2015 Updating and Screening Assessment for
Lambeth Council

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

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Executive Summary

The Council's Updating and Screening Assessment reviews and assesses air quality against the objectives in the Air Quality Regulations 2000 and amendment regulations and is one part of a rolling three-year cycle ending in 2017. The air quality objectives to be assessed are for the following seven pollutants: carbon monoxide, benzene, 1,3-butadiene, lead, nitrogen dioxide, sulphur dioxide and particles (PM_{10}).

The role of the local authority Review and Assessment process is to identify any relevant areas where it is considered that the government's air quality objectives for the above air pollutants will be exceeded. Lambeth Council has previously undertaken the earlier rounds of Review and Assessment of local air quality management and identified areas where some of the objectives are exceeded and where there is relevant public exposure.

This report concerns the sixth round Updating and Screening Assessment of air quality in the London Borough of Lambeth. For this, pollution sources have been re-examined and recent air quality monitoring checked in the Borough in accordance with Defra LAQM guidance.

The report identifies that:

From the monitoring and local developments there is no need to undertake a Detailed Assessment.

For carbon monoxide, benzene, 1,3-butadiene, lead and sulphur dioxide there is not a significant risk of the objectives being exceeded in the Council's area.

For nitrogen dioxide and particles (specifically PM_{10}) the Council has previously designated an Air Quality Management Area (AQMA) across the Borough. The emission sources for these pollutants are dominated by road transport in the Borough. The findings from this report indicate that the AQMA should be maintained.

In view of the findings the Council will undertake the following actions:

1. Undertake consultation with the statutory and other consultees as required.

2. Maintain the existing monitoring programme.

3. Continue with its Air Quality Action Plan and revision in pursuit of the AQS objectives.

4. Prepare for the submission of its next Air Quality report.

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1 Introduction

1.1 Description of Local Authority Area

The London Borough of Lambeth is situated within Inner London. The river Thames borders to the north with Westminster on the opposite bank, with the Boroughs of Wandsworth and Merton to the west, Southwark to the east and Croydon to the south. The Borough covers an area of more than 2,600 hectares and includes Brixton, Clapham, Herne Hill, Oval, Stockwell, Streatham, Tulse Hill and West Norwood. Lambeth is one of the most densely populated and ethnically diverse London Boroughs; with an estimated population of 314,242 (for 2013 from the Office of National Statistics (ONS)).

The main sources of atmospheric pollutants are from road transport. This is despite Lambeth being amongst those local authorities nationally having the highest proportion of households with no car or van. The most recent census indicates Lambeth residents have a total of 67,000 cars, compared to 73,000 in 2001. The proportion of households with no car or van has increased from 51% to 58% (Lambeth, 2013). The principal roads through the Borough include the A23, A24, A202, A205, A214, A301 and A302. The Borough also has four road bridges linking it to the north side of the river Thames: Waterloo, Westminster, Lambeth and Vauxhall. There are also relatively few other industrial sources in the Borough.

The other major sources of emissions in the Borough include those from: residential and commercial premises, which mainly relate to gas boilers used for space and water heating; and construction sites, including dust and machinery emissions.

1.2 Purpose of Report

This report fulfils the requirements of the Local Air Quality Management process as set out in Part IV of the Environment Act (1995), the Air Quality Strategy for England, Scotland, Wales and Northern Ireland 2007 and the relevant Policy and Technical Guidance documents. The LAQM process places an obligation on all local authorities to regularly review and assess air quality in their areas, and to determine whether or

not the air quality objectives are likely to be achieved. Where exceedences are considered likely, the local authority must then declare an Air Quality Management Area (AQMA) and prepare an Air Quality Action Plan (AQAP) setting out the measures it intends to put in place in pursuit of the objectives.

The objective of this 2015 Updating and Screening Assessment is to identify any matters that have changed which may lead to risk of an air quality objective being exceeded. A checklist approach and screening tools are used to identify significant new sources or changes and whether there is a need for a Detailed Assessment. The USA report should provide an update of any outstanding information requested previously in Review and Assessment reports.

1.3 Air Quality Objectives

The air quality objectives applicable to 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); these are shown in Table 1.1. This table shows the objectives in units of microgrammes per cubic metre $\mu g\ m^{-3}$ (milligrammes per cubic metre, $mg\ m^{-3}$ for carbon monoxide) with the number of exceedences in each year that are permitted (where applicable).

Table 1.1 Air Quality Objectives included in Regulations for the purpose of LAQM in England

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

1.4 Summary of Previous Review and Assessments

Lambeth Council has previously completed all earlier stages of air quality review and assessment as required under the LAQM regime. As part of its earlier duties the Council completed a Detailed Assessment for nitrogen dioxide (NO_2) and particles (PM_{10}) in 2007. The aim of this was to determine with reasonable certainty whether or not there is a likelihood of the AQ objectives being achieved. The assumptions used were therefore in depth and the data used were quality assured to a high standard. This allowed the Council to have confidence in reaching a decision whether to declare an AQMA or not. When carrying out its Detailed Assessment the Council applied its best estimates to all components used to produce the estimated future concentrations.

Modelled predictions confirmed that the annual mean NO_2 and PM_{10} objectives were exceeded. These predictions highlighted that AQ objectives for these pollutants only were exceeded in areas close to busy roads and junctions throughout the Borough. Monitoring in the Borough also confirmed that these AQ objectives were exceeded.

Relevant public exposure was identified in these areas that exceeded and on the basis of the findings **the Council designated the whole Borough an Air Quality Management Area (AQMA) for the NO_2 and PM_{10}** in 2007.

The rounds of LAQM review and assessment undertaken since the original designation confirmed that the Council should maintain its AQMA.

2 New Monitoring Data

2.1 Summary of Monitoring Undertaken

2.1.1 Automatic Monitoring Sites

The Council has undertaken automatic monitoring in the Borough at 3 fixed long-term sites since the 2012 Updating and Screening Assessment. The automatic sites operating since the previous report are:

- Brixton Road (LB4) - a kerbside site in the middle of the Borough, located on the A23. This site has been operating since 2003. The sample inlet is 1m from the road. Further details can be found from King's LAQN website - http://www.londonair.org.uk/london/asp/publicdetails.asp?region=0&site=LB4&details=location&mapview=all&la_id=22&network=All&MapType=Google

- Vauxhall (LB5) – a site located on a traffic island in the middle of the Bondway / Wandsworth Road Vauxhall Cross Interchange. The sample inlet is 2m high and 3m from the kerb. This site commenced operating in 2005. This site is described as "Kerbside" to reflect its proximity to the Interchange. Further details can be found from King's LAQN website - http://www.londonair.org.uk/london/asp/publicdetails.asp?region=0&site=LB5&details=location&mapview=all&la_id=22&network=All&MapType=Googlen

- Streatham Green (LB6) - a site at an urban background location towards the south of the Borough. Monitoring at this site commenced in 2009. Further details can be found from King's LAQN website - http://www.londonair.org.uk/london/asp/publicdetails.asp?site=LB6&Maptype=Google&mapview=All&la_id=22&zoom=11&lat=51.453799999999994&lon=-0.11320235724294303&laEdge=Y&details=location

The above sites are also representative of relevant exposure. All the sites are part of the London Air Quality Network and therefore the standards of QA/QC are similar to those of the government's AURN sites. Regular calibrations are carried out, with subsequent data ratification undertaken at King's College London. In all cases the

data are fully ratified unless reported otherwise. Further details of the sites can be found at www.londonair.org.uk.

The Council ceased its non-continuous monitoring in 2009. Hence no results from this monitoring are provided in this report. Please see earlier Lambeth air quality reports for further details.

Table 2.1 Details of Automatic Monitoring Sites

Site Name	Site Type	Easting	Northing	Pollutants Monitored	In AQMA?	Monitoring Technique	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?
Brixton Road (LB4)	Kerbside	531070	175593	NO_2 PM_{10} SO_2	Y	BAM	Y (2m)	1m	Y
Vauxhall (LB5)	Industrial	530317	177952	NO_2 PM_{10} SO_2	Y	BAM	Y	5m	Y
Streatham Green (LB6)	Background	529971	171570	NO_2 PM_{10}	Y	BAM	Y	15m	N

2.2 Comparison of Monitoring Results with Air Quality Objectives

The monitoring reported below represents the continuous results for recent years' monitoring up to 2014. The results are reported in accordance with the requirements of TG09. Further details of the automatic sites, including site maps, etc. can also be found on the London Air Quality Network website operated by King's College London (see http://www.londonair.org.uk/london/asp/lahome.asp).

2.2.1 Nitrogen Dioxide

The automatic results for nitrogen dioxide for the Council's automatic sites are directly compared to the annual mean and hourly mean objectives.

The following tables (Tables 2.2 and 2.3) provide results for the period from 2010 to 2014 inclusive. The data for 2014 have not been fully ratified. The monitoring sites include a background location, which is typical of public exposure in much of the Borough, as well as two roadside areas which have the highest concentrations.

Data capture for 2014 was less than 90% for two sites (LB4 and LB6); the LB5 site however exceeded 90% data capture. The reduced data capture was due to instrument problems at the sites. As the LB6 site data capture was less than 75% the results were adjusted and the annualising factor used was 1.03 (see Appendix for details). A new NOx analyser installed at LB4, however the total data capture for the site exceeded 75% and so the results were not adjusted.

The LB4 kerbside site at Brixton Road easily exceeded the objective in 2014. It has exceeded the objective for all years reported and consistently monitored some of the highest concentrations in London. This site is located at the kerbside and hence it monitors emissions from close to vehicle exhausts. Brixton Road itself is a busy shopping street in Lambeth, with offices and other accommodation at first floor and above.

The industrial site at Vauxhall Bondway (LB5) exceeded the objective for all years reported, including 2014, monitoring annual mean concentrations that ranged between 62 and 77 µg m^{-3}. This site located close to the Vauxhall interchange and the nearest receptors at this site are those persons using the interchange. The area is due to be redeveloped.

The background site at Streatham Green (LB6) did not exceed the AQS annual mean objective of 40 µg m^{-3} for 2014, with an annual mean concentration of around 37 µg m^{-3}. This represents a borderline concentration with the objective. The site has exceeded the objective previously in recent years, including 2010 and 2013.

Table 2.3 provides a comparison with the AQS hourly mean objective, which requires that the number of periods that exceed a one hour mean of 200 µg m^{-3} does not arise more than 18 times over a calendar year. These episodic periods arise during meteorological conditions that are conducive e.g. such as settled conditions in the wintertime when there is reduced dispersion from local sources.

The 2014 results show that only the LB4 (Brixton Road) site exceeded the hourly mean objective (by an extremely large margin), even with reduced data capture. The site has also previously exceeded this objective by a large margin in previous years. As noted earlier the site is located near the kerb and it is extremely polluted due to the road traffic.

Table 2.2 Results of Automatic Monitoring of Nitrogen Dioxide: Comparison with Annual Mean Objective

Site ID	Site Type	Within AQMA?	Valid Data Capture for period of monitoring %	Valid Data Capture 2014 % [a]	Annual Mean Concentration μg m^{-3}				
					2010	2011	2012	2013 [b]	2014 [b]
Brixton Road (LB4)	Kerbside	Y	N/A	86	***173***	***158***	**162**	*112*	**149**
Vauxhall (LB5)	Industrial	Y	N/A	96	**77**	***77***	***72***	*62* (**64.9**)	**71**
Streatham Green (LB6)	Background	Y	N/A	57	***46***	38	37	*43* (**44.9**)	*37* (38.1)

[a] Data capture for the full calendar year (e.g. if monitoring was carried out for six months the maximum data capture for the full calendar year would be 50%).
[b] Means “annualised” as in Box 3.2 of TG(09), where monitoring was for 9 months or less.

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

Site ID	Site Type	Within AQMA?	Valid Data Capture for period of monitoring %	Valid Data Capture 2014 % [a]	Number of Exceedences of Hourly Mean (200 μg m^{-3})				
					2010	2011	2012 [b]	2013 [b]	2014 [b]
Brixton Road (LB4)	Kerbside	Y	N/A	86	***2677***	***1632***	***2182***	***250***	**1732**
Vauxhall (LB5)	Industrial	Y	N/A	96	17	*4*	*4* (182)	*0* (161)	3
Streatham Green (LB6)	Background	Y	N/A	57	*0*	0	0	*2* (143)	*0* (135)

[a] Data capture for the full calendar year (e.g. if monitoring was carried out for six months the maximum data capture for the full calendar year would be 50%).
[b] Period of valid data is less than 90% and the 99.8th percentile of hourly means is in brackets

2.2.2 PM_{10}

The Lambeth sites use BAM instruments and the TG09 guidance highlights that these were shown to be equivalent to the PM_{10} reference method, provided that the results are corrected for slope. The results presented below have the correction factor of 1.2 applied. The results for the **Lambeth** sites are therefore reported below as **reference equivalent**.

In 2014 there was low data capture for the two of the three Lambeth sites and therefore the annual means were adjusted using annualising factors in accordance with TG09 guidance. The adjustments however were all very small, between 0.99 and 0.97 for LB4 and LB6 respectively; hence the results were only marginally less (LB4 – 29.8 µg m^{-3}; and LB – 22.8 µg m^{-3}).

All of the Lambeth monitoring sites met the annual mean objective in 2013, other than the LB5 site at Vauxhall Bondway, which was borderline with the objective. The site is close to the Vauxhall bus interchange and in previous years it has exceeded the annual mean. The Brixton Road kerbside site (LB4) has also monitored high annual mean concentrations greater than 30 µg m^{-3} for each year reported. For this site the monitored concentration in 2012 was borderline with the objective. Concentrations monitored at Streatham Green (LB6) however were lower and more in line with background concentrations.

The daily mean objective, which has been exceeded more widely across the UK than the annual mean objective, is reported in Table 2.5. The monitoring results for the Vauxhall Bondway (LB5) show that the daily mean objective of not more than 35 days with a mean 24-hour concentration greater than 50 µg m^{-3} was exceeded for all of the years shown (other than 2012 when there was very low data capture).

The objective was also exceeded at the Brixton road (LB4) site in 2011 and 2012 only. In 2014 the objective with met, based on the 90 percentile. The Streatham Green (LB6) site met the objective for all years reported.

The daily mean standard of 50 µg m^{-3} however was exceeded at all sites for all years shown, although as expected there were fewer occurrences at the background site at Streatham Green than at other two sites.

Table 2.4 Results of Automatic Monitoring of PM_{10}: Comparison with Annual Mean Objective

Site ID	Site Type	Within AQMA?	Valid Data Capture for monitoring Period %	Valid Data Capture 2014 %[a]	Confirm Gravimetric Equivalent (Y or NA)	Annual Mean Concentration μg m^{-3}				
						2010	2011	2012	2013[b]	2014[b]
Brixton Road (LB4)	Kerbside	Y	N/A	73	Y	*33*	*37*	39	*32* (32.3)	30 (29.8)
Vauxhall (LB5)	Industrial	Y	N/A	83	Y	***43***	***43***	*29*[c]	*38* (39.2)	**40**
Streatham Green (LB6)	Background	Y	N/A	74	Y	*23*	*27*	27	*17* (17.6)	24 (22.8)

[a] Data capture for the full calendar year (e.g. if monitoring was carried out for six months the maximum data capture for the full calendar year would be 50%).
[b] Means "annualised" as in Box 3.2 of TG(09), where monitoring was not carried out for the full year.
[c] Data capture was 29%.

Table 2.5 Results of Automatic Monitoring for PM_{10}: Comparison with 24-hour mean Objective

Site ID	Site Type	Within AQMA ?	Valid Data Capture for monitoring Period %	Valid Data Capture 2014 %[a]	Confirm Gravimetric Equivalent	Number of Exceedences of 24-Hour Mean (50 μg m^{-3})				
						2010	2011[b]	2012[b]	2013[b]	2014[b]
Brixton Road (LB4)	Kerbside	Y	N/A	73	Y	*15*	***36***	**55**	*13* (46.6)	*12* (43.7)
Vauxhall (LB5)	Industrial	Y	N/A	83	Y	***72***	***89***	*15*[c]	*22* (**53.8**)	**62**
Streatham Green (LB6)	Background	Y	N/A	74	Y	*6*	*20* (46.8)	*12* (41.7)	*4* (27.4)	*10* (40.44)

[a] Data capture for the full calendar year (e.g. if monitoring was carried out for six months the maximum data capture for the full calendar year would be 50%).
[b] Data capture was less than 90%, include the 90th percentile of 24-hour means in brackets
[c] Data capture was 29%.

2.2.3 Sulphur Dioxide

Automatic monitoring of SO_2 is undertaken at two representative sites in the Borough (Brixton Road (LB4) and Vauxhall Broadway (LB5)). The results for 2014 are given in Table 2.6 below. These show that there were no periods that exceeded the hourly or 24 hourly standards of the UK AQS objectives. One 15 minute period only exceeds the 15 minute objective for each site in 2014. However it should be noted that the data are still provisional and no previous periods that exceeded this standard in recent years (back to 2008). As a consequence the AQS objectives were not exceeded and an AQMA for SO_2 has not been declared.

Table 2.6 Results of Automatic Monitoring of SO_2: Comparison with Objectives

Site ID	Site Type	Within AQMA?	Valid Data Capture for monitoring Period %	Valid Data Capture 2014 %[a]	Number of Exceedences (percentile in bracket μg m^{-3})[b]		
					15-minute Objective (266 μg m^{-3})	1-hour Objective (350 μg m^{-3})	24-hour Objective (125 μg m^{-3})
LB4	Kerbside	N	N/A	62	*1* (81.9)	0	0
LB5	Industrial	N	N/A	96	1	0	0

[a] Data capture for the full calendar year (e.g. if monitoring was carried out for six months the maximum data capture for the full calendar year would be 50%).
[b] if data capture is less than 90%, include the relevant percentile in brackets

2.2.4 Summary of Compliance with AQS Objectives

Lambeth Council has examined the results from monitoring in the Borough. Concentrations are above the objectives for nitrogen dioxide, plus PM_{10} within the designated Borough wide AQMA; therefore there is no need to proceed to a Detailed Assessment.

Concentrations of sulphur dioxide are well below the relevant objectives; therefore there is no need to proceed to a Detailed Assessment for this pollutant**.**

3 Road Traffic Sources

The focus of attention for road traffic sources is on those relevant locations close to busy roads, especially in congested areas and near to junctions, where traffic emissions are higher, and in built up areas where the road is canyon like and buildings restrict the dispersion and dilution of pollutants. **Only those locations, which have not been assessed during the earlier rounds or where there has been a change or new development, are assessed.**

The London Atmospheric Emissions Inventory (LAEI) has been used to identify changed flows and as reported earlier the Council previously designated the whole of the Borough as an AQMA.

3.1 Narrow Congested Streets with Residential Properties Close to the Kerb

Concentrations are often higher where traffic is slow moving, with stop/start driving, and where buildings on either side reduce dispersion. Screening models so far have not proved helpful at identifying potential exceedences, which have only been identified by monitoring. This assessment is for NO_2 only.

Previous Review and Assessments undertaken by the Council investigated the presence of narrow roads with residential properties close to the kerb. The TG09 guidance requires the identification of residential properties within 2m of the kerb. The roads previously identified are all within the Council's AQMA and this situation has not changed.

Lambeth Council confirms that there are no new/newly identified congested streets with a flow above 5,000 vehicles per day and residential properties close to the kerb, that have not been adequately considered in previous rounds of Review and Assessment.

3.2 Busy Streets Where People May Spend 1-hour or More Close to Traffic

These include some street locations where individuals may regularly spend 1-hour or more, for example, streets with many shops and streets with outdoor cafes and bars, close to road traffic where there may be high concentrations of NO_2. (Note - those people that are occupationally exposed are not included, as they are not covered by the regulations). The assessment is for NO_2 only.

Busy streets where people may spend an hour or more close to traffic were examined in previous assessments. There has been no change to the previous findings since then and no new roads have been constructed with traffic flows greater than 10,000 vehicles per day in the Council's area.

The Lambeth Council confirms that there are no new/newly identified busy streets where people may spend 1 hour or more close to traffic.

3.3 Roads with a High Flow of Buses and/or HGVs.

These include street locations in the Borough where traffic flows are not necessarily high (i.e. fewer than 20,000 vehicles per day) but where there are an unusually high proportion of buses and/or HGVs. The assessment is for both NO_2 and PM_{10} and is dependent on the proximity of relevant exposure within 10 m of the kerbside. The Council in earlier Review and Assessments identified those roads within the Borough with high flows of heavy-duty vehicles. No new roads relevant to this section have been identified in the Borough.

The Lambeth Council confirms that there are no new/newly identified roads with high flows of buses/HDVs.

3.4 Junctions

Air pollutant concentrations are usually higher close to junctions, due to the combined impact of traffic emissions on roads forming the junction, and to the higher emissions due to stop start driving. The assessment is for both NO_2 and PM_{10} and is dependent on the proximity of relevant exposure within 10 m of the kerbside.

There is no change to the previously reported situation concerning junctions and no new or newly identified junctions with relevant exposure within 10 m.

The Lambeth Council confirms that there are no new/newly identified busy junctions/busy roads.

3.5 New Roads Constructed or Proposed Since the Last Round of Review and Assessment

The approach to considering new roads depends on whether or not an assessment was carried out in advance of building the new road. The assessment is for both NO_2 and PM_{10} and is dependent on the proximity of relevant exposure within 10 m of the kerbside.

There have been no new or proposed roads in the Borough where an air quality assessment was required.

The Lambeth Council confirms that there are no new/proposed roads.

3.6 Roads with Significantly Changed Traffic Flows

Only roads with significantly changed traffic flows that have not already been considered above were investigated. The assessment is for both NO_2 and PM_{10}.

A comparison of traffic flows from the London Atmospheric Emissions Inventory confirms that there are no new roads with significantly changed traffic flows.

The Lambeth Council confirms that there are no new/newly identified roads with significantly changed traffic flows.

3.7 Bus and Coach Stations

This section only applies to bus stations or sections of bus stations that are not enclosed, and where there is relevant exposure, including at nearby residential properties. The assessment is for both the annual mean and the 1-hour NO_2 objectives. (Note - the term “bus” in this instance is used to signify both buses and coaches).

Bus stations in Lambeth were examined in previous USAs and found not to require further investigation. Based on the TG09 guidance if such sources were previously considered and are within an existing AQMA there is no need to proceed further.

The Lambeth Council confirms that there are no relevant bus stations in the Local Authority area.

4 Other Transport Sources

4.1 Airports

Aircraft are potentially significant sources of nitrogen oxides (NOx) emissions, especially during take-off. The TG09 guidance used new information, which has resulted in the criteria to trigger a Detailed Assessment being relaxed, while the requirement to assess PM_{10} has been removed. Thus this section only applies to NO_2. (Note – any road traffic using airports was considered in the previous section.)

The nearest airport, London City Airport, is outside the Borough, in east London. It is thus sufficiently distant not to be relevant. Furthermore passenger numbers of around 3 million passengers per annum are below the threshold of 10 million passengers per annum as given in the TG09 guidance.

The Lambeth Council confirms that there are no airports in the Local Authority area.

4.1 Railways (Diesel and Steam Trains)

Stationary locomotives, both diesel and coal fired, can give rise to high levels of sulphur dioxide (SO_2) close to the point of emission. Previously evidence also suggested that moving diesel locomotives, in sufficient numbers, can also give rise to high NO_2 concentrations close to the track where, along busy lines, emissions can be equivalent to those from a busy road.

4.1.1 Stationary Trains

Previous rounds of Review and Assessment also found that there are no areas within the Borough where diesel or steam locomotives are stationary for periods of 15

minutes or more and within 15m of locations where regular outdoor exposure arises. This situation has not changed.

The Lambeth Council confirms that there are no locations where diesel or steam trains are regularly stationary for periods of 15 minutes or more, with potential for relevant exposure within 15m.

4.1.2 Moving Trains

Diesel locomotives use rail lines that run through Lambeth, however these are not included within the list of lines (from Table 5.1 of TG09), which identify those with a "high" usage of diesel locomotives.

The Lambeth Council confirms that there are no locations with a large number of movements of diesel locomotives, and potential long-term relevant exposure within 30m.

4.2 Ports (Shipping)

The assessment for shipping needs to consider SO_2 only. The northern Borough boundary aligns the river Thames and although there are some small ship movements in this area they are not sufficient to require further investigation based on the TG09 guidance.

The Lambeth Council confirms that there are no ports or shipping that meet the specified criteria within the Local Authority area.

5 Industrial Sources

5.1 Industrial Installations

The Council and the Environment Agency (EA) control industrial and other sources within the Borough under the Environmental Permitting Regulations (England and Wales) 2010, as amended. The Council also has control over some smaller industrial and commercial sources, largely through the Clean Air Act, with its associated control of the stack heights. As a result of these controls, there are relatively few sources that may be relevant under the Local Air Quality Management (LAQM) regime. Many of these sources were also addressed during previous rounds of Review and Assessment. The focus is thus on new installations and those with significantly changed emissions.

Industrial sources are considered unlikely to make a significant local contribution to annual mean concentrations, but could be significant in terms of the short-term objectives in the Borough. Sources in neighbouring authorities and the combined impact of several sources are considered. The approach used is based on use of the planning and permitting processes. The assessment considers all the LAQM pollutants, including those most at risk of requiring further work (SO_2, NO_2, PM_{10} and benzene).

5.1.1 New or Proposed Installations for which an Air Quality Assessment has been Carried Out

Since the last round of Review and Assessment there have been no applications received for installations where an Air Quality Assessment has been carried out.

The Lambeth Council confirms that there are no new or proposed industrial installations for which planning approval has been granted within its area or nearby in a neighbouring authority.

5.1.2 Existing Installations where Emissions have Increased Substantially or New Relevant Exposure has been Introduced

There are no changes to the Part B installations in the Borough since the previous reports and all of these are processes with low emissions of LAQM pollutants. There is no Part A or A2 installation in the Borough.

The Lambeth Council confirms that there are no industrial installations with substantially increased emissions or new relevant exposure in their vicinity within its area or nearby in a neighbouring authority.

5.1.3 New or Significantly Changed Installations with No Previous Air Quality Assessment

Since the last round of Review and Assessment the Council has received no applications for new installations. No other applications have been received for new or proposed sources where it has been determined that the installation is likely to give rise significant pollutant emissions.

The Lambeth Council confirms that there are no new or proposed industrial installations for which planning approval has been granted within its area or nearby in a neighbouring authority.

5.2 Major Fuel (Petrol) Storage Depots

This was previously assessed in earlier rounds of Review and Assessment and it was found that there are no major petrol storage depots in the Borough. This situation has not changed.

There are no major fuel (petrol) storage depots within the Local Authority area.

5.3 Petrol Stations

There is some evidence that petrol stations could emit sufficient benzene to put the 2010 objective at risk of being exceeded, especially if combined with higher levels from nearby busy roads. Some sites in the Borough have however already incorporated petrol vapour recovery (PVR) systems, furthermore those service stations with petrol sales above 3.5 million litres per annum were required to install Stage 2 PVR systems before the 1st January 2010 deadline to comply with UK legislation to reduce petrol vapour (and benzene) from vehicles.

The previous round of Review and Assessment assessed all petrol stations for a throughput of more than 2000m^3 of petrol, and a busy road nearby. Of these none were found to have relevant exposure within 10m of the pumps and therefore it was not necessary to go to a Detailed Assessment. There has been no change in this situation for this round.

The Lambeth Council confirms that there are no petrol stations meeting the specified criteria**.**

5.4 Poultry Farms

The Lambeth Council confirms that there are no poultry farms meeting the specified criteria.

6 Commercial and Domestic Sources

Biomass burning can lead to an increase in PM_{10} emissions, from the combustion process itself and also by aerosol formation from the volatile materials distilled from the wood. Compared to conventional gas burning, biomass burning can also result in an increase in NOx emissions due to the fuel-derived portion that is not present in gas combustion.

The majority of the Borough is a 'Smoke Control Area', meaning that the emission of smoke from chimneys of domestic premises and other buildings in the area is not permitted. Furthermore furnaces, chimneys and industrial processes are monitored carefully and only authorised appliances (as listed under the Smoke Control Area Orders) can be used to burn solid fuels such as coal, coke and wood.

6.1 Biomass Combustion – Individual Installations

The use of biomass to generate energy has potentially significant benefits for the reduction of greenhouse gas emissions. However there are concerns that an increase in biomass combustion in urbanised areas could be detrimental to air quality, particularly with respect to PM_{10} and NO_2. The TG09 guidance includes a procedure to determine the impact of biomass combustion plant to see if there is the potential for the air quality objectives to be exceeded.

Following this the Council has assessed for individual combustion plant burning biomass ranging from 20 MW down to 50 kW units and no new plant have been identified that have not previously been considered.

The Lambeth Council has assessed the biomass combustion plant, and concluded that it will not be necessary to proceed to a Detailed Assessment.

6.2 Biomass Combustion – Combined Impacts

As already outlined the majority of the Borough is a Smoke Control Area and therefore any biomass burning using non-authorised appliances is considered minimal. There is however the potential that many small biomass combustion installations (including domestic solid-fuel burning), whilst individually acceptable, could in combination lead to unacceptably high PM_{10} concentrations, particularly in areas where PM_{10} concentrations are close to or above the objectives. The impact of domestic biomass combustion in most areas is thought to be small at the time of writing, but could become more important in future. The potential for combined impacts, other than that discussed above, will be assessed should future plant be proposed. Currently there is minimal domestic solid fuel burning as discussed in the next section.

The Lambeth Council has assessed the combined impact of biomass combustion, and concluded that it will not be necessary to proceed to a Detailed Assessment.

6.3 Domestic Solid-Fuel Burning

The previous rounds of Review and Assessment identified areas where domestic solid fuel burning gives rise to exceedences of the objective for SO_2. PM_{10} from domestic solid fuel burning was also covered above.

The majority of the Borough is designated a Smoke Control Area and there are no areas of significant domestic solid fuel use in the Borough. This position has not changed from the previous USA, which confirmed that no areas of significant domestic solid fuel burning were identified. Gas is widely available in the Borough and it remains the predominant fuel used for domestic water and space heating.

The Lambeth Council confirms that there are no areas of significant domestic fuel use in the Local Authority area.

7 Fugitive or Uncontrolled Sources

Dust emissions from uncontrolled and fugitive sources can give rise to elevated PM_{10} concentrations. These sources can include, but are not limited to the following sites: quarrying and mineral extraction sites, landfill sites, coal and material stockyards, or materials handling, major construction works and waste management sites. Dust can arise from the passage of vehicles over unpaved ground and along public roads that have been affected by dust and dirt tracked out from dusty sites. Other sources of blown dust are stockpiles and dusty surfaces.

The Environment Agency permits 8 sites for waste handling, none of these however are the cause of complaint regarding dust and other fugitive emissions.

The Thames Tideway Tunnel project is a major construction project in London that will provide a new sewer ("supersewer") that will help tackle the problem of overflows from the capital's Victorian sewers and will protect the river Thames from increasing pollution for at least the next 100 years. It is set to pass through the northern part of the Borough, with construction sites planned at the Albert Embankment Foreshore and close by at Kirtling Street in Wandsworth (close to Vauxhall). The contracts are expected to be awarded in the summer of 2015. The Council will monitor compliance with environmental controls, including dust, at the active construction sites if permission is granted.

No other additional fugitive and uncontrolled particulate matter emissions have been identified based on local professional knowledge, recent air quality assessments or recent complaints to the Council.

The Lambeth Council confirms that there are no additional potential sources of fugitive particulate matter emissions in the Borough, apart from those associated with the proposed Thames Tideway Tunnel. Close attention will be maintained on those areas located close to the potential sources of fugitive particulate matter.

8 Conclusions and Proposed Actions

8.1 Conclusions from New Monitoring Data

Monitoring within the Borough confirmed that the annual mean nitrogen dioxide objective continues to be exceeded at roadside and background locations, with the hourly mean objective exceeded at some roadsides. The Council monitors 3 locations continuously across the Borough. The sites monitored are considered to represent relevant exposure. The kerbside (LB4) and industrial (LB5) sites exceeded the annual mean objective by a large margin. The kerbside site (LB4) also exceeded the hourly mean objective by a very large margin.

The Council's most recent PM_{10} monitoring indicates that the daily mean objective has been exceeded in recent years within the Borough at the kerbside (LB4) and industrial (LB5) sites. The latter also exceeded the annual mean objective. Other sites within the Borough have met the objectives. An analysis of trends in London (KCL, 2012) however confirms that concentrations do not appear to be reducing and there is also evidence indicating that close to roadsides PM_{10} from primary sources may be increasing. The monitoring of sulphur confirms that the objectives for this pollutant have been met.

Based on these findings from monitoring in the Borough, the Council having previously designated the Borough as an Air Quality Management Area for NO_2 and PM_{10}, does not need to undertake a Detailed Assessment as no new potential or actual exceedances at relevant locations were established.

8.2 Conclusions from Assessment of Sources

The Council has assessed the likely impacts of local developments for road transport, other transport, industrial processes, commercial/domestic, fugitive emissions, plus residential and commercial sources. The findings have indicated that

there are no new changes that require the Council to undertake a Detailed Assessment.

8.3 Proposed Actions

This report follows the technical guidance (TG09) produced for this round of Review and Assessment. It therefore fulfils this part of the continuing LAQM process.

The results, from following this methodology, are that the Council has not identified an additional risk of the air quality objectives for the LAQM pollutants: carbon monoxide, benzene, 1,3-butadiene, lead and sulphur dioxide, being exceeded anywhere in the Council's area. Thus the Council need not proceed beyond the updating and screening assessment for these pollutants. For nitrogen dioxide and particles (PM_{10}) the Council has previously designated the Borough as an AQMA. The findings from this report indicate that the AQMA should be maintained.

The Council will therefore undertake the following actions:

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

2. Maintain the existing monitoring programme.

3. Continue with the implementation of its Air Quality Action Plan in pursuit of the AQS objectives.

4. Prepare for the submission of its 2016 Air Quality Progress Report.

9 References

Defra, 2007. Air Quality Strategy for England, Scotland, Wales and Northern Ireland (Volume 1). Defra, London. Cm 7169.

Defra, 2009a. Local Air Quality Management, Technical guidance LAQM.TG09. Defra, London.

KCL, 2012. Air Quality in London GLA Health and Environment briefing note. KCL July 2012.

London Borough of Lambeth (2013). Local Air Quality Management – Updating and Screening Assessment 2012.

London Borough of Lambeth (2013). Local Air Quality Management – Air Quality Progress report 2013.

London Borough of Lambeth (2014). Local Air Quality Management – Air Quality Progress report 2014.

Appendix

Factor used to NO_2 (data derived from Londonair)

	LW1	WM0	KC4
AM	53.82411	38.672238	74.86295
PM	52.44091	37.571354	72.21263
ratio	1.026376	1.0293011	1.036702
	ann factor		1.030793