2011 Air Quality Progress Report for London Borough of Lewisham

In fulfillment of Part IV of the Environment Act 1995
Local Air Quality Management

October 2011

Lewisham

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Executive Summary

This report is presented to comply with requirements of the Local Air Quality Management regulations and combines the Progress Report on Local Air Quality together with the Air Quality Action Plan Progress Report.

The report provides an interim assessment of local air quality following the previous Progress Report submitted in October 2010 and the most recent Updating and Screening Assessment (USA) published in June 2009. It also provides an update on progress made towards implementing actions from the Council's Air Quality Action Plan for the period up to and including April 2011.

The findings from this report are that the National Air Quality Objectives continue to be met for five out of the seven pollutants currently under LA control. These are:

- 1,3-butadiene
- Benzene
- Carbon monoxide
- Lead
- Sulphur dioxide

For particulate matter, both PM_{10} objectives have again been met at monitoring locations and it is estimated that these are being met throughout most, if not all, of the borough. A new PM_{10} monitor has been installed in the north of the borough which was identified as being affected by fugitive emissions from industrial sites. The monitoring data to date shows that the concentrations peak at very high levels but that the 24-hour averages are generally below the objective. In 2010, the number of days when the 24-hour average was >50$\mu g/m^3$ was only 3 although this is based on only 72% data capture.

Some episodes of elevated PM_{10} concentrations have occurred across London in 2011 which could possibly result in the objective not being met at one or more locations. However, if there is continuing compliance with the PM_{10} objectives after 2011, we will seek to review the AQMA designations for this particular pollutant.

The annual average objective for nitrogen dioxide (NO_2) continues to be exceeded at roadside sites. This includes one monitoring location that is currently outside of the existing AQMAs. Both objectives for NO_2 are being met at all background sites where monitoring is being carried out. A Detailed Assessment submitted in 2011 found that there were exceedences of the air quality objectives for nitrogen dioxide occurring outside of the existing AQMAs. Therefore, a new AQMA will be designated to include the areas of exceedences and we intend to consult locally on the proposals. The Detailed Assessment found that the objectives are being met along the other streets identified in the 2009 USA as requiring further consideration.

The Action Plan Progress Report shows that progress with measures contained in the Action Plan are continuing and ongoing. There have been some notable successes in terms of the promotion of sustainable transport, particularly through the refurbishment and improvement of a number of walking / cycling routes and green spaces. The Council has also been progressing with joint working on large projects such as the Souce London network of Electric Vehicle Charging Points and the promotion of Walkit.com and airTEXT.

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1 Introduction

This report is the London Borough of Lewisham Progress Report which forms part of the fourth round of Review and Assessment of Air Quality. This report gives information on progress with air quality management since the Progress Report 2010 and the last review and assessment undertaken (USA, 2009). This Progress Report forms part of the local air quality management system introduced in the Environment Act 1995 and subsequent regulations. It follows the latest prescribed guidance given in LAQM.TG(09).

1.1 Description of Local Authority Area

The London Borough of Lewisham is situated in southeast London. It is bordered to the west by Southwark, to the east by Greenwich and to the south by Bromley. It has a small frontage on to the River Thames in the north. It is an inner London Borough comprising a densely populated area with an estimated population in 2010 of approximately 261,600. The Borough is mostly residential with areas of employment around the main commercial centres of Lewisham, New Cross, Catford, Deptford and Sydenham. However, compared to other London boroughs, Lewisham is relatively green with approximately one fifth of the borough being open space. The Borough has a broad socio-economic range combining a mix of wealthier wards and wards with more concentrated areas of deprivation. Some of the most deprived wards are New Cross, Evelyn, Deptford and Downham. In these areas health and the quality of housing are poorer.

The main sources of air pollutants are the busy and congested roads. Only 31% of the borough workforce are employed in the borough (Lewisham Employment Land Study, 2008)[1] with the majority of the working population travelling outside the borough to work (2001 Census)[2]. 70 per cent of local people commute out of Lewisham to work, mainly to other parts of London but private vehicle ownership is relatively low. The main roads that run through the Borough include the A2, A20, A21 and the South Circular (A205). There are currently 70 minor industrial processes that are regulated by the Council and one Part A installation (SELCHP) regulated by the Environment Agency.

1.2 Purpose of Progress Report

Progress Reports are required in the intervening years between the three-yearly Updating and Screening Assessment reports. Their purpose is to maintain continuity in the Local Air Quality Management process.

If the Progress Report identifies the risk of exceedence of an Air Quality Objective, the Local Authority should undertake a Detailed Assessment immediately, and not wait until the next round of Review and Assessment.

1.3 Air Quality Objectives

The air quality objectives applicable to Local Air Quality Management (LAQM) in England are set out in the Air Quality (England) Regulations 2000 (SI 928), and the Air Quality (England) (Amendment) Regulations 2002 (SI 3043). They are shown in Table 1.1. This table shows the objectives in units of micrograms per cubic metre $\mu g/m^3$ (for carbon monoxide the units used are milligrammes per cubic metre, mg/m^3). Table 1.1 includes the number of permitted exceedences in any given year (where applicable).

Table 1.1 Air Quality Objectives included in Regulations for the purpose of Local Air Quality Management in England.

Pollutant	Concentration	Measured as	Date to be achieved by
Benzene	16.25 $\mu g/m^3$	Running annual mean	31.12.2003
	5.00 $\mu g/m^3$	Running annual mean	31.12.2010
1,3-Butadiene	2.25 $\mu g/m^3$	Running annual mean	31.12.2003
Carbon monoxide	10.0 mg/m^3	Running 8-hour mean	31.12.2003
Lead	0.5 $\mu g/m^3$	Annual mean	31.12.2004
	0.25 $\mu g/m^3$	Annual mean	31.12.2008
Nitrogen dioxide	200 $\mu g/m^3$ not to be exceeded more than 18 times a year	1-hour mean	31.12.2005
	40 $\mu g/m^3$	Annual mean	31.12.2005
Particles (PM_{10}) (gravimetric)	50 $\mu g/m^3$, not to be exceeded more than 35 times a year	24-hour mean	31.12.2004
	40 $\mu g/m^3$	Annual mean	31.12.2004
Sulphur dioxide	350 $\mu g/m^3$, not to be exceeded more than 24 times a year	1-hour mean	31.12.2004
	125 $\mu g/m^3$, not to be exceeded more than 3 times a year	24-hour mean	31.12.2004
	266 $\mu g/m^3$, not to be exceeded more than 35 times a year	15-minute mean	31.12.2005

1.4 Summary of Previous Review and Assessments

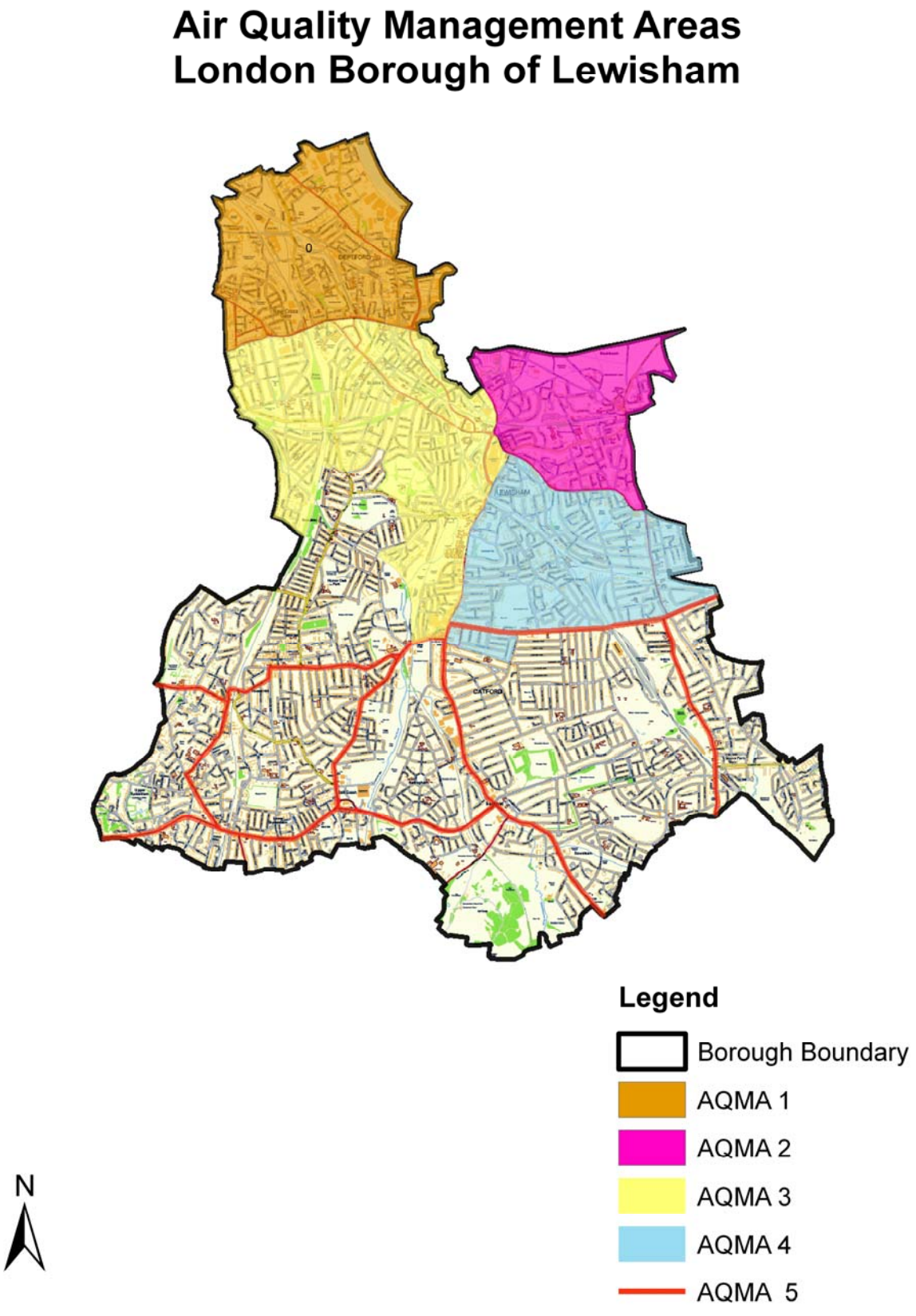
The Council undertook previous rounds of review and assessment of air quality in line with the system of Local Air Quality Management reporting requirements. The main issue following the first round, with respect to local air quality, was found to be emissions (NO_2 and PM_{10}) emanating from road vehicles. As a result, the Council designated Air Quality Management Areas in parts of the Borough. These are shown in Figure 1.1 and consist of four large AQMAs and a series of ribbon roads (called AQMA 5).

The conclusions of the Council's subsequent Review and Assessment reports from 2003 to 2010 (see Table 1.2) were that the designation of AQMAs should remain. These were primarily for exceedences of the annual mean objective for NO_2, but also for the daily mean objective for PM_{10} where there is a smaller area that exceeds. The Update and Screening Assessment report produced in 2009 using the guidance contained in TG(09), included monitoring data that showed exceedences of the annual objective for NO_2 were occurring outside of the existing AQMAs. In addition, changes in the guidance resulted in a further three roads being identified as warranting further investigation. Consequently, a Detailed Assessment was carried out to examine air quality at the specific locations identified in this previous report. The Detailed Assessment, which was submitted and approved in March 2011, found that exceedences of the objectives for NO_2 are occurring along and around Brockley Rise, but not at the other locations identified in the USA. Previous reports also identified that the proposed redevelopment of Lewisham could result in increased concentrations and that fugitive emissions from industrial sources in the north of the borough required monitoring.

Table 1.2 List of Recent Reports submitted by London Borough of Lewisham under the System of Local Air Quality Management.

Year	Report
2004	Updating and Screening Assessment
2005	Detailed Assessment
2006	Progress Report
2006	Updating and Screening Assessment
2008	Progress Report
2009	Updating and Screening Assessment
2010	Progress Report
2011	Detailed Assessment

Figure 1.1 Map of London Borough of Lewisham showing AQMA Boundaries



2 New Monitoring Data

2.1 Summary of Monitoring Undertaken

2.1.1 Automatic Monitoring Sites

The Council undertakes continuous monitoring at three fixed, long-term sites, the details of which are included below. In July 2010, the automatic monitoring station Crystal Palace 1 was closed. Although not within the borough of Lewisham, it was located at a site where the boundaries of several local authorities converge. These are LB Bromley, LB Croydon and LB Southwark and responsibility for the site was shared between the 4 boroughs.

Further details about each of the monitoring stations is shown below:

- Lewisham 1 – an urban background site located in Catford (in the centre of the Borough). This monitoring site started operating in 1996. **Nitrogen dioxide**, **sulphur dioxide** and ozone are monitored at the site.
  http://www.londonair.org.uk/london/asp/publicdetails.asp?region=0&site=LW1&details=location&mapview=all&la_id=23&network=All

- Lewisham 2 – a site located 6m from the roadside in New Cross, which is located in the north of the Borough closer to central London. This monitoring site opened in 2002. The site monitors **nitrogen dioxide**, **particles (PM_{10})** by TEOM and **sulphur dioxide**. The King's College Volatile Correction Factor has been applied to the monitoring data collected from the TEOM and presented in this report. The site represents relevant exposure.
  http://www.londonair.org.uk/london/asp/publicdetails.asp?region=0&site=LW2&details=location&mapview=all&la_id=23&network=All

- Lewisham 3 – an industrial site located approximately 10m south of a strip of industrial premises and 2m from the kerb of a residential road that also provides access to the industrial sites. The site started monitoring in Feb 2010 and represents relevant exposure. The site monitors **particles (PM_{10})** using a Beta Attenuation Mass (BAM) Monitor and has a wind direction sensor attached to the station.
  http://www.londonair.org.uk/london/asp/publicdetails.asp?region=0&site=LW3&details=location&mapview=all&la_id=23&network=All

- Crystal Palace 1 – (closed July 2010). A roadside site located 4m from the kerb in the south west of the Borough on the border of three other neighbouring London boroughs (Southwark, Croydon and Bromley). The site opened in 1999 and monitored **nitrogen dioxide**, **carbon monoxide**, **particles (PM_{10})** by TEOM and **sulphur dioxide**.
  http://www.londonair.org.uk/london/asp/publicdetails.asp?region=0&site=CY1&details=location&mapview=all&la_id=23&network=All

All the above sites are operated to London Air Quality Network (LAQN) standards, which are similar to those of the AURN. The data produced have traceability to national standards and operational procedures defined for the LAQN. A contract is in place with King's College Environmental Research Group covering the data collection, validation and ratification as well as to carry out 6-monthly site audits. A contract is also in place with an external provider to carry out the regular servicing and maintenance of the monitoring stations.

Table 2.1 Details of Automatic Monitoring Sites

Site Name	Site Type	OS Grid Ref		Pollutants Monitored	Monitoring Technique	In AQMA?	Relevant Exposure? (Y/N with distance (m) to relevant exposure)	Distance to kerb of nearest road (N/A if not applicable)	Does this location represent worst-case exposure?
Lewisham 1 (Catford)	Urban background	537675	173689	NO2 SO2 O3	Chemiluminescent UV fluorescence UV photometer	Y (AQMA3)	Y*	3m	N
Lewisham 2 (New Cross)	Roadside	536241	176932	NO2 SO2 PM_{10}	Chemiluminescent UV fluorescence TEOM	Y (AQMA3)	Y	6m	Y
Lewisham 3 (Mercury Way)	Industrial	535806	177612	PM10	BAM	Y (AQMA1)	Y	2m	Y
Crystal Palace 1 (Crystal Palace Parade)	Roadside	533901	171290	NO2 SO2 PM_{10} CO	Chemiluminescent UV fluorescence TEOM	Y (just outside Borough boundary)	N	2m	Y

* The monitor is located in a shopping precinct in which market stall holders are regularly present. Therefore, there is relevant exposure to all except the annual mean objectives.

2.1.2 Non-Automatic Monitoring

A monitoring survey of nitrogen dioxide, using passive diffusion tubes, started in 2008. The details of the sites are given in Table 2.2. The background locations chosen are all close to residential facades on minor roads and worst-case locations noted as N (i.e. no). The worst-case locations indicated as Y (i.e. yes) are sited on lampposts close to kerbsides. In all cases the diffusion tubes are mounted using spacers and sited 2.5 to 3m above ground level.

The diffusion tubes used are analysed by Gradko International using a preparation method of 50% TEA in acetone. Gradko International participates in the Workplace Analysis Scheme for Proficiency (WASP), which is an independent analytical performance testing scheme. The scheme is an important QA/QC exercise for laboratories supplying diffusion tubes to Local Authorities for use in the context of Local Air Quality Management (LAQM). The Health and Safety Laboratory (HSL) operate the WASP scheme independently and the cost of operation is borne by the laboratories, which pay an annual fee to HSL. In the most recent round of Annual Performance Criteria for NO_2 Diffusion Tubes used in LAQM[3], the laboratory demonstrated good performance using both the old and new, stricter criteria.

The survey started with nine sites, with one additional triplicate site co-located with the Lewisham 2 continuous site but the network has progressively been expanded. One of the sites (LWS01) was affected by construction works and did not provide any data. Two further sites (LWS08) and (LWS12) were discontinued after collecting data for 12 months or more.

In March 2009, a project to work with various schools in the borough on air quality monitoring was initiated. This included siting a diffusion tube at each of the participating schools. The same laboratory, preparation methods and QA/QC procedures as described above are used for these tubes. The majority of the sites are located in background sites with tubes being located in a mixture of school playgrounds and school boundaries adjacent to residential roads. The exceptions to this are tubes SCH013 and SCH020. SCH013 is located on the school boundary and is a roadside site on Perry Vale (B227), which was identified in the 2009 Update and Screening Assessment as meeting new criteria and, therefore, requiring further study. SCH020 is located at the school boundary and within 4m of the kerb of the A21.

In January 2011, a review of the network was undertaken resulting in a further 12 diffusion tube locations being added. The locations were selected either to capture indicative data at sites where exceedences have been predicted and where there is relevant public exposure, to gather data on previously unmonitored locations and/or in response to interest in air quality from local communities. The locations of all diffusion tubes are shown in Figure 2.1 below. However, monitoring data from the additional 12 sites is not included in this report as insufficient data had been collected at the time of preparing this report. Details of the sites for which monitoring data is provided are given in Table 2.2.

Figure 2.1 Map of Monitoring Sites

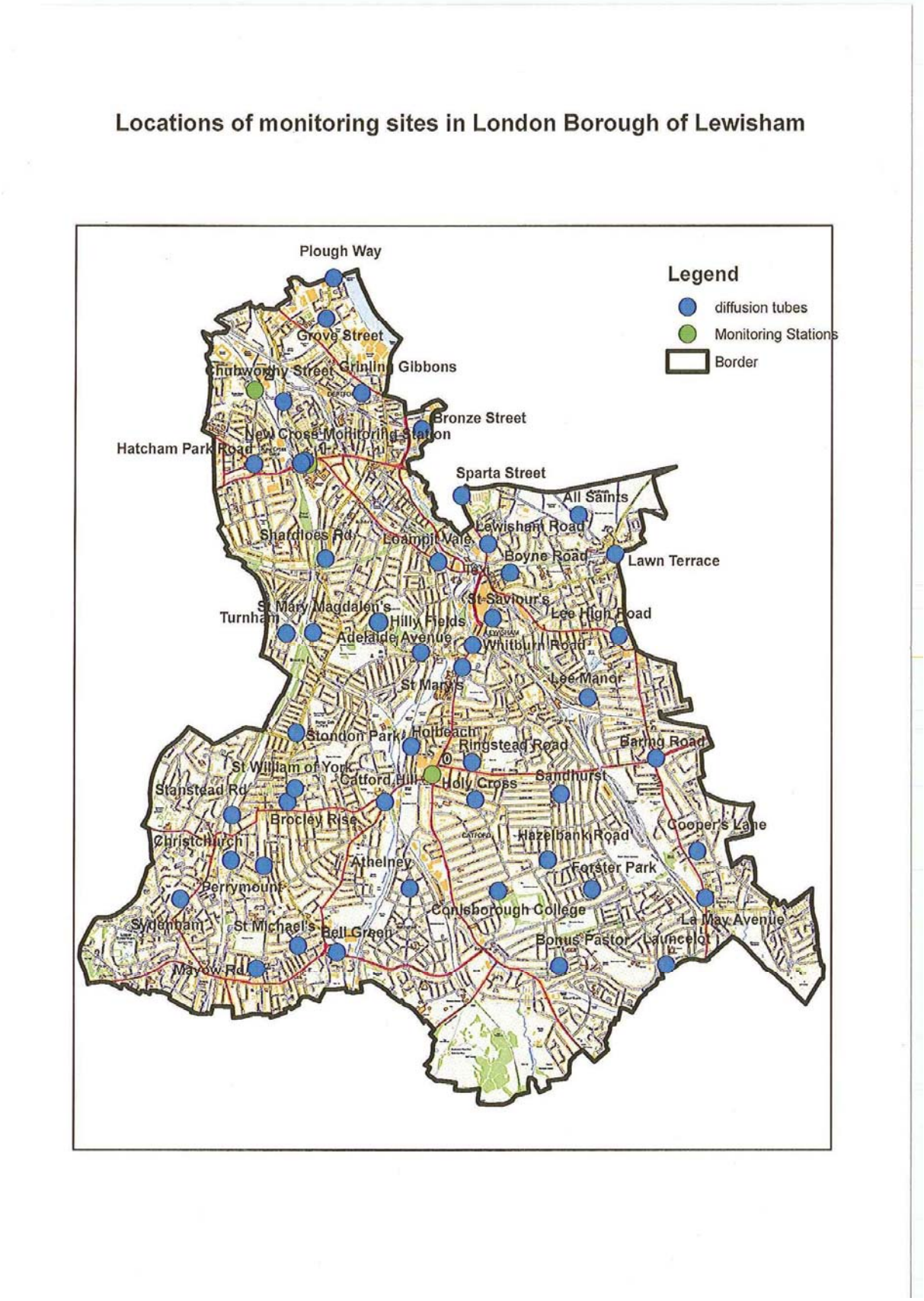


Table 2.2 Details of Non- Automatic Monitoring Sites

Site Name	Site Code	Site Type	Easting	Northing	In AQMA	Relevant exposure *(Y/N with distance (m) to relevant exposure)*	Distance to kerb (m) of nearest road *(N/A if not applicable)*	Worst-case location
Mayow Road	LWS053	Roadside	535795	171570	N	Y	0.5	N
Boyne Road	LWS002	Background	538475	175785	Y	Y	1	N
Lewisham Road / Lewisham Hill	LWS003	Roadside	538220	176100	Y	Y	10	N
Loampit Vale	LWS004	Roadside	537740	175920	Y	N	1.5	Y
New Cross Monitoring Station	LWS005-007	Roadside	535290	177295	Y	Y	6	Y
Hatcham Park Road	LWS051	Roadside	535751	176985	Y	Y	0.5	Y
Brockley Rise	LWS009	Roadside	536130	173337	N	Y	3	Y
Ringstead Road	LWS010	Background	538055	173810	Y	Y	0.5	N
Catford Hill	LWS011	Roadside	537180	173370	Y	N	0.5	Y
Control	LWS013							
Stanstead Rd	LWS014	Background	535536	173192	N	Y	10	N
Shardloes Road	LWS015	Roadside	536523	175925	Y	Y	0.5	Y
Lawn Terrace	LWS016	Roadside	539640	175934	Y	Y	0.5	Y
Baring Road	LWS017	Roadside	540037	173748	Y	Y	0.5	Y
Hazelbank Road	LWS018	Background	538960	172740	N	Y	2	N
All Saints	SCH001	Background	539250	176402	Y	N	25	N
Lee Manor	SCH002	Background	539348	174477	Y	Y	5	N
Coopers Lane	SCH003	Background	540545	172840	N	Y	5	N
Launcelot	SCH004	Background	540149	171652	N	N	10	N
Bonus Pastor	SCH005	Background	539063	171632	N	Y	8	N
Forster Park	SCH006	Background	539369	172480	N	Y	6	N
Sandhurst	SCH007	Background	539089	173398	N	Y	8	N
Holy Cross	SCH008	Roadside	537817	173323	Y	Y	5	Y
Conisborough College	SCH009	Background	538456	172426	N	N	10	N

Athelney	SCH010	Background	537453	172410	N	N	20	N
St Michael's	SCH011	Background	536245	171849	N	Y	8	N
St William of York	SCH012	Background	535055	172357	N	N	20	N
Christ Church	SCH013	Roadside	535563	172740	N	Y	5	Y
Perrymount	SCH014	Background	535862	172685	N	Y	8	N
Holbeach	SCH015	Background	537438	173941	N	Y	5	N
St Mary Magdalene's	SCH016	Background	536412	175131	N	Y	2	N
Turnham	SCH017	Background	536118	175119	Y	Y	5	N
Grinling Gibbons	SCH018	Background	536924	177707	Y	Y	2	N
St Saviour's	SCH019	Background	538311	175304	Y	Y	3	N
St Mary's	SCH020	Roadside	538025	174749	Y	N	2	Y
Sydenham	SCH021	Background	535028	172327	N	Y	5	N

2.2 Comparison of Monitoring Results with Air Quality Objectives

2.2.1 Nitrogen Dioxide

Automatic Monitoring Data

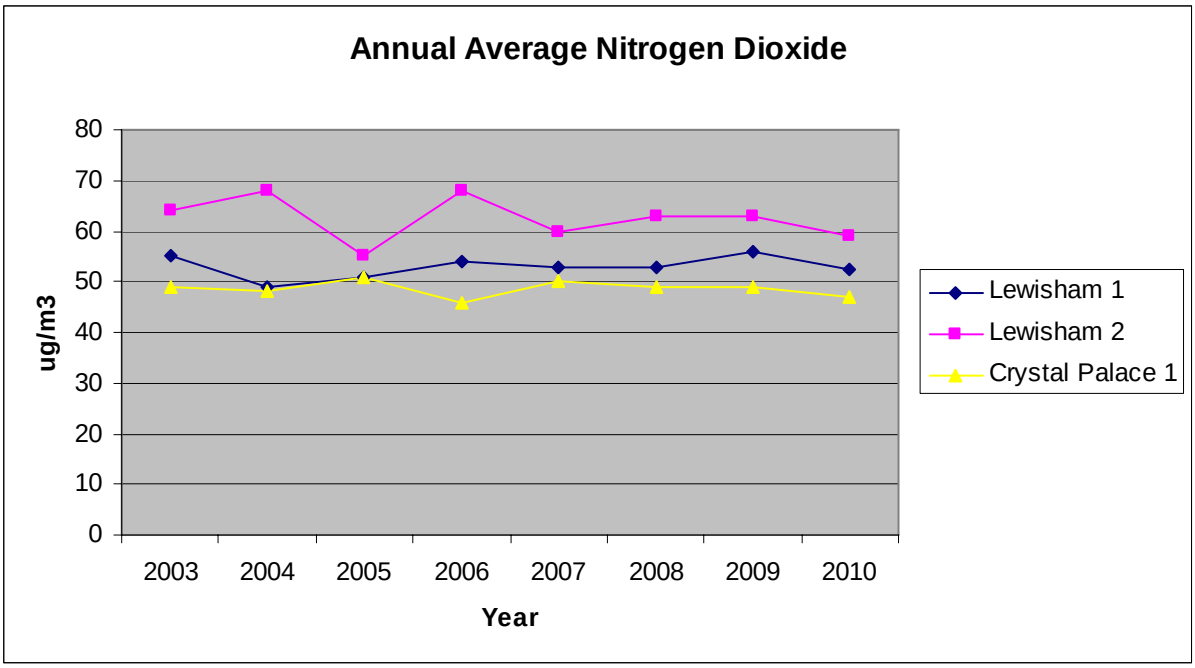
The results for the continuous sites that measure nitrogen dioxide are shown in Table 2.3a below. The results are for the years from 2008 to 2010 although Crystal Palace 1 was closed in July 2010 so data for 2010 is only until this date. All data is fully ratified.

Table 2.3a Results of Automatic Monitoring for Nitrogen Dioxide: Comparison with Annual Mean Objective

Site ID	Location	Within AQMA?	Data Capture for full calendar year 2008 (%)	Data Capture for full calendar year 2009 (%)	Data Capture for full calendar year 2010 (%)	Annual mean concentrations (µg/m^3)		
						2008	2009	2010
Lewisham1	Broadway Theatre, Catford	Y	94	100	93	**53**	**56**	**52**
Lewisham2	New Cross, Hobgoblin PH	Y	94	93	92	**63**	**63**	**59**
Crystal Palace1	Crystal Palace Parade	Y (Outside Bor Boundary)	93	93	56	**49**	**49**	47*

* Based on data until closure in July 2010

Figure 2.2 Trends in Annual Mean Nitrogen Dioxide Concentration Measured at Automatic Monitoring Sites



Data capture was below 90% in 2006 at Lewisham 2 and in 2004, 2005, 2006 and 2010 at Crystal Palace 1

Table 2.3b Results of Automatic Monitoring for Nitrogen Dioxide: Comparison with 1-hour Mean Objective

Site ID	Location	Within AQMA?	Data Capture for full calendar year 2008 (%)	Data Capture for full calendar year 2009 (%)	Data Capture for full calendar year 2010 %	Number of Exceedences of hourly mean (200 μg/m^3)		
						2008	2009	2010
Lewisham 1	Broadway Theatre, Catford	Y	94	100	93	2	4	1
Lewisham 2	New Cross, Hobgoblin PH	Y	94	93	92	5	6	0
Crystal Palace 1	Crystal Palace Parade	Y (Outside Borough Boundary)	93	93	56	0	0	0*

* Based on data until closure in July 2010

The results show that the **annual mean objective** was **exceeded** at all three sites and in each of the years. However, the annual average concentrations in 2010 were lower than the previous year at all sites including Lewisham 2 which dropped below an annual average of 60μg/m^3 for the first time since 2005. It is too soon to say whether or not this indicates an ongoing downward trend but rather the data needs to be viewed over a longer term.

There was also a fall in the number of exceedences of the hourly mean concentrations of NO_2, with only the urban background site in Catford recording any. Although the Catford site meets the definition of urban background, it is situated approximately 25m from a busy road and 75m from the South Circular (A205). Therefore, the levels are expected to be slightly higher than some other urban background sites. However, the monitoring station is in a shopping area where vehicular access is restricted to deliveries and access to the commercial premises.

The **hourly objective** was **not exceeded** at any of the sites. The most recent year when the hourly objective was exceeded at the Lewisham 2 site was in 2006 while the standard has not been exceeded at the Crystal Palace site since 2003.

Diffusion Tube Monitoring Data

The results from the tubes are shown in Table 2.4 below. The results indicating an exceedence of the National Air Quality Objective are shown in bold. As can be seen, the majority of the sites where the diffusion tube data indicates that the objective is being exceeded are located within an existing AQMA. The exception to this is LWS009 located on Brockley Rise and the air quality along this road was studied as part of the Detailed Assessment submitted in March 2011. The assessment concluded that there are exceedences of the National Air Quality Objectives for nitrogen dioxide in the vicinity of Brockley Rise and, consequently, London Borough of Lewisham will look at the declaration of a new AQMA to include this area.

For 2010, the data is shown as unadjusted data and with both the local bias and the national bias adjustment factors applied. The local bias adjustment factor was calculated to be 0.69 (See Appendix A) which is significantly lower than the national bias adjustment factor for Gradko (Issue 4/11) which is given as 0.99. The relatively wide variation in these bias adjustment factors can have significant implications for the determination of exceedences of

the National Air Quality Objectives. However, only the results at the following locations are sufficiently close to the threshold as to fall under once the local bias adjustment factor is applied:
LWS003, Lewisham Hill
LWS011, Catford Hill
LWS015, Shardloes Road
LWS051, Hatcham Park Road and
SCH020, St Mary's Primary School, Lewisham High St

By applying local knowledge and considering the traffic flows on and around these locations, it is likely that concentrations of nitrogen dioxide at these locations are exceeding the annual average objective.

Table 2.4 Results of Nitrogen Dioxide Diffusion Tubes

Site ID	Location	Within AQMA?	Data Capture for full calendar year 2009 %	Data Capture for full calendar year 2010 %	Annual mean concentrations (μg/m^3)			
					2009	2010	2010 data with local factor applied	2010 data with national factor applied (04/11 Issue)
LWS053[g]	Mayow Rd	N	n/a	83	n/a	33.85	23.36	33.51
LWS002[a]	Boyne Road	Y	92	100	36.1	32.35	22.32	32.03
LWS003[a]	Lewisham Road	Y	92	92	**49.65**	**46.44**	32.04	**45.98**
LWS004[a]	Loampit Vale	Y	100	100	**60.01**	**59.51**	**41.06**	**58.91**
LWS005[a]	New Cross Road	Y	92	92	**73.51**	**72.63**	**50.11**	**71.90**
LWS006[a]	New Cross Road	Y	92	92	**73.88**	**72.35**	**49.92**	**71.63**
LWS007[a]	New Cross Road	Y	75	92	**71.94**	**74.22**	**51.21**	**73.48**
LWS051[f]	Hatcham Park Road	Y	42	92	**59.98**	**54.63**	37.69	**54.08**
LWS009[a]	Brockley Rise	N	100	92	**57.12**	**59.11**	**40.79**	**58.52**
LWS010[a]	Ringstead Road	Y	100	92	38.31	32.15	22.19	31.83
LWS011[a]	Catford Hill	Y	100	92	**57.72**	**54.43**	37.56	**53.89**
LWS014[b]	Stanstead Road	N	100	100	27.37	29.94	20.66	29.64
LWS015[c]	Shardloes Road	Y	92	92	**60.63**	**52.28**	36.07	**51.76**
LWS016[c]	Lawn Terrace	Y	100	100	**40.87**	37.42	25.82	37.05
LWS017[d]	Baring Road	Y	75	83	**49.6**	**58.91**	**40.65**	**58.32**
LWS018[d]	Hazelbank Road	N	58	75	31.11	32.39	22.35	32.07
SCH001[d]	All Saints Primary, Blackheath Vale	Y	83	92	26.73	29.13	20.1	28.84
SCH002[d]	Lee Manor Primary, Leahurst Road	Y	75	92	28.52	29.15	20.11	28.86
SCH003[d]	Cooper's Lane Primary, Pragnell Road	N	83	100	23.51	25.49	17.59	25.24
SCH004[d]	Launcelot Primary, Launcelot Road	N	75	92	23.23	26.75	18.46	26.48
SCH005[d]	Bonus Pastor College, Winlaton Road	N	67	67	22.11	21.81	15.05	21.59
SCH006[d]	Forster Park Primary, Boundfield Road	N	67	92	23.10	24.61	16.98	24.36

SCH007[d]	Sandhurst Infants and Juniors, Minard Road	N	75	92	26.76	29.86	20.6	29.56
SCH008[d]	Holy Cross Primary, Culverley Road	Y	83	100	31.63	34.11	23.54	33.77
SCH009[e]	Catford High, Conisborough Crescent	N	50	67	23.22	29.60	20.42	29.3
SCH010[d]	Athelney Primary, Athelney Street	N	75	100	22.77	25.61	17.67	25.35
SCH011[d]	St Michael's CE Primary, Champion Road	N	67	100	25.46	25.42	17.54	25.17
SCH012[e]	St William of York RC School, Brockley Park	N	67	100	28.72	27.72	19.13	27.44
SCH013[d]	Christchurch CE School, Perry Vale	N	75	100	31.27	32.02	22.09	31.7
SCH014[d]	Perrymount School, Sunderland Road	N	58	92	26.01	28.75	19.84	28.46
SCH015[d]	Holbeach Primary, Doggett Road	N	75	100	29.33	31.14	21.49	30.83
SCH016[d]	St Mary Magdalen's RC School, Howson Road	N	75	92	28.95	29.85	20.6	29.55
SCH017[d]	Turnham Primary Foundation, Turnham Road	Y	83	100	29.11	30.68	21.17	30.37
SCH018[d]	Grinling Gibbons Primary, Clyde Street	Y	58	100	33.34	34.24	23.63	33.9
SCH019[d]	St Saviour's RC Primary, Bonfield Road	Y	83	100	30.28	30.73	21.2	30.42
SCH020[d]	St Mary's CE Primary, Lewisham High St	Y	83	92	**61.33**	**53.12**	36.65	**52.59**
SCH021[f]	Sydenham School, Dartmouth Road	N	50	75	34.62	31.71	21.88	31.39

[a] monitoring started in February 2008
[b] monitoring started in December 2008
[c] monitoring started in January 2009
[d] monitoring started in March 2009
[e] monitoring started in May 2009 and 2009 data was annualised
[f] monitoring started in July 2009 and 2009 data was annualised
[g] monitoring started in January 2010

n/a – Tubes not in position in this location during this year

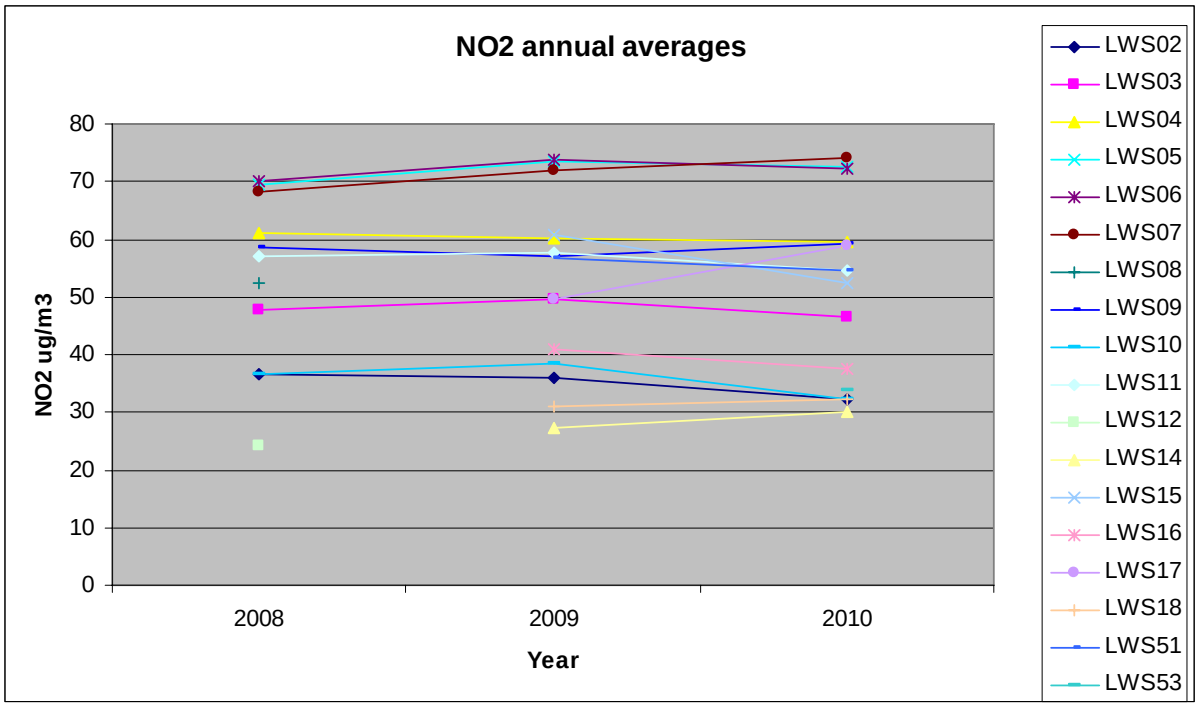
The calculations used for annualising the 2009 data were included in the 2010 Progress Report.

The diffusion tube network was started in 2008 so, for the initial sites, there is currently data available for 3 years. Fig 2.3 below shows the data to date (without bias adjustment) and, although there is limited data, we can now start to look at annual trends. The diffusion tubes started to be placed within schools from March 2009 and so a full calendar year's worth of data is also now available for these sites. Where data capture is below 80% as a result of tubes being missing rather than a shorter monitoring period, the data has not been annualised since the data gaps are more sporadic.

Although data is limited, there seems to have been a general improvement in nitrogen dioxide concentrations at roadside monitoring locations across the borough while many background sites show a slight worsening. At all of the background sites where concentrations were higher in 2010, the air quality objectives were met and at the majority of sites, the increase is likely to be attributable to greater data capture in 2010.

The roadside sites which saw an increase were LWS007, LWS009 and LWS017. LWS007 is one of the triplicate tubes and both the other tubes, the average across the triplicate tubes and the automatic monitoring data all showed a decrease in 2010. Monitoring data at LWS017 was missing for January, February and December 2009, the months when nitrogen dioxide concentrations tend to be higher which may explain the increase seen in 2010. LWS009 is a monitoring location at a roadside site outside of existing AQMAs which was the subject of the Detailed Assessment completed in March 2011. Future action will be taken to try to address the air quality in this area.

Figure 2.3 Trends in Annual Mean Nitrogen Dioxide Concentration Measured at Diffusion Tube Monitoring Sites



2.2.2 PM_{10}

The sites for which PM_{10} data is available are Lewisham 2, situated at a roadside in New Cross, Lewisham 3 located in an industrial area in the north of the borough and Crystal Palace 1 which is another roadside location on the Borough's boundary. Crystal Palace 1 closed in July 2010 so data is only available until this date. Both Lewisham 2 and Lewisham 3 are representative of public exposure while Crystal Palace 1 is situated close to a road and adjacent to a park. There are residential properties on the other side of the road but these are set back behind vegetation and at a lower level than the road.

As can be seen from the results presented in Table 2.5, both the **annual mean and 24-hour mean objectives were met** at all sites in all years. The last year when an exceedence of the PM_{10} objective was reported was in 2003 when the 24-hour mean objective was exceeded at Lewisham 2. During this year, long periods of high pressure during the summer months contributed to exceedences across London.

A slight downward trend in the results can be observed since 2003 although the concentrations have remained relatively stable in recent years. However, as the episodes in 2003 and, to some extent, those in 2007 and early 2011 demonstrate, PM_{10} concentrations can be greatly influenced by meteorological conditions. Therefore, there can be significant fluctuations from one year to the next and a precautionary approach is being adopted. However, the AQMA designation for failure to meet PM_{10} objectives will be reviewed in the near future to see whether or not it should be revoked.

As discussed in Section 2.1, an additional monitoring station has been located in the borough since the previous Report was produced and is identified as Lewisham 3. The monitor is a BAM and has been located close to an industrial site in the north of the borough where potential problems arising from fugitive emissions from the industrial processes were identified. The monitoring site is located to the south of the processes and, therefore, downwind but it is close to the residential premises that would be affected in order to measure relevant public exposure. Data for this site is available from February 2010 although data capture in the first few months was relatively low. The 24-hour mean objective is being met at this site although analysis of the diurnal patterns shows that there is often a wide disparity in the concentrations between working hours and evening / weekends. Peak concentrations occasionally reach high concentrations (>200μg/ m^3) but when averaged over 24 hours, the values are mostly under 50μg/m^3 and the National Air Quality Objective is being met. A gauge to measure local wind direction at the site is also in place to help gather data on the potential sources of the peaks.

Figure 2.4 Trends in Annual Mean PM_{10} Concentrations

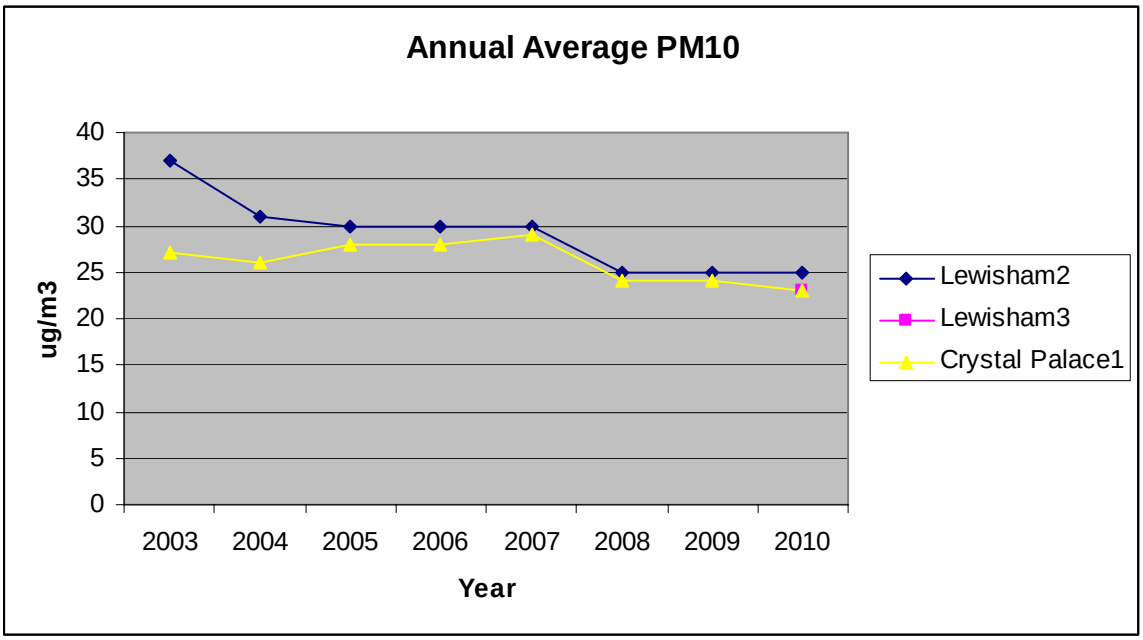


Table 2.5 Results of PM_{10} Automatic Monitoring: Comparison with Annual Mean and 24-hour Mean Objectives

Site ID	Location	Within AQMA?		2008	2009	2010
Lewisham 2	New Cross, Hobgoblin PH	Y	Data Capture	93	92	95
			Annual mean concentrations (µg/ m^3) (Objective: 40µg/m^3)	25	25	25
			No. of days > 50µg/m^3 (Objective: <= 35 days)	16	12	6
Lewisham 3	Mercury Way	Y	Data Capture	n/a	n/a	*72*
			Annual mean concentrations (µg/ m^3) (Objective: 40µg/m^3)	n/a	n/a	23
			No. of days > 50µg/m^3 (Objective: <= 35 days)	n/a	n/a	3
			90^{th} %ile of daily mean where data capture is below 90%	n/a	n/a	40
Crystal Palace 1	Crystal Palace Parade	Y	Data Capture	*87*	*87*	*55*
			Annual mean concentrations (µg/ m^3) (Objective: 40µg/m^3)	24	24	23
			No. of days > 50µg/m^3 (Objective: <= 35 days)	6	5	1
			90^{th} %ile of daily mean where data capture is below 90%	37.1	36.4	36

All results from TEOM PM10 analysers are now converted to reference equivalence using the volatile correction method.

2.2.3 Sulphur Dioxide

Sulphur dioxide is monitored at Lewisham1, Lewisham2 and the site on the borough's boundary, Crystal Palace1. As mentioned previously, Lewisham1 and Lewisham2 are representative of relevant public exposure while Crystal Palace1 gives worst-case concentrations as the public exposure is further away. Crystal Palace1 closed in July 2010 so data is only available until this date.

The data from each site for the past three years is shown in Table 2.6 below. Where data capture for the year is below 90%, the 99.9th percentile, 99.7th percentile and the 99th percentile for the 15-minute mean, the 1-hour mean and the 24-hour mean respectively are presented in brackets after the number of exceedences. These values are in µg/m^3.

As can be seen from the data, **no exceedences** of the National Objectives have occurred at any of the sites over the past 3 years. In order to try to present more meaningful statistics, the maximum 15-minute mean achieved at each site for each of the years is also given. At all sites, the trend has been steadily downwards in recent years indicating progressive improvement.

Table 2.6 Results of SO_2 Automatic Monitoring: Comparison with Objectives

Site ID	Location	Within AQMA?			2008	2009	2010
Lewisham 1	Broadway Theatre, Catford	Y	Data capture %		97	100	91
			Number of Exceedences of: (µg/m^3)	15-minute Objective (266 µg/m^3)	0	0	0
				1-hour Objective (350 µg/m^3)	0	0	0
				24-hour Objective (125 µg/m^3)	0	0	0
			Max. 15-minute mean (µg/ m^3)		150	141	107
Lewisham 2	Hobgoblin PH, New Cross Rd	Y	Data capture %		91	*88*	94
			Number of Exceedences of: (µg/m^3)	15-minute Objective (266 µg/m^3)	0	0 (28)	0
				1-hour Objective (350 µg/m^3)	0	0 (18)	0
				24-hour Objective (125 µg/m^3)	0	0 (8)	0
			Max. 15-minute mean (µg/ m^3)		128	115	58
Crystal Palace1	Crystal Palace Parade	Y	Data capture %		86	90	*55*
			Number of Exceedences of: (µg/m^3)	15-minute Objective (266 µg/m^3)	0 *(75.9*	0 *(71.2)*	0 (27)
				1-hour Objective (350 µg/m^3)	0 *(46.4*	0 *(45.3)*	0 (20)
				24-hour Objective (125 µg/m^3)	0 *(17.0*	0 *(21.1)*	0 (9)
			Max. 15-minute mean (µg/ m^3)		154.1	112.5	73

2.2.4 Benzene

The air quality objective for benzene is 16.25 µg/m3 as a running mean which was to be achieved by the end of 2003. Following advice from EPAQS (Expert Panel on Air Quality Standards), the 2002 strategy review set an additional tighter objective of 5 µg/m3 as an annual mean to be achieved by the end of 2010. This is in line with the second air quality daughter directive limit value.

The main sources of benzene emissions in the UK are petrol–engined vehicles, petrol refining, and the distribution and uncontrolled emissions from petrol station forecourts without vapour recovery systems.

Current monitoring indicates that all of the UK national network sites were significantly below the 2003 objective during the period between 1999 and 2009. Since 2001 the concentrations were also below the 2010 objective, with kerbside/ roadside sites having higher concentrations than urban background sites.

No benzene monitoring is currently carried out within the London Borough of Lewisham. However, previous review and assessments concluded that there were unlikely to be any exceedences of the 2003 objective for benzene within the London Borough of Lewisham. Based on the monitoring results from network sites outside of the borough and the absence of major sources of benzene emissions within the borough, exceedences of the 2010 objective are not predicted anywhere within the local authority's area.

2.2.5 Carbon Monoxide

The only site which monitored carbon monoxide was at Crystal Palace1 which closed in July 2010. For this reason, the data capture in 2010 is low and will not accurately reflect the annual picture. The site started collecting data in 1999 but only recent monitoring data, plus data capture, are given in Table 2.7 below based on scaled and ratified data.

There were **no exceedences of the CO objective** (rolling 8 hour mean >10mg/m^3) at the site over this period. Details of annual mean and maximum one-hour concentrations are also provided for information purposes. The annual mean concentrations are low in comparison with the objective.

Table 2.7 Results of CO Automatic Monitoring: Comparison with Objectives

	Inside AQMA?		2008	2009	2010
Crystal Palace1, Crystal Palace Parade	Y	Max 8 Hour	1.6	1.5	1.2
		Annual mean	0.4	0.4	0.4
		Max 1 Hour	3	2	1.8
		Data capture %	86	89	56

The results from the monitoring site are considered representative of busy roadsides in the Council's area. These indicate that the objective is being met. The results also indicate a fall in concentrations over time as outlined in the Council's previous updating and screening assessment.

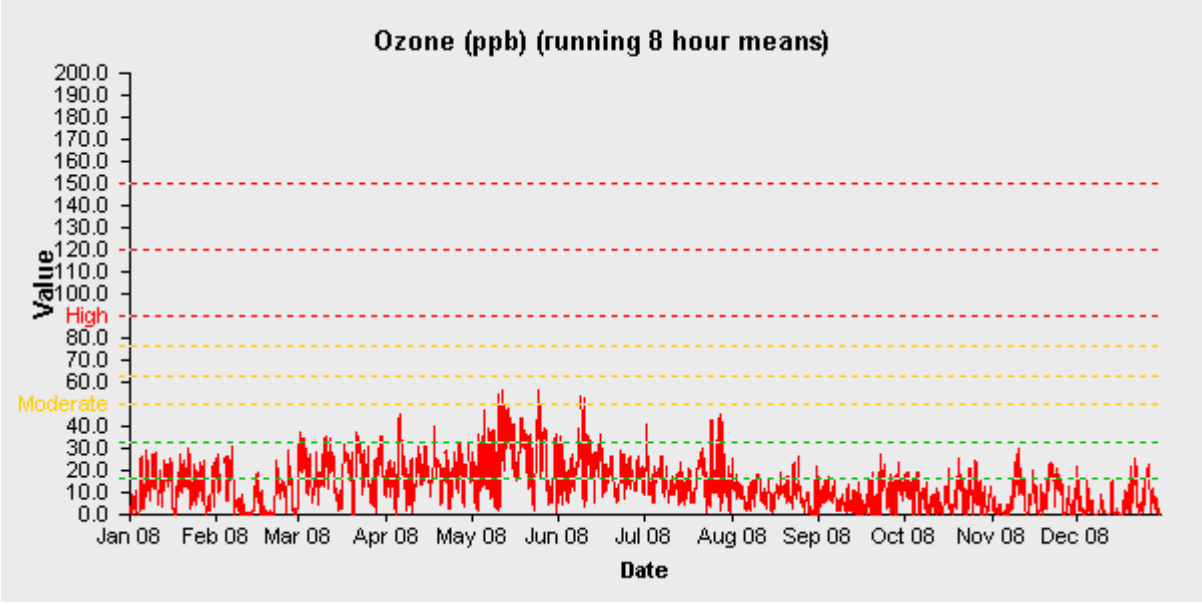
2.2.6 Ozone

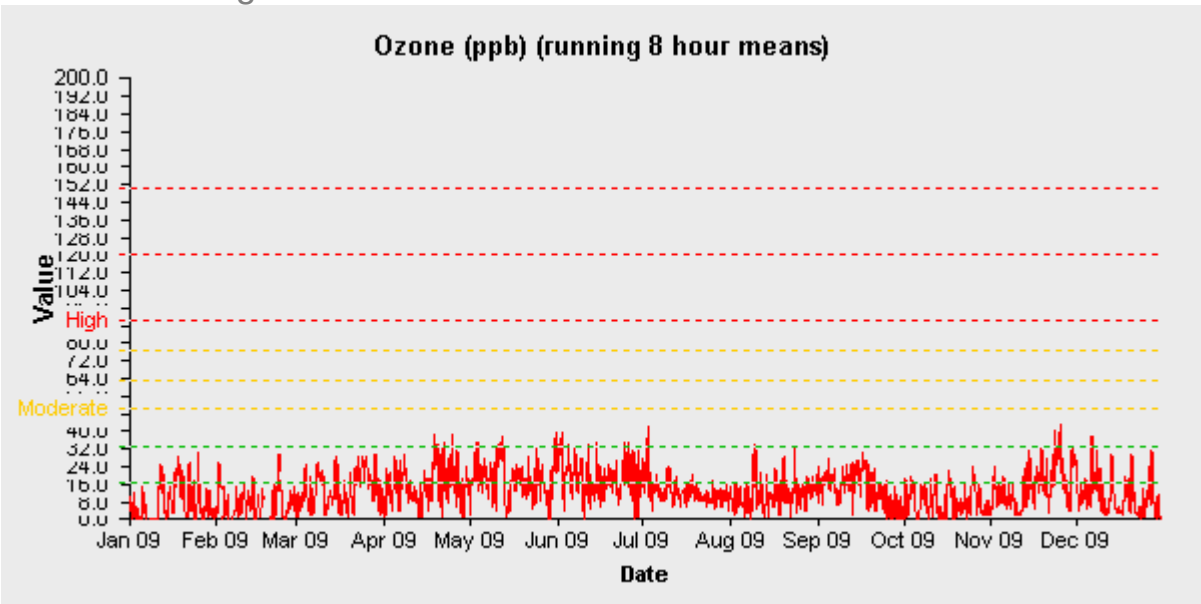
Ozone is monitored at the Lewisham1 site at the Broadway Theatre in Catford. Details of the site are contained in Section 2.1 of this report. The results from the most recent 3 years are presented in Table 2.7 below:

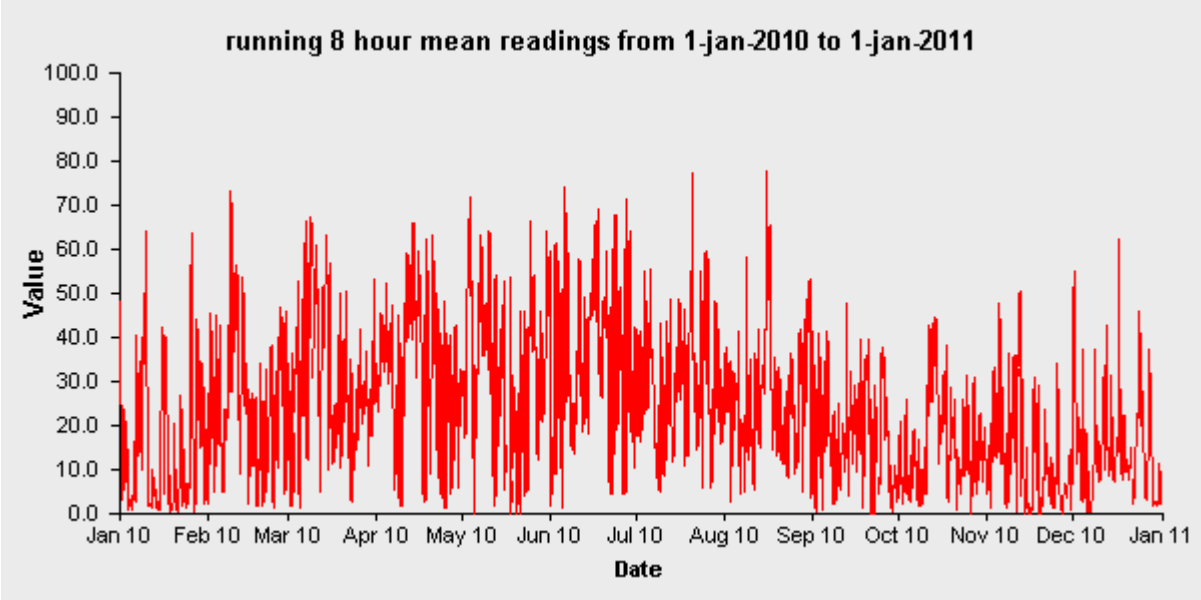
Table 2.8 Results of O_3 Automatic Monitoring

Site ID	Location	Within AQMA?		2008	2009	2010
Lewisham1	Broadway Theatre, Catford	Y	Data capture %	99	99	99
			Max hourly mean	126	93	99
			Max rolling 8-hourly mean	113	81	78
			No. of days max rolling 8-hour mean > 100 µg/m^3	6	0	0

The Air Quality Objective for ozone is less than 10 days when the maximum rolling 8-hour mean exceeds 100 µg/m^3. While the monitoring data indicates that the Air Quality Objective is being achieved at this location, concentrations of ozone often occur some distance from the sources and tend to be lower in urban environments. For this reason, the objective is not included in the Regulations at present and does not fall within the system of Local Air Quality Management. Graphs showing the rolling 8-hourly means for each of the three years shown in the table are shown below:







Figs 2.5, 2.6 and 2.7: Graphs Showing Ozone Running 8 hour Means For 2008, 2009 and 2010 respectively

2.2.7 Summary of Compliance with AQS Objectives

London Borough of Lewisham has measured concentrations of nitrogen dioxide above the annual mean objective at relevant locations outside of the AQMAs and modelling predicts that the hourly objective for nitrogen dioxide may also be exceeded at the same location. The findings have already been presented in a Detailed Assessment which was submitted and approved earlier in 2011. The conclusion from the Detailed Assessment was that a new Air Quality Management Area needs to be declared for both the annual and hourly mean nitrogen dioxide objectives.

Concentrations of other pollutants continue to show a general improvement so that no exceedences of any other objective have been identified within the borough.

PM_{10} concentrations within the borough are continuing to show a decline and the air quality objectives are currently being met. However, a precautionary approach is being adopted so that the existing AQMAs are being maintained. **There is no need to progress to any further Detailed Assessment at this stage.**

3 New Local Developments

3.1 New Local Developments

Table 3.1 Planning Applications (2010-11) where an Air Quality Assessment was submitted as part of an Environmental Statement

Site Name	Location	Status	Summary of AQA
Surrey Canal Triangle	Surrey Canal Road, New Cross SE14	Submitted, not yet decided	Using air quality models, maximum ground level pollutant concentrations once development is operational in 2025 are predicted to be: NO_2 annual mean 31.1µg/m^3 PM_{10} annual mean 21.2µg/m^3 No. of days where PM_{10}>50µg/m^3 5 $PM_{2.5}$ annual mean 13.7µg/m^3 http://acolnet.lewisham.gov.uk/LEWIS-XSLPagesDC/acolnetcgi.exe?ACTION=UNWRAP&RIPNAME=Root.PgeDocs&TheSystemkey=62168
Convoys Wharf	Prince St/ Grove St, Deptford SE14	Resubmissi-on imminent	The predicted concentrations in 2019 when the development is scheduled for completion are: NO_2 annual mean (on site) 32.0µg/m^3 NO_2 annual mean (Creek St) 46.2µg/m^3 PM_{10} annual mean (on site) 21.2µg/m^3 PM_{10} annual mean (Creek St) 21.6µg/m^3 No. of days where PM_{10}>50µg/m^3 12
Deptford Wharves	Between Oxestalls Road and Dragoon St	Submitted, not yet decided	The predicted concentrations in 2018 when the development is scheduled for completion are: NO_2 annual mean 45.31µg/m^3 PM_{10} annual mean 22.26µg/m^3 No. of days where PM_{10}>50µg/m^3 6 http://acolnet.lewisham.gov.uk/LEWIS-XSLPagesDC/acolnetcgi.exe?ACTION=UNWRAP&RIPNAME=Root.PgeDocs&TheSystemkey=58624

London Borough of Lewisham has identified the following new or previously unidentified local developments which may impact on air quality in the Local Authority area.

- Surrey Canal Triangle
- Convoys Wharf
- Deptford Wharves

3.2 Road Traffic Sources

London Borough of Lewisham confirms that, since the date of the last Updating and Screening Assessment, no more of the following have been identified:

- narrow congested streets with residential properties close to the kerb
- busy streets where people may spend one hour or more close to traffic
- roads with a high flow of buses and/or HGVs
- junctions
- bus or coach stations

An earlier Progress Report referred to plans to replace the roundabout in the centre of Lewisham with a H-shaped junction as part of the Lewisham Gateway development. In 2010, some demolition works took place in this location but work on the development is still not yet underway. The changes also have the potential to impact on concentrations along Loampit Vale where work has begun on a large residential development with public leisure centre. The results of the Air Quality Assessment for this development were outlined in the previous Progress Report.

The redevelopment of the Kender Street triangle (the area formed by the three roads: Kender Street, A2 and A202), which introduced significant changes to traffic flows, have now been completed. Early indications from the closest diffusion tube (LWS008) are that nitrogen dioxide concentrations are lower in 2011 than in the previous year at this particular location. This is in keeping with the trend at many other roadside locations within the borough for the same period so may not be attributable to the changed layout. However, the changes are likely to have delivered air quality benefits to the residential areas around Kender Street and Besson Street.

London Borough of Lewisham has identified the following future changes to road traffic flows which may impact on air quality in the Local Authority area.

- Lewisham centre roundabout

This will be considered in future reports should the changes take place.

3.3 Other Transport Sources

London Borough of Lewisham confirms that there are:

- No relevant airports in the Borough;
- No locations where relevant exposure to emissions from steam or diesel trains arises within the Borough;
- No locations where there are large movements of diesel locomotives and potential long-term relevant exposure within 30m and
- No port or any shipping that meet the specified criteria within the Borough.

3.4 Industrial Sources

London Borough of Lewisham confirms that, since the last Updating and Screening Assessment, there have not been any

- New or proposed installations for which an air quality assessment has been carried out.
- Existing installations where emissions have increased substantially or new relevant exposure has been introduced.
- New or significantly changed installations with no previous air quality assessment.
- New major fuel storage depots storing petrol.
- New petrol stations.
- New poultry farms.

3.5 Commercial and Domestic Sources

Table 3.2 Planning Applications (2010-11) where approval was granted for a biomass boiler

Site Name	Location	Size/Type of boiler	Summary of Modelling Results
Deptford Green School	Edward Street / Amersham Vale	400kW wood pellet	http://acolnet.lewisham.gov.uk/LEWIS-XSLPagesDC/acolnetcgi.exe?ACTION=UNWRAP&RIPNAME=Root.PgeResultDetail&TheSystemkey=58905 using 2006 meteorological data, which is the year that gives rise to the largest impact, the maximum increases to annual average concentrations of NO2 is 0.86µg/m^3 and of PM10 is 0.34µg/m^3. http://acolnet.lewisham.gov.uk/LEWIS-XSLPagesDC/acolnetcgi.exe?ACTION=UNWRAP&RIPNAME=Root.PgeDocs&TheSystemkey=60104
Gordon-brock Primary School	Gordonbrock Road	70kW Hoval Biolyt	"The highest annual mean concentration is predicted to occur at …Gordonbrock School, where the annual mean concentration predicted at this Receptor is 25.7 µg/m^3 with the system operating at full load … contributing approximately 0.2 µg/m^3 …to the existing annual mean NO2 background concentration" "In comparison with a conventional gas boiler, PM10 emissions from the proposed biomass boiler are likely to be higher by up to 0.03 µg/m^3" http://acolnet.lewisham.gov.uk/ACOLLATEDOCS/68339_18.pdf

It was reported previously that a 400kW biomass boiler was approved at a development on Lewisham Road known as Heathside and Lethbridge. Since this time, the energy source has been reconsidered. Although this has not yet been agreed, it is unlikely that the developer will now proceed with this size biomass boiler at this location.

As reported previously, the locations and types of biomass boilers receiving planning consent within LB Lewisham are now being recorded and mapped. In the past year, the number of

planning applications proposing a biomass boiler to provide on-site renewable energy has significantly reduced. There are currently no areas where the concentration of biomass boilers are a cause for concern.

London Borough of Lewisham confirms that there are no areas where the concentration of biomass boilers are a cause for concern.

The London Borough of Lewisham is designated a Smoke Control Area and there are no known areas within the borough where domestic solid fuel burning is an issue.

3.6 New Developments with Fugitive or Uncontrolled Sources

London Borough of Lewisham confirms that there are no landfill sites nor quarries within the borough.

Other potential sources of fugitive particulate emissions, including waste transfer stations, were considered in the previous Updating and Screening Assessment. This identified that there is an area in the north of the borough where fugitive emissions from industry could be a problem and that complaints have been received about dust from local residents. For this reason, a particulate monitor (Lewisham 3) was installed in the vicinity and data from this site is presented in Section 2.2.2.

4 Planning Applications

4.1 Planning Applications which have the potential to impact on ambient air quality that have been submitted but which have not yet been decided

Name of Development	Location	Reference to Planning Application
Bond House	Goodwood Road, SE14 6BL	http://acolnet.lewisham.gov.uk/ACOLLATEDOCS/59320_3.pdf
The Wharves	Oxestalls Road, Deptford SE8	http://acolnet.lewisham.gov.uk/LEWIS-XSLPagesDC/acolnetcgi.exe?ACTION=UNWRAP&RIPNAME=Root.PgeResultDetail&TheSystemkey=58624
Marine Wharf	Plough Way,	http://acolnet.lewisham.gov.uk/LEWIS-XSLPagesDC/acolnetcgi.exe?ACTION=UNWRAP&RIPNAME=Root.PgeResultDetail&TheSystemkey=58624

Development is taking place both within Lewisham centre and to the north of the borough in Evelyn ward. In these areas, there are several large scale developments which either have the potential to impact on ambient air themselves, or could have a cumulative effect.

Within Lewisham centre, the developments are:
Loampit Vale (underway), Lewisham Gateway (approved), Thurston Road Industrial Estate (in planning process), 52-54 Thurston Road (a smaller development that has approval) and Lewisham Bridge Primary School.

Within Evelyn Ward, the developments are:
Surrey Canal Triangle (in planning process), Convoys Wharf (in planning process), Deptford Wharves (in planning process), Oxestalls Road and Yeoman Street. These may also be compounded by work on the shaft sites for the Thames Tideway Tunnel depending on the outcomes of the public consultation that is currently in progress.

5 Air Quality Planning Policies

The London Plan, produced by the Greater London Authority for the Mayor of London, provides the regional policy context for Lewisham. It contains a number of sub-regional development frameworks setting out more detailed requirements for spatial development. Within this framework, specific requirements are made of a Local Planning Authority. Within the London Plan, the Mayor is proposing to include new provisions that will encourage boroughs to ensure new developments are air quality neutral.

London Borough of Lewisham adopted the Core Strategy at its meeting on 29 June 2011. The Core Strategy forms part of the development plan for the borough, together with the London Plan and those UDP policies that continue to be saved. The Core Strategy replaces many UDP policies.

Lewisham's Core Strategy covers a 15 year period from 2011 to 2026. The Core Strategy policies will help the Council to assess all future planning applications and sets out our approach to important issues including air quality.

The borough's air quality will remain an important issue that needs to be addressed and can be linked to the type of development taking place and its location, the way people travel, restraining car use, and focusing people in areas where a full range of facilities is on their doorstep.

A copy of the Core Strategy for London Borough of Lewisham is available on the Council's website and can be obtained by using the link below:
http://www.lewisham.gov.uk/myservices/planning/policy/Documents/CoreStrategyAdoptedVersion.pdf

6 Local Transport Plans and Strategies

London Borough of Lewisham has prepared a Local Implementation Plan that aims to:

- reduce the environmental damage that travel can cause;
- make transport from, to and within the borough as easy as possible;
- provide a guide to how Lewisham streets are managed.

The plan also sets out how the Council will implement the Mayor of London's Transport Strategy within Lewisham. It was approved by the London Mayor and adopted by the Lewisham Mayor in 2007.

This version is currently being revised and consultation on the draft version has been carried out. We are currently awaiting final feedback and the revised version of the LIP should be published in October 2011.

7 Climate Change Strategies

London Borough of Lewisham published a Carbon Reduction and Climate Change Strategy in July 2008 which sets out how the Council aims to contribute to tackling climate change as well as adapting to its impacts. The ambition is for Lewisham to play a leading role in responding to climate change locally, regionally and nationally with the aim of achieving the lowest level of per capita level CO_2 emissions in London. A study in 2005 found that Lewisham is the second lowest London borough for per capita CO_2 emissions and 12th out of 33 in terms of total emissions. The emissions for Lewisham reflect its small industrial and commercial base and predominantly residential character with older properties, and its limited Underground services.

Many of the policies for tackling climate change will have a natural synergy with those aimed at improving ambient air quality as many of the activities that generate greenhouse gases also generate nitrogen dioxide and particulates. For example, the Carbon Reduction Strategy includes details of how the Council aims to use cleaner technology in its fleet of vehicles and promote more sustainable forms of transport. Similarly, policies that ensure monitoring of energy consumption in Council buildings and subsequent reductions, the promotion of energy efficiency measures as well as encouraging renewable energies such as wind, solar and heat pumps all contribute to improving air quality both locally and nationally.

A full copy of the Carbon Reduction and Climate Change Strategy is available on the Council's website by using the following link.
http://www.lewisham.gov.uk/SiteCollectionDocuments/ClimateChangeStrategyFINAL.pdf

8 Implementation of Action Plans

Table 7.1 Action Plan Progress

No.	Measure	Focus	Lead authority	Indicator	Target annual emission reduction in the AQMA	Progress to date	Progress in last 12 months	Estimated completion date	Comments relating to emission reductions
1	Support for and promotion of the implementation of the London Low Emission Zone	Make information on the LEZ publicly available and to promote the extension of the LEZ to include a wider range of vehicles.	GLA	Adoption of a London-wide LEZ; Categories of vehicle to which standards apply.	High.	Phases I and II have been introduced. Phase III will be introduced in January 2012.	Information on the London LEZ is available via a link on the Council website. Information leaflets on the introduction of Phase III of the LEZ have been ordered for distribution over summer 2011.	2012 for implementation of Phase III and ongoing thereafter.	TfL estimates that including larger vans and minibuses in the LEZ in January 2012 would reduce emissions of Particulate Matter (PM) by around 80 tonnes and emissions of Oxides of Nitrogen (NOX) by around 1,200 tonnes by 2015.
2	Vehicle Emissions Testing	Reduce emissions from the most polluting vehicles and raise awareness on vehicle exhaust emissions	LBL	Number of awareness raising events held; Number of vehicles tested which fail the MOT	Low	Contact had been established with VOSA but no funding made available for	One voluntary emissions testing day was carried out in a Council Car park. 11 vehicles were tested, of which 1	Ongoing	This was the first voluntary testing day so will be used as a benchmark for future events.

No.	Measure	Focus	Lead authority	Indicator	Target annual emission reduction in the AQMA	Progress to date	Progress in last 12 months	Estimated completion date	Comments relating to emission reductions
				emissions standards		roadside testing.	failed to meet the standards.		
3	Measures to Address Idling Engines	Discourage Engine Idling through information and education.	LBL	No. of Complaints about idling engines validated; No. of signs advising drivers to switch off engines erected.	V Low	No complaints about engine idling received in 2010-11.	30 No Engine Idling signs have been designed and ordered.	Signs to be erected at 'hotspot' locations. Complaint monitoring ongoing	
4	Encourage Cleaner Technology/Alternative Fuels in Council Fleet	Increase number of Council and Contractors' Vehicles that use cleaner technology/alternative fuels; Provision of alternative refuelling locations; Driver training.	LBL	Number of fleet vehicles using different types of cleaner technology; Fleet fuel consumption; Reduction in emissions of NOx and PM_{10} from Council's fleet; Number of alternative refuelling points available.	Medium	All Council fleet meeting Euro V standards. 40 vehicles using LPG. Biodiesel also being used. In Mar 2010, the fleet included 11 electric Hybrid vehicles including a Honda Civic IMA hybrid car used by the Mayor.	No. of hybrid vehicles in fleet has had to be reduced to 9. 7 twin electric vehicle charging points have been purchased and installed in Council car parks. Electricity connections due for completion in October 2011. LBL has signed up to be a member of Source London. A local Sainsbury's has also installed 2 EVCPs. LPG is	Ongoing. 7 EVCPs to be available for public use by end October 2011 and application for points to be included in Source London network will be made.	NI194 was used to monitor emissions from Council's own fleet but has now been discontinued.

No.	Measure	Focus	Lead authority	Indicator	Target annual emission reduction in the AQMA	Progress to date	Progress in last 12 months	Estimated completion date	Comments relating to emission reductions
							available at one fuelling station within the borough.		
5	Encourage Cleaner Technology/Alternative Fuels in Public Transport	To support TfL initiatives aimed at making public transport within LBL cleaner.	TfL / LBL	Buses operating within LBL that use cleaner technology / alternative fuels;	Medium	No data	TfL / Mayor's Office contacted with request to provide details of buses operating within LB Lewisham that use cleaner technology / alternative fuels. TfL conducting trials on several buses within London although not necessarily within Lewisham.	Ongoing	Public transport initiatives have the potential to significantly reduce emissions across the borough. However, changes are, part of a wider transport strategy.
7	Encourage Cleaner Technology/Alternative Fuels in Delivery and Freight Road Vehicles	Implement initiative to reduce freight movements by road within the borough	LBL	Reduction in freight movements by road from a minimum of one scheme	Medium	Active participation in SLFQP. Schemes to improve freight movements within town centres and to reduce freight movements through consolidation were	Through the SLFQP, a Delivery and Service Plan was put in place for the Lee Business Area to mitigate the impacts of freight, delivery and servicing activities, particularly on residential streets. Also with the SLFQP, a		Emission reductions can be significant in a small localised area with wider but lesser benefits also observed.

No.	Measure	Focus	Lead authority	Indicator	Target annual emission reduction in the AQMA	Progress to date	Progress in last 12 months	Estimated completion date	Comments relating to emission reductions
						investigated.	Commercial Vehicle Route Map was developed for an industrial estate that borders the LB of Bromley.		
9	Encourage and Promote the Use of Travel Plans	LBL to have Travel Plan in place and regularly review it. Promote the adoption of Travel Plans among major employers within the borough.	LBL	Results from Lewisham Council's Staff Travel Survey. Number of local businesses with Travel Plans in place. % of schools with School Travel Plan in place.	Low	Results from the 2009 Staff Travel Survey showed a 6% reduction in staff travelling to work in a car on their own. The percentage of pupils travelling to school by car had decreased year on year to 18.87% in 2008/09.	The percentage of schools with a School Travel Plan has dropped to 75% owing to funding cuts and schools opting not to renew their plan. LBL has been seeking to secure Green Travel Plans for large developments through the planning process.		
10	Promote and publicise improvements to public transport.	Provision of information to LBL residents about public transport improvements.	LBL	Trends in modal shifts within LBL – Proportion of journeys made by public transport.	Low to Medium	Public Transport infrastructure in Lewisham as of March 2010 was: 20 rail stations, 3 DLR stations,	A new station on the East London Line extension at Surrey Canal Road is being discussed in association with a proposed	Ongoing	LBL's role is limited to making residents aware of any improvements. The potential for significant

No.	Measure	Focus	Lead authority	Indicator	Target annual emission reduction in the AQMA	Progress to date	Progress in last 12 months	Estimated completion date	Comments relating to emission reductions
						6 London Underground / Overground stations, 42 bus routes.	development in the area. East London Line extension, whose route passes through LBL, opened in May 2010. A new map showing the borough's transport links has been produced and handed out at various events including Lewisham People's Day.		reductions comes from the improvements themselves. Fares on public transport were increased in January 2011, including a 12.8% rise for a peak train fare from Grove Park to London. Fare increases may result in a decrease in public transport use.
11	Promotion of Walking	Encourage walking instead of use of motor vehicles and make access to services easier on foot	LBL	Trends in modal shifts within LBL – Proportion of journeys made on foot; Traffic on Walkit.com for routes in LBL area.	Low	Walking Map and Walking Strategy produced. LBL is covered by Walkit.com. Printed information on local walks available.	Walkit.com link on council website and has been promoted at various events. The number of schools participating in Walk to School Week fell to 20 but 40 schools now participate in Walk on Wednesdays.	Ongoing	

No.	Measure	Focus	Lead authority	Indicator	Target annual emission reduction in the AQMA	Progress to date	Progress in last 12 months	Estimated completion date	Comments relating to emission reductions
							New walking routes connecting parks, signs and refurbishment of parks has taken place in several locations (see below).		
12	Promotion of Cycling	Encourage cycling instead of use of motor vehicles through improvements to infrastructure and security.	LBL / TfL	Trends in modal shifts within LBL – Proportion of journeys made by bike; No. of people receiving cycle training; No. Of Council staff taking up Bike Loan Scheme.	Low	See map of current cycle routes and parking facilities using links below. http://www.bing.com/maps/Default.aspx?v=2&cp=51.447990761748 71~-0.004815710357434&lvl=13&cid=B35079F0C51C77FF!113 http://www.bing.com/maps/?v=2&cp=51.428816233624 62~-0.0225627422	Maps of cycle routes and cycle parking facilities available on Council website. Lewisham is part of the Sky Ride campaign, aiming to get one million more people riding a bike by 2013. LB Lewisham were shortlisted for the Best Cycle Facility in the London Cycling Awards 2010 for the improvements along Ravensbourne Greenway. 730 school	Ongoing	

No.	Measure	Focus	Lead authority	Indicator	Target annual emission reduction in the AQMA	Progress to date	Progress in last 12 months	Estimated completion date	Comments relating to emission reductions
						33276367&lvl=15&sty=c&cid=B35079F0C51C77FF!118	children received cycle training and 200 cycle lessons delivered to adults. A total of 107 people were trained in the Council run Cycle Maintenance classes. 81 staff benefitted from the Cyclescheme and 9 staff took advantage of the Bike Loan scheme.		
13	Management of Parking	To ensure that parking provisions are appropriate to the nature of the area through designation of zones and enforcement.	LBL / TfL	Changes to Controlled Parking Zones implemented; No. of consultations on parking restrictions undertaken; No. of members of Streetcar.	Low - Medium	There were 16 Controlled Parking Zones in place at end of 2009. The times of the controls are varied but all information is provided on the Council website. Total	Ladywell CPZ was introduced in 2009. A consultation will shortly take place on extending the CPZ. A new CPZ was introduced in Lee. Total members of Streetcar within the borough is		Management of Parking is a balance between discouraging car use and providing adequate facilities where required. We will aim to monitor the impacts on air quality from

No.	Measure	Focus	Lead authority	Indicator	Target annual emission reduction in the AQMA	Progress to date	Progress in last 12 months	Estimated completion date	Comments relating to emission reductions
						members of Streetcar in Jan 2010 was 2243.	now approximately 4,000. An additional 19 Car Club bays were installed in 2010-11.		introducing further parking controls.
14	Speed Management	To manage speed in a way that promotes a smoother flow of traffic while ensuring road safety.	LBL / TfL	Number of 20mph zones implemented; methods used to manage speed; Average speed measures.	Low	65.8% of the Borough's roads (not inc. TLRN) had speed management measures in place by March 2010.	In 2010/11, a further three 20mph zones with traffic calming measures were introduced: 2 small zones around schools and on several roads in Forest Hill following consultation with local residents.		The impacts on air quality from installing speed humps needs to be assessed.
16	Reduce Emissions from New Developments	Using the planning system to ensure that emissions from new developments are minimised	LBL	No. of major applications approved that are to be car-free; No. of new developments required to provide car club schemes and/or electric vehicle charging	Medium		All planning applications proposing a biomass boiler have been required to produce an Air Quality Assessment. As set out in Table 3.2, two applications for biomass boilers were approved in		

No.	Measure	Focus	Lead authority	Indicator	Target annual emission reduction in the AQMA	Progress to date	Progress in last 12 months	Estimated completion date	Comments relating to emission reductions
				points; No. of biomass boilers approved;			the last financial year. At least 3 new developments are to be car-free (excluding disabled parking) including Deptford Green School.		
17	Reduce Emissions from Commercial Construction Sites	To ensure that construction sites manage emissions and comply with the Clean Air Act 1993.	LBL	Major developments adopting mitigation measures from London Councils Code of Construction Practice. No. of dark smoke complaints received and investigated.	Low – Medium	Developments are risk-assessed and appropriate mitigaton measures are required. Larger developments are required to submit a Construction Environmental Management Plan detailing the measures.	London Councils Code of Construction Practice is available on Council website.		The impacts will be greater in the immediate vicinity of construction sites and will primarily deliver improvements to PM_{10} concentrations
18	Reduce Emissions from Domestic Buildings	To ensure that domestic properties are complying with the Clean Air Act 1993 and to discourage domestic properties from having bonfires. Also to work with	LBL	No. of complaints about unauthorised fuel use received and investigated. No. of complaints	V. Low	System for monitoring and recording of complaints put in place. Links providing information on authorised	1 complaint about unauthorised fuel use received and investigated. New Smoke Control Order came into force in January 2011.		

No.	Measure	Focus	Lead authority	Indicator	Target annual emission reduction in the AQMA	Progress to date	Progress in last 12 months	Estimated completion date	Comments relating to emission reductions
		carbon reduction strategies where there are simultaneous benefits for ambient air quality.		about domestic bonfires received and investigated.		fuels and exempt appliances put on Council webpage. A new free service for residents to deposit garden waste at key sites was launched in July 2009, which reduces the likelihood of garden bonfires.	Lewisham's Core Strategy amended to prioritise reducing carbon emissions and introduce higher standards for new build. Award winning Low Carbon Zone project delivered 5,000 energy efficiency measures to 750 (over 75%) homes. Garden waste was collected for composting between March and November and free compost bins distributed to residents.		
19	Control the Release of Emissions from Industrial and Commercial Premises	Ensure that all industrial installations falling under LAPPC / IPPC regime are regulated and inspected.	LBL / EA	No. of installations requiring authorisation; No. of installations	Low	73 installations were permitted under the EPR at end	70 installations were permitted under the EPR at end Mar 2011. 49 installations were inspected		

No.	Measure	Focus	Lead authority	Indicator	Target annual emission reduction in the AQMA	Progress to date	Progress in last 12 months	Estimated completion date	Comments relating to emission reductions
				inspected; Enforcement action taken or required against industrial installations.		Mar 2010.	during the year. During the year 5 Revocation Notices were served and 2 new applications processed.		
20	Assess Air Quality Levels and Increase Awareness of Air Quality Issues	Monitor air quality levels within the borough, analyse trends and disseminate information to the public.	LBL	No. of pollution monitors operating within LBL; Trends in air quality; Exceedences of Air Quality Objectives; No. of awareness-raising / educational campaigns undertaken.	Low	In Mar 2010, there were automatic monitoring stations operating in New Cross, Catford and Crystal Palace Parade. Diffusion tubes were located in 37 different locations including one triplicate collocated with automatic monitor.	New automatic monitor installed to measure PM_{10} from fugitive industrial emissions in north of the borough. Data being collected since February 2010. Diffusion tube monitoring network was extended to now cover 47 locations. Worked with community group in New Cross to build on their own short-term monitoring project. Air Quality classes delivered to both primary and		Although the emission reductions from this measure are relatively low, this action is important for education, awareness raising and monitoring the impacts of measures introduced.

No.	Measure	Focus	Lead authority	Indicator	Target annual emission reduction in the AQMA	Progress to date	Progress in last 12 months	Estimated completion date	Comments relating to emission reductions
							secondary schools to educate young people about air pollution. Participation at various events to raise awareness of air quality and disseminate information.		
21	Implement Procurement Measures to Reduce Overall Pollution Levels	To ensure that Council's own procurement has the least possible impact on air quality by having an established policy in place.	LBL		Low	The Green Procurement Guide is available on the Council website. http://www.lewisham.gov.uk/NR/rdonlyres/44EF75C5-E537-4DD0-ADF8-EFA36DF97C50/0/GuideToGreenProcurementAprilSmall.pdf			

7.1 Additional Information

The following provides a more detailed summary of the main areas in which action has been taken to improve air quality within the London Borough of Lewisham, in particular to tackle the exceedences of the National Air Quality Objectives.

Action 2: Vehicle Emissions Testing

The first voluntary vehicle emissions testing day took place in March 2011. The event took place in a Council car park and motor vehicle users were approached and offered a free emissions test. Eleven vehicles were tested with only one vehicle failing the MOT standards. Advice on eco-driving and maintaining the vehicle to reduce emissions was provided. An even greater number of people were engaged with the event being used as an opportunity to disseminate wider information about air quality and sustainable transport measures.

Actions 4 – 7: Encourage Cleaner Technology / Alternative Fuels

LB Lewisham has been working on a project to provide a network of publicly available electric vehicle charging points at various locations across the borough. A total of 7 dual charging points were purchased and installed in various Council car parks. The aim is to incentivise the uptake of electric vehicles in line with the Mayor of London's Electric Vehicle Delivery Plan. The charging points are about to be connected to an electricity supply so that they should become available for public use by end of October 2011. LB Lewisham have also signed up to Source London so that the points can be incorporated into the London-wide network of charging points allowing registered users access over a wider geographical area.

Action 10: Promote and Publicise Improvements to Public Transport

In the 6 weeks following the opening of the East London Line, passenger numbers increased by 75%. Trains now carry an average of 85,000 passengers per day. However, a reduction in rail services serving the same area occurred at the same time.

Efforts continued to secure a new station on the East London Line with the offer of funding towards the project from LB Lewisham. The proposal for a station at Surrey Canal Road was based on external funding being found. The Department for Transport had initially put aside £7 million for the construction of this new station, but the money was later withdrawn. The Council is also in discussions with a developer regarding financial contributions in order to ensure that new residents will have access to a vital public transport link.

Work has begun to build new facilities at the train station in Deptford which has been funded jointly by LB Lewisham and the National Station Improvement Programme. The canopies on both platforms will be extended to provided passengers with better protection from the weather and the station will lead onto a new public space on a previously derelict yard off Deptford High Street.

The Sustainable Transport Team produced a borough map showing all the stations, lines and bus routes. These have been distributed to members of the public at events as well as to members of staff to promote the use of public transport in the course of their Council duties.

Action 11: Promotion of Walking

As part of the redevelopment of New Cross and Deptford, London Borough of Lewisham have carried out improvements to the main walking and cycling route between the two stations. This includes Margaret McMillan Park, for which the Council won a Civic Trust Award and Fordham Park. The walking route and parks have been upgraded with lighting,

seating, landscaping and additional amenities and provides a connection with the Albany Theatre and Douglas Way street market.

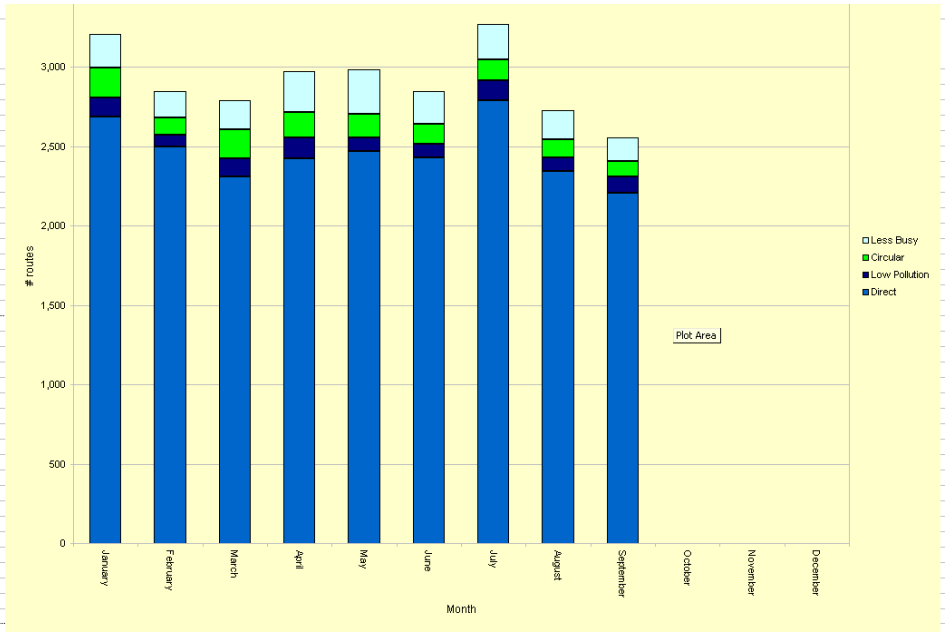
There have also been enhancements to six green spaces on Deptford's riverfront with better seating, planting and lighting being installed to make a more pleasant environment for people to walk and cycle.

In addition, work has continued on the transformation of Ladywell Fields with improvements taking place to the south of the park close to Catford's former greyhound stadium. This provides a pleasant riverside walking / cycling route between Catford and Ladywell. Photographs showing the above improvements have been uploaded on to the Council website and can be viewed using the following link:
http://www.flickr.com/photos/lewishamcouncil/5926067250/in/set-72157627169077096/

During 2009, LBL coordinated a joint project with neighbouring boroughs to collect data on and digitise walking routes. The information was then included on the Walkit.com website and made publicly available from Spring 2010. The statistics showing usage of the site for routes within LB Lewisham during 2011 are shown in the chart below:

Fig 7.1 Number of routes requested within LB Lewisham from Walkit.com website

Lewisham Totals	Direct	Less Busy	Low Pollution	Circular	TOTAL
January	2,689	213	117	192	3,211
February	2,501	162	72	112	2,847
March	2,312	183	111	186	2,792
April	2,424	258	132	159	2,973
May	2,470	283	88	147	2,988
June	2,431	208	87	124	2,850
July	2,789	223	128	133	3,273
August	2,342	184	86	118	2,730
September	2,205	153	105	95	2,558
October	0	0	0	0	0
November	0	0	0	0	0
December	0	0	0	0	0



Action 18: Reduce Emissions from Domestic Buildings

A new Smoke Control Order came into force in January 2011 making the whole of the borough a Smoke Control Area. This regulates the type of fuels and appliances that are permitted for heating in all premises including domestic buildings. However, the action was taken, in part, to tackle the increase in wood-burning as open fireplaces within residential properties are being brought back into use. Another reason for the new Order was that the original orders had been made in the 1960s in a patchwork fashion so that there were pockets of the existing borough that were not covered.

Lewisham's Core Strategy was amended to prioritise reducing carbon emissions which was a slight shift from simply promoting on-site renewable energy to be used. This, therefore, allowed for developers to be more innovative in implementing energy efficiency measures and helped to reduce the number of applications for biomass boilers to be installed in areas of poor air quality.

9 Conclusions and Proposed Actions

9.1 Conclusions from New Monitoring Data

The monitoring data presented above shows that all the Air Quality Objectives are being met with the exception of those for nitrogen dioxide. There has been a slight improvement at most of the roadside locations measuring nitrogen dioxide although they continue to exceed the annual average objective. The diffusion tubes at the Lewisham 2 automatic monitoring station indicate that the hourly objective is also being exceeded at this location but the tubes show consistently higher results than the automatic chemiluminescent monitor. LWS009, which is currently outside of an AQMA, also indicates that the hourly objective may be being exceeded and this is supported by the modelling carried out as part of the Detailed Assessment. Consequently, a new AQMA will be designated for nitrogen dioxide which will include this location as well as those identified as exceeding in the modelling study.

There were some small increases in the concentrations recorded at many background locations but, this is possibly due to having a full annual set of data for the first time.

Concentrations of particulates continue to show a slight reduction and there were no exceedences of the objectives for PM_{10} at any of the monitoring sites. As PM_{10} can be influenced by external factors and can fluctuate according to meteorological conditions, the designation of the AQMAs will remain in the short term. However, the intention is to review these in the near future to determine whether revocation of the AQMAs for the PM_{10} objective is appropriate.

The monitoring data for carbon monoxide and sulphur dioxide confirms that the objectives for these pollutants have been met.

9.2 Conclusions relating to New Local Developments

Section 3 of this Report provides details of new local developments that have received planning permission which may impact on air quality as well as those which are anticipated. The redevelopment of Lewisham centre centred around the roundabout in front of the DLR, train and bus stations is a significant project which will include new residential and commercial units as well as a Leisure Centre and the redesign of the existing road layout. This is a combination of projects known as Lewisham Gateway and Loampit Vale as well as smaller developments at Thurston Road and changes to the Prendergast Vale Primary School. Some of these developments are now underway but still at an early stage. Therefore, it is planned to consider the impacts in the next Updating and Screening Assessment, by which time, any changes to air quality may be observable in the monitoring data.

A number of significant projects are also planned for the north of the borough around the river frontage and the Millwall Football stadium. These include the redevelopment of Convoys Wharf and the Surrey Canal Triangle among others. These applications are not as advanced as those for Lewisham centre but further information should be available by the time the next Updating and Screening Assessment is due.

9.3 Proposed Actions

This report is intended to provide an update on changes to air quality within the London Borough of Lewisham over the past 12 months as well as a progress report on our work towards implementing the measures in the Air Quality Action Plan.

Further to the review of the most recent monitoring data, the conclusions are that:

- There continues to be exceedences of the annual average objective for nitrogen dioxide at all roadside locations and, possibly the hourly objective at certain roadside locations;
- Exceedences of the objectives for nitrogen dioxide are not occurring at background locations;
- Exceedences of the objectives for nitrogen dioxide are occurring along Brockley Rise which is not included in any existing AQMA. This was identified in the previous USA and confirmed in the Detailed Assessment. Consequently, a new AQMA will be designated to cover the areas of identified exceedences as a minimum;
- Fugitive emissions of PM_{10} from industrial sources in the north of the borough were identified as a potential problem in previous reports. However, monitoring data from the new PM_{10} monitor installed in a nearby location shows that the objectives are being met. Despite this, it is an area where concerted actions will take place to tackle fugitive emissions and the temporary peaks that occur as a result;
- Exceedences of the objectives for PM_{10} have not been recorded at any of the monitoring locations but episodes of elevated concentrations have already occurred in 2011. Depending on the outcome of the analysis of the 2011 monitoring data, the designations of the AQMAs for PM_{10} may be revoked;
- There are no other findings that indicate there are changes that require the Council to undertake a further Detailed Assessment at this stage.

The Council will therefore undertake the following actions:

1. Undertake consultation on the findings arising from this report with the statutory consultees as required.

2. Maintain the automatic monitoring stations at Catford, New Cross and Mercury Way as well as the diffusion tube network. The diffusion tubes at schools will be reviewed when the project comes to an end to determine those locations where it would be useful to continue monitoring.

3. Consult on proposals for a new AQMA for exceedences of the nitrogen dioxide objectives in the Crofton Park area and, subsequently designate the AQMA to cover the areas of identified exceedences as a minimum;

4. Continue with the implementation of our Air Quality Action Plan in pursuit of achieving the national air quality objectives.

5. Submit an Updating and Screening Assessment Report in 2012.

10 References

1. Lewisham Employment Transport Study (2008),

2. 2001 Census (http://www.statistics.gov.uk/census2001/profiles/00AZ-A.asp)

3. DEFRA, 2010. WASP – Annual Performance Criteria for NO_2 Diffusion Tubes used in Local Air Quality Management (LAQM), 2008 onwards and Summary of Laboratory Performance in Rounds 105-109. AEA September 2010.

4. Technical Guidance LAQM.TG(09) published by DEFRA (Department for Environment, Food and Rural Affairs)

5. The Review and Assessment Helpdesk website at **http://www.uwe.ac.uk/laqm/review/**

6. The UK National Air Quality Information Archive website at **http://www.airquality.co.uk**

7. The London Air Quality Network website at **http://www.londonair.org.uk**

Appendices

Appendix A: QA:QC Data

Annualisation of Data for Short-Term Monitoring

The diffusion tubes have been sited with the intention of collecting long-term data and, therefore, will be exposed for a minimum of 12 months. However, there are some gaps in the monitoring data owing to spurious or missing results and, in these instances, the data has not been annualised as the gaps in the monitoring data are sporadic. In previous years, when the network was being established, some tubes were exposed for a period shorter than a year and the data was annualised. Details of the calculations were provided in the 2010 Progress Report which can be viewed on the Lewisham Council website using the following link:
http://www.lewisham.gov.uk/myservices/environment/air-pollution/Pages/Air-quality-reviews.aspx

Diffusion Tube Bias Adjustment Factors

As discussed in 2.1.2, triplicate tubes are co-located at Lewisham 2, the automatic monitoring station located at the roadside on New Cross Road. The diffusion tubes are located within 0.5m of the inlet sampler of the chemiluminescent analyser at the site. Comparing the data from the two monitoring methods and using the AEA spreadsheet, a local bias adjustment factor was calculated which is shown in the table below with the national bias adjustment factor.

Table A1 2010 Bias Adjustment Factors

2010	Bias adjustment factor
Local	0.69
National	0.99

The local bias adjustment factor indicates that the results over-estimate continuously monitored concentrations by a much larger margin than that seen nationally. The bias adjustment factors are specific to each year, analysing laboratory, method of analysis and location. The factors are therefore also limited to the data supplied. The Review and Assessment website advises that “in many cases, using an overall correction factor derived from as many co-location studies as possible will provide the ‘best estimate’ of the ‘true’ annual mean concentration, it is important to recognise that there will still be uncertainty associated with this bias adjusted annual mean. One analysis has shown that the uncertainty for tubes bias adjusted in this way is ± 20% (at 95% confidence level). This compares with a typical value of ± 10% for chemiluminescence monitors subject to appropriate QA/QC procedures.”

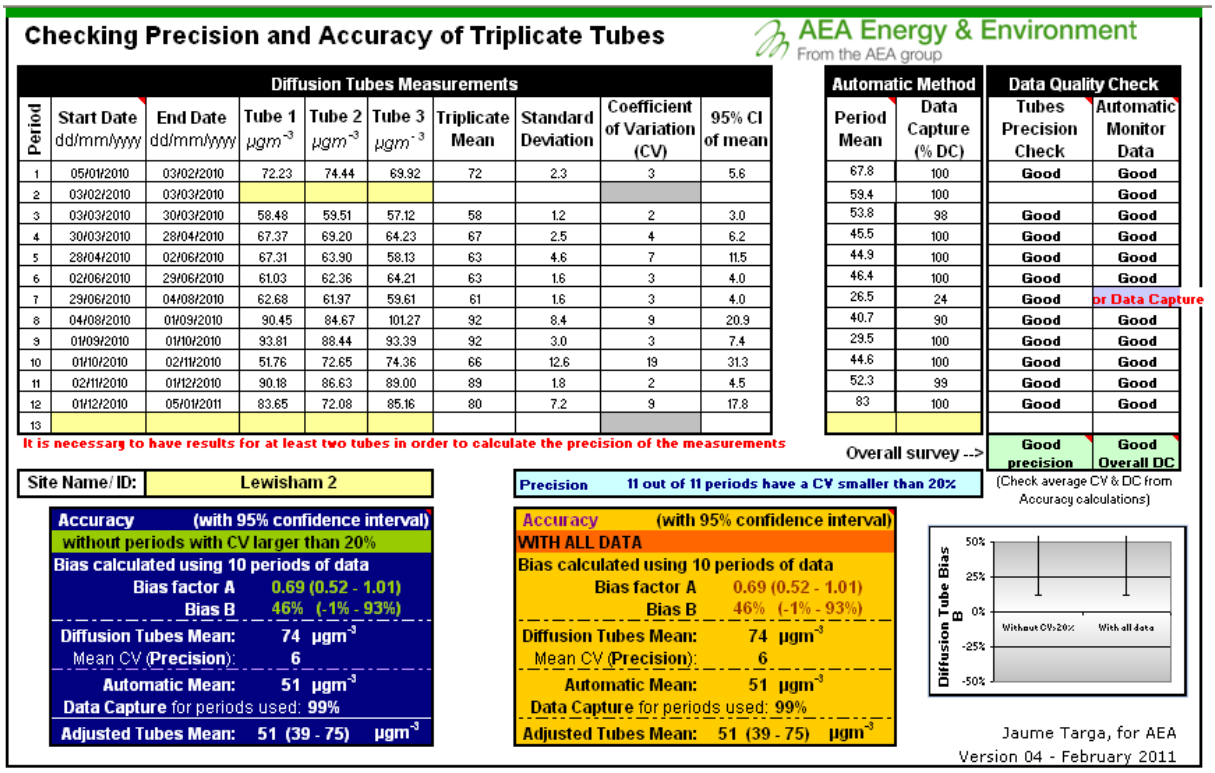
The results of a nation-wide survey of nitrogen dioxide diffusion tube co-location studies were further used to improve current understanding of diffusion tube bias (AQC, 2006). The data suggested that tubes close to a road were more likely to underestimate concentrations, once they have been adjusted for laboratory bias, and conversely tubes further away from roads were more likely to overestimate concentrations. (Note this is the opposite of the local findings reported here).

Further analysis of the results suggested that it was not the distance from roads that mattered; rather it was the different concentrations of nitric oxide, nitrogen dioxide and ozone in the atmosphere. The different concentrations influenced the chemistry taking place within the diffusion tube, in particular the formation of additional nitrogen dioxide from a reaction of ozone with nitric oxide.

Discussion of Choice of Factor to Use

The choice of which bias factor to use is not straightforward; hence the two factors (local and default) are reported above to provide context. Box 3.3 of the TG 09 guidance provides some suggestions as to which factor might be the most appropriate. In this instance, there are reasons for using either. For information, the results using both adjustment factors for 2010 is shown in Table 2.4. However, as a precautionary approach is to be adopted, the results using the national factor have been utilised when comparing to the National Objectives.

Table A2: Data used in calculating the local Bias Adjustment Factor for 2010



Checking Precision and Accuracy of Triplicate Tubes

AEA Energy & Environment
From the AEA group

Diffusion Tubes Measurements

Period	Start Date dd/mm/yyyy	End Date dd/mm/yyyy	Tube 1 µgm^{-3}	Tube 2 µgm^{-3}	Tube 3 µgm^{-3}	Triplicate Mean	Standard Deviation	Coefficient of Variation (CV)	95% CI of mean
1	05/01/2010	03/02/2010	72.23	74.44	69.92	72	2.3	3	5.6
2	03/02/2010	03/03/2010							
3	03/03/2010	30/03/2010	58.48	59.51	57.12	58	1.2	2	3.0
4	30/03/2010	28/04/2010	67.37	69.20	64.23	67	2.5	4	6.2
5	28/04/2010	02/06/2010	67.31	63.90	58.13	63	4.6	7	11.5
6	02/06/2010	29/06/2010	61.03	62.36	64.21	63	1.6	3	4.0
7	29/06/2010	04/08/2010	62.68	61.97	59.61	61	1.6	3	4.0
8	04/08/2010	01/09/2010	90.45	84.67	101.27	92	8.4	9	20.9
9	01/09/2010	01/10/2010	93.81	88.44	93.39	92	3.0	3	7.4
10	01/10/2010	02/11/2010	51.76	72.65	74.36	66	12.6	19	31.3
11	02/11/2010	01/12/2010	90.18	86.63	89.00	89	1.8	2	4.5
12	01/12/2010	05/01/2011	83.65	72.08	85.16	80	7.2	9	17.8
13									

It is necessary to have results for at least two tubes in order to calculate the precision of the measurements

Automatic Method		Data Quality Check	
Period Mean	Data Capture (% DC)	Tubes Precision Check	Automatic Monitor Data
67.8	100	Good	Good
59.4	100		Good
53.8	98	Good	Good
45.5	100	Good	Good
44.9	100	Good	Good
46.4	100	Good	Good
26.5	24	Good	or Data Capture
40.7	90	Good	Good
29.5	100	Good	Good
44.6	100	Good	Good
52.3	99	Good	Good
83	100	Good	Good
Overall survey -->		Good precision	Good Overall DC

(Check average CV & DC from Accuracy calculations)

Site Name/ ID: Lewisham 2

Precision: 11 out of 11 periods have a CV smaller than 20%

Accuracy (with 95% confidence interval)
without periods with CV larger than 20%
Bias calculated using 10 periods of data
Bias factor A: 0.69 (0.52 - 1.01)
Bias B: 46% (-1% - 93%)
Diffusion Tubes Mean: 74 µgm^{-3}
Mean CV (Precision): 6
Automatic Mean: 51 µgm^{-3}
Data Capture for periods used: 99%
Adjusted Tubes Mean: 51 (39 - 75) µgm^{-3}

Accuracy (with 95% confidence interval)
WITH ALL DATA
Bias calculated using 10 periods of data
Bias factor A: 0.69 (0.52 - 1.01)
Bias B: 46% (-1% - 93%)
Diffusion Tubes Mean: 74 µgm^{-3}
Mean CV (Precision): 6
Automatic Mean: 51 µgm^{-3}
Data Capture for periods used: 99%
Adjusted Tubes Mean: 51 (39 - 75) µgm^{-3}

Jaume Targa, for AEA
Version 04 - February 2011

If you have any enquiries about this spreadsheet please contact the LAQM Helpdesk at: LAQMHelpdesk@uk.bureauveritas.com

Table A3: Table showing the National Bias Adjustment Factors for 2010

Changes to Diffusion Tube Bias Adjustment Factors with 04/11 Issue of the Spreadsheet				
			New (04/11) Factor	
Laboratory	Method	Year	No. of Studies	Factor
Aberdeen CC	20% TEA in Water	2010	1	0.82
Bristol Scientific Services	20% TEA in Water	2010	7	0.85
Cardiff Scientific Services	50% TEA in Acetone	2010	4	0.85
Edinburgh Scientific Services	50% TEA in Acetone	2010	2	1.02
Environmental Scientific Groups	20% TEA in Water	2010	10	0.84
Environmental Scientific Groups	50% TEA in Acetone	2010	3	0.83
Glasgow Scientific Services	20% TEA in Water	2010	1	1.10
Gradko	20% TEA in Water	2010	39	0.92
Gradko	**50% TEA in Acetone**	**2010**	**17**	**0.99**
Harwell Scientific Services	50% TEA in Acetone	2010	18	0.85
Harwell Scientific Services	20% TEA in Water	2010	1	0.77
Kent Scientific Services	20% TEA in Water	2010	1	0.78
Kirklees Council Scientific Services	50% TEA in Acetone	2010	1	0.78
Lambeth Scientific Services	50% TEA in Acetone	2010	3	1.07
Lancashire CC	50% TEA in Acetone	2010	1	0.90
Milton Keynes Council	20% TEA in Water	2010	6	0.84
Northampton BC	20% TEA in Water	2010	3	0.73
South Yorkshire Labs	50% TEA in Acetone	2010	5	0.88
Staffordshire Scientific Services	20% TEA in Water	2010	6	0.87
Tayside SS	20% TEA in Water	2010	4	0.78
West Yorkshire Analytical Services	50% TEA in Acetone	2010	12	0.90
Edinburgh Scientific Services	50% TEA in Acetone	2009	5	0.85
	Number of Studies Included		**150**	

The co-location study compared equivalent exposure periods, although the continuous results were provisional at the time that the factors were calculated. However, the ratified data has not altered significantly and should not affect the calculations of the adjustment factors. Data from the diffusion tubes were available for 11 of the 12 monitoring periods while data capture from the automatic monitoring station was above 80% for all but one of the corresponding periods. The results from the data quality check on the spreadsheet indicate that there was good precision for the diffusion tubes. The term “precision” indicates how well the diffusion tubes produce similar results from the triplicate study undertaken. The criterion is somewhat arbitrary and it reflects both the laboratory’s performance in preparing and analysing the tubes, plus the handling of the tubes in the field. The precision is based on an assessment of the coefficient of variation. “Good” precision is defined as achieving a coefficient of variation less than 20% for eight or more periods in a year and the average is less than 10%.

Table A4: 2010 Diffusion Tube Collocation Data (Lewisham2)

Diffusion Tube Collocation Data Questionnaire For Local Authorities 2010

Please Read the "Notes" sheet and then fill in the white boxes of this questionnaire
Should you require assistance, email nick.martin@npl.co.uk or phone 020 8943 7088

	Date form filled in	Name of Local Authority	Your name	Phone number	Contact email
Your Details	22/02/2011	Lewisham Council	Dave Trew	020 8314 9783	dave.trew@lewisham.gov.uk

	Distance from kerb (m)	Site type (e.g. roadside, background). Definitions of site types are given on the "Notes" sheet	Distance from diffusion tube(s) to continuous analyser inlet (m)	Location (site name or a brief description)	Grid Reference of Site (if available)
Site Details	6	Roadside	0.5	Lewisham 2, Hobgoblin P.H., New Cross Road	536241, 176932

	Prepared by (if known; e.g. Harwell Scientific Services)	Analysed by (e.g. Kent Scientific Services)	Preparation method (e.g. 50% TEA in acetone; 50% TEA in water)	How are diffusion tubes deployed? (e.g. with a clip, spacer, shelter box, just tape)
Diffusion Tube Details	Bureau Veritas	Gradko International	50% TEA in acetone	with spacer

	Analyser type	QA/QC (e.g. local or network)
Continuous Analyser Details	ML9841B Chemiluminescent analyser	LAQN

Data from the Automatic Analyser (Matching Individual Diffusion Tube Periods)

Period	Start Date (dd/mm/yy)	End Date (dd/mm/yy)	% Data Capture	Ratified / Provisional	NOx (if available) (ug/m^3)	Nitrogen Dioxide (ug/m^3)
1	05/01/2010	03/02/2010	100	Ratified	182.3	67.8
2	03/02/2010	03/03/2010	100	Ratified	137.5	59.4
3	03/03/2010	30/03/2010	98	Provisional	103.8	53.8
4	30/03/2010	28/04/2010	100	Provisional	94.7	45.5
5	28/04/2010	02/06/2010	100	Provisional	91.6	44.9
6	02/06/2010	29/06/2010	100	Provisional	92.3	46.4
7	29/06/2010	04/08/2010	24	Provisional	49.4	26.5
8	04/08/2010	01/09/2010	90	Provisional	93	40.7
9	01/09/2010	01/10/2010	100	Provisional	86	29.5
10	01/10/2010	02/11/2010	100	Provisional	102.1	44.6
11	02/11/2010	01/12/2010	99	Provisional	153.2	52.3
12	01/12/2010	05/01/2011	100	Provisional	218.4	83
13						

Please express NOx as NO_2 (e.g. ppb x 1.913) or alternatively note the approach / units here:

When you are identifying the automatic monitoring periods that match your diffusion tube exposure periods, please be as precise as possible. It is not, however, necessary to match start times to the exact hour that you put out your tubes.

Individual Period (monthly) Mean Nitrogen Dioxide Data from the Diffusion Tubes (ug/m^3)

Period			Tube 1	Tube 2 (if available)	Tube 3 (if available)	Tube 4 (if available)
1	05/01/2010	03/02/2010	72.23	74.44	69.92	
2	03/02/2010	03/03/2010	N/A	N/A	N/A	
3	03/03/2010	30/03/2010	58.48	59.51	57.12	
4	30/03/2010	28/04/2010	67.37	69.20	64.23	
5	28/04/2010	02/06/2010	67.31	63.90	58.13	
6	02/06/2010	29/06/2010	61.03	62.36	64.21	
7	29/06/2010	04/08/2010	62.68	61.97	59.61	
8	04/08/2010	01/09/2010	90.45	84.67	101.27	
9	01/09/2010	01/10/2010	93.81	88.44	93.39	
10	01/10/2010	02/11/2010	51.76	72.65	74.36	
11	02/11/2010	01/12/2010	90.18	86.63	89.00	
12	01/12/2010	05/01/2011	83.65	72.08	85.16	
13						

	Are the concentrations stated in ug/m^3?	Did the diffusion tube supply or analysis method change during the monitoring period? When, from what, to what?	Were there any significant problems with the continuous analyser during the monitoring period?	Are there any other relevant issues with your data?
Other Information	yes	no	Not with the analyser itself but there was a fault with the air conditioning in July causing cabin to overheat and instruments were switched off	no

Please Return Completed Questionnaires to: nick.martin@npl.co.uk
This questionaire was originally compiled by AQC Ltd is is now maintained and distributed by the National Physical Laboratory on behalf of Defra and the DAs

Appendix B: Monthly Unbiased NO_2 Diffusion Tube Results ($\mu g/m^3$)

		Jan-10	Feb-10	Mar-10	Apr-10	May-10	Jun-10	Jul-10	Aug-10	Sep-10	Oct-10	N10	D10	Average	With Bias Adjustment
Boyne Rd	LWS02	44.40	38.80	30.57	28.85	24.26	21.81	26.69	27.23	34.27	33.59	36.68	41.08	32.35	22.32
Lewisham Rd	LW03	55.22	55.45	47.98	46.48	43.22	invalid	37.15	36.14	42.67	45.56	48.37	52.64	**46.44**	32.05
Loampit Vale	LWS04	67.20	65.94	47.43	70.91	63.56	57.93	44.19	50.02	57.28	58.99	66.73	63.92	**59.51**	**41.06**
New X Mon Station	LWS05	72.23	Missing	58.48	67.37	67.31	61.03	62.68	90.45	93.81	51.76	90.18	83.65	**72.63**	**50.12**
New X Mon Station	LWS06	74.44	Missing	59.51	69.20	63.90	62.36	61.97	84.67	88.44	72.65	86.63	72.08	**72.35**	**49.92**
New X Mon Station	LWS07	69.92	Missing	57.12	64.23	58.13	64.21	59.61	101.27	93.39	74.36	89.00	85.16	**74.22**	**51.21**
Brockley Rise	LWS09	61.17	58.79	46.38	52.40	48.73	invalid	92.65	54.01	54.18	52.97	64.86	64.08	**59.11**	**40.79**
Ringstead Rd	LWS10	Missing	38.59	30.79	30.41	25.78	23.95	24.90	26.39	34.67	32.20	42.03	43.98	32.15	22.19
Catford Hill	LWS11	60.84	Missing	60.36	55.73	54.38	49.26	46.24	47.09	51.34	52.23	59.38	61.88	**54.43**	37.56
Blank	LWS13	2.25	1.43	1.02	1.43	0.98	1.16	1.35		3.05	1.68	0.65	0.95	1.45	1.00
Stanstead Rd	LWS14	35.14	32.30	26.97	25.21	24.16	20.82	17.93	20.87	36.85	48.65	33.49	36.85	29.94	20.66
Shardloes Rd	LWS15	69.30	65.33	52.97	50.98	53.97	42.49	38.79	25.92	Missing	54.20	65.18	55.93	**52.28**	36.07
Lawn Terrace, SE3	LWS16	47.80	53.11	33.29	42.09	33.62	31.61	24.66	24.00	18.93	38.43	51.22	50.31	37.42	25.82
Baring Rd	LWS17	Missing	76.15	Missing	65.48	59.83	54.77	59.30	56.55	29.82	50.84	68.52	67.88	**58.91**	**40.65**
Hazelbank Rd	LWS18	39.63	38.05	26.50	27.37	Missing	Missing	Missing	27.82	16.23	32.16	39.80	44.00	32.39	22.35
Hatcham Park Rd	LWS51	61.05	57.12	Missing	99.57	46.41	40.27	53.46	52.54	48.24	43.44	46.02	52.77	**54.63**	37.69
Mayow Rd	LWS53	40.09	38.43	30.45	27.76	Missing	23.69	21.26	Missing	42.92	32.85	38.13	42.92	33.85	23.36
All Saints	SCH001	35.35	35.86	22.82	29.88	25.34	20.38	Missing	22.08	26.38	29.38	37.04	35.88	29.13	20.10
Lee Manor	SCH002	39.08	37.80	24.32	23.23	27.03	24.93	20.13	20.70	27.50	Missing	39.40	36.48	29.15	20.11
Cooper's Lane	SCH003	34.64	33.15	21.06	21.02	21.72	20.55	16.10	18.10	22.13	27.08	33.71	36.64	25.49	17.59
Launcelot	SCH004	37.07	31.26	20.29	21.02	21.52	18.83	16.74	Missing	26.02	28.51	35.44	37.59	26.75	18.46
Bonus Pastor	SCH005	34.33	Missing	Missing	Missing	Missing	18.06	15.79	18.64	25.58	24.42	2.88	34.76	21.81	15.05
Forster Park	SCH006	31.94	32.91	20.74	20.95	23.33	19.19	Missing	20.35	25.71	28.20	10.64	36.73	24.61	16.98
Sandhurst	SCH007	36.67	44.66	27.08	25.88	26.17	20.62	19.79	19.10	Missing	29.59	38.95	39.90	29.86	20.60
Holy Cross	SCH008	44.25	44.39	27.85	30.69	30.62	27.14	21.71	24.17	33.90	37.04	41.72	45.87	34.11	23.54
Catford High	SCH009[a]	35.28	32.18	20.62	22.32	21.03	Missing	Missing	Missing	30.72	Missing	35.27	39.37	29.60	20.42
Athelney	SCH010	40.69	29.09	25.90	19.42	21.38	18.95	14.82	16.86	22.04	24.85	33.34	40.02	25.61	17.67
St Michael's	SCH011	39.57	35.15	24.67	23.86	22.93	18.08	17.17	20.64	27.83	30.12	2.11	42.96	25.42	17.54
St William of York	SCH012[a]	39.01	33.70	18.13	24.08	22.03	23.00	19.38	20.23	27.02	29.54	35.70	40.81	27.72	19.13
Christchurch	SCH013	48.17	39.77	29.36	27.71	28.47	25.10	21.53	22.05	30.01	28.06	42.94	41.09	32.02	22.09
Perrymount	SCH014	38.63	32.68	26.29	21.79	21.11	21.00	19.04		27.91	28.18	35.81	43.85	28.75	19.84
Holbeach	SCH015	42.68	39.87	28.51	24.72	27.28	22.82	21.79	20.67	35.94	28.90	37.02	43.52	31.14	21.49
St Mary Magdalen's	SCH016	46.52	33.24	Missing	26.91	23.31	20.69	17.43	19.84	29.48	29.32	33.73	47.88	29.85	20.60
Turnham	SCH017	40.69	36.13	25.22	29.08	25.39	21.98	17.87	20.90	28.75	34.14	43.39	44.66	30.68	21.17
Grinling Gibbons	SCH018	44.79	45.18	29.16	35.71	31.06	26.14	18.79	23.94	30.20	34.46	42.32	49.11	34.24	23.62
St Saviour's	SCH019	43.59	37.53	27.51	26.39	24.34	22.71	21.65	24.10	27.75	30.71	37.56	44.97	30.73	21.21
St Mary's	SCH020	63.75	68.87	56.15	Missing	22.16	59.22	Missing	Missing	Missing	32.93	58.93	62.91	**53.12**	36.65
Sydenham	SCH021	41.41	29.90	29.33	51.25	14.97	Missing	21.57	24.77	23.14	Missing	49.09	Missing	31.71	21.88

PM Monitoring Adjustment

PM is measured at Lewisham 2 using a TEOM and at Lewisham 3 using a BAM. ERG King's College have developed a correction factor for PM data obtained using a TEOM known as the Volatile Correction Model and this has been applied to the data reported here from Lewisham 2. Details of the Volatile Correction Model are provided in TG(09).

Appendix C: List of Part B Processes within London Borough of Lewisham

Company/Name of Process	Address	Type of Process
Grove Park Service Station	340, Baring Road, SE12 0DU	PG1/14 – Petrol Station
Tesco Express	86, London Road, SE23	PG1/14 – Petrol Station
BP Petrol Station	411, Bromley Road, BR1 4PJ	PG1/14 – Petrol Station
BP Connect	Lee High Road, SE13 5PQ	PG1/14 – Petrol Station
Foxberry Service Station	242-246, Brockley Road, SE4 2SU	PG1/14 – Petrol Station
Tesco Express	290 Lewisham Road	PG1/14 – Petrol Station
Tesco Petrol Filling Station	97-99, Loampit Vale, SE13 7TG	PG1/14 – Petrol Station
Sainsburys Petrol Filling Station	263, New Cross Road	PG1/14 – Petrol Station
Sainsburys Sydenham	Bell Green, Southend Lane, SE26 4PU	PG1/14 – Petrol Station
Shell	351-367, Lewisham High street	PG1/14 – Petrol Station
Shell	163-165, Stanstead Road	PG1/14 – Petrol Station
Shell	101, Evelyn Street	PG1/14 – Petrol Station
Shell	96A, Bromely Hill	PG1/14 – Petrol Station
Petrocell Service Station	SE13 7PY	PG1/14 – Petrol Station
Sydenham Service Station	277, Kirkdale, SE26 4QD	PG1/14 – Petrol Station
Somerfield - Star Service Station	Brownhill Road, SE6 1AD	PG1/14 – Petrol Station
Total Oil	Verdant Ln/Whitefoot Ln, SE6 1TP	PG1/14 – Petrol Station
Lewisham Crematorium	Verdant Lane, SE6 1TP	PG5/2 – Crematoria
H Sivyer (Transport) Ltd	160 Sydenham Road, Sydenham, SE26 5JZ	PG3/16 – Mobile Crusher
FM Conway	Bolina Road Depot, SE16 3LD	PG3/1 – Blending, Packing, etc of Bulk Cement
Ascott Cab Co & Sales Ltd	Victoria Wharf, Grove Street, SE8	PG6/34(b) – Vehicle Respraying
2001 DC	141, Stanstead Road, SE23 1HH	PG6/46 – Dry Cleaners
Aplanda DC	50, Sydenham Road, SE26 5QF	PG6/46 – Dry Cleaners

Asik DC	250, Brockley Road, SE4 2SF	PG6/46 – Dry Cleaners
Bellingham Cleaners	30, Randlesdown Road, SE6 3BT	PG6/46 – Dry Cleaners
Blackheath DC	20, Blackheath Village, SE3 9SY	PG6/46 – Dry Cleaners
Brookbank DC	155, Brookbank Road, SE13 7DA	PG6/46 – Dry Cleaners
Brownhill DC	277, Brownhill Road, SE6 1AE	PG6/46 – Dry Cleaners
Busy Bees DC	146, Sydenham Road, SE26 5JZ	PG6/46 – Dry Cleaners
Carlton DC	6, Catford Broadway, SE6 4SP	PG6/46 – Dry Cleaners
Catford DC	24, Rushey Green, SE6 4JF	PG6/46 – Dry Cleaners
Clean World DC	56, Baring Road, SE12 0PS	PG6/46 – Dry Cleaners
Cleaning Touch DC	173, Kirkdale, SE26 4QH	PG6/46 – Dry Cleaners
Deespy DC	118, Woodpecker Road, SE14 6EU	PG6/46 – Dry Cleaners
Downham Express DC	488, Bromley Road, BR1 4PP	PG6/46 – Dry Cleaners
Finesse DC	250, Evelyn Street, SE8 5BZ	PG6/46 – Dry Cleaners
Five Star DC	6, Burnt Ash Road, SE12 8PZ	PG6/46 – Dry Cleaners
Forbs DC	19, Lewisham Way, SE14 6PP	PG6/46 – Dry Cleaners
H & A Dry Cleaners	380, Baring Road, SE12 0EF	PG6/46 – Dry Cleaners
High Road DC	136A, Lee High Road, SE13 5PR	PG6/46 – Dry Cleaners
Honor Oak Cleaners	42, Honor Oak Park, SE23 1DY	PG6/46 – Dry Cleaners
Hydra DC	51, Brockley Rise, SE23 1JG	PG6/46 – Dry Cleaners
Jubilee DC	6, Sandhurst Market, SE6 1DL	PG6/46 – Dry Cleaners
Kirkdale Express DC	155, Kirkdale, SE26 4QJ	PG6/46 – Dry Cleaners
Ladywell Junction Express Cleaners	75, Ladywell Road, SE13 7JA	PG6/46 – Dry Cleaners
Lewisham DC	13, Lee High Road, SE13 5LD	PG6/46 – Dry Cleaners
Lewisham Way DC	189, Lewisham Way, SE4 1UY	PG6/46 – Dry Cleaners
M&S DC	118, Deptford High Street, SE8 4NS	PG6/46 – Dry Cleaners
Manor Lane DC	176, Manor Lane, SE12 8LP	PG6/46 – Dry Cleaners
Master DC	22, Downham Way, BR1 5NX	PG6/46 – Dry Cleaners
Palace DC	9, Sydenham Road, SE26 5ET	PG6/46 – Dry Cleaners
Pel's DC	80, Brockley Rise,	PG6/46 – Dry Cleaners
Perry Cleaners	174, Perry Vale, SE23 2LR	PG6/46 – Dry Cleaners
Popular DC	18, Bromley Hill, BR1 4JX	PG6/46 – Dry Cleaners
Quality - HSDC	77, Rushey Green, SE6 4AF	PG6/46 – Dry Cleaners
Speedway DC	191, New Cross Rod, SE14 5DG	PG6/46 – Dry Cleaners
Starbright DC	86, Brownhill Road, SE6 2EW	PG6/46 – Dry Cleaners

Starlite DC	370, Brockley Road, SE4 2BY	PG6/46 – Dry Cleaners
Starshine DC	3, Georges Parade, Perry Hill, SE6 4DT	PG6/46 – Dry Cleaners
Streakers DC	3, Burntash Hill, SE12 0AA	PG6/46 – Dry Cleaners
Suits U Bespoke DC	35, Staplehurst Road, SE13 5ND	PG6/46 – Dry Cleaners
The Dry Cleaner	186, Hither Green Lane, SE13 6QB	PG6/46 – Dry Cleaners
Three Square Express DC	6, Dartmouth Road, SE23 3XU	PG6/46 – Dry Cleaners
Trend DC	239, Bromley Road, SE6 2RA	PG6/46 – Dry Cleaners
Turbo DC	17, Brockley Rise, SE23 1JG	PG6/46 – Dry Cleaners
Tuxedo's	266, New Cross Road, SE14 5PL	PG6/46 – Dry Cleaners
Whistle & Flute DC	144, New Cross Road, SE14 5BA	PG6/46 – Dry Cleaners
Whitehouse DC	166, Hither Green Lane, SE13 6QA	PG6/46 – Dry Cleaners
Gavigan Paving	11a, Worsley Bridge Road, SE26	PG6/46 – Dry Cleaners