

Annual Summary

- The main breaches of standards were by **ozone, particulate matter (PM₁₀) and nitrogen dioxide** in 2001.
- The number of hours that ozone was recorded within the moderate band (157) was up from the previous year (114), as was the annual average.
- There were nitrogen dioxide incidents in February, November and December. Some incidents were very local and appear to have affected only the immediate vicinity of specific monitoring sites. Only the Knightsbridge monitoring site reached levels of nitrogen dioxide in the moderate band.
- There were no exceedences of the moderate banding for carbon monoxide (CO) or sulphur dioxide (SO₂) during 2001.

Standards and Objectives

There are two main types of standards used by:

- the banding dissemination system used to notify the public of air quality on a daily basis;
- the national air quality objectives used to assess air quality in the longer term.

NEW Air Quality Objectives

A consultation document on proposals for air quality objectives for PM₁₀, CO, benzene and polyaromatic hydrocarbons (PAH's) was published by the Government in September 2001. The most significant were the new standards proposed for PM₁₀. The Government has now adopted these and are likely to be incorporated into regulations after 2004. The new hourly objective for PM₁₀ is not to be exceeded on more than 10 days and an annual objective of 23µg/m³ not to be exceeded by 2010. For more info:

<http://www.defra.gov.uk/news/2002/020805a.htm>



NEW SITE

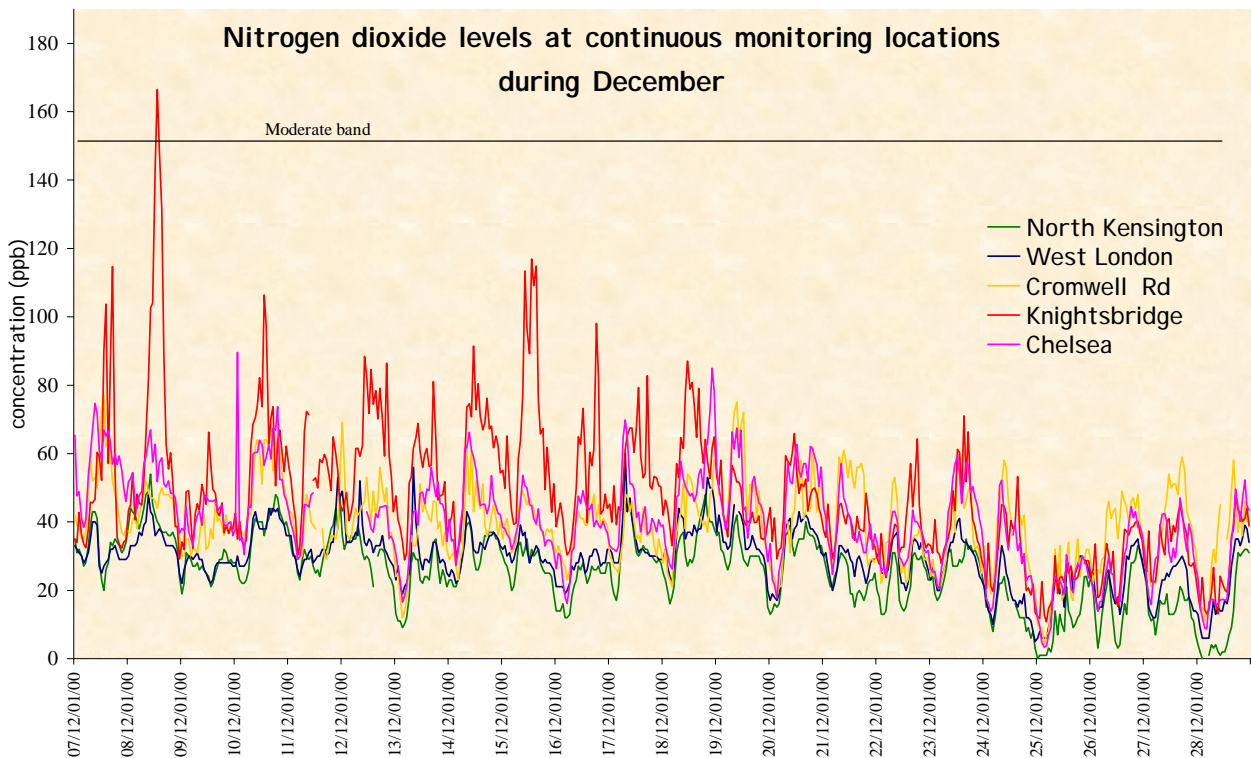
During 2001, a partisol, (a gravimetric method for measuring particles) was installed on the Earls Court road. Partisols are semi automated, in that the exposed filters need to be collected and then later weighed in laboratory conditions to measure the particle concentration.

This site is now collecting data, which will be compared with data collected using a fully automated method (TEOM). Measurements from TEOM's need to be factored to make results comparable to gravimetric measurements.

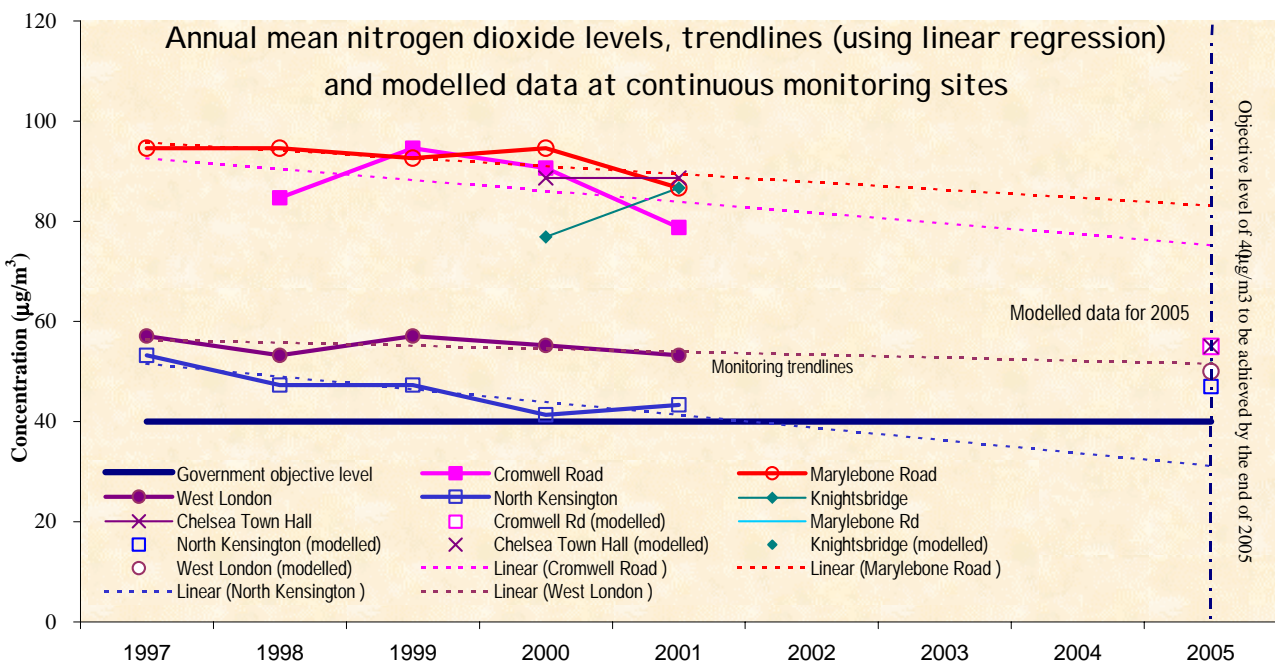
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NITROGEN DIOXIDE



The chart above shows hourly levels during December. The daily pattern can be clearly seen with concentrations normally at their highest at midday often followed by another peak in the late afternoon. Levels tend to be highest at the roadside locations and at their lowest at the background sites. However at night this difference is less obvious. December had some of the highest and lowest levels experienced during the year. The day with the lowest pollution levels at all sites was unsurprisingly on Christmas day.



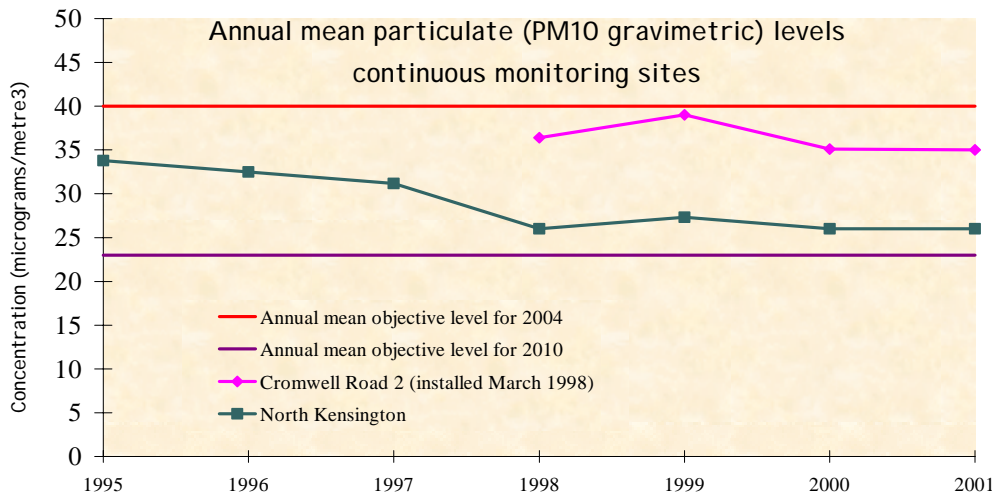
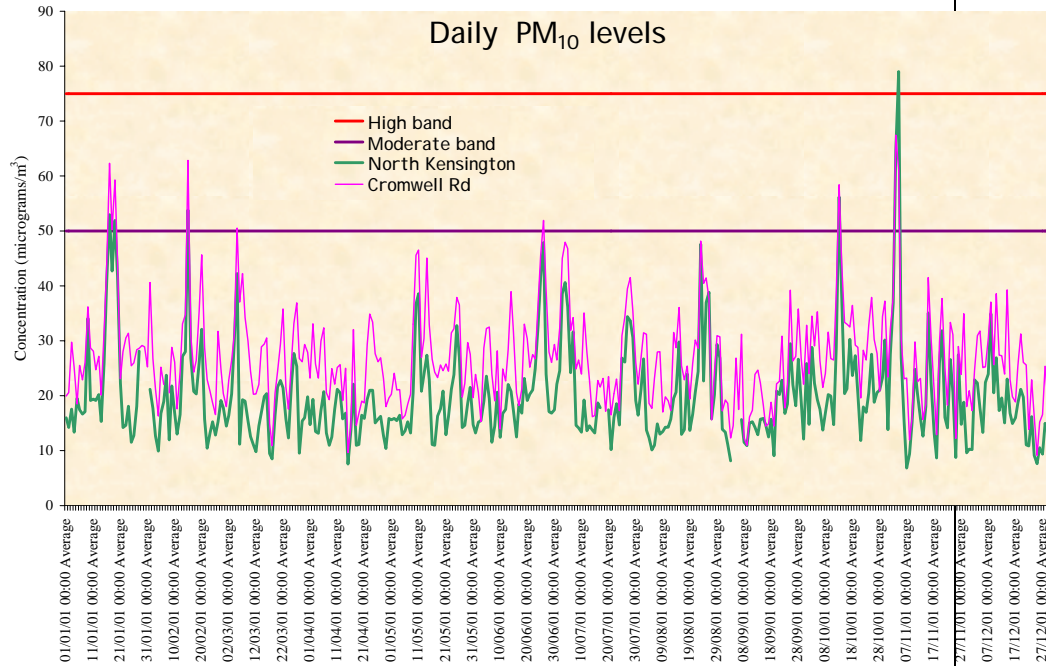
This chart shows the annual mean levels over a number of years. There has been a slight decline in levels at some locations; despite this concentrations remain above the government objective. Monitoring trendlines indicate (with the exception of the North Kensington site) that levels will remain above the objective level in 2005. Predicted levels using computer modelling also suggest that this situation is likely to continue.

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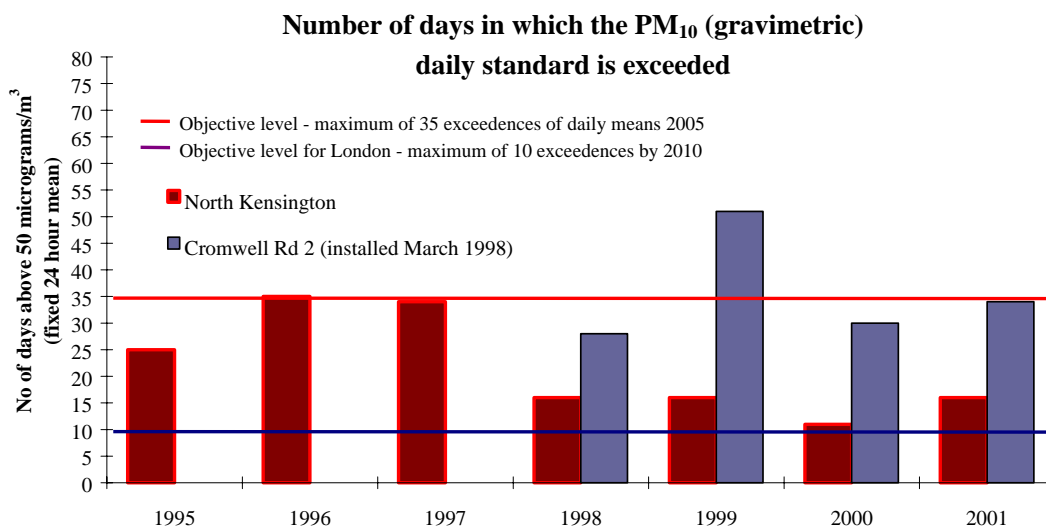
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Particulate matter (PM₁₀)

During 2001 'high' levels (according to the Defra system- please see the table in the statistics section) were reached at both sites in the Borough. However, the background site recorded all these exceedences on one day (November 4). It is likely that this was due to local bonfire events. Breaches of the moderate band were spread throughout the year.



Annual mean PM₁₀ levels at monitoring sites in the Borough do not exceed the 2004 objective but do exceed the new objective level that has been set for 2010.

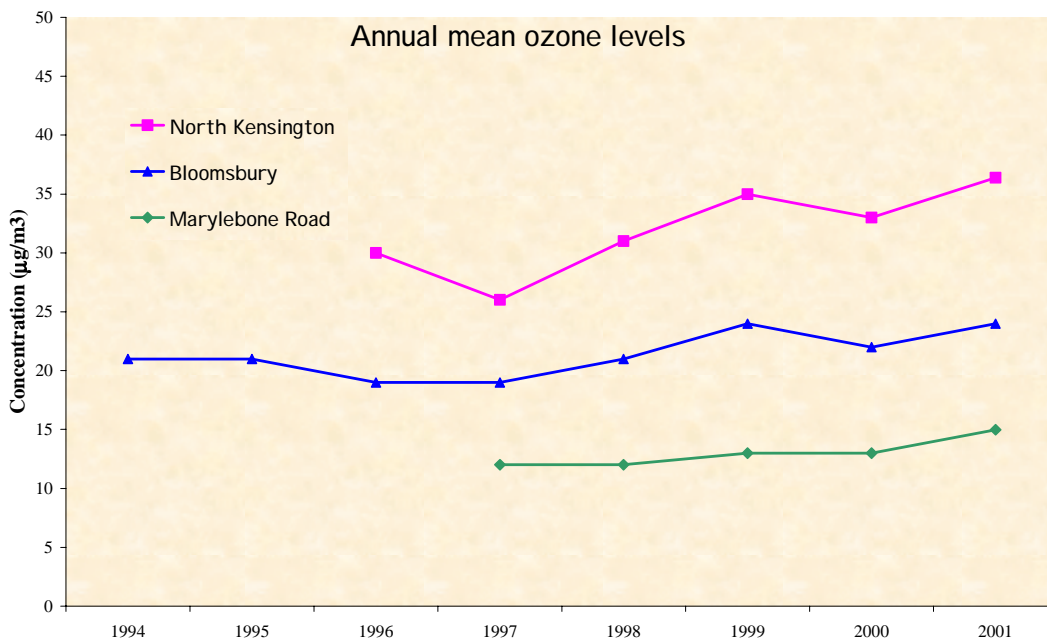


Daily PM₁₀ levels did not exceed the objective level for 2004 in 2001, however they do exceed the new objective level for 2010.

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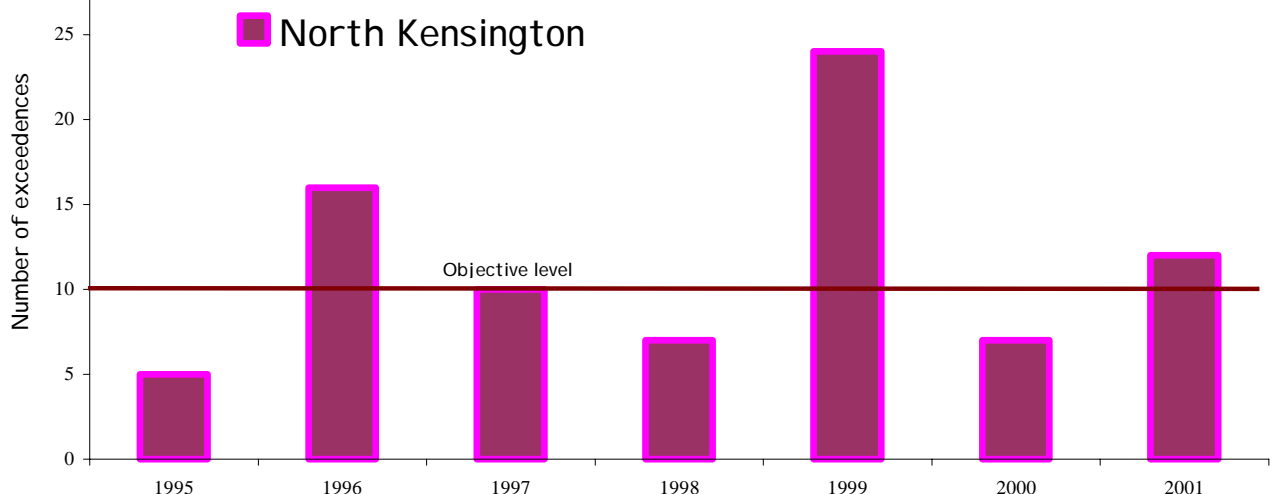
OZONE



Ozone is monitored at one location in the Borough; information from other sites in central London has been included to show what conditions are like nearer to busy roads. Ozone is highest away from roads because traffic pollutants such as nitrogen oxides 'use up' ozone in reactions. Ozone also needs high temperatures and sunshine to form so levels are usually higher in summer.

Annual mean levels of ozone have been increasing at the background location in the borough. Ozone is not included in the air quality management regulations (review and assessment process) because it is a photochemical pollutant and therefore there is little action that local authorities are able to take at a local level.

Number of exceedences above the 8 hour standard (daily maximum 8 hour rolling mean)

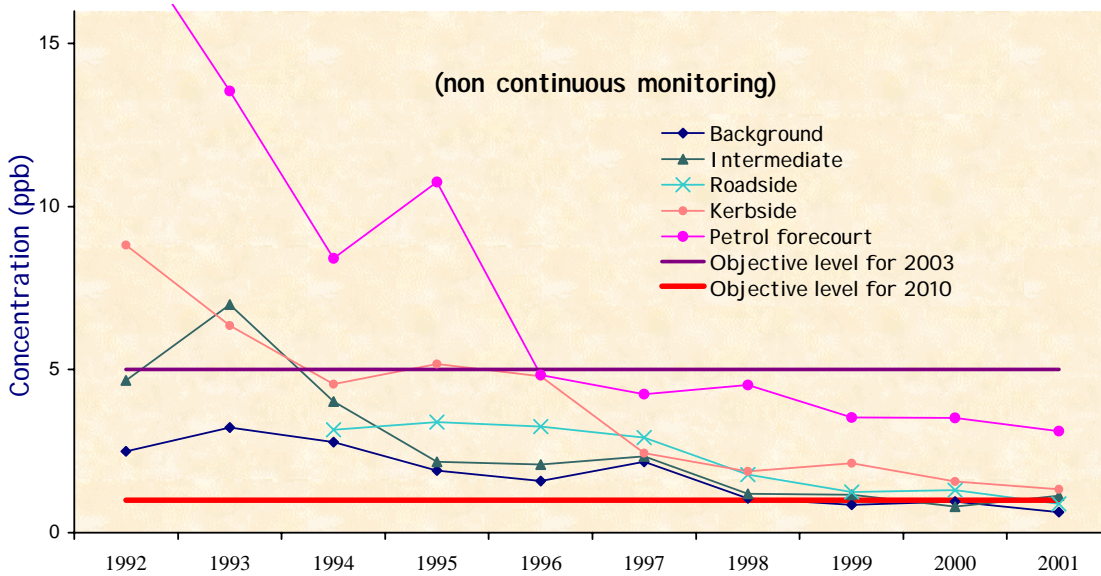


Exceedences above the objective level show no obvious trend and are probably dependent on having the necessary conditions i.e. hot sunny weather to produce a high level of ozone. There were 12 exceedences in 2002, just two above the objective level.

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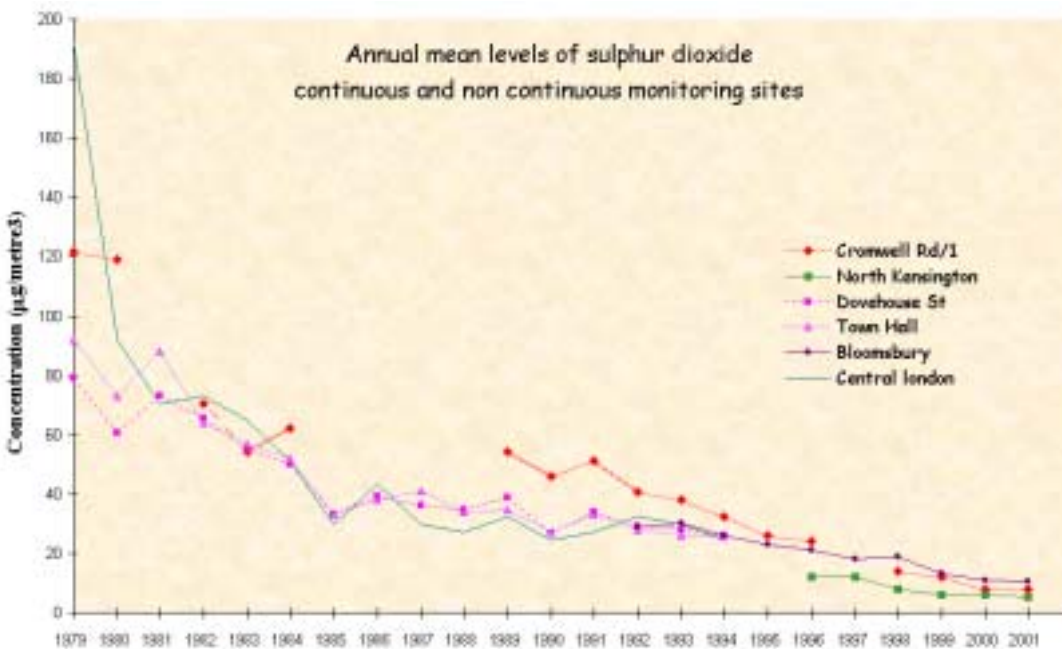
Benzene



Benzene levels at the locations measured in the Borough are below the current objective level, however the proposed level for 2010 may be exceeded at busy roadside locations.

Levels tend to be highest at petrol stations and kerbside locations. It is likely that these locations will continue to be of concern.

Sulphur dioxide



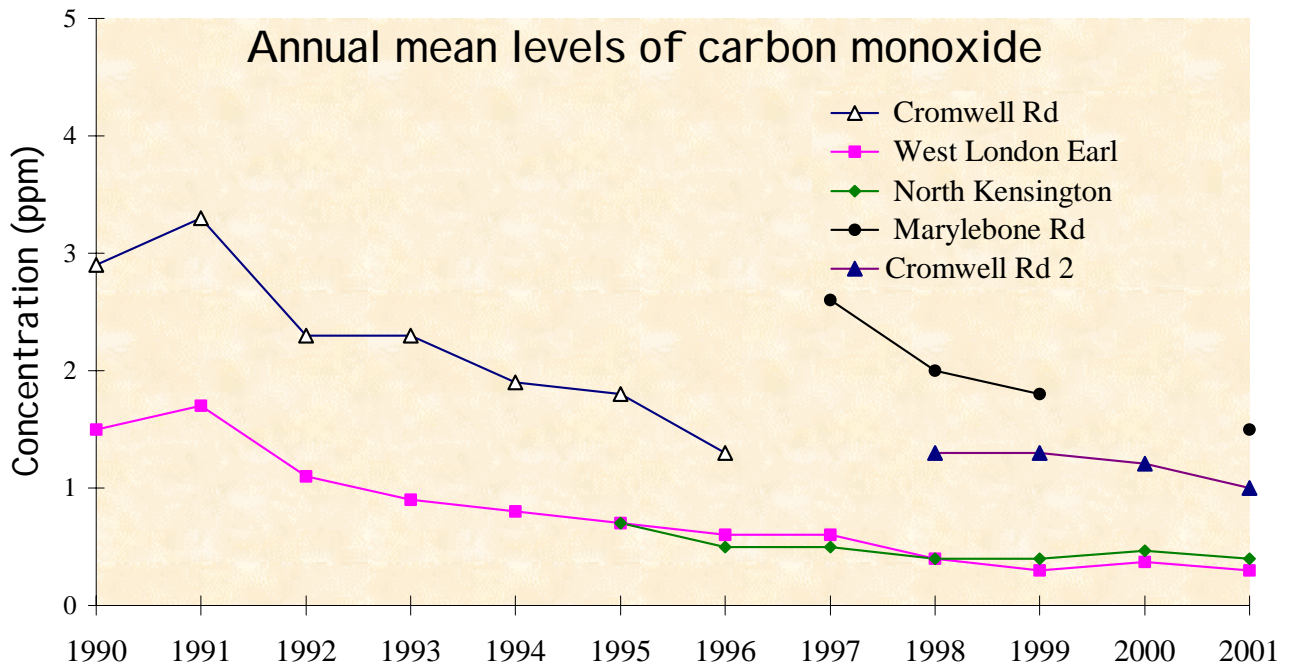
Sulphur dioxide has declined fairly steadily for some years. This is largely due to the reduction in use of coal and oil, and more recently, because of the better control of emissions from power stations and industrial processes.

Sulphur dioxide is now monitored at two locations in the Borough - at North Kensington and the Cromwell Rd. The concentrations at both locations are very comparable and illustrate that it is not particularly a traffic-related pollutant.

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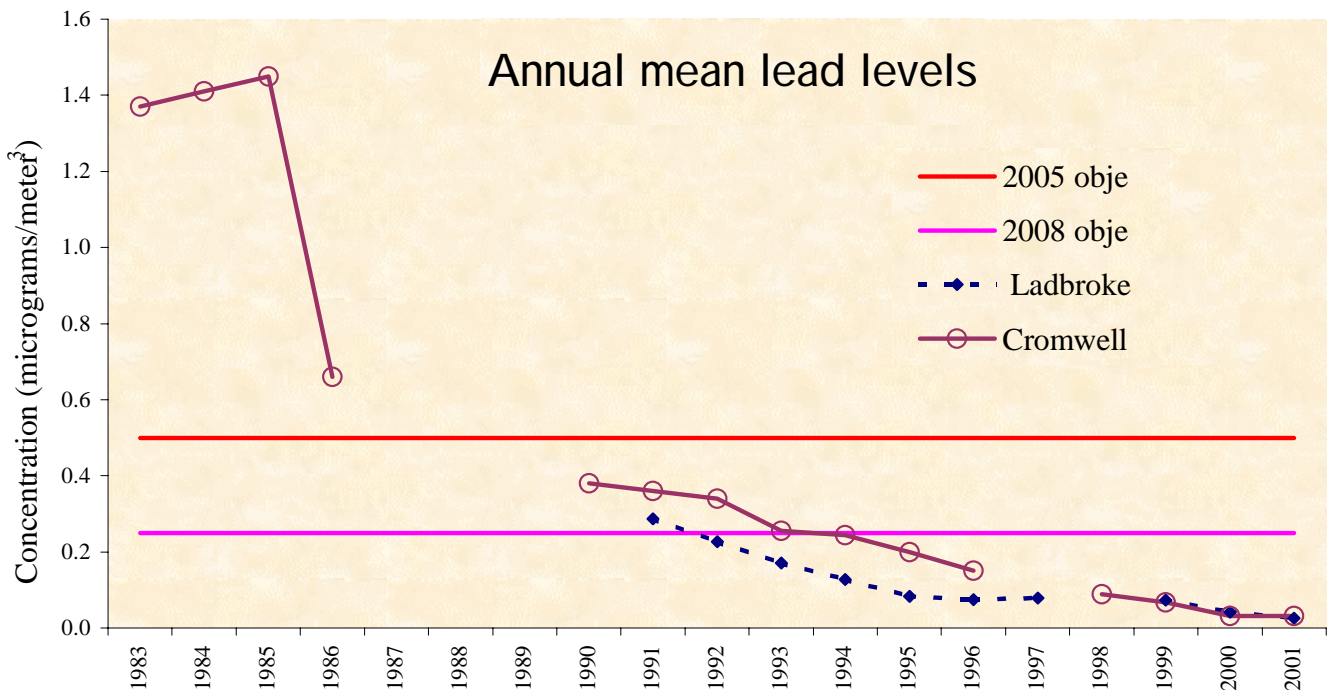
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Carbon monoxide



Exceedences of the carbon monoxide standard have not been observed at any of the monitoring locations in the Borough for a number of years. The level of decline, however, has either slowed down or levels have remained largely unchanged.

Lead



Annual mean levels are well within the objectives for both 2005 and 2008. Lead levels have declined steadily in parallel with successive reductions of lead in petrol.

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Public dissemination banding system

Nitrogen Dioxide - Number of hours in DEFRA banding

Location	Low	Moderate	High	Very High
North Kensington	8399	0	0	0
West London	8358	0	0	0
Cromwell Road 2	8471	0	0	0
Knightsbridge	8485	2	0	0
Chelsea	8362	0	0	0

Sulphur Dioxide - Number of 15 min periods in DEFRA banding

Location	Low	Moderate	High	Very High
North Kensington	33313	0	0	0
Cromwell Road 2	32517	0	0	0
Marylebone Road	29408	0	0	0

Ozone - Number of hours in DEFRA banding

Location	Low	Moderate	High	Very High
North Kensington	8422	157	0	0
Marylebone Road	8560	2	0	0

Particulate Matter - Number of hours in DEFRA banding

Location	Low	Moderate	High	Very High
North Kensington	8281	93	23	0
Cromwell Road 2	8433	179	21	0
Marylebone Road	7077	567	102	7

Carbon monoxide - Number of hours in DEFRA banding

Location	Low	Moderate	High	Very High
North Kensington	8102	0	0	0
West London	8629	0	0	0
Cromwell Road 2	8577	0	0	0
Marylebone Road	8443	0	0	0

Marylebone Road is not in the borough but is included to give an indication of kerbside conditions along a busy main route.

DEFRA BAND	Index	Health Descriptor
LOW	1-3	Effects are unlikely to be noticed by individuals who know they are sensitive to air pollution.
MODERATE	4-6	Mild effects are unlikely to require actions
HIGH	7-9	Significant effects may be noticed by sensitive individuals and action to avoid or reduce these effects may be needed (e.g.) reducing exposure by spending less time in polluted outdoor areas). Asthmatics will find that their reliever inhaler is likely to reverse the effects on the lung.
VERY HIGH	10	The effects on sensitive individuals described for High levels of

For more information view the following website <http://www.airquality.co.uk/archive/standards.php#band>

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Nitrogen dioxide

Location	National air quality standard	Number of hours above standard	Exceedence of national objective for 2005
North Kensington	Hourly mean >104.6 ppb	4	No
West London		0	No
Cromwell Road 2		1	No
Chelsea		15	No
Knightsbridge		97	Yes
Marylebone Road		57	Yes

Location	National air quality standard	Annual Mean	Exceedence of national objective for 2005
North Kensington	Annual mean >21 ppb	22	Yes
West London		27	Yes
Cromwell Road 2		40	Yes
Chelsea		45	Yes
Knightsbridge		43	Yes
Marylebone Road		44	Yes

Carbon Monoxide

Location	National air quality standard	Number of 8 hour periods > standard	Exceedence of national objective for 2003
North Kensington	8 hour rolling mean >10 ppm	0	No
West London		0	No
Cromwell Road 2		0	No
Marylebone Road		0	No

Ozone

Location	National air quality standard	Number of exceedences	Number of days	Exceedence of 97 th %tile National Objective
North Kensington	Max 8 hour rolling mean >50ppb	48	12	Yes
Marylebone Road		0	0	No

Sulphur Dioxide

Location	National air quality standard	Number of periods above standard	Exceedence of national objective for 2005
North Kensington	15 min mean >100ppb	0	No
Cromwell Road 2		0	No
Marylebone Road		0	No

Particulate matter (gravimetric factor applied to data)

Location	National air quality standard	Number of days above standard	Exceedence of national objective for 2004
North Kensington	24 hour mean >50µg/m ³	16	No
Cromwell Road 2		34	No
Marylebone Road		114	Yes

Location	National air quality standard	Number of days above standard	Exceedence of national objective for 2004
North Kensington	Annual mean >40µg/m ³	26	No
Cromwell Road 2		35	No
Marylebone Road		44	Yes

Units: All data is given in ppb with the exception carbon monoxide which is given in ppm and particulate matter which is given in µg/m³

The Marylebone Road is a kerbside location in Westminster. Data from this site is included for completeness.