The London Borough of Hillingdon

Progress Report, 2005

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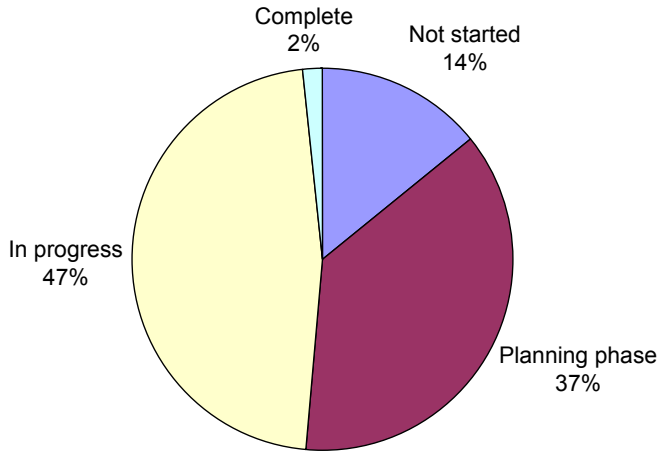
Executive Summary

This report provides an update on the results of air quality monitoring and on progress with the air quality action plan (AQAP) by the London Borough of Hillingdon, covering the period 2004-2005. It has been produced in accordance with guidance laid down by DEFRA.

From the monitoring data presented in this report it is concluded that:

- During 2004, the annual mean standard for NO_2 was exceeded at both roadside 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 is no evidence of progress towards achieving the standard discernible in the 2004 data when taken with other data showing results and trends over several years, going back to the mid 1990s.
- 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 the exposure of parts of the Hillingdon population to these levels of NO_2.
- Monitoring results also indicate that standards 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. The Council will, however, continue to pay attention to them, especially fine particles.

The following figure shows that good progress as been made with the action plan in its first 6 months. Most measures are underway. Those that are not are typically scheduled to start in future years.



% of actions listed in the various packages of the action plan in each stage of implementation

Highlights of Action Plan implementation so far include:

1. Actions by the Council to promote cleaner vehicles.
2. Lobbying national government and the European Commission to ensure that aviation is factored into policy, for example through the EU's Thematic Strategy on Air Quality.
3. Expansion of the Safe Routes to School Programme.
4. Inclusion of a large number of measures from the Action Plan into the Draft Local Implementation Plan (LIP) and Borough Spending Plan (BSP) which addresses local transport planning.
5. Success in seeking Section 106 agreements from developers.
6. Development of the Action Plan Tracker System to provide a solid management and monitoring system for implementation of the plan.
7. Continued dialogue with stakeholders including residents and the operators of Heathrow Airport.

Priorities for the coming year are as follows:

1. Hillingdon must continue to show leadership in air quality improvement. Without this it will be very hard to encourage other stakeholders to participate.
2. The Local Implementation Plan will be finalised. During this process it is essential that opportunities for factoring air quality more thoroughly into the planning process are identified and taken.
3. Where appropriate, factor air quality more efficiently into decision making, for example, when deciding which schools should be prioritised in the Safer Routes to School project.
4. Maintain the stakeholder dialogue established during development of the action plan.
5. Seek opportunities for collaboration with neighbouring local authorities, in order to develop a more regional approach to air quality improvement.

Contents

List of Abbreviations

$\mu g/m^3$	Micrograms (10^{-6}, 0.000001, grams) of pollutant per cubic metre of air.
ALG	Association of London Government
AQAP	Air Quality Action Plan
AQMA	Air Quality Management Area
APPLE	Air Pollution Planning and the Environment group
ATM	Air Traffic Movements
AURN	Automatic Urban Network (of pollution monitors)
BSP	Borough Spending Plan
CO	Carbon monoxide
DEFRA	Department for Environment, Food and Rural Affairs
DfT	Department for Transport
EA	Environment Agency
EPU	Environmental Protection Unit
EU	European Union
GLA	Greater London Authority
GTP	Green Travel Plans
HA	Highways Agency
HATF	Heathrow Area Transport Forum
HDVs	Heavy Duty Vehicles (including buses, etc., as well as trucks)
HGVs	Heavy Goods Vehicles
HOV	High Occupancy Vehicle (typically, cars containing more than 1 person)
LA	Local Authority
LDF	Local Development Framework
LDVs	Light Duty Vehicles (cars and small vans)
LEZ	Low Emission Zone
LIP	Local Implementation Plan
LSP	Local Strategic Partnership
LTP	Local Transport Plan
NO	Nitric oxide
NO_2	Nitrogen dioxide
NOx	Oxides of nitrogen (the mixture of NO and NO_2 in the atmosphere)
O_3	Ozone
PAH	Polycyclic aromatic hydrocarbons
PMx	Particulate matter with a diameter of *x* micrometres (typically 10, as in PM_{10}) or less
PSDH	Project for the Sustainable Development of Heathrow
SCA	Supplementary Credit Approval
SO_2	Sulphur dioxide
SPD	Supplementary Planning Document
SPG	Supplementary Planning Guidance
T5	Heathrow Terminal 5
TBD	To be defined
TfL	Transport for London
UNECE	United Nations Economic Commission for Europe
WLA	West London Alliance
WLFQP	West London Freight Quality Partnership

Chapter 1 Introduction

1.1 Objectives of this report

This progress report is the first to be issued by the London Borough of Hillingdon following finalisation of its Air Quality Action Plan in 2004. It follows the reporting guidelines issued by DEFRA, stipulating that reports should contain the following information:

- Data on monitoring
  - Summarise monitored air pollution data
  - Report on performance against air quality objectives
  - Assess trends in air pollution
  - Forecast potential for compliance with air quality objectives
- Implementation of Action Plans
  - Summarise information on Action Plan measures
  - Review progress with measures
- Planning and air quality
  - Identify local plans that may influence air quality
  - Identify planning applications that will affect air quality
- Potential effects of local transport plans on air quality
  - Identify measures that will have an affect on air quality
  - Review progress of these measures.

A checklist of the requirements for progress reports and associated commentary of the compliance of this report against it is provided in Appendix 1.

1.2 Air quality in Hillingdon

The London Borough of Hillingdon, like all Local Authorities in the UK, is required to assess air quality in the area under its control. In cases where the concentration of one or more pollutants exceeds the objectives laid down in the Air Quality Strategy for England and Wales it is necessary for the Local Authority to declare an Air Quality Management Area (AQMA) and then to develop an Action Plan, defining actions that the Council can take or influence others to take to improve air quality.

Hillingdon requires an Air Quality Action Plan because it is forecast that annual average concentrations of nitrogen dioxide (NO_2) in several parts of the Borough will exceed the national target of an annual mean concentration of 40 $\mu g.m^{-3}$ for 2005 (see Figure 1), a level that experts consider represents an acceptably small degree of risk to human health. An Air Quality Management Area (AQMA) has already been declared, in accordance with regulations, covering the southern half of the Borough. Concentrations of other pollutants generally comply with the objectives, though the Borough continues to monitor a range of pollutants, particularly fine particles (PM_{10}).

In order to develop an action plan that is cost-effective and deals with different sources of pollution in a cost-efficient and proportionate manner, it is essential to understand how these sources contribute to concentrations in the AQMA. Table 1 presents the estimated sector breakdown of NOx emissions in 2005 within the Borough.

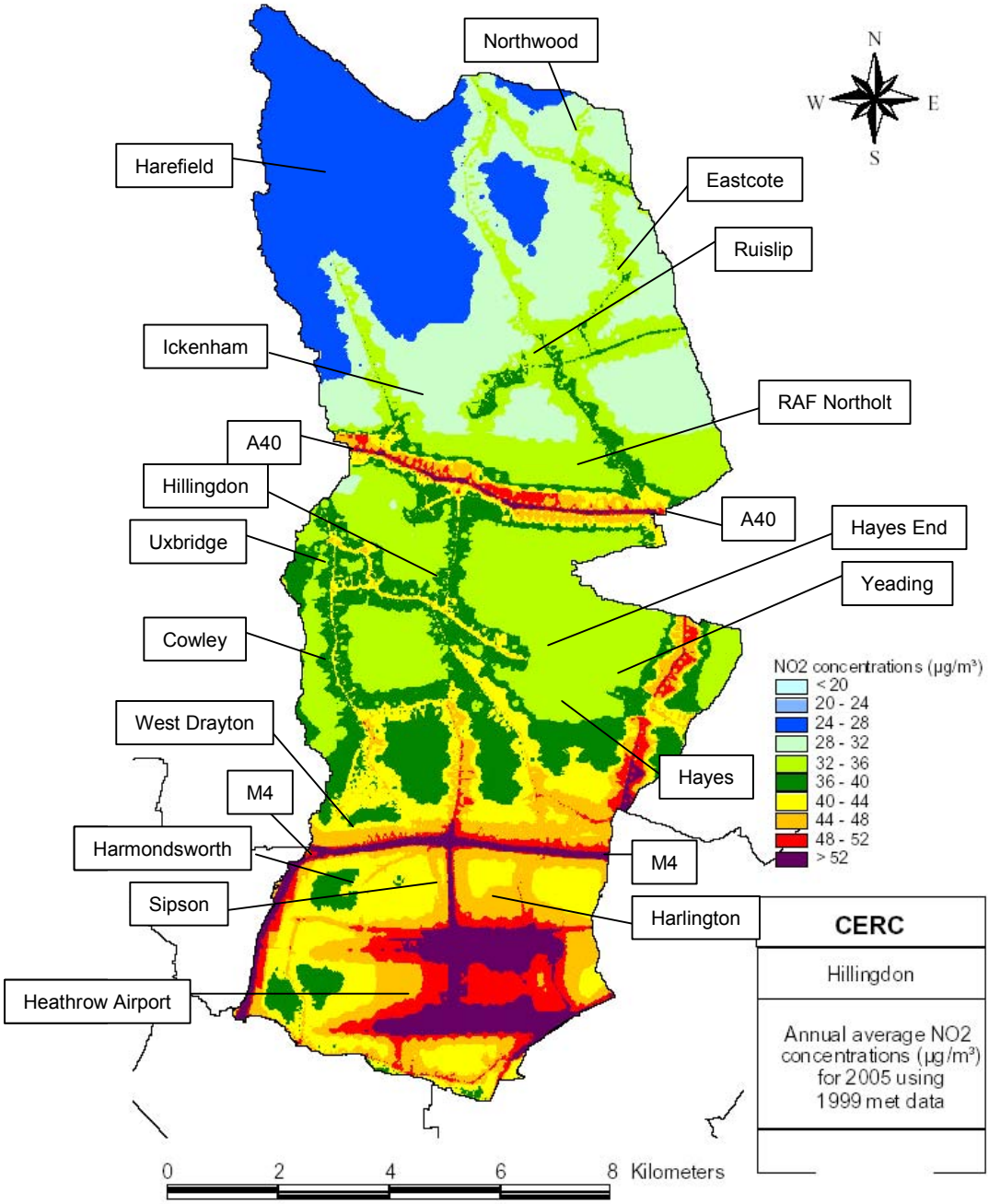


Figure 1 – Projected annual mean NO_2 concentrations in the London Borough of Hillingdon in 2005 (from CERC 2003a).

Table 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**	

It is clear from Table 1 and Figure 1 that the main sources of oxides of nitrogen in the Borough are 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 developing a proportionate and cost-effective response to air quality problems in the Borough.

Information is provided in Chapter 2 on the latest results of air quality monitoring within the Borough. Chapter 3 reports on major new planning applications within the Borough and policy developments from the Council that are expected to affect air quality.

1.3 Types of measures in the Action Plan

The Action Plan 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;

Finally, a package that 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.

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.

A management programme has also been defined for the plan, again with the Action Plan Tracker, and progress on this is reported here too.

Progress with the plan is reported in Chapter 4, with detailed information on each measure contained within the plan given in Appendix 3.

Chapter 2 Monitoring

More complete details of the monitoring regime in Hillingdon, including results at each site, are given in Appendix 2 to this report.

2.1 The monitoring network in Hillingdon

The London Borough of Hillingdon (LB Hillingdon) undertakes monitoring of atmospheric concentrations of the following pollutants:

- NO_2
- PM_{10}
- Benzene

None of the other pollutants covered by the national Air Quality Strategy are monitored by the Council as they are not likely to be present at concentrations high enough to exceed objectives. However, CO, O_3 and SO_2 are monitored in the Borough at sites run under the Automatic Urban and Rural Network (AURN). The management and collection of data from both diffusion tubes and automatic monitors are subject to quality assurance and quality control.

The analysis presented here includes some results from locations outside of the London Borough of Hillingdon. These sites are included to provide a more complete picture of conditions in and around the Borough. The use of additional sites also has the advantage of providing a broader database for consideration of possible trends in pollutant concentrations. In total, this report draws on information for 8 automatic sites and 26 diffusion tube sites for NO_2, 8 automatic sites for PM_{10}, and 5 diffusion tube sites for benzene.

2.2 Results for NO_2

Data from the automatic monitoring sites illustrate that achievement of the annual mean NO_2 standard of 40$\mu g/m^3$ in the Borough and surrounding region has been a problem for several years. During 2004 it was not achieved by a large margin at three monitoring stations: LHR2 (55.2$\mu g/m^3$), London Hillingdon (45.3$\mu g/m^3$) and Hillingdon 1(48.5$\mu g/m^3$). Hillingdon 1 is a roadside site while LHR2 is situated at the airport where heightened concentrations may be expected. However, London Hillingdon is a suburban site representative of much of the part of the Borough close by the airport and the major roads. Hounslow 2 is another site of this type close to Hillingdon, at which the standard has not been achieved.

Figure 2 demonstrates the trends observed in the monitored data. It shows that concentrations have been well above the standard at these locations in the past. Year to year variations in the weather affect the annual mean concentrations so that interpreting trends can be difficult: the very hot weather in 2003 is responsible for the peak observed in that year, and the poor weather of 2002 for the dip in levels then. Although there is a slight reduction in concentrations in the mid 1990s there is no evidence of improvement since that time. These trend data suggest that it is

extremely unlikely that the standard will be achieved throughout the Borough by the end of December 2005, the attainment date specified in the Air Quality Strategy.

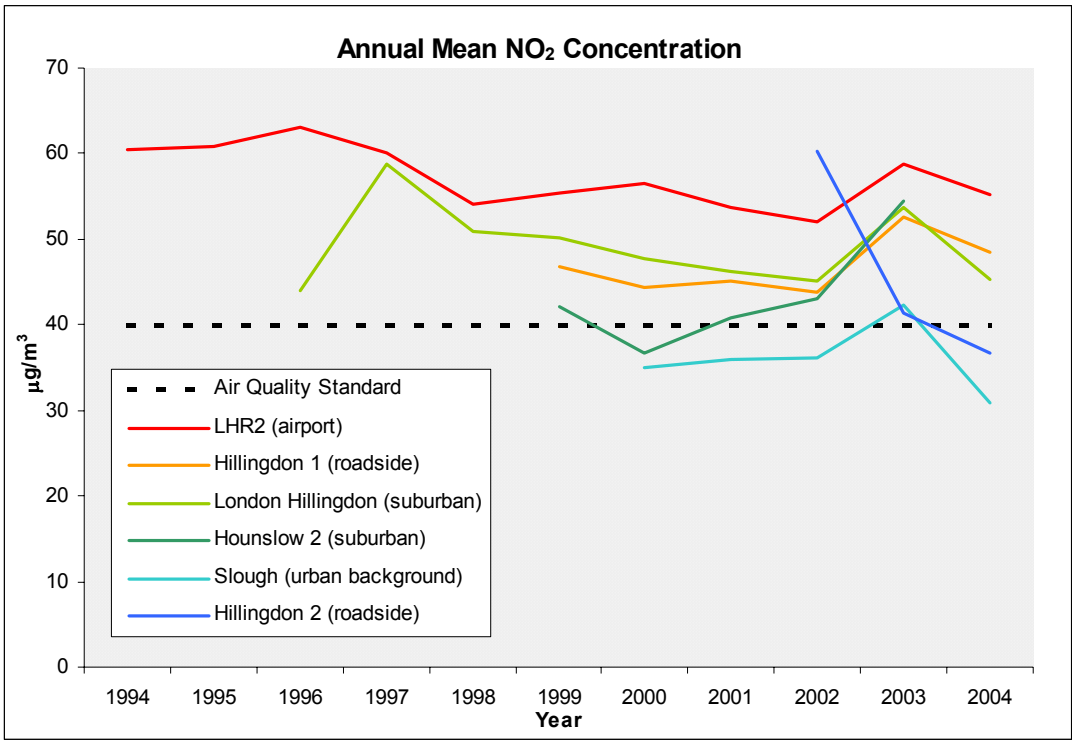


Figure 2 – Long-term annual mean NO_2 concentration in and around Hillingdon: Results from Automatic Monitoring Stations

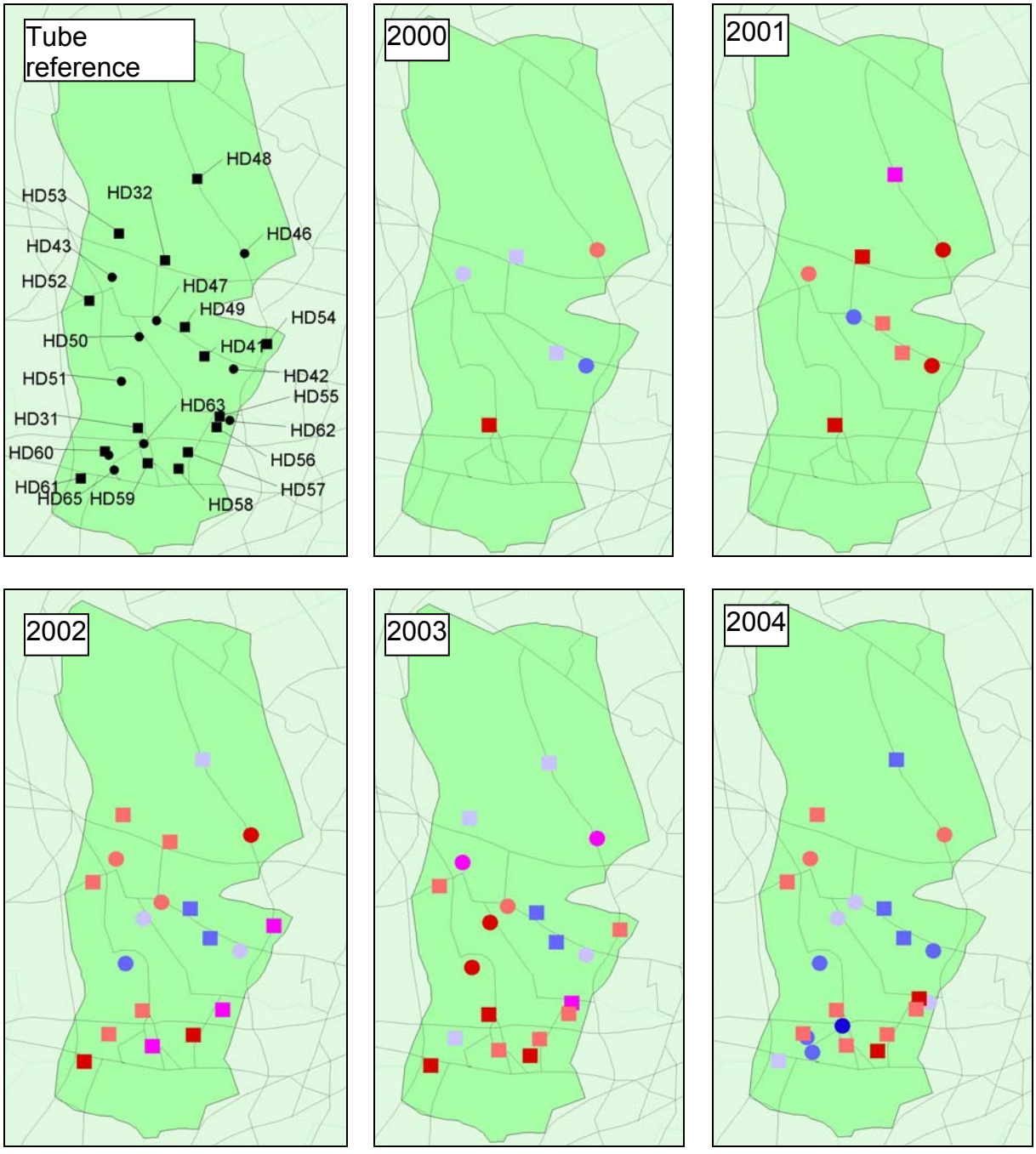
Mapped data from the diffusion tube network show a similar pattern, with exceedance at a number of locations in 2002, 2003 and 2004, including background sites (Figure 3). The results shown have been bias-corrected in line with the DEFRA guidance. These findings are entirely in agreement with the conclusions of previous air quality reports from which it was concluded that the southern half of the Borough should be declared an AQMA.

2.3 Results for other pollutants

Data from monitoring stations clearly indicate that the objectives for SO_2, CO and benzene will be met in Hillingdon (see Appendix 2, Table 5, Table 6 and Table 8).

Similarly, the monitoring data for PM_{10} indicates that the annual mean objective of 40 $\mu g.m^{-3}$ has been achieved. Data show that measured concentrations have been static at around 10-15$\mu g/m^3$ below this objective for several years. However, there was a problem with attainment of the 24 hour mean objective of 50 $\mu g.m^{-3}$ not to be exceeded more than 35 times per year for PM_{10}. Although compliance was recorded at all sites in 2004, the objective was not achieved at the LHR2 and Hillingdon 1 stations in 2003. The variability here is a reflection of differences in weather conditions: 2003 was particularly bad for PM_{10}, whereas 2004 was more typical.

Figure 3 – Maps of the London Borough of Hillingdon illustrating locations of diffusion tube monitoring sites and the annual mean NO_2 concentration ($\mu g/m^3$) at those locations.



2.4 Conclusions on monitored data

From the monitoring data presented in this report it has been concluded that:

- During 2004, the annual mean standard for NO_2 was exceeded at both roadside 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 is no progress towards achieving the standard discernible in the 2004 data when taken as a whole with other data showing the results and trends over several years, going back to the mid 1990s.
- These results support the decision to declare the AQMA and to adopt the AQAP based on the exposure of parts of the Hillingdon population to these levels of NO_2.
- Other monitoring results indicate that the standards for other air quality strategy pollutants were achieved during 2004.
- These results support the decision not to declare the AQMA on the basis of exposure to these other pollutants, though the Council will continue to pay attention to them, especially with respect to the concentration of fine particles.

Chapter 3 Policies and planning applications

3.1 New Local Developments

3.1.1 Developments in progress

Construction of Heathrow Terminal 5 started in October 2002 and is due to be completed in 2011. Phase 1 will be operational by March 31st 2008. Air quality is monitored close to the development, with quarterly reports provided to Hillingdon.

Within Slough BC, close to the Hillingdon boundary at Colnbrook, a new "energy from waste" incinerator has been granted planning permission. This will be on the site of the current clinical waste incinerator which is a Part A process and therefore regulated by the Environment Agency. This is likely to increase the waste capacity which could result in increased emissions. This will not be fully operational until 2008.

The Highways Agency started work in 2004 to widen the M25 motorway near Heathrow Airport between Junction 12 and 15 (M4 interchange). It will also provide a spur road for the new Terminal 5. This stretch of road is one of the busiest in Europe, carrying over 200,000 vehicles per day. The work is scheduled for completion by December 2005. Any effect on the change in traffic flow and congestion on the M25 will be studied as part of the next round of review and assessment.

3.1.2 Future developments that may affect air quality

An outline application has been submitted for a Freight Logistics Park off the Stockley Bypass near to Heathrow Airport. The air quality SPG requires an air quality assessment for any development involving freight. Impacts will be considered and mitigation sought as part of the planning process.

A masterplan has been submitted for Brunel University to include new floor-space, new residential accommodation and increased parking. Air quality assessments will accompany the final proposals.

A planning application has been submitted for a new residential development in West Drayton comprising approximately 600 residential units. The application was refused, with the air quality impacts and lack of overall sustainability considerations being part of the reason for refusal. This is currently going to Public Inquiry in October 2005.

3.1.3 Integration of planning and air quality

It has been noted in recent months that the air quality action plan would benefit from closer recording of new planning applications that have the potential to impact on air quality. This will help in the aim to attempt to quantify the cumulative impacts of future developments. Actions have been undertaken to manage this information for use in future review and assessments of air quality, by including the integration of summary information on planning applications into the Action Plan Tracker database (see Figure 4).

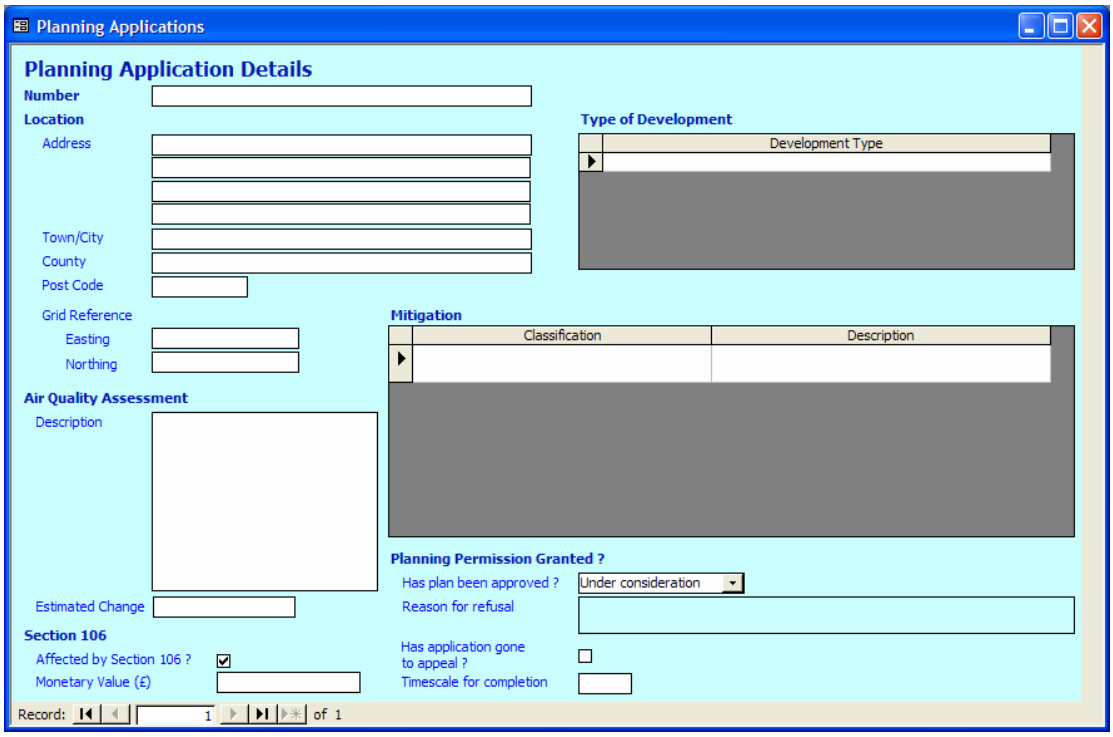


Figure 4 – Form for summarising planning applications within the Action Plan Tracker management system for the air quality action plan.

3.2 Policies

3.2.1 Local Implementation Plan

The draft Local Implementation Plan is currently being developed. Air quality action plan measures have been integrated into the process. This is particularly important as it provides access to funding through the Borough Spending Plan.

3.2.2 Sustainable Procurement Policy

The London Borough of Hillingdon promotes the following sustainable procurement standards:

- Purchase of services and supplies that develop local sustainability
- Specifications and contracts should ensure that the supplier supports the Council's Charter for Sustainable Development
- Prevention of the use of harmful products where more environmentally friendly products are available
- Minimising the purchase of new products where there is potential to recycle, re-use current products
- **Specification of products that are energy efficient, have minimal environmental impact, and stimulate local employment and economy**

- Examination of the financial, environmental and social effects of the purchase at the extraction, manufacture, distribution, use and waste disposal stages of the supply or service.

3.3 Waste Management Strategy

The Borough's kerbside recycling service which picks up compostable garden wastes and mixed dry recyclables including all grades of paper; steel and aluminium cans; and plastic bottles will continue to be expanded (current coverage: 90,000 households) until all households are covered. It is anticipated that this will be complete during 2005.

3.4 Local Development Framework (LDF)

The draft LDF is currently being developed. It is anticipated that the existing Air Quality Supplementary Planning Guidance will be reviewed and incorporated into an Air Quality Supplementary Planning Document in 2006, along with objectives to include regional working with regard to planning and air quality across West London. The EPU are also involved in the development of an SPD for Sustainable Design and Construction which will have objectives to minimise the environmental impact of future developments.

Chapter 4 Progress with the Action Plan

4.1 Situation

This report is the first 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, 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

Summary information on all measures in the action plan is provided in Appendix 3.

Progress within each package is summarised in Figure 5. This shows the number of measures in each package at each of the following four stages of development:

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

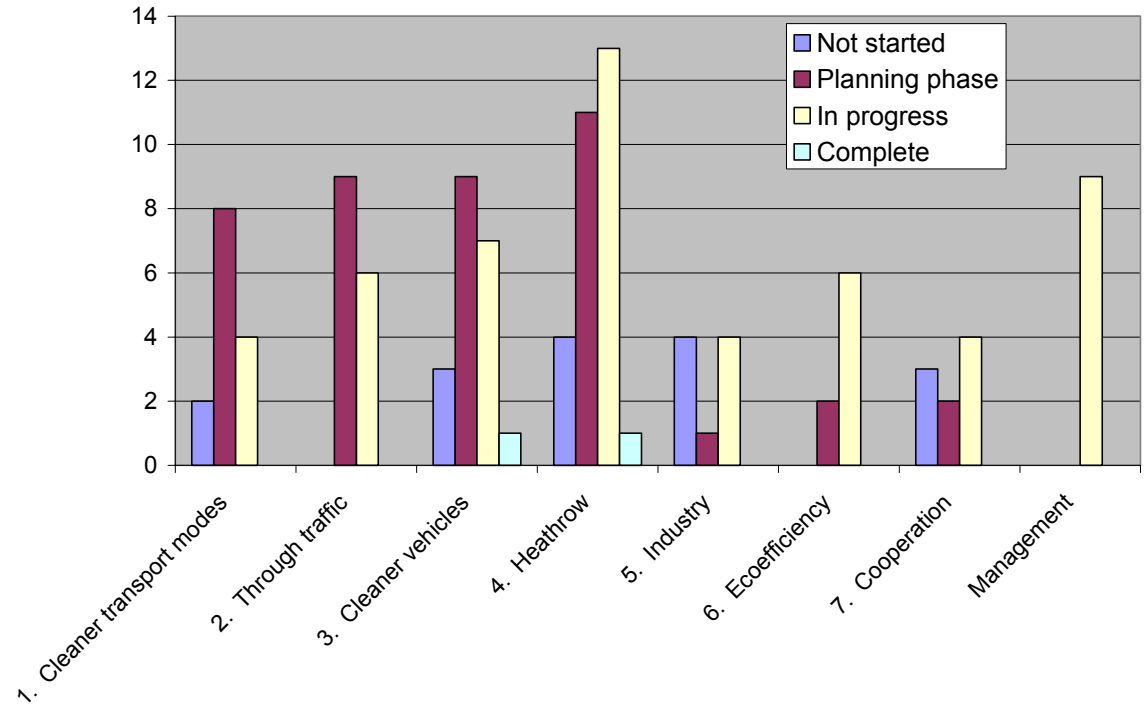


Figure 5 – Progress of actions in each package in the action plan, showing the number of measures at each of the four stages listed.

The figure shows that most of the actions in the plan have progressed, with most being either in progress or in the planning phase (e.g., they have been included in the draft LIP (the Local Implementation Plan, which deals with improvements to transport within the Borough). At present, 16 measures have yet to be started. These are scheduled for later commencement. A good example would be Measure 4.04 (retention of the T5 related air quality monitoring network after construction of T5 is complete), which clearly cannot start until 2008 at the earliest.

Two measures have so far been completed:

- **3.14 – Ensure freight developments in the West London area are subjected to an air quality assessment before implementation.** This is currently implemented in Hillingdon through the Hillingdon Air Quality SPG where all new freight developments are subject to provision of air quality assessments on application. Planning conditions are then attached to the developments to ensure the reduction of any potential impact. In 2004/05 a Framework for a West London Air Quality Supplementary Document was produced. One of the objectives of this is to ensure consistency in approach to freight developments throughout the West London area with regard to minimising the air quality impacts. This will be incorporated into the LDF process.

- **4.11 – Review the air quality monitoring regime at Heathrow and identify potential gaps.** The air quality monitoring regime at Heathrow has been reviewed as part of PSDH (Project for the Sustainable Development of Heathrow). A new monitoring station was located north east of the airport in February 2005.

With the other measures, in the majority of cases, actions are underway and good progress is being made, as reference to Appendix 3 shows. For example, in Package 1:

- A green travel plan coordinator has been appointed
- Seven additional schools were included in the Safer Routes to School project for 2004/05
- More cycle routes, cycle training and the provision of secure facilities for cycle storage are being promoted
- Key public transport hubs and links in areas of West London subject to air quality exceedance have been identified and an action plan for improvements at strategic locations has been developed.

4.2 Opportunities

The main opportunity that has arisen, since the action plan was finalised, concerns integration of action plan measures with transport planning through the LIP (Local Implementation Plan) and (associated with it), the BSP (Borough Spending Plan). As can be seen from Appendix 3, a large number of measures identified in the action plan have been included in the draft LIP. This has the potential to provide a major source of funding and implementation mechanism for the action plan.

The Environmental Protection Unit has welcomed the support for the action plan of other departments in the Council, from procurement to transport planning. It is

intended that these relationships will be further developed in the coming year. Effective collaboration within the Council will greatly assist in delivering the plan and reducing the costs of implementation. With this in mind, much thought has gone into plan management, as shown by the development of the Action Plan Tracker database.

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.

Finally, the opportunity to submit a funding application to the EU's LIFE programme, regarding sustainable operation of airports, is currently under consideration by the Council in collaboration with other stakeholders in the area.

4.3 Possible problems with the plan

Air quality problems in Hillingdon will not be solved without serious action to deal with emissions from traffic. The funding application made in the draft LIP is thus extremely important. In the event that the application is not successful the action plan would need to be substantially revised.

That said, the funding identified in the draft LIP is insufficient to fully implement the plan. Further sources of funding therefore need to be identified.

A future area of concern is the revision of the Air Transport White Paper due in 2006. It is anticipated hat this will include a decision on whether to expand Heathrow Airport to include a third runway. Although this is of great concern to Hillingdon on many counts, with regards to this Action Plan the Government has stated that the expansion cannot go ahead unless the air quality limits can be achieved and maintained.

4.4 Progress with the action plan: Selected highlights

4.4.1 Council Action with regard to Heathrow Airport

Hillingdon, along with London Borough of Hounslow, is currently participating on two of the three technical panels in the DfT led Project for the Sustainable Development of Heathrow (PSDH). The aim is to bring local knowledge to the technical information being brought together to inform the future air quality modelling work that will be commissioned by the DfT.

4.4.2 Council actions to promote cleaner vehicles

Whilst the Council has limited powers to improve air quality in the Borough, it is important that Hillingdon shows leadership in the implementation of the action plan. With this in mind, a plan (based on the BAA Heathrow Clean Vehicle Programme) is being developed for reducing emissions from the Council's vehicle fleet (Measure 3.01). Where opportunities arise, the Council is also trialling new technologies that

reduce emissions (Measure 3.07) and, in addition, a leaflet on "Driving Down Pollution" was produced and delivered to every household. Hillingdon also participated in the London-wide Vehicle Emissions Testing Programme.

4.4.3 Lobbying national government and the European Commission with respect to emissions from airports

Local Authorities in the UK have no direct power to influence emissions from major airports such as Heathrow. Given that Heathrow is the dominant emission source for NOx in the Borough, this is clearly an important issue for Hillingdon. Several opportunities have therefore been taken to lobby the European Commission in particular, for example at a major workshop convened by the Commission and UN/ECE in Gothenburg in 2004 and, jointly with the London Borough of Hounslow, through submission of a consultation response on the Thematic Strategy on Air Pollution, which will provide direction for the next round of EU legislation on air quality. For further details see measure 4.25 in Appendix 3.

4.4.4 Safer Routes to School Programme

Hillingdon has a rolling programme of Safer Routes to Schools, with additional schools being brought in each year. As noted already, for 2004/05 an additional seven schools were included in the project. For further details see measure 1.06 in Appendix 3. There is an action in the next financial year to include air quality information in the Safer Routes to School Strategy.

4.4.5 Integration of measures to the draft LIP

Local transport planning provides an important route for implementation of many of the measures identified in the action plan. EPU has been successful in entering a large number of action plan measures into the draft LIP. During finalisation of the LIP more work is needed to assess the effective integration of air quality improvement with other priorities for the plan.

4.4.6 Success in seeking Section 106 Agreements with developers

Hillingdon has, over the past year, been active in seeking Section 106 Agreements with developers. A sum of £50,000 has been secured subject to commencement of construction of hotel buildings. Further contributions for the pursuit of measures contained in the action plan are being sought in relation to various schemes including development at Hillingdon Hospital, a new warehouse distribution centre and an extension to a supermarket in the Borough. For further details see measure 6.03 in Appendix 3.

4.4.7 Development of the Action Plan Tracker database for efficient management of the plan

Given the extent of air quality problems in Hillingdon it is inevitable that our air quality action plan is both extensive and complex. A particular complexity arises from the need for actions to be undertaken by a diverse range of bodies and organisations, such as different departments within the council, the GLA, Transport for London,

national government and businesses such as BAA Heathrow. Further complexity arises from the need to keep in mind the views of many different stakeholders, particularly the people who live in the AQMA. This complexity is a clear threat to the effective and efficient implementation of the plan.

To ensure effective management of the plan Hillingdon is therefore using EMRC's Action Plan Tracker database. This has been populated with information for all of the measures currently included in the plan. By bringing together a large amount of information the database enables progress to be followed and opportunities and potential problems to be highlighted at an early stage. It also permits the ready generation of progress reports, such as the tables provided here in Appendix 3.

4.4.8 Continuation of stakeholder dialogue

Extensive discussion with stakeholders was an important element of the development of the action plan. The council is committed to continuing this dialogue throughout the implementation of the plan, and has already taken a number of opportunities to keep the public and other stakeholders informed.

Chapter 5 Conclusions, and the way ahead

One of the major conclusions of this report is that air quality in Hillingdon, with respect to NO_2, is showing little or no sign of improvement, despite the growing number of vehicles with much reduced NOx emissions in the car fleet.

There are two main reasons for this. The first is that the reduction in emissions per vehicle is countered to some extent by increased traffic on the roads. The second is that concentrations of NO_2 are influenced not solely by local emissions of NOx, but also by regional emissions and a complex atmospheric chemistry, involving ozone. Both problems were recognised in the development of the action plan, and explain why it was concluded that such an extensive plan was needed if we are to move significantly towards non-exceedance of the annual mean NO_2 objective in Hillingdon.

It should be noted however, that concentrations of all other pollutants monitored in the Borough in 2004 did not exceed the objectives set by government. That said, there is a continuing need, given the growing evidence with the link with health effects, to monitor concentrations of fine particles very carefully.

The major source of NOx emissions in the Borough will remain the airport for the foreseeable future, followed by traffic, particularly on the major roads that go through the Borough. The Council does not have direct control of either source. It is essential therefore that it continues to encourage the relevant government departments and agencies and the airport operator to improve performance.

As part of this, the Council needs to demonstrate that it is taking a lead on air quality and environmental protection. This has started through the air quality action plan, but more remains to be done.

Progress in the first 6 months since finalisation of the action plan has been encouraging, with a large number of measures now underway, and a small number having been completed. The key to success of the plan lies in the efficient use of any funding that is available within the Borough. The good collaboration with transport planners in the development of the LIP is encouraging, as is growing success with the use of Section 106 Agreements.

Appendix 1: Checklist

	Location	Comments
New Monitoring results		
Present a map showing monitoring locations	Figure 3	
Present summary tables of concentrations of regulated pollutants in a format to allow comparison with the objectives	Table 3 to Table 6 and Table 8 (all in Appendix 2)	
Provide plots of summary data to show annual trends	Figure 2 for NO_2 and Figure 7 (Appendix 2) for PM_{10}	
Discuss trends. Take account of number of years of available data	Section 2.2 for NO_2, Section A2.2.2 in Appendix 2 for PM_{10}	
Highlight results for new sites	Figure 3 in (Section 2.2) and Table 3 to Table 6 and Table 10 in Appendix 2	
Project forward results to the objective years using LAQM.TG(03) Guidance	Figure 2 for NO_2 and Figure 7 (Appendix 2) for PM_{10}	The plots of changes in concentration over time demonstrate little change in concentration of NO_2 or PM_{10} since the late 1990s. There are no grounds for expecting 2005 to be significantly different.
Report any results for unregulated pollutants, e.g. ozone, PAHs, etc.		Ozone is monitored at the AURN site, and meets the Air Quality Strategy objectives.
Report other air quality data, e.g. odour complaints, dust deposition results, radiation monitoring, etc.		
Action Plans		
List measures in action plan and implementation timescales	Chapter 4 and Appendix 3	Further information can be generated on request using the Action Plan Tracker database if desired.
Provide update on progress implementing measures	Chapter 4 and Appendix 3	
Planning and Policies		
Log planning applications for new developments for which air quality assessment is being provided	Section 3.1	
List local policies that relate to air quality and any changes that may have been introduced	Sections 3.2 and 3.3	The most important of local policies for air quality at the present time is the Local Implementation Plan, which addresses transport (see below).
Local Transport Plans and Strategies		
Summarise measures in the LTP that have a direct bearing on air quality	Appendix 3	The Air Quality Action Plan has been used as one of the main source documents in the development of the LIP.
Report on progress with implementing these measures	Appendix 3	Air quality is an integral part of the draft Borough Transport Strategy. The transport-related air quality action plan measures have also been incorporated into the draft LIP due for consultation in the summer

Appendix 2: Monitored Levels of Air Pollution in Hillingdon

A2.1 Summary of monitoring activities

The London Borough of Hillingdon (LB Hillingdon) undertakes monitoring of atmospheric concentrations of the following pollutants:

- NO_2 (by automatic monitoring and diffusion tubes)
- PM_{10} (by automatic monitoring)
- Benzene (by diffusion tubes)

None of the other pollutants covered by the national Air Quality Strategy are monitored by the Council as they are not likely to be present at concentrations high enough to exceed objectives. However, CO, O_3 and SO_2 are monitored in the Borough at sites run within the Automatic Urban and Rural Network (AURN).

A2.1.1 Quality Assurance and Quality Control (QA/QC)

To ensure that monitoring equipment is reading correctly it is subject to a programme of quality assurance and quality control, as follows:

Diffusion Tubes

The NO_2 diffusion tubes are prepared and analysed by Gradko. This laboratory takes part in the NO_2 Network QA/QC Field Intercomparison.

Automatic monitoring site

The automatic monitoring sites are calibrated fortnightly, and serviced 6-monthly.

A2.1.2 Data ratification

The automatic monitoring data presented in this report are ratified by netcen except where noted otherwise. Some of the data and in particular those from the last six months have yet to be fully ratified and hence may be subject to change.

A2.2 Automatic monitoring sites

Continuous monitors within LB Hillingdon and selected ones in the surrounding local authorities are listed in Table 2 below. Reference to monitors sited outside of the Borough allows a more comprehensive assessment of air quality in the Hillingdon area. It can also provide additional information that is useful in assessing the robustness of any trends that may be observed within the Borough.

Table 2 – Details of automatic monitoring sites in and around Hillingdon

Title	Location	Pollutants monitored	Network	Type	Easting	Northing	Start date
LHR2	Heathrow Airport	NO_2, CO, PM_{10}	Calibration Club	Airport	-	-	01/01/1993
London Hillingdon		CO, NO_2, O_3, PM_{10} (TEOM), SO_2	AURN	suburban	506900	178600	02/08/1996
Hillingdon 1	South Ruislip	NO_2, PM_{10}(TEOM)	LAQN	3m from roadside	510770	184960	01/01/1994
Hillingdon 2	Hillingdon Hospital	NO_2, PM_{10}(TEOM)	LAQN	8m from roadside	506991	181951	25/09/2002
Hillingdon 3	Oxford Avenue	NO_2, PM_{10}(TEOM)		roadside	509557	176994	01/03/2005
London Harlington		CO, NO_2, O_3, PM_{10}(TEOM)	AURN	Airport	508300	177800	01/01/2004
Hounslow 2	Cranford	NO_2, O_3, PM_{10} (TEOM), SO_2	LAQN	suburban	510300	177200	02/01/1999
Colnbrook	Slough	NO_2, PM_{10}(TEOM)	Calibration Club	urban background	-	-	19/10/2000

Note: The Hillingdon 3 site has only operated for 3 months. Results from this site will appear in future reports.

Data collected at these sites, specifically in relation to compliance with the objectives laid down in the Air Quality Strategy, are shown in the following tables:
Table 3: NO_2
Table 4: PM_{10}
Table 5: CO
Table 6: SO_2

The tables include new monitoring data for 2004 where available, together with information on all other years, data capture rates and whether the relevant air quality standard was achieved during that monitoring year.

Table 3 – Monitoring data summary for NO_2 in Hillingdon. Shading highlights non-achievement of objectives.

			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	No
	1997	95%	No	60	No
	1998	96%	No	54	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
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
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
Hounslow 2	1999	94%	No	42.2	Yes
	2000	98%	Yes	36.6	Yes
	2001	96%	No	40.9	Yes
	2002	96%	No	43.1	Yes
	2003	90%	No	54.5	No
Colnbrook	2000	18%	Yes	34.9	Yes
	2001	93%	Yes	35.9	Yes
	2002	98%	Yes	36	Yes
	2003	99%	No	42.2	Yes
	2004	100%	Yes	30.8	Yes
Hillingdon 2	2002	2%	No	60.2	Yes
	2003	41%	No	41.4	No
	2004	85%	Yes	36.7	No
London Harlington	2004	99%	Yes	38.2	Yes

Table 4 – Monitoring data summary for PM_{10}. in Hillingdon Shading highlights non-achievement of objectives.

			Objective: Annual mean of 40 $\mu g\ m^{-3}$		Objective: 24 hour mean of 50 $\mu g\ m^{-3}$ not to be exceeded more than 35 times a year
Site	Year	data capture	achieved?	value	achieved?
LHR2	1994	7%	Yes	14.5	Yes
	1995	94%	Yes	32.5	No
	1996	93%	Yes	33.1	No
	1997	78%	Yes	28.1	No
	1998	77%	Yes	23.2	Yes
	1999	94%	Yes	27.6	Yes
	2000	98%	Yes	26.7	Yes
	2001	96%	Yes	28.1	Yes
	2002	98%	Yes	27	Yes
	2003	97%	Yes	30.9	No
	2004	98%	Yes	26.6	Yes
Hillingdon 1	1999	27%	Yes	23.9	Yes
	2000	93%	Yes	27.2	Yes
	2001	94%	Yes	28.2	Yes
	2002	96%	Yes	28.1	Yes
	2003	84%	Yes	30.1	No
	2004	19%	Yes	30.2	Yes
London Hillingdon	1996	99%	Yes	27.9	Yes
	1997	98%	Yes	32.4	No
	1998	93%	Yes	26.4	Yes
	1999	98%	Yes	26.7	Yes
	2000	98%	Yes	25.4	Yes
	2001	97%	Yes	25.7	Yes
	2002	98%	Yes	24.6	Yes
	2003	89%	Yes	29.8	Yes
	2004	98%	Yes	27.1	Yes
Hounslow 2	1999	93%	Yes	22.8	Yes
	2000	98%	Yes	22.1	Yes
	2001	96%	Yes	23	Yes
	2002	92%	Yes	23	Yes
	2003	93%	Yes	25.7	Yes
Colnbrook	2000	18%	Yes	22.3	Yes
	2001	92%	Yes	23.8	Yes
	2002	99%	Yes	24.3	Yes
	2003	98%	Yes	27.2	Yes
	2004	97%	Yes	22.2	Yes
Hillingdon 2	2002	2%	Yes	36.7	Yes
	2003	55%	Yes	31.3	Yes
	2004	86%	Yes	27.1	Yes
London Harlington	2004	100%	Yes	25.6	Yes

Table 5 – Monitoring data summary for CO in Hillingdon. Shading highlights non-achievement of objectives.

		Objective: Maximum daily running 8-hour mean of 10.0 mg m^{-3}		
Site	Year	data capture	achieved?	value
LHR2	1994	96%	No	10.7
	1995	95%	Yes	4.7
	1996	89%	No	11
	1997	95%	Yes	8.3
	1998	55%	Yes	3.0
	1999	68%	Yes	3.5
	2000	97%	Yes	4.3
	2001	98%	Yes	3.5
	2002	97%	Yes	2.5
	2003	93%	Yes	2.4
	2004	97%	Yes	2.9
London Hillingdon	1996	88%	Yes	9.1
	1997	96%	Yes	8.4
	1998	97%	Yes	7.2
	1999	97%	Yes	3.1
	2000	91%	Yes	6.2
	2001	94%	Yes	4.2
	2002	86%	Yes	2.7
	2003	96%	Yes	4.0
	2004	98%	Yes	3.1
London Harlington	2004	92%	Yes	3.2

Table 6 – Monitoring data summary for SO_2 in Hillingdon. All objectives were recorded as being achieved in all years when assessed against the permitted number of exceedances (24 times a year for the 1 hour mean, 3 times a year for the 24 hour mean and 35 times a year for the 15 minute mean).

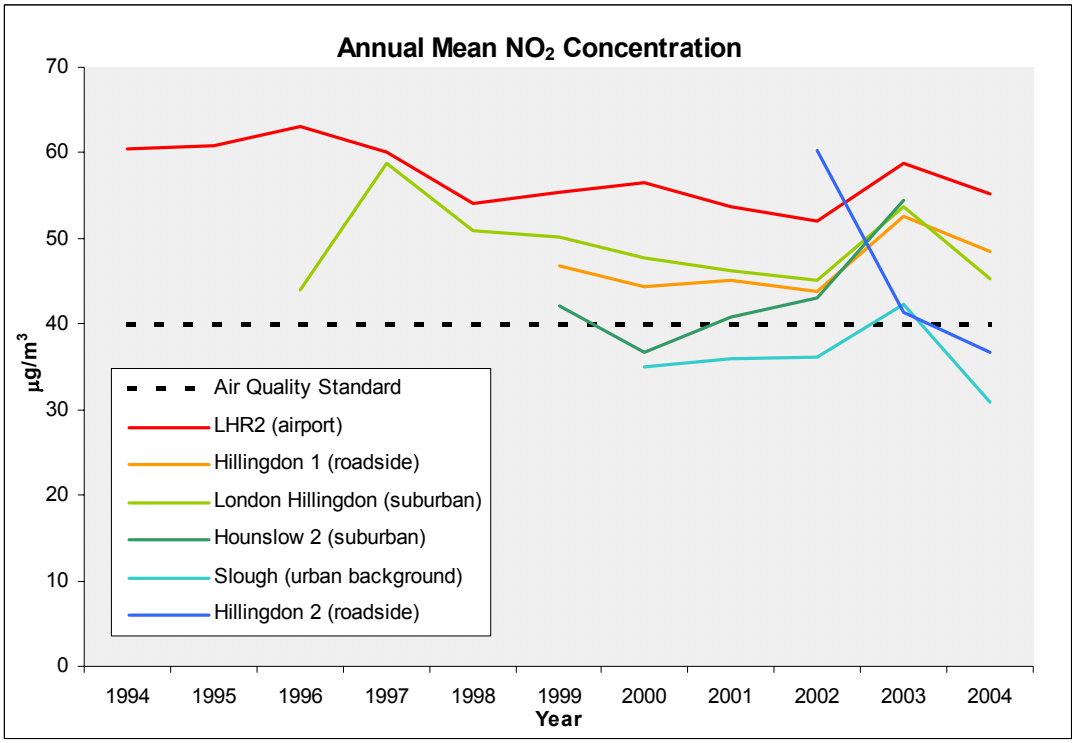
			1 hour mean of 350 $\mu g\ m^{-3}$	24 hour mean of 125 $\mu g\ m^{-3}$	15 minute mean of 266 $\mu g\ m^{-3}$
Site	Year	data capture	achieved?	achieved?	achieved?
London Hillingdon	1996	94%	Yes	Yes	Yes
	1997	94%	Yes	Yes	Yes
	1998	96%	Yes	Yes	Yes
	1999	96%	Yes	Yes	Yes
	2000	97%	Yes	Yes	Yes
	2001	67%	Yes	Yes	Yes
	2002	96%	Yes	Yes	Yes
	2003	96%	Yes	Yes	Yes
	2004	96%	Yes	Yes	Yes
Hounslow 2	1999	96%	Yes	Yes	-
	2000	96%	Yes	Yes	-
	2001	81%	Yes	Yes	-
	2002	96%	Yes	Yes	-
	2003	90%	Yes	Yes	-
London Harlington	2004	96%	Yes	Yes	Yes

A2.2.1 NO_2 results

Data from the automatic monitoring sites illustrate that achievement of the annual mean NO_2 standard of 40μg/m^3 in the Borough and surrounding region has been a problem for several years. During 2004 it was not achieved by a large margin at LHR2 (55.2μg/m^3), London Hillingdon (45.3μg/m^3) and Hillingdon 1(48.5μg/m^3). Hillingdon 1 is a roadside site while LHR2 is situated at the airport where heightened concentrations may be expected. However, London Hillingdon is a suburban site representative of much of the part of the Borough close by the airport and the major roads. Hounslow 2 is another site of this type at which the standard has not been achieved.

Figure 6 demonstrates the trends observed in the monitored data. It shows that concentrations have been well above the standard at these locations in the past. Year to year variations in the weather affect the annual mean concentrations so that interpreting trends can be difficult: the very hot weather in 2003 is responsible for the peak observed in that year, and the poor weather of 2002 for the dip in levels then. Although there is a slight reduction in concentrations in the mid 1990s there is no evidence of improvement since that time. These trend data suggest that it is extremely unlikely that the standard will be achieved in the Borough by the end of December 2005, the attainment date specified in the Air Quality Strategy.

Figure 6 – Long-term annual mean NO_2 concentration in and around Hillingdon



These findings are entirely in agreement with the conclusions of previous air quality reports from which it was concluded that the southern half of the Borough should be declared an AQMA. As a result Hillingdon has adopted an Air Quality Action Plan that

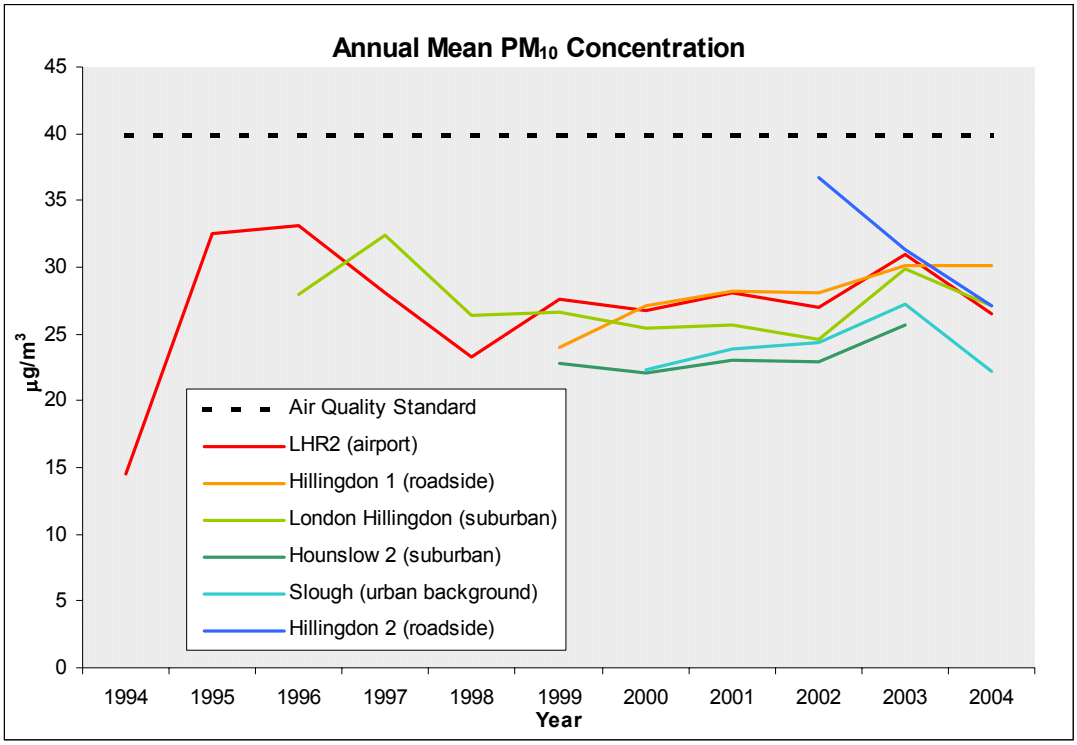
contains a set of policies working towards achieving the standard. Progress with this plan is presented in another section of this report.

A2.2.2 Other pollutants

Table 5 for CO and Table 6 for SO_2 indicate that there should be no problems within the Borough in achieving the air quality objectives for the two pollutants.

PM_{10} is continuously monitored at several locations within Hillingdon and the surrounding Boroughs. The available data (Table 4) indicate that the annual and short-term standards for this pollutant were achieved within the Borough during 2004, though the 24 hour mean objective was broken in 2003 at two locations. Figure 7 illustrates the trend in mean annual concentrations (the metric considered by various groups, including WHO, as the one most related to poor health) through time. It shows that concentrations have been static at around 10-15$\mu g/m^3$ below the objective at the monitoring locations. Due to the importance of this pollutant, Hillingdon will continue to monitor it and actions within the AQAP aim to also reduce concentrations of PM_{10}.

Figure 7 – Long-term annual mean PM_{10} concentration in and around Hillingdon



A2.3 Diffusion tube monitoring sites

LB Hillingdon carries out monitoring of NO_2 by diffusion tubes at 26 sites within the Borough. These are listed in Table 7 below. Hillingdon now also monitors benzene concentrations via diffusion tubes at sites HD31, HD46, HD48, HD50 and HD58.

Table 7 – Details of the London Borough of Hillingdon diffusion tube survey. Sites that contain both NO_2 and benzene tubes are highlighted.

LOCATION	TUBE REF	GRID REF	TYPE
Allotments, Granville Road	HD32	507927 184678	B
83 Hayes End Drive	HD49	508651 182274	B
Uxbridge Day Nursery	HD43	505996 184058	R
Barra Hall (now Church Walk)	HD41	509358 181215	B
Uxbridge Technical College	HD42	510417 180752	R
Citizens Advice Bureau	HD48	509094 187645	B
Hillingdon Primary School	HD47	507617 182506	R
4 Colham Avenue	HD51	506333 180294	R
101 Cowley Mill Road	HD52	505159 183232	B
Warren Road	HD53	506243 185653	B
Harlequin Close	HD54	511636 181652	B
Harold Avenue	HD55	509918 179015	B
15 Phelps Way	HD56	509798 178634	B
25 Cranford Lane	HD57	508758 177718	B
Brendan Close	HD58	508414 177125	B
7 Bomber Close	HD59	507296 177323	B
Harmonsworth Green	HD60	505736 177752	B
Heathrow Close	HD61	504851 176770	B
AURN Monitoring Station (triplicate)	HD31	506940 178601	S
South Ruislip Monitoring Station (triplicate)	HD46	510821 184923	R
Hillingdon Hospital Monitoring Station (triplicate)	HD50	506989 181920	R
1 North Hyde Gardens, Hayes	HD62	510285 178880	R
370 Sipson Road, Sipson	HD63	507148 178030	R
34 Hatch Lane, Sipson	HD64	505873 177613	R
28 Pinglestone Close, Sipson	HD65	506079 177081	R
486 Sipson Road, Sipson	HD66		R

Notes
B – background, R – roadside, S - suburban

A2.3.1 NO_2 diffusion tube results

Diffusion tube data have been prepared in accordance with the method in Box 6.3 of the technical guidance for Local Air Quality Management (LAQM.TG(03),DEFRA 2003). This requires that results are adjusted for bias using co-location results and uncertainty inherent in the monitoring technique. Data are presented in Table 9 and Table 10 of Annex 1 to this Appendix. The results of the Hillingdon diffusion tube survey are mapped in Figure 3 in the main text of this report. These maps demonstrate that the annual mean standard for NO_2 has been widely exceeded since 2000 at both background sites representative of large parts of the Borough and roadside sites. Results for 2004 are overall better than those for 2003 but as with the continuous monitoring it is difficult to make firm interpretation of the overall trends in these data. Several background sites in the southern part of the Borough (i.e. within the AQMA) have recorded concentrations higher than the standard for the last 3

years, years that included meteorological conditions that were both favourable and unfavourable for air quality.

These data continue to support the declaration of the Hillingdon AQMA and the need for the Hillingdon AQAP.

A2.3.2 Benzene diffusion tube results

Unadjusted results (there are no co-location sites to allow bias correction) of the Hillingdon benzene diffusion tube survey are presented in Table 8. They indicate that the benzene standard (annual mean of 5μg/m^3) was comfortably achieved at these sites within the Borough during 2004. These results support the current decision that this standard should be achieved at all locations within the Borough.

Table 8 – 2004 benzene diffusion tube results for Hillingdon.

Site Code	Month												Annual Mean	Standard Achieved?
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	μg/m^3	
HD31	1.27	1.51	0.91	1.61	1.05	1.36	0.96	1.26	0.92	1.19	1.13	2.31	1.29	Yes
HD46	1.51	2.43	2.13	2.53	1.33	1.76	1.30	1.38	1.90	1.62	1.74	2.37	1.83	Yes
HD48	1.97	2.43	1.82	1.63	1.24	1.49	1.19	1.50	1.27	1.51	1.37	2.82	1.69	Yes
HD50	1.73	2.07	1.52	1.96	1.24	1.63	1.18	1.12	0.99	1.52	1.61	2.68	1.61	Yes
HD58	1.61	2.21	1.83	1.86	1.50	0.00	1.84	0.88	1.13	1.19	1.50	3.63	1.60	Yes

A2.4 Conclusions

From the monitoring data presented in this report it has been concluded that:

- During 2004, the annual mean standard for NO_2 was exceeded at both roadside 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 is no progress towards achieving the standard discernible in the 2004 data when taken as a whole with other data showing the results and trends over several years.
- These results support the decision to declare the AQMA and to adopt the AQAP based on the exposure of parts of the Hillingdon population to these levels of NO_2.
- Other monitoring results indicate that the standards for other air quality strategy pollutants were achieved during 2004.
- These results support the decision not to declare the AQMA on the basis of exposure to these other pollutants.

Annex 1 – NO_2 diffusion tube data.

Table 9 – Details of co-location bias calculations

Site/Tube Ref	London Hillingdon (AURN)	Tube HD31a		Tube HD31b		Tube HD31c			Hillingdon 1 (South Ruislip)	Tube HD46a		Tube HD46b		Tube HD46c		
TYPE	S	S		S		S		S	R	R		R		R		R
	Period mean	*Lab.*	Bias	*Lab.*	Bias	*Lab.*	Bias	Mean bias	Period mean	*Lab.*	Bias	*Lab.*	Bias	*Lab.*	Bias	Mean bias
JANUARY	49.94	*nd*		*nd*		*36.20*	1.38	1.38	49.89	*nd*		*nd*				
FEBRUARY	53.37	*nd*		*nd*		*46.16*	1.16	1.16		*nd*		*nd*				
MARCH	46.39	*nd*		*nd*		*29.55*	1.57	1.57	51.63	*nd*		*nd*				
APRIL	52.77	*nd*		*nd*		*35.55*	1.48	1.48	50.35	*nd*		*nd*				
MAY	43.09	*30.26*	1.42	*24.76*	1.74	*34.11*	1.26	1.48	42.81	*nd*		*nd*				
JUNE	51.85	*26.56*	1.95	*42.49*	1.22	*nd*		1.59	47.18	*nd*		*nd*				
JULY	37.19	*22.51*	1.65	*29.30*	1.27	*19.65*	1.89	1.60	40.00	*42.03*	0.95	*26.65*	1.50			1.23
AUGUST	43.05	*32.61*	1.32	*34.10*	1.26	*30.03*	1.43	1.34	39.77	*28.97*	1.37	*35.68*	1.11			1.24
SEPTEMBER	46.97	*40.10*	1.17	*50.08*	0.94	*47.08*	1.00	1.04	37.45	*50.63*	0.74	*39.21*	0.96			0.85
OCTOBER	48.99	*34.10*	1.44	*32.15*	1.52	*31.41*	1.56	1.51	39.86	*34.80*	1.15	*34.16*	1.17			1.16
NOVEMBER	54.73	*53.97*	1.01	*56.09*	0.98	*54.78*	1.00	1.00	48.49	*49.52*	0.98	*54.03*	0.90			0.94
DECEMBER	44.32	*37.67*	1.18	*43.59*	1.02	*35.55*	1.25	1.15	41.03	*53.06*	0.77	*33.39*	1.23			1.00
Data capture rate	98%															
2000 Annual mean	**47.71**	***34.72***		***39.07***		***36.37***		***1.36***	***44.40***	***43.17***		***37.19***				***1.07***
JANUARY	23.47	*49.50*	0.47	*40.44*	0.58	*39.84*	0.59	0.55	50.15	*36.81*	1.36	*50.08*	1.00			1.18
FEBRUARY	55.19	*25.26*	2.18	*35.14*	1.57	*31.30*	1.76	1.84	47.74	*44.43*	1.07	*28.32*	1.69			1.38
MARCH	55.84	*28.20*	1.98	*54.49*	1.02	*34.89*	1.60	1.54		*52.68*		*41.76*				
APRIL	43.96	*32.67*	1.35	*27.12*	1.62	*25.89*	1.70	1.55	43.01	*16.59*	2.59	*37.48*	1.15			1.87
MAY	38.99	*18.54*	2.10	*14.03*	2.78	*17.54*	2.22	2.37	43.04	*27.09*	1.59	*19.57*	2.20			1.89
JUNE		*34.84*		*29.31*		*25.44*			43.56	*47.00*	0.93	*34.41*	1.27			1.10
JULY	42.44	*20.12*	2.11	*26.83*	1.58	*46.95*	0.90	1.53	42.13	*22.02*	1.91	*29.97*	1.41			1.66
AUGUST	49.51	*40.48*	1.22	*15.72*	3.15	*nd*		2.19	43.34	*29.53*	1.47	*21.91*	1.98			1.72
SEPTEMBER	34.47	*24.63*	1.40	*22.34*	1.54	*20.62*	1.67	1.54	35.09	*34.96*	1.00	*39.10*	0.90			0.95
OCTOBER	51.74	*24.36*	2.12	*17.83*	2.90	*22.58*	2.29	2.44		*32.04*		*22.88*				
NOVEMBER	44.25	*29.85*	1.48	*24.80*	1.78	*12.40*	3.57	2.28	50.22	*35.06*	1.43	*32.76*	1.53			1.48
DECEMBER	43.03	*27.61*	1.56	*23.58*	1.82	*34.51*	1.25	1.54	47.67	*31.68*	1.50	*32.26*	1.48			1.49
Data capture rate	96%															
2001 Annual mean	**46.24**	***29.67***		***27.64***		***28.36***		***1.76***	***44.59***	***34.16***		***32.54***				***1.47***
JANUARY	24.51	*42.69*	0.57	*37.50*	0.65	*47.88*	0.51	0.58	47.80	*43.27*	1.10	*64.03*	0.75	*nd*		0.93
FEBRUARY	39.72	*17.32*	2.29	*38.55*	1.03	*22.35*	1.78	1.70	33.22	*29.03*	1.14	*35.73*	0.93	*nd*		1.04
MARCH	53.97	*nd*		*nd*		*nd*				*19.75*		*32.60*		*nd*		
APRIL	47.21	*57.09*	0.83	*28.55*	1.65	*23.79*	1.98	1.49	42.32	*19.12*	2.21	*35.35*	1.20	*nd*		1.71
MAY	48.50	*28.31*	1.71	*15.68*	3.09	*21.78*	2.23	2.34	39.96	*26.48*	1.51	*20.84*	1.92	*nd*		1.71
JUNE		*16.52*		*22.42*		*25.37*			34.66	*21.84*	1.59	*33.06*	1.05	*nd*		1.32
JULY	35.35	*38.61*	0.92	*31.12*	1.14	*24.78*	1.43	1.16	37.25	*33.86*	1.10	*26.40*	1.41	*nd*		1.26
AUGUST	34.64	*nd*		*nd*		*nd*			40.92	*nd*		*nd*		*nd*		
SEPTEMBER	40.83	*35.25*	1.16	*42.65*	0.96	*32.98*	1.24	1.12	46.27	*46.21*	1.00	*42.79*	1.08	*nd*		1.04
OCTOBER	50.03	*30.67*	1.63	*46.00*	1.09	*45.41*	1.10	1.27	53.57	*41.91*	1.28	*38.37*	1.40	*48.41*	1.11	1.26
NOVEMBER	55.07	*44.63*	1.23	*44.63*	1.23	*45.52*	1.21	1.23	53.98	*41.51*	1.30	*46.42*	1.16	*53.56*	1.01	1.16
DECEMBER	43.61	*27.21*	1.60	*32.15*	1.36	*40.19*	1.09	1.35	44.86	*48.20*	0.93	*45.73*	0.98	*55.00*	0.82	0.91
Data capture rate	97%															
2002 Annual mean	**45.16**	***33.83***		***33.93***		***33.01***		***1.36***	***43.16***	***33.74***		***38.30***		***52.32***		***1.23***
JANUARY	20.92	*37.96*	0.55	*33.94*	0.62	*29.03*	0.72	0.63	45.53	*35.72*	1.27	*44.65*	1.02	*44.21*	1.03	1.11
FEBRUARY	19.65	*37.55*	0.52	*48.37*	0.41	*66.83*	0.29	0.41	60.03	*57.28*	1.05	*69.37*	0.87	*63.01*	0.95	0.96
MARCH	61.39	*38.31*	1.60	*42.89*	1.43	*42.31*	1.45	1.49	61.68	*27.29*	2.26	*53.45*	1.15	*51.18*	1.21	1.54
APRIL	55.67	*42.85*	1.30	*31.86*	1.75	*42.85*	1.30	1.45	61.19	*55.24*	1.11	*46.95*	1.30	*54.69*	1.12	1.18
MAY		*35.47*		*36.92*		*52.47*			43.79	*28.21*	1.55	*37.45*	1.17	*52.53*	0.83	1.19

Site/Tube Ref	London Hillingdon (AURN)	Tube HD31a		Tube HD31b		Tube HD31c			Hillingdon 1 (South Ruislip)	Tube HD46a		Tube HD46b		Tube HD46c		
TYPE	S	S		S		S		S	R	R		R		R		R
	Period mean	*Lab.*	Bias	*Lab.*	Bias	*Lab.*	Bias	Mean bias	Period mean	*Lab.*	Bias	*Lab.*	Bias	*Lab.*	Bias	Mean bias
JUNE		*9.46*		*37.24*		*44.34*			44.49	*41.32*	1.08	*52.53*	0.85	*53.71*	0.83	0.92
JULY	32.53	*36.00*	0.90	*34.85*	0.93	*38.30*	0.85	0.90	40.30	*57.44*	0.70	*51.70*	0.78	*36.38*	1.11	0.86
AUGUST	41.41	*35.48*	1.17	*34.89*	1.19	*46.72*	0.89	1.08	59.03	*55.42*	1.07	*47.75*	1.24	*42.45*	1.39	1.23
SEPTEMBER	65.46	*58.70*	1.12	*48.30*	1.36	*51.50*	1.27	1.25	51.93	*49.70*	1.04	*66.60*	0.78	*61.80*	0.84	0.89
OCTOBER	43.97	*41.86*	1.05	*38.12*	1.15	*45.60*	0.96	1.06	49.35	*39.23*	1.26	*49.70*	0.99	*43.34*	1.14	1.13
NOVEMBER	57.85	*44.65*	1.30	*52.61*	1.10	*59.28*	0.98	1.12	59.10	*25.69*	2.30	*53.12*	1.11	*58.99*	1.00	1.47
DECEMBER	52.59	*45.29*	1.16	*38.96*	1.35	*43.35*	1.21	1.24		*47.98*		*47.98*		*48.98*		
Data capture rate	98%															
2003 Annual mean	**45.37**	***38.63***		***39.91***		***46.88***		***1.06***	***52.40***	***43.38***		***51.77***		***50.94***		***1.13***
JANUARY	22.08	*49.21*	0.45	*33.94*	0.65	*nd*		0.55		*45.59*		*37.35*		*44.49*		
FEBRUARY	40.23	*34.16*	1.18	*37.51*	1.07	*38.85*	1.04	1.10		*60.27*		*51.57*		*29.47*		
MARCH	50.25	*43.07*	1.17	*48.99*	1.03	*36.61*	1.37	1.19	51.35	*42.88*	1.20	*58.42*	0.88	*53.60*	0.96	1.01
APRIL	51.71	*44.75*	1.16	*36.27*	1.43	*51.34*	1.01	1.20	47.88	*52.01*	0.92	*57.69*	0.83	*52.49*	0.91	0.89
MAY	38.67	*35.54*	1.09	*36.68*	1.05	*36.41*	1.06	1.07	40.32	*43.12*	0.94	*51.75*	0.78	*40.91*	0.99	0.90
JUNE	38.23	*40.03*	0.95	*36.76*	1.04	*37.83*	1.01	1.00		*42.66*		*43.14*		*nd*		
JULY		*42.62*		*38.62*		*37.73*				*42.39*		*44.18*		*49.08*		
AUGUST	50.59	*nd*		*nd*		*nd*				*nd*		*nd*		*nd*		
SEPTEMBER	48.36	*41.07*	1.18	*34.31*	1.41	*38.81*	1.25	1.28		*35.18*		*35.18*		*33.51*		
OCTOBER	44.56	*43.95*	1.01	*44.29*	1.01	*41.22*	1.08	1.03		*46.42*		*47.03*		*42.07*		
NOVEMBER	45.33	*34.22*	1.32	*36.80*	1.23	*nd*		1.28	32.35	*49.44*	0.65	*49.38*	0.66	*50.65*	0.64	0.65
DECEMBER	48.20	*46.03*	1.05	*43.19*	1.12	*nd*		1.08	53.64	*52.82*	1.02	*51.42*	1.04	*53.28*	1.01	1.02
Data capture rate	98%															
2004 Annual mean	**45.26**	***41.33***		***38.85***		***39.85***		***1.08***	***45.11***	***46.62***		***47.92***		***44.96***		***0.89***

Notes

nd – no data, lab. – unadjusted laboratory results, bias – calculated bias factor

Sites where there are at least 9 months of diffusion tube results have been bias adjusted using the annual mean factor. For remaining sites with fewer months of data the bias adjustment has taken account of the period mean. The key data and final annual mean results for Hillingdon are presented in Table 10. A mapped summary of these results is presented in the main part of this report (Figure 3).

Table 10 – Diffusion tube results for the London Borough of Hillingdon

TUBE REF	HD32		HD49		HD43		HD41		HD42		HD48		HD47		HD51		HD52		HD53	
TYPE	B		B		R		B		R		B		R		R		B		B	
	Lab.	Bias adj.	*Lab.*	Bias adj.	*Lab.*	Bias adj.	*Lab.*	Bias adj.	*Lab.*	Bias adj.	*Lab.*	Bias adj.	*Lab.*	Bias adj.	*Lab.*	Bias adj.	*Lab.*	Bias adj.	*Lab.*	Bias adj.
JANUARY	*40.13*				*32.45*		*28.42*		*nd*											
FEBRUARY	*32.65*				*45.41*		*30.50*		*33.86*											
MARCH	*38.07*				*30.95*		*39.72*		*41.64*											
APRIL	*27.49*				*30.66*		*25.65*		*32.95*											
MAY	*25.94*				*30.27*		*22.03*		*24.59*											
JUNE	*nd*				*16.71*		*18.94*		*25.46*											
JULY	*nd*				*38.20*	46.85	*19.40*		*30.36*	37.23										
AUGUST	*28.14*				*30.19*	37.55	*24.12*		*28.73*	35.73										
SEPTEMBER	*13.56*				*25.15*	21.31	*33.60*		*nd*											
OCTOBER	*18.50*				*nd*		*28.74*		*nd*											
NOVEMBER	*30.23*				*nd*		*30.40*		*40.12*	37.64										
DECEMBER	*33.34*				*nd*		*26.86*		*20.01*	20.03										
N		10				3		12		4										
Annual/Period mean adj.		1.36				1.13		1.36		1.06										
Annual mean 2000		**37.99**				**39.65**		**36.67**		**34.76**										

JANUARY	*32.58*				*41.03*		*29.58*		*37.96*	44.86										
FEBRUARY	*26.10*				*24.99*		*26.14*		*26.18*	36.13			*32.26*	44.52						
MARCH	*27.52*				*39.86*		*24.23*		*nd*				*nd*							
APRIL	*17.82*				*30.72*		*12.92*		*nd*				*nd*							
MAY	*20.57*				*39.63*		*19.59*		*30.64*	58.03	*17.06*	40.40	*nd*							
JUNE	*14.38*		*14.93*		*nd*		*13.82*		*23.78*	26.07	*27.61*		*29.35*	32.18						
JULY	*23.21*		*17.68*	27.08	*17.74*		*14.61*		*nd*		*23.24*	35.60	*19.48*	32.33						
AUGUST	*18.57*		*19.53*	42.70	*18.08*		*26.26*		*35.76*	61.60	*35.24*	77.05	*16.23*	27.96						
SEPTEMBER	*25.48*		*21.33*	32.81	*25.48*		*21.92*		*30.22*	28.73	*16.00*	24.61	*nd*							
OCTOBER	*30.89*		*33.75*	82.31	*40.04*		*32.61*		*44.05*		*38.90*	94.87	*nd*							
NOVEMBER	*28.61*		*16.13*	36.75	*29.99*		*15.63*		*16.61*	24.63	*9.22*	21.01	*7.38*	10.94						
DECEMBER	*40.32*		*17.28*	26.67	*28.80*		*31.68*		*31.01*	46.24	*nd*		*36.76*	54.81						
N		11		6		9		11		8		6		6						
Period mean adj.		1.76		1.05		1.47		1.76		1.12		1.06		0.99						
Annual mean 2001		**45.69**		**43.26**		**43.08**		**40.50**		**45.70**		**51.93**		**33.33**						

JANUARY	*31.73*	18.40	*38.13*		*44.93*	41.59	*30.53*		*36.40*	33.69	*32.83*		*50.84*	47.06						
FEBRUARY	*16.76*	28.49	*25.64*		*19.55*	20.28	*18.49*		*27.36*	28.38	*13.97*		*nd*							
MARCH	*24.33*		*16.52*		*26.63*		*11.48*		*18.36*		*31.68*		*nd*							

TUBE REF	HD32		HD49		HD43		HD41		HD42		HD48		HD47		HD51		HD52		HD53	
TYPE	B		B		R		B		R		B		R		R		B		B	
	Lab.	Bias adj.	*Lab.*	Bias adj.	*Lab.*	Bias adj.	*Lab.*	Bias adj.	*Lab.*	Bias adj.	*Lab.*	Bias adj.	*Lab.*	Bias adj.	*Lab.*	Bias adj.	*Lab.*	Bias adj.	*Lab.*	Bias adj.
APRIL	*16.21*	24.12	*16.21*		*nd*		*20.86*		*17.83*	30.41	*14.47*		*15.60*	26.60						
MAY	*32.16*	75.39	*13.91*		*30.01*	51.41	*15.15*		*16.54*	28.34	*50.39*		*17.79*	30.48						
JUNE			*20.08*		*26.57*	35.01	*14.78*		*27.18*	35.81	*18.30*		*nd*							
JULY			*16.10*		*nd*		*20.71*		*16.69*	20.96	*19.51*		*30.50*	38.30						
AUGUST			*nd*		*nd*		*nd*		*nd*		*nd*		*nd*							
SEPTEMBER			*26.26*		*43.93*	45.74	*30.34*		*41.75*	43.47	*27.98*		*45.72*	47.61						
OCTOBER			*21.23*		*36.60*	46.13	*30.61*		*nd*		*31.26*		*35.88*	45.22						
NOVEMBER			*37.89*		*49.11*	56.82	*31.72*		*nd*		*21.89*		*40.60*	46.98	*32.96*	38.14	*41.89*	51.35	*50.10*	61.42
DECEMBER			*38.31*		*nd*		*30.28*		*48.20*	43.82	*32.75*		*34.60*	31.46	*33.99*	30.90	*33.36*	44.97	*25.95*	34.98
N		4		9		7		9		8		9		8		2		2		2
Period mean adj.		1.13		1.36		1.05		1.36		1.13		1.36		1.05		0.92		0.92		0.92
Annual mean 2002		**41.34**		**32.84**		**44.45**		**32.48**		**37.42**		**38.57**		**41.05**		**31.60**		**44.08**		**44.12**
JANUARY			*23.68*		*37.96*		*26.35*		*28.13*		*28.58*		*nd*		*nd*		*28.60*		*33.49*	
FEBRUARY			*36.25*		*nd*		*32.45*		*50.28*		*49.64*		*nd*		*nd*		*41.98*		*46.46*	
MARCH			*33.15*		*nd*		*27.30*		*36.40*		*41.51*		*42.87*	66.01	*41.15*		*42.87*		*26.74*	
APRIL			*30.78*		*54.65*		*31.48*		*41.97*		*38.11*		*39.02*	45.92	*40.65*		*29.66*		*32.02*	
MAY			*18.48*		*31.61*		*17.02*		*30.63*		*24.80*		*nd*		*39.88*		*36.96*		*31.13*	
JUNE			*23.05*		*65.01*		*22.44*		*27.76*		*41.36*		*nd*		*41.38*		*47.30*		*33.09*	
JULY			*29.47*		*34.44*		*26.04*		*42.13*		*55.88*		*nd*		*34.45*		*47.07*		*nd*	
AUGUST			*30.09*		*60.09*		*24.11*		*nd*		*24.14*		*37.18*	45.76	*42.62*		*43.11*		*42.93*	
SEPTEMBER			*43.60*		*47.50*		*39.50*		*50.70*		*49.00*		*54.90*	48.77	*39.40*		*54.80*		*56.40*	
OCTOBER			*32.09*		*46.34*		*33.25*		*46.32*		*30.65*		*44.78*	50.60	*46.70*		*40.36*		*35.87*	
NOVEMBER			*23.23*		*44.05*		*16.65*		*13.44*		*26.35*		*25.34*	37.29	*49.73*		*48.21*		*15.72*	
DECEMBER			*42.32*		*39.98*		*31.99*		*nd*		*32.49*		*46.77*		*42.51*		*41.05*		*40.98*	
N				10		9		10		10		10		6		9		10		9
Period mean adj.				1.06		1.13		1.06		1.13		1.06		0.84		1.13		1.06		1.06
Annual mean 2003				**34.96**		**51.83**		**30.84**		**39.99**		**39.50**		**40.99**		**48.84**		**44.70**		**38.83**
JANUARY					*30.22*		*24.17*	13.28	*24.17*		*37.36*		*nd*		*45.21*		*54.55*		*46.70*	
FEBRUARY			*31.48*				*32.15*	35.21	*36.83*		*29.46*		*29.47*		*42.20*		*38.17*		*29.46*	
MARCH			*36.42*		*50.89*	51.47	*31.04*	36.88	*43.35*	43.85	*38.01*		*nd*		*35.35*	35.76	*42.85*		*36.43*	
APRIL			*29.21*		*43.02*	38.18	*27.46*	32.85	*40.24*	35.72	*31.69*		*nd*		*42.40*	37.63	*44.76*		*40.66*	
MAY			*27.33*		*58.03*	52.23	*nd*		*40.02*	36.02	*31.16*		*45.76*	41.18	*33.36*	30.02	*41.26*		*nd*	
JUNE			*26.41*		*34.24*		*nd*		*28.56*		*32.89*		*20.26*		*32.43*		*35.30*		*37.79*	
JULY			*24.98*		*nd*		*nd*		*34.80*		*29.43*		*nd*		*29.44*		*34.79*		*39.69*	
AUGUST			*nd*		*nd*		*nd*		*nd*		*nd*		*nd*		*nd*		*nd*		*nd*	

TUBE REF	HD32		HD49		HD43		HD41		HD42		HD48		HD47		HD51		HD52		HD53	
TYPE	B		B		R		B		R		B		R		R		B		B	
	Lab.	Bias adj.	*Lab.*	Bias adj.	*Lab.*	Bias adj.	*Lab.*	Bias adj.	*Lab.*	Bias adj.	*Lab.*	Bias adj.	*Lab.*	Bias adj.	*Lab.*	Bias adj.	*Lab.*	Bias adj.	*Lab.*	Bias adj.
SEPTEMBER			*21.37*		*31.87*		*23.48*	30.00	*29.62*		*21.66*		*25.88*		*30.90*		*35.43*		*36.90*	
OCTOBER			*30.87*		*42.39*		*nd*		*nd*		*31.63*		*37.70*		*nd*		*38.65*		*44.00*	
NOVEMBER			*29.68*		*44.36*	28.81	*nd*		*39.56*	25.69	*31.51*		*46.49*	30.19	*35.06*	22.77	*43.50*		*47.87*	
DECEMBER			*37.06*		*nd*		*nd*		*nd*		*35.64*		*nd*		*42.88*	43.82	*48.32*		*50.09*	
N				9		4		5		4		10		2		5		10		9
Period mean adj.				1.08		0.97		1.06		0.97		1.08		1.08		0.97		1.08		1.08
Annual mean 2004				**33.95**		**41.54**		**31.55**		**34.38**		**34.13**		**38.46**		**32.86**		**44.88**		**43.97**

Table 10 – Diffusion tube results for the London Borough of Hillingdon (continued)

TUBE REF	HD54		HD55		HD56		HD57		HD58		HD59		HD60		HD61		HD31a		HD31b		HD31c	
TYPE	B		B		B		B		B		B		B		B		S		S		S	
	Lab.	Bias adj.	*Lab.*	Bias adj.	*Lab.*	Bias adj.	*Lab.*	Bias adj.	*Lab.*	Bias adj.	*Lab.*	Bias adj.	*Lab.*	Bias adj.	*Lab.*	Bias adj.	*Lab.*	Bias adj.	*Lab.*	Bias adj.	*Lab.*	Bias adj.
JANUARY																					*36.20*	
FEBRUARY																					*46.16*	
MARCH																					*29.55*	
APRIL																					*35.55*	
MAY																	*30.26*	44.65	*24.76*	36.54	*34.11*	
JUNE																	*26.56*	42.13	*42.49*	67.40	*nd*	
JULY																	*22.51*	36.12	*29.30*	47.02	*19.65*	
AUGUST																	*32.61*	43.65	*34.10*	45.65	*30.03*	
SEPTEMBER																	*40.10*	41.53	*50.08*	51.86	*47.08*	
OCTOBER																	*34.10*	51.38	*32.15*	48.45	*31.41*	
NOVEMBER																	*53.97*	53.77	*56.09*	55.88	*54.78*	
DECEMBER																	*37.67*	43.19	*43.59*	49.98	*35.55*	
N																		8		8		11
Period mean adj.																		1.03		1.03		1.36
Annual mean 2000																		**45.94**		**51.91**		**46.91**
JANUARY																	*49.50*		*40.44*		*39.84*	
FEBRUARY																	*25.26*		*35.14*		*31.30*	
MARCH																	*28.20*		*54.49*		*34.89*	
APRIL																	*32.67*		*27.12*		*25.89*	
MAY																	*18.54*		*14.03*		*17.54*	
JUNE																	*34.84*		*29.31*		*25.44*	
JULY																	*20.12*		*26.83*		*46.95*	

TUBE REF	HD54		HD55		HD56		HD57		HD58		HD59		HD60		HD61		HD31a		HD31b		HD31c	
TYPE	B		B		B		B		B		B		B		B		S		S		S	
	Lab.	Bias adj.	*Lab.*	Bias adj.	*Lab.*	Bias adj.	*Lab.*	Bias adj.	*Lab.*	Bias adj.	*Lab.*	Bias adj.	*Lab.*	Bias adj.	*Lab.*	Bias adj.	*Lab.*	Bias adj.	*Lab.*	Bias adj.	*Lab.*	Bias adj.
AUGUST																	*40.48*		*15.72*		*nd*	
SEPTEMBER																	*24.63*		*22.34*		*20.62*	
OCTOBER																	*24.36*		*17.83*		*22.58*	
NOVEMBER																	*29.85*		*24.80*		*12.40*	
DECEMBER																	*27.61*		*23.58*		*34.51*	
N																		11		11		10
Period mean adj.																		1.76		1.76		1.76
Annual mean 2001																		**48.98**		**44.73**		**45.50**
JANUARY																	*42.69*		*37.50*		*47.88*	
FEBRUARY																	*17.32*		*38.55*		*22.35*	
MARCH																	*nd*		*nd*		*nd*	
APRIL																	*57.09*		*28.55*		*23.79*	
MAY																	*28.31*		*15.68*		*21.78*	
JUNE																	*16.52*		*22.42*		*25.37*	
JULY																	*38.61*		*31.12*		*24.78*	
AUGUST																	*nd*		*nd*		*nd*	
SEPTEMBER																	*35.25*		*42.65*		*32.98*	
OCTOBER																	*30.67*		*46.00*		*45.41*	
NOVEMBER	*nd*		*67.08*	82.24	*44.87*	55.01	*48.18*	59.07	*44.89*	55.03	*43.47*	53.29	*44.90*	55.04	*35.92*	44.04	*44.63*		*44.63*		*45.52*	
DECEMBER	*38.31*	51.65	*53.14*	71.64	*43.26*	58.32	*32.75*	44.15	*54.38*	73.31	*46.35*	62.48	*31.51*	42.48	*41.41*	55.82	*27.21*		*32.15*		*40.19*	
N		1		2		2		2		2		2		2		2		9		9		9
Period mean adj.		1.04		0.92		0.92		0.92		0.92		0.92		0.92		0.92		1.36		1.36		1.36
Annual mean 2002		**53.48**		**70.42**		**51.86**		**47.24**		**58.73**		**52.98**		**44.63**		**45.70**		**46.68**		**45.21**		**42.85**
JANUARY	*36.62*	23.04	*40.64*		*33.05*		*29.47*		*46.89*		*38.40*		*41.08*		*31.26*		*37.96*		*33.94*		*29.03*	
FEBRUARY	*40.09*	16.35	*58.55*		*58.55*		*46.46*		*44.56*		*61.10*		*53.47*		*62.38*		*37.55*		*48.37*		*66.83*	
MARCH	*34.12*	51.01	*55.73*		*51.18*		*38.67*		*41.51*		*42.65*		*41.51*		*43.41*		*38.31*		*42.89*		*42.31*	
APRIL	*40.87*	59.20	*39.76*		*33.68*		*39.76*		*44.73*		*44.73*		*32.02*		*44.00*		*42.85*		*31.86*		*42.85*	
MAY			*30.14*		*27.23*		*30.63*		*28.69*		*27.23*		*20.91*		*24.31*		*35.47*		*36.92*		*52.47*	
JUNE			*47.24*		*44.29*		*32.48*		*48.43*		*30.71*		*40.74*		*39.57*		*9.46*		*37.24*		*44.34*	
JULY			*51.70*		*26.42*		*29.87*		*nd*		*31.40*		*23.36*		*29.49*		*36.00*		*34.85*		*38.30*	
AUGUST			*33.72*		*37.26*		*46.14*		*37.26*		*41.40*		*34.89*		*36.07*		*35.48*		*34.89*		*46.72*	
SEPTEMBER			*59.10*		*51.90*		*58.30*		*65.50*		*49.50*		*27.20*		*48.70*		*58.70*		*48.30*		*51.50*	
OCTOBER			*46.70*		*37.36*		*38.48*		*32.50*		*37.73*		*38.58*		*41.20*		*41.86*		*38.12*		*45.60*	
NOVEMBER			*60.48*		*27.18*		*30.61*		*19.41*		*35.83*		*47.04*		*53.33*		*44.65*		*52.61*		*59.28*	
DECEMBER			*54.06*		*46.27*		*45.78*		*47.72*		*42.86*		*39.45*		*43.83*		*45.29*		*38.96*		*43.35*	

TUBE REF	HD54		HD55		HD56		HD57		HD58		HD59		HD60		HD61		HD31a		HD31b		HD31c	
TYPE	B		B		B		B		B		B		B		B		S		S		S	
	Lab.	Bias adj.	*Lab.*	Bias adj.	*Lab.*	Bias adj.	*Lab.*	Bias adj.	*Lab.*	Bias adj.	*Lab.*	Bias adj.	*Lab.*	Bias adj.	*Lab.*	Bias adj.	*Lab.*	Bias adj.	*Lab.*	Bias adj.	*Lab.*	Bias adj.
N		4		10		10		10		9		10		10		10		10		10		10
Period mean adj.		1.15		1.06		1.06		1.06		1.06		1.06		1.06		1.06		1.06		1.06		1.06
Annual mean 2003		**43.06**		**53.12**		**42.60**		**43.41**		**45.76**		**44.55**		**39.12**		**45.77**		**45.29**		**42.82**		**48.84**
JANUARY	*redundant*		*56.57*		*51.48*		*76.93*		*45.26*	24.88	*46.39*		*40.16*	22.07	*38.46*		*49.21*		*33.94*		*nd*	
FEBRUARY			*36.84*		*50.23*		*41.53*		*34.16*	37.41	*44.21*		*38.85*	42.55	*34.84*		*34.16*		*37.51*		*38.85*	42.55
MARCH			*47.62*		*45.50*		*42.82*		*48.16*	57.23	*43.88*		*39.28*	46.68	*43.04*		*43.07*		*48.99*		*36.61*	43.50
APRIL			*46.87*		*44.98*		*31.25*		*46.88*	56.08	*37.88*		*37.70*	45.10	*40.06*		*44.75*		*36.27*		*51.34*	61.41
MAY			*42.37*		*36.62*		*40.36*		*37.42*	39.97	*35.54*		*35.54*	37.97	*36.15*		*35.54*		*36.68*		*36.41*	38.90
JUNE			*33.47*		*32.99*		*37.79*		*33.33*	33.39	*27.73*		*23.83*	23.87	*31.84*		*40.03*		*36.76*		*37.83*	37.90
JULY			*37.03*		*35.68*		*nd*		*38.35*		*27.21*		*33.32*		*31.09*		*42.62*		*38.62*		*37.73*	
AUGUST			*nd*		*nd*		*nd*		*nd*		*nd*		*nd*		*nd*		*nd*		*nd*		*nd*	
SEPTEMBER			*30.15*		*22.35*		*26.27*		*33.53*	42.84	*nd*		*nd*		*28.10*		*41.07*		*34.31*		*38.81*	49.59
OCTOBER			*nd*		*nd*		*35.28*		*nd*		*40.18*		*nd*		*36.62*		*43.95*		*44.29*		*41.22*	42.61
NOVEMBER			*41.91*		*42.89*		*41.17*		*43.35*	55.41	*40.07*		*39.39*	50.35	*41.86*		*34.22*		*36.80*		*nd*	
DECEMBER			*47.28*		*48.67*		*46.39*		*nd*		*41.23*		*38.58*	41.72	*38.49*		*46.03*		*43.19*		*nd*	
N				9		9		10		8		9		8		10		10		10		7
Period mean adj.				1.08		1.08		1.08		1.08		1.08		1.08		1.08		1.08		1.08		1.02
Annual mean 2004				**45.12**		**44.37**		**42.98**		**46.93**		**41.61**		**41.96**		**39.78**		**43.87**		**42.07**		**45.90**

Table 10 – Diffusion tube results for the London Borough of Hillingdon (continued)

TUBE REF	HD46a		HD46b		HD46c		HD50a		HD50b		HD50c		HD62		HD63		HD64		HD65		HD66	
TYPE	R		R		R		R		R		R		R		R		R		R		R	
	Lab.	Bias adj.	*Lab.*	Bias adj.	*Lab.*	Bias adj.	*Lab.*	Bias adj.	*Lab.*	Bias adj.	*Lab.*	Bias adj.	*Lab.*	Bias adj.	*Lab.*	Bias adj.	*Lab.*	Bias adj.	*Lab.*	Bias adj.	*Lab.*	Bias adj.
JANUARY																						
FEBRUARY																						
MARCH																						
APRIL																						
MAY																						
JUNE																						
JULY	*42.03*	51.54	*26.65*	32.68																		
AUGUST	*28.97*	36.03	*35.68*	44.38																		
SEPTEMBER	*50.63*	42.90	*39.21*	33.22																		
OCTOBER	*34.80*	40.23	*34.16*	39.49																		
NOVEMBER	*49.52*	46.46	*54.03*	50.69																		

TUBE REF	HD46a		HD46b		HD46c		HD50a		HD50b		HD50c		HD62		HD63		HD64		HD65		HD66	
TYPE	R		R		R		R		R		R		R		R		R		R		R	
	Lab.	Bias adj.	*Lab.*	Bias adj.	*Lab.*	Bias adj.	*Lab.*	Bias adj.	*Lab.*	Bias adj.	*Lab.*	Bias adj.	*Lab.*	Bias adj.	*Lab.*	Bias adj.	*Lab.*	Bias adj.	*Lab.*	Bias adj.	*Lab.*	Bias adj.
DECEMBER	*53.06*	53.12	*33.39*	33.43																		
N		6		6																		
Period mean adj.		1.04		1.04																		
Annual mean 2000		**46.85**		**40.54**																		
JANUARY	*36.81*		*50.08*																			
FEBRUARY	*44.43*		*28.32*																			
MARCH	*52.68*		*41.76*																			
APRIL	*16.59*		*37.48*																			
MAY	*27.09*		*19.57*																			
JUNE	*47.00*		*34.41*																			
JULY	*22.02*		*29.97*																			
AUGUST	*29.53*		*21.91*																			
SEPTEMBER	*34.96*		*39.10*																			
OCTOBER	*32.04*		*22.88*																			
NOVEMBER	*35.06*		*32.76*																			
DECEMBER	*31.68*		*32.26*																			
N		10		10																		
Period mean adj.		1.47		1.47																		
Annual mean 2001		**45.85**		**46.45**																		
JANUARY	*43.27*		*64.03*																			
FEBRUARY	*29.03*		*35.73*																			
MARCH	*19.75*		*32.60*																			
APRIL	*19.12*		*35.35*																			
MAY	*26.48*		*20.84*																			
JUNE	*21.84*		*33.06*																			
JULY	*33.86*		*26.40*																			
AUGUST	*nd*		*nd*																			
SEPTEMBER	*46.21*		*42.79*																			
OCTOBER	*41.91*		*38.37*		*48.41*	61.01	*35.47*	44.70	*33.02*	41.62												
NOVEMBER	*41.51*		*46.42*		*53.56*	61.97	*nd*		*nd*													
DECEMBER	*48.20*		*45.73*		*55.00*	50.00	*42.64*	38.77	*30.28*	27.53	*33.37*	30.34										
N		10		10		3		2		2		1										
Period mean adj.		1.23		1.23		0.91		0.96		0.96		1.04										
Annual mean 2002		**41.22**		**45.72**		**52.53**		**40.26**		**33.35**		**31.42**										

TUBE REF	HD46a		HD46b		HD46c		HD50a		HD50b		HD50c		HD62		HD63		HD64		HD65		HD66	
TYPE	R		R		R		R		R		R		R		R		R		R		R	
	Lab.	Bias adj.	*Lab.*	Bias adj.	*Lab.*	Bias adj.	*Lab.*	Bias adj.	*Lab.*	Bias adj.	*Lab.*	Bias adj.	*Lab.*	Bias adj.	*Lab.*	Bias adj.	*Lab.*	Bias adj.	*Lab.*	Bias adj.	*Lab.*	Bias adj.
JANUARY	*35.72*		*44.65*		*44.21*		*32.17*		*32.17*		*28.15*											
FEBRUARY	*57.28*		*69.37*		*63.01*		*59.79*		*55.34*		*42.62*											
MARCH	*27.29*		*53.45*		*51.18*		*32.57*		*42.29*		*42.86*											
APRIL	*55.24*		*46.95*		*54.69*		*25.83*		*26.38*		*38.47*											
MAY	*28.21*		*37.45*		*52.53*		*31.12*		*30.15*		*40.85*											
JUNE	*41.32*		*52.53*		*53.71*		*43.74*		*30.74*		*32.51*											
JULY	*57.44*		*51.70*		*36.38*		*35.62*		*34.50*		*28.12*											
AUGUST	*55.42*		*47.75*		*42.45*		*36.05*		*50.10*		*28.71*											
SEPTEMBER	*49.70*		*66.60*		*61.80*		*48.20*		*59.40*		*41.80*											
OCTOBER	*39.23*		*49.70*		*43.34*		*32.51*		*47.09*		*41.11*											
NOVEMBER	*25.69*		*53.12*		*58.99*		*55.94*		*54.90*		*51.93*											
DECEMBER	*47.98*		*47.98*		*48.98*		*42.56*		*45.06*		*nd*											
N		11		11		11		11		11		11										
Period mean adj.		1.13		1.13		1.13		1.13		1.13		1.13										
Annual mean 2003		**46.97**		**58.43**		**58.02**		**44.30**		**47.89**		**43.73**										
JANUARY	*45.59*		*37.35*		*44.49*		*nd*		*nd*		*nd*											
FEBRUARY	*60.27*		*51.57*		*29.47*		*42.20*		*42.20*		*nd*											
MARCH	*42.88*	43.37	*58.42*	59.09	*53.60*	54.22	*30.53*	30.88	*41.24*	41.71	*nd*											
APRIL	*52.01*	46.16	*57.69*	51.21	*52.49*	46.59	*40.04*	35.54	*37.68*	33.44	*40.98*	36.37										
MAY	*43.12*	38.81	*51.75*	46.58	*40.91*	36.82	*35.51*	31.96	*36.85*	33.17	*39.60*	35.64										
JUNE	*42.66*		*43.14*		*nd*		*34.96*		*35.74*		*nd*											
JULY	*42.39*		*44.18*		*49.08*		*39.26*		*40.15*		*26.77*											
AUGUST	*nd*		*nd*		*nd*		*nd*		*nd*		*nd*											
SEPTEMBER	*35.18*		*35.18*		*33.51*		*26.40*		*30.90*		*28.65*		*42.44*		*25.84*		*26.40*				*25.29*	
OCTOBER	*46.42*		*47.03*		*42.07*		*40.69*		*38.83*		*42.35*				*36.01*		*32.65*		*34.47*		*35.02*	
NOVEMBER	*49.44*	32.11	*49.38*	32.07	*50.65*	32.90	*43.39*	28.18	*46.43*	30.16	*48.33*	31.39	*36.57*	23.75	*36.00*	23.38	*37.66*	24.46	*37.78*	24.54	*39.10*	25.39
DECEMBER	*52.82*	53.98	*51.42*	52.55	*53.28*	54.45	*47.66*	48.70	*47.57*	48.61	*49.25*	50.33	*47.74*	48.79	*34.81*	35.57	*37.04*	37.85	*37.84*	38.67	*35.42*	36.20
N		5		5		5		5		5		4		2		2		2		2		2
Period mean adj.		0.97		0.97		0.97		0.97		0.97		0.98		0.97		0.97		0.97		0.97		0.97
Annual mean 2004		**41.44**		**46.67**		**43.48**		**33.87**		**36.16**		**37.83**		**35.10**		**28.53**		**30.15**		**30.59**		**29.80**

Appendix 3: Progress with the Action Plan

The following tables were produced using EMRC's Action Plan Tracker database, showing progress against each measure. Overall progress with the plan was reviewed above in Chapter 4.

The London Borough of Hillingdon

Air Quality Action Plan Progress Report

Ref.	Action Plan Measure	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	Appointment of Green Travel Plan co-ordinator at Hillingdon on part- time basis in 2004/05.	Included in draft LIP	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	Planning phase		Included in draft LIP	Local Authority Led	Planning and Transportation
1. 03.	Encourage the development of more dedicated cycle (priority) lanes and signalling.	2008	Planning phase		Included in draft LIP	Local Authority Led	Highways
1. 04.	Extend provision of more parking for motorcycles, mopeds and bicycles at public sites and new developments.	2007	In progress	Cycle training in schools and provision of secure cycle parking areas, new cycle route on Oxford Road to High Street in 2004/05.	Included in draft LIP	Local Authority Led	Highways
1. 05.	Improve provision for pedestrians.	2008	In progress		Included in draft LIP	Local Authority Led	Borough Transport Strategy
1. 06.	Introduce more Safe Routes to School throughout the Borough with special regard to the schools within the highest exceedance areas	2010	In progress	Seven additional schools included in Safer Routes to School project in 2004/05.	Air quality and health information to be included in Safer Routes to School publications for 2005/06 Included in draft LIP	Local Authority Led	Borough Transport Strategy

Ref.	Action Plan Measure	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	In progress	Implemented via Hillingdon Air Quality SPG. Green Travel Plans requested via planning conditions on relevant new developments.	System to be devised in 2005/06 to monitor and review GTPs and assess impact on modal shift.	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	Not started		Potentially actioned through the Heathrow Area Transport Forum	Partnership	West London Air Quality and Transport Group
1. 09.	Seek to ensure improvements in overall public transport service (facilities, cleanliness, safety, frequency, reliability) across the Borough and West London, and particularly in declared AQ Management Areas AQMAs.	2008	Not started			Partnership	Borough and West London Transport Strategy
1. 10.	Improve the north-south public transport provision in the Borough.	2010	Planning phase		Included in draft LIP	Partnership	Borough Transport Strategy
1. 11	Support multi modal travel by further development of public transport interchanges for rail/cycle/bus/walking both within Hillingdon and the West London area.	2008	Planning phase, 1st stage report published	June 2004 - Identification of Public Transport Hubs and Links in West London Project published. Project identified public transport hubs and links in areas of air quality exceedence across West London, and developed action plans for improvements at three strategic locations in each West London borough with potential implementation via the borough LIP/BSP process.	Further work on Air Quality and Sustainable Travel Desire Lines due in June 2005. Report will include suggestions for means of monitoring changes in travel behaviour throughout West London. Included in draft LIP	Partnership	West London Air Quality and Transport Group
1. 12.	Encourage development of efficient and high quality bus corridors.	2008	Planning phase		Included in draft LIP	Partnership	West London Air Quality and Transport Group

Ref.	Action Plan Measure	Timescale	Progress with Measure	Outcome to date	Comments	Local Authority Role	Responsibility
1. 13.	Investigate potential for more night buses.	2007	Planning phase		Included in draft LIP	Partnership	Transportation Team
1. 14.	Investigate the feasibility of working with relevant stakeholders to subsidise bus, train and underground fares in order to achieve significant modal shift.	2007	Planning phase		Included in draft LIP	Lobbying	West London Authorities

Ref.	Action Plan Measure	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	In progress	Creation of two 20mph zones in Vine Lane and Harefield Village in 2004/05, both residential areas subjected to rat-running traffic.	Included in draft LIP	Local Authority Led	Transportation Team
2. 02.	Support the West London Transit Scheme project if appropriate.	2007	Planning phase		Included in draft LIP	Local Authority Led	Planning and Transportation
2. 03.	Ensure the provision of sufficient signage and details of spaces for public car parks.	2007	Planning phase		Included in draft LIP	Local Authority Led	Highways Department
2. 04.	Investigate the creation of Clear Zones.	2007	Planning phase		Included in draft LIP	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	In progress, report due summer 2005	Best Practice Guide for Transport developed, due for publication in practice advice to ensure May 2005. To provide best consistent, transparent approach to consideration of air quality impacts in the assessment of new developments, traffic management schemes and transport infrastructure projects.	Included in draft LIP	Partnership	West London Air Quality and Transport Group
2. 06.	Work in partnership with TfL to implement schemes along the high exceedance corridors designed to smooth traffic flows.	2006	Planning phase		Included in draft LIP	Partnership	West London Air Quality and Transport Group

Ref.	Action Plan Measure	Timescale	Progress with Measure	Outcome to date	Comments	Local Authority Role	Responsibility
2. 07.	Improve coordination of road works and provide more effective signing around them.	2007	Planning phase		Included in draft LIP	Partnership	West London Air Quality and Transport Group
2. 08.	Investigate use of high occupancy vehicle lanes and freight priority schemes along the major exceedance corridors such as the M4, A4, A40 and A312.	2007	In progress	Consultation received from Highways Agency November 2004.	Meeting to be arranged in 2005 to discuss feasibility of potential schemes in the Hillingdon area.	Partnership	West London Air Quality and Transport Group
2. 09.	Investigate the use of light rail/tram schemes along other high exceedance corridors such as the A4 and A40.	2010	Planning phase		Included in draft LIP	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		Included in draft LIP	Partnership	West London Air Quality and Transport Group
2. 11.	Investigate use of speed limits on major roads at the optimal level for NOx and PM10 emissions for the current traffic profile.	2007	In progress	Consultation received from Highways Agency November 2004.	Case study soon to be published on lowering speeds on M1, to be discussed with Highways Agency to see if potential exists for use in Hillingdon area. Included in draft LIP	Partnership	West London Air Quality and Transport Group

Ref.	Action Plan Measure	Timescale	Progress with Measure	Outcome to date	Comments	Local Authority Role	Responsibility
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.	2005	In progress	June 2004 - Air Quality Congestion Related Hotspots report published. Recommendations given in report for detailed assessment at, and improvements at, relevant junctions throughout West London. March 2005 - detailed assessment of vehicle types speeds and counts at hotspots in Hillingdon commissioned.	Included in draft LIP	Partnership	West London Air Quality and Transport Group
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		Included in draft LIP	Lobbying	West London Transport Group
2. 14.	Work in partnership to investigate use of fiscal measures, such as road pricing, for reducing traffic on major road networks.	2007	In progress	Consultation received from Highways Agency November 2004.	Action Plan to be amended as a DfT led measure, not Highways Agency. Report due to be published by DfT with regard to the future of road pricing. Included in draft LIP	Lobbying	DfT
2. 15.	Consider establishment of cross-agency regional group to address air quality issues with regards to roads.	2006	Planning phase		Included in draft LIP	Lobbying	West London Air Quality and Transport Group

Ref.	Action Plan Measure	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	In progress	Action plan for Hillingdon fleet reviewed, recommendations given for improvement to Gold Award.	Included in draft LIP	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	In progress	Attendance at Green Business network seminar in June 2004 for promotion of the Clean Vehicle programme.	Not successful with regard to gaining new members. Means of communication to be addressed in 2005 with regard to gaining improvement in uptake by local businesses. Included in draft LIP	Local Authority Led	Green Business Network
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	Planning phase		Included in draft LIP	Local Authority Led	Hillingdon Fleet Management Team
3. 04.1.	Ensure the implementation of the Idling Vehicles Regulations.	2006	Planning phase		Included in draft LIP	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	Planning phase		Included in draft LIP	Local Authority Led	Hillingdon Transportation Team

Ref.	Action Plan Measure	Timescale	Progress with Measure	Outcome to date	Comments	Local Authority Role	Responsibility
3. 05.	Consider the recommendations of the London Low Emission Zone Feasibility Study jointly with the GLA, ALG and TfL.	2006	In progress	Attendance at Low Emission Zone meeting on 13/12/04 by air quality and transportation officers from Hillingdon. Joint consultation comments returned on LEZ project.	Included in draft LIP	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	Planning phase		Included in draft LIP	Local Authority Led	Highways
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	In progress	Two electric bikes purchased, electric van trialled but not suitable for potential identified purpose.	SMART car to be purchased by Planning and Transportation as a pool car to reduce officer mileage. Demonstrations at Hillingdon offices by Goingreen and Scoot electric to be organised for summer 2005. Included in draft LIP	Local Authority Led	Hillingdon Fleet Management Team
3. 08.	Participate in the London-wide Vehicle Emissions Testing programme.	2005	In progress	Hillingdon participated in the London-wide Vehicle Emissions Testing scheme. Additional publicity was raised via articles in the local press and reports to council members.	Currently assessing cost-effectiveness of emissions testing programmes. Included in draft LIP	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		Included in draft LIP	Local Authority Led	Fleet Management Team

Ref.	Action Plan Measure	Timescale	Progress with Measure	Outcome to date	Comments	Local Authority Role	Responsibility
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	Planning phase		Included in draft LIP	Local Authority Led	Transportation Team
3. 11.	Investigate the potential for discounts for residents with low emission vehicles in Parking Management Areas.	2006	Planning phase		Included in draft LIP	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	Planning phase		Included in draft LIP	Partnership	West London Air Quality and Transport Group
3. 13.	Work in partnership for the provision of low emission buses in the West London/Heathrow region.	2010	Planning phase	Consultation comments given on Draft Heathrow Bus and Coach Strategy with regards to emission standards and alternative fuelling infrastructure	Included in draft LIP	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	Complete with regards to policy	Framework for a West London Air Quality Supplementary Document produced. One of the objectives of is to ensure consistency in approach to freight developments throughout the West London area with regard to minimising the air quality impacts. This will be incorporated into the LDF process	Included in draft LIP to enable monitoring, etc. of this measure.	Partnership	West London Air Quality and Transport Group

Ref.	Action Plan Measure	Timescale	Progress with Measure	Outcome to date	Comments	Local Authority Role	Responsibility
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	Recommendations from report in 3.16 will be presented to the West London Freight Quality Partnership for potential implementation.	Included in draft LIP	Partnership	West London Freight Quality Partnership (WLFQP)
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	June 2004 - Cleaner Fuels and Vehicles in West London project published. Recommendations included collation of freight operators data and specific operation details in order to inform subsequent advice to be dissipated through West London.	Project to obtain baseline study of freight operations in West London commissioned, due to report in June 2005. Included in draft LIP	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	Not started	EPU to ensure all opportunities for responding to consultations are taken		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	Not started	To be implemented by ongoing dialogue on London Low Emission Zone project.		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	Not started			Lobbying	West London Air Quality and Transport Group

Ref.	Action Plan Measure	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	In progress	Participation in Ambient Monitoring and Emission Sources panels of DfT Project for the Sustainable Development of Heathrow (PSDH).		Local Authority Led	Environmental Protection Unit (EPU)
4. 02.	Develop system for auditing the ATM limit and parking provisions for operational T5.	2008	In progress	Ongoing consultation between Hillingdon and BAA Heathrow to establish agreed methodology for quantification of aircraft movements on annual basis.		Local Authority Led	Aviation Team
4. 03.	Audit all air quality conditions for the construction phase of Terminal 5.	2008	In progress	Specific officer in Hillingdon responsible for assessing T5 air quality monitoring information and for investigation of incidences of trigger level exceedances and appropriate mitigation methods.		Local Authority Led	Environmental Protection Unit (EPU)
4. 04.	Pursue the retention of the T5 related air quality monitoring network post T5 construction.	2008	Not started			Local Authority Led	

Ref.	Action Plan Measure	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	In progress	Heathrow Airport has permitted development rights for most of its airport-specific developments within the airport boundary. Despite this Hillingdon are consulted on all such proposals and voluntary contributions are sought where appropriate. In 2004/05, £30,000 was secured as a contribution towards the implementation of Parking Management Areas in the villages surrounding Heathrow.	A Planning application was recently considered for an extension to the Hilton Hotel at Terminal 4. A sum of £50,000 was sought via section 106 agreement for pursuit of air quality action plan measures. This will be paid on commencement of construction works. It should be noted that the planning permission is valid for a period of 5 years.	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	Hillingdon to work with Hounslow to assess potential for EU bid for pursuing this measure. Timescale July/August 2005.		Partnership	Heathrow Air Quality Working Group
4. 07.	Work with National Government to ensure the use of all relevant fiscal measures to reduce emissions from Heathrow in order to achieve the 2010 EU limit.	2010	Planning phase	To be pursued via PSDH process. Due to report 2006.		Partnership	Local Authorities
4. 08.	Assess the potential to set an emissions cap for Heathrow.	2008	Not started			Partnership	Heathrow Air Quality Working Group
4. 09.1.	Assess the potential to use landing emissions charges scheme to create revenue stream for public transport improvements.	2008	Not started	Landing charges related to aircraft emissions launched at Heathrow but currently revenue neutral.		Partnership	Heathrow Air Quality Working Group
4. 09.2.	Introduce differentiated landing charges at a level that would force cleaner engine technology.	2010	In progress	Landing charges related to aircraft emissions launched at Heathrow.	Need to query effectiveness of the new scheme with regards to reducing emissions.	Partnership	BAA

Ref.	Action Plan Measure	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	In progress	October 2004 - BAA commissioned external audit of BAA Air Quality Action Plan progress. Examples of progress in 2004/5: • 47 members signed up to Clean Vehicle Programme; • Landside vehicles study to establish baseline and definition of emissions improvement strategy; • PCA trial completed; • Airside vehicles strategy completed; • Aircraft Turnaround Code of Practice initiated focusing on relative impact of noise and emissions of four different departure procedures; • Ongoing consultation with BP to install CNG at petrol station south of the airport.		Partnership	Heathrow Air Quality Working Group
4. 11.	Review air quality monitoring regime at Heathrow and identify potential gaps.	2005	Complete	Air quality monitoring regime reviewed as part of PSDH. New monitoring station located north east of Heathrow in February 2005.		Partnership	Heathrow Air Quality Working Group
4. 12.	Maintain production of externally audited Emissions Inventory on bi-annual basis.	2010	In progress	October 2004 - BAA Heathrow 2002 and 2010 Emissions Inventories produced.		Partnership	BAA Heathrow
4. 13.	Identify the areas where the existing BAA 5 year Action plan can be strengthened.	2006	Planning phase	BAA Air Quality Strategy to be revised in 2005/2006, Hillingdon to be included in review process.		Partnership	Heathrow Air Quality Working Group

Ref.	Action Plan Measure	Timescale	Progress with Measure	Outcome to date	Comments	Local Authority Role	Responsibility
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	New modelling software tool bought by BAA for indicative assessments of air quality mitigation options.		Partnership	Heathrow Air Quality Working Group
4. 15.	Assess feasibility of Congestion/Access Charging at Heathrow to reduce overall travel movements to the airport.	2006	Planning phase	To be pursued via PSDH process Due to report 2006.	Included in draft LIP	Partnership	DfT
4. 16.	Assess feasibility of an Heathrow specific LEZ to reduce emissions and accelerate take up of cleaner vehicle technology.	2006	Planning phase	To be pursued via PSDH process Due to report 2006.	Included in draft LIP	Partnership	DfT
4. 17.	Assess appropriate target for modal shift to maximise air quality improvements.	2006	Planning phase	To be pursued via PSDH process Due to report 2006.	Included in draft LIP	Partnership	DfT
4. 18.	Define programme for the establishment of code of practice for airlines best operating practice to maximise reduction of emissions.	2006	Planning phase	To be pursued via PSDH process Due to report 2006.		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	To be pursued via Heathrow Air Quality Working Group in 2005.	Included in draft LIP	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	In progress	Draft Heathrow Bus and Coach Strategy in March 2004	Consultation response sent in regarding emissions criteria and alternative fuelling infrastructure Included in draft LIP	Partnership	Heathrow Air Quality Working Group

Ref.	Action Plan Measure	Timescale	Progress with Measure	Outcome to date	Comments	Local Authority Role	Responsibility
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	Presentation on West London Freight study to be presented to WLFQP	Included in draft LIP	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	In progress	DfT announcement of potential for use of widened M25 for HOV lane.	Hillingdon to pursue quantification of emissions reduction as part of consultation on scheme. Included in draft LIP	Partnership	Heathrow Air Quality Working Group
4. 23.	Assess the feasibility of a Park and Ride scheme specifically for Heathrow.	2006	Planning phase	To be pursued via PSDH process. Due to report 2006.	Included in draft LIP	Partnership	Heathrow Air Quality Working Group
4. 24.	Assess the health impact of Heathrow Airport and associated Activities.	2007	In progress	In 2004, outline project developed to assess the impact of Heathrow on Hillingdon including the impact on health.	Initial research stage of project to be pursued in 2005/06.	Partnership	Heathrow Air Quality Working Group
4. 25.	Lobby Central Government to pursue more stringent emission standards for plant, aircraft and airside vehicles.	2007	In progress	Gothenburg Workshop October 2004 - Aviation flagged up as a potentially significant emissions source for European consideration. March 2005 -Joint Hillingdon and Hounslow consultation response sent to EU Commissioner requesting aviation to be included as a source in the newly emerging EU Thematic Strategy on Air Pollution.	October 2004 -Incorporation of aviation into EU Emissions Trading scheme to be pursued via National Government.	Lobbying	Local Authorities
4. 26.	Explore feasibility of reducing fares on the Heathrow Express.	2010	Not started			Lobbying	Local Authorities

Ref.	Action Plan Measure	Timescale	Progress with Measure	Outcome to date	Comments	Local Authority Role	Responsibility
4. 27.	Pursue relevant organisations to prioritise public transport provision to Heathrow, particularly rail links to the west, east and south.	2008	Planning phase		Included in draft LIP	Lobbying	Local Authorities
4. 28.	Explore feasibility of an airport passenger tax, ring-fenced for increased public transport.	2010	Planning phase		Included in draft LIP	Lobbying	Local Authorities

Ref.	Action Plan Measure	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	Air Quality SPG to be reviewed in 2005 as part of LDF process.		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	In progress	Ongoing dialogue with EA with regard to proposed Colnbrook Incinerator with regards to minimisation of impacts and increased monitoring.		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	Not started			Local Authority Led	Environmental Protection Unit (EPU)
5. 04.	Discourage the use of bonfires on all industrial sites.	2005	In progress		Look to include in London-wide code of construction best practice guidance, due for consultation in summer 2005.	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	In progress	Hillingdon member of APPLE (Air Pollution Planning and the Environment) group consisting of air quality representatives across London for joint working on air quality and planning issues.	Code of Construction Best Practice draft due for consultation summer 2005.	Local Authority Led	Environmental Protection Unit (EPU)

Ref.	Action Plan Measure	Timescale	Progress with Measure	Outcome to date	Comments	Local Authority Role	Responsibility
5. 06.	Ensure continued regulation of part B processes and maintenance of part B register. Ensure register is available on-line.	2006	Planning phase	Kings College commissioned, all Part Bs inspected in 2004/05 in line with current legislation.	On-line register currently being developed	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			Local Authority Led	Environmental Protection Unit (EPU)
5. 08.	Consider introduction of Environmental Award system for local industries and businesses.	2008	Not started			Local Authority Led	Environmental Protection Unit (EPU)
5. 09.	Encourage businesses to participate in environmental management schemes and to continue to improve environmental performance.	2008	Not started			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	In progress	March 2005 - Driving Down Pollution leaflet sent out to every household. Awareness raising campaigns included in Community Plan.		Local Authority Led	Sustainability Steering Group
6. 02.	Work with existing buildings and housing stock to secure improvements in emissions.	2007	Planning phase	See 6.06.		Local Authority Led	Energy Efficiency Programme
6. 03.	Ensure continued use of existing mechanisms such as section 106 agreements for improvements in air quality.	2008	In progress	£50k secured subject to commencement of construction of hotel buildings. Further contributions towards the pursuit of air quality action plan measures sought in 2004/05 for redevelopment of Hillingdon Hospital site, new warehouse distribution centre close to M4, extension to Sainsbury's supermarket near town centre, refurbishment of Hansons Aggregate plant. Refusal on new residential development subject to appeal in 2005, one of the grounds for refusal is the worsening of air quality in the area as a result of the development.	In 2005, London-wide approach on section 106 agreements and planning conditions to be sought via the APPLE working group.	Local Authority Led	Planning Department

Ref.	Action Plan Measure	Original Timescale	Progress with Measure	Outcome to date	Comments	Local Authority Role	Responsibility
6. 04.	Review and update Air Quality Supplementary Guidance when appropriate (see planning application form at Appendix 7).	2006	In progress	Air Quality SPG to be reviewed and incorporated into the LDF process in 2006.		Local Authority Led	Planning Department
6. 05.	Quantify cumulative effects of new developments within AQMA.	2007	In progress	Process developed via database created in Action Plan Tracker to provide mechanism of recording air quality impacts of potential new developments. The information will then be used in further review and assessments of air quality.		Local Authority Led	Environmental Protection Unit (EPU)
6. 06.	Develop supplementary planning guidance for sustainable design and construction.	2006	Planning phase	Supplementary Planning Guidance on Sustainable Design and Construction to be produced for consultation by July 2005.		Local Authority Led	Planning
6. 07.	Raise awareness of sustainable waste management practices.	2006	In progress	Kerbside recycling and green waste collection started across the Borough.		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	In progress	Framework for SPD for Air Quality for West London developed March 2005.	Recommendations to be incorporated into LDF process.	Partnership	West London Air Quality Group

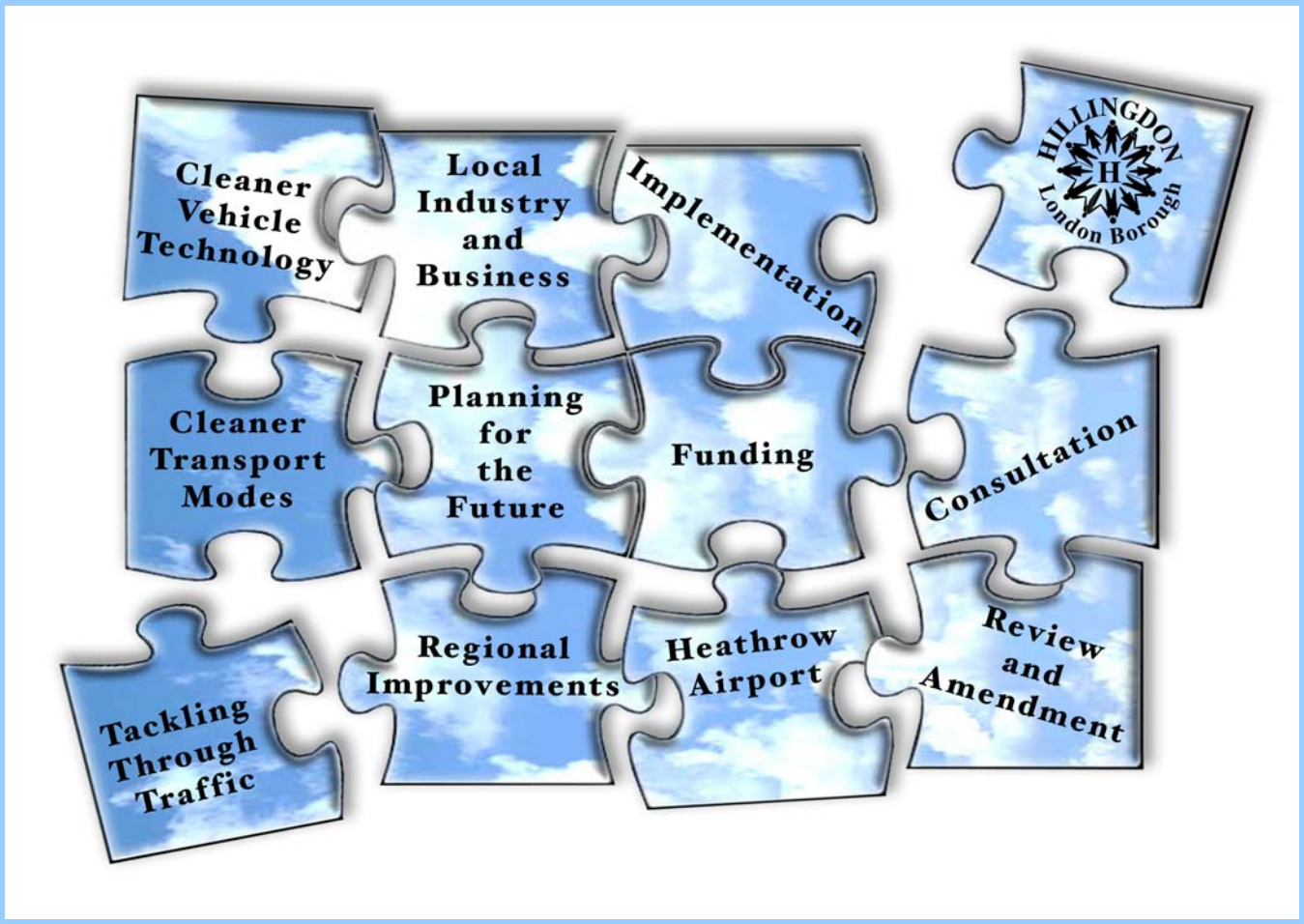
Ref.	Action Plan Measure	Timescale	Progress with Measure	Outcome to date	Comments	Local Authority Role	Responsibility
Package							
7.	Actions to be Taken Corporately, Regionally and in Liaison with the Mayor						
7. 01.	Ensure that the London Development Framework, Borough Transport Strategy the Community Plan and future corporate strategies incorporate the borough air quality action plan and local air quality strategy measures where appropriate.	2006	In progress	Air quality integral part of current LIP process, draft Borough Transport Strategy, emerging LDF and the Community Plan.		Local Authority Led	Planning Policy Unit
7. 02.	Develop an environmental management system for Hillingdon Borough Council.	2008	Not started		Not able to progress until possible funding has been identified.	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		Not able to progress until possible funding has been identified.	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	Environmental objectives included in Hillingdon Procurement Strategy	Initial meeting has been held with the Hillingdon Procurement Team to identify areas to strengthen environmental considerations	Local Authority Led	Sustainability Steering Group
7. 05.	Provide air quality information to interested parties and link with other health initiatives.	2006	In progress	Consultation carried out in February-April 2005 to assess best means communication of air quality information to the public.	Currently reviewing the outcome of consultation, particularly with respect to air quality bulletins to the public.	Local Authority Led	Environmental Protection Unit (EPU)

Ref.	Action Plan Measure	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			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	In progress	Regular scheduled meetings with West London Air Quality Cluster group, West London Transport group, Heathrow Air Quality Working Group to ensure exploration of opportunities for joint working and regional improvements.		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	Regional Air Quality Strategy draft developed for Heathrow area, due for consultation in summer 2005.		Partnership	Local Authorities
7. 09.	UK Government to actively support air quality improvement in Hillingdon.	2007	In progress	Hillingdon Council Officers have used several opportunities to maintain awareness of the poor air quality in the AQMA amongst staff in DEFRA and DfT.		Lobbying	DEFRA

Ref.	Action Plan Measure	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	In progress		Action Plan Tracker database set up and is now fully operational.	Local Authority Led	Environmental Protection Unit (EPU)
8. 02.	Identify and secure all potential funding for Action Plan initiatives.	2010	In progress	• All funding in excel spreadsheets; • SCA and BSP obtained for 2004-2005; • BSP obtained for 2005-2006; • Section 106 money detailed in spreadsheet; • EU LIFE bid meeting held 21st February.		Local Authority Led	Environmental Protection Unit (EPU)
8. 03.	Maintain, and where necessary expand, the existing air quality monitoring network..	2010	In progress	• Air Quality Monitoring network reviewed as part of PSDH Panel 2 group; • New monitoring station in place February 2005 in Oxford Avenue, measuring nitrogen dioxide and PM10; • Diffusion tube survey for NO2 to be extended in 2005-2006 to include areas outside AQMA and at congestion hotspots identified as having air quality exceedences and relevant public exposure.		Local Authority Led	Environmental Protection Unit (EPU)

Ref.	Action Plan Measure	Timescale	Progress with Measure	Outcome to date	Comments	Local Authority Role	Responsibility
8. 04.	Review and assessment of air quality in line with DEFRA guidance.	2010	In progress	• Detailed assessment being completed by CERC for 2003, 2005 and 2010, due to report early 2005.		Local Authority Led	Environmental Protection Unit (EPU)
8. 05.	Prioritise measures, providing a schedule for implementation.	2006	In progress	Workshops to be arranged in June-August 2005 to facilitate definition of work programmes for prioritisation and implementation of individual measures.	Dependent on outcome of funding applications.	Local Authority Led	Environmental Protection Unit (EPU)
8. 06.	Provide progress report to DEFRA on annual basis.	2010	In progress	• EMRC contracted to compile progress report on measures; • AEA contracted to compile monitoring report; • Tracker database to be compiled for collation of Planning information.	Report submitted to DEFRA for 2004/05	Local Authority Led	Environmental Protection Unit (EPU)
8. 07.	Review and adapt the action plan according to opportunity and circumstance.	2010	In progress		Outcome is clearly dependent on success of funding applications.	Local Authority Led	Environmental Protection Unit (EPU)
8. 08.	Maintain consultation process to disseminate information on progress against defined targets to other stakeholders.	2010	In progress	Resident's consultation launched in February 2005. Views sought on perception of air quality, priority for Action Plan measures and best means of communication for future air quality information.		Local Authority Led	Environmental Protection Unit (EPU)

Ref.	Action Plan Measure	Timescale	Progress with Measure	Outcome to date	Comments	Local Authority Role	Responsibility
8. 09.	Examine potential for the development of regional action plan on cross boundary issues	2007	In progress	• Hounslow invited to participate in consultation on cross-boundary action plan issues; • Attendance at regional groupings to ensure exploration of potential for joint action and regional improvements.		Local Authority Led	Environmental Protection Unit (EPU)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Regional Improvements
Heathrow Airport
Review and Amendment