Report

Air Quality Updating and Screening Assessment for Ealing Council

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Jeff Lampert
National Environmental Technology Centre
Building E5
Culham Science Centre
Abingdon
Oxon.
OX14 3ED
Telephone 0870 190 6514
Facsimile 0870 190 6607

	Name	Signature	Date
Authors	J Lampert		
Reviewed by	B Conlan		
Approved by	B Conlan		

Executive Summary

The UK Government published its strategic policy framework for air quality management in 1995 establishing national strategies and policies on air quality which culminated in the Environment Act, 1995. The Air Quality Strategy[1] provides a framework for air quality control through air quality management and air quality standards. These and other air quality standards[a] and their objectives have been enacted through the Air Quality Regulations in 1997, 2000 and 2002[2]. The Environment Act 1995 requires Local Authorities to undertake air quality reviews. In areas where an air quality objective is not anticipated to be met, Local Authorities are required to establish Air Quality Management Areas and implement action plans to improve air quality.

The first round of air quality review and assessments has been completed by Ealing Council. The Council are now required to proceed to the second round of review and assessment in which sources of emissions to air are reassessed to identify whether the situation has changed since the first round, and if so, what impact this may have on predicted exceedences of the air quality objectives.

The second round of review and assessment is to be undertaken in two steps. The first step is an Updating and Screening Assessment, which updates the Stage 1 and 2 review and assessment previously undertaken for all pollutants identified in the Air Quality Regulations. Where a significant risk of exceedence is identified for a pollutant it will be necessary for the local authority to proceed to a Detailed Assessment, equivalent to the previous Stage 3 assessments. Where a local authority does not need to undertake a Detailed Assessment, a progress report is required instead.

This report is an Updating and Screening Assessment for Ealing Council as outlined in the Government's published guidance.

Ealing Council has prepared a Stage 3 Review and Assessment report. The main findings of the report were that exceedences of the NAQS objectives are predicted for the following pollutants only:

- Nitrogen dioxide (annual average)
- PM10 (99th Percentile and Daughter Directive)

A Second Stage Review and Assessment prepared by Ealing Council concluded that levels of other pollutants were likely to meet the objectives of the Strategy by the prescribed dates.

Ealing Council declared its whole borough an Air Quality Management Area (AQMA) on 14th December 2000.

[a] Refers to standards recommended by the Expert Panel on Air Quality Standards. Recommended standards are set purely with regard to scientific and medical evidence on the effects of the particular pollutants on health, at levels at which risks to public health, including vulnerable groups, are very small or regarded as negligible.

The general approach taken to this Updating and Screening Assessment was to:

- Identify the conclusions of the last round of review and assessment for each of the seven pollutants included in the air quality regulations;
- Identify significant sources of emissions to air for the seven pollutants included in the air quality regulations, including major roads and industrial plant;
- Identify new sources not previously considered in the first round of review and assessment;
- Identify any sources for which emissions have changed significantly since the last round of review and assessment;
- Identify and interpret the significance of air quality monitoring data made available since the last round of review and assessment;
- Assess the risk of exceedences of the air quality objectives in locations where relative public exposure may exist using screening models and nomograms; and
- Where necessary, identify locations and pollutants for which further detailed assessment of air quality will be required.

This updating and screening assessment has concluded that:

Carbon Monoxide
Carbon monoxide was monitored in Ealing at Acton Town Hall. The maximum running 8-hour mean concentration recorded was 5.7 mg/m^3 which is less than the objective value of 10 mg/m^3. Annual average concentrations near busy roads in Ealing were less than 2 mg/m^3 which indicates that the 8 hour objective of 10 mg/m^3 is unlikely to be exceeded.

Ealing Council is not required to carry out a Detailed Assessment for carbon monoxide.

Benzene
Annual average concentrations near busy roads were less than 2 µg/m^3 which indicates that the annual objective of 5 µg/m^3 is unlikely to be exceeded. There are no petrol stations with a throughput greater than 2 million litres and with relevant exposure within 10m of the pumps. There are no industrial sources of benzene in Ealing.

Ealing Council is not required to carry out a Detailed Assessment for benzene.

1,3-Butadiene
Estimated background concentrations and data from national monitoring stations indicate that the objective for 1,3-butadiene is likely to be achieved by the end of 2003. There are no industrial processes, current or proposed, in Ealing which have the potential to emit 1,3-butadiene.

Ealing Council is not required to carry out a Detailed Assessment for 1,3-butadiene.

Lead
Emissions of lead from industrial processes in Ealing are not likely to exceed the objectives for lead to be achieved in 2004 and 2008.

Ealing Council is not required to carry out a Detailed Assessment for lead.

Nitrogen Dioxide
The DMRB screening model indicates that the 2005 annual mean objective for NO_2 will be exceeded at receptors near busy roads and road junctions in Ealing.

Since these roads have been examined in detail for the Stage 4 Review and Assessment report and the Borough has been declared an AQMA, a Detailed Assessment for NO_2 is not required.

Sulphur Dioxide
There are no significant industrial or domestic sources of sulphur dioxide in Ealing.

Ealing Council is not required to carry out a Detailed Assessment for sulphur dioxide.

PM_{10}

The DMRB screening model indicates that the annual mean objective of 40 $\mu g/m^3$ for PM_{10} will be met in 2004. The 24 hour mean objective of 50 $\mu g/m^3$ is likely be exceeded more than 35 times a year in 2004 at locations near busy Junctions in Ealing.

Since these roads have been examined in detail for the Stage 4 Review and Assessment report a Detailed Assessment for PM_{10} is not required.

Due to complaints received regarding dust in the vicinity of EWS Goods Yard, Horn Lane, it is necessary to proceed to a detailed assessment for PM_{10} at this location.

Contents

Acronyms and definitions used in this report

AADT	Annual Average Daily Traffic Flow
ADMS	an atmospheric dispersion model
AQMA	Air Quality Management Area
AURN	Automatic Urban and Rural Network (defra funded network)
CO	Carbon monoxide
DETR	Department of the Environment Transport and the Regions (now defra)
defra	Department of the Environment, Food and Rural Affairs
DMRB	Design Manual for Roads and Bridges
EA	Environment Agency
EPAQS	Expert Panel on Air Quality Standards (UK panel)
EU	European Union
GIS	Geographical Information System
kerbside	0 to 1 m from the kerb
Limit Value	An EU definition for an air quality standard of a pollutant listed in the air quality directives
n	number of pairs of data
NAEI	National Atmospheric Emission Inventory
LAEI	London Atmospheric Emission Inventory
NO_2	Nitrogen dioxide
NO_x	Oxides of nitrogen
ppb	parts per billion
r	the correlation coefficient (between two variables)
receptor	In the context of this study, the relevant location where air quality is assessed or predicted (for example, houses, hospitals and schools)
roadside	1 to 5 m from the kerb
SD	standard deviation (of a range of data)
SO_2	Sulphur dioxide
TEMPRO	A piece of software produced by the defra used to forecast traffic flow increases
TEOM	Tapered Element Oscillating Microbalance
TEOM (Grav.)	TEOM Measurements expressed as the equivalent value from a gravimetric monitor

Structure of the report

The report is structured as follows:

- **Section 1** summarises the conclusions of air quality review and assessment work to date, the aims of the updating and screening assessment, the approach adopted for the assessment, as well as relevant background information on the Ealing Council area, and relevant emissions-to-air sources;
- **Section 2** summarises the UK Air Quality Strategy and the function of an updating and screening assessment;
- **Section 3** identifies data used in support of this assessment and highlights significant changes in emissions to air within the Council area since the first round of review and assessment;
- **Sections 4-10** present the review and assessment for each of the seven pollutants included in the Air Quality Regulations;
- **Section 11** presents conclusions and recommendations for further work, where required, for each of the seven pollutants;

1 Introduction to the Updating and Screening Assessment

This section outlines the purpose of this Updating and Screening Assessment for Ealing Council, and the scope of the assessment.

1.1 PURPOSE OF THE UPDATING AND SCREENING ASSESSMENT

The first round of air quality review and assessments is now complete and all local authorities should have completed all necessary stages. Where the likelihood of exceedences of air quality objectives has been identified in areas of significant public exposure, an air quality management area should have been declared, followed by a further Stage 4 review and assessment, and the formulation of an action plan to eliminate exceedences. Local authorities are now required to proceed to the second round of review and assessment in which sources of emissions to air are reassessed to identify whether the situation has changed since the first round of review and assessment, and if so, what impact this may have on predicted exceedences of the air quality objectives. Such changes might include significant traffic growth on a major road, which had not been foreseen, construction of a new industrial plant with emissions to air, or significant changes in the emissions of an existing plant.

The second round of review and assessment is to be undertaken in two steps. The first step is an Updating and Screening Assessment, which updates the Stage 1 and 2 review and assessments previously undertaken for all pollutants identified in the Air Quality Regulations. Where a significant risk of exceedence is identified for a pollutant it will be necessary for the local authority to proceed to a Detailed Assessment, equivalent to the previous Stage 3 assessments. Where a local authority does not need to undertake a Detailed Assessment, a progress report is required instead.

1.2 OVERVIEW OF APPROACH TAKEN

The general approach taken to this Updating and Screening Assessment was to:

- Identify the conclusions of the last round of review and assessment for each of the seven pollutants included in the air quality regulations;
- Identify significant sources of emissions to air for the seven pollutants included in the air quality regulations, including major roads and industrial plant;
- Identify new sources not previously considered in the first round of review and assessment;
- Identify any sources for which emissions have changed significantly since the last round of review and assessment;
- Identify and interpret the significance of air quality monitoring data made available since the last round of review and assessment;
- Assess the risk of exceedences of the air quality objectives in locations where relative public exposure may exist using screening models and nomograms; and
- Where necessary, identify locations and pollutants for which further detailed assessment of air quality will be required.

1.3 RELEVANT defra DOCUMENTATION USED

This report takes into account the guidance in LAQM.TG(03)[3], published January 2003.

1.4 POLLUTANTS CONSIDERED IN THIS REPORT

All pollutants included in the Air Quality Regulations[2] for the purposes of Review and Assessment (Table 1.1) have been considered in this report.

Table 1.1 Objectives included in the Air Quality Regulations 2000 and (Amendment) Regulations 2002 for the purpose of Local Air Quality Management

Pollutant	Air Quality Objective		Date to be achieved by
	Concentration	Measured as	
Benzene			
All authorities	16.25 µg/m^3	running annual mean	31.12.2003
Authorities in England and Wales only	5.00 µg/m^3	annual mean	31.12.2010
Authorities in Scotland and Northern Ireland only[a]	3.25 µg/m^3	running annual mean	31.12.2010
1,3-Butadiene	2.25 µg/m^3	running annual mean	31.12.2003
Carbon monoxide			
Authorities in England, Wales and Northern Ireland only[a]	10.0 mg/m^3	maximum daily running 8-hour mean	31.12.2003
Authorities in Scotland only	10.0 mg/m^3	running 8-hour mean	31.12.2003
Lead	0.5 µg/m^3	annual mean	31.12.2004
	0.25 µg/m^3	annual mean	31.12.2008
Nitrogen dioxide[b]	200 µg/m^3 not to be exceeded more than 18 times a year	1 hour mean	31.12.2005
	40 µg/m^3	annual mean	31.12.2005
Particles (PM_{10}) (gravimetric)[c]	50 µg/m^3 not to be exceeded more than 35 times a year	24 hour mean	31.12.2004
All authorities	40 µg/m^3	annual mean	31.12.2004
Authorities in Scotland only[d]	50 µg/m^3 not to be exceeded more than 7 times a year	24 hour mean	31.12.2010
	18 µg/m^3	annual mean	31.12.2010
Sulphur dioxide	350 µg/m^3 not to be exceeded more than 24 times a year	1 hour mean	31.12.2004
	125 µg/m^3 not to be exceeded more than 3 times a year	24 hour mean	31.12.2004
	266 µg/m^3 not to be exceeded more than 35 times a year	15 minute mean	31.12.2005

a. In Northern Ireland none of the objectives are currently in regulation. Air Quality (Northern Ireland) Regulations are scheduled for consultation early in 2003.
b. The objectives for nitrogen dioxide are provisional.
c. Measured using the European gravimetric transfer sampler or equivalent.
d. These 2010 Air Quality Objectives for PM_{10} apply in Scotland only, as set out in the Air Quality (Scotland) Amendment Regulations 2002.

The new national particles objectives for England, Wales and Greater London are not currently included in Regulations for the purpose of LAQM. The Government and the Welsh Assembly Government however intends that the new particles objectives will be included in Regulations as soon as practicable after the review of the EU's first air quality daughter directive, which is due to be completed in 2004. The new particles objectives for England, Wales and Greater London are shown in Table 1.2. Whilst authorities have no obligation to review and assess against them, they may find it helpful to do so, in order to assist with longer-term planning, and the assessment of development proposals in their local areas. Assessment against these proposed objectives is provided in this report.

Table 1.2: Proposed new particles objectives for England, Wales and Greater London (not included in Regulations)

Region	Air Quality Objective		Date to be achieved by
	Concentration	Measured as	
London	50 µg/m^3 not to be exceeded more than 10 times a year	24 hour mean	31.12.2010
London	23 µg/m^3	annual mean	31.12.2010
London	20 µg/m^3	annual mean	31.12.2015[a]
Rest of England and Wales	50 µg/m^3 not to be exceeded more than 7 times a year	24 hour mean	31.12.2010
Rest of England and Wales	20 µg/m^3	annual mean	31.12.2010

a. This objective is provisional, to be achieved only where cost-effective and proportional local action can be identified

2 The UK Air Quality Strategy

The Government prepared the Air Quality Strategy for England, Scotland, Wales and Northern Ireland for consultation in August 1999. It was published in January 2000 (DETR, 2000)[3].

2.1 NATIONAL AIR QUALITY STANDARDS

At the centre of the Air Quality Strategy is the use of national air quality standards to enable air quality to be measured and assessed. These also provide the means by which objectives and timescales for the achievement of objectives can be set. These standards and associated specific objectives to be achieved between 2003 and 2010 are shown in Table 1.1.

2.1.1 Timescales to achieve the objectives for the pollutants in Air Quality Strategy

In most local authorities in the UK, objectives will be met for most of the pollutants within the timescale of the objectives shown in Table 1.1. It is important to note that the objectives for NO_2 remain provisional. The Government has recognised the problems associated with achieving the standard for ozone and this will not therefore be a statutory requirement. Ozone is a secondary pollutant and transboundary in nature and it is recognised that local authorities themselves can exert little influence on concentrations when they are the result of regional primary emission patterns.

2.2 AIR QUALITY REVIEWS – THE APPROACHES AND EXPECTED OUTCOMES

Technical Guidance has been issued in 'Review and Assessment: Technical Guidance' LAQM.TG (03)[3] to enable air quality to be monitored, modelled, reviewed and assessed in an appropriate and consistent fashion. This updating and screening assessment has considered the procedures set out in this technical guidance.

The primary objective of undertaking a review of air quality is to identify any areas that are unlikely to meet national air quality objectives and ensure that air quality is considered in local authority decision making processes. The complexity and detail required in a review depends on the risk of failing to achieve air quality objectives and it has been proposed therefore that reviews should be carried out in two steps. Both steps of review and assessment may be necessary and every authority is expected to undertake at least a first stage review and assessment of air quality in their authority area. The steps are briefly described in the following table, Table 2.1.

Table 2.1 Brief details of steps in the second Round of the Air Quality Review and Assessment process

Level of Assessment	Objective	Approach
Updating and Screening	To identify those matters that have changed since the last review and assessment, which might lead to a risk of an air quality objective being exceeded	Use a checklist to identify significant changes that require further consideration. Where such changes are identified, then apply simple screening tools to decide whether there is sufficient risk of an exceedence of an objective to justify a Detailed Assessment
Detailed Assessment	To provide an accurate assessment of the likelihood of an air quality objective being exceeded at locations with relevant exposure. This should be sufficiently detailed to allow the designation or amendment of any necessary AQMAs	Use quality-assured monitoring and validated modelling methods to determine current and future pollutant concentrations in areas where there is a significant risk of exceeding an air quality objective.
Annual Progress Reports	Local authorities should prepare annual air quality Progress Reports between subsequent rounds of reviews and assessments. The concept is that this will ensure continuity in the LAQM process.	The precise format for the Progress Report has not yet been determined, but will essentially follow the checklist approach that is set out in subsequent chapters of this document. Further details on the Progress Reports will be provided via the Helpdesks by the middle of 2003. It is envisaged that these Progress Reports could be useful for the compilation of annual 'state of the environment' reports that many authorities already prepare.

The deadline for completion of updating and screening assessments was May 2003, and for detailed assessments April 2004. For London Authorities who have declared an AQMA the deadline is the end of 2003.

2.3 LOCATIONS THAT THE REVIEW AND ASSESSMENT MUST CONCENTRATE ON

For the purpose of review and assessment, the authority should focus their work on locations where members of the public are likely to be exposed over the averaging period of the objective. Table 2.2 summarises the locations where the objectives should and should not apply.

Table 2.2 Typical locations where the objectives should and should not apply

Averaging Period	Pollutants	Objectives *should* apply at …	Objectives should *not* generally apply at …
Annual mean	• 1,3 Butadiene • Benzene • Lead • Nitrogen dioxide • Particulate Matter (PM_{10})	• All background locations where members of the public might be regularly exposed.	• Building facades of offices or other places of work where members of the public do not have regular access.
		• Building facades of residential properties, schools, hospitals, libraries etc.	• Gardens of residential properties.
			• Kerbside sites (as opposed to locations at the building facade), or any other location where public exposure is expected to be short term
24 hour mean and 8-hour mean	• Carbon monoxide • Particulate Matter (PM_{10}) • Sulphur dioxide	• All locations where the annual mean objective would apply.	• Kerbside sites (as opposed to locations at the building facade), or any other location where public exposure is expected to be short term.
		• Gardens of residential properties.	

Table 2.2 (contd.) Typical locations where the objectives should and should not apply

Averaging Period	Pollutants	Objectives should apply at …	Objectives should generally not apply at …
1 hour mean	• Nitrogen dioxide • Sulphur dioxide	• All locations where the annual mean and 24 and 8-hour mean objectives apply.	• Kerbside sites where the public would not be expected to have regular access.
		• Kerbside sites (e.g. pavements of busy shopping streets).	
		• Those parts of car parks and railway stations etc. which are not fully enclosed.	
		• Any outdoor locations to which the public might reasonably be expected to have access.	
15 minute mean	• Sulphur dioxide	• All locations where members of the public might reasonably be exposed for a period of 15 minutes or longer.	

It is unnecessary to consider exceedences of the objectives at any location where public exposure over the relevant averaging period would be unrealistic. Locations should also represent non-occupational exposure.

3 Information used to support this assessment

This section lists the key information used in this review and assessment.

3.1 CONCLUSIONS FROM THE FIRST ROUND OF REVIEW AND ASSESSMENT OF AIR QUALITY FOR EALING COUNCIL

Ealing Council has completed the following review and assessments of air quality to date:

- Stage 1
- Stage 2
- Stage 3
- Stage 4

The Third Stage review and assessment indicated that areas of exceedence were predicted to arise in 2005 for the following pollutants:

Nitrogen dioxide
PM_{10}

Ealing Council declared its whole Borough an Air Quality Management Area (AQMA) on 14th December 2000. This was required after a review and assessment of air quality within the Borough predicted that the levels of two pollutants, PM_{10} (fine particles) and nitrogen dioxide were predicted to fail to meet nationally set objectives. Under section 84(2) of the Environment Act 1995, such a declaration required Ealing to undertake a further review and assessment of air quality (recognised as Stage 4) within the AQMA, to refine the outcomes of the earlier review and assessments, and to produce an action plan setting out measures they intend to take to meet these objectives.

3.2 PROPOSED DEVELOPMENTS WHICH MAY AFFECT AIR QUALITY

3.2.1 Industry

There are no significant industrial developments currently planned in Ealing.

3.2.2 Housing and Redevelopment

There are no current or proposed housing or other developments in Ealing which would impact on air quality

3.2.3 Road

A new link road has been constructed joining the A40 Western Avenue and Coronation Road.
A new road is being installed on the A40 Western Avenue Gypsy Corner junction linking Victoria Road and Wales Farm Road.

3.3 MAPS AND DISTANCES OF RECEPTORS FROM ROADS

Ealing Council provided electronic OS LandLine™ which was used in the Geographical Information System (GIS) used in assessment. Individual buildings or groups of buildings (receptors) were identified from the electronic OS Landline maps of the areas. The distances of these receptors from the road, and the widths of the roads, were accurately determined from the maps.

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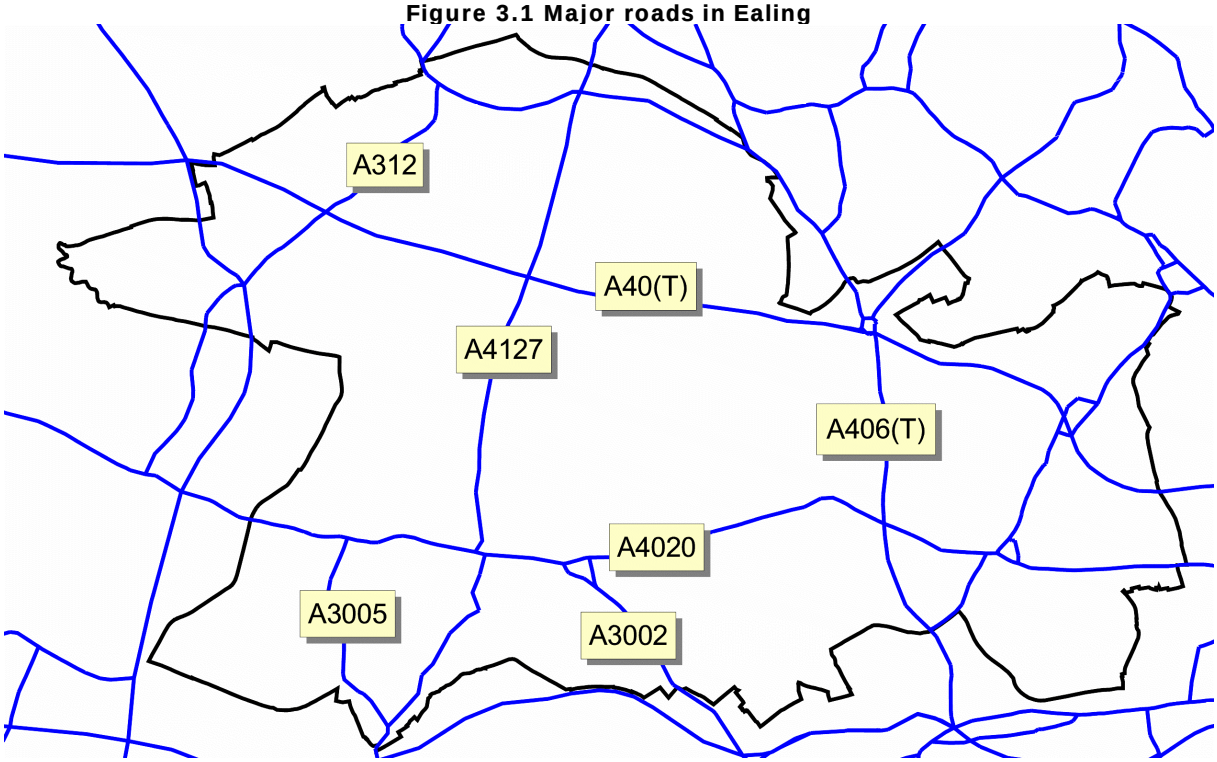
3.4 ROAD TRAFFIC DATA

Road traffic data were collated from :

- data held in the National Atmospheric Emissions Inventory (NAEI, 2000)
- data held in the London Atmospheric Emissions Inventory 2001

Where no average speed data were available, estimated speeds were used near receptors and junctions.

Figure 3.1 Major roads in Ealing



3.4.1 Fraction of HGVs

Percentages of Cars, LGVs, HGVs and buses were available from the count data for supplied in the LAEI 2001 and the NAEI 2000.

3.4.2 Base year for traffic

The base year for the traffic flows was 2000 (NAEI) and 2001 (LAEI).

3.4.3 Traffic growth

Traffic growth figures were estimated from the TEMPRO database and NRTF data using the method described in the Review and Assessment web site:http://www.uwe.ac.uk/aqm/review/answers.html#RND8.

3.4.4 Distance from the centre of the road to the kerbside and to the receptors

Road widths and the distances of receptors from the road were taken from the electronic OS Landline™ of the Council area.

3.5 PART A AND B PROCESSES

There are currently two Part A industrial processes and 46 Part B processes in Ealing (Appendix 2).

3.6 AMBIENT MONITORING

Ealing Council have undertaken monitoring of the following pollutants in their area:

- Nitrogen dioxide
- Sulphur dioxide
- Carbon monoxide
- Particles (PM_{10})
- Ozone

Continuous monitoring is undertaken at three locations in Ealing as part of the London Air Quality Network (Table 3.1, Figure 3.1).

Table 3.1 Automatic Monitoring Stations in Ealing

Site Name	Site Location	Site Type	Pollutants measured
Ealing 1	Ealing Town Hall	Urban Background	NO_2, SO_2, O_3
Ealing 2	Acton Town Hall	Roadside	CO, NO_2, PM_{10}, $PM_{2.5}$
Ealing 6	Hanger Lane	Roadside	NO_2,

Figure 3.1 Automatic Monitoring Stations in Ealing

3.6.1 Diffusion tubes

Ealing Council carries out monitoring of NO_2 by diffusion tubes at 83 locations in Ealing (Figure 3.2). The tubes are supplied and analysed by GradKo Ltd. Monitoring of benzene (toluene and xylene) is also undertaken at three site in Ealing.

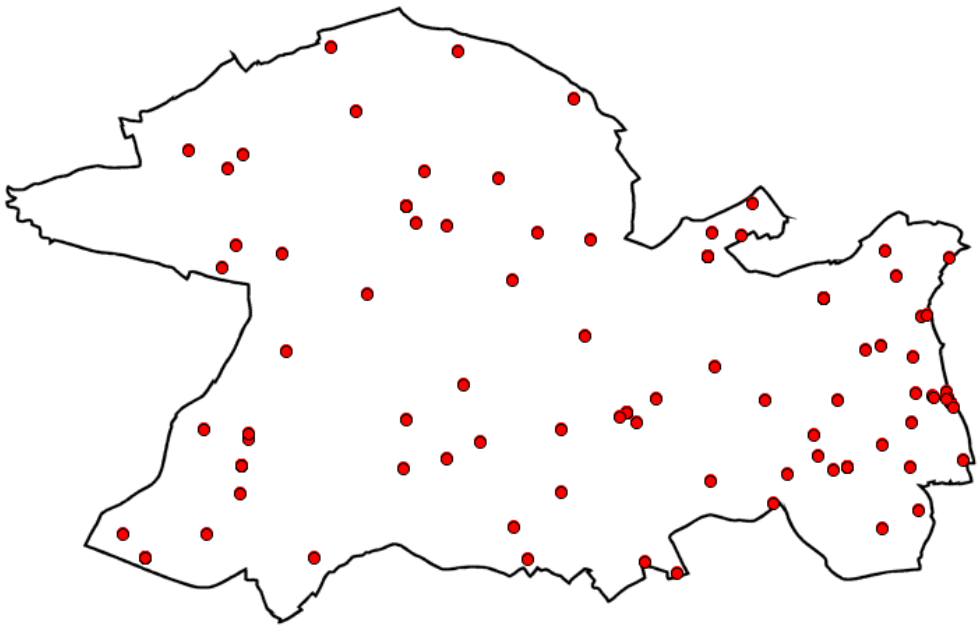


Figure 3.2 Diffusion Tube monitoring sites in Ealing

4 Updating and Screening Assessment for Carbon Monoxide

4.1 THE NATIONAL PERSPECTIVE

The main source of carbon monoxide in the United Kingdom is road transport, which accounted for 67% of total releases in 2000. Annual emissions of carbon monoxide have been falling steadily since the 1970s, and are expected to continue to do so. Current projections indicate that road transport emissions will decline by a further 42% between 2000 and 2005. Existing policies will be sufficient to reduce maximum daily 8-hour mean concentrations of carbon monoxide below 10 mg/m^3 by about 2003.

4.2 STANDARD AND OBJECTIVE FOR CARBON MONOXIDE

The Government and the Devolved Administrations have adopted an 8-hour running mean concentration of 11.6 mg/m^3 as the air quality standard for carbon monoxide. The air quality objective has been set at a slightly tighter level of 10 mg/m^3 as a maximum daily running 8-hour mean concentration, to be achieved by the end of 2003, bringing it into line with the second Air Quality Daughter Directive limit value.

4.3 CONCLUSIONS OF THE FIRST ROUND OF REVIEW AND ASSESSMENT FOR CARBON MONOXIDE

The Stage 3 Review and Assessment concluded that CO concentrations were predicted to exceed the NAQS objective only along sections of the M4 and A4 which are outside of the Ealing Boundary.

4.4 SCREENING ASSESSMENT OF CARBON MONOXIDE

The Technical Guidance LAQM TG(03) requires assessment of carbon monoxide to consider the following sources, data or locations:

- Monitoring Data
- Very Busy Roads

These are described in the following sections.

4.5 BACKGROUND CONCENTRATIONS FOR CARBON MONOXIDE

The average background carbon monoxide concentration estimated from the UK background maps[6] was 0.48 mg/m^3 in Ealing with maximum concentration of 0.54 mg/m^3.

4.6 SCREENING ASSESSMENT OF MONITORING DATA

Carbon monoxide is monitored at the Ealing 2 roadside monitoring station located at Acton Town hall. The maximum 8-hour running mean recorded in 2002 was 5.7 mg/m^3.

4.7 SCREENING ASSESSMENT OF VERY BUSY ROADS

The guidance document LAQM TG(03)[3] requires assessment of CO only at 'very busy roads'. Traffic flow data from the LAEI. Indicate that sections of the A40 Western Avenue can be classed as very busy. There are receptors within 20m of the kerb. CO concentrations for 2003 at the nearest receptors have been estimated using DMRB (Table 4.1). Annual average concentrations were less than 2 mg/m^3 which indicates that the 8 hour objective of 10 mg/m^3 is unlikely to be exceeded.

Table 4.1 Estimated CO Concentration 2003 (LAEI data)

Road	East	North	Distance to Road centre m	AADT 2003	Speed km/h	% HDV	CO mg/m^3
A40 Western Avenue	515827	183024	45.0	136963	71	5.3	0.57
A40 Western Avenue	514679	183276	30.8	135149	74	5.3	0.61

4.8 CONCLUSIONS FOR CARBON MONOXIDE CONCENTRATIONS IN EALING COUNCIL AREA

Carbon monoxide was monitored in Ealing at Acton Town Hall. The maximum running 8-hour mean concentration recorded was 5.7 mg/m^3 which is less than the objective value of 10 mg/m^3. Annual average concentrations near busy roads in Ealing were less than 2 mg/m^3 which indicates that the 8 hour objective of 10 mg/m^3 is unlikely to be exceeded.

Ealing Council is not required to carry out a Detailed Assessment for carbon monoxide.

5 Updating and Screening Assessment for Benzene

5.1 THE NATIONAL PERSPECTIVE

The main sources of benzene emissions in the UK are petrol-engined vehicles, petrol refining, storage and the distribution and uncontrolled emissions from petrol station forecourts without vapour recovery systems. A number of policy measures already in place, or planned for future years, will continue to reduce emissions of benzene. Since January 2000, EU legislation has reduced the maximum benzene content of petrol to 1%, from a previous upper limit of 5%. The European Auto-Oil programme will further reduce emissions for cars and light-duty vehicles, and emissions of benzene from the storage and distribution of petrol are controlled by vapour recovery systems. Forecasts based on national mapping suggest that the policy measures currently in place will achieve the 2003 objective at all urban background and roadside/kerbside locations. Whilst the 2010 objectives are expected to be met at all urban background, and most roadside locations, there is the possibility for some remaining exceedences which will require additional measures at a local level.

5.2 STANDARD AND OBJECTIVE FOR BENZENE

The Government and the Devolved Administrations have adopted a running annual mean concentration of 16.25 µg/m^3 as the air quality standard for benzene, with an objective for the standard to be achieved by the end of 2003. However, in light of the health advice from EPAQS and the Department of Health's Committee on Carcinogenicity of Chemicals in Food, Consumer Products and the Environment (COC) to reduce concentrations of benzene in air to as low a level as possible, additional tighter objectives have also been set. The additional objective is for an annual mean of 5 µg/m^3 to be achieved by the end of 2010 in England and Wales. In Scotland and Northern Ireland, a running annual mean of 3.25 µg/m^3 has been adopted as an additional objective, to be achieved by the end of 2010.

5.3 CONCLUSIONS OF THE FIRST ROUND OF REVIEW AND ASSESSMENT FOR BENZENE

The First Stage Review and Assessment for Ealing concluded that there were no significant industrial or other sources of benzene in the Borough or surrounding locations and that the objective for benzene will not be exceeded in Ealing.

5.4 SCREENING ASSESSMENT OF BENZENE

The Technical Guidance LAQM TG(03)[3] requires assessment of benzene to consider the following sources, data or locations:

- Monitoring Data
- Very Busy Roads or Junctions in Built-up Areas
- Industrial Sources
- Petrol Stations
- Major Fuel Storage Depots (Petroleum only)

These are described in the following sections.

5.5 BACKGROUND CONCENTRATIONS FOR BENZENE

The average background benzene concentration in Ealing, estimated from the UK background maps[6] for 2001 was 1.0 μg/m^3, with maximum concentration of 1.2 μg/m^3.

5.6 SCREENING ASSESSMENT OF MONITORING DATA

Benzene monitoring is undertaken in Ealing using diffusion tubes. Annual mean concentrations are shown in Table 5.1. Full data sets are given in Appendix 1 Table A1.2.

Table 5.1 Benzene measurements made in Ealing 1998-2003

	1998	1999	2000	2001	2002	2003*	2010
Bond Street	7.8	4.7	2.9	4.6			
Hanger Lane Gyratory	11.3	5.6	4.3	3.8	2.9	2.8	1.8
Church Road	13.0	5.7	2.6	5.3	2.2	2.1	1.8
Jublilee Gardens	3.9	2.3	1.4	1.8			
Brent Lodge Park	3.3	2.0	1.5	3.3			
Acton Town Hall	8.0	3.8	2.6	3.5	2.2	2.1	1.6

According to LAQM TG(03) the annual mean benzene concentration can be considered equivalent to the running annual mean. Concentrations for 2003 and 2010 have been estimated using the factors in LAQM TG (03).The estimated running annual means for 2003 are well below the objective value of 16.25 μg/m^3, and the estimated annual mean for 2010 is below the objective value of 5 μg/m^3.

5.7 SCREENING ASSESSMENT OF VERY BUSY ROADS

The guidance document LAQM TG(03)[3] requires assessment of benzene only at 'very busy roads'. Traffic flow data from the LAEI. Indicate that sections of the A40 Western Avenue can be classed as very busy. There are receptors within 20m of the kerb. Benzene concentrations for 2003 at the nearest receptors have been estimated using DMRB (Table 5.2). Annual average concentrations were less than 2 μg/m^3 which indicates that the annual objective of 5 μg/m^3 is unlikely to be exceeded.

Table 5.2 Estimated Benzene Concentration 2003 (LAEI data)

Road	East	North	Distance to Road centre m	AADT 2003	Speed km/h	% HDV	Benzene μg/m^3
A40 Western Avenue	515827	183024	45.0	136963	71	5.3	1.1
A40 Western Avenue	514679	183276	30.8	135149	74	5.3	1.2

5.8 SCREENING ASSESSMENT OF INDUSTRIAL SOURCES

According to information in the LAEI none of the Authorised processes in Ealing emit benzene.

There are no new industrial sources or existing industrial sources with significantly increased emissions since the last review.

5.9 SCREENING ASSESSMENT OF PETROL STATIONS

There are 29 petrol stations Authorised as Part B Processes for the unloading of petrol in Ealing, with throughput of more than 1,000 m^3 of petrol per annum. None of the stations have a throughput of more than 2 million litres per year.

5.10 SCREENING ASSESSMENT OF FUEL STORAGE DEPOTS

There are no major fuel storage depots in Ealing.

5.11 CONCLUSIONS FOR BENZENE CONCENTRATIONS IN EALING COUNCIL AREA

Annual average concentrations near busy roads were less than 2 $\mu g/m^3$ which indicates that the annual objective of 5 $\mu g/m^3$ is unlikely to be exceeded.

There are no petrol stations with a throughput greater than 2 million litres and with relevant exposure within 10m of the pumps. There are no industrial sources of benzene in Ealing.

Ealing Council is not required to carry out a Detailed Assessment for benzene.

6 Updating and Screening Assessment for 1,3-Butadiene

6.1 THE NATIONAL PERSPECTIVE

The main source of 1,3-butadiene in the United Kingdom is emissions from motor vehicle exhausts. 1,3-butadiene is also an important industrial chemical and is handled in bulk at a small number of industrial premises. Maximum running annual mean concentrations of 1,3-butadiene measured at all urban background/centre and roadside locations in the national network are already well below the 2003 objective of 2.25 µg/m^3. The increasing numbers of vehicles equipped with three way catalysts will significantly reduce emissions of 1,3-butadiene in future years. Recently agreed further reductions in vehicle emissions and improvements to fuel quality are expected to further reduce emissions of 1,3-butadiene from vehicle exhausts. These measures are expected to deliver the air quality objective by the end of 2003.

6.2 STANDARD AND OBJECTIVE FOR 1,3-BUTADIENE

The Government and the Devolved Administrations have adopted a maximum running annual mean concentration of 2.25 µg/m^3 as an air quality standard for 1,3-butadiene. The objective is for the standard to be achieved by the end of 2003.

6.3 CONCLUSIONS OF THE FIRST ROUND OF REVIEW AND ASSESSMENT FOR 1,3-BUTADIENE

The First Stage Review and Assessment for Ealing concluded that there were no significant industrial or other sources of 1,3-butadiene in the Borough or surrounding locations and that the objective for the objective for 1,3-butadiene will not be exceeded in Ealing.

6.4 SCREENING ASSESSMENT OF 1,3-BUTADIENE

The Technical Guidance LAQM TG(03) requires assessment of 1,3-butadiene to consider the following sources, data or locations:

- Monitoring Data
- New Industrial Sources
- Existing Industrial Sources with Significantly Increased Emissions

These are described in the following sections.

6.5 BACKGROUND CONCENTRATIONS FOR 1,3-BUTADIENE

The average background 1,3-butadiene concentration in 2001 estimated from the UK background maps[6] was 0.4 µg/m^3 in Ealing with maximum concentration of 0.5 µg/m^3 .

6.6 SCREENING ASSESSMENT OF MONITORING DATA

No monitoring of 1,3-butadiene has been undertaken in Ealing. There is a roadside monitoring station at London Marylebone Road. The concentrations measured at this station have decreased consistently since 1998 and current annual means are below the 2003 running annual mean objective value for England and Wales of 2.25 µg/m^3 (Table 6.1).

Table 6.1 1,3-butadiene measurements made at London Marylebone Rd

Year	1,3-bd µg/m^3
1998	2.4
1999	1.9
2000	1.6
2001	1.1
2002	0.9

6.7 SCREENING ASSESSMENT OF INDUSTRIAL SOURCES

According to information in the LAEI none of the Authorised processes in Ealing emit 1,3-butadiene.

There are no new industrial sources or existing industrial sources with significantly increased emissions since the last review.

6.8 CONCLUSIONS FOR 1,3-BUTADIENE CONCENTRATIONS IN EALING COUNCIL AREA

Estimated background concentrations and data from national monitoring stations indicate that the objective for 1,3-butadiene is likely to be achieved by the end of 2003. There are no industrial processes, current or proposed, in Ealing which have the potential to emit 1,3-butadiene.

Ealing Council is not required to carry out a Detailed Assessment for 1,3-butadiene.

7 Updating and Screening Assessment for Lead

7.1 THE NATIONAL PERSPECTIVE

The agreement reached between the European Parliament and the Environment Council on the Directive on the Quality of Petrol and Diesel Fuels (part of the Auto-Oil Programme) has led to the ban on sales of leaded petrol in the United Kingdom with effect from 1 January 2000. Emissions of lead are now restricted to a variety of industrial activities, such as battery manufacture, pigments in paints and glazes, alloys, radiation shielding, tank lining and piping.

Detailed assessments of the potential impact of lead emissions from industrial processes have been undertaken by the Government and the Devolved Administrations, based upon both monitoring and sector analysis studies. The former has included a 12-month monitoring survey in the vicinity of 30 key industrial sites in the UK, which has been used to supplement information already provided from the non-automatic monitoring networks. These monitoring data have generally indicated no exceedances of the 2004 or 2008 objectives, although locations in proximity to non-ferrous metal production and foundry processes were deemed to be at risk.

7.2 STANDARD AND OBJECTIVE FOR LEAD

The Government and the Devolved Administrations have adopted an annual mean concentration of 0.5 µg/m^3 as the air quality standard for lead, with an objective for the standard to be achieved by the end of 2004. In addition, a lower air quality objective of 0.25 µg/m^3 to be achieved by the end of 2008 has also been set.

7.3 CONCLUSIONS OF THE FIRST ROUND OF REVIEW AND ASSESSMENT FOR LEAD

The Stage 3 Review and Assessment for Ealing concluded that there were no significant industrial or other sources of lead in the Borough or surrounding locations, and that the objective for the objective for lead will not be exceeded in Ealing.

7.4 SCREENING ASSESSMENT OF LEAD

The Technical Guidance LAQM TG(03) requires assessment of lead to consider the following sources, data or locations:

- Monitoring Data outside an AQMA
- New Industrial Sources
- Existing Industrial Sources with Significantly Increased Emissions

These are described in the following sections.

7.5 SCREENING ASSESSMENT OF MONITORING DATA

No monitoring of lead has been undertaken in Ealing.

7.6 SCREENING ASSESSMENT OF INDUSTRIAL SOURCES

The 2 Part A1 installations (Geo W Neale and INCO Europe) emit lead, as does the Part B process Dyn-Metal Ltd. These were considered in the Stage 3 report and emissions of lead were shown not to cause any exceedences of the objectives.

There are no new industrial sources or existing industrial sources with significantly increased emissions since the last review.

7.7 CONCLUSIONS FOR LEAD CONCENTRATIONS IN EALING COUNCIL AREA

Emissions of lead from industrial processes in Ealing are not likely to exceed the objectives for lead to be achieved in 2004 and 2008.

Ealing Council is not required to carry out a Detailed Assessment for lead.

8 Updating and Screening Assessment for Nitrogen Dioxide

8.1 THE NATIONAL PERSPECTIVE

The principal source of NOx emissions is road transport, which accounted for about 49% of total UK emissions in 2000. Major roads carrying large volumes of high-speed traffic (such as motorways and other primary routes) are a predominant source, as are conurbations and city centres with congested traffic. Within most urban areas, the contribution of road transport to local emissions will be much greater than for the national picture.

Meeting the annual mean objective in 2005, and the limit value in 2010, is expected to be considerably more demanding than achieving the 1-hour objective. National studies have indicated that the annual mean objective is likely to be achieved at all urban background locations outside of London by 2005, but that the objective may be exceeded more widely at roadside sites throughout the UK in close proximity to busy road links. Projections for 2010 indicate that the EU limit value may still be exceeded at urban background sites in London, and at roadside locations in other cities.

8.2 STANDARDS AND OBJECTIVES FOR NITROGEN DIOXIDE

The Government and the Devolved Administrations have adopted two Air Quality Objectives for nitrogen dioxide, as an annual mean concentration of 40 µg/m^3, and a 1-hour mean concentration of 200 µg/m^3 not to be exceeded more than 18 times per year. The objectives are to be achieved by the end of 2005.

8.3 CONCLUSIONS OF THE FIRST ROUND OF REVIEW AND ASSESSMENT FOR NITROGEN DIOXIDE

The Stage 3 Review and Assessment report concluded that the annual average NO_2 objective is predicted to be difficult to meet along major roads, but will be met at background locations. In LB Ealing the predictions are that the objective is exceeded along the main traffic routes in the borough. These are the A40 Western Avenue, A406 North Circular Road, A4020 Uxbridge Road, the A4000 Gunnersbury Lane/Horn Lane and the M4 Motorway (which lies just outside the borough). Through an analysis of the December 1991 winter episode it has been shown that at roadside and background sites in central London, the highest hourly concentration of NO_2 is not predicted to exceed the NAQS objective in 2005.

8.4 SCREENING ASSESSMENT OF NITROGEN DIOXIDE

The Technical Guidance LAQM TG(03)[3] requires assessment of nitrogen dioxide to consider the following sources, data or locations:

- Monitoring data outside an AQMA
- Monitoring data within an AQMA
- Narrow congested streets with residential properties close to the kerb
- Junctions
- Busy streets where people may spend 1-hour or more close to traffic
- Roads with high flow of buses and/or HGVs
- New roads constructed or proposed since first round of review and assessment
- Roads close to the objective during the first round of review and assessment
- Roads with significantly changed traffic flows
- Bus Stations

- New industrial sources
- Industrial sources with substantially increased emissions
- Aircraft

These are evaluated in the following sections.

8.5 BACKGROUND CONCENTRATIONS FOR NITROGEN DIOXIDE

The estimated average background nitrogen dioxide concentration for 2001 was 22 μg/m^3 in Ealing with a maximum concentration of 42 μg/m^3.

8.6 SCREENING ASSESSMENT OF MONITORING DATA

8.6.1 Monitoring data within/outside AQMAs

The whole Borough of Ealing has been declared as an AQMA

8.6.2 Diffusion tube monitoring

Nitrogen dioxide is currently measured in Ealing at 83 sites operated by Ealing Council (Appendix 1 Table A1.1). Four of these sites are part of the UK National Diffusion Tube Network. The diffusion tubes are supplied and analysed by Gradko International Ltd. The tube preparation method is 20% TEA in water.

8.6.3 Bias correction of diffusion tube data

Triplicate diffusion tubes were exposed next to the automatic monitoring stations located at Ealing Town Hall and Acton Town Hall.

Site	NO_2 Diffusion Tubes 2002	Automatic Monitor 2002	Ratio
Ealing Town Hall	34.6	36.3	1.05
Acton Town Hall	**46.3**	**51.6**	1.11

A bias correction factor of 0.99 obtained from the spreadsheet published by Air Quality Consultants Ltd has been applied to the diffusion tube data

8.6.4 Future Year Estimates

From Guidance LAQM TG(03)[3] the adjustment factors to estimate annual average concentrations in 2005 from 2002 are 0.92 at roadside sites and 0.93 background sites.

Table 8.1 Annual Mean Nitrogen Dioxide Concentrations National Survey Sites μg/m^3

Site Name	Site Location	Type	NO_2 2002	NO_2 2005
EALING 1N	Acton Town Hall	R	**50.4**	**46.4**
EALING 3N	Civic Centre Uxbridge Road	B	33.2	30.9
EALING 4N	Brent Lodge Park	B	29.6	27.5
EALING 5N	Bond Street	R	**49.5**	**45.5**

R=Roadside B=Background

Table 8.2 Annual Mean Nitrogen Dioxide Concentrations Ealing Council Sites μg/m^3

Client ID	Type	Address	NO_2 2002	NO_2 2005
EAL 2	b	101 Wells House Road,	33	31
EAL 5	b	John Perryn First and Middle School, Long Drive, W3	31	29
EAL 13	b	East Acton Primary School, East Acton Lane	33	31
EAL 19	b	Lantry Court, Acton, W3	33	30

Client ID	Type	Address	NO_2 2002	NO_2 2005
EAL 21	b	Acton Health Centre, Church Road, Acton, W3	36	33
EAL 24	b	Peal Gardens	35	32
EAL 27	b	203 Windmill Lane, Greenford	39	37
EAL 30	b	Aspen Lane/Hazeltree Lane, Northolt, UB5	35	33
EAL 33	b	Northolt Primary School, Compton Crescent, UB5	37	34
EAL 37	b	Ealing Hospital, St Bernards Wing, Uxbridge Road	36	34
EAL 38	b	Hobbayne First School, Greenford Avenue, W7	30	28
EAL 44	b	Perivale Wood	28	26
EAL 45	b	INCO, Bashley Road, NW10	36	33
EAL 47	b	Jubilee Gardens Library, Jubilee Gardens, UB1	30	28
EAL 48	b	Brent Lodge, Church Road, W7	26	24
EAL 49	b	Health Centre, Netheravon Road, W7	35	33
EAL 51a	b	Ealing Town Hall, New Broadway, W5	32	30
EAL 51b	b	Ealing Town Hall, New Broadway, W5	36	34
EAL 51c	b	Ealing Town Hall, New Broadway, W5	31	29
EAL 57	b	106/116 St Pauls Close	34	31
EAL 58	b	44 Acton Lane, W4	43	40
EAL 59	b	Clayponds Hospital , Sterling Place	28	26
EAL 61	b	15 Balfour Road, W13	33	31
EAL 64	b	St John Fisher Primary School, Thirlmere Avenue, G	39	36
EAL 67a	b	Oldfield Primary School, Oldfield Lane North, Gree	34	31
EAL 67b	b	Oldfield Primary School, Oldfield Lane North, Gree	37	34
EAL 67c	b	Oldfield Primary School, Oldfield Lane North, Gree	34	32
EAL 71	b	181 Castle Road, Northolt, UB5	38	36
EAL 72	b	2/4 Minterne Avenue	30	28
EAL 74	b	132 Brent Road, Southall, UB2	38	35
EAL 77	b	7 Greenford Avenue, Southall	32	30
EAL 78	b	119 Twyford Avenue, W3	36	34
EAL 84	b	Southfields First and Middle School	34	31
EAL 3	i	Jenner Avenue	53	49
EAL 4	i	5 Leamington Park	43	40
EAL 7	i	45 Park Avenue	40	38
EAL 8	i	6 Brentmead Gardens	35	32
EAL 9	i	Iveagh Avenue	38	35
EAL 10	I	57-75 Old Oak Common Lane (PO)	43	40
EAL 11	I	2 St Andrews Road, W3	50	46
EAL 14	i	First Avenue	41	38
EAL 20	i	Age Concern, Social Centre, High Street, Acton, W	46	43
EAL 22	i	Gunnersbury Unit, Acton Hospital, Gunnersbury Lane	55	51
EAL 26	i	5/6 Blenhelm Close (off Western Avenue)	36	33
EAL 28	i	Greenford High School, Ruislip Road, Greenford, UB	38	35
EAL 29	i	Shadwell Drive, Northolt, UB5	38	35
EAL 32	i	Lilliput Avenue	36	33
EAL 36	i	Hanwell Nursery, 25A Laurel Gardens, W7	35	33
EAL 40a	i	Hambrough Primary and Nursery School, South Road,	41	38
EAL 40b	i	Hambrough Primary and Nursery School, South Road,	37	35
EAL 40c	i	Hambrough Primary and Nursery School, South Road,	43	40
EAL 52	i	Perceval House, 14/16 Uxbridge Road, W5	33	31

Client ID	Type	Address	NO_2 2002	NO_2 2005
EAL 54	i	South Ealing Cemetery	27	25
EAL 63	i	St David's Home, 12 Castlebar Hill, W5	31	29
EAL 66	i	57 Woodville Gardens, W5	40	37
EAL 68	i	Gainsboro Gardens, UB6	37	34
EAL 69	i	81 Witten Avenue East, Greenford, UB6	33	31
EAL 73a	i	LP nr Glebe Nursery School, Western Road, Southall jn	43	40
EAL 73b	i	LP nr Glebe Nursery School, Western Road, Southall jn	37	35
EAL 73c	i	LP nr Glebe Nursery School, Western Road, Southall jn	42	39
EAL 75	i	6 Boston Gardens, W7	33	31
EAL 76	i	200 Boston Gardens, W7	44	41
EAL 79	i	Albert Dane Centre, 19-21 Western Road, Southall	36	33
EAL 81	i	54 Western Avenue	43	40
EAL 86	i	27 Wells House Road	36	33
EAL 1	r	39 Old Oak Lane	46	42
EAL 6a	r	Top. Wendover Court, Western Avenue, W3	48	44
EAL 6b	r	2nd Floor	48	44
EAL 6c	r	1st Floor	49	45
EAL 6d	r	Ground Floor	44	40
EAL 12a	r	18 Old Oak Common Lane, W3	58	53
EAL 12b	r	18 Old Oak Common Lane, W3	56	52
EAL 12c	r	18 Old Oak Common Lane, W3	59	54
EAL 15	r	177 The Vale, W3	48	44
EAL 17	r	Maples Nursery, East Churchfield Road, W3	34	31
EAL 23	r	156 Horn Lane, W3	40	37
EAL 25	r	17 Runnymede Gardens	63	58
EAL 34	r	8 The Broadway, Ealing, W5	62	57
EAL 35	r	Acton Town Medical Centre, 122 Gunnersbury Lane.	34	31
EAL 39	r	McDonalds Drive thru, Uxbridge Road, Southall	38	35
EAL 41	r	4 Merrick Road, Southall, UB2	37	34
EAL 46	r	143 Church Road, Northolt, UB5	54	50
EAL 50	r	11 Uxbridge Road, Southall, UB1	50	46
EAL 53	r	14/16 Bond Street, Ealing, W5	44	41
EAL 55a	r	Acton Town Hall, High Street, Acton, W3	47	43
EAL 55b	r	Acton Town Hall, High Street, Acton, W3	45	41
EAL 55c	r	Acton Town Hall, High Street, Acton, W3	36	33
EAL 56	r	Fernlea House, Hanger Lane	62	57
EAL 60	r	53 Old Oak Common Lane	47	44
EAL 62	r	Kirn Road/Drayton Green Road, W13	43	40
EAL 65	r	2 Horsenden Lane South, Greenford, UB6	45	42
EAL 70	r	126 Petts Hill, Northolt,	34	31
EAL 80	r	6 Western Avenue	59	54
EAL 82	r	98 Western Avenue,	39	36
EAL 83	r	171 Old Oak Road	39	36
EAL 85a	r	Fernlea House, Hanger Lane	55	50
EAL 85b	r	Fernlea House, Hanger Lane	57	52
EAL 85c	r	Fernlea House, Hanger Lane	57	52
EAL 87	r	94 North Acton Road	36	33

R=Roadside
I=intermediate
B=Background

Annual average concentrations measured at the majority of roadside sites in Ealing in 2002 were above the 40 µg/m^3 annual average objective value and predicted to still be above 40 µg/m^3 by 2005.

8.6.5 Automatic Monitoring

Monitoring for nitrogen dioxide is undertaken using automatic monitoring station at three locations in Ealing. Annual Mean NO_2 concentrations from the automatic monitoring stations at Ealing Town Hall and Acton Town Hall in 2002 are shown in Table 8.3.

Table 8.3 Annual Mean Nitrogen Dioxide Concentrations µg/m^3

Site Name	Site Location	Type	NO_2 2002	NO_2 2005
EALING 1	Ealing Town hall	B	36.8	33.9
EALING 2	Acton Town Hall	R	**51.7**	**47.5**

R=Roadside B=Background

Annual average concentrations measured at the roadside sites in Ealing in 2002 were above the 40 µg/m^3 annual average objective value and predicted still to be above 40 µg/m^3 by 2005. There were no hourly average NO_2 concentrations above 200 µg/m^3 measured in Ealing during 2002.

8.7 SCREENING ASSESSMENT OF ROAD TRAFFIC SOURCES

NO_2 concentrations from road traffic were estimated using the DMRB model (Table 8.4). Traffic flow data were from the LAEI 2001. Background values were taken from the background data sets on the UK Air Quality Information Web site. An average value for the District and relevant year was used.

Table 8.4 Estimated nitrogen dioxide concentrations near A roads in Ealing (LAEI Data)

Road	East	North	Distance to Road centre m	AADT 2005	Speed km/h	% HDV	NO_2 µg/m^3
A40 Western Avenue	512525	183953	30	104172	96	5.1	42.4
A40 Western Avenue	515750	182980	30	140006	72	4.7	41.6
A406 North Circular Rd	518554	182857	16.8	105235	48	6.3	43.4
A406 Hanger Lane	518550	182396	22	43924	20	5.6	41.7
A4020 Uxbridge Road	513832	180314	18.3	52319	27	4.8	42.5
A3005 South Road	512617	179800	8	29492	22	5.4	44.0
A312 Church Road	511824	183253	16.4	55968	43	5.3	41.7
B452 Ruislip Road	516269	182200	18.5	23029	16	4.5	41.1
B455 Ruislip Road*	514261	182302	18	7486.4	18	14.7	44.3
A4020 Uxbridge Road*	512700	180417	11	34799	30	3.5	51.1
A4020 Uxbridge Road*	516328	180350	9.5	26700	22	6.6	53.3
A4020 Uxbridge Road*	517800	180764	10.2	26700	22	6.6	52.9
A4020 Uxbridge Road*	520409	180070	10.2	24392	25	6.2	51.1
A4127 Greenford Road	514853	183382	18.1	32171	25	2.8	42.2
A3002 Boston Road	516306	178865	12.5	20692	30	5.5	39.4
A4000 Gunnersbury Lane	519623	180000	8.1	18431	18	5.5	41.8
A4005 Hanger Lane	518351	182920	19.6	29547	27	3.5	40.1
A4180 West End Road	511510	183303	12	26818	30	6.8	41.3
M4	515682	178792	38	107645	82	4.5	39.7

Background values used were NOX 64.8µg/m^3 NO2 34.1µg/m^3

*These streets were identified as street canyons and the road traffic component of the concentrations calculated in DMRB was multiplied by 2.

This DMRB screening model run indicates that the 2005 annual mean objective for NO_2 is likely to be exceeded at receptors close to A roads in Ealing.

8.7.1 Roads with high flow of buses and/or HGVs

The roads in Ealing where the flow of HDVs is greater than 2500 vehicles per day are the A406 North Circular Road and the A40 Western Avenue. These have been assessed in Table 8.3

8.7.2 Narrow congested streets with residential properties close to the kerb

All relevant streets have been assessed using DMRB (Table 8.3).

8.7.3 Busy Junctions

Annual average NO_2 concentrations near busy road junctions in Ealing have been estimated for 2005 using DMRB (Table 8.5).

Table 8.5 Estimated nitrogen dioxide concentrations near busy junctions in Ealing

Junction	East	North	Receptor Distance m	AADT 2005	Average Speed kph	% HDV	NO_2 µg/m^3
Whitton Avenue	515363	185228	18.1	18002	40.3	2.7	42.7
Boston Road			16	29656	30.0	3.2	
Greenford Road	514395	182263	11.6	23665	25.0	5.2	45.4
Ruislip Road			22.8	7486	18.7	14.7	
Uxbridge	514360	180175	32	41721	24.0	4.1	42.5
Tentelowe Lane			20.5	34462	36.0	1.7	
Ruislip Road	516134	182394	22	5448	27.3	13.3	42.2
Argyle Road			23.8	23029	16.3	4.5	
South Road	512836	180375	11.4	29492	21.7	5.4	50.0
Uxbridge Road			9.5	52319	27.7	4.8	
South Ealing Road	517710	179082	11.8	20177	21.3	2.1	42.1
St Mary's Road			7.1	11722	23.7	2.2	
Uxbridge	517916	180832	10.8	26700	21.7	6.6	48.8
The Broadway			8.1	10743	10.0	3.7	
Uxbridge	519737	180215	11.4	27863	29.3	4.4	47.0
Gunnersbury Lane			12.2	18431	18.3	5.5	
Western Avenue	520594	181712	19.6	93797	37.0	5.3	48.9
Victoria Road			19.4	22812	17.3	7.2	
Western Avenue	518505	182553	27	140006	30.0	5.5	48.9
Hanger Lane			27.2	43924	19.7	5.6	
Western Avenue	512515	183918	19.5	104172	95.7	5.1	47.2
Church Road			40	55968	43.7	5.3	

The DMRB screening model indicates that the annual mean objective of 40 µg/m^3 for NO_2 will be exceeded in 2005 close to busy road junctions in Ealing.

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

All relevant streets have been assessed using DMRB (Table 8.4). All streets with traffic flows above 10000 vehicles per day were also assessed during the first round of review and assessment.

8.7.5 New roads constructed or proposed since first round of review and assessment

A new link road has been constructed joining the A40 Western Avenue and Coronation Road (in LB Brent). Traffic data is not currently available for this road. However, from observation, traffic flow is relatively light. The road provides access, over railway lines, to Park Royal and the Guinness development in LB Brent, offering an alternative route over the existing access via the Hanger Lane Gyratory and Gypsy Corner on the A40. There are no critical receptors within 250 metres either side of the new road.

The A40 Western Avenue Gypsy Corner junction, that includes Victoria Road and Wales Farm Road, is in the process of being re-engineered in terms of road layout. It is anticipated that these works will not lead to a significant change in traffic flow at this junction, but rather, improve the flow of the existing traffic through it.

8.7.6 Roads with significantly changed traffic flows

There are no roads in Ealing with significantly increased traffic flows since the last Review and Assessment.

8.8 SCREENING ASSESSMENT OF INDUSTRIAL SOURCES

According to information in the LAEI the only Part A Authorised process in Ealing to emit NOx is process AS7248 Geo W Neale Ltd with emissions of 0.47 tonnes/year NO_X. The nomograms in LAQM TG(03) indicate that this source does not require further assessment. .

There are no new industrial sources or existing industrial sources with significantly increased emissions since the last review.

8.9 SCREENING ASSESSMENT OF OTHER TRANSPORT SOURCES

8.9.1 Bus Stations

There are no bus stations in Ealing with more than 1000 buses per day.

8.9.2 Airports

Heathrow Airport, which has a passenger throughput of approximately 63 million passengers per annum, lies 2.5 km to the south west of Ealing Borough at the nearest point. There are no receptors in Ealing within 1000m of the airport boundary.

8.10 CONCLUSIONS FOR NITROGEN DIOXIDE CONCENTRATIONS IN EALING COUNCIL AREA

The DMRB screening model indicates that the 2005 annual mean objective for NO_2 will be exceeded at receptors near busy roads and road junctions in Ealing.

Since these roads have been examined in detail for the Stage 4 Review and Assessment report a Detailed Assessment for NO_2 is not required.

9 Updating and Screening Assessment for Sulphur Dioxide

9.1 THE NATIONAL PERSPECTIVE

The main source of sulphur dioxide in the United Kingdom is power stations, which accounted for more than 71% of emissions in 2000. There are also significant emissions from other industrial combustion sources. Domestic sources now only account for 4% of emissions, but can be locally much more significant. Road transport currently accounts for less than 1% of emissions.

Local exceedences of the objectives (principally the 15-minute mean objective) may occur in the vicinity of small combustion plant (less than 20 MW) which burn coal or oil, in areas where solid fuels are the predominant form of domestic heating, and in the vicinity of major ports.

9.2 STANDARD AND OBJECTIVE FOR SULPHUR DIOXIDE

The Government and the Devolved Administrations have adopted a 15-minute mean of 266 µg/m^3 as an air quality standard for sulphur dioxide, with an objective for the standard not to be exceeded more than 35 times in a year by the end of 2005.
Additional objectives have also been set which are equivalent to the EU limit values specified in the First Air Quality Daughter Directive. These are for a 1-hour mean objective of 350 µg/m^3, to be exceeded no more than 24 times per year, and a 24-hour objective of 125 µg/m^3, to be exceeded no more than 3 times per year, to be achieved by the end of 2004.

9.3 CONCLUSIONS OF THE FIRST ROUND OF REVIEW AND ASSESSMENT FOR SULPHUR DIOXIDE

The Stage 3 Review and Assessment report concluded that a prediction of the areas of London likely to exceed the 100 ppb limit value in 2005, based on a combination of model predictions and high quality monitoring data did not include the London Borough of Ealing is not included.

9.4 SCREENING ASSESSMENT OF SULPHUR DIOXIDE

The Technical Guidance LAQM TG(03) requires assessment of sulphur dioxide to consider the following sources, data or locations:

- Monitoring data within an AQMA
- New industrial sources
- Industrial sources with substantially increased emissions
- Areas of domestic coal burning
- Small boilers (>5MW (thermal)) burning coal or oil
- Shipping
- Railway Locomotives

These are evaluated in the following sections.

9.5 BACKGROUND CONCENTRATIONS FOR SULPHUR DIOXIDE

The estimated average background sulphur dioxide concentration for 2001 was 4.3 µg/m^3 with maximum concentration of 5.5 µg/m^3 .

9.6 SCREENING ASSESSMENT OF MONITORING DATA

Sulphur dioxide is measured at the Ealing Town Hall automatic monitoring station. The maximum hourly concentration recorded during 2002 was 86.7 $\mu g/m^3$. There were no exceedences of the 15-minute , 1-hour or 24-hour objective concentrations during 2002.

9.7 SCREENING ASSESSMENT OF INDUSTRIAL SOURCES

According to information in the LAEI the only Part A Authorised process in Ealing to emit SO_2 is process AS7248 Geo W Neale Ltd with emissions of 0.02 tonnes/year SO_2. . The nomograms in LAQM TG(03) indicate that this source does not require further assessment. .

There are no new industrial sources or existing industrial sources with significantly increased emissions since the last review.

9.7.1 Small Boilers

According to data in the LAEI there are 7 boiler processes identified for Ealing. The emission of SO_2 from any of these boilers was less than 0.006 tonnes per annum in 2001 and not considered significant.

9.8 DOMESTIC COAL BURNING

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

9.9 SCREENING ASSESSMENT OF OTHER TRANSPORT SOURCES

9.9.1 Railways

According to information supplied by Ealing Council there are no areas where railway engines are run for more than 15 minutes continuously and where members of the public might be exposed.

9.10 CONCLUSIONS FOR SULPHUR DIOXIDE CONCENTRATIONS IN EALING COUNCIL AREA

There are no significant industrial or domestic sources of sulphur dioxide in Ealing.

Ealing Council is not required to carry out a Detailed Assessment for sulphur dioxide.

10 Updating and Screening Assessment for PM_{10}

10.1 THE NATIONAL PERSPECTIVE

National UK emissions of primary PM_{10} have been estimated as totalling 184,000 tonnes in 1997. Of this total, around 25% was derived from road transport sources. It should be noted that, in general, the emissions estimates for PM_{10} are less accurate than those for the other pollutants with prescribed objectives, especially for sources other than road transport.

The Government established the Airborne Particles Expert Group (APEG) to advise on sources of PM_{10} in the UK and current and future ambient concentrations. Their conclusions were published in January 1999 (APEG, 1999). APEG concluded that a significant proportion of the current annual average PM_{10} is due to the secondary formation of particulate sulphates and nitrates, resulting from the oxidation of sulphur and nitrogen oxides. These are regional scale pollutants and the annual concentrations do not vary greatly over a scale of tens of kilometres. There are also natural or semi-natural sources such as wind-blown dust and sea salt particles. The impact of local urban sources is superimposed on this regional background. Such local sources are generally responsible for winter episodes of hourly mean concentrations of PM_{10} above 100 $\mu g/m^3$ associated with poor dispersion. However, it is clear that many of the sources of PM_{10} are outside the control of individual local authorities and the estimation of future concentrations of PM_{10} are in part dependent on predictions of the secondary particle component.

10.2 STANDARD AND OBJECTIVE FOR PM_{10}

The Government and the Devolved Administrations have adopted two Air Quality Objectives for fine particles (PM_{10}), which are equivalent to the EU Stage 1 limit values in the first Air Quality Daughter Directive. The objectives are 40 $\mu g/m^3$ as the annual mean, and 50 $\mu g/m^3$ as the fixed 24-hour mean to be exceeded on no more than 35 days per year, to be achieved by the end of 2004. In addition there are objectives of 50 $\mu g/m^3$ as the fixed 24-hour mean to be exceeded on no more than 7 days per year, and 18 $\mu g/m^3$ as the annual mean to be achieved by the end of 2010 which applies to Scottish Authorities only. There are provisional PM_{10} objectives for England, Wales and Northern Ireland to be achieved by 2010. The Objective for England (outside London) Wales and Northern Ireland is 50 $\mu g/m^3$ as the fixed 24-hour mean to be exceeded on no more than 7 days per year, and 20 $\mu g/m^3$ as the annual mean There is are provisional objectives for Greater London of 23 $\mu g/m^3$ annual mean to be achieved by 31 12 2010 and 20 $\mu g/m^3$ to be achieved by 31.13.2015. The objectives are based upon measurements carried out using the European gravimetric transfer reference sampler or equivalent.

10.3 CONCLUSIONS OF THE FIRST ROUND OF REVIEW AND ASSESSMENT FOR PM_{10}

The stage 3 Review and Assessment concluded that the Daughter Directive is predicted to be difficult to meet along major roads, but will be met at background locations. For the purposes of this document, exceedence at background locations occurs when the concentration over an entire $1km^2$ area is above the objective. Background locations are defined as areas more than 50m from a major road, and some roads exceed beyond 50m i.e. “at background”. In the LB Ealing the model predictions are that the objective will be exceeded along the main traffic routes in the Borough. These include the following major roads, the A40 Western Avenue, A406 North Circular Road, A4020 Uxbridge Road, the A4000 Gunnersbury Lane/Horn Lane and the M4 Motorway (which lies just outside the Borough).

10.4 SCREENING ASSESSMENT OF PM_{10}

The Technical Guidance LAQM TG(03)[3] requires assessment of PM_{10} to consider the following sources, data or locations:

- Monitoring data outside an AQMA
- Monitoring data within an AQMA
- Busy roads and junctions
- Junctions
- Roads with high flow of buses and/or HGVs
- New roads constructed or proposed since first round of review and assessment
- Roads close to the objective during the first round of review and assessment
- Roads with significantly changed traffic flows
- New industrial sources
- Industrial sources with substantially increased emissions
- Areas with domestic solid fuel burning
- Quarries, landfill sites, opencast coal, handling of dusty cargoes at ports etc
- Aircraft

These are evaluated in the following sections.

10.5 BACKGROUND CONCENTRATIONS FOR PM_{10}

The estimated average background PM_{10} concentration for 2001 was 23.5 $\mu g/m^3$ in Ealing with maximum concentration of 27.1 $\mu g/m^3$.

10.6 SCREENING ASSESSMENT OF MONITORING DATA

Monitoring for PM_{10} is undertaken using an automatic monitoring station at Acton Town Hall. Data for 2002 show that annual mean PM_{10}(gravimetric)* concentrations was 29.5 $\mu g/m^3$ and that there were 19 days when the daily average concentration exceeded 50$\mu g/m^3$.

Using the method given in LAQM TG(03) to adjust the monitoring data to 2004 the estimated PM_{10} concentration in 2004 is 27.7 $\mu g/m^3$.

C sec $_{2004}$= 7.72 $\mu g/m^3$
Cprim $_{2004}$=9.43 $\mu g/m^3$
PM_{10} 2004= 7.72+9.43+10.5=27.7 $\mu g/m^3$

Using the relationship in Figure 8.1 of LAQM TG(O3) the number of exceedences of the 24 hour daily average in 2004 will be approximately 19.

It is concluded that the daily average objective for PM_{10} will be achieved and that the annual mean objective will be achieved by 2004.

*TEOM concentration multiplied by 1.3

10.7 SCREENING ASSESSMENT OF ROAD TRAFFIC SOURCES

PM_{10} concentrations from road traffic were estimated using the DMRB model.

Tables 10.2 shows PM_{10} concentrations for 2004 calculated using traffic count data taken from the LAEI. The PM_{10} background value used was the average taken from the LAQM background maps for 2004.

Road	East	North	Distance receptor to road centre m	AADT 2004	Average Speed kph	% HDV	PM_{10} Annual mean 2004 $\mu g/m^3$	No of exceedences of daily mean
A40 Western Avenue	512525	183953	30	108685	96	5.1	26.9	18
A40 Western Avenue	515750	182980	30	137265	72	4.7	26.3	16
A406 North Circular Rd	518554	182857	16.8	100184	48	6.3	27.9	20
A406 Hanger Lane	518550	182396	22	41962	20	5.6	27.8	20
A4020 Uxbridge Road	513832	180314	18.3	46130	27	4.8	28.1	21
A3005 South Road	512617	179800	8	28653	22	5.4	29.5	26
A312 Church Road	511824	183253	16.4	57221	43	5.3	26.9	17
B452 Ruislip Road	516269	182200	18.5	26520	16	4.5	27.3	18
B455 Ruislip Road	514261	182302	18	5293	18	14.7	25.6	14
A4020 Uxbridge Road	512700	180417	11	41964	30	3.5	28.8	23
A4020 Uxbridge Road	516328	180350	9.5	28574	22	6.6	29.2	25
A4020 Uxbridge Road	517800	180764	10.2	28574	22	6.6	29.1	24
A4020 Uxbridge Road	520409	180070	10.2	21633	25	6.2	28.3	22
A4127 Greenford Road	514853	183382	18.1	30652	25	2.8	27.9	20
A3002 Boston Road	516306	178865	12.5	16838	30	5.5	25.8	14
A4000 Gunnersbury Lane	519623	180000	8.1	17549	18	5.5	27.9	20
A4005 Hanger Lane	518351	182920	19.6	27929	27	3.5	26.6	17
A4180 West End Road	511510	183303	12	29624	30	6.8	26.9	18

Table 10.2 Estimated PM_{10} concentrations in 2004 near roads in Ealing

The DMRB screening run indicates that the 2004 annual mean objective for PM_{10} of 40 $\mu g/m^3$ and the 24-hour mean objective of 50 $\mu g/m^3$ (not to be exceeded more than 35 times per year) are not likely to be exceeded at receptors near A roads in Ealing.

10.7.1 Busy Junctions

Annual average PM_{10} concentrations at receptors near busy road junctions in Ealing have been estimated for 2004 using DMRB. Tables 10.3 show the PM_{10} concentrations near busy junctions in Ealing estimated for 2004.

Table 10.3 Estimated PM_{10} concentrations for 2004 near busy junctions in Ealing

Junction	East	North	Receptor Distance m	AADT 2004	Average Speed kph	% HDV	PM_{10} Annual mean 2004 $\mu g/m^3$	No of exceedences of daily mean
Whitton Avenue	515363	185228	18.1	18002	40.3	2.7	28.6	23
Boston Road			16	29656	30.0	3.2		
Greenford Road	514395	182263	11.6	23665	25.0	5.2	30.5	30
Ruislip Road			22.8	7486	18.7	14.7		
Uxbridge	514360	180175	32	41721	24.0	4.1	28.7	23
Tentelowe Lane			20.5	34462	36.0	1.7		
Ruislip Road	516134	182394	22	5448	27.3	13.3	28.2	21
Argyle Road			23.8	23029	16.3	4.5		
South Road	512836	180375	11.4	29492	21.7	5.4	35.1	**50**
Uxbridge Road			9.5	52319	27.7	4.8		
South Ealing Road	517710	179082	11.8	20177	21.3	2.1	28.7	23
St Mary's Road			7.1	11722	23.7	2.2		
Uxbridge	517916	180832	10.8	26700	21.7	6.6	34.4	**46**
The Broadway			8.1	10743	10.0	3.7		
Uxbridge	519737	180215	11.4	27863	29.3	4.4	32.4	**37**
Gunnersbury Lane			12.2	18431	18.3	5.5		
Western Avenue	520594	181712	19.6	93797	37.0	5.3	33.4	**42**
Victoria Road			19.4	22812	17.3	7.2		
Western Avenue	518505	182553	27	14000	30.0	5.5	33.7	**43**
Hanger Lane			27.2	43924	19.7	5.6		
Western Avenue	512515	183918	19.5	10417	95.7	5.1	30.7	30
Church Road			40	55968	43.7	5.3		

Background values used were PM10 22.5 $\mu g/m^3$

The DMRB screening model indicates that the annual mean objective of 50 $\mu g/m^3$ for PM_{10} will be met in 2004. The 24 hour mean objective of 40 $\mu g/m^3$ is likely be exceeded more than 35 times a year close to busy road junctions in Ealing.

The junctions likely to exceed the 24 hour mean objective are:

South Road and Uxbridge Road
South Ealing Road and St Mary's Road
Uxbridge Road and The Broadway
Uxbridge Road and Gunnersbury Lane
Western Avenue and Victoria Road
Western Avenue and Hanger Lane

10.7.2 Roads with high flow of buses and/or HGVs

The roads in Ealing where the flow of HDVs is greater than 2000 vehicles per day are the A406 North Circular Road, the A40 Western Avenue, the A4904 0Uxbridge Road and . These have been assessed in Table 10.2.

10.7.3 New roads constructed or proposed since first round of review and assessment

A new link road has been constructed joining the A40 Western Avenue and Coronation Road.
A new road is being installed on the A40 Western Avenue Gypsy Corner junction linking Victoria Road and Wales Farm Road. Traffic data are not currently available for these roads and therefore their impact should be considered at a future assessment.

10.7.4 Roads with significantly changed traffic flows

There are no roads in Ealing with significantly increased traffic flows since the last Review and Assessment.

10.7.5 Roads Close to the Objective in the First Round

This information was not explicitly stated in the Stage 3 report. All roads were reassessed using the new emission factors during the Further Review and Assessment carried out with the AQMA.

10.8 SCREENING ASSESSMENT OF INDUSTRIAL SOURCES

The 2 Part A1 installations (Geo W Neale and INCO Europe) emit PM_{10}, as does the Part B process Dyn-Metal Ltd. These were considered in the Stage 3 report and concluded not to lead to an exceedence of the objectives.

There are no new industrial sources or existing industrial sources with significantly increased emissions since the last review.

10.9 SCREENING ASSESSMENT OF FUGITIVE AND UNCONTROLLED SOURCES

10.9.1 Quarries and landfill sites

Complaints had been received about dust from the following mobile crushing and screening processes.

These were not assessed in the Stage 3 Review.
Complaints have been received about dust from industrial activities at:

EWS Goods Yard
Horn Lane
Acton
London
W3 9EH

These were not assessed in the Stage 3 Review. It is therefore necessary to proceed to a detailed assessment for PM_{10} at this location.

10.9.2 Domestic solid fuel burning

According to the LAEI and the London Borough of Ealing there are no areas of Ealing where domestic coal burning is a source of PM_{10}.

10.10 SCREENING ASSESSMENT OF OTHER TRANSPORT SOURCES

10.10.1 Airports

Heathrow Airport, which has a passenger throughput of approximately 63 million passengers per annum, lies 2.5 km to the south west of Ealing Borough at the nearest point. There are no receptors in Ealing within 1000m of the airport boundary.

10.11 CONCLUSIONS FOR PM_{10} CONCENTRATIONS IN EALING COUNCIL AREA

The DMRB screening model indicates that the annual mean objective of 40 $\mu g/m^3$ for PM_{10} will be met in 2004. The 24 hour mean objective of 50 $\mu g/m^3$ is likely be exceeded more than 35 times a year in 2004 at locations near busy Junctions in Ealing.

Since these roads have been examined in detail for the Stage 4 Review and Assessment report a Detailed Assessment for PM_{10} is not required.

Due to complaints received regarding dust in the vicinity of EWS Goods Yard, Horn Lane, it is necessary to proceed to a detailed assessment for PM_{10} at this location.

11 Conclusions

11.1 CARBON MONOXIDE

Carbon monoxide was monitored Ealing at Acton Town Hall. The maximum running 8-hour mean concentration recorded was 5.7 mg/m^3 which is less than the objective value of 10 mg/m^3.). Annual average concentrations near very busy roads in Ealing were less than 2 mg/m^3 which indicates that the 8 hour objective of 10 mg/m^3 is unlikely to be exceeded.

Ealing Council is not required to carry out a Detailed Assessment for carbon monoxide.

11.2 BENZENE

Annual average concentrations near very busy roads in Ealing were less than 2 µg/m^3 which indicates that the annual objective of 5 µg/m^3 is unlikely to be exceeded. There are no petrol stations with a throughput greater than 2 million litres and with relevant exposure within 10m of the pumps. There are no industrial sources of benzene in Ealing.

Ealing Council is not required to carry out a Detailed Assessment for benzene.

11.3 1,3-BUTADIENE

Estimated background concentrations and data from national monitoring stations indicate that the objective for 1,3-butadiene is likely to be achieved by the end of 2003. There are no industrial processes, current or proposed, in Ealing which have the potential to emit 1,3-butadiene.

Ealing Council is not required to carry out a Detailed Assessment for 1,3-butadiene.

11.4 LEAD

Emissions of lead from industrial processes in Ealing are not likely to exceed the objectives for lead to be achieved in 2004 and 2008.

Ealing Council is not required to carry out a Detailed Assessment for lead.

11.5 NITROGEN DIOXIDE

The DMRB screening model indicates that the 2005 annual mean objective for NO_2 will be exceeded at receptors near busy roads and road junctions in Ealing.

Since these roads have been examined in detail for the Stage 4 Review and Assessment report a Detailed Assessment for NO_2 is not required.

11.6 SULPHUR DIOXIDE

There are no significant industrial or domestic sources of sulphur dioxide in Ealing.

Ealing Council is not required to carry out a Detailed Assessment for sulphur dioxide.

11.7 PM_{10}

The DMRB screening model indicates that the annual mean objective of 40 $\mu g/m^3$ for PM_{10} will be met in 2004. The 24 hour mean objective of 50 $\mu g/m^3$ is likely be exceeded more than 35 times a year in 2004 at locations near busy Junctions in Ealing.

Since these roads have been examined in detail for the Stage 4 Review and Assessment report a Detailed Assessment for PM_{10} is not required.

Due to complaints received regarding dust in the vicinity of EWS Goods Yard, Horn Lane, it is necessary to proceed to a detailed assessment for PM_{10} at this location.

12 References

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13 Acknowledgements

We are grateful for the help of Richard Ward of the Ealing Council Pollution Control Service in the preparation of this report.

Appendices

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Appendix 1

Monitoring Data

CONTENTS

Table A1.1 Nitrogen dioxide diffusion tube measurements µg/m^3 2002

Client ID	East	North	CLASS	Address	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	MEAN	Bias Corrected Mean
EAL 2	521238	181942	b	101 Wells House Road,	35	26	38	33	30	26	12	36	30	46	46	45	34	33
EAL 5	521139	181436	b	John Perryn First and Middle School, Long Drive, W3		19	38	20	19	30	27	39	39	44	25	49	32	31
EAL 13	521112	180617	b	East Acton Primary School, East Acton Lane	30	22	31	32	23	29	26	42	37	42	42	41	33	33
EAL 19	519879	180459	b	Lantry Court, Acton, W3	36	15	30	36	19	21	22	31	50	40	45	48	33	33
EAL 21	520128	180016	b	Acton Health Centre, Church Road, Acton, W3	36	22	33	46	28	21	16	37	64	40	45	48	36	36
EAL 24	516089	182400	b	Peal Gardens	36	23	33			31	13			44	52	49	35	35
EAL 27	514259	182234	b	203 Windmill Lane, Greenford	44	26	43	34	30	35	42	49	25	52		56	40	39
EAL 30	512427	182567	b	Aspen Lane/Hazeltree Lane, Northolt, UB5	42	15	33			22	27	33		44	52	51	36	35
EAL 33	512009	184039	b	Northolt Primary School, Compton Crescent, UB5	41	18	34			15	35	41	46	41	55	46	37	37
EAL 37	514710	180027	b	Ealing Hospital, St Bernards Wing, Uxbridge Road	51	20	33	21	32	30	11	48	22	53	58	63	37	36
EAL 38	515477	181081	b	Hobbayne First School, Greenford Avenue, W7	36	23	33	24	20	23	13	32	26	44	47	49	31	30
EAL 44	515900	183688	b	Perivale Wood	37	12	17	18	27	23	20	32	27	36	47	44	28	28
EAL 45	520915	182464	b	INCO, Bashley Road, NW10	39	34	27	25	22	26	35	38	29	47	58	52	36	36
EAL 47	513229	181513	b	Jubilee Gardens Library, Jubilee Gardens, UB1	45	22		22			12	29	27	34		48	30	30
EAL 48	514740	180643	b	Brent Lodge, Church Road, W7	29	19	21	39	21	20	9	27	28	31	38	38	27	26
EAL 49	515680	180360	b	Health Centre, Netheravon Road, W7	36	33	39	27	24		11	40	35	47	51	49	35	35
EAL 51a	517534	180737	b	Ealing Town Hall, New Broadway, W5	36	20	24	28	27	29	12	39	34	47	52	44	33	32
EAL 51b	517534	180737	b	Ealing Town Hall, New Broadway, W5	33	29	30	36	27			43	28	50	47	43	37	36
EAL 51c	517534	180737	b	Ealing Town Hall, New Broadway, W5		17	34	37				37					31	31
EAL 57	518577	179865	b	106/116 St Pauls Close	42	20		24	9	17		31	56	42	45	53	34	34
EAL 58	520748	179280	b	44 Acton Lane, W4	41	18	27	32		45	42	58	45	59	53	60	44	43
EAL 59	518153	178709	b	Clayponds Hospital and Day Treatment Centre, Sterling Place	32	20	19	16	18	21	24	30	35	38	42	42	28	28
EAL 61	516703	179728	b	15 Balfour Road, W13	36	20	25	29	22	20	30	32	56	37	42	54	33	33
EAL 64	517072	182912	b	St John Fisher Primary School, Thirlmere Avenue, G	51	26	31	26	17		37	33	57	47	57	52	39	39
EAL 67a	514753	183342	b	Oldfield Primary School, Oldfield Lane North, Gree	50	26	23	27	20	29	21	34		41	52	53	34	34
EAL 67b	514753	183342	b	Oldfield Primary School, Oldfield Lane North, Gree	51	24	27	23	33	39	20	37		39	60	52	37	37
EAL 67c	514753	183342	b	Oldfield Primary School, Oldfield Lane North, Gree	42	23	30	22	35	26	18	35		44	53	50	34	34
EAL 71	514112	184535	b	181 Castle Road, Northolt, UB5	48	22	34	19	24	25	34	30	56	43	79	50	39	38
EAL 72	513587	178915	b	2/4 Minterne Avenue	39	23	23	18	17	19	26	28	39	37	45	46	30	30
EAL 74	511173	179203	b	132 Brent Road, Southall, UB2	39	17	39	32	30	35	26	48	48	51	32	63	38	38
EAL 77	512753	180478	b	7 Greenford Avenue, Southall	42	14	24	30	24	24	10	37	38	41	48	51	32	32
EAL 78	519269	180886	b	119 Twyford Avenue, W3	43	11	40	34	27	22	17	35	49	51	54	57	37	36
EAL 84	521200	179500	b	Southfields First and Middle School	36	19	31	51	25	24	26		39	40	48		34	34

Client ID	East	North	CLASS	Address	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	MEAN	Bias Corrected Mean
EAL 3	520726	181582	i	Jenner Avenue	61	51	43	49	39			44		62	68	61	53	53
EAL 4	520534	181525	i	5 Leamington Park	43	30	46	51	29	32	25	44	63	49	59	55	44	43
EAL 7	518600	183000	i	45 Park Avenue	49	23	46	44	19	12	15	43	60	53	63	64	41	40
EAL 8	518970	182964	i	6 Brentmead Gardens	45	23	33	26	26	29	36	37	25	49	48	46	35	35
EAL 9	519117	183379	i	Iveagh Avenue	48	31	31	41	30	29	19		24	59	55	54	38	38
EAL 10	521557	180996	I	57-75 Old Oak Common Lane (PO)	48	46	48	45	25		19	53	35	62		58	44	43
EAL 11	521381	180946	I	2 St Andrews Road, W3	75	28	47		31	41	40		49	59	65	66	50	50
EAL 14	521761	180132	i	First Avenue	36	28	37	44	32	32	40	42	39	51	60	56	41	41
EAL 20	519933	180197	i	Age Concern, Social Centre, High Street, Acton, W	52	33	45	26	49	37	20	61	39	60	69	70	47	46
EAL 22	519552	179953	i	Gunnersbury Unit, Acton Hospital, Gunnersbury Lane	61	38	36	49	33	57	66	73	36	69	76	70	55	55
EAL 26	514872	183134	i	5/6 Blenhelm Close (off Western Avenue)	36	17	37	31	30	29	40	41	16	53	50	49	36	36
EAL 28	513182	182741	i	Greenford High School, Ruislip Road, Greenford, UB	52	36	41	27	22	25	17	31	41	44	61	62	38	38
EAL 29	512603	182837	i	Shadwell Drive, Northolt, UB5	45	12	34	27	32		41	39	32	49	58	50	38	38
EAL 32	512495	183807	i	Lilliput Avenue	41	27	33	19	24	24	24	39	64	46	47	48	36	36
EAL 36	515253	180156	i	Hanwell Nursery, 25A Laurel Gardens, W7	40	-	39	36			18	49	13	50	57	54	36	35
EAL 40a	512673	180069	i	Hambrough Primary and Nursery School, South Road,	45	30	38	41	31	40	22	48	37	51	61	58	42	41
EAL 40b	512673	180069	i	Hambrough Primary and Nursery School, South Road,	44	14	23	38	35	25	19	47	39	50	58	62	38	37
EAL 40c	512673	180069	i	Hambrough Primary and Nursery School, South Road,	46	27	33	42	26	37				56	57	63	43	43
EAL 52	517440	180677	i	Perceval House, 14/16 Uxbridge Road, W5	32	11	33	47	34	21	15	40	26	44	50	49	34	33
EAL 54	517750	178860	i	South Ealing Cemetery	38	14	19	33	17	31	14	38	29	41			28	27
EAL 63	516992	181698	i	St David's Home, 12 Castlebar Hill, W5	43	17	24	41	21	26	11	36	26	44	50	44	32	31
EAL 66	518633	181314	i	57 Woodville Gardens, W5	47	26	29	34	33	30	36	48	38	56	52	59	41	40
EAL 68	515393	185287	i	Gainsboro Gardens, UB6	44	40	26	28	28	33	52	37	28	45	25	57	37	37
EAL 69	516858	184691	i	81 Witten Avenue East, Greenford, UB6	33	23	26	31	21	19	18	43	38	50	49	52	33	33
EAL 73a	511468	178898	i	LP nr Glebe Nursery School, Western Road, Southall jn	48		27	43	33	40	49	48	51		33	66	44	43
EAL 73b	511468	178898	i	LP nr Glebe Nursery School, Western Road, Southall jn	46	26	25	47	34	35	29	46	30		33	63	38	37
EAL 73c	511468	178898	i	LP nr Glebe Nursery School, Western Road, Southall jn	52	34	37	37	33	40	44				34	69	42	42
EAL 75	516277	178882	i	6 Boston Gardens, W7	40	17	24	37	29	32	17	46	27	41	44	45	33	33
EAL 76	516100	179300	i	200 Boston Gardens, W7	35	22	40	37	33	34	46	63	39	61	52	67	44	44
EAL 79	512234	179201	i	Albert Dane Centre, 19-21 Western Road, Southall	34	26	20	28	28	28	20	45	48	50	52	54	36	36
EAL 81	521391	180922	i	54 Western Avenue	43	21	35	39	37	52	22	53	31	59	68	59	43	43
EAL 86	521305	181966	i	27 Wells House Road	43	14	28	36	32	22	16	40	42	50	55	57	36	36
EAL 1	521587	182684	r	39 Old Oak Lane	51	32	57	58	57	43	24	62	37		34	56	47	46
EAL 6a	519997	182178	r	Top. Wendover Court, Western Avenue, W3	43	26	51	50		43	36	54	63	57		58	48	48

Client ID	East	North	CLASS	Address	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	MEAN	Bias Corrected Mean
EAL 6b	519997	182178	r	2nd Floor	35	32	47	46	33	43	46	62	48	62	60	63	48	48
EAL 6c	519997	182178	r	1st Floor	55	30	38	47	47	45	16	70	55	65	62	70	50	49
EAL 6d	519997	182178	r	Ground Floor	46	23	35	43	43	44	25	58	39	63		68	44	44
EAL 12a	521602	180856	r	18 Old Oak Common Lane, W3	54	26	43	52	67	53	53	74	75	71	64	67	58	58
EAL 12b	521602	180856	r	18 Old Oak Common Lane, W3	62	37	56	62	40	51	38	70	54	68	72	69	57	56
EAL 12c	521602	180856	r	18 Old Oak Common Lane, W3	53	33	44	59		38	69	69	60	73	79	81	60	59
EAL 15	521100	180057	r	177 The Vale, W3	41	33	44	36	35	47	47	67	49	59	57	62	48	48
EAL 17	520748	180330	r	Maples Nursery, East Churchfield Road, W3	32	20	29	24	29	30	37	42	42	40	44	39	34	34
EAL 23	520180	180896	r	156 Horn Lane, W3	43	30	50	39	37	32	20	46	32	50	53	56	41	40
EAL 25	515255	183098	r	17 Runnymede Gardens	74	34	52	64	63	52	66	71	32	73	100	79	63	63
EAL 34	517887	180914	r	8 The Broadway, Ealing, W5	59	24	76	44	41	59		96	48	81	88	72	63	62
EAL 35	519373	179593	r	Acton Town Medical Centre, 122 Gunnersbury Lane.	41	22	37	27			10	39	23	45	50	50	34	34
EAL 39	512195	180525	r	McDonalds Drive thru, Uxbridge Road, Southall	51		29	25	26	28	32	38	46	43	53	57	39	38
EAL 41	512657	179712	r	4 Merrick Road, Southall, UB2	44	27	24	35	20	37	32	46	32	50	48	51	37	37
EAL 46	512690	183983	r	143 Church Road, Northolt, UB5	62	52	44	50	28	53	35	68	31	72	83	76	55	54
EAL 50	512768	180400	r	11 Uxbridge Road, Southall, UB1	61	11	44	47	45	58	25	64	42	58	84	67	51	50
EAL 53	517644	180613	r	14/16 Bond Street, Ealing, W5	46	16	41	35	35	46	45	58	39	60	61	54	45	44
EAL 55a	520306	180055	r	Acton Town Hall, High Street, Acton, W3		28	48		38	46	30	58	45	59	65	54	47	47
EAL 55b	520306	180055	r	Acton Town Hall, High Street, Acton, W3	45	14	35		38	40	45	59	39	59	66	58	45	45
EAL 55c	520306	180055	r	Acton Town Hall, High Street, Acton, W3	43	26	36		34	29	19	67					36	36
EAL 56	518540	182700	r	Fernlea House, Hanger Lane	59	41	41	51	60	78	68	86	20	76	90	82	63	62
EAL 60	521573	180932	r	53 Old Oak Common Lane	41	30	34	45	46	55	47	51	37	60	72	56	48	47
EAL 62	516700	180522	r	Kirn Road/Drayton Green Road, W13	52	15	27	33	28	41	39	52	46	60	59	71	44	43
EAL 65	516400	183000	r	2 Horsenden Lane South, Greenford, UB6	55	30	25	51	34	51	47	42	27	60	65	63	46	45
EAL 70	513804	185342	r	126 Petts Hill, Northolt,	48	30	29	24	31	30	38	37	17	44	29	53	34	34
EAL 80	521556	180909	r	6 Western Avenue	61	26	34	66	52	65	69	78	50	75	71	70	60	59
EAL 82	521173	180981	r	98 Western Avenue,	39	25	28	41	39	36	16	53	36	49	58	59	40	39
EAL 83	521646	180800	r	171 Old Oak Road	33	27	25	35	20	20	26	49	53	61	61	63	39	39
EAL 85a	518541	182707	r	Fernlea House, Hanger Lane	44	18	40	49	63	64	25	73	63	81	77	66	55	55
EAL 85b	518541	182707	r	Fernlea House, Hanger Lane	56	32	40	48	61	70	45	73	39	76	84	64	57	57
EAL 85c	518541	182707	r	Fernlea House, Hanger Lane	57	41	48	46	57	57	52	63	53	68	76	73	58	57
EAL 87	520780	182775	r	94 North Acton Road	35	21	27	37	32	33	21	41	30	53	55	50	36	36

Table A1.2 Benzene diffusion tube measurements µg/m^3 1998-2003

Site Ref.	Bond Street	Hanger Lane Gyratory	Church Road	Jublilee Gardens	Brent Lodge Park	Acton Town Hall
Jan-98	16.3	24.4	28.6	8.8	5.9	13.0
Feb-98	22.1	27.0	36.4	11.4	9.4	16.9
Mar-98	0.0	25.7	21.5	8.1	7.5	18.9
Apr-98	12.7	11.4	12.0	2.3	2.0	8.5
May-98	5.2	6.8	6.5	1.6	2.0	4.6
Jun-98	6.2	3.6	6.5	2.0	1.0	4.2
Jul-98	0.0	4.2	5.5	2.3	1.3	4.6
Aug-98	6.5	8.1	6.5	1.3	1.6	3.3
Sep-98	5.2	0.0	7.2	2.3	2.0	5.2
Oct-98	5.9	8.1	8.1	2.0	2.0	4.2
Nov-98	9.4	9.8	13.7	2.9	3.6	8.5
Dec-98	4.2	6.5	3.9	2.0	2.0	4.9
Jan-99	7.2	7.8	8.5	2.6	2.6	4.6
Feb-99	6.2	5.5	6.8	2.0	1.3	3.9
Mar-99	7.2	9.8	10.1	4.2	2.9	6.2
Apr-99	3.3	3.9	3.9	1.6	1.3	3.3
May-99	5.2	6.5	5.5	2.6	2.6	4.6
Jun-99	4.9	5.5	6.2	2.6	2.3	4.2
Jul-99	3.9	5.2	5.9	2.0	2.0	3.6
Aug-99	5.5	7.5	6.2	2.9	2.9	4.6
Sep-99	3.3	4.6	3.6	1.6	1.3	3.3
Oct-99	2.9	3.9	3.6	1.6	1.3	2.6
Nov-99	2.9	2.9	4.2	1.3	1.3	2.3
Dec-99	4.2	4.6	4.2	2.3	2.0	3.3
Jan-00	4.6	5.9	5.2	2.6	2.3	3.6
Feb-00	4.2	5.9	5.5	0.3	0.3	2.6
Mar-00	2.9	4.2	3.9	2.6	3.3	0.3
Apr-00	3.3	4.6	0.0	1.3	1.3	5.5

Site Ref.	Bond Street	Hanger Lane Gyratory	Church Road	Jublilee Gardens	Brent Lodge Park	Acton Town Hall
May-00	3.3	4.2	1.0	1.3	2.0	2.6
Jun-00	2.9	3.9	0.0	0.0	1.3	2.6
Jul-00	2.6	3.9	0.0	1.6	1.3	2.0
Aug-00	2.6	3.6	3.3	1.3	1.3	2.3
Sep-00	3.3	3.9	3.6	1.6	1.0	2.9
Oct-00	2.6	3.3	4.2	1.3	1.0	1.6
Nov-00	0.0	3.6	1.3	1.0	2.3	1.0
Dec-00	2.9	4.6	2.9	1.6	1.3	3.9
Jan-01	5.5	4.9	26.0	2.3	4.2	3.6
Feb-01	4.9	3.3	2.3	2.0	3.9	4.6
Mar-01	3.3	4.2	3.6	1.3	1.6	3.6
Apr-01		4.2	1.6			3.6
May-01		3.9	3.9			3.3
Jun-01		3.3	2.9			2.3
Jul-01		3.3	3.6			2.9
Aug-01		3.6	2.3			5.9
Sep-01		3.6	3.6			4.2
Oct-01		3.3	2.6			3.6
Nov-01		4.6	6.8			2.6
Dec-01		3.3	3.9			1.6
Jan-02		3.9	3.9			3.3
Feb-02		2.6	2.9			1.6
Mar-02		3.9	0.0			2.0
Apr-02		2.3	0.0			0.0
May-02		2.0	2.9			2.9
Jun-02		2.9	2.6			2.0
Jul-02		2.9	2.6			2.0
Aug-02		2.3	2.0			2.0
Sep-02		3.3	3.6			2.9
Oct-02		3.3	2.6			2.3

Site Ref.	Bond Street	Hanger Lane Gyratory	Church Road	Jublilee Gardens	Brent Lodge Park	Acton Town Hall
Nov-02		3.3	2.0			3.3
Dec-02		2.6	2.0			2.3
		2.9	2.2			2.2
Jan-03		2.6	3.3			2.6
Feb-03		3.9	3.3			0.0
Mar-03		2.3	2.6			2.6
Apr-03		2.6	2.0			2.3
May-03		1.6	2.6			2.3
Jun-03		1.6	1.6			2.6
Jul-03		2.3	2.3			2.0
Aug-03		2.6	2.6			2.6
Sep-03		3.3	2.9			2.9
Oct-03						
Nov-03						
Dec-03						

Appendix 2

Authorised Processes

CONTENTS

List of Part A Authorised Processes In Ealing

Operator Name	Authorisation No.	Site Address	Process Type
Inco Europe Ltd	AS6888	Bashley Road London Nw10 6sn	Non-Ferrous Metals
Geo W Neale Ltd	AS7248	Victoria Road Willesden Junction London Nw10 6ng	Non-Ferrous Metals

LIST OF Part B AUTHORISED PROCESSES AND APPLICATIONS

Operator	Process	Process address
Accident Repair Centre (Park Royal) Ltd	Respraying of road vehicles	50 Minerva Road, Park Royal, London NW10 6HJ
R. Downham, L. Ashton and A Philips T/A as ADP Coachcraft	Respraying of road vehicles	14/16 Wadsworth Road, Perivale, Greenford, Middx.UB6 7JD and 42 Bideford Avenue, Perivale, Greenford UB6 7PP
Autodex Ltd	Respraying of road vehicles	76 Adelaide Road, Southall, Middx. UB2 5PX
Autohaus (UK) Ltd	Respraying of road vehicles	61 Aintree Road. Perivale, Greenford, Middx. UB6 7LA
Autohaus Car Centre Ltd	Respraying of road vehicles	82-86 Churchfield Road, Acton, London W3 6DJ
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 Service Station, Petts Hill, Northolt, Middx. UB5 4NP (BP Safeway Partnership) 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
Esso Petroleum Co. Ltd	Unloading of petrol into storage at a filling station	Simba Service Station, 167 Boston Road, Hanwell, London W7 3QT Mead Service Station, Ruislip Road, Greenford, Middx. UB6 9RP North Acton Service Station, Victoria Road, London W3 6UP
Frank Melia and Christine Melia T/A Prestige Coachworks	Respraying of road vehicles	9 Aintree Road, Perivale, Greenford, Middx. UB6 7LA
FuelForce Ltd	Unloading of petrol into storage at a filling station	Acton Filling Station, 219 Horn Lane, London W3 9ED
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 processes Mobile screening plant: 3 processes	10 Park Avenue, Southall, Middx. UB1 3AQ (principal place of business)
Ivo Prints Ltd	Textile and fabric coating process	3 Trident Way. Southall. Middx. UB2 5LF
J. & J. Transport Ltd	Mobile crushing process Mobile concrete batching process	Unit 14, Rockware Avenue, Greenford, Middx. UB6 0AA (principal place of business)
Kuwait Petroleum (G.B.) Ltd	Unloading of petrol into storage at a filling station	Q8 Southall, Bridge Garage, Uxbridge Road,Southall, Middx. UB1 3DD

Operator	Process	Process address
Marron Civil Engineering Ltd	Mobile crushing process	18/22 Gorst Road, Park Royal, London NW10 6LE(principal place of business)
McArdle Coachworks Ltd	Respraying of road vehicles	25 Park Royal Road. Park Royal, London NW10 7JH
Metalion Ltd	Powder coating process	North Acton Road, Park Royal, London NW10 6PD
Metropolitan Police Transport Service 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
Murco Petroleum Ltd	Unloading of petrol into storage at a filling station	Murco Service Station, South Parade, Chiswick,London W4 5LG
N. & M. Patel	Unloading of petrol into storage at a filling station	Acton Town Filling Station, 85 Gunnersbury Lane, Acton, London W3 8HQ
NEM Petroleum Co Ltd	Unloading of petrol into storage at a filling station	Horn Lane Filling Station, 162-164, Horn Lane, Acton, London W3
Platarg Engineering Ltd	Coating of metal products	Trumpers Way, Hanwell, London W7 2QA
Prompt Motor Ltd	Unloading of petrol into storage at a filling station	Roundabout Filling Station, Western Avenue, Greenford, Middx. UB6 8WW
Quattro (UK) Ltd	Mobile crushing plant: 5 processes Mobile screening plant: 6 processes	The Gatehouse, Cunard Road, Park Royal, London NW10 6PN (principal place of business)
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
Renault Retail Group Ltd	Respraying of road vehicles	Western Avenue, London W3 0RZ
Euroscan Products Ltd	Unloading of petrol into storage at a filling station	43-49 Gunnersbury Lane, Acton, London W3 8ED
Secure Storage Ltd	Respraying of road vehicles	169 Brent Road, Southall, Middx. UB2 5LE
Shell U.K. Ltd	Unloading of petrol into storage at a filling station	Shell Ealing, 29-31 Hanger Lane, Ealing, London W5 3HJ Shell Hanwell, 6 Church Road, Hanwell, London W7 1DR hell 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
S. Rajanathan	Unloading of petrol into storage at a filling station	BP Harmony, Greenford Park Service Station, 57 Greenford Road, Greenford, Middlesex UB6 9BA
Tarmac Ltd	Concrete batching plant (substantial change application pending)	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

Operator	Process	Process address
Texaco Ltd	Unloading of petrol into storage at a filling station	Star Northolt, Target Roundabout, Western Avenue,Northolt, Middx UB5 2LQ Star Oldfield, 1091 Greenford Road, Greenford, Middx. UB6
TotalFinaElf 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
The Bodyshop (West London) Limited	Respraying of road vehicles	13 Wadsworth Road, Perivale, Greenford, Middx.UB6 7JD
Triangle Ealing Ltd	Unloading of petrol into storage at a filling station	35 South Ealing Road, Ealing, London W5 4QT
Triangle Estates and Petroleum (Southall) Ltd	Unloading of petrol into storage at a filling station	Merrick Road, Southall, Middx. UB2 4AH
Venture Accident Repairs Ltd	Respraying of road vehicles	333 Western Avenue, Acton, London W3 0RS
W. Hanson (Iron Bridge) Ltd	Manufacture of timber and woodbased products	Uxbridge Road, Southall, Middx. UB1 3EQ
Yeoman Aggregates Ltd	Mobile screening plant: 2 processes	Stone Terminal, Horn Lane, Acton, London W3 9EH(principal place of business)

Appendix 3

Descriptions of DMRB model

CONTENTS

Design Manual for Roads and Bridges (DMRB)[7] - This screening method was formulated by the former Department of Transport. The method gives a preliminary indication of air quality near roads, and is more suited to rural motorways and trunk roads than city centre traffic conditions. It is a simple procedure based on tables and nomograms; originally published in August 1994, a revision has been produced in 1999, which is more applicable to urban road situations. The DMRB method requires information on vehicle flow, HGV mix, vehicle speed and receptor-road distances. It contains a useful database of vehicular emission factors for future years.

In the revision of the DMRB method the following pollutants can be estimated:

- the maximum 8-hour mean CO concentration;
- the 98th percentile and the maximum of hourly mean NO_2 concentrations;
- the annual average benzene and annual average 1,3 butadiene concentration;
- the annual mean and the fourth highest daily mean PM_{10} concentrations.

The method adopts the annual mean concentration as the base statistic. Background pollutant levels are included explicitly in the calculations by adding an amount to the annual mean traffic contribution using the Air Quality Archive (paragraph 6.09) or default values. Surrogate statistics are used to convert annual means to National Air Quality Strategy statistics. Details of the road layout cannot be specified.