



## **London Borough of Ealing Council**

### **Local Air Quality Management – Updating and Screening Assessment**

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For the benefit of business and people



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## EXECUTIVE SUMMARY

Part IV of the Environment Act 1995 places a statutory duty on local authorities to review and assess the air quality within their area, against air quality objectives set in Regulation, taking account of Government Guidance when undertaking such work. Where pollutant concentrations are not expected to meet the air quality objectives, the local authority is required to declare an Air Quality Management Area (AQMA).

The London Borough of Ealing completed its First Round of review and assessments of air quality in 2000. The First Round assessments (Stages 1, 2 and 3) concluded that road traffic emissions from vehicles were the main issues with respect to local air quality and that two pollutants, Nitrogen Dioxide (NO<sub>2</sub>) and Particulates (PM<sub>10</sub>), were likely to exceed the air quality objectives in many parts of the Borough. Consequently, the Council decided to declare the whole Borough an Air Quality Management Area (AQMA) in December 2000, and published subsequently an Air Quality Action Plan in April 2003.

The Second Round of Review and Assessment began with an Updating and Screening Assessment (USA), in 2003. London Borough of Ealing's USA concluded again that NO<sub>2</sub> and PM<sub>10</sub> concentrations were unlikely to meet the air quality objectives. Moreover, the USA highlighted that PM<sub>10</sub> concentrations could potentially exceed the AQS objectives in the vicinity of EWS Goods Yard, Horn Lane, Acton, which had not been identified during the First Round of review and assessment. The Council then proceeded to a Detailed Assessment of the area.

This Updating and Screening Assessment provides an update with respect to air quality issues within the Borough since the last (second) round of review and assessment. There have been a number of changes since the last round of review and assessments which have been taken into account in this assessment; including revised modelled background concentration maps, updated future year calculation tools and updates on specific sources (rail, shipping, poultry farms). The USA has included consideration of new emissions sources, in addition to any significant changes to existing emission sources identified in the previous rounds.

The USA considers the seven priority health based air quality objectives as laid down in Regulations and assesses the likelihood that the air quality objectives will be met by their target dates. If the air quality objectives are unlikely to be met, a Detailed Assessment will be required.

Having considered each pollutant and presented evidence to support the assessment of each, it is concluded that the air quality objectives for carbon monoxide, benzene, 1, 3-butadiene, lead and sulphur dioxide will be met. There will be no requirement to undertake a detailed assessment for these pollutants.

Monitoring for both nitrogen dioxide and particulate matter in the borough has shown that most of the sites were still exceeding the AQS objectives in 2005. The results of the screening assessment have confirmed that the majority of busy roads and junctions in the borough were also exceeding the objectives for NO<sub>2</sub> and PM<sub>10</sub> at the nearest receptors.

It is therefore recommended that the Council continue with its monitoring programme for nitrogen dioxide and particulate matter to confirm the findings of this report. As the whole borough has been declared an AQMA, there is no need to proceed to a Detailed Assessment.

Further investigation may be advisable into emissions from diesel trains travelling through the borough from Paddington station as the London Atmospheric Emissions Inventory shows high level of oxides of nitrogen (NO<sub>x</sub>) and PM<sub>10</sub> emissions and further monitoring may be necessary to assess the impact of railway traffic on relevant receptors.

As highlighted in section 9.11, dust deposits have been recently noticed on parked cars in Allington Close, Greenford, near an unpaved haul road in Station Approach. No complaints seem to have been received until now and the closest property lies within 55m. However, according to USA Technical Guidance, this is close enough to consider that there is relevant exposure near the sources of dust emission. Therefore, the London Borough of Ealing may wish to proceed to a detailed assessment in this area to assess the potential for elevated PM<sub>10</sub> concentrations at this site, and try to determine the cause of the dust deposition.

#### Summary Table

Pollutant	Detailed assessment required?
Carbon monoxide	No
Benzene	No
1, 3 - butadiene	No
Lead	No
Nitrogen dioxide	No
Sulphur dioxide	No
PM <sub>10</sub>	Yes – Station Approach, Greenford



## 1 INTRODUCTION

### 1.1 Project Background

Bureau Veritas (formerly Casella Stanger) was appointed by the London Borough of Ealing Council to carry out the third round Updating and Screening Assessment (USA) of air pollution sources that may affect local air quality within the area based on information provided by the local authority. The USA is required to be undertaken as part of the local authority's statutory duties under the Local Air Quality Management (LAQM) regime as defined within Part IV of the Environment Act 1995.

### 1.2 Legislative Background

#### 1.2.1 Air Quality Strategy Objectives

The Air Quality Strategy for England, Scotland, Wales and Northern Ireland (AQS)<sup>1</sup> (along with its addendum<sup>2</sup>) contains national air quality standards and objectives established by the Government to protect human health. The objectives for seven pollutants have been prescribed within the Air Quality (England) Regulations 2000<sup>3</sup> and the Air Quality (England) (Amendment) Regulations 2002<sup>4</sup> (benzene, 1,3-butadiene, carbon monoxide, lead, nitrogen dioxide, sulphur dioxide and particulates). The AQS objectives set in regulation in England (not London) are shown in Table 1.1.

In February 2003 an addendum to the AQS was published that included provisional objectives for PM<sub>10</sub>, to be achieved by 2010. These objectives have not been incorporated into the regulations for England but local authorities are expected to give them consideration during their review and assessment of air quality. The provisional AQS Objectives relevant in London are shown in Table 1.2.

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<sup>1</sup> DETR (2000) The Air Quality Strategy for England, Scotland, Wales and Northern Ireland – Working together for Clean Air, The Stationery Office

<sup>2</sup> Defra (2002) The Air Quality Strategy for England, Scotland, Wales and Northern Ireland: Addendum, The Stationery Office

<sup>3</sup> DETR (2000) The Air Quality Regulations 2000, The Stationery Office

<sup>4</sup> Defra (2002) The Air Quality Regulations 2002, The Stationery Office

**Table 1.1 AQS Objectives in Regulations for England**

Pollutant	Air Quality Objective		Date to be achieved by
	Concentration	Measured as	
Benzene	16.25 $\mu\text{g}/\text{m}^3$	Running annual mean	31.12.2003
	5 $\mu\text{g}/\text{m}^3$	Annual mean	31.12.2010
1,3 Butadiene	2.25 $\mu\text{g}/\text{m}^3$	Running annual mean	31.12.2003
Carbon monoxide	10 $\text{mg}/\text{m}^3$	Maximum daily 8-hour mean	31.12.2003
Lead	0.5 $\mu\text{g}/\text{m}^3$	Annual mean	31.12.2004
	0.25 $\mu\text{g}/\text{m}^3$	Annual mean	31.12.2008
Nitrogen dioxide <sup>a</sup>	200 $\mu\text{g}/\text{m}^3$ not to be exceeded more than 18 times a year	1 hour mean	31.12.2005
	40 $\mu\text{g}/\text{m}^3$	annual mean	31.12.2005
Particles (PM <sub>10</sub> ) (gravimetric) <sup>b</sup>	50 $\mu\text{g}/\text{m}^3$ not to be exceeded more than 35 times a year	24 hour mean	31.12.2004
	40 $\mu\text{g}/\text{m}^3$	annual mean	31.12.2004
Sulphur dioxide	350 $\mu\text{g}/\text{m}^3$ not to be exceeded more than 24 times a year	1 hour mean	31.12.2004
	125 $\mu\text{g}/\text{m}^3$ not to be exceeded more than 3 times a year	24 hour mean	31.12.2004
	266 $\mu\text{g}/\text{m}^3$ not to be exceeded more than 35 times a year	15 minute mean	31.12.2005

a. The objectives for nitrogen dioxide are provisional. These Objectives are equivalent to the EU Limit value to be met by 2010.

b. Measured using the European gravimetric transfer sampler or equivalent.

**Table 1.2: Provisional objectives for PM<sub>10</sub> (Greater London) outlined in the AQS Addendum**

Pollutant	Air Quality Objective		Date to be achieved by
	Concentration	Measured as	
Particles (PM <sub>10</sub> ) (gravimetric)	50 $\mu\text{g}/\text{m}^3$ not to be exceeded more than 10 times a year	24 hour mean	31.12.2010
	23 $\mu\text{g}/\text{m}^3$	Annual mean	31.12.2010
	20 $\mu\text{g}/\text{m}^3$	Annual mean	31.12.2015

### 1.2.2 Local Air Quality Management

Part IV of the Environment Act places a statutory duty on local authorities to periodically review and assess the air quality within their area. This involves consideration of present and likely future air quality against the AQS objectives prescribed within the Air Quality Regulations. The regime is known as the Local Air Quality Management (LAQM), and the process of assessment referred to as Review and Assessment. Where the LAQM Review and Assessment process finds that pollutant concentrations are unlikely to meet the AQS objectives by their target dates in areas where the AQS objectives apply, the Local Authority are required to declare an Air Quality Management Area (AQMA) under Section 83(1) of the Environment Act 1995. The areas in which the AQS objectives apply are defined in the AQS as locations outside buildings or other natural or man-made structures above or below ground where members of the public are regularly present and might reasonably be expected to be exposed [to pollutant concentrations] over the relevant averaging period of the AQS objective. Typically these include residential properties and schools/ care homes for longer period (i.e. annual mean) pollutant objectives and high streets for short-term (i.e. 1-hour) pollutant objectives.

Guidelines for the 'Review and Assessment' of local air quality were first published in the 1997 National Air Quality Strategy (NAQS)<sup>5</sup> along with associated policy guidance and technical guidance. Within the First Round of Review and Assessment it was recommended that local authorities fulfil their statutory duty under the LAQM regime by undertaking a three-stage assessment, increasing in detail at each stage.

In 2000, Government reviewed the NAQS and published the revised AQS, which was subsequently amended in February 2003. Associated revised LAQM Technical Guidance (LAQM.TG(03))<sup>6</sup> and Policy Guidance (LAQM.PG(03))<sup>7</sup> were issued on behalf of DEFRA in January 2003. This guidance sets the framework for the requirements of review and assessment for future years, taking account of experiences from the previous rounds of review and assessment. This current framework for review and assessment begins with an Updating and Screening Assessment (USA) which considers the likelihood of all the AQS objectives being achieved across their administrative area. If the USA identifies that an AQS objective may not be met, then the Local Authority must proceed to a Detailed Assessment for that pollutant. If the results of the Detailed Assessment confirm that an AQS objective is unlikely to be met they are required to declare an AQMA.

In March 2004, the review and assessment process had culminated in the declaration of around 120 separate AQMAs across the UK, of these 89 % were apportioned to road traffic emissions. Of the 89% of road traffic AQMAs around 55% represent problems in the attainment of the AQS objectives for NO<sub>2</sub> alone, whilst the remaining 45% have been made on NO<sub>2</sub> in combination with PM<sub>10</sub>.<sup>8</sup>

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<sup>5</sup> DoE (1997) The United Kingdom National Air Quality Strategy The Stationery Office

<sup>6</sup> Defra (2003) Technical Guidance LAQM.TG(03), Part IV of the Environment Act 1995, Local Air Quality Management, The Stationery Office

<sup>7</sup> Defra (2003) Policy Guidance LAQM.PG(03), Part IV of the Environment Act 1995, Local Air Quality Management, The Stationery Office

<sup>8</sup> Evaluation of Local Authority Air Quality Action Planning through Local Air Quality Management. Casella Stanger and Transport Travel Research Ltd on behalf of Department for Environment, Food and Rural Affairs. May 2004

Having declared an AQMA the authority is required to confirm the findings of the Detailed Assessment work through further monitoring or modelling assessments (Further Assessment). The Further Assessment should provide information on the source-apportionment of the pollutant emissions and identify the level of pollutant reduction required for the attainment of relevant AQS objectives. Additionally, consideration should be made to evaluating local management practices that could be used to improve air quality, and feed into the formulation of an Air Quality Action Plan.

The Second Round of Review and Assessment (2003-2005) provided an opportunity for local authorities to update the findings of their first round of review and assessment. In doing so, local authorities were to take into consideration changes in AQS Objectives and revised Technical Guidance (LAQM.TG(03)), new emission sources, and any significant proposed planning developments due to take place before the relevant AQS Objective target date.

Additional guidance has been provided in the form of FAQs and updated LAQM tools in January 2006 to assist with this third round of review and assessment (2006-2007). This includes revised modelled background concentration maps for NO<sub>x</sub>, NO<sub>2</sub> and PM<sub>10</sub>, updated future year calculation tools and updates on specific sources (rail, shipping, poultry farms).

### **1.3 Aims of the Updating and Screening Assessment**

The purpose of the Updating and Screening Assessment is:

- To identify new or substantially changed emission sources since the last round of review and assessment which may lead to an AQS objective being exceeded. A series of checklists for pollutants and screening tools for industrial and road traffic sources are used in order to determine those new sources that may have significant contributions to pollutant concentrations and the possibility of the AQS objectives being exceeded.
- To assess new monitoring data in terms of relevant exposure and compare with AQS objectives.

Where a risk of exceeding an AQS objective at relevant exposure locations has been identified through the USA, a Detailed Assessment is required (due to be reported by April 2007). The detailed assessment should identify with reasonable certainty whether or not an exceedence is likely to occur.

### **1.4 Reporting of the Updating and Screening Assessment**

The USA has been reported as one section for each pollutant to be assessed, as per the LAQM.TG(03) Technical Guidance, with reference to updated checklists provided for the third round.

A summary of the responses to the USA checklist criteria for each pollutant has been included within each section.

### **1.5 Summary of the First and Second Rounds of Review and Assessment**

The London Borough of Ealing completed its First Round of Review and Assessment of Air Quality, (Stages 1, 2 and 3) in 2000, which concluded that NO<sub>2</sub> and PM<sub>10</sub> concentrations would not meet the AQS objectives in many parts of the Borough. The Council consequently decided to declare the whole Borough an Air Quality Management Area (AQMA) for these two pollutants, in December 2000. The Further Assessment led to the publication of an Air Quality Action Plan in April 2003.

The first phase of the Second Round, the Updating and Screening Assessment (USA), was completed in April 2004. This provided an update with respect to air quality issues within Ealing Council's area, confirming that NO<sub>2</sub> and PM<sub>10</sub> levels were still likely to exceed the AQS objectives.

The USA also highlighted that a Detailed Assessment was required for PM<sub>10</sub> in the vicinity of EWS Goods Yard, Horn Lane, Acton, due to dust generated by industrial and commercial activities in the area, which had not been identified during the first round. The Detailed Assessment has just been completed early 2006 and the report should provide consideration to the potential area of exceedence through a 12 months monitoring analysis and air dispersion modelled predictions.

The London Borough of Ealing Council completed its annual Air Quality Progress Report for 2005. Analysis of the 2004 monitoring results indicated that concentrations of NO<sub>2</sub> and PM<sub>10</sub> are still likely to breach the AQS objectives in several parts of the Borough.

## 2 ASSESSMENT METHODOLOGY

Background concentrations as used in this assessment have been obtained from the national maps of modelled background concentrations available from the UK National Air Quality Information Archive website [www.airquality.co.uk](http://www.airquality.co.uk). The maps have been updated for pollutants NO<sub>x</sub>, NO<sub>2</sub> and PM<sub>10</sub> from the previous round of review and assessment and are projected from a 2004 baseline.

Continuous monitoring results have been obtained directly from the London Air Quality Network (LAQN) managers, the Environmental Research Group (ERG), part of King's College London. Ealing Council also operates additional monitoring outside the network, through passive diffusion tubes, and these are also considered within this report.

Traffic data for roads within the area has been obtained from the London Atmospheric Emissions Inventory 2003 (LAEI) released by the Greater London Authority (GLA) in March 2006 and provided by the London Borough of Ealing Council. The LAEI provided the most up-to-date Annual Average Daily Traffic (AADT) flow and speed data for the main roads in the Borough, and replaced the 2001 version used in the previous USA. Future year traffic growth factor has been derived using NRTF<sup>9</sup> High growth factors combined with a regional adjustment factor for the London Borough of Ealing derived from Temprow<sup>10</sup>. Speeds were reduced at junctions to 20kph at junctions in accordance with LAQM.TG (03) to reflect the higher emissions of queuing traffic.

Design Manual for Roads and Bridges (DMRB)<sup>11</sup> local air quality assessment method, and accompanying spreadsheet screening tool (V1.02) has been used to predict the traffic flow at relevant receptor locations along significant roads and junctions in the area in order to assess the concentrations of NO<sub>2</sub>, PM<sub>10</sub>, CO and benzene in the relevant AQS objective years.

The London Borough of Ealing provided a current list of industrial processes (Part B/A2) for processes regulated by the Borough under LAPPC. This includes a list of current petrol stations which have been screened using the criteria set out in the USA checklists. Additional information has been obtained for processes potentially significant to LAQM as set out in LAQM.TG(03) Annex 2. For the larger Part A1 processes, regulated by the Environment Agency, information has been obtained from the Environment Agency Pollution Inventory for new or changed processes potentially significant to LAQM as set out in LAQM.TG(03) Annex 2.

Other potential sources of pollutant emissions in the area, such as rail, airports, domestic sources, bus stations, small boilers and fugitive sources of PM<sub>10</sub> (quarries, landfills, construction sites, etc) have been derived if necessary through discussions with the local authority and screened using the criteria as set out in the USA checklists.

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<sup>9</sup> DETR, National Road Traffic Forecasts (Great Britain) 1997

<sup>10</sup> in accordance with the methodology set out in Temprow Guidance Note April 2003. Temprow (Trip End Model Presentation Program) version 4.2.3, dataset v1.4, Department for Transport

<sup>11</sup> Design Manual for Roads and Bridges (DMRB) Volume 11, Section 3, Part1 Air Quality (February 2003) and DMRB Screening Tool V1.02.xls (November 2003)



### 3 UPDATING AND SCREENING OF CARBON MONOXIDE

#### 3.1 New monitoring data

There is currently monitoring of carbon monoxide undertaken within the London Borough of Ealing at Acton Town Hall. It is classified as a roadside air quality monitoring station, and is designated as Ealing 2 on the LAQN. The maximum 8-hour running mean recorded for the last three years is provided in Table 3.1. The data capture for all years was above 90%.

**Table 3.1: Carbon Monoxide Max Running 8-hour Mean Monitoring Results in 2003 – 2005 in mg/m<sup>3</sup>**

Location	X	Y	Type	2003	2004	2005
EA2 Acton Town Hall, Acton High Street	520306	180055	Roadside	3.6	3.7	2.9

Carbon monoxide monitoring results confirm the AQS objective of 10mg/m<sup>3</sup> has been met over the last three years.

#### 3.2 Very busy roads or junctions in built-up areas

Monitoring data from across the UK indicate that the carbon monoxide AQS objective is only likely to be exceeded near to 'very busy' roads and junctions<sup>12</sup>, where the current year background concentration is greater than 1mg/m<sup>3</sup>. The highest estimated background concentration in 2005 in Ealing is 0.37mg/m<sup>3</sup>. The AQS objective is therefore expected to be achieved at all locations within the area.

#### 3.3 Conclusion

No further action is required for carbon monoxide.

#### Checklist Summary for Carbon Monoxide:

Item	Response
New monitoring data	Monitoring data within the area is well below the objective
Very busy roads or junctions in built up areas	Background concentrations in the Borough are below the level at which very busy roads and junctions may cause concentrations to exceed the objective
Conclusion	No further action required

<sup>12</sup> 'Very busy' is defined as single carriageways with greater than 80,000 vehicles per day, dual carriageways with greater than 120,000 vehicles per day and motorways with greater than 140,000 vehicles per day

## 4 UPDATING AND SCREENING OF BENZENE

### 4.1 Monitoring data outside an AQMA

There is currently monitoring of benzene undertaken within the London Borough of Ealing at three sites using passive diffusion tubes. Results for the three last years are shown in Table 4.1. Concentrations in 2010 have been estimated by projecting forward measured values for 2005 using factors in the LAQM.TG(03) Technical Guidance.

These results indicate that benzene concentrations are well below the 2010 annual mean benzene objective of  $5\mu\text{g}/\text{m}^3$ , even at busy roadsides.

**Table 4.1 - Benzene Annual Mean Monitoring Results in 2003 – 2005 in  $\mu\text{g}/\text{m}^3$**

Location	X	Y	Type	2003	2004	2005	2005 Projected to 2010
Acton Town Hall	520306	180055	Kerbside	2.3	2.4	2.2	1.9
Church Road, Northolt	512690	183983	Kerbside	2.5	2.5	2.2	1.9
Hanger Lane Gyratory	518541	182707	Kerbside	2.5	2.7	2.6	2.2

### 4.2 Monitoring data within an AQMA

There are no AQMA areas that have been declared for benzene in the London Borough of Ealing and therefore this section is not relevant.

### 4.3 Very busy roads or junctions in built-up areas

Monitoring data from across the UK indicate that the benzene objective for 2010 is only likely to be exceeded near to 'very busy' roads and junctions<sup>13</sup>, where the 2010 background concentration is greater than  $2\mu\text{g}/\text{m}^3$ . The highest estimated background concentration in Ealing is  $0.65\mu\text{g}/\text{m}^3$ . This confirms that the objective will be met at all locations within the area.

### 4.4 New industrial sources

There have been no new processes identified in the London Borough of Ealing or in neighbouring authorities which emit significant quantities of benzene.

<sup>13</sup> 'Very busy' is defined as single carriageways with greater than 80,000 vehicles per day, dual carriageways with greater than 120,000 vehicles per day and motorways with greater than 140,000 vehicles per day

#### **4.5 Industrial sources with substantially increased emissions, or new relevant exposure**

There are no existing industrial processes that emit significant quantities of benzene. There are therefore unlikely to be exceedences of the benzene objective as a result of industrial processes.

#### **4.6 Petrol stations**

Petrol stations are only likely to lead to benzene concentrations exceeding the AQS objective to be met by 2010 if they have a large throughput of petrol (greater than 2 million litres per annum), are near to a busy road (>30,000 AADT) and have relevant exposure within 10m of the petrol pumps. Amongst the 27 petrol stations within the London Borough of Ealing, none of them fulfil these criteria, and therefore it is unlikely that petrol stations will lead to benzene concentrations exceeding the AQS objective.

#### **4.7 Major fuel storage depots (petrol only)**

There are no major fuel storage depots in the London Borough of Ealing.

#### **4.8 Conclusion**

No further action is required for benzene.

#### **Checklist Summary for Benzene:**

Item	Response
Monitoring data outside an AQMA	Monitoring data within the area is well below the objective
Monitoring data within an AQMA	No AQMA, therefore not relevant
Very busy roads or junctions in built up areas	Background concentrations in the Borough are below the level at which very busy roads and junctions may cause concentrations to exceed the objective
New industrial sources	No industrial processes have been identified which meet this criteria
Industrial sources with substantially increased emissions, or new relevant exposure	No industrial processes have been identified which meet this criteria
Petrol stations	No petrol stations have been identified which meet this criteria
Major fuel storage depots (petrol only)	No major fuel storage depots in the area
Conclusion	No further action required

## 5 UPDATING AND SCREENING OF 1,3-BUTADIENE

### 5.1 Monitoring data

There is currently no monitoring of 1,3-butadiene carried out within the London Borough of Ealing. Monitoring is carried out as part of the national Automatic Urban and Rural Monitoring Network (AURN) and the results, as set out in Table 5.1, show that the running annual mean objective of  $2.25 \mu\text{g}/\text{m}^3$  is expected to be achieved at all of these locations. As there are no significant sources of 1,3-butadiene in Ealing, it is expected that the objective will be met within the Borough.

**Table 5.1: 1,3-butadiene Monitoring Results in 2005 at AURN Sites  $\mu\text{g}/\text{m}^3$**

Site Name	Site Type	Annual Mean 1,3-butadiene for 2005, $\mu\text{g}/\text{m}^3$
Harwell, Oxfordshire	Rural	0.02
London Eltham	Urban Background	0.13
London Marylebone Road	Kerbside	0.45

### 5.2 New industrial sources

There are no new processes which handle 1,3-butadiene located in the London Borough of Ealing.

### 5.3 Existing industrial sources with significantly increased emissions, or new relevant exposure

There are no existing industrial processes located in the London Borough of Ealing which emit significant quantities of 1,3-butadiene.

### 5.4 Conclusion

No further action is required for 1,3-butadiene.

#### Checklist Summary for 1,3-butadiene:

Item	Response
Monitoring data	The local authority is currently not monitoring 1,3-butadiene
New industrial sources	No industrial processes have been identified which meet this criteria
Existing industrial sources with significantly increased emissions, or new relevant exposure	No industrial processes have been identified which meet this criteria
Conclusion	No further action required

## 6 UPDATING AND SCREENING OF LEAD

### 6.1 Monitoring data

There is currently no monitoring of lead carried out within the London Borough of Ealing. Lead concentrations measured during 2005 at all sites within the UK automatic monitoring network (operated on behalf of Defra) including busy roadside sites in London, met the AQS objectives for 2004 and 2005.

### 6.2 New industrial sources

There are no new processes which handle lead located in or near to the London Borough of Ealing.

### 6.3 Industrial sources with substantially increased emissions, or new relevant exposure

There are no existing industrial processes in or near to the London Borough of Ealing which emit significant quantities of lead.

### 6.4 Conclusion

No further action is required for lead.

#### Checklist Summary for Lead:

Item	Response
Monitoring data	The local authority is currently not monitoring lead
New industrial sources	No industrial processes have been identified which meet this criteria
Industrial sources with substantially increased emissions, or new relevant exposure	No industrial processes have been identified which meet this criteria
<b>Conclusion</b>	<b>No further action required</b>

## 7 UPDATING AND SCREENING OF NITROGEN DIOXIDE

### 7.1 Monitoring data outside an AQMA

The whole London Borough of Ealing has been declared an AQMA for NO<sub>2</sub> and therefore this section is not relevant.

### 7.2 Monitoring data within an AQMA

There is currently continuous monitoring of nitrogen dioxide undertaken by the London Borough of Ealing at 5 locations in the area, at Ealing Town Hall (since 1995), Acton Town Hall (1996), Hanger Lane (2003), Southall Blair Peach School (2004) and Acton Court Lane (2005).

The monitoring stations are all part of the London Air Quality Network (LAQN<sup>14</sup>) and are managed by Environmental Research Group (ERG). The sites are calibrated every fortnight. Data capture in 2005 was above 90% for all sites but Hanger Lane, with 85%. The data capture has been close to or above 90% over the last years at all sites.

The 2005 annual mean has been projected to 2010 using the updated Year Adjustment Factors spreadsheet from the UK Air Quality Information Archive website<sup>15</sup>, which provides factors for both roadsides and urban background sites.

The results, as shown in Table 7.1, show that the nitrogen dioxide annual mean AQS objective is exceeded, in its target year of 2005, at Acton Town Hall and Hanger Lane, and that Ealing Town Hall and Acton Court Way are close to the objective.

**Table 7.1: Continuous nitrogen dioxide monitoring results 2003 - 2005**

Location	Type	OS Grid Reference		Annual Mean NO <sub>2</sub> Concentration, µg/m <sup>3</sup>			
		X	Y	2003	2004	2005	Estimated 2010
EA1 Ealing Town Hall	Urban Background	517534	180737	42.7	41.5	39.3	34.3
EA2 Acton Town Hall, Acton High Street	Roadside	520306	180055	62.1	54.8	58.7	49.4
EA6 Hanger Lane	Roadside	518541	182707	-	98.3	93.9	79.0
EA7 Southall	Urban Background	511679	180072	-	-	33.4	29.2
EA9 Court Way, Acton	Roadside	520473	181835	-	-	37.7	31.7

<sup>14</sup> [www.londonair.org.uk](http://www.londonair.org.uk)

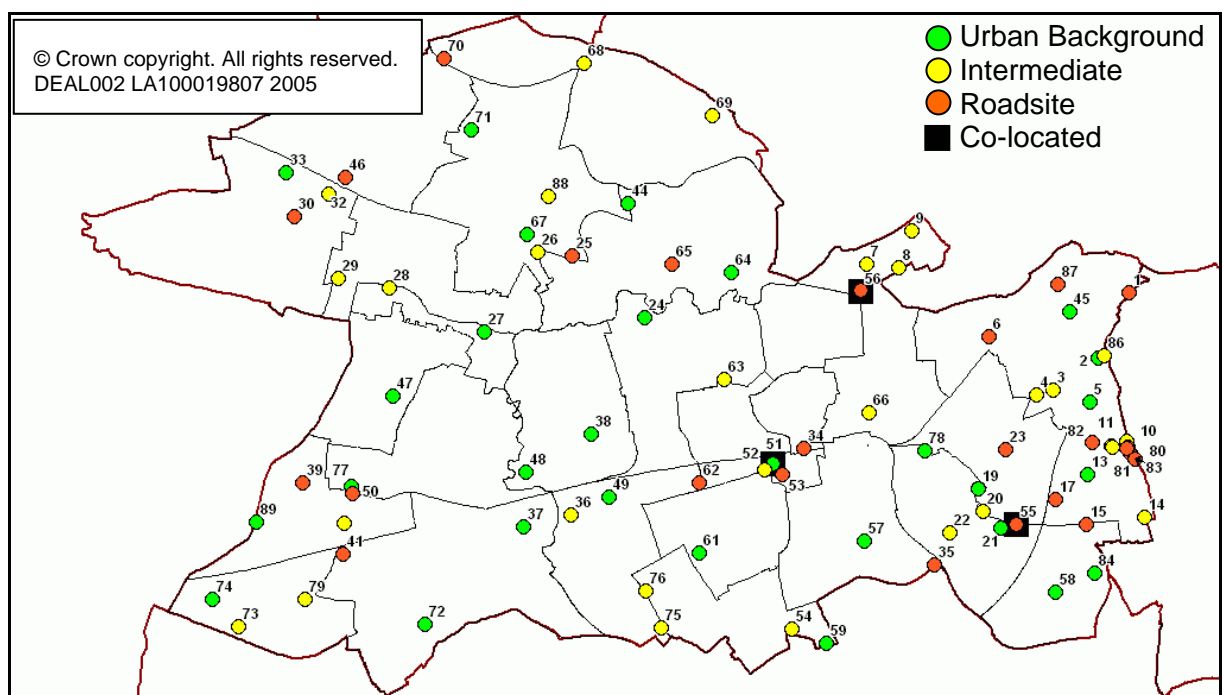
<sup>15</sup> [www.airquality.co.uk](http://www.airquality.co.uk)



Nitrogen dioxide is additionally measured using diffusion tubes at 84 locations in the London Borough of Ealing. New triplicate NO<sub>2</sub> diffusion tubes have been installed since the last Progress Report in Blair Peach Primary School, co-located with the continuous monitoring station. Gradko International Ltd supplies and analyses the diffusion tubes using the 20% TEA<sup>16</sup> in water method. Gradko International participates in the UK National Diffusion Tube Network and the Workplace Analysis Scheme for Proficiency (WASP). They currently hold UKAS accreditation for analysis of diffusion tubes. Figure 7.1 shows the location of the diffusion tubes. The sites are classified according to their distance from a main road:

- Roadside: 0-10 metres from a main road
- Intermediate: 10-40 metres from a main road
- Background: more than 40 metres from a main road

**Figure 7.1: Location of diffusion tube sites in Ealing**



Diffusion tubes are often co-located with continuous monitors in order to determine the bias of the diffusion tube measurements relative to the continuous monitor. Co-locating the diffusion tubes in triplicate also allows the precision and accuracy of the diffusion tube measurements to be determined. Bias of diffusion tubes is thought to be largely associated with the laboratory and preparation method used. Data from NO<sub>2</sub> diffusion tube collocation studies across the UK is collated on behalf of Defra,

<sup>16</sup> TEA = Triethanolamine

and is available thorough the Defra's Review and Assessment Helpdesk. This allows the calculation of a default bias factor for the period under consideration and the laboratory.

Technical guidance LAQM.TG(03) and Review and Assessment Helpdesk<sup>17</sup> recommends use of a local bias adjustment factor where available and relevant to diffusion tube sites. Ealing Council has triplicate co-located diffusion tubes at three of their continuous monitoring stations (Ealing Town Hall, Acton Town Hall and Hanger Lane) which have been used to derive a local bias adjustment factor for 2005. Ealing Town Hall and Acton Town Hall continuous monitoring data have been used to calculate a bias factor respectively for the urban background and roadside sites. The intermediate sites were adjusted using the urban background factor. The calculated bias adjustment factors are:

- 1.019 for the roadside sites,
- 0.941 for the urban background and intermediate sites.

The 2005 annual mean has been projected to 2010 using the updated Year Adjustment Factors spreadsheet from the UK Air Quality Information Archive website. Background adjustment factors have been used for both Intermediate and Urban Background sites.

The diffusion tube results provided in Table 7.2 show that annual mean concentrations measured at all the roadside and most of the intermediate sites are above  $40\mu\text{g}/\text{m}^3$  in 2005. Therefore the AQS objective is exceeded at the majority of the diffusion tube monitoring sites (59 sites out of 84). The predicted 2010 concentrations are still above  $40\mu\text{g}/\text{m}^3$  at the half sites (mainly roadside and intermediate sites).

**Table 7.2: Nitrogen dioxide diffusion tubes annual mean results 2005 in  $\mu\text{g}/\text{m}^3$**

Site No.	Site Name	Type	East.	North.	2005 Annual mean	2005 bias adjusted Annual mean	Data Capture %	2005 projected to 2010
1	39 Old Oak Lane	R	521587	182684	57.4	58.3	100	49.0
2	101 Wells House Road,	UB	521238	181942	42.0	39.6	100	34.6
3	Jenner Avenue	I	520726	181582	55.3	52.1	100	45.5
4	5 Leamington Park	I	520534	181525	52.6	49.5	100	43.3
5	John Perryn First and Middle School, Long Drive, W3	UB	521139	181436	41.9	39.4	75	34.5
6	<b>Top. Wendover Court, Western Avenue, W3</b>	R	<b>519997</b>	<b>182178</b>	<b>58.2</b>	<b>58.9</b>	<b>97</b>	<b>49.5</b>
7	45 Park Avenue	I	518600	183000	54.2	51.0	75	44.6
8	6 Brentmead Gardens	I	518970	182964	44.5	41.9	100	36.6
9	Iveagh Avenue	I	519117	183379	49.3	46.4	100	40.6

<sup>17</sup> [www.uwe.ac.uk/aqm/review](http://www.uwe.ac.uk/aqm/review)



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Site No.	Site Name	Type	East.	North.	2005 Annual mean	2005 bias adjusted Annual mean	Data Capture %	2005 projected to 2010
10	57-75 Old Oak Common Lane (PO)	I	521557	180996	60.4	56.8	100	49.7
11	2 St Andrews Road, W3	I	521381	180946	53.0	49.9	100	43.6
<b>12</b>	<b>18 Old Oak Common Lane, W3</b>	<b>R</b>	<b>521602</b>	<b>180856</b>	<b>69.2</b>	<b>70.5</b>	<b>100</b>	<b>59.3</b>
13	East Acton Primary School, East Acton Lane	UB	521112	180617	38.5	36.2	92	31.6
14	First Avenue	I	521761	180132	50.9	47.9	75	41.9
15	177 The Vale, W3	R	521100	180057	62.2	63.2	92	53.2
17	Maples Nursery, East Churchfield Road, W3	R	520748	180330	42.9	43.6	92	36.7
19	Lantry Court, Acton, W3	UB	519879	180459	39.1	36.8	100	32.2
20	Age Concern, Social Centre, High Street, Acton, W	I	519933	180197	61.0	57.4	100	50.2
21	Acton Health Centre, Church Road, Acton, W3	UB	520128	180016	40.3	37.9	100	33.2
22	Gunnersbury Unit, Acton Hospital, Gunnersbury Lane	I	519552	179953	59.3	55.8	100	48.8
23	156 Horn Lane, W3	R	520180	180896	54.5	55.4	100	46.6
24	Peal Gardens	UB	516089	182400	38.5	36.2	100	31.7
25	17 Runnymede Gardens	R	515255	183098	79.8	81.1	100	68.2
26	5/6 Blenheim Close (off Western Avenue)	I	514872	183134	42.8	40.2	100	35.2
27	203 Windmill Lane, Greenford	UB	514259	182234	49.5	46.6	100	40.8
28	Greenford High School, Ruislip Road, Greenford, UB	I	513182	182741	48.5	45.6	100	39.9
29	Shadwell Drive, Northolt, UB5	I	512603	182837	46.1	43.3	92	37.9
30	Aspen Lane/Hazeltree Lane, Northolt	R	512106	183543	49.3	50.1	100	42.1
32	Lilliput Avenue	I	512495	183807	45.7	43.0	100	37.6
33	Northolt Primary School, Compton Crescent, UB5	UB	512009	184039	42.3	39.8	58	34.8
34	8 The Broadway, Ealing, W5	R	517887	180914	78.9	80.1	100	67.4
35	Acton Town Medical Centre, 122 Gunnersbury Lane	R	519373	179593	49.3	50.1	100	42.2
36	Hanwell Nursery, 25A Laurel Gardens, W7	I	515253	180156	48.2	45.3	75	39.7
37	Ealing Hospital, St Bernards Wing, Uxbridge Road	UB	514710	180027	51.6	48.5	100	42.5
38	Hobbayne First School, Greenford Avenue, W7	UB	515477	181081	37.5	35.3	100	30.8
39	McDonalds Drive thru, Uxbridge Road, Southall	R	512195	180525	43.6	44.3	100	37.2
<b>40</b>	<b>Hambrough Primary and Nursery School, South Road</b>	<b>I</b>	<b>512673</b>	<b>180069</b>	<b>54.2</b>	<b>51.3</b>	<b>97</b>	<b>44.8</b>
41	4 Merrick Road, Southall, UB2	R	512657	179712	43.8	44.5	100	37.5
44	Perivale Wood	UB	515900	183688	30.0	28.2	83	24.7
45	INCO, Bashley Road, NW10	UB	520915	182464	40.6	38.2	100	33.4
46	143 Church Road, Northolt, UB5	R	512690	183983	74.2	75.4	92	63.4
47	Jubilee Gardens Library, Jubilee Gardens, UB1	UB	513229	181513	34.7	32.6	100	28.5



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Site No.	Site Name	Type	East.	North.	2005 Annual mean	2005 bias adjusted Annual mean	Data Capture %	2005 projected to 2010
48	Brent Lodge, Church Road, W7	UB	514740	180643	29.9	28.2	100	24.6
49	Health Centre, Netheravon Road, W7	UB	515680	180360	43.1	40.6	92	35.5
50	11 Uxbridge Road, Southall, UB1	R	512768	180400	73.2	74.4	100	62.6
<b>51</b>	<b>Ealing Town Hall, New Broadway, W5*</b>	<b>UB</b>	<b>517534</b>	<b>180737</b>	<b>42.2</b>	<b>39.7</b>	<b>100</b>	<b>34.7</b>
52	Perceval House, 14/16 Uxbridge Road, W5	I	517440	180677	44.4	41.8	92	36.6
53	14/16 Bond Street, Ealing, W5	R	517644	180613	51.2	52.0	92	43.8
54	South Ealing Cemetery	I	517750	178860	33.9	31.9	100	27.9
<b>55</b>	<b>Acton Town Hall, High Street, Acton, W3*</b>	<b>R</b>	<b>520306</b>	<b>180055</b>	<b>58.3</b>	<b>60.1</b>	<b>97</b>	<b>50.5</b>
56	Fernlea House, Hanger Lane	R	518540	182700	80.5	81.8	100	68.8
57	106/116 St Pauls Close	UB	518577	179865	36.7	34.5	100	30.2
58	44 Acton Lane, W4	UB	520748	179280	54.6	51.4	83	44.9
59	Clayponds Hospital and Day Treatment Centre, Sterling Place	UB	518153	178709	35.3	33.2	100	29.1
60	53 Old Oak Common Lane	R	521573	180932	59.2	60.1	100	50.5
61	15 Balfour Road, W13	UB	516703	179728	37.4	35.2	100	30.8
62	Kirn Road/Drayton Green Road, W13	R	516700	180522	54.0	54.9	75	46.2
63	St David's Home, 12 Castlebar Hill, W5	I	516992	181698	32.3	30.4	100	26.6
64	St John Fisher Primary School, Thirlmere Avenue	UB	517072	182912	44.1	41.5	100	36.3
65	2 Horsenden Lane South, Greenford, UB6	R	516400	183000	58.6	59.5	100	50.0
66	57 Woodville Gardens, W5	I	518633	181314	51.0	48.0	100	42.0
<b>67</b>	<b>Oldfield Primary School, Oldfield Lane North, Greenford</b>	<b>UB</b>	<b>514753</b>	<b>183342</b>	<b>42.2</b>	<b>39.7</b>	<b>92</b>	<b>34.7</b>
68	Gainsboro Gardens, UB6	I	515393	185287	52.2	49.1	100	43.0
69	81 Witten Avenue East, Greenford, UB6	I	516858	184691	38.5	36.2	100	31.6
70	126 Petts Hill, Northolt,	R	513804	185342	41.6	42.3	100	35.6
71	181 Castle Road, Northolt, UB5	UB	514112	184535	39.3	36.9	100	32.3
72	2/4 Minterne Avenue	UB	513587	178915	38.9	36.6	100	32.0
<b>73</b>	<b>LP nr Glebe Nursery School, Western Road, Southall jn</b>	<b>I</b>	<b>511468</b>	<b>178898</b>	<b>54.7</b>	<b>51.9</b>	<b>97</b>	<b>45.4</b>
74	132 Brent Road, Southall, UB2	UB	511173	179203	48.5	45.6	100	39.9
75	6 Boston Gardens, W7	I	516277	178882	43.1	40.5	100	35.4
76	200 Boston Gardens, W7	I	516100	179300	55.3	52.0	100	45.5
77	7 Greenford Avenue, Southall	UB	512753	180478	38.3	36.0	100	31.5
78	119 Twyford Avenue, W3	UB	519269	180886	47.0	44.2	67	38.7
79	Albert Dane Centre, 19-21 Western Road, Southall	I	512234	179201	43.0	40.5	100	35.4
80	6 Western Avenue	R	521556	180909	70.4	71.6	100	60.2
81	54 Western Avenue	I	521391	180922	60.3	56.7	92	49.6
82	98 Western Avenue,	R	521173	180981	55.0	55.8	100	47.0



Site No.	Site Name	Type	East.	North.	2005 Annual mean	2005 bias adjusted Annual mean	Data Capture %	2005 projected to 2010
83	171 Old Oak Road	R	521646	180800	53.7	54.5	92	45.9
84	Southfields First and Middle School	UB	521200	179500	41.0	38.6	83	33.7
<b>85</b>	<b>Fernlea House, Hanger Lane*</b>	<b>R</b>	<b>518541</b>	<b>182707</b>	<b>74.0</b>	<b>97.0</b>	<b>100</b>	<b>81.6</b>
86	27 Wells House Road	I	521305	181966	43.3	40.7	100	35.6
87	94 North Acton Road	R	520780	182775	46.2	46.9	83	39.5
88	914 Greenford Road	I	514985	183770	44.5	41.9	100	36.6
<b>89</b>	<b>Blair Peach School</b>	<b>UB</b>	<b>511678</b>	<b>180079</b>	<b>29.8</b>	<b>28.6</b>	<b>75</b>	<b>25.0</b>

Sites in bold are triplicate sites

\* Co-located sites

### 7.3 Narrow congested streets with residential properties close to the kerb

DMRB assessments were undertaken in USA 2003 at residential properties close to the kerb along A-roads, which included all narrow congested streets in Ealing. The results showed that the annual mean objective was likely to be exceeded at these locations. As these types of location were specifically included during previous rounds, and no further locations have been identified since the last round, there is no need to proceed further with this section. However all streets with traffic flows above 10000 vehicles per day (vpd) have been reassessed using DMRB to account for the new data from the LAEI 2003, as shown in section 7.5.

### 7.4 Junctions

Eleven busy junctions with relevant exposure were identified and checked in the last USA in 2003 and therefore have not been reassessed. The DMRB assessment results showed that annual mean NO<sub>2</sub> concentrations in the vicinity of all the busy junctions identified in the London Borough of Ealing would not meet the objective of 40µg/m<sup>3</sup>. Additional junctions have been identified since the last USA as potentially significant after screening the LAEI 2003 traffic flows. These have been assessed using the DMRB screening tool and the results are shown in Table 7.3. The results show that the annual mean objective is exceeded at the nearest relevant receptor (i.e. residential property) to most of the junctions.

**Table 7.3: DMRB predicted NO<sub>2</sub> annual mean concentrations at the nearest relevant receptor to busy junctions, 2005**

No	Junction	East	North	Receptor Distance (m)	AADT 2005 <sup>18</sup>	Average Speed (km/h)	% HDV	NO <sub>2</sub> (µg/m <sup>3</sup> )
1	Pett's Hill	513808.1	185299.5	20	36736	20	2.9	41.5
	Whitton Avenue West			20	18849	20	4.1	
2	Ruislip Road	511710.6	183128.9	50	55030	20	5.5	40.7
	Church Road			30	31060	20	5.2	
3	South Road - Merrick Road (A3005)	512599.0	179708.0	14	30757	20	4.5	38.9
4	Hangar Lane	518652.2	181169.4	16	37765	20	4.9	43.4
	Madeley Road			15	20541	20	2.8	
5	Uxbridge Road	518624.8	180554.4	55	37765	20	4.9	36.6
	Hanger Lane			65	24515	20	5.1	
6	Gunnelsbury Avenue	519124.1	179409.8	20	39452	20	4.5	42.9
	Pope's Lane			25	20102	20	5.1	
7	Uxbridge Road	516715.9	180446.9	7	33179	20	3.6	47.6
	Drayton Green Road			8	23657	20	8.0	
8	Western Avenue	520653.2	181498.8	34	90132	20	5.2	43.7
	Leamington Park			22	13666	20	7.7	
9	High Street	519850.0	180239.0	30	26494	20	5.0	50.7
	Uxbridge Road			16	24515	20	5.1	
	Steyne Road			10	21919	20	8.7	
10	Victoria Road	521425.2	182472.4	13	15758	20	7.1	44.8
	Old Oak Common Lane			20	20977	20	7.3	
11	Western Avenue	521592.1	180893.5	17	21479	20	11.1	49.0
	Old Oak Common Lane			20	90132	20	5.2	
12	High Street	520290.0	180065.6	12	19567	20	6.1	40.9
	Winchester Street			8	4010	20	7.0	

The 2005 background values for DMRB calculations were 52.3µg/m<sup>3</sup> for NO<sub>x</sub> and 31µg/m<sup>3</sup> for NO<sub>2</sub> (from Ealing estimated background air pollution data 2004, National Air Quality Archive<sup>19</sup>)

## 7.5 Busy streets where people may spend 1-hour or more close to traffic

All busy streets in Ealing have been assessed in the previous USA and during the first review and assessment. However all streets with traffic flows above 10000 vehicles per day (vpd) have been reassessed using DMRB to account for the new data from the LAEI 2003. 189 roads or parts of roads have been identified with flows above 10000 vpd. The concentrations predicted using DMRB are provided in appendix 2 at a receptor distance of 10m from the road centre, which is likely to be the worst case for all receptors in Ealing. The results show that the NO<sub>2</sub> annual mean

<sup>18</sup> Applying a traffic growth factor from 2003 to 2005 of 1.0358 (using NRTF and TEMPRO)

<sup>19</sup> <http://www.airquality.co.uk>



is above  $40\mu\text{g}/\text{m}^3$  for 58 roads out of 189 but no predicted annual means are greater than  $60\mu\text{g}/\text{m}^3$ .

## 7.6 Roads with high flow of buses and/or HGVs

LAQM.TG(03) criteria for identifying roads with high flows of heavy duty vehicles are roads with a flow of HDVs greater than 2500 vehicles per day representing at least 25% of the total flow of vehicles. According to the LAEI 2003, the roads in Ealing where the flow of HDVs is greater than 2500 vehicles per day are the A40, the A406 (North Circular Road and Gunnersbury Avenue), the A312 (Church Road) and the B455 (Ruislip Road). None of them have a proportion of HDVs greater than 25%.

## 7.7 New roads constructed or proposed since the previous round of Review and Assessment

There have been no new roads constructed since the previous round, with the exception of a small road joining Victoria Road and Wales Farm Road as part of the redevelopment of the Gypsy Corner on the A40. As reported in the 2005 Air Quality Progress Report, this new road is unlikely to alter traffic flows sufficiently to lead to concentrations exceeding the objective.

## 7.8 Roads with significantly changed traffic flows

Screening of the LAEI 2003 AADT flow data identified that one road in Ealing presented a substantial change in traffic flow of greater than 25% compared with the 2001 LAEI version, in Ruislip Road. Table 7.4 presents the DMRB assessment of this road link.

**Table 7.4: Predicted annual mean  $\text{NO}_2$  concentrations near roads with significantly changed traffic**

Road Name	East	North	Distance to road centre (m)	AADT 2005 from LAEI 2003 <sup>20</sup>	Traffic flow increase (%)	Speed (km/h)	% HDV	$\text{NO}_2$ ( $\mu\text{g}/\text{m}^3$ )
B455 Ruislip Road B455*	514261	182302	10	10247	37	14	12.9	47.3

\* This road was identified as a street canyon and therefore the DMRB predicted road traffic component concentration was multiplied by 2 as advised in LAQM.TG(03).

The DMRB assessment results for all roads (>10000 AADT) assessed in the borough are shown in Appendix II.

There have been no other significant changes to existing roads in Ealing, except a new road layout in Haven Green in 2004. The 2005 Air Quality Progress Report shows that the layout did not alter the air quality in the area.

<sup>20</sup> Applying a traffic growth factor from 2003 to 2005 of 1.0358 (using NRTF and TEMPRO)

## **7.9 Bus Stations**

There is no bus station in the London Borough of Ealing's administrative area with more than 1000 buses per day.

## **7.10 New industrial sources**

There have been no new processes which emit significant quantities of nitrogen dioxide in or near to the London Borough of Ealing since the previous round of review and assessment and therefore there is no need for any further assessment.

## **7.11 Industrial sources with substantially increased emissions, or new relevant exposure**

There are no existing industrial processes in or near to the London Borough of Ealing which have substantially increased emissions and there is no new relevant exposure.

## **7.12 Aircraft**

Heathrow Airport is situated at the South West of the London Borough of Ealing. There are no receptors in the Borough within 1km of the airport and therefore no further assessment is required.

## **7.13 Diesel and Coal-Fired Locomotives**

According to LAQM.TG(03), although these types of locomotive emit nitrogen oxides, however there is no evidence that there could be any risk of exceeding the 1-hour objective. Despite this, diesel trains pass through Ealing from Paddington station and emissions from the LAEI 2003 are significant. These emissions may need to be confirmed and rail traffic should be assessed more thoroughly to make sure this is not an issue in terms of air quality in Ealing.

## **7.14 Conclusion**

Both continuous and diffusion tubes monitoring show exceedences of the NO<sub>2</sub> annual mean objective, which is confirmed by predicted concentrations at busy roads and junctions using DMRB. These results show that there is no significant change with regards of NO<sub>2</sub> in Ealing and therefore the AQMA is still justified for the whole borough.

### Checklist Summary for Nitrogen Dioxide:

Item	Response
Monitoring data outside an AQMA	Whole borough declared an AQMA, therefore not relevant.
Monitoring data within an AQMA	Objective exceeded in 2005 at Acton Town Hall and Hanger Lane. Ealing Town Hall and Acton Court Way meet the objective but are close to $40\mu\text{g}/\text{m}^3$ . Diffusion tubes show that all roadsides sites are above the objective in 2005.
Narrow congested streets with residential properties close to the kerb	This was examined in the previous round USA 2003. No changes or further assessment required.
Junctions	12 junctions not previously assessed were screened using DMRB. Results show predicted exceedences of the objectives at most of the junctions and confirm similar results at other junction assessed during previous round.
Busy streets where people may spend 1-hour or more close to traffic	No DMRB predicted annual means are greater than $60\mu\text{g}/\text{m}^3$
Roads with high flow of buses and/or HGVs	No roads with more than 2500 HDVs per day which would be above 25% of the total flow.
New roads constructed or proposed since the previous round of R&A	Only one new road since the previous assessment as part of Gypsy Corner redevelopment. No impact as traffic improved.
Roads with significantly changed traffic flows, or new relevant exposure	Ruislip road (B455) identified with significantly increased traffic flows (between LAEI 2001 and LAEI 2003). According to DMRB predictions, the annual objective is exceeded.
Bus Stations	No bus stations have been identified which meet the criteria.
New industrial sources	No new industrial sources which meet the criteria.
Industrial sources with substantially increased emissions, or new relevant exposure	No industrial processes have been identified which meet the criteria.
Aircraft	Heathrow Airport nearby but no relevant receptor in Ealing within 1km of the airport.
Diesel and Coal-Fired Locomotives	Diesel train emissions passing through Ealing from Paddington station show high emissions, according to the LAEI, and rail traffic might need to be more thoroughly assessed.
<b>Conclusion</b>	<b>No significant changes with regard to <math>\text{NO}_2</math> therefore the AQMA is still justified</b>

## 8 UPDATING AND SCREENING OF SULPHUR DIOXIDE

### 8.1 Monitoring data outside an AQMA

There is currently continuous monitoring of sulphur dioxide undertaken within the London Borough of Ealing at Ealing Town Hall. The monitoring station is part of the London Air Quality Network (LAQN<sup>21</sup>). It is managed by Environmental Research Group (ERG) and is calibrated every fortnight. Data capture in 2005 was 88% and was above 90% in 2003 and 2004. The objectives were met in 2003 and 2004 and the results for 2005 (see Table 8.1) show that they are still currently being met within the area.

**Table 8.1 Sulphur Dioxide Monitoring Results in 2005**

Location	X	Y	No 15-min means > 266 $\mu\text{g}/\text{m}^3$	No 1-hour means > 350 $\mu\text{g}/\text{m}^3$	No 24-hour means > 125 $\mu\text{g}/\text{m}^3$	2005 Annual Mean ( $\mu\text{g}/\text{m}^3$ )
Ealing Town Hall	517534	180737	0	0	0	10.9

### 8.2 Monitoring data within an AQMA

No AQMA areas have been declared for sulphur dioxide in Ealing and therefore this section is not relevant.

### 8.3 New industrial sources

There have been no new processes, which emit significant quantities of sulphur dioxide, introduced in the London Borough of Ealing since the first round of review and assessment.

### 8.4 Industrial sources with substantially increased emissions, or new relevant exposure

No industrial processes in or near to the London Borough of Ealing were found to emit significant quantities of sulphur dioxide in the first round of review and assessment, and there have been no substantial changes to emissions.

### 8.5 Areas of domestic coal burning

According to the LAEI 2003, there are no areas of the London Borough of Ealing where domestic coal burning is a source of sulphur dioxide.

<sup>21</sup> [www.londonair.org.uk](http://www.londonair.org.uk)

### 8.6 Small boilers (>5MW(thermal)) burning coal or oil

There are 9 boiler processes in Ealing according to the LAEI 2003. The emission of SO<sub>2</sub> was less than 0.006 tonnes per year, as in the previous round. This is not considered significant and no further assessment is needed.

### 8.7 Shipping

There are no local sources of shipping emissions in the area.

### 8.8 Railway Locomotives

Railway locomotives were not identified as an issue regarding sulphur dioxide short term objective in the previous round of review and assessment. Although diesel trains are still operating and pass through Ealing from Paddington station, there are no locations where locomotives are regularly stationary more than 15 minutes in the borough and therefore no further assessment is required.

### 8.9 Conclusion

A Detailed Assessment is not required for sulphur dioxide.

#### Checklist Summary for Sulphur Dioxide:

Item	Response
Monitoring data outside an AQMA	Monitoring data within the area is well below the objective
Monitoring data within an AQMA	No AQMA, therefore not relevant
New industrial sources	No industrial processes have been identified which meet this criteria
Industrial sources with substantially increased emissions, or new relevant exposure	No industrial processes have been identified which meet this criteria
Areas of domestic coal burning	No area where domestic coal burning is a source of SO <sub>2</sub>
Small boilers (>5MW(thermal)) burning coal or oil	None of the boiler processes in Ealing are a source of significant SO <sub>2</sub> emissions
Shipping	No local sources of shipping emissions in the area
Railway Locomotives	There are no locations in the borough where locomotives are idle more than 15 minutes
Conclusion	No further action required

## 9 UPDATING AND SCREENING OF PARTICULATE MATTER

### 9.1 Monitoring data outside an AQMA

The whole London Borough of Ealing has been declared an AQMA for PM<sub>10</sub> and therefore this section is not relevant.

### 9.2 Monitoring data within an AQMA

The London Borough of Ealing Council currently undertakes monitoring of PM<sub>10</sub> at two locations within the Borough at a roadside site in Acton Town Hall (since 1996) and an urban background site in Blair Peach Primary School, Southall (since July 2004). PM<sub>10</sub> has also been monitored in Horn Lane for 12 months starting February 2005, as part of the Detailed Assessment of fine particulate matter due to dust generated by industrial activities in the area. The data capture for 2005 was 89% in Acton Town Hall, 95% in Southall and 85% in Horn Lane<sup>22</sup>. Data capture in Acton Town Hall was above 99% both in 2003 and 2004.

Table 9.1 shows the PM<sub>10</sub> annual mean for the last 3 years. The 2005 annual mean has been projected to 2010 using the updated Year Adjustment Factors spreadsheet from the UK Air Quality Information Archive website, according to the method given in LAQM.TG(03). For that purpose, PM<sub>10</sub> secondary background in Ealing has been derived from the updated background concentration maps, also available at the UK Air Quality Information Archive website<sup>23</sup>. Residual (coarse) PM<sub>10</sub> concentration is assumed to be 5.8µg/m<sup>3</sup>.

Table 9.2 shows the number of 24 hour mean concentrations above 50µg/m<sup>3</sup> for comparison with the AQS objective of 35 per year. LAQM.TG(03) advises to consider the 90<sup>th</sup> percentile instead of the number of 24 hour mean concentrations above 50µg/m<sup>3</sup> when data capture is below 90%; therefore these percentiles are also provided.

The results show that the PM<sub>10</sub> annual mean AQS objective has been exceeded in Horn Lane. The 2005 objectives are met in Acton Town Hall and Southall.

**Table 9.1 PM<sub>10</sub> Annual Mean, µg/m<sup>3</sup>**

Location	Type	X	Y	2003	2004	2005	2005 projected to 2010
EA2 Acton Town Hall, Acton High Street	Roadside	520306	180055	34.3	29.8	29.3	26.8
EA7 Southall	Urban Background	511679	180072	-	20.7	22.8	20.9
EA8 Acton Horn Lane	Industrial	520435	181429	-	-	84.6	77.0

<sup>22</sup> the monitoring in Horn Lane started in February 2005

<sup>23</sup> [http://www.airquality.co.uk/archive/laqm/tools/334\\_2004.csv](http://www.airquality.co.uk/archive/laqm/tools/334_2004.csv)



**Table 9.2: PM<sub>10</sub> No of 24 hour mean concentrations above 50µg/m<sup>3</sup> (AQS objective 35 per year)**

No. of 24 Hour Mean PM <sub>10</sub> concentrations > 50µg/m <sup>3</sup>	2003	2004	2005
EA2 Acton Town Hall, Acton High Street	61	23	< 90% Data Capture
EA7 Southall	-	< 90% Data Capture	4
EA8 Horn Lane	-	-	< 90% Data Capture
90 <sup>th</sup> Percentile of PM <sub>10</sub> 24 Hour Mean	2003	2004	2005
EA2 Acton Town Hall, Acton High Street	65.2	45.1	47.9
EA7 Southall	-	31.1	33.9
EA8 Horn Lane	-	-	158.3

### 9.3 Junctions

Eleven busy junctions with relevant exposure were identified and checked in the last USA 2003. DMRB predicted concentrations, reported in the last USA, showed that these junctions would meet the PM<sub>10</sub> annual mean objective of 40µg/m<sup>3</sup>, but that the 24 hour mean objective would be breached at several junctions. However, these junctions have been reassessed due to both traffic flow (LAEI 2003) and background PM<sub>10</sub> concentrations (UK National Air Quality Information Archive) updates in Ealing. Moreover, additional junctions have been identified as potentially significant after screening the LAEI 2003 traffic flows. These have been assessed using the DMRB screening tool and the results are shown in Table 9.3. The 2005 PM<sub>10</sub> background concentration in Ealing was 25.3µg/m<sup>3</sup>. The results confirm that the annual mean objective of 40µg/m<sup>3</sup> is met at every busy junction but Uxbridge Road-High Street Road junction. The 24 hour mean objective is not met at the vast majority of the junctions.

**Table 9.3: DMRB PM<sub>10</sub> results at busy junctions**

No	Junction	East	North	Receptor Distance (m)	AADT 2005	Average Speed (km/h)	%HDV	PM <sub>10</sub> (µg/m <sup>3</sup> )	No of 24 Hour mean PM <sub>10</sub> > 50µg/m <sup>3</sup>
1	Whitton Avenue	515363	185228	18	19460	20	2.8	33.9	44
	Greenford Road			16	33023	20	5.4		
2	Greenford Road	514395	182263	12	20834	20	4.8	33.9	44
	Ruislip Road			23	10247	20	12.9		
3	Uxbridge	514360	180175	32	36800	20	4.8	31.8	35
	Windmill Lane			21	30966	20	1.4		



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4	Ruislip Road	516134	182394	22	7470	20	10.3	32.0	35
	Argyle Road			24	26303	20	6.1		
5	South Road	512836	180375	11	30757	20	5.2	38.7	71
	Uxbridge Road			10	47998	20	5.2		
6	South Ealing Road	517710	179082	12	25749	20	4.2	34.5	47
	Pope's Lane			7	16150	20	3.4		
7	Uxbridge	517916	180832	11	23657	20	8.0	37.3	62
	The Broadway			8	14773	20	6.1		
8	Uxbridge	519737	180215	11	24515	20	5.1	35.5	52
	Gunnersbury Lane			12	20102	20	5.1		
9	Western Avenue	520594	181712	20	85986	20	4.0	37.6	64
	Victoria Road			19	22714	20	9.8		
10	Western Avenue	518505	182553	27	132185	20	5.3	36.3	57
	Hanger Lane			27	37765	20	4.9		
11	Western Avenue	512515	183918	20	100844	20	5.6	36.8	59
	Church Road			40	50476	20	5.9		
12	Pett's Hill	513808.1	185299.5	20	36736	20	2.9	32.7	38
	Whitton Avenue West			20	18849	20	4.1		
13	Ruislip Road	511710.6	183128.9	50	55030	20	5.5	31.7	34
	Church Road			30	31060	20	5.2		
14	South Road - Merrick Road (A3005)	512599.0	179708.0	14	30757	20	4.5	30.4	29
15	Hangar Lane	518652.2	181169.4	16	37765	20	4.9	34.2	45
	Madeley Road			15	20541	20	2.8		
16	Uxbridge Road	518624.8	180554.4	55	37765	20	4.9	28.7	23
	Hanger Lane			65	24515	20	5.1		
17	Gunnersbury Avenue	519124.1	179409.8	20	39452	20	4.5	33.5	42
	Pope's Lane			25	20102	20	5.1		
18	Uxbridge Road	516715.9	180446.9	7	33179	20	3.6	37.4	63
	Drayton Green Road			8	23657	20	8.0		
19	Western Avenue	520653.2	181498.8	34	90132	20	5.2	34.0	44
	Leamington Park			22	13666	20	7.7		
20	High Street	519850.0	180239.0	30	26494	20	5.0	40.4	82
	Uxbridge Road			16	24515	20	5.1		
	Steyne Road			10	21919	20	8.7		
21	Victoria Road	521425.2	182472.4	13	15758	20	7.1	34.7	48
	Old Oak Common Lane			20	20977	20	7.3		
22	Western Avenue	521592.1	180893.5	17	21479	20	11.1	38.5	69
	Old Oak Common Lane			20	90132	20	5.2		
23	High Street	520290.0	180065.6	12	19567	20	6.1	31.7	34
	Winchester Street			8	4010	20	7.0		

#### 9.4 Roads with high flow of buses and/or HGVs

LAQM.TG(03) criteria for identifying roads with high flows of heavy duty vehicles (HDVs) are roads with a flow of HDVs greater than 2000 vehicles per day

representing at least 20% of the total flow of vehicles. According to the LAEI 2003, the roads in Ealing where the flow of HDVs is greater than 2000 vehicles per day are the A40, the A406 (North Circular Road and Gunnersbury Avenue), the A312 (Church Road), the B455 (Ruislip Road), the A4020 (Uxbridge Road) and the A4000 (Victoria Road). None of them have a proportion of HDVs greater than 20%.

### 9.5 New roads constructed or proposed since the previous round of Review and Assessment

There have been no new roads constructed since the previous round, with the exception of a small road joining Victoria Road and Wales Farm Road as part of the redevelopment of the Gypsy Corner on the A40. As reported in the 2005 Air Quality Progress Report, this new road is unlikely to alter traffic flows sufficiently to lead to an exceedence of the AQS objectives.

### 9.6 Roads with significantly changed traffic flows, or new relevant exposure

Screening of the LAEI 2003 AADT flow data identified that one road in Ealing presented a substantial change in traffic flow of greater than 25% compared with the 2001 LAEI version, in Ruislip Road. The DMRB results presented in Table 9.4 show that both PM<sub>10</sub> objectives are met for this road.

**Table 9.4: Estimated PM<sub>10</sub> concentrations near roads with significantly changed traffic**

Road Name	East	North	Distance to road centre (m)	AADT 2005 from LAEI 2003 <sup>24</sup>	Traffic flow increase (%)	Speed (km/h)	% HDV	PM <sub>10</sub> (µg/m <sup>3</sup> )	No of 24 Hour mean PM <sub>10</sub> > 50µg/m <sup>3</sup>
B455 Ruislip Road	514261	182302	10	10247	37	14	12.9	29.9	27

There have been no other significant changes to existing roads in Ealing, except a new road layout in Haven Green in 2004. As discussed in the 2005 Air Quality Progress Report, the layout did not alter the air quality in the area.

The DMRB assessment results for all roads (>10000 AADT) assessed in the borough are shown in Appendix II.

### 9.7 Roads close to the objective during the second round of Review and Assessment

No roads previously assessed showed 24 hour mean PM<sub>10</sub> concentrations above 50µg/m<sup>3</sup> between 25 and 35 days per year, except the A3005 (South Road) and the A4020 (Uxbridge Road). However, due to the changes in traffic flows and background

<sup>24</sup> Applying a traffic growth factor from 2003 to 2005 of 1.0358 (using NRTF and TEMPRO)

concentrations, all the roads with a traffic flow > 10000 vehicles per day have been reassessed and are shown in Appendix II.

### **9.8 New industrial sources**

There has been one new Part B process in Ealing since the last USA. The installation is a depot for the storage of bulk cement at Tarmac Cement Depot, Willesden. According to the 2005 Air Quality Progress Report, this new process is equipped and designed to limit particulate emissions and therefore there is no risk that the AQS objectives could be breached.

### **9.9 Industrial sources with substantially increased emissions, or new relevant exposure**

No existing industrial processes in the London Borough of Ealing were found to emit significant quantities of PM<sub>10</sub> in the previous round of Review and Assessment. None of these sources have substantially increased their emissions of PM<sub>10</sub> and there is no new relevant exposure which warrants further assessment.

### **9.10 Areas with domestic solid fuel burning**

According to the LAEI 2003, there are no areas of the London Borough of Ealing where domestic coal burning is a source of PM<sub>10</sub>.

### **9.11 Quarries, landfill sites, opencast coal, handling of dusty cargoes at ports**

The previous round of Review and Assessment highlighted that a detailed assessment was required for PM<sub>10</sub> in the vicinity of EWS Goods Yard, Horn Lane, Acton, due to dust generated by industrial and commercial activities in the area. The Detailed Assessment has just been completed early 2006 and final results are not available yet, but the results of the 12 months monitoring (see section 9.2 above) showed that the AQS objectives were not met.

Dust deposits have been recently noticed on parked cars in Allington Close, Greenford. There is an unpaved haul road nearby across the railway line in Station Approach which is suspected to be the cause of the deposit. This had not been highlighted in the previous round of Review and Assessment. There are no residential properties within 55m of this road and no complaints have been received to date.

However, LAQM.TG(03) states that relevant exposure should be considered as near to the sources of dust emission if within 200m, therefore the London Borough of Ealing may wish to proceed to a detailed assessment of the area to try to determine the cause of the dust deposition and ensure that PM<sub>10</sub> concentrations are not elevated at relevant receptors in the vicinity of this source.

### 9.12 Aircraft

Heathrow Airport is situated at the South West of the London Borough of Ealing. There are no receptors in the Borough within 500m of the airport and therefore no further assessment is required.

### 9.13 Diesel and Coal-Fired Locomotives

According to LAQM.TG(03), although these types of locomotive emit PM<sub>10</sub>, there is no evidence that there could be any risk of exceeding the 24 hour objective. However, diesel trains pass through Ealing from Paddington station and emissions from the LAEI 2003 are significant. These emissions may need to be confirmed and rail traffic should be assessed more thoroughly to make sure this is not an issue in terms of air quality in Ealing.

### 9.14 Conclusion

Monitoring data show exceedences of the PM<sub>10</sub> objectives in Horn Lane, Acton, and predicted concentrations at busy roads and junctions using DMRB show that the 24 hour mean objective is not met. These results show that there is no significant change with regards of PM<sub>10</sub> in Ealing and therefore the AQMA is still justified for the whole borough.

#### Checklist Summary for PM10:

Item	Response
Monitoring data outside an AQMA	Whole borough declared an AQMA, therefore not relevant.
Monitoring data within an AQMA	Objective exceeded at Acton Horn Lane. Southall and Ealing Town Hall meet the objectives.
Junctions	All busy junctions reassessed using DMRB, due to updated traffic flows and increased background concentration in Ealing. Results show predicted exceedences of the 24 hour objective at most of the junctions. Annual objective not exceeded.
Roads with high flow of buses and/or HGVs	No roads with more than 2000 HDVs per day which proportion would be above 20% of the total flow.
New roads constructed or proposed since the previous round of Review and Assessment	Only one new road since the previous assessment as part of Gypsy Corner redevelopment. No impact as traffic improved.
Roads with significantly changed traffic flows, or new relevant exposure	Ruislip road (B455) identified with significantly increased traffic flows (between LAEI 2001 and LAEI 2003). According to DMRB predictions, the objectives are not exceeded.
New industrial sources	One new Part B process since last USA but no significant emissions of PM <sub>10</sub> .



Industrial sources with substantially increased emissions, or new relevant exposure	No industrial processes have been identified which meet the criteria.
Areas with domestic solid fuel burning	No area where domestic coal burning is a significant source of PM <sub>10</sub>
Quarries, landfill sites, opencast coal, handling of dusty cargoes at ports	A Detailed Assessment for PM <sub>10</sub> has been carried out in Acton Horn Lane due to dust generated by industrial and commercial activities. No final results, but the monitoring shows that the objectives are exceeded.  Dust deposits have been noticed in Allington Close, Greenford. An unpaved haul road nearby may be the cause.
Aircraft	Heathrow Airport nearby but no relevant receptor in Ealing within 500m of the airport.
Diesel and Coal-Fired Locomotives	Diesel train emissions passing through Ealing from Paddington station show high levels of PM <sub>10</sub> emissions and rail traffic might need to be more thoroughly assessed.
Conclusion	No significant changes with regard to PM <sub>10</sub> therefore the AQMA is still justified  Detailed Assessment should be needed in Station Approach, Greenford



## APPENDIX I TRAFFIC DATA

Road Name	ROAD_NUMBER	ROAD_TYPE	% of HDVs	Year	AADT	AADT 2005
0	unclassified	Minor road	10%	2003	12174	12610
0	unclassified	Minor road	10%	2003	12292	12732
0	unclassified	Minor road	7%	2003	17639	18270
0	A406	A road	5%	2003	100617	104218
A3005	A3005	A road	5%	2003	29694	30757
A4000	A4000	A road	10%	2003	21929	22714
ABBEY ROAD	unclassified	Minor road	10%	2003	12174	12610
ACTON LANE B490	B490	B road	6%	2003	11023	11418
ACTON LANE B490	B490	B road	6%	2003	10495	10871
ACTON LANE B490	B490	B road	4%	2003	14030	14532
ACTON LANE B490	B490	B road	4%	2003	24246	25114
ALEXANDRA AVENUE A4090	A4090	A road	3%	2003	21392	22158
ALLENBY ROAD	unclassified	Minor road	7%	2003	24617	25498
ARGYLE ROAD B452	unclassified	Minor road	10%	2003	13978	14478
ARGYLE ROAD B452	B452	B road	7%	2003	13159	13630
ARGYLE ROAD B452	B452	B road	4%	2003	32033	33179
ARGYLE ROAD B452	B452	B road	3%	2003	31581	32711
ARGYLE ROAD B455	B452	B road	7%	2003	30532	31625
ARGYLE ROAD B456	B452	B road	7%	2003	30532	31625
ARGYLE ROAD B456	B452	B road	6%	2003	25394	26303
B455	B455	B road	7%	2003	17683	18316
B455	B455	B road	4%	2003	31281	32401
B456	unclassified	Minor road	7%	2003	20570	21306
B456	B452	B road	6%	2003	25394	26303
B456	A40	A road	5%	2003	127618	132185
BOLLO LANE	unclassified	Minor road	5%	2003	13593	14079
BOLLO LANE	unclassified	Minor road	3%	2003	10600	10979
BOSTON MANOR ROAD A3002	A3002	A road	6%	2003	18491	19153
BOSTON ROAD A3002	A3002	A road	4%	2003	19841	20551
BOSTON ROAD A4001	A4001	A road	7%	2003	9739	10088
BRIDGEWATER ROAD A4005	A4005	A road	3%	2003	22784	23599
BRIDGEWATER ROAD A4005	A4090	A road	3%	2003	18788	19460
BRIDGEWATER ROAD A4005	A4005	A road	3%	2003	30312	31397
BRIDGEWATER ROAD A4090	A4090	A road	3%	2003	18788	19460
BROADWAY A4020	A4020	A road	8%	2003	22840	23657
BRUNNER ROAD	unclassified	Minor road	4%	2003	16816	17418
BRUNSWICK ROAD	unclassified	Minor road	4%	2003	16816	17418
BRUNSWICK ROAD	unclassified	Minor road	4%	2003	12806	13264

CARLYLE AVENUE	unclassified	Minor road	10%	2003	13978	14478
CASTLEBAR HILL B455	B455	B road	3%	2003	29356	30407
CASTLEBAR ROAD B455	unclassified	Minor road	11%	2003	16281	16864
CASTLEBAR ROAD B455	B455	B road	4%	2003	26097	27031
CASTLEBAR ROAD B455	B455	B road	2%	2003	25250	26154
CHURCH ROAD	unclassified	Minor road	5%	2003	20993	21744
CHURCH ROAD A312	A312	A road	6%	2003	48732	50476
CHURCH ROAD A312	A312	A road	5%	2003	19631	20334
CHURCHFIELD ROAD	unclassified	Minor road	5%	2003	11484	11895
CLEVELAND ROAD	unclassified	Minor road	3%	2003	26302	27243
DORMER'S WELLS LANE	unclassified	Minor road	4%	2003	14659	15184
DRAYTON GREEN ROAD B452	B452	B road	4%	2003	32033	33179
DU CANE ROAD	unclassified	Minor road	11%	2003	12716	13171
EALING GREEN B455	B455	B road	5%	2003	10437	10811
EALING ROAD A4005	A4005	A road	4%	2003	28483	29502
EALING ROAD B455	B455	B road	4%	2003	21443	22210
EAST ACTON LANE	unclassified	Minor road	8%	2003	19320	20011
EAST ACTON LANE	unclassified	Minor road	8%	2003	17454	18079
EAST ACTON LANE	unclassified	Minor road	8%	2003	18304	18959
EAST ACTON LANE	unclassified	Minor road	7%	2003	17639	18270
EAST ACTON LANE	unclassified	Minor road	6%	2003	20124	20844
EATON RISE	unclassified	Minor road	5%	2003	14046	14549
FEATHERSTONE ROAD	unclassified	Minor road	11%	2003	11130	11528
FRIARY ROAD	unclassified	Minor road	8%	2003	15795	16360
FRIARY ROAD	unclassified	Minor road	8%	2003	17571	18200
GLENDUN ROAD	unclassified	Minor road	7%	2003	15753	16317
GREENFORD AVENUE	unclassified	Minor road	8%	2003	15355	15905
GREENFORD AVENUE	unclassified	Minor road	5%	2003	20993	21744
GREENFORD ROAD A4127	A4127	A road	5%	2003	31882	33023
GREENFORD ROAD A4127	A4127	A road	5%	2003	20114	20834
GREENFORD ROAD A4127	A4127	A road	3%	2003	30357	31443
GUNNERSBURY AVENUE (NORTH CIRCULAR ROAD) A406(T)	A406	A road	5%	2003	36460	37765
GUNNERSBURY AVENUE (NORTH CIRCULAR ROAD) A406(T)	A406	A road	5%	2003	38089	39452
GUNNERSBURY AVENUE A406(T)	A406	A road	6%	2003	47943	49659
GUNNERSBURY LANE A4000	A4000	A road	5%	2003	19407	20102
GUNNERSBURY LANE A406(T)	A4000	A road	5%	2003	19407	20102
HANGER LANE	A406	A road	5%	2003	36460	37765
HANGER LANE (NORTH CIRCULAR ROAD) A4005	A4005	A road	4%	2003	28483	29502
HANGER LANE (NORTH	A40	A road	5%	2003	127618	132185

CIRCULAR ROAD) A406(T)						
HANGER LANE (NORTH CIRCULAR ROAD) A406(T)	A406	A road	5%	2003	36460	37765
HANGER LANE (NORTH CIRCULAR ROAD) A406(T)	A4005	A road	4%	2003	28483	29502
HANGER LANE A4005	A4005	A road	4%	2003	28483	29502
HAVEN GREEN B455	B455	B road	6%	2003	12495	12942
HAVEN GREEN B455	B455	B road	4%	2003	24989	25883
HAYES ROAD	unclassified	Minor road	14%	2003	15046	15584
HAYES ROAD	unclassified	Minor road	12%	2003	26923	27887
HIGH STREET A4000	A4020	A road	9%	2003	21162	21919
HIGH STREET A4000	A4020	A road	5%	2003	23668	24515
HIGH STREET A4020	A4020	A road	9%	2003	21162	21919
HIGH STREET A4020	A4020	A road	6%	2003	18891	19567
HORN LANE A4000	A4000	A road	5%	2003	20933	21682
HORN LANE A4000	A4000	A road	5%	2003	25579	26494
HORN LANE A4000	A4000	A road	4%	2003	23038	23863
HORSENDEN LANE NORTH	unclassified	Minor road	6%	2003	22238	23034
HORSENDEN LANE SOUTH	unclassified	Minor road	6%	2003	22238	23034
HORSENDEN LANE SOUTH	unclassified	Minor road	6%	2003	19629	20332
KAROLINE GARDENS A40(T)	A40	A road	5%	2003	136811	141707
KENT GARDENS B455	B455	B road	4%	2003	31281	32401
KING'S AVENUE	unclassified	Minor road	5%	2003	20018	20734
LADY MARGARET ROAD	unclassified	Minor road	11%	2003	12478	12925
LEAMINGTON PARK A4000	A4000	A road	8%	2003	13194	13666
LIONEL ROAD NORTH	unclassified	Minor road	4%	2003	13098	13567
LOWER BOSTON ROAD A3002	A3002	A road	6%	2003	10113	10475
LUDLOW ROAD	unclassified	Minor road	4%	2003	16816	17418
MADELEY ROAD	unclassified	Minor road	3%	2003	19831	20541
MADELEY ROAD B455	B455	B road	4%	2003	24989	25883
MANDEVILLE ROAD A312	A312	A road	5%	2003	19631	20334
MELVILLE AVENUE	unclassified	Minor road	6%	2003	17090	17702
MERRICK ROAD A3005	A3005	A road	5%	2003	29694	30757
NEW BROADWAY A4020	A4020	A road	8%	2003	22840	23657
NOEL ROAD	unclassified	Minor road	4%	2003	12804	13262
NORTH CIRCULAR ROAD A406(T)	A406	A road	5%	2003	100617	104218
NORTH ROAD	unclassified	Minor road	7%	2003	20433	21164
NORTHOLT ROAD A312	A312	A road	4%	2003	20806	21551
NORTHOLT ROAD A312	A312	A road	3%	2003	35467	36736
NORWOOD ROAD	unclassified	Minor road	11%	2003	11130	11528
NORWOOD ROAD A3005	A3005	A road	5%	2003	29694	30757
NORWOOD ROAD A3005	A3005	A road	3%	2003	23250	24082
OLD OAK COMMON LANE	unclassified	Minor road	11%	2003	20737	21479

OLD OAK COMMON LANE	unclassified	Minor road	8%	2003	21040	21793
OLD OAK COMMON LANE	unclassified	Minor road	7%	2003	20252	20977
OLD OAK ROAD	unclassified	Minor road	8%	2003	23021	23845
PARK ROYAL ROAD B4492	B4492	B road	8%	2003	21594	22367
PETT'S HILL A312	A312	A road	5%	2003	19631	20334
PETT'S HILL A312	A312	A road	3%	2003	35467	36736
PITSHANGER LANE	unclassified	Minor road	7%	2003	14666	15191
PITSHANGER LANE	unclassified	Minor road	4%	2003	16816	17418
POPE'S LANE B4491	B4491	B road	6%	2003	13194	13666
POPE'S LANE B4491	B4491	B road	6%	2003	16194	16774
POPE'S LANE B4491	B4491	B road	3%	2003	15592	16150
PRINCES GARDENS	unclassified	Minor road	3%	2003	23509	24350
QUEEN'S DRIVE	unclassified	Minor road	3%	2003	23509	24350
RUISLIP ROAD	unclassified	Minor road	11%	2003	14583	15105
RUISLIP ROAD A312	A4180	A road	5%	2003	29987	31060
RUISLIP ROAD A4180	A4180	A road	5%	2003	29987	31060
RUISLIP ROAD B455	B455	B road	13%	2003	9893	10247
RUISLIP ROAD B455	B455	B road	11%	2003	23058	23883
RUISLIP ROAD B455	B455	B road	11%	2003	14583	15105
RUISLIP ROAD B455	B455	B road	11%	2003	15433	15985
RUISLIP ROAD EAST B455	B455	B road	9%	2003	20525	21260
RUISLIP ROAD EAST B455	B452	B road	6%	2003	25394	26303
RUISLIP ROAD EAST B455	unclassified	Minor road	5%	2003	11484	11895
RUSKIN GARDENS	unclassified	Minor road	4%	2003	16816	17418
SCOTCH COMMON B455	B455	B road	7%	2003	17683	18316
SOUTH EALING ROAD B455	B455	B road	4%	2003	24859	25749
SOUTH EALING ROAD B455	B455	B road	4%	2003	26828	27788
SOUTH PARADE B490	B490	B road	4%	2003	14030	14532
SOUTH ROAD A3005	A3005	A road	5%	2003	29694	30757
ST MARY'S ROAD B455	B455	B road	5%	2003	10437	10811
ST MARY'S ROAD B455	B455	B road	3%	2003	27760	28754
STEYNE ROAD A4000	A4000	A road	5%	2003	25579	26494
STEYNE ROAD A4000	A4000	A road	4%	2003	23038	23863
TENTELOW LANE A4127	A4127	A road	1%	2003	29896	30966
THE BROADWAY A4020	A4020	A road	8%	2003	22840	23657
THE BROADWAY B455	B455	B road	6%	2003	14263	14773
THE MALL A4020	A4020	A road	8%	2003	22840	23657
THE PARKWAY A312	A312	A road	5%	2003	57524	59583
THE VALE A4020	A4020	A road	6%	2003	18891	19567
TURNHAM GREEN TERRACE B491	B491	B road	5%	2003	14499	15018
TWYFORD AVENUE	unclassified	Minor road	4%	2003	10068	10428
UXBRIDGE ROAD A4020	A4020	A road	8%	2003	22840	23657
UXBRIDGE ROAD A4020	A4020	A road	5%	2003	37256	38589

UXBRIDGE ROAD A4020	A4020	A road	5%	2003	46340	47998
UXBRIDGE ROAD A4020	A4020	A road	5%	2003	23668	24515
UXBRIDGE ROAD A4020	A4020	A road	5%	2003	35528	36800
UXBRIDGE ROAD A4020	A4020	A road	5%	2003	31023	32133
UXBRIDGE ROAD HIGH STREET A4020	A4020	A road	5%	2003	46340	47998
UXBRIDGE ROAD THE BROADWAY A4020	A4020	A road	5%	2003	37256	38589
VICTORIA ROAD A4000	A4000	A road	10%	2003	21929	22714
VICTORIA ROAD A4000	A4000	A road	7%	2003	15214	15758
WALES FARM ROAD A4000	A4000	A road	7%	2003	24451	25326
WELLAND GARDENS B456	unclassified	Minor road	7%	2003	20570	21306
WEST END ROAD A4180	A4180	A road	5%	2003	29987	31060
WEST END ROAD A4180	A4180	A road	3%	2003	21171	21929
WESTERN AVENUE	A40	A road	5%	2003	127618	132185
WESTERN AVENUE	A40	A road	4%	2003	92137	95434
WESTERN AVENUE A40(T)	A40	A road	6%	2003	112444	116468
WESTERN AVENUE A40(T)	A40	A road	6%	2003	97360	100844
WESTERN AVENUE A40(T)	A40	A road	5%	2003	127618	132185
WESTERN AVENUE A40(T)	A40	A road	5%	2003	136811	141707
WESTERN AVENUE A40(T)	A4005	A road	4%	2003	28483	29502
WESTERN AVENUE A40(T)	A40	A road	4%	2003	92137	95434
WESTERN AVENUE A406(T)	A4005	A road	4%	2003	28483	29502
WESTERN AVENUE B456	A40	A road	5%	2003	127618	132185
WESTERN ROAD	unclassified	Minor road	19%	2003	9942	10298
WESTWAY A40(T)	A40	A road	5%	2003	79001	81828
WHITTON AVENUE EAST A4090	A4090	A road	3%	2003	18788	19460
WHITTON AVENUE WEST A4090	A4090	A road	3%	2003	16764	17364
WINDMILL LANE A4127	A4127	A road	1%	2003	29896	30966
WINDMILL LANE B454	B454	B road	7%	2003	10314	10683
WINDMILL ROAD B452	B452	B road	5%	2003	12860	13320

## APPENDIX II DMRB ASSESSMENTS FOR ROADS

Name	Year	NO <sub>2</sub>	PM <sub>10</sub>	
		Annual mean	Annual mean	No of exceedences of the 24 hour mean
A3005	2005	39.36	30.4	29
A4000	2005	41.46	31.3	33
ABBEY ROAD	2005	39.01	29.9	27
ACTON LANE B490	2005	37.68	29.6	26
ACTON LANE B490	2005	36.96	29.0	24
ACTON LANE B490	2005	36.74	29.0	24
ACTON LANE B490	2005	37.87	29.9	27
ALEXANDRA AVENUE A4090	2005	36.34	28.5	22
ALLENBY ROAD	2005	41.00	31.8	34
ARGYLE ROAD B452	2005	42.10	32.5	38
ARGYLE ROAD B452	2005	36.47	28.2	21
ARGYLE ROAD B452	2005	38.31	30.1	28
ARGYLE ROAD B452	2005	37.76	29.7	27
ARGYLE ROAD B455	2005	40.55	31.3	33
ARGYLE ROAD B456	2005	40.55	31.3	33
ARGYLE ROAD B456	2005	39.91	31.0	31
B455	2005	37.22	28.5	22
B455	2005	37.93	29.5	26
B456	2005	39.30	30.3	29
B456	2005	38.77	29.9	27
B456	2005	43.11	31.3	33
BOLLO LANE	2005	37.58	29.5	26
BOLLO LANE	2005	34.64	27.4	19
BOSTON MANOR ROAD A3002	2005	37.94	29.2	25
BOSTON ROAD A3002	2005	36.85	28.5	22
BOSTON ROAD A4001	2005	37.32	29.1	24
BRIDGEWATER ROAD A4005	2005	36.81	28.5	22
BRIDGEWATER ROAD A4005	2005	36.02	28.1	21
BRIDGEWATER ROAD A4005	2005	36.81	28.5	22
BRIDGEWATER ROAD A4090	2005	36.02	28.1	21
BROADWAY A4020	2005	50.15	30.9	31
BRUNNER ROAD	2005	36.80	28.8	23
BRUNSWICK ROAD	2005	36.80	28.8	23
BRUNSWICK ROAD	2005	36.26	28.7	23
CARLYLE AVENUE	2005	42.10	32.5	38
CASTLEBAR HILL B455	2005	36.73	28.9	24





CASTLEBAR ROAD B455	2005	39.32	29.3	25
CASTLEBAR ROAD B455	2005	39.98	31.9	35
CASTLEBAR ROAD B455	2005	36.02	28.6	23
CHURCH ROAD	2005	39.06	30.5	30
CHURCH ROAD A312	2005	40.27	30.1	28
CHURCH ROAD A312	2005	37.74	29.1	24
CHURCHFIELD ROAD	2005	36.53	28.8	23
CLEVELAND ROAD	2005	36.95	28.9	24
DORMER'S WELLS LANE	2005	36.91	29.0	24
DRAYTON GREEN ROAD B452	2005	38.31	30.1	28
DU CANE ROAD	2005	38.97	29.6	26
EALING GREEN B455	2005	35.44	27.9	20
EALING ROAD A4005	2005	38.68	30.0	27
EALING ROAD B455	2005	37.86	29.7	26
EAST ACTON LANE	2005	42.70	33.4	42
EAST ACTON LANE	2005	40.64	31.4	33
EAST ACTON LANE	2005	40.46	31.3	32
EAST ACTON LANE	2005	39.77	30.7	30
EAST ACTON LANE	2005	41.00	32.2	36
EATON RISE	2005	36.99	28.9	24
FEATHERSTONE ROAD	2005	38.22	29.2	25
FRIARY ROAD	2005	45.40	36.9	60
FRIARY ROAD	2005	41.53	32.3	37
GLENDUN ROAD	2005	41.45	32.6	38
GREENFORD AVENUE	2005	38.64	29.5	26
GREENFORD AVENUE	2005	39.06	30.5	30
GREENFORD ROAD A4127	2005	39.49	30.3	29
GREENFORD ROAD A4127	2005	44.19	29.0	24
GREENFORD ROAD A4127	2005	37.57	29.4	25
GUNNERSBURY AVENUE (NORTH CIRCULAR ROAD) A406(T)	2005	39.55	30.5	29
GUNNERSBURY AVENUE (NORTH CIRCULAR ROAD) A406(T)	2005	38.84	29.7	26
GUNNERSBURY AVENUE A406(T)	2005	40.52	30.8	30
GUNNERSBURY LANE A4000	2005	38.41	29.9	27
GUNNERSBURY LANE A406(T)	2005	38.41	29.9	27
HANGER LANE	2005	39.55	30.5	29
HANGER LANE (NORTH CIRCULAR ROAD) A4005	2005	38.68	30.0	27
HANGER LANE (NORTH CIRCULAR ROAD) A406(T)	2005	43.11	31.3	33
HANGER LANE (NORTH CIRCULAR ROAD) A406(T)	2005	39.55	30.5	29
HANGER LANE (NORTH CIRCULAR ROAD) A406(T)	2005	38.68	30.0	27
HANGER LANE A4005	2005	38.68	30.0	27



HAVEN GREEN B455	2005	35.49	27.5	19
HAVEN GREEN B455	2005	36.97	28.8	23
HAYES ROAD	2005	46.08	35.6	53
HAYES ROAD	2005	43.07	32.5	38
HIGH STREET A4000	2005	41.27	31.5	33
HIGH STREET A4000	2005	38.23	29.4	25
HIGH STREET A4020	2005	51.53	31.5	33
HIGH STREET A4020	2005	46.26	29.7	27
HORN LANE A4000	2005	40.43	31.8	34
HORN LANE A4000	2005	38.80	30.0	28
HORN LANE A4000	2005	37.92	29.4	25
HORSENDEN LANE NORTH	2005	38.46	29.7	26
HORSENDEN LANE SOUTH	2005	38.46	29.7	26
HORSENDEN LANE SOUTH	2005	38.79	30.1	28
KAROLINE GARDENS A40(T)	2005	43.55	31.6	34
KENT GARDENS B455	2005	37.93	29.5	26
KING'S AVENUE	2005	37.68	29.1	24
LADY MARGARET ROAD	2005	39.28	30.0	27
LEAMINGTON PARK A4000	2005	37.40	28.3	22
LIONEL ROAD NORTH	2005	36.87	29.1	24
LOWER BOSTON ROAD A3002	2005	36.10	28.3	21
LUDLOW ROAD	2005	36.80	28.8	23
MADELEY ROAD	2005	36.23	28.6	22
MADELEY ROAD B455	2005	36.97	28.8	23
MANDEVILLE ROAD A312	2005	37.74	29.1	24
MELVILLE AVENUE	2005	40.95	32.4	37
MERRICK ROAD A3005	2005	39.36	30.4	29
NEW BROADWAY A4020	2005	40.58	30.9	31
NOEL ROAD	2005	35.62	28.0	21
NORTH CIRCULAR ROAD A406(T)	2005	42.12	30.9	31
NORTH ROAD	2005	40.94	31.9	35
NORTHOLT ROAD A312	2005	37.07	28.9	24
NORTHOLT ROAD A312	2005	37.59	29.3	25
NORWOOD ROAD	2005	38.22	29.2	25
NORWOOD ROAD A3005	2005	39.36	30.4	29
NORWOOD ROAD A3005	2005	36.64	28.6	23
OLD OAK COMMON LANE	2005	45.73	35.7	53
OLD OAK COMMON LANE	2005	42.97	33.6	43
OLD OAK COMMON LANE	2005	40.12	31.0	31
OLD OAK ROAD	2005	41.12	31.7	34
PARK ROYAL ROAD B4492	2005	38.21	29.0	24
PETT'S HILL A312	2005	37.74	29.1	24
PETT'S HILL A312	2005	37.59	29.3	25



PITSHANGER LANE	2005	38.08	29.5	26
PITSHANGER LANE	2005	36.80	28.8	23
POPE'S LANE B4491	2005	37.83	29.5	26
POPE'S LANE B4491	2005	37.11	28.7	23
POPE'S LANE B4491	2005	36.64	29.0	24
PRINCES GARDENS	2005	37.51	29.6	26
QUEEN'S DRIVE	2005	37.51	29.6	26
RUISLIP ROAD	2005	42.24	32.4	37
RUISLIP ROAD A312	2005	38.57	29.4	25
RUISLIP ROAD A4180	2005	38.57	29.4	25
RUISLIP ROAD B455	2005	47.36	29.9	27
RUISLIP ROAD B455	2005	39.68	29.5	26
RUISLIP ROAD B455	2005	40.72	31.0	31
RUISLIP ROAD B455	2005	39.50	30.0	27
RUISLIP ROAD EAST B455	2005	39.47	30.1	28
RUISLIP ROAD EAST B455	2005	39.91	31.0	31
RUISLIP ROAD EAST B455	2005	36.53	28.8	23
RUSKIN GARDENS	2005	36.80	28.8	23
SCOTCH COMMON B455	2005	37.22	28.5	22
SOUTH EALING ROAD B455	2005	38.42	30.2	28
SOUTH EALING ROAD B455	2005	37.45	29.4	26
SOUTH PARADE B490	2005	36.74	29.0	24
SOUTH ROAD A3005	2005	39.36	30.4	29
ST MARY'S ROAD B455	2005	35.44	27.9	20
ST MARY'S ROAD B455	2005	38.14	30.1	28
STEYNE ROAD A4000	2005	38.80	30.0	28
STEYNE ROAD A4000	2005	37.92	29.4	25
TENTLOW LANE A4127	2005	35.86	28.2	21
THE BROADWAY A4020	2005	50.15	30.9	31
THE BROADWAY B455	2005	40.82	32.5	38
THE MALL A4020	2005	50.15	30.9	31
THE PARKWAY A312	2005	40.19	29.7	26
THE VALE A4020	2005	38.63	29.7	27
TURNHAM GREEN TERRACE B491	2005	37.43	29.3	25
TWYFORD AVENUE	2005	36.44	29.1	24
UXBRIDGE ROAD A4020	2005	50.15	30.9	31
UXBRIDGE ROAD A4020	2005	40.18	31.0	31
UXBRIDGE ROAD A4020	2005	40.22	30.7	30
UXBRIDGE ROAD A4020	2005	38.23	29.4	25
UXBRIDGE ROAD A4020	2005	39.13	30.1	28
UXBRIDGE ROAD A4020	2005	39.13	30.3	29
UXBRIDGE ROAD HIGH STREET A4020	2005	49.44	30.7	30
UXBRIDGE ROAD THE BROADWAY A4020	2005	49.37	31.0	31



VICTORIA ROAD A4000	2005	41.46	31.3	33
VICTORIA ROAD A4000	2005	38.35	29.3	25
WALES FARM ROAD A4000	2005	39.98	30.7	30
WELLAND GARDENS B456	2005	39.30	30.3	29
WEST END ROAD A4180	2005	38.57	29.4	25
WEST END ROAD A4180	2005	36.80	28.6	23
WESTERN AVENUE	2005	43.11	31.3	33
WESTERN AVENUE	2005	41.07	30.6	30
WESTERN AVENUE A40(T)	2005	45.01	33.0	40
WESTERN AVENUE A40(T)	2005	43.71	32.2	36
WESTERN AVENUE A40(T)	2005	43.11	31.3	33
WESTERN AVENUE A40(T)	2005	43.55	31.6	34
WESTERN AVENUE A40(T)	2005	38.68	30.0	27
WESTERN AVENUE A40(T)	2005	41.07	30.6	30
WESTERN AVENUE A406(T)	2005	38.68	30.0	27
WESTERN AVENUE B456	2005	43.11	31.3	33
WESTERN ROAD	2005	45.83	35.5	52
WESTWAY A40(T)	2005	41.43	31.0	31
WHITTON AVENUE EAST A4090	2005	36.02	28.1	21
WHITTON AVENUE WEST A4090	2005	36.10	28.3	22
WINDMILL LANE A4127	2005	35.86	28.2	21
WINDMILL LANE B454	2005	35.18	27.4	19
WINDMILL ROAD B452	2005	36.71	28.8	23
0	2005	39.01	29.9	27
0	2005	38.19	29.1	24
0	2005	39.77	30.7	30
0	2005	42.12	30.9	31

All results as  $\mu\text{g}/\text{m}^3$ , except number of exceedences

## APPENDIX III LIST OF INDUSTRIAL PROCESSES

Operator	Process/Installation	Process/Installation address
Accident Repair Centre (Park Royal) Ltd	Respraying of road vehicles	50 Minerva Road, Park Royal, London NW10 6HJ
Alahma Ltd	Unloading of petrol into storage at a filling station	Roundabout Filling Station, Western Avenue, Greenford, Middx. UB6 8WW
Autodex Ltd	Respraying of road vehicles	76 Adelaide Road, Southall, Middx. UB2 5PX
Autohaus Europe Ltd	Respraying of road vehicles <i>(revocation pending)</i>	PO Box 1105, 82-86 Churchfield Road, Acton, London W3 6DJ
Autohaus (UK) Ltd	Respraying of road vehicles	61 Aintree Road. Perivale, Greenford, Middx. UB6 7LA
BP Oil UK Ltd	Unloading of petrol into storage at a filling station	Gunnersbury Park Connect, 119 Gunnersbury Avenue, London W5 4LR
		Mandeville Service Station, Mandeville Road, Northolt, Middx. UB5 5BH
		Northolt Park Convenience Store, Petts Hill, Northolt, Middx. UB5 4NP
		Perivale Connect, Western Avenue, Perivale, Greenford, Middx. UB6 8TY
		Yeading Connect, 529 Yeading Lane, Northolt, Middx. UB5 6LW
		Western Avenue Connect, 610-612 Western Avenue, Acton, London W3 0TE
Dyn-Metal Ltd	Melting and casting of non-ferrous metals	25-29 Chase Road, Park Royal, London NW10 6TA



Operator	Process/Installation	Process/Installation address
Esso Petroleum Co. Ltd	Unloading of petrol into storage at a filling station	North Acton Service Station, Victoria Road, London W3 6UP
		Studley Grange Service Station, 167 Boston Road, Hanwell, London W7 3QT
Bilton Automotive Services Ltd T/A Prestige Coachworks	Respraying of road vehicles	9 Aintree Road, Perivale, Greenford, Middx. UB6 7LA
Hanson Quarry Products Europe Limited	Concrete batching plant	Acton Plant, EWS Goods Yard, Horn Lane, London W3 0EP
Hennelly Waste Management Limited	Mobile crushing plant: 3 permits issued, mobile screening plant: 3 permits issued	10 Park Avenue, Southall, Middx. UB1 3AQ <i>(principal place of business)</i>
Ivo Textiles Ltd	Textile printing process	3 Trident Way. Southall. Middx. UB2 5LF
J. & J. Transport Ltd	Mobile crushing plant	Unit 14, Rockware Avenue, Greenford, Middx. UB6 0AA <i>(principal place of business)</i>
	Mobile screening plant <i>(application pending)</i>	
	Mobile concrete batching plant	
McArdle Coachworks Ltd	Respraying of road vehicles	25 Park Royal Road. Park Royal, London NW10 7JH
Metalion Ltd	Powder coating of metal components	North Acton Road, Park Royal, London NW10 6PD
Metropolitan Police Transport Services Division	Respraying of road vehicles	Main Repair Depot, Rowdell Road, Northolt, Middx. UB5 5QP
Monorep Limited	Respraying of road vehicles	Poplar Avenue, Southall, Middx. UB2 4PN





Operator	Process/Installation	Process/Installation address
Murco Petroleum Ltd	Unloading of petrol into storage at a filling station	Murco Service Station, South Parade, Chiswick, London W4 5LG
Mr D. Nicoll T/A Burlington Motors	Waste oil burner (<0.4 MW)	52 Birkbeck Road, Acton, London W3 6BQ
Mr D. Sayers T/A R. Sayers & Son	Respraying of road vehicles	45A St. Mary's Road, London W5 2RG
Mr J. Hindocha	Unloading of petrol into storage at a filling station	Greenford Park Service Station, 57 Greenford Road, Greenford, Middlesex UB6 9BA
NEM Petroleum Co Ltd	Unloading of petrol into storage at a filling station	Horn Lane Filling Station, 162-164, Horn Lane, Acton, London W3
Pace Petroleum Ltd	Unloading of petrol into storage at a filling station	Bridge Garage, Uxbridge Road, Southall, Middx. UB1 3DD
Quattro (UK) Ltd	Mobile crushing plant: 5 permits issued; mobile screening plant: 6 permits issued	Regency Street, Victoria Road, London NW10 6NR (principal place of business)
	Mobile concrete batching plant	
R. Downham, L. Ashton & A. Philips T/A as ADP Coachcraft	Respraying of road vehicles	42 Bideford Avenue, Perivale, Greenford, Middx. UB6 7PP
Renault Retail Group Ltd	Respraying of road vehicles	Western Avenue, London W3 0RZ
ROC UK Ltd	Unloading of petrol into storage at a filling station	Mead Service Station, Ruislip Road, Greenford, Middx. UB6 9RP
Shell U.K. Oil Products Ltd	Unloading of petrol into storage at a filling station	Shell Ealing, 29-31 Hanger Lane, Ealing, London W5 3HJ

Operator	Process/Installation	Process/Installation address
		Shell Hanwell, 6 Church Road, Hanwell, London W7 1DR
		Shell Park Royal, Kendal Avenue, Acton, London W3 0BX
		Shell Roundabout, 709 Greenford Road, Greenford, Middx. UB6 9UA
Solus (London) Ltd	Respraying of road vehicles	1-9 Chase Road, Park Royal, London NW10 6LX
Somerfield Stores Ltd	Unloading of petrol into storage at a filling station	Somerfield Stores Oldfield Filling Station, 1091 Greenford Road, Greenford, Middx. UB6
Suri Motors Ltd	Waste oil burner (<0.4 MW) <i>(application pending)</i>	50A Overdale Road, Ealing, London W5 4TT
Tarmac Central Ltd T/A Buxton Lime Industries	Bulk cement depot	Channel Gate Road, Willesden, London NW10 6TY
Tarmac Ltd	Concrete batching plant	67 Park Royal Road, London NW10 7JR
Tesco Stores Ltd	Unloading of petrol into storage at a filling station	Old Hoover Building, Western Avenue, Perivale, Greenford, Middx. UB6 8DW
		355-363 Uxbridge Road, Ealing, London W5 9RH
Texaco Ltd	Unloading of petrol into storage at a filling station	Star Northolt, Target Roundabout, Western Avenue, Northolt, Middx UB5 2LQ
The Bodyshop (West London) Limited	Respraying of road vehicles	13 Wadsworth Road, Perivale, Greenford, Middx. UB6 7JD
Total UK Ltd	Unloading of petrol into storage at a filling station	30 The Vale, Acton, London W3 7RS
		213-217 The Vale, Acton, London W3 7QS

Operator	Process/Installation	Process/Installation address
Triangle Ealing Ltd	Unloading of petrol into storage at a filling station	35 South Ealing Road, Ealing, London W5 4QT
Triangle Estate and Petroleum (Southall) Ltd	Unloading of petrol into storage at a filling station	Merrick Road, Southall, Middx. UB2 4AH
Veetec Repairs Ltd	Respraying of road vehicles	Western Avenue Business Park, 9 Mansfield Road, Acton, London W3 0BZ
W. Hanson (Iron Bridge) Ltd	Manufacture of timber and wood-based products	Uxbridge Road, Southall, Middx. UB1 3EQ
Yeoman Aggregates Ltd	Mobile screening plant: 2 processes	Stone Terminal, Horn Lane, Acton, London W3 9EH ( <i>principal place of business</i> )

## GLOSSARY

Abbreviation	Definition
AQMA	Air Quality Management Area
AQS	Air Quality Strategy
DEFRA	Department for Environment, food and Rural Affairs
DETR	Department for Transport and Regions
DMRB	Design Manual for Roads and Bridges
DOE	Department of the Environment
HDV	Heavy Duty Vehicles
LAQM	Local Air Quality Management
LAQN	London Air Quality Network ( <a href="http://www.londonair.org.uk">www.londonair.org.uk</a> )
LAQM.TG(03)	Local Air Quality Management Technical guidance document provided by DEFRA to assist local authorities in completion of the LAQM Review & Assessment process
NAQS	National Air Quality Strategy
NRTF	National Road Traffic Forecast
NO <sub>2</sub>	Nitrogen dioxide
NO <sub>x</sub>	Oxides of nitrogen
PM <sub>10</sub>	Fine particle matter less than 10µm diameter
ppb	Parts per billion
SO <sub>2</sub>	Sulphur dioxide
µg/m <sup>3</sup>	Micrograms per cubic metre
USA	Updating and Screening Assessment