



2015 Updating and Screening  
Assessment for  
**Merton Council**

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

**June 2015**

<b>Local Authority Officer</b>	Marc Dubet
<b>Department</b>	Environment and Regeneration
<b>Address</b>	London Borough of Merton Merton Civic Centre London Road Morden SM4 5DX
<b>Telephone</b>	020 8545 3944
<b>e-mail</b>	Marc.Dubet@merton.gov.uk
<b>Report Reference number</b>	USA_Merton_2015
<b>Date</b>	June 2015

## Executive Summary

The Merton Council is committed to improving air quality in the Borough. As such the Council is demonstrating its political leadership; taking action; leading by example; monitoring air quality; using the planning system; integrating air quality into the public health system; and informing the public. This 2015 Updating and Screening Assessment fulfils one further aspect of this ongoing commitment.

This 2015 Updating and Screening Assessment for Merton reviews and assesses air quality against the objectives in the Air Quality Regulations 2000 and amendment regulations. The air quality objectives to be assessed by local authorities are for the following seven pollutants: carbon monoxide, benzene, 1,3-butadiene, lead, nitrogen dioxide, sulphur dioxide and particles (PM<sub>10</sub>).

The role of the Review and Assessment process is to identify any relevant areas in the Borough where it is considered that the government's air quality objectives for the above air pollutants will be exceeded. The 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 Merton. 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:

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<sub>10</sub>) the Council has previously designated an AQMA across 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 its Air Quality Action Plans in pursuit of the AQS objectives.
4. Prepare for the submission of its next Air Quality report.

# Table of contents

<b>1</b>	<b>Introduction .....</b>	<b>7</b>
1.1	Description of Local Authority Area .....	7
1.2	Purpose of Report.....	7
1.3	Air Quality Objectives .....	8
1.4	Summary of Previous Review and Assessments .....	9
<b>2</b>	<b>New Monitoring Data .....</b>	<b>11</b>
2.1	Summary of Monitoring Undertaken .....	11
2.1.1	Automatic Monitoring Sites .....	11
2.1.2	Non-Automatic Monitoring Sites .....	13
2.2	Comparison of Monitoring Results with Air Quality Objectives .....	18
2.2.1	Nitrogen Dioxide .....	18
2.2.2	PM <sub>10</sub> .....	28
2.2.1	Air quality predictions for Merton .....	31
2.2.2	Summary of Compliance with AQS Objectives .....	33
<b>3</b>	<b>Road Traffic Sources .....</b>	<b>34</b>
3.1	Narrow Congested Streets with Residential Properties Close to the Kerb .....	34
3.2	Busy Streets Where People May Spend 1-hour or More Close to Traffic.....	35
3.3	Roads with a High Flow of Buses and/or HGVs. ....	35
3.4	Junctions.....	36
3.5	New Roads Constructed or Proposed Since the Last Round of Review and Assessment.....	36
3.6	Roads with Significantly Changed Traffic Flows.....	36
3.7	Bus and Coach Stations .....	37
<b>4</b>	<b>Other Transport Sources.....</b>	<b>38</b>
4.1	Airports.....	38
4.2	Railways (Diesel and Steam Trains) .....	38
4.2.1	Stationary Trains.....	38
4.2.2	Moving Trains .....	39
4.3	Ports (Shipping) .....	39
<b>5</b>	<b>Industrial Sources.....</b>	<b>40</b>
5.1	Industrial Installations .....	40
5.1.1	New or Proposed Installations for which an Air Quality Assessment has been Carried Out.....	40
5.1.2	Existing Installations where Emissions have Increased Substantially or New Relevant Exposure has been introduced .....	41
5.1.3	New or Significantly Changed Installations with No Previous Air Quality Assessment.....	41
5.2	Major Fuel (Petrol) Storage Depots .....	42

5.3	Petrol Stations.....	42
5.4	Poultry Farms.....	42
<b>6</b>	<b>Commercial and Domestic Sources .....</b>	<b>44</b>
6.1	Biomass Combustion – Individual Installations .....	44
6.2	Biomass Combustion – Combined Impacts.....	45
6.3	Domestic Solid-Fuel Burning .....	45
<b>7</b>	<b>Fugitive or Uncontrolled Sources.....</b>	<b>46</b>
<b>8</b>	<b>Conclusions and Proposed Actions.....</b>	<b>47</b>
8.1	Conclusions from New Monitoring Data .....	47
8.2	Conclusions from Assessment of Sources .....	47
8.3	Proposed Actions.....	47
<b>9</b>	<b>References.....</b>	<b>49</b>

### List of Tables

Table 1.1	Air Quality Objectives included in Regulations for the purpose of LAQM in England	8
Table 2.1	Details of Automatic Monitoring Sites	12
Table 2.2	Details of Non-Automatic Monitoring Sites	16
Table 2.3	Results of Automatic Monitoring of Nitrogen Dioxide: Comparison with Annual Mean Objective	20
Table 2.4	Results of Automatic Monitoring for Nitrogen Dioxide: Comparison with 1-hour mean Objective	21
Table 2.5	Results of Nitrogen Dioxide Diffusion Tubes in 2014	24
Table 2.6	Results of Nitrogen Dioxide Diffusion Tubes (2012 to 2014)	26
Table 2.7	Results of Automatic Monitoring of PM <sub>10</sub> : Comparison with Annual Mean Objective	29
Table 2.8	Results of Automatic Monitoring for PM <sub>10</sub> : Comparison with 24-hour mean Objective	30

### List of Figures

Figure 1.1	Map of AQMA Boundaries	10
Figure 2.1	Map of Non-Automatic Monitoring Sites	15
Figure 2.2	Annual mean NO <sub>2</sub> concentrations (µg m <sup>-3</sup> ) for 2015	32
Figure 2.3	Daily mean PM <sub>10</sub> (number of days exceeding 50µg m <sup>-3</sup> ) for 2015	33

### Appendices

- Appendix 1: Part A installations in Merton
- Appendix 2: Part B installations in Merton

# **1 Introduction**

## **1.1 Description of Local Authority Area**

The London Borough of Merton is situated in the south of London. It is an outer London Borough bordered by the Boroughs of Kingston upon Thames to the west, Sutton to the south, Wandsworth and Lambeth to the north and Croydon to the east. It covers an area almost 15 square miles (3,700 hectares). The Borough is mostly residential and the main commercial centres are Mitcham, Morden and Wimbledon, of which Wimbledon is the largest. Other smaller centres include Raynes Park, Colliers Wood, South Wimbledon, Wimbledon Park and Pollards Hill. The estimated population in Merton for 2013 is approximately 203,000 (from the Office of National Statistics (ONS)) and this figure is expected to grow further over the next decade.

The main local sources of atmospheric pollutants are road transport from the busy and congested roads in the Borough and the neighbouring areas of London. The principal roads through the Borough include the A3 trunk road, the A24, the A217, A236, A237 and A296.

There are relatively few industrial installations in the Borough. Other sources within the Borough include boilers within commercial and domestic buildings. Air quality is also influenced by pollutants outside of the Borough boundaries, which contribute to background concentrations.

## **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 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), The Air Quality (England) (Amendment) Regulations 2002 (SI 3043), and are shown in Table 1.1. This table shows the objectives in units of microgrammes per cubic metre  $\mu\text{g m}^{-3}$  (milligrammes per cubic metre,  $\text{mg m}^{-3}$  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**

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



	40 µg m <sup>-3</sup>	Annual mean	31.12.2004
<b>Sulphur dioxide</b>	350 µg m <sup>-3</sup> , not to be exceeded more than 24 times a year	1-hour mean	31.12.2004
	125 µg m <sup>-3</sup> , not to be exceeded more than 3 times a year	24-hour mean	31.12.2004
	266 µg m <sup>-3</sup> , not to be exceeded more than 35 times a year	15-minute mean	31.12.2005

## 1.4 Summary of Previous Review and Assessments

Merton 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<sub>2</sub>) and particles (PM<sub>10</sub>). The aim of the Council's Detailed Assessment was to determine with reasonable certainty whether or not there is a likelihood of the AQ objectives being achieved. The assumptions in the Detailed Assessment 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 Air Quality Management Area or not. When carrying out its Detailed Assessment in 2003 the Council applied its best estimates to all components used to produce the estimated future concentrations.

The Council declared the whole Borough, by order, as an "Air Quality Management Area", for both nitrogen dioxide and fine particles (as PM<sub>10</sub>), as modelled predictions confirmed that the annual mean NO<sub>2</sub> and PM<sub>10</sub> objectives were exceeded. These predictions highlighted that the objectives were exceeded in areas close to busy roads and junctions throughout the Borough. Relevant public exposure was identified in these areas. A map of the Borough (and AQMA) is shown in Figure 1.1 below.

The Council's subsequent Updating and Screening Assessments were also completed and the findings from these were in accordance with those of the earlier Detailed Assessment.

Figure 1.1 Map of AQMA Boundaries



## **2 New Monitoring Data**

### **2.1 Summary of Monitoring Undertaken**

#### **2.1.1 Automatic Monitoring Sites**

The Council has undertaken automatic monitoring at its two long-term sites, as follows:

- Merton Morden (ME1) - a roadside site located at the Civic Centre in Morden; this site started operating during February 2010. The sample inlet is located at 4m from ground level (i.e. at first floor level) and 3m from the road.
- Merton Road (ME2) - a roadside site located in South Wimbledon; the site opened in June 2011.

The above sites are also representative of relevant exposure and are part of the King's London Air Quality Network; hence 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 by 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](http://www.londonair.org.uk). Table 2.1 below shows the details for both automatic monitoring sites.

Table 2.1 Details of Automatic Monitoring Sites

Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	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?
Merton (ME1)	Roadside	525591	168437	NO <sub>2</sub>	Y	N/a	Y	4	N
Merton (ME2)	Roadside	525808	170122	PM <sub>10</sub>	Y	BAM	N (3)	1	Y

### 2.1.2 Non-Automatic Monitoring Sites

The Council also undertakes NO<sub>2</sub> monitoring through the use of diffusion tubes and Table 2.2 includes a list of the monitored locations in the Borough.

The diffusion tube survey has varied since 2010 when 11 locations were monitored. The survey was extended in 2011 to include another 23 sites; so in total 34 sites were monitored. These sites were also maintained in 2012. In 2013, 19 sites were closed and replaced by 10 new sites. In 2014, 24 sites were in operation. In 2014, the same sites than in 2013 were used except for one site, i.e. one site in Morden (site CA). These changes are also shown in Table 2.2.

The sites were monitored using either triplicate or duplicate tubes. One site (LB) used single tube exposures only. A co-located study with the automatic monitoring station was not undertaken.

The diffusion tube site locations are illustrated in Figure 2.1 below. This shows that the monitoring locations are grouped around the main centres in the Borough; including Wimbledon, Mitcham and Morden.

The diffusion tubes were supplied and analysed by Lambeth Scientific Services, with a preparation method using 50% TEA in acetone. Lambeth Scientific Services participates in the AIR NO<sub>2</sub> PT, which is an independent analytical proficiency-testing scheme, operated by LGC Standards and supported by the Health and Safety Laboratory (HSL). AIR PT is a new scheme, started in April 2014, which combines two long running PT schemes (LGC Standards STACKS PT scheme and the HSL WASP PT scheme). Lambeth Scientific Services achieved a 100% "Satisfactory" in the laboratory performance testing AIR NO<sub>2</sub> PT rounds AR003 and 4 only. In the two previous rounds it was 25% and 50%. The precision results of NO<sub>2</sub> Diffusion Tube Collocation Studies for Lambeth Scientific Services are good for 2014.

A major disadvantage of undertaking monitoring using diffusion tubes is that the method is less precise and accurate than continuous monitoring. The recommended methods to reduce errors include the use of good QA/QC practices and bias

## London Borough of Merton

adjustment factors that are derived from co-location studies between continuous analysers and diffusion tubes.

The bias adjustment factors (shown below) 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  $\pm 20\%$  (at 95% confidence level). This compares with a typical value of  $\pm 10\%$  for chemiluminescence monitors subject to appropriate QA/QC procedures.”

Year	Bias Default factor
2010	1.02 (4 studies)
2011	1.06 (6 studies)
2012	0.87 (3 studies)
2013	0.83 (1 study)
2014	0.80 (1 study)

The above Defra default factors indicate that the diffusion tube results for 2012 to 2014 overestimate continuously monitored concentrations, whereas the factors for 2010 and 2011 underestimate concentrations.

Figure 2.1 Map of Non-Automatic Monitoring Sites

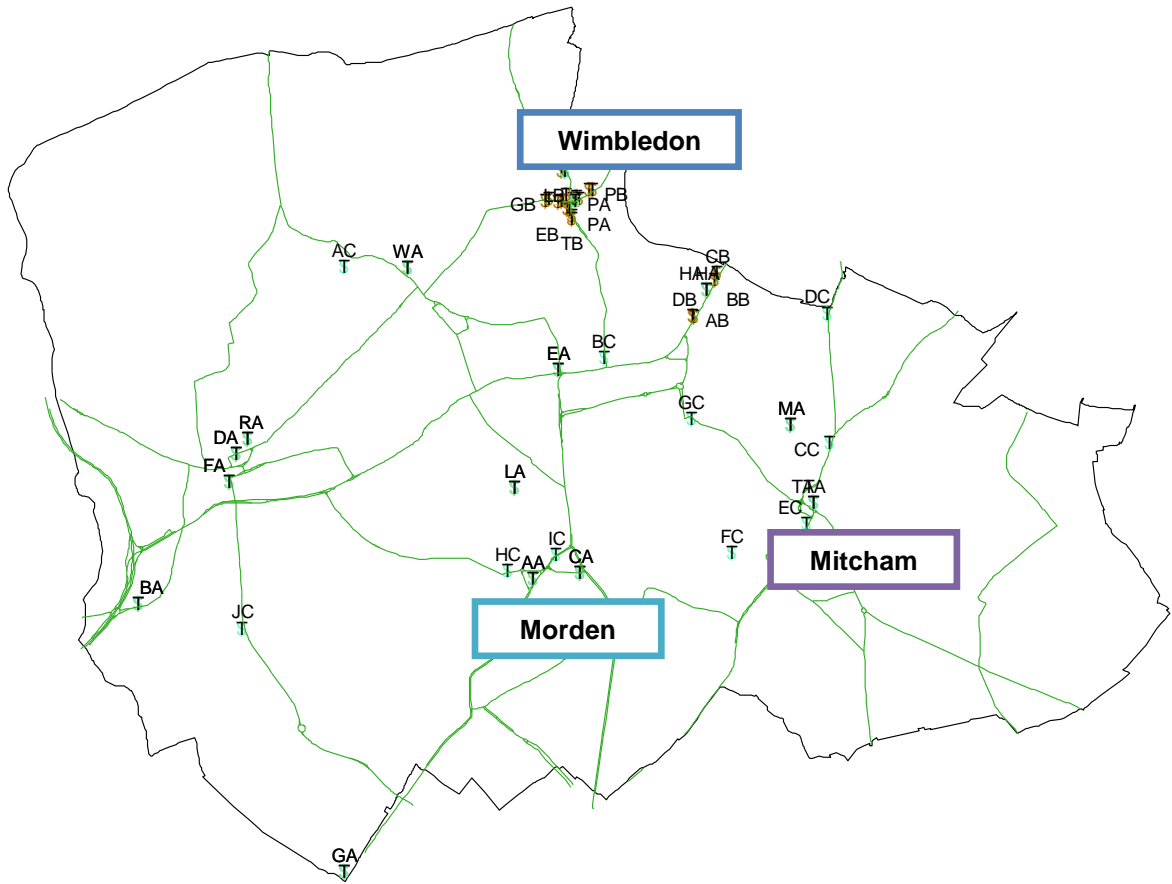


Table 2.2 Details of Non-Automatic Monitoring Sites

Site ID	Site Name	Site Type	Easting	Northing	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?	Years monitored			
								2011	2012	2013	2014
BA	Burlington Road New Malden	Suburban	522501	168235	Y	30m	N	Y	Y	Y	Y
CA	Bardney Road, Morden	Suburban	525969	168481	Y	1m	Y	Y	Y	Y	N
DA	Worple Road, Raynes Park	Roadside	523263	169423	Y (1m)	1m	Y	Y	Y	Y	Y
GA	Garth Road, Morden	Suburban	524113	166129	Y	1m	Y	Y	Y	Y	Y
HA	High St., Colliers Wood	Roadside	526965	170707	Y (1m)	1m	Y	Y	Y	Y	Y
LA	Alley, near Charminster Ave, Morden	Urban	525449	169152	Y	15m	N	Y	Y	Y	Y
MA	Lavender Avenue, Morden	Suburban	527621	169646	Y (3m)	1m	Y	Y	Y	Y	Y
RA	Pepys Road, Raynes Park	Suburban	523357	169534	Y (5m)	1m	Y	Y	Y	Y	Y
TA	Town centre, Mitcham	Urban	527806	169029	Y	20m	Y	Y	Y	Y	Y
WA	Woodside, Wimbledon	Suburban	524608	170873	Y (4m)	1m	Y	Y	Y	Y	Y
PA	Plough Lane, Wimbledon Park	Roadside	525933	171410	Y (3m)	1m	Y	Y	Y	Y	Y
AA	London Road, Morden	Roadside	525594	168434	Y (1m)	2m	Y	Y	Y	Y	Y
EA	Merton High Street	Roadside	525798	170081	Y (2.5m)	0.5m	Y	Y	Y	Y	Y
FA	Grand Drive, Raynes Park	Roadside	523207	169195	Y (7m)	1m	Y	Y	Y	Y	Y
AB	High Street, Colliers Wood	Roadside	526864	170498	Y (2m)	2m	Y	Y	Y	N	N
BB	High Street, Colliers Wood	Roadside	527025	170784	Y (2m)	2m	Y	Y	Y	N	N
CB	High Street, Colliers Wood	Roadside	527040	170836	Y (2m)	2m	Y	Y	Y	N	N
DB	High Street, Colliers Wood	Roadside	526857	170508	Y (2m)	2m	Y	Y	Y	N	N
EB	Haydon's Road, South Wimbledon	Roadside	525872	171341	Y	2.5m	Y	Y	Y	N	N
FB	Gap Road, Wimbledon	Roadside	525793	171404	Y (4m)	1m	Y	Y	Y	N	N
GB	Gap Road, Wimbledon	Roadside	525700	171410	Y (4m)	2m	Y	Y	Y	N	N
HB	Gap Road, Wimbledon	Roadside	525724	171422	Y (5m)	2m	Y	Y	Y	N	N
IB	Gap Road, Wimbledon	Roadside	525819	171410	Y (3m)	0.5m	Y	Y	Y	N	N
JB	Durnsford Road, Wimbledon	Roadside	525861	171453	Y (1.5m)	1.5m	Y	Y	Y	N	N
KB	Durnsford Road, Wimbledon	Roadside	525825	171646	Y (3.5m)	0.5m	Y	Y	Y	N	N



## London Borough of Merton

LB	Weir Road, Wimbledon	Roadside	525854	171643	Y (2m)	3m	Y	Y	Y	Y	Y
MB	Durnsford Road, Wimbledon	Roadside	525918	171422	Y (4m)	0.5m	Y	Y	Y	N	N
NB	Plough Lane, Wimbledon	Roadside	525944	171433	Y (5m)	0.5m	Y	Y	Y	N	N
OB	Plough Lane, Wimbledon	Roadside	526043	171492	Y (6m)	0.5m	Y	Y	Y	N	N
PB	Plough Lane, Wimbledon	Roadside	526068	171490	Y (4m)	0.5m	Y	Y	Y	N	N
QB	Plough Lane, Wimbledon	Roadside	525955	171422	Y (5m)	0.5m	Y	Y	Y	N	N
RB	Haydons Road, South Wimbledon	Roadside	525905	171289	Y	3.5m	Y	Y	Y	N	N
SB	Haydons Road, South Wimbledon	Roadside	525887	171340	Y	4m	Y	Y	Y	N	N
TB	Haydons Road, South Wimbledon	Roadside	525900	171263	Y	3.5m	Y	Y	Y	N	N
AC	The Ridgeway, Wimbledon	Roadside	524111	170883	Y (1.5m)	0.5m	Y	N	N	Y	Y
BC	Haydons Road, South Wimbledon	Roadside	526155	170168	Y (0.5m)	1.5m	Y	N	N	Y	Y
CC	London Road, Tooting	Roadside	527932	169502	Y (2.5m)	0.5m	Y	N	N	Y	Y
DC	London Road, Tooting	Roadside	527913	170518	Y (2m)	1.5m	Y	N	N	Y	Y
EC	London Road, Mitcham	Roadside	527751	168866	Y	2m	Y	N	N	Y	Y
FC	Church Road, Mitcham	Roadside	527158	168646	Y (2.5m)	0.5m	Y	N	N	Y	Y
GC	Western Road, Colliers Wood	Roadside	526840	169694	Y (2m)	1.5m	Y	N	N	Y	Y
HC	Crown Lane, Morden	Roadside	525401	168502	Y (3m)	0.5m	Y	N	N	Y	Y
IC	London Road, Morden	Roadside	525778	168624	Y (3m)	0.5m	Y	N	N	Y	Y
JC	Grand Drive, Raynes Park	Roadside	523311	168045	Y (5m)	0.5m	Y	N	N	Y	Y

## 2.2 Comparison of Monitoring Results with Air Quality Objectives

The monitoring reported below represents the continuous and non-continuous results from 2010 to the end of 2014 (inclusive). The results are reported in accordance with the requirements of TG09. Results from years previous to this can be found in earlier Council reports. See also the London Air Quality Network website (<http://www.londonair.org.uk/london/asp/lahome.asp>) for details of the automatic monitoring sites.

### 2.2.1 Nitrogen Dioxide

The nitrogen dioxide results are reported separately for the Council's automatic sites and diffusion tube network. The automatic results are directly compared to the annual mean and hourly mean objectives, whereas the diffusion tube results are compared to the annual mean objective and also to an annual mean of  $60 \mu\text{g m}^{-3}$ , which represents an indicative value to represent the hourly mean objective. This is line with TG09 guidance.

#### Automatic Monitoring Data

The nitrogen dioxide monitoring results for the Council's automatic site at Merton are given in the following tables (Tables 2.3 and 2.4), which provide fully ratified results for the period from 2010 to 2014 inclusive. The site's location is typical of public exposure, where there are busy roadside areas. It is these areas that have the highest concentrations.

Data capture for 2014 was only of 67%, thus the annual mean concentration has been annualised as described in Box 3.2 of TG (09) and the 90<sup>th</sup> percentile of the 1-hour mean concentration included.

Table 2.3 shows the monitoring results for the period of 2010 to 2014 and a comparison with the annual mean objective of  $40 \mu\text{g m}^{-3}$ . The result for 2014 met the objective, albeit with a borderline annual mean concentration of  $37.9 \mu\text{g m}^{-3}$ . In

## London Borough of Merton

previous years when monitoring was undertaken the objective was breached (2010 to 2013). Concentrations have decreased since 2010 although the data capture was low for most years, and there was no monitoring result in 2011. The highest annual concentration reported was  $52 \mu\text{g m}^{-3}$  in 2010.

Table 2.4 represents the comparison with the 1-hour mean objective (of no more than 18 periods exceeding  $200 \mu\text{g m}^{-3}$ ). The table below shows that the objective was met for every year reported. Five hours exceeded the  $200 \mu\text{g m}^{-3}$  during the 2014 monitoring period. The highest number of exceedences reported was 10, in 2013.

Table 2.3 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 %	Annual Mean Concentration $\mu\text{g m}^{-3}$				
					2010 <sup>a</sup>	2011	2012 <sup>bc</sup>	2013	2014 <sup>c</sup>
Merton (ME1)	Roadside	Y	-	67	<b>52</b>	-	<b>48 (48.1)</b>	<b>40.1</b>	38 (37.9)

In bold, exceedence of the NO<sub>2</sub> annual mean AQS objective of 40 $\mu\text{g m}^{-3}$

<sup>a</sup> Data capture for 2010 was 77%

<sup>b</sup> Data capture for 2012 was 39%

<sup>c</sup> Mean “annualised” (in brackets) as in Box 3.2 of TG(09) (<http://laqm.defra.gov.uk/technical-guidance/index.html?d=page=38>), as valid data capture was less than 75%

**Table 2.4 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 %	Number of Exceedences of Hourly Mean ( $200 \mu\text{g m}^{-3}$ )				
					2010 <sup>c</sup>	2011	2012 <sup>bc</sup>	2013	2014 <sup>c</sup>
Merton (ME1)	Roadside	Y	-	67	4 <sup>a</sup>	-	0 (164)	10	5 (163)

In bold, exceedence of the NO<sub>2</sub> hourly mean AQS objective ( $200\mu\text{g m}^{-3}$  – not to be exceeded more than 18 times per year)

<sup>a</sup> Data capture for 2010 was 77%

<sup>b</sup> Data capture for 2012 was 39%

<sup>c</sup> Data capture for full calendar year was less than 90%, the 99.8th percentile of hourly means is in brackets

## Diffusion Tube Monitoring Data

Table 2.5 provides the results for 2014 and Table 2.6 the results from 2012 to 2014. The results shown are the bias adjusted values for each of the diffusion tube sites.

Data capture was very mixed, with missing data for March and April for all sites. No site exceeded more than 9 months of data capture. Where data capture was less than 75% the measured results were annualised; these sites were GA and HA (8 months only) and FA (7 months only). For nine other sites there was low intermittent data capture which did not achieve 3 consecutive months. As a result of this insufficient data, the values for these sites were not annualised (LB, AC, BC, CC, DC, EC, FC, GC, and JC). Please note – the mean for the monitoring at these sites is reported although care is clearly needed with interpretation.

The results are compared to the  $40 \mu\text{g m}^{-3}$  annual mean  $\text{NO}_2$  objective and the annual mean concentrations that exceeded the objective are highlighted in bold. Those sites that exceeded the  $40 \mu\text{g m}^{-3}$  annual mean  $\text{NO}_2$  objective are further corrected for distance to establish an estimated concentration at the nearest façade in accordance with the relevant exposure criteria as described in the TG09 guidance.

The measurement sites include areas described as roadside/ kerbside locations; these are close to both some of the busy major roads, as well as quieter roads across the Borough. The sites in the quietest residential areas measured the lowest concentrations and hence these sites are considered representative of background concentrations.

Six sites, with sufficient data capture (and adjusted with an annualising factor where necessary) and after the application of a distance correction, exceeded the annual mean objective of  $40 \mu\text{g m}^{-3}$ . All of them were roadside sites. The IC site (London Road, Morden) had the highest concentration with relevant exposure of  $52 \mu\text{g m}^{-3}$ . This indicates from the measurements that the hourly objective was not potentially exceeded from the 2014 results.

## London Borough of Merton

Table 2.6 shows that in 2012 and 2013 the number of sites exceeding the objective was 11 and 16 respectively, after distance correction. A straight comparison with 2014 however is difficult due to the intermittent data capture over this particular year.

Instead for those sites with sufficient data capture, six exceeded the objective for all years reported where there was monitoring (sites DA, HA, PA, AA, EA and IC). For these sites the average concentration for the three years was: 2012 - 48.0  $\mu\text{g m}^{-3}$ ; 2013 - 53.9  $\mu\text{g m}^{-3}$ ; and 2014 – 47.8  $\mu\text{g m}^{-3}$ . This suggests that average concentrations in 2014 are similar to the previous years for the sites that exceeded.

Table 2.5 Results of Nitrogen Dioxide Diffusion Tubes in 2014

Site ID	Location	Site Type	Data Capture 2014 (%)	Data has been annualised (Y/N)	Confirm if data has been distance corrected (Y/N)	Annual mean concentration <sup>a</sup> (Bias Adjustment factor = 0.80 )
						2014 ( $\mu\text{g m}^{-3}$ )
BA	Burlington Road New Malden	Suburban	9	N	N	32.9
DA	Worple Road, Raynes Park	Roadside	9	N	Y	<b>42.3 (40.2)</b>
GA	Garth Road, Morden	Suburban	8	Y	N	32.8
HA	High St., Colliers Wood	Roadside	8	Y	Y	<b>49.8 (46.6)</b>
LA	Alley, near Charminster Ave, Morden	Urban	9	N	N	26
MA	Lavender Avenue, Morden	Suburban	9	N	N	32.2
RA	Pepys Road, Raynes Park	Suburban	9	N	N	32.8
TA	Town centre, Mitcham	Urban	9	N	N	34.8
WA	Woodside, Wimbledon	Suburban	9	N	Y	<b>40.5 (36.1)</b>
PA	Plough Lane, Wimbledon Park	Roadside	9	N	Y	<b>57.2 (48.8)</b>
AA	London Road, Morden	Roadside	9	N	Y	<b>51 (48.7)</b>
EA	Merton High Street	Roadside	9	N	Y	<b>61.1 (50.5)</b>
FA	Grand Drive, Raynes Park	Roadside	7	Y	Y	<b>43.4 (36.5)</b>
LB	Weir Road, Wimbledon	Roadside	4	N	N	28.4
AC	The Ridgeway, Wimbledon	Roadside	4	N	Y	<b>41.6 (38)</b>
BC	Haydons Road, South Wimbledon	Roadside	4	N	Y	<b>43.6 (42.6)</b>
CC	London Road, Tooting	Roadside	4	N	Y	<b>67.2 (54.5)</b>
DC	London Road, Tooting	Roadside	4	N	Y	<b>55.5 (50.2)</b>
EC	London Road, Mitcham	Roadside	4	N	N	38
FC	Church Road, Mitcham	Roadside	4	N	N	36.2
GC	Western Road, Colliers Wood	Roadside	4	N	Y	<b>55.3 (50)</b>
HC	Crown Lane, Morden	Roadside	9	N	Y	<b>45.6 (39.2)</b>
IC	London Road, Morden	Roadside	9	N	Y	<b>65.1 (52)</b>



London Borough of Merton

Site ID	Location	Site Type	Data Capture 2014 (%)	Data has been annualised (Y/N)	Confirm if data has been distance corrected (Y/N)	Annual mean concentration <sup>a</sup> (Bias Adjustment factor = 0.80 )
						2014 ( $\mu\text{g m}^{-3}$ )
JC	Grand Drive, Raynes Park	Roadside	2	N	N	32.4

In **bold**, exceedence of the NO<sub>2</sub> annual mean AQS objective of 40  $\mu\text{g m}^{-3}$ ; reduced font size indicates low data capture

<sup>a</sup> Distance correction in brackets for the sites exceeding the objective

**Table 2.6 Results of Nitrogen Dioxide Diffusion Tubes (2012 to 2014)**

Site ID	Site Type	Within AQMA?	Annual mean concentration (adjusted for bias) $\mu\text{g m}^{-3}$		
			2012 (Bias Adjustment Factor = 0.87)	2013 (Bias Adjustment Factor = 0.83)	2014 (Bias Adjustment Factor = 0.80)
BA	Suburban	Y	37.2	42	32.9
CA	Suburban	Y	31.6	39.1	N/a
DA	Roadside	Y	44.6	46.7	42.3 (40.2)
GA	Suburban	Y	37.5	39.6	32.8
HA	Roadside	Y	50.7	52.2	49.8 (46.6)
LA	Urban	Y	24	26.1	26
MA	Suburban	Y	31.4	35.2	32.2
RA	Suburban	Y	32	35.9	32.8
TA	Urban	Y	34.4	39.3	34.8
WA	Suburban	Y	33.3	33.7	40.5 (36.1)
PA	Roadside	Y	47	48.4	57.2 (48.8)
AA	Roadside	Y	45.1	48.2	51 (48.7)
EA	Roadside	Y	52.7	57.5	61.1 (50.5)
FA	Roadside	Y	34.7	37.7	43.4 (36.5)
AB	Roadside	Y	44.6	N/a	N/a
BB	Roadside	Y	44.2	N/a	N/a
CB	Roadside	Y	50.8	N/a	N/a
DB	Roadside	Y	52.2	N/a	N/a
EB	Roadside	Y	47	N/a	N/a
FB	Roadside	Y	39.2	N/a	N/a
GB	Roadside	Y	37.4	N/a	N/a
HB	Roadside	Y	37.8	N/a	N/a
IB	Roadside	Y	34.5	N/a	N/a
JB	Roadside	Y	33.4	N/a	N/a
KB	Roadside	Y	37.4	N/a	N/a
LB	Roadside	Y	38.1	37.5	28.4
MB	Roadside	Y	37.4	N/a	N/a
NB	Roadside	Y	34.8	N/a	N/a
OB	Roadside	Y	33.9	N/a	N/a
PB	Roadside	Y	32.2	N/a	N/a
QB	Roadside	Y	35.3	N/a	N/a
RB	Roadside	Y	38.3	N/a	N/a
SB	Roadside	Y	34.8	N/a	N/a
TB	Roadside	Y	46	N/a	N/a
AC	Roadside	Y	N/a	47.6	41.6 (38)
BC	Roadside	Y	N/a	48.3	43.6 (42.6)
CC	Roadside	Y	N/a	72.6	67.2 (54.5)
DC	Roadside	Y	N/a	59.3	55.5 (50.2)
EC	Roadside	Y	N/a	40.4	38
FC	Roadside	Y	N/a	45.2	36.2

## London Borough of Merton

Site ID	Site Type	Within AQMA?	Annual mean concentration (adjusted for bias) $\mu\text{g m}^{-3}$		
			2012 (Bias Adjustment Factor = 0.87)	2013 (Bias Adjustment Factor = 0.83)	2014 (Bias Adjustment Factor = 0.80)
GC	Roadside	Y	N/a	52	55.3 (50)
HC	Roadside	Y	N/a	50.9	45.6 (39.2)
IC	Roadside	Y	N/a	70.4	65.1 (52)
JC	Roadside	Y	N/a	42.1	32.4

### 2.2.2 PM<sub>10</sub>

The TG09 guidance highlights that BAM instruments (as used at the Merton ME2 site) were shown to be equivalent to the PM<sub>10</sub> reference method, provided that the results are corrected for slope. The results presented below have the correction factor of 1.2 applied. Thus the results for the **Merton** site as reported below are **reference equivalent**. Results from 2011 to 2014 (inclusive) are reported, although data capture for 2011 was only 16%. Data capture at the Merton (ME2) roadside site in South Wimbledon was also reduced for 2014 (77%), thus the annual mean has been annualised and the 90<sup>th</sup> percentile of the one hour mean has been included.

Table 2.7 shows the comparison with the annual mean objective. This objective was met for each year reported, with concentrations of approximately 30 µg m<sup>-3</sup>. These higher concentrations reflect the roadside nature of the monitoring location. The lowest concentration recorded was 26 µg m<sup>-3</sup> in 2011, and the highest was 31 µg m<sup>-3</sup> in 2013. For 2014, the annualised mean concentration was 28.2 µg m<sup>-3</sup>.

Table 2.8 reports the daily mean objective, which has been exceeded more widely across the UK than the annual mean objective. The monitoring results for the Merton ME2 site met this objective for each year reported. In 2014 the number of days that exceeded the daily mean standard of 50 µg m<sup>-3</sup> was 17. This is lower than previous years. The number of exceedences was 26 and 31 respectively for 2012 and 2013. This indicates that the objective was approached in 2013, although it is not clear whether this increase in 2013 was due to inter annual meteorological conditions, which is most likely, or changes in local emissions from road transport. Further investigation, which is beyond the scope of this report, is needed to ascertain the reason.

**Table 2.7 Results of Automatic Monitoring of PM<sub>10</sub>: Comparison with Annual Mean Objective**

Site ID	Site Type	Within AQMA?	Valid Data Capture for Monitoring Period %	Valid Data Capture 2014 % <sup>a</sup>	Confirm Gravimetric Equivalent (Y or N/A)	Annual Mean Concentration ( $\mu\text{g m}^{-3}$ )			
						2011 <sup>b</sup>	2012	2013	2014 <sup>c</sup>
Merton (ME2)	Roadside	Y	-	77	Y	26	29	31	29 (28.2)

<sup>a</sup> 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%).

<sup>b</sup> Data capture for 2011 was 16%

<sup>c</sup> Means “annualised” as in Box 3.2 of TG(09), where monitoring was not carried out for the full year.

Table 2.8 Results of Automatic Monitoring for PM<sub>10</sub>: Comparison with 24-hour mean Objective

Site ID	Site Type	Within AQMA?	Valid Data Capture for Monitoring Period %	Valid Data Capture 2014 %	Confirm Gravimetric Equivalent (Y or N/A)	Number of Daily Means > 50µg m <sup>-3</sup>			
						2011 <sup>a</sup>	2012	2013	2014 <sup>b</sup>
Merton (ME2)	Roadside	Y	-	77	Y	0	26	31	17 (44.4)

<sup>a</sup> Data capture for 2011 was 16%

<sup>b</sup> Where data capture is less than 90%, the 90<sup>th</sup> percentile of 24-hour means is in brackets

### 2.2.1 Air quality predictions for Merton

Air quality predictions for Merton, based on the LAEI 2010 (produced for the GLA), are shown below. These were previously produced for the 2014 Air Quality Progress Report. Figure 2.2 shows that NO<sub>2</sub> concentrations are predicted to widely exceed the air quality objective in 2015. Those areas with the highest predicted concentrations are close to major roads across the Borough. The highest background concentrations are also found towards closest to central London.

It is mainly those areas closest to busy and congested roads that exceed the objective; this is typical for other Boroughs outside of central London. Those roads predicted to exceed include the main trunk and other main roads across the Borough, including the A3, plus the A24, A216, A217, A218, A219, A236, A237, A238, A298, B235, B272, B279 and B285.

Similar to NO<sub>2</sub>, the predictions of days exceeding the daily mean air quality standard for PM<sub>10</sub> are also related closely to roads across the Borough. Figure 2.3 shows the number of days that exceed the 50 µg m<sup>-3</sup> standard. The small areas coloured yellow exceed the objective of more than 35 days exceeding the standard. The area exceeding the objective is closely located on the centres of Merton and Colliers Wood plus the B285, which leads to Beddington Road industrial area in Sutton.

This objective is more easily met than the annual mean NO<sub>2</sub> objective and hence those areas exceeding it are much smaller in size. It should be noted however that PM continues to be considered very important from a public health perspective and the evidence published by the Department of Health's advisory group COMEAP in 2010 and 2015 has confirmed this. This evidence also highlights that health effects may arise at levels lower than the above objective.

Figure 2.2 Annual mean NO<sub>2</sub> concentrations ( $\mu\text{g m}^{-3}$ ) for 2015

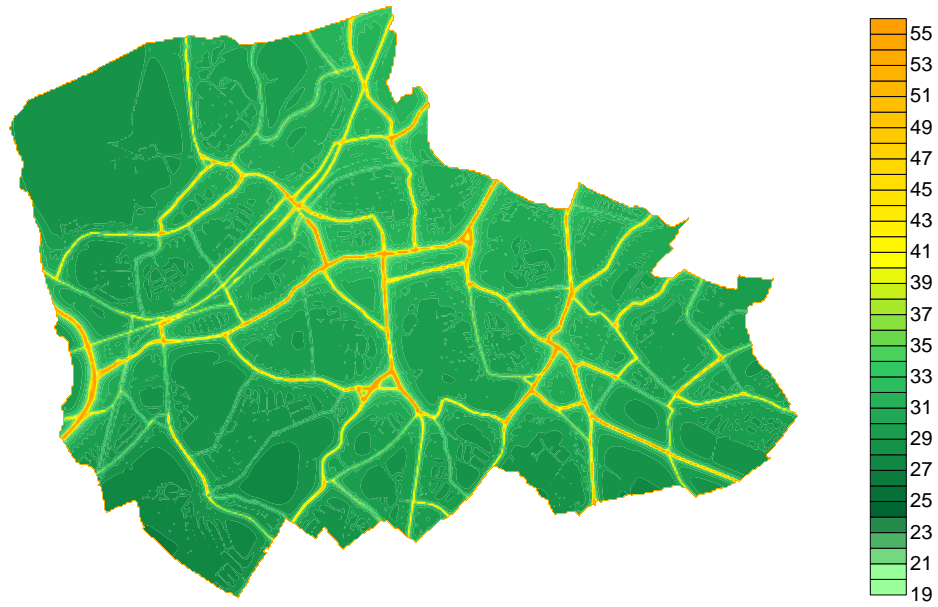
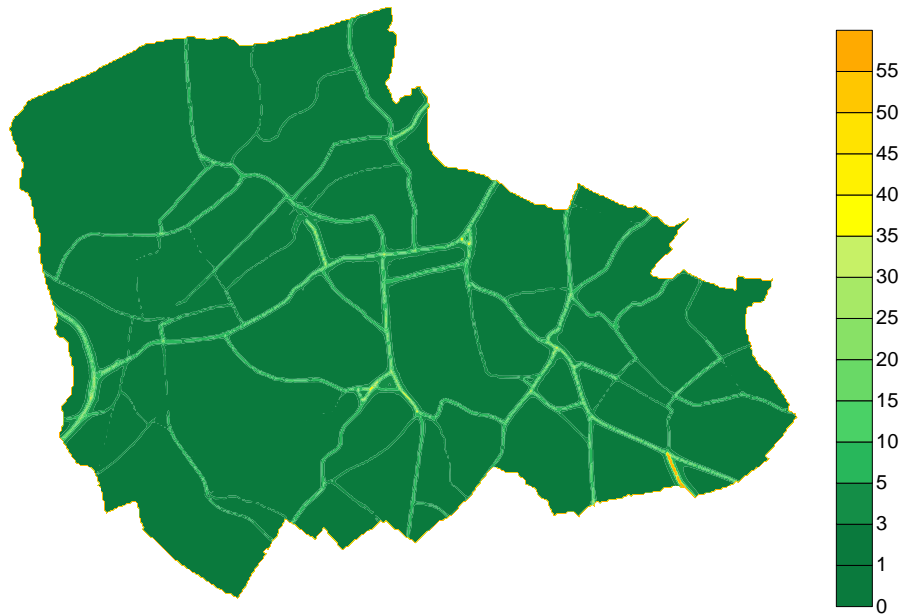




Figure 2.3 Daily mean PM<sub>10</sub> (number of days exceeding 50µg m<sup>-3</sup>) for 2015



### 2.2.2 Summary of Compliance with AQS Objectives

The Merton Council has examined the results from monitoring and recent modelled predictions across the Borough. Concentrations are above the objectives for annual mean nitrogen dioxide, plus daily mean PM<sub>10</sub> within the designated Borough wide AQMA. As a result of these findings there is no need to proceed to a Detailed Assessment based on monitoring.

Monitoring of the other LAQM pollutants has not been undertaken. Monitoring elsewhere in London and the UK however suggests that the relevant objectives are met. Hence there is no need to proceed to a Detailed Assessment based on monitoring for these pollutants.

### **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 2010 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<sub>2</sub> 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 2 m of the kerb. The roads previously identified are all within the Council's AQMA and this situation has not changed.

The Merton 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<sub>2</sub>. (Note - those people that are occupationally exposed are not included, as they are not covered by the regulations). The assessment is for NO<sub>2</sub> 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 Merton 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<sub>2</sub> and PM<sub>10</sub> 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 Merton Council confirms that there are no new/ newly identified roads with high flows of buses/HGVs.

### **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<sub>2</sub> and PM<sub>10</sub> 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 Merton 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<sub>2</sub> and PM<sub>10</sub> 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 Merton 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<sub>2</sub> and PM<sub>10</sub>. A comparison of traffic flows from the latest version of the London Atmospheric Emissions Inventory confirms that there are no new roads with significantly changed traffic flows.

The Merton 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<sub>2</sub> objectives. (Note - the term “bus” in this instance is used to signify both buses and coaches).

Bus stations in Merton 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 Merton Council confirms that there are no relevant bus stations in its area.

## 4 Other Transport Sources

### 4.1 Airports

Aircraft are potentially significant sources of nitrogen oxides (NO<sub>x</sub>) 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<sub>10</sub> has been removed. Thus this section only applies to NO<sub>2</sub>. (Note – any road traffic using airports was considered in the previous section.)

The nearest airport is Heathrow, which is outside the Borough and sufficiently distant (greater than 10km) as not to be relevant.

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

### 4.2 Railways (Diesel and Steam Trains)

Stationary locomotives, both diesel and coal fired, can give rise to high levels of sulphur dioxide (SO<sub>2</sub>) close to the point of emission. Recent evidence also suggests that moving diesel locomotives, in sufficient numbers, can also give rise to high NO<sub>2</sub> concentrations close to the track where, along busy lines, emissions can be equivalent to those from a busy road.

#### 4.2.1 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 15 m of locations where regular outdoor exposure arises. This situation has not changed.

The Merton 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.

#### 4.2.2 Moving Trains

Diesel locomotives use rail lines that run through Merton, 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 Merton Council confirms that there are no locations with a large number of movements of diesel locomotives, and potential long-term relevant exposure within 30m.

#### 4.3 Ports (Shipping)

The assessment for shipping needs to consider SO<sub>2</sub> only. The river Thames is to the north of Borough and although there are some ship movements in this area they are minor and not sufficient to require further investigation based on the TG09 guidance.

The Merton Council confirms that there is no port (or shipping) that meets the specified criteria within the Borough.

## **5 Industrial Sources**

### **5.1 Industrial Installations**

The Council and the Environment Agency (EA) control industrial 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<sub>2</sub>, NO<sub>2</sub>, PM<sub>10</sub> 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 the Council have permitted three non-reduced installations (two cement batchers and mobile crusher). None of these however have required an air quality assessment. Furthermore other installations have closed, including one Part A installation.

An application, (referenced 08/P2724) for the formation of Mitcham Ecopark to extend an existing materials recycling facility and provide a new building with an anaerobic digestion and integrated in vessel composting facility was made in late 2011. The accompanying air quality assessment detailed a 36m gas engine stack, releasing emissions from two low NO<sub>x</sub> gas engines that will burn the biogas



produced from an onsite anaerobic digestion process. The assessment found that NO<sub>2</sub> (and SO<sub>2</sub>) emissions from the plant (both the long term and short term emissions) could be considered to be insignificant based on the EA criteria at both the point of maximum impact and therefore at all sensitive receptors identified.

The Merton Council has assessed new/ proposed industrial installations, and concluded that it will not be necessary to proceed to a Detailed Assessment.

### **5.1.2 Existing Installations where Emissions have Increased Substantially or New Relevant Exposure has been introduced**

The lists of existing Part A and B processes that are regulated under the Environmental Permitting regime are provided in the Appendix. These are all processes with low emissions of LAQM pollutants. None of these have increased emissions by greater than 30% and no new relevant exposure has been introduced nearby.

The Merton 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 several applications for new installations. None of these however has required an air quality assessment. 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 Merton 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 Borough.

## 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 2000 m<sup>3</sup> 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 Merton Council confirms that there are no petrol stations meeting the specified criteria.

## 5.4 Poultry Farms

Some local authorities in England have identified potential exceedences of the PM<sub>10</sub> objectives associated with emissions from poultry farms (defined as chickens (laying hens and broilers), turkeys, ducks and guinea fowl). These relate to large farms (>

## London Borough of Merton

100,000 birds) that are regulated by the EA. None however exist within the Council's area.

The Merton 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<sub>10</sub> 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 NO<sub>x</sub> emissions due to the fuel-derived portion that is not present in gas combustion.

The whole Borough however is a Smoke Control Area, meaning that the emission of smoke from chimneys of domestic premises and other buildings 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 such as Merton could be detrimental to air quality, particularly with respect to PM<sub>10</sub> and NO<sub>2</sub>. 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.

Since the last USA, the Council has approved 2 separate applications for the use of biomass. These were for a new school on Middleton Road, Morden, Surrey SM4 6SD and an extension at the Holy Trinity Church of England Primary School, Effra Road, South Wimbledon. Air quality assessments were completed for both and these showed insignificant increases of NO<sub>2</sub> or PM<sub>10</sub> at the nearest receptors.

An air quality assessment was also submitted with a planning application to install a biomass boiler to provide heating to a building in Lombard Road, South Wimbledon. The assessment for this application indicated that under the EA guidance the installation of the boiler would have insignificant impact on NO<sub>2</sub> and PM<sub>10</sub> concentrations in the Borough.

The Merton 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 Council 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<sub>10</sub> concentrations, particularly in areas where PM<sub>10</sub> 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 Merton 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<sub>2</sub>. PM<sub>10</sub> from domestic solid fuel burning was also covered above.

The whole 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 Merton Council confirms that there are no areas of significant domestic fuel use in the Borough.

## 7 Fugitive or Uncontrolled Sources

Dust emissions from uncontrolled and fugitive sources can give rise to elevated PM<sub>10</sub> 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 dust are from the handling of dusty materials, the cutting of concrete, etc. and wind-blown dust from stockpiles and dusty surfaces.

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

The Merton Council confirms that there are no additional potential sources of fugitive particulate matter emissions in the Borough.

## **8 Conclusions and Proposed Actions**

### **8.1 Conclusions from New Monitoring Data**

The monitoring results within the Borough confirmed that the annual mean nitrogen dioxide objective continues to be exceeded at roadside and nearby locations. The sites monitored are considered to represent relevant exposure. The modelled predictions for the Borough also confirmed that the annual mean nitrogen dioxide objective continues to be exceeded at roadside and background locations.

The modelled predictions for the Borough for PM<sub>10</sub> indicated that the daily mean objective is exceeded at busy roadside locations. Other sites within the Borough have met the objectives.

Based on these findings, the Council does not need to undertake a Detailed Assessment, as no new potential or actual exceedences at relevant locations were established. The Council previously designated the whole Borough as an Air Quality Management Area for NO<sub>2</sub> and PM<sub>10</sub>.

### **8.2 Conclusions from Assessment of Sources**

The Council has assessed local developments of road transport, other transport, industrial processes, commercial/domestic, fugitive emissions, plus residential and commercial sources. The findings for these 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) and fulfils this part of the continuing LAQM process. The findings also 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 its Air Quality Action Plans in pursuit of the AQS objectives.
4. Prepare for the submission of its next Air Quality 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.

Merton (2014). Local Air Quality Management. 2013/4 Air Quality Progress Report for Merton Council. Merton, November 2014.

Merton (2012). Local Air Quality Management – Air Quality Updating and Screening Assessment 2012. Merton, July 2012.

## Appendices

### Appendix 1: Part A installations in Merton

Type of process	Company Name	Site Address
Reichhold UK LTD	Manufacture and use of organic chemicals	Willow Lane, Mitcham, Surrey

### Appendix 2: Part B installations in Merton

Table of permitted petrol stations in the Council's area

Ref no.	Company/ Site Address
023	Tesco, 300 Beverley Way, New Malden, Surrey, KT3 4PJ
025	Savacentre Ltd, 1 Merton High Street, SW19 1DD
027	Total Convenience Store Western Road, 231 Western Road, SW19 2QE
030	Colliers Wood Service Station, 164-168 High Street, Colliers Wood, SW19 2BN
033	Shell Pepys Corner, Worple Road, SW20 8RE
034	Kingston Autoway Centre, Shannon Corner, New Malden, Surrey, KT3 6HM
038	Shell Plough Lane, 53 Plough Lane, Wimbledon, SW17 8HA
042	Martin Way Service Station, Martin Way, Morden, Surrey, SM4 4AW
044	Wimbledon Chase Service Station, 314 Kingston Road, SW20 8LR
045	Haydons Road Service Station, 298 Haydons Road, SW19 1ED
048	Total Convenience Store, Rowan Road, SW16 5JM
050	Wandle Service Station, Bishopsford Road, Morden, Surrey, SM4 6AP
054	Tesco, 195 – 210 Merton Road, SW19 1EG

## London Borough of Merton

Table of Part B installations in the Council's area

<b>PG Note</b>	<b>Company Name</b>	<b>Site Address/ Home Address of Mobile Plant</b>
PG5/02(04) Crematoria	South London Crematorium	Rowan Road, Streatham, SW16 5JG
PG5/02(04) Crematoria	North East Surrey Crematorium	Lower Morden Lane, Morden, Surrey SM4 4EU
PG3/1(04) Bulk Cement	Rapid Ready Mix	Alpha Place, Garth Road, Morden, SM4 4LG
PG3/1(04) Bulk Cement	Allen Concrete Ltd	38 Willow Lane, Mitcham, Surrey, CR4 4NA
PG3/1(04) Bulk Cement	Hanson Premix	Archway Close, Endeavour Way, London, SW19 8UH
PG6/34(11) Respraying of Road Vehicles	DWS Bodyworks	Mitcham, 11/11A Bunting Close, Mitcham, CR4 4ND
PG3/1(04) Bulk Cement	Maguire Skips Limited	Land adj 24 Wandle Way, Willow Lane, Mitcham, CR4 4NB
PG3/16(04) Mobile Crushing and Screening	Maguire Skips Limited	Land adj 24 Wandle Way, Willow Lane, Mitcham, CR4 4NB

Table of permitted dry cleaners in the Council's area

Process Name	Ref Number	Post Code
Bourjois Cleaners	DC/002	KT3 6NB
Kingsmere Cleaners	DC/004	SW19 7PA
Prestige Dry Cleaning	DC/005	CR4 4BE
Dudley Dry Cleaners	DC/007	SW19 8JZ
Elegance Dry Cleaners	DC/009	SW20 0BA
Galaxy Dry Cleaners	DC/010	SW19 7BD
Grand Dry Cleaners	DC/011	SW20 9NQ
High Quality	DC/012	SW19 1EE
Master John (Dry cleaners)	DC/016	SW19 3NT
Morden Dry Cleaners	DC/017	SM4 5BL
Parrisianne Cleaners	DC/018	SM4 5SQ
Soft Touch Dry Cleaning	DC/019	CR4 4BE
Rendezvous	DC/020	SW20 8LX
Surrey Linen Services	DC/021	KT3 6JF
Serena Dry Cleaners	DC/022	CR4 3NB
Smarty Dry Cleaning Services	DC/023	SW19 1QN
Swan Cleaners	DC/024	SW20 9NQ
London Quality Cleaners	DC/025	CR4 2JB
Unit 4 London Dry Cleaners Ltd	DC/027	SW20 0RH
Get Smart Dry Cleaners	DC/030	SM4 4AH
Elite Ironing Ltd	DC/037	SW19 8JA
Elegance	DC/038	SM4 6HY

