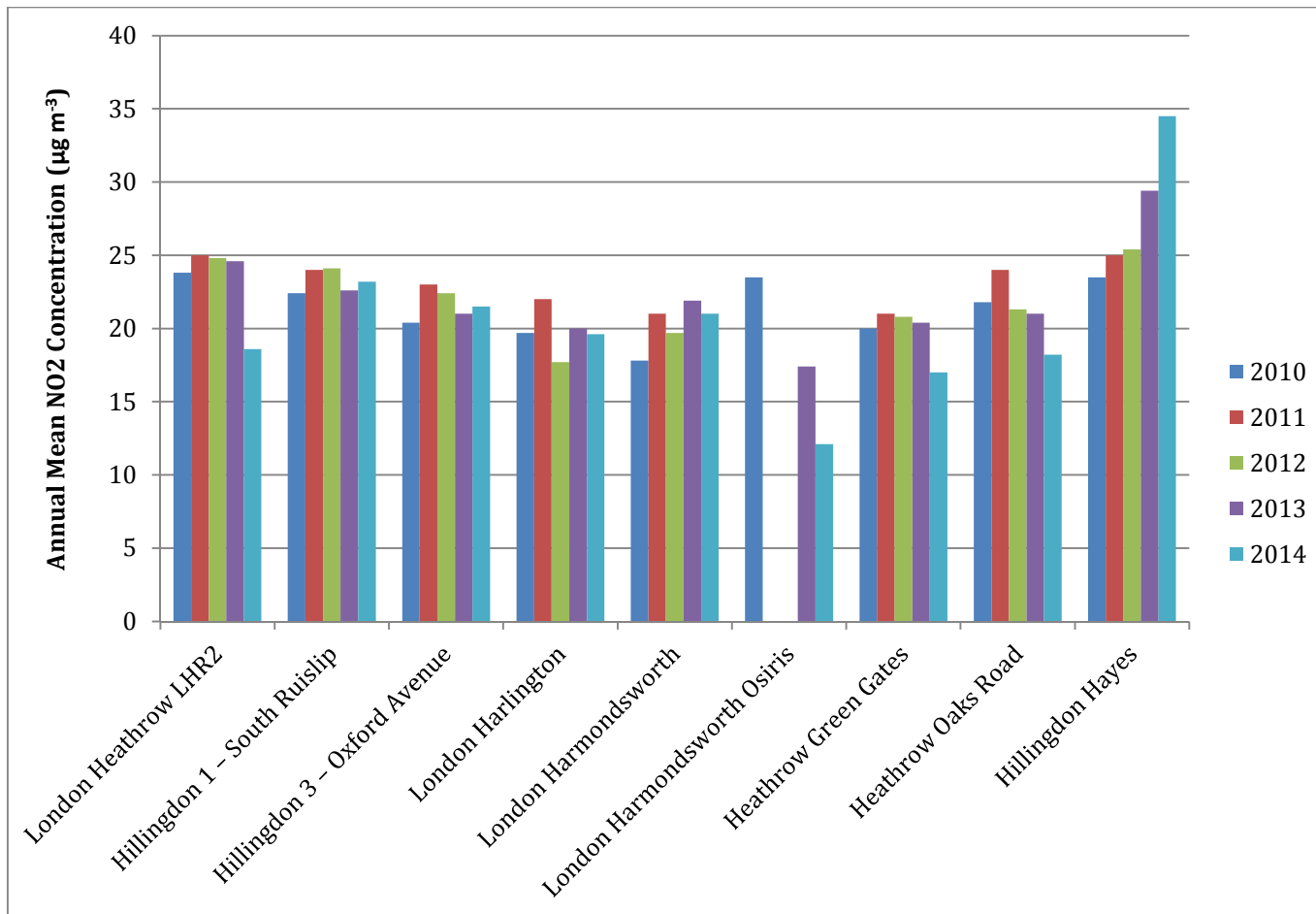
<sup>b</sup> Data for previous years taken from the latest Progress Report (LB of Hillingdon, 2014).

<sup>c</sup> Data are provisional for the period 01/07/14 to 31/12/14.

<sup>d</sup> Data taken from the Air Quality England website (Ricardo-AEA, 2015) and are unadjusted, as concentrations from Osiris monitors are indicative.

<sup>e</sup> Data capture <50% so data is not reported.

Figure 2.14: Trends in Annual Mean PM<sub>10</sub> Concentrations measured at Automatic Monitoring Sites (2010-2014)



**Table 2.8: Results of Automatic Monitoring for PM<sub>10</sub>: Comparison with 24-hour mean Objective (2010 – 2014)**

Site ID	Site Type	Within AQMA?	Valid Data Capture 2014 % <sup>a</sup>	Confirm Gravimetric Equivalent	Number of Exceedences of 24-Hour Mean (50 $\mu\text{g}/\text{m}^3$ ) <sup>b</sup>				
					2010 <sup>c</sup>	2011 <sup>c</sup>	2012 <sup>c</sup>	2013 <sup>c</sup>	2014
London Heathrow LHR2	Airport	Y	95.2	Y	4	19	18	12	6
Hillingdon 1 South Ruislip	Roadside	Y	94.7	Y	5	21	16	10	18
Hillingdon 3 Oxford Avenue	Roadside	Y	97.1	Y	2	16	10	6 (34)	6
London Harlington	Airport	Y	87.7	Y	12	1	8 (37)	9	6 (36)
London Harmondsworth	Roadside	Y	90.3	Y	2 (32)	10	5 (37)	7	7
London Harmondsworth Osiris	Urban Background	Y	97.4	N	7 (44)	- <sup>d</sup>	- <sup>d</sup>	2 (34)	0
Heathrow Green Gates	Airport	Y	98.5	Y	0	16	8	8	2
Heathrow Oaks Road	Airport	Y	96.9	Y	2	16	11	8	2
Hillingdon Hayes	Roadside	Y	89.6	Y	7	18	15 (47)	17 (46)	<b>45 (60)</b>
<b>Objective</b>					<b>35</b>				

<sup>a</sup> i.e. data capture for the full calendar year (e.g. if monitoring was carried out for six months the maximum data capture for the full calendar year would be 50%).

<sup>b</sup> if data capture is less than 90%, the 90<sup>th</sup> percentile of 24-hour means is included in brackets.

<sup>c</sup> Data for previous years taken from the latest Progress Report (LB of Hillingdon, 2014).

<sup>d</sup> Data capture <50% so data are not reported.

### 2.2.3. Sulphur Dioxide

No monitoring of sulphur dioxide was undertaken by the LB of Hillingdon in 2014.

### 2.2.4. Benzene

No monitoring of benzene was undertaken by the LB of Hillingdon in 2014.

### 2.2.5. Ozone

Annual mean concentrations are reported in Table 2.9 for all sites in the borough that recorded ozone in 2014.

**Table 2.9: Results of Automatic Monitoring of Ozone for 2014**

Site ID	Site Type	Within AQMA?	Valid Data Capture 2014 %	Annual Mean Concentration ~g/m <sup>3</sup>
				2014
London Hillingdon	Suburban	Y	99.1	27.0
London Harlington	Airport	Y	84.3	38.6

### 2.2.6. PM<sub>2.5</sub>

Annual mean concentrations are reported in Table 2.10 for all sites in the borough that recorded PM<sub>2.5</sub> in 2014. The concentrations at all sites are below the annual mean objective.

**Table 2.10: Results of Automatic Monitoring of PM<sub>2.5</sub> in 2014**

Site ID	Site Type	Within AQMA?	Valid Data Capture 2014 %	Annual Mean Concentration ~g/m <sup>3</sup>
				2014
London Heathrow LHR2	Airport	Y	62.4	9.9
London Harlington	Airport	Y	96.4	14.0
London Harmondsworth Osiris	Urban Background	Y	97.3	6.9
Heathrow Green Gates	Airport	Y	99.1	10.0
Heathrow Oaks Road	Airport	Y	97.4	10.3
Objective				25

### 2.2.7. Summary of Compliance with AQS Objectives

LB of Hillingdon has examined the results from monitoring in the borough. Concentrations outside of the AQMA are all below the objectives at relevant locations, therefore there is no need to proceed to a Detailed Assessment.



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## 3 Road Traffic Sources

### 3.1. Narrow Congested Streets with Residential Properties Close to the Kerb

The criteria for assessing narrow congested streets are set out in Box 5.3, section A1 of TG(09). Narrow congested streets were considered in previous Updating and Screening Assessments and no such locations were identified.

LB of Hillingdon confirms that there are no new/newly identified congested streets with a flow above 5,000 vehicles per day and residential properties close to the kerb, that have not been adequately considered in previous rounds of Review and Assessment.

### 3.2. Busy Streets Where People May Spend 1-hour or More Close to Traffic

The criteria for assessing busy streets relevant for the hourly nitrogen dioxide objective are set out in Box 5.3, section A2 of TG(09). Busy streets where people may spend 1-hour or more close to traffic were considered in the previous USA.

LB of Hillingdon confirms that there are no new/newly identified busy streets where people may spend 1 hour or more close to traffic.

### 3.3. Roads with a High Flow of Buses and/or HGVs.

The criteria for assessing roads with high flows of buses and/ or HGVs are set out in Box 5.3, section A3 of TG(09). Roads with a high flow of buses and/or HGVs were considered in previous Updating and Screening Assessments and no such locations identified.

LB of Hillingdon confirms that there are no new/newly identified roads with high flows of buses/HDVs.

### 3.4. Junctions

The criteria for assessing junctions are set out in Box 5.3, section A4 of TG(09).

LB of Hillingdon confirms that there are no new/newly identified busy junctions/busy roads.

### **3.5. New Roads Constructed or Proposed Since the Last Round of Review and Assessment**

The criteria for assessing new roads are set out in Box 5.3, section A5 of TG(09) and are unchanged from previous rounds of Review and Assessment. There have been no new roads identified within Hillingdon.

LB of Hillingdon confirms that there are no new/proposed roads.

### **3.6. Roads with Significantly Changed Traffic Flows**

The criteria for assessing roads with significantly changed traffic flows are set out in Box 5.3, section A6 of TG(09).

LB of Hillingdon confirms that there are no new/newly identified roads with significantly changed traffic flows.

#### ***3.6.1. Bus and Coach Stations***

The criteria for assessing roads with significantly changed traffic flows are set out in Box 5.3, section A7 of TG(09). Bus and coach stations were considered in previous Updating and Screening Assessments and no new locations have been identified.

LB of Hillingdon confirms that there are no relevant bus stations in the Local Authority area.

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## 4 Other Transport Sources

### 4.1. Airports

The criteria for assessing airports are set out in Box 5.4, section B1 of TG(09). Airports were considered in the previous Updating and Screening Assessments which found that Heathrow airport was the only airport located within the LB of Hillingdon meeting the criteria for a detailed assessment. Heathrow Airport has already been subject to a detailed assessment and subsequent action plan measures.

LB of Hillingdon confirms that there are no newly identified airports in the Local Authority area.

### 4.2. Railways (Diesel and Steam Trains)

#### 4.2.1. Stationary Trains

The criteria for assessing stationary locomotives are set out in Box 5.4, section B2 of TG(09) (Approach 1). The Great Western main line runs through the LB of Hillingdon with stops at West Drayton and Hayes & Harlington.

LB of Hillingdon confirms that there are no locations where diesel or steam trains are regularly stationary for periods of 15 minutes or more, with potential for relevant exposure within 15m.

#### 4.2.2. Moving Trains

The criteria for assessing moving locomotives are set out in Box 5.4, section B2 of TG(09) (Approach 2). The Great Western main line (Paddington to Swansea) listed in Table 5.1 of the Technical Guidance LAQM.TG(09) passes through the LB of Hillingdon, near to residential housing. The previous Updating and Screening Assessment concluded that it was not necessary to complete a detailed assessment for moving trains.

LB of Hillingdon confirms that there are no locations with a large number of movements of diesel locomotives, and potential long-term relevant exposure within 30m.

### 4.3. Ports (Shipping)

The criteria for assessing ports are set out in Box 5.4, section B3 of TG(09) and are unchanged from previous rounds of Review and Assessment. There is no shipping activity in the LB of Hillingdon.

LB of Hillingdon confirms that there are no ports or shipping that meet the specified criteria within the Local Authority area.

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## 5 Industrial Sources

### 5.1. Industrial Installations

#### ***5.1.1. New or Proposed Installations for which an Air Quality Assessment has been Carried Out***

The criteria for assessing industrial installations are set out in Box 5.5, section C1 of TG(09).

##### **Conway Road Stone Plant**, North Hyde Gardens, Hayes

An aggregate and asphalt recycling and production plant has been permitted in Hayes within the LB of Hillingdon since the last USA, for which an air quality assessment (ENVIRON, 2012) was produced.

The air quality assessment predicted a number of moderate adverse impacts arising as a result of HGV traffic and process emissions generated by the scheme. As all relevant receptors lie within existing AQMAs declared by either the LB of Hillingdon or the adjacent LB of Ealing, the completion of a detailed assessment is not necessary.

LB of Hillingdon has assessed new/proposed industrial installations, and concluded that it will not be necessary to proceed to a Detailed Assessment.

#### ***5.1.2. Existing Installations where Emissions have Increased Substantially or New Relevant Exposure has been Introduced***

None of the industrial installations identified in previous Updating and Screening Assessments have substantially increased emissions and no new exposure has been introduced nearby.

LB of Hillingdon confirms that there are no industrial installations with substantially increased emissions or new relevant exposure in their vicinity within its area or nearby in a neighbouring authority.

#### ***5.1.3. New or Significantly Changed Installations with No Previous Air Quality Assessment***

The criteria for assessing industrial installations are set out in Box 5.5, section C1 of TG(09).

##### **British Airways Components Engineering (BACE)**, North Hyde Gardens, Hayes



This is a new facility incorporating surface cleaning of aircraft and aircraft components using volatile solvents giving rise to fugitive emissions. The operations do not emit pollutants covered by LAQM.

LB of Hillingdon has assessed new/proposed industrial installations, and concluded that it will not be necessary to proceed to a Detailed Assessment.

#### **Thames Materials, Skip Lane, Harefield**

Planning was permitted in 2012 for a facility for processing of construction waste materials which includes the use of a number of concrete crushers and soil screeners leading to the potential for dust emissions. The site does not lie within the existing AQMA and no air quality assessment has previously been submitted to support the application. However, the facility lies in an area with very few nearby receptors and dust emissions from the site are unlikely to lead to a significant increase in PM<sub>10</sub> concentrations in the area. As such, it is not necessary to undertake a detailed assessment.

LB of Hillingdon has assessed new/proposed industrial installations, and concluded that it will not be necessary to proceed to a Detailed Assessment.

#### **Dry Cleaning Facilities**

Three new facilities incorporating dry cleaning processes have been permitted since the previous USA. These include Vetkai Launderette, Park Parade, Hayes, Pearl Dry Cleaners, High Street, West Drayton and Virk Dry Cleaning Services, Ickenham Road, Ickenham. These facilities do not emit pollutants covered by LAQM.

LB of Hillingdon has assessed new/proposed industrial installations, and concluded that it will not be necessary to proceed to a Detailed Assessment.

#### **Waste Oil Burning Facilities**

Three new facilities incorporating waste oil burning processes have been permitted since the previous USA. These include Eastglade Autos, Swakeleys Road, Ickenham, Citygate Ruislip, Victoria Road, South Ruislip and a site on Dawley Road, Hayes. All of these sites lie within the existing AQMA, and as such will not require a Detailed Assessment (which assesses whether an AQMA is required).

LB of Hillingdon has assessed new/proposed industrial installations, and concluded that it will not be necessary to proceed to a Detailed Assessment.

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## 5.2. Major Fuel (Petrol) Storage Depots

The criteria for assessing major fuel (petrol) storage depots are set out in Box 5.5, section C2 of TG(09).

There are no major fuel (petrol) storage depots within the Local Authority area.

## 5.3. Petrol Stations

The criteria for assessing petrol stations are set out in Box 5.5, section C3 of TG(09). There are no petrol stations within Hillingdon that fulfil the criteria.

LB of Hillingdon confirms that there are no petrol stations meeting the specified criteria.

## 5.4. Poultry Farms

The criteria for assessing poultry farms are set out in Box 5.5, section C4 of TG(09). No farms exceeding the relevant criteria (turkey units with greater than 100,000 birds, naturally ventilated units with greater than 200,000 birds or mechanically ventilated units with greater than 400,000) have been identified.

LB of Hillingdon confirms that there are no poultry farms meeting the specified criteria.

## 6 Commercial and Domestic Sources

### 6.1. Biomass Combustion – Individual Installations

The criteria for assessing biomass combustion (individual installations) are set out in Box 5.8, section D1 of TG(09).

Since the last updating and screening assessment, an 11.3MW biomass boiler has become operational within the Heathrow Airport Energy Centre. The overall size of the energy centre means that it is subject to EA permitting, and an air quality assessment considering the biomass boiler and two additional 11MW natural gas boilers has previously been completed.

The biomass boiler will burn virgin wood chip to provide electricity and heat to the airport. It is fitted with abatement in the form of Selective Non Catalytic Reduction (SNCR) in order to suppress NO<sub>x</sub> emissions and multi stage cyclones and an electrostatic precipitator (ESP) to minimise particulate matter emissions.

A detailed audit of the air quality assessment carried out by the EA<sup>1</sup> agreed with the conclusions in the air quality assessment. It states that whilst *“the impact from annual mean NO<sub>2</sub> will not be insignificant at receptors in the AQMA, because the Process Contribution is >1% of the EQS”*, the energy centre would not cause exceedences of the objectives at these receptors in the AQMA. It is noted that the modelling is based on conservative assumptions, and that no significant impacts at sensitive receptors were predicted to arise from any other pollutant. In addition, Heathrow Airport resides within the existing AQMA and is subject to the current air quality action plan measures. Taking the above points into account, it is considered that no detailed assessment is required.

LB of Hillingdon has assessed the biomass combustion plant, and concluded that it will not be necessary to proceed to a Detailed Assessment.

### 6.2. Biomass Combustion – Combined Impacts

The criteria for assessing biomass combustion (combined impacts) are set out in Box 5.8, section D2 of TG(09). The likelihood of areas of combined biomass combustion exceeding the criteria is considered highly unlikely.

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<sup>1</sup> Within the permitting decision document for EA variation number EPR/BQ3789IK/V006.

LB of Hillingdon confirms that there are no biomass combustion plant in the Local Authority area.

### **6.3. Domestic Solid-Fuel Burning**

The criteria for assessing domestic solid-fuel burning are set out in Box 5.8, section D2 of TG(09). The LB of Hillingdon has not identified any areas where significant coal burning takes place since the previous round of review and assessment.

LB of Hillingdon confirms that there are no areas of significant domestic fuel use in the Local Authority area.

## 7 Fugitive or Uncontrolled Sources

The criteria for assessing fugitive or uncontrolled sources are set out in Box 5.10, section E1 of TG(09). There are no quarries, landfill sites or other dusty operations in Hillingdon that have the potential to have a significant effect on PM<sub>10</sub> concentrations at residential properties.

LB of Hillingdon confirms that there are no potential sources of fugitive particulate matter emissions in the Local Authority area.

## **8 Conclusions and Proposed Actions**

### **8.1. Conclusions from New Monitoring Data**

The LB of Hillingdon has examined results from monitoring in the borough. Exceedences of the nitrogen dioxide annual mean objective continue to be measured at many monitoring locations within the existing AQMA. Concentrations recorded outside the existing AQMA remain below the annual mean objective. There are no significant trends in the data from the automatic or diffusion tube monitoring sites over the last five years.

Concentrations of PM<sub>10</sub> have been increasing at the Hillingdon Hayes roadside monitoring site, and in 2014 there was an exceedence of the 24-hour mean objective concentration. The site is not directly representative of exposure, but it is recommended that an investigation be carried out to establish why the concentrations have been increasing and whether this poses a risk of an exceedence in future years.

### **8.2. Conclusions from Assessment of Sources**

The Updating and Screening Assessment has not identified any significant changes in emissions sources within the Hillingdon area other than those covered in previous review and assessment reports. There have been a number of new industrial and commercial sources declared since the last USA, none of which need to proceed to a detailed assessment.

### **8.3. Proposed Actions**

No locations have been identified where it is required to proceed to a detailed assessment; the LB of Hillingdon will continue monitoring at existing sites within the borough.

Changes to the LAQM process are currently being consulted on and it is therefore likely that by 2016 the LAQM process will have changed with further guidance produced for local authorities to follow. The LB of Hillingdon will keep up to date with any changes to the LAQM process and produce a report in 2016 which complies with the guidance at that time.



## 9 References

ENVIRON. (2012). *Aggregate Recycling Plant, Asphalt Production Plant and Gully Waste Recycling Plant Air Quality Impact Assessment Report.*

LB of Hillingdon. (2004). *Air Quality Action Plan.*

LB of Hillingdon. (2014). *The London Borough of Hillingdon Progress Report.*

Ricardo-AEA. (2015). *Air Quality England.*

## 10 Appendices

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## A1 Appendix A: QA:QC Data

### Factor from Local Co-location Studies

There were two co-location studies conducted within the borough during 2014 at the London Hillingdon and Hillingdon 1 – South Ruislip automatic monitoring sites. Diffusion tube changeover dates were unavailable for the study period and as such it was not possible to calculate a local bias adjustment.

### Diffusion Tube Bias Adjustment Factors

LB of Hillingdon uses Gradko International for their diffusion tube analysis. These are prepared using the 50% TEA in acetone method. The bias adjustment factor for Gradko in 2014, obtained from the national bias adjustment spreadsheet (based on 9 studies in version 03/15) is 0.97.

### Discussion of Choice of Factor to Use

Whilst co-location studies have been carried out within Hillingdon, it was not possible to calculate local bias adjustment factors, as changeover dates for the diffusion tube studies were not available at the time of preparation of this report. As such, the bias adjustment factor for 2014 derived from the national bias adjustment spreadsheet has been used. The use of a national bias adjustment factor is in line with the approach taken in recent progress reports published by the LB of Hillingdon, ensuring a consistency in reported results.

### PM Monitoring Adjustment

All TEOM data have been converted to gravimetric equivalent using the VCM method and BAM data have been corrected by applying a factor of 0.8333. Osiris data are presented as the raw concentrations with no adjustments applied. This instrument only provides indicative results. All data are reported at ambient temperature and pressure.

### Short-term to Long-term Data adjustment

Only the Hillingdon 3 – Oxford Avenue automatic monitoring station recorded nitrogen dioxide concentrations for less than 90% of the year in 2014. Data for this site has been annualised following the guidance set out in Box 3.2 of TG(09).

The annual mean for three automatic background sites was compared to the “period mean” which represents the time for which the Oxford Avenue monitor recorded data. For each site, the ratio of annual mean and period mean are calculated and the average ratio applied to the Oxford Avenue period mean. The London Hillingdon and Reading New Town automatic monitors are AURN standard sites, and all sites have a high data capture (> 90%) for 2014.

**Table A1.1: Nitrogen Dioxide – Short-term to Long-term Data Adjustment**

Site	Site Type	Annual Mean	Period Mean (June to December)	Ratio
London Hillingdon	Suburban	57.7	52.7	1.10
Oxford St Ebbes	Urban Background	16.5	16.1	1.02
Reading New Town	Urban Background	26.5	25.9	1.02
			<b>Average</b>	<b>1.05</b>

### QA/QC of automatic monitoring

Automatic monitors within Hillingdon are operated as part of the Borough monitoring network, the Heathrow Airport monitoring network and Defra's AURN. Data have been provided and ratified by Ricardo-AEA following the national procedure guidance and standards.

### QA/QC of diffusion tube monitoring

Gradko maintains a UKAS accredited quality system with fully documented in-house methods for all analysis procedures. The concentration of nitrogen dioxide is determined for exposed diffusion tubes using method GLM 7.

Results of tube precision for Gradko using the 50% TEA in Acetone method, as published on the LAQM website, indicate overall good precision for 2014.

Gradko was assessed as part of the Workplace Analysis Scheme for Proficiency (WASP) operated by the Health and Safety Laboratory (HSL) and demonstrated satisfactory performance in the WASP Rounds 121 – 124 and AIR PT Rounds 1, 3, 4 and 6, scoring 100% across all quarters of 2014.

## A2 Appendix B: Monthly Non-Automatic Data for 2014

Table A2.1: Raw Monthly Non-Automatic Nitrogen Dioxide Monitoring Results

Site ID	Site Type	Nitrogen Dioxide Concentration per Month (2014) µg/m <sup>3</sup>												
		Jan	Feb	March	April	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Average
HD31	Roadside	<b>69.6</b>	<b>55.5</b>	<b>51.4</b>	<b>45.6</b>	<b>51.8</b>	39.1	35.4	<b>42.8</b>	<b>43.2</b>	<b>58.7</b>	<b>51.2</b>	<b>44.1</b>	<b>49.0</b>
HD31	Roadside	<b>70.6</b>	<b>54.4</b>	<b>53.3</b>	<b>48.7</b>	<b>45.1</b>	10.7	37.1	<b>44.1</b>	<b>44.4</b>	<b>56.8</b>	<b>52.4</b>	<b>43.3</b>	<b>46.7</b>
HD31	Roadside	<b>75.2</b>	<b>55.1</b>	<b>51.9</b>	<b>47.8</b>	<b>44.7</b>	38.4	39.2	<b>42.4</b>	<b>42.9</b>	<b>52.6</b>	<b>54.5</b>	<b>43.8</b>	<b>49.0</b>
HD43	Roadside	<b>46.2</b>	40.0	<b>53.3</b>	<b>50.9</b>	<b>48.9</b>	–	<b>45.7</b>	<b>41.2</b>	<b>54.7</b>	–	<b>50.0</b>	<b>42.1</b>	<b>47.3</b>
HD43	Roadside	<b>57.5</b>	<b>47.6</b>	<b>57.2</b>	<b>53.0</b>	<b>45.8</b>	<b>42.1</b>	<b>42.6</b>	35.1	<b>54.8</b>	<b>50.9</b>	<b>52.6</b>	<b>43.8</b>	<b>48.6</b>
HD46	Suburban	<b>53.9</b>	<b>45.6</b>	<b>51.7</b>	<b>40.1</b>	<b>42.7</b>	<b>41.3</b>	37.3	34.4	<b>54.2</b>	<b>53.2</b>	<b>62.5</b>	<b>43.8</b>	<b>46.7</b>
HD47	Roadside	35.1	–	–	36.1	33.1	32.2	31.3	24.1	34.3	34.1	38.9	31.7	33.1
HD49	Background	39.9	28.4	33.0	25.5	24.5	19.3	20.5	19.7	28.0	30.0	27.9	27.6	27.0
HD50A	Roadside	<b>55.7</b>	<b>40.3</b>	<b>50.0</b>	<b>46.8</b>	39.1	34.3	33.7	37.1	39.3	<b>49.1</b>	<b>49.2</b>	<b>46.3</b>	<b>43.4</b>
HD51	Background	<b>50.8</b>	35.6	<b>43.5</b>	36.4	32.8	29.5	29.2	30.0	34.5	<b>41.7</b>	<b>46.1</b>	38.9	37.4
HD52	Background	<b>47.9</b>	35.4	<b>42.0</b>	37.4	32.1	32.8	32.4	33.2	<b>40.1</b>	<b>41.1</b>	<b>48.1</b>	37.9	38.4
HD53	Background	<b>57.2</b>	<b>47.1</b>	<b>56.4</b>	<b>42.3</b>	40.0	40.0	<b>40.6</b>	<b>45.0</b>	<b>44.2</b>	<b>54.7</b>	<b>49.4</b>	<b>56.7</b>	<b>47.8</b>
HD55	Roadside	<b>53.0</b>	<b>43.1</b>	<b>45.8</b>	–	21.1	–	31.1	33.6	<b>43.2</b>	<b>47.2</b>	<b>48.5</b>	<b>41.4</b>	<b>40.8</b>
HD56	Background	<b>45.2</b>	37.0	<b>46.3</b>	34.5	31.3	29.1	30.7	27.7	38.3	<b>41.1</b>	–	–	36.1
HD57	Background	<b>45.7</b>	<b>40.5</b>	<b>48.2</b>	36.8	35.6	33.1	32.2	38.4	<b>41.4</b>	<b>47.1</b>	<b>45.6</b>	<b>43.9</b>	<b>40.7</b>
HD58	Background	<b>55.4</b>	<b>47.3</b>	<b>46.6</b>	<b>41.0</b>	32.5	32.4	39.5	34.2	38.0	<b>54.2</b>	<b>47.3</b>	<b>47.1</b>	<b>43.0</b>
HD59	Background	–	–	–	–	–	–	28.5	26.3	30.6	<b>42.3</b>	<b>46.0</b>	32.2	34.3
HD60	Background	–	–	–	–	–	–	28.1	27.3	33.6	35.3	<b>40.9</b>	30.3	32.6
HD61	Background	<b>47.6</b>	39.5	<b>48.7</b>	–	33.2	30.9	31.2	30.6	<b>40.1</b>	<b>42.4</b>	37.0	37.4	38.0
HD65	Background	<b>44.9</b>	38.6	<b>40.9</b>	32.4	30.2	25.7	26.5	30.0	32.1	39.9	<b>43.2</b>	32.8	34.8

Site ID	Site Type	Nitrogen Dioxide Concentration per Month (2014) µg/m <sup>3</sup>												
		Jan	Feb	March	April	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Average
HD67	Background	<b>40.2</b>	32.2	37.3	32.2	27.6	26.0	27.7	24.6	–	–	34.8	30.8	31.3
HD70	Background	33.7	23.0	–	25.3	20.9	17.5	18.1	16.9	25.7	27.0	33.2	25.3	24.2
HD73	Background	33.3	–	32.1	28.6	24.3	22.4	19.3	19.7	33.9	34.2	37.5	30.6	28.7
HD74	Roadside	38.9	23.2	33.8	28.5	28.8	25.4	–	18.8	32.7	31.1	39.0	29.7	30.0
HD75	Background	33.9	30.9	32.8	28.8	24.7	21.2	23.4	22.7	30.0	35.8	35.3	31.8	29.3
HD200	Roadside	<b>50.6</b>	39.1	<b>48.9</b>	39.3	36.6	38.4	36.2	35.8	<b>41.4</b>	<b>46.7</b>	<b>45.1</b>	<b>41.8</b>	<b>41.7</b>
HD201	Roadside	–	–	<b>57.1</b>	<b>44.4</b>	<b>41.4</b>	<b>40.2</b>	21.9	34.2	<b>55.3</b>	<b>46.5</b>	<b>50.1</b>	<b>45.5</b>	<b>43.7</b>
HD202	Background	<b>46.4</b>	<b>41.9</b>	<b>44.1</b>	34.3	–	26.8	24.4	29.7	35.0	–	<b>43.3</b>	36.3	36.2
HD203	Roadside	–	<b>48.4</b>	35.2	–	–	39.6	<b>46.6</b>	36.7	<b>54.9</b>	<b>60.0</b>	<b>52.0</b>	<b>56.6</b>	<b>47.8</b>
HD204	Background	<b>51.6</b>	39.3	<b>45.5</b>	<b>40.4</b>	36.0	34.1	34.5	34.7	–	<b>47.3</b>	<b>47.7</b>	34.5	<b>40.5</b>
HD205	Background	<b>54.6</b>	<b>46.2</b>	<b>47.6</b>	<b>42.6</b>	39.9	34.3	35.1	<b>40.3</b>	<b>42.2</b>	–	<b>47.2</b>	<b>40.9</b>	<b>42.8</b>
HD206	Background	<b>45.5</b>	<b>40.5</b>	<b>46.8</b>	33.5	29.5	25.5	–	23.9	36.4	38.6	39.1	33.7	35.7
HD207	Background	<b>48.4</b>	36.4	<b>44.8</b>	36.2	33.2	29.8	–	–	38.8	<b>43.2</b>	–	–	38.8
HD208	Background	36.0	32.5	37.8	29.8	27.0	24.1	23.3	19.2	35.4	35.1	39.8	33.6	31.1
HD209	Background	<b>44.7</b>	37.0	<b>42.0</b>	33.4	28.1	27.5	12.3	31.2	35.4	<b>41.1</b>	38.6	<b>41.1</b>	34.4
HD210	Roadside	<b>56.5</b>	<b>46.3</b>	<b>60.5</b>	38.0	<b>48.6</b>	<b>50.4</b>	37.0	<b>41.1</b>	<b>66.5</b>	<b>53.0</b>	<b>54.5</b>	<b>71.6</b>	<b>52.0</b>
HD211	Background	<b>46.9</b>	29.9	<b>43.9</b>	<b>40.2</b>	37.9	35.7	–	28.1	<b>49.0</b>	38.2	<b>50.3</b>	35.7	39.6
HD212	Roadside	<b>44.4</b>	<b>45.9</b>	<b>51.0</b>	<b>41.1</b>	<b>40.7</b>	38.6	39.5	32.8	<b>53.6</b>	39.9	<b>82.8</b>	<b>45.1</b>	<b>46.3</b>
HD213	Background	<b>48.6</b>	24.2	<b>46.3</b>	–	36.2	36.5	36.6	32.3	<b>43.2</b>	<b>52.5</b>	<b>47.1</b>	<b>43.1</b>	<b>40.6</b>
HD214	Background	<b>60.6</b>	<b>61.4</b>	<b>65.0</b>	<b>46.4</b>	<b>44.9</b>	<b>40.4</b>	39.3	<b>45.4</b>	<b>44.6</b>	<b>59.1</b>	<b>54.4</b>	<b>56.9</b>	<b>51.5</b>
HD301	Roadside	<b>46.0</b>	–	–	<b>43.3</b>	<b>40.4</b>	38.6	34.2	27.2	<b>43.4</b>	<b>42.5</b>	<b>48.9</b>	37.0	<b>40.1</b>
HD302	Background	<b>46.8</b>	38.6	<b>43.1</b>	36.1	36.3	34.8	31.3	26.3	<b>43.6</b>	<b>42.4</b>	<b>46.2</b>	<b>51.2</b>	39.7