The London Borough of Hillingdon

Progress Report, 2010

Local Authority Information

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This 2010 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

This report provides an update on air pollution concentrations in the London Borough of Hillingdon 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 presented it is concluded that:

- During 2009, the annual mean objective for NO_2 was exceeded at both roadside and background locations at sites within, but not outside the Borough's existing AQMA (Air Quality Management Area).
- Monitoring of NO_2 levels close to the major railway line running through the Borough demonstrates that does not cause limit value exceedance.
- Monitoring data also supports the decision not to declare an AQMA on the basis of exposure to other pollutants (PM_{10} and benzene), though the Council will continue to pay attention to them, especially fine particles.
- $PM_{2.5}$ concentrations are below the UK Government's new national objective. The 2009 ozone monitoring results show that measured concentrations were in the range of 26 $\mu g.m^{-3}$ to 38 $\mu g.m^{-3}$.
- A review of traffic, commercial, industrial and domestic developments has identified that there are no new or existing developments that are likely to lead to an exceedance of the AQS objectives for any pollutant. The Council is, however, aware of a potential development at Southall Gasworks site that will need to be kept under review.
- These results support the earlier decision to declare an AQMA (Air Quality Management Area) across the southern two-thirds of the Borough, and to adopt the AQAP based on exposure of people in some parts of Hillingdon to levels of NO_2 above the annual mean objective and EU limit value.
- There is no evidence that the EU limit value will be met within 2010 at certain key areas within the AQMA. There are some indications that concentrations may be falling, but these need to be confirmed by further data.

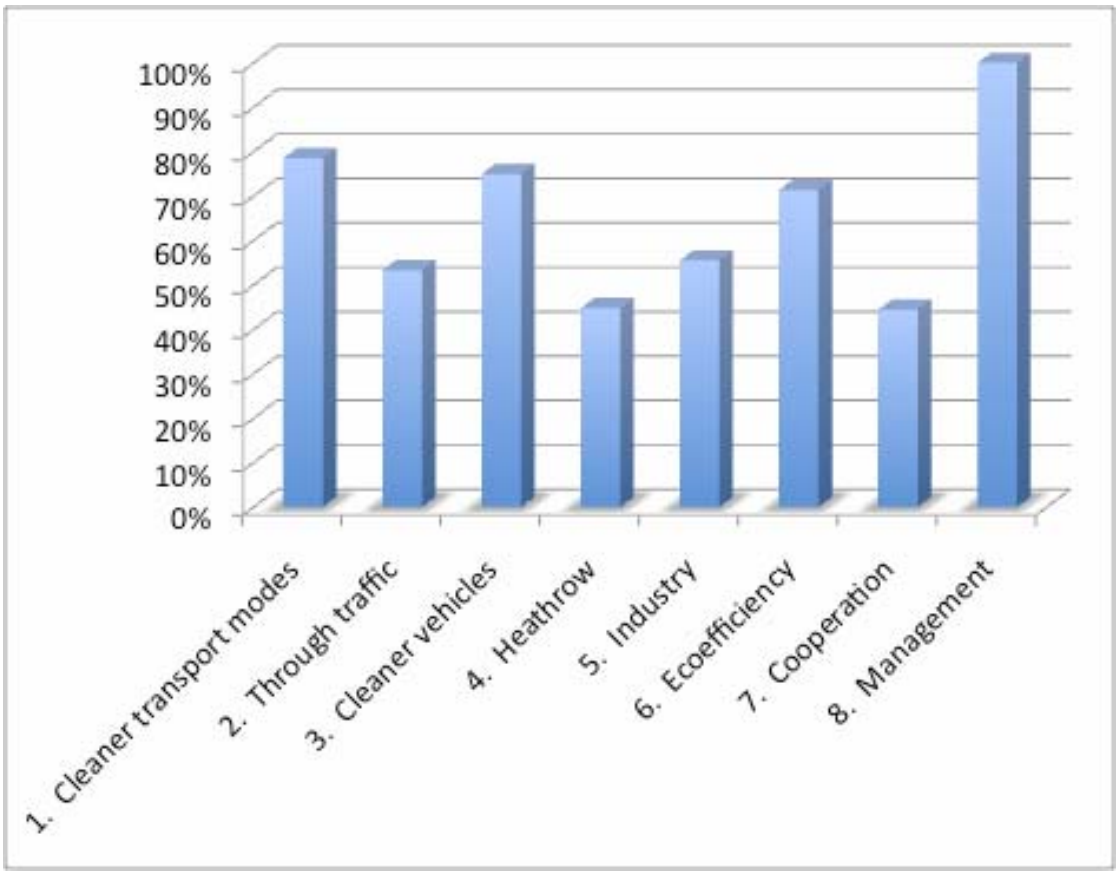
The review of new monitoring data and new developments available for 2009 and contained within this report concludes that the London Borough of Hillingdon is not required to proceed to a Detailed Assessment and that the existing AQMA is still required. -

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, 6 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.

Review of the state of implementation of the plan shows that there has been little movement of measures through the chain from planning, to implementation, to being complete, in 2009. One reason for this is that the officers responsible for the Action Plan have been increasingly involved in support of

the Council's position on the expansion of Heathrow Airport. A second and possibly more important reason is that the original plan is now close to full implementation: the actions that can be achieved are mostly in place. It is therefore appropriate that the Council consider a thorough review of the Action Plan in the coming year. With this in mind an audit of the plan will be released soon.

Highlights from Air Quality Action Plan implementation in 2009

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

School Travel Plans: These are now in place throughout the Borough with an overall achievement, in 2009, of a 17% modal shift away from car use across the Borough.

Business Travel Plans: There is now an emerging pro-active approach to developing area-wide travel plans. The first area scheme in Hillingdon is being developed using a partnership approach with a local university, large hospital and a shopping centre.

Carbon Footprint: An emissions database for transport within the Borough is being developed, to quantify CO_2 and local air quality pollutants (NO_2 and PM_{10}).

Ford Electric Vehicle Pilot: Hillingdon have become a pilot authority, working in partnership with Ford to trial 5 Ford Focus electric vehicles across the Borough and invest in electric vehicle charging infrastructure at approx 20 sites.

Local Cab firm wins award:
Hillingdon have worked with Qdell/LHR Express Cars who have received BS 14001 accreditation. Their work for environmental improvements has reduced CO_2 emissions by 211 tonnes (with additional reductions in emissions of NOx, PM, etc.) and given cost saving of £95,328 on fuel.

Hillingdon Green Doctor: This has been set up via the Local Strategic Partnership Cleaner and Greener Theme group. Three Hillingdon Green doctors now visit residential homes offering energy and water saving advice.

British Airways APU (Auxiliary Power Unit) Project: British Airways is reducing Auxiliary Power Unit (APU) usage across the BA network, turning to less polluting ground based systems.

The Heathrow Judgement: Hillingdon, working with other stakeholders, successfully challenged the government's decision to construct a third runway at Heathrow.

Congestion relief: Improvement works have been completed at 12 locations. Congestion relief studies have been completed for a further 4 sites and an additional 5 schemes are currently under discussion with TfL or have been included in their programme of improvements.

Results of traffic monitoring: Results since 2000 show that there has been a significant decrease in motor traffic on the roads in Hillingdon. Preliminary analysis suggests that levels are down 7% in the period to the end of 2008 on roads across the Borough. At the same time there is evidence of people switching to more sustainable transport modes as cycling has increased by more than one third. Public transport has also increased. These data suggest that local transport planning, which has been linked very effectively to the air quality action plan, has delivered significant benefit in the last decade.

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. Completion of the audit of the action plan, with a view to its revision to ensure that lessons learned over the last 5 years are properly reflected in it. Production of the audit has been carried over from previous years as a result of uncertainty about development at Heathrow.
3. Integration of the AQAP with actions on climate change, ensuring knowledge of interactions between measures.
4. 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.

Table of contents

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

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 2-1 at the end of this Chapter. This table shows the objectives in units of micrograms 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[1].

The objectives shown in Table 2-1 are 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 like 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] 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.

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 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 covered the A40 corridor and Chiltern-Marylebone railway line and all parts of the Borough south of them (see Figure 2-1a). Figure 2-1b 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.

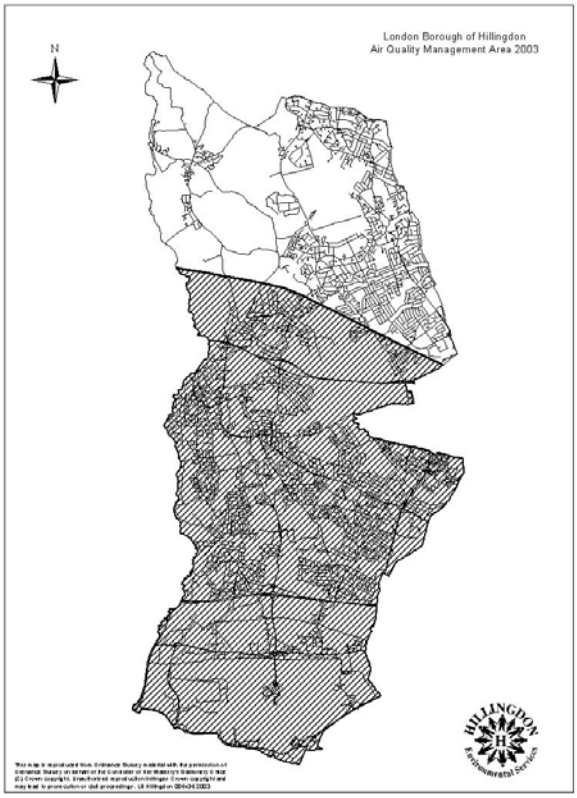


Figure 2-1a. Map of AQMA Boundaries (2003).

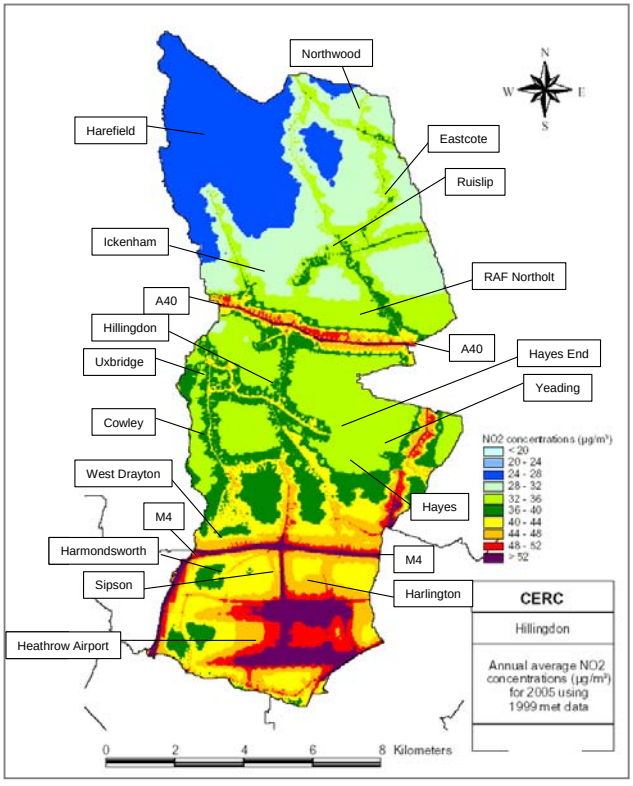


Figure 2-1b. Forecast annual mean NO_2 levels for 2005.

Table 2-1. 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

2.1.1Automatic Monitoring Sites

There are 11 automatic continuous monitoring sites in the London Borough of Hillingdon, details of which are given in Appendix 2. Hillingdon Hayes is the only new site to start monitoring since the last Progress Report. 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.

2.1.2Non-Automatic Monitoring

Diffusion tube measurements for NO_2 were taken at 38 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 NO_2. The diffusion tube measures a mean concentration over the period for which it is exposed, in this case one month.

Due to concerns about railway emissions, two tubes in the rear garden of 86 Stormount Drive (HD79 and HD80), one at the building facade and one on the rear fence on the railway boundary, were put in place to assess public exposure from this source. However, measured concentrations in 2008 at these locations were below the air quality objectives. These tubes have now been re-located from the southern side of the Great Western Railway to the northern side at the corner of Swallowfield Way and Kestrel Way (Roadside and Railside fence). Hillingdon is also taking part in the national survey organised on behalf of the Highways Agency. Two sites are included in this survey, one roadside site and one residential, to monitor NO_2 concentrations resulting from the M4 Motorway.

Diffusion tubes are also used to monitor benzene at 5 locations in the Borough.

2.2 Comparison of Monitoring Results with Air Quality Objectives for NO_2

2.2.1Automatic Monitoring Data

Table 2-1 presents annual mean concentrations of NO_2 for 2007, 2008 and 2009 at each of the automatic monitoring sites within Hillingdon. In 2009 the annual mean NO_2 objective was exceeded at 5 sites with in the Borough; London Heathrow LHR2 (49.8 µg m^{-3}), London Hillingdon (54.0 µg m^{-3}), Hillingdon 1 – South Ruislip (49.3 µg m^{-3}), Hillingdon 3 – Oxford Avenue (43.4 µg m^{-3}) and Hillingdon Hayes (55.6 µg m^{-3}). All of these sites are located within the current AQMA.

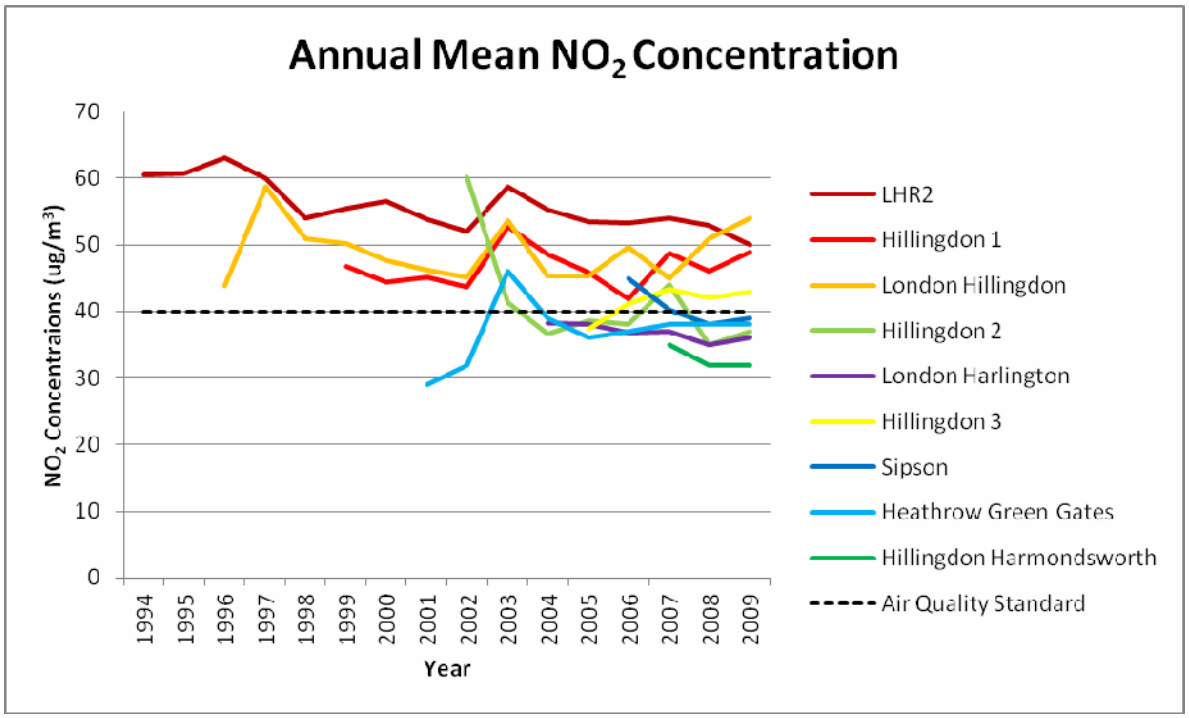
Table 2-1. Results of Automatic Monitoring for NO_2: Comparison with Annual Mean Objective (exceedances are shown in bold red)

Site ID	Location	Within AQMA?	Data Capture for full calendar year 2009 %	Annual mean concentrations (µg/m^3)		
				2007	2008	2009
London Heathrow LHR2	Airport	Yes	97.9	**54**	**53**	**49.8**
London Hillingdon	Suburban	Yes	91.2	**45**	**51**	**54.0**
Hillingdon 1	Roadside	Yes	96.9	**49**	**46**	**49.3**
Hillingdon 2	Roadside	Yes	88.6	**44**	35	37.4
Hillingdon 3	Roadside	Yes	89.0	**43**	**42**	**43.4**
London Harlington	Airport	Yes	60.2	37	35	36.3
Hillingdon Sipson	Urban background	Yes	98.6	**40**	38	39.0
London Harmondsworth	Airport	Yes	94.7	35	32	33.4
Heathrow Green Gates	Airport	Yes	99.0	38	38	37.5
Heathrow Oaks Road	Airport	Yes	95.0	38	35	33.4
Hillingdon Hayes	Roadside	Yes	99.0	-	**50**	**55.6**

Hillingdon 1 2007 data capture – 77%
Hillingdon 2 2007 data capture 27% - due to instrument failure
Hillingdon Sipson – 2006 data capture 31% - site in operation since September 2006.

Figure 2-1 shows the trend in concentrations at each of the automatic monitoring sites since 1994. Since monitoring commenced, NO_2 concentrations have remained above the annual mean objective at three sites: LHR2, London Hillingdon and Hillingdon 1. At Hillingdon 3 the NO_2 concentration was below the air quality standard in 2005 but has remained above the limit value of 40 µg m^{-3} since. After a peak in 2007 the annual mean NO_2 concentration at Hillingdon 2 has remained under the air quality standard. London Harlington, Sipson, Heathrow Green Gates and Hillingdon Harmondsworth also remain below the air quality standard, although concentrations at these sites have levelled out from previous years.

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. Data for hourly mean NO_2 concentrations at the continuous automatic monitoring sites are also provided in Appendix 3: this objective was achieved at all sites. The number of hourly exceedances at Hillingdon Sipson and Hillingdon Hayes has increased to 7 for the year at both sites, though this still remains well within the air quality objective of 18 exceedances.

2.2.2Diffusion Tube Monitoring Data

Annual mean concentrations of NO_2 as measured by the diffusion tube network and corrected for bias are shown in Appendix 3. Results showed that the NO_2 objective was exceeded at 8 locations:

- HD31 AURN Monitoring Station
- HD43 Uxbridge Day Nursery
- HD46 South Ruislip Monitoring Station
- HD53 Warren Road
- HD55 Harold Avenue
- HD58 Brendan Close
- HD81 Cranford Drive Roadside
- HD82 Cranford Drive Residential

Two of these are Highways Agency monitoring sites located around the M4. There are two diffusion tube sites where exceedances were measured in 2008 but at which air quality objectives were achieved in 2009:

- HD50 Hillingdon Hospital Monitoring Station
- HD71 Oxford Avenue Cranford

As all of the sites where exceedance was identified were within the AQMA, and none showed levels sufficiently high to indicate that the hourly mean objective for NO_2 may be exceeded, there is no requirement to proceed to a Detailed Assessment.

Monitoring of the concentrations around the Great Western Mainline identified no exceedances. There was some relocation of these sites during the monitoring period to see whether the initial conclusions reached applied more widely, and this was found to be the case[2].

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 2-2 show that the NO_2 concentrations have remained relatively stable. The change in NO_2 concentrations over the period 2002 to 2009 has ranged between an increase of 5.8 $\mu g.m^{-3}$ and a decrease of 6.8 $\mu g\ m^{-3}$. On average NO_2 concentrations have increased by 0.46 $\mu g.m^{-3}$ at the longer term monitoring sites.

Data for the sites operating over periods shorter than 8 years are shown in Figure 2-3[3]. Across all sites (including short and long term sites), there was, on average, a 9.8% fall in concentrations between 2005 and 2009. Between 2007 and 2009 the reduction is slightly greater, at 10.42%. This corresponds to a reduction of NO_2 concentrations of 3.5 $\mu g\ m^{-3}$ from 2005 and 3.7 $\mu g\ m^{-3}$ from 2007.

[2] To account for the relocation of the sites, results were corrected to an annual mean based on the method set out in government technical guidance LAQM.TG (09).

[3] When factoring in the short term sites it should be noted that a trend should only be considered significant when based on 5 or more years data (hence the reason for separating out the short and long term sites).

Figure 2-2. Trend of Annual Mean NO_2 Concentrations at Diffusion Tube Sites HD32 to HD61

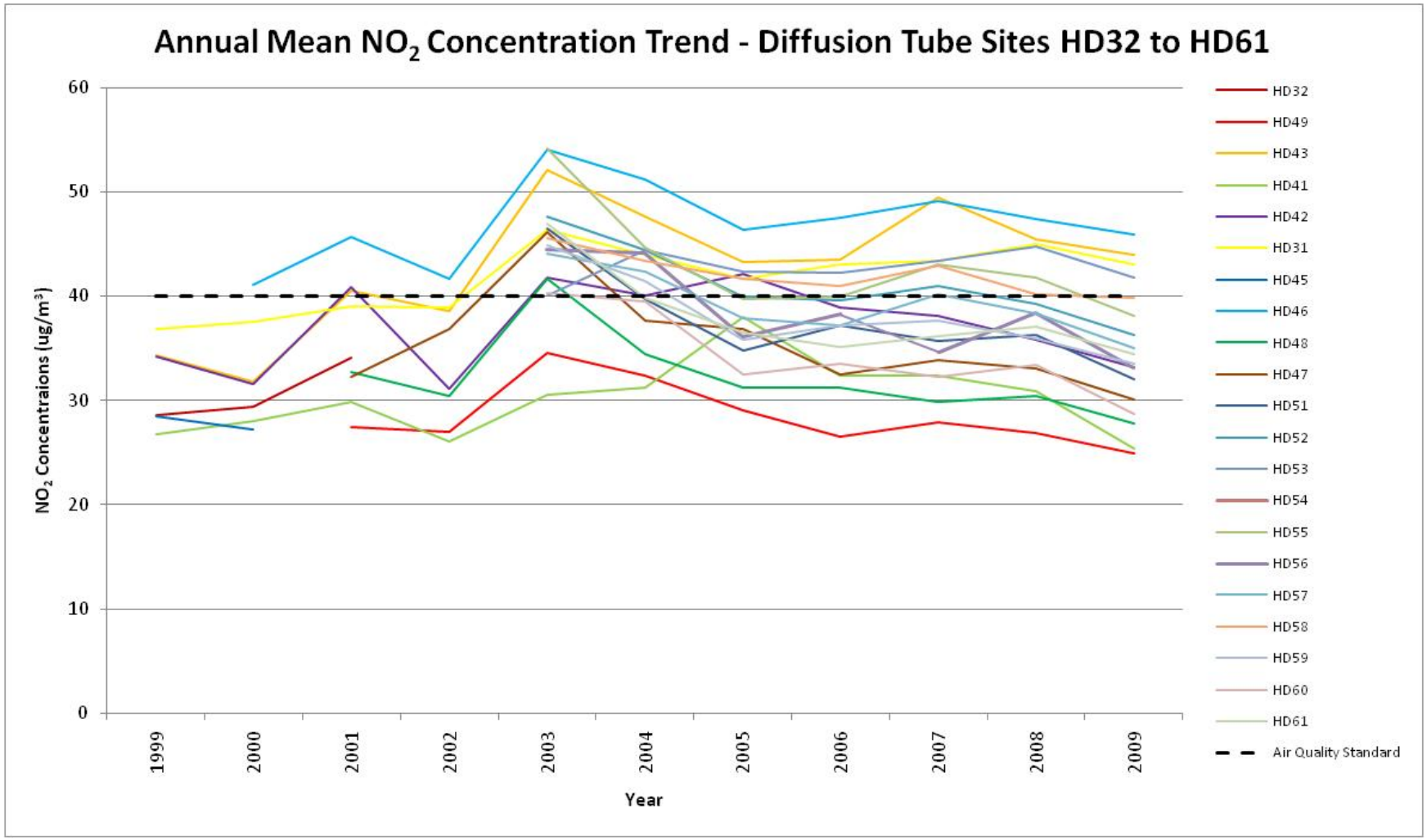
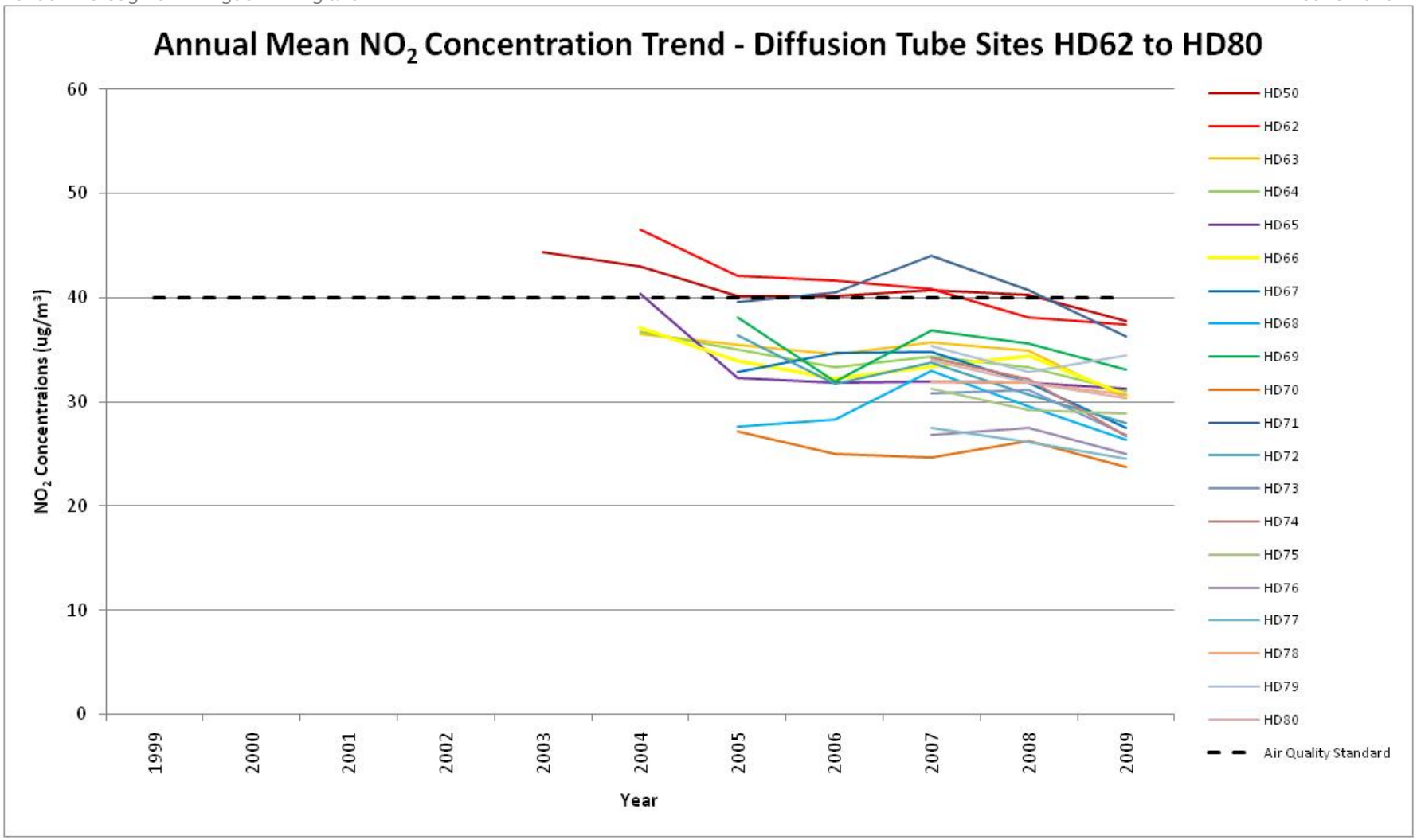


Figure 2-3. Trend of Annual Mean NO_2 Concentrations at Diffusion Tube Sites HD62 to HD80


Annual Mean NO2 Concentration Trend - Diffusion Tube Sites HD62 to HD80
NO2 Concentraions (ug/m3)
60
50
40
30
20
10
0
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
Year
HD50
HD62
HD63
HD64
HD65
HD66
HD67
HD68
HD69
HD70
HD71
HD72
HD73
HD74
HD75
HD76
HD77
HD78
HD79
HD80
Air Quality Standard

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 increase in concentrations of PM_{10} at the South Ruislip monitoring station.

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 $\mu g\ m^{-3}$ to 38 $\mu g\ m^{-3}$

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

2.4 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.

Annual mean concentrations of NO_2 remain in exceedance of the AQS objectives within the AQMA. The same is not true for other pollutants or for hourly concentrations of NO_2. The basis for declaration of the AQMA therefore remains unchanged.

Some of the data collected in 2009 are suggestive of some decline in NO_2 concentrations compared to 2008. However, this may simply be a short term effect of the global economic downturn, bearing in mind the presence of several roads of national importance in and around the AQMA and the decrease in air traffic movements at Heathrow experienced in 2008/2009.

Beyond this there is no evidence of a longer term trend towards a reduction in pollutant concentrations within the AQMA, despite the various actions taken under the Action Plan. The problem areas remain in the south of the Borough around Heathrow Airport and with the operation of major roads such as the M4, the A40 and the A312. These roads impact directly on the residents in close proximity and also have knock-on congestion impacts on the Borough feeder roads. It is, therefore, important to develop a better understanding of the types of measure that would make a significant difference to air quality in the Borough. With regards to Heathrow Airport this question is considered further in Section 4.2, below, regarding analysis of changes in traffic flows and air quality during the recent closure of Heathrow Airport because of the volcanic ash cloud[4].

Whilst PM_{10} monitoring has not found any exceedance of the AQS objectives it is noted that there has been a significant increase in levels at the Hillingdon 1 site in South Ruislip. Close attention will be given to the results from this site in the coming year.

[4] To be clear: Section 4.2 does not propose closing Heathrow Airport in order to meet the air quality standards. It considers what benefit further investigation of data collected at the time of the closure would provide, for example, in determining the level of traffic reduction required to meet the air quality objectives. It is likely that such analysis could play a central role in discussions with stakeholders when the current action plan is reviewed.

Chapter 3 New Local Developments

3.1 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.

3.2 Other Transport Sources

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

3.3 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. However, there has been a major change in plans for development at Heathrow Airport, as discussed in the next section.

3.4 Commercial and Domestic Sources

There are no new or newly identified commercial or domestic sources within the London Borough of Hillingdon since the previous round of the Review and Assessment process. Proposals are emerging for significant development at the Southall Gasworks site which will need to be kept under review should they proceed further.

3.5 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 which may have an impact on air quality within the Local Authority area.

Chapter 4 Hillingdon's Priority Areas

The following chapter describes the priority areas in Hillingdon as identified by the monitoring in 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 are the areas that will need to be the focus of the review of the Air Quality Action Plan and are where other agencies and stakeholders will need to work with Hillingdon to ensure the EU limit values are met.

4.1 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. Given the problems that already exist it is of considerable concern that Heathrow has not yet reached its authorised capacity (480,000 air transport movements and a terminal capacity of 80mppa). Reaching this capacity will bring increased pollutant emissions from the increased flights, increased on-airport emissions and increases from extra road transport accessing the airport.

The following sections provide new information that has emerged in the last year concerning the future of Heathrow and data concerning pollution levels, traffic flows and Air Traffic Movements (ATMs).

4.1.1The Proposed Third Runway

The application by the operators of Heathrow Airport to develop a new runway slightly to the north of the site has been a matter of considerable uncertainty for local residents and for the design of the air quality action plan.

<u>The Heathrow Judgement</u>
After years of opposition to the expansion of Heathrow, the legal challenge came to court in March 2010. Hillingdon were part of a coalition of six local authorities (Hounslow, Wandsworth, Richmond, Hammersmith & Fulham and Windsor & Maidenhead), HACAN (anti-aircraft noise campaign group), NOTRAG (Sipson residents groups) World Wildlife Fund UK, CPRE and Greenpeace. The challenge was also supported by Transport for London, Mayor of London, Kensington & Chelsea and RSPB. The main challenges concerned:

- The Government's failure to appropriately address climate change,
- A failure to re-assess the economic argument for expansion at Heathrow, and
- Inadequate treatment of surface access consequences of expansion when the final Decision on Heathrow was made in 2009.

After a three day hearing the final Judgement was handed down on the 26th March with a final remedies hearing on the 20th April.

Lord Justice Carnwath concluded that the DfT's initial position that policy support for the third runway had been finally determined in 2003, subject only to fulfilment of three environmental conditions determined at the time, was '*untenable*.' He commented: '*it was not open to the Secretary of State simply to stand on the principle of the policy decision made in 2003 without regard to the important developments since then, particularly in relation to climate change policy*.' The Secretary of State could not reasonably have excluded the possible need to review his support for the runway project in the light of the Climate Change Commission's advice. Further to this, it was also found that

'*the preparation of the Airports National Policy Statement will necessarily involve a review of all the relevant policy issues including the impact of climate change policy*.'

At a subsequent remedies hearing in April Lord Justice Carnwath accepted an undertaking offered by the Secretary of State not to rely on section 12 (1) of the Planning Act 2008 in adopting an Airports NPS. This means, in effect, that the 2003 ATWP cannot now be simply imported into the NPS, thus enabling all the fundamental policy issues underlying the need for the new runway to be reopened. He granted permission for Judicial Review and ordered the Secretary of State to pay 60% of the Claimants' costs. He said: '*It seems to me that the claimants have achieved a substantial degree of success in establishing that the principle of a third runway was not settled by the 2003 White Paper but is open to debate in the future and, as the law now stands, in the context of a national policy statement. The undertaking given by the Secretary of State is a major concession which was not made available at the beginning of the proceedings*.'

The successful outcome of the case is reward for many years of work in which the council has repeatedly sought to expose the DfT's decisions on Heathrow to proper scrutiny
The new coalition Government has now officially cancelled the plans for a third runway.

4.1.2Heathrow's contribution to emissions across the Borough

Table A1-1 in the appendices highlights the contribution made by activities at Heathrow (from aircraft emissions and operations at the airport), making up over half of the total emissions across the Borough. The contribution of Heathrow and the road network together makes up over 80% of the Borough's emissions, with much of the traffic being on roads that are not the responsibility of the Borough Council.

Quantifying the impact of the airport on air quality in different parts of the Borough has always been a controversial subject with regards to what element of the source mix is contributing at each location. The following data (Table 2-2) were provided in the original Action Plan for:

Table 2-2. Sector breakdown of annual mean NOx concentrations in 2005 at two illustrative receptor locations within the London Borough of Hillingdon.

	Close to Heathrow	Close to major road (A40)
Background	15.3	15.3
Major roads	21.8	28.7
Industry	3.6	2.7
Airport	29.7	3.9
Other	9.3	12.0
Total	**79.7**	**62.6**

The table shows that airport emissions contribute significantly to NOx levels in the southern half of the Borough but not the north. Emissions from traffic on major roads are significant wherever such roads exist. Contributions from background (sources outside the Borough) and 'other' (which includes traffic on minor roads) are also significant, but not dominant, throughout the AQMA.

Careful analysis is required to ensure the actions put in place bring about the desired improvement in air quality. Examples are given below where more detailed information is beginning to come to light which may aid this process. It is clear that concerted efforts will clearly need to be made by a number of stakeholders if the EU's limit value is to be met and maintained in the residential areas.

4.1.3Air traffic movements and NO_2 concentrations

Concentrations of NO_2 at the LHR2 monitoring station inside the airport fell in 2009 compared to previous years. There is, however, a question of whether the decline is a result of measures taken under the Action Plans introduced by Hillingdon, neighbouring local authorities and BAA, or whether it is a consequence of a reduction in flights linked to the economic downturn. Air Traffic Movements (ATMs) since 2004/5 are shown in Figure 2-4. 'ATM (condition)' refers to the flights that have to be accounted for under the condition imposed for development of Terminal 5, a limit of 480,000 ATMs per year. The 'ATM (total)' bars additionally include exempt flights, for example by the military or emergency services.

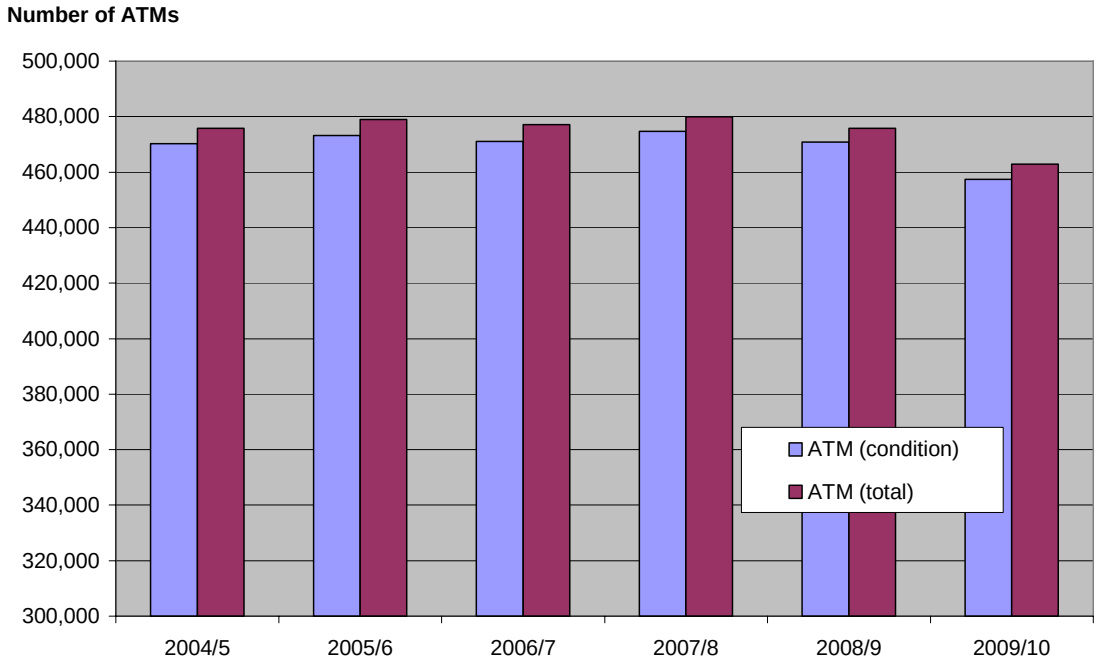


Figure 2-4. ATMs at Heathrow, 2004-2010 (note truncation of y axis)

This figure demonstrates that the number of ATMs in 2009/10 was lower than in the preceding five years, a reduction of 3.5% on the peak of 2007/8. All else being equal this would explain about 50% of the fall in concentrations between 2007 and 2009. Other factors of course come into play, such as emissions linked to other sources, background concentrations, differences in meteorology between years and so on.

Figure 2-5 shows that there is almost a perfect correlation between ATMs and air quality at the LHR2 monitoring station on the airport since 2005 (r^2=0.9958: in other words, more than 99% of the variability in NO_2 levels appears to be explained by variation in ATMs). Going back further, however, for example considering the 2004/5 data shown in red in the graph, the relationship breaks down – it would be interesting to know if there were any changes at the airport at this time that could explain this shift. However, the correlation for the following years is sufficiently good that it is worth noting for future reference as it may be useful in providing direct insight on the level of change in airport activities needed to bring about a change in concentrations that is significant in the context of the Action Plan.

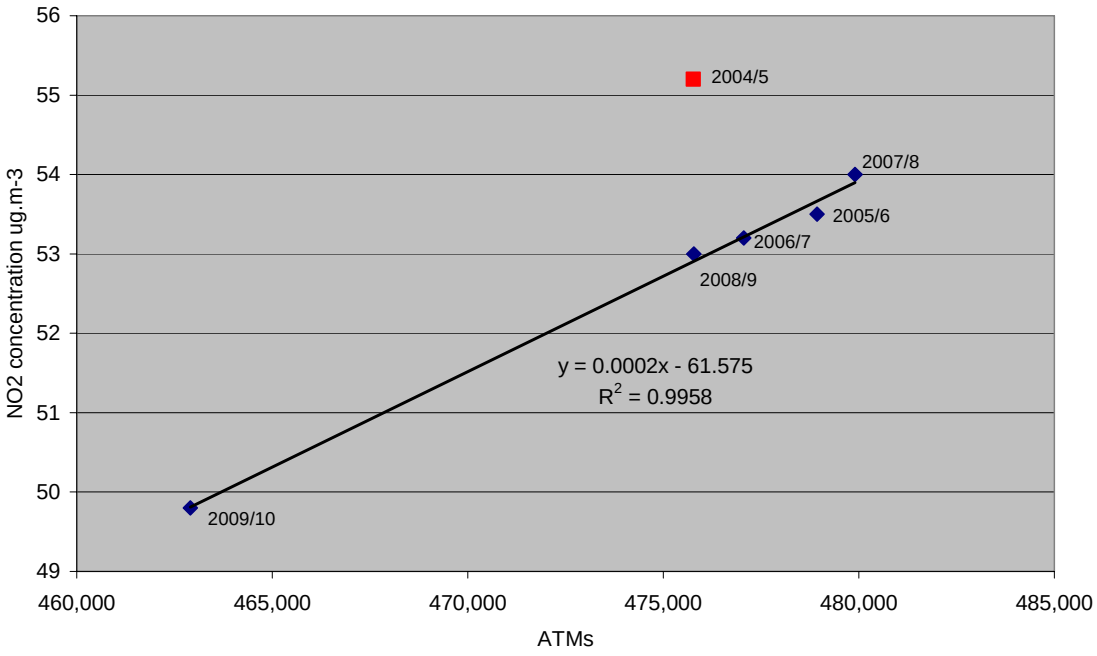


Figure 2-5. Correlation of NO_2 levels at LHR2 and ATMs between 2005 and 2010.

4.1.4Observations of the Impacts of the Recent Airport Closure

The closure of Heathrow Airport for 6 days in mid April 2010 because of the volcanic ash cloud provides a unique opportunity to consider the effect of a significant change in emissions from the airport and the surrounding road network on air quality. Related data could be of fundamental importance to the future development of the Action Plan for Hillingdon and also for neighbouring local authorities such as Hounslow. These data will show, directly, the effect of major changes in activities at the airport and road traffic accessing the Borough and reveal the extent to which emissions need to be reduced in order for compliance with limit values. Results can then also be used to further validate the dispersion models used to support local air quality management for one of the key areas of limit value exceedance in the country. It is stressed that the purpose of this analysis would not be to consider permanent closure of the airport, as this is not something that can be considered as part of the local authority's Action Plan.

The importance of detailed analysis of the effects of the airport closure is reflected by the following:

1. The rationale for development of Hillingdon's action plan was to take a large number of measures, most of which it was appreciated would have a modest impact individually, rather than a small number of measures applied to a possibly draconian level.
2. The lack of significant movement to achievement of the limit values within the Borough, despite good progress in implementation of the existing Action Plan.

A better understanding of the effects of major changes in emissions within the AQMA would therefore inform the necessary refinement of the Action Plan in the coming year. It would also inform the debate between Hillingdon, neighbouring Local Authorities and national bodies such as DfT and the Highways Agency as to how responsibility for reducing emissions should be allocated.

The following sections provide details of preliminary analysis that has already been undertaken, first by ERG and then by EMRC for this progress report. The purpose of both analyses was simply to

assess whether there was a sufficiently large signal present in the data that a more detailed assessment would be warranted as being likely to provide useful data.

Analysis by ERG

At the time of the airport closure ERG (Barratt and Fuller, 2010) carried out analysis to define the effect of the airport on air quality at local monitoring stations. The approach used was to compare data from monitoring stations on either side of the airport, taking account of the prevailing wind direction, to assess the contribution that the airport made to NOx and NO_2 levels. Results showed a drop in mean "airport" NOx concentrations from an average of 64 $\mu g/m^3$ to 10 $\mu g/m^3$ which equates to a drop in "airport" NO_2 levels from an average of 27 $\mu g/m^3$ to 8 $\mu g/m^3$. The concentrations could be expected to be much higher to the north-east of the airport due to the normal south-westerly prevailing winds. It was noted that due to a lack of data no consideration had been taken of the drop in traffic on airport feeder roads. Results were backed up by similar analysis for Gatwick Airport.

Analysis undertaken for this report

The method used by ERG required pairs of monitoring stations to be identified. For Heathrow only one such pair was identified and data from other sites in the Heathrow area was not used. It is therefore worth asking at this stage whether the other stations also suggest a change in concentration as a result of the airport's closure. We have therefore compared NO_2 concentrations at all of the monitoring stations for which data were available around the airport during the period of the closure with concentrations in the following periods. These were selected to be reasonably comparable with the period of closure, at least so far as human activity and emissions are likely to be concerned:

- 1 week before the closure and 1 week after the closure
- For previous years, the same week relative to Easter in 2006, 2007, 2008 and 2009 (abbreviated below to 'Easter 2006' etc though the periods in question do not match directly with Easter)

Analysis includes only those sites for which monitoring data were available throughout the period of interest. The monitoring station at Colnbrook has been excluded from the analysis as there appeared to be significant drift in recorded concentrations at this site during the early months of 2010.

Results of the comparison demonstrating the difference between concentrations during the period of Heathrow closure and the other periods are shown in Table 2-3. Cases where concentrations were higher than during the closure period are shown in black, those where concentrations were lower are negative and highlighted in red. Concentrations exceeded those during the closure period in 52 cases. The average additional exposure was 34 $\mu g.m^{-3}$. In contrast, concentrations were lower than during the closure period in only 11 cases, with the reduction in concentrations averaging 5 $\mu g.m^{-3}$.

The conclusion drawn from this preliminary assessment of data from the monitoring stations is that they show that NO_2 concentrations recorded at sites surrounding the airport were generally significantly lower during the week of the closure than in corresponding periods immediately before and after the closure (by 21 $\mu g.m^{-3}$ and 52 $\mu g.m^{-3}$ respectively) and in previous years.

Table 2-3. Difference in NO_2 concentrations for different periods relative to the week of April 2010 in which Heathrow Airport was closed (units: µg.m^{-3})

	Week -1	Week+1	Easter 2006	Easter 2007	Easter 2008	Easter 2009
LHR2	69	42	28	36	37	17
Greengates	23	34	**-13**	4	14	**-7**
South Ruislip	**-2**	83	**-11**	29	16	11
Hillingdon Hospital	**-3**	23	2		34	33
Hayes	**-6**	97				39
Sipson	21	52		35	13	19
Brentford	44	40	24	**-1**	27	10
Hillingdon	40	71	**-7**	100	11	63
Oxford Avenue	12				15	17
Slough Centre	**-2**	39	3	31	40	
Chalvey	5	77	0	80	47	37
Oaks Rd	47	18	**-2**	5	6	**-12**

Traffic data

Hillingdon has three automatic traffic counters in place on the main Borough-owned roads leading to the A4 and ultimately to the airport. A very brief analysis of the data has indicated a marked change in road traffic levels during the Heathrow closure. A comparison of the 2010 Heathrow Airport Closure week with the same week from 2009 (accounting for the effect of school holidays) shows differences of -8.92%, -12.13% and -24.74%. Even accounting for a potential general overall drop in figures on Borough roads, in part due to the economic recession, there is still a marked drop of -4.60%, -5.52% and -6.65%. The analysis of traffic data from the strategic road network for this Flight ban period would be a useful addition to a study into quantifying the impact of Heathrow Airport.

From the data presented above it is concluded that further and much more detailed assessment of the effects of the airport closure on traffic levels and air quality would be beneficial.

4.1.5The Future of Heathrow

The recent coalition government, whilst cancelling the third runway has recognised a need to identify how to get greater reliability and less delays from the south east airports, including Heathrow, within existing runway capacity constraints. The vision for the new Airports Taskforce is for “better not bigger” airports. This message was also a key campaign banner for the 2M No Heathrow Expansion campaign.

It is unfortunate that whilst the members currently to be invited onto the new group consist of airport operators, airlines, CAA, NATS, business groups, airline user groups and one NGO (Aviation Environment Federation), none of the impacted local or regional authorities are included. Hillingdon will ask for a seat on the Group and will also lobby for an independent scrutiny group to be set in parallel to assess the options being put forward. Members of this second group should include Defra, impacted local authorities and regional authorities responsible for roads and transport such as TfL.

With Heathrow, in particular, any changes to operational practices especially those that may also lead to increases in the number of flights on the existing 2 runways, may lead to unacceptable consequences for local air quality, for noise levels and for impacts on public transport capacity and congestion of the surrounding road network. Hillingdon believe this scrutiny group should be an essential part of any Time Extension application under the Air Quality Directives as evidence to Europe that changes to aviation practices will not lead to increases in exceedances of the EU limit

values. Key objectives for this Group should be to ensure that these limit values are met and maintained and that the broader environmental climate for local communities is improved.

4.2 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.

Recent analysis of the road network throughout Hillingdon has indicated a slight reduction in overall traffic. It is unclear to what extent this is due to implementation of, on the one hand, measures to increase the use of sustainable modes and, on the other, the economic recession. Traffic count analysis, including on Borough-owned roads, will be an important feature of the monitoring of the future AQAP. If the reduction in traffic volume continues and is supplemented by an increase in the use of low or zero emission technologies, then the priority locations described below may see more rapid improvements in local air quality levels than are currently anticipated. However, if economic recovery causes traffic volumes to rise once again these improvements could be negated.

4.2.1A40 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.

4.2.2Hayes 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.

It is recommended that Central Government, its agencies and the GLA help Hillingdon and neighbouring Boroughs fund additional analysis of the pollution and traffic data collected at the time of the closure of Heathrow to improve understanding of the improvements in air quality that accompanied the event. This will inform future development of the Air Quality Action Plan. It is stressed that this is not proposed with a view to including closure of the airport as a valid measure for inclusion in the Action Plan. Instead, the data from the time of the closure will greatly improve understanding of the extent to which traffic flows and other activities need to be controlled in order

to bring pollutant concentrations into compliance with the limit values. Such information can in theory be derived using the results of dispersion models, but this is significantly less robust than analysis based on real data.

Such analysis will prove extremely cost-effective as it will help to develop a more targeted action plan than Hillingdon has at present. It will also provide information on the extent to which air quality can be improved without undertaking the types of measure that could have serious economic consequences for the region.

The Airport Taskforce group looking at creating a better not bigger airport should include representatives of communities who may be impacted by the proposals from this Group. These communities are, after all, the people that are most impacted by the airport. In addition a separate scrutiny group including Defra and the surrounding local and regional authorities should be run in parallel to assess the outputs from the Group with regard to ensuring an improved environmental climate for local communities and that the EU air quality limit values are both met and then maintained.

The Highways Agency and TfL should work with Hillingdon to draw up a programme of measures to ensure the operation of the roads that they control protects the local communities against all of the burdens that the roads impose – on air quality, noise, accidents and so on.

Chapter 5 Regional Air Quality Strategy

Following consultation with the London Assembly and functional bodies, which ran from October-November 2009, the Mayor published a second Draft Air Quality Strategy for public consultation on 28 March 2010. 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. This public consultation runs until 23 July 2010, and the final strategy is expected to be published later in 2010.

Hillingdon's response to the consultation recognises that improving air quality will require implementation of actions across a wide range of disciplines. They have therefore requested that the final Air Quality Strategy includes cross-referencing of policies from other relevant Mayoral Strategies to highlight the clear implementation route for each policy.

The response also highlights main areas of concern and interest for Hillingdon, including the following:

Road Transport

- In recognition that major road networks in the Borough such as the M4, A40, Hayes Bypass and Bath Road are not under Borough control, Hillingdon requests that the Mayor helps to ensure that Transport for London and the Highways Agency prioritise the use of cleaner public transport, and the promotion of sustainable travel alternatives on the road network within their control in this part of West London as a matter of urgency.
- The transport-related policies for Borough implementation proposed in the draft Strategy are largely welcomed. Relevant actions will be implemented via Hillingdon's Local Implementation Plan (LIP2, see Chapter 8), in partnership with Transport for London. Hillingdon is already pro-active in many of these areas, for example, providing eco-training for council drivers, participation in the Ford Electric vehicle pilot project and introducing an area-wide partnership approach to travel planning. Hillingdon wish to work in partnership with TfL to ensure the implementation of these measures to maximum effect.
- Although a congestion charge scheme for Heathrow is not mentioned in the Strategy, it has been mentioned recently in the media by the Mayor. It will be important to ensure that Hillingdon are consulted in any such scheme to ensure local residents viewed are acknowledged and that any revenue arising from such a scheme is predicated for local community improvements and enhancements to public transport.

Non-Transport Measures

- With regard to the proposal for the creation of air quality neutral developments Hillingdon would welcome the publication of Mayoral guidance on best practice measures.
- Hillingdon suggests the enforcement of strict emission limits for technologies such as those involving the use of biomass that are being promoted for the reduction of greenhouse gas emissions.

Priority Locations

Hillingdon's response addresses the priority locations in the Borough, particularly Heathrow Airport and the major road corridors and junctions in the Borough (see Chapter 4, above). Hillingdon acknowledges that the consultation document recognises that even with the full implementation of the measures within the proposed Air Quality Strategy there will be areas expected to exceed the NO_2 limit in 2015. As this limit value should have been complied with by 2010 there is an inherent assumption throughout the consultation document that the Government will be successful in

applying for, and being granted, a time extension. However, it is far from clear that all the criteria necessary for a successful application for a time extension will be met. Hillingdon believes that this should be recognised in the consultation document and consideration given to the need for a contingency plan should the time extension application be unsuccessful.

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 6 Planning Applications

There have been two major planning applications within Hillingdon since the previous round of Review and Assessment. Information on these applications has been included in this progress report to provide a log of applications for new developments to give a picture of areas where changes may take place and where combined impacts from several developments may be important.

Former RAF Eastcote

Construction has started on the following - housing at a density of up to 50 dwellings per hectare including affordable housing, live-work units, a community facility and open space. The matters reserved included sitting; design; landscaping and external appearance.

The illustrative layout included 186 apartments in 3 storey blocks and 189 houses comprising a mix of 2 storey detached, semi-detached and terraced dwellings. The S299 issues included educational contributions; health provision; 35% affordable housing; Leisure, Youth and Cultural Services; Open space provision; Highways works and cycle provision.

This site is outside the AQMA.

RAF West Ruislip

Construction work has now commenced on site-Autumn 2009 for:

- 415 dwellings (C3 Use Class), comprising of the following mix:
    - 24 one bedroom flats for elderly persons (assisted-living units);
    - 24 two bedroom flats for elderly persons (assisted-living units);
    - 20 two bedroom flats (age-restricted to over 55's);
    - 25 one bedroom flats;
    - 160 two bedroom flats;
    - 19 three bedroom houses; and
    - 143 four bedroom houses.
- An elderly care home (C2 use) comprising 60 one bed and 20 two bed units;
- A playing field;
- Open Space;
- Associated car parking (468 spaces); and
- Access arrangements (incorporating junction improvements to existing highways)

The legal agreement makes provision for education, health, affordable housing, community facilities, children's play space, recreational improvements, open space, Hillingdon Trail improvements, community safety, highway works and cycle network improvements.

This site is at the northern boundary of the AQMA.

Chapter 7 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.

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 it 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 – known as the Air Quality SPG.

The Borough is currently developing a Local Development Framework (LDF), with the Core Strategy due to be published in July 2010. Air Quality Officers are providing input to this process to ensure that proper account is taken of air quality and climate change. The LDF 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 LDF "folder" through supplementary planning guidance.

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

Chapter 8 Local Transport Plans and Strategies

8.1 Status of the Local Implementation Plan

Hillingdon's Local Implementation Plan (LIP) shows how the Council proposes to implement the Mayor's Transport Strategy (MTS) and provides details on projects, proposals and programmes with the aim to improve transport in the Borough through to 2010/11. Development of the LIP took account of the Air Quality Action Plan to strengthen measures that would benefit air quality and highlight possible areas of concern. As such it is one of the main mechanisms available to the Council for implementation of the Action Plan. Further information can be found in Chapter 4 of the LIP (Proposal Delivery Forms) where each option is discussed in detail.

A revised version of the LIP will shortly go out for consultation, to be in place by December 2010. The Council, through the consultation process, will ensure that improvements in local air quality and control of greenhouse gas emissions are an integral part of the new Plan.

8.2 Trends in vehicle use in Hillingdon

The Council have investigated traffic count data for the Borough, accounting for use on the major A roads under the control of Hillingdon, Transport for London and the Department for Transport. Over the period 2000 to 2008 preliminary analysis suggests the following trends (Table 2-4 for the full major road network and Table 2-5 for the parts controlled by the Borough Council, which account for 22% of Borough traffic flows on major roads):

Table 2-4. Composition of traffic on all major A roads in Hillingdon including the Transport for London and motorway networks (preliminary analysis)

	% of traffic	Difference by mode, 2000-2008
Pedal cycles	0.1%	35% increase
Motor cycles	1%	19% reduction
Car and taxi	82%	9% reduction
Bus and coach	1%	12% increase
Light goods vehicles	10%	No change
Heavy goods vehicles	5%	9% reduction
All motor vehicles	100%	8% reduction

Table 2-5. Composition of traffic on major A roads controlled by Hillingdon (preliminary analysis)

	% of traffic	Difference by mode, 2000-2008
Pedal cycles	0.5%	38% increase
Motor cycles	0.9%	11% reduction
Car and taxi	84%	8% reduction
Bus and coach	2%	56% increase
Light goods vehicles	10%	5% reduction
Heavy goods vehicles	3%	10% increase
All motor vehicles	100%	7% reduction

Both tables show a significant fall in traffic driven largely by a reduction in private car/taxi use. Coupled with increases for cycling and bus/coach traffic the results suggest that measures to promote more sustainable transport options are being successful.

The figures in the tables above are based on traffic counts. They have been combined with other data to provide estimates of traffic volumes in the Borough in terms of million vehicle km travelled, trends for which are shown in Table 2-6.

Table 2-6. Traffic volume trends on major roads in Hillingdon.

	Change, 2000-2008
Roads in the Borough controlled by Hillingdon	13.6% reduction
Roads in the Borough managed by DfT and TfL	1.8% reduction
Traffic volume on all major roads in Hillingdon	5.6% reduction

It appears that actions to control traffic volumes have been successful at both local and regional levels, though the improvement on the more local roads is substantially more than that on the TfL/DfT managed networks. The difference in improvement in the two networks may be explained in two ways:

- Actions taken locally to control traffic growth, for example by improving and promoting transport options that are more sustainable than private car use (e.g. cycling and public transport), have been significantly more effective than measures taken at a regional/national level.
- Improvements on the TfL/DfT managed network have attracted traffic away from the Council's network of roads, exaggerating the improvement on the locally managed roads.

Although analysis at this stage is yet to be finalised, the views of TfL and DfT on this issue would be extremely useful.

8.3 Measures undertaken to reduce congestion

Further improvements may be expected as a result of work carried out by the Council using its own capital reserves since 2008 to relieve congestion at the following locations:

1. High Street, Ruislip / Kingsend / Pembroke Road (improvement works complete)
2. Field End Road / Victoria Road (improvement works complete)
3. Mahjacks Roundabout, Uxbridge (congestion relief study complete)
4. Cedars Roundabout, Uxbridge (congestion relief study complete)
5. High Road Eastcote / Field End Road (improvement works complete)
6. Stockley Road / Horton Road (improvement works complete)
7. Stockley Road / Cherry Lane / Shepiston Lane (congestion relief study complete)
8. Rickmansworth Road / Ducks Hill Road (improvement works complete)
9. Joel Street / Pinner Road / Potter Street (improvement works complete)
10. Swakeleys Road / High Road, Ickenham (study completed, further progress dependent on RAF West Ruislip development
11. Park Road / Western Avenue / Swakeleys Road (response awaited from TfL)
12. Sipson Road / Bath Road (improvement works complete)
13. Park Road / Honeycroft Hill (improvement works complete)
14. Victoria Road / Windmill Hill (improvement works complete)
15. Uxbridge Road / Lees Road (improvement works complete)
16. Swakeleys Road / Breakspear Road South (measures to be reviewed in 2010/11)
17. Uxbridge Road / Lansbury Drive (included in TfL programme)
18. Long Drive/ Victoria Road/ Long Drive (Station Approach), Ruislip (improvement works complete)
19. A408 High Street Cowley/ Iver Lane & A408/ Station Road (included in TfL programme)

20. Ickenham Road/ Wood Lane/ Kingsend (improvement works complete)
21. Long Lane near Freezeland Way (included in TfL programme)

The contribution of the LIP as a means for improving air quality in Hillingdon was fully recognised at the time of its development. The 13.6% reduction in traffic volumes in the Borough on roads under the control of the Council suggests that it has been effective in improving transport in the Borough in ways that benefit air quality also.

Chapter 9 Implementation of the Air Quality Action Plan

9.1 Structure of the Action Plan and links to the Mayoral Strategy

This is the sixth progress report on air quality from Hillingdon following the approval of its Air Quality Action Plan (AQAP). As noted already, the plan contains a large number of measures (over 100), arranged into a series of packages, as follows:

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

Review of the consultation report on the Mayor's draft Air Quality Strategy (MAQS) for London shows much common ground in approach (considering a large number of measures) and the type of actions considered (Table 2-7).

Table 2-7. Relationships between the draft MAQS and Hillingdon's Air Quality Action Plan

Draft MAQS policies	Relevant Hillingdon AQAP packages
Policy 1 – Encouraging smarter choices and sustainable travel behaviour	1, 4
Policy 2 – Promoting technological change and cleaner vehicles	3
Policy 3 – Targeting air quality hotspots through a package of localised measures	2, 3, 4
Policy 4 – Reducing emissions from particular sources in the public transport fleet	3
Policy 5 – Emissions control schemes for vehicles	2, 3
Policy 6 – Air Quality Action Days and Special Measures	8
Policy 7 – Reducing emissions from construction and demolition sites	5, 6
Policy 8 – Better use of the planning process	3, 5, 6, 7
Policy 9 – Energy Efficient buildings	6
Policy 10 – A less polluted public realm	7
Policy 11 – Encouraging innovation	2, 3
Policy 12 – Raising public awareness and encouraging behavioural change	1, 2, 3, 6, 7, 8

9.2 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) which 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 2-6, 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. For the last two years nearly two thirds of measures have been ongoing/complete, a figure that grows to about three quarters once measures in progress are added in.

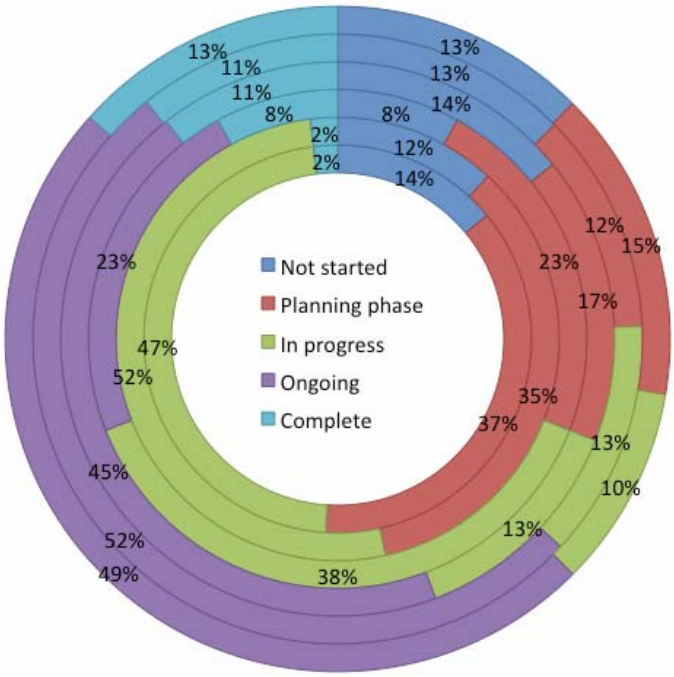


Figure 2-6. % of actions listed in the various packages of the action plan in each stage of implementation. Rings from inside to out represent progress for 2004/5 and then for each year to 2009/10.

A significant number of measures remain in the other two categories, with 13% of measures not started and 15% in a planning phase. A first step in understanding more about these measures is identification of performance in each Package of measures (Figure 2-7).

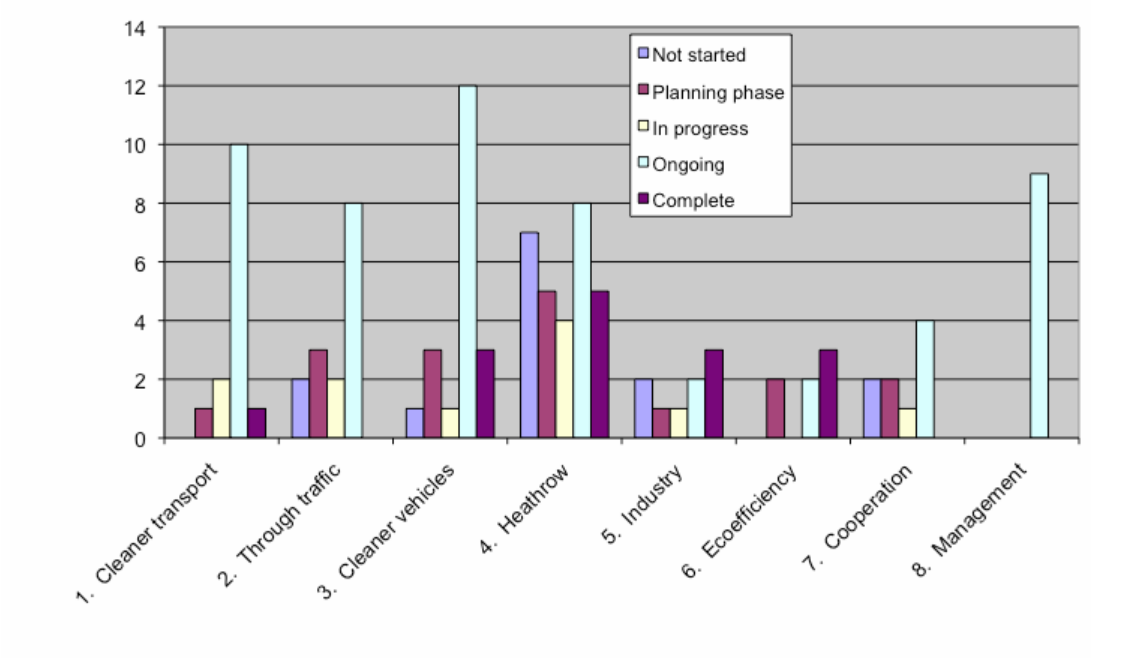


Figure 2-7. Progress of actions in each package in the action plan, showing the number of measures at each of the five stages listed (at end April 2010).

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 pf 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 is also notable that there has been limited progress in terms of bringing on measures in the last year compared to 2008/9 (the number in each development category is more or less unchanged over the two years). We identify two reasons for this:

1. The plan is now reasonably mature, having been in place for 6 years. Measures that were do-able have to a large extent been completed. Measures that were found, on investigation, to be problematic in some way (impractical, possibly causing secondary disbenefit to one or more stakeholders, unfunded, etc.) have not progressed. These measures require reconsideration to assess whether they should be brought forward for further discussion.
2. The Air Quality Officer has been focussed on providing information relevant to the development of a Third Runway at Heathrow. Whilst the Council's opposition to the Third Runway has been successful, it has unavoidably taken some effort away from the wider implementation of the Action Plan.

9.3 Opportunities

A large number of measures identified in the action plan have been included in the LIP. 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.

9.4 Faults

The following is a summary of preliminary findings in the independent audit of that is 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.

9.5 Threats

A major threat to air quality in the Borough has been eliminated in recent months by the decision of the new National 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.

9.6 Progress with the action plan: Selected highlights

9.6.1Highlights from the reporting year

Actions taken by the Borough alone

School Travel Plans

These are now in place throughout the Borough with an overall achievement, in 2009, of a 17% modal shift away from car use across the Borough. The travel plans have all made clear links with improving air quality though reducing car use and curriculum specific material has been produced for use in schools.

Business Travel Plans

Although these are requested, where relevant, with new planning developments, there is now an emerging pro-active approach to developing area-wide travel plans. The first area scheme in Hillingdon is being developed using a partnership approach with a local university, large hospital and a shopping centre.

Carbon Footprint

With the development of the Borough Climate Change Strategy, Hillingdon has taken on the development of an emissions database for transport within the Borough. This will use the West London emissions model, TEEM, and will quantify CO_2 and local air quality pollutants (NO_2 and PM_{10}). This will give the Borough the means to evaluate policies and intervention measures with regards to emission reductions in these pollutants and ensure any trade-off issues are highlighted before implementation.

Ford Electric Vehicle Pilot

Hillingdon have become a pilot authority, working in partnership with Ford Focus Battery Electric Vehicle consortium, to plan and implement the trial of 5 Ford Focus electric vehicles across the Borough in 2010 and 2011. The consortium will invest in EV charging infrastructure at approx 20 sites across the Borough which will form the start of an extensive Borough-wide infrastructure regime.

Action taken by the Borough in partnership with other organisations

Local Cab firm wins award

Hillingdon have worked with a local cab firm over a number of years to reduce pollutant emissions. This year Qdell/LHR Express Cars have received the BS 14001 accreditation. Their work for environmental improvements includes the introduction of a training programme for their drivers which as been calculated as giving the potential to secure a reduction in CO_2 of 211 tonnes and cost saving of £95,328 on fuel. The company are also trialling electric scooters for courier work in the local area.

Introduction of the Hillingdon Green Doctor

This has been set up via the Local Strategic Partnership Cleaner and Greener Theme group. There are three Hillingdon Green doctors who visit residential homes offering energy and water saving advice. There is a target of 840 properties to be visited within the year with an estimation of a CO_2 saving of 714 tonnes.

British Airways APU (Auxiliary Power Unit) Project

British Airways has achieved success in a project to reduce Auxiliary Power Unit (APU) usage across the BA network. The APU, located in the tail of an aircraft and run on jet fuel, is used when planes are on the ground instead of the main engines for keeping onboard services running, e.g. heating, air conditioning, lights and power, for passenger comfort, cleaning, maintenance, etc. BA has strengthened its commitment to using fixed ground based sources of power and air where available instead of APUs to reduce ground noise and emissions. Overall the project has saved 1000 tonnes of fuel burn to date and has projected savings of 40,000 tonnes of CO_2 possible annually over the BA network, with corresponding reductions in other pollutants including noise.

The Heathrow Judgement

As noted in Chapter 4, Hillingdon, working with other stakeholders, has successfully challenged the government's decision to construct a third runway at Heathrow. This has now been reaffirmed by the announcement from the new coalition Government on 13th May 2010 that the new runway is cancelled.

9.6.2Overview of the measures in each Package

Package 1 - Switching to cleaner transport modes

This is now firmly embedded in Borough transport objectives with success achieved in the areas of cycling, walking and safer routes to school The introduction of campaigns, such as Feet First, have put improving air quality at the heart of the school travel plans and brought the idea of improving air quality into the classroom via the production curriculum-specific material.

In 2004, the lack of effective north - south routes through the Borough were highlighted as a major barrier to achieving improvements in modal shift from private car. The introduction of plans for a Community bus in hard-to-reach areas plus a Fastbus along a key north-south corridor through Hillingdon represent significant improvements and opportunities to increase modal share from private car use.

Package 2 Tackling Through Traffic

Collection of regular traffic data has been a problem for the Borough for a number of years. With the implementation of the Air Quality Action Plan and the securing of funds via TfL there are now Automatic Traffic Counters in place on the three main Borough feeder roads to the airport and a number of mobile counters available which are used on a regular basis throughout the Borough. The mobile units will be used in the same locations on an annual basis to allow the establishment of trends on a year by year basis. This information work will aid the review of the AQAP with regard to sources to target for improvements and help to assess the extent of congestion hotspots throughout the Borough.

Back in 2004 there were no regular meetings with the Highways Agency. However, the establishment of the Action Plan has led to regular meetings with the Agency. Improving air quality in areas of non-compliance is seen as a key objective and the HA meetings offer opportunities to share air quality information. In Hillingdon specifically, improvements have been introduced to the Heathrow junction to improve traffic flow and ease queuing.

Through continued partnership working with the West London transport group, air quality is now seen as a major issue for the region and the need for improvement is recognised in strategic objectives at this level. For example, the draft West London Transport Strategy (Feb 2010) has key objectives that address the improvement of air quality and reducing CO_2 emissions.

Package 3 Promotion of Cleaner vehicles

The establishment of the Action Plan led to a focus on the Borough-run fleet. There is now an Emissions Inventory for the fleet so that its contribution to the local pollution climate is now quantified and efforts have been made to reduce emissions. Hillingdon is now a Silver award member of the Clean Vehicles Programme, a Bronze award member of the Freight Operator Recognition scheme and has a full driver training programme in place.

Cleaner Technologies - Low Emission Strategy (LES) Partnership

The LES grouping emerged from the Beacon Councils and is now an established mechanism for seeking to improve understanding and advance the agenda of using low emission strategies in areas of transport and planning. Hillingdon are now a member of the Partnership Board. This year's work plan includes the establishment of a Low Emission Toolkit for assessing transport options, the development of Procurement Guidance and the launch of the Regional Groups Initiative Scheme where several authorities work together to take forward low emission strategies through their regions.

Package 4 Heathrow Expansion

The Heathrow Judgement and recent decision to cancel the third runway represents a successful end to a long running campaign. Hillingdon have participated throughout the Heathrow expansion process providing resource as a part of the Air Quality Technical Panels Groups, working to provide robust technical responses to consultations and finally to becoming a key member of the campaign group 2M which took the campaign to the European Commissioner in Strasbourg and, inevitably, to a full legal challenge in the High Courts. The Council are currently awaiting the 60% costs awarded against the Government as a result of the successful challenge.

Heathrow in Existing Limits

Through continual pressure regarding the air quality exceedances around Heathrow it is now anticipated that the Heathrow area will be a separate sub-section within the GLA agglomeration in the Time Extension Application for NO_2 currently being prepared by Defra. This means that measures will have to be identified and implemented to ensure air quality compliance is achieved by the end of 2015 at the latest.

Hillingdon will continue to work with BAA and airlines to secure the reductions needed to ensure compliance with the air quality limits. A BAA Heathrow Air Quality Strategy and Action Plan is in place with a rolling programme for review and update. The Heathrow Surface Access Strategy has a clear objective for measuring and reducing the CO_2 and NOx emissions per passenger and the target to get 40% of people travelling to the airport by public transport by 2013 has been achieved. The next target is 45% by public transport and the Borough will continue to work in partnership with the airport to help take this target forward. Action is also being taken by some airlines. BA, for example, has clear targets for environmental improvements including improving operating procedures as in the APU project. It has recently invested in 150 electric tugs for use on-airport and is at the Diamond level award for its participation in the BAA Clean Vehicle Programme.

Package 5

Hillingdon, as part of the APPLE group, were involved in the development of the Best Practice guide for controlling emissions from construction and demolition sites. This guide was adopted by the GLA and is now in use throughout London.

Package 6

Introduction of the Hillingdon Green Doctor

This has been set up via the Local Strategic Partnership Cleaner and Greener Theme group. There are three Hillingdon Green doctors who visit residential homes offering energy and water saving advice.

There is a target of 840 properties to be visited within the year with an estimation of a CO_2 saving of 714 tonnes.

Pre-Planning Application Advice

This has been strengthened since the declaration of the AQMA. Developers are given clear information as to where and when an air quality assessment is required, what types of mitigation are expected to be put in place and circumstances where a section 106 agreement for air quality improvements is to be anticipated.

Package 7

Key Borough corporate strategies such as the Sustainable Community Strategy, Climate Change Strategy and the emerging Local Development Framework Core Strategy and Borough Transport Strategy all have core objectives of securing air quality improvements.

Improvements have been seen with regards to communication of air quality information with a specific air quality website for Hillingdon and regional sites with the Heathrow Airwatch group and West London Air Quality group. Hillingdon have been a part of the Airtext consortium since its conception. 94 subscribers had signed up in Hillingdon by the end of 2009.

9.6.3Improvements in Understanding of Air Quality in the Borough

Development of the Transport Enhanced Emissions Model (TEEM)

TEEM (see Figure 2-8), which started as a project by the West London Air Quality group will allow the testing of emission reduction scenarios throughout the whole West London region using a bespoke emissions inventory validated by the use of Automatic Number Plate Recognition and traffic counts as well as outputs from relevant traffic models. In Hillingdon this tool is being used to create a Borough-specific emissions database. This will allow us to monitor the Borough's carbon footprint and, using the TEEM software, evaluate the effect of transport policies and traffic management projects to ensure they are designed to achieve the maximum effective reductions in air pollutants (CO_2, NO_2 and PM_{10}).

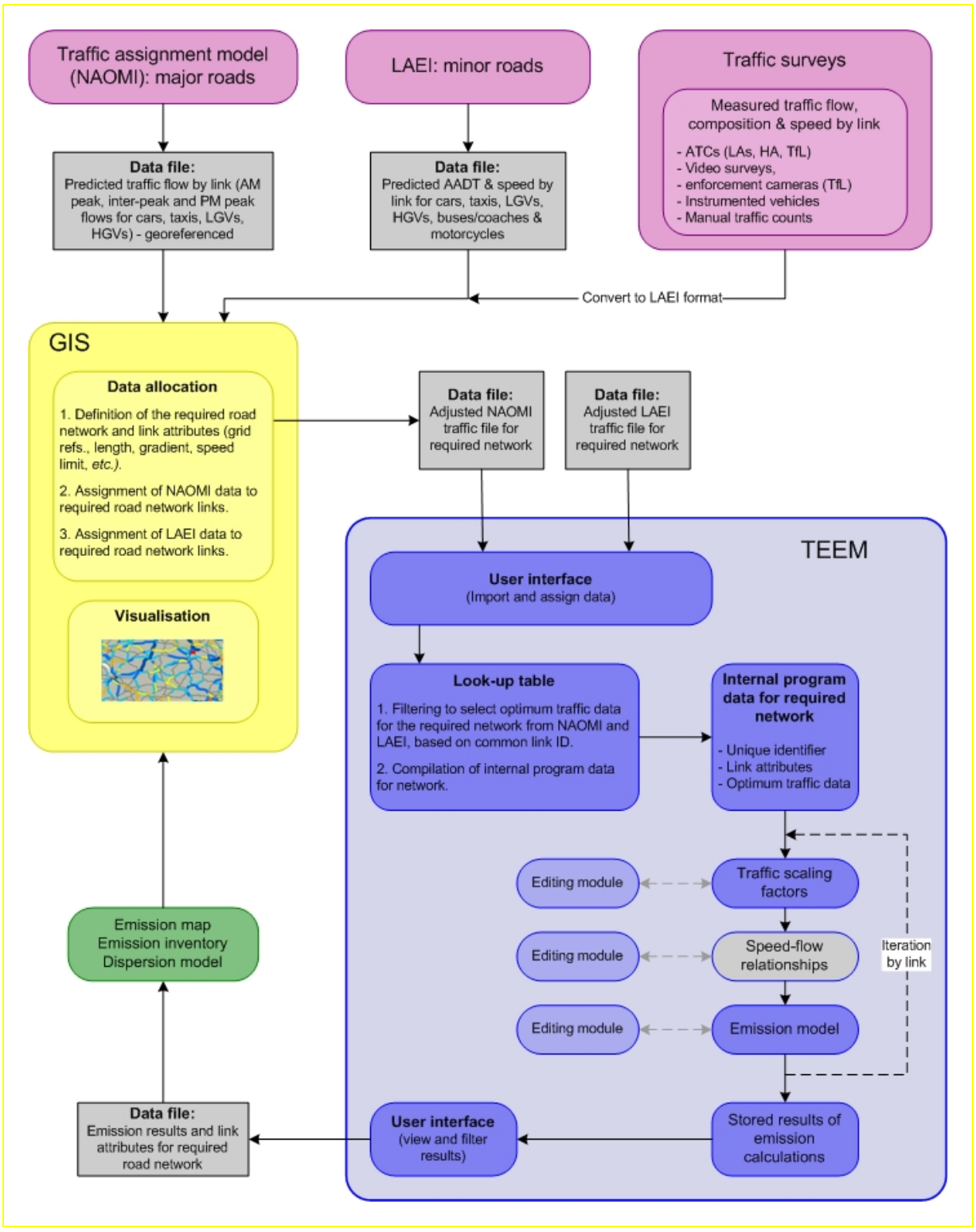


Figure 2-8. Generalised TEEM structure

Recent Aircraft Flight ban

As noted in Section 4.1, the recent flight ban provides a unique opportunity to understand the air pollutant impacts of airports, associated traffic and other activities. Development of a better understanding of source apportionment is of critical importance to the formulation of any revision to the action plan as it will show how different stakeholders can each contribute under a cost-effective

action plan. Preliminary analysis discussed above showed that significant changes of air quality were observed and demonstrate the potential usefulness of the information collected. Hillingdon will be working with Hounslow to pursue a robust analysis of the data to help inform the current understanding of e.g. aircraft plumes, the impact of airside vehicles, and the impact of road traffic. This in turn will inform both air quality modelling tools and help target action plan measures to ensure the appropriate sources are being targeted.

AirTrack

The *AirTrack* project based at Lancaster University is developing and disseminating novel methods for analysing ambient air-quality data (*http://airtrack.lancs.ac.uk/*). Data from the London Hillingdon AURN site have been examined as a case study, in order to show how ambient air quality data can be analysed to reveal additional and detailed information on sources of air pollution. In particular, the case study examines emissions of NO_2 from road traffic on the M4. Trends in vehicle emissions can also be tracked on an approximately monthly basis, in order to assess if controls to reduce air pollution in the Borough are working effectively. In-depth analysis of the data indicates that emissions of NO_2 from rush-hour traffic on the M4 are rising, although there is some evidence of an improvement towards the end of 2007/8. These techniques will allow examination of the effectiveness of policies designed to reduce NO_2 impacts at Hillingdon. This can be used to assess the performance of different source sectors and may allow additional measures to be targeted more promptly and efficiently.

Air Quality and Health

A new £5 million MRC-HPA Centre for Environment and Health has been set up. One of the first projects is a study of people living near London's Heathrow Airport, exploring how air and noise pollution from both road traffic and the aviation sector can affect health. 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.

9.6.4Next Steps

Heathrow - Uncertainty over air quality around Heathrow

With the threat of the third runway cancelled, work now needs to focus on improving the current situation. Heathrow is not yet at its recognised capacity for a five Terminal airport. It currently handles 63 million passengers per annum (mppa). This is predicted to rise to 80 mppa by 2015 with a fully operational T5. In addition, in 08/09 the number of Air Transport Movements (ATM) was 470,000 ATMs. As the T5 Inquiry set a cap of 480,000 ATMs this leaves a potential 10,000 ATMs 'headroom' to be reached once the airport is operating under its full permit conditions.

With regards to road traffic, although the modal split in favour of public transport is predicted to increase over time, the actual capacity of the airport and numbers of non transfer passengers accessing the airport is also increasing. In real terms this is an increase of 10.74m per annum accessing the airport by private transport above the levels experienced in 2004 and an additional 3.04m in the time period 2010 to 2015.

Measures will need to be put in place to mitigate any rises in air pollutant emissions that will arise from these factors cause. Hillingdon are currently waiting for publication of the consultation on the draft Time Extension Application for NO_2 to see how these issues are addressed.

Control

The Heathrow Expansion Decision in 2009 made reference to a number of measures to be put in place to ensure that air quality limit values were not breached. These included the introduction of a 'green slot' mechanism to incentivise the use of cleaner planes and the introduction of a mechanism by which the CAA and the EA would have a role to play in ensuring the air quality limits were met. It

is as yet unclear as to whether these mechanisms will come to fruition as the promised consultations have not yet been published. Given that there are known exceedances around Heathrow, Hillingdon will be seeking to clarify whether these measures are taken forward as part of the Time Extension application.

Operational Practices

As part of the Heathrow Decision in 2009 the Government ceased an operational procedure called the Cranford Agreement. The ending of this agreement means the spatial distribution of the air pollutant emissions will be altered around the airport with the north-west having increases in emissions and the north-east having decreases in emissions. Hillingdon will be seeking assurance that the residential areas to the north-west of the airport, currently experiencing levels close to the 40 $\mu g/m^3$ limit, are not impacted by the change in operational procedure, especially if this results in a worsening of condition relative to the air quality limit value.

9.6.5Links with other policies and developments

Hillingdon

Several revised Borough policies should be beneficial for air quality:

- The emerging LDF has improving local air quality and reducing climate change emissions as key objectives;
- The emerging Borough Transport Strategy has improving the quality of life by reducing local air pollution and reducing the carbon footprint of Hillingdon transport as key objectives ;
- The review of the Air Quality Action Plan will focus on incorporating measures from the MAQS when finalised and the Time Extension Application (if granted by the European Commission), and will be designed to meet the air quality limits at all residential locations.

Regional/Central Govt

A number of policy statements have been issued by Central and Regional Government in recent months:

- The Coalition Agreement of the new government says little directly about air quality, simply that the coalition will "*work towards full compliance with European Air Quality standards*". This wording is rather weak ("*…meet the European Air Quality Standards*" would be substantially more robust) and begs the question of where responsibility for meeting the limit values is now considered to reside. In other areas the Agreement is much more positive, for example, in stating that the Third Runway proposal for Heathrow is cancelled and supporting moves for a 30% cut in EU greenhouse gas emissions by 2020 rather than the currently agreed position of a 20% cut in emissions.
- In early 2010 Defra released a report entitled "Air Pollution: Action in a Changing Climate". This report recognises the trade-offs that exist between policies on air quality and climate change. Some of these can be beneficial, some not so (the best known example probably being the increased emission of particles when burning biomass). An understanding of where the synergies exist and where they do not clearly needs to be a part of any future policy appraisal and the Defra report shows that this should happen (though released before the general election in May the content of the report is rooted in science so appears likely to be accepted by the new Government, particularly given the cost-effective nature of measures that are good for both air quality and climate). Hillingdon recognised these issues during the development of its Air Quality Action Plan in the early 2000s, identifying and rating impacts of air pollution control measures on policy in a number of other areas including climate change using the Action Plan Tracker software. The vast majority of the measures included in the action plan were beneficial for air quality.
- The Environmental Audit Committee's Air Quality Report highlighted the health problems associated with poor air quality and the need to do more about them. Perhaps the principal

conclusion of the report is that "*The cost-benefit analysis* [of policies to reduce air pollution and improve health] *is clear: what is needed is the political will to make this a priority and to commit the resources to address it now so that we can reap the benefits of improved health*". The report recognises transport as the major source of air pollution related health problems and calls for a significant shift in transport policy. However, it seems to put undue emphasis for doing this on local authorities rather than national government. As shown in this progress report, most of the transport related problems faced by Hillingdon are not under its control, because the major roads in the Borough and Heathrow Airport are the responsibility of other Agencies and the Borough has no control over standards for vehicle emissions beyond its support for the low emission zone.

- The Highways Agency Environment Strategy states that: "*We are committed to delivering the most effective solutions to minimise the air quality impacts resulting from traffic using our network. We will operate and develop our network in a way that is compatible with working toward compliance with statutory air quality limits*." Hillingdon has some concern about this statement. In many locations the sole reason that a breach of the limit values exists is due to emissions from the major roads operated by the Highways Agency. We therefore question whether it is sufficient therefore for the Highways Agency (like Central Government) to commit only to "*work towards*" compliance.
- The draft Air Quality Strategy (AQS) from the mayor of London reviews the capital's air quality problems and provides guidance on the types of measure that can be introduced to deal with it. It usefully contains a pledge that the Mayor will work with Boroughs that wish to take local action to address air quality problems through the use of local low emission zones or equivalent measures, though only after 2015. There is potential for a worsening of air quality in Hillingdon under some measures, for example focussing the cleanest buses on routes using Central London. However, this could be offset by other commitments in the AQS to work with BAA Heathrow and central Government to further mitigate the air quality impact of existing Heathrow operations. Whilst Hillingdon is pleased to note that this is included in the AQS we believe that the Mayor should also work with the local authorities most affected by Heathrow in addition to BAA and central Government: initiatives that are led by these local authorities such as TEEM, Airtrack and, conditional on funding being provided, analysis of the effects of the closure of Heathrow during the recent ash cloud event, demonstrate that they have much cutting-edge analysis to offer to this debate. They are also uniquely in a position to provide information concerning the contribution of the airport and related traffic to the wider air quality problems of West London.

Actions coming on-stream

Crossrail will improve access across London to the West including Heathrow. However this will replace the current Heathrow Connect stopping service so does not represent additional access capacity with regards to Heathrow. Airtrack will improve access to the airport from the south-west although it is only thought likely to increase modal shift to the airport by public transport by 1%

High Speed 2 (HS2)

Hillingdon, as a supporter of 2M, have been lobbying for a proper strategic approach to a high speed network for the UK for a number of years. The 2M group has consistently asked that the requirement to realise modal shift from roads and short haul air, including near Europe as well as within the UK, should be an objective for any national high speed network. The HS2 report published in December 2009 has fallen short of this. Given the narrow remit of the HS2 company, which was to look at a London to Birmingham link with a Heathrow connection, this is not necessarily surprising. Hillingdon, with 2M, will continue to lobby for a proper national framework in which a national high speed network with optimal routes for the UK has the objective of achieving environmental improvements with regards to modal shift from short haul air and road and freeing up capacity on local rail networks

Potential for a Heathrow Hub

The HS2 report concludes that the concept of a Heathrow Hub has a weak business case. It would mean longer journey times for the 80% of passengers not interested in a Heathrow destination. A hub would also attract road congestion in a location already declared as an Air Quality Management Area and already suffering from poor air quality above European Union limits. It is Hillingdon's view that a Heathrow Hub therefore does not support the objective for achieving modal shift from road or air to rail.

BAA has reiterated a view that high speed rail access to Heathrow would increase demand and strengthen the case for additional runway capacity (Heathrow Area Consultative Committee (March 31, 2010). Again these forecasts are inconsistent with the aim of achieving a modal shift from air to ensure carbon emission reductions.

There is clearly a need for Heathrow to be comprehensively connected by rail to the wider UK. The Hillingdon preference is for an improved network of local and regional rail links built around an extended Heathrow Express system. This would provide through services from all sides of the airport and provide benefits to local travellers and airport workers as well as others travelling from further afield.

The concept of the Heathrow Hub is subject to a separate more in-depth investigation under Lord Mahwhinney, due to report in June 2010. It is unclear, currently, whether this still stands given the recent change in Government.

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.

Opportunities for funding and further collaboration are being actively investigated.

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.

Highlights of Action Plan implementation over the last year cover areas such as the development of travel plans for schools and businesses, implementation of various schemes for congestion relief, growing interest from local businesses (Qdell/LHR Express Cars providing a shining example), the Heathrow Judgement and improved understanding of air quality in the Borough and associated health impacts.

Chapter 10 Conclusions and Proposed Actions

10.1 Conclusions from New Monitoring Data

The automatic monitoring sites in the Borough measured concentrations that exceeded the NO_2 annual mean objective at 5 sites in 2009. All these sites are within the current Hillingdon AQMA and do not represent any new exceedances of the annual mean NO_2 objective to 2008. The overall trend across the automatic monitoring stations indicates that annual mean concentrations have remained steady.

As in previous years, the hourly objective was achieved at each of the automatic monitoring sites.

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 8 sites. Two of the exceedances were measured at the two new Highways Agency sites near the M4. The other 6 were at London Borough of Hillingdon sites that also measured an exceedance in 2008. Data indicate that the motorway contributes to exceedances at relevant receptors with the Borough. As all these locations are within the current AQMA there is not a requirement to proceed to a Detailed Assessment.

The 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
- HD55 Harold Avenue
- HD58 Brendan Close
- HD81 Cranford Drive Roadside
- HD82 Cranford Drive Residential

In 2009, diffusion tubes HD79 and HD80 were moved from the southern edge to the northern edge of the Great Western Mainline to monitor the NO_2 concentrations resulting from diesel locomotives following the recommendation made in the 2009 USA. Short-term monitoring at both locations indicated that the railway does not cause exceedance at relative receptors.

The trend in measured results at diffusion tube sites since 1999 does not indicate that there has been a significant improvement in NO_2 concentrations.

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. One site, Hillingdon 1 – South Ruislip, saw a large increase in the annual mean concentrations from 22.9 µg m^{-3} in 2008 to 35.4 µg m^{-3} in 2009, although this is still below the annual mean objective for PM_{10}. The other sites either remained similar to 2008 levels or saw a reduction in PM_{10} concentrations.

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

Benzene is monitored at 5 diffusion tube sites within the Borough. At each of these sites the measured concentration is well below the annual mean objective of 5 µg m^{-3}. At all sites, except South Ruislip Monitoring Station, there was a reduction in concentrations from 2008. The trend since 2007 appears to be stable with measured concentrations in each year well below the annual mean objective.

Ozone is monitored at 4 sites within the Borough; concentrations in 2009 were in the range of 26 µg m^{-3} to 38 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.

10.2 Conclusions relating to New Local Developments

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

10.3 Conclusions relating to Priority Areas

A number of priority areas were identified in the Borough, relating to Heathrow Airport and the major road network that passes through Hillingdon. Opportunities for addressing the problems caused by these sources of air pollution will need to be discussed with the responsible authorities. In relation to Heathrow Airport, the Council is concerned that under current plans there does not seem to be a willingness for Local Authorities to be involved in the new Airports Taskforce. The cancellation of the Third Runway makes it appropriate that all stakeholders should be brought together to consider how the Airport can be better integrated with the surrounding urban landscape.

10.4 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.

Highlights of Action Plan implementation over the last year include the development of travel plans for schools and businesses, implementation of various schemes for congestion relief, growing interest from local businesses (Qdell/LHR Express Cars providing a shining example), the Heathrow Judgement and improved understanding of air quality in the Borough and associated health impacts.

10.5 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.

Improved understanding of the effects of traffic and the airport on air quality in the southern half of the Borough is possible drawing on data collected at the time that Heathrow Airport was closed because of the Icelandic volcanic ash cloud. Preliminary analysis suggests that the effects on NO_2 levels were significant. More detailed analysis should be considered a priority as it will help the Council to design a cost-effective response to the continuing air quality problems in the Borough.

An independent audit of progress with the Action Plan has been held over for some time because of the continuing uncertainty about developments at Heathrow Airport. With this uncertainty removed, the audit will be completed shortly.

The current Action Plan for improving air quality will need to be updated in the coming year. Many of the measures listed in it have now been completed. Several seem unlikely to be implemented for a variety of reasons. Redrafting of the Action Plan will require active participation from other stakeholders to ensure that the measures contained within it will be implemented.

Chapter 11 References

11.1 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

11.2 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

11.3 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

Mayor of London (2009) Clearing the air: The Mayor's draft Air Quality Strategy for consultation with the London Assembly and functional bodies.

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 2-1a 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 were predicted to 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 which 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.

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 A2-2 respectively. Further details are provided in Tables A2-1 and A2-2.

Figure A2-1. Map of Automatic Monitoring Sites

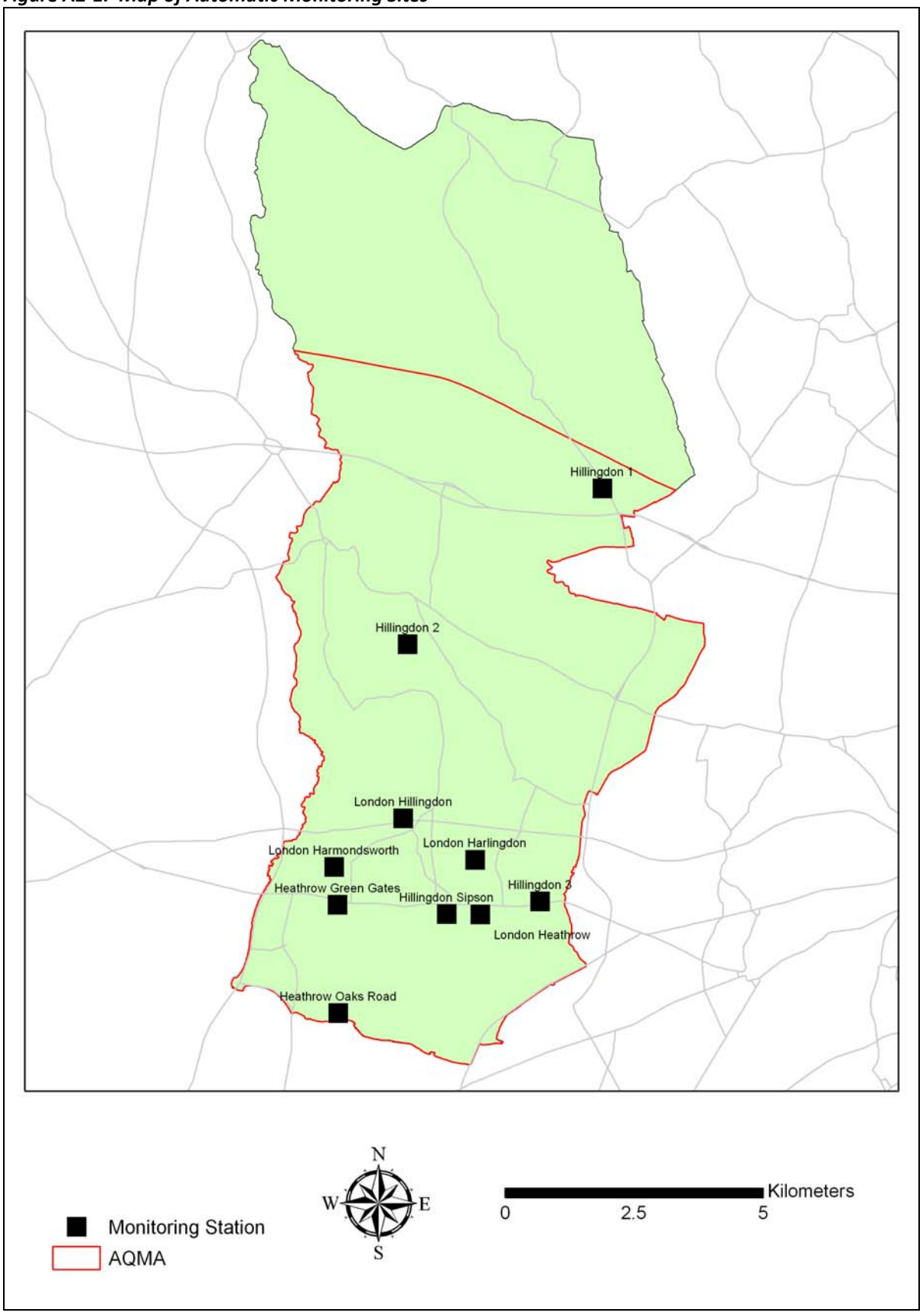


Figure A2-2. Map of Non-Automatic Monitoring Sites

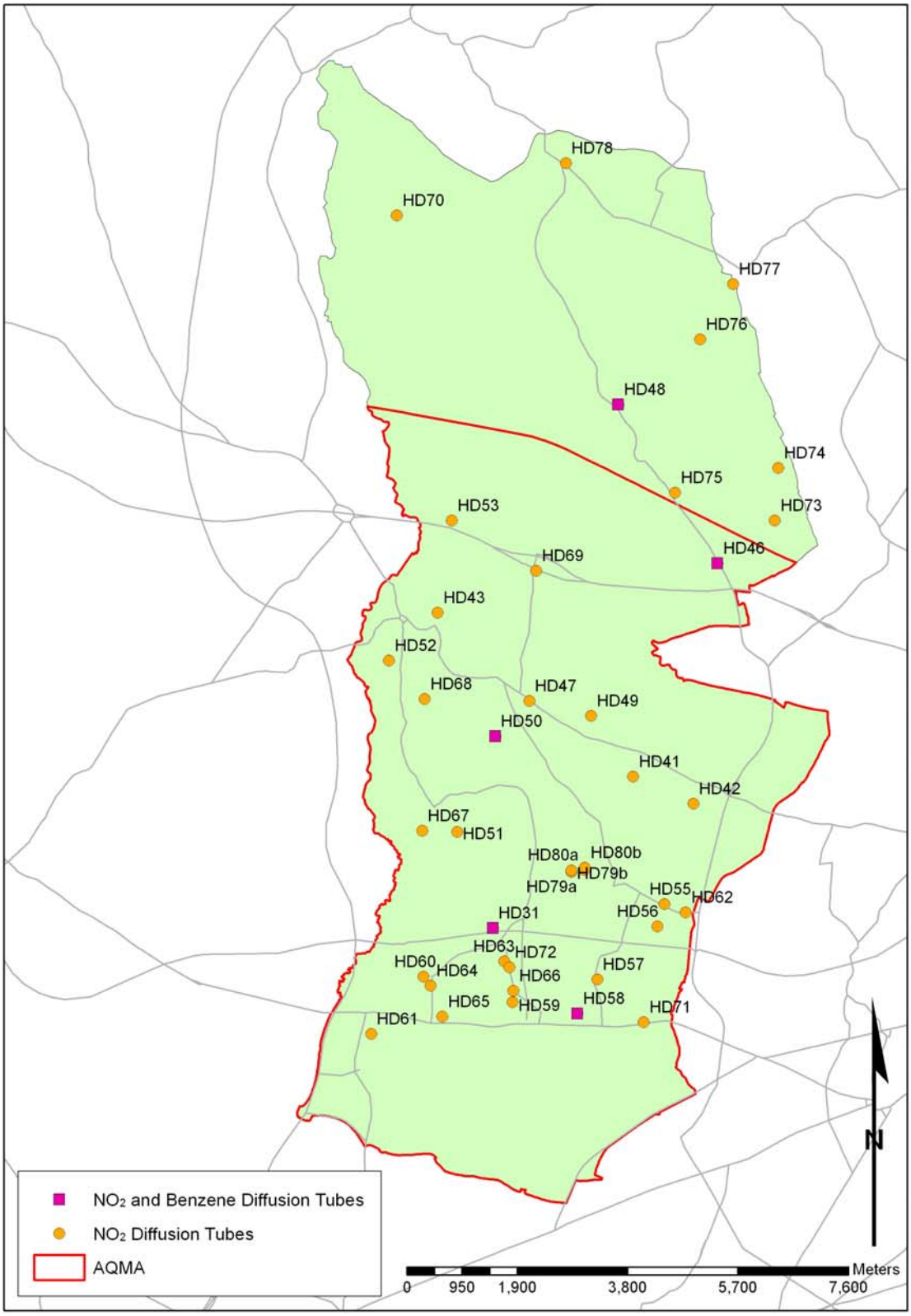


Table A2-1. Details of Automatic Monitoring Sites

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} (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 (0m)	18m	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	Airport	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, Benzene	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, Benzene	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, Benzene	No	N	7m	No
HD49	Background	508650	182274	NO_2	Yes	Y(7m)	7m	No - background
HD50#	Roadside	506991	181923	NO_2, Benzene	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	Y(95m)	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, Benzene	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
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

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?
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			
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			
HD81[+]	Roadside	509815	178355	NO_2			2m	Yes - Representative of M4
HD82[+]	Residential	509808	178326	NO_2			14m	Yes –Representative of M4 at residential property

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

**Site moved during 2010

*** Although some of the grid references provided in Table 2.2 vary slightly from previous Review and Assessment reports this does not indicate a change in location. The London Borough of Hillingdon undertook a mapping exercise in 2009 which has improved the accuracy of the diffusion tube locations.

[#] Triplicate co-location site

[+] Highways Agency diffusion tube

A2.2 Derivation of Bias Adjustment Factors

A2.2.1 Diffusion tubes

Assessment of precision and accuracy

Triplicate tubes were installed at three sites, South Ruislip, Hillingdon Hospital and Sipson. Data sheets for each site are shown in Table A2-3.

Table A2-3. Data sheets for checking precision and accuracy of triplicate 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	01/01/2009	31/01/2009	58.7	68.9	64.1	64	5.1	8	12.6
2	01/02/2009	28/02/2009	60.1	55.8	54.8	57	2.8	5	7.0
3	01/03/2009	31/03/2009	33.6	32.7	31.0	32	1.3	4	3.2
4	01/04/2009	30/03/2009							
5	01/05/2009	31/05/2009	43.2	44.6	39.6	42	2.6	6	6.4
6	01/06/2009	30/06/2009	50.9	51.5	50.8	51	0.4	1	1.0
7	01/07/2009	31/07/2009	43.0	36.5	38.4	39	3.4	9	8.3
8	01/08/2009	31/08/2009	39.2	39.8	34.9	38	2.7	7	6.7
9	01/09/2009	30/09/2009	41.1	43.6	43.2	43	1.3	3	3.3
10	01/10/2009	31/10/2009	57.0	62.0	57.6	59	2.7	5	6.8
11	01/11/2009	30/11/2009	61.1	65.4	54.0	60	5.7	10	14.2
12	01/12/2009	31/12/2009	58.5	56.4	55.2	57	1.7	3	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
61.72177	100	Good	Good
66.50595	100	Good	Good
71.34367	99.7311828	Good	Good
51.56067	99.16666667		Good
62	100	Good	Good
44	100	Good	Good
33	100	Good	Good
38	100	Good	Good
33	81.80555556	Good	Good
59	81.85483871	Good	Good
44.00833	100	Good	Good
56.86156	100	Good	Good
Overall survey -->		Good precision	Good Overall DC

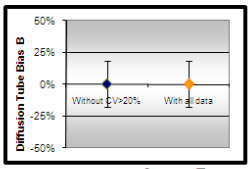
(Check average CV & DC from Accuracy calculations)

Site Name/ ID: South Ruislip

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	1.05 (0.88 - 1.29)
Bias B	-5% (-22% - 13%)
Diffusion Tubes Mean:	49 μgm^{-3}
Mean CV (Precision):	5
Automatic Mean:	52 μgm^{-3}
Data Capture for periods used:	97%
Adjusted Tubes Mean:	52 (43 - 64) μgm^{-3}

Accuracy (with 95% confidence interval) WITH ALL DATA	
Bias calculated using 11 periods of data	
Bias factor A	1.05 (0.88 - 1.29)
Bias B	-5% (-22% - 13%)
Diffusion Tubes Mean:	49 μgm^{-3}
Mean CV (Precision):	5
Automatic Mean:	52 μgm^{-3}
Data Capture for periods used:	97%
Adjusted Tubes Mean:	52 (43 - 64) 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	01/01/2009	31/01/2009	48.2	60.7	57.3	55	6.5	12	16.0
2	01/02/2009	28/02/2009	50.8	50.1	53.0	51	1.5	3	3.8
3	01/03/2009	31/03/2009	33.5	30.2	33.4	32	1.8	6	4.6
4	01/04/2009	30/03/2009							
5	01/05/2009	31/05/2009	29.9	28.1	33.7	31	2.8	9	7.1
6	01/06/2009	30/06/2009	33.2	32.6	38.1	35	3.0	9	7.4
7	01/07/2009	31/07/2009	35.2	32.6	22.6	30	6.6	22	16.5
8	01/08/2009	31/08/2009	34.0	35.0	37.4	35	1.7	5	4.3
9	01/09/2009	30/09/2009	34.3	38.2	34.9	36	2.1	6	5.2
10	01/10/2009	31/10/2009	40.3	48.4	46.9	45	4.3	10	10.8
11	01/11/2009	30/11/2009	50.0	48.8	49.3	49	0.6	1	1.4
12	01/12/2009	31/12/2009	41.2	52.3	45.6	46	5.6	12	13.8
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
50.87618	100	Good	Good
46.2753	100	Good	Good
41.71237	99.7311828	Good	Good
38.07972	99.16666667		Good
51	100	Good	Good
25	100	Good	Good
28	100	Poor Precision	Good
33	100	Good	Good
25	81.80555556	Good	Good
46	81.85483871	Good	Good
38.20417	100	Good	Good
49.54435	100	Good	Good
Overall survey -->		Good	Good

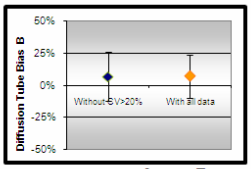
(Check average CV & DC from Accuracy calculations)

Site Name/ ID: Hillingdon Hospital

Precision 10 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 10 periods of data
Bias factor A 0.98 (0.82 - 1.2)
Bias B 2% (-17% - 22%)
Diffusion Tubes Mean: 42 µgm^{-3}
Mean CV (Precision): 7
Automatic Mean: 41 µgm^{-3}
Data Capture for periods used: 96%
Adjusted Tubes Mean: 41 (34 - 50) µgm^{-3}

Accuracy (with 95% confidence interval)
WITH ALL DATA
Bias calculated using 11 periods of data
Bias factor A 0.97 (0.83 - 1.17)
Bias B 3% (-14% - 20%)
Diffusion Tubes Mean: 41 µgm^{-3}
Mean CV (Precision): 9
Automatic Mean: 39 µgm^{-3}
Data Capture for periods used: 97%
Adjusted Tubes Mean: 39 (34 - 47) µgm^{-3}



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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	01/01/2009	31/01/2009	72.7	62.9	62.0	66	5.9	9	14.7
2	01/02/2009	28/02/2009	47.6	52.4	52.4	51	2.7	5	6.8
3	01/03/2009	31/03/2009	26.7	30.8	28.3	29	2.1	7	5.2
4	01/04/2009	30/03/2009							
5	01/05/2009	31/05/2009	40.7	40.9	41.1	41	0.2	1	0.5
6	01/06/2009	30/06/2009	46.3	43.1	46.0	45	1.8	4	4.4
7	01/07/2009	31/07/2009	47.2	48.7	47.7	48	0.8	2	1.9
8	01/08/2009	31/08/2009	50.4	51.8	49.5	51	1.2	2	2.9
9	01/09/2009	30/09/2009	33.3	31.6	33.4	33	1.0	3	2.4
10	01/10/2009	31/10/2009	50.5	48.4	49.1	49	1.0	2	2.5
11	01/11/2009	30/11/2009	64.5	60.0	65.6	63	3.0	5	7.3
12	01/12/2009	31/12/2009		52.0	45.2	49	4.8	10	43.5
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
54.47425	100	Good	Good
46.51042	100	Good	Good
38.64468	100	Good	Good
42.40612	100		Good
54	100	Good	Good
31	100	Good	Good
25	100	Good	Good
30	100	Good	Good
30	99.72222222	Good	Good
43	100	Good	Good
41.72517	100	Good	Good
56.82258	100	Good	Good
Overall survey -->		Good precision	Good Overall DC

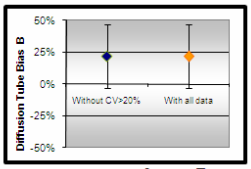
(Check average CV & DC from Accuracy calculations)

Site Name/ ID: AURN Sipson

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 0.86 (0.71 - 1.1)
Bias B 16% (-9% - 41%)
Diffusion Tubes Mean: 48 µgm^{-3}
Mean CV (Precision): 5
Automatic Mean: 41 µgm^{-3}
Data Capture for periods used: 100%
Adjusted Tubes Mean: 41 (34 - 52) µgm^{-3}

Accuracy (with 95% confidence interval)
WITH ALL DATA
Bias calculated using 11 periods of data
Bias factor A 0.86 (0.71 - 1.1)
Bias B 16% (-9% - 41%)
Diffusion Tubes Mean: 48 µgm^{-3}
Mean CV (Precision): 5
Automatic Mean: 41 µgm^{-3}
Data Capture for periods used: 100%
Adjusted Tubes Mean: 41 (34 - 52) µgm^{-3}



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Version 03 - November 2006

Derivation of bias factors from co-location sites

Three co-location studies comparing results from NO_2 diffusion tubes and continuous monitoring were carried out within the Borough (Table A2-4) at the London Hillingdon, Hillingdon 1 and Hillingdon 2 monitoring stations.

Table A2-4. Bias factor from co-location sites

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

The bias adjustment factor of 0.96 for 2009 was calculated as an average of the factors for the three sites considered. This average factor has been applied across the Borough, consistent with the previous review and assessment work.

Bias factors for the Highways Agency sites

The two Highways Agency diffusion tube sites with in the Borough are diffusion tubes supplied and analysed by Gradko using a preparation mixture of 20% triethanolamine (TEA) in water. As there are no co-located diffusion tubes within the Borough that use the preparation mixture of 20% TEA in water the national bias adjustment factor of 0.90, based on an average of 33 co-location studies across the UK, was applied for these sites. The Highways Agency publish results from this study on an annual basis, the analysis in this report based on the average national bias adjustment is simply to give an illustration of the degree of levels of pollution experienced close to the M4.

Short-term to long-term data adjustment

As monitoring at two of the diffusion tube sites (HD79 & HD80) was conducted over a short period of time, in two locations, the period mean needed to be adjusted to estimate the annual mean concentration. The adjustment factor was calculated using the methodology described in Box 3.2 of LAQM TG(09). Data from three long-term automatic monitoring sites within 50 miles of the diffusion sites were used, these sites were; Reading, Horley and Slough Colnbrook. The average ratio from these sites produced an adjustment factor of 0.93 for the period of January to May, and an average ratio of 0.98 for the period of August to December.

Table A2-5. Jan - May short-term adjustment factor calculation

Site	Annual Mean	Period Mean	Ratio
Reading	25.67	24.65	1.04
Horley	25.37	27.86	0.91
Slough Colnbrook	28.01	33.43	0.84
		Average	0.93

Table A2-6. Aug – Dec short-term adjustment factor calculation

Site	Annual Mean	Period Mean	Ratio
Reading	25.67	30.22	0.85
Horley	25.37	26.33	0.96
Slough Colnbrook	28.01	24.89	1.13
		Average	0.98

These factors were checked against data for Hillingdon Sipson, the only background site in the Borough, and found to be in very close agreement with it.

A2.2.2 PM_{10} monitors

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 0.8333 as described in TG(09) 3.39.

A2.3 QA/QC of automatic monitoring

A2.3.1 Automatic stations

QA/QC for Hillingdon1, Hillingdon 2 and Hillingdon 3 are provided by ERG King's College London. These stations are calibrated fortnightly by LSOs, with audits every 6 months. Calibrations are carried out by the Local Authority. 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 College following retrospective ratification of the measurements using procedures which exceed the requirements given by 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. The pollution measurements were then 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 are Sipson, Hayes, Hillingdon AURN, Harlington AURN and the 3 BAA sites located around Heathrow Airport – 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 gone through a full process of data ratification, including 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".

A2.3.2 Diffusion tubes

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 October 2008 – October 2009 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 2009 showing compliance against the daily mean limit value.

Table A3-3: Results from the diffusion tube network for 2008 and 2009.

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
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
	2009	97%	No	49.3	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?**
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	91.2	No	54.0	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
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
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
Sipson	2006	31%	No	45.0	No
	2007	82%	No	40.3	Yes
	2008	99%	Yes	38.0	Yes
	2009	99%	Yes	39.0	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

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?**
Heathrow Green Gates	2006	99%	Yes	37.0	Yes
	2007	90%	Yes	38.0	Yes
	2008	85%	Yes	38.0	Yes
	2009	99%	Yes	37.5	Yes
Hillingdon Harmondsworth	2007	40%	Yes	35.0	Yes
	2008	93%	Yes	32.0	Yes
	2009	95%	Yes	33.4	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 2009 [b] %	Number of Exceedances of hourly mean (200 $\mu g/m^3$)		
				2007	2008	2009
London Heathrow LHR2	Airport	Yes	97.9	12	0	**0**
London Hillington	Suburban	Yes	91.2	8	1 (159)	0
Hillingdon 1	Roadside	Yes	96.9	**21**	5	2
Hillingdon 2	Roadside	Yes	**88.6**	0	0	0 (89.3)
Hillingdon 3	Roadside	Yes	**89.0**	5	1	0 (97.9)
London Harlington	Airport	Yes	**60.2**	4	0	0 (82.5)
Hillingdon Sipson	Urban background	Yes	98.6	0	2	7
London Harmondsworth	Airport	Yes	94.7	0	0	0
Heathrow Green Gates	Airport	Yes	99.0	1	0 (141)	0
Heathrow Oaks Road	Airport	Yes	95.0	-	2 (168)	4
Hillingdon Hayes	Roadside	Yes	99.0	1	0	7

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

Site ID	Location	Within AQMA?	Data Capture for Monitoring Period, %	Data Capture for 2009, %	Annual mean concentrations (µg/m^3)	
					2008	2009
HD31	AURN Monitoring Station	Yes	83.3	83.3	**45**	**45.85**
	Barra Hall	Yes	91.7	91.7	30.7	28.14
	Uxbridge Technical College	Yes	91.7	91.7	35.8	35.55
HD43	Uxbridge Day Nursery	Yes	66.7	66.7	**45**	**45.48**
HD46	South Ruislip Monitoring Station	Yes	83.3	83.3	**47.3**	**47.5**
HD47	Hillingdon Primary School	Yes	75	75	32.2	32.3
HD48	Citizens Advice Bureau	No	91.7	91.7	30.7	30.14
HD49	83 Hayes End Drive, Hayes End	Yes	91.7	91.7	27	27.05
HD50	Hillingdon Hospital Monitoring Station	Yes	91.7	91.7	**40.2**	39.11
HD51	4 Colham Avenue	Yes	91.7	91.7	36.2	34.25
HD52	101 Cowley Mill Road	Yes	91.7	91.7	38.4	38.59
HD53	Warren Road	Yes	91.7	91.7	**45.5**	**44.14**
HD55	Harold Avenue	Yes	91.7	91.7	**41.7**	**40.53**
HD56	15 Phelps Way	Yes	91.7	91.7	38.5	35.19
HD57	25 Cranford Lane	Yes	91.7	91.7	38.3	37.17
HD58	Brendan Close	Yes	91.7	91.7	**41.6**	**43.22**
HD59	7 Bomber Close	Yes	91.7	91.7	36	36.56
HD60	Harmonsworth Green	Yes	91.7	91.7	32.9	31.03
HD61	Heathrow Close	Yes	91.7	91.7	36.7	36.25
HD62	1 North Hyde Gardens, Hayes	Yes	91.7	91.7	37.6	39.77
HD63	370 Sipson Road, Sipson,	Yes	91.7	91.7	34.6	32.88
HD64	34 Hatch Lane, Sipson	Yes	91.7	91.7	NA	32.79
HD65	28 Pinglestone Close, Sipson	Yes	91.7	91.7	31.8	32.95
HD66	486 Sipson Road, Sipson	Yes	91.7	91.7	34.1	32.88
HD67	31 Tavistock Road	Yes	91.7	91.7	31.8	29.82
HD68	Ratcliffe Close, Uxbridge	Yes	91.7	91.7	29	28.46
HD69	Hillingdon Health Centre, Freezeland Way	Yes	91.7	91.7	35.4	36.23
HD70	Harefield Hospital, Hill End Road	No	91.7	91.7	26	25.91
HD71	Oxford Avenue, Cranford	Yes	91.7	91.7	**40.9**	38.47
HD72	2 Vineries Close	Yes	91.7	91.7	30.5	29.91
HD73	Queensmead School, South Ruislip.	No	91.7	91.7	31.1	29.31
HD74	Field End Road/Field End School, S.Ruislip.	No	91.7	91.7	32.3	28.9
HD75	Sidmouth Drive, South Ruislip.	No	58.3	58.3	29.3	30.82
HD76	Kaduna Close, Eastcote	No	83.3	83.3	29.3	27.47
HD77	Chamberlain Way, Eastcote.	No	91.7	91.7	26.3	26.19
HD78	Gateway Close, Northwood.	No	91.7	91.7	32.5	32.82
HD79a	Rear Garden of 86 Stormount Drive (Attached to building)	Yes	60	25	33.4	34.41*
HD79b	Corner of Swallowfield Way and	Yes	100	41.7	-	32.13**

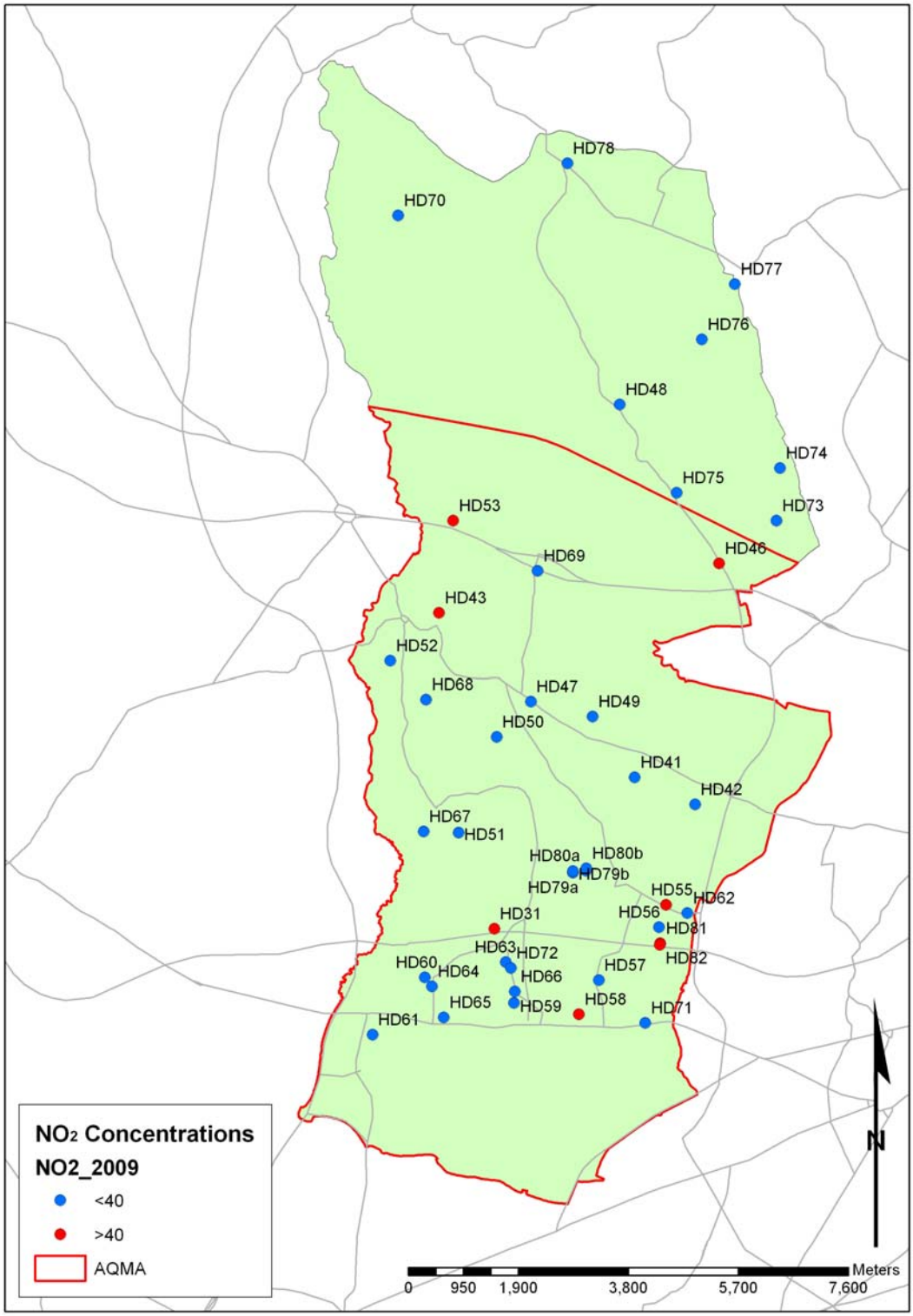
Site ID	Location	Within AQMA?	Data Capture for Monitoring Period, %	Data Capture for 2009, %	Annual mean concentrations (µg/m^3)	
					2008	2009
	Kestrel Way (Railside)					
HD80a	Rear Garden of 86 Stormount Drive (Attached to railside fence)	Yes	60	25	32	30.33*
HD80b	Corner of Swallowfield Way and Kestrel Way (Roadside)	Yes	100	41.7	-	34.16**
HD81	M4 Roadside – Cranford Drive	Yes	66.7	-	-	**69.66**[***]
HD82	M4 Residential – Cranford Drive	Yes	66.7	-	-	**42.27**[***]

*Annual mean estimated using an adjustment factor of 0.93, see Appendix 1

** Annual mean estimated using an adjustment factor of 0.98, see Appendix 1

***Bias adjustment factor of 0.90, see Appendix 1

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



A3.2 PM_{10}

Table A3-3 contains the PM_{10} data from continuous monitoring sites in 2007, 2008 and 2009. The annual mean objective of an annual mean concentration no greater that 40 µg m^{-3} was achieved at each site in 2009, as it was in 2007 and 2008. Concentrations were relatively stable at each site apart from Hillingdon 1 – South Ruislip. At this site concentration increased from 22.9 µg m^{-3} in 2008 to 35.4 µg m^{-3} in 2009. Although this is still below the annual mean objective for PM_{10} it will be necessary to follow trends at this site in the future and if possible to gain an understanding of why concentrations have changed so significantly.

Table A3-3. PM_{10} Automatic Monitoring: Comparison with Annual Mean Objective.

Site ID	Location	Within AQMA?	Data Capture for full calendar year 2009 %	Annual mean concentrations (µg/m^3)		
				2007	2008	2009
LHR2	Airport	Yes	99.4	25.1	23.4	25.3
Hillingdon 1 – South Ruislip	Roadside	Yes	95.4	24.9	22.9	35.4
Hillingdon 2 – Hillingdon Hospital	Roadside	Yes	87.7	28.5	20.8	22.0 (36)
Hillingdon 3 – Oxford Avenue	Roadside	Yes	87.9	21.5	21.4	21.1 (36)
London Harlington	Airport	Yes	85.1	21.5	20.9	16.2 (33)
London Harmondsworth	Airport	Yes	92.3	21.5	29.7	27.9
Heathrow Green Gates	Airport	Yes	98.2	22.1	17.2	17.6
Hillingdon Hayes	Roadside	Yes	85.1	-	21.6	16.3
Heathrow Oakes Road	Airport	Yes	93.0	21.7	19.8	21.3

2007 Hillingdon 2 – data capture 28.7%
2007 London Harlington – data capture 48%

Table A3-4 presents the number of exceedances of the 24-hour mean objective of 50 µg m^{-3} at continuous monitoring sites. In 2009 the objective was achieved at all of the locations in the Borough. 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 Hamondsworth, saw a reduction in exceedances from 33 in 2008 to 25 in 2009.

Table A3-4. PM_{10} Automatic Monitoring: Comparison with 24-hour Mean Objective.

Site ID	Location	Within AQMA?	Data Capture 2009 %	Number of Exceedances of daily mean objective (50 μg/m^3)		
				2007	2008	2009
LHR2	Airport	Yes	99.38	20	15	**7**
Hillingdon 1 – South Ruislip	Roadside	Yes	95.4	22	12	7
Hillingdon 2 – Hillingdon Hospital	Roadside	Yes	87.7	11 (49.5)	6	0 (36)
Hillingdon 3 – Oxford Avenue	Roadside	Yes	87.9	30	10	2 (36)
London Harlington	Airport	Yes	85.1	16	10 (35.8)	5 (33)
London Harmondsworth	Airport	Yes	92.3	2 (35)	33 (51)	25
Heathrow Green Gates	Airport	Yes	98.2	16	2	0
Hillingdon Hayes	Roadside	Yes	90	-	2 (35.8)	6
Heathrow Oakes Road	Roadside	Yes	93.0	21	9	1

2007 Hillingdon 2 – data capture 28.7%
2007 London Harlington – data capture 48%

A3.3 Benzene

Concentrations of benzene in Hillingdon are monitored using diffusion tubes at 5 locations. Table A3-5 presents annual mean concentrations for benzene in 2007, 2008 and 2009. The recorded concentrations in 2009 ranged from 1.76 μg m^{-3} to 1.95 μg m^{-3} which are below the benzene standard of 5 μg m^{-3}. Ambient benzene concentrations do not appear to be increasing. Monitoring for benzene has now ceased.

Table A3-5. Annual mean concentrations for benzene

Site ID	Location	Within AQMA?	Data Capture, 2008, %	Annual mean concentrations (μg/m^3)		
				2007	2008	2009
HD31	AURN Monitoring Station	Yes	83.3	1.78	2.43	1.95
HD46	South Ruislip Monitoring Station	Yes	100	2.20	1.77	1.93
HD48	Citizens Advice Bureau	Yes	100	2.13	2.04	1.82
HD50	Hillingdon Hospital Monitoring Station	Yes	91.7	2.07	2.00	1.92
HD58	Brendan Close	Yes	100	1.85	2.36	1.76

A3.4 $PM_{2.5}$

The UK Government and the Devolved Administrations have set a new national air quality objective for particulate matter smaller that 2.5μg diameter ($PM_{2.5}$) of 25 μg m^{-3} to be achieved by 2020, though this objective has not been incorporated into LAQM Regulations

and Local Authorities have no statutory obligation to review and assess air quality against it. Table A3-6 presents the data recorded at the continuous automatic monitoring sites in 2009. With results in the range of 10 µg m^{-3} to 13 µg m^{-3} measurements were well below the objective.

Table A3-6. Annual mean concentrations for $PM_{2.5}$ (µg/m^3)

Site ID	Location	Within AQMA?	Proportion of year with valid data, 2009, %	Annual mean concentrations (µg/m^3)	
				2008	2009
London Harlington	Airport	**Yes**	7.5	10	12.8
Heathrow Green Gates	Airport	**Yes**	98.4	11	10.1
Heathrow Oaks Road	Airport	**Yes**	94.7	12	10.3

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

A3.5 Ozone

Table 2.10 presents the ozone data recorded at the continuous automatic monitoring sites. In 2009 ozone was monitored at four sites within the Borough, an increase from one site in 2008. The 2009 results show that ozone concentrations recorded at the monitoring sites were in the range of 26 µg m^{-3} to 38 µg m^{-3}.

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

Site ID	Location	Within AQMA?	Proportion of year with valid data, 2009, %	Annual mean concentrations (µg/m^3)	
				2008	2009
London Hillingdon	Airport	Yes	91.9	31	25.7
London Harlington	Airport	Yes	90.5	-	36.4
Hillingdon 2 – Hillingdon Hospital	Roadside	Yes	88.6	-	37.5
Hillingdon 3 – Oxford Avenue	Roadside	Yes	0.4	-	32.5

A3.6 Carbon Monoxide

Table A3-8 shows the CO measurements at the London Harlington continuous monitoring site in 2007 and 2008. The air quality objective was achieved in all cases. Monitoring of carbon monoxide was discontinued at London Harlington in March 2008.

Table A3-8. Annual mean concentrations for CO

Site ID	Location	Within AQMA?	Proportion of year with valid data, 2008 %	Annual mean concentrations (mg/m^3)		
				2007	2008	2009
Heathrow Harlington	Airport	**Yes**		0.3	0.4	-

Data capture 17% in 2008 – monitoring discontinued in March 2008

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. A draft of this must be completed by December 2010.	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

Ref.	Action Plan Measure	Original Timescale	Progress with Measure	Outcome to date	Comments	Local Authority Role	Responsibility
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. 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.	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 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.	Local Authority Led	Highways
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 which includes cycle facilities, storage, promotion of cycle routes etc SPD now published (July 2008)	Local Authority Led	Highways

Ref.	Action Plan Measure	Original Timescale	Progress with Measure	Outcome to date	Comments	Local Authority Role	Responsibility
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 Check Jamie's spreadsheet	Local Authority Led	Borough Transport Strategy

Ref.	Action Plan Measure	Original Timescale	Progress with Measure	Outcome to date	Comments	Local Authority Role	Responsibility
1. 06.	Introduce more Safe Routes to School throughout the Borough with special regard to the schools within the highest exceedance areas.	2010	Ongoing	Air quality packs sent to all schools in the Borough. Integration of air quality packs information 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	Over 1,500 pupils are now registered under the Bikeability scheme aimed at encouraging safe cycling to school; The Walk on Wednesday (WOW) scheme now has 40 schools across Hillingdon participating regularly which 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 which 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	Local Authority Led	Borough Transport Strategy

Ref.	Action Plan Measure	Original Timescale	Progress with Measure	Outcome to date	Comments	Local Authority Role	Responsibility
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 College. Implementation is anticipated in 2011-2012.	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
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

Ref.	Action Plan Measure	Original Timescale	Progress with Measure	Outcome to date	Comments	Local Authority Role	Responsibility
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	In progress	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 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	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 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.	Partnership	Borough Transport Strategy

Ref.	Action Plan Measure	Original Timescale	Progress with Measure	Outcome to date	Comments	Local Authority Role	Responsibility
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 night buses.	2007	Planning phase	No progress to date, however 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.	This measure has been 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	Partnership	Transportation Team

Ref.	Action Plan Measure	Original Timescale	Progress with Measure	Outcome to date	Comments	Local Authority Role	Responsibility
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	Not started	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	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	Abandoned	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.	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	Planning phase	No progress. GLA advise to look into clear zone – consultation letter	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

Ref.	Action Plan Measure	Original Timescale	Progress with Measure	Outcome to date	Comments	Local Authority Role	Responsibility
2. 06.	Work in partnership with TfL to implement schemes along the high exceedance corridors designed to smooth traffic flows.	2006	Planning phase	Recommendations to be given to WLTS for implementation via WL BSP funding. 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	See 2.02	Partnership	West London Air Quality and 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

Ref.	Action Plan Measure	Original Timescale	Progress with Measure	Outcome to date	Comments	Local Authority Role	Responsibility
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 change in traffic management. Hillingdon are participating in the HA diffusion tube study to help inform understanding on pollution dispersal from motorway network.	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
2. 09.	Investigate the use of light rail/tram schemes along other high exceedance corridors such as the A4 and A40.	2010	Planning phase	It had been hoped that PSDH would consider the A4, but this was not done.	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	Meeting with HA 20/11/06. (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	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

Ref.	Action Plan Measure	Original Timescale	Progress with Measure	Outcome to date	Comments	Local Authority Role	Responsibility
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	Meeting with HA 20/11/06. (see 2.08)	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 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	Partnership	West London Air Quality and Transport Group
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 – also list of hotspot mitigation throughout the Borough – send through details	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 The combined use of traffic counters and air quality information will ensure a more focussed approach to dealing with congestion hotspots	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	Planning phase	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	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;	Lobbying	West London Transport Group 2M
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		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, submission of this should lift Hillingdon to Gold level in next year.	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, a result is anticipated in June/July 2010.	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 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.	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 plans.	Local Authority Led	Hillingdon Transportation Team

Ref.	Action Plan Measure	Original Timescale	Progress with Measure	Outcome to date	Comments	Local Authority Role	Responsibility
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	In progress	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	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	Incorporated into council website		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 venues, etc. advising drivers to switch off engines when stationary.	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 See 3.04 Insufficient support for signs, project re-allocated to mobile traffic counters	Local Authority Led	Highways

Ref.	Action Plan Measure	Original Timescale	Progress with Measure	Outcome to date	Comments	Local Authority Role	Responsibility
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	Local Authority Led	Hillingdon Fleet Management Team
3. 08.	Participate in the London-wide Vehicle Emissions Testing programme.	2007	Planning phase	London wide programme has come to an end.	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. However, TfL are looking to fund buses for 2 schools in the Borough.	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
3. 11.	Investigate the potential for discounts for residents with low emission vehicles in Parking Management Areas.	2006	Planning phase	No progress.		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

Ref.	Action Plan Measure	Original Timescale	Progress with Measure	Outcome to date	Comments	Local Authority Role	Responsibility
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		Partnership	West London Freight Quality Partnership (WLFQP)

Ref.	Action Plan Measure	Original Timescale	Progress with Measure	Outcome to date	Comments	Local Authority Role	Responsibility
3. 16.	Facilitate the uptake and use of alternative fuels, including water-diesel emulsion. This should include development of appropriate alternative refuelling infrastructure where necessary e.g. charging points for electric vehicles.	2007	In progress	SWELTRAC, of which Hillingdon is a member are seeking funding for electric charging points and feasibility for a biodiesel project. See 3.07.	The West London AQ group has commissioned a best practice 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	Partnership	West London Air Quality and 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.		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	In progress	London Congestion Charge Zones and LEZ schemes are led by TfL therefore not in Hillingdon control. Any Hillingdon-specific scheme will look to include these points.	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	In progress	Monitoring in place close to railway and at nearest residential location.	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

Ref.	Action Plan Measure	Original Timescale	Progress with Measure	Outcome to date	Comments	Local Authority Role	Responsibility
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.	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 Annual report supplied as part of T5 planning conditions with regard to ATL limit	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 which 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	

Ref.	Action Plan Measure	Original Timescale	Progress with Measure	Outcome to date	Comments	Local Authority Role	Responsibility
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 and potential redevelopment of Terminal 2, the Heathrow East terminal, which would include a new on-airport Energy Centre.	Hillingdon continue to seek emission reductions from on-airport development as part of the planning process. Heathrow East will be the next major project 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.	Local Authority Led	Aviation Team
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

Ref.	Action Plan Measure	Original Timescale	Progress with Measure	Outcome to date	Comments	Local Authority Role	Responsibility
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-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. Still awaiting consultation on the Time Extension Application	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 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	Partnership	Local Authorities
4. 08.	Assess the potential to set an emissions cap for Heathrow.	2008	Not started		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
4. 09.1.	Assess the potential to use landing emissions charges scheme to create revenue stream for public transport improvements.	2008	Not started – planning?	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	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	Partnership	Heathrow Air Quality Working Group
4. 09.2.	Introduce differentiated landing charges at a level that would force cleaner engine technology.	2010	Not started	See above	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

Ref.	Action Plan Measure	Original Timescale	Progress with Measure	Outcome to date	Comments	Local Authority Role	Responsibility
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 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	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	Partnership	Heathrow Air Quality Working Group
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

Ref.	Action Plan Measure	Original Timescale	Progress with Measure	Outcome to date	Comments	Local Authority Role	Responsibility
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.	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 requesting update on the issue.	2007-2011 Heathrow AQ Action Plan published; Heathrow Surface Access Strategy not yet finalised Heathrow Surface access Strategy finalised. 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	Partnership	Heathrow Air Quality Working Group

Ref.	Action Plan Measure	Original Timescale	Progress with Measure	Outcome to date	Comments	Local Authority Role	Responsibility
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 exceedences 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

Ref.	Action Plan Measure	Original Timescale	Progress with Measure	Outcome to date	Comments	Local Authority Role	Responsibility
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 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	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 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	Partnership Lobbying	DfT Heathrow Airport Transport Forum

Ref.	Action Plan Measure	Original Timescale	Progress with Measure	Outcome to date	Comments	Local Authority Role	Responsibility
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 that appropriate mitigation measures are inclusive part of any scheme.	2006	In progress	Consultation meeting with BAA Heathrow on Heathrow Surface Access Strategy (HSAS), consultation comments returned to BAA. Comments included the 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.	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 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. 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	Updated Heathrow Action Plan and Surface Access Strategies not yet published.	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

Ref.	Action Plan Measure	Original Timescale	Progress with Measure	Outcome to date	Comments	Local Authority Role	Responsibility
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, he 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 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	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
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

Ref.	Action Plan Measure	Original Timescale	Progress with Measure	Outcome to date	Comments	Local Authority Role	Responsibility
4. 26.	Explore feasibility of reducing fares on the Heathrow Express.	2010	Not started	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	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. The introduction of Airtrack will help support increases in rail provision from the south-west	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 linee	Lobbying	Local Authorities
4. 28.	Explore feasibility of an airport passenger tax, ring-fenced for increased public transport.	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	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	In progress	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	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 to be 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)
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)

Ref.	Action Plan Measure	Original Timescale	Progress with Measure	Outcome to date	Comments	Local Authority Role	Responsibility
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	Not started		Current resources do not permit this to extend beyond statutory actions.	Local Authority Led	Environmental Protection Unit (EPU)
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	Planning phase	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 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	Local Authority Led	Sustainability Steering Group
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

Ref.	Action Plan Measure	Original Timescale	Progress with Measure	Outcome to date	Comments	Local Authority Role	Responsibility
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 to be considered where appropriate.	LDF still not finalised – Hillingdon asked to re-visit LDF due to Adding Capacity consultation, unlikely to be finalised before summer 2008 LDF now due for consultation in summer 2010	Local Authority Led	Environmental Protection Unit (EPU)
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

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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	Not started	No progress.	Alternative approach being followed for this measure, with good coordination between (e.g.) air quality, climate and transport, planning officers.	Local Authority Led	LSP
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	Planning phase	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 being considered. 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)

Ref.	Action Plan Measure	Original Timescale	Progress with Measure	Outcome to date	Comments	Local Authority Role	Responsibility
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 Quality Strategy to tackle cross-boundary issues and include all National Air Quality Strategy pollutants, climate change etc.	2007	Planning phase	Nottingham declaration signed 5th June 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	Hillingdon Climate Change Strategy and Carbon Management Plan published. Local air quality incorporated into both documents LSP, Sustainable Community Strategy, LDF and forthcoming Borough Transport Strategy	Partnership	Local Authorities

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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.	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)

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8. 06.	Provide progress report to DEFRA on annual basis.	2010	Ongoing	Progress Reports (etc.) submitted as required.		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)