The London Borough of Hillingdon

Air Quality Action Plan

Progress Report, 2014

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Executive Summary

Formal Reporting Requirements

Outdoor air pollution is recognised as being damaging to health. Previous reports in the present series have shown that the annual mean concentration of NO_2 (nitrogen dioxide) exceeds statutory limits within the London Borough of Hillingdon, particularly in the southern half odf the Borough surrounding the M4 and Heathrow Airport.

Part IV of the Environment Act 1995 places a statutory duty on local authorities to review and assess the air quality within their area and take account of Government Guidance when undertaking such work. This Annual Progress Report is a requirement of the Fifth Round of Review and Assessment and is a requirement for all local authorities. The Report has been prepared in accordance with Technical Guidance LAQM.TG (09) and associated tools.

This Report considers all new monitoring data and assesses these data against Air Quality Strategy objectives. It also considers any changes that may have an impact on air quality.

The results from both monitoring and assessment of sources in the Borough indicate that outside of the existing AQMA air quality objectives at locations of relevant exposure are being met.

There is no need to carry out any Detailed Assessment at this time. Recommended actions are:

- Continue to monitor air pollution across the Borough;
- Continue to implement action plan measures; and
- Proceed to Updating and Screening Assessment (USA) in 2015.

Health Impacts and Future Plans

Updated information from Defra shows that compliance with the NO_2 limit value will only be achieved sometime after 2030 for the Greater London Area. Across the Borough, official estimates indicate that air pollution leads to the loss of 1335 years of

life annually, equivalent to 114 deaths per year. This compares with, for example, 2 road accident fatalities in the Borough in 2013. There is growing evidence that these estimates of the burden of air pollution on health are underestimated. It is also recognised that the statutory limits for air quality are not fully protective.

The improvement of air quality in the Borough should thus be treated as a matter of urgency. Over the last 10 years the Borough has implemented a wide-ranging action plan for air quality improvement. The Borough Council has, in large part, followed through with implementation of the measures that it has control over and the plan now needs to be revised. However, it must be recognised that other stakeholders also have responsibilities for reducing pollution in the Borough, as the major sources, particularly Heathrow Airport and the major road network, are outside the Borough's control. Further to this, vehicle emission standards legislated by the European Union need to have real impacts on actual driving emissions, rather than only during test cycles. On its own the Borough cannot bring air quality into compliance with the regulatory limit values.

Noting this, it is (at best) disappointing that the on-going Airports Commission has not provided the data needed to undertake proper detailed modelling of emissions from surface access to the airport, or to enable validation of modelling undertaken to support the case for airport expansion. Unless these data are made available, the modelling can have no credibility. This view is supported by the marked disparity between actual air quality over the last few years and the modelling undertaken to support the original application for a third runway.

The lack of urgency shown by those able to make significant improvements in air quality is highlighted by a press release from Heathrow Airport Ltd from May 9th 2014, in which it is stated that a Heathrow congestion charge could be used to fund public transport improvements to reduce congestion and improve air quality. However, it is also noted that charging would only be introduced once improvements to public transport to the airport have been delivered. This ignores two important issues:

1. No progress has been made on the congestion charge proposal since the Borough Council raised it in its Action Plan published 10 years ago.

2. In the interests of protecting public health, air quality needs to be improved now, not some unknown number of years into the future.

The long-term nature of the plans for Heathrow is also noted, with modelling being carried out by Heathrow Airport Limited for the years 2030 and 2040 in a recent submission to the Airports Commission. There is a presumption in this modelling that the current air quality limit values will remain unchanged into the distant future. In contrast, this report raises a number of reasons why the current limit values may be revised down in the future in the interests of better protecting public health.

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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 273,900 residents (2011 census). 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 therefore generate a significant air pollution burden for residents.

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 (AQS) 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 (USA) reports. Their purpose is to maintain continuity in the LAQM process.

They are not intended to be as detailed as USA Reports, or to require as much effort. However, if the Progress Report identifies the risk of exceedance of an AQS 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 AQS objectives applicable to LAQM in England are set out in the Air Quality (England) Regulations 2000 (SI 928) and The Air Quality (England) (Amendment) Regulations 2002 (SI 3043), and are shown in Table 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 exceedances in each year that are permitted (where applicable).

Table 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 (CO)	10 mg/m^3	Running 8-hour mean	31.12.2003
Lead (Pb)	0.50 μg/m^3	Annual mean	31.12.2004
	0.25 μg/m^3	Annual mean	31.12.2008
Nitrogen Dioxide (NO_2)	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 (SO_2)	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

1.4 Summary of Previous Review and Assessments

Annual reviews of air quality have shown that levels of nitrogen dioxide (NO_2) 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 2.

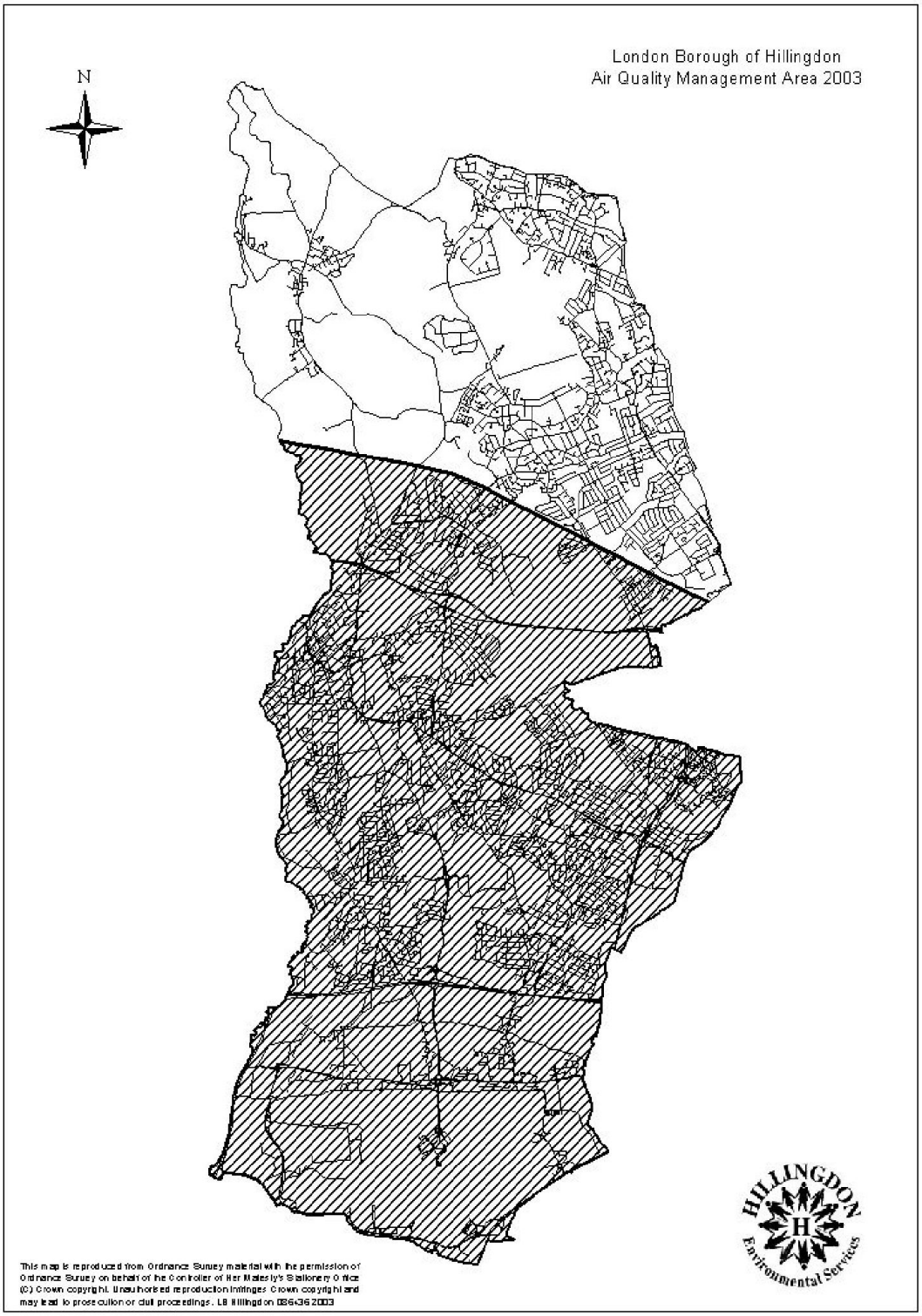
Table 2 - Summary of Previous Review and Assessment

Round of Assessment	Conclusions
Round 1	Modelling and monitoring indicated that the annual mean NO_2 and 24-hour mean PM_{10} would exceed the objectives. In May 2001, an AQMA was declared for these two objectives. However, further modelling indicated that the objectives for PM_{10} were being met. Therefore, the original AQMA was revoked and a new AQMA declared only for NO_2. This AQMA was extended to cover all of the A40 corridor and the Chiltern-Marylebone Railway line.
Round 2	The 2003 USA concluded that exceedances of the annual mean NO_2 AQS objective were still occurring and high concentrations of PM_{10} 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.
Round 3	Reporting concluded exceedances of the annual mean NO_2 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.

Round of Assessment	Conclusions
Round 4	Reporting concluded exceedances of the NO_2 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.
Round 5	The 2012 USA concluded exceedances of the annual mean NO_2 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.

In the London Borough of Hillingdon the problems are most severe around Heathrow Airport and the major road network that goes through the Borough, reflecting the largest sources of nitrogen oxide (NO_x) emissions within the AQMA (Figure 1).
An Action Plan, showing how Hillingdon London Borough Council (the Council) intended to tackle these problems, was issued in 2004. This contains a series of 8 packages that address emissions from traffic, Heathrow Airport, industry, existing housing and new developments.

Figure 1 - Hillingdon AQMA



2 New Monitoring Data

2.1 Summary of Monitoring Undertaken

2.1.1 Automatic Monitoring Sites

There were 10 operational automatic continuous monitoring sites in the London Borough of Hillingdon in 2013 (Figure 2).

Hillingdon 1 (South Ruislip), Hillingdon 3 (Oxford Avenue), London Sipson, London Harmondsworth and Hillingdon Hayes are all part of the borough monitoring network. London Hillingdon is part of the Defra - owned Automatic Urban and Rural Network (AURN).

London Heathrow (LHR2), Heathrow Oaks Road, Heathrow Green Gates and London Harlington are all part of Heathrow airport monitoring network. Details of these sites are shown in Table 3.

Figure 2 - Map of Automatic Monitoring Sites

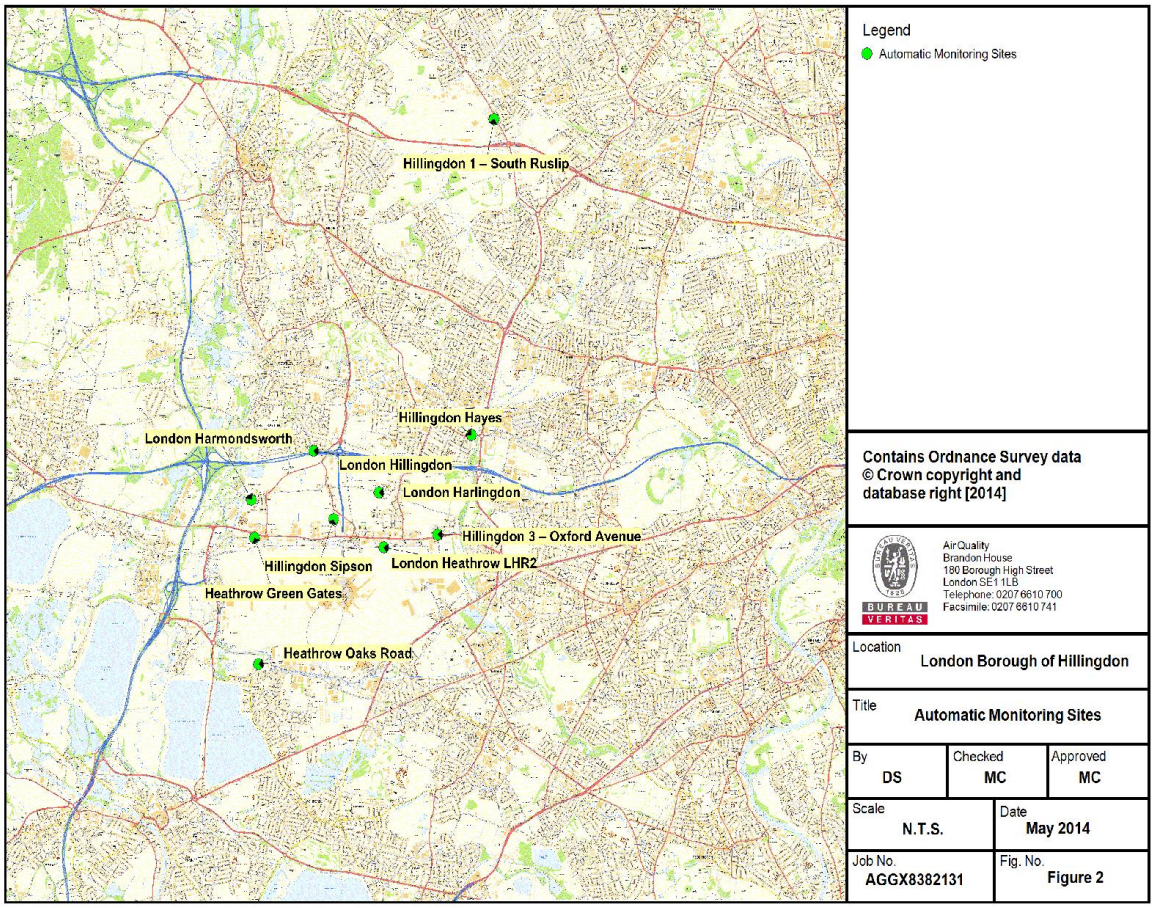


Table 3 - Details of Automatic Monitoring Sites

Site Name	Site Type	OS Grid Ref (X,Y)		Pollutants Monitored	In AQMA?	Relevant Exposure? (Y/N with distance 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_2, PM_{10}, $PM_{2.5}$ (TEOM[1])	Yes	No	N/A (inside the airport)	No
London Hillingdon (Keats Way)	Suburban	506951	178605	NO_2, O_3[2]	Yes	Yes	3m (30m from M4)	Yes
Hillingdon 1 – South Ruislip	Roadside	510857	184917	NO_2, PM_{10} (TEOM)	Yes	Yes (14m)	2.5m	Representative of exposure on this road
Hillingdon 3 – Oxford Avenue	Roadside	509557	176994	NO_2, PM_{10} (TEOM)	Yes	Yes (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_2, O_3, PM_{10} $PM_{2.5}$ (TEOM)	Yes	No	8m	Background
Hillingdon Sipson	Urban background	507325	177282	NO_2	Yes	Yes	9m from nearest residential fasade	Yes
London Harmondsworth	Roadside	505561	177661	NO_2, PM_{10} (BAM)	Yes	Yes(20m)	1m	Yes
Heathrow Green Gates	Airport	505207	177072	NO_2, PM_{10}, $PM_{2.5}$(TEOM)	Yes	No	N/A (background for the airport) (62m from airport boundary)	No (Background location)

[1] The tapered element oscillating microbalance (TEOM) is used to continuously measure particulate concentration
[2] Ozone (O_3)

Site Name	Site Type	OS Grid Ref (X,Y)		Pollutants Monitored	In AQMA?	Relevant Exposure? (Y/N with distance to relevant exposure)	Distance to kerb of Nearest Road (N/A if not applicable)	Does this Location represent Worst-case Exposure?
Heathrow Oaks Road	Airport	505729	174496	NO_2, PM_{10}, $PM_{2.5}$ (TEOM)	Yes	No	5m	No
Hillingdon Hayes	Roadside	510303	178882	NO_2, PM_{10} (BAM^3)	Yes	Yes(15m)	5m	Yes

[3] The BAM (Beta Attenuation Mass Monitor) measures particulate concentrations automatically

2.1.2 Non-Automatic Monitoring Sites

Passive diffusion tube monitoring of NO_2 is carried out at a number of locations across the Borough. During 2013 NO_2 monitoring was undertaken using diffusion tubes at 37 sites. One of these sites (that has triplicate tubes) is co-located with the London Hillingdon automatic monitoring site.
Locations and details of passive monitoring sites in 2013 are presented in the figures and tables below.

A bias adjustment factor of 1.00 reported in the latest version (v03_14) of the national database of co-location studies[4] conducted for tubes prepared (50% TEA in acetone) and analysed by Gradko during 2013 has been used to adjust the diffusion tubes results.

Full details of the diffusion tube QA/QC including justification for the choice of bias adjustment factors are presented in Appendix A. Monthly NO_2 diffusion tube data are also provided in Appendix B.

[4] http://laqm.defra.gov.uk/bias-adjustment-factors/bias-adjustment.html

Figure 3 - Map of Non-Automatic Monitoring Sites North Hillingdon Borough

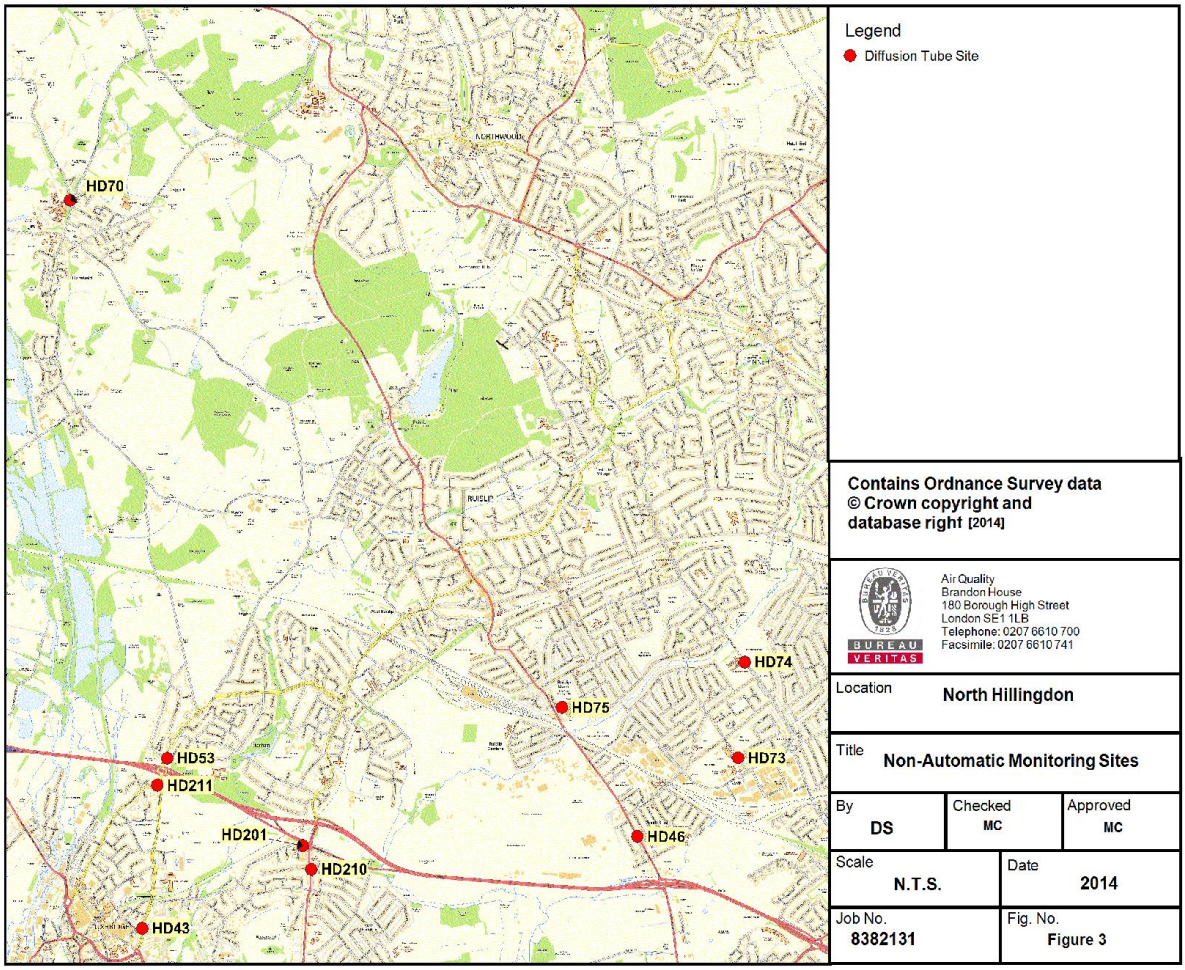


Figure 4 - Map of Non-Automatic Monitoring Sites South Hillingdon Borough

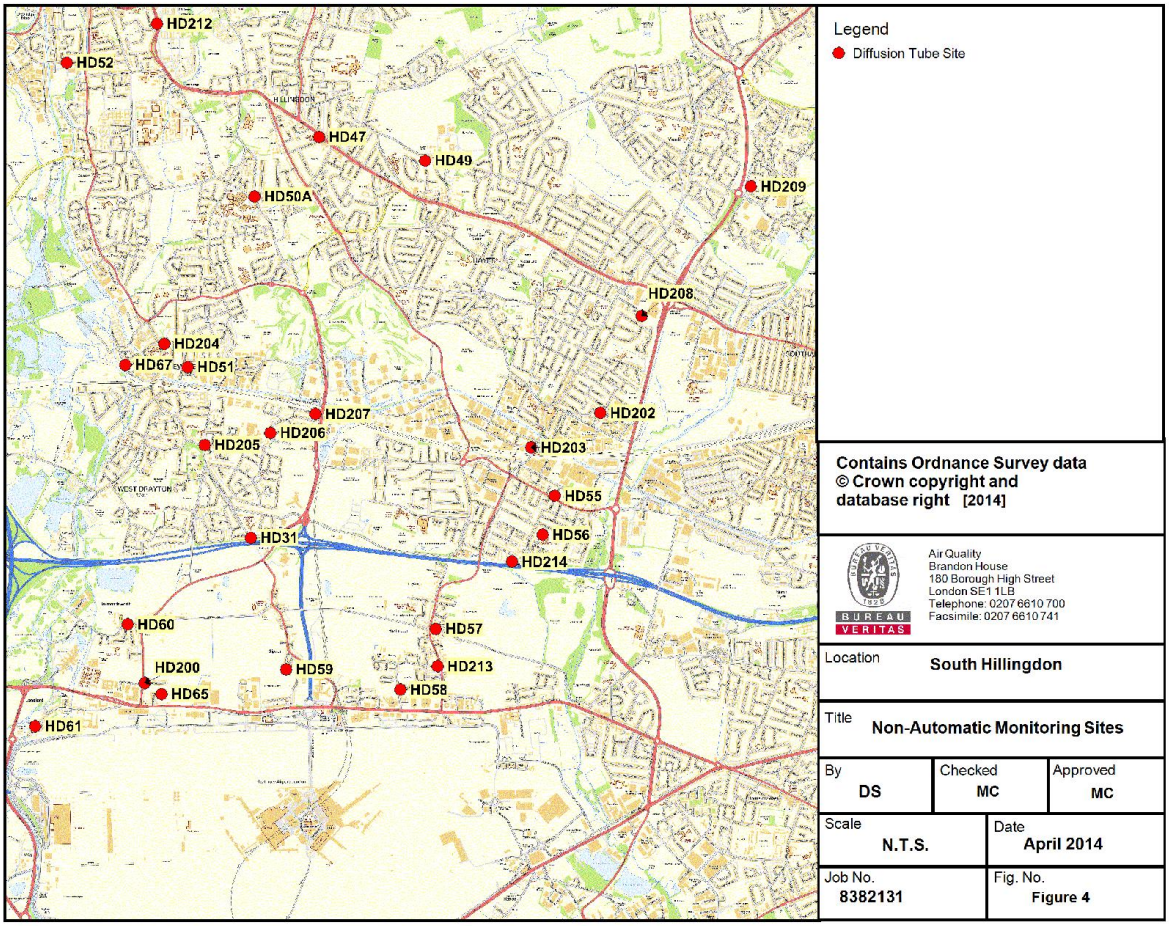


Table 4 - Details of Non- Automatic Monitoring Sites

Site ID	Site Name	Site Type	OS Grid Ref (X,Y)		Site Height (m)	In AQMA?	Relevant Exposure? (Y/N with distance from monitoring site to relevant exposure)	Distance to Kerb of Nearest Road (N/A if not applicable)	Does this Location Represent Worst-Case Exposure?
HD31	AURN Monitoring Station, Sipson	Roadside	506951	178605	2.5	Yes	Yes(0m)	30m from M4	Co-location site
HD31	AURN Monitoring Station, Sipson	Roadside	506951	178605	2.5	Yes	Yes(0m)	30m from M4	Co-location site
HD31	AURN Monitoring Station, Sipson	Roadside	506951	178605	2.5	Yes	Yes(0m)	30m from M4	Co-location site
HD43	Uxbridge Day Nursery, Park Road, Uxbridge (on wire Fence)	Roadside	505995	184057	1.2	Yes	Yes(0m)	4m	Yes
HD46	South Ruislip Monitoring Station, West End Road	Suburban	510837	184917	3.0	Yes	Yes(14m)	2.5m	Representative of a road
HD47	Hillingdon Primary School, Uxbridge Road, Hillingdon (on wire fence)	Roadside	507617	182506	2.1	Yes	Yes(0m)	5m	Representative of a road
HD49	83 Hayes End Drive, Hayes End, Middlesex (on drain pipe)	Background	508650	182274	2.0	Yes	Yes(7m)	7m	No-background
HD50A	Hillingdon Hospital Monitoring Station, Colham Road (Near John Rich House on former junction to Pield	Roadside	506990	181925	2.5	Yes	Yes(7m)	2m	Representative of a street

Site ID	Site Name	Site Type	OS Grid Ref (X,Y)		Site Height (m)	In AQMA?	Relevant Exposure? (Y/N with distance from monitoring site to relevant exposure)	Distance to Kerb of Nearest Road (N/A if not applicable)	Does this Location Represent Worst-Case Exposure?
	Heath Road)								
HD51	Top of Colham Avenue (4), Yiewsley (lamp post at end of road)	Background	506334	180266	2.5	Yes	Yes(0m)	4m	Yes-nearest residential to busy road
HD52	Lamp post near 101 Cowley Mill Road, Uxbridge	Background	505157	183231	2.5	Yes	Yes(95m)	1m	Representative of a road
HD53	Warren Road, Ickenham, Uxbridge (1st lamp post on left)	Background	506241	185652	2.5	Yes	Yes(1m)	23m	Yes-nearest residential to busy road
HD55	Harold Avenue, (first lamp post on left)	Background	509917	179015	2.5	Yes	Yes(4m)	30m	Yes-nearest residential to busy road
HD56	15 Phelps Way, Hayes (lamp post outside of)	Background	509796	178633	2.5	Yes	Yes(7m)	1.5m	Representative of a road
HD57	25 Cranford Lane, Harlington (lamp post on the left afyer car park)	Background	508756	177717	2.5	Yes	Yes(7m)	1m	Yes-nearest residential to busy road
HD58	Brendan Close, Harlington (1st lamp post on the left)	Background	508412	177124	2.5	Yes	Yes(0m)	1m	Representative of a road

Site ID	Site Name	Site Type	OS Grid Ref (X,Y)		Site Height (m)	In AQMA?	Relevant Exposure? (Y/N with distance from monitoring site to relevant exposure)	Distance to Kerb of Nearest Road (N/A if not applicable)	Does this Location Represent Worst-Case Exposure?
HD59	Bomber Close (7), Sipson (1st lamp post on left)	Background	507294	177322	2.5	Yes	Yes(8m)	1m	Representative of a road
HD60	Harmonsworth Green, Harmondsworth (lamp post outside nursery)	Background	505753	177760	2.5	Yes	Yes(0m)	1m	Representative of a street
HD61	Heathrow Close, Longford (1st lamp post on the right)	Background	504848	176770	2.5	Yes	Yes(0m)	2m	Representative of a street
HD65	28 Pinglestone Close, Sipson, Middlsex (on drainpipe)	Background	506082	177081	1.8	Yes	Yes(0m)	4m	Representative of a street
HD67	31 Tavistock Road (on lamp-post outside house)	Background	505729	180290	2.5	Yes	Y(3m)	1m	Representative of a street
HD70	Harefield Hospital, Hill End Road (lamp-post outside entrance)	Background	505291	190935	2.5	No	Yes(0m)	5m	Representative of a street
HD73	Queensmead School, South Ruislip. (lamp-post opposite Jubilee Drive) (outside AQMA)	Background	511825	185655	2.5	No	Yes(0m)	1m	Representative of a street
HD74	Field End Road/Field End School, S.Ruislip. 3rd Lamp-post south of school	Roadside	511887	186565	2.5	No	Yes(8m)	1m	Yes

Site ID	Site Name	Site Type	OS Grid Ref (X,Y)		Site Height (m)	In AQMA?	Relevant Exposure? (Y/N with distance from monitoring site to relevant exposure)	Distance to Kerb of Nearest Road (N/A if not applicable)	Does this Location Represent Worst-Case Exposure?
	entrance (outside AQMA)								
HD75	Sidmouth Drive, South Ruislip (2nd lamp-post from West End Road outside Nursery) (outside AQMA)	Background	510103	186133	2.5	No	Yes(4m)	2m	Yes - nearest receptor to busy road
HD200	49 Zealand Avenue Lamp Post (1)	Roadside	505920	177188	2.5	Yes	Yes(8m)	13m	Yes
HD201	Near 3 Hercies Road, Lamp Post (1)	Roadside	507568	184830	2.5	Yes	Yes(3m)	1m	Yes
HD202	49 Silverdale Gardens, Hayes Lamp Post (8)	Background	510361	179820	2.5	Yes	Yes(9m)	14m	Yes
HD203	Blyth Road, Hayes Lamp Post (4)	Roadside	509683	79486	2.5	Yes	Yes(6m)	2m	No
HD204	Side of 104 Yiewsley High Street (front of 1A Fairfield Road) Lamp Post (2)	Background	506108	180493	2.5	Yes	Yes(9m)	37m	No
HD205	1 Porters Way (corner with Kingston Lane) Lamp Post (1)	Background	506503	179510	2.5	Yes	Yes(12m)	9m	No

Site ID	Site Name	Site Type	OS Grid Ref (X,Y)		Site Height (m)	In AQMA?	Relevant Exposure? (Y/N with distance from monitoring site to relevant exposure)	Distance to Kerb of Nearest Road (N/A if not applicable)	Does this Location Represent Worst-Case Exposure?
HD206	5-7 Mulberry Crescent, West Drayton Lamp Post (18)	Background	507141	179628	2.5	Yes	Yes(10m)	2m	No
HD207	35 Emden Close, West Drayton Lamp Post (14)	Background	507580	179812	2.5	Yes	Yes(7m)	60m	No
HD208	Side of 50 St. Christopher's Drive Lamp Post (13)	Background	510761	180766	2.5	Yes	Yes(5m)	180m	No
HD209	29 Pendula Drive, Hayes Lamp Post (2)	Background	511828	182023	2.5	Yes	Yes(10m)	79m	No
HD210	340 Long Lane, Uxbridge Lamp Post (71)	Roadside	507649	184611	2.0	Yes	Yes(18m)	2m	Yes
HD211	198 Harefield Road, Uxbridge Lamp Post (2)	Background	506143	185395	2.5	Yes	Yes(9m)	33m	No
HD212	59 Hillingdon Road, Uxbridge Lamp Post (56)	Roadside	506035	183611	2.5	Yes	Yes(12m)	1.5m	Yes
HD213	10 West End Lane, Harlington Lamp Post (2)	Background	508773	177352	2.5	Yes	Yes(11m)	33m	No
HD214	R/O 130 Cleave Avenue, Hayes Lamp Post (33)	Background	509499	178370	2.5	Yes	Yes(18m)	27m	No

2.2 Comparison of Monitoring Results with Air Quality Objectives

2.2.1 Nitrogen Dioxide (NO_2)

Automatic Monitoring Data

The annual mean NO_2 concentrations measured at the automatic monitoring locations from 2008 to 2013 are presented in Table 5 below. Concentrations in excess of the 40 µg/m^3 objective are highlighted in bold. Results of the 1-Hour mean NO_2 over the same period are provided in Table 6.

A bar chart showing the trends in annual mean NO_2 concentrations over the last five years is presented in Figure 5. From the available monitoring data and trends the following observations have been made:

- Concentrations at London Hillingdon have decreased in 2013, although the concentrations at this site are still exceeding the annual mean AQS objective for NO_2.This site is representative of relevant exposure as it is a similar distance from the M4 motorway as the nearby housing. This site is already within the Hillingdon AQMA.

- Concentrations at Hillingdon South Ruislip have decreased by 7 µg/m^3. Although the concentrations are still slightly higher than in 2011.

- Concentrations at Hillingdon Hayes increased in 2013. This site was already exceeding the annual mean AQS objective for NO_2.

- Concentrations at London Harlington, Hillingdon Sipson, Heathrow Green Gates, and Heathrow Oaks Road increased slightly during 2013; however, they are still below the annual mean AQS objective for NO_2.

- Concentrations at London Hillingdon 3 (Oxford Avenue) have decreased in 2013, and it is now slightly below the annual mean AQS objective for NO_2. However, this decreased in concentrations should be treated with caution as the data capture was only 77%.

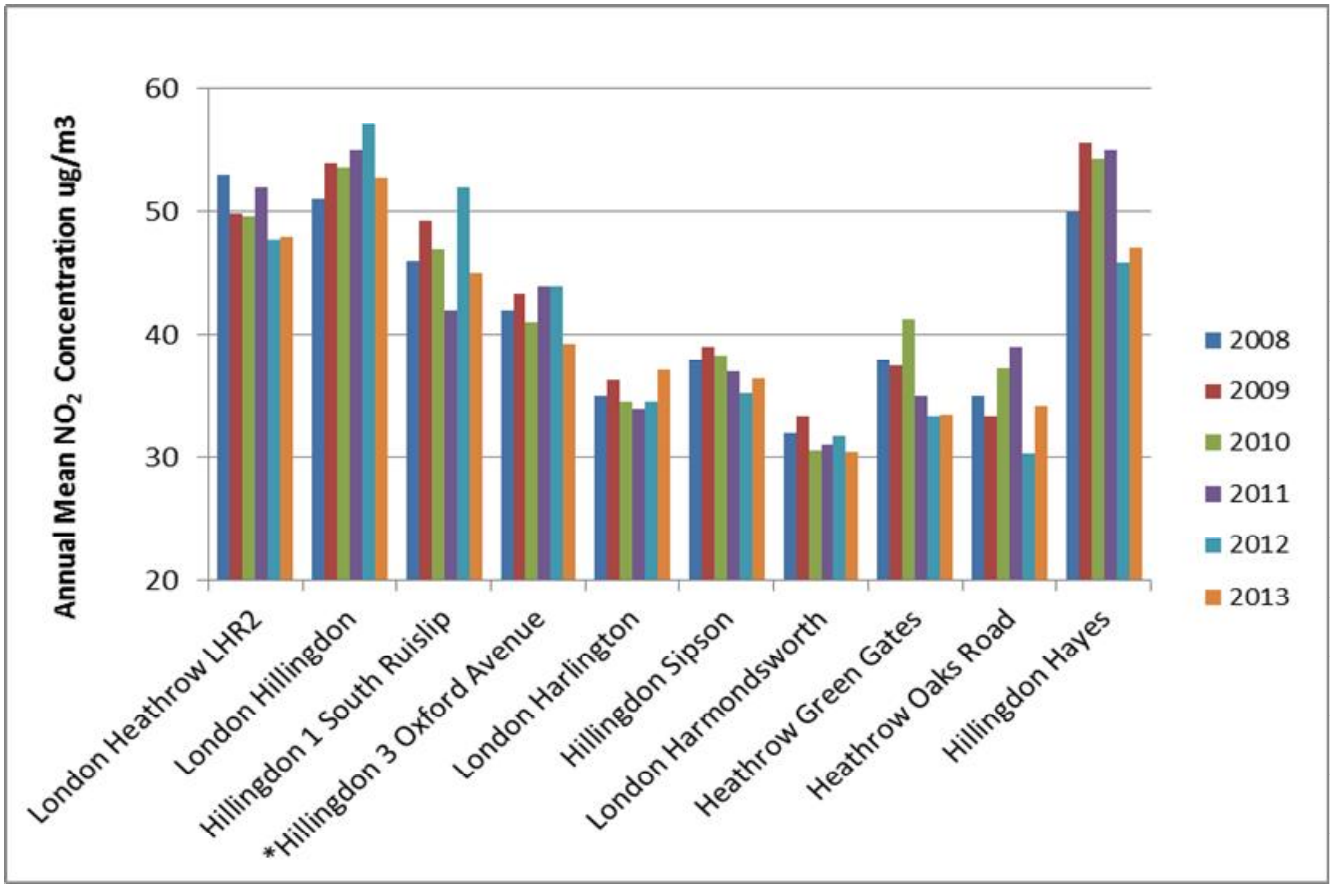
- Concentrations at other monitoring sites remained the same or decreased in 2013 compared to results over recent years. No exceedances of the 1-hour mean AQS objective for NO_2 were recorded in 2013, (14 hourly means > 200 $\mu g/m^3$, whilst 18 exceedances per year are allowed). Although annual mean NO_2 at the London Hillingdon site was the highest (52.8 $\mu g/m^3$), there was no hourly means > 200 $\mu g/m^3$ recorded in 2013.

Table 5 - Results of Automatic Monitoring for NO_2: Comparison with Annual Mean Objective

Site ID	Location	Within AQMA?	Data Capture for Full Calendar Year 2013 %	Annual Mean Concentrations (µg/m^3)					
				2008	2009	2010	2011	2012	2013
London Heathrow LHR2	Airport	Yes	99	**53**	**49.8**	**49.6**	**52**	**47.7**	**47.9**
London Hillingdon	Suburban	Yes	99	**51**	**54.0**	**53.6**	**55**	**57.1**	**52.8**
Hillingdon 1 South Ruislip	Roadside	Yes	100	**46**	**49.3**	**46.9**	**42**	**52.0**	**45.0**
*Hillingdon 3 Oxford Avenue	Roadside	Yes	77	**42**	**43.4**	**41.0**	**44**	**44.0**	39.2
London Harlington	Airport	Yes	86	35	36.3	34.5	34	34.5	37.1
Hillingdon Sipson	Urban background	Yes	99	38	39.0	38.3	37	35.2	36.5
London Harmondsworth	Airport	Yes	93	32	33.4	30.5	31	31.8	30.4
Heathrow Green Gates	Airport	Yes	99	38	37.5	**41.2**	35	33.4	33.5
Heathrow Oaks Road	Airport	Yes	98	35	33.4	37.2	39	30.3	34.2
Hillingdon Hayes	Roadside	Yes	93	**50**	**55.6**	**54.3**	**55**	**45.9**	**47.0**

In bold, exceedence of the annual mean NO_2 AQS objective of 40 µg/m^3
*Result should be treated with caution as data capture is low

Figure 5 - Trends in Annual Mean NO_2 Concentrations Measured at Automatic Monitoring Sites



*Result should be treated with caution as data capture for 2013 is low

Table 6 - Results of Automatic Monitoring for NO_2: Comparison with 1-Hour Mean Objective

Site ID	Location	Within AQMA?	Data Capture for Full Calendar Year 2013 %	Number of 1-Hour Means > 200 µg/m^3 (1)					
				2008	2009	2010	2011	2012	2013
London Heathrow LHR2	Airport	Yes	99	0	0	2 (154)	0	0	3
London Hillingdon	Suburban	Yes	99	1 (159)	0	0	0	0	0
Hillingdon 1 South Ruislip	Roadside	Yes	100	5	2	7	0	14	0
*Hillingdon 3 Oxford Avenue	Roadside	Yes	77	1	0 (97.9)	1 (142)	0	0 (124)	1 (132)
London Harlington	Airport	Yes	86	0	0 (82.5)	0	0	0	5 (172)
Hillingdon Sipson	Urban background	Yes	99	2	7	0	0	0	0
London Harmondsworth	Airport	Yes	93	0	0	0 (101)	0	0 (123)	0
Heathrow Green Gates	Airport	Yes	99	0 (141)	0	0	0	0	0
Heathrow Oaks Road	Airport	Yes	98	2 (168)	4	0	0	0	0
Hillingdon Hayes	Roadside	Yes	93	0	7	15	15	2	4

(1) If data capture less than 90%, the 99.8th percentile is shown in brackets (µg/m^3)
*Result should be treated with caution as data capture is low

Diffusion Tube Monitoring Data

Results of annual mean NO_2 concentrations measured at diffusion tubes in 2013 have been reported in Table 7. Monthly results are also provided in Appendix B. Results at sites with less than 75% (9 months) data capture have been annualised in line with Technical Guidance LAQM.TG(09) Box 3.2 (Appendix A - Table 19). There was 1 tube that required annualisation in 2013. There is always a degree of uncertainty regarding annualisation and results that have been annualised should be viewed with a level of caution.

Annual mean NO_2 concentrations in excess of the 40µg/m^3 objective were measured at the following diffusion tube sites in 2013:

- HD31 – AURN monitoring station, Sipson;
- HD43 – Uxbridge Day Nursery;
- HD46 – South Ruislip monitoring station;
- HD53 – Warren Road, Ickenham;
- HD200 – 49 Zealand Avenue Lamp Post (1);
- HD201 – 3 Hercies Road;
- HD203 – Blyth Road;
- HD210 – Long Lane;
- HD213 – West End Lane; and
- HD214 – Cleave Avenue.

Exceedances recorded in 2013 all occurred within the existing AQMA.

It is recommended that the Council continue to monitor at all existing locations.

Table 7 - Results of NO_2 Diffusion Tubes 2008-2013

Site ID	Location	In AQMA	Data Capture 2013 (Months)	Annual Mean Concentrations (µg/m^3)					
				2008	2009	2010	2011	2012	2013
HD31	Monitoring Station, Sipson	Yes	12	**45.0**	**45.9**	**44.9**	**44.7**	**46.3****	**43.0****
HD43	Uxbridge Day Nursery, Park Road, Uxbridge (on wire Fence)	Yes	12	**45.0**	**45.5**	**49.7**	**43.4**	**45.2**	**47.1**
HD46	South Ruislip Monitoring Station, West End Road	Yes	12	**47.3**	**47.5**	**47.3**	**42.4**	**46.5***	**45.4***
HD47	Hillingdon Primary School, Uxbridge Road, Hillingdon (on wire fence)	Yes	12	32.2	32.3	34.3	30.0	31.1	32.8
HD49	83 Hayes End Drive, Hayes End, Middlesex (on drain pipe)	Yes	12	27.0	27.1	27.0	25.6	25.8	25.2
HD50A	Hillingdon Hospital, Colham Road (Near John Rich House on former junction to Pield Heath Road)	Yes	12	-	-	-	-	**40.7**	39.4
HD51	Top of Colham Avenue (4), Yiewsley (lamp post at end of road)	Yes	12	36.2	34.3	34.2	33.1	36.2	34.0
HD52	Lamp post near 101 Cowley Mill Road, Uxbridge	Yes	12	38.4	38.6	36.2	33.3	37.0	38.1
HD53	Warren Road, Ickenham, Uxbridge (1st lamp post on left)	Yes	11	**45.5**	**44.1**	**41.0**	**40.5**	**44.6**	**40.3**
HD55	Harold Avenue, (first lamp post on left)	Yes	11	**41.7**	**40.5**	**40.2**	37.8	38.0	38.5

Site ID	Location	In AQMA	Data Capture 2013 (Months)	Annual Mean Concentrations (µg/m^3)					
				2008	2009	2010	2011	2012	2013
HD56	15 Phelps Way, Hayes (lamp post outside of)	Yes	12	38.5	35.2	35.8	35.2	36.7	35.1
HD57	25 Cranford Lane, Harlington (lamp post on the left afyer car park)	Yes	11	38.3	37.2	38.4	36.5	39.3	37.5
HD58	Brendan Close, Harlington (1st lamp post on the left)	Yes	12	**41.6**	**43.2**	39.8	39.4	**40.0**	38.1
HD59	Bomber Close (7), Sipson (1st lamp post on left)	Yes	12	36.0	36.6	33.8	34.4	35.8	35.2
HD60	Harmonsworth Green, Harmondsworth (lamp post outside nursery)	Yes	11	32.9	31.0	31.1	29.4	32.1	30.8
HD61	Heathrow Close, Longford (1st lamp post on the right)	Yes	12	36.7	36.3	37.3	34.9	34.1	37.1
HD65	28 Pinglestone Close, Sipson, Middlsex (on drainpipe)	Yes	12	31.8	33.0	32.4	32.5	38.2	31.2
HD67	31 Tavistock Road (on lamp-post outside house)	Yes	12	31.8	29.8	31.6	30.1	29.2	29.5
HD70	Harefield Hospital, Hill End Road (lamp-post outside entrance)	No	11	26.0	25.9	25.5	23.9	25.4	23.8
HD73	Queensmead School, South Ruislip. (lamp-post opposite Jubilee Drive) (outside AQMA)	No	11	31.1	29.3	27.4	26.3	27.8	26.8

Site ID	Location	In AQMA	Data Capture 2013 (Months)	Annual Mean Concentrations (µg/m^3)					
				2008	2009	2010	2011	2012	2013
HD74	Field End Road/Field End School, S.Ruislip. 3rd Lamp-post south of school entrance (outside AQMA)	No	12	32.3	28.9	31.3	28.4	28.5	28.3
HD75	Sidmouth Drive, South Ruislip (2nd lamp-post from West End Road outside Nursery) (outside AQMA)	No	12	29.3	30.8	29.0	27.7	29.0	28.2
HD200	49 Zealand Avenue Lamp Post (1)	Yes	12	-	-	-	-	37.6	**41.3**
HD201	Near 3 Hercies Road, Lamp Post (1)	Yes	11	-	-	-	-	**42.8**	**41.7**
HD202	49 Silverdale Gardens, Hayes Lamp Post (8)	Yes	9	-	-	-	-	33.3	35.5
HD203	Blyth Road, Hayes Lamp Post (4)	Yes	11	-	-	-	-	**48.1**	**43.0**
HD204	Side of 104 Yiewsley High Street (front of 1A Fairfield Road) Lamp Post (2)	Yes	12	-	-	-	-	38.7	37.9
HD205	1 Porters Way (corner with Kingston Lane) Lamp Post (1)	Yes	12	-	-	-	-	**41.9**	39.6
HD206	5-7 Mulberry Crescent, West Drayton Lamp Post (18)	Yes	11	-	-	-	-	29.4	28.9
HD207	35 Emden Close, West Drayton Lamp Post (14)	Yes	12	-	-	-	-	30.5	34.9
HD208	Side of 50 St. Christopher's Drive Lamp Post (13)	Yes	12	-	-	-	-	29.6	29.3

Site ID	Location	In AQMA	Data Capture 2013 (Months)	Annual Mean Concentrations (µg/m^3)					
				2008	2009	2010	2011	2012	2013
HD209	29 Pendula Drive, Hayes Lamp Post (2)	Yes	11	-	-	-	-	34.5	31.6
HD210	340 Long Lane, Uxbridge Lamp Post (71)	Yes	12	-	-	-	-	**49.9**	**47.9**
HD211	198 Harefield Road, Uxbridge Lamp Post (2)	Yes	12	-	-	-	-	33.5	35.6
HD212	59 Hillingdon Road, Uxbridge Lamp Post (56)	Yes	6	-	-	-	-	38.4	36.3
HD213	10 West End Lane, Harlington Lamp Post (2)	Yes	12	-	-	-	-	**40.2**	**40.1**
HD214	R/O 130 Cleave Avenue, Hayes Lamp Post (33)	Yes	12	-	-	-	-	**49.5**	**44.1**

** Triplicate average
* Duplicate average
In bold, exceedance of the annual mean NO_2 AQS objective of 40µ g/m^3

2.2.2 Particulate Matter (PM_{10})

Annual mean concentrations from 2008 to 2013 have been presented in Table 8. Data measured using TEOM has been VCM (Volatile Correction Model) corrected using the VCM website[5], a summary of the VCM corrections is provided in Appendix A.

Results across the Borough have remained relatively stable compared to 2012 with a maximum variance of 4.0 µg/m^3 being recorded at Hillingdon Hayes.

Results of the PM_{10} 24-hour mean over the same period are provided in Table 9. Where data capture was below 90% the 90.4th percentile has been calculated to indicate if there is a potential to exceed the 24-hour mean PM_{10} objective in excess of 50 µg/m^3, 35 times per year. No sites indicated an exceedance of this objective in 2013.

[5] http://www.volatile-correction-model.info/Default.aspx

Table 8 - Results of Automatic Monitoring for PM_{10}: Comparison with Annual Mean Objective

Site ID	Site Type	Within AQMA?	Valid Data Capture 2013 %	Confirm Gravimetric Equivalent (Y or N/A)	Annual Mean Concentration (µg/m^3)					
					2008	2009	2010	2011	2012	2013
LHR2	Airport	Yes	99	Yes	23.4	25.3	23.8	25.0	24.8	24.6
Hillingdon 1 – South Ruislip	Roadside	Yes	100	Yes	22.9	35.4	22.4	24.0	24.1	22.6
Hillingdon 3 – Oxford Avenue	Roadside	Yes	87	Yes	21.4	21.1	20.4	23.0	22.4	21.0
London Harlington	Airport	Yes	95	Yes	20.9	16.2	19.7	22.0	17.7	20.0
London Harmondsworth	Airport	Yes	92	Yes	29.7	27.9	17.8	21.0	19.7	21.9
Heathrow Green Gates	Airport	Yes	99	Yes	17.2	17.6	20.0	21.0	20.8	20.4
Hillingdon Hayes	Roadside	Yes	86	Yes	21.6	16.3	23.5	25.0	25.4	29.4
Heathrow Oakes Road	Airport	Yes	98	Yes	19.8	21.3	21.8	24.0	21.3	21.0

Table 9 - Results of Automatic Monitoring for PM_{10}: Comparison with 24-Hour Mean Objective

Site ID	Site Type	Within AQMA?	Valid Data Capture for Monitoring Period %	Confirm Gravimetric Equivalent (Y or N/A)	Number of 24-Hour Means > 50µg/m^3 (1)					
					2008	2009	2010	2011	2012	2013
LHR2	Airport	Yes	99	Y	15	7	4	19	18	12
Hillingdon 1 – South Ruislip	Roadside	Yes	100	Y	12	7	5	21	16	10
Hillingdon 3 – Oxford Avenue	Roadside	Yes	87	Y	10	2	2	16	10	6 (34)
London Harlington	Airport	Yes	95	Y	10	5	12	1	8 (37)	9
London Harmondsworth	Airport	Yes	92	Y	33	25	2 5	10	5 (37)	7
Heathrow Green Gates	Airport	Yes	99	Y	2	0	0	16	8	8
Hillingdon Hayes	Roadside	Yes	86	Y	2	6	7	18	15 (47)	17 (46)
Heathrow Oakes Road	Airport	Yes	98	Y	9	1	2	16	11	8

(1) If data capture less than 90%, the 90.4th percentile is shown in brackets (µg/m^3)

2.2.3 Sulphur Dioxide (SO_2)

No monitoring of SO_2 was carried out in 2013 as previous rounds of air quality Review and Assessment have shown that there is no risk of exceeding AQS objectives for this pollutant.

2.2.4 Benzene

No monitoring of benzene was carried out in 2013 as previous rounds of air quality Review and Assessment have shown that there is no risk of exceeding AQS objectives for this pollutant.

2.2.5 Ozone

Continuous monitoring of O_3 is undertaken at the London Hillingdon AURN monitoring site and the London Harlington monitoring site. Ozone is a transboundary pollutant; the sources of O_3 are frequently spatially distant from the measured site of the concentrations. This pollutant is not a prescribed air quality objective for LAQM purposes; however, it has been reported as recommended by Technical Guidance LAQMTG(09).

The results from 2013 indicate that the AQS objective for O_3, of 10 8-hour running mean exceedances of 100 µg/m^3 per year is being exceeded at both monitoring locations (Table 10).

Table 10 - Results of Automatic Monitoring for O_3: Comparison with Objectives

Location	Within AQMA?	Description	% Data capture 2013	Number of Exceedances in 2013
London Hillingdon	Yes	Max. daily 8-hour running mean > 100 µg/m^3	97	**23**
London Harlington	Yes		99	**55**
In bold, exceedance of the ozone AQS objective (100 µg/m^3 - 10 exceedances allowed per year)				

2.2.6 Summary of Compliance with AQS Objectives

The Council has examined the results from monitoring in the Borough.

Concentrations within the AQMA still exceed the 40µg/m^3 objective for NO_2 and the AQMA should remain.

Concentrations outside of the AQMA are all below the objectives at relevant locations, therefore there is no need to proceed to a Detailed Assessment.

3 New Local Developments

3.1 Road Traffic Sources

Since the previous Review and Assessment report, there have been none of the following new or newly identified developments:

- Narrow congested streets with residential properties close to the kerb;
- Busy streets where people may spend one hour or more close to traffic;
- Roads with a high flow of buses and/or Heavy Good Vehicles (HGVs);
- Junctions;
- New roads constructed or proposed;
- Roads with significantly changed traffic flows; or
- Bus or coach stations.

3.2 Other Transport Sources

Since the previous Review and Assessment report, there have been none of the following new or newly identified developments:

- Airports;
- Locations where diesel or steam trains are regularly stationary for periods of 15 minutes or more, with potential for relevant exposure within 15m;
- Locations with a large number of movements of diesel locomotives, and potential long-term relevant exposure within 30m; or
- Ports for shipping.

3.3 Industrial Sources

Since the previous Review and Assessment report, there have been none of the following new or newly identified developments:

- Industrial installations;
- Major fuel storage depots;
- Petrol stations; or
- Poultry farms.

3.4 Commercial and Domestic Sources

Since the previous Review and Assessment report, there have been none of the following new or newly identified developments:

- Biomass combustion plant – individual installations;
- Areas where the combined impact of several biomass combustion sources may be relevant; or
- Areas where domestic solid fuel burning may be relevant.

3.5 New Developments with Fugitive or Uncontrolled Sources

Since the previous Review and Assessment report, there have been none of the following new developments:

- Landfill sites;
- Quarries;
- Unmade haulage roads on industrial sites;
- Waste transfer stations etc; or
- Other potential sources of fugitive particulate emissions.

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

The Council confirms that all the following have been considered:

- **Road traffic sources;**
- **Other transport sources;**
- **Industrial sources;**
- **Commercial and domestic sources; and**
- **New developments with fugitive or uncontrolled sources.**

4 Local / Regional Air Quality Strategy

The Council is part of the Greater London Authorities who are helping to implement the London Plan. The London Plan[6] is the statutory strategic plan produced by the Mayor of London outlining the spatial development strategy for Greater London. All London Boroughs are required to have regard of the London Plan in their own development plans, planning decisions and spatial strategies. The London Plan consists of a number of policies to employ land-use and traffic planning to reduce air pollution and exposure. It requires local authorities to ensure that new developments are sustainable, safe, secure, well designed and improve the environment (particularly the air quality).

London Plan's Policy 7.14, "Improving Air Quality" deals with air pollution and states that:

> *"A The Mayor will work with strategic partners to ensure that the spatial, climate change, transport and design policies of this plan support implementation of his Air Quality Strategy to achieve reductions in pollutant emissions and public exposure to pollution".*

Policy 7.14 also states that:

> *"B Development proposals should:*
>
> *a minimise increased exposure to existing poor air quality and make provision to address local problems of air quality (particularly within AQMAs).*
>
> *b promote sustainable design and construction to reduce emissions from the demolition and construction of buildings, following the best practice guidance in the Greater London Authority (GLA) and London Councils '"The control of dust and emissions from construction and demolition – Best Practice Guidance"[7].*

[6] Mayor of London, The London Plan: Spatial Development Strategy for Greater London, (Consultation draft replacement plan), October 2009

[7] Mayor of London (Nov 2006), The control of dust and emissions from construction and demolition - Best Practice Guidance, Produced in partnership by the Greater London Authority and London Councils

c *aim to be "air quality neutral" and not lead to further deterioration of existing poor air quality (such as in AQMAs). Offsetting should be used to ameliorate negative impacts associated with development proposals. Increased exposure to existing poor air quality should be minimised.*

d *ensure that, where provision needs to be made to reduce emissions from a development, this is usually made onsite. Where it can be demonstrated that onsite provision is impractical or inappropriate, and that it is possible to put in place measures having clearly demonstrated equivalent air quality benefits, planning obligations or planning conditions should be used as appropriate to ensure this, whether on a scheme by scheme basis or through joint area-based approaches.*

e *where the development requires a detailed air quality assessment and biomass boilers are included, the assessment should forecast pollutant concentrations. Permission should only be granted if no adverse air quality impacts from the biomass boiler are identified."*

The Council has made no changes to any local or regional strategies since the previous Round of Review and Assessment.

5 Planning Applications

The Council has set up a weekly meeting where each new planning application is assessed to determine if an air quality assessment is required. If an air quality assessment is required, the planning application will only be validated once the air quality assessment has been received and appraised by the Environmental Protection Unit.

A list of all planning applications that could have an impact upon air quality is provided in Appendix C.

6 Air Quality Planning Policies

The policies set out in local authority planning documents determine the authority's approach to the relationship between planning and air quality. They are important as new developments are judged against these policies.

The London Borough of Hillingdon has developed a Local Development Framework (LDF), with the Core Strategy. This has identified where significant growth or change is proposed, providing information to help address air quality matters. Air quality planning guidance has been integrated into the new LDF "folder" through Supplementary Planning Guidance.

Currently the London Borough of Hillingdon Unitary Development Plan (UDP) (2007) Saved Policies lays out the air quality planning policies. This document updates the policies from the previous UDP, in doing so uses the policies from the London Plan Policies. In 2002 the Council published the Supplementary Planning Guidance to the Unitary Development Plan – Air Quality SPG.

The Hillingdon Public Heath Annual Report 'Health in a Cold Climate' and the Joint Strategic Needs Assessment (JSNA), both recognise the need for improved air quality.

7 Local Transport Plans and Strategies

Hillingdon's Local Implementation Plan (LIP) sets out how the Council proposes to implement the Mayor's Transport Strategy (MTS) and provides details on projects, proposals and programmes from 2011. In the LIP, the Council has presented a range of transport policies, initiatives and projects with the aim to improve air quality.

There is strong synergy between the AQAP and the LIP, with most of the surface transport actions listed shared between the two.

8 Climate Change Strategies

The Council adopted a climate change strategy in 2009. The strategy links with the AQAP and recognises the joint impacts of the air quality improvements and improvements and reduction in climate change.

9 Implementation of the Action Plan

9.1 Overall progress with Hillingdon's Air Quality Action Plan

Hillingdon's Action Plan contains a large number of measures (more than 100) split across the following eight packages:

Package 1: Switching to cleaner transport options, for example, shifting freight from road to rail and promoting cycling and walking

Package 2: Tackling through traffic

Package 3: Promotion of cleaner vehicle technology

Package 4: Measures specific to Heathrow Airport

Package 5: Measures concerning local industries and other businesses

Package 6: Improving the eco-efficiency of current and future developments, including those owned or operated by the Council

Package 7: Actions to be taken corporately, regionally, and in liaison with the Mayor

Package 8: Plan management

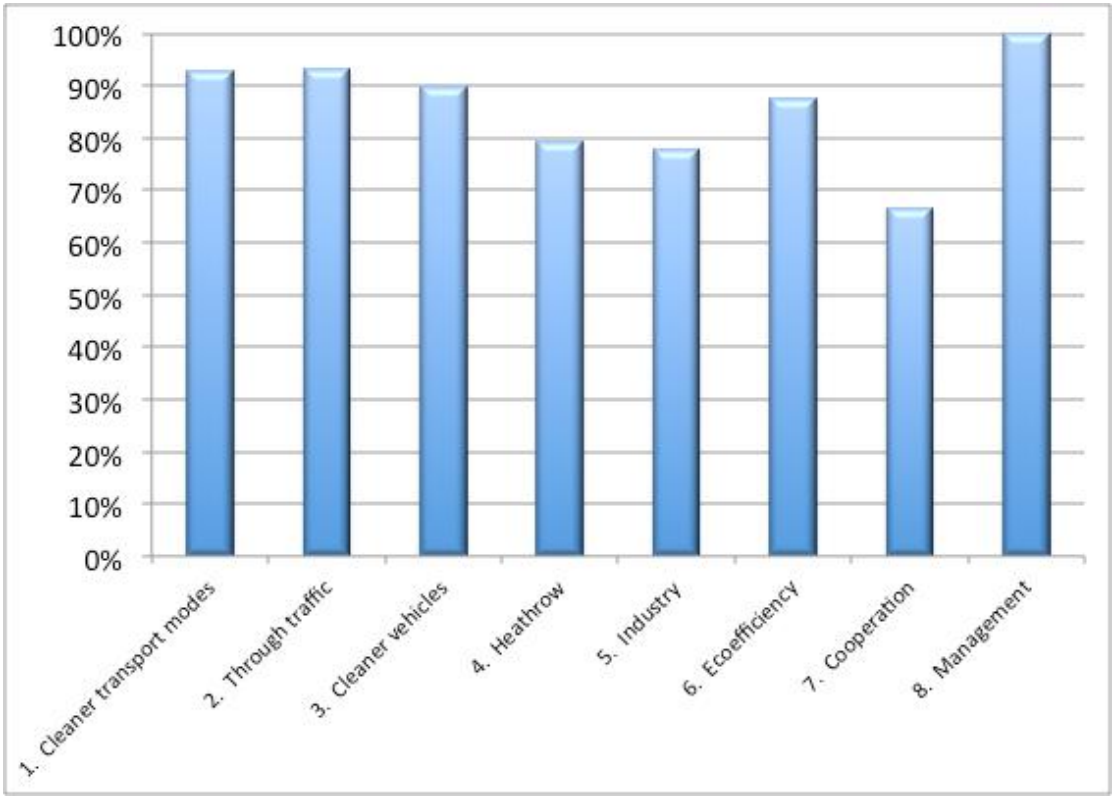
Overall, across these packages, 86% of measures have been fully adopted (Figure 6). In general, implementation of measures that Hillingdon has full control over has been very good (e.g. those in Packages 1, 2, 3 and 8). There has been less success in Packages where other groups are heavily involved. This will need to be considered when the action plan is revised.

Specific measures for the reporting year have included the following, noting the range of activities covered and differences in scale:

- Hotspot Project: This project is looking at measures to reach objective compliance in the hotspots around the A40 and Heathrow (for example by introducing Euro 6 to the fleet and remodelling junctions). The project has been delayed for various reasons including difficulties with obtaining traffic data from Heathrow and TfL. The project is to be reported to Defra and may just provide a list of potential measures to investigate further. The delays in providing data

from the Hotspot Project are problematic for the revision of the Action Plan, as these data are an essential input.

Figure 6 - % of Measures in Each Package that were Fully in Place by the End of 2013



- GLA Cleaner Air Zone school project: This Project focuses on green infrastructures and reducing building emissions from a school in the Borough.
- Transport toolkit. Joint project with Leicester City Council to be completed by the end of March. Toolkit to be used by the LIP team prior to a transport scheme (e.g. low speed measure) being put in place.
- Work with the Heathrow Air Quality Working Group is ongoing, paying particular attention to the possibility of airport expansion.
- Monitoring of Travel Plans to ensure that they are acted on.

9.2 Highlights from Air Quality Action Plan implementation in 2013

A detailed table showing progress of each measure in the Action Plan since it was initiated ten years ago is available separately. The table is now too long to be part of the annual progress report, but will continue to be updated.

9.2.1 Local transport measures

Cycling

Holloway Lane cycle path improvements in the south of the Borough. This part of the network will link West Drayton residential areas and associated rail station to Heathrow Airport. Increasing the numbers of airport employees to gain access via zero emission modes of transport is a key action for reducing emissions in one of the poorest air quality areas in the Borough. (Action Plan Measure 1.03)

Explore Hillingdon: This initiative, part of the change4life Hillingdon programme, is a series of locally led walks and cycle rides around the Borough, carried out throughout the year to encourage active transport. Both the walks and cycle rides are graded according to ability. (Action Plan Measure 1.11)

Bikespiration - linked to the change4life programme the borough hold an annual event on the Civic forecourt where the public can try out new bikes, bring along their own bikes for servicing. (Action Plan Measure 1.11)

Travel Plan monitoring (Action Plan Measure 1.07)

Since mid-2012, as part of the WestTrans consortium, Hillingdon has access to a Travel Plan monitoring officer. Progress made on modal shift with the plans in place will become evident overtime now there is a system of yearly audits in place. The audit proforma will indicate changes in walking, cycling, public transport use, car sharing, etc. Thirteen travel plans are currently listed and have had an initial audit:

Within AQMA

Ickenham Day Nursery

Radisson Edwardian Heathrow Hotel

Kier Park (industrial)

RAF Northolt

Polish Village bakery (industrial)

Bradford Swiss Port (Heathrow Consolidation Centre)

Uxbridge College Campus

Hillingdon Hospital

High Point Village (residential)

Ickenham Park (residential)

Drayton Garden Village (residential)

Outside AQMA:

Mount Vernon Hospital

A further eleven travel plans have been submitted since Autumn 2013. All of these are within the AQMA:

Station House (residential)

Moninstone Ltd (residential)

Ibis Hotel/Airport Bowl

505-509 Uxbridge Road (residential)

Prologis Park Phase 3 (industrial warehousing)

Former Technicolour Site (industrial)

Lombardy Retail Park

Southall Gas Works (joint with Ealing)

Riverside Venue (residential)

Westgate 40 (residential)

9.2.2 Action at Air Quality Hotspots

Heathrow Air Quality Action Plan Audit (Action Plan Measure 4.10)

An independent verification of the Heathrow AQAP has been undertaken. The Heathrow Air Quality Working Group, of which Hillingdon is a key member, chose ten commitments to be audited and an independent consultant chose a further five. Initial observations have been circulated within the group and recommendations will be taken forward by Heathrow Airport Ltd, particularly with respect to backing up conclusions with quantitative data. Conclusions will be made available mid-summer.

Uxbridge Road (Action Plan Measure 2.06)

This work has so far concentrated on commissioning a study of the A4020 (Uxbridge Road). This will continue into the next LIP [8]year. This is one of the key transport corridors that is Borough-owned, and also an air quality exceedance corridor with residential areas close to the Bypass suffering from levels of air pollution above the annual mean NO_2 objective. It is anticipated that improvements in designing out congestion will have corresponding improvements for pollution emissions. Consideration of a range of improvements to the operation of the roundabout at the junction of the A4020 and the A312 (Hayes Bypass) will be included in the study.

A40 (Action Plan Measure 2.06)

Next year's LIP will focus on key junctions along the A40; the Polish War Memorial, Long Lane and Swakeleys Road junctions. All these areas suffer from congestion and levels of pollution above the EU limit value. There are monitoring stations in place in all three areas to enable monitoring of the effects of improvements made.

Hayes Town Centre (Action Plan Measure 1.04)

The Hayes Town centre major scheme is progressing to detailed design, and will be ready for preliminary works to commence in early 2015. The key objective is to improve the overall 'connectivity' of Hayes to address the physical disconnection resulting from the fragmented built environment.

An air quality study was undertaken to look at the principle of the re-opening of Station Road in Hayes. The results of the modelling indicated that the main area affected by the reopening of the road is the stretch between Crown Close and Pump Lane that could see a significant increase in daily traffic flows. Concentrations are predicted to change by around 10% or more in the Station Road street canyon with an accompanying risk of exceedances of the NO_2 annual mean objective.

At the design development stage, the project is adopting measures to mitigate impacts on local air quality. These include:

[8] LIP – Local Implementation Plan for transport improvements

- The development of cycle facilities with safe, dedicated cycle paths linking Hayes & Harlington Station with the town centre and stretching up Coldharbour Lane, and secure cycle stands conveniently sited along the cycle path;
- Bus stops being relocated to within Station Road itself, much closer to the shops and facilities that people want to use to encourage more bus journeys as a quick and convenient alternative to using a car;
- Junction configuration informed from traffic modelling and considering future significant development such as at The Old Vinyl Factory (the former EMI site);
- Design and street features located to deter increased volumes of through traffic using Station Road as an alternative to the A312 Parkway (Hayes Bypass).

The intended highway configuration is expected to be submitted to Transport for London at the end of Summer 2014.

West Drayton and Yiewsley (Action Plan Measure 2.01)

This project includes a 20mph zone that it is designed to smooth traffic flows and to dissuade through-traffic from using the High Street to access the M4, diverting traffic to the more appropriate Stockley Bypass.

Heathrow/Hillingdon Hotspot Project (Action Plan Measure 2.12)

This project has been delayed by lack of provision of data from Heathrow Airport Limited (HAL). After several meetings and promises of data with missed deadlines, a decision has been made, in liaison with Defra, to stop the data collection element and report what the project has been able to quantify to date. It is anticipated that this will be finalised by early summer.

This work is in two parts:

1. To provide information and an evidence base for the actions and measures needed to ensure compliance of the EU limit values in the Heathrow area. This is a joint project with LB Hounslow, Spelthorne and Slough BC.

2. To provide information and an evidence base for the actions and measures needed to ensure compliance of the EU limit values in three key areas within LB Hillingdon, namely, the A40 transport corridor and the A312 transport corridor.

The first phase of the work has completed baseline and source apportionment analysis for both study areas. This provides a basis for modelling the following abatement measures in the second part of the work:

- *Measure 1:* Introduction of 10% electric vehicles in the car and van fleet (replacing Euro 6[9] vehicles) in both 2015 and 2020.
- *Measure 2:* Introduction of a Euro V standard for NOx and PM for all vehicles currently in the LEZ scheme, in both 2015 and 2020, for both study areas.
- *Measure 3:* Introduction of a Euro VI standard for NOx and PM for all vehicles currently in the LEZ scheme, in both 2015 and 2020, for both study areas.
- *Measure 4:* Introduction of a Euro 6 standard for NOx and PM for all vehicles currently in the LEZ scheme for the Heathrow Perimeter Road, in 2015 and 2020.
- Measure 5: Reduction in Heathrow airside vehicle emissions of 50%

Further work has investigated the feasibility of introducing an "Ecopass scheme" for the wider Heathrow area.

It has proven extremely difficult to obtain the required traffic data from HAL to progress the required modelling within a reasonable timescale (20 months). The decision to end the attempted data collection process in February 2014 was taken in discussion with HAL and with DEFRA. It is recognised that the HAL surface access resources have been focused on preparing data for the Airports Commission work, a situation that was unforeseen at the start of this project. However, it must be recognised that this has a serious impact on the ability of the surrounding Boroughs to plan current action on air quality around the airport effectively.

With this in mind, the following proposal has been made for completion of the work:

[9] The Euro standards define limits for exhaust emissions of new vehicles sold in EU member states. Those using Arabic numerals (e.g. Euro 6) concern cars and other light duty vehicles, whilst those using Roman numerals (e.g. Euro VI) concern heavy duty vehicles.

1. Provide a summary of measures investigated together with justification as why they could or could not be taken forwards
2. Provide a quantification of the selected ULEZ measure

9.2.3 Clean Air Zone around Schools project (Action Plan Measure 1.06)

The Clean Air Zone around Schools Project is nearing completion. Botwell Primary School is located in the Hayes area that currently suffers from levels of pollution above regulated limits. The school itself has an infants' playground close to a busy congested road carrying a high percentage of buses. The junior playground has an access road running along one side serving garages attached to houses. There is virtually no green space, with the only "grass" being a small piece of artificial turf. The project has provided funding for reducing building emissions via the application of solar film to the hall, the nursery and three classrooms that suffer from high solar gain which leads to excess use of air conditioning. In addition, power-down units have been provided for the whole IT suite and PCs in each classroom. This is part of a wider campaign to reduce energy use across the school, the success of which will be monitored via metered usage. The use of green infrastructure is being trialled with the addition of a high evergreen hedge at the front of the playground, a green wall of climbing plants along the back playground fence and the addition of a clean quiet zone within the playground (see the photographs below). Indicative pollution monitoring has been included as part of the project.

The project's objectives will be reinforced trough a series of Theatre Workshops to be held at Botwell School. The school is part of the Cleaner, Greener Hayes initiative along with Minet School and Dr Triplets. As part of the dissemination process, the Botwell children will visit both the schools and present the findings of the improving air quality project. This will be reinforced by a Theatre workshop being offered to both the other schools.

9.2.4 Mayors Air Quality Fund (MAQF)

Hillingdon have been successful with an application to the MAQF. Working with Hounslow, Heathrow Airport and Glaxo-SmithKline the aim is to reduce road vehicle emissions in and around Heathrow. The project will focus on the increased use of electric vehicle technology, starting with a pilot project to encourage the use of electric minicabs and to increase substitution of road trips with zero emissions modes such as cycling.

9.2.5 Health impact assessment (Action Plan Measure 4.24)

Public Health England released a report in April 2014 entitled Estimating Local Mortality Burdens associated with Particulate Air Pollution[10]. Hillingdon are reported with an associated life-years lost total of 1,335, equivalent to 118 deaths per year. This compares to 2 deaths from traffic accidents annually in the Borough, based on statistics from the Department for Transport.

Analysis by PHE focused on exposure to fine particles only, calculated with no threshold (reflecting the conclusions drawn from many reviews of air pollution epidemiology, that there is no observable threshold for effects of particles. Hillingdon's action plan, in contrast, is primarily focused on achievement of the air quality objective for NO_2. However, most of the actions included in Hillingdon's AQAP will be effective at controlling $PM_{2.5}$ as well as NO_2. Further to this, the WHO-Europe led HRAPIE (Health Risks of Air Pollutants in Europe) study concluded that it was also appropriate to quantify effects from NO_2 exposure and to treat these as being largely additive to effects of $PM_{2.5}$. It was acknowledged by WHO that a

[10] http://www.hpa.org.uk/Publications/Environment/PHECRCEReportSeries/PHECRCE010/

straightforward addition of NO_2 and $PM_{2.5}$ impacts would entail some level of double-counting, but it was concluded that this would be no more than a third of the estimated NO_2 impact. Methods for quantification of the NO_2 effect are still under discussion by the UK's Committee on the Medical Effects of Air Pollutants (COMEAP). Further to this, HRAPIE concluded that in addition to the burden of air pollution on mortality, there was also a sizeable burden of air pollution on morbidity, covering effects such as respiratory and cardiovascular hospital admissions, the development of chronic bronchitis and various lesser effects (lost work days, etc.).

Whilst the news that the quantified health impacts of air pollutants are significant within Hillingdon may not be thought of as a 'highlight' the fact that methods for quantification are now in place is, as it serves to demonstrate the severity of the problem. Delays in achieving the air quality objectives translate to additional deaths and illness.

9.2.6 Environment Coordination

Measure 7.03 of the AQAP is to establish an Environment Coordination Office for more effective integration of actions to improve environmental performance within and outside the Council. Until recently, progress on this measure has been limited, restricted to agreements between Council Departments to work together and share data. This has led to some success, with LAQM automatically included into the Council's processes, e.g. transport strategies and planning.

This has recently been strengthened by the Borough's Air Quality officer moving to the planning specialist team, whose work is very much influenced by the London Plan and MAQS. The AQ officer is automatically consulted on all major planning applications. The Local Development Framework is currently being redrafted and the Borough is waiting for the GLA to revise the Supplementary Planning Guidances before integrating these/taking them into account in their own policies. The influence of the GLA is considered to be very strong as the Authority carefully follows policies within the London Plan.

9.3 Overview of Progress: Analysis Of Situation, Opportunities, Faults And Threats

9.3.1 Situation

Information on the progress with all measures in the action plan since its adoption is provided in Figure 6. The format used is broadly consistent with that shown in the progress report template. Progress within each package is summarised in the figures below. These show the number of measures in package at each of the following stages of development:

- Not started
- In the planning phase
- In progress
- Ongoing
- Completed

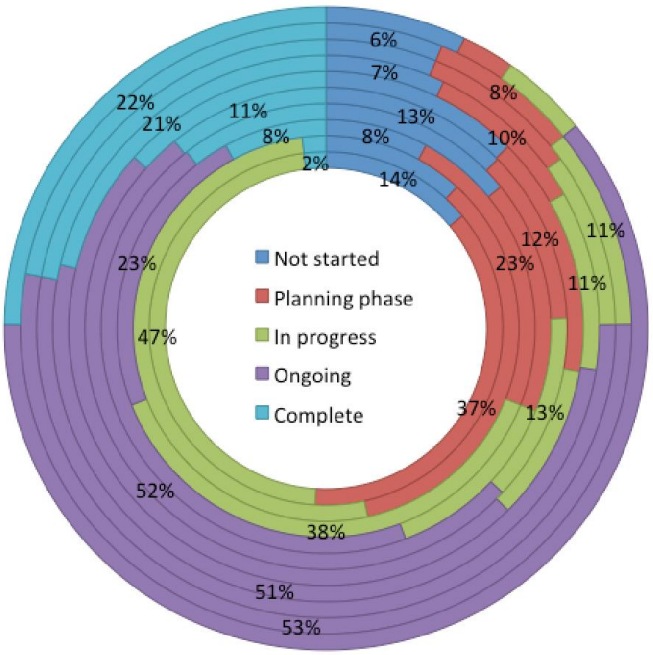
The category 'Completed' covers measures for which no further action is required (including monitoring). The category 'Ongoing' covers measures that are complete in the sense that all necessary actions are in place, but that will require continued input and monitoring. A good example concerns Measure 8.06 (annual reporting on air quality in the Borough). The present report demonstrates that the Council has all necessary actions in place for such reporting, but further annual reports will be required for the foreseeable future. In contrast, measures 'in progress' need additional action to be seen through to either the 'Ongoing' or 'Completed' categories.

An overview of how the Action Plan has progressed over the years is provided by Figure 7 showing the proportion of measures at each at stage of development. In the first two years (inner rings) about half of the measures were underway in some form beyond 'planning'. By 2008 more than half of the measures were ongoing/complete. By the reporting year, 86% of measures were ongoing/complete.

A significant number of measures remain in the other two categories, with 7% of measures not started or abandoned (the latter recognising both the time that the plan has been in place, and the breadth of actions originally identified) and 3% in a

planning phase (note that the chart only shows % figures for alternate years, not including the reporting year). To a significant extent these reflect measures for that wider support was needed that has not been forthcoming, or measures that, with the benefit of hindsight, are now not considered practicable. However, despite the maturity of the plan at this point in time, there has been some advancement of measures in the reporting year compared to the previous year.

Figure 7 - % of Actions Listed in the Various Packages of the Action Plan in Each Stage of Implementation. Rings from inside to out represent progress for 2004/5 and then for each year to 2013/14.

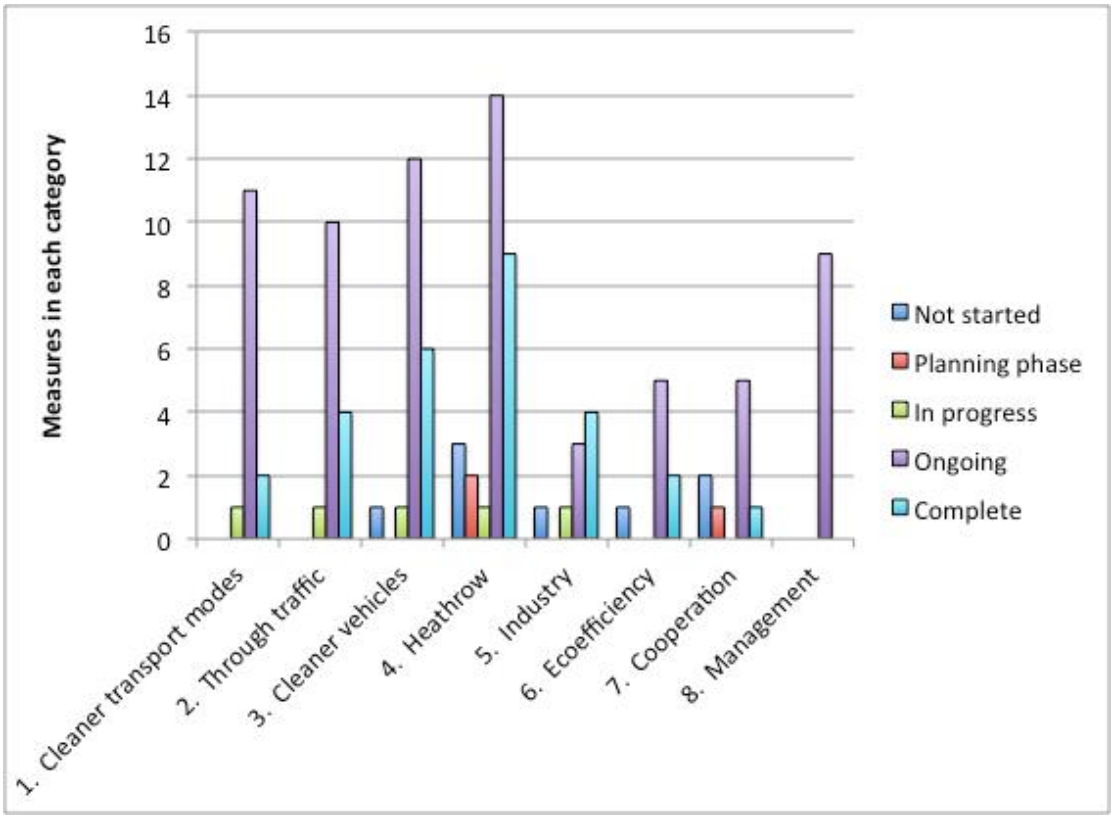


A significant number of measures remain in the other two categories, with 7% of measures not started or abandoned (the latter recognising both the time that the plan has been in place, and the breadth of actions originally identified) and 3% in a planning phase (note that the chart only shows % figures for alternate years, not including the reporting year). To a significant extent these reflect measures for that wider support was needed that has not been forthcoming, or measures that, with the benefit of hindsight, are now not considered practicable. However, despite the

maturity of the plan at this point in time, there has been some advancement of measures in the reporting year compared to the previous year.

Figure 8 shows progress against each Package of measures.

Figure 8 - Progress of Actions in Each Package in the Action Plan, showing the Number of Measures at each of the Five Stages Listed (at end April 2013).



A thorough review of all measures classed as 'in progress/ongoing/complete' has been made annually. It should also be noted that some of the completed measures include actions such as investigating whether subsidies could be applied to public transport (e.g. the Heathrow Express) to improve modal switch. In several such cases it has been concluded that there is no scope for implementing these measures, for example they are not in Hillingdon's power and the bodies responsible are unwilling to take them on.

9.3.2 Opportunities

Hillingdon has long recognised the need to take advantage of diverse funding sources for implementation of the action plan. These include:

- The Borough's Local Implementation Plan (LIP) for transport
- Section 106 agreements
- Mayors Air Quality Fund
- Defra
- Interested local businesses (such as those listed in Section 9.2.1 who have submitted travel plans for audit).

The Council will continue to liaise with others relevant to the Action Plan, both inside and outside the Council. Collaboration with neighbouring Councils remains strong.

Shortly before completion of this progress report new information was received from TfL concerning their Transport Emissions Action Plan. This lists the following measures:

1. Implement an Ultra Low Emission Zone (ULEZ) in central London
2. Transforming London's bus fleet
3. Delivering a zero emissions taxi fleet
4. Transforming London's public and private fleets
5. Future phases of the Low Emission Zone
6. Developing Low Emission Neighbourhoods
7. Driving the uptake of Low Emission Vehicles
8. Cleaner electricity for London's transport
9. Using traffic measures to reduce pollution
10. Helping Londoners tackle air pollution and global warming

Clearly there is a need to ensure that these actions are undertaken around Heathrow as well as in Central London. Detailed feasibility work on these options, including research into funding mechanisms is planned for 2015.

Discussions have commenced between Council Officers Highways Agency contractors concerning a 'managed motorway' from Junctions 3 to 12 of the M4,

including variable speed limits and hard shoulder running. Full consultation including environmental assessments will be in October.

9.3.3 Faults

There are three types of fault that could affect the action plan and the Council's implementation of it:

1. Failure to meet the limit values by the required date. The required date was back in 2010 for the annual mean NO_2 limit. Recent analysis for government indicates that London will not be compliant with the Air Quality Directive until after 2030. The Council's responsibility as determined by Central Government extends only to "move towards" compliance with the EU limit values, recognising the constraints acting on Local Authorities. The most obvious constraints affecting Hillingdon concern its lack of control of the major emission sources in the Borough – Heathrow Airport and the major road network.

2. Adoption of an action plan that is insufficiently ambitious in "moving towards" the limit values. On the basis that the plan has been reviewed by the GLA and National Government and that neither has identified this to be a problem, it is concluded that the plan is considered to be sufficiently ambitious relative to plans prepared by other local authorities. It is, however, now several years old, so it is appropriate that the Council takes action to revise the plan. As noted elsewhere, this revision process has been stalled through a lack of anticipated data from the Heathrow/Hillingdon Hotspot Project.

3. Failure to implement the plan to the extent required to move sufficiently towards compliance with the limit values. The Council has completed many actions that were part of the original plan. On the other hand, some have not been implemented at all. These are being reviewed with a view to considering whether further effort should and can be directed to their implementation or whether alternative approaches are needed.

9.3.4 Threats

The economic crisis had a direct effect on reducing emissions through for example, reduced traffic. However, it will, in the longer term, delay the implementation of some measures and reduce the rate at that older vehicles are replaced with those designed with higher levels of pollution abatement equipment.

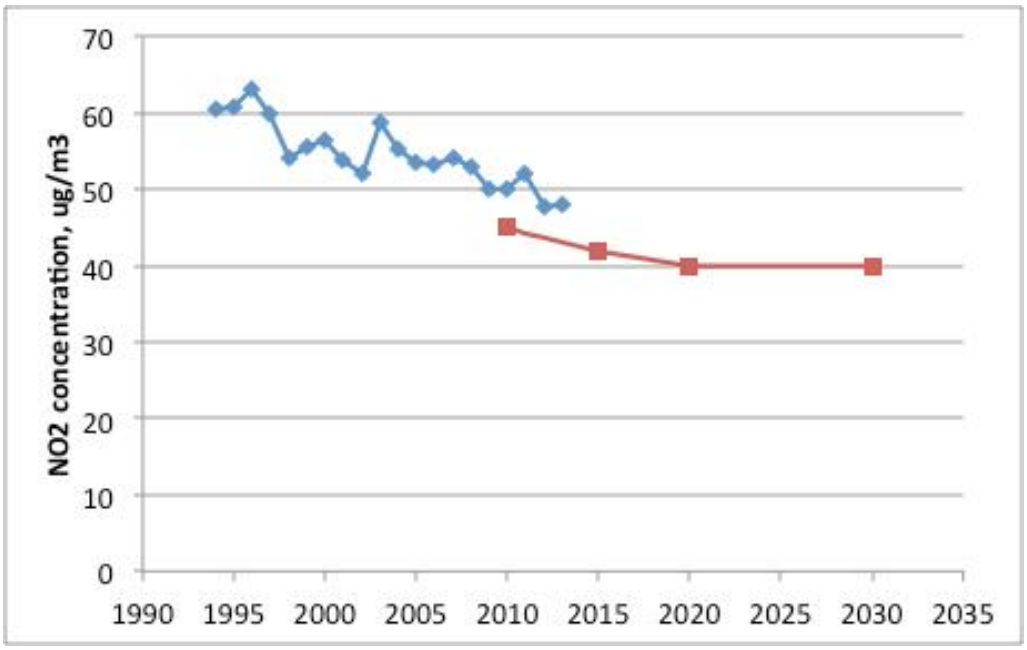
Heathrow Airport

There remains significant uncertainty relating to plans for Heathrow Airport. The Howard Davies Airports Commission was set up by the Coalition Government in recognition of the need to establish an independent evidence base for a long-term strategy for aviation in the UK. The Commission has published an interim report on immediate actions to improve the use of current runway capacity. Alongside short and medium term recommendations for operational changes at Heathrow Airport to make the best use of the current capacity, the report has also short-listed two expansion proposals for Heathrow Airport along with one for Gatwick Airport. The proposal for a Thames Estuary option is still being explored and more evidence is being sought by the Airports Commission. Final recommendations on the location for expansion will not be made until post election in 2015. Given that the Third Runway proposal for Heathrow has not been discarded, it is informative to consider how the forecast NO_2 concentration made in the previous application compares to actual concentration (Figure 9). It is very clear that the air quality modelling for Heathrow airport that supported the earlier application, suggesting compliance with air quality limit values by 2020, is not supported by monitoring data. For 2013 the measured data exceed the forecast by 4.6 $\mu g/m^3$, a slightly greater disparity than for the previous year.

On the 20th February 2014 the EU Commission launched legal proceedings against the UK in regard to its failure to cut excessive levels of nitrogen dioxide. This followed a ruling in the UK Supreme Court that concluded that the UK is in breach of its duties having not produced detailed action plans for meeting the limits as soon as possible. The Judgement also included a referral to the European Courts for detailed clarification on certain points of the legislation. This is capable of being accompanied by fines on Member States. Under the Localism Act 2011, there is the potential for

Central Government to pass on any such resulting fines to regional and local authorities. It is noted here that passing on the fine to the people of Hillingdon would be extremely unjust given that the Council has so little control over the major sources of emission in the Borough, and that the Council has taken its responsibilities for air quality improvement extremely seriously.

Figure 9 - Annual mean NO_2 concentrations at LHR2. Blue Line = Measured Data; Red Line = Modelled Information for 2010 to 2030 Reported in Support of Heathrow Expansion.



High Speed 2

With the passage of the Hybrid Bill through the second reading in regard to HS2 Phase 1, the focus is now on the petitioning process. Hillingdon has raised many concerns about the construction side of the planned railway. The HS2 Environmental Statement has predicted increases of up to 10.5ug/m^3 annual mean nitrogen dioxide from construction traffic on roads around Ickenham that are currently already in exceedance. There are no mitigation measures suggested in the report to address this issue or give any reassurance that the effects will be “temporary” as described. There is no detail behind the statement that the peak effects are expected to last one year or any definition of what "peak effects" mean. Whilst the assessment looks at

worse case, it is has been made clear in Hillingdon's response the importance that should be attached to understand the ongoing impacts and the time scales involved. This is especially critical in areas that are already in exceedance of European legislation.

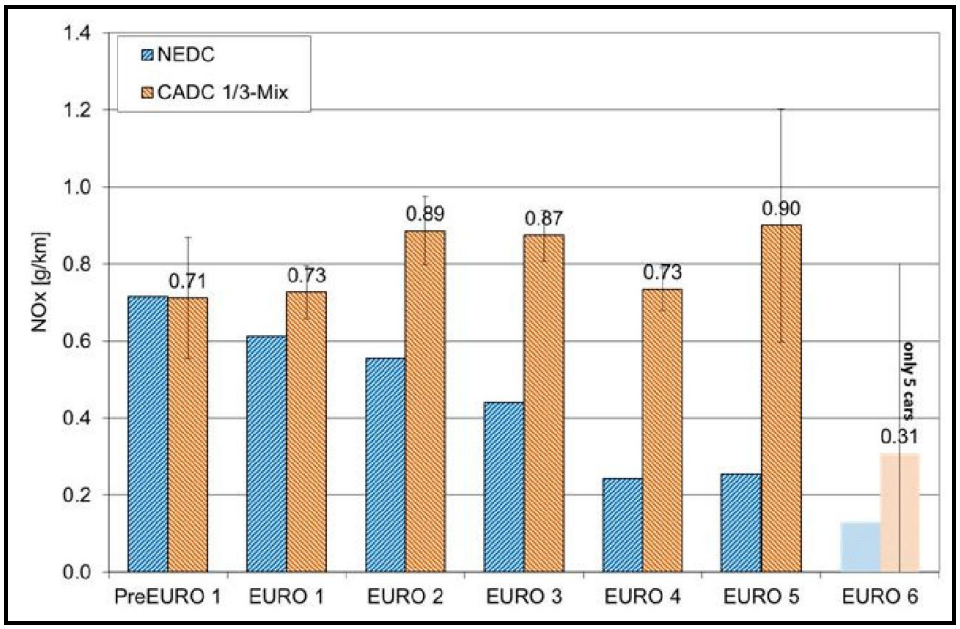
As the process moves to the petitioning stage, the issue of construction and ensuring all impacts are fully mitigated and residents protected will form a major part of the council's petition.

Estimated vehicle emissions

It has been recognised that the emission factors used to model future light and heavy duty road fleet emissions have erroneously suggested a greater decrease in emissions than has actually been observed. Hillingdon has commissioned work from the Aether Consultancy to investigate this issue further.

Results are shown in the following figure. NEDC shows emission estimates for NOx from diesel cars following the 'New European Driving Cycle', whilst CADC 1/3 mix is based on data from the 'Common Artemis Driving Cycle', considered here to be closer to real world conditions. Manufacturers have focused on making cars that can meet the required NEDC standards. However, as can be seen, NEDC suggests a substantial fall in diesel NOx emissions as advanced Euro emission standards are implemented, but CADC does not. It is clearly essential that modelling is based as much as possible on real world conditions.

Figure 10 - Average NOx emissions for diesel cars by Euro standard over the NEDC test cycle and under "real world" driving conditions[11].



9.3.5 Response to faults and threats

In response to the above faults and threats, Hillingdon, and neighbouring Boroughs, have taken a number of opportunities to provide input both to the Airports Commission and to discussions on air quality around Heathrow. The following provides a timeline showing how the process of evaluating options for airport provision around London has developed, with, naturally, specific consideration given to air quality around Heathrow.

In **July 2008** Leaders from the boroughs of Hillingdon, Hounslow and Wandsworth raised their concerns directly with the European Commissioner over the poor air quality around Heathrow and the lack of control the local authorities had over emissions from sources such as airport operations and major road network emissions. Most recently, in **May 2014**, this was followed up by officers from Hillingdon, Hounslow and Wandsworth travelling to Brussels for a meeting with Commission officers in regard to local air quality. The concerns over the current

[11] Taken from a COPERT presentation at the EIONET meeting on the 13th November 2012. http://www.eionet.europa.eu/events/Nov%202012%20COPERT/

situation, the lack of action and the relentless pressure for expansion of the airport were all brought to their attention.

Hillingdon, as part of the 2M group, have consistently called for the Airports Commission to ensure that air quality and health impacts are included in the process currently being administered by the Commission to evaluate where future aviation capacity should be located. **In May 2013**, the 2M group wrote to the Airports Commission referencing the Aviation Policy Framework commitment to achieve full compliance with EU AQ legislation. The letter asked the Commission to ensure full transparency and rigorous scrutiny of all the assessment methodology along with details of the inputs and assumptions used to carry out any air quality assessments. In **September 2013**, following the publication of the Heathrow Airport Ltd reports on their options for short, medium and long term options, the 2M group submitted a further detailed response in regard to the ensuing environmental impacts. In terms of the short and medium term options put forward by Heathrow Airport Ltd, the 2M letter requested that the Airports Commission ensured that their process would include a detailed cumulative environmental assessment of all the measures proposed before it made any decisions in regard to approving them for implementation.

With respect to the long term options, the Heathrow submission relied on future improvements to road vehicle and aircraft technology to solve the air quality problem around the airport, along with a promise that surface access measures would be put in place that would ensure there were no more Heathrow-related traffic movements on the road with expansion than there are today. The 2M request was made to the Airports Commission to ensure that the assumption that increases in emissions from increased aircraft movements would be off-set by reductions in other sources is robustly scrutinised. With respect to inputs to the assessment process it was highlighted that surface access assumptions in terms of traffic model outputs and also assumptions in terms of public transport network capacities needed to be independently audited.

The Airports Commission Interim Report was published in **December 2013**. This recommended several short and medium term measures for action at Heathrow

Airport, including implementation of the Ending of the Cranford Agreement as soon as possible, along with a short list of options for future capacity increases. Of the four options to be considered for future capacity increases, two were for increases in capacity at Heathrow.

In February 2014 The 2M group responded in detail to the Airports Commission consultation on the Appraisal Framework it would be using to assess the short listed options for future expansion. The 2M response included the request for a separate Health Impact module to ensure all community impacts were appropriately accounted for. Attention was drawn to what is seen as a fundamental flaw in the Airport Commission's approach to environmental assessments. The Commission has chosen to adopt a "do minimum" scenario from that future assessments will be made. The do minimum scenario referred to incorporates the short and medium term recommendations for that there have been no detailed environmental assessments. The 2M recommendation was made that any starting point for an assessment must be a defined base case of the short listed proposal site with current permitted operations. The suggested do minimum case is not a base case. It is a forecast case that will need to include assumptions for that there have been no public consultation, and that will introduce uncertainties into the process from the start.

There was no defined air quality model for use that could bring in additional uncertainties when the Commission attempts to compare different short listed options. Undefined assumptions within the Appraisal Framework such as "reasonable adjustments to account for future improvements" is unacceptable and leaves the definition of "reasonable" to the airport scheme proposer.

The short and medium term recommendations have not been accompanied by any detailed air quality assessment. Given that one relatively small measure (the Ending of the Cranford Agreement) changes the spatial emissions around the airport and has been predicted to cause exceedances in Longford for the first time, this is an unacceptable approach. This has been brought to the attention of the Airports Commission.

In specific regard to the Ending of the Cranford Agreement, the planning application and accompanying assessments as submitted by Heathrow Airport Ltd have now been assessed by the Borough. Due to predicted exceedances of the air quality limit value for the first time at residential properties in Longford and the lack of any accompanying action plan setting out measures that would reduce the specific areas of exceedance and ensure compliance as soon as possible, the Borough has objected to the application and refused it on air quality grounds along with noise objections. The Borough is currently expecting an appeal to be lodged by HAL.

The Appraisal Framework was published in **April 2014**. It contains no specific health module. The base case remains the "do minimum" forecast that will necessitate the inclusion of assumptions and is therefore a forecast not a base case. There is still no defined air quality model and no specific definition of assumptions to be used.

In May 2014 Heathrow Airport Ltd have now submitted a refreshed design of their north-west runway option for capacity increases at Heathrow to the Airports Commission. In regards to air quality the document refers to new public transport options, an option for a congestion charge to ensure there will be no more Heathrow-related vehicles on the road with expansion than there is today and that these measures, combined with new road vehicle and aircraft technology, will ensure that levels of nitrogen dioxide will be within the EU limit values with expansion.

The report states that there has been an air quality assessment for 2030 that indicates that air quality limits can be met. This is not presented in the document. It is acknowledged that this will be influenced substantially by the implementation of the surface access strategy including meeting the 50% mode share by public transport. There is a potential case for a congestion charge to reduce traffic congestion levels further once all the public transport improvements have been put in place.

The view of the Borough is that there must be absolute confidence that air quality limits will be met. It should be noted that although there are promises of achieving 50% modal shift in regards to public transport share to the airport, there has been a struggle over a number of years to even achieve the 40% target. None of the report

has been open to scrutiny in terms of the air quality assessment on any assumptions used.

Shortly prior to the completion of this progress report some additional material was received from Heathrow Airport Limited, specifically addressing air quality. This has been reviewed by Council officers. The report assesses the air quality effects of a third runway at Heathrow. There are two assessment years; 2030, described as the initial phase ie an increase of 90,000 from 480,000 ATMs a year to 540,000 ATMs a year. This represents the new runway operating at a third of its capacity, and; 2040, described as mature operations ie an increase of 260,000 ATMs a year giving a total airport throughput of 740,000 ATMs a year. Mitigation measures such as cleaner aircraft technology and operations, cleaner airside vehicles and the surface access measures that underpin the undertaking that there will be no growth in airport-related traffic on the nearby road and motorway network with a third runway, have all been included in the assessment. Results suggest compliance with the current air quality limit values in 2030 and 2040.

Whilst Hillingdon welcomes the new information, results need to be seen for what they are: the output of a particular set of models based on a particular set of assumptions made over an extended timeframe of between 16 and 26 years. Stakeholders and outside experts have had no opportunity to feed into the decision made. Extensive sensitivity testing of assumptions is necessary, as demonstrated by the comparison made above of forecast concentrations from the original 3rd Runway Application against actual concentrations (Figure 9), that shows that previous assumptions have been too optimistic.

A further assumption is that the current air quality limits will not have been revised downwards by 2030/2040. There is some pressure for this for a number of reasons:

1. Quantification of pollution impacts shows that effects are large
2. Studies continue to demonstrate that effects of PM exposure are found at very low concentrations, with no evidence for a threshold
3. The WHO guidelines for PM are lower than the EU limit values

4. There is a growing body of evidence that the effects of NO_2 are significant at ambient concentrations.

9.4 Progress with the action plan

The last two progress reports have both identified revision of the Action Plan as a next step. As noted above, on-going delays with the release of data from the Heathrow/Hillingdon Hotspot Project have prevented this moving ahead. In terms of the review of the Plan, Hillingdon is not intending to write a totally new action plan. This would be both laborious and costly, both to the Council and to possible consultees. Hillingdon considers that the existing Plan is working and would like it to continue to keep it going to keep up the momentum in delivering borough wide measures. They may consider a more simple review of the AP and see whether some of the packages can be closed (if they are now complete). As the original Plan was so broad, any new projects can be incorporated into existing packages and within the wider measures (e.g. working with schools).

In carrying out further actions it is important to be conscious of the need to maintain the impetus of local, regional and national actions in the interests of public health protection. The main focus of this work will doubtless be on those areas where limits are currently exceeded. However, the importance of at least maintaining, and preferably improving, air quality in areas that already meet the objectives should be borne in mind, given that the air quality limit values do not represent concentrations at that there is no effect on health.

Further to this, any major development in the Borough should be subject to a very wide-ranging health assessment. Focusing on air pollution alone will ignore a variety of other impacts that may be as serious, and will need mitigation in the interests of protecting the people of Hillingdon and other Boroughs in the area.

The area around Heathrow and the major road network is in breach now and predicted to be so for the foreseeable future. The current situation must be solved, mechanisms must be put in place now to ensure compliance in the

area is reached and maintained as soon as possible, in line with European legislation. The alternative is to continue exposing the people of Hillingdon and other Boroughs that surround the airport to a level of pollution that poses excessive risk to health.

10 Conclusions and Proposed Actions

10.1 Conclusions from New Monitoring Data

Exceedances of the annual mean objective for NO_2 continue to occur in the Borough within the AQMA.

- Concentrations at the London Hillingdon automatic monitoring site have decreased in 2013. However, they are still exceeding the annual mean AQS objective for NO_2. This site is representative of public exposure as it is a similar distance from the M4 motorway as the nearby housing. This site is already within the Hillingdon AQMA.

- Concentrations at Hillingdon South Ruislip have decreased by 7 µg/m^3. However, the concentrations at this site still exceed the annual mean AQS objective for NO_2.

- Concentrations at Hillingdon Hayes increased in 2013. This site was already exceeding the annual mean AQS objective for NO_2.

- Concentrations at London Harlington, Hillingdon Sipson, Heathrow Green Gates, and Heathrow Oaks Road increased slightly during 2013; however, they are still below the annual mean AQS objective for NO_2.

- Concentrations at London Hillingdon 3 (Oxford Avenue) have decreased in 2013, and it is now slightly below the annual mean AQS objective for NO_2. However, this decreased in concentrations should be treated with caution as the data capture was only 77%.

- Concentrations at other monitoring sites remained the same or decreased in 2013 compared to 2012. No exceedances of the 1-Hour mean objective for NO_2 were recorded in 2013.

It is recommended to continue monitoring at all locations across the Borough.

10.2 Conclusions relating to New Local Developments

It is recommended that the Council continue to implement the system of checks for all new developments with regards to air quality.

10.3 Other Conclusions

The Action Plan measures are now largely implemented, either through to conclusion or have been integrated with working practices. There is a need to update the Action Plan, partly to simplify it (recognising what has been achieved) and in recognition of changes in circumstance over the last 10 years. Revision of the Action Plan has been delayed because essential data have not been made available to the Council.

Analysis by Public Health England shows that air pollution has major health impacts across the Borough, equivalent to more than 100 deaths per year. In contrast, road accidents account for only 2 deaths per year. This is not to say that the latter are unimportant, simply to stress the importance of the air pollution burden on the population of Hillingdon.

10.4 Proposed Actions

There is no need to carry out any Detailed Assessment at this time. Recommended actions are:

- Continue to monitor air pollution across the Borough;
- Continue to implement action plan measures; and
- Proceed to Updating and Screening Assessment (USA) in 2015.

Appendices

Appendix A: Quality Assurance / Quality Control (QA/QC) Data

Appendix B: Monitoring Results

Appendix C: Planning Applications during 2012/2013

Appendix A: QA:QC Data

Diffusion Tube Bias Adjustment Factors

A bias adjustment factor of 1.00 reported in the latest version v03_14 of the national database of co-location studies conducted for tubes prepared (50% TEA in acetone) and analysed by Gradko during 2013 that is based upon 17 studies has been used to adjust the diffusion tube results.

Factor from Local Co-location Studies

One co-location study was undertaken in 2013 at the AURN site London Hillingdon. The bias factor from this study was 1.21 based on an overall good precision at each site.

Table 11 - Co-location study London Hillingdon

Checking Precision and Accuracy of Triplicate Tubes

AEA Energy & Environment
From the AEA group

Diffusion Tubes Measurements

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
1	04/01/2013	01/02/2013	55.9	49.6	45.9	50	5.1	10	12.6
2	01/02/2013	01/03/2013	38.2	34.9	38.3	37	1.9	5	4.8
3	01/03/2013	29/03/2013	33.3	36.1	33.4	34	1.6	5	4.0
4	29/03/2013	26/04/2013	37.7	35.7	38.0	37	1.3	3	3.2
5	26/04/2013	31/05/2013	35.6	36.3	29.9	34	3.5	10	8.8
6	31/05/2013	28/06/2013	35.4	33.5		34	1.3	4	11.7
7	28/06/2013	02/08/2013	45.8	44.7	43.4	45	1.2	3	3.0
8	02/08/2013	30/08/2013	40.1	37.8	38.8	39	1.1	3	2.8
9	30/08/2013	04/10/2013	45.0	46.4	45.2	46	0.8	2	1.9
10	04/10/2013	01/11/2013	56.3	54.7	54.3	55	1.0	2	2.5
11	01/11/2013	29/11/2013	43.1	44.4	43.1	44	0.8	2	1.9
12	29/11/2013	03/01/2014	64.3	68.5	68.4	67	2.4	4	6.0
13									

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

Automatic Method		Data Quality Check	
Period Mean	Data Capture (% DC)	Tubes Precision Check	Automatic Monitor Data
62.8	99.7	Good	Good
46.0	96.0	Good	Good
50.7	97.9	Good	Good
51.3	100.0	Good	Good
45.7	100.0	Good	Good
38.5	100.0	Good	Good
50.3	99.6	Good	Good
49.3	96.6	Good	Good
53.7	100.0	Good	Good
59.4	100.0	Good	Good
56.5	100.0	Good	Good
67.3	100.0	Good	Good
Overall survey -->		Good precision	Good Overall

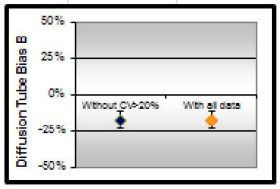
(Check average CV & DC from Accuracy calculations)

Site Name/ ID:

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 12 periods of data	
Bias factor A	1.21 (1.13 - 1.3)
Bias B	-17% (-23% - -11%)
Diffusion Tubes Mean:	44 µgm^{-3}
Mean CV (Precision):	4
Automatic Mean:	53 µgm^{-3}
Data Capture for periods used:	99%
Adjusted Tubes Mean:	53 (49 - 57) µgm^{-3}

Accuracy (with 95% confidence interval) WITH ALL DATA	
Bias calculated using 12 periods of data	
Bias factor A	1.21 (1.13 - 1.3)
Bias B	-17% (-23% - -11%)
Diffusion Tubes Mean:	44 µgm^{-3}
Mean CV (Precision):	4
Automatic Mean:	53 µgm^{-3}
Data Capture for periods used:	99%
Adjusted Tubes Mean:	53 (49 - 57) µgm^{-3}



Jaume Targa, for AEA
Version 04 - February 2011

Discussion of Choice of Factor to Use

The national bias adjustment factor was used to correct the diffusion tube 2013 results. The basis for this decision is due to the trend in bias adjustment factors over the past few years. The factor of 1.00, based upon 17 studies is much closer to the trend in factors that have been applied in Hillingdon over the past few years. If 1.21 from the co-location study were applied there would be a significant increase in concentrations at all site.

Whilst using the national factor is not a conservative approach is considered to be a better approach to adjust results when dealing with a Borough-wide set of monitoring sites.
Results with local and national bias factor have been provided in Table 18 as a comparison in 2013.

PM Monitoring Adjustment

Particulate Matter is monitored by TEOM at five sites. Results presented in the Progress Report have been VCM-corrected. The parameters used in producing the adjusted data are summarised in tables below.

Table 12 - VCM Correction Data Heathrow Green Gates

Summary	Text
Site Name	Heathrow Green Gates
Organisation	Hillingdon
Start Date	01/01/2013
End Date	31/12/2013
TEOM data already corrected with 1.3 factor	Yes
EPA Constant A	3
EPA Constant B	1.03
Instrument Temperature	25
Instrument Pressure	1013
Instrument reports to local ambient readings	No
Timescale	Hourly
Pressure Site	Ealing - Southall Railway (EI2)
Pressure Site Warning	
Temperature Site	Brent - Neasden Lane (BT5)
Temperature Site Warning	
FDMS Site 1	Westminster - Horseferry Road (WM0)
FDMS Site 1 Warning	
FDMS Site 2	Lewisham - New Cross (LW2)
FDMS Site 2 Warning	
FDMS Site 3	Average of remaining sites within range
FDMS Site 3 Warning	FDMS3 Correction includes unratified data.

Table 13 - VCM Correction Data Heathrow LR2

Summary	Text
Site Name	Heathrow LR2
Organisation	Hillingdon
Start Date	01/01/2013
End Date	31/12/2013
TEOM data already corrected with 1.3 factor	Yes
EPA Constant A	3
EPA Constant B	1.03
Instrument Temperature	25
Instrument Pressure	1013
Instrument reports to local ambient readings	No
Timescale	Hourly
Pressure Site	Ealing - Southall Railway (EI2)
Pressure Site Warning	
Temperature Site	Brent - Neasden Lane (BT5)
Temperature Site Warning	
FDMS Site 1	Westminster - Horseferry Road (WM0)
FDMS Site 1 Warning	
FDMS Site 2	Lewisham - New Cross (LW2)
FDMS Site 2 Warning	
FDMS Site 3	Average of remaining sites within range
FDMS Site 3 Warning	FDMS3 Correction includes unratified data.

Table 14 - VCM Correction Data Heathrow Oaks Road

Summary	Text
Site Name	Heathrow Oaks Road
Organisation	Hillingdon
Start Date	01/01/2013
End Date	31/12/2013
TEOM data already corrected with 1.3 factor	Yes
EPA Constant A	3
EPA Constant B	1.03
Instrument Temperature	25
Instrument Pressure	1013
Instrument reports to local ambient readings	No
Timescale	Hourly
Pressure Site	Ealing - Southall Railway (EI2)
Pressure Site Warning	
Temperature Site	Brent - Neasden Lane (BT5)
Temperature Site Warning	
FDMS Site 1	Westminster - Horseferry Road (WM0)
FDMS Site 1 Warning	
FDMS Site 2	Lewisham - New Cross (LW2)
FDMS Site 2 Warning	
FDMS Site 3	Average of remaining sites within range
FDMS Site 3 Warning	FDMS3 Correction includes unratified data.

Table 15 - VCM Correction Data Hillingdon Oxford Avenue

Summary	Text
Site Name	Hillingdon Oxford Avenue
Organisation	Hillingdon
Start Date	01/01/2013
End Date	31/12/2013
TEOM data already corrected with 1.3 factor	Yes
EPA Constant A	3
EPA Constant B	1.03
Instrument Temperature	25
Instrument Pressure	1013
Instrument reports to local ambient readings	No
Timescale	Hourly
Pressure Site	Ealing - Southall Railway (EI2)
Pressure Site Warning	
Temperature Site	Brent - Neasden Lane (BT5)
Temperature Site Warning	
FDMS Site 1	Westminster - Horseferry Road (WM0)
FDMS Site 1 Warning	
FDMS Site 2	Lewisham - New Cross (LW2)
FDMS Site 2 Warning	
FDMS Site 3	Average of remaining sites within range
FDMS Site 3 Warning	FDMS3 Correction includes unratified data.

Table 16 - VCM Correction Data Hillingdon South Ruislip

Summary	Text
Site Name	Hillingdon South Ruislip
Organisation	Hillingdon
Start Date	01/01/2013
End Date	31/12/2013
TEOM data already corrected with 1.3 factor	Yes
EPA Constant A	3
EPA Constant B	1.03
Instrument Temperature	25
Instrument Pressure	1013
Instrument reports to local ambient readings	No
Timescale	Hourly
Pressure Site	Ealing - Southall Railway (EI2)
Pressure Site Warning	
Temperature Site	Brent - Neasden Lane (BT5)
Temperature Site Warning	
FDMS Site 1	Westminster - Horseferry Road (WM0)
FDMS Site 1 Warning	
FDMS Site 2	Lewisham - New Cross (LW2)
FDMS Site 2 Warning	
FDMS Site 3	Average of remaining sites within range
FDMS Site 3 Warning	FDMS3 Correction includes unratified data.

Table 17 Results of NO2 Diffusion Tubes 2008-2013 (with the local and national bias factor for 2013)

Results with the local and national bias factor for 2013 have been provided as a comparison

Site ID	Location	In AQMA	Data Capture 2013 (Months)	Annual Mean Concentrations (µg/m^3)						
				2008	2009	2010	2011	2012	2013 Local Bias Factor = 1.21	2013 National Bias Factor = 1.00
HD31	Monitoring Station, Sipson	Yes	12	**45.0**	**45.9**	**44.9**	**44.7**	**46.3****	52.0	**43.0****
HD43	Uxbridge Day Nursery, Park Road, Uxbridge (on wire Fence)	Yes	12	**45.0**	**45.5**	**49.7**	**43.4**	**45.2**	57.0	**47.1**
HD46	South Ruislip Monitoring Station, West End Road	Yes	12	**47.3**	**47.5**	**47.3**	**42.4**	**46.5***	**54.9**	**45.4***
HD47	Hillingdon Primary School, Uxbridge Road, Hillingdon (on wire fence)	Yes	12	32.2	32.3	34.3	30.0	31.1	39.7	32.8
HD49	83 Hayes End Drive, Hayes End, Middlesex (on drain pipe)	Yes	12	27.0	27.1	27.0	25.6	25.8	30.4	25.2
HD50A	Hillingdon Hospital, Colham Road (Near John Rich House on former junction to Pield Heath Road)	Yes	12	-	-	-	-	**40.7**	**47.7**	39.4
HD51	Top of Colham Avenue (4), Yiewsley (lamp post at end of road)	Yes	12	36.2	34.3	34.2	33.1	36.2	**41.1**	34.0

Site ID	Location	In AQMA	Data Capture 2013 (Months)	Annual Mean Concentrations (µg/m^3)						
				2008	2009	2010	2011	2012	2013 Local Bias Factor = 1.21	2013 National Bias Factor = 1.00
HD52	Lamp post near 101 Cowley Mill Road, Uxbridge	Yes	12	38.4	38.6	36.2	33.3	37.0	**46.1**	38.1
HD53	Warren Road, Ickenham, Uxbridge (1st lamp post on left)	Yes	11	**45.5**	**44.1**	**41.0**	**40.5**	**44.6**	**48.7**	**40.3**
HD55	Harold Avenue, (first lamp post on left)	Yes	11	**41.7**	**40.5**	**40.2**	37.8	38.0	**46.6**	38.5
HD56	15 Phelps Way, Hayes (lamp post outside of)	Yes	12	38.5	35.2	35.8	35.2	36.7	**42.5**	35.1
HD57	25 Cranford Lane, Harlington (lamp post on the left afyer car park)	Yes	11	38.3	37.2	38.4	36.5	39.3	**45.4**	37.5
HD58	Brendan Close, Harlington (1st lamp post on the left)	Yes	12	**41.6**	**43.2**	39.8	39.4	**40.0**	**46.0**	38.1
HD59	Bomber Close (7), Sipson (1st lamp post on left)	Yes	12	36.0	36.6	33.8	34.4	35.8	**42.6**	35.2
HD60	Harmonsworth Green, Harmondsworth (lamp post outside nursery)	Yes	11	32.9	31.0	31.1	29.4	32.1	37.3	30.8
HD61	Heathrow Close, Longford (1st lamp post on the right)	Yes	12	36.7	36.3	37.3	34.9	34.1	**44.9**	37.1
HD65	28 Pinglestone Close, Sipson, Middlsex (on drainpipe)	Yes	12	31.8	33.0	32.4	32.5	38.2	37.8	31.2
HD67	31 Tavistock Road (on lamp-post outside house)	Yes	12	31.8	29.8	31.6	30.1	29.2	35.7	29.5

Site ID	Location	In AQMA	Data Capture 2013 (Months)	Annual Mean Concentrations (µg/m^3)						
				2008	2009	2010	2011	2012	2013 Local Bias Factor = 1.21	2013 National Bias Factor = 1.00
HD70	Harefield Hospital, Hill End Road (lamp-post outside entrance)	No	11	26.0	25.9	25.5	23.9	25.4	28.8	23.8
HD73	Queensmead School, South Ruislip. (lamp-post opposite Jubilee Drive) (outside AQMA)	No	11	31.1	29.3	27.4	26.3	27.8	32.5	26.8
HD74	Field End Road/Field End School, S.Ruislip. 3rd Lamp-post south of school entrance (outside AQMA)	No	12	32.3	28.9	31.3	28.4	28.5	34.3	28.3
HD75	Sidmouth Drive, South Ruislip (2nd lamp-post from West End Road outside Nursery) (outside AQMA)	No	12	29.3	30.8	29.0	27.7	29.0	34.2	28.2
HD200	49 Zealand Avenue Lamp Post (1)	Yes	12	-	-	-	-	37.6	**49.9**	**41.3**
HD201	Near 3 Hercies Road, Lamp Post (1)	Yes	11	-	-	-	-	**42.8**	**50.4**	**41.7**
HD202	49 Silverdale Gardens, Hayes Lamp Post (8)	Yes	9	-	-	-	-	33.3	**43.0**	35.5
HD203	Blyth Road, Hayes Lamp Post (4)	Yes	11	-	-	-	-	**48.1**	**52.0**	**43.0**
HD204	Side of 104 Yiewsley High Street (front of 1A Fairfield Road) Lamp Post (2)	Yes	12	-	-	-	-	38.7	**45.9**	37.9

Site ID	Location	In AQMA	Data Capture 2013 (Months)	Annual Mean Concentrations (µg/m^3)						
				2008	2009	2010	2011	2012	2013 Local Bias Factor = 1.21	2013 National Bias Factor = 1.00
HD205	1 Porters Way (corner with Kingston Lane) Lamp Post (1)	Yes	12	-	-	-	-	**41.9**	**47.9**	39.6
HD206	5-7 Mulberry Crescent, West Drayton Lamp Post (18)	Yes	11	-	-	-	-	29.4	35.0	28.9
HD207	35 Emden Close, West Drayton Lamp Post (14)	Yes	12	-	-	-	-	30.5	**42.2**	34.9
HD208	Side of 50 St. Christopher's Drive Lamp Post (13)	Yes	12	-	-	-	-	29.6	35.4	29.3
HD209	29 Pendula Drive, Hayes Lamp Post (2)	Yes	11	-	-	-	-	34.5	38.3	31.6
HD210	340 Long Lane, Uxbridge Lamp Post (71)	Yes	12	-	-	-	-	**49.9**	**57.9**	**47.9**
HD211	198 Harefield Road, Uxbridge Lamp Post (2)	Yes	12	-	-	-	-	33.5	**43.0**	35.6
HD212	59 Hillingdon Road, Uxbridge Lamp Post (56)	Yes	6	-	-	-	-	38.4	**44.0**	36.3
HD213	10 West End Lane, Harlington Lamp Post (2)	Yes	12	-	-	-	-	**40.2**	**48.5**	**40.1**
HD214	R/O 130 Cleave Avenue, Hayes Lamp Post (33)	Yes	12	-	-	-	-	**49.5**	**53.4**	**44.1**

** Triplicate average
* Duplicate average
In bold, exceedence of the annual mean NO_2 AQS objective of 40µ g/m^3

Short-term to Long-term Data adjustment

Just one site (HD212) recorded concentrations below 75% data capture during 2013. This site has been annualised according to the method set out in LAQM TG(09) box 3.2. The details of the annualisation have been provided in the table below.

Table 18 - Short Term to Long Term - Monitoring Data Adjustment

Site	Unadjusted Diffusion Tube Mean (µg/m^3)	Annualisation Factor Hillingdon Sipson	Annualisation Factor Green Gates	Annualisation Factor Harlington	Average Annualisation Factor	Annualised Bias Adjusted Concentration (µg/m^3) Local bias factor 1.21	Annualised Bias Adjusted Concentration (µg/m^3) National bias factor 1.00
HD212	41.9	0.885	0.891	0.828	0.868	44.0	36.3

QA/QC of Automatic Monitoring

All sites in Hillingdon are managed by the Borough monitoring network, the AURN network and Heathrow airport monitoring network following the national procedure guidance and standards.

QA/QC of Diffusion Tube Monitoring

Gradko participates in the Workplace Analysis Scheme for Proficiency (WASP), which is an independent analytical performance testing scheme.

According to the summary of laboratory precision published by the LAQM Helpdesk, tubes analysed by Gradko displayed ‘Good’ precision in 17 out of 17 studies in 2013 (based on spreadsheet version 03/14).

Appendix B: Monthly NO_2 µg/m^3 Concentrations 2013 (raw data results)

Tube	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
HD31	55.9	38.2	33.3	37.7	35.6	35.4	45.8	40.1	45.0	56.3	43.1	64.3
HD31	49.6	34.9	36.1	35.7	36.3	33.5	44.7	37.8	46.4	54.7	44.4	68.5
HD31	45.9	38.3	33.4	38.0	29.9	-	43.4	38.8	45.2	54.3	43.1	68.4
HD43	48.4	46.3	49.7	36.9	43.6	43.2	56.8	45.0	47.0	44.1	52.0	52.4
HD46	53.2	49.1	46.1	37.6	39.4	34.7	40.8	35.7	43.8	48.2	53.4	61.0
HD46	52.3	46.8	45.3	43.5	35.4	34.8	43.0	37.4	47.0	46.8	52.7	61.4
HD47	37.6	35.3	36.5	20.4	26.0	29.0	32.1	30.8	35.2	32.6	41.5	37.1
HD49	33.3	23.9	25.4	18.6	19.0	15.8	21.4	20.4	28.7	27.5	31.4	36.6
HD50A	46.4	39.4	25.9	36.5	30.1	27.5	34.4	34.1	47.1	45.6	48.2	58.2
HD51	38.7	33.7	31.7	25.2	25.6	23.1	32.7	30.8	38.0	38.8	41.5	48.3
HD52	42.9	38.2	37.4	26.2	28.6	29.8	31.8	36.0	40.8	38.9	48.5	58.6
HD53	48.0	39.2	31.3	32.3	38.9	29.7	39.2	40.5	41.3	50.5	52.0	-
HD55	48.3	38.7	36.3	28.9	-	29.5	35.6	36.0	39.6	38.6	43.0	48.9
HD56	44.7	35.8	37.1	26.3	27.8	27.0	29.0	26.7	37.0	36.9	46.7	46.3
HD57	45.2	36.6	35.3	30.7	28.0	27.8	32.5	36.4	39.7	-	45.5	55.2
HD58	42.1	34.1	31.8	32.9	17.8	27.3	35.8	33.8	41.7	52.9	40.6	65.8
HD59	43.5	36.9	36.0	26.1	24.7	25.2	31.1	30.4	36.4	36.4	38.4	57.2
HD60	37.6	33.8	34.2	24.2	8.1	-	27.1	27.0	33.3	32.0	37.4	44.3
HD61	43.8	42.9	35.8	33.1	28.6	27.6	33.2	31.3	41.8	38.7	44.1	44.7
HD65	38.6	27.9	29.4	23.5	22.7	23.9	30.0	23.9	34.2	33.7	38.9	48.1
HD67	37.0	32.6	31.3	26.8	22.4	20.9	26.5	24.6	31.6	30.0	33.3	37.5
HD70	30.4	25.7	25.5	16.4	17.1	16.3	20.6	18.6	26.0	-	31.7	33.3
HD73	35.6	29.9	28.6	19.7	18.6	16.9	22.5	21.9	31.0	-	35.3	35.2
HD74	36.6	30.3	27.7	17.3	22.6	20.0	25.9	24.4	35.1	26.0	36.3	37.9
HD75	36.3	27.2	24.9	21.6	20.2	19.1	23.4	26.9	32.9	29.8	36.5	40.2
HD200	54.3	39.7	33.8	31.9	31.4	28.7	32.6	35.8	39.6	44.1	49.3	74.2
HD201	49.5	45.4	41.8	31.5	31.9	34.3	42.8	37.0	43.5	44.2	56.4	-

Tube	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
HD202	43.2	33.0	-	24.0	28.2	-	-	28.1	38.0	35.9	42.4	47.1
HD203	53.8	-	45.7	28.6	32.4	33.3	41.2	41.9	44.1	45.4	50.8	56.0
HD204	42.0	41.6	33.2	29.6	30.2	27.1	37.3	33.8	37.0	39.5	45.3	58.4
HD205	47.0	39.1	33.8	34.7	30.6	30.1	37.3	35.6	40.7	38.4	43.1	64.6
HD206	42.4	0.8	-	21.8	21.8	23.1	26.2	26.2	34.3	36.4	38.1	47.0
HD207	39.3	37.9	35.6	24.6	26.4	27.1	32.3	30.2	36.3	35.7	36.9	56.4
HD208	27.2	31.7	31.7	21.6	22.4	20.5	25.9	24.2	33.2	30.8	39.7	42.7
HD209	43.2	32.5	29.2	23.6	26.4	11.4	28.8	32.3	35.2	-	42.5	43.0
HD210	59.4	46.1	43.8	32.3	41.6	36.4	44.0	43.3	47.0	47.95	70.2	62.4
HD211	44.6	41.8	43.6	28.2	30.2	30.8	36.3	32.2	42.1	8.8	44.8	43.6
HD212	45.9	-	41.1	27.6	-	-	-	-	-	42.4	46.3	47.9
HD213	52.9	37.6	37.6	31.0	31.0	30.6	35.1	34.1	38.4	49.0	47.8	55.8
HD214	53.1	39.5	40.7	36.4	25.0	32.1	44.0	42.6	47.9	52.7	48.5	66.8

Appendix C: Planning Applications during 2012/2013

Planning applications can be viewed at:
http://www.hillingdon.gov.uk/index.jsp?articleid=10058 using the planning references provided.

Planning Permission in **Hayes and Botwell Area**, including where development works have started:

- 13226/APP/2012/2185 - Industrial Process

Former Powergen Site, North Hyde Gardens, Hayes

Redevelopment of the site to provide an aggregate recycling and processing plant, asphalt plant and storage facility, gully waste recycling plant, aggregate storage facility, and term maintenance depot, with ancillary offices, structures and facilities, car and lorry parking, regrading, and landscaping.

The plant will operate on natural gas, however over 500 HGV movements a day are anticipated when fully operational, that could further impact on the poor air quality in

the locality of the junction. The monitoring station (Hillingdon Hayes) at the junction currently exceeds the EU limit value for nitrogen dioxide.

- 59872/APP/2012/1838 - Mixed Use Development including Residential

The Old Vinyl Factory Site, Blyth Road, Hayes

Outline planning application for a mixed use development of the Old Vinyl Factory site, including the demolition of up to 12,643 sqm of buildings and construction of up to 112,953 sqm (112,953 sqm includes the retention and re-use of 784 sqm of the Power House and 901 sqm Pressing Plant) of new floorspace. Uses to include up to **510 residential units** (maximum area of 49,000 sqm GEA), up to 7,886 sqm of new B1 floorspace, up to 4,000 sqm of A class uses (A1, A2, A3, A4, A5), up to 4,700 sqm of D1 and D2 uses, an energy centre (up to 950 sqm), car parking with up to 1,640 spaces, works to access and creation of new accesses and landscaping

Cumulative impacts from developments at the site were not sufficiently considered with the earlier application. The Air Quality Assessment took quite a conservative approach in assessing this development, although the main impact for future residents was largely from the Energy Centre at the site. The application appears to include mechanical ventilation. The development is introducing tall buildings adjacent to other tall buildings on a narrow road, which is of concern, as subsequent monitoring undertaken by the Council would suggest the air quality is at least as bad as the baseline of the air quality assessment suggested on Blyth Road. Slight adverse impacts were indicated at existing residents where the EU limit value already appeared to be exceeded.

- 51588/APP/2011/2253 - Mixed Use Development including Residential

Land East of the Former EMI Site, Blyth Road, Hayes

Demolition of warehouse extension to Apollo House and erection of a part 4, part 5, part 6 and part 7 storey building comprising **132 residential units**, cafe (class A3), community room (class D2), 5 x workshop units (class B1, B8 or A2 uses), and associated car parking and landscaping

The Air Quality Assessment suggests the development will have an imperceptible

impact on air quality, and at all receptor locations considered on site, the annual average for nitrogen dioxide will remain a little below the EU limit value. It did identify areas of exceedances but not in the immediate vicinity of the development. Based on recent monitoring, the assessment underestimated the poor air quality in the immediate area.

- 1425/APP/2011/3040 - Mixed Use Development including Residential

20-30 Blyth Road, Hayes

Comprehensive redevelopment of the site to provide a part 11, part 9, part 5 and part 4 storey building comprising **120 residential units**, office floor space, 97 car parking spaces and hard and soft landscaping

The Air Quality Assessment suggests the development will have an imperceptible impact on air quality. Based on recent monitoring, it underestimated the poor air quality in the area, and the suggestion that air quality will improve is unfounded.

- 1933/APP/2013/3575 - Conversion of Offices to Residential (Prior Approval)

243 Blyth Road, Hayes

Change of use from offices to **48 residential flats** (prior approval application)
The 2013 amendment to the General Permitted Development Order does not consider air quality. The location may not be suitable for a residential development. Further information is needed.

- 68911/APP/2012/2983 - New School

Eastern End of Lake Farm Country Park, Between Botwell Lane & Botwell Common Road, Hayes

New 3 Form of Entry primary school (630 students) plus a nursery (45 students) and a Special Resource Provision Unit for approximately 12 pupils, associated car parking, hard and soft play areas, sports pitches, pedestrian and vehicular access routes and landscaping

The Air Quality Assessment indicates the impact from the development is minimal. It is possible that this is a slight underestimate, however, given the open location, the

impact on the proposed development from poor air quality is not considered to be significant.

- 40652/APP/2012/2030 - Offices

HPH 4, Millington Road, Hayes

Erection of a four storey building to provide 6,966 sq.m of Class B1(a) Office floorspace, provision of 72 associated car parking spaces at basement level, associated landscaping and ancillary works

- 45753/APP/2012/2029 - Offices

HPH 5, Millington Road, Hayes

Erection of five storey building to provide 13,880sq.m of class B1(a) office floorspace, provision of 140 car parking spaces at surface and basement level, associated landscaping and ancillary works

- 32157/APP/2011/872 - Retail, including Petrol Station

Unit 3, Millington Road, Hayes

Mixed use development comprising 7,310 sqm (gea) industrial/warehousing unit (Use Classes B1c, B2, B8); 7998 sqm (gea) retail store (use class A1) and petrol filling station, together with associated car parking, landscaping and alterations to adjacent highway

The Air Quality Assessment indicates some of the identified receptors will continue to exceed the EU limit value levels both with and without the development. There is a moderate adverse impact on local air quality based on cumulative impacts in some areas according to the assessment. Due to the nature of the proposed use, impact on onsite receptors were not considered.

- 18399/APP/2013/1019 - Warehousing (not on map)

Former MOD Document Record Office, Bourne Avenue, Hayes

Proposal: Erection of distribution warehouse units (Use Class B8) with ancillary offices, associated car parking, access and associated landscape works within the existing Prologis Park development

The Air Quality Assessment appears to be incomplete and generally indicated a 'negligible' contribution of NO_2 from the proposed phase of the development for the operational phase at residential receptors, including those from an earlier phase of the development. It states cumulative impacts were considered as traffic flows for committed developments were used. Given the development appears to have been fully considered, it is probable the air quality impacts were underestimated.

Planning Permission in other parts of the borough within the AQMA, including where development works have started:

- 585/APP/2012/2904 - New School

Former RAF Uxbridge, Hillingdon Road, Uxbridge
Application to discharge Condition 35, 53, 56 for Phase 1, 3rd Application (Primary School) of Outline Planning Permission reference 585/APP/2009/2752 dated 18/01/2012 for the redevelopment of the former RAF Uxbridge Base

The impact from the school is likely to be limited. The impact from the proposed Energy Centre for the rest of the development on the site is a concern, however it is anticipated air quality around the school is likely to remain below the EU limit value for nitrogen dioxide.

- 3114/APP/2012/2881 - Warehousing

Former Gas Works, Cowley Mill Road, Uxbridge
Construction of two employment units (to be used within class B1, B2 or B8 use class) with associated car parking, access, boundary treatments and landscape

Air quality monitoring in this area has always been below the EU limit value, and in the last few years the monitoring data appears to indicate an improvement. It is anticipated air quality will slightly worsen in this locality when the whole development becomes fully operational.

- 4058/APP/2013/99 - Hospital Extension

Hillingdon Hospital, Pield Heath Road, Hillingdon

Demolition of part of the existing kitchen and staff restaurant and erection of a new 2 storey Acute Medical Unit at Hillingdon Hospital (located to the rear, i.e. to the south, of the existing 11 storey tower ward block)

A review of the air quality indicates air quality at the development site is probably below the EU limit value for nitrogen dioxide and the proposed extension does not have any implications for car parking, additional vehicle movements. The existing Energy Centre from the hospital will be used and energy efficiency measures would be incorporated into the new building. Air quality impacts are likely to be minimal.

- 18218/APP/2013/2183 - Mixed Use including Residential

Kitchener House, Warwick Road, West Drayton

Erection of a part single, two , three and 4 storey building to provide 23 residential units, consisting of 15 x 2 bedroom, 7 x 1 bedroom flats and 1 x 1 bedroom disabled unit, together with 250 sqm of retail / commercial space, with associated parking, cycle and bin storage and amenity space, involving demolition of existing buildings. Air Quality Assessment suggests a negligible 'improvement' as a consequence of the development. At best it may have zero impact on air quality in the area.

- 51458/APP/2013/2973 - Industrial Units

Units 1623 & 1685 Stockley Close, West Drayton, UB7 9BL

Redevelopment of site to provide industrial units for B1(c), B2 and/or B8 uses with associated access, parking, landscaping and ancillary works

The Air Quality Statement submitted for the development indicated an assessment was not necessary as the number of vehicle movements associated with the development would significantly decrease. However, the number of HGV movements increased suggesting NOx emissions from the transport element of the proposed development would double. However, impacts on receptors as a consequence of the development was not considered.

- 3507/APP/2013/2327 - Residential Use

26-36 Horton Road, Yiewsley

Demolition of existing buildings and redevelopment to provide 50 residential units in 3 buildings with associated car parking and cycle parking spaces, communal amenity areas, landscaping, private gardens and balconies utilising existing access

The Air Quality Assessment indicated the air quality in the area is below the EU limit value, although the nitrogen dioxide at the facade of the new building may still be a slight underestimate, it is likely to be below the EU limit values. The report indicated the former use was associated with a greater number of transport movements however the likely improvement to air quality was not quantified. At best it may have zero impact on air quality in the area.

- 24485/APP/2013/138 - Residential Use

Former Bentley's, 39 High Street, Yiewsley

Erection of a residential development comprising 28 residential units, private and shared amenity space, child play space, car and cycle parking and associated works The Air Quality Assessment considered the possibility that nitrogen dioxide levels would not drop as they were predicted to do and was reasonably conservative in its approach. Some exceedances as the facade of the development were considered likely and mechanical ventilation was recommended for the development.

- 43155/APP/2012/1903 - Landfill Restoration

Quarry and Landfill Site, South Side of Harmondsworth Lane, Harmondsworth

Variation of condition 3 of planning permission 43155H/99/326 dated 20th October 1999 to enable operations and restoration of the site to be completed no later than 30th September 2017 and alterations to approved restoration landscaping scheme

Vehicle movements in relation to the existing site use has been limited of late and no nitrogen dioxide exceedances are recorded in the area. No change in the approved number of vehicle movements. The main aspect of the air quality review was dust generation, which was considered limited given the distance to the nearest residential receptors.

- 9420/APP/2011/2119 - Mixed Use including Hotel

Heathrow Summit Centre, Skyport Drive, Harmondsworth

Redevelopment of the site to provide a 301 bedroom hotel (Class C1) and 4 new industrial units accommodating a combined total 8,005sqm of floor space (Use Classes B1(b), B1(c), B2 & B8) alterations to access arrangements (including from Hatch Lane), associated landscaping and car parking together (involving demolition of the existing buildings on site)

The Air Quality Assessment was not sufficiently conservative, assuming nitrogen dioxide levels would drop and the impact from the development was considered to be imperceptible at existing receptors. Given its proximity to the Bath Road, parts of the site are likely to be exceeding the EU limit value, however the end uses are not considered sensitive to air quality.

- 43794/APP/2013/3855 - Conversion of Offices into Residential (Prior Approval)

Axis House, 242 Bath Road, Sipson

Change of use of offices to 32 Flats (Application for Prior Approval under Schedule 2 Part 3 of the Town and Country Planning (General Permitted Development) Order 1995 (as amended))

The 2013 amendment to the General Permitted Development Order does not consider air quality. The location is likely not to be suitable for a residential use.

- 51743/APP/2012/1781 - Extension

Gate Gourmet, Building 1071 Southampton Road, Heathrow Airport

Erection of two storey extension, including part demolition of existing building and associated works

An additional 40 vehicle movements a day were likely to results as a consequence of the development and the impacts were considered to be negligible. However, the existing air quality in the area is poor. The nearest residents are located in an adjacent borough and the impact is likely to be minimal.

Planning Permission **outside but adjacent to the AQMA boundary**, including where development works have started. Developments along Victoria Road are a potential concern as there are possible implications for the review of the AQMA:

- 33667/APP/2012/3214 - Retail (replacing existing with larger store and additional units)

Sainsbury's Superstore, Long Drive, Ruislip, HA4 0HQ

Demolition of existing store and erection of new larger retail superstore, creation of ancillary commercial units (Use Class A1, A2, A3, and D1), refurbishment of existing petrol station, creation of new service yard and decked car park, alterations to existing public car park with associated landscaping and public ream works

The air quality assessment appears to be reasonably conservative, and may be overestimating the NO_2 levels in the area where all locations are over the EU limit value in the vicinity of the site. It was indicated in the transport assessment that the assumption was made the vacant former Arla depot was still in use, and it appears this data was also used in the air quality assessment. Committed developments were also considered for future years. Impact from the development was indicated to be negligible by enlarge.

- 18124/APP/2013/1723 - Extension

Solid Waste Transfer Station, Civic Way, Ruislip

Proposed works to Victoria Road Waste Transfer Station to include a bulky materials reception area as an extension to the existing waste transfer station building, associated vehicle management measures including amendments to the existing internal site roundabout, a new HGV queuing area, new staff parking area and new containerised waste storage bay.

The extension at the site, and the additional vehicle movements is not likely to significantly impact on local air quality. It should be noted the site already has permission for a significant number of vehicle movements, and total vehicle movements currently is approximately half of what is permitted. The site has been identified in the Draft West London Waste Plan. If HS2 does not impact on this site, there is a possibility the use of the site could increase in future.