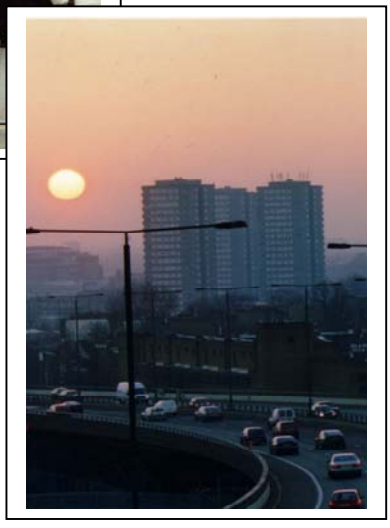
Updating and Screening Assessment and Action Plan Update



April 2006

THE ROYAL BOROUGH OF KENSINGTON AND CHELSEA

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EXECUTIVE SUMMARY

Under the Government's Air Quality Strategy, the Council is required to regularly assess air quality within the Borough. As a result of one review in 2000, the whole Borough was declared an Air Quality Management Area. In 2003, the Council published its Air Quality Action Plan, which sets out steps the Council is taking to work towards meeting the Government's air quality objectives.

This report consists of two parts; an Updating and Screening Assessment (USA) followed by an action plan progress report. The USA reviews and updates information about the seven key pollutants included in previous review and assessment reports.

The seven pollutants are: carbon monoxide; benzene; 1,3-butadiene; lead, nitrogen dioxide (NO_2), sulphur dioxide and particulate matter (PM_{10}). We have also included information on the hydrocarbon benzo(α)pyrene (b(a)p).

As suggested by the updated USA checklist issued by Department for Food, Environment and rural Affairs (Defra) in January 2006, we have commented on changes that have occurred to the sources of these pollutants and included new monitoring data from 2004 and 2005. This has enabled us to see whether or not pollutant concentrations have improved and which objectives are likely to be met. This is particularly significant, as 2004 and 2005 are the deadlines for achieving the particulate matter and nitrogen dioxide objectives. Correction factors have been applied in the case of benzene monitored data to predict what the levels are likely to be in 2010.

Results from this USA confirm that there have been few changes since the previous assessment. NO_2 and PM_{10} continue to exceed their objectives. However, as the borough has already been declared an Air Quality Management Area on the basis of these exceedences, it will not be necessary to proceed to a 'Detailed Assessment' for any pollutant in 2007. A summary of the results from each pollutant is given overleaf.

The second part of this report deals with the Air Quality Action Plan, since its first publication three years ago. Generally we have made good progress with the majority of the 25 actions. Some of the actions have been completed, many however are ongoing projects aimed at continual improvement, for example, the Council has now adopted powers to require drivers of stationary vehicles to switch off 'idling' engines - in the last year we have received 17 complaints and six warnings have been given. In some instances the emphasis of the action has shifted e.g. the Council whilst continuing to encourage residents to compost rather than burning waste in bonfires is now offering a green waste collection service. One important action, introducing a Low Emission Zone, is not progressing in the way we would wish in that the proposed TfL scheme does not offer a cost effective solution.

Despite the progress in implementing our Action Plan, air quality concentrations of the pollutants of most concern have not improved significantly. Although a number of actions within the plan seek to reduce traffic volumes, which in turn should result in a reduction in emissions from vehicles, a reduction in emissions, does not give a proportional reduction in pollution concentrations. Whilst some actions, as we know, will have only a limited impact on air quality in the borough there are good reasons for undertaking them such as leading by example. Although they will also reduce the impact of the council's activities, the effect on their own is not directly measurable. Others are designed to encourage visitors, other organisations and businesses to reduce their impact on air quality.

Summary of Findings

Pollutant	Main reasons why it will not be necessary to proceed to a detailed assessment.
Carbon monoxide	• Monitoring data does not exceed objectives. • No 'very busy roads' or junctions where background concentrations are expected to be above 1 mg/m^3.
Benzene	• Monitoring data does not exceed running annual mean objective. • One tube located at a petrol station exceeds the 2010 annual objective. This station is to be redeveloped so the source will be removed. • No 'very busy roads' or junctions where background concentrations are expected to be above 2 $\mu g/m^3$ in 2010.
1,3-butadiene	• Monitoring data does not exceed current running annual mean objective. • No industrial sources within the borough.
Lead	• Monitoring data does not exceed annual mean objectives. • No industrial sources within the borough.
Nitrogen dioxide	• Air Quality Management Area already declared for this pollutant. • All annual mean measurements from continuous monitoring exceeded or equalled the 2005 objective. • The hourly average objective was also exceeded at two locations. As there are no changes in the circumstances of this pollutant it is not necessary to proceed to a detailed assessment.
Sulphur dioxide	• Monitoring data does not exceed objectives. • No industrial sources within the borough. • No significant areas of domestic coal burning. • No significant boilers identified. • No diesel locomotive is stationary at either of the two stations in the Borough for significant periods, and in addition there is no relevant exposure to the public. • No shipping
Particulate matter	• Air Quality Management Area already declared for this pollutant. • There were more than 35 exceedences of the daily mean objective level at monitored roadside locations and an exceedence of the annual mean at one location. • There are no industrial sources in the borough. • There are no significant areas of domestic solid fuel burning. • There are no quarries etc within the borough. • As there are no changes in the circumstances of this pollutant it is not necessary to proceed to a detailed assessment.

INTRODUCTION

Background

In 1997, the first national air quality strategy was produced. This set health based standards, and objectives, most of which were incorporated within Air Quality Regulations. Objectives were set for key pollutants, covering different time averaging periods and each has a date by when it should be achieved (table below).

Table 1 Air Quality Objectives within London

Pollutant	Concentration	Measured as	Date to be achieved
Benzene	16.25μg/m^3 5.00μg/m^3	running annual mean annual mean	31.12.2003 31.12.2010
1,3-butadiene	2.25μg//m^3	running annual mean	31.12.2003
Carbon monoxide	10 mg/m^3	max daily running 8hr mean	31.12.2003
Lead	0.5 μg/m^3 0.25 μg/m^3	annual mean annual mean	31.12.2004 31.12.2008
Nitrogen dioxide	200 μg/m^3 (not to be exceeded more than 18 times per year) 40 μg/m^3	1hr mean annual mean	31.12.2005 31.12.2005
Particles – PM_{10}	50μg/m^3 (not to be exceeded more than 35 times per year) 40μg/m^3	24 hr mean annual mean	31.12.2004 31.12.2004
Sulphur dioxide	350 μg/m^3 (not to be exceeded more than 24 times per year) 125μg/m^3 (not to be exceeded more than 3 times per year) 266 μg/m^3 (not to be exceeded more than 35 times per year)	1 hr mean 24 hr mean 15 minute mean	31.12.2004 31.12.2004 31.12.2005

Part One – Review and assessment of air quality (Updating and Screening Assessment)

Section 82 of the Environment Act 1995 places a duty on local authorities to work towards achieving these air quality objectives and report annually on our progress along with the changes in pollution concentrations that have occurred. This report marks the third round of the review and assessment process and is accompanied by information about the progress we are making with implementing our Air Quality Action Plan. Details about previous review and assessment reports can be found in Annex 1.

Additional objectives and legislation

Following the publication of the addendum of the Air Quality Strategy for England, Scotland, Wales and Northern Ireland in 2003, further objectives were set but not incorporated within the Air Quality Regulations for two pollutants – particles and polycyclic aromatic hydrocarbons (PAHs),

these are shown in the table below. While there is no requirement to include an assessment of PAHs at this time, a brief section has been included (see page 26) for information purposes only.

Table 2 Objectives adopted but not yet incorporated within the Air Quality Regulations.

Pollutant	Concentration	Measured as	Date to be achieved
Particles PM_{10}	50 µg/m^3 not to be exceeded more than 10 times per year 23 µg/m^3 20 µg/m^3	24 hr mean annual mean annual mean	31.12.2010 31.12.2010 31.12.2015
Polyaromatic hydrocarbons	25 ng/m^3	annual mean	31.12.2010

The current national Air Quality Strategy is being reviewed and is expected to be released for consultation in late spring. In addition, there is a proposal for a new EU directive following the CAFÉ (Clean air for Europe) programme, which includes proposals for $PM_{2.5}$ objectives (see below). If adopted this will result in changes to other EU limit values and ultimately our own UK objective levels. The proposal recommends the introduction of objectives for $PM_{2.5}$, the finer fraction of PM_{10}. This would help to target more of the man-made component of the particulate matter, rather than the coarser fraction, of which a greater proportion comes from natural sources. The particles objectives in table 2 above may not be made into regulations if the new directive is ratified. For this reason we have not included an assessment of them in this report as we are waiting to see the contents of the revised national Air Quality Strategy.

Table 3 Proposed Café directive

Pollutant	Concentration	Measured as	Date to be achieved
Particles -$PM_{2.5}$	20% reduction on 2010 value*	Annual mean	2020
	25µg/m^3	Annual mean	1 Jan 2010 (2015 with derogation)

*exposure reduction

Part Two – Action Plan

As mentioned earlier, the second part of this document reports on progress the Council is making with each of the 25 actions listed in the Action Plan. Almost three years has passed since the Council published its final version of the action Plan, which once implemented, should help us to improve air quality within the Borough and consequently help us to work towards achieving the air quality objectives set out in the Air Quality Strategy.

For further copies of this report, or any other report in the Review and Assessment series (for full list see Annex 1), please contact Rebecca Brown on 020 7341 5716. If you have any comments or suggestions on how the Council could work towards improving air quality then please email them to **air.quality@rbkc.gov.uk** or post them to the Environmental Quality Unit, Royal Borough of Kensington and Chelsea, Council Offices, 37 Pembroke Road, London W8 6PW.

PART ONE

UPDATING AND SCREENING ASSESSMENT

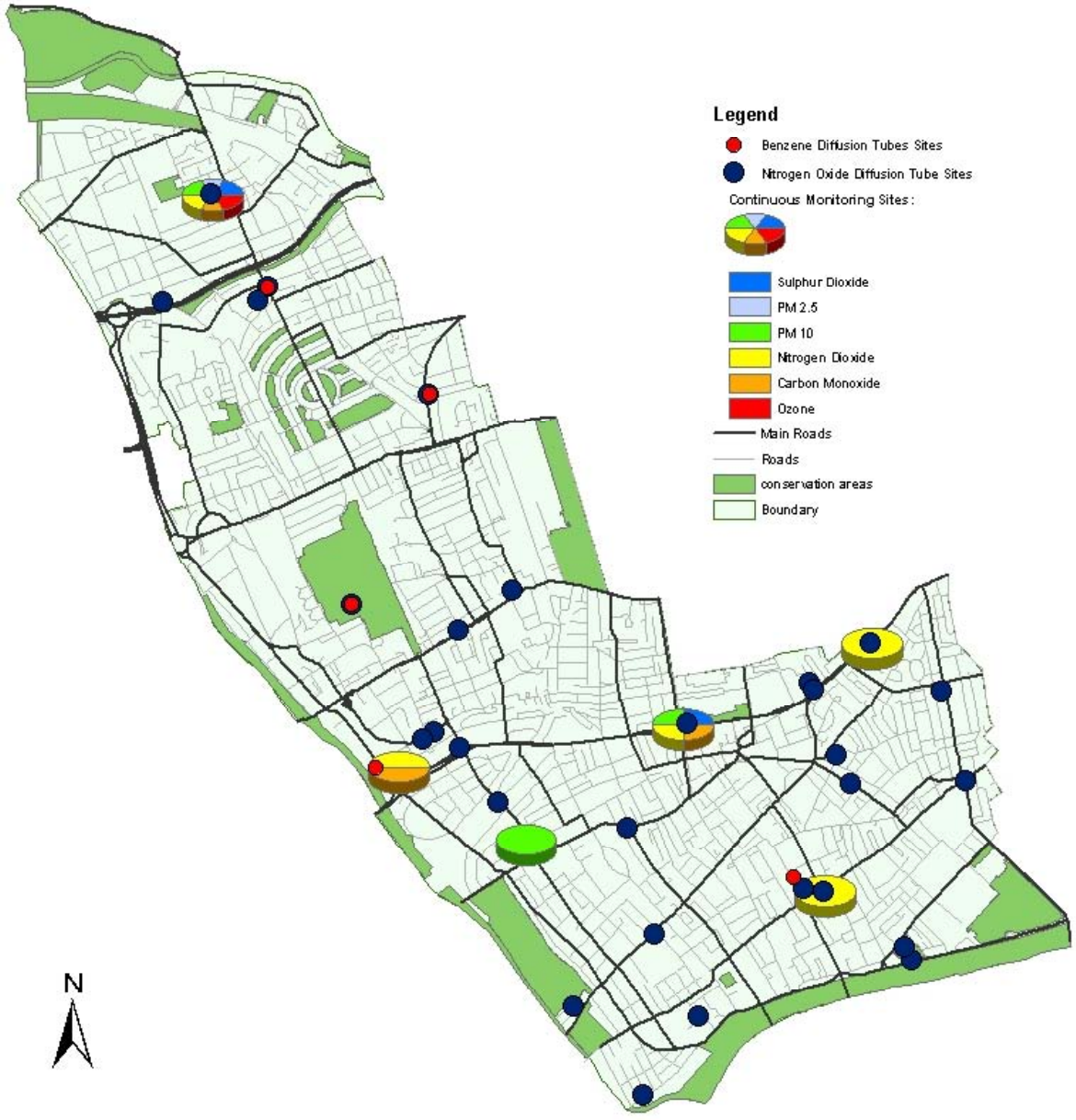
AIR QUALITY MONITORING

There are two main types of monitoring undertaken in the borough; fully automated continuous monitoring and sampling devices, such as diffusion tubes and gravimetric monitoring (see glossary).

Automated monitoring data

Fully automated monitoring data are collected at a five monitoring sites in the borough, two of these are operated by the Department for the Environment, Food and Rural Affairs (Defra), one of these houses our particulate monitor. Table 4 details the monitoring sites in the borough. Air quality data for 2005 has been included in the report where it is available. This data is provisional and could possibly change. Some data i.e. lead, which is derived from national networks, was not available at the time of this report's preparation.

Air Quality Monitoring Site Locations
in the Royal Borough of Kensington & Chelsea



Non automatic networks
Monitoring data for benzene and nitrogen dioxide (in addition to the continuous monitoring) is collected using passive diffusion techniques. Stanger Ltd collects these data as part of the London Wide Environmental Programme.

Quality control and assurance
Automated data that we collect are subject to quality control and audit procedures by Kings ERG who operate the London Air Quality Network (LAQN). In addition independent consultants carry out audits annually. The North Kensington site is further scrutinised by Defra's contractors as it is affiliated to the Automatic Urban and Rural Network (AURN). Further information on data collection and quality control is included in appendix A2.

Overleaf (table 4) is an outline of the monitoring network in the Borough. It is followed by an assessment of each pollutant individually, and examines emissions from road traffic, heating and industrial sources and looks at how concentrations have changed since our last review and assessment report.

Table 4 Monitoring locations in the Royal Borough of Kensington and Chelsea

Site name	North Kensington	Cromwell Rd/ Cromwell Rd 2	Cromwell Rd 2	West London	Knightsbridge	Chelsea	Earls Court
Site type*	LAQN & AURN affiliate	AURN	LAQN	AURN	LAQN	LAQN	-
Ownership	RBKC	DEFRA	RBKC	DEFRA	RBKC	RBKC	RBKC
Pollutants measured	nitrogen oxides PM_{10} carbon monoxide sulphur dioxide	nitrogen oxides carbon monoxide sulphur dioxide	PM_{10}	nitrogen oxides carbon monoxide	nitrogen oxides	nitrogen oxides	PM_{10} gravimetric
Other monitoring undertaken	Gravimetric monitoring PM_{10} & $PM_{2.5}$	Lead and heavy metals					
Grid reference	TQ401821	TQ264789 TQ265790 >1998	TQ265790	TQ251788	TQ527179	TQ527178	TQ525178
Site location and description	Sited in the grounds of Sion Manning school in St Charles Square, North Kensington. Surrounded by a mainly residential area. Height inlet is approx. 3m.	Originally sited at the kerbside of the Cromwell Rd. Traffic density approx. 60,000 vehicles per day. Now located at the rear of the pavement at the Natural History Museum, 3.5m from the Cromwell Road. The height of the inlet is approx. 2m.	Located within the DEFRA monitoring cabin in the grounds of the Natural History Museum. Approx. within 8m of the Cromwell Rd and 5m of Queens Gate. Height inlet is approx. 1.4m.	Located within the Council depot, Pembroke Road. The nearest road is Warwick Rd (50m). The surrounding area is built-up. Height inlet is approx. 30m.	Located on the Kerb of Hans Road and 4m from the Brompton Rd. Height inlet approx 3m.	Located at the building façade of the Chelsea Old Town Hall at the rear of the pavement approx. 8m from the Kings Road. Height inlet approx. 3m.	Sited on the kerb of the Earls Court Road.
Site definition	Urban background	Kerbside < Roadside	Roadside	Urban background	Kerbside/ Roadside	Roadside	Kerbside
Start date	1/4/1995 Affiliated from 1/4/1996	22/2/1973	22/5/1998	1/1/1987	28/03/2000	27/9/2000	29/05/2002
Website for data	www.erg.kcl.ac.uk www.airquality.co.uk	www.airquality.co.uk	www.erg.kcl.ac.uk	www.airquality.co.uk	www.erg.kcl.ac.uk	www.erg.kcl.ac.uk	Currently not available

*LAQN- London Air Quality Network, AURN- Automatic Urban and Rural Network
Kerbside: within 1m of a busy road, Roadside: located 1-5m, Urban background at least 50m from any major pollutant source
All automated monitoring is ratified as part of the AURN or by the Kings ERG and regularly audited by an independent laboratory.

CARBON MONOXIDE

The objective for carbon monoxide (CO) is 10 mg/m^3 as a maximum daily 8 hour running mean. We have looked at recent monitoring data and traffic levels at very busy road locations to see if the objective is still being met. The deadline for its achievement was 31.12.2003.

Monitoring data

All available carbon monoxide monitoring data (since 1999) from within the Borough have been collated in the table below, including data from one other busy kerbside location from central London.

Table 5 Concentrations of CO measured in the Borough and at one central London site.

Year	Site	Annual mean (mg/m^3)	Max daily 8-hour* (mg/m^3)	No. of hours above 10mg/m^3	% Data capture
1999	North Kensington	0.4	3.9	0	96
	West London	0.4	4.3	0	97
	Cromwell Rd 2	1.5	5.1	0	98
	Marylebone Rd	2.1	8.5	0	92
2000	North Kensington	0.4	5.8	0	95
	West London	0.3	5.3	0	97
	Cromwell Rd 2	1.3	6.0	0	98
	Marylebone Rd	2.4	9.9	0	96
2001	North Kensington	0.5	3.4	0	92
	West London	0.4	3.8	0	98
	Cromwell Rd 2	1.2	4.1	0	98
	Marylebone Rd	1.7	6.5	0	96
2002	North Kensington	0.4	5	0	96
	West London	0.4	3	0	97
	Cromwell Rd 2	1.0	4	0	93
	Marylebone Rd	1.4	5	0	98
2003	North Kensington	0.4	2.5	0	92
	West London	0.4	2.1	0	95
	Cromwell Rd 2	0.9	2.9	0	89
	Marylebone Rd	1.3	3.7	0	98
2004	North Kensington	0.5	2.3	0	99
	West London	0.4	1.6	0	99
	Cromwell Rd 2	0.8	2.3	0	98
	Marylebone Rd	1.1	3.0	0	96
2005	North Kensington	*0.4*	*3.1*	*0*	*96*
	West London	*0.4*	*2.1*	*0*	*94*
	Cromwell Rd 2	*0.8*	*3.5*	*0*	*94*
	Marylebone Rd	*0.9*	*3.6*	*0*	*98*

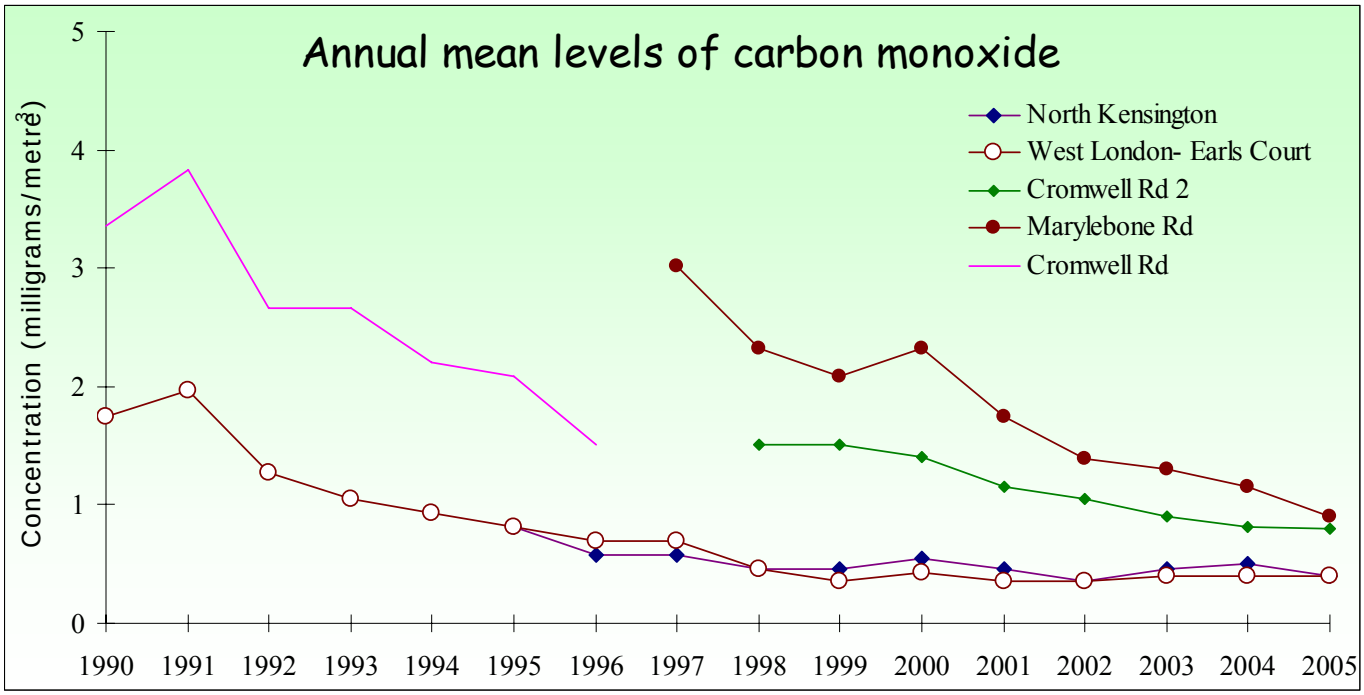
*** Maximum daily 8-hour running mean**

2005 data is provisional and must be treated with caution

These data shows that there continues to be no exceedences of the objective level in 2004 or 2005 at any of the monitoring locations in the Royal Borough. The Marylebone Road site, whilst not located within the Borough, is none the less indicative of levels at kerbside locations, and even here the objective level has not been exceeded. The chart below shows that whilst annual mean levels have been declining for many years; levels now appear to be stabilising.

Very busy roads

As part of the assessment we are required to look at the impact of 'very busy roads', in areas where the background concentration of carbon monoxide is greater than 1mg/m^3. We do not currently have any roads that meet this criterion within the Royal Borough.



Conclusion

There is sufficient evidence to be able to confirm that no further assessment of CO is necessary. Monitoring data in table 5 shows that we are already meeting the objective; in addition, there are no 'very busy roads' or junctions in Kensington and Chelsea where background concentrations are expected to be above 1 mg/m^3. It will therefore not be necessary to proceed to a detailed assessment in 2007.

BENZENE

As shown in table 1 (page 1), two objectives have been set for the assessment of benzene – a running annual mean, 16.25µg/m^3 to be met by 31.12.2003, and a more stringent annual mean of 5µg/m^3 to be achieved by 31.12.2010.

For this pollutant, we have reviewed recent monitoring data and considered whether there have been any changes to 'very busy roads', industrial sources, and petrol stations to see if the objectives are still likely to be met. We have also checked to see if we now have a major fuel storage depot within the Borough.

Monitoring data

As part of the London Wide Environmental Programme, we undertake sampling at five locations using diffusion samplers.

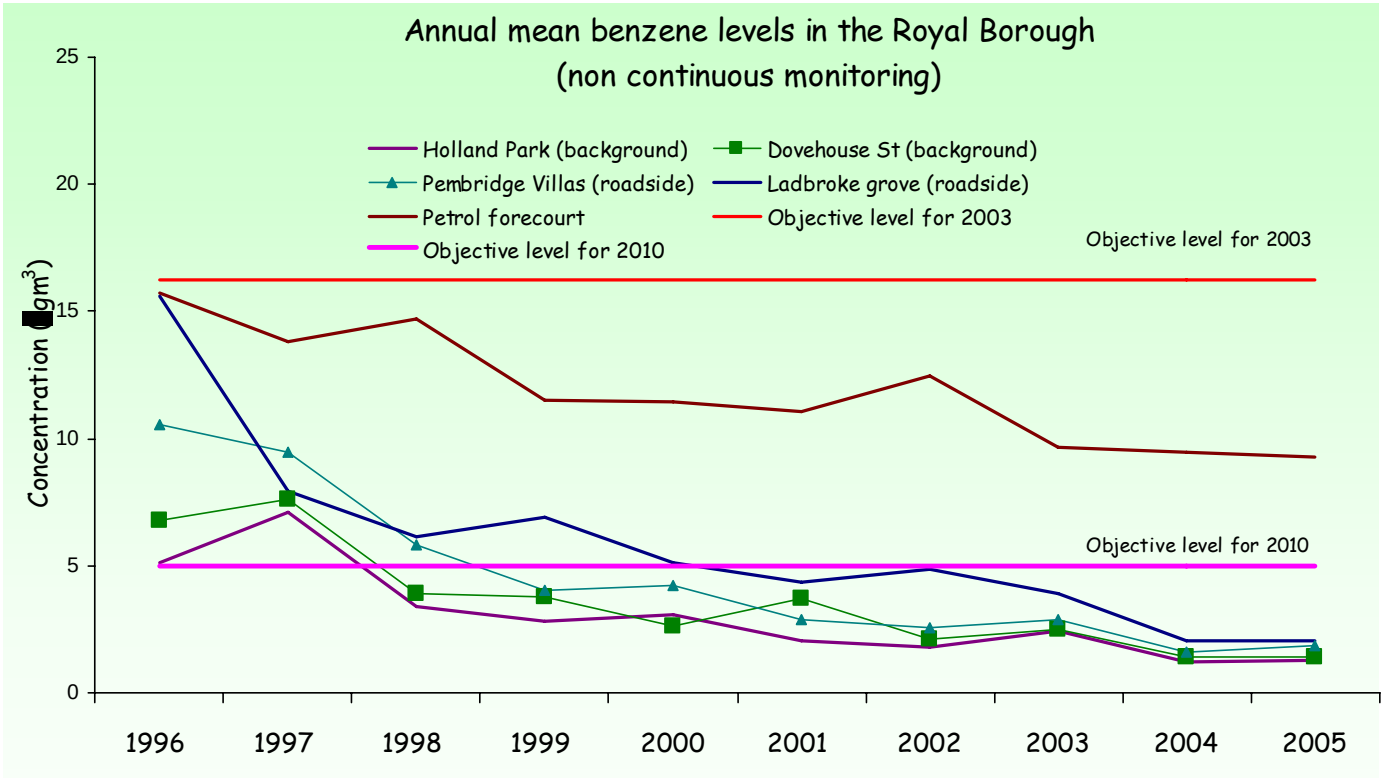
Table 6 Annual average benzene levels using diffusion samplers (µg/m^3)

Location	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Holland Park (B)	8.1	10.5	9.0	6.2	5.1	7.1	3.4	2.8	3.1	2.0	1.8	2.43	1.24	1.28
Dovehouse St (B)	15.2	22.8	13.1	7.1	6.8	7.6	3.9	3.8	2.6	3.7	2.1	2.47	1.38	1.43
Pembridge Villas (R)	-	-	10.2	11.1	10.6	9.5	5.8	4.0	4.2	2.9	2.6	2.85	1.59	1.83
Ladbroke grove (R)	28.7	20.6	14.8	16.8	15.6	7.9	6.1	6.9	5.1	4.3	4.9	3.92	2.07	2.03
Petrol forecourt	59.7	44.0	27.3	34.9	15.7	13.8	14.7	11.5	11.4	11.0	12.5	9.63	9.46	9.24

B= background, R= roadside

The results show that the 2003 (16.25µg/m^3) objective has been met at all sites since 1997 (the measured annual mean is assumed to be the equivalent of the running annual mean). The highest levels of benzene have been recorded on the forecourt of a petrol station and at this location the stricter 2010 objective (5µg/m^3) is currently exceeded, despite a continuing downward trend. The remaining sites are well within both objective levels and have generally continued to decline or remain fairly constant in 2005.

The graph below focuses on data since 1996 and shows that overall there has been a decline in benzene concentrations however this reduction has slowed down in recent years.



Continuous monitoring is more accurate than diffusive samplers. However, within London, concentrations of benzene are only monitored continuously at two locations, therefore limited co-location data is available. Comparisons of measurements at the Marylebone Road site show fairly good agreement, particularly in recent years. However it should be noted that the exposure periods for the two methods are not identical e.g. the 2004 comparison is based on 11 months of diffusion tube data.

Table 7 Comparison of benzene monitoring methods at Marylebone Road

Year	Diffusive Sampler	Continuous analyser
2000	3.2	2.1
2001	6.8	4.5
2002	4.5	3.92
2003	3.3	3.33
2004	2.2	2.75

Source: Air Quality Archive/NETCEN

Some automated monitoring is undertaken by DEFRA at a small number of sites in London. Unfortunately several sites were closed during 2001 and new replacement sites did not start until mid 2002, also data capture has been low, so that recent data is limited to the Marylebone Road site.

Table 8 Maximum running annual mean benzene levels for automated sites (μg/m^3)

Location	1999	2000	2001	2002	2003	2004	2005
Marylebone Rd	12.8	10.8	6.29	4.97	3.92	3.37	2.75
London UCL	3.99	3.62	-	-	-	-	-
Eltham	2.81	2.52	-	-	-	-	0.9*

*Incomplete data
2005 data (in italics) is provisional

Benzene levels have declined significantly at the Marylebone Road site since monitoring started, and has met the objective from 2002. Both the London UCL and Eltham sites also met the more stringent 2010 objective when they were operating. This data confirms the trend demonstrated by our own monitoring.

Table 9 Estimated values for 2010 based on 2004 diffusion sampler concentrations

Location	***Annual average (μg/m^3) 2004***	***Estimated annual average (μg/m^3) 2010****
Holland Park (B)	1.24	0.81
Dovehouse Street (B)	1.38	0.91
Pembridge Villas (R)	1.59	1.05
Ladbroke Grove (R)	2.07	1.36
Petrol forecourt	9.46	#
Marylebone Road	2.20	1.45
Location	***Running annual average (μg/m^3) 2004***	***Estimated annual average (μg/m^3) 2010****
Marylebone Road	2.75	1.85
Objective level		***5***

* Correction factors from LAQM. TG (03)
# Guidance recommends that future projections at petrol stations should not be estimated

The only location where the 2010 objective might be exceeded is at the petrol forecourt. Guidance recommends that future projections at petrol stations should not be estimated but instead be based on the current concentration. The concentration at the petrol station is discussed further in the following paragraphs.

Very busy roads or junctions in built up areas
Guidance states that we need only be concerned about 'very busy roads' and junctions in areas where the 2010 background is expected to be above 2 μg/m^3. Estimated annual average benzene background concentrations for 2010 have been made available on the air quality archive website, these levels vary between 0.826 and 0.998μg/m^3. Our own estimated background levels for 2010 are also well below 2μg/m^3. Therefore no background levels are expected to be above 2μg/m^3. This information also provides a further indication that future levels in the Borough at very busy roads and junctions are unlikely to exceed objective levels.

Industrial Sources
There are no industrial sources of benzene in the Borough.

Petrol stations
Since the last updating and screening assessment was undertaken in 2003, two petrol stations have closed. There are now currently seven petrol filling stations operating within this Borough. All are authorised to operate Stage I vapour recovery and have a throughput of more than 1000m^3 of petrol per annum. However none of the roads adjacent to these petrol stations have traffic flows of more than 30,000 vehicles per day. To proceed to a detailed assessment, petrol stations would need to be within 10 metres of a residential property, near a road used by more than 30,000 vehicles per day and have a throughput of 2000m^3.

Table 11 gives the results from monitoring at one of the petrol stations (181-183 Warwick Rd). This forecourt is recording concentrations above the 2010 objective level and may have residential property within 10m. In this respect some further assessment for benzene would normally be necessary. However planning permission has been granted to re-develop this site, so the petrol station will close. With this in mind, it is not necessary to proceed to a detailed assessment.

Major Fuel Storage Depots
There are no major fuel storage depots within Kensington and Chelsea.

Conclusion
Examination of monitoring data indicates that the 2003 objective has been met at all locations. However, monitoring at one location, a petrol forecourt, has indicated that the more stringent 2010 objective might not be achieved, so further assessment might have been necessary at this location. Planning permission has been granted to re-develop this site; therefore there is sufficient evidence to suggest that no further assessment is required.

1, 3-BUTADIENE

For this pollutant, we need to make sure that the running annual mean objective of 2.25µg/m^3 to be achieved by 2003 continues to be met beyond this date. To do this, we must consider any new monitoring data recorded since the last report. It is also to necessary to check for any new industrial sources.

Monitoring data

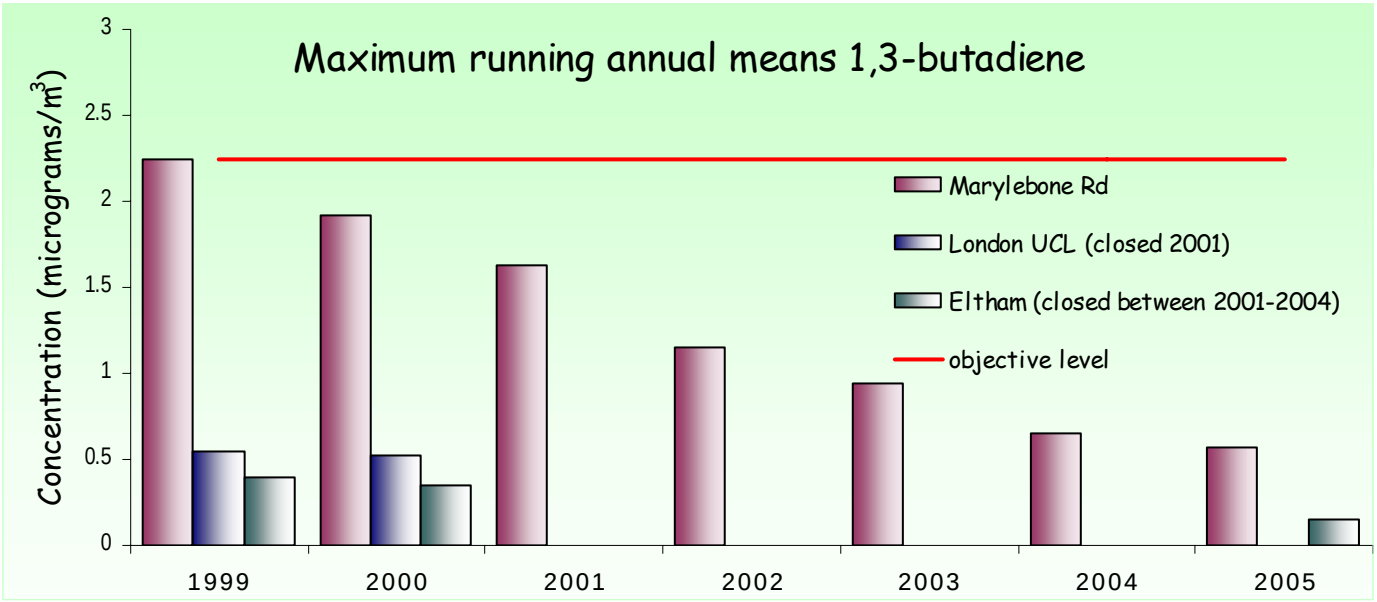
1,3-butadiene is not monitored in Kensington and Chelsea, however data has been collected by Defra at three other sites within London. These data are shown in the table below. Within central London data are only collected at Marylebone Road and Eltham.

Table 10 Levels of 1,3-butadiene (maximum annual running means, µg/m^3) in London

Location	1999	2000	2001	2002	2003	2004	2005
Marylebone Rd	2.25	1.92	1.63	1.15	0.95	0.65	*0.57*
London UCL	0.55	0.52	-	-	-	-	-
Eltham	0.39	0.35	-	-	-	-	*0.15**

*Incomplete data
2005 data (in italics) is provisional

The running annual mean concentration has been declining steadily at the Marylebone Road (roadside) site since 1999, dropping from 2.25µg/m^3 to 0.57 µg/m^3 in 2005. The London UCL and Eltham sites also met the objective when they were operating. These results indicate that there are no exceedences of the 2003 objective. Therefore it is not necessary to proceed to a detailed assessment.



Industrial Sources

There are no existing or new industrial sources with the potential to emit significant quantities of 1,3-butadiene in the Borough.

Conclusion

There is sufficient evidence to suggest that no further assessment of 1,3-butadiene is necessary, as monitoring is already well within the objective.

LEAD

There are two annual mean objectives for lead: 0.5µg/m^3 to be achieved by 2004 and an objective of 0.25µg/m^3 to be achieved by 2008. To assess whether concentrations in the Borough continue to meet these objectives, we have updated the monitoring data and considered any new processes.

Monitoring data

Monitoring of lead is now only undertaken by Defra at the Cromwell Road monitoring site in the Borough. The Royal Borough previously undertook lead monitoring at one additional site in Ladbroke Grove, however this site closed at the end of 2001 as levels had dropped so significantly that it was not considered necessary to retain it. Data for 2005 was not available at the time of the preparation of this report.

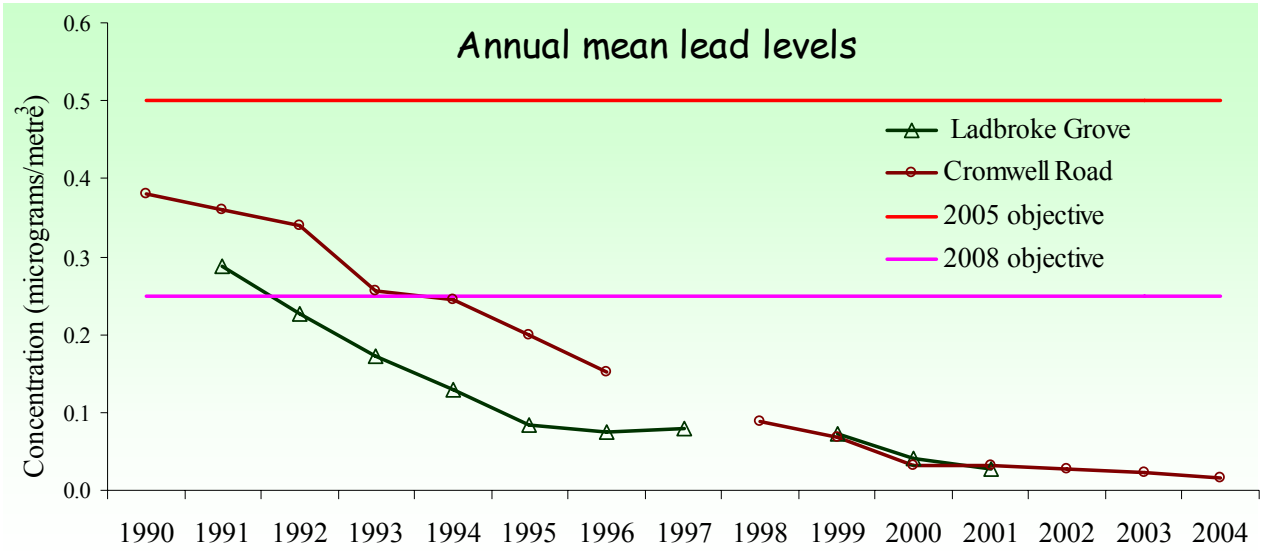
Table 11 Lead levels within the Borough

Year	Ladbroke Grove (µg/m$^{3)}$	Cromwell Rd (µg/m^3)	Objective level (µg/m^3)
1999	0.073	0.068	0.5
2000	0.041	0.032	0.5
2001	0.026	0.031	0.5
2002	-	0.027	0.5
2004	-	0.017	0.5
2005	-	Not available	0.5

Monitoring data, as demonstrated in the chart below, has shown a downward trend at both Cromwell Road and Ladbroke Grove. Objectives levels for both 2004 and 2008 were met, in 1992 at the Ladbroke Grove site and in 1994 at the Cromwell Road site. Concentrations of lead, continue to decline at the remaining site, and remain below the objective levels.

Industrial emission sources

There are no existing or new industrial sources within the Borough; therefore there is little likelihood of any exceedences**.**



Conclusion

There is sufficient evidence to suggest that no further assessment of lead is necessary, as monitoring shows levels are well within both the 2004 and 2008 objectives and have been since the mid 1990's.

NITROGEN DIOXIDE

There are two objectives for nitrogen dioxide (NO_2); a short term objective of 200µg/m^3 not to be exceeded more than 18 times as a one hour mean, and a longer term objective of 40µg/m^3 as an annual mean. The deadline for achieving these objectives was the end of 2005.

The whole of the Royal Borough was declared an Air Quality Management Area in 2000. It was declared on the basis that NO_2 (and PM_{10} to a lesser extent) would fail to meet its objectives. The purpose of updating the monitoring data collected in the Borough and reviewing changes to sources of nitrogen dioxide such as roads, bus stations, industry and aircraft is to determine whether there are any changes that would require us to undertake a detailed assessment with a view to revoking the order.

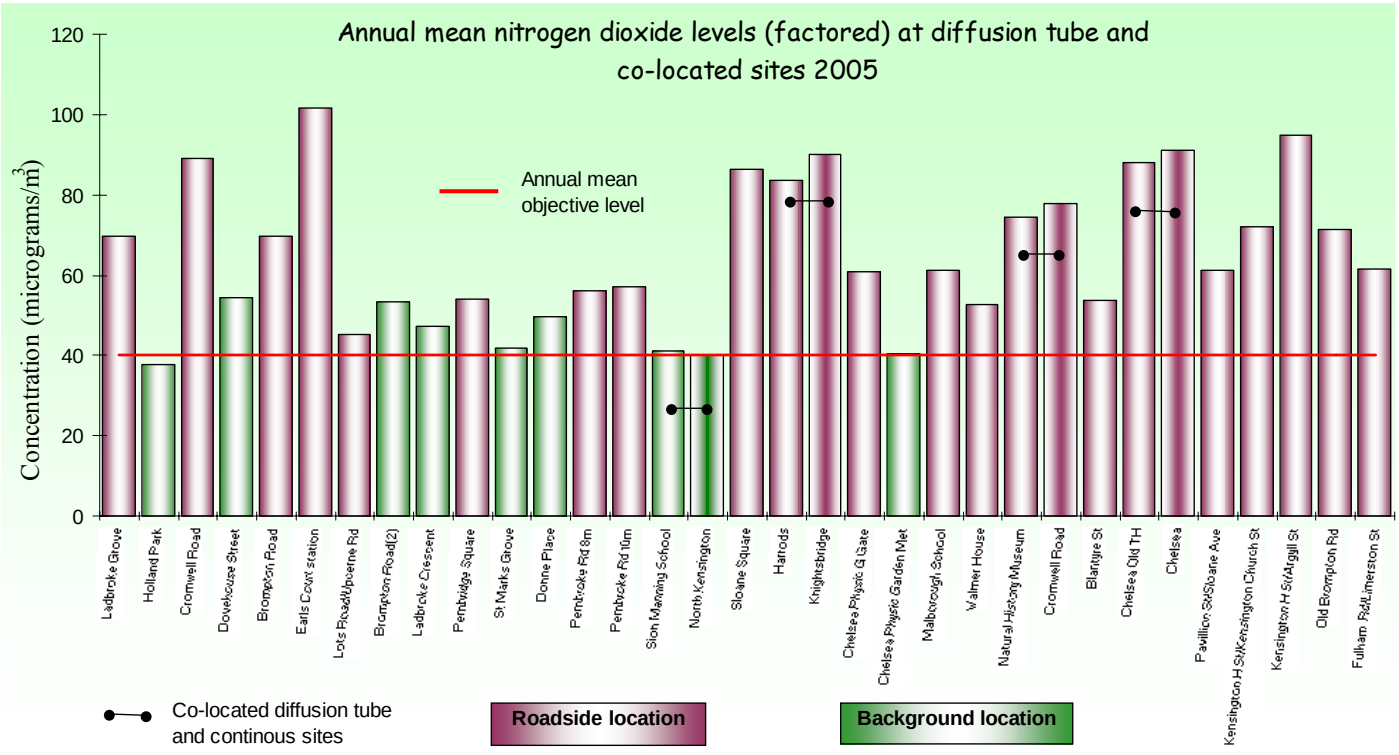
Monitoring data

Automatic chemiluminescent analysers and passive diffusion tubes are used to monitor NO_2 in the borough. The later method provides more limited data but does allow levels to be compared to the annual mean objective at a greater number of locations than would be practicable by continuous methods alone.

Diffusion tube monitoring

Diffusion tube data are collected at 29 locations in the Borough (factored data from 2001-2005 is shown overleaf in table 12). The data are factored to take into account the differences between the two monitoring techniques as this method tends to under-estimate concentrations. The factors used are based on the London Wide Environmental Programme (LWEP) co-location study. The data for 2005 is provisional as the adjustment factor is based on the previous year's bias check, as this has not been determined for 2005 yet. A straightforward comparison of co-located sites shows that this assumption is not unreasonable.

In 2004, 27 of the 29 sites were above the objective level. The graph below shows the 2005 data (factor of 1.1)



An examination of the factored NO_2 data, in table 12 below, shows that between 2001 and 2005 there were between one and five sites that measured levels below the objective. The results for 2005 indicate that only one site out of 29 was below the objective level.

Table 12 Factored NO_2 Diffusion tube data

Location	2001	2002	2003	2004	2005
Ladbroke Grove	**50.1**	**47.0**	**59.5**	**61.0**	**69.8**
Holland Park	31.8	29.2	37.1	36.5	37.7
Cromwell Road	**75.2**	**69.9**	**82.6**	**84.9**	**88.9**
Dovehouse Street	**49.2**	**43.8**	**53.3**	**51.1**	**54.3**
Brompton Road	**49.5**	**50.7**	**62.3**	**60.7**	**69.6**
Earls Court station	**87.6**	**89.4**	**94.5**	**95.1**	**101.5**
Lots Road/Upcerne Rd	**43.3**	**46.1**	**42.5**	**40.9**	**45.1**
Brompton Road (2)	**55.5**	**45.9**	**59.8**	**48.8**	**53.4**
Ladbroke Crescent	**42.6**	**43.1**	**43.4**	**44.6**	**47.4**
Pembridge Square	**50.2**	**40.6**	**52.3**	**50.6**	**54.0**
St Marks Grove	**44.4**	35.3	**42.3**	**41.7**	**42.0**
Donne Place	**47.4**	39.1	**49.7**	**48.7**	**49.8**
Pembroke Rd 8m	**45.8**	**41.1**	**53.4**	**45.3**	**56.0**
Pembroke Rd 10m	**57.7**	**41.0**	**51.9**	**50.7**	**56.9**
Sion Manning School	**43.1**	38.1	**41.0**	38.6	**41.1**
Sloane Square	**68.9**	**64.3**	**72.8**	**77.9**	**86.4**
Harrods	**69.3**	**66.7**	**72.8**	**73.3**	**83.8**
Chelsea Physic Garden (Gate)	**59.3**	**50.4**	**61.8**	**58.9**	**61.0**
Chelsea Physic Garden (Met station)	37.4	34.8	38.7	**40.7**	**40.4**
Malborough School	**59.1**	**50.8**	**79.3**	**63.1**	**61.2**
Walmer House	**50.9**	**44.4**	**54.4**	**48.4**	**52.6**
Natural History Museum	**59.6**	**55.5**	**72.5**	**72.7**	**74.6**
Blantyre St	**55.1**	**43.4**	**49.7**	**46.9**	**53.6**
Chelsea Old Town Hall	**64.4**	**51.2**	**71.9**	**74.6**	**87.9**
Pavillion St/Sloane Ave	**62.7**	**46.6**	**55.6**	**50.3**	**61.3**
Kensington H St/Kensington Church St	**55.0**	**46.9**	**65.4**	**65.4**	**72.1**
Kensington H St/Argyll St	**53.4**	**68.6**	**78.2**	**85.0**	**94.7**
Old Brompton Rd	**52.3**	**51.7**	**67.6**	**69.7**	**71.5**
Fulham Rd/Limerston St	**59.3**	**48.2**	**61.0**	**62.2**	**61.6**

Bold indicates an exceedence of the annual mean objective
2005 data (in italics) are provisional should be treated with caution.

Continuous monitoring data

Continuous monitoring is undertaken at five sites in this Borough; details of these sites are included in Table 4, page 5. The results are shown in table 12 and the chart overleaf. The levels are compared to the annual mean and the hourly mean objectives (please note the 2005 data is provisional). Whilst some caution must be applied to the 2005 data any subsequent adjustments are unlikely to affect the conclusions as monitored levels have remained largely above the 2005 annual mean objective level.

Table 13 Concentrations of NO_2 in and near the Borough using continuous monitors

Year	Site	Annual mean µg/m^3 (ppb)	Max hour µg/m^3 (ppb)	No of hours >200 µg/m$^{3\#}$	% Data Capture
1995	North Kensington*	**52 (27)**	283 (148)	17	75
	West London	**54 (28)**	251 (131)	10	98
	Cromwell Rd	**90 (47)**	325 (170)	141	92
1996	North Kensington	**50 (26)**	237 (124)	8	92
	West London	**54 (28)**	392 (205)	**18**	91
	Cromwell Rd*	**82 (43)**	300 (157)	101	68
1997	North Kensington	**52 (27)**	346 (181)	20	98
	West London	**56 (29)**	415 (217)	**38**	97
	Marylebone Rd*	92 (48)	300 (1570)	69	39
1998	North Kensington	**46 (24)**	226 (118)	2	99
	West London	**52 (27)**	193 (101)	0	98
	Cromwell Rd 2*	**82 (43)**	222 (116)	4	60
	Marylebone Rd	92 (48)	176 (92)	71	98
1999	North Kensington	**46 (24)**	178 (93)	0	97
	West London	**55 (29)**	205 (107)	1	98
	Cromwell Rd 2	**92 (48)**	253 (132)	12	98
	Marylebone Rd	90 (47)	325 (170)	51	85
2000	North Kensington	**40 (21)**	425 (222)	3	96
	West London	**53 (28)**	304 (159)	0	98
	Cromwell Rd 2	**88 (46)**	746 (390)	12	94
	Knightsbridge*	**74 (39)**	2818 (1473)	**52**	72
	Chelsea Town Hall*	**86 (45)**	270 (141)	2	25
	Marylebone Rd	92 (48)	570 (298)	100	96
2001	North Kensington	**42 (22)**	220 (115)	4	96
	West London	**52 (27)**	187 (98)	0	95
	Cromwell Rd 2	**76 (40)**	204 (107)	1	97
	Knightsbridge	**84 (44)**	325 (170)	**97**	97
	Chelsea Town Hall	**86 (45)**	228 (120)	16	95
	Marylebone Rd	82 (43)	273 (173)	74	94
2002	North Kensington	**40 (21)**	160 (84)	0	99
	West London	**46 (24)**	151 (79)	0	95
	Cromwell Rd 2	**73 (38)**	183 (96)	0	95
	Knightsbridge	**86 (45)**	366 (192)	**154**	98
	Chelsea Town Hall	**84 (44)**	193 (101)	0	99
	Marylebone Rd	80 (42)	237 (124)	2	99
2003	North Kensington	**44**	195	0	94
	West London	**55**	186	0	96
	Cromwell Rd 2	**76**	224	6	93
	Knightsbridge	**93**	371	**235**	99
	Chelsea Town Hall	**98**	282	**50**	99
	Marylebone Rd	107	394	471	94
2004	North Kensington	**40**	170	0	99
	West London	**50**	206	1	99
	Cromwell Rd 2	**80**	229	3	99
	Knightsbridge	**87**	472	**254**	98
	Chelsea Town Hall	**92**	268	**56**	99
	Marylebone Rd	110	361	529	99
2005	*North Kensington*	***40***	*208*	*1*	*96*
	West London	***50***	*206*	*2*	*95*
	Cromwell Rd 2	***78***	*248*	*7*	*94*
	Knightsbridge	***90***	*410*	***288***	*99*
	Chelsea Town Hall	***91***	*276*	***82***	*99*
	Marylebone Rd	*109*	*436*	*760*	*98*

* some sites have operated for part of a year only, data from these sites must be treated with caution

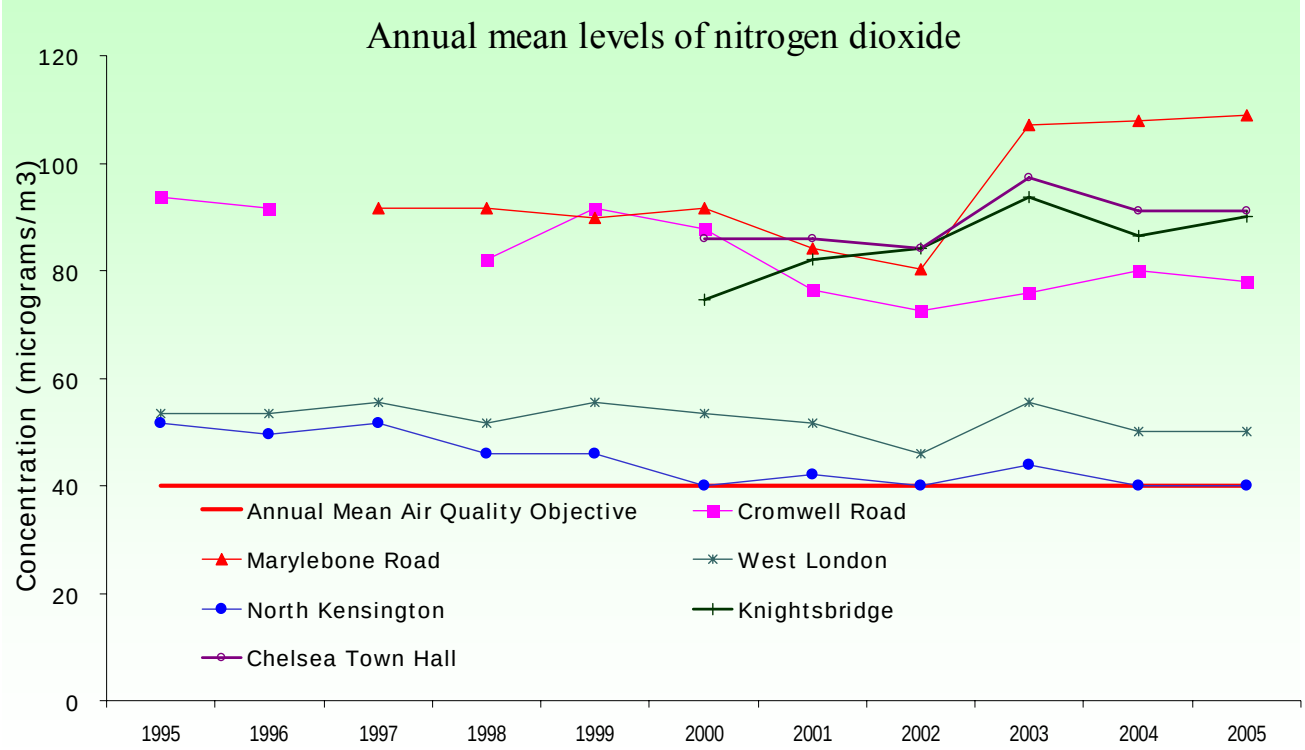
more than 18 hours above 200 µg/m^3 indicate an exceedence of the objective

Figures in bold indicate an exceedence of an objective, recorded within Kensington and Chelsea.

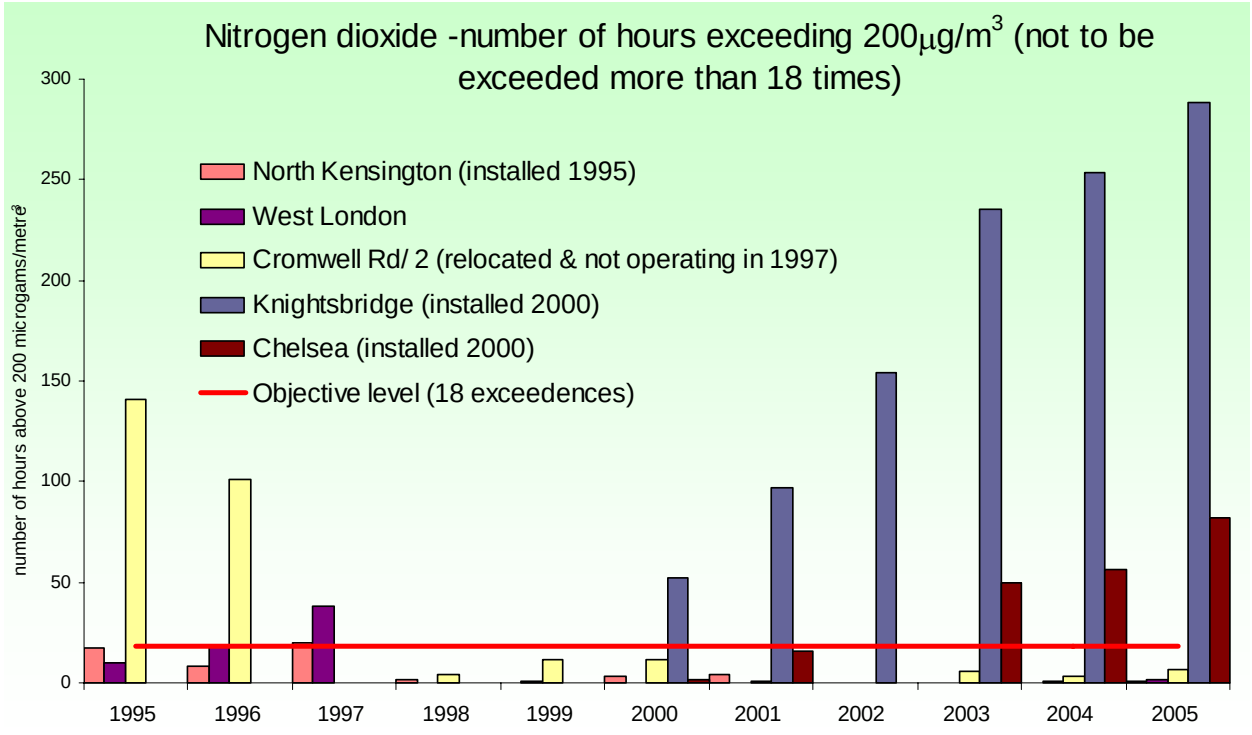
2005 data (in italics) are provisional and should be treated with caution.

Monitoring indicates that exceedences of the annual average NO_2 objective level have occurred at all sites in the Borough. The annual mean levels at all sites (apart from North Kensington which has hovered just above or equalled the objective since 2000) have remained consistently above the objective level and have shown no overall consistent trend for the past 11 years. The Cromwell Road site has shown some decline

overall but this is partly due to its relocation between 1996 and 1998. All other roadside locations have measured overall increases since monitoring began at these sites. Most sites showed a small decline or no change between 2004 and 2005 apart from the Knightsbridge monitoring site, which showed a slight increase.



In recent years exceedences of the one-hour objective have only been breached occasionally in the Borough. However, with the addition of more monitoring sites at potential 'hotspot' locations, exceedences have been identified at locations in Knightsbridge and Chelsea.



These 'hotspot' locations are typically characterised by congested and or stop/start traffic conditions and often heavily trafficked by buses. It is important to note that the new initiative of fitting particulate traps to buses to reduce particles being emitted appears to be resulting in an increase in directly emitted levels of nitrogen dioxide. This may explain why there have been large increases in the hourly mean exceedences at roadside locations in the Borough and at the Marylebone road site.

Predictions v monitoring

It is timely to compare our predictions from computer modelling with measured data for 2005. In broad terms the picture is not that dissimilar to what was expected, that is, that much of the Borough was expected to exceed the annual mean level. In 2002 we predicted concentrations at the monitoring locations in the Borough would range between 46 to 62 $\mu g/m^3$ for 2005. In reality, the magnitude of the exceedences is greater than predicted at roadside locations (78-91 $\mu g/m^3$), whilst at some background locations concentrations are slightly lower than predicted (40-50 $\mu g/m^3$).

This partly illustrates the difficulty of predicting levels at roadsides and junctions where the complexity of the road layout, topography and the effect of building heights cannot easily be taken into account in large area modelling. Other key considerations are assumptions made about weather and emissions data. Assumptions made in 2002 about meteorological and emissions data may have been unrepresentative of the actual conditions prevailing in 2005. However these elements aside it does suggest that improvements as a result of technological developments have not occurred as expected and that only limited improvement has occurred in monitored levels. This concern was highlighted in the Council's previous air quality review and assessment reports (stage 4).

Modelling

Although no advanced dispersion modelling work is required for the USA; modelling work has been undertaken by the GLA for the London area for 2010. These maps (which can be found in appendix A3) seem to indicate larger reductions in pollutant concentrations than might be expected on past experience. In the case of nitrogen dioxide these maps suggest that much of the Borough would achieve the annual mean objective other than at busy roads. However, monitoring data does not seem to support this level of expected improvement in measured concentrations.

Roads

There have been no changes since our last report to any of the following:

- Narrow congested streets with residential properties close to the kerb;
- Junctions;
- Busy streets where people may spend one hour, or more, close to traffic;
- Roads with high flow of buses and/or HGV's.

New roads (constructed or proposed)

There has been no significant changes since the last USA.

Significant changes to traffic emissions

No increases to existing roads have been identified on a scale that would merit re-examination of the modelling work. The exceedences of the annual mean are of such a magnitude as to make it unnecessary to repeat this work at this stage.

Bus stations

There are no bus stations with over 1,000 bus movements per day in the Borough.

New industrial sources
There are no industrial sources in the Borough since the closure of Lots Road power station in the southwest corner of the borough.

Aircraft
There is no airport within 1000m of the Borough.

Conclusion
There has been very little change in nitrogen dioxide sources and concentrations since the last updating and screening assessment. Provisional concentrations for 2005 have exceeded the annual mean objective at the majority of monitoring stations, as have measurements of the hourly mean objective at busy roadside/kerbside locations. As the whole Borough is already an AQMA because of these exceedences, there is no need to proceed to a detailed assessment.

SULPHUR DIOXIDE

Three objectives have been set for this pollutant; a one hour mean of 350 µg/m^3 (not to be exceeded more than 24 times per year), a 24 hour mean of 125µg/m^3 (not to be exceeded more than 3 times per year) and a 15 minute mean of 266 µg/m^3 (not to be exceeded more than 35 times per year), as shown in table 1, page 1. To assess whether a detailed assessment is necessary, we need to review the following information: monitoring data; industrial sources; areas of domestic coal burning; small boilers; shipping and railway locomotives.

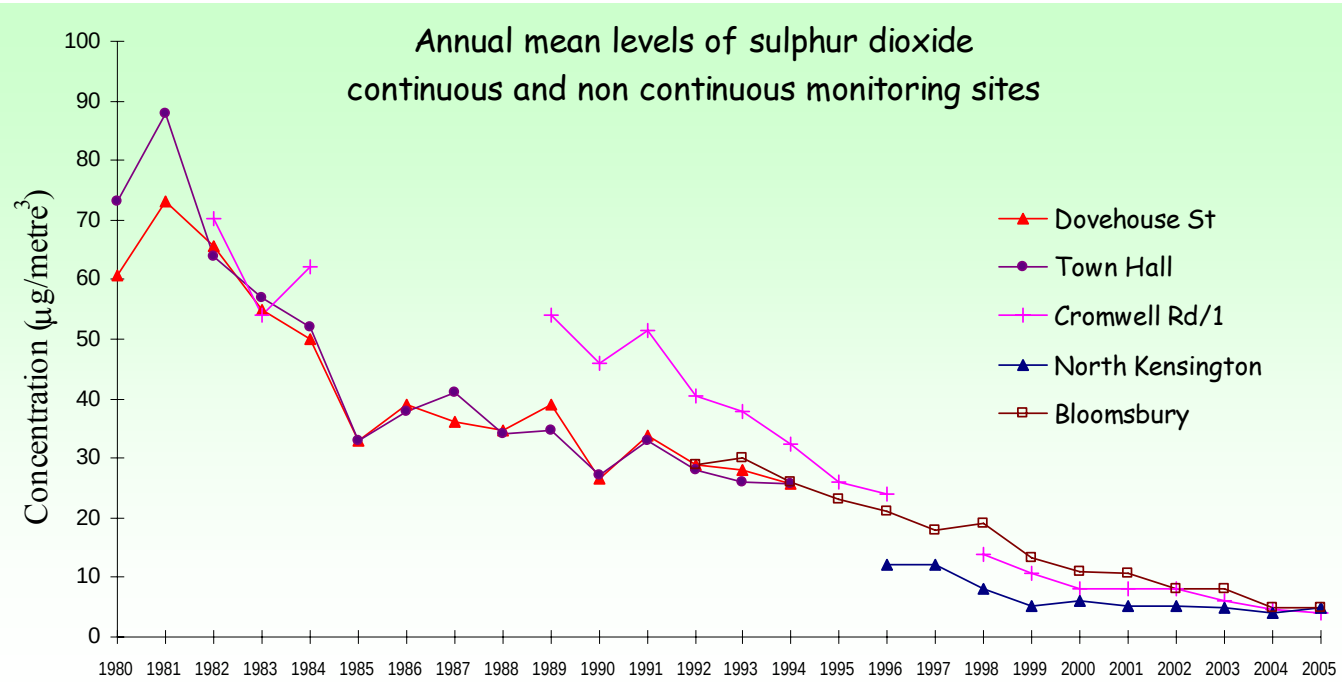
Monitoring data

Table 14 Sulphur dioxide concentrations in the Borough

Year	Location	Annual average µg/m^3	No. of 1 hour means > 350µg/m^3	No. of 24 hour means > 125µg/m^3	No. of 15min means > 266µg/m^3	Data capture
1999	North Kensington	5	0	0	0	99
	Cromwell Rd	11	0	0	0	98
2000	North Kensington	6	0	0	0	96
	Cromwell Rd	8	0	0	0	97
2001	North Kensington	5	0	0	0	97
	Cromwell Rd	8	0	0	0	95
2002	North Kensington	5	0	0	0	99
	Cromwell Rd	8	0	0	0	85
2003	North Kensington	5	0	0	0	99
	Cromwell Rd	6	0	0	0	88
2004	North Kensington	4	0	0	0	97
	Cromwell Rd	5	0	0	0	99
2005	North Kensington	*4*	*0*	*0*	*0*	*99*
	Cromwell Rd	*5*	*0*	*0*	*0*	*95*

2005 data (in italics) are provisional and should be treated with caution.

No exceedences of any of the objectives have been observed in the past seven years at monitoring locations in the Borough. The one-hour and 24 hour objectives were due to be met by the end of 2004 and the 15 min mean by the end of 2005. These objectives have been achieved.



The graph above confirms the long term decline in annual mean sulphur dioxide levels over the past twenty-five years, the older data is based on non continuous method from the '8 port bubbler' method.

New industrial sources or increased emissions
There are no industrial sources in the borough.

Domestic coal burning
There is no significant coal burning in the Borough. This is confirmed by the London Atmospheric Emissions Inventory. A smoke control order covering the whole Borough is due to come into force in May. There are still however several streets within the Borough that are exempt and the orders covering these streets are in the process of being revoked. The technical guidance states that smokeless fuel has similar sulphur content to coal and should also be considered. However we do not believe that there are any 'significant' areas (according to the definition in the guidance) where appreciable amounts of smokeless fuel are burnt.

Small boilers (>5MW)
No additional boilers have been identified since the previous USA which identified a small number of boilers burning fuel oil in the borough, which were below 5MW output (the threshold for inclusion) or are dual fired and use heavy oil for back up purposes only. In any case, guidance states that boilers burning fuel oil on their own are unlikely to be significant because of new regulations limiting the sulphur content to 1% in fuel oil.

Shipping Ports
There are no shipping ports within Kensington and Chelsea.

Railway locomotives
Guidance states that we must assess exposure to stationary diesel and coal-fired locomotives against the short term 15-minute objective. To do this we must identify locations where diesel locomotives are regularly stationary for periods greater than 15 minutes and establish if there is the potential for regular outdoor exposure of members of the public within 15 metres of the stationary locomotives. There are currently two stations within the Borough – West Brompton and Kensington Olympia. These stations are served almost entirely by electric trains. Special steam train excursions rarely use this line and most diesel hauled trains are non-stopping freight services. The few diesel powered trains that do operate do not remain stationary at these stations for any significant length of time, nor is there any relevant exposure at either location.

Conclusion
Monitoring data shows that there have been no exceedences of any of the three objectives. We do not have any industrial sources, or combination of boilers that are likely to produce significant amounts of sulphur dioxide, or any diesel locomotives that sit stationary for a significant length of time at the two stations within the Borough. Therefore it will not be necessary to carry out a Detailed Assessment.

PARTICULATE MATTER

Two objectives for particles, to be achieved by the end of 2004, have been incorporated within the Air Quality Regulations (see table 1, p1) – a short term 24 hour mean objective and a long term annual average objective. In addition to these objectives, three more stringent objectives have been set (see table 2 on page 2) to be achieved by 2010 and 2015. These three have not been incorporated into the Air Quality Regulations; the status on these objectives may become clearer when the review of the national Air Quality Strategy is completed. Therefore, we have not included an assessment against these future objectives in this USA.

The whole of the Royal Borough was declared an Air Quality Management Area in 2000; this decision was partially based on exceedences of the 2004 PM_{10} objectives at some locations. To assess particulates (PM_{10}) for the current objectives, we have considered the following:

- Monitoring data;
- Road traffic including junctions, roads with a high flow of buses and/or HGV's, new roads, roads with particulate concentrations close to the objective previously, roads with significantly changed traffic flow or relevant exposure;
- Industrial sources;
- Areas with domestic solid fuel burning;
- Quarries, landfill sites etc;
- Aircraft.

Monitoring Data

Since 1998, automatic monitoring of PM_{10} has been carried out at two sites within the Borough – North Kensington (Urban Background site) and Cromwell Road (Roadside). In May 2002 a gravimetric sampler was installed on the Earls Court Road. Gravimetric data is also available from the North Kensington site where Defra has chosen to co-locate Partisol instruments alongside our TEOM instrument. These data show that estimated gravimetric levels from TEOM instruments using an adjustment factor of 1.3 give a fairly good approximation of the annual average at this site, however it is less reliable when applied to exceedences of the daily objective. It is important to note that data capture rates are not exactly the same for both methods.

The results of this monitoring is given in table 14 (overleaf) and indicate that, as identified in our Stage four Review and Assessment, the 2004 annual mean objective is likely to be met in most locations. However, concentrations at the Earls Court site between 2003 and 2005 have been just above the annual mean objective level. The 24 hour (or daily mean) objective, has also been exceeded at one or two of the sites between 2003 and 2005.

The Council is concerned that with the Mayor's planned western extension of the congestion charge zone into the Borough, there could be an impact on air quality, specifically along the Earls Court One Way System, which in the Mayor's proposal would not be subject to a charge. Consequently, it would be likely to attract additional traffic. Levels of particulates and nitrogen dioxide already exceed air quality objectives, if the road is to become even more congested, this could see concentrations rise further

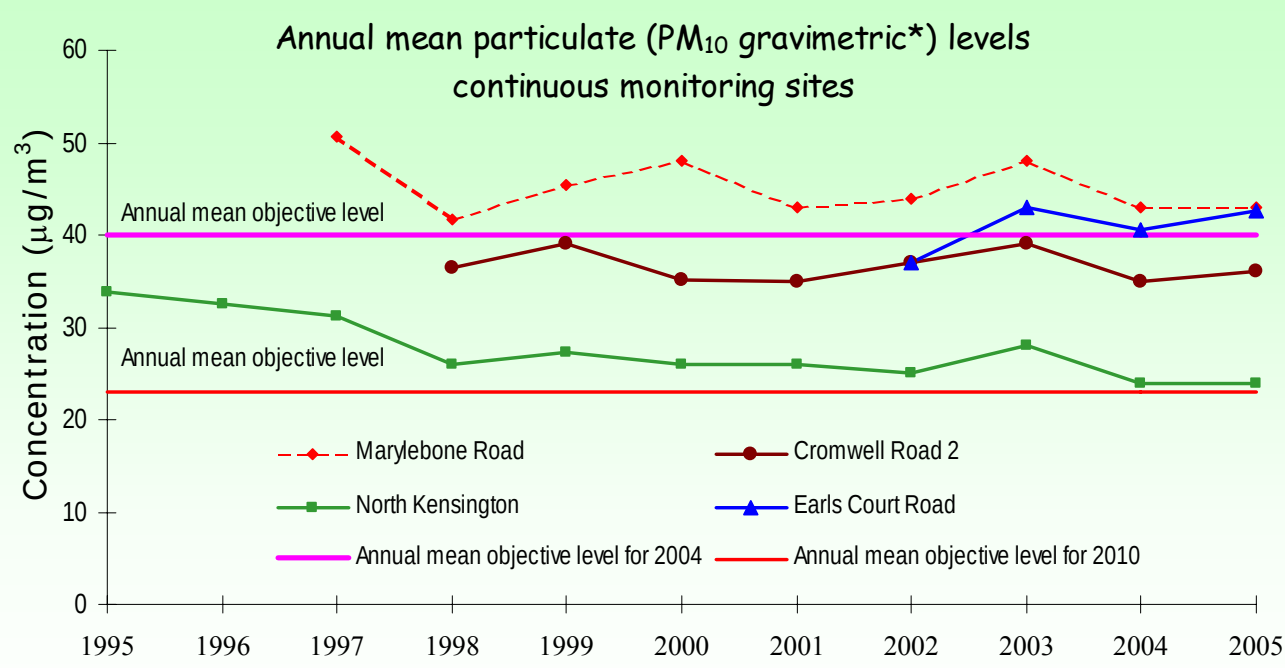
Table 15 Concentrations of particulate matter PM_{10} (TEOM) measured in the Borough and other nearby locations ($\mu g/m^3$)

Year	Site	Annual mean $\mu g/m^3$ (TEOM)	Annual mean 40$\mu g/m^3$ 2004 (GRAV)	No of days above 50$\mu g/m^3$ (GRAV) fixed 24 hr mean	% Data Capture
1995	North Kensington*	26	34	**36**	75
	Bloomsbury	28	36	58	93
1996	North Kensington	25	33	46	98
	Bloomsbury	30	39	65	92
1997	North Kensington	24	31	34	98
	Bloomsbury	27	35	43	96
	Marylebone Rd*	39	51	50	45
1998	North Kensington	20	26	16	98
	Bloomsbury	23	30	21	94
	Cromwell Rd2*	28	37	28	60
	Marylebone Rd	32	42	85	98
1999	North Kensington	21	27	16	99
	Bloomsbury	22	29	21	96
	Cromwell Rd2	30	39	**51**	95
	Marylebone Rd	35	46	114	95
2000	North Kensington	20	26	11	96
	Bloomsbury	21	28	11	97
	Cromwell Rd2	27	35	30	97
	Marylebone Rd	37	48	159	99
2001	North Kensington	20	26	4	96
	Bloomsbury	22	29	16	98
	Cromwell Rd2	27	35	34	99
	Marylebone Rd	34	43	105	98
2002	North Kensington	19	25	8	99
	N Kensington Partisol	Not applicable	25	**39**	88
	Bloomsbury	29	38	43	85
	Cromwell Rd 2	28	37	**36**	95
	Marylebone Rd	34	44	111	98
	Marylebone Rd Partisol	Not applicable	44	44	Not available
	Earls Court Partisol*	Not applicable	37	30	62
2003	North Kensington	22	28	29	98
	N Kensington Partisol	Not applicable	28	**32**	88
	Bloomsbury	23	30	14	58
	Cromwell Rd 2	30	39	**56**	88
	Marylebone Rd	37	48	161	99
	Marylebone Rd Partisol	Not applicable	45	96	98
	Earls Court Partisol*	Not applicable	**43**	**91**	97
2004	North Kensington	19	24	6	97
	N Kensington Partisol	Not applicable	25	12	
	Bloomsbury	20	26	7	98
	Cromwell Rd 2	27	35	29	99
	Marylebone Rd	33	43	97	98
	Marylebone Rd Partisol	Not applicable	41	66	84
	Earls Court Partisol	Not applicable	**41**	**66**	*89*
2005	North Kensington	*19*	*25*	*6*	*99*
	N Kensington Partisol	*Not applicable*	*29*	*26*	*82*
	Bloomsbury	*18*	*23*	*5*	*95*
	Cromwell Rd 2	*28*	*36*	***39***	*98*
	Marylebone Rd	*33*	*43*	***118***	*96*
	Marylebone Rd Partisol	*Not applicable*	*Not available*	*Not available*	
	Earls Court Partisol*	*Not applicable*	***46***	***74***	*94*

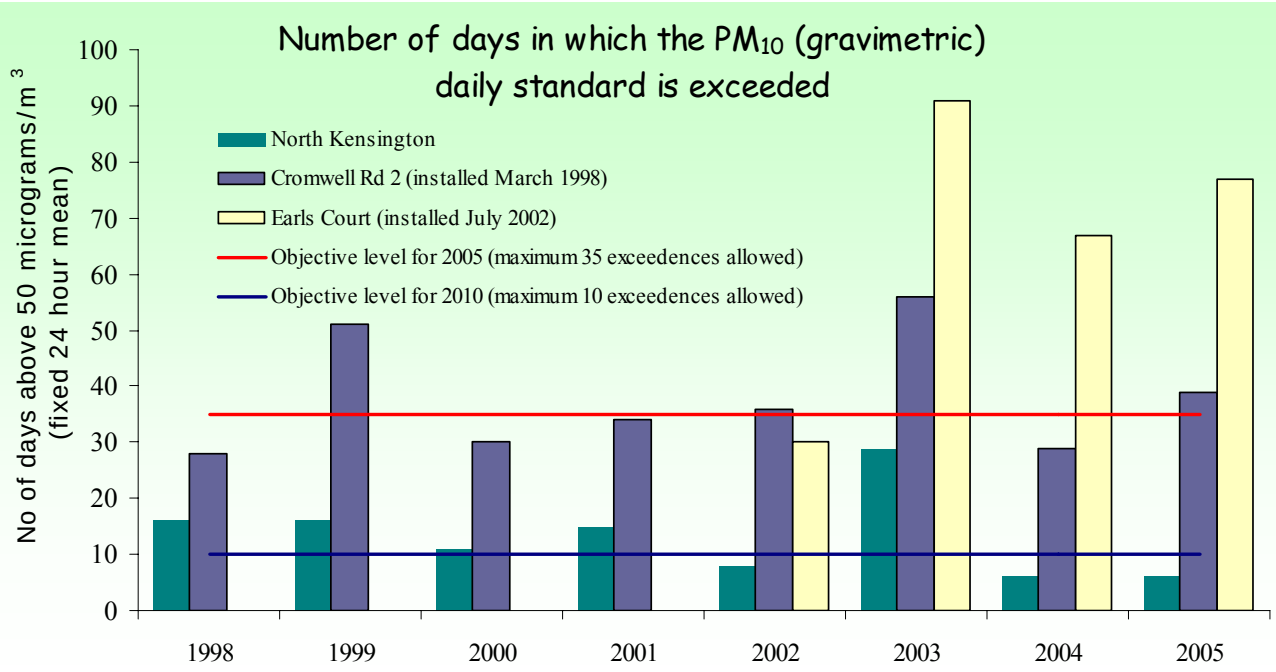
* Indicates that these sites were not operating for a full year. Partisol indicates gravimetric collection method.

- Figures in bold indicate an exceedence of an objective recorded within Kensington and Chelsea.

\# data shown in italics is provisional



*levels measured by TEOM are factored by 1.3



Though there are some locations that do not exceed the objectives, it is unnecessary to undertake a detailed assessment, as our original AQMA covering the whole borough was based on expected exceedences at busy roadside locations. Therefore there has been no change since the Stage Four report was carried out. In conclusion the 24-hour mean objective and annual mean are at risk of being exceeded at busy congested roads.

Road Traffic
The following points were considered in detail during the work undertaken in Stage four modelling:
- Junctions;
- Roads with high flows of buses and HGV's;
- Roads previously close to the objective.

No changes have occurred since then.

New roads (constructed or proposed)
No new roads have been constructed or are currently proposed that will result in any significant change to the Stage four results.

Significant changes to traffic flows
No increases to existing roads have been identified on a scale that would merit re-examination of the modelling work.

Industrial sources
There are no industrial sources within the Borough.

Areas with domestic solid fuel burning
There are no significant areas of domestic solid fuel burning within the Borough. This has been confirmed by referring to the London Atmospheric Emissions Inventory.

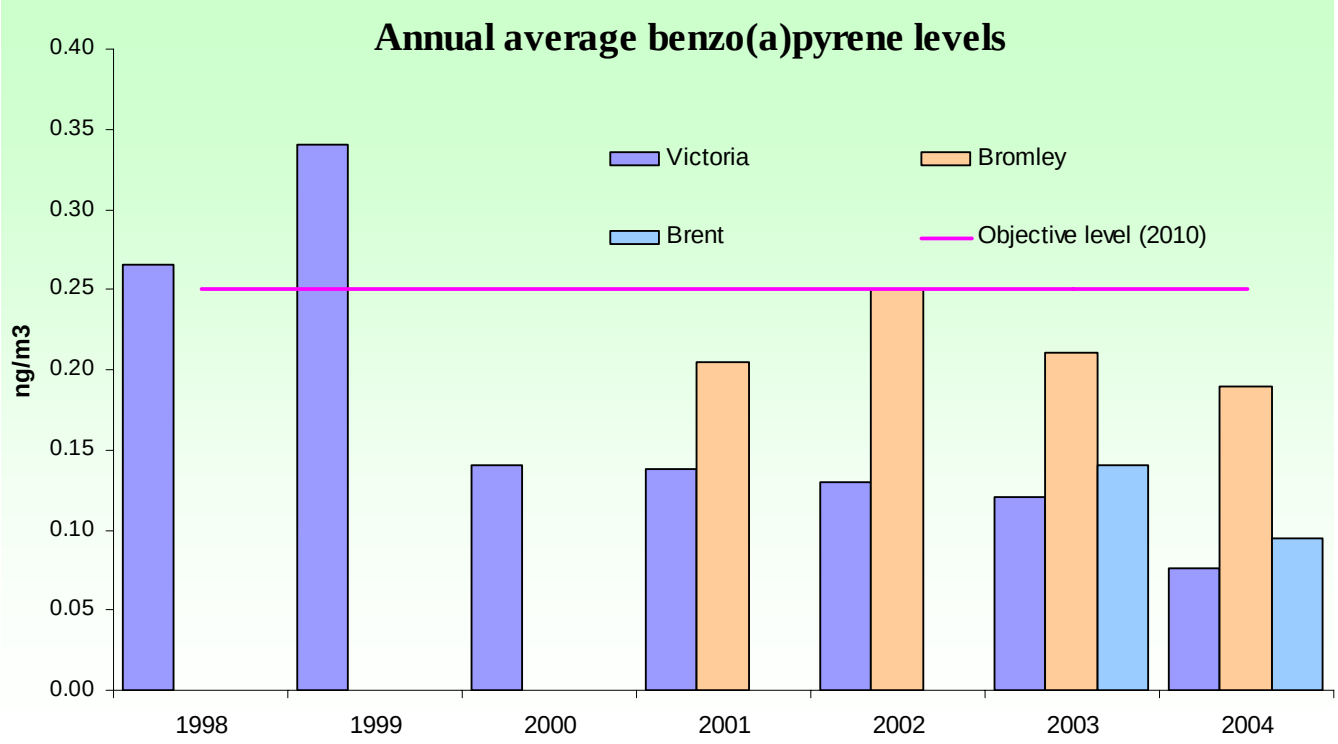
Conclusion
An Air Quality Management Area has already been declared for this pollutant. There have been no significant changes since previous assessments were carried out. It has been demonstrated that there have been more than 35 exceedences of the 24-hour objective and an exceedence of the annual mean level at a roadside location in 2004 and 2005.

Polycyclic Aromatic Hydrocarbons

Polycyclic Aromatic Hydrocarbons (PAHs) are a complex mixture of organic compounds some of which are carcinogens. The Government has set an objective for these pollutants. It would be very difficult and expensive to monitor a selection of these pollutants, consequently, the Government has selected benzo(α)pyrene (b(a)p) as a marker for PAH and set an objective based on this pollutant: 0.25ng/m^3 as an annual average to be achieved by the end of 2010

Whilst this objective for PAHs has been introduced it has not been included in Regulations for the purposes of local air quality management. However some monitoring data from the London area has been included in this report for information. The main sources of b(a)p are industrial emissions and domestic coal and wood burning. Vehicles no longer appear to be a major source. Urban areas, without significant industrial activity, such as London have shown large reductions in concentrations.

Only limited monitoring data exists for PAHs in inner and outer London. Recent data from monitoring at Victoria, Bromley and Brent indicates that at these locations the levels are within the objective. Data for 2005 has not yet been made available. The chart suggests that over the last few years, annual average levels of benzo(α)pyrene have fallen below the objective level.



Conclusion

As the borough has no industrial processes and very little coal and wood burning, concentrations of (b(a)p) would be expected to be similar to the levels indicated by the above monitoring results and, therefore, be within the 2010 objective.

CONCLUSION

In 2000, the Royal Borough of Kensington and Chelsea declared an Air Quality Management Area on the basis that both nitrogen dioxide and particulate matter would not meet the relevant objectives. This Updating and Screening Assessment has not identified any significant changes that will require the borough to proceed to a detailed assessment for any pollutant and therefore our original conclusions are still valid.

During the course of this study, we have examined new monitoring data and objectives. Those pollutants that previously exceeded the objectives (NO_2 and PM_{10}) still do, and carbon monoxide, 1,3- butadiene, lead, and sulphur dioxide, based on current monitored levels, are still likely to meet the objectives.

The only exception is the pollutant benzene. Since the more stringent 2010 objective has been brought in, an exceedence has been recorded at one location – a petrol station. Where this might have required a detailed assessment, planning permission was granted in 2001 to redevelop the site, so the filling station will close, which means the 'detailed assessment' is not required.

PART TWO

ACTION PLAN PROGRESS REPORT

Air Quality Action Plan Progress Report 2006

In this part of the report we look at the progress the Council has made in implementing its Air Quality Action Plan.

Almost three years has passed since the final version of the Council's Air Quality Action Plan was published, and we have made good progress with the majority of the 25 actions set out in it. Implementation of the plan continues to involve liaison across several Council departments including Highways and Transportation, Planning and Conservation, Waste Management and Environmental Health.

Generally speaking, good progress has been made; for example, the Council has now adopted powers to require drivers of stationary vehicles to switch off 'idling' engines - in the last year we received 17 complaints and six warnings were given; membership of the London City Car Club scheme has increased to 198 with eight cars available within the borough; and a draft London best practice guide, 'The Control of Dust and Emissions from Construction and Demolition' has been produced. This is currently the subject of a consultation and in the process of being adopted by the ALG and GLA as a London wide document. A number of actions have been completed e.g. Action 2 (vehicle emission testing), Action 4 (minimum standards for vehicles), Action 5ii (feasibility of electric charging points), and Action 10 (air quality SPG). However in some cases, such as 5ii, action further work is being undertaken because of renewed interest in electric vehicles as a result of the proposed western extension of the congestion charge.

Action one, which relates to the implementation of a Low Emission Zone (LEZ) for London, is however continuing to cause concern for Members. In our Action Plan Progress Report submitted in 2004 we said we remained committed to an LEZ, but raised concerns about the effectiveness of the LEZ approach. Since then the Mayor has consulted on his proposals to introduce a LEZ. We are currently responding to the consultation and in essence we will be commenting that the type of scheme with charges for polluting vehicles is less desirable than a ban of non compliant vehicles. Our greatest concern is that the proposed scheme is not cost effective and does so little to improve air quality beyond the predicted improvement due to the phased introduction of stricter Euro Standards. We are also opposed to a measure, which threatens to remove our discretion in future to impose our own charging scheme.

In response to our previous progress reports, Defra and the GLA have requested further information on how far the measures in the action plan will go in meeting the objectives. As we stated in our original Action Plan many of the measures included in the plan were already being undertaken by the council or would have been introduced because they supported other council objectives i.e. reducing traffic and improving public transport. Many of these measures while promoting an improvement in air quality by reducing emissions or by setting an example, cannot realistically be expected to achieve the objectives. The substantial levels of exceedence above the objectives (particularly that of the nitrogen dioxide annual mean) facing the Borough and indeed the whole of central London make any attempt to quantify the expected improvement impractical. The resources required to model such small-scale improvements would be excessive especially when attempting to quantify very small changes in emissions.

A further consideration is that the expected improvement in concentrations due to natural vehicle replacement is not being reflected in the monitoring data at roadside sites (the air monitoring trends are considered in the Updating and Screening Assessment of the report). Therefore we do not believe it is a cost effective use of the council's resources to undertake analysis of this type. However the council is interested in any practical advice and assistance that Defra or the GLA may be able to provide in helping us to achieve the objectives.

With regards to timescales many actions are ongoing and do not have definite end points e.g. the enforcement of the idling engines regulations. We plan on undertaking a full review of our action plan this summer. An indication of priorities will be considered.

For consistency, we have kept the format of the Action Plan progress report the same as previous years and it shows the progress made with each measure and the latest outcome to date.

No	Action plan	Original timescale	Progress with measure	Outcome to date	Comments	Responsibility
1	We will push for a Londonwide LEZ as soon as is practicable, and ideally by the end of 2006. If there is no support for a Londonwide scheme, we will investigate the possibility of introducing a local or sub-regional LEZ in the Royal Borough.	End of 2006	Following the publication of the 2003 GLA/ALG study, the Council said in its Action Plan Progress Report submitted in 2004 that we remain committed to an LEZ, but have concerns about the effectiveness of the LEZ approach. TfL launched the public and stakeholder consultation on the LEZ on January 30th.	The Mayor is committed to introducing an LEZ by 2007. TFL's consultants have been tasked with reviewing the feasibility study and identifying key risks to the implementation of the LEZ. The council are reviewing these documents and are in the process of drafting a response.	Whilst we are anxious to see improvements in air quality, we find it difficult, on the basis of the information presented by TfL, to support the LEZ in its proposed form. We believe that the marginal benefits offered by the LEZ scheme, compared with the improvements that TfL predict will occur without an LEZ, make it impossible to justify the significant costs to vehicle operators.	Joint responsibility HHASC Environmental Health Transportation and Highways
2	We will work with the Association of London Government, neighbouring authorities, the Metropolitan Police and others to operate a vehicle emission-testing scheme in the Royal Borough from April 2003.	April 2003	10 days testing was completed between Aug 03 and March 04. Testing took place at the 'Bullring' on Chelsea Embankment and Warwick Avenue. **Completed April 2003**	A review of the scheme, including the publicity it attracted, was undertaken by an independent consultant and published in October 2004. It concluded that the scheme had been successful and that the publicity had been effective. No further testing is planned.	Officers explored the possibility of carrying out testing in the Borough with VOSA (formerly the Vehicle Inspectorate). VOSA carried out testing using Chelsea Barracks. They were unable to use roadside sites in the borough since a bus stop was placed in the Bull Ring on Chelsea Embankment.	HHASC Environmental Health

No	Action plan	Original timescale	Progress with measure	Outcome to date	Comments	Responsibility
3	This Council supports the use of new powers to require drivers of stationary vehicles to switch off 'idling' engines.	No original deadline – Action is on-going.	Officers in the Waste Management enforcement have been trained to use these powers. The scheme has now been implemented.	A Key Decision Report was approved. A six month lead-in phase to the scheme has just expired. Street Enforcement Officers can now use their full powers as given by legislation. The leaflet publicising the borough's intentions to issue fixed penalty notices, if required, has been widely distributed including, coach operators, bus companies and local police. Fixed penalty notices are now being printed. During the phase-in period 17 complaints were recorded and six warnings took place. The enforcement team will continue monitoring hot spots and use legislation whenever possible.	Enforcement is being carried out by Street Enforcement Officers who are diverted from other duties to target problem areas in the borough. The number of hours they will be able to devote to this scheme will be limited. The enforcement officers have found that the drivers always switch their engines off when challenged or when seeing the officers approaching, so no offence is committed. Officers respond promptly to complaints but by the time officers arrive at the site the buses or cars may have left their stands or parking places. Complainants are encouraged to report offences to the Streetline facility where they are actioned and recorded.	Waste Management

No	Action plan	Original timescale	Progress with measure	Outcome to date	Comments	Responsibility
4	From April 2004, contractors will be required to choose the Best Practicable Environmental Option for their vehicle fleet. As a minimum, their vehicles' emissions should be no worse than the previous Euro standard.	April 2004	Informally, the Council has been adopting this approach for some time; the next step is to formalise a policy requiring the Best Practicable Environmental Option (BPEO) choice. From 2005, when Euro 4 applies, we raised our threshold to the Euro 3 level. This requirement has applied to all contracts entered into from April 2004 and should be reflected in evaluation criteria, specifications and conditions of contracts accordingly e.g. BPEO has been included in the new waste collection contract. A Fleet Fuel Review is now underway. Undertaken by the Council's new Environmental Coordinator this is assessing the current barriers preventing further adoption of alternative fuels, opportunities for progressing alternative fuels and exploring partnership in fuel trials. This applies to the Council's own fleet and also the Waste vehicle fleet. This is the first step in the development of a Fleet Fuel Policy. The Council's new Environmental Strategy, published 2006, features an aim of 'Reduce the Council Fleet's Environmental Impact' through review, development of policy and implementation of action.	Where alternative fuels have been impractical we have tried to secure other environmental improvements, e.g. energy-saving tyres. SITA are operating the fleet to Euro 3 standard fitted with CRT and using ULSD. Best Practicable Environmental Option (BPEO) has been included in the new waste collection contract.	The original action has been completed but work is ongoing to make continual improvements in this area. A full review of the Council's "alternative fuels" programme will be undertaken, but has not yet begun. It is anticipated that this will begin during the second quarter of the year. The Fleet Fuel Review is underway so the recommendations made to date have not been subjected to Council scrutiny. The Environmental Strategy is currently in an approved draft form. Public consultation and publication will take place in mid-2006.	Corporate Services and Transport, Environment and Leisure Services (TELS)

No	Action plan	Original timescale	Progress with measure	Outcome to date	Comments	Responsibility
5	i) The Council will work with existing and potential suppliers of alternative fuels to establish fuelling points in the Royal Borough, and	Dec 2003	i) The Council expressed interest in a local biofuel project but this has been slow to progress. There appears to be no interest among suppliers in bringing LPG pumps to the Borough. We will publicise existing London LPG pumps through the website.	i) We remain interested in this project but must await SITA's actions on this project. SITA is proposing two trials in 2006. 1) The use of four electric powered vehicles. 2) The use of Bio Diesel. As of 2007 SITA will be operating with a 5% bio diesel mix. SITA are also looking to run a trial in 2006 of a higher percentage of Bio diesel. The Council's new Environmental Strategy, published 2006, has an action to trial bio diesel in certain vehicles. No development of further LPG points in the Borough (there is an LPG fuelling point at Council Offices Pembroke Road). ULSD vehicles procured.	The Fleet Fuel Review, underway, makes recommendation for no further loss of existing LPG vehicles, and makes recommendation for increased partnership working (including out of the Borough) in order to make LPG more viable.	i) Corporate Services and Transport, Environment and Leisure Services (TELS)
5 cont	ii) if it is feasible and cost-effective to do so, the Council will install public charging points for electric vehicles in the Town Hall by the end of 2003.		(ii) Feasibility study into electric vehicle charging points completed in spring 2004. A year or so after the Council's feasibility study concluded that there would be insufficient demand to justify charging points in the Town Hall car park, the Council has begun to receive requests for charging points on-street. It is currently considering how best to respond to this new development, and an apparent rise in sales of electric cars.	(ii) The study found little demand for electric charging points; advent of mass-produced hybrid petrol-electric cars (which do not require charging) makes charging points less attractive. Council officers have ascertained that there is no established practice in London of providing on-street charging facilities for electric vehicles, and are considering a number of technical issues in order to develop a policy position in this area.	The extension of the congestion charge to most of the Royal Borough may increase demand for electric vehicles. To date no decision has been taken on whether and how best to provide for a probable increase in demand for electric vehicles.	ii) Highways and Transportation

No	Action plan	Original timescale	Progress with measure	Outcome to date	Comments	Responsibility
6	The Council will help local organisations to 'green' their fleet, primarily by identifying potential suppliers of low and zero emission fuel. We will offer support and practical assistance to local employers wishing to produce Green Travel Plans and participate in environmental management schemes.		Our main role will still be 'signposting', e.g. to the Energy Savings Trust. We will try to work with those businesses that show an interest in improving environmental performance first. The Council is in the process of establishing a business panel (like the residents panel), which will help us to identify whether there is general interest in environmental performance improvement, and to identify how the Council can help businesses in the Borough. We have also been engaged in working with businesses on the Safe Driving Plan. As part of this work we intend to hold workshops with interested business on safer driving, This will provide an opportunity for the Council to promote green transport and travel plans. The Environment Strategy identifies the need to engage with local businesses. The Council will look to develop a Green Partners Group; this will be formed from the South Kensington Sustainability Forum and North Kensington Environmental Forum over the next 12 months. This will initially look at improvements in waste and energy efficiency. In the medium to long term we hope to extend this to the Health Authority and non-affiliated Educational Facilities.	The draft Environmental Strategy details action to invigorate partnership working in the Borough, including larger businesses, academic organisations, primary health care trusts and museums, among others. The initial step will be to convene a 'green partners group' and set targets for the production of an Environmental Strategy, including green travel targets such as developing and implementing green travel plans.	The EST provides a wealth of information geared towards businesses already. We are about to enhance our contact with businesses generally to enable us to assist them make environmental improvements. In addition we can improve the Council website by including appropriate links and identify some of the actions local businesses can adopt. The new Environmental Strategy encourages the Council to show local leadership in making environmental improvements. This will initially be through working with existing business forums, offering assistance and encouraging them to set environmental improvement targets. The Council will publicise environmental improvements through its website and the proposed 'Green Business Award'. This will utilise evidence, support and funding offered by other parties such as EST and Carbon Trust. A new website will accompany the new Environmental Strategy and will be the primary means by which the Council states it's environmental aims, and informs/guides others (scheduled for Summer '06)	Highways & Transportation

No	Action plan	Original timescale	Progress with measure	Outcome to date	Comments	Responsibility
7	We will consider using the residents' parking permit scheme to encourage residents to choose less polluting vehicles.		Officers have identified the best means of operating the scheme, and consultation results suggest that the principle would be welcomed by residents. IT procurement process has commenced. The target for implementation of the new Residents' Parking Permits software is April 2006. We are unlikely to implement any scheme to encourage residents to choose less polluting vehicles before mid-2006, but sufficient flexibility to incorporate this into the software has been included already.	A revised report focusing on a graduated permit charge based on Vehicle Excise Duty with a supplement for second and subsequent permits in a household was considered at the Majority Party meeting in November 2005.	The Cabinet Member for Transportation and Planning favours the principle of using the parking permit scheme to encourage less polluting vehicles. He has a number of ideas relating to the CO_2 emissions, fuel types, and limiting the number of permits per household. Members have decided to reserve the question of graduated permit charges to their Council election manifesto. This will contain certain pledges and action will not be taken on them until after the election depending on the outcome.	Highways and Transportation

No	Action plan	Original timescale	Progress with measure	Outcome to date	Comments	Responsibility
8	i) We will continue to develop our own green travel plan, paying particular attention to flexible working and home-working, and		i, a) We have improved travel information on the intranet, and currently are planning improvements to our secure cycle storage. b) Planned improvements to staff cycle parking have not yet been implemented. However, improvements to the pool bikes scheme within the Environmental Services business group (the business group with the highest percentage of car users) will take place. c) We are also hoping to reduce staff taxi use by taking advantage of a Government 'green vehicle' scheme. d) The feasibility of subscribing to the Government green cars scheme was investigated, with two pilot teams being identified.	i, a) A staff travel survey in 2003 found a fewer people driving to work and more cycling. b) This will see the number of bikes available increase, and a cycle maintenance programme implemented. In addition key users will adopt responsibility for the bikes helping to instil a better sense of ownership of the scheme. c) We will be including updated and challenging 'green clauses' in the specification of the new Taxi contract. d) However, because of significant changes in one of the teams the timing of this work was no longer appropriate. It was felt that the pilot would only be viable if a significant number of taxi users were able to take part. It was decided that the pilot scheme would be shelved until both teams were able to take part.	The Cabinet Member for Planning Policy and Transportation has approved the idea of a formal staff travel plan document. The next stage is to consult with all staff via the intranet pages on the proposed travel plan document, targets and action plan. This is to be achieved by March 2006.	i) Transportation
	ii) We will work with all interested schools in the Royal Borough to develop school travel plans and encourage less polluting forms of travel to school.		ii) school travel plan coordinator post created and school travel plan process developed, including an innovative website for schools	ii) school travel plan website and schools engaged in the process. 11 schools actually developing plans plus 2 schools have submitted documents.	ii) There are two officers working specifically on travel plans. One is a full time post and the other is part time.	ii) Highways and Transportation

No	Action plan	Original timescale	Progress with measure	Outcome to date	Comments	Responsibility
9	The London City Car Club scheme will be operational in at least one part of the Royal Borough from Spring 2003.	Spring 2003	RBKC lead borough in the London City Car Club Consoritum (LCCC). First car launched Feb2003, there are now eight cars across the borough. **Action completed**	There are 198 members of the London City Car Club within the borough. The eight cars are located at: Phillimore Walk, Uxbridge Street, Lancaster Road, Cambridge Gardens, Earl's Court Square, Thurloe Street, Walton Street and Cadogan Square.	TfL did not continue funding this project beyond year one of a three programme; this has made it harder for the scheme to succeed. The contract for the London City Car Club is due to expire on the 31st March and the future direction of the scheme is currently being considered. It is unlikely that TfL will provide any significant funding for car club schemes in the future. Since the inception of the LCCC a number of private operators have begun providing alternative car club services, including within the borough, from off-street bays.	Highways and Transportation
10	We will produce Supplementary Planning Guidance on air quality. This will explain to developers the Council's requirements and policies in relation to the impacts on air quality of new development proposals. The Council will request that all proposals for developments, if they fall within the scope of the guidance, will include an assessment of the air quality implications.		The SPG was published in September 2003. **Action completed**	We continue to draw the guidance to the attention of developers when appropriate.	Consideration will be given to updating the SPG in light of changes to ALG and NSCA air quality and planning guidance.	Planning and Conservation Environmental Health HHASC

No	Action plan	Original timescale	Progress with measure	Outcome to date	Comments	Responsibility
11	The Council will work with TfL, Network Rail, the Strategic Rail Authority and others to ensure that the improvements to public transport in the Royal Borough will be delivered as soon as possible. The Council will help TfL to deliver improvements to bus services, for instance through targeting parking enforcement on congested areas, and reviewing loading and waiting restrictions.		There is a new 360 bus route which will use dual-fuelled buses which will begin operating from the 4th February 2005. Two new stations will be constructed on the west London line. Construction work has been completed on the White City station. There is a Local Public Service Agreement (LPSA) project to improve the reliability of bus services by reviewing waiting and loading restrictions. Good progress has been made on this project. All major routes assessed, and schemes will be implemented by the time that the "after" monitoring takes place. The Council is currently considering TfL's proposals to enhance bus services in the Borough as a result of the planned congestion charge extension. It is likely that the Council will press for additional changes that would enhance north-south bus movement, particularly in the west of the borough.	The public transport accessibility of the Borough is being continually improved. LPSA: some improvements have already been made, for instance at Kensington Church Street.	Work on the Chelsea Harbour station has been delayed because of technical issues. LPSA: The 'after surveys' will be undertaken during February, March, June, September, October and November 2006. By this time all of the major improvements will have been completed.	Highways and Transportation

No	Action plan	Original timescale	Progress with measure	Outcome to date	Comments	Responsibility
12	We will set and maintain the highest possible standards of i) urban design and		i) Kensington High Street Scheme implemented Streetscape Manual has been published. Streetscape pilot areas established. A Key Decision on future areas is being drafted. Following the success of the original streetscape pilot work, removing clutter and improving the streetscene, the project has been extended to Redcliffe and Stanley wards. The Council is submitting bids to major national lottery funds for taking the Exhibition Road scheme forward.	Increased levels of walking and cycling on Kensington High Street. Reduced traffic flows. The Mayor of London has included Sloane Square amongst the first ten pilot projects in his public spaces programme for London and wishes to work with the Royal Borough of Kensington and Chelsea to improve the quality of the Square. The options being considered are being consulted on currently. Both the Sloane Square and Exhibition Road proposals have been subject to public consultation exercises, and the Council is taking on board comments raised.	The Council continues to receive many enquiries from local councils in this country and abroad about its approach to streetscape design.	i) Highways and Transportation
	ii) street cleansing as part of an integrated approach to making walking an attractive option in the Royal Borough. In doing so, we will seek to establish a reputation as a centre of excellence for streetscape design.		ii) LPSA target to improve street cleanliness is making progress: additional street cleaning to began in April/May 2004. By 2005/06 to improve cleansing standards in the north of the borough by 30% against the 2003/04 baseline; and to improve standards by 20% in the south." Work started April 2004 - new cleansing, street washing, and enforcement teams.	ii) As of December 2005 the LPSA target is still on target for successful completion.		ii) Waste Management

No	Action plan	Original timescale	Progress with measure	Outcome to date	Comments	Responsibility
13	The Council will continue to encourage responsible cycling through a combination of cycle parking, high quality road surfaces, and where appropriate, traffic management.		Free cycle training available to all who live/work in RBKC	Increase in number of residents and workers trained in cycling. 2003/04 – 100 adults + 24 schools. 2004/05 14 adults, no schools. A new contract commenced in April 05 this has enabled cycle training to be offered to all schools in Borough. In 05/06, 22 adults and 71 pupils from 5 schools have been trained.	The low figures in 04/05 were as a result of the training supply contract being terminated. Many more schools are booked for training in May-July 2006.	Highways and Transportation
			The review of cycle parking has been ccompleted. Improved cycle parking in many parts of the borough including Kensington High Street. Cycle route review being conducted. Bike Pool introduced at Council Offices.	33 cycle racks were installed between August and November 2005 at various locations in the borough, bringing our total number to 88. A database including photos of where all the cycle racks in the Royal Borough has been created as a GIS overlay which we hope to make available on our website. We have successfully bid to TfL for £15,000 this year to fund ad hoc requests for new cycle racks. 30 staff have been trained so far. Further training days planned.	All requests for new cycle racks are assessed on individual merit to take into account issues such as demand, available pavement width / potential for obstruction and impact on the streetscape and are installed wherever appropriate. We are hoping to mark the locations of racks on our new Cycle routes map when we have completed our route review.	SSD

No	Action plan	Original timescale	Progress with measure	Outcome to date	Comments	Responsibility
13 Cont			High level of road maintenance.	The Council reduced spend on carriageway maintenance by £100k per annum from 02/03 and a further £100k p.a. from 03/04. Despite this our BVPI 96, 97a and 97b figures were good at 4.9%, 0%, 3.7% respectively. An additional £108k from TfL has been invested in carriageway maintenance in 04/05 (Key Decision report 1st Dec 04). Our BVPI 96, 97a and 97b figures based on visual inspections for 2004/05 are good at 3.3%, 9.1%, and 1.7% respectively.	The Council now has a budget of approximately £1.7 million for carriageway maintenance per annum. However a new method of mechanised measurement is being introduced whose results are not directly comparable.	
14	The Council will ensure that its charges for on-street visitor parking spaces are effective in managing demand.		The Council reviews charges annually on the basis of regular occupancy surveys. Last year it increased charges in the Medium Charging Area, which accounts for approximately 33% of all pay and display bays.	Charges are used to ensure that occupancy levels are not so high as to lead to large numbers of vehicles circulating in search of a space.	No increases are planned for 2006. The Basic Tariff was increased in April 2004 and the Medium Tariff in May 2005. However officers and members are mindful of the effect of the congestion charge which is going to be imposed on the Borough.	Highways and Transportation
15	The Council will use its new powers to require that appropriate new developments are made 'permit-free', as part of the planning consent process.		Council Policy agreed. Traffic order has been amended. A SPG document on 'Permit-Free and Car-Free plus Permit-Free Residential Development' was published in July 2004. Permit-free agreements are now commonly used to control parking demand in new developments.	At the present time twelve S106 permit-free legal agreements have been sealed. In total 42 planning permissions have been granted subject to a permit free legal agreement.	The number of permit-free agreements will continue to increase as the mechanism is used to ensure new development does not increase parking demand on-street. Over the last four months an average of six planning permissions have been granted each month with permit-free provisions.	Highways and Transportation

No	Action plan	Original timescale	Progress with measure	Outcome to date	Comments	Responsibility
16	The Council will review opportunities to designate new taxi ranks in the Royal Borough and will lobby for taxis to be affected by the rules of any LEZ that is established.		i) A taxi rank was installed on the Kings Road, and engineers are considering changes to the taxi rank arrangements as part of a major redesign of Sloane Square. ii) Officers have challenged the study recommendations that taxis be dealt with outside a formal LEZ policy.	i) A new taxi rank has been provided, which should help to reduce the need for taxis to circulate while empty. ii) TFL's consultants have been tasked with reviewing the feasibility study and identifying key risks to the implementation of the LEZ. An emission strategy for taxis has been produced by the Mayor which requires all London Taxis to be Euro 3 by the end of December 2007.	The Council is not aware of any requests for taxi ranks in the Borough this year.	Highways and Transportation
17	The Council will work with Transport for London to use signals to smooth traffic flow, without increasing overall traffic levels.		We changed signal arrangements at Ken High Street and plan to do so on Exhibition Road and Notting Hill Gate. The Council's efforts to improve bus reliability through its LPSA work (see Action 11) will also have benefits for general traffic flow.	Traffic moving fairly freely on Ken High Street. See Action 11 relating to the LPSA on bus reliability.	Design work and public consultation has progressed on the schemes at Exhibition Road and Sloane Square	Highways and Transportation
18	The Council will review coach parking facilities in the Royal Borough.		This has yet to be carried out formally but will be included as part of the Local Implementation Plan (LIP).	No new arrangements made in the last year.	Since securing off-street coach parking facilities on Warwick Rd, the Council is not aware of new requests for coach parking.	Highways and Transportation
19	We will consider the recommendations from the London Sustainable Distribution Partnership and we will actively consider joining Freight Quality Partnerships promoted at sub-regional level.		The Council is not aware of any recommendations prepared by the London Sustainable Distribution Partnership. The work on LPSA reviewing all waiting and loading will assist in improving deliveries to local outlets.	The Council is a member of SWELTRAC (which is part of a Freight Quality Partnership) and takes part in regular meetings.	The Council looks forward to the publication of TfL's Freight Strategy.	Highways and Transportation

No	Action plan	Original timescale	Progress with measure	Outcome to date	Comments	Responsibility
20	The Council will work with the Building Research Establishment, the Mayor of London, neighbouring boroughs and representatives of the construction industry to create a Green Building Site Code of Practice.		Work is underway on a considerate builder scheme, which should include some environmental elements. We will review the need to produce our own Code of Practice in the light of other agencies' work. A draft London best practice guide, *The Control of Dust and Emissions from construction and Demolition* has been produced in collaboration with other local authorities, the ALG and GLA.	A consortium of London Boroughs including the Royal Borough, APPLE (Air Pollution, Planning and the Environment) have produced a draft London best practice guide. The document is currently the subject of a consultation and in the process of being adopted by the ALG and GLA as a London wide document.	The document outlines the requirements that developers should take into account during the development process. Developments can be identified as Low, Medium or High Risk and from this statement alternative mitigation methods were identified in order to control potential dust generation from construction sites.	Env Health and Planning and Conservation
21	The Council will continue to encourage residents to compost waste rather than burning it in bonfires.		Originally the council supplied cut-price composters to residents. This ended in December 2004. However the Council now offers a service collecting garden waste for municipal composting for 6-8 months of the year. The Council has signed up for London CRN's Master Composting scheme. Council promotes home composting via its website.	There is little evidence of garden bonfires in the Borough. 100+ home composters were supplied to residents before the campaign finished. 126 tonnes of garden waste collected for composting from 1,568 residences during growing season 2004/05. This has increased to 139 tonnes of garden waste collected for composting from residences during the 2005/06 growing season. There are no records of how much home composting is done in the borough. The Waste and Resources Action Programme (WRAP) is however working on a standard method to calculate this via its Home Composting Campaign that continues in other boroughs.	Given that fewer than 1,500 home composters have been purchased via Council subsidised schemes over a period in excess of 8 years, scheme has been discontinued following end of WRAP's Home Composting Campaign This ended in December 2004 due to a lack of take-up by residents. We believe municipal composting will prove more effective.	Waste Management

No	Action plan	Original timescale	Progress with measure	Outcome to date	Comments	Responsibility
22	We will work towards re-designating the Smoke Control Zone by 2003.	Dec 2003	A smoke control order covering the whole Borough is due to come into force in May.		There are still however several streets within the Borough that are exempt and the orders covering these streets are in the process of being revoked	HHASC Environmental Health
23	The Council will continue to carry out regular and rigorous statutory inspections in accordance with DEFRA guidance, to ensure that emissions from small industrial processes (Part B processes) do not exceed national air quality objectives, and are minimised as far as is practically possible.		All inspections have been completed in accordance with our statutory requirements. Inspections have been carried out.	The processes were found to be satisfactory and operating in line with their authorisations. Dry cleaners have now fallen under the regulatory control of the Council. Currently, those dry installations requiring permits have been processed, three to date.	In the coming year we will ensure that the remaining dry cleaning installations in the Borough comply with the Secretary of States Guidance - based on BAT - and permits have been issued.	HHASC Environmental Health
24	The council will continue to promote energy-efficiency measures in the homes in the Royal Borough, under its HECA and its Affordable Warmth work. It will also consider and require efficient local energy generating schemes where practicable.		Refurbishment work on the 'flagship' HMO has been completed and the building is fully occupied. Publicity for the scheme is continuing. A 'virtual walk-through' has been added to the scheme's website so it can continued to be viewed. Presentations on the scheme are continuing. Properties that receive grant-aided work for energy efficient measures are assessed to see how much reduction in carbon is achieved.	Energy saving measures have been installed, which are estimated to reduce carbon dioxide emissions from the building by 65%, from 25.74 to 9.58 tonnes per annum. Publicity has and continues to raise awareness of possible and practical ways of saving energy among landlords and residents. A statistical survey of grant-aided works is undertaken annually. In 2005/2006 there was a reduction of 66.6 tonnes from properties that had benefited from grant -aided works.		HHASC Environmental Health

No	Action plan	Original timescale	Progress with measure	Outcome to date	Comments	Responsibility
25	The council will maintain its financial commitment to air quality monitoring and modelling and will consider further types of monitoring as the need arises.		Commitment to the air quality monitoring programme has been continued.	A further year's detailed data on pollution concentrations have been collected. These data have been analysed and used to check progress against the objective levels and incorporated into further review and assessment reports including the 2005 Local air quality management progress report and this 2006 Updating and Screening Assessment. The Defra installed $PM_{2.5}$ monitor at our AURN affiliated site is providing data that will enable us to assess the need for more $PM_{2.5}$ monitoring.		HHASC Environmental Health

OVERALL CONCLUSIONS

Three years have passed since the final version of the Council's Air Quality Action Plan was published, and we have made good progress with the majority of the 25 actions. Some of the actions have been completed, however many actions are ongoing projects aimed at continual improvement. In some instances the emphasis of the action has shifted e.g. the Council whilst continuing to encourage residents to compost rather than burning waste in bonfires is now offering a green waste collection service.

Despite the progress in implementing our Action Plan, air quality concentrations of the pollutants of most concern are not significantly improving. This is mainly due to the fact that although a number of actions within the plan seek to reduce traffic volumes, which in turn should result in a reduction in emissions from vehicles, a reduction in emissions, does not give a proportional reduction in pollution concentrations. This is caused by a combination of complex atmospheric reactions, the weather and the way that pollutants behave across boundaries. Whilst some actions, as we know, will have only a limited impact on air quality in the borough there are good reasons for undertaken them such as leading by example. Although they will also reduce the impact of the council's activities, the effect on their own is not directly measurable. Others are designed to encourage visitors, other organisations and businesses to reduce their impact on air quality.

GLOSSARY

Advanced air quality dispersion model – computer based air quality dispersion models are used to predict pollutant dispersion and deposition patterns. This helps to identify areas where highest ambient concentrations are to be expected.

AQMA - Air Quality Management Area, an area designated by a local authority where it is likely that the air quality objectives in the National Air Quality Strategy will not be achieved by the appropriate future year specified by each pollutants' objective.

Air Quality Action Plan – a plan of initiatives that is being implemented to improve air quality.

Automatic monitoring sites - sites producing high-resolution measurements typically hourly or shorter period averages.

AURN - Automated Urban Rural Network - A DEFRA (previously DETR) air quality monitoring network.

AURN affiliate - a monitoring site owned and operated by a local authority but included in the DEFRA network of sites.

Urban background site - a sampling site in an urban location distanced from sources and broadly representative of city-wide background concentrations eg elevated locations, parks and urban residential areas.

Benzene - an aromatic hydrocarbon.

1,3-Butadiene - colourless gaseous hydrocarbon.

Carbon monoxide - gas formed by the incomplete combustion of carbon containing fuels.

DETR - Department of Environment, Transport and the Regions since replaced by DEFRA.

DEFRA – Department for Environment, Food & Rural Affairs.

Diffusion tube - a small air pollution monitor that passively absorbs a pollutant over a monthly time period, and is then collected and analysed.

Emissions inventory – a comprehensive data set of pollution emitted from a variety of sources.

Fine particles – see Particles.

Gravimetric method – a method of sampling particulate matter by collecting it on a filter and weighing it e.g. Partisol

HGV – heavy goods vehicle, a goods carrying vehicle of 3.5 tons, or more, gross laden weight.

8 hr running mean - an average taken over an 8-hour period, which progresses hour by hour.

Intermediate site - a sampling site within 20-40 metres of the source/road.

Kerbside site – a site sampling within 1 metre of a busy road.

Lead – one of the heavy metals that are a toxic and acts as a cumulative poison.

LAQN - London Air Quality Network, a network run by a consortium including local authorities, the Environmental Research Group - King's College (formerly South East Institute of Public Health) and the Association of London Government, to co-ordinate air pollution monitoring.

$\mu g/m^3$ - a microgram of pollutant in a cubic metre of air.

NAQS - National Air Quality Strategy, issued by the Department of the Environment in 1997 to implement the air quality part of the Environment Act 1995.

Nitric oxide (NO) - a colourless toxic gas arising from the combination of atmospheric nitrogen with oxygen in high temperature combustion.

Nitrogen dioxide (NO_2) - a stable brown gas largely produced by the oxidation of NO. NO_2 is more toxic than NO.

99^{th} percentile - the concentration at which 99% of the data are below.

Particles – or fine particles, these are microscopic particles of varying composition, and for the purposes of this report the term 'particles' refers to a range of particle sizes from 10μ to 0.1μ.

Pollutant specific guidance – issued by DEFRA, provides advice on review and assessment for each pollutant identified in the air quality regulations 1997.

Objective –we have used the word objective throughout this report. This is the term used by the Government to describe standards which have a set timescale (i.e. a target date) for their achievement.
ppb - parts per billion.
ppm - parts per million.
PM_{10} - particulate matter less than 10 μ (micrometres) in diameter.
$PM_{2.5}$ - particulate matter less than 12.5 μ (micrometres) in diameter.
Roadside site - a sampling site between 1 metre of the kerbside of a busy road and the back of the pavement. Typically within 5 metres of the road.
Screening models - give a preliminary level of assessment and only require simple input data.
Source apportionment – the degree to which various sources of pollution contribute to air quality problems.
Sulphur dioxide (SO_2) - a colourless toxic and acid forming gas, it is the main product of the combustion of sulphur contained in fuels.
Technofix – the use of improved engine and fuel technology to reduce pollution.
TEOM - Tapered Element Oscillating Microbalance - a device for continuously measuring fine particles.

APPENDICES

REVIEW AND ASSESSMENT WORK TO DATE **Appendix 1**

This section describes briefly the work undertaken previously.

First Round of Review and Assessment:

Stages One - Three

The Royal Borough of Kensington and Chelsea completed the first round of Review and Assessment in 2003: it consisted of three stages of examining the sources, identifying the contribution of each and a reviewing of monitoring data and finally a prediction of concentrations for the key deadlines using sophisticated modelling. By the end of stage three after a process of elimination the following conclusions were reached.

Table 15 Summary of results

Pollutant	Assessment
NO_2	High likelihood the Borough would exceed the annual mean and hourly mean objective along many of the major roads in the borough.
PM_{10}	High likelihood that the Borough would exceed the 24 hour mean objective at a few locations.
SO_2	Virtually no likelihood that the Borough would exceed the objectives for sulphur dioxide.
CO	No likelihood that the Borough would exceed the objectives for carbon monoxide.

Consequently an Air Quality Management Area was declared in December 2000 based on exceedences of nitrogen dioxide (NO_2), particulate matter (PM_{10}). This covers the whole of the Royal Borough of Kensington and Chelsea.

Stage Four

Stage four was carried out to check the results of the previous reports in the light of the latest air monitoring results at the time and further modelling work. It also took into account the revised information gathered on road traffic emissions, which essentially acknowledged that the exhaust emissions of newer vehicles were not as clean as previously claimed. There were some differences between the modelling undertaken previously, but exceedences were still being predicted for both nitrogen dioxide and PM_{10}. In addition the further work eliminated any concerns regarding carbon monoxide and sulphur dioxide.

Alongside this, an Air Quality Management Plan was produced, setting out 25 actions that the Council should take to work towards improving air quality. The second part of this report updates the progress being made on these actions.

Second Round of Review and Assessment

An Updating and Screening Assessment (USA) was conducted as part of the second round. This was published in April 2004. The purpose of a USA is to identify whether any changes have taken place with the seven pollutants, highlighted in table 1, since the previous assessment. A Detailed Assessment (DA) must then be undertaken if this is the case. We concluded that a DA was unnecessary. The following year we submitted a combined Air Quality and Action Plan Progress report.

Third Round of Review and Assessment

This updating and screening assessment forms part of the third round of assessment. Each pollutant is dealt with individually and considered against the updated guidance checklist.

Appendix 2

DATA COLLECTION AND QUALITY ASSURANCE/QUALITY CONTROL

Data collection, screening and validation

Monitoring data are stored as 15-minute averages within the analysers. Air quality data, including full instrument status information, are collected hourly via modem by the King's ERG on the Borough's behalf from the monitoring sites via the data loggers within the analysers. These data are stored within the London Air Quality Network database. Data are validated by a combination of automatic and manual checks. The procedures used comply with the validation requirements of the UK Automatic Urban and Rural Network Management and Co-ordination Units. Manual validation is carried out daily. Data are ratified in three to six month blocks using service records, calibration records, and the results of inter-calibration and audit. Data are passed on to the DEFRA's Quality Assurance and Quality Control Unit for final ratification.

Quality Control and Audit

Routine calibration and independent checks

Local site visits are undertaken fortnightly at the urban background site and weekly for the roadside Tapered Element Oscillating Microbalance (TEOM) for the purposes of calibration, filter changes and instrument cleaning. Equipment is additionally serviced at regular intervals.

Independent calibration and audit is carried out by AEA Technology as part of their Automatic Urban and Rural Network (AURN) responsibilities for the North Kensington site and for the Cromwell Rd through a separate contract. Calibration certificates are provided by AEAT. National Physical Laboratory (NPL) undertake the London affiliate inter-calibration exercise. The following checks are performed for the oxides of nitrogen, sulphur dioxide and carbon monoxide analysers:

Analyser response factors: The analyser samples a stable 'inter-calibration standard' which has been validated against a network primary standard. The analyser also samples from a certified zero air source.

Analyser linearity: The analyser response to a series of known concentrations covering the analyser range is noted. A linear regression is then performed on the results.

Analyser 'noise' levels: This is the standard error of ten successive spot readings of analyser readings when fully stabilised on zero.

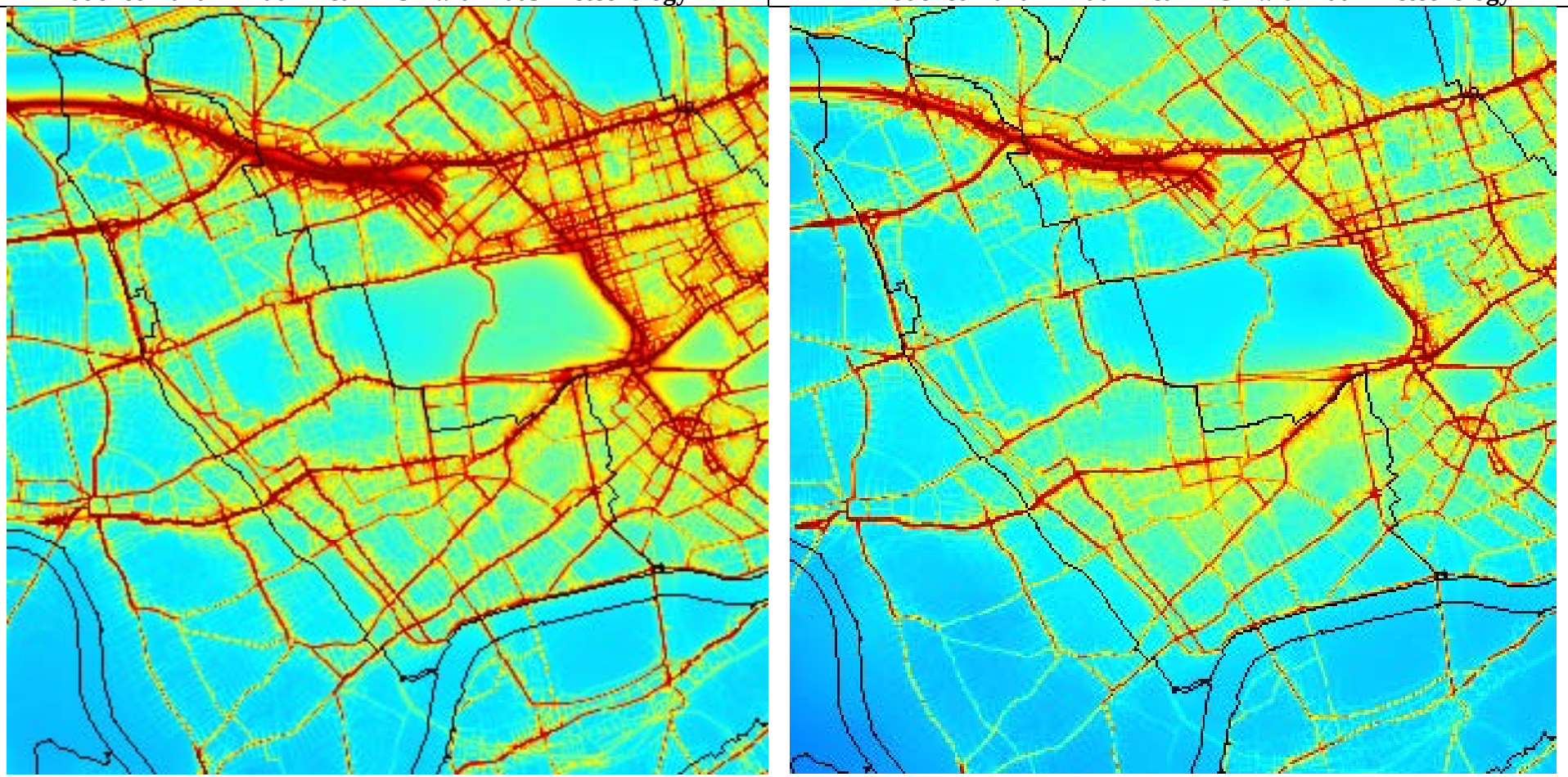
Nitrogen Oxides analyser converter efficiency: NO_x analyser converter efficiency is determined using Gas Phase Titration at a range of concentrations, this uses a high concentration of NO and a known amount of O_3 which is subsequently converted to NO_2.

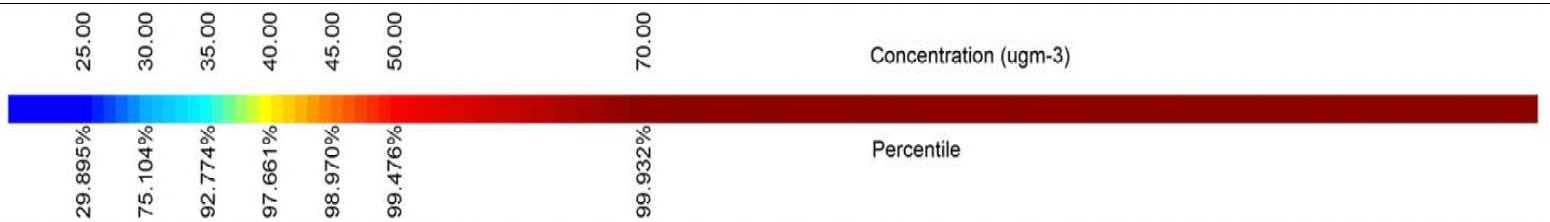
Estimation of site cylinder concentrations: The concentrations are evaluated by sampling from the site cylinder and comparison to analyser response factors determined from the 'inter-calibration standard'.

For particle analysers the following checks are performed: Mass transducer calibration: The mass transducer is calibrated by placing pre-weighed filters on it and noting the change in the frequency that is induced.

Analyser flow rates**:** Flow rates are measured by calibrated flow audit measurement systems. Leak checks are also carried out.

Modelled 2010 Annual Mean NO2 with 2003 Meteorology	Modelled 2010 Annual Mean NO2 with 2002 Meteorology





Appendix 4

BOROUGH FLEET