The London Borough of Hillingdon

Progress Report, 2011

Local Authority Information

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This Air Quality Progress Report for the London Borough of Hillingdon has been produced in fulfilment of Part IV of the Environment Act 1995 Local Air Quality Management

Authors

This report has been produced for the London Borough of Hillingdon by Mike Holland of EMRC, in collaboration with Val Beale, London Borough of Hillingdon and Tim Bevington, AEA.

Executive Summary

Background

The London Borough of Hillingdon has completed an Air Quality Progress Report as required by the Air Quality Review and Assessment process. Progress Reports are required in the intervening years between the three-yearly Updating and Screening Assessment reports. Their purpose is to maintain continuity in the Local Air Quality Management process. This report therefore provides an update on air pollution concentrations in the Borough and the progress by the Local Authority with its air quality action plan (AQAP), covering the period 2009-2010. It has been produced in accordance with guidance laid down by Defra, including use of the new template for reporting.

Improvement of air quality in the Borough is necessary for the wellbeing of people who live and work in Hillingdon. Current levels exceed the limit values laid down in the UK's Air Quality Strategy and the European Union's Directive on Air Quality. Exposure beyond these limits is recognised as posing a significant threat to public health.

Monitoring data

From the monitoring data for 2010 it is concluded that:

- There continues to be exceedance of the NO_2 annual mean limit value in the Borough, particularly close to major roads and the airport. In 2010, exceedance was for the first time since 2003 identified at the Heathrow Green Gates site. Concentrations at the London Hillingdon and Hillingdon Hayes automatic stations show that the limit value is exceeded by around 35%. In neither case is there any movement to a reduction in concentrations.
- The London Borough of Hillingdon is, however, not required to proceed to a Detailed Assessment as these problems are all covered by the existing AQMA declaration.
- Data from a one-year NO_2 diffusion tube monitoring study around Heathrow involving three local authorities confirmed the requirement of the existing AQMA.
- Assessment of the trend of NO_2 measurements from both automatic and non-automatic monitoring indicates that annual mean NO_2 concentrations have remained relatively unchanged since 2003.
- There continues to be no trend towards improvement of NO_2 levels, despite some decrease in road traffic in the Borough. This raises serious questions about the modelling undertaken for the Third Runway, which forecast that there would be improvements sufficient for the limit values to be met within a few years. This needs to be considered in any future modelling undertaken in relation to airport operations.
- Analysis of PM_{10} data for 2010 shows that there continues to be no exceedance of AQS objectives for this pollutant, and so the London Borough of Hillingdon is not required to proceed to a Detailed Assessment for PM_{10}.A significant increase in PM_{10} levels at South Ruislip in 2009 was followed by a significant fall in 2010.However, there was a 44% increase in concentrations of PM_{10} at Hillingdon Hayes in 2010.
- Benzene monitoring was discontinued in 2010 from the 5 previous sites in the Borough, as in previous years measured benzene concentrations were well within the AQS objectives.
- $PM_{2.5}$ and ozone are monitored in the borough. $PM_{2.5}$ concentrations are below the UK Government's new national air quality objective. The UK $PM_{2.5}$objective in urban areas like Hillingdon is for background concentrations, with a 3 year average reduction target of 20%. The 2010 ozone monitoring results show that measured concentrations were in the range of 25 $\mu g\ m^{-3}$ to 34 $\mu g\ m^{-3}$.

The review of new monitoring data and new developments available for 2009 and contained within this report concludes that the London Borough of Hillingdon is not required to proceed to a Detailed Assessment and that the existing AQMA is still required.

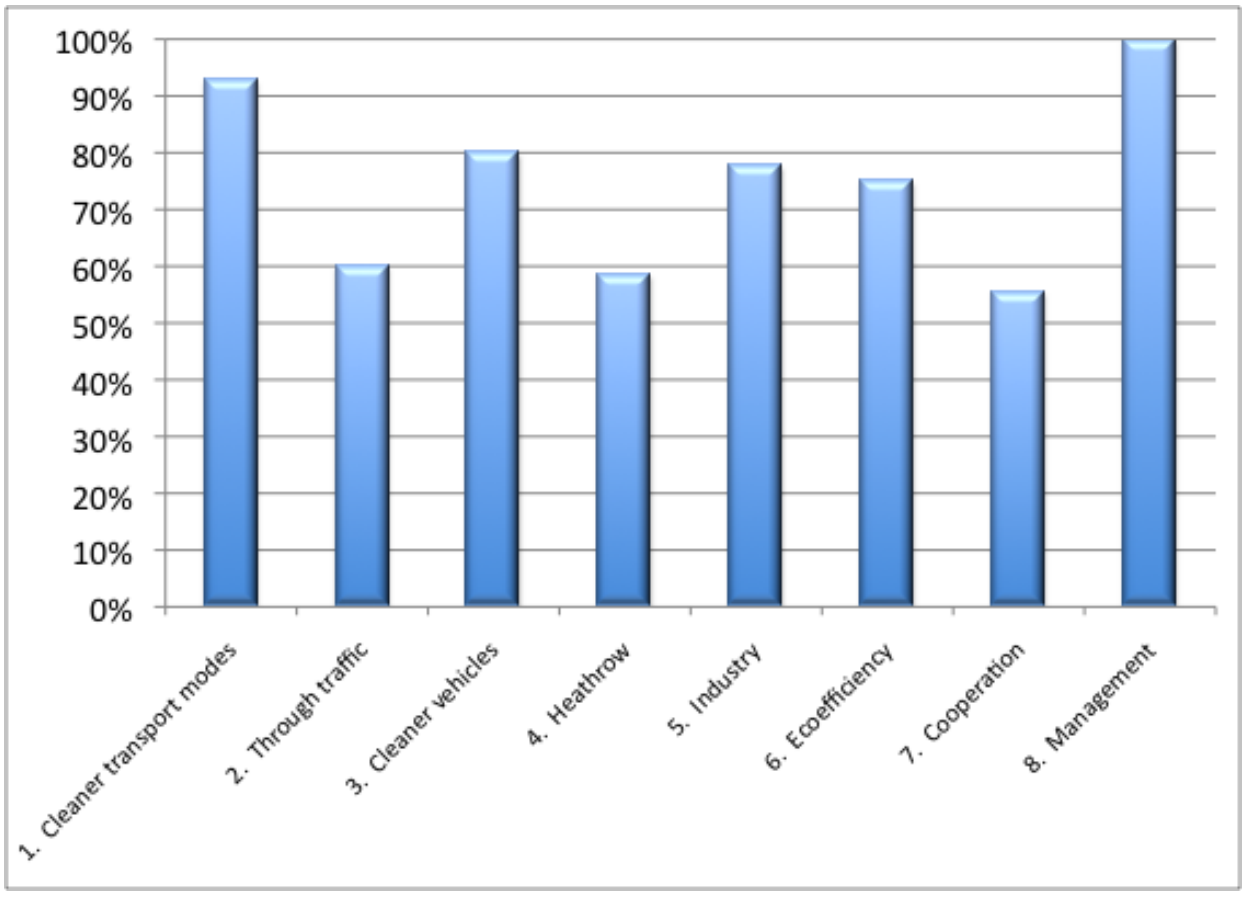
Consideration has been given to the air quality impacts of new developments. Conditions specific to air quality have been set in two cases, the first concerning the development of a new Tesco store at Yiewsley, the second dealing with a major housing development at RAF West Ruislip.

The pollution monitoring network has been reviewed by AEA Technology. A number of recommendations for changes to the network have been made, for example, where monitoring may no longer be required. The Council will consider these recommendations in the coming year.

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



% of measures in each Package that were fully in place by 2010

In general, implementation of measures that Hillingdon has full control over has been very good (e.g. those in Packages 1, 3, 5 and 8). There has been less success in Packages where other groups are heavily involved, for example:

- Package 2, which involves TfL, the Highways Agency and others
- Package 4, which involves BAA and DfT
- Package 7, which involves many stakeholders, from Central Government to local and regional bodies

It is not intended that this should be interpreted as direct criticism of these outside bodies, as it is in part a consequence of the broad ranging nature of the current Action Plan; in seeking to implement so many measures it was inevitable that problems would arise with some, particularly where the Borough was not responsible for funding or management. As it would seem to take longer to get actions in place where partnership working is needed it is very important to ensure that reducing pollutant emissions is a key part of the objectives of each working partner.

The success in bringing action plan measures into place provides a firm foundation for the revision of the plan in the coming year.

Highlights from Air Quality Action Plan implementation in 2010

Selected highlights from Action Plan implementation in the last year, demonstrating the breadth of activities undertaken, are as follows:

Funding has already been identified for the revision of the action plan in the current year. This will be based upon air quality modelling and source apportionment work that is currently being performed by CERC.

Under Measure 3.07 of the AQAP, Hillingdon has the objective of being at the forefront of trialling new technology. Recent developments on this measure involving the Borough include:

- An electric Pool car to be trialled in environmental services;
- A Prius hybrid on trial in Children and Families unit;
- The Borough being selected by Ford for trial of electric cars involving local residents;

Hillingdon's LIP2 (Local Implementation Plan for transport) lists improvement of air quality as the second of its key objectives, making it one of the main indicators of successful implementation of the new LIP. Simulation modelling to assess the effects of the plan on emissions is included in LIP2.

TfL is currently looking to draw up joint implementation plans for transport and air quality. As part of this they will have input to the West London sub-regional plan. Close working with TfL is extremely important for the success of the action plan given the role of traffic on major roads in determining limit value exceedances in the Borough.

A draft has been issued of the BAA Air Quality Strategy Review for 2011-2020. This draft suggested a focus on four objectives:

- Limit and where possible reduce airport related emissions to local air quality concentrations at all relevant local receptors to help ensure EU LV met in Heathrow area;
- Accurately quantify contribution from airport-related sources to local air quality concentrations to focus management activities;
- Continually improve the approach to managing air quality impacts, supporting technology etc;
- Actively engage with internal and external stakeholders to develop shared objectives.

There is, however, still no draft to comment on for the BAA Surface Access Strategy Review. BAA has also withdrawn its Transport and Works Act application for Airtrack, which would have given a rail link to the west. Hillingdon will comment on the Surface Access Strategy as soon as it is available.

Defraissued its Air Quality Action Plan to meet the European limit values for NO_2 on 9th June[1]. Hillingdon is acknowledged in the plan with respect to exceedances from both road traffic and Heathrow Airport.

Next steps

Priorities for the coming year are as follows:

1. Revision of the original Action Plan to reflect measures taken and lessons learned.
2. Integration of the AQAP with actions on climate change, ensuring knowledge of interactions between measures.
3. Maintenance of the stakeholder dialogue established during development of the action plan and since.

In carrying out these 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 which there is no effect on health.

[1] http://uk-air.defra.gov.uk/library/no2ten/documents/UK0001.pdf

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Appendix 2: Monitoring Stations in Hillingdon (including details of locations, bias adjustment factors and QA/QC procedures)

Appendix 3: Results from the monitoring stations

Appendix 4: Detailed information on implementation of the Action Plan

Note: The appendices are provided with printed copies of the report in electronic format only.

Chapter 1 Introduction

1.1 Description of Local Authority Area

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

1.2 Purpose of the Progress Report

Progress Reports are required in the intervening years between the three-yearly Updating and Screening Assessment reports. Their purpose is to maintain continuity in the Local Air Quality Management process. For the current progress report this is particularly important for Hillingdon because of developments concerning Heathrow Airport.

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

1.3 Air Quality Objectives

The air quality objectives applicable to Local Air Quality Management (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). They are shown in Table 1.1 at the end of this Chapter. This table shows the objectives in units of microgrammes per cubic metre,$\mu g/m^3$ (for carbon monoxide the units used are milligrammes per cubic metre, mg/m^3). Most of the short term limits (those with average periods less than 1 year) include reference to a number of permitted exceedances in any year, recognising that weather and other conditions can make attainment of these limits unrealistic[2].

The objectives shown in Table 1.1are similar to the mandatory limits laid down in EU Legislation, though the target dates listed are earlier. Despite this, there is exceedance of the limits in many parts of the UK, particularly for annual average NO_2 concentrations. The daily mean figure for PM_{10} is also exceeded in some areas, particularly around Central London. As a result, the UK Government (in line with the governments of a number of other EU Member States) is in the process of applying for an extension of the time permitted for compliance with limit values.

1.4 Previous reports, etc. on air quality in Hillingdon

Detailed assessment of air quality in Hillingdon has been undertaken for the past 10 years following guidance from National Government. A detailed account of this process for the Borough over the years

[2] The alternative to permitting a certain number of exceedances would be to set the concentration limits at a higher level. It is thought that this could lead to a lower level of protection for public health than the system that has been adopted.

is provided in Appendix 1. In summary, an Air Quality Management Area (AQMA) was declared because of concern over annual mean concentrations of NO_2. The AQMA covers the A40 corridor and Chiltern-Marylebone railway line and all parts of the Borough south of them (see Figure 1.1a). Figure 1.1b shows forecast concentrations of NO_2 across the Borough at the time that the AQMA was declared. Problems are most severe around Heathrow Airport and the major road network that goes through the Borough, reflecting the largest sources of NOx emissions within the AQMA. An Action Plan, showing how the Council intended to tackle these problems, was issued in 2004. This contains a series of 8 packages of measures that address emissions from traffic, Heathrow Airport, industry, existing housing, new developments, and so on.

Progress reports (of which this is the latest) have been issued annually since 2004. These show that levels of NO_2 are little changed over recent years. However, set against this, they have demonstrated a good record of implementation of the Action Plan 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 Council's control.

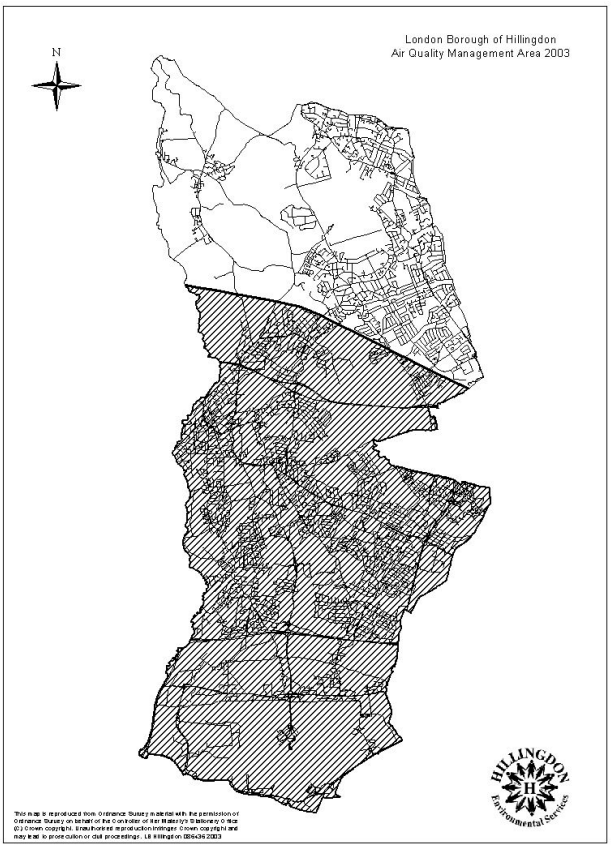


Figure 1.1a. Map of AQMA Boundaries (2003).

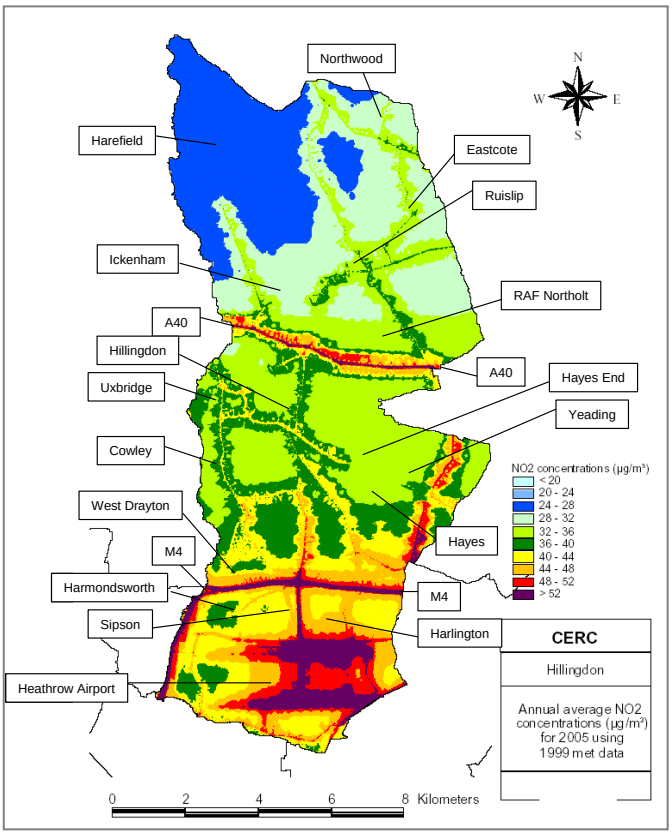


Figure 1.1b. Forecast annual mean NO_2 levels for 2005.

Table 1.1. Air Quality Objectives included in Regulations for the purpose of Local Air Quality Management in England.

Pollutant	Concentration	Measured as	Date to be achieved by
Benzene	16.25 $\mu g/m^3$	Running annual mean	31.12.2003
	5.00 $\mu g/m^3$	Running annual mean	31.12.2010
1,3-Butadiene	2.25 $\mu g/m^3$	Running annual mean	31.12.2003
Carbon monoxide (CO)	10.0 mg/m^3	Running 8-hour mean	31.12.2003
Lead	0.5 $\mu g/m^3$	Annual mean	31.12.2004
	0.25 $\mu g/m^3$	Annual mean	31.12.2008
Nitrogen dioxide (NO_2)	200 $\mu g/m^3$ not to be exceeded more than 18 times a year	1-hour mean	31.12.2005
	40 $\mu g/m^3$	Annual mean	31.12.2005
Particles (PM_{10}) (gravimetric)	50 $\mu g/m^3$, not to be exceeded more than 35 times a year	24-hour mean	31.12.2004
	40 $\mu g/m^3$	Annual mean	31.12.2004
Sulphur dioxide (SO_2)	350 $\mu g/m^3$, not to be exceeded more than 24 times a year	1-hour mean	31.12.2004
	125 $\mu g/m^3$, not to be exceeded more than 3 times a year	24-hour mean	31.12.2004
	266 $\mu g/m^3$, not to be exceeded more than 35 times a year	15-minute mean	31.12.2005

Chapter 2 New Monitoring Data

2.1 Summary of Monitoring Undertaken

There are 11 automatic continuous monitoring sites in the London Borough of Hillingdon, details of which are given in Appendix 2. Carbon monoxide monitoring was discontinued at London Harlington from March 2008 and also from London Hillingdon, the AURN sites. Hillingdon 1, Hillingdon 2 and Hillingdon 3 are part of the London Network; London Heathrow, Heathrow Oaks Road and Heathrow Green Gates are part of the Heathrow airport monitoring; London Sipson, Hillingdon Hayes and London Harmondsworth are part of the local network. Details of QA/QC of the monitoring stations can be found in Appendix 2.3.

Diffusion tubes measurements for nitrogen dioxide were taken at 62 locations throughout the borough, details again being provided in Appendix 2. Diffusion tubes are a common quantitative method for sampling at a large number of sites due to their low cost and ease of deployment. They provide a cost-effective means of measuring spatial distributions of nitrogen dioxide. The diffusion tube is a passive sampler and as such measures a mean concentration over the period for which it is exposed, in this case one month.

In 2010 the London Borough of Hounslow undertook at a Heathrow wide diffusion tube survey across 3 local authorities, including 20 sites in Hillingdon(HD81 – HD100). All of these sites are within the existing Hillingdon AQMA. The monitoring results are included in this report.

The London Borough of Hillingdon is also taking part in the national survey of NO_2 for the Highways Agency. Two sites are in Hillingdon, one roadside site and one residential, near to the M4 motorway.

Hillingdon discontinued monitoring of benzene concentrations via diffusion tubes in 2010 as concentrations were well below the objective level for some years.

2.2 Comparison of Monitoring Results with Air Quality Objectives for NO_2

2.2.1Automatic Monitoring Data

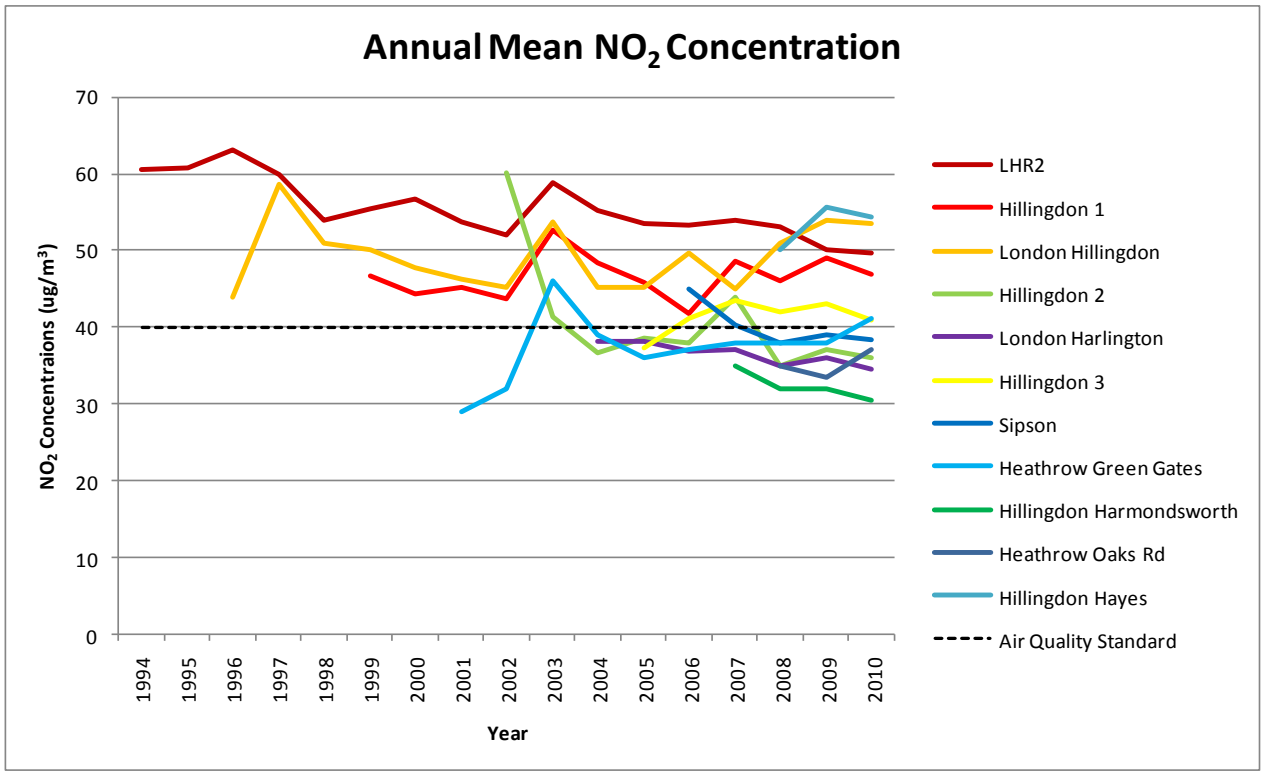
*Table 2.1*presents the annual mean concentrations of NO_2 for 2008, 2009 and 2010 at each of the automatic monitoring sites within Hillingdon. In 2010 the annual mean NO_2 objective was exceeded at 6 sites within the Borough; London Heathrow LHR2 (49.6 µg m^{-3}), London Hillingdon (53.6 µg m^{-3}), Hillingdon 1 – South Ruislip(46.9 µg m^{-3}), Hillingdon 3 – Oxford Avenue (41 µg m^{-3}), Heathrow Green Gates(41.2 µg m^{-3}) and Hillingdon Hayes (54.3 µg m^{-3}). All of these sites are located within the current AQMA.

Table 2.1. Results of Automatic Monitoring for Nitrogen Dioxide: Comparison with Annual Mean Objective

Site ID	Location	Within AQMA?	Data Capture for full calendar year 2010 %	Annual mean concentrations (µg/m^3)		
				2008	2009	2010
London Heathrow LHR2	Airport	Yes	75.38	**53**	**49.8**	**49.6**
London Hillingdon	Suburban	Yes	93.86	**51**	**54.0**	**53.6**
Hillingdon 1 South Ruislip	Roadside	Yes	97.99	**46**	**49.3**	**46.9**
Hillingdon 2 Hillingdon Hospital	Roadside	Yes	98.63	35	37.4	36
Hillingdon 3 Oxford Avenue	Roadside	Yes	89.78	**42**	**43.4**	**41.0**
London Harlington	Airport	Yes	90.78	35	36.3	34.5
Hillingdon Sipson	Urban background	Yes	98.57	38	39.0	38.3
London Harmondsworth	Airport	Yes	88.57	32	33.4	30.5
Heathrow Green Gates	Airport	Yes	98.50	38	37.5	**41.2**
Heathrow Oaks Road	Airport	Yes	97.04	35	33.4	37.2
Hillingdon Hayes	Roadside	Yes	99.16	**50**	**55.6**	**54.3**

Figure 2.1 shows the trend in concentrations over the monitoring period of each of the automatic monitoring sites. Since monitoring commenced in 1994 NO_2 concentrations have remained above the annual mean objective at four sites, namely: LHR2, London Hillingdon, Hillingdon Hayes and Hillingdon 1. At Hillingdon 3 the NO_2 concentration was below the air quality standard in 2005 but has remained above 40 µg m^{-3} since. The NO_2 concentrations at LHR2 appear to be gradually reducing since the peak in the 1990 but, like Hillingdon 1 and London Hillingdon, remains significantly above the annual mean objective. After a peak in 2007 the annual mean NO_2 concentration at Hillingdon 2 has remained under the air quality standard following the general trend since 2004 at this location. London Harlington, Sipson, and Hillingdon Harmondsworth also remain below the air quality standard, although concentrations at these sites have levelled out from previous years. In 2010 there is an exceedance at Heathrow Green Gates for the first time since 2004, when the only other exceedance was measured.

Figure 2.1. Trends in Annual Mean Nitrogen Dioxide Concentration Measured at Automatic Monitoring Sites.



NO_2 monitoring data recorded at all the monitoring stations for previous years are given in Appendix 3, including information on hourly exceedances. In 2010, the hourly objective was achieved at all sites. The number of exceedances at Hillingdon Hayes has continued to increase to 15 hourly exceedances, from 0 in 2008 and 7 in 2009, though this still remains within the air quality objective of no more than 18 exceedances.

Numbers of exceedances have also increased at Hillingdon 1 and London Heathrow LHR2. The number of hourly exceedances has fallen at Hillingdon Sipson and Heathrow Oaks Road.

2.2.2Diffusion Tube Monitoring Data

Results from the diffusion tube monitoring are shown in full in Appendix 3. Information on bias adjustment (see also Appendix 2.2) is as follows. The diffusion tubes deployed by the London Borough of Hillingdon are supplied and analysed by Gradko using a preparation mixture of 50% triethanolamine (TEA) in acetone. Gradko comply with the WASP scheme and achieved 'good' performance based on criteria for the April 2009 – April 2010 period.

The diffusion tubes that formed part of the single year study organised by LB Hounslow around Heathrow airport were also supplied and analysed by Gradko using a preparation mixture of 50% triethanolamine (TEA) in acetone.

Diffusion tubes may systematically under or over-read NO_2 concentrations when compared to a reference chemi-luminescence analyser (automatic monitoring). This is described as "bias" and can be corrected for to improve the accuracy of diffusion tube results, using a suitable bias-adjustment factor.

A bias adjustment factor of 1.07 was calculated based on an average of the bias adjustment factors from the three co-locations sites with in the Borough at London Hillingdon (1.22), Hillingdon 1 (1) and Hillingdon 2 (1). Details of this calculation for 2010 and previous years are available in Appendix 1. The London Hillingdon co-located tubes vary greatly (20%) from the automatic monitor compared to Hillingdon 1 & 2 and other sites recorded in the national database where the national bias adjustment factor is 0.99 (http://laqm.defra.gov.uk/bias-adjustment-factors/national-bias.html). It was considered prudent to apply the national bias adjustment factor to the 2010 diffusion tube data.

The two Highways Agency diffusion tube sites within the Borough are diffusion tubes supplied and analysed by Gradko using a preparation mixture of 20% triethanolamine (TEA) in water.As a there are no co-located diffusion tubes with in the Borough that use the preparation mixture of 20% TEA in water the national bias adjustment factor of 0.92, based on an average of 39 co-location studies across the UK, was applied for these sites.

As the Heathrow wide monitoring study was undertaken with the same diffusion tubes as in Hillingdon the same national bias adjustment factor was applied.

After the bias adjustment factor has been applied to the 2010 annual mean concentrations the NO_2 objective is exceeded at 14 locations. Of these sites, 5 are London Borough of Hillingdon monitoring sites, 2 sites are part of the Highways Agency monitoring and the remaining 7 sites formed part of the London Borough of Hounslow Heathrow short-term monitoring project. Of the London Borough of Hillingdon diffusion tube sites there was one site (HD58) where an exceedance was not measured in 2010 following an exceedance in 2009.

Diffusion tube sites where measured concentrations were over the annual mean objective include:

- HD31 AURN Monitoring Station
- HD43 Uxbridge Day Nursery
- HD46 South Ruislip Monitoring Station
- HD53 Warren Road
- HD55Harold Avenue
- HD82 Hall Lane
- HD85 296-298 High Street
- HD86 331 High Street
- HD88 9 Sipson Lane
- HD89 293 High Street
- HD92 57 Bedwell Gardens
- HD93 29 Bedwell Gardens
- HA81 Cranford Drive Roadside
- HA82 Cranford Drive Residential

As all these locations are within the current AQMA there is not a requirement to proceed to a Detailed Assessment.

Figure 2.2 and Figure 2.3 show diffusion tube monitoring results in the Borough since 1999 and demonstrate the trend in NO_2 concentrations. Where local bias adjustment factors were not reported, national factors have been applied.

The results from the longer term monitoring sites (those with data for over 8 years) in Figure 2.2show that the trend in NO_2 concentrations has remained relatively stable.

Figure 2.2. Trend of Annual Mean NO_2 Concentrations at Diffusion Tube Sites HD32 to HD61

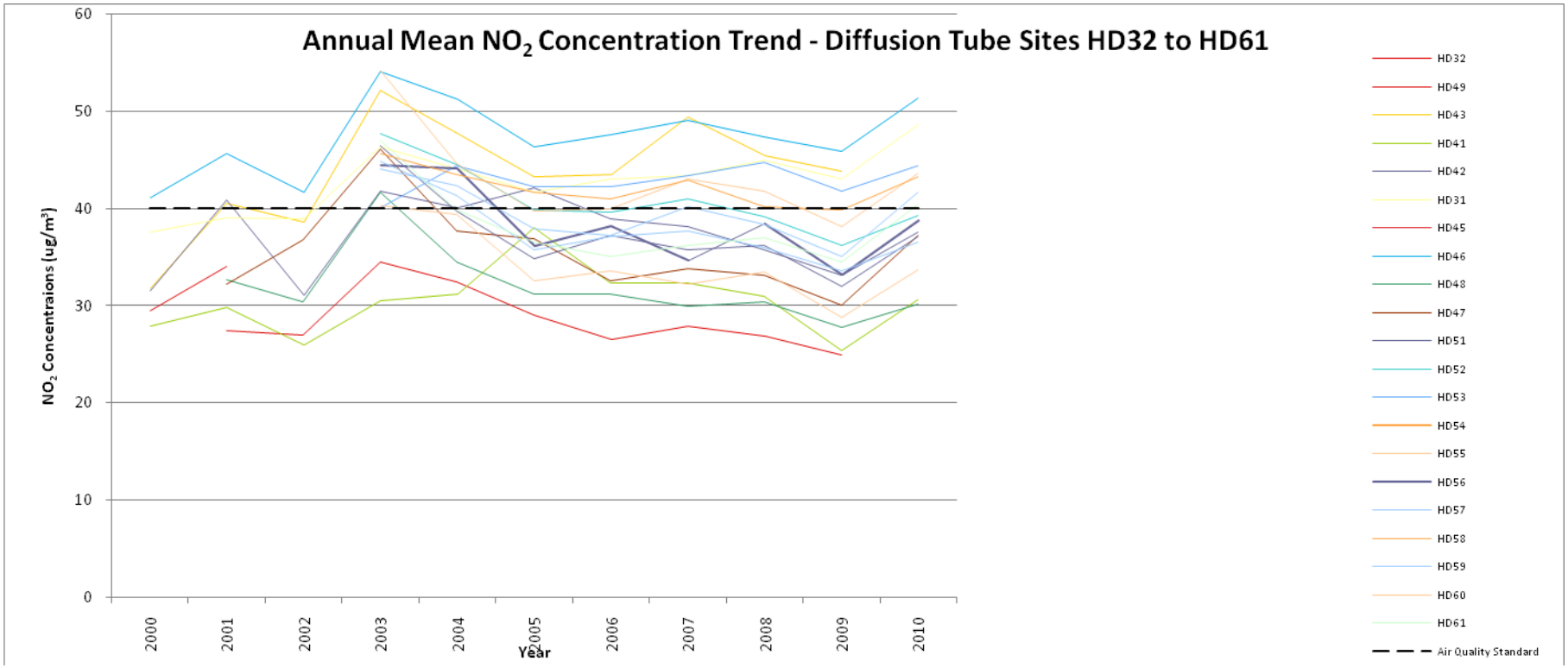
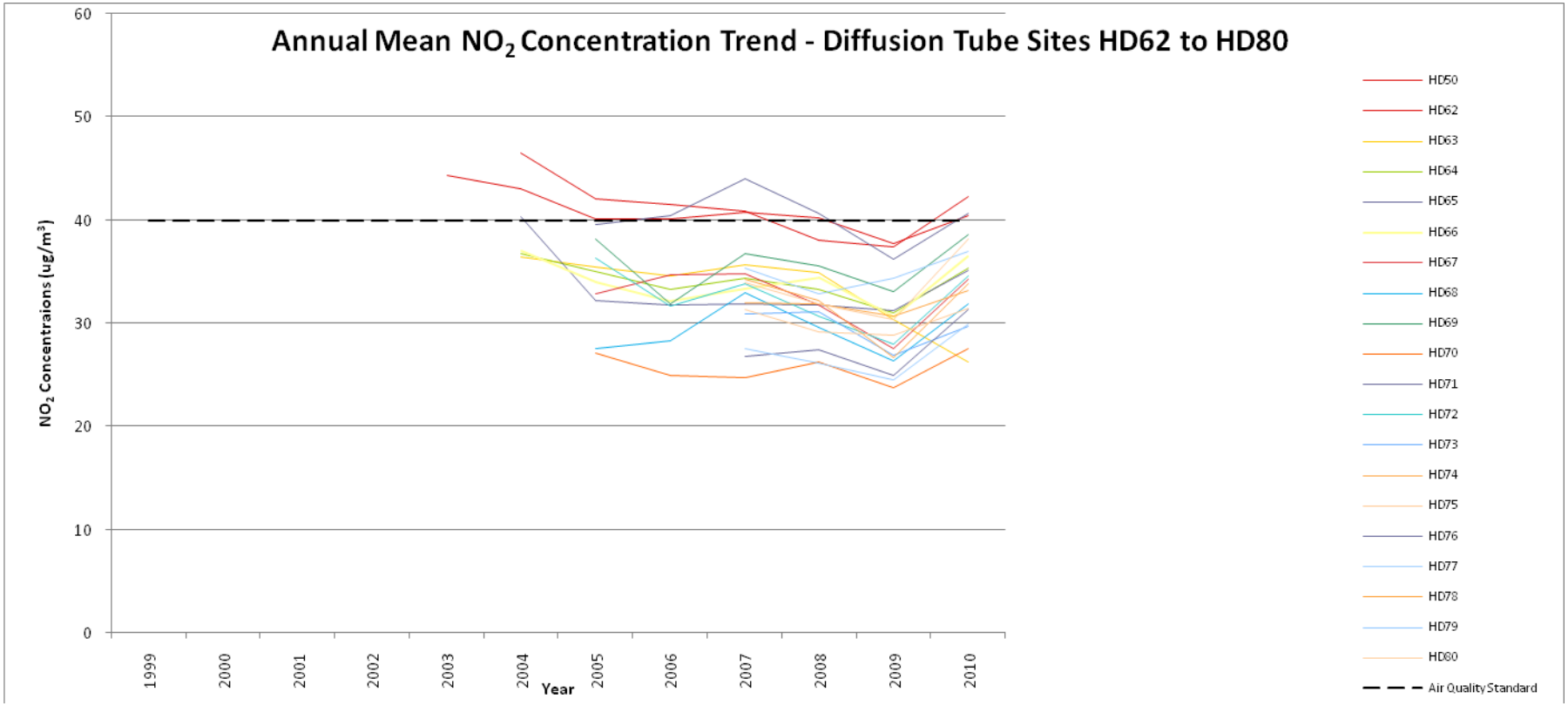


Figure 2.3. Trend of Annual Mean NO_2 Concentrations at Diffusion Tube Sites HD62 to HD80



2.3 Other pollutants: PM_{10}, $PM_{2.5}$, benzene, ozone and carbon monoxide

Data for these pollutants are reported in Appendix 3. No exceedances of objectives were recorded at the monitoring sites, though there was a significant decrease for the year in concentrations of PM_{10} at the South Ruislip monitoring station (at which there had been a significant increase in 2009) and London Harmondsworth of 37% and 36% respectively. However, there was a 44% increase in concentrations at Hillingdon Hayes.

For hourly mean PM_{10} concentrations all but one site, Hillingdon Hayes, showed a reduction in the number of exceedances from 2008. The site with the highest number of exceedances, London Harmondsworth, saw a reduction in exceedances from 33 in 2008 to 25 in 2009.

Ozone was monitored at four sites in the Borough in 2009, up from one site in 2008. Recorded annual mean concentrations ranged from 26 µg m^{-3} to 38 µg m^{-3}

Monitoring of carbon monoxide was discontinued at London Harlington in March 2008.

2.4 Monitoring Network Review

As part of the progress report a review of the London Borough of Hillingdon owned monitoring sites was undertaken. This encompassed both automatic monitoring and the passive monitoring on NO_2.

2.4.1Automatic Monitoring

Of the sites located in Hillingdon only five are under the direct influence of London Borough of Hillingdon. These are listed in *Table 2.2*. Hillingdon Sipson was located to ascertain the impact from the airport on a residential area. The other four sites are all located at pollution hotspots with traffic emissions being the main pollutant source.

Table 2.3 presents the annual mean concentrations of NO_2 and PM_{10} from each site along with annual mean results from the co-located NO_2 diffusion tubes where available.

Table 2.2. London Borough of Hillingdon operated automatic sites

Site Name	Site Type	Pollutants Monitored	In AQMA?	Relevant Exposure ?	Distance to kerb of nearest road	Does this location represent worst-case exposure?
Hillingdon 1 – South Ruislip	Roadside	NO_2, PM_{10} (TEOM)	Yes	Yes (14m)	2.5m	Representative of exposure on this road
Hillingdon 2 – Hillingdon Hospital	Roadside	NO_2, PM_{10} (TEOM)	Yes	Yes (7m)	2m	By residential and also opposite hospital
Hillingdon 3 – Oxford Avenue	Roadside	NO_2, PM_{10} (TEOM)	Yes	Yes (8m)	5m	Yes (for emissions from Bath Rd and Airport)
Hillingdon Sipson	Urban background	NO_2	Yes	Yes (9m)	N/A	N/A
Hillingdon Hayes	Roadside	NO_2, PM_{10} (BAM)	Yes	Yes (15m)	5m	Yes

Table 2.3. London Borough of Hillingdon operated automatic sites and relevant co-located diffusion tube sites.

Automatic Monitoring Site	Pollutants Monitored	Annual mean concentrations (µg/m³)			Bias adjusted NO_2 diffusion tube annual concentrations (µg/m³)		
		2008	2009	2010	2008	2009	2010
Hillingdon 1 South Ruislip	NO_2	**46**	**49.3**	**46.9**	**47.3**	**47.5**	**47.3**
	PM_{10} (TEOM)	22.9	35.4	22.4			
Hillingdon 2 Hillingdon Hospital	NO_2	35	37.4	36	**40.2**	39.1	37.4
	PM_{10} (TEOM)	20.8	22.0 (36)	26.1			
Hillingdon 3 Oxford Avenue	NO_2	**42**	**43.4**	**41.0**			
	PM_{10} (TEOM)	21.4	21.1 (36)	20.4			
Hillingdon Sipson	NO_2	38	39.0	38.3			
Hillingdon Hayes	NO_2	**50**	**55.6**	**54.3**			
	PM_{10} (BAM)	21.6	16.3	23.5			

Hillingdon South Ruislip, Hillingdon Oxford Avenue and Hillingdon Hayes have all exceeded the NO_2 annual mean objective in each of the last three years of operation. They are also each located close to locations of relevant exposure. As such it is recommended that these sites continue to monitor NO_2 as they represent pollution hot spots.

The automatic monitoring site at Hillingdon Hospital has not seen an exceedance of the NO_2 annual mean objective in any of the last three years. The diffusion tube survey resulted in an exceedance in 2008 but has seen a reduction below the objective both in 2009 and 2010. It is suggested that this automatic site could be discontinued and monitoring maintained using diffusion tubes only.

The automatic site at Sipson has not seen an exceedance of the NO_2 annual mean objective in any of the last three years although concentrations are within 2 $\mu g/m^3$ or less of the objective value. The source apportionment analysis in Chapter 3 shows that the key source of NO_2 at this site is likely to be the M4/A4 junction with some additional contribution from further to the east and south possibly originating from vehicles on the M4. The original remit of this site was to assess the impact of the airport on pollutant concentrations. As there have been no exceedances and analysis suggests the airport contributions are minimal it is suggested that this automatic site could be discontinued. However, as the concentrations are close to the objective value, monitoring could be maintained using diffusion tubes.

The PM_{10} concentrations at the four sites undertaking hot spot monitoring are well below the annual mean objective value. The number of exceedances of the 24-hour mean were also well below the objective level. These four sites are therefore demonstrating that there is no issue with PM_{10} at these hot spots. This and the additional fact that other PM_{10} monitoring is undertaken within the Borough by third parties would allow the London Borough of Hillingdon to cease PM_{10} monitoring at all four of these sites. If the Council wished to continue monitoring PM_{10} it is suggested that priority be given to the BAM monitoring site at Hillingdon Hayes due to this analyser being deemed equivalent to the reference method[3]. An additional consideration for future use of these analysers would be to relocate them to a position where future major development has been identified (for example any construction that arises from the future proposed High Speed Train and Crossrail train links that run through the Borough). This could provide information on both the baseline prior to construction and during the construction phase.

2.4.2Nitrogen Dioxide Diffusion Tube Monitoring

As discussed in Section 2.1 there were 62 diffusion tube monitoring sites across the Borough during 2010. These were a mixture of the Councils own tube sites, a Heathrow wide study and a Highways Agency study. In 2010 the Council diffusion tube network consisted of 32 tube sites. This review considers if it would be justifiable to reduce the size of the existing network operated by the Council by considering NO_2 concentrations at each site, the spatial coverage of the network and site types. The specific reason for the location of each site is unknown and therefore the recommendations made in this section should be considered alongside any local issues.

Appendix 3 provides a summary of the monitoring locations of each of the diffusion tube sites. The first observation is that a large number of sites are recorded as “background” sites but are stated as being close to a road in the “Distance to kerb of nearest road” column. Technical Guidance TG(09) states that an urban background site should not be within:

- 30 m of a very busy road (>30,000 vehicles/day)
- 20 m of a busy road (10,000-30,000 vehicles/day)
- 10 m of any other road (<10,000 vehicles/day)

The first recommendation is therefore to verify the site classification of each of the tube sites against the TG(09) Local Siting Criteria information in Box A1.2. If these are indeed all background sites then a reduction in the amount monitoring at background concentrations could be considered.

[3] http://uk-air.defra.gov.uk/reports/cat05/0606130952_UKPMEquivalence.pdf

To assess the network the diffusion tube sites recording annual mean concentrations below 30 μg/m^3 were considered. Concentrations at these sites were far enough below the limit to be confident that there will be no exceedance unless something changes to alter the emissions source(s) (e.g. a new development or road construction). These sites are listed in Table 2.12. Of the eight monitoring sites outside of the AQMA, six measured an annual concentration below 30 μg/m^3. A number of these sites could therefore confidently be removed from the network based on the concentrations recorded. Which sites to remove could be decided against a number of different criteria, considerations and recommendations that are listed below:

- According to the stated "Site Type" five of these are background sites. If this is the case then a reduction in the number of background sites could be undertaken.
- If the "Distance to kerb" descriptions are correct the majority of these sites may be roadside locations. If this is the case then a reduction in site numbers could be prioritised by:
  - taking into account those sites located where the emissions sources are considered similar (e.g. with respect to traffic flow and traffic characteristics)
  - removing the sites recording the lowest concentrations.
- There may be a consideration to continue with site HD70 as this is the only monitoring site in the north west of the Borough.
- It may be useful to maintain site HD75 and possibly HD73 if these assist with demarcating the AQMA boundary.

Within the AQMA only four sites measured an annual concentration below 30 μg/m^3. These sites could confidently be removed based on the concentrations recorded without compromising the general spatial coverage of the network.

Finally the remaining tubes sites (i.e. those measuring an annual mean concentrations over 30 μg/m^3) were considered with respect to the spatial coverage of the Borough. The following are suggestions as to other sites that could be discontinued. However, as stated above, the local site conditions are unknown:

- Sites HD60 and HD 64 are located close together and are measuring similar concentrations (31.11 μg/m^3 and 32.63 μg/m^3 respectively). One of these sites could be discontinued.
- Sites HD59, HD66 and HD72 are located close together and are measuring similar concentrations (33.76 μg/m^3, 33.65 μg/m^3 and 31.86 μg/m^3). Site HD63 has already been recommended for removal due to concentrations being the lowest in the network. One other of the three remaining sites in this area could also be considered for removal.

Table 2.4. NO_2 diffusion tube monitoring sites measuring annual mean concentrations less than 30$\mu g/m^3$.

Site ID	Location	Within AQMA?	Site Type	Relevant Exposure?	Distance to kerb of nearest road	Worst-case Location?	2008	2009	2010
HD63	370 Sipson Road, Sipson,	Yes	Roadside	Y(0m)	12m	Representative of a street	34.6	32.88	24.19
HD70	Harefield Hospital, Hill End Road	No	Background	Y(0m)	5m	Representative of a street	26	25.91	25.45
HD49	83 Hayes End Drive, Hayes End	Yes	Background	Y(7m)	7m	No - background	27	27.05	26.96
HD73	Queensmead School, South Ruislip.	No	Background	Y(0m)	1m	Representative of a street	31.1	29.31	27.40
HD77	Chamberlain Wy, Eastcote.	No	Background	Y(12m)	1m	Representative of a street	26.3	26.19	27.60
HD48	Citizens Advice Bureau	No	Background	N	7m	No	30.7	30.14	27.84
HD41	Barra Hall	Yes	Background	Y(10)	2m	Representative of a street	30.7	28.14	28.28
HD76	Kaduna Close, Eastcote	No	Roadside	Y(4m)	1m	Yes - nearest residential to busy road	29.3	27.47	28.89
HD75	Sidmouth Drive, South Ruislip.	No	Background	Y(4m)	2m	Yes - nearest receptor to busy road	29.3	30.82	29.02
HD68	Ratcliffe Close, Uxbridge	Yes	Background	Y(0m)	1m	Yes - nearest residential to road	29	28.46	29.39

2.5 Summary of Compliance with AQS Objectives

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

There continues to be exceedance of the NO_2 annual mean limit value in the Borough, particularly close to major roads and the airport. In 2010, exceedance was for the first time since 2003 been identified at the Heathrow Green Gates side. Concentrations at the London Hillingdon and Hillingdon Hayes automatic stations show that the limit value is exceeded by around 35%. In neither case is there any movement to a reduction in concentrations.

There continues to be no trend towards improvement of NO_2 levels, despite some decrease in road traffic in the Borough. This raises serious questions about the modelling undertaken for the Third Runway, that forecasts that there would be improvements sufficient for the limit values to be met within a few years. This needs to be considered in any future modelling undertaken in relation to

airport operations.

No problems in relation to limit value exceedance have been identified with the other pollutants monitored ($PM_{2.5}$, PM_{10} and ozone). A significant increase in PM_{10} levels at South Ruislip in 2009 was followed by a significant fall in 2010. However, there was a 44% increase in concentrations of PM_{10} at Hillingdon Hayes in 2010.

Monitoring of CO and benzene has been discontinued as observed concentrations were well within limits.

The monitoring network has been reviewed by AEA Technology. A number of recommendations for changes to the network have been made, for example, where monitoring may no longer be required. The Council will consider these recommendations in the coming year.

Chapter 3 Source Apportionment for Nitrogen Dioxide

In order to investigate the possible sources of nitrogen dioxide at each of the Hillingdon monitoring locations, meteorological data were used to introduce a directional component to the air pollutant concentrations. Hourly pollutant concentrations have been plotted against the wind speed and wind direction derived from the Heathrow LHR2 site. The plots allow the general direction of pollutant sources to be determined.

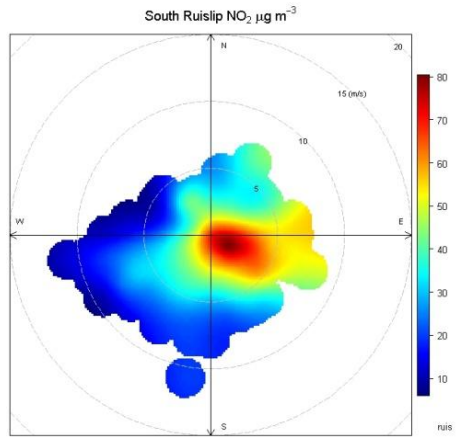
When interpreting the polar plots, the further a data point is plotted from the central position on the plot, the higher the wind speed was when the value was recorded. This loosely equates to the concept that the further an area of high concentration is from the central position in the plot, the further the source is from the monitoring station as higher wind speeds are needed for the pollution to be recorded at the site. These plots do not allow a derivation of any specific values or exceedances, or an exact location of a source to be determined. They provide a visual indication as to the direction of possible sources of pollution that are being measured at the site and where these are likely to be in relation to the monitoring site.

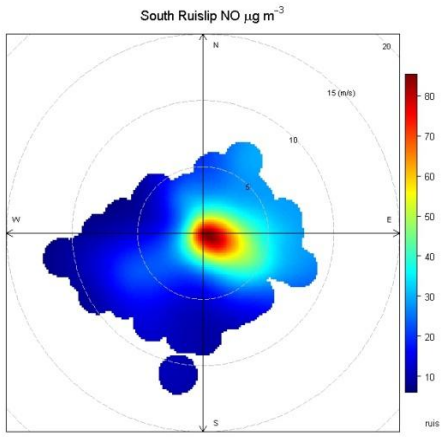
It is also important to understand the characteristics of NO_2 when interpreting these plots. Nitrogen oxides (NOx), which comprises nitric oxide (NO) and nitrogen dioxide (NO_2), are emitted from combustion sources, such as road vehicles. NOx is mainly comprised of NO, which reacts with ozone (O_3) in the atmosphere to form NO_2. In addition some NO_2 is directly emitted. These characteristics result in different outputs for NO and NO_2, with NO_2 often seeing elevated concentrations at higher wind speeds due to the formation of NO_2 from NO that has been emitted from more distant sources.

The results of this analysis for each site are presented below.

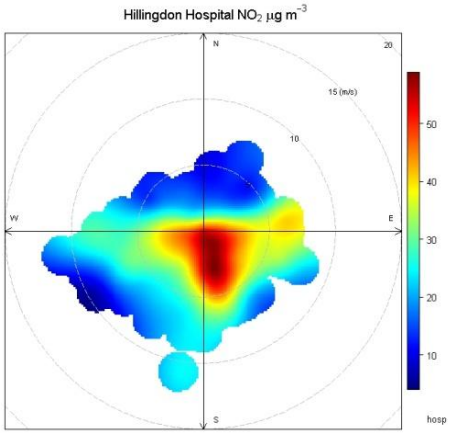
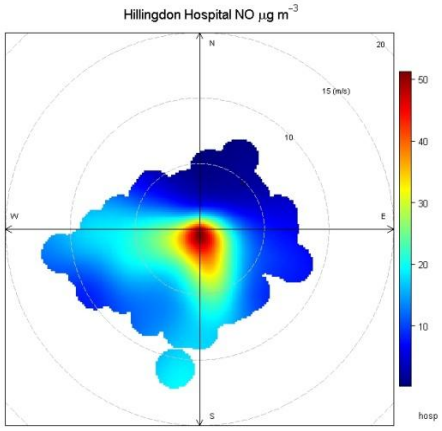
Hillingdon 1 - South Ruislip

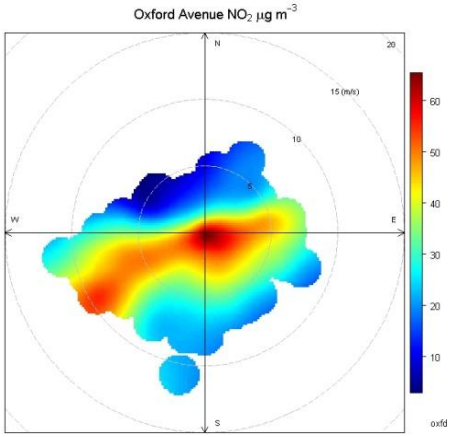
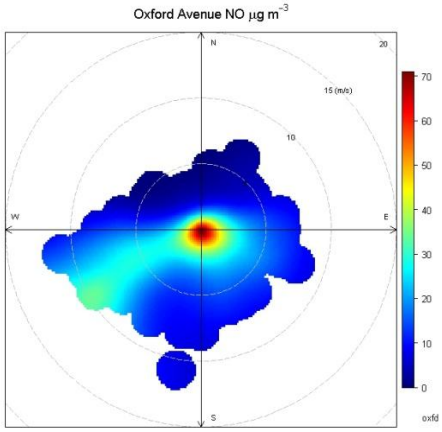
The South Ruislip site is located on the west side of the A4180 West End Road approximately 300m north of the A40 and 2.5m from West End Road which carries local traffic. The polar plot for this site clearly shows the traffic on West End Road as the main emissions source with the highest concentrations centred just to the east of the monitoring site.

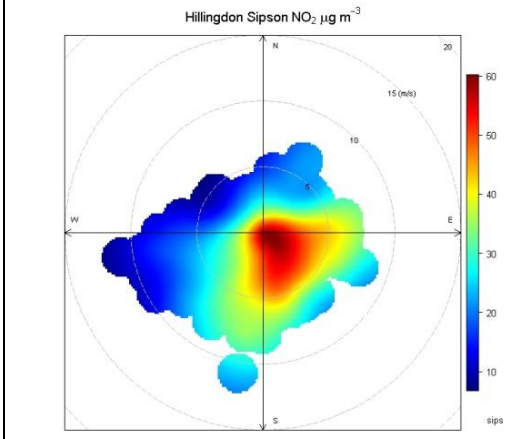
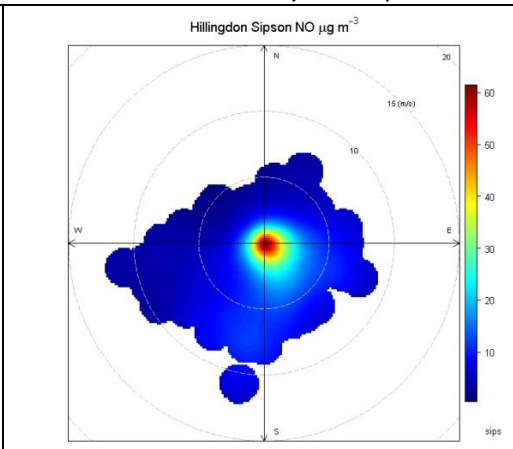


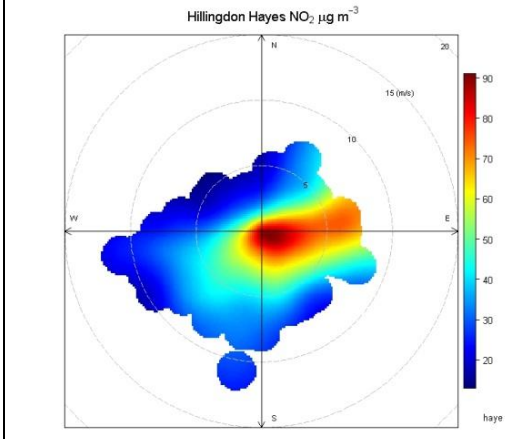
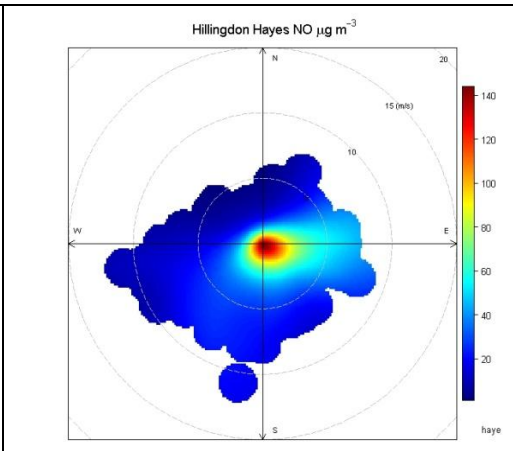


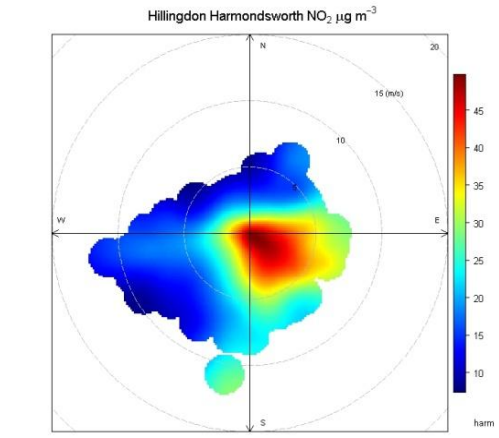
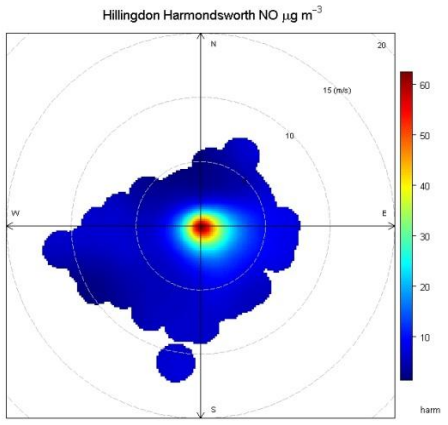
NB Data provisional from April 2010.

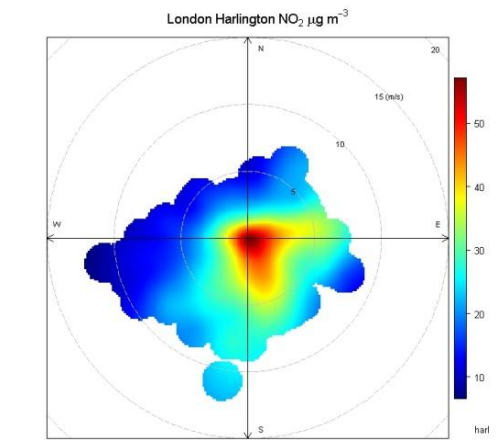
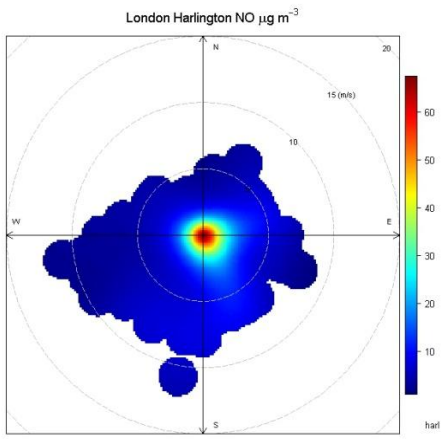
Hillingdon 2 - Hillingdon Hospital	
Hillingdon Hospital site is located at the end of Colham Road, a non-through road, close to the junction of Pield Heath Road and Colham Green Road. The site is approximately 2m from Pield Heath Road. The junction consists of a mini roundabout that is to the south of the monitoring site at a distance of approximately 30m to the roundabout centre. The polar plot shows that the junction is the most significant source of pollutant emissions. This is most likely a result of queuing at the three entrances to the roundabout, giving the elongated area of highest emissions roughly equating to the orientation of the road layout.	
 NB Data provisional from April 2010	

Hillingdon 3 – Oxford Avenue	
The Oxford Avenue site is located at the junction of Oxford Avenue and the A4 Bath Road. It is approximately 7m north of the A4. The north west corner of the Heathrow Airport area lies approximately 300m to the south east of the site. The polar plots suggest that the most significant source of emissions originate from the A4, and possibly the Oxford Avenue/A4 junction, with the highest concentrations occurring during low wind speeds. The NO_2 plot shows the red/orange zone orientated approximately to the orientation of the road. Both plots also suggest some contribution from the airport with elevated concentrations recorded at higher wind speeds from the south west.	
 Provisional from April 2010	

Hillingdon Sipson
Hillingdon Sipson is located at the end of Ashby Way approximately 300m north of the A4 Bath Road. It is 200m west of the M4, 350m north west of the junction at the end of the M4 spur road and 500m north of the Heathrow airport boundary. The polar plots suggest that the most significant pollutant source is to the south east which suggests that the M4/A4 junction is a key source of primary NOx. The NO_2 plot shows some additional contribution from the easterly and southerly directions. The elevated concentrations seen at higher wind speeds from the east are likely to be due to the formation of secondary NO_2 formed from NO emitted from vehicles on the M4. The contribution from the southerly direction may arise from emissions from the A4 and the airport although it is not possible to isolate these two sources visually in the plot.
 

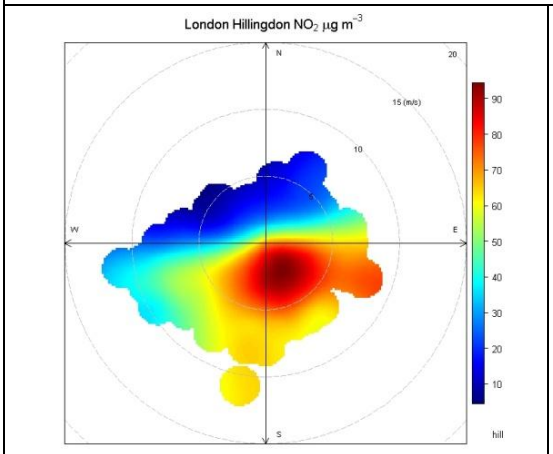
Hillingdon Hayes
Hillingdon Hayes is a roadside site located in a residential area at the junction of North Hyde Road and North Hyde Gardens. A roundabout junction with the A312 is approximately 200m to the west. Heathrow airport is located approximately 2km away to the south west. In the plots the highest concentrations are seen at low wind speeds and slightly offset to the south east. This suggests that the junction where the site is located is the most significant contributor to elevated pollutant concentrations at this site. There is also contribution to elevated NO2 concentrations from the east suggesting the A312 and associated junction.
 

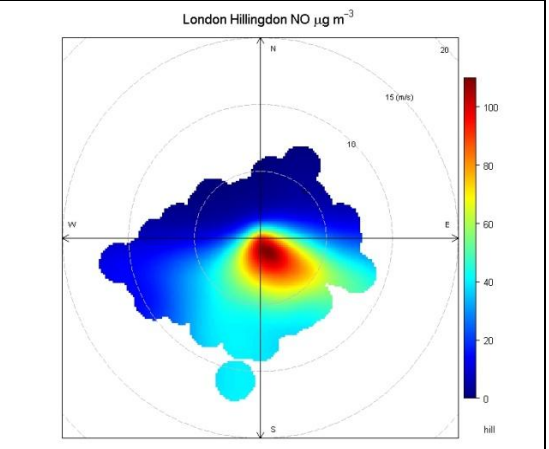
Hillingdon Harmondsworth
This site has been located to monitor the impact on local residents of an Energy from Waste plant. The site is located on Moor Lane in a small residential area approximately 1.2km to the east of the EfW plant; approximately 600m north of the A4 Bath Road; and situated to the north of the northern end of the Heathrow Airport area. The polar plot shows that the most significant source of NO and NO_2 emissions is directly at the site location, with more general elevated concentrations of NO_2 from the south west quadrant. The local emissions contributing to the primary pollutant source may be vehicle movements along Moor Lane and using the junction with School Road. The more distant signature in the NO_2 plot suggests secondary NO_2 resulting from the airport.
 

London Harlington
London Harlington is an AURN site located on Sipson Lane approximately one kilometre north of the Heathrow airport perimeter road and 800m north of the A4 Bath Road. Although the polar plot shows a signature from the general direction of the airport there is a more significant source very close to the monitoring site just to the south west. The source of these emissions is not clear and an investigation of the land use in the field to the south west of the site is suggested.
 

London Hillingdon

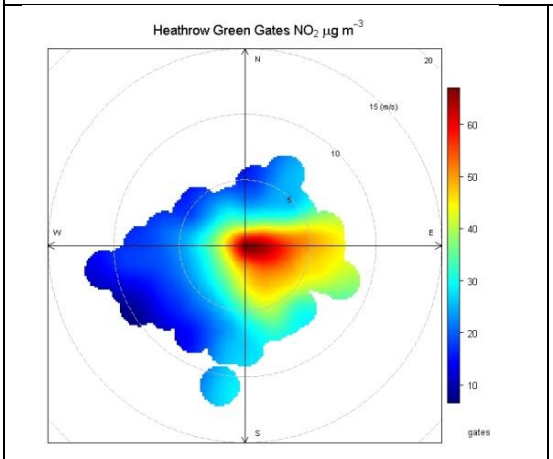
London Hillingdon is an AURN site located on Sipson Road approximately 35m north of the M4. The polar plots clearly suggest the impact of the motorway on the concentrations recorded at this site with the highest concentrations originating from the south at relatively low wind speeds.

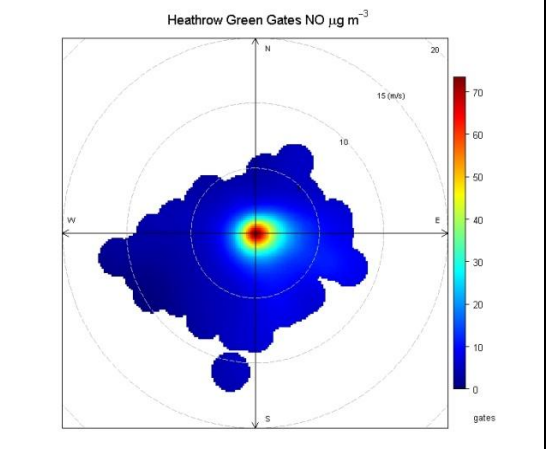




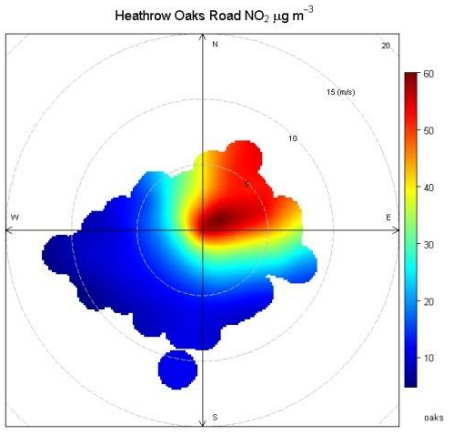
Heathrow Green Gates

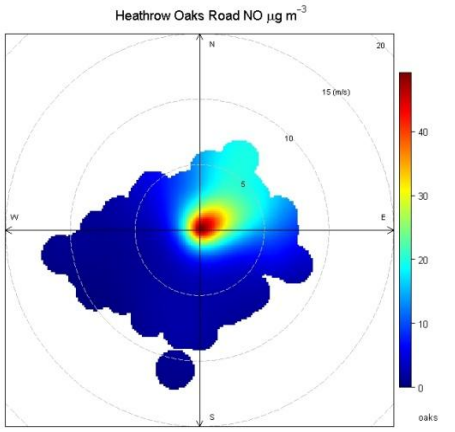
Heathrow Green Gates is located at the perimeter fence in the north east corner of the Heathrow Airport area, close to the eastern end of the north runway. The highest NO pollutant concentrations are originating close to the monitoring site which suggests some local source of primary NO emissions. In contrast the plot for NO_2 shows a key source to the east and south east suggesting that airport activities are the key contributor to secondary NO_2 at this site.



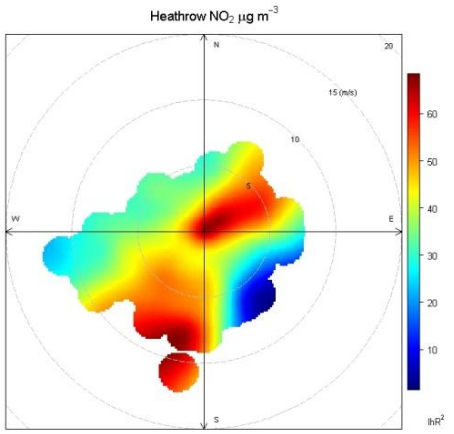


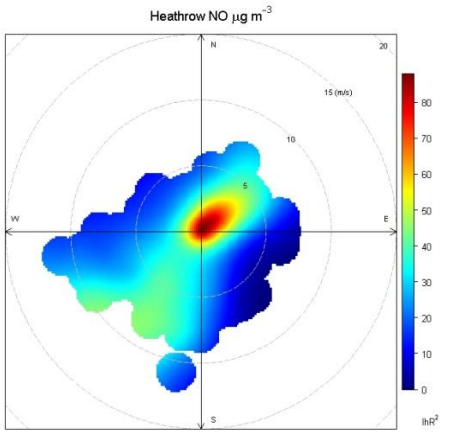
Heathrow Oaks Road
The Oaks Road site is located to the south west of the airport approximately 250m from the airport boundary. Both polar plots clearly demonstrate the contribution of the airport activities to both primary and secondary pollutant concentrations.





London Heathrow LHR2
The Heathrow site is located air-side on an area between the northern runway and the northern perimeter road, 14.5m from the kerbside and 180m from the runway centre. The highest concentrations of NO were associated with a source to the north east of the site at low wind speeds. This suggest a predominantly traffic source from the nearby road network and parking areas. There is also a suggestion of some elevated concentrations from the direction of the airport. The NO_2 plot also shows high concentrations in the north east quadrant but, compared to NO, there is a far stronger signature at higher wind speeds from the south west quadrant. This is from the direction of the main airport buildings and runways. The stronger signal for NO_2, demonstrates that the source a distance from the site, allowing time for more of the emitted NO to be oxidised to NO_2.





Chapter 4 New Local Developments

4.1 Road Traffic Sources

There are no new or newly identified road traffic sources within the London Borough of Hillingdon since the previous round of the Review and Assessment process.

4.2 Other Transport Sources

No new transport sources have been identified sine the last Updating and Screening Assessment.

4.3 Industrial Sources

There are no new or newly identified industrial sources within the London Borough of Hillingdon since the previous round of the Review and Assessment process.

4.4 Commercial and Domestic Sources

The following two planning developments are discussed in Section Chapter 7.

4.5 New Developments with Fugitive or Uncontrolled Sources

There are no new or newly identified fugitive or uncontrolled sources within the London Borough of Hillingdon since the previous round of the Review and Assessment process.

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

Chapter 5 Hillingdon's Priority Areas

This chapter describes the priority areas in Hillingdon as identified by the monitoring in the previous chapter and also the modelling work carried out previously by Hillingdon and more recently by the GLA in the draft MAQS '*Clearing The Air*'. These priority areas are those that will need to be the focus of the review of the Air Quality Action Plan and are where other agencies and stakeholders will most need to work with Hillingdon to ensure the EU limit values are met.

It is clear that the EU limit value for annual mean nitrogen dioxide has not been met by the compliance date of 2010 in the Heathrow area and in the areas surrounding the main road network. The UK Government is now in the position of having to submit an action plan to the European Commission as part of an application for an official extension of time to meet the EU limit values.Defra have recently published the Air Quality Plan for achievement of EU air quality limit values for nitrogen dioxide for consultation.

Of specific interest to Hillingdon is the Greater London Area document that forms a part of the consultation and identifies the issues that need to be tackled in this area i.e. exceedance associated with operation of the road network and also exceedances related to Heathrow Airport. Of great concern is the indication within the report that these exceedances are likely to remain to 2020-2025 given that the European legislation states that if an extension is granted,then compliance should be as soon as possible, to a maximum of 5 years i.e. 2015.

The Review of the Hillingdon Action Plan will, therefore, need to assess what moreneeds to be done to address these issues in as short a timeframe as possible, recognising the effect that non-compliance has on the health of those who live and work in the Borough.

5.1 Heathrow Airport (including the M4 and surrounding areas)

The problems of air pollution in the Heathrow area have been recognised for a number of years and in a number of key national documents, including the National Air Quality Strategy, the Air Transport White Paper, and the Mayor's Air Quality Strategy. This is confirmed by the monitoring data reported above and in Appendix 3 and in addition to the Defra report to the European Commission (see above) that identifies that compliance with the limit value will not be achieved until at least 2020.

Hillingdon welcomes the Coalition Government's policy of no further capacity increases at Heathrow either by means of an additional runway or by mixed mode operations. This stance is reiterated in the "Developing a sustainable framework for UK aviation: Scoping Document" currently out for consultation. However, given the air quality problems that already exist in the area it is of considerable concern that Heathrow Airport has not yet reached its authorised capacity (480,000 air transport movements and a terminal capacity of approximately 80mppa). Reaching this capacity has the potential to bring increased pollutant emissions from increased flights, increased on-airport emissions and increases from extra road transport accessing the airport. Therefore Hillingdon will need to ensure that the necessary stakeholders, able to influence control over emissions, are an integral part of the air quality action plan progress review.

There may an additional threat to achieving compliance by the change in operational practice caused by the cancellation of the Cranford Agreement. As identified in the previous Government's Adding Capacity at Heathrow consultation, this changes the spatial distribution of emissions around the airport. As the surrounding areas are either on the borderline of compliance, or over the EU limit value, it is vital to ensure there are appropriate mitigation measures in place to ensure compliance.

The very recent publication (14th July 2011) of the South East Airport's Taskforce Report for improving operational resilience includes additional suggestions for changes at Heathrow Airport. These suggested changes, to be restricted to times of "crisis" will need to be carefully monitored and assessed to ensure there are no local air quality implications.

The review of the Hillingdon Air Quality Action Plan will look to include relevant actions and measures from reports such as the Mayor's Air Quality Strategy, the Heathrow Air Quality Strategy update, expected later in 2011 and the Heathrow Surface Access Strategy update, expected late 2011/early 2012. Ensuring future compliance on a more long term basis will mean ensuring appropriate measures, such as the policy on no further expansion, are adopted as key measures in the Defra air quality plan for compliance and in the Aviation Framework document, expected for adoption in 2013.

As the surrounding road network is also a key contributor to air quality problems in the area, continued interaction will be required with the Heathrow Area Transport Forum, the Highways Agency and Transport for London, as well as internal Hillingdon transportation teams, to ensure measures are taken forward to help secure compliance.

Although not directly related to local air quality, Hillingdon has concerns over the proposed High Speed 2 route currently out for consultation. The consultation includes the principle of a link to Heathrow although, from evidence gained during the formulation of the Hillingdon consultation response, there appears to be no strong economic case for such a link. The Borough is concerned that a direct link may simply fuel the call for more capacity at the airport. In addition, there is a general concern that should domestic or short haul flights be switched to rail, without an aviation policy in place to freeze the slots lost, these may simply be replaced by international, more polluting, higher passenger number planes that would worsen local air quality, increase road traffic and generate more carbon emissions.

5.2 Strategic Road Transport Corridors and Junctions

As shown in Table A1-1 in the appendices, road transport is the second highest source of NOx within the Borough. Hillingdon is crossed by major roads such as the M4, A40, Hayes Bypass and Bath Road, none of which are under Borough control.

Automatic traffic counters are now in place on a number of the key borough-owned roads and the results from these, in conjunction with data from other agencies such as TfL and DfT, will help to assess the trends in traffic volume and vehicle type and therefore act as a means of assessing the success of road transport measures put in place to relieve congestion and help reduce pollutant emissions.

5.2.1A40 Corridor

The main contributor to the poor air quality in the residential areas close to the A40 is the congested traffic on this transport corridor including large numbers of freight vehicles and the operation of the junctions at Swakeleys Road, Hillingdon Long Lane and the Polish War Memorial at South Ruislip. The monitoring data confirms that the poor local air quality continues into the residential areas surrounding this major road and from the congestion on its feeder roads.

The redevelopment of RAF Uxbridge will put greater pressure on local road networks and potentially the A40 Swakeleys Road junction. This will need to be carefully managed to ensure no future negative impacts on local air quality.

5.2.2Hayes Bypass A312

The A312 Hayes Bypass is a main route in the Borough connecting the A40 and the M4. The road carries a large number of freight vehicles. The congested junction with North Hyde Road, with an additional junction with a freight park, causes slow moving traffic through the residential areas lining North Hyde Road and the surrounding Borough network. Monitoring data confirms the poor local air quality in the Hayes area close to this major road and that the poor air quality continues into the residential areas in close proximity. The proposed Southall Gasworks Development of approximately 3,000 dwellings is an additional future burden as the A312 will be a main access route from this site to the south. Measures will be needed to deliver smoother traffic flows at these junctions whilst ensuring impacts are not spread onto the Borough road network and the nearby residential areas.

Priority areas have been identified, focusing on Heathrow Airport and the major road network. The review of the Hillingdon Air Quality Action plan will need to be supported by the stakeholders most able to help the Borough reduce the pollution levels to the recognised EU levels. This includes agencies such as Highways Agency and Transport for London, businesses such as BAA Heathrow and surrounding local authorities as well as support for central and regional Government.

Chapter 6 Regional Air Quality Strategy

Following consultation with the London Assembly and functional bodies, that ran from October-November 2009, the Mayor published a second Draft Air Quality Strategy for public consultation on 28 March 2010. In December 2010 the Major's Air Quality Strategy was published. This strategy can be found at http://www.london.gov.uk/air-quality . Last year's progress report identified very strong consistency between the MAQS and Hillingdon's AQAP.

The strategy sets out a framework for delivering improvements to London's air quality and includes measures aimed at reducing emissions from transport, homes, offices and new developments, as well as raising awareness of air quality issues. To deliver the strategy the Mayor intends to work closely with London boroughs. The Mayor is proposing further transport policies that will make London's transport network even cleaner and greener. These proposals include:

- Cleaning up London's bus fleet so that all buses meet Euro IV emissions standards for both NOx and PM_{10} by 2015. A Euro IV bus emits roughly a third less NOx than a bus made in 2000 (Euro III)
- Cleaning up London's taxi and Private Hire Vehicle (PHV) fleet PHVs by introducing age limits to remove the older, more polluting vehicles from London's roads. The Mayor will also work with the industry to develop a taxi capable of zero tailpipe emissions by 2020.
- Including larger vans and minibuses in the Low Emission Zone (LEZ) from January 2012 – these vehicles will have to meet the Euro 3 standard for PM to drive without charge in London.
- Introducing a new NOx standard for the LEZ from 2015.
- Reducing emissions from freight vehicles by promoting Delivery and Servicing Plans and freight consolidation facilities.
- Working with boroughs to implement targeted action plans at air quality priority locations. Trials of dust suppressants are already underway in central London. Other measures will include: tackling vehicle idling, better traffic management to smooth traffic and deploying low emission buses in these areas.

A package of non-transport policy measures is also proposed to reduce localised pollution sources. The highlights include:

- Working with boroughs to make better use of the planning process so that new developments are 'air quality neutral or better'.
- Updating best practice guidance on reducing dust emissions from construction sites and creating Supplementary Planning Guidance to encourage its implementation across London.
- Scaling up London's schemes to retrofit homes and workplaces to improve energy efficiency.
- Introducing emission standards for new biomass boilers and combined heat and power systems.
- Raising public awareness to encourage all Londoners to take action to reduce their emissions, from travel choices to energy efficiency.
- Improving information for the most vulnerable Londoners to enable them to reduce the risk to their health from poor air quality.

The Strategy will be kept under continuous review and if it becomes clear that changes are necessary in order to meet relevant air quality limit values, consideration will be given to making and implementing any required revisions.

Resources

The presence of both Heathrow airport and the major strategic road network places a burden on the Borough with regard to its air quality duties such as development of its air quality action plan, support of an air quality network to monitor priority locations and the development of innovative

measures for reducing emissions. Hillingdon is seeking the Mayor's support in ensuring that adequate resources are provided to the Borough to assist the funding of the air quality monitoring networks and the measures and actions required to seek the necessary air quality improvements.

The Mayor's support is also sought for lobbying to ensure the current Air Quality Grant Fund for Boroughs via Defra is provided to those with identified priority locations. Consideration should also be given for a mechanism to be put in place by which funding is sought from the stakeholders responsible for contributing most to the poor air quality levels experienced in the Borough. This would equate with the polluter pays principle and ensure that the resources are given to the areas where the improvements are required.

Chapter 7 Planning Applications

Air quality conditions have been laid down for two developments:

- Tesco Yiewsley (Planning Ref: 60929/APP/2007/3744)
- RAF West Ruislip, Ickenham (Planning Ref: 38402/APP/2007/1072) where the site is being redeveloped for residential use.

In the case of Tesco, conditions relating to transport services concern fuels, driver training, delivery routes and the types of vehicle employed with the intention of ensuring that all delivery vehicles are operating within a framework that seeks toencourage sustainable operations and reductions in air quality in accordance withLondon Plan policy 4A.19. Similarly, conditions have also been prescribed in relation to air quality effects of the use of biodiesel for heating services.

For RAF West Ruislip, conditions require that a green travel plan is submitted to and approved by the local authority to minimise reliance on private transport. A demolition and construction management plan is also required.

As mentioned previously, there may an additional threat to local air quality by the change in operational practice at Heathrow Airport caused by the cancellation of the Cranford Agreement. As identified in the previous Government's Adding Capacity at Heathrow consultation, this changes the spatial distribution of emissions around the airport. As the surrounding areas are either, on the borderline of compliance, or, over the EU limit value, it will be important to ensure there are appropriate mitigation measures in place to ensure compliance.

Chapter 8 Air Quality and 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 is currently developing a Local Development Framework (LDF), with the Core Strategy due to be published in Summer 2011 following public consultation in February and March. This will identify where significant growth or change is proposed, providing information to help address air quality matters. Air quality planning guidance will be integrated into the new Local development Framework "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 UPD, in doing so uses the policies from the London Plan Policies. In 2002 the London Borough of Hillingdon published the Supplementary Planning Guidance to the Unitary Development Plan – Air Quality SPG.

Once the London Borough of Hillingdon has implemented the LDF future Progress Reports should record the changes made to existing air quality planning policies.

Chapter 9 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 through to 2010-2011. In the LIP Hillingdon has presented a range of transport policies, initiatives and projects with the aim to improve air quality. These can be found in Chapter 4 – Lip Proposal Delivery Forms where each option is discussed in detail. Status of the Local Implementation Plan

The 2009 progress report reviewed traffic count data that demonstrated that there has been a 13.6% reduction in traffic volumes on roads that are under the control of the Council. Unfortunately, traffic count data for 2010 are still to be assessed. There are, however, more Automatic Traffic Counters in place at sites such as Hayes and access routes to A40 that will provide key information to assess trends in traffic/traffic composition at locations important for air quality.

The 2009 progress report also listed 21 projects to address congestion hotspots in the Borough.

The revised LIP (LIP2) for the Borough lists reducing the negative impacts of transport on air quality and noise as 'Objective 2' and is hence a focus for the key delivery actions from 2011 to 2014 and beyond. There is strong synergy between the AQAP and LIP2 with most of the surface transport actions listed shared between the two. There is also a commitment in LIP2 to undertake NOx, PM_{10} and CO_2 emission simulation to monitor the environmental effects of LIP2 from implementation initiatives including the following:

- Area-wide travel plans,
- Sustainable N-S Corridor ,
- Free parking for Electric Vehicles at 25+ locations,
- Possible feasibility assessment for provision of hydrogen infrastructure,
- Development and application of sustainable checklist to quantify emission reduction benefits of transport schemes and
- Identification and monitoring of target user groups.

Chapter 10 Implementation of the Air Quality Action Plan

10.1 Situation

Summary information on the progress with all measures in the action plan is provided in Appendix 4. 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 'Ongoing' recognises that some measures that are 'In progress' will never be 'Complete'. A good example concerns Measure 8.06 (annual reporting on air quality in the Borough) that is already being done, and for which necessary systems and finance are agreed and in place. 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 10.1*, 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, 72% of measures were ongoing/complete.

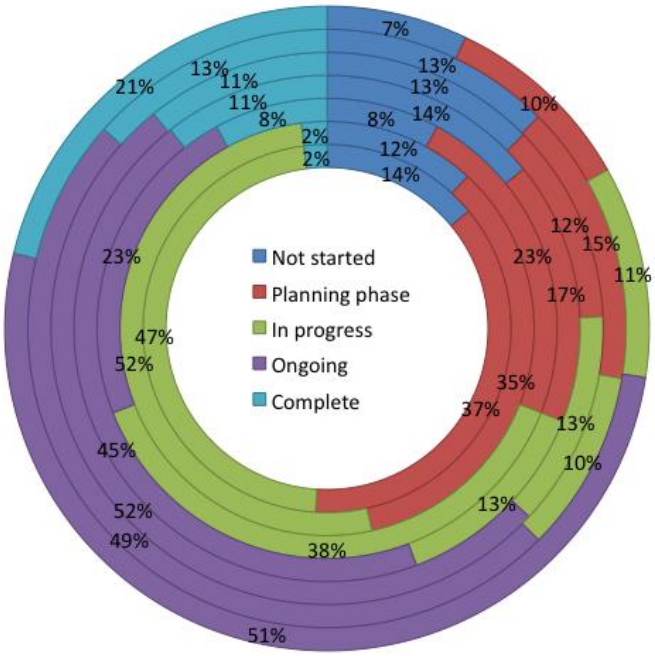


Figure 10.1. % of actions listed in the various packages of the action plan in each stage of implementation. Rings from inside to out represent progress for 2004/5 and then for each year to 2009/10.

A significant number of measures remain in the other two categories, with 7% of measures not started and 10% in a planning phase. A first step in understanding more about these measures is identification of performance in each Package of measures (Figure 10.2).

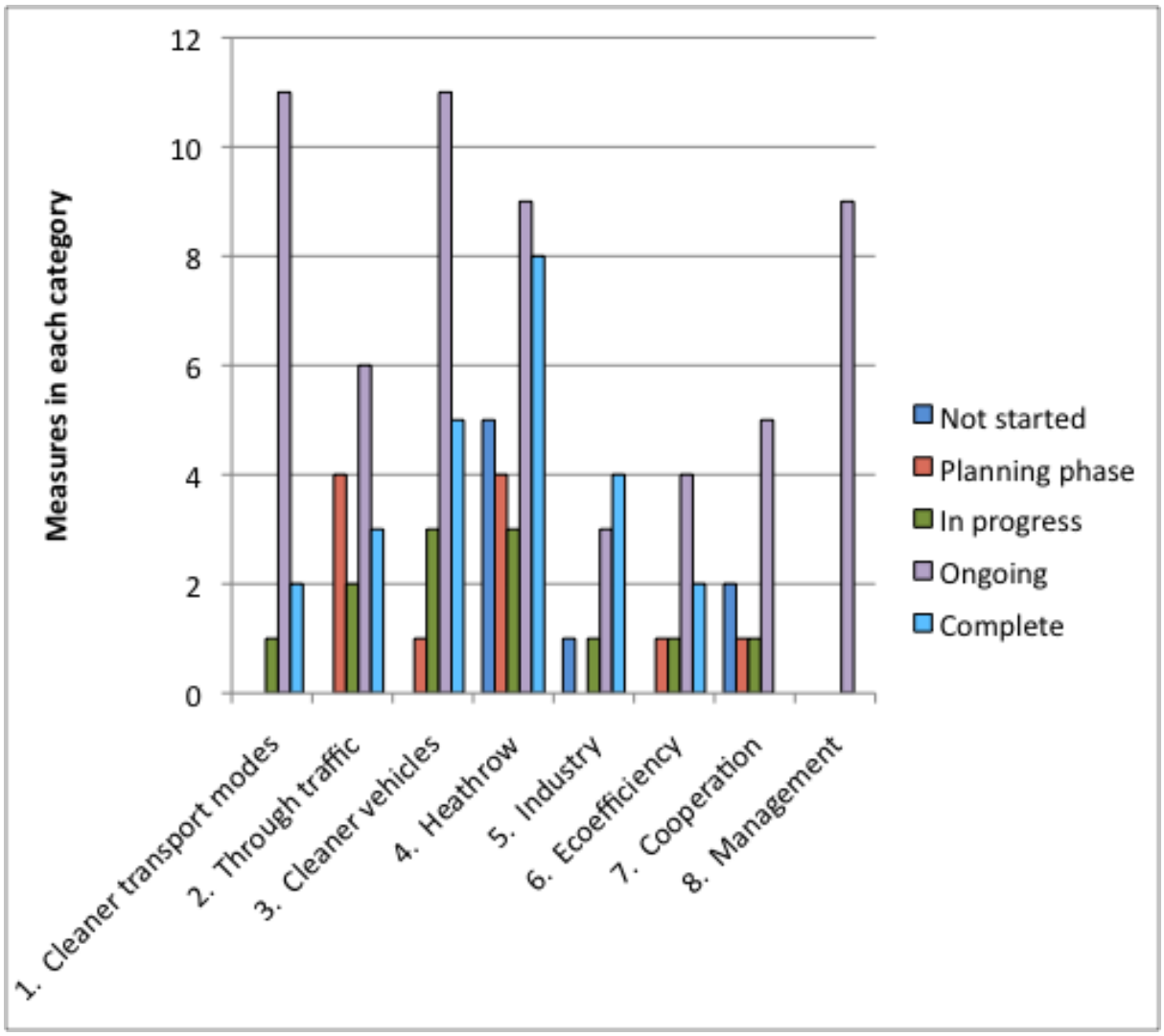


Figure 10.2. Progress of actions in each package in the action plan, showing the number of measures at each of the five stages listed (at end April 2011).

It is notable that the Packages in which most progress has been made are those that Hillingdon is chiefly responsible for. The Packages for which progress has been slowest are Package 2 (Through Traffic), Package 4 (Heathrow), and Package 7 (Cooperation), each of which involves action from other stakeholders.

It is not intended that this should be interpreted as direct criticism of the outside bodies, as it is in part a consequence of the broad ranging nature of the current Action Plan: in seeking to implement so many measures it was inevitable that problems would arise with some, particularly where the Borough was not responsible for funding or management. Whatever the reasons, it is imperative that effective dialogue is maintained with all stakeholders to ensure that any revision to the Action Plan is focussed on the measures that are most likely to cause am improvement in air quality.

A thorough review of all measures yet to be classed as 'in progress/ongoing/complete' is being made as part of the audit of the Action Plan that is currently underway. They are, therefore, not discussed in more depth in this Chapter, though some additional information is given in Appendix 4). 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.

10.2 Opportunities

A large number of measures identified in the action plan have been included in LIP2. This has the potential to provide a major source of funding for the action plan.

Section 106 Agreements continue to provide further funding for measures included in or relevant to the action plan.

The Environmental Protection Unit still enjoys enthusiastic support for the action plan from other departments in the Council, from procurement to transport planning.

Good collaboration with other local stakeholders continues, particularly with neighbouring local authorities. This provides the scope for effective regional working. This, in turn, provides the opportunity to improve the effectiveness of delivery of the action plan.

10.3 Faults

The following is a summary of preliminary findings in the independent audit being undertaken of the Action Plan. There are three main 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. As has been clear for some time, it is very unlikely that this will happen. However, 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 London and National Governments 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 seems a good time to consider a revision of the plan.

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 need to be reviewed with a view to considering whether further effort be directed to their implementation or whether alternative approaches are needed.

These issues will be given further consideration in the audit of the plan and its subsequent revision.

10.4 Threats

A major threat to air quality in the Borough has been eliminated in the last year by the decision of the Coalition Government not to proceed with a third runway at Heathrow Airport. Increased

certainty surrounding the future size of the airport should enable a more informed analysis of the relative roles of responsible parties for dealing with air quality limit value exceedances in Hillingdon and the surrounding Boroughs.

A major threat that has emerged over the last two years concerns the impacts of the economic crisis, particularly with respect to cutbacks in government expenditure. This seems very likely to affect the viability of measures to reduce emissions from the road network. Whilst the economic crisis also has a direct effect on reducing emissions it will, in the longer term, delay the implementation of some measures.

10.5 Progress with the action plan

10.5.1 Selected highlights from the reporting year

Funding has already been identified for the revision of the action plan in the current year. This will be based upon air quality modelling and source apportionment work that is currently being performed by CERC.

Under Measure 3.07 of the AQAP Hillingdon has the objective of being at the forefront of trialling new technology. Recent developments on this measure include:

- An electric pool car to be trialled in environmental services;
- A Prius hybrid on trial in Children and Families unit;
- Participation by Hillingdon in a trial of electric cars being run byFord;

TfL is currently looking to draw up joint implementation plans for transport and air quality. As part of this they will have input to the West London sub-regional plan. Hillingdon will work TfL to ensure improving local air quality at the locations outlined in Chapter 5 is a key objective of the sub-regional joint plans.

A draft has been issued of the BAA Air Quality Strategy Review for 2011-2020. This draft suggested a focus on four objectives:

- Limit and where possible reduce airport related emissions to local air quality concentrations at all relevant local receptors to help ensure EU LV met in Heathrow area;
- Accurately quantify contribution from airport-related sources to local air quality concentrations to focus management activities;
- Continually improve approach to managing AQ impacts, supporting technology etc;
- Actively engage with internal and external stakeholders to develop shared objectives.

There is, however, still no draft to comment on for the BAA Surface Access Strategy Review. It should be noted that BAA has also withdrawn its Transport and Works Act application for Airtrack, that would have given a rail link to the west. Hillingdon will comment on the Surface Access Strategy as soon as it is available.

10.5.2Next Steps

The major activities for the coming year are refinement of the monitoring network, following the review presented above in this document, and revision of the Air Quality Action Plan.

Hillingdon will continue to respond in consultation processes affecting the area, particularly in relation to Heathrow. It will also maintain the effective stakeholder dialogues created since the start

of the action plan with local residents, neighbouring Boroughs and stakeholders such as the Highways Agency, the Environment Agency, TfL and the airport operators.

Review of documentation provided by other bodies (e.g. Defra and the Mayor of London) show that Hillingdon's Action Plan is well aligned with the strategies identified elsewhere.

Very good progress has been made with implementation of the Action Plan since it was adopted in 2004, particularly with respect to actions for which the London Borough of Hillingdon is responsible. Despite this good progress there is no significant sign of achievement of the air quality limit values. Further action is therefore required. With this in mind there is a clear need for more effective collaboration relating to the control of emissions from Heathrow and the major road network.

A major threat to air quality in the Borough – the expansion of Heathrow in the form of the Third Runway – has been lifted. However, another threat has emerged – the economic crisis reducing funding for the implementation of action plan measures.

Funding is in place for revision of the action plan. Source apportionment work to inform this has already commenced.

Chapter 11 Conclusions and Proposed Actions

11.1 Conclusions from New Monitoring Data

The automatic monitoring sites in the borough measured concentrations that exceeded the NO_2 annual mean objective at 6 sites in 2010. All these sites are within the current Hillingdon AQMA. There is new exceedance of the annual mean NO_2 objective at one site (Heathrow Green Gates) since 2009. The overall trend across the automatic monitoring stations indicates that annual mean concentrations have remained steady.

As with 2009 the hourly objective was achieved at each of the automatic monitoring sites, although the number of exceedances at Hillingdon Hayes has risen again, doubling from 2009 levels, to a level close to the exceedance threshold (15 days, against a permitted limit of 18).

Based on the automatic monitoring results there is not a requirement to proceed to a Detailed Assessment. They also indicate that the current AQMA is appropriate.

Diffusion tube monitoring in the borough measured exceedances of the annual mean NO_2 objective at 14 sites. Of these sites, 5 are London Borough of Hillingdon monitoring sites, 2 sites are part of the Highways Agency monitoring and the remaining 7 sites formed part of the London Borough of Hounslow Heathrow short-term monitoring project. As all these locations are within the current AQMA there is not a requirement to proceed to a Detailed Assessment.

Diffusion tube sites where measured concentrations were over the annual mean objective include:

- HD31 AURN Monitoring Station
- HD43 Uxbridge Day Nursery
- HD46 South Ruislip Monitoring Station
- HD53 Warren Road
- HD55Harold Avenue
- HD82 Hall Lane
- HD85 296-298 High Street
- HD86 331 High Street
- HD88 9 Sipson Lane
- HD89 293 High Street
- HD92 57 Bedwell Gardens
- HD93 29 Bedwell Gardens
- HA81 Cranford Drive Roadside
- HA82 Cranford Drive Residential

- At one site HD58 Brendan Close an exceedance was not measured in 2010 but was in 2009.

PM_{10} concentrations are monitored at 9 automatic monitoring sites across the borough. At each of these sites both the annual mean and daily mean objective were achieved.

Measured concentrations for $PM_{2.5}$ meet the UK Government and the Devolved Administrations objective of 25 µg m^{-3} at each of the 4 sites at which it is currently assessed in the Borough.

Benzene monitoring in the borough was discontinued in 2010, monitoring results from previous years showed measured concentrations well below the annual mean objective of 5 µg m^{-3}.

Ozone is monitored at 2 sites within the borough, down from 4 in 2009; concentrations in 2010 were in the range of 25 µg m^{-3} to 34 µg m^{-3}.

Air Quality objectives were achieved at all monitoring locations outside of the existing AQMA at relevant locations, therefore there is no need to proceed to a Detailed Assessment. As NO_2 Air Quality objectives are currently being exceeded at locations within the current AQMA it demonstrates that it is still required.

11.2 Conclusions relating to New Local Developments

Two significant new developments have been discussed in the report, a Tesco store at Yiewsley and a housing development at RAF West Ruislip. Both have been considered from an air quality perspective and appropriate conditions have been set to mitigate their impact on air quality.

11.3 Conclusions relating to Priority Areas

A number of priority areas were identified in the Borough in the last progress report, relating to Heathrow Airport and the major road network that passes through Hillingdon. As Defra move towards their action plan under the time extension application these priority areas will need to be addressed.

11.4 Conclusions relating to the Action Plan

Very good progress has been made with implementation of the Action Plan since it was adopted in 2004, particularly with respect to actions for which the London Borough of Hillingdon is responsible. Despite this good progress there is no significant sign of achievement of the air quality limit values. Further action is therefore required. With this in mind there is a clear need for more effective collaboration relating to the control of emissions from Heathrow and the major road network. There is concern that further action will be delayed or in some ways cancelled as a result of the economic crisis. This is not in the interests of the people who live and work in Hillingdon. It is worth remembering that the local residents who suffer poor air quality are not the main polluters in Hillingdon. Under the 'polluter pays principle' it is therefore appropriate that the government, representing the people who use the major road network that traverses the Borough, and BAA who operate the airport, should fund the necessary actions.

Review of documentation provided by other bodies (e.g. Defra and the Mayor of London) show that Hillingdon's Action Plan is well aligned with the strategies identified elsewhere.

11.5 Proposed Actions

As discussed above, monitoring data demonstrate the need for the AQMA as already defined and that additional Detailed Assessment is not needed, either for expansion of the AQMA or through concern that other limit values than that for annual mean NO_2 concentrations are unlikely to be met. Available data also suggest that the existing monitoring network is sufficient. A review has been undertaken in this report to consider whether changes can be made to the existing network, with possibility for moving some monitors identified.

The major action for the coming year will be the revision of the action plan. As part of this it will be essential to exploit synergies with other plans, for example the Borough's own on climate and transport, and plans from other bodies such as the GLA.

Chapter 12 References

12.1 National Guidance

Air Quality Review and Assessment Help desk: http://www.uwe.ac.uk/aqm/review/index.html

Part IV of the Environment Act 1995. Local Air Quality Management, Revised Policy Guidance LAQM.PG(09), February 2009
www.defra.gov.uk/environment/airquality/local/guidance/pdf/laqm-policy-guidance-part4.pdf

Part IV of the Environment Act 1995. Local Air Quality Management. Technical Guidance LAQM.TG(09) February 2009
www.defra.gov.uk/environment/airquality/local/guidance/pdf/tech-guidance-laqm-tg-09.pdf

Volatile Correction Model www.volatile-correction-model.info/Default.aspx

12.2 Reports and Plans from Hillingdon

Air Quality Updating and Screening Assessment for London Borough of Hillingdon Council2003

Air Quality Progress Reports for the London Borough of Hillingdon 2005, 2006, 2007, 2008, 2009

Air Quality Updating and Screening Assessment for London Borough of Hillingdon Council 2006

Air Quality Review and Assessment Updating and Screening Assessment for London Borough of Hillingdon, 2007

Local Implementations Plan for London Borough of Hillingdon
http://www.hillingdon.gov.uk/index.jsp?articleid=9096

London Borough of Hillingdon Road Network Monitoring Report: Traffic Count Data. An analysis of Department for Transport (DfT) National Road Traffic Census Counts (NRTCC) in the London Borough of Hillingdon. Draft, March 2010.

London Borough of Hillingdon Unitary Development Plan (adopted 1998) Saved Policies 2007

12.3 Other references

B. Barratt and Fuller, G. (2010) Preliminary analysis of the impact of airport closures on local air quality.http://www.londonair.org.uk/london/reports/airportclosure_20042010.pdf

Highways Agency (2010) Highways Agency Environment Strategy: Supporting our vision to be the world's leading road operator.

HM Government (2010) The Coalition: Our Programme for Government (The Coalition Agreement). http://www.cabinetoffice.gov.uk/media/409088/pfg_coalition.pdf

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The London wide environment programme, Benzene diffusion tube survey annual report, 2008, Bureau Veritas

UK Air Quality Archive: http://www.airquality.co.uk/archive/index.php

Appendices

Appendix 1: Previous work on air quality in Hillingdon

Appendix 2: Monitoring Stations in Hillingdon (including details of locations, bias adjustment factors and QA/QC procedures)

Appendix 3: Results from the monitoring stations

Appendix 4: Detailed information on implementation of the Action Plan

Appendix 1: Previous work on Air Quality in Hillingdon

The London Borough of Hillingdon has completed the following assessments, plans and reports on air quality to date:

Round 1

- **Stage 1:** The report recommended that further examination was required for NO_2, PM_{10}, CO and SO_2.
- **Stage 2:** Further assessment of NO_2, PM_{10}, CO and SO_2 were carried out as recommended in the Stage 1 Review and Assessment. The report concluded that the air quality objectives for all four pollutants might or would not be met in Hillingdon and that a stage 3 assessment was required.
- **Stage 3:** Detailed modelling of NO_2, PM_{10}, CO and SO_2 was carried out. The report concluded that the annual mean NO_2 and 24 hour mean PM_{10} objectives would not be met in the Borough and that an air quality management area should be declared.
- **Stage 4:** Further modelling and source apportionment were undertaken in the form of a stage 4 assessment.

As a result, the London Borough of Hillingdon declared an air quality management area (AQMA) and developed an air quality action plan (AQAP) (see figure 1.1a). The AQMA order was made and came into force on the 1st May 2001.

Following the publication of Hillingdon's Stage 4 Assessment it was concluded that the original AQMA Order could be revoked and replaced by a new version for NO_2 only, expanded to cover all of the A40 corridor. It was also extended up to the Chiltern-Marylebone railway line. It was, however, no longer expected that the PM_{10} objectives were likely to be exceeded. The new AQMA order came into force on the 1st September 2003. The extent of forecast exceedances is shown in Figure 1.1.b.

In order to develop an action plan that is cost-effective and deals with different sources of pollution in a proportionate manner, it was essential to understand how these sources contribute to concentrations in the AQMA. Table A1-1 presents the estimated sector breakdown of NOx emissions in 2005 within the Borough. It is clear from Figure 1.1a and b in the main text of this report that the main sources of oxides of nitrogen in the Borough at the time that the action plan was developed were road traffic and activities associated with Heathrow airport. However, other sectors also make important contributions to the overall pollutant load in the Borough, including emissions from domestic and commercial premises. Although most emphasis in the Action Plan is placed on improvements at the airport and from road traffic, all of these sources are considered in the Plan, in the interests of a proportionate and cost-effective response to air quality problems in the Borough.

Table A1-1. Forecast sectoral breakdown of annual NOx emissions in 2005 within the London Borough of Hillingdon

Sector	Emission (tonnes /year)	% of total
Domestic combustion	320	5.0%
Commercial & small industrial combustion	165	2.6%
Council heating	15	0.2%
Non-council public heating	15	0.2%
Regulated Industry	215	3.3%
Airport on-site activities	3750	58.2%
Public transport	515	8.0%
Road transport – Heavy Goods Vehicles (HGVs)	605	9.4%
Road transport – Light Duty Vehicles (LDVs) other than cars	145	2.3%
Road transport – Cars	645	10.0%
Road transport – Council fleet	30	0.5%
Road transport – sub-total	1690	26.20%
Other	20	0.3%
Total	**6440**	

Round 2

2003 Updating and Screening Assessment

The 2003 USA report predicted that for all pollutants apart from NO_2 and PM_{10} the air quality objectives would be met and therefore there was no need to proceed to a detailed assessment. There was no need to progress to a Detailed Assessment for NO_2 as an AQMA had already been declared for this area during the previous round of Review and Assessment. Modelling of PM_{10} concentrations indicated that exceedances were confined to major road corridors and that there were no relevant public exposures. As a result a Detailed Assessment for PM_{10} was not required.

2004 Air Quality Action Plan

The Action Plan for Hillingdon was approved by the Council's Cabinet in June 2004. During the development of the plan account was taken of various other plans developed by the Borough, the Mayor of London, BAA for Heathrow, national government and other bodies. Consideration was given to alternative strategies for bringing local air quality into compliance with the national objectives. The first involved a limited number of measures principally directed to reducing traffic flows, and applied to what some may consider a draconian level. The second involved a much larger number of measures each leading to small improvements in local air quality. The first of these strategies was rejected on several grounds. First, the Council did not have the powers to implement it. Second the view that measures that could be viewed as draconian should be avoided. And third, the probability that some sectors may not be addressed proportionately. The Action Plan therefore contains a large number of measures, grouped into a series of packages, as follows.

First, a series of packages designed at reducing emissions from road transport;

1. Switching to cleaner technologies – promoting use of public transport, cycling, etc., shifting freight from road to rail, etc.
2. Tackling through traffic;
3. Promotion of cleaner vehicle technology;

Next, two packages that deal with emissions from specific sources within the Borough;

4. Measures specific to Heathrow Airport;
5. Measures concerning local industries and other businesses

Then a package that deals with actions that need to be undertaken by the Council to promote more effective use of resources in the Borough;
6. Improving eco-efficiency of current and future developments, including properties owned or run by the Council;

The next package covers actions of a more general nature, for example, implementation of the Mayor's Air Quality Strategy in the Borough;
7. Actions to be taken corporately, regionally and in liaison with the Mayor.

The last package, Package 8, contains a series of measures relating to the management of the action plan and to air quality monitoring in the Borough.

A number of specific measures are described under each package. For each measure an appraisal has been made of the following, more complete information on which is given in an accompanying database, the Hillingdon Action Plan Tracker, developed by EMRC:
a) Costs;
b) Effects on NO_2 concentrations;
c) Effects of these measures on other issues:
i. Emissions of other pollutants;
ii. Noise;
iii. Congestion;
iv. Attractiveness of public transport;
v. Social inclusion;
vi. Local economic vitality;
vii. Other effects;
d) Which (if any) other plans already include consideration of the measures;
e) Who should take responsibility for implementation of each measure.

2005 Progress Report:
During 2004, the annual mean standard for NO_2 was exceeded at both roadside and background sites within the Borough. This supported the earlier decision to declare an AQMA across the southern half of the Borough, and to adopt the AQAP based on the exposure of parts of the Hillingdon population to these levels of NO_2. By the end of the first year of the action plan more than 80% of measures were recorded as being underway, either in a 'planning phase' or 'in progress'.

Round 3

2006 Updating and Screening Assessment and Action Plan Progress Reports:
The report concluded that for all pollutants, apart from NO_2, the air quality objectives would be met within the London Borough of Hillingdon. All locations exceeding the NO_2 objective are within the already existing AQMA, thus there was no need to progress to Detailed Assessment for this pollutant. The Action Plan Progress Report noted that good progress was again made, with more than 85% of measures underway.

2007 Progress Report:
The 2007 Progress Report concluded that during 2006 the annual mean NO_2 objective was still exceeded at both roadside and background sites within the Borough and its neighbouring local authorities. The report also concluded that there is no evidence of progress towards achieving the standard from the 2006 data when taken with other data showing results and trends over several years. Monitoring results also indicate that objectives for other air quality strategy pollutants were achieved during 2004, and support the decision not to declare an AQMA on the basis of exposure to

these other pollutants. These results support the earlier decision to declare an AQMA (Air Quality Management Area) across the southern half of the Borough, and to adopt the AQAP based on exposure of people in some parts of Hillingdon to these levels of NO_2.

The report noted that over 30% of the measures in the Action Plan were either 'complete' or 'ongoing'. The term 'ongoing' is applied to actions that are complete in the sense that systems are in place to ensure their delivery, but need to be performed on a continual basis. An obvious example concerns air quality monitoring in the Borough: monitors are in place and funding has been identified to maintain them, but the process of monitoring air quality needs to be performed continually. A further 61% of measures were considered to be underway.

2008 Progress Report:
The progress report concluded that during 2007, the annual mean standard for NO_2 was exceeded at roadside, suburban and background sites within the Borough and its neighbouring local authorities. These include sites monitored continuously in the national and London networks as well as those within the Hillingdon diffusion tube survey. There was also no progress towards achieving the NO_2 standard discernible in the 2007 data when taken as a whole with other data showing the results and trends over several years. These results once again supported the decision to declare and continue with the AQMA and to implement the AQAP based on exposure of the Hillingdon population to NO_2. Other monitoring results indicated that objectives for all other pollutants were achieved during 2007, though continued monitoring, especially of fine particles, remained desirable.

More than half of the measures included in the Action Plan were considered complete/ongoing. However, a significant number (14%) were recorded as 'not started'. A number of these concerned areas where the Local Authority has little or no control, for example actions to reduce emissions at Heathrow.

Round 4

2009 Updating and Screening Assessment and Action Plan Progress Reports:
Analysis of NO_2 monitoring data from 2008 confirmed the findings of the previous Review and Assessment report that there is a requirement for the existing AQMA and that no further action was required in areas outside this boundary. It was recommended that monitoring be undertaken along the Great Western Mainline due to the large number of movements of diesel locomotives. If increased monitoring indicated that emissions from the Mainline resulted in exceedance of the NO_2 objectives the London Borough of Hillingdon would be required to perform a Detailed Assessment.

The progress report noted that nearly two thirds of measures were complete/ongoing. Again, a significant number of measures (12%) were recorded as 'not started'. As before, most of these were outside direct Council control.

Forecasting future concentrations in the Borough was noted to be particularly uncertain. A major source of this uncertainty related to developments at Heathrow Airport, in particular the proposed Third Runway.

2010 Progress Report
Analysis of NO_2 data for 2009 shows that within the existing AQMA there continued to be exceedances of the AQS objectives but there are no new exceedances outside of the AQMA. Therefore, the Borough was not required to proceed to a Detailed Assessment. Diffusion tube monitoring on both north and south of the Great Western Mainline indicated that emissions from diesel locomotives, both at the boundary and relative receptors, do not result in concentrations that exceed NO_2 air quality objectives.

The report also concluded that there continued to be no exceedances of the AQS objective for PM_{10} and benzene.

Appendix 2: Monitoring Stations in Hillingdon

This Appendix provides information on both the locations of the monitoring stations (Section A2.1), derivation of bias adjustment factors (Section A2.2) and the QA/QC procedures followed for the monitoring network (Section A2.3).

A2.1 Locations of the Monitoring Stations

Maps showing the location of the automatic monitoring stations and diffusion tubes are shown in Figures A2-1 and A2-2a, b respectively. Further details are provided in Tables A2-1 and A2-2.

Diffusion tube measurements for nitrogen dioxide were taken at 62 locations throughout the borough. Diffusion tubes are a common quantitative method for sampling at a large number of sites due to their low cost and ease of deployment. They provide a cost-effective means of measuring spatial distributions of nitrogen dioxide. The diffusion tube is a passive sampler and as such measures a mean concentration over the period for which it is exposed, in this case one month.

In 2010 the London Borough of Hounslow undertook a Heathrow wide diffusion tube survey across 3 local authorities, including 20 sites in Hillingdon (HD81 – HD100, see figure 2.2 & 2.3). All of these sites are within the existing Hillingdon AQMA. The monitoring results are included in this report.

The London Borough of Hillingdon is also taking part in the national survey of $NO_2$for the Highways Agency. Two sites are in Hillingdon, one roadside site and one residential, near to the M4 motorway.

Hillingdon discontinued monitoring of benzene concentrations with diffusion tubes in 2010 as concentrations had been well below the objective level for some years.

Figure A2-1. Map of Automatic Monitoring Sites

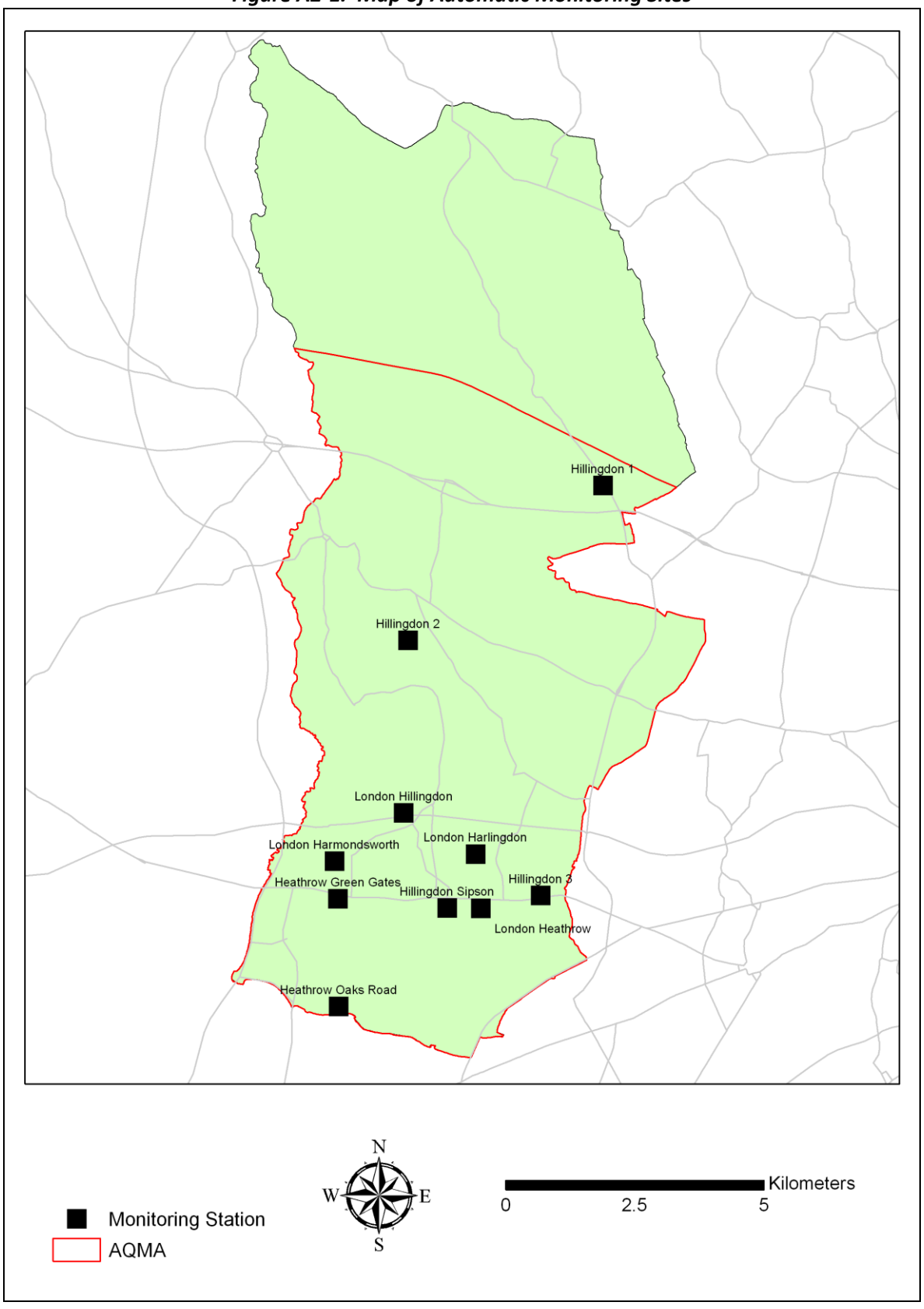


Figure A2-2a. Map of Non-Automatic Monitoring Sites

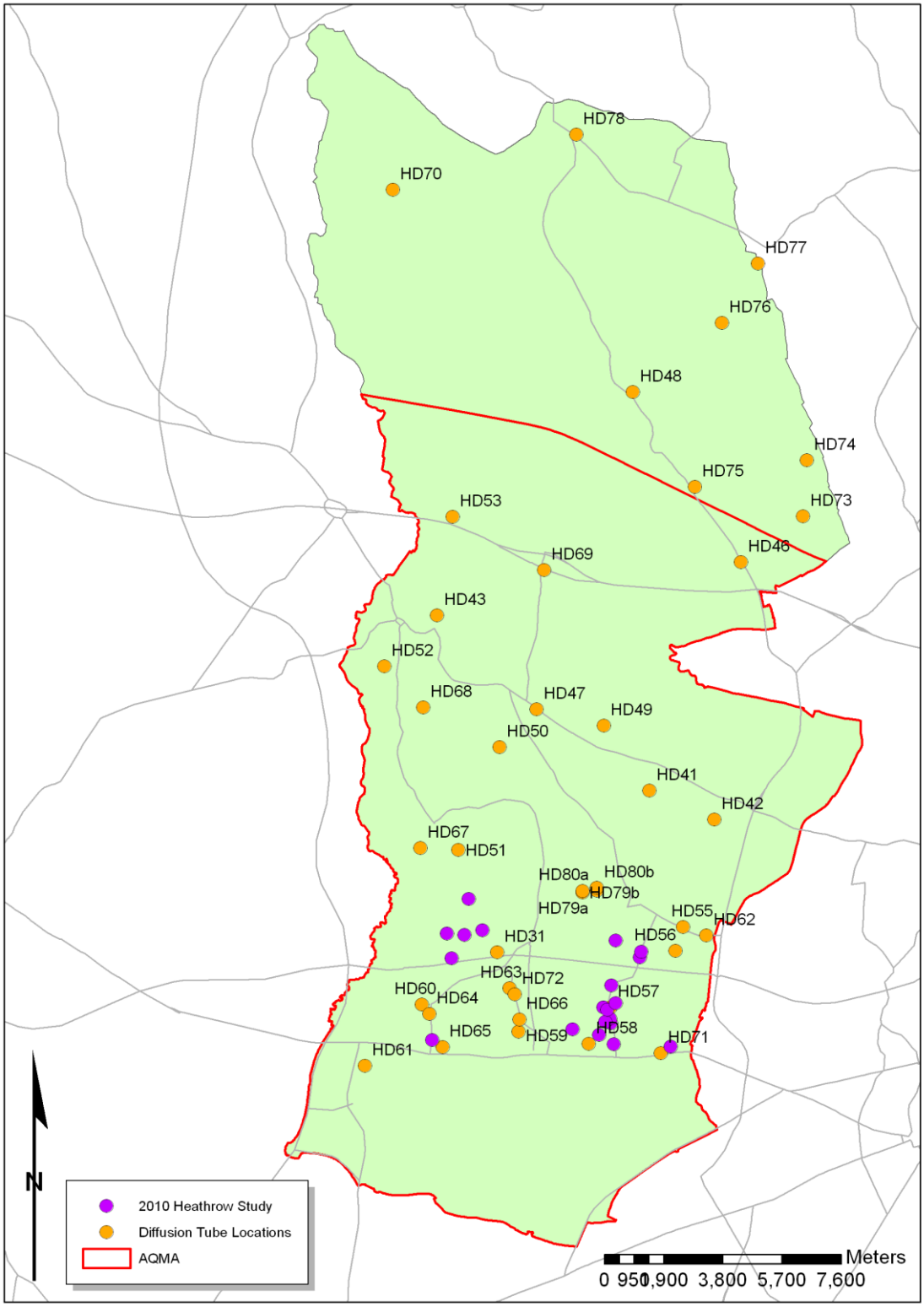


Figure A2-2b. Map of Non-Automatic Monitoring Sites (close up)

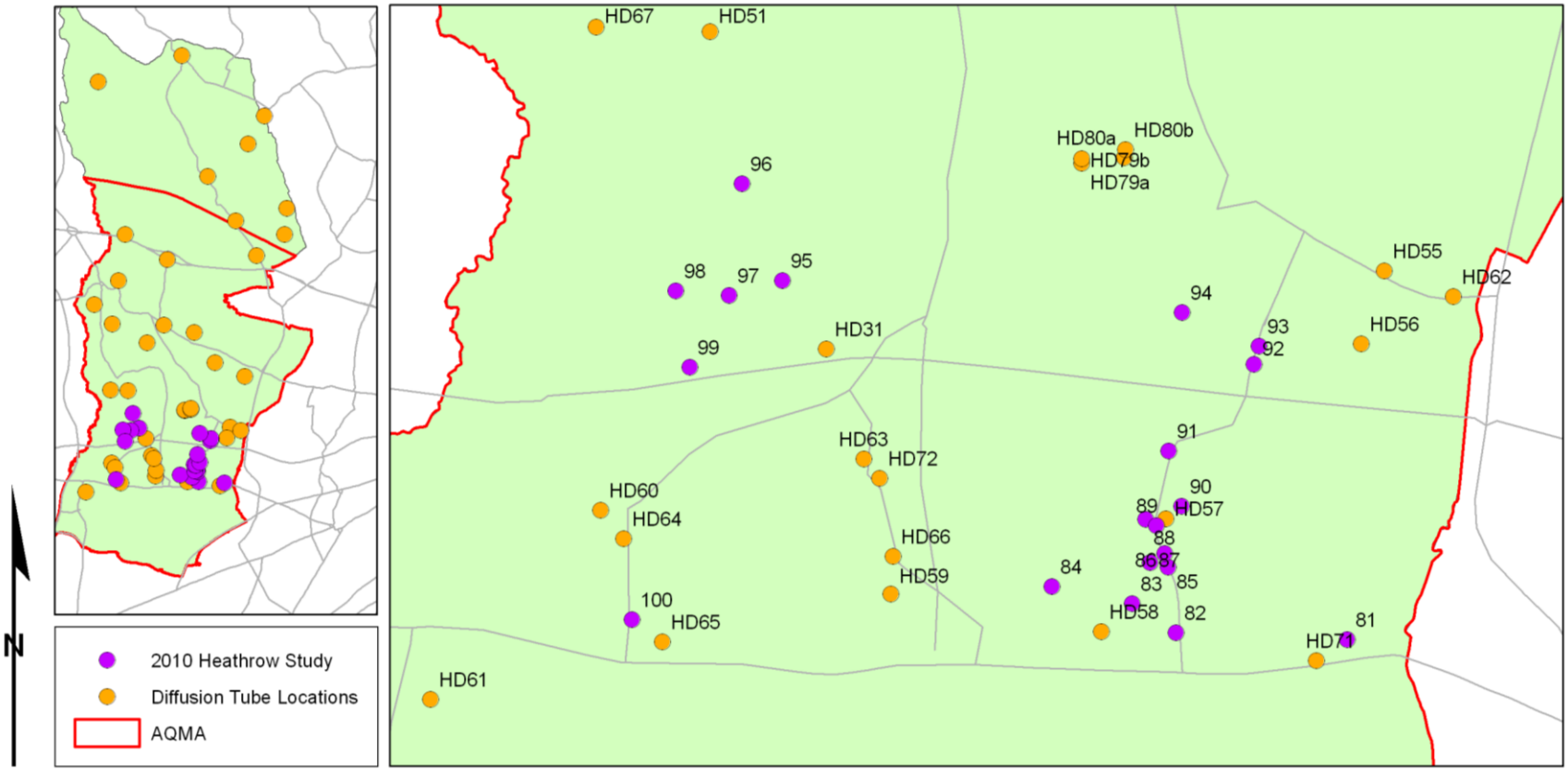


Table A2-1. Details of Automatic Monitoring Sites

Site Name	Site Type	OS Grid Ref		Pollutants Monitored	In AQMA?	Relevant Exposure? (Y/N with distance (m) to relevant exposure)	Distance to kerb of nearest road (N/A if not applicable)	Does this location represent worst-case exposure?
London Heathrow LHR2	Airport	508399	176746	NO_2, $PM_{10}PM_{2.5}$(TEOM)	Yes	N	N/A (inside the airport)	No
London Hillington	Suburban	506900	178600	NO_2, O_3	Yes	Y	3m (30m from M4)	Yes
Hillingdon 1 – South Ruslip	Roadside	510770	184960	NO_2, PM_{10} (TEOM)	Yes	Yes (14m)	2.5m	Representative of exposure on this road
Hillingdon 2 – Hillingdon Hospital	Roadside	506991	181951	NO_2, PM_{10} (TEOM)	Yes	Yes (7m)	2m	By residential and also opposite hospital
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	508300	177800	CO, NO_2, O_3, PM_{10} $PM_{2.5}$ (TEOM)	Yes	No	8m	Background
Hillingdon Sipson	Urban background	507750	176750	NO_2	Yes	Yes	9m from nearest residential facade	Yes
London Harmondsworth	Roadside	505561	177661	NO_2, PM_{10} (BAM)	Yes	Y(20m)	1m	Yes
Heathrow Green Gates	Airport	505630	176930	NO_2, PM_{10}, $PM_{2.5}$(TEOM)	Yes	N	N/A (background for the airport) 62m from airport boundary)	No (Background location)
Heathrow Oaks Road	Airport	505714	174503	NO_2, PM_{10}, $PM_{2.5}$(TEOM)	Yes	N	5m	No
Hillingdon Hayes	Roadside	510283	178905	NO_2, PM_{10} (BAM)	Yes	Y(15m)	5m	Yes

Table A2-2. Details of Non- Automatic Monitoring Sites

Site Name	Site Type	OS Grid Ref		Pollutants Monitored	In AQMA?	Relevant Exposure? (Y/N with distance (m) to relevant exposure)	Distance to kerb of nearest road (N/A if not applicable)	Worst-case Location?
HD31[#]	Roadside*[†]	506951	178605	NO_2	Yes	Y(0m)	30m from M4	Co-location site
HD41	Background	509377	181224	NO_2	Yes	Y(10)	2m	Representative of a street
HD42	Roadside	510417	180752	NO_2	Yes	Y(4m)	2m	Representative of a road
HD43	Roadside	505995	184057	NO_2	Yes	Y(0m)	4m	Yes
HD46[#]	Suburban[†]	510837	184917	NO_2	Yes	Y(14m)	2.5m	Representative of a road
HD47	Roadside	507582	182534	NO_2	Yes	Y(0m)	5m	Representative of a road
HD48	Background*[†]	509117	187665	NO_2	No	N	7m	No
HD49	Background	508650	182274	NO_2	Yes	Y(7m)	7m	No - background
HD50[#]	Roadside[†]	506991	181923	NO_2	Yes	Y(7m)	2m	Representative of a street
HD51	Background*	506334	180266	NO_2	Yes	Y(0m)	4m	Yes- Nearest residential to busy road
HD52	Background	505157	183231	NO_2	Yes	Y95m)	1m	Representative of a road
HD53	Background	506241	185652	NO_2	Yes	Y(1m)	23m	Yes -nearest residential to busy road
HD55	Roadside*	509917	179015	NO_2	Yes	Y(4m)	30m	Yes - nearest residential to busy road
HD56	Background	509796	178633	NO_2	Yes	Y(7m)	1.5m	Representative of a road
HD57	Background	508756	177717	NO_2	Yes	Y(7m)	1m	Yes -nearest residential to busy road
HD58	Background [†]	508412	177124	NO_2	Yes	Y(0m)	1m	Representative of a road
HD59	Background	507294	177322	NO_2	Yes	Y(8m)	1m	Representative of a road
HD60	Background	505753	177760	NO_2	Yes	Y(0m)	1m	Representative of a street
HD61	Background	504848	176770	NO_2	Yes	Y(0m)	2m	Representative of a street
HD62	Roadside	510283	178878	NO_2	Yes	Y(0m)	7m	Yes
HD63	Roadside	507150	178028	NO_2	Yes	Y(0m)	12m	Representative of a street
HD64	Roadside	505875	177610	NO_2	Yes	Y(0m)	17m	Representative of a street
HD65	Background*	506081	177071	NO_2	Yes	Y(0m)	4m	Representative of a street
HD66	Background*	507305	177518	NO_2	Yes	Y (0m)	12m	Representative of a street

Site Name	Site Type	OS Grid Ref		Pollutants Monitored	In AQMA?	Relevant Exposure? (Y/N with distance (m) to relevant exposure)	Distance to kerb of nearest road (N/A if not applicable)	Worst-case Location?
HD67	Background*	505729	180290	NO_2	Yes	Y(3m)	1m	Representative of a street
HD68	Background*	505775	182565	NO_2	Yes	Y(0m)	1m	Yes - nearest residential to road
HD69	Roadside	507699	184786	NO_2	Yes	Y(0m)	2m	Yes
HD70	Background*	505291	190935	NO_2	No	Y(0m)	5m	Representative of a street
HD71	Roadside	509557	176974	NO_2	Yes	Y(0m)	18m	Yes
HD72	Background*	507236	177927	NO_2	Yes	Y(0m)	9m	Representative of a street
HD73	Background*	511825	185655	NO_2	No	Y(0m)	1m	Representative of a street
HD74	Roadside	511887	186565	NO_2	No	Y(8m)	1m	Yes
HD75	Background*	510103	186133	NO_2	No	Y(4m)	2m	Yes - nearest receptor to busy road
HD76	Roadside	510536	188787	NO_2	No	Y(4m)	1m	Yes - nearest residential to busy road
HD77	Background*	511108	189742	NO_2	No	Y(12m)	1m	Representative of a street
HD78	Roadside	508212	191833	NO_2	No	Y(24m)	1m	Representative of a street
HD79a**	Railside*	508310	179577	NO_2	Yes	Y(0m)	36m (from railway)	South of railway so not worse-case. North would be worse-case due to prevailing wind
HD79b	Railside*	508310	179600	NO_2	Yes	Y (16m)	18m (from railway)	Yes - South of railway, representative of source
HD80a**	Background	508537	179606	NO_2	Yes	Y(24m)	12m (from railway)	South of railway so not worse-case. North would be worse-case due to prevailing wind
HD80b	Background	508542	179650	NO_2	Yes	N	4m	60m North of railway
HD81	Background	509721	177082	NO_2	Yes	Y(8m)	10m	Yes – residential street
HD82	Roadside	508811	177118	NO_2	Yes	Y (1m)	1m	Yes - Representative of a road
HD83	Roadside	508577	177272	NO_2	Yes	Y (1m)	8m	Yes – residential street
HD84	Roadside	508151	177360	NO_2	Yes	Y (2m)	2m	Yes – residential street
HD85	Roadside	508769	177463	NO_2	Yes	Y(5m)	0m	Yes – residential street
HD86	Roadside	508750	177534	NO_2	Yes	Y (8m)	1m	Yes - Representative of a road
HD87	Roadside	508674	177485	NO_2	Yes	Y (8m)	1m	Yes – residential street

Site Name	Site Type	OS Grid Ref		Pollutants Monitored	In AQMA?	Relevant Exposure? (Y/N with distance (m) to relevant exposure)	Distance to kerb of nearest road (N/A if not applicable)	Worst-case Location?
HD88	Roadside	508648	177713	NO_2	Yes	Y(5m)	1m	Yes - Representative of a road
HD89	Roadside	508705	177681	NO_2	Yes	Y (2m)	2m	Yes - Representative of a road
HD90	Background	508839	177782	NO_2	Yes	Y (5m)	1m	Yes – residential street
HD91	Roadside	508771	178071	NO_2	Yes	Y (8m)	2m	Yes - Representative of a road
HD92	Roadside	509224	178525	NO_2	Yes	Y (8m)	12m	Yes - Representative of a road
HD93	Roadside	509251	178619	NO_2	Yes	Y (7m)	12m	Yes - Representative of a road
HD94	Roadside	508842	178796	NO_2	Yes	**Y(12m)**	**1m**	Yes - Representative of a road
HD95	Roadside	506720	178964	NO_2	Yes	**Y(17m)**	**1m**	Yes - Representative of a road
HD96	Roadside	506503	179469	NO_2	Yes	**Y(24m)**	**1m**	Yes - Representative of a road
HD97	Roadside	506435	178886	NO_2	Yes	**Y(7m)**	**8m**	Yes - Representative of a road
HD98	Roadside	506152	178908	NO_2	Yes	**Y(9m)**	**0m**	Yes - Representative of a road
HD99	Roadside	506225	178510	NO_2	Yes	**Y(6m)**	**35m**	Yes – M4
HD100	Roadside	505920	177189	NO_2	Yes	**Y(8m)**	**1m**	Yes - Representative of a road
HA81[+]	Residential	509815	178355	NO_2	Yes	**Y(0m)**	2m	Yes - Representative of M4 at residential property
HA82[+]	Roadside	509808	178326	NO_2	Yes	**Y(27m)**	14m	Yes –Representative of M4

*Details have been updated since the Updating and Screening Assessment (2009)

**Site moved during 2010

[#] Triplicate co-location site

[+] Highways Agency diffusion tube

[†] Benzene sites closed in 2010

A2.2 Derivation of Bias Adjustment Factors

A2.2.1 Diffusion tubes

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	01/01/2010	31/01/2010	50.6	56.7	51.6	53	3.3	6	8.2
2	01/02/2010	28/02/2010	54.3	50.8	60.8	55	5.1	9	12.6
3	01/03/2010	31/03/2010	42.6	42.4	42.5	43	0.1	0	0.2
4	01/04/2010	30/03/2010	40.4	42.0	47.8	43	3.9	9	9.7
5	01/05/2010	31/05/2010	41.1	47.7	43.9	44	3.3	7	8.2
6	01/06/2010	30/06/2010	37.7	39.6	43.2	40	2.8	7	6.9
7	01/07/2010	31/07/2010	38.9	40.7	40.7	40	1.0	3	2.6
8	01/08/2010	31/08/2010	42.4	42.1	41.6	42	0.4	1	1.0
9	01/09/2010	30/09/2010	50.8	55.6	53.6	53	2.4	5	6.0
10	01/10/2010	31/10/2010	47.2	46.1	45.1	46	1.0	2	2.6
11	01/11/2010	30/11/2010	55.8	55.7	55.1	56	0.4	1	0.9
12	01/12/2010	31/12/2010	53.7	64.6	55.8	58	5.8	10	14.5
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
58.34677	99.8655914	Good	Good
57.85417	100	Good	Good
44.3629	100	Good	Good
46.45556	99.58333333	Good	Good
58	99.8655914	Good	Good
41	100	Good	Good
29	100	Good	Good
39	77.82258065	Good	Good
40	99.72222222	Good	Good
46	99.7311828	Good	Good
54.59028	99.86111111	Good	Good
59.38306	100	Good	Good
Overall survey -->		Good precision	Good Overall DC

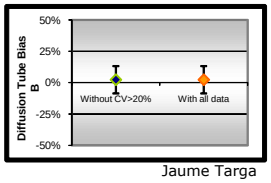
(Check average CV & DC from Accuracy calculations)

Site Name/ ID:	AURN South Ruslip

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 (0.9 - 1.12)
Bias B: 0% (-11% - 11%)
Diffusion Tubes Mean: 48 µgm^{-3}
Mean CV (Precision): 5
Automatic Mean: 48 µgm^{-3}
Data Capture for periods used: 98%
Adjusted Tubes Mean: 48 (43 - 54) µgm^{-3}

Accuracy (with 95% confidence interval)
WITH ALL DATA
Bias calculated using 12 periods of data
Bias factor A: 1 (0.9 - 1.12)
Bias B: 0% (-11% - 11%)
Diffusion Tubes Mean: 48 µgm^{-3}
Mean CV (Precision): 5
Automatic Mean: 48 µgm^{-3}
Data Capture for periods used: 98%
Adjusted Tubes Mean: 48 (43 - 54) µgm^{-3}



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Version 03 - November 2006

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	01/01/2010	31/01/2010	54.0	52.0	50.0	52	2.0	4	5.0
2	01/02/2010	28/02/2010	44.5	43.8	44.4	44	0.4	1	0.9
3	01/03/2010	31/03/2010	54.1	43.6	46.6	48	5.4	11	13.4
4	01/04/2010	30/03/2010		40.4	39.8	40	0.4	1	3.8
5	01/05/2010	31/05/2010							
6	01/06/2010	30/06/2010	30.8		26.6	29	2.9	10	26.5
7	01/07/2010	31/07/2010	47.4	49.4	46.8	48	1.4	3	3.4
8	01/08/2010	31/08/2010	42.7	39.7	34.4	39	4.2	11	10.5
9	01/09/2010	30/09/2010	55.3	56.1	52.3	55	2.0	4	5.0
10	01/10/2010	31/10/2010	40.6	41.1	45.1	42	2.4	6	6.1
11	01/11/2010	30/11/2010	52.5	51.1	47.4	50	2.7	5	6.6
12	01/12/2010	31/12/2010	44.0	41.7	45.1	44	1.7	4	4.2
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
61.01075	87.5	Good	Good
60.93253	86.01190476	Good	Good
57.1308	95.56451613	Good	Good
59.66867	92.22222222	Good	Good
61	87.09677419		Good
46	95.69444444	Good	Good
50	94.89247312	Good	Good
39	91.53225806	Good	Good
56	95.27777778	Good	Good
57	99.8655914	Good	Good
57.61838	99.72222222	Good	Good
54.9879	100	Good	Good
Overall survey -->		Good precision	Good Overall DC

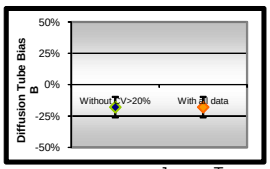
(Check average CV & DC from Accuracy calculations)

Site Name/ ID:	AURN London Hillingdon

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

Accuracy (with 95% confidence interval)
without periods with CV larger than 20%
Bias calculated using 11 periods of data
Bias factor A: 1.22 (1.11 - 1.36)
Bias B: -18% (-26% - -10%)
Diffusion Tubes Mean: 45 µgm^{-3}
Mean CV (Precision): 5
Automatic Mean: 55 µgm^{-3}
Data Capture for periods used: 94%
Adjusted Tubes Mean: 54 (50 - 61) µgm^{-3}

Accuracy (with 95% confidence interval)
WITH ALL DATA
Bias calculated using 11 periods of data
Bias factor A: 1.22 (1.11 - 1.36)
Bias B: -18% (-26% - -10%)
Diffusion Tubes Mean: 45 µgm^{-3}
Mean CV (Precision): 5
Automatic Mean: 55 µgm^{-3}
Data Capture for periods used: 94%
Adjusted Tubes Mean: 54 (50 - 61) µgm^{-3}



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Version 03 - November 2006

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	01/01/2010	31/01/2010	44.0	46.1	39.5	43	3.4	8	8.4
2	01/02/2010	28/02/2010	40.8	38.5	39.4	40	1.2	3	2.9
3	01/03/2010	31/03/2010	39.2	41.2	38.0	39	1.6	4	4.0
4	01/04/2010	30/03/2010	36.9	35.1	35.3	36	1.0	3	2.5
5	01/05/2010	31/05/2010	32.5	33.2	32.4	33	0.5	1	1.1
6	01/06/2010	30/06/2010	25.4	30.7	31.2	29	3.2	11	7.9
7	01/07/2010	31/07/2010	37.7	35.9	39.9	38	2.0	5	4.9
8	01/08/2010	31/08/2010	34.1	24.3	29.0	29	4.9	17	12.2
9	01/09/2010	30/09/2010	44.7	42.9	45.4	44	1.3	3	3.1
10	01/10/2010	31/10/2010	34.7	33.4	35.3	34	1.0	3	2.4
11	01/11/2010	30/11/2010	43.1	43.5	43.1	43	0.2	1	0.6
12	01/12/2010	31/12/2010	44.9	42.9	43.8	44	1.0	2	2.5
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
51.50403	100	Good	Good
46.49554	99.25595238	Good	Good
39.37231	100	Good	Good
37.85278	98.88888889	Good	Good
52	100	Good	Good
29	100	Good	Good
28	100	Good	Good
25	99.8655914	Good	Good
31	89.44444444	Good	Good
32	98.25268817	Good	Good
38.01528	97.91666667	Good	Good
45.27016	100	Good	Good
Overall survey -->		Good precision	Good Overall DC

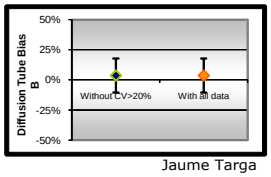
(Check average CV & DC from Accuracy calculations)

Site Name/ ID: AURN Hillingdon Hospital

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 (0.88 - 1.17)
Bias B: 0% (-15% - 14%)
Diffusion Tubes Mean: 38 µgm^{-3}
Mean CV (Precision): 5
Automatic Mean: 38 µgm^{-3}
Data Capture for periods used: 99%
Adjusted Tubes Mean: 38 (33 - 44) µgm^{-3}

Accuracy (with 95% confidence interval) WITH ALL DATA
Bias calculated using 12 periods of data
Bias factor A: 1 (0.88 - 1.17)
Bias B: 0% (-15% - 14%)
Diffusion Tubes Mean: 38 µgm^{-3}
Mean CV (Precision): 5
Automatic Mean: 38 µgm^{-3}
Data Capture for periods used: 99%
Adjusted Tubes Mean: 38 (33 - 44) µgm^{-3}



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National Diffusion Tube Bias Adjustment Factor Spreadsheet

Spreadsheet Version Number: 04/11

Follow the steps below **in the correct order** to show the results of **relevant** co-location studies
Data only apply to tubes exposed monthly and are not suitable for correcting individual short-term monitoring periods
Whenever presenting adjusted data, you should state the adjustment factor used and the version of the spreadsheet
This spreadhseet will be updated every few months: the factors may therefore be subject to change. This should not discourage their immediate use.

This spreadsheet will be updated in late June 2011 on the LAQM Helpdesk Website

The LAQM Helpdesk is operated on behalf of Defra and the Devolved Administrations by Bureau Veritas, in conjunction with contract partners AECOM and the National Physical Laboratory.

Spreadsheet maintained by the National Physical Laboratory. Original compiled by Air Quality Consultants Ltd.

Step 1: Select the Laboratory that Analyses Your Tubes from the Drop-Down List. If a laboratory is not shown, we have no data for this laboratory.

Step 2: Select a Preparation Method from the Drop-Down List. If a preparation method is not shown, we have no data for this method at this laboratory.

Step 3: Select a Year from the Drop-Down List. If a year is not shown, we have no data[2].

Step 4: Where there is only one study for a chosen combination, you should use the adjustment factor shown with caution. Where there is more than one study, use the overall factor[3] shown in blue at the foot of the final column.

If you have your own co-location study then see footnote[4]. If uncertain what to do then contact the Local Air Quality Management Helpdesk at LAQMHelpdesk@uk.bureauveritas.com or 0800 0327953

Analysed By[1]	Method (To undo your selection, choose (All) from the pop-up list)	Year[2] (To undo your selection, choose (All))	Site Type	Local Authority	Length of Study (months)	Diffusion Tube Mean Conc. (Dm) (µg/m^3)	Automatic Monitor Mean Conc. (Cm) (µg/m^3)	Bias (B)	Tube Precision[5]	Bias Adjustment Factor (A) (Cm/Dm)
Gradko	50% TEA in Acetone	2010	R	Reading BC	12	40	46	-13.2%	G	1.15
Gradko	50% TEA in Acetone	2010	R	East Hampshire DC	11	27	25	6.5%	G	0.94
Gradko	50% TEA in Acetone	2010	R	Wolverhampton CC	12	42	41	4.1%	G	0.96
Gradko	50% TEA in Acetone	2010	R	Wolverhampton CC	12	38	38	0.8%	G	0.99
Gradko	50% TEA in Acetone	2010	R	Exeter CC	12	42	40	5.6%	G	0.95
Gradko	50% TEA in Acetone	2010	R	Lewisham Council	10	74	51	46.0%	G	0.69
Gradko	50% TEA in Acetone	2010	B	LB Brent	10	28	28	-1.5%	G	1.01
Gradko	50% TEA in Acetone	2010	R	Worthing BC	10	44	42	6.0%	G	0.94
Gradko	50% TEA in Acetone	2010	R	Boston BC	10	57	33	74.1%	G	0.57
Gradko	50% TEA in Acetone	2010	B	LB Brent	10	28	28	-1.5%	G	1.01
Gradko	50% TEA in Acetone	2010	R	LB Richmond	12	39	41	-5.7%	G	1.06
Gradko	50% TEA in Acetone	2010	B	LB Richmond	12	28	26	4.8%	G	0.95
Gradko	50% TEA in Acetone	2010	UB	Reading BC	9	20	26	-20.5%	G	1.26
Gradko	50% TEA in Acetone	2010	UB	Sandwell MBC	12	27	30	-10.2%	G	1.11
Gradko	50% TEA in Acetone	2010	R	Sandwell MBC	12	43	47	-7.3%	G	1.08
Gradko	50% TEA in Acetone	2010	R	Sandwell MBC	12	32	40	-18.6%	na	1.23
Gradko	50% TEA in Acetone	2010	UB	Sandwell MBC	11	19	23	-15.9%	na	1.19
Gradko	50% TEA in Acetone	2010		Overall Factor[3] (17 studies)				Use		0.99

Co-location site	Site Type	Site Bias 2005	Site Bias 2006	Site Bias 2007	Site Bias 2008	Site Bias 2009	Site Bias 2010
London Hillingdon	**S**	1.07	1.18	1.05	1.05	1.05	1.22
Hillingdon 1	**R**	0.93	0.89	0.99	0.91	0.97	1
Hillingdon 2	**R**	0.89	0.89	-	0.83	0.86	1
Average		**0.96**	**0.99**	**1.02**	**0.93**	**0.96**	**1.07**
Gradko Bias		1.10	1.04	0.86	0.85	0.99	0.99

A2.2.2 Discussion of Choice of Factor to Use

There were three local co-location studies between nitrogen dioxide diffusion tubes and continuous monitoring carried out within the borough. Therefore, the bias adjustment factor has been undertaken using these data. The bias adjustment factor of 1.07 was calculated as an average of the three factors calculated from:

- London Hillingdon (AURN) – 1.22;
- Hillingdon 1 – 1.00;
- Hillingdon 2 – 1.00.

The London Hillingdon co-located tubes vary greatly (20%) from the automatic monitor compared to Hillingdon 1 & 2 and other sites recorded in the national database where the national bias adjustment factor is 0.99 It was considered prudent to apply the national bias adjustment factor to the 2010 diffusion tube data.

The diffusions tube results for the Heathrow wide study supplied by the London Borough of Hounslow where bias adjusted using the local bias adjustment factor of 0.95. No local factor with sufficient data capture was available to Hounslow so they applied the national factor of 0.99.

For this Progress Report the average bias adjustment factor is being applied due to the following factors:

- Using the average factor derived from the three co-location study is consistent with the previous review and assessment;

A2.2.3 PM Monitoring Adjustment

TEOM

The PM_{10} monitoring data recoded by TEOMs monitors were corrected with Volatile Correction Model (VCM). The Volatile Correction Model (VCM) web portal allows you to correct TEOM measurements for the loss of volatile components of particulate matter that occur due to the high sampling temperatures employed by this instrument. The resulting corrected measurements have been demonstrated as equivalent to the gravimetric reference equivalent. Hourly average input data was used in the VCM. The VCM can be accessed through http://www.volatile-correction-model.info

BAM

The data recorded by BAM monitors were corrected by the factor 0.83333.

A2.3 QA/QC of automatic monitoring

QA/QC forHillingdon1, Hillingdon 2 and Hillingdon 3 are provided by ERG King's College London.

Hillingdon 1,Hillingdon 2 and Hillingdon 3 are calibrated fortnightly by LSOs, the audits are every 6 months.
Calibrations are carried out by LA. Audits are carried out by NPL. Audits are UKAS accredited

Data validation and ratification procedures

A final measurement data set was produced by King's following retrospective ratification of the measurements using procedures, which exceed the requirements detailed in LAQM TG09 (Defra, 2009). During ratification information from regular calibrations, audits and daily manual validation were used to establish an operational and calibration history of the instruments and the pollution measurements

were corrected to establish traceability to National Metrological Standards. Details of the monitoring site and the final dataset can be found at www.londonair.org.uk.

The sites AEA look after include Sipson, Hayes, Hillingdon AURN, Harlington AURN and the 3 other BAA sites located around Heathrow Airport that include Green Gates, LHR2, Oakes Road.

Routine Calibrations are carried out by AEA every 3 to 4 weeks in line with the R&A requirements. The QA/QC audits are carried out by AEA at 6 monthly intervals.

The Data Validation and Ratification phrase used is as follows:

All data from the Air Quality Stations: Sipson, Hayes, Hillingdon AURN, Harlington AURN and three BAA sites Sipson, Hayes, Hillingdon AURN, Harlington AURN are managed by external consultants (AEA) to quality procedures developed under the UK National Network. The data management processes represent best practice and fully meet the requirements set out in LAQM TG(09).

All data are screened and scaled (on the basis of site calibrations) and the final data sets presented within this report have benefited from a full process of data ratification, including through additional data quality checks that include site UKAS quality control audits and a final data ratification process that corrects data for instrument sensitivity drift between routine calibrations".

A2.2.5 QA/QC of diffusion tube monitoring

The diffusion tubes deployed by the London Borough of Hillingdon are supplied and analysed by Gradko using a preparation mixture of 50% triethanolamine (TEA) in deionosed water. Gradko comply with the WASP scheme and achieved 'good' performance based on old and new criteria for the April 2009 – April 2010 period.

Appendix 3: Monitoring data

This Appendix provides tables and figures of the results from the monitoring network. Graphs showing trends in monitored data over time are presented in the main text of this report.

A3.1 NO_2

The following tables and figures are provided:

Table A3-1: Results from automatic stations since 1994 showing compliance against annual mean and daily mean limit values.

Table A3-2: Results from automatic stations for 2007 to 2010 showing compliance against the daily mean limit value.

Table A3-3: Results from the diffusion tube network.

Figure A3-1: Map of results for diffusion tube sites highlighting exceedances.

Table A3-1. Summary outputs from the automatic monitoring of NO_2 since 1994

NO_2			Objective: Annual mean of 40 $\mu g\ m^{-3}$		Objective: 1 hour mean of 200 $\mu g.m^{-3}$ not exceeded >18 times in year
Site	**Year**	**Data capture**	**Achieved?**	**value**	**Achieved?**
LHR2	1994	86%	No	60.5	No
	1995	96%	No	60.7	Yes
	1996	95%	No	63.0	No
	1997	95%	No	60.0	No
	1998	96%	No	54.0	Yes
	1999	98%	No	55.5	Yes
	2000	97%	No	56.6	Yes
	2001	98%	No	53.8	Yes
	2002	96%	No	52.1	Yes
	2003	96%	No	58.8	Yes
	2004	99%	No	55.2	Yes
	2005	97%	No	53.5	Yes
	2006	86%	No	53.2	Yes
	2007	99%	No	54.0	Yes
	2008	99%	No	53.0	Yes
	2009	98%	No	49.8	Yes
	2010	75%	No	49.6	Yes
Hillingdon 1	1999	27%	No	46.7	Yes
	2000	98%	No	44.4	Yes
	2001	97%	No	45.1	Yes
	2002	98%	No	43.7	Yes
	2003	99%	No	52.7	No
	2004	83%	No	48.5	Yes
	2005	79%	No	45.8	Yes
	2006	98%	No	41.8	Yes
	2007	77%	No	48.7	No
	2008	100%	No	46.0	Yes

NO_2			Objective: Annual mean of 40 $\mu g\ m^{-3}$		Objective: 1 hour mean of 200 $\mu g.m^{-3}$ not exceeded >18 times in year
Site	**Year**	**Data capture**	**Achieved?**	**value**	**Achieved?**
	2009	97%	No	49.3	Yes
	2010	98%	No	46.9	Yes
London Hillingdon	1996	82%	No	43.9	Yes
	1997	97%	No	58.7	No
	1998	75%	No	50.9	Yes
	1999	45%	No	50.2	Yes
	2000	98%	No	47.7	Yes
	2001	96%	No	46.2	Yes
	2002	97%	No	45.2	Yes
	2003	83%	No	53.7	Yes
	2004	98%	No	45.3	Yes
	2005	94%	No	45.3	Yes
	2006	90%	No	49.7	Yes
	2007	98%	No	45.0	Yes
	2008	83%	No	51.0	Yes
	2009	91%	No	54.0	Yes
	2010	94%	No	53.6	Yes
Hillingdon 2	2002	2%	No	60.2	Yes
	2003	41%	No	41.4	No
	2004	85%	Yes	36.7	No
	2005	88%	Yes	38.6	Yes
	2006	91%	Yes	37.3	Yes
	2007	27%	No	43.4	Yes
	2008	99%	No	46.0	Yes
	2009	87%	Yes	37.4	Yes
	2010	99%	Yes	36.0	Yes
London Harlington	2004	99%	Yes	38.2	Yes
	2005	99%	Yes	38.1	Yes
	2006	98%	Yes	36.8	Yes
	2007	94%	Yes	37.0	Yes
	2008	98%	Yes	35.0	Yes
	2009	60%	Yes	36.3	Yes
	2010	91%	Yes	34.5	Yes
Hillingdon 3	2005	73%	Yes	37.3	Yes
	2006	75%	No	41.1	Yes
	2007	97%	No	43.4	Yes
	2008	93%	No	42.0	Yes
	2009	89%	No	43.4	Yes
	2010	90%	No	41.0	Yes
Sipson	2006	31%	No	45.0	No
	2007	82%	No	40.3	Yes
	2008	99%	Yes	38.0	Yes

NO_2			Objective: Annual mean of 40 $\mu g\ m^{-3}$		Objective: 1 hour mean of 200 $\mu g.m^{-3}$ not exceeded >18 times in year
Site	**Year**	**Data capture**	**Achieved?**	**value**	**Achieved?**
	2009	99%	Yes	39.0	Yes
	2010	99%	Yes	38.3	Yes
Heathrow Green Gates	2001	50%	Yes	29.0	Yes
	2002	97%	Yes	32.0	Yes
	2003	97%	No	46.0	Yes
	2004	99%	Yes	39.0	Yes
	2005	99%	Yes	36.0	Yes
	2006	99%	Yes	37.0	Yes
	2007	90%	Yes	38.0	Yes
	2008	85%	Yes	38.0	Yes
	2009	99%	Yes	37.5	Yes
	2010	99%	No	41.2	Yes
Hillingdon Harmondsworth	2007	40%	Yes	35.0	Yes
	2008	93%	Yes	32.0	Yes
	2009	95%	Yes	33.4	Yes
	2010	89%	Yes	30.5	Yes
Heathrow Oaks Road	2008		Yes	35.0	Yes
	2009		Yes	33.4	Yes
	2010	97%	Yes	37.2	Yes
Hillingdon Hayes	2008		No	50.0	Yes
	2009		No	55.6	Yes
	2010	99%	No	54.3	Yes

Table A3-2. Results of Automatic Monitoring for NO_2: Comparison with 1-hour Mean Objective

Site ID	Location	Within AQMA?	Data Capture for full calendar year 2010 %	Number of Exceedances of hourly mean (200 μg/m^3)		
				2008	2009	2010
London Heathrow LHR2	Airport	Yes	75.38	0	**0**	2 (154)
London Hillington	Suburban	Yes	93.86	1 (159)	0	0
Hillingdon 1	Roadside	Yes	97.99	5	2	7
Hillingdon 2	Roadside	Yes	98.63	0	0 (89.3)	0
Hillingdon 3	Roadside	Yes	89.78	1	0 (97.9)	1 (142)
London Harlington	Airport	Yes	90.78	0	0 (82.5)	0
Hillingdon Sipson	Urban background	Yes	98.57	2	7	0
London Harmondsworth	Airport	Yes	88.57	0	0	0 (101)
Heathrow Green Gates	Airport	Yes	98.50	0 (141)	0	0
Heathrow Oaks Road	Airport	Yes	97.04	2 (168)	4	0
Hillingdon Hayes	Roadside	Yes	99.16	0	7	15

Table A3-3: Results for NO_2 Diffusion Tubes (exceedances highlighted in bold red)

Site ID	Location	Within AQMA?	Data capture, full calendar year, 2010, %	Annual mean concentrations (µg/m^3)		
				2008	2009	2010
HD31	AURN Monitoring Station	Yes	86.11	**45.0**	**45.9**	**44.9**
HD41	Barra Hall	Yes	50.00	30.7	28.1	28.3
HD42	Uxbridge Technical College	Yes	100	35.8	35.6	34.7
HD43	Uxbridge Day Nursery	Yes	100	**45.0**	**45.5**	**49.7**
HD46	South Ruislip Monitoring Station	Yes	100	**47.3**	**47.5**	**47.3**
HD47	Hillingdon Primary School	Yes	100	32.2	32.3	34.3
HD48	Citizens Advice Bureau	No	100	30.7	30.1	27.8
HD49	83 Hayes End Drive, Hayes End	Yes	100	27.0	27.1	27.0
HD50	Hillingdon Hospital Monitoring Station	Yes	100	**40.2**	39.1	37.4
HD51	4 Colham Avenue	Yes	100	36.2	34.3	34.2
HD52	101 Cowley Mill Road	Yes	100	38.4	38.6	36.2
HD53	Warren Road	Yes	100	**45.5**	**44.1**	**41.0**
HD55	Harold Avenue	Yes	100	**41.7**	**40.5**	**40.2**
HD56	15 Phelps Way	Yes	100	38.5	35.2	35.8
HD57	25 Cranford Lane	Yes	100	38.3	37.2	38.4
HD58	Brendan Close	Yes	100	**41.6**	**43.2**	39.8
HD59	7 Bomber Close	Yes	91.67	36.0	36.6	33.8
HD60	Harmonsworth Green	Yes	100	32.9	31.0	31.1
HD61	Heathrow Close	Yes	100	36.7	36.3	37.3
HD62	1 North Hyde Gardens, Hayes	Yes	100	37.6	39.8	39.0
HD63	370 Sipson Road, Sipson,	Yes	91.67	34.6	32.9	24.2
HD64	34 Hatch Lane, Sipson	Yes	91.67	NA	32.8	32.6
HD65	28 Pinglestone Close, Sipson	Yes	100	31.8	33.0	32.4
HD66	486 Sipson Road, Sipson	Yes	100	34.1	32.9	33.7
HD67	31 Tavistock Road	Yes	100	31.8	29.8	31.6
HD68	Ratcliffe Close, Uxbridge	Yes	100	29.0	28.5	29.4
HD69	Hillingdon Health Centre, Freezeland Way	Yes	100	35.4	36.2	35.6
HD70	Harefield Hospital, Hill End Road	No	91.67	26.0	25.9	25.5
HD71	Oxford Avenue, Cranford	Yes	100	**40.9**	38.5	37.5
HD72	2 Vineries Close	Yes	91.67	30.5	29.9	31.9
HD73	Queensmead School, South Ruislip.	No	91.67	31.1	29.3	27.4

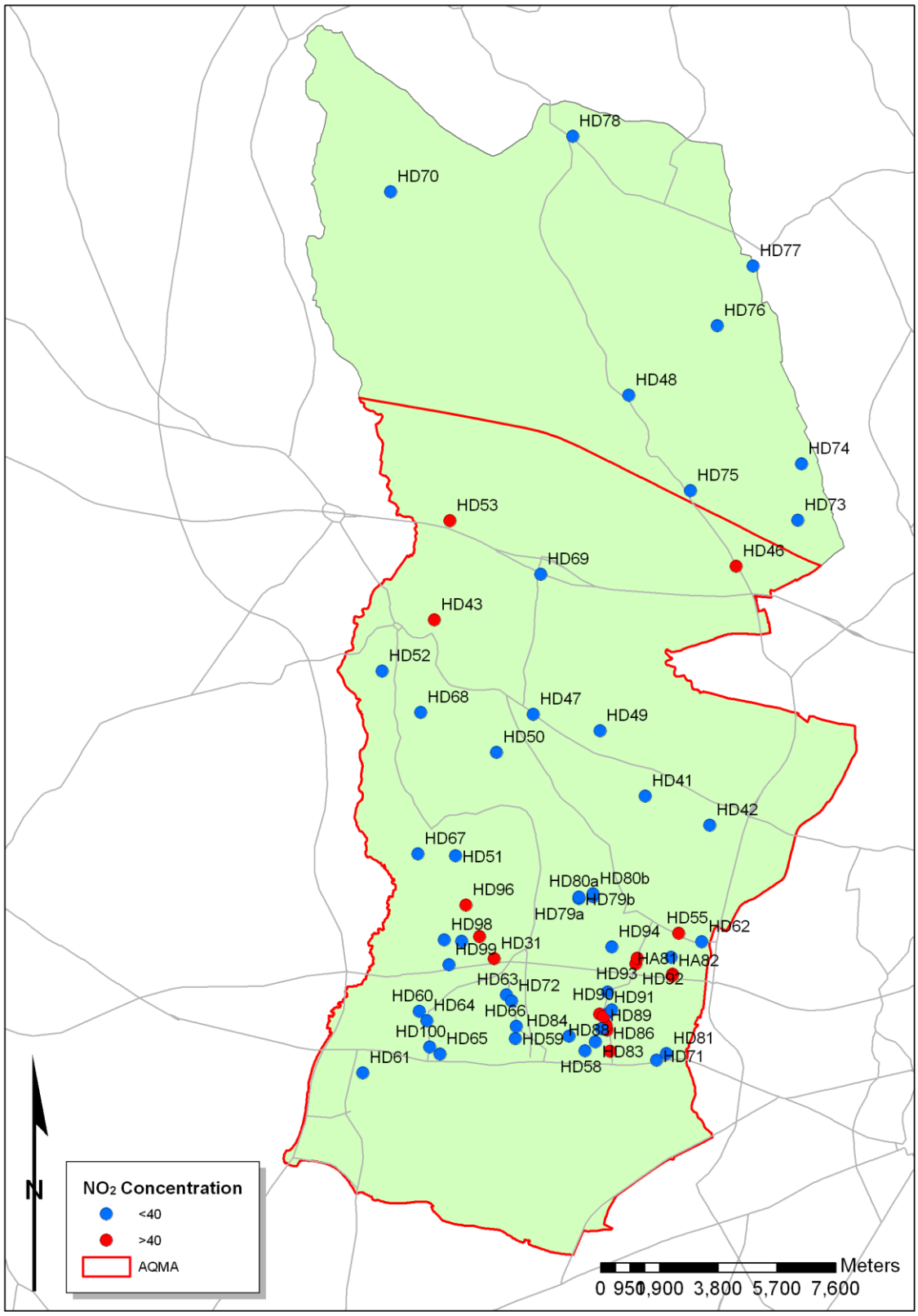
HD74	Field End Road/Field End School, S.Ruislip.	No	100	32.3	28.9	31.3
HD75	Sidmouth Drive, South Ruislip.	No	91.67	29.3	30.8	29.0
HD76	Kaduna Close, Eastcote	No	100	29.3	27.5	28.9
HD77	Chamberlain Wy, Eastcote.	No	100	26.3	26.2	27.6
HD78	Gateway Close, Northwood.	No	100	32.5	32.8	30.6
HD79a	Rear Garden of 86 Stormount Drive (Attached to building)	Yes	-	33.4	34.4	-
HD79b	Corner of Swallowfield Way and Kestrel Way (Railside)	Yes	-	-	32.1	-
HD80a	Rear Garden of 86Stormount Drive (Attached to railside fence)	Yes	100	32.0	30.3*	34.1
HD80b	Corner of Swallowfield Way and Kestrel Way (Roadside)	Yes	100	-	34.2**	35.3
HD81	61 Windsor Park R	Yes	100	-	-	34.9
HD82	Hall Lane	Yes	100	-	-	**47.4**
HD83	81 Pennine Way	Yes	100	-	-	39.8
HD84	26 Rayner Close	Yes	100	-	-	35.1
HD85	296-298 High Street	Yes	100	-	-	**53.9**
HD86	331 High Street	Yes	92	-	-	**54.4**
HD87	1 Pondside Close	Yes	100	-	-	37.3
HD88	9 Sipson Lane	Yes	100	-	-	**42.8**
HD89	293 High Street	Yes	100	-	-	**51.4**
HD90	22 Richards Close	Yes	100	-	-	34.6
HD91	118 High Street	Yes	100	-	-	39.5
HD92	57 Bedweel Gardens	Yes	100	-	-	**44.0**
HD93	29 Bedwell Gardens	Yes	100	-	-	**41.6**
HD94	19 Dudley Place	Yes	83	-	-	33.8
HD95	100 Sipson Road	Yes	100	-	-	**44.3**
HD96	Station Rd / Porters Way Junction	Yes	100	-	-	**51.2**
HD97	33 Harmondsworth Rd	Yes	100	-	-	37.7
HD98	1 Laurel Lane	Yes	100	-	-	35.1
HD99	120 The Brambles	Yes	83	-	-	39.2
HD100	1-2 Littlefield Ct	Yes	100	-	-	39.0
HA81	M4 Roadside – Cranford Drive	Yes	58.3	-	**69.66*****	**51.0**
HA82	M4 Residential – Cranford Drive	Yes	83.3	-	**42.27*****	**47.5**

*Annual mean estimated using an adjustment factor of 0.95 (2010) and 0.93 (2009)

** Annual mean estimated using an adjustment factor of 0.98

***Bias adjustment factor of 0.90

Figure A3-1 Map of Annual Mean Objective Exceedances at Non-Automatic Monitoring Sites



A3.2 PM_{10}

Measured PM_{10} data using TEOMs monitors for 2008, 2009 and 2010 was corrected by using the Volatile Correction Model (VCM) in accordance with the Technical Guidance. PM_{10} data measured by using BAM monitors were corrected with the factor 0.8333.Table A3-4 contains the PM_{10} data from continuous monitoring sites in 2008, 2009 and 2010. The annual mean objective of an annual mean concentration no greater that 40 µg $m^{-3}$was achieved at each site in 2010, as it was in 2008 and 2009.

Table A3-4. PM_{10} Automatic Monitoring: Comparison with Annual Mean Objective.

Site ID	Location	Within AQMA?	Data Capture for full calendar year 2010 %	Annual mean concentrations (µg/m^3)		
				2008	2009	2010
LHR2	Airport	Yes	92.08	23.4	25.3	23.8
Hillingdon 1 – South Ruislip	Roadside	Yes	98.38	22.9	35.4	22.4
Hillingdon 2 – Hillingdon Hospital	Roadside	Yes	99.82	20.8	22.0 (36)	26.1
Hillingdon 3 – Oxford Avenue	Roadside	Yes	90.94	21.4	21.1 (36)	20.36
London Harlington	Airport	Yes	99.47	20.9	16.2 (33)	19.7
London Harmondsworth	Airport	Yes	87.89	29.7	27.9	17.8
Heathrow Green Gates	Airport	Yes	97.97	17.2	17.6	20
Hillingdon Hayes	Roadside	Yes	97.58	21.6	16.3	23.5
Heathrow Oakes Road	Airport	Yes	97.05	19.8	21.3	21.8

Table A3-5presents the number of exceedances of the 24-hour mean objective of 50 µg m^{-3}at continuous monitoring sites. In 2010 the objective was achieved at all of the locations in the Borough. There was an increase in the number of daily exceedances at four sites: Hillingdon Hospital, London Harlington, Hillingdon Hayes and Heathrow Oakes Road. At the other sites the number of daily exceedances either remained the same or showed a reduction.

Table A3-5. PM_{10} Automatic Monitoring: Comparison with 24-hour Mean Objective.

Site ID	Location	Within AQMA?	Data Capture 2009 %	Number of Exceedences of daily mean objective (50 μg/m^3)		
				2008	2009	2010
LHR2	Airport	Yes	92.08	15	7	4
Hillingdon 1 – South Ruislip	Roadside	Yes	98.38	12	7	5
Hillingdon 2 – Hillingdon Hospital	Roadside	Yes	99.82	6	0 (36)	15
Hillingdon 3 – Oxford Avenue	Roadside	Yes	90.94	10	2 (36)	2
London Harlington	Airport	Yes	99.47	10 (35.8)	5 (33)	12
London Harmondsworth	Airport	Yes	87.89	33 (51)	25	2 (31.6)
Heathrow Green Gates	Airport	Yes	97.97	2	0	0
Hillingdon Hayes	Roadside	Yes	97.58	2 (35.8)	6	7
Heathrow Oakes Road	Roadside	Yes	97.05	9	1	2

A3.3 $PM_{2.5}$

The UK Government and the Devolved Administrations have set new national air quality objective for particulate matter smaller that 2.5μg diameter. However this objective has not been incorporated into LAQM Regulations and Local Authority has no statutory obligation to review and assess air quality against it. The air quality objective for $PM_{2.5}$ is 25 μg $m^{-3}$to be achieved by 2020. The following Table presents the $PM_{2.5}$ data recorded at the continuous automatic monitoring sites in 2008, 2009 and 2010. The 2010 results show that $PM_{2.5}$ recorded at the monitoring sites was in the range of 9 μg $m^{-3}$to 14μg m^{-3}. As with the previous years, the measured results were well below the UK wide objective for $PM_{2.5}$.

Table A3-6. **Results of the annual mean concentrations for $PM_{2.5}$ (μg/m^3)**

Site ID	Location	Within AQMA?	Proportion of year with valid data 2010 (%)	Annual mean concentrations (μg/m^3)		
				2008	2009	2010
London Harlington	Airport	**Yes**	75.05	10*	12.8	13.5
Heathrow Green Gates	Airport	**Yes**	98.05	11	10.1	9.9
Heathrow Oaks Road	Airport	**Yes**	97	12	10.3	10.6
London Heathrow LHR	Airport	**Yes**	87.73	-	-	11.8

**London Harlington data capture 11.5% site in operation from 16th September 2008*

A3.4 Ozone

Table 3.7 presents the ozone data recorded at the continuous automatic monitoring sites. In 2010 ozone was monitored at two sites within the Borough, two less than in 2009. The 2010

results show that ozone concentrations recorded at the monitoring sites were in the range of 25 μg $m^{-3}$to 34μg m^{-3}.

Table A3-7.Annual mean concentrations for ozone (μg/m^3).

Site ID	Location	Within AQMA?	Proportion of year with valid data 2010 (%)	Annual mean concentrations (μg/m^3)		
				2008	2009	2010
London Hillingdon	Airport	Yes	91.42	31	25.7	25.3
London Harlington	Airport	Yes	89.17	-	36.4	33.5
Hillingdon 2 – Hillingdon Hospital	Roadside	Yes	-	-	37.5	-
Hillingdon 3 – Oxford Avenue	Roadside	Yes	-	-	32.5	-

Appendix 4: Detailed information on implementation of the Action Plan

Ref.	Action Plan Measure	Original Timescale	Progress with Measure	Outcome to date	Comments	Local Authority Role	Responsibility
Package 1.	Switching to Cleaner Transport Modes						
1. 01.	Establish a Green Travel Plan for Hillingdon.	2010	In progress	Staff survey on intranet March 2007 to gain baseline information on existing travel patterns. The assessment of journeys to work and business trips is now complete. Consultants have been commissioned to implement a phased implementation strategy.	Still draft The development of the travel plan is now embedded in the Climate Change Strategy as a short term measure to be implemented by 2010. Various initiatives such as Cycle Purchase Scheme, Council Carsharing scheme, reduced car parking from 5 to 4 days a week and Season Ticket Loans are already being rolled out across the Council. This will now be implemented via the Hillingdon LIP under development as a requirement of the MTS2. The LIP was completed in April 2011.	Local Authority Led	Planning and Transportation
1. 02.	Improve access to, and quality of, public transport travel information for people living and working in the Borough.	2008	Ongoing	Specific public transport information booklets developed for the Chimes shopping centre, South Ruislip, Uxbridge IBA. Article in Hillingdon People promoting car share and Heathrow-specific car share.	Face to face interviews at Uxbridge and South Ruislip Industrial Business Areas to roll out freight audit leaflets and public transport booklets; Improvements made to 10 bus stops in Hillingdon with regards to service information. See above for Hillingdon employees; The provision of public transport information will be part of planning obligations in relevant qualifying developments.	Local Authority Led	Planning and Transportation
1. 03.	Encourage the development of more dedicated cycle (priority) lanes and signalling.	2008	Ongoing	Implemented routes in 06/07 via BSP: Route 39 - Uxbridge Road; Route 88A - Hayes/Harlington/Heathrow; Route 89 - Uxbridge to Heathrow; Link 95 – Hayes and Yeading. The demand for cycle parking in Hillingdon is currently exceeding the existing capacity.	Hillingdon has rolled out Bikeability and currently has 1,500 children at level 1 and 2 across the Borough. Improvements made along 17 cycling routes – all within the AQMA and along routes of air	Local Authority Led	Highways

Ref.	Action Plan Measure	Original Timescale	Progress with Measure	Outcome to date	Comments	Local Authority Role	Responsibility
				A strategic study is to be commissioned to identify where the facilities are needed and the best means to secure them as soon as possible. Data show 35% increase in cycling in the Borough on monitored roads.	quality exceedances. 55k for cycle training throughout the Borough via BSP funding, 866k for cycling network improvements via BSP funding; The provision of cycling facilities will be part of planning obligations in relevant qualifying developments.		
1. 04.	Extend provision of more parking for motorcycles, mopeds and bicycles at public sites and new developments.	2007	Ongoing	No specific policy on motorbike parking yet, bicycle parking is well established throughout the Borough with every opportunity taken to increase this, e.g. new developments. No formal audit taken though.	SPD on section 106 obligations currently out for consultation. Developments of less than 20 staff/occupiers must provide a minimum of cycle storage facilities as part of a "Move for Action" plan, developments over 20 staff/occupiers must provide a full travel plan that includes cycle facilities, storage, promotion of cycle routes etc SPD now published (July 2008)	Local Authority Led	Highways
1. 05.	Improve provision for pedestrians.	2008	Ongoing	Pedestrian Crossings - 10 put in place in 2008. More congestion hot spots looked at for traffic management measures to smooth traffic flow, 4 of these are in the AQMA. Local Safety Schemes implemented via BSP at 6 key points in the Borough, 5 of which are within the AQMA. 20mph zone put in place at Oak Farm Estate. Canal towpath improvements for pedestrians Ongoing throughout the Borough via funding from TfL including the provision of more conspicuous zebra crossings to ensure pedestrian safety	10 pedestrian crossings in place in 07-08, 3 of these associated with improving pedestrian access to Field End School (which is within the AQMA) as part of their School Travel Plan. Ongoing improvements, pedestrian crossings installed across the Borough included 4 new ones at schools with school travel plans SPD – see above	Local Authority Led	Borough Transport Strategy
1. 06.	Introduce more Safe Routes to School throughout the Borough with special regard to the	2010	Ongoing	Air quality packs sent to all schools in the Borough. Integration of air quality packs information	Over 1,500 pupils are now registered under the Bikeability scheme aimed at encouraging	Local Authority Led	Borough Transport Strategy

Ref.	Action Plan Measure	Original Timescale	Progress with Measure	Outcome to date	Comments	Local Authority Role	Responsibility
	schools within the highest exceedance areas.			into the school curriculum to be put in as a key requirement for Hillingdon School Travel Plans. Production of free bespoke "Don't choke us" signs for schools in the Borough, 39 schools participated. Timescales - 36% schools with plan by 2006; 57% by 2007; 78% by 2008, 100% by 2009. All schools now have Travel Plans. Hillingdon have developed a Feet First campaign (include posters) designed to promote the walking to school message throughout the Borough. Hillingdon has achieved an average 17% modal shift away from car across the Borough for school journeys	safe cycling to school; The Walk on Wednesday (WOW) scheme now has 40 schools across Hillingdon participating regularly that includes 15,000 children. This is the 2nd highest number of schools participating in London and has achieved an overall modal shift (for WOW alone) of 14% as opposed to the national average of 6%. Healthy Hillingdon are a part of the School Travel Plan Steering Group that has ensured the links are made between health and reducing car use on school journeys. Walk on Wednesdays initiative, Hillingdon has highest number of schools involved across all of London, developing a CD resource aimed at primary and secondary schools, local air quality – includes local air quality, climate change, healthy living		
1. 07.	Ensure Green Travel Plans are a requirement for all businesses (new and existing) employing more than a specified number of people in the Borough.	2007	Ongoing	Specific air quality targets to be included in all business travel plans as a requirement under the LDF framework, included in draft out for consultation in Feb 07. There are 3 car clubs operating successfully in Hillingdon - all associated with new planning developments, developed as part of s106 agreements. Hillingdon are proactively working on the creation of area-wide travel plan partnerships. The first partnership includes Brunel University, Hillingdon Hospital, The Chimes shopping Centre and Uxbridge	See 1.04 for details on new developments; Follow up to freight audits at Industrial Business Areas has included face to face interviews with 26 separate companies promoting the establishment of travel plans. SPD see above	Local Authority Led	Planning Department

Ref.	Action Plan Measure	Original Timescale	Progress with Measure	Outcome to date	Comments	Local Authority Role	Responsibility
				College. Implementation is anticipated in 2011-2012.			
1. 08.	Improve access to, and quality of, public transport travel information on a regional basis both inside and outside the GLA boundary.	2008	Ongoing	Car share promotion in Hillingdon People including Heathrow Carshare. Mobility Management Group under HATF set up to address access to Heathrow, plans to extend this regionally. Hillingdon is a member of the group. Funding has been received for 08/09 via West Trans for the integration of sustainable travel information into the West London air quality website West London walkit.com – internet based low pollution walking routes launched in Nov 2008; Hillingdon sit on the Mobility Management Group of the Heathrow Area Transport Forum looking at regional initiatives around Heathrow	Project commissioned to integrate sustainable travel links into the Heathrow Airwatch website; The opening of T5 on 27th March 2008 has provided better connectivity with regards to local access to the airport.	Partnership	West London Air Quality and Transport Group
1. 09.	Seek to ensure improvements in overall public transport service (facilities, cleanliness, safety, frequency, reliability) across the Borough and West London, and particularly in declared AQ Management Areas AQMAs.	2008	Ongoing	£228,000 received via BSP for bus priority measures, includes 222, E7 routes both of which are within exceedance areas within AQMA. £183,750 received via BSP for bus stop accessibility projects at 30 stops across the Borough. Improvements have been identified throughout the Borough for measures to improve bus priority and journey times.	9 key bus priority routes and 10 specific bus stops received funding via BSP for improvements. Link also to action 1.12. 660k for bus priority via BSP; SPD – see above The improvements for the Mahjacks/Cedars roundabout in Uxbridge will help address a traffic congestion/air quality hotspot.	Partnership	Borough and West London Transport Strategy
1. 10.	Improve the north-south public transport provision in the Borough.	2010	Ongoing	Potential for a Community Transport link to be explored in the poor air quality areas around West Drayton/Yiewsley/Hayes – funding to be sought via BSP. Trialling of low emission vehicle for HCT The needs assessment study to inform the introduction of a Community Bus service is	Feasibility study commissioned to asses potential for a flexible community bus around the south of the Borough in the poorest air quality areas, seeking to replace current short car journeys. If viable the contract for the bus	Partnership	Borough Transport Strategy

Ref.	Action Plan Measure	Original Timescale	Progress with Measure	Outcome to date	Comments	Local Authority Role	Responsibility
				currently being commissioned. It is anticipated that this service could help address the ageing population's changing needs The issue of good north-south links is key to improving modal shift within Hillingdon. Hillingdon specific projects such as the Community Bus and concept of a north-south Fast Bus are now being taken forward. A more strategic approach has developed for public transport provision in the Borough and beyond in the lifetime of the AQAP. Further improvements are being taken forward where funding permits. Improvement of north-south links remains a priority in LIP2	will include low emission technology as one of the criteria. Finalisation of Report into Feasibility of Community Bus – this looks to provide transport for hard to reach groups in the south of the Borough providing links to schools, shops, doctors surgeries, community centres. Hillingdon will be investigating potential funding sources to take this forward. This issue has moved from an aspiration to a key priority in west London and is one of the key themes emerging in the mayoral West London Transport Strategy.		
1. 11.	Support multi modal travel by further development of public transport interchanges for rail/cycle/bus/walking both within Hillingdon and the West London area.	2008	Ongoing	Station Access Improvements carried out in 2006/07 at: • Northwood; • Northwood Hills; • Eastcote (Step 1); • Uxbridge (Step 1); • Ruislip. • Ruislip and Eastcote step 2 Grand Union Canal – 1st stage improvements at Northolt Improvements to Uxbridge station are in place to improve the pedestrian desire lines within the station and to improve bus access. The current taxi rank will be relocated to the front of the station to ease congestion	Improvements were taken forward by West Trans BSP funding with an allocation of £550,000 for implementation of improvements to station access throughout the West London region Via BSP and West Trans funding .	Partnership	West London Air Quality and Transport Group
1. 12.	Encourage development of efficient and high quality bus corridors.	2008	Ongoing	Improvements to 9 bus priority schemes in the AQMA along high AQ exceedance roads Via BSP and West Trans		Partnership	West London Air Quality and Transport Group
1. 13.	Investigate potential for more	2007	Complete	No progress to date, however	This measure has been	Partnership	Transportation

Ref.	Action Plan Measure	Original Timescale	Progress with Measure	Outcome to date	Comments	Local Authority Role	Responsibility
	night buses.			improvements are being sought by Hillingdon for Safer Travel at Night initiatives. These would be required to be in place before proposals for night buses could be safely assessed. Initiatives include ensuring the adequacy of lighting, paving, street furniture, signage and CCTV at Eastcote, Uxbridge and Ruislip stations and involvement in a Safer Travel campaign across the Borough. Details of night bus services in West London now available at http://www.tfl.gov.uk/tfl/gettingaround/maps/buses/pdf/nightbuseswestlondon-13834.pdf. Now 3 dedicated night buses (N7, N9 and N207) and 6 other 24 hour services (81, 105, 111, 140, 285 and Oxford Tube)	incorporated into the LIP for implementation. Air Quality Action – monitor success of funding bid. The TfL website now has details of all night buses operating in west London. Of particular use to Hillingdon are the N207 from Holborn to Uxbridge and several connecting Heathrow to other areas of London.		Team
1. 14.	Investigate the feasibility of working with relevant stakeholders to subsidise bus, train and underground fares in order to achieve significant modal shift.	2007	Complete	No progress to date, however this was highlighted in the consultation on the LIP as a measure to take forward. The introduction of Crossrail will improve the frequencies of trains from central London through Hillingdon with an interchange for access to Heathrow - to date there is no details on the ticket coatings as to whether this will support substantial modal shift; Heathrow Express remains a highly priced service although the introduction of the stopping service Heathrow Connect has provided a cheaper service; There are no details of pricing structures as yet for either Crossrail or Airtrack It has been concluded that in the current economic climate there is no feasibility of further subsidisation of public transport fares.	Air Quality Action – to identify with the Transportation team opportunities to lobby for subsidised travel. 7% increase in Heathrow express fares The Government have set up High Speed Two as a company to investigate the potential for High Speed rail. Hillingdon are requesting to be actively engaged as part of the process and have written asking for the key objectives of establishing modal shift from car and short haul air to be key areas for investigation. The HS2 company has published a preferred route for a new high speed route to Birmingham. The report has indicated a lack of business case for a direct link to Heathrow .	Lobbying	West London Authorities

Ref.	Action Plan Measure	Original Timescale	Progress with Measure	Outcome to date	Comments	Local Authority Role	Responsibility
Package 2.	Tackling Through Traffic						
2. 01.	Introduce Home Zones/20 mph in residential areas subject to significant amounts of through traffic that should use alternative routes.	2007	Ongoing	2006/07 – new Home Zone in Oak farm, Hillingdon. New Home Zone introduced along Coldharbour Lane – Borough road with high air quality exceedances New one in Hayes Consideration of further site in Barnhill.	The purchase of mobile traffic counters, as part of an air quality funding bid from TfL, has meant that traffic calming schemes are now underpinned by traffic count data to ensure the objectives of the schemes are realised in practice.	Local Authority Led	Transportation Team
2. 02.	Support the West London Transit Scheme project if appropriate.	2007	Complete	2006 – the Council Cabinet resolved to be an objector to the West London Tram Scheme, the Borough wish for a connection at Hayes to improve access to Heathrow plus extension out to Denham not considered as part of the current scheme. No further action to be undertaken.	Project commissioned via West London AQ group to examine potential alternatives for traffic flow improvement along the Uxbridge Road. Scheme withdrawn by GLA	Local Authority Led	Planning and Transportation
2. 03.	Ensure the provision of sufficient signage and details of spaces for public car parks.	2007	Ongoing	Electronic signs erected for Uxbridge town centre. 18 car parks in Hillingdon have now achieved Park Mark standard	A study of the council car parks has identified the potential areas for the inclusion of electric vehicle charging bays to give a range throughout the Borough	Local Authority Led	Highways Department
2. 04.	Investigate the creation of Clear Zones.	2007	Complete	No progress. GLA advise to look into clear zone – consultation letter Initial feasibility discussions suggested that this would not be of significant benefit in Hillingdon.	Air quality Action – to seek information from Camden on condition and criteria for Clear Zone.	Local Authority Led	Hillingdon Transportation Team
2. 05.	Develop best practice advice to ensure air quality assessments are made for proposals for new transport infrastructure and changes to traffic management.	2005	Ongoing	2006/07 – WLAQ group to establish communication strategy for guide. Communication Strategy in place, workshop for air quality and transport officers in April 2007, presentation at Bristol Conference in March 07. Implemented via the pre-planning advice note given to developers requesting this information prior to submission of a planning application	Taken forward for new developments via planning process; Network Monitoring Strategy – see highlight Now an integral part of the planning process	Partnership	West London Air Quality and Transport Group
2. 06.	Work in partnership with TfL to implement schemes along the	2006	Planning phase	Recommendations to be given to WLTS for implementation via WL BSP funding.	See 2.02 Via the LIP funds automatic	Partnership	West London Air Quality and

Ref.	Action Plan Measure	Original Timescale	Progress with Measure	Outcome to date	Comments	Local Authority Role	Responsibility
	high exceedance corridors designed to smooth traffic flows.			To be taken forward by West Trans, air quality emission information will be provided via TEEM, a transport emissions model under development by the WLAQ Cluster group TEEM is currently being used to assess the freight corridors throughout west London	traffic counters were placed on the Borough's roads with most significant AQ problems. TfL – looking at drawing up transport and air quality joint implementation plans, will have input into the West London sub-region plan;		Transport Group
2. 07.	Improve coordination of road works and provide more effective signing around them.	2007	Ongoing	Traffic Manager in post (Apr07).	Hillingdon now have a network management plan for Borough roads. Improvements in air quality have been incorporated as a key objective. Network Monitoring Strategy – see highlight	Hillingdon	West London Air Quality and Transport Group
2. 08.	Investigate use of high occupancy vehicle lanes and freight priority schemes along the major exceedance corridors such as the M4, A4, A40 and A312.	2007	In progress	Planning and the Strategic Road Network – document on DfT website – gives clarity to HA role, general presumption that there will be no capacity enhancements on routes of strategic national importance purely to accommodate new developments, in any case would be subject to stringent environmental assessment. Heathrow Junction 4 M4 improvements total completion by February 2007. Should give beneficial impact on air quality from reducing queue lengths. Study due to start in early 2007 on what will be needed to cope with the impact of T5 opening. Any improvements to the M4 will come via TVMMS measures e.g. speed limits, ramp metering etc. Decision in Spring 2007 as to which measures will be taken forward. Meeting with HA and AQ officers Feb 2010. The concept of hard shoulder running will be investigated along the M4 junctions 3-12. Pilot studies have indicated a "neutral" result with regards to local air quality although caution must be given to any increases in capacity resulting from this	CO2 emissions will be factored in to DMRB. M4 junction 4 improvements now complete, ongoing traffic speed and flow monitoring will help to quantify the success of this improvement HA update meeting: HA as an organisation look to use video-conferencing wherever possible; New version of DMRB now delayed to Dec 2009; There will be integrated demand management for whole of M25; Tender out for looking at managed motorway measures for M4 from Junction 3-12 New HA strategy refers to "working towards meeting the AQ objectives" – is this in line with joint agreement between DfT and Defra to meet the AQ limits?	Partnership	West London Air Quality and Transport Group

Ref.	Action Plan Measure	Original Timescale	Progress with Measure	Outcome to date	Comments	Local Authority Role	Responsibility
				change in traffic management. Hillingdon are participating in the HA diffusion tube study to help inform understanding on pollution dispersal from motorway network.			
2. 09.	Investigate the use of light rail/tram schemes along other high exceedance corridors such as the A4 and A40.	2010	Complete	It had been hoped that PSDH would consider the A4, but this was not done. Concluded that in the current economic climate it is very unlikely that funding would be made available for such a significant infrastructure project.	The Adding Capacity report did not specifically examine the use of light rail or trams for air quality improvements No further work carried out on this BAA are developing a personal rapid transit system for use on-airport. There may be the potential to expand this type of technology to outside airport use if the trial is successful	Partnership	West London Air Quality and Transport Group
2. 10.	Investigate measures such as variable message signing to smooth traffic flows on the HA/TfL routes M4 and surrounding link roads.	2007	Planning phase	Annual meetings with HA. (see 2.08) Ramp metering and variable message signing being investigated as part of the M4 junction 3-12 Controlled Motorway study See 2.08 To date (2011) no further developments on variable messaging, ramp metering and hard shoulder running on the M4. Bus lane has been taken from the M4, though it is unclear whether this is good or bad for air quality. HA will need to be fully involved on action plan measures for the key corridors.	Impact of variable speed limits appears to be a site-specific issue with regards to impacts of air quality improvements. HA to examine on site specific basis, if funding received. HA will be investigating these issues on the strategic road network.	Partnership	West London Air Quality and Transport Group
2. 11.	Investigate use of speed limits on major roads at the optimal level for NOx and PM10 emissions for the current traffic profile.	2007	In progress	Annual meeting with HA (see 2.08) To date, only major change is loss of the bus lane on the M4, too soon to quantify effect.	Study on M1 in Sheffield, main air quality issues from congestion in peak hours so results not conclusive, free-flowing traffic would show better results. In the M4 area this measure may be part of recommendations from TVMMS on measures to take forward although the impact of lowering speeds will be site specific	Partnership	West London Air Quality and Transport Group

Ref.	Action Plan Measure	Original Timescale	Progress with Measure	Outcome to date	Comments	Local Authority Role	Responsibility
					dependent on the air quality issues of the particular road. M20 variable speed limits to be assessed subject to funding HA will be investigating these issues on the strategic road network As above		
2. 12.	Identify air quality congestion-related hotspots throughout West London and the appropriate measures for delivering improvement in both congestion and air quality e.g. new access road from the A40 to Ruislip industrial areas.	2009	Ongoing	10 more congestion hot spots looked at for traffic management measures to smooth traffic flow, 4 of these are in the AQMA. Congestion/air quality hotspots being addressed in Uxbridge, Ruislip and via whole corridor enhancements to the Uxbridge Road. The combined use of traffic counters and air quality information will ensure a more focussed approach to dealing with congestion hotspots	Continued development of the West London Traffic Emissions Modelling tool (TEEM) – project commissioned to examine impact on emissions of different transport measures e.g. tighter LEZ standards, implementation of a bus lane, effect of queuing at junctions New access road to South Ruislip being investigated via Hillingdon Freight Study	Partnership	West London Air Quality and Transport Group

Ref.	Action Plan Measure	Original Timescale	Progress with Measure	Outcome to date	Comments	Local Authority Role	Responsibility
2. 13.	Support rail projects that have the potential effect to cut through traffic e.g. Crossrail and extending the Underground system (e.g. Central Line to Uxbridge).	2010	Ongoing	Crossrail and Airtrack both identified in the Adding Capacity consultation for improvements in access to Heathrow. Airtrack is at early stages of feasibility and will require funding. Improvements are in place for an upgrade to the Metropolitan line to Uxbridge with regard to fleet and signalling, Hillingdon continue to lobby for better tube links eg extension of the Central line to Uxbridge The publication of the HS2 report has defined the first stage of a high speed rail link to Birmingham. Although a high speed rail network for the UK with appropriate European links is supported, the preferred route and the narrowness of the remit of HS2 is a distinct disappointment. Hillingdon will continue to lobby for an appropriate national framework for high speed rail and a route that captures the best environmental advantages. HS2 – the route traverses the borough. The consultation also includes the principle of a Heathrow link. Given that the documentation shows no strong economic case for a link to Heathrow the borough is concerned that a direct link may simply fuel the call for more capacity at the airport. In addition, there is a general concern that should domestic or short haul flights be switched to rail, without a policy in place to freeze the slots lost, these may simply be replaced by international, more polluting, higher passenger number planes that would add to local air quality, extra road traffic, more CO2. BAA have withdrawn the Transport and Works Act application that would have facilitated the progression of Airtrack.	Rail % to Heathrow: 2004 –9.3; 2005 – 9.6; 2006 – 8.8 (three quarters only). 2M High Speed North proposal, Government High Speed Two Crossrail – will help access to Heathrow from London but as it will replace the current Heathrow Connect there will be no great overall benefit with regards to modal shift to Heathrow; Airtrack will help access to the south west of the airport with regard to providing an alternative to the car from this south-westerly side of the airport; Hillingdon Borough Council is taking an active part in consultations relevant to this measure (e.g. on HS2)	Lobbying	West London Transport Group 2M

Ref.	Action Plan Measure	Original Timescale	Progress with Measure	Outcome to date	Comments	Local Authority Role	Responsibility
2. 14.	Work in partnership to investigate use of fiscal measures, such as road pricing, for reducing traffic on major road networks.	2007	Planning phase	There has been limited potential to take this forward. Limitations on various consultations in connection with Heathrow have meant that it has not been debated in detail.	Ambiguity in Adding Capacity consultation. Reference is made only to the potential for road pricing to be a part of a surface access strategy if further expansion is granted. Not looked at in Heathrow Decision.	Lobbying	DfT
2. 15.	Consider establishment of cross-agency regional group to address air quality issues with regards to roads.	2006	Planning phase	Suggested at HATF in June meeting. Discussed as AOB at December HATF meeting. Group approval, Chair of Steering Group to action.	Still not set up	Lobbying	West London Air Quality and Transport Group

Ref.	Action Plan Measure	Original Timescale	Progress with Measure	Outcome to date	Comments	Local Authority Role	Responsibility
Package 3.	Promotion of Cleaner Vehicle Technology						
3. 01.	Develop and implement an Action Plan via the BAA Heathrow Clean Vehicle Programme to make improvements in the Council vehicle fleet with regard to reducing emissions.	2006	Ongoing	Updated assessment from Clean Vehicle Programme in November 2006. Fleet emissions inventory commissioned March 2007.	Driver training money secured via BSP for 2008-09 Driver training to be incorporated into Council policy, currently seeking to include reducing emissions as an integral part of the policy. Driver training implemented across all Council drivers, fleet manager currently evaluating self-assessment scheme for future CVP award The CVP evaluation is currently being assessed by BAA.	Local Authority Led	Hillingdon Fleet Management Team
3. 02.	Encourage local businesses and freight operators in Hillingdon to sign up to the Clean Vehicle Programme and develop and implement action plans for reducing emissions.	2007	Ongoing	Hillingdon Freight Meeting in June 06. Follow on from freight audits of Uxbridge and South Ruislip business areas – production of fact sheets of key points found from the studies for dissemination to the businesses, production of site specific	Following on from the freight audits, 26 face to face interviews with on-site companies have been carried out to encourage sign up to WLFQP and the establishment of company travel	Local Authority Led	Hillingdon Transportation Team

Ref.	Action Plan Measure	Original Timescale	Progress with Measure	Outcome to date	Comments	Local Authority Role	Responsibility
				public transport information brochures for staff at the 2 sites. Regional funding received for audits of Yiewsley and West Drayton business areas, air quality assessment integral part of project.	plans. May need to be continued outside the WLFQP because of funding issues.		
3. 03.	Provide training for local authority drivers to minimise emissions, and consider opening training opportunities to other drivers working for businesses in Hillingdon.	2006	Ongoing	Community transport ensure all drivers are trained, awareness of smooth driving and vehicle maintenance integral part of training. Hillingdon are a Bronze member of the Freight Operators Recognition Scheme (FORS). This is run by TfL and the aims include: • Drivers and driver management • Vehicle maintenance and fleet management • Transport operations • Performance management	Potential to roll this out more widely, e.g. to bus operators. ENV bid put in via BSP for driver training. Bid successful for financial year 08/09 All Hillingdon drivers now trained, also have in-house trainers. Hillingdon will investigate the potential to open this up to local businesses •	Local Authority Led	Hillingdon Fleet Management Team
3. 04.1.	Ensure the implementation of the Idling Vehicles Regulations.	2006	Ongoing	Article in Hillingdon People. Free school signs offered, 39 schools requested them with a total of 88 signs being sent out. Funding applied and received via BSP for driver training, will include switching off when idling. TfL now setting up 'Report Idling Vehicles' Website, which Hillingdon will disseminate.	Rolling out of turn off engine signs in council owned premises to be explored in 08/09 Link to 3.03 Switch off when idling part of driver training scheme	Local Authority Led	Hillingdon Transportation Team
3. 04.2.	Actively promote the use of the Dirty Diesel Hotline for reporting smoky vehicles spotted in Hillingdon.	2006	Ongoing	To be incorporated into the London No Idling Campaign by TfL		Local Authority Led	Hillingdon Transportation Team
3. 05.	Consider the recommendations of the London Low Emission Zone Feasibility Study jointly with the GLA, ALG and TfL.	2006	Completed	Cabinet report on LEZ submitted, overall support but with more information needed on the impact upon small businesses and minibus users such as schools, community groups etc.	LEZ now in force, signs erected around Hillingdon as an outer Borough. Success will be monitored via TfL	Local Authority Led	Cabinet
3. 06.	Install signs in waiting areas of Council premises, bus garages, coach stations and major leisure	2006	In progress	Article in Hillingdon People advising of legislation and air quality impacts of idling vehicles.	Funding applied and received via BSP for signs for next year	Local Authority Led	Highways

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	venues, etc. advising drivers to switch off engines when stationary.			To be tied in with London No Idling Campaign.	See 3.04 Insufficient support for signs, project re-allocated to mobile traffic counters		
3. 07.	Lead the way in trialling new technology, where appropriate, and act as a point of information for businesses and other stakeholders in Hillingdon for cleaner vehicle technologies, national schemes and grant systems for the use of alternative fuels.	2007	Ongoing	Trial of electric SMART car for use as a pool car. Demo requested of Modec electric van. Hillingdon taking part in Ford Electric Vehicle Pilot Project. Work in partnership with the Ford Focus Battery Electric Vehicle (FFBEV) consortium to plan and implement the trial of 5 Ford Focus electric vehicles across the Borough during 2010 and 2011. The consortium will invest in EV charging infrastructure at approximately 20 sites across Hillingdon.Qdell/LHR Express Cars have received the BS 14001 accreditation, supported by Hillingdon.	Feasibility study for flexibly routed bus service – if proved feasible will look to incorporate environmental criteria on low emissions into procurement contract; Presentation to GLA Best Practice workshop on fleet emissions inventory. Electric charging points installed in council car park and 2 other car parks Electric Pool car to be trialled in environmental services; Prius hybrid on trial in Children and Families unit; Electric cars on trial throughout Hillingdon residents as part of Ford Trial	Local Authority Led	Hillingdon Fleet Management Team
3. 08.	Participate in the London-wide Vehicle Emissions Testing programme.	2007	Complete	London wide programme has come to an end. No further funding is imminent. Will continue to monitor potential for taking this up again.	Interest to participate in any future programme of this type, but measure will not be taken forward until future funding is agreed.	Local Authority Led	Vehicle Emissions Testing Steering Group
3. 09.	Investigate the provision of low or zero emission buses for schools within the high exceedance areas.	2010	Planning phase	No progress to date.	School Travel Plans, to date, have tended to focus on alternatives such as cycling and walking.	Local Authority Led	Fleet Management Team
3. 10.	Focusing on areas and corridors of high exceedance within residential areas, investigation into the banning or restricting of traffic, or particular types of traffic, from identified roads.	2010	Ongoing	Implemented via LEZ	Links into 2.01 – use experience from that to inform more widespread implementation especially along corridors? Taken forward via LEZ	Local Authority Led	Hillingdon Transportation Team

Ref.	Action Plan Measure	Original Timescale	Progress with Measure	Outcome to date	Comments	Local Authority Role	Responsibility
3. 11.	Investigate the potential for discounts for residents with low emission vehicles in Parking Management Areas.	2006	Complete	Concluded that this was not possible under the current economic climate.		Local Authority Led	Sustainability Steering Group
3. 12.	Develop sub-regional Bus Quality Partnerships focussed on addressing the contribution of buses and coaches to emissions.	2010	Ongoing	Implemented via LEZ	The Heathrow Bus and Coach Strategy, published in 2007, has incorporated reducing emissions and using low emission technology as a key objective	Partnership	West London Air Quality and Transport Group
3. 13.	Work in partnership for the provision of low emission buses in the West London/Heathrow region.	2010	Ongoing	Heathrow Bus and Coach Strategy published, commitment in the Strategy to ensure only LEZ compliant vehicles are stipulated in future BAA supported contracts.	See 3.12	Partnership	Heathrow Area Transport Forum (HATF)
3. 14.	Ensure freight developments in the West London area are subjected to an air quality assessment before implementation.	2005	Completed	Freight workshop organised at Hillingdon, ideas from group discussion to be taken forward by Hillingdon. Regional funding received to progress with audits at Hayes and West Drayton Industrial Business Areas, air quality impact is an integral part of the audit.	Freight Project 07/08 – this has involved improvements to directional signing to protect residential streets from unnecessary freight movements; Audits of additional industrial business areas in the south of the Borough carried out in 07/08; Face to face interviews (26 to date) with companies from Uxbridge and South Ruislip Industrial Areas to promote the establishment of workplace travel plans.	Partnership	Hillingdon Transportation Team and WLFQP
3. 15.	Work with the West London Freight Quality Partnership to develop a Freight Strategy to include reducing the air quality impact of freight maximising opportunities to move freight from road to other modes e.g. canals.	2006	In progress	Regular attendance at WLFQP meetings by member of WL AQ cluster group, opportunities raised for joint projects. Baseline freight map of the West London area has now been produced. Major signage and HGV routing project undertaken across West London as WLFQP initiative to reduce illegal movements and encourage HGVs to divert to main transport corridors rather than local roads	Need to refer back to TfL. Freight fits well with sub-regional air quality implementation plans.	Partnership	West London Freight Quality Partnership (WLFQP)
3. 16.	Facilitate the uptake and use of alternative fuels, including water-	2007	In progress	SWELTRAC, of which Hillingdon is a member are seeking funding for electric	The West London AQ group has commissioned a best practice	Partnership	West London Air Quality and

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	diesel emulsion. This should include development of appropriate alternative refuelling infrastructure where necessary e.g. charging points for electric vehicles.			charging points and feasibility for a biodiesel project. See 3.07.	review of emissions technologies for cab companies. Key recommendations from this will be rolled out to cab firms throughout the region. Electric charging points installed in 3 car parks. Best Practice Guide for Reducing Taxi Emissions report sent to PCO for incorporation into London-wide guide		Transport Group
3. 17.	Lobby national government to provide incentives through the fuel duty system for cleaner fuels, inc. further vehicle excise duty reductions for retrofitting to smaller vehicles and increased retrofitting grants.	2005	Ongoing	Website live Feb 2007, at www.westlondonairquality.org.uk. Relevant information and consultations will feature on the website including information on grants and cleaner vehicle technology. West London alliance website now covers this – provides a more complete overview of issues relating to air quality in the area.	Need for a more holistic approach identified, taken forward via WLA	Lobbying	West London Air Quality Group
3. 18.	Work to ensure fiscal encouragement of the adoption of low and zero emissions vehicles through the provision of discounts when entering any proposed LEZ or Congestion charging zone.	2005	Ongoing	London Congestion Charge Zones and LEZ schemes are led by TfL therefore not in Hillingdon control. However, discounts are in place for the congestion zone for very low/zero emission vehicles and through road tax.	Being taken forward by TfL.	Lobbying	West London Air Quality and Transport Group
3. 19.	Promote best practice in terms of emissions management with the train operators, the Strategic Rail Authority and Network Rail.	2010	Complete	Monitoring was in place close to railway and at nearest residential location. Concern over rail emissions raised by modelling has not been borne out by monitored data. Not currently a priority.	Adding Capacity at Heathrow consultation suggests that emissions from rail (i.e. diesel locomotives) on the Great Western line will reduce significantly in the next decade	Lobbying	West London Air Quality and Transport Group

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Package 4.	Measures Specific to Heathrow Airport						
4. 01.	Continue to oppose any further expansion at Heathrow that leads to negative air quality impacts.	2010	Ongoing	Air Quality Technical Panel (set up by DfT) published report in July 2006, outlines best practice methodology for predicting air quality at Heathrow as input to PSDH. Hillingdon active in the, now successful, campaign to stop 3rd Runway.	Hillingdon have sent in a robust response to the Adding Capacity consultation. Hillingdon do not believe sufficient evidence has been supplied to ensure the Government can be confident that the EU limit value will be met and maintained in exposure areas around Heathrow. Legal Challenge lodged against Government decision to build a 3rd runway	Local Authority Led	Environmental Protection Unit (EPU)
4. 02.	Develop system for auditing the ATM limit and parking provisions for operational T5.	2008	Ongoing	Further progress pending the opening of T5. Annual report supplied as part of T5 planning conditions with regard to ATM limit	Whilst compliance with the ATM limit is a matter for BAA to manage, the Council, in common with the T5 Inspector, regards it as a critical control over the environmental impact of Heathrow. Will have to be over-turned if capacity increases given go ahead	Local Authority Led	Aviation Team
4. 03.	Audit all air quality conditions for the construction phase of Terminal 5.	2008	Complete	PM continues to be monitored around the T5 site. No exceedances of PM noted at residential locations during 2006, construction now moving to internal fit-out stage.	Complete	Local Authority Led	Environmental Protection Unit (EPU)
4. 04.	Pursue the retaining of the T5 related air quality monitoring network post T5 construction.	2008	Complete	AQ station at Longford and Oaks Road both to be retained post T5 opening. These are both at key residential locations.	Complete – agreement to keep LHR2, London Harlington, Green Gates and Oaks Road as sites for continuous monitoring. HA will be monitoring highway capacity issues that may arise from opening of T5 and dedicated spur off M25 eg potential for queuing back to M4/M25 and merging of increased M25 traffic on to M4. ATCs installed on Borough roads leading to airport – in place prior to opening to monitor for any increased traffic on local roads	Local Authority Led	
4. 05.	Quantify and pursue emission reductions for all new on-airport development.	2007	Ongoing	Mitigation sought for on-airport developments in 2006 e.g. car rentals consolidation car park close to residents in Longford	Hillingdon continue to seek emission reductions from on-airport development as part of the planning process. Heathrow East will be the next major project	Local Authority Led	Aviation Team

Ref.	Action Plan Measure	Original Timescale	Progress with Measure	Outcome to date	Comments	Local Authority Role	Responsibility
				and potential redevelopment of Terminal 2, the Heathrow East terminal, that would include a new on-airport Energy Centre. Planning application to be lodged in 2011 regarding the enabling works to allow the operational change of No Cranford Agreement. Local air quality considerations will form an important part of the assessment of the operational change.	on-airport unless decisions are made sooner with regards to further capacity. Comments were given at the planning application stage with regard to the suggested use of biomass in the accompanying Energy Centre and attention was drawn to the need to address any local air quality issues that may arise for taking this option forward. Several Hotel applications received since opening of T5. Continue to pursue air quality improvements from all relevant developments as part of planning process.		
4. 06.	Evaluate best practice from European and International airports with regard to the minimisation of air quality impacts and assess feasibility of application at Heathrow.	2006	Planning phase	August 2005 - Lack of resources resulted in failure to submit a successful bid. BA has achieved success in a project to reduce APU usage across the BA network. The project has saved 1000 tonnes in fuel burn to date and are projecting savings of 40,000 tonnes of CO2 are possible annually over the BA network, with corresponding reductions in other ground emissions and ground noise.	Recommendation from consultant that Hillingdon could continue pursuit of this objective by joining the ARC organisation. Projects such as the BA APU study should be highlighted as best practice and rolled out across other airlines at Heathrow.	Partnership	Heathrow Air Quality Working Group
4. 07.	Work with National Government to ensure the use of all relevant fiscal measures to reduce emissions from Heathrow in order to achieve the 2010 EU limit.	2010	In progress	Publication of Civil Aviation Sustainable Strategy. Progress Report on Air Transport White Paper published in December 2006. Heathrow expansion via mixed mode and/or 3rd runway still supported by Govt but only if strict environmental criteria such as AQ objectives can be met. Full PSDH consultation due in summer 2007. OMEGA set up by Govt, a multi-	Adding Capacity consultation shows clear non-compliance with EU 2010 limit at relevant locations. Hillingdon will pursue via 2M group to approach EU on the issue of a derogation. Delegation to Strasbourg to raise concerns over air quality levels around Heathrow and lack of measures to secure compliance; Officer visit to Brussels to raise air quality modelling issues around Heathrow; Consultation response sent to Defra re Plans and Programmes to Meet EU Limit Values – no incorporation of Heathrow or	Partnership	Local Authorities

Ref.	Action Plan Measure	Original Timescale	Progress with Measure	Outcome to date	Comments	Local Authority Role	Responsibility
				disciplinary partnership to study environmental, business and operational impacts of aviation. Hillingdon and Hounslow to attend meeting in April 2007 for update on OMEGA workstreams. Consultation response on aviation into EU ETS Meeting with Defra re potential options for reducing emissions around Heathrow. Aviation Scoping Report – will form the framework for aviation, Hillingdon will be working with others to form robust response to protect the interests of local residents. Heathrow Area identified as exceedance area within the Defra Air Quality Plan for meeting the EU limit value	aviation as a source of emissions Awaiting the publication of the draft Time Extension Application with regards to its treatment of the Heathrow area as a source of non-compliance and the action suggested for mitigation BAA Air Quality Strategy Review – waiting for 2011-2020 release. Draft to date suggested a focus on four objectives: Limit and where possible reduce airport related emissions to local air quality concentrations at all relevant local receptors to help ensure EU LV met in Heathrow area; Accurately quantify contribution from airport-related sources to local air quality concentrations to focus management activities; Continually improve approach to managing AQ impacts, supporting technology etc; Actively engage with internal and external stakeholders to develop shared objectives. BAA Surface Access Strategy Review No draft to comment, BAA has withdrawn Transport and Works Act application for Airtrack, which would have given rail link to the west.		
4. 08.	Assess the potential to set an emissions cap for Heathrow.	2008	Complete, in terms of assessing potential	There is potential to set an emissions cap for the airport, perhaps differentiated in terms of the different activities undertaken there (local area traffic, stationary sources, airport service vehicles and aircraft). However, it is concluded that there is currently no willingness to pursue this as an option by either the airport	Not an option reviewed as part of Adding Capacity documentation This aspect may need to be addressed in the Time Extension application to help ensure compliance with EU air quality limits	Partnership	Heathrow Air Quality Working Group

Ref.	Action Plan Measure	Original Timescale	Progress with Measure	Outcome to date	Comments	Local Authority Role	Responsibility
				operator or central government.			
4. 09.1.	Assess the potential to use landing emissions charges scheme to create revenue stream for public transport improvements.	2008	Not started, Council will continue to lobby	CAA/EA given roles as independent assessors for noise and air quality as part of the Decision on Heathrow Expansion. Any landing charge will need to be sufficiently high to enforce change with regard to fleet turnover, Hillingdon will work with both the CAA and EA to ensure these concerns are raised. Role of CAA and EA with regard to environmental conditions around Heathrow still not yet published – this role has not been pursued by Govt following the cancellation of expansion plans at Heathrow.	Not an option reviewed as part of Adding Capacity. Heathrow already has emissions charges in place although the Heathrow AQ Action plan 2007-2011 notes this has low emissions benefit for NOx reduction Hillingdon will seek to pursue this option to deal with the current air quality exceedances experienced around the Heathrow area This aspect may need to be addressed in the Time Extension application to help ensure compliance with EU air quality limits Needs to be reviewed from a legal perspective, in relation to revenue-neutrality.	Partnership	Heathrow Air Quality Working Group
4. 09.2.	Introduce differentiated landing charges at a level that would force cleaner engine technology.	2010	Ongoing	Differentiated landing charge in place but effect unknown as to whether it has been set at a level that will force change.	Not an option reviewed as part of Adding Capacity – no recommendations on control of this source was made in the consultation material See above	Partnership	BAA
4. 10.	Audit progress on the BAA Heathrow Air Quality Action Plan (2001-2006).	2005	Ongoing	Progress on Heathrow AQ Action Plan during 2006: Aircraft towing trial with Virgin to assess its effectiveness in reducing taxiing emissions and operational feasibility for Heathrow; Concluded the first year of Clean Vehicles Incentive Fund, awarding £100k to CVP members to adopt low emission technologies; Completed a feasibility study for the Clean Vehicles Programme to become compulsory for all airside vehicles and to be extended to address CO2	Now replaced by AQ Action Plan for 2007-2011 EA invited to be a part of the Heathrow Air Quality Working Group Current plan under review. Hillingdon will be a consultee of the draft new Action Plan New air quality action plan for 2011 to 2020 about to be released. Hillingdon has commented on a draft.	Partnership	Heathrow Air Quality Working Group

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				emissions as well as NOx; Committed to BAA roads being part of the London LEZ should it proceed. BAA Action Plan to be reviewed, current work includes collation of an updated Emissions Inventory and the revision of Airside Vehicles Strategy			
4. 11.	Review air quality monitoring regime at Heathrow and identify potential gaps.	2005	Completed	Monitors now in place at Sipson and Harmondsworth, monitors in Harlington, Longford and Oaks Road retained	Air quality monitoring network reviewed as part of the West London Network Audit	Partnership	Heathrow Air Quality Working Group
4. 12.	Maintain production of externally audited Emissions Inventory on bi-annual basis.	2010	Ongoing	Emission Inventories produced as part of the Adding Capacity consultation	New EI 2009 being collated	Partnership	BAA Heathrow
4. 13.	Identify the areas where the existing BAA 5 year Action plan can be strengthened.	2006	Ongoing	Draft new Action Plan sent out for consultation March/April 2006. Comments sent from Heathrow local authorities requesting inclusion of quantification of emission reductions on measures, cost-effectiveness and annual progress reports in line with Defra guidance. March 2007 – new Action Plan still not published, letter sent from Heathrow local authorities requesting update on the issue. New air quality action plan for 2011 to 2020 about to be released (autumn 2011). Hillingdon has commented on a draft.	Heathrow Air Quality Action plan 2007-2011 published. Examples below: • Managing emissions from aircraft operations – of the 6 actions put forward 4 have high emission reductions benefits but all 4 have tradeoffs with other pollutants; • Managing emissions from airside vehicles – 7 actions, 3 medium emission benefits; • Managing emissions from landside vehicles – 5 actions, 2 of medium benefit; • Fixed sources – 1 action, low emission benefit. Current plan under review. Hillingdon will be a consultee of the draft new Action Plan	Partnership	Heathrow Air Quality Working Group
4. 14.	Pursue quantification of measures in the BAA Air Quality Action Plan and Surface Access Strategy in terms of air quality impacts.	2006	In progress	March 2007 – neither the Action Plan nor the Surface Access Strategy have been published, letter sent from local authorities surrounding Heathrow	2007-2011 Heathrow AQ Action Plan published; Heathrow Surface Access Strategy not yet finalised Heathrow Surface access Strategy finalised.	Partnership	Heathrow Air Quality Working Group

Ref.	Action Plan Measure	Original Timescale	Progress with Measure	Outcome to date	Comments	Local Authority Role	Responsibility
				requesting update on the issue. Quantification of the new plan expected in 2012.	Links made with improving local air quality and gaining reductions in climate change emissions. No increase in modal transport shift to public transport target – this has been retained at 40% In its role as consultee Hillingdon will pursue this issue in regard to the new BAA Action Plan		
4. 15.	Assess feasibility of Congestion/Access Charging at Heathrow to reduce overall travel movements to the airport.	2006	Not started	An important part of the legal challenge was the inadequacy of the approach taken by DfT with regard to improving surface access to Heathrow. The claimants won the point regarding surface access and the fact that even without any further expansion taking place, the current surface access network is inadequate even to support forecast growth under existing limits	Not reviewed in depth as part of Adding Capacity consultation. Heathrow Decision – this aspect to be left to planning application stage if Govt approve capacity increases. Hillingdon believe this is a flaw of the Government decision not to have properly addressed surface access issues as part of the decision to expand This aspect may need to be addressed in the Time Extension application to help ensure compliance with EU air quality limits.	Partnership	DfT
4. 16.	Assess feasibility of an Heathrow specific LEZ to reduce emissions and accelerate take up of cleaner vehicle technology.	2006	Completed	Commitment from BAA to include BAA roads and motorways should LEZ proceed.	If the London LEZ does not go ahead Hillingdon will still push for a Heathrow specific LEZ. BAA roads included Heathrow Roads included Heathrow Decision for expansion has not incorporated this option Given continuing exceedances around Heathrow Hillingdon will work with partners to assess feasibility of more stringent LEZ around the Heathrow area This aspect may need to be addressed in the Time Extension application to help ensure compliance with EU air quality limits.	Partnership	DfT
4. 17.	Assess appropriate target for modal shift to maximise air quality improvements.	2006	Planning phase	40% modal shift to public transport achieved in 2008, on track to be sustained in 2009, currently awaiting validation of figures. The current Heathrow Surface	Adding Capacity documentation suggests high increases in surface access to Heathrow e.g. 27% increases in traffic volumes during the inter-peak. Severe increases in capacity of the Piccadilly line and other modal transport	Partnership Lobbying	DfT Heathrow Airport Transport Forum

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				Access Strategy (2008-2012) also has an aspirational target of 45% for public transport mode share. The Airtrack scheme may help move towards this target however the BAA masterplan forecast growth, within existing limits, is 90-95mppa. This implies a further 9.74mppa to arrive by private transport and an extra 6mppa to be accommodated on public transport. The HS2 company has now published its preferred route option and concluded that a link to Heathrow may not have a strong business case. The Heathrow link is now subject to a separate review. Hillingdon are supportive of the principle of high speed rail but only with the objective of improving modal shift from road and short haul air to rail. Hillingdon will not support a high speed rail link which simply fuels the call for increased capacity at Heathrow	alternatives will be required if the Govt give approval for expansion. Heathrow Decision for expansion has not incorporated this option; Heathrow Surface access Strategy 2008 has not looked to increase the public transport modal shift target from 40%; Heathrow Decision for expansion has not incorporated this option Given the projected growth in passenger numbers, Hillingdon will continue to pursue the setting of higher targets for public transport modal shift given the projected extra volumes in passengers This aspect may need to be addressed in the Time Extension application to help ensure compliance with EU air quality limits		
4. 18.	Define programme for the establishment of code of practice for airlines best operating practice to maximise reduction of emissions.	2006	Planning phase	Link to 4.06	Via ICAO? There is a programme via ICAO looking at this option, progress to date is slow. Heathrow Decision for expansion has not incorporated this option This aspect may need to be addressed in the Time Extension application to help ensure compliance with EU air quality limits	Partnership	Heathrow Air Quality Working Group
4. 19.	Develop best practice guidelines to ensure air quality impact assessments are integral part of relevant transport and transport infrastructure proposals, and	2006	In progress	Consultation meeting with BAA Heathrow on Heathrow Surface Access Strategy (HSAS), consultation comments returned to BAA. Comments included the	No obvious links have been made in the Heathrow AQAP 2007-2011 to any targets/objectives in the forthcoming Heathrow Surface Access Strategy Heathrow Decision for expansion has not	Partnership	Heathrow Air Quality Working Group

Ref.	Action Plan Measure	Original Timescale	Progress with Measure	Outcome to date	Comments	Local Authority Role	Responsibility
	that appropriate mitigation measures are inclusive part of any scheme.			need to make strong links with the air quality levels in the region and indicate how the HSAS measures will contribute to addressing this. March 2007 – HSAS still not published.	incorporated this option This aspect may need to be addressed in the Time Extension application to help ensure compliance with EU air quality limits		
4. 20.	Assess feasibility of specifying emissions criteria for Heathrow taxis, buses and coaches using the Central Bus Terminal, and car hire shuttles, hopper buses etc.	2006	Completed	Heathrow Bus and Coach Strategy has committed to ensuring that only LEZ compliant vehicles are stipulated in future BAA supported contracts.	Incorporated into the LEZ	Partnership	Heathrow Air Quality Working Group
4. 21.	Ensure the minimisation of the air quality impact of freight deliveries to and from Heathrow is a key objective of the West London Freight Quality Partnership (WLFQP).	2006	Planning phase	New air quality action plan for 2011 to 2020 about to be released. Hillingdon has commented on a draft. Surface access strategy to follow 2012/2013.	Freight addressed via the BAA Clean Vehicle Programme	Partnership	Heathrow Air Quality Working Group
4. 22.	Assess the use of bus priority, guided buses and high occupancy vehicle lanes in the Heathrow area.	2010	Not started		Adding Capacity documentation did not review this option Heathrow Decision for expansion has not incorporated this option This aspect may need to be addressed in the Time Extension application to help ensure compliance with EU air quality limits	Partnership	Heathrow Air Quality Working Group
4. 23.	Assess the feasibility of a Park and Ride scheme specifically for Heathrow.	2006	Not started		Adding Capacity documentation did not review this option Heathrow Decision for expansion has not incorporated this option This aspect may need to be addressed in the Time Extension application to help ensure compliance with EU air quality limits	Partnership	Heathrow Air Quality Working Group
4. 24.	Assess the health impact of Heathrow Airport and associated activities.	2007	Not started	Launched in June 2009, the new £5 million MRC-HPA Centre for Environment and Health has as one of its first projects - A study of people living near London's Heathrow airport, exploring how air and noise pollution can affect people's health. The research	Adding Capacity documentation did not review this option Heathrow Decision for expansion has not incorporated this option Joint meeting with Hounslow to the research team, currently awaiting completion, peer review and publication of the study	Partnership	Heathrow Air Quality Working Group

Ref.	Action Plan Measure	Original Timescale	Progress with Measure	Outcome to date	Comments	Local Authority Role	Responsibility
				will analyse the effects of living near road traffic from airport uses as well as aeroplanes. Current evidence suggests that air pollution and noise affect the cardiovascular system in different ways. Building on existing work, the new study will look at the effects of exposure to both forms of pollution together	Nothing yet reported from MRC/HPA study.		
4. 25.	Lobby Central Government to pursue more stringent emission standards for plant, aircraft and airside vehicles.	2007	Ongoing	Council has lobbied government, but no response on this issue to date. The Heathrow Expansion Decision referred to consultation on a green slot mechanism to incentivise the use of cleaner planes. There has been no consultation to date.	Government decision on expansion has introduced concept of green slots – no further details available to date as to what this actually entails or what impact it will have on aircraft fleet turnover Hillingdon will lobby for the continuance in exploring this mechanism. This aspect may need to be addressed in the Time Extension application to help ensure compliance with EU air quality limits	Lobbying	Local Authorities
4. 26.	Explore feasibility of reducing fares on the Heathrow Express.	2010	Complete	January 2007 - Fares on HEX increased by 7%. May be addressed by PSDH to promote modal shift. Heathrow Connect stopping service introduced as cheaper option to HEX Concluded that this is not a possibility under the current economic climate.	As above Heathrow Decision for expansion has not incorporated this option	Lobbying	Local Authorities
4. 27.	Pursue relevant organisations to prioritise public transport provision to Heathrow, particularly rail links to the west, east and south.	2008	Ongoing	Responding to TfL consultation on public transport links to T5. BAA has withdrawn the funding that would have progressed AirTrack.	TfL have increased bus connectivity to Heathrow 2m High Speed North proposal; Government High Speed Two The recent HS2 report has indicated a weak business case for prioritising a direct link to Heathrow from the new proposed high speed line	Lobbying	Local Authorities

Ref.	Action Plan Measure	Original Timescale	Progress with Measure	Outcome to date	Comments	Local Authority Role	Responsibility
4. 28.	Explore feasibility of an airport passenger tax, ring-fenced for increased public transport.	2010	Complete	Heathrow Area Transport Forum projects funded using money from Heathrow car parking charges.	Adding Capacity documentation did not review this option Heathrow Decision for expansion has not incorporated this option This aspect may need to be addressed in the Time Extension application to help ensure compliance with EU air quality limits	Lobbying	Local Authorities

Ref.	Action Plan Measure	Original Timescale	Progress with Measure	Outcome to date	Comments	Local Authority Role	Responsibility
Package 5.	Measures Concerning Local Industries and Other Businesses						
5. 01.	Support opportunities for Combined Heat and Power where appropriate within the Borough.	2010	Ongoing	Part of the Hillingdon pre-application advice that although such schemes may be considered they must be accompanied by appropriate air quality assessments. Links also to MAQS Hillingdon now has a framework in place whereby schemes can be assessed for air quality impact, providing developers with the certainty that they need with respect to planning requirements when making applications.	Caution advised with regards to biomass installations in new developments. AQ assessments on biomass requested as part of planning submission Hillingdon using EPUK guidance with regard to biomass. Biomass is discouraged. Where it is suggested as part of a development Hillingdon require full air quality assessment including details on the sustainability of the fuel plus full details of abatement technology	Local Authority Led	Planning
5. 02.	Introduce (within reason) progressively stricter conditions on Part A processes, including incineration processes, especially when located within high exceedance areas or where the impact is predicted to be within high exceedance areas.	2007	Ongoing	New monitoring station location finalised, due in place by April 07, Grundons supporting purchase of, and running costs of the station for 5 years. Harmondsworth monitor now in place, new monitor located in Hayes	BAM chosen for PM monitoring due to non-compliance issues with TEOMs, as advised by Defra.	Local Authority Led	Environmental Protection Unit (EPU)

Ref.	Action Plan Measure	Original Timescale	Progress with Measure	Outcome to date	Comments	Local Authority Role	Responsibility
5. 03.	Work with the Environment Agency to improve public dissemination of industrial pollutant emissions data and other relevant information, for example on performance against permit conditions.	2005	Completed	Press release passed to AQ group on prosecution by EA of Clinical Energy in Hillingdon. Emission data available at http://www.emissions.hillingdon.gov.uk. Communication lines in place with EA via the Heathrow AQ Working group and for specific installations as and when appropriate	Hillingdon working with EA, Slough, health agencies and Grundons to set up a website with on-line monitoring data available when Slough Incinerator is in full operation. Working in partnership with the EA is an integral part of the action plan process, opportunities for dlalogue exist via several working groups and on an individual installation-specific basis	Local Authority Led	Environmental Protection Unit (EPU)
5. 04.	Discourage the use of bonfires on all industrial sites.	2005	Completed	Launched at GLA November 2006, used in Hillingdon as planning condition. Measure complete via use of Best Practice Guide.	Use of Best Practice Guidance advised on all relevant planning applications	Local Authority Led	Environmental Protection Unit (EPU)
5. 05.	Adopt best practice strategy for all proposed demolition and development projects. This will include the use of low emission vehicles and equipment and the use of dust minimisation techniques.	2005	Completed	Covered by Best Practice Guide: Control of Emissions from Construction and Demolition from GLA/APPLE.	See above (5.04)	Local Authority Led	Environmental Protection Unit (EPU)
5. 06.	Ensure continued regulation of part B processes and maintenance of part B register. Ensure register is available on-line.	2006	Ongoing	New Part B website launched January 2007, link on council website, gives details of processes and permits within Hillingdon. 100% of inspections carried out on industrial processes in 2007, all information relating to inspections available via specialised website	100% of inspections carried out in 2008 All inspections carried out by external contractors, reports given to LA and all information available via specialised website including online application	Local Authority Led	Environmental Protection Unit (EPU)
5. 07.	Investigate introduction of Air Quality Action Plans for local industries, including those currently un-regulated under EA.	2008	Completed	Conclusions reached in the audit of the AQAP on this measure. Need to prioritise sources and provide guidance on emission reductions and cost-saving actions that may be possible (e.g. through improved efficiency of resource use),	Current resources do not permit this to extend beyond statutory actions.	Local Authority Led	Environmental Protection Unit (EPU)

Ref.	Action Plan Measure	Original Timescale	Progress with Measure	Outcome to date	Comments	Local Authority Role	Responsibility
5. 08.	Consider introduction of Environmental Award system for local industries and businesses.	2008	Not started	No progress to date.	This measure has been brought to attention of LSP as one they may wish to pursue, also to be put forward as measure for revision of MAQS	Local Authority Led	Sustainability Steering Group
5. 09.	Encourage businesses to participate in environmental management schemes and to continue to improve environmental performance.	2008	In progress	Freight forum and Green Business Forum will act as vehicles to provide information and encourage environmental awareness.	No progress on this issue in 2007 – see above Air quality rep now on the Local Strategic Partnership, Cleaner Greener group - this may prove a mechanism for taking this forward in the future	Local Authority Led	Sustainability Steering Group

Ref.	Action Plan Measure	Original Timescale	Progress with Measure	Outcome to date	Comments	Local Authority Role	Responsibility
Package 6.	Improving Eco-efficiency of current and future developments, inc. Council properties						
6. 01.	Provide a consolidated platform for advising businesses and the public of the risks of air pollution, ways of reducing pollution, and campaigns such as Bike to Work Week, combining information from various Council departments and other bodies.	2007	Ongoing	Presentation on air quality to Ickenham Residents Group, Business Forum, Residents group around Heathrow. Participation in Streets Ahead Day, and World Environment Day promoting local and global air quality issues. AirText launched March 2007, article in Hillingdon People and local press, target to get 300 sign ups. Inconvenient Truth DVD showing to Labour Group. Continued participation in AirText, attendance at monthly Streets Ahead events throughout the Borough The Airtext scheme has a total of 5,947 subscribers with Hillingdon have a total of 94. In the period July 09-Jan 2010 Hillingdon subscribers were sent messages over a total of 21 alert days.	Green Roadshow held in May 2007, raising awareness of recycling, low carbon life-styles, energy saving, use of alternative technologies; Streets Ahead scheme set up in Hillingdon – representatives from Environmental services visit a different ward each month, ensuring that initiatives like AirText are promoted monthly throughout the Borough; World Environment Day event held – Nottingham Declaration on Climate Change signed Local air quality theme at 3 Streets Ahead events in the year; Air quality presentation given to Street Champions in Hayes; Go Green event in local park	Local Authority Led	Sustainability Steering Group

Ref.	Action Plan Measure	Original Timescale	Progress with Measure	Outcome to date	Comments	Local Authority Role	Responsibility
					concentrated an local air quality and climate change; Enviromall - event in local shopping centre concentrated an local air quality and climate change Airtext has proved a successful tool for sensitive receptors in Hillingdon. Continued support will be given where resources are available to ensure the service is continued		
6. 02.	Work with existing buildings and housing stock to secure improvements in emissions.	2007	Ongoing	Energy efficiency awareness campaigns are underway for local residents. Establishment of the Green doctor scheme in Hillingdon –see highlights	Ongoing campaign to promote energy efficiency via several events throughout the year	Local Authority Led	Energy Efficiency Programme
6. 03.	Ensure continued use of existing mechanisms such as Section 106 agreements for improvements in air quality.	2008	Ongoing	S106 SPD being re-drafted, air quality integrated into transport section as well as stand alone section. The emerging draft LDF refers to the use of mechanisms such as s106 to address air quality issues	S106 SPD out to consultation March 2008 Planning Obligation SPD finalised July 2008, transport and air quality key themes that Hillingdon will look to address The draft MAQS refers to the continued use of s106 and the development of an SPD template for air quality to be used throughout London	Local Authority Led	Planning Department
6. 04.	Review and update Air Quality Supplementary Guidance when appropriate (see planning application form at Appendix 7).	2006	In progress	Hillingdon LDF re-drafted, timetable for review of AQ SPD put back. See comment in 6.03	AQ SPD to be reviewed Sept 2008, consideration to be given to links to climate change Timetable put back due to slippage of LDF timescale, Hillingdon will look to widen this to Local Air Quality and Climate Change LDF due for consultation in summer 2010, SPD will follow	Local Authority Led	Planning Department
6. 05.	Quantify cumulative effects of new developments within AQMA.	2007	Ongoing	Awaiting finalisation of LDF. Pushing for consideration of cumulative impacts of development	LDF still not finalised – Hillingdon asked to re-visit LDF due to Adding Capacity	Local Authority Led	Environmental Protection Unit (EPU)

Ref.	Action Plan Measure	Original Timescale	Progress with Measure	Outcome to date	Comments	Local Authority Role	Responsibility
				to be considered where appropriate.	consultation, unlikely to be finalised before summer 2008 LDF now due for consultation in summer 2010		
6. 06.	Develop supplementary planning guidance for sustainable design and construction.	2006	Completed			Local Authority Led	Planning
6. 07.	Raise awareness of sustainable waste management practices.	2006	Completed	Home composting being promoted in addition to actions undertaken in previous years.	Green kerbside recycling in place at all homes	Local Authority Led	Sustainability Steering Group
6. 08.	Development of West London Air Quality SPD to ensure consistency across Borough boundaries, explore opportunities for joint Section 106 agreements.	2005	Planning phase	Air quality and climate change linked in new draft of the Hillingdon LDF as key spatial objectives. West London Air Quality Strategy due for review to cover 2010-2015 which present an opportunity to address this issue	London Plan re-visited in 2008, Heathrow Opportunity Area identified with a requirement for a minimum of 10,750 homes. Waiting for finalisation of west London Borough LDFs	Partnership	West London Air Quality Group

Ref.	Action Plan Measure	Original Timescale	Progress with Measure	Outcome to date	Comments	Local Authority Role	Responsibility
Package 7.	Actions to be Taken Corporately, Regionally and in Liaison with the Mayor						
7. 01.	Ensure that the London Development Framework, Borough Transport Strategy the Community Plan and future corporate strategies incorporate the Borough air quality action plan and local air quality strategy measures where appropriate.	2006	Ongoing	New emerging LDF includes objectives to improve air quality; The emerging Borough Transport Strategy due to be published for consultation in Dec 2010 has improving quality of life and reducing the carbon footprint as key objectives	See 6.05 for progress on LDF; Planning Obligations SPD published July 2008, local air quality issues incorporated; Climate Change Strategy published April 2009, local air quality issues incorporated	Local Authority Led	Planning Policy Unit
7. 02.	Develop an environmental management system for Hillingdon Borough Council.	2008	Not started	No progress.		Local Authority Led	LSP
7. 03.	Establish an Environment Coordination Office for more effective integration of actions to improve environmental performance within and outside the Council.	2008	In progress	No progress in terms of the measure as defined, but progress has been made less formally on this measure (see right)..	Alternative approach being followed for this measure, with good coordination between (e.g.) air quality, climate and transport, planning officers.	Local Authority Led	LSP

Ref.	Action Plan Measure	Original Timescale	Progress with Measure	Outcome to date	Comments	Local Authority Role	Responsibility
7. 04.	Implement an integrated procurement strategy so that purchase of goods and services is evaluated against London sustainability targets. This to include support to environmental industries in London, where appropriate.	2006	Ongoing	The Low Emission Strategies Partnership Board has the development of a Procurement Strategy as a key project for 2010/2011.	Procurement policy for fleet vehicles in place. Requirement for relevant Green Spaces contractors to use electric vehicles.	Local Authority Led	Sustainability Steering Group
7. 05.	Provide air quality information to interested parties and link with other health initiatives.	2006	Ongoing	Articles in Hillingdon People for car share, update on new air quality monitoring within the Borough, AirText sign up. Reports and presentations given to local residents groups with regard to air quality, progress on PSDH. Industrial emissions website established. (see 5.03)	Public meetings held and regular press releases given with regard to Adding Capacity at Heathrow consultation; AirText regularly promoted at Streets Ahead events throughout the Borough See 6.01	Local Authority Led	Environmental Protection Unit (EPU)
7. 06.	Work with the London Sustainable Distribution Partnership to implement infrastructure for effective and integrated distribution of goods in London.	2008	Not started	No progress.	Action likely to be led by TfL	Partnership	LSP
7. 07.	Work in partnership to ensure consistency of Action Plan measures and explore all opportunities for regional measures for reducing emissions.	2007	Ongoing	Joint projects identified with WL Freight Quality partnership. Highways Agency meetings identified as annual event for Heathrow area. Environment Agency meetings identified as 6-monthly event for Heathrow specific issues, attendance also at WL AQ Cluster Group. Review of WL Air Quality Strategy complete, includes links with Climate Change and a Communication Strategy. The West London Air Quality Strategy will be reviewed to cover 2010-2015, this will incorporate relevant measures from the West London Transport Strategy. Good consistency of measures with Mayor's Action Plan	Continued regional working with West London Air Quality group, successful bids via West Trans BSP and Defra grants for joint actions As above Hillingdon also now represented on Low Emission Strategies Partnership Board – taking forward production of Low Emission Toolkit and Procurement Guidance	Partnership	West London Alliance
7. 08.	Development of regional Air	2007	Planning	Nottingham declaration signed 5th June	Hillingdon Climate Change	Partnership	Local Authorities

Ref.	Action Plan Measure	Original Timescale	Progress with Measure	Outcome to date	Comments	Local Authority Role	Responsibility
	Quality Strategy to tackle cross-boundary issues and include all National Air Quality Strategy pollutants, climate change etc.		phase	2007; Consultation response to Draft Climate Change Bill 11th July 2007 – issues raised included strengthening the role of local authorities in the bill, the inclusion of other greenhouse gases to ensure any trade-offs with issues impacting on local air quality are fully understood and specific aviation comments requiring the inclusion of aviation in the climate change reduction targets. See 7.07 - The west London Air Quality Strategy will be reviewed to cover 2010-2015, this will incorporate relevant measures from the West London Transport Strategy	Strategy and Carbon Management Plan published. Local air quality incorporated into both documents LSP, Sustainable Community Strategy, LDF and forthcoming Borough Transport Strategy		
7. 09.	UK Government to actively support air quality improvement in Hillingdon.	2007	Ongoing	Opportunities identified include responses to EU Thematic Strategy, the PSDH process, the review of the National Air Quality Strategy. Delegations supported to Strasbourg and Brussels to raise profile of air quality in Heathrow area Continued support of the 2M grouping to seek air quality improvements in the Heathrow area and also to seek maximum environmental improvements from any proposed high speed rail scheme. Hillingdon have been involved in initial discussions with Defra re the Time Extension Application and how the Heathrow Area will be treated within it.	Hillingdon working with 2M group to assess process needed for UK Govt to be granted a derogation in the area around Heathrow. Defra Air Quality Action plan to meet EU LVs for NO2 Came out on 9th June. Hillingdon acknowledged in main GLA exceedance area 1 due to roads, London Hillingdon site by M4 highlighted and in GLA exceedance area 2 Heathrow area as separate area. Even with an LEZ scenario (not looked at what this means yet) still going to be exceedances. Is quite detailed and I don't have enough time to look at yet so will just have to be a paragraph acknowledging it's out and we will respond etc http://uk-air.defra.gov.uk/library/no2ten/documents/UK0001.pdf	Lobbying	Defra

Ref.	Action Plan Measure	Original Timescale	Progress with Measure	Outcome to date	Comments	Local Authority Role	Responsibility
Package 8.	Action Plan Management						
8. 01.	Develop and maintain management system for implementation of the plan.	2010	Ongoing			Local Authority Led	Environmental Protection Unit (EPU)
8. 02.	Identify and secure all potential funding for Action Plan initiatives.	2010	Ongoing	S106 sought on new developments, BSP funding of 45,000, SCE bids submitted each year for air quality monitoring, modelling and action plan measures.	Ongoing via BSP, Defra grant, section 106, West Trans BSP	Local Authority Led	Environmental Protection Unit (EPU)
8. 03.	Maintain, and where necessary expand, the existing air quality monitoring network.	2010	Ongoing	System in place and expanded as need be (e.g. new station located in hotspot in Hayes)	Funding sought via SCE for new monitor in Ickenham, identified as key area in west London Monitoring Network Audit	Local Authority Led	Environmental Protection Unit (EPU)
8. 04.	Review and assessment of air quality in line with Defra guidance.	2010	Ongoing	Rolling programme in place (see annual reports on air quality issued by Hillingdon).		Local Authority Led	Environmental Protection Unit (EPU)
8. 05.	Prioritise measures, providing a schedule for implementation.	2006	Ongoing	Audit of action plan is underway, see also 8.07.		Local Authority Led	Environmental Protection Unit (EPU)
8. 06.	Provide progress report to Defra on annual basis.	2010	Ongoing	Progress Reports (etc.) submitted as required.	Review of Action Plan Funding already identified, will be based upon air quality modelling and source apportionment underway at the mo by CERC. Hoping that there will be integration between objectives of this and:	Local Authority Led	Environmental Protection Unit (EPU)
8. 07.	Review and adapt the action plan according to opportunity and circumstance.	2010	Ongoing	Action Plan review set for late 2010, timing will depend upon adoption of the mayor's Air Quality Strategy and the publication of the UK Time Extension Application to Europe		Local Authority Led	Environmental Protection Unit (EPU)
8. 08.	Maintain consultation process to disseminate information on progress against defined targets to other stakeholders.	2010	Ongoing	Consulted with various residents group, briefing notes prepared for business groups.		Local Authority Led	Environmental Protection Unit (EPU)
8. 09.	Examine potential for the development of regional action plan on cross boundary issues.	2007	Ongoing	Continued attendance at bodies such as West London Air Quality Group, HATF and APPLE.		Local Authority Led	Environmental Protection Unit (EPU)