2008 Air Quality Monitoring Overview

In 2008, four different air quality pollutants were monitored in the Borough: nitrogen dioxide; particulate matter (PM10 & PM2.5); sulphur dioxide; and ozone. These are monitored by diffusion tubes located across the Borough and at three continuous monitoring stations (at Sunbury Cross; Oaks Road Stanwell; and adjacent to M25 north of junction 13). The pollutants are monitored as follows at each location:

Diffusion Tubes	M25	Oaks Road	Sunbury Cross
Nitrous oxides (nitrogen dioxide)	Nitrous oxides (nitrogen dioxide) Ozone Particulate Matter (PM10 & PM2.5) Sulphur dioxide	Nitrous oxides (nitrogen dioxide) Ozone Particulate Matter (PM10 & PM2.5)	Nitrous oxides (nitrogen dioxide) Particulate Matter (PM10)

Results of the monitoring are compared against the following National Air Quality Objectives:

Pollutant	Air Quality Objective	
	Concentration	Measured as
Nitrogen dioxide	200 $\mu g/m^3$ not to be exceeded more than 18 times a year 40 $\mu g/m^3$	1 hour mean Annual mean
Particles (PM10)	50 $\mu g/m^3$ not to be exceeded more than 35 times a year 40 $\mu g/m^3$	1 hour mean Annual mean
Sulphur dioxide	350 $\mu g/m^3$ not to be exceeded more than 24 times a year 125 $\mu g/m^3$ not to be exceeded more than 3 times a year 266 $\mu g/m^3$ not to be exceeded more than 35 times a year	1 hour mean 24 hour mean 15 minute mean

There is no national air quality objective for ozone. Levels of sulphur dioxide measured at the M25 site are below each of the relevant national air quality objectives. Discussion follows on the monitoring results for nitrogen dioxide and particulate matter.

Monitoring of benzene via diffusion tubes at a location near a petrol station was discontinued in 2007, as levels were found to be well below the relevant objectives. Carbon monoxide monitoring was also ceased at the M25 continuous monitoring station in 2007.

Nitrogen Dioxide

This is the principal pollutant of concern in the Borough and is monitored at all locations. Five additional diffusion tube monitoring locations were added to the network in 2007, so we now have the first year's results for these (SP43 to SP47). In 2008, the Council joined a Highways Agency study of levels of nitrogen dioxide at houses close to major roads. This added three new diffusion tube monitoring locations to the network (HA1 to HA3), as follows:

HA1 – Moor Lane, Staines (within 25m of M25 motorway)
HA2 – Harrison Way, Shepperton (45m from M3 motorway)
HA3 – London Road Staines (on A30 by Crooked Billet roundabout)

Full year results are not yet available for these diffusion tubes. In February 2008, one diffusion tube at Knowle Green, Staines (SP40) was discontinued. This was a duplicate tube location, so monitoring, via SP39, continues there. As our network now includes two triplicate tube locations [i.e. two places where three diffusion tubes are co-located at the same point] this duplicate was no longer necessary. One monitoring point, SP46 at Elmsleigh Centre Staines, was relocated nearby due to persistent theft of diffusion tubes. Only 6 months worth of monitoring was therefore possible from this location, reducing confidence in the reliability of the annual mean result.

Results from each of the diffusion tube locations are presented in the table below, corrected for method bias against the Oaks Road continuous monitoring station, for the last three years. From the table it can be seen that in 2007 monitoring using the diffusion tubes showed concentrations greater than 40 $\mu g/m^3$ at 12 locations around the Borough. In 2008, this 40 $\mu g/m^3$ level was also exceeded at 12 locations – though not all the same locations as last year.

Where levels were elevated above 40 $\mu g/m^3$ this was generally by a greater margin than the previous year. However, at 18 locations levels monitored in 2008 were lower than those recorded in 2007. This suggests that there is not a blanket trend of either improving or worsening air quality across the Borough.

Concentrations of nitrogen dioxide at the monitoring stations in Oaks Road Stanwell and near Sunbury Cross are both below the national air quality objective of 40 $\mu g/m^3$ for annual average, and comply with the objective for hourly mean levels too. As with previous years, the annual average objective could be being exceeded at locations closer to the motorway junction and the main roads at the Sunbury Cross junction, though it is unlikely that the hourly mean objective is failed there.

Site ID	Location	Annual Mean Concentrations (µg/m^3) Adjusted for bias		
		2006[a]	2007[b]	2008[c]
SP1	Staines High Street	38.0	34.3	33.3
SP2	Market Square, Staines	39.2	34.6	33.6
SP3	Wraysbury Road	39.6	**40.3**	37.9
SP4	Benwell Centre, Sunbury	26.8	31.8	33.2
SP5	Church Street, Ashford	38.9	**43.3**	**45.3**
SP6	Goffs Road, Ashford Common	37.2	36.1	31.7
SP7	High Street, Shepperton	37.6	37.9	37.2
SP8	The Parade, Sunbury Cross	**61.8**	**49.6**	**54.5**
SP9	Staines Road West, Sunbury	**51.9**	39.8	**47.5**
SP10	Walton Bridge Road	35.1	38.2	35.9
SP11	Halliford Bypass	37.2	36.7	**42.8**
SP12	Stanwell New Road	32.3	38.4	38.4
SP13	Shortwood County Infant School	35.2	36.7	37.9
SP14	Flintlock Close, Stanwell	27.3	32.9	35.7
SP15	Horton Road, Stanwell Moor	32.8	33.9	33.5
SP16, SP17, SP18	Oaks Road/Russell Drive, Stanwell South	33.0	37.0	36.1
SP19	Bedfont Road/Long lane, Stanwell	**48.3**	**45.1**	**48.6**
SP20	Greenlands Road, Staines	35.0	31.4	34.5
SP21	Lincoln Way, Ashford	28.2	31.4	30.0
SP22	Manor Mead School Shepperton	24.5	29.2	28.4
SP23	Greeno Crescent, Shepperton	30.6	31.1	32.4
SP24	Yeoveney Close, Staines	36.3	34.3	37.3
SP25	Moor Lane, Staines	29.9	32.2	30.9
SP26	St Mary's Crescent, Staines	33.5	36.5	36.6
SP27	Church Street, Staines	33.0	36.1	39.8
SP28	London Road, Staines	**47.5**	**40.8**	**52.9**
SP29	London Road, Staines	**61.4**	**49.9**	**57.7**
SP30	Horton Road, Stanwell Moor	37.1	37.3	33.9
SP31	Ashford Hospital, Stanwell	39.0	**40.5**	39.6
SP32	Feltham Road, Ashford	**50.5**	**41.2**	39.3
SP33	Ford Close, Ashford	40.0	**40.4**	**40.4**
SP34	School Road, Ashford	**52.6**	**46.0**	**46.1**
SP35	Vicarage Road, Sunbury	**45.1**	**41.7**	**46.2**
SP36	St Ignatius School, Sunbury	**42.8**	**40.2**	**44.7**
SP37	Nr Abbeyfields, Thames Side	33.9	31.3	32.1
SP38	Laleham CofE primary, Laleham	30.8	32.3	29.7
SP39	Knowle Green, Staines	29.0	30.4	31.5
SP40	Knowle Green, Staines	34.4	30.5	27.0
SP41	Green Street, Sunbury	36.8	32.4	37.1
SP43, SP44, SP45	The Haven, Sunbury	n/a	n/a	37.6
SP46	Elmsleigh Centre	n/a	n/a	**52.8**
SP47	Hadrian Way, Stanwell	n/a	n/a	33.1
	Objective	**40**	**40**	**40**

[a] Bias adjusted using a factor of 1.37
[b] Bias adjusted using a factor of 1.06
[c] Bias adjusted using a factor of 1.00

Results for the continuous monitoring stations are as follows:

Location	Number of Exceedences of Hourly Mean (200 µg/m^3)			Annual Mean Concentrations (µg/m^3)		
	2006	2007	2008	2006	2007	2008
Sunbury Cross	n/a	1	0	n/a	38.6	35.1
Heathrow Oaks Road	0	0	0	33.0	37.2	35.4
M25 J13	9	31	12	59.4	57.3	N/a
Objective	**18**	**18**	**18**	**40**	**40**	**40**

Particulate Matter

This pollutant is now being monitored at each of the continuous monitoring stations in the Borough, though a full year of monitoring has not yet been completed at the Sunbury Cross site. Interim results are available on the Council's air quality webpages under the Latest News section.

There is no statutory obligation on councils to monitor fine particles (less than 2.5 um diameter).

PM10 Results:

Location	Number of Exceedences of Daily Mean (50 µg/m^3)			Annual Mean Concentrations (µg/m^3)		
	2006	2007	2008	2006	2007	2008
Heathrow Oaks Road	11	**18**	7	26.6	24.5	22.0
M25 J13	29	21	18	29.4	28.3	26.3
Objective	**35**	**35**	**35**	**40**	**40**	**40**

Results of monitoring over the past three years indicate that there is a general trend of reducing concentrations of particulate matter (as PM10) as an annual average and in the days where the mean concentration is elevated above 50 µg/m^3.

The annual average concentration of PM2.5 measured at the M25 site in 2008 was 14.92 µg/m^3. This is well below the Government's proposed new objective of 25 µg/m^3.