



# 2010 Air Quality Progress Report for *Surrey Heath Borough Council*

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

July, 2010

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## Executive Summary

An assessment of the current air quality situation within the administrative area of Surrey Heath has been undertaken in line with the Defra LAQM Technical Guidance TG (09). The report has assessed all available air quality monitoring data against the air quality objectives as well as any significant changes since the last round of review and assessment that could impact on local air quality. These can include changes to the local road network, new industrial installations or new local development which would result in increased human exposure to the pollutants listed in the Air Quality Strategy 2007.

Assessment of the 2009 air quality monitoring data set showed there to be two sites showing an exceedence of the nitrogen dioxide (NO<sub>2</sub>) annual mean objective. Further analysis of these sites, with the appropriate facade calculations, identified that both the annual mean and 1 hour air quality objectives for nitrogen dioxide were unlikely to be exceeded. No other likely exceedences of the air quality objectives were identified.

The report sets out progress with the implementation of the Action Plan, noting that of the 51 actions set out in the Plan, 37 have now been completed.

The overall results of this Progress Report indicate that a Detailed Assessment is not required for any pollutant.

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# 1 Introduction

## 1.1 Description of Local Authority Area

The Borough of Surrey Heath is located in the South East of England, to the South West of London. Camberley and Frimley are the main urban areas. The main routes through the area are the M3 motorway, A30, A325, A322 and the A331. The primary source of local emissions of the pollutants listed in the air quality strategy is road traffic, with no other significant sources.

## 1.2 Purpose of Progress Report

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

They are not intended to be as detailed as Updating and Screening Assessment Reports, or to require as much effort. However, if the Progress Report identifies the risk of exceedence of an Air Quality Objective, the Local Authority (LA) should undertake a Detailed Assessment immediately, and not wait until the next round of Review and Assessment.

## 1.3 Air Quality Objectives

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

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

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

## **1.4 Summary of Previous Review and Assessments**

### **1.4.1 First Round of Review and Assessment**

Unlike the current format of the Updating and Screening Assessment, Detailed Assessment and Further Assessment, round one of the Review and Assessment process was split into four staged reports, with each being more detailed than the last. For the purpose of this summary only the conclusions of Stage 3 and 4 from round one have been summarised.

The Stage 3 report concluded that exceedences of the annual mean objective for nitrogen dioxide (NO<sub>2</sub>) were likely along the M3 between the Frimley Road flyover and just north of the Ravenswood Roundabout (A325). Subsequently the Council declared an Air Quality Management Area (AQMA) in 2002 (see Figure 1).

The Stage 4 report which assessed the AQMA declaration in more detail, confirmed the predicted exceedences of the annual mean NO<sub>2</sub> objective. The report also concluded that the AQMA should be extended in both directions along the M3.

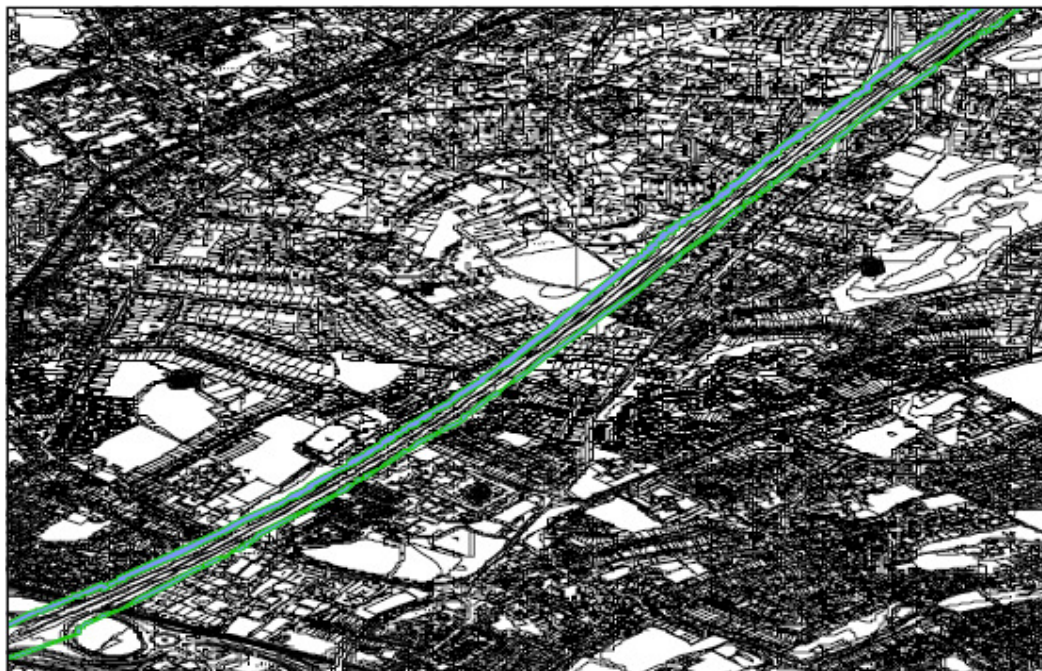
### **1.4.2 Air Quality Action Plan 2005**

In light of the AQMA declaration, under Section 84(2) of the Environment Act 1995, the Council was required to prepare an Air Quality Action Plan.

The aim of this Action Plan was to identify a package of relevant measures for reducing levels of NO<sub>2</sub> within the M3 AQMA. In doing so, careful consideration was also given to any secondary impacts which could have positive or negative effects on other services or stakeholders in the Borough. Consideration was also given to constraints relating to cost, feasibility and practicality.

In summarising the package of measures, the Action Plan lists those organisations responsible for their implementation.

**Figure 1: Surrey Heath Borough Council Air Quality Management Area Map featuring M3.**



(J4 is at bottom left, Ravenswood Roundabout at near top right).

### 1.4.3 Air Quality Progress Report 2006

Progress Reports are required in years when local authorities are not carrying out their statutory three yearly Updating and Screening Assessment or carrying out Detailed Assessments. This ensures that air quality is continually being assessed and reviewed.

In updating local knowledge on new developments within the Borough and assessing the latest ratified air quality data sets, the Council concluded the following key points:

- One diffusion tube site within the AQMA recorded a sufficiently high concentration of NO<sub>2</sub> to indicate that an exceedance was possible.
- One diffusion tube site near to Guildford Road, Bisley, indicated an exceedance of the UK annual mean objective outside the existing AQMA.
- The NO<sub>2</sub> continuous monitor at Castle Road indicated that an exceedance of the 2005 annual mean objective occurred in 2005. However, this exceedance was based on just 3 months' data.

### 1.4.4 Air Quality Updating and Screening Assessment 2006

The assessment determined that the concentration of NO<sub>2</sub> was likely to be in excess of the UK annual mean objective at two locations in the Borough. The first location

was within the existing AQMA, indicating that the extent of the AQMA was suitable and a Detailed Assessment was not required.

The second identified exceedence was near to the A322 Guildford Road, Bisley. However the nearby continuous monitor, which better reflected relevant exposure indicated that there was not likely to be exceedences.

Therefore, the report concluded that a Detailed Assessment for NO<sub>2</sub> was not required.

#### **1.4.5 Action Plan Progress Report 2007**

In accordance with the Defra guidance, the Council is required to implement an Action Plan Progress Report at the end of April each year. The Progress Report provided an opportunity to report on the development of the Action Plan measures and whether any further actions were deemed to be required.

The report highlighted progress with 46 of the 51 actions, including 25 that were completed on time.

The Plan also contained considerations and options for the Highways Agency and concluded that as modelled predictions suggested there to be only a minimal exceedence at relevant exposure locations, the Highway Agency were unlikely to fund any major projects to solely address air quality.

Of the twelve options set up for the Highways Agency, four were rejected in the report and were therefore not pursued. Monitoring of locations adjacent to the M3 was committed for at least another year.

Significant measures that had been completed or were in progress by the Agency included barrier work, junction improvements and variable messaging.

#### **1.4.6 Action Plan Progress Report 2008**

The report described the progress in implementing the Action Plan measures.

Other than barrier work, the Council was unable to secure any specific remedial measures within the AQMA by the Highways Agency. The Highways Agency confirmed to the Council that they did not consider the AQMA a high priority within the national programme for the following reasons:

- NO<sub>2</sub> levels were at or around the air quality objective and it was considered compliance would occur at relevant exposure locations by 2010;
- Levels of nitrogen dioxide recorded within the AQMA were lower than in other areas of the national network; and
- There were fewer properties within the AQMA compared to other AQMAs.

#### **1.4.7 Air Quality Updating and Screening Assessment 2009**

Monitoring data undertaken in 2008 showed exceedences of the annual mean NO<sub>2</sub> objective at three locations. Two other sites measured annual mean concentrations just below the annual mean objective. All five sites with potential elevated concentrations of NO<sub>2</sub> were either kerbside or roadside sites. No exceedences of the annual mean objective were predicted at any relevant exposure in 2008 after performing the calculations using the façade distance calculator. The Council committed to continue monitoring and stated that it may consider revoking the AQMA if at least three years of data indicated no exceedences of the annual mean NO<sub>2</sub> objective.

#### **1.4.8 Modelling and Projections to Support Action Planning 2010**

Concentrations of NO<sub>2</sub> were assessed within Surrey Heath's M3 AQMA for 2008. This assessment was achieved using a contribution of available monitoring data and a dispersion modelling exercise, taking account of traffic conditions in the area and the most recent meteorological data.

The modelling predicted exceedences of the annual mean NO<sub>2</sub> objective for 2008, within the AQMA at three receptor locations on Pan's Gardens. An additional six modelled receptors were found to have NO<sub>2</sub> concentrations close to the objective.

The predictions for the 2008 base year for NO<sub>2</sub> were then projected forward to 2009 and 2010, which predicted that the annual mean objectives would be met for all modelled receptor locations. The concentrations at the worst case receptor locations in 2010 were predicted to be between 34 µg/m<sup>3</sup> and 36 µg/m<sup>3</sup>.

The source apportionment assessment indicated that the primary source of emissions at the monitored locations was derived from Motorway traffic with local road traffic having only a small contribution.

As a result of the assessment, it was predicted that the motorway, (outside the Council's direct jurisdiction) was the predominant NO<sub>x</sub> source within the AQMA.

## **2 New Monitoring Data**

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

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

The Council operates 36 NO<sub>2</sub> diffusion tubes and 1 mobile automatic site for monitoring ambient air quality within the Borough.

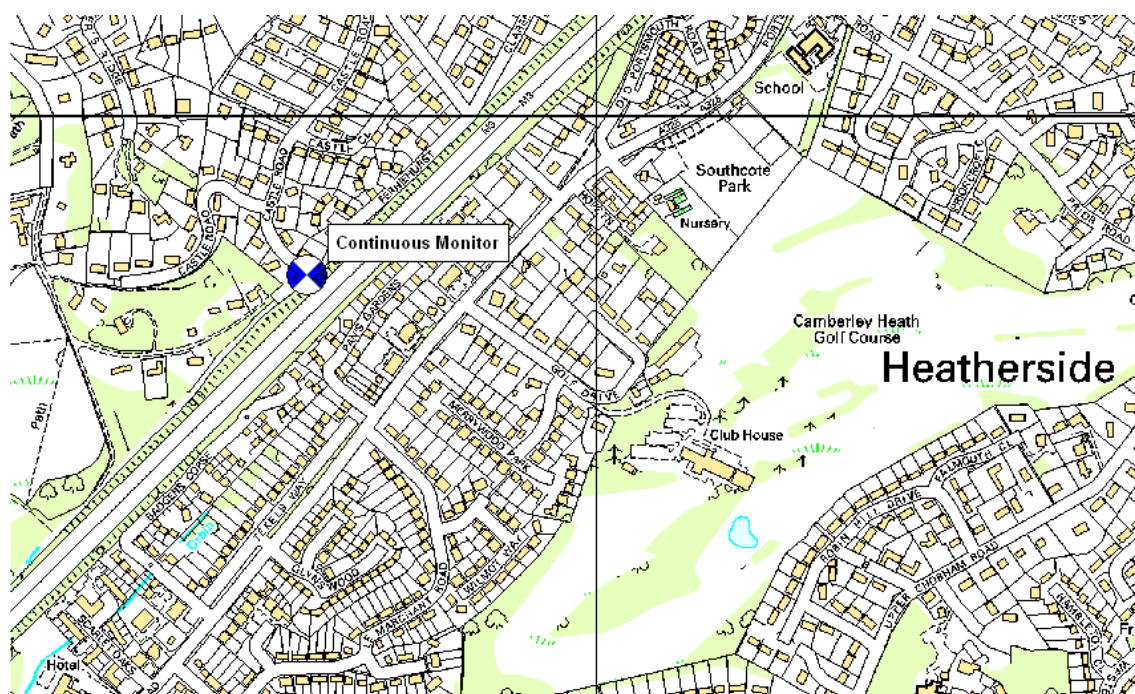
#### **2.1.2 Automatic Monitoring Sites**

The automatic site includes monitoring for NO<sub>2</sub> and PM<sub>10</sub> and has been located at two sites since October 2003. However as the mobile unit has been sited continuously at the Castle Road location since 2005, only data from this site (2006-2009) have been assessed in this report.

In order to provide confidence in the datasets, the continuous monitoring is subject to the same quality assurance/quality control objectives set out in the Netcen site operator's manual. These procedures are:

- Overnight 24hr IZS calibration checks (NO<sub>x</sub> analyser);
- Fortnightly manual zero/span calibration using certified cylinders (carried out by trained LSO at Surrey Heath Borough Council);
- Full data analyses and ratification through AEAT; and
- Six monthly services visits and site audits.

The datasets given in the report for PM<sub>10</sub> (TEOM) can be read as gravimetric results as they have been subject to the Volatile Correction Methodology

**Figure 2: Continuous Monitoring Location****Table 2.1 Details of Automatic Monitoring Sites**

Site Name	Site Type	OS Grid Ref	Pollutants Monitored	In AQMA	Relevant Exposure (Y/N with distance (m) to relevant exposure)	Distance to kerb of nearest road (N/A if not applicable)	Worst-case Location
Castle Road, Camberley	Road side	488634, 159799	NO <sub>x</sub> /NO <sub>2</sub> and PM <sub>10</sub>	Y	N (25m)	17	Nearest receptor is 25m back.

### 2.1.3 Non-Automatic Monitoring

Having monitored nitrogen dioxide at 24 locations since 2001, the Council set up a further 8 diffusion tubes sites in 2006 and a further 4 sites in 2007, totalling 36 locations.

Maps showing the locations of all current diffusion tube monitoring sites are presented in the 2009 Updating and Screening Assessment. Given that these locations have not changed in the last 12 months and no further sites have been added, the maps have not been reproduced here. Reference should be instead made to the 2009 USA.

**Table 2.2 Details of Non- Automatic Monitoring Sites**

Site Name	Site Type	OS Grid Ref	In AQMA?	Relevant Exposure? (Y/N with distance (m) to relevant exposure)	Distance to kerb of nearest road (N/A if not applicable)	*Worst-case Location?
A30 Bagshot <b>SH1</b>	Kerbside	491111E 163461N	N	N-15m	2.2	N
Windle Valley Daycare Centre <b>SH2</b>	Roadside	491056E 163335N	N	N-30m	2.5	N
Snows Ride School Windlesham <b>SH3</b>	Urban Background	492810E 164408N	N	N-10	n/a	N
Shaftesbury Road Bisley <b>SH4</b>	Roadside	494693E 159489N	N	N-50m	n/a	N
Chestnut Avenue <b>SH5</b>	Roadside	489099E 160264N	N	N-37m	17	Y
Church Lane Bisley <b>SH6</b>	Roadside	494976E 159632N	N	N-35m	2.3	N
M3 Brickhill roadside <b>SH7</b>	Kerbside	496220E 164432N	N	N-140m	10	N
M3 Brickhill 50m back <b>SH8</b>	Roadside	496217E 164442N	N	N-110m	50	N
A30 Jolly Farmer <b>SH9</b>	Roadside	489640E 161884N	N	N-18m	4.8	N
A30 Homebase <b>SH10</b>	Kerbside	485776E 160077N	N	N-100m	3	Y
Watchetts School Camberley <b>SH11</b>	Roadside	486939E 158939N	N	N-50m	6	N
High Street Camberley <b>SH12</b>	Kerbside	487484E 160807N	N	Y-3m	2	Y
Le Marchant Road <b>SH13</b>	Kerbside	488703E 159585N	N	N-6m	1	N
Badgers Copse <b>SH14</b>	Kerbside	491111E 163461N	Y	Y-1m	1	Y
AQM <b>SH15</b>	Roadside	495499E 158880N	N	N-15m	1	Y
Wood Road <b>SH16</b>	Roadside	486750E 158250N	Y	Y-2m	50	Y
Guildford Road, Bisley <b>SH17</b>	Kerbside	495250E 159250N	N	N-15m	2	N
Deepcut Bridge Road <b>SH20</b>	Kerbside	490389E 157280N	N	N-20m	2	N

**Table 2.2 Details of Non- Automatic Monitoring Sites (cont)**

Site Name	Site Type	OS Grid Ref	In AQMA?	Relevant Exposure? (Y/N with distance (m) to relevant exposure)	Distance to kerb of nearest road (N/A if not applicable)	Worst-case Location?
Benner Lane <b>SH21</b>	Urban Background	494750E 161250N	N	N-20m	n/a	N
AQM <b>SH22</b>	Kerbside	490237E 159928N	N	10	1	N
Red Road/Maultway <b>SH23</b>	Kerbside	490710E 160438N	N	N-35m	1	N
High Street, Chobham <b>SH24</b>	Kerbside	497341E 161734N	N	N-3m	2	N
AQM <b>SH25</b>	Roadside	491588E ,63548N	N	25	17	N
College Ride, <b>SH26</b>	Urban Background	487684E 161363N	N	N-15m	n/a	N
<b>SH27</b> 361 Gford Road, Bisley	Kerbside	495597, 158767	N	N-6m	3	Y
<b>SH28</b> Queens Road, Bisley	Kerbside	495321, 159050	N	N-50m	5	N
<b>SH29</b> Classic Joinery, Bisley	Kerbside	495508, 158867	N	N-70m	15	N
<b>SH30</b> Focus, Frimley Road	Roadside	487184, 158428	Y	N-100m	50	N
<b>SH31</b> Old Pond Close	Roadside	487022, 158419	Y	N-10m	60	Y
<b>SH32</b> Two Hoots, Old Pond Close	Roadside	486981, 158394	Y	Y-2m	60	Y
<b>SH33</b> Wood Road Garages	Roadside	486858, 158322	Y	N-20m	20	N
<b>SH34</b> Brackendale Road	Roadside	487945, 159127	Y	Y-5m	100	Y
<b>SH 35</b> Prior End	Kerbside	489189, 160209	Y	N-20m	5	N
<b>SH36</b> Youlden Drive	Roadside	489351, 160393	Y	N-100m	10	N
<b>SH37</b> Crawley Drive	Roadside	489078, 160267	Y	N-50m	20	N
<b>SH38</b> Swift Lane	Urban	491704, 163144	N	N-30m	20	N

\*where N is given for worst case receptor, this denotes that the monitoring site is closer to the road source than the nearest façade.

## 2.2 Comparison of Monitoring Results with Air Quality Objectives

### Nitrogen Dioxide

In order to assess the measured concentrations against the annual mean nitrogen dioxide air quality objective, both the tubes and the data need to be subject to quality assurance/quality control protocols. These allow for inherent uncertainty in the measured concentrations to be minimised.

All details of the QA/QC procedures that have been applied to the diffusion tube monitoring are given in Appendix A.

The overall purpose of the USA is to identify any possible exceedences of the air quality objectives that are therefore required to be considered as part of a Detailed Assessment. In doing so it is vital to consider not only the measured concentrations in relation to the objectives but also whether it represents relevant exposure. In cases where monitoring locations do not represent relevant exposure, the façade distance calculation method as described in LAQM.TG(09), has been used. This has been clearly stated in the report.

### 2.2.1 Nitrogen Dioxide

The two air quality objectives that ambient concentrations of NO<sub>2</sub> need to be assessed against are as follows:

- An annual mean of 40 µg/m<sup>3</sup>; and
- The number of exceedences of the 1 hour mean of 200 µg/m<sup>3</sup> (18 allowable exceedences in total).

It should be noted that it is only possible to directly assess against the 1 hour objective if hourly monitoring data are available. As most local NO<sub>2</sub> monitoring within the Borough is conducted with diffusion tubes the approach suggested in LAQM.TG(09) has been adopted. The approach, based on empirical studies, suggest that where the annual mean is less than 60 µg/m<sup>3</sup>, exceedences of the short term objective are unlikely.

### Automatic Monitoring Data

The Council has undertaken continuous monitoring at the Camberley Castle Road site since the beginning of 2008 for NO<sub>2</sub>. The site is located at the end of the Castle Road cul-de-sac arm next to the M3 motorway. As the site is 25 metres closer to the motorway than the nearest receptor, this gives confidence that the results are worst case.

The annual mean for 2009 (although currently provisional) is 31.4 µg/m<sup>3</sup>. Therefore, the annual mean concentration at the nearest relevant receptors (25 metres further back from the road than the analyser) is likely to be well below the objective.

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

Site ID	Location	Within AQMA?	Data Capture for monitoring period <sup>a</sup> %	Data Capture for full calendar year 2009 <sup>b</sup> %	Annual mean concentrations ( $\mu\text{g}/\text{m}^3$ )		
					2007	2008	2009
Mobile Unit	Castle Road Camberley	Y	58	58	N/A	34.0	31.4

<sup>a</sup> i.e. data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.

<sup>b</sup> i.e. 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%.)

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

Site ID	Location	Within AQMA?	Data Capture for monitoring period <sup>a</sup> %	Data Capture for full calendar year 2009 <sup>b</sup> %	Number of Exceedences of hourly mean ( $200 \mu\text{g}/\text{m}^3$ ) If the period of valid data is less than 90% of a full year, include the 99.8 <sup>th</sup> percentile of hourly means in brackets.	
					2008	2009
Mobile Unit	Castle Road Camberley	Y	58	58	0 (105 $\mu\text{g}/\text{m}^3$ )	0 (90 $\mu\text{g}/\text{m}^3$ )

<sup>a</sup> i.e. data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.

<sup>b</sup> i.e. 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%.)

The result given in Table 2.3b relating to the 1 hour objective shows there to have been no exceedences of the hourly mean objective during 2009. To support this, the 99.8th percentile is shown as  $90 \mu\text{g}/\text{m}^3$ , i.e. well below the objective. However, it should be noted that annual data capture is 58%.

### Diffusion Tube Monitoring Data

The Council has been monitoring  $\text{NO}_2$  using passive diffusion tubes for a number of years. The 2007-2009 results for all sites including data capture percentages are given in Table 2.4.

**Table 2.4 Results of Nitrogen Dioxide Diffusion Tubes**

Site ID	Location	Within AQMA?	Data Capture for monitoring period <sup>a</sup> %	Data Capture for full calendar year 2009 <sup>b</sup> %	Annual mean concentrations ( $\mu\text{g}/\text{m}^3$ )		
					2007	2008	2009
A30 Bagshot <b>SH1</b>	491111E 163461N	N	92	92	36.8	23.5	23.7
Windle Valley Daycare Centre <b>SH2</b>	491056E 163335N	N	83	83	29.6	20.9	21.8
Snows Ride School Windlesham <b>SH3</b>	492810E 164408N	N	100	100	27.2	18.8	17.8
Shaftesbury Road Bisley <b>SH4</b>	494693E 159489N	N	100	100	17.9	14.1	16.0
Chestnut Avenue <b>SH5</b>	489099E 160264N	N	83	83	31.1	27.5	18.5
Church Lane Bisley <b>SH6</b>	494976E 159632N	N	92	92	32.3	21.6	28.7
M3 Brickhill roadside <b>SH7</b>	496220E 164432N	N	92	92	36	<b>68</b>	<b>60</b>
M3 Brickhill 50m back <b>SH8</b>	496217E 164442N	N	92	92	33	33	24
A30 Jolly Farmer <b>SH9</b>	489640E 161884N	N	92	92	36.0	<b>41.7</b>	<b>40.5</b>
A30 Homebase <b>SH10</b>	485776E 160077N	N	83	83	30.0	31.9	30.5
Watchetts School Camberley <b>SH11</b>	486939E 158939N	N	100	100	34.3	31.0	29.2
High Street Camberley <b>SH12</b>	487484E 160807N	N	83	83	35.7	34.1	30.0
Le Marchant Road <b>SH13</b>	488703E 159585N	N	100	100	<b>42.3</b>	<b>43.0</b>	37.8
Badgers Copse <b>SH14</b>	491111E 163461N	Y	92	92	31.2	32.7	29.9
AQM <b>SH15</b>	495499E 158880N	N	100	100	35.8	35.9	30.7
Wood Road <b>SH16</b>	486750E 158250N	Y	92	92	37.0	31.8	35.8
Guildford Road, Bisley <b>SH17</b>	495250E 159250N	N	83	83	<b>49.2</b>	39.9	39.8
Deepcut Bridge Road <b>SH20</b>	490389E 157280N	N	100	100	33.9	25.1	25.1

Site ID	Location	Within AQMA?	Data Capture for monitoring period <sup>a</sup> %	Data Capture for full calendar year 2009 <sup>b</sup> %	Annual mean concentrations ( $\mu\text{g}/\text{m}^3$ )		
					2007	2008	2009
Benner Lane <b>SH21</b>	494750E 161250N	N	83	83	27.6	20.3	19.4
AQM <b>SH22</b>	490237E,159928N	N	100	100	<b>41.2</b>	38.4	33.9
Red Road/Maultway <b>SH23</b>	490710E 160438N	N	100	100	34.3	27.1	30.0
High Street, Chobham <b>SH24</b>	497341E 161734N	N	83	83	33.1	35.3	28.9
AQM <b>SH25</b>	491588E,163548N	N	100	100	<b>50.6</b>	37.1	27.2
College Ride, Camberley <b>SH26</b>	487684E 161363N	N	67	67	29.7	26.0	23.6
<b>SH27</b> 361 Gford Road, Bisley	495597,158767	N	83	83	<b>46.7</b>	<b>40.2</b>	38.9
<b>SH28</b> Queens Road, Bisley	495321,159050	N	75	75	30.0	34.3	23.8
<b>SH29</b> Classic Joinery, Bisley	495508,158867	N	100	100	32.4	27.0	25.1
<b>SH30</b> Focus, Frimley Road	487184,158428	Y	100	100	38.6	33.9	37.3
<b>SH31</b> Old Pond Close	487022,158419	Y	83	83	34.6	34.4	31.3
<b>SH32</b> Two Hoots, Old Pond Close	486981,158394	Y	100	100	31.8	29.7	30.8
<b>SH33</b> Wood Road Garages	486858,158322	Y	92	92	37.2	29.4	35.8
<b>SH34</b> Brackendale Road	487945,159127	Y	92	92	32.1	23.8	27.8
<b>SH 35</b> Prior End	489189,160209	Y	83	83	28.0	27.8	28.5
<b>SH36</b> Youlden Drive	489351,160393	Y	92	92	<b>44.8</b>	28.5	27.2
<b>SH37</b> Crawley Drive	489078,160267	Y	100	100	35.7	27.8	31.1
<b>SH38</b> Swift Lane	491704,163144	N	100	100	37.9	29.1	28.6

<sup>a</sup> i.e. data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.

<sup>b</sup> i.e. 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%.)

The results in Table 2.4 show that only two monitoring sites (Sites 7 and 9) have measured an annual mean above the objective. However, it is considered prudent to also assess Site 17 given it shows an annual mean concentrations of between 39 and 40  $\mu\text{g}/\text{m}^3$ . These sites are not currently within the AQMA.

**Site 7**

In terms of relevant exposure Site 7, which shows a 2009 annual mean of  $60 \mu\text{g}/\text{m}^3$ , is 10 metres from the M3 motorway, with the nearest relevant exposure set back approximately 140 metres. The façade distance calculator as given on the air quality archive site indicates that the objective will be achieved at a distance of approximately 50 metres from the M3. Therefore, the nearest relevant exposure at 140 metres is likely to meet the  $\text{NO}_2$  air quality objectives.

**Site 9**

In terms of relevant exposure Site 9, which shows a 2009 annual mean of  $40.5 \mu\text{g}/\text{m}^3$  is 5 metres back from the A30 with the nearest relevant exposure set back approximately 18 metres. The façade distance calculator as given on the air quality archive site predicts the annual mean at 18 metres to be  $30.3 \mu\text{g}/\text{m}^3$ .

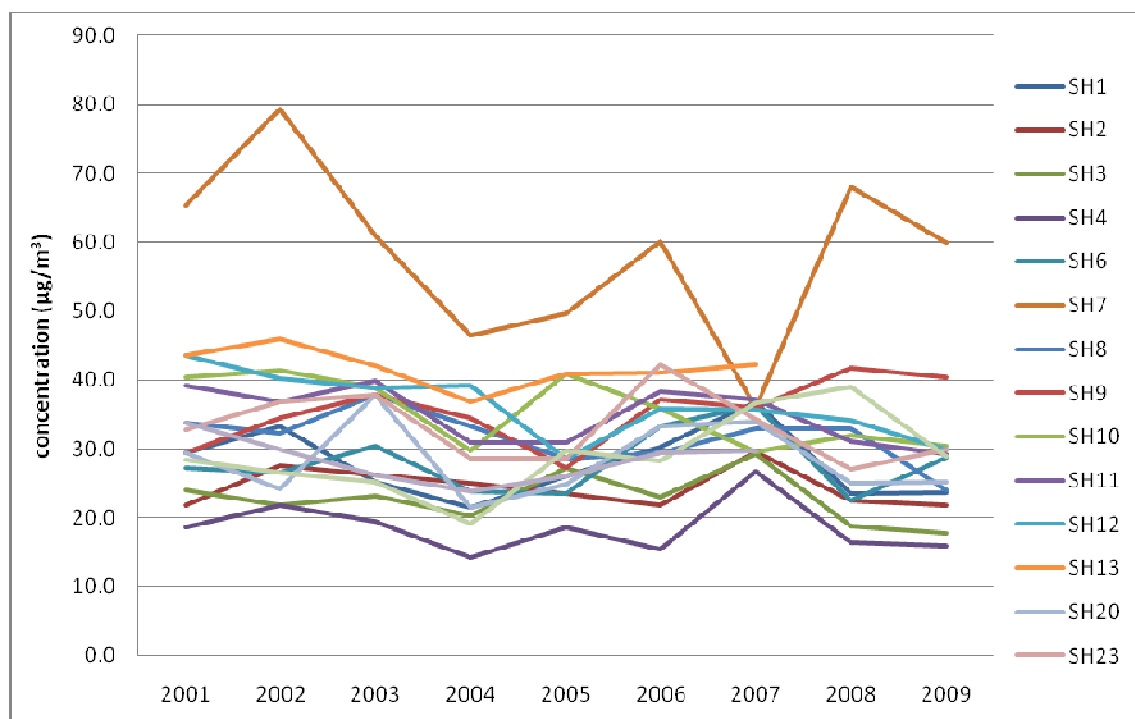
**Site 17**

The 2009 annual mean concentration at site 17 is  $39.8 \mu\text{g}/\text{m}^3$ . This site is at kerbside, with the closest relevant receptor at 15 metres. The façade distance calculator as given on the air quality archive site, predicts the annual mean to be  $27.6 \mu\text{g}/\text{m}^3$  at this location.

It is therefore concluded that there are no exceedences of either the annual mean or short term air quality objective at any monitoring location within the Council's administrative area.

Figure 3 shows the annual results since 2001 for a number of the long term monitoring sites. The results suggest that annual mean ambient concentrations have been relatively stable during this period.

**Figure 3: Nitrogen Dioxide Annual Mean Concentrations 2001-2009**



**2.2.2 PM<sub>10</sub>**

The Council has been monitoring PM<sub>10</sub> within the Borough since October 2003. Since October 2006, the continuous monitor has been located at the Castle Road, Camberley site (grid ref 488634, 159799), the results of which (2007-2009) are presented in Table 2.5a. The results show that for the years 2008 and 2009 there were no exceedences of the annual air quality objective of 40 µg/m<sup>3</sup>. However it should be noted that data capture for 2009 is only 18% (13/1/09 – 19/3/09).

**Table 2.5a Results of PM<sub>10</sub> Automatic Monitoring: Comparison with Annual Mean Objective**

Site ID	Location	Within AQMA?	Data Capture for monitoring period <sup>a</sup> %	Data Capture for full calendar year 2009 <sup>b</sup> %	Annual mean concentrations (µg/m <sup>3</sup> )		
					2007	2008	2009
Mobile Unit	Castle Road Camberley	N	18	18	25.1	25.3	26.1

<sup>a</sup> i.e. data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.

<sup>b</sup> i.e. 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%.)

The data presented in Table 2.5b shows the 90<sup>th</sup> percentile of the hourly mean concentrations for years 2007 and 2008. This has been calculated in order to give confidence in the results, as the annual data capture is below 90%.

The percentile results for both years are shown to be well below the objective. Therefore given the nearest relevant receptor is 25 metres further back from the road than the analyser, exceedences of the 24 hour mean objective are unlikely.

**Table 2.5b Results of PM<sub>10</sub> Automatic Monitoring: Comparison with 24-hour Mean Objective**

Site ID	Location	Within AQMA?	Data Capture for monitoring period <sup>a</sup> %	Data Capture 2009 <sup>b</sup> %	Number of Exceedences of daily mean objective (50 µg/m <sup>3</sup> ) If data capture < 90%, include the 90 <sup>th</sup> percentile of daily means in brackets.		
					2007	2008	2009
Mobile Unit	Castle Road Camberley	N	18	18	(12.5)	(13.1)	(37.2)

<sup>a</sup> i.e. data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.

<sup>b</sup> i.e. 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%.)

**2.2.3 Sulphur Dioxide**

Surrey Heath Borough Council does not monitor for sulphur dioxide and there are no AQMAs for sulphur dioxide.

**2.2.4 Benzene**

Surrey Heath Borough Council does not monitor for benzene and there are no AQMAs for benzene.

**2.2.5 Other pollutants monitored**

Surrey Heath Borough Council does not monitor for any other pollutant other than those previously stated.

## 2.2.6 Summary of Compliance with AQS Objectives

Surrey Heath Borough Council monitors for the pollutants PM<sub>10</sub> and NO<sub>2</sub>, by way of two continuous analysers (one for NO<sub>2</sub> and one for PM<sub>10</sub>) and 36 NO<sub>2</sub> diffusion tubes.

Assessment of the 2009 dataset showed there to be two diffusion tube sites (Sites 7 and 9) with an NO<sub>2</sub> annual mean in excess of the objective. Also, the annual concentration at Site 17 is very close to the objective, so this site was also considered in the assessment.

Further analyses of these exceedence sites with the appropriate facade calculations, show that both the annual mean and 1 hour air quality objectives for NO<sub>2</sub> are unlikely to be exceeded.

Assessment of the measured PM<sub>10</sub> concentrations for 2007 - 2009 showed annual mean concentrations and the 90<sup>th</sup> percentile of the hourly mean concentrations to be well below the relevant objectives. Further to this, given that the nearest relevant receptor is 25 metres further back from the road than the analyser, exceedences of either objective are unlikely.

Despite not all being within the current AQMA, the sites detailed in Table 10.1 are adjacent to the M3 motorway and show annual mean NO<sub>2</sub> concentrations at locations of relevant exposure, below the relevant objective for the year 2009. (Site 7 shows an annual mean of 62.6 µg/m<sup>3</sup> but does not represent relevant exposure – see Section 2.2). For the previous two years, Sites 8 and 36 showed exceedences in 2008 and 2007 respectively.

Surrey Heath Borough Council has examined the results from monitoring in the Borough. Concentrations are all below the objectives: therefore there is no need to proceed to a Detailed Assessment.

### **3 New Local Developments**

The Council has reviewed the key changes in the Local Authority area that have the potential to impact significantly on local air quality. In line with the criteria set out below, only those changes deemed to be significant have been detailed. The assessment of any significantly changed sources has been considered in terms of whether the Council needs to move to a Detailed Assessment.

No significant changes or developments have been identified since the 2006 USA which are likely to lead to significant increases in any pollutant prescribed in the Air Quality Strategy, therefore a Detailed Assessment is not required.

#### **3.1 Road Traffic Sources**

The report has assessed any changes to the following since the last Updating and Screening Assessment:

- Narrow congested streets with residential properties close to the kerb.
- Busy streets where people may spend one hour or more close to traffic.
- Roads with a high flow of buses and/or HGVs.
- Junctions.
- New roads constructed or proposed since the last Updating and Screening Assessment.
- Roads with significantly changed traffic flows.
- Bus or coach stations.

With consideration to the above, no significant changes have been identified which require assessment.

#### **3.2 Other Transport Sources**

No other significant local transport sources have been identified since the previous LAQM assessment.

#### **3.3 Industrial Sources**

Significant industrial sources within the Borough have either not been identified or have been assessed in previous LAQM assessments.

#### **3.4 Commercial and Domestic Sources**

Significant commercial and domestic sources within the Borough have either not been identified or have been assessed in previous LAQM assessments.

#### **3.5 New Developments with Fugitive or Uncontrolled Sources**

Relevant locations are areas not covered by previous rounds of Review and Assessment, or where there is new relevant exposure. Significant industrial sources

have either not been identified or have been assessed in previous LAQM assessments.

Surrey Heath Borough Council confirms that there are no new or newly identified local developments which may have an impact on air quality within the Local Authority area.

## **4 Local / Regional Air Quality Strategy**

Surrey Heath Borough Council does not currently have specific local or regional air quality strategy; however is an active member of the Surrey Air Quality Group.

### **4.1 Surrey Air Quality Group**

The group is the main working party, which facilitates liaison between Surrey County Council and the Districts. The group meets four times a year to share information on monitoring, progress in reporting to DEFRA and to discuss action needed. In addition, there are regular presentations on air quality issues. The group has representatives from Surrey County Council, from each of the Districts and from other sectors such as covering health care.

## **5 Planning Applications**

The Council has reviewed the local planning situation with respect to the following key areas:

- Major developments under consideration that might affect air quality;
- Applications for which an air quality assessment has been provided or for which an air quality assessment has been requested; and
- Planning applications for new developments which have not yet been approved but which could impact upon air quality.

In line with the above, no significant planning applications or developments have been identified that could significantly impact on local air quality.

## 6 Air Quality Planning Policies

### 6.1 Local Plan Saved Policies Relevant to Air Quality

Whilst the new Local Development Framework documents are being drawn up under the Planning and Compulsory Purchase Act 2004, a number of development plans within the existing Local Plan have been 'saved' and form the bases of local planning policy until the new LDF is formulated.

In terms of air quality there were no specific policies set out in the Local Plan.

### 6.2 Local Development Framework

This planning system replaces the old Unitary Development Plan with a portfolio of documents, the Local Development Framework (LDF), which must be taken into account when forming local policy. These documents include a Core Strategy, a Statement of Community Involvement (public and stakeholder consultation), Site Allocation Plans, generic development control policies, any Area Action Plans and Supplementary Planning Documents.

As these new plans near completion and adoption they will carry more weight as a 'material consideration' in making planning decisions.

#### 6.2.1 The Core Strategy Preferred Options

A key document within the LDF is the Core Strategy which sets out the Council's vision for future development throughout the Borough and identifies suitable locations for development such as industrial, commercial and residential.

The Council is currently at the Preferred Options stage of the LDF consultation process. The Preferred Options document builds on and refines earlier Issues and Options and focuses on the key decisions for the Core Strategy. With respect to air quality the Preferred Option documents currently sets out the following:

#### Core Policy 2 - Environmental Protection

Development proposals will be required to minimise adverse impact on the environment and ensure prudent use of natural resources by:

- a) Reducing the emission of greenhouse gases and minimising the effects of climate change;
- b) Reducing and minimising air, noise and light pollution;
- c) Achieving reduced levels of energy consumption by the development and its occupants, and promoting the use of energy from renewable resources;
- d) Avoiding development on land liable to flood and ensure that the development does not impede the flow of water or increase the risk of flooding elsewhere;
- e) Minimising water consumption from the development and protecting groundwater and water courses against pollution;

- f) Making provision for waste minimisation and recycling within the development;
- g) Encouraging the use of low embodied energy materials from sustainable sources and materials from local sources and suppliers; and
- h) Encouraging the remediation of contaminated land and protecting soils against pollution.

Developers will, where necessary, be required to make provision for mitigation or prevention measures as well as any long term monitoring or management requirements.

The Preferred Options paper also provides the following subtext to Core Policy 2:

*Surrey Heath sits to the west of Surrey straddling the M3 motorway, which is the Borough's main source of air pollution. The motorway and congested feeder roads that run through settlements such as Camberley, Bagshot and Windlesham are the most obvious sources of pollution with peak time congestion causing vehicle engines to run inefficiently. Shoppers heading for busy centres such as Camberley and out-of-town Meadows centre also add to the traffic burden. Chobham is a cause for concern, where relatively small, narrow streets and queuing traffic can trap pollutants at ground level; these can then build up to undesirable levels.*

*An Air Quality Management Area (AQMA) has been declared in the Borough. It is the strip of land from Frimley Road, Camberley to Ravenswood Roundabout, Camberley which embraces the M3 Motorway and the houses on both side of the motorway which border the highway. It is likely that the AQMA will be extended. The effect of new development upon air quality, by virtue of demand for travel, is addressed by the draft Air Quality Action Plan for Surrey Heath. The actions identified will be addressed in subsequent Development Plan Documents.*

## **7 Local Transport Plans and Strategies**

### **7.1 Second Local Transport Plan 2005/6 to 2010/11**

Surrey County Council has committed to work with Surrey Heath BC and other District /Borough Councils to improve air quality through the measures detailed within the LTP. To achieve this following strategy approach was set out:

- 1) To collaborate with air quality review and assessment work in the Districts and the Highways Agency. In particular to monitor their conclusions that identify the need to declare AQMAs.
- 2) Where AQMAs are declared, to collaborate with work in the Districts to develop Air Quality Action Plans. If appropriate these plans will be integrated into the LTP.
- 3) In response, an appropriate air quality baseline will be developed and intermediate indicators and targets will be developed to improve air quality relative to the baseline.
- 4) These targets will be ambitious and set based on the air quality impacts that are possible due to interventions on the existing and future traffic in Surrey.
- 5) These interventions will be consistent with the four shared priorities of the LTP. Specifically they will:
  - a) Support national and regional transport and environmental policies.
  - b) Attempt to restrain growth in road traffic across the county.
  - c) Invest in beneficial measures in particular, travel plans, safe routes to school, quality bus and freight partnerships and intelligent transport systems.
- 6) To review the air quality situation annually to examine whether further interventions are required via the LTP.

### **7.2 Second Local Transport Plan 2005/6 to 2010/11 (2006/7 Progress Report)**

The report sets out both details of the measures targeted at AQMAs, which will form the bases for developing a toolbox for improving air quality (Table 7.1), as well as further details of the LTP8 indicator and associated intermediate outcomes.

**Table 7.1 Summary of Actions to Improve Air Quality in the Second LTP**

Action	Impact
Restrain traffic growth	Limits the total emission of pollutants so reduces the background levels of pollutants including NO <sub>2</sub> and PM <sub>10</sub>
Travel planning (for schools, businesses, hospitals and communities)	Encourages mode shift so contributes towards limiting traffic growth as above
Safe Routes to Schools (SRS)	Linked to school travel plans so contributes as above
Quality bus Partnerships (QBP)	Encourages mode shift so contributes towards limiting traffic growth as above  Requires operators to use newer buses with cleaner engines (Typically Euro III) so reduces emissions of PM <sub>10</sub> and (probably) NO <sub>2</sub>
Freight Quality Partnerships (FQP)	Diverts HGV from critical routes so can reduce emissions
Variable Message Signs (VMS) – e.g. warning of congestion,	Advises drivers of need to take alternative routes to avoid congestion
Permanent signing e.g. <i>switch off engines</i> (at level crossings)	Reduces emissions from stationary queues of traffic
Urban Traffic Control (UTC) and Other Intelligent Transport Systems (ITS)	Controls traffic flows and can be used to move congestion – e.g. away from a critical area
Low emission zone (LEZ) (London LEZ in 2008)	Ensures that HGV and/or buses in the zone have Euro III or better engines so reduces the emissions of NO <sub>2</sub> and PM <sub>10</sub>

The principal indicator to monitor air quality for the LTP is the annual mean concentration of NO<sub>2</sub> at a receptor in Spelthorne. Not within the administrative area of Surrey Heath, the site was chosen for the purpose of the Surrey County Council LTP2 Air Quality (LTP8) indicator as the area was covered by an AQMA at the time. The target is to reduce the concentration from 45 µg/m<sup>3</sup> (in the baseline year of 2004) to 34.6 µg/m<sup>3</sup> in 2010, and effectively meet the national air quality objective.

Further to this, following the DfT guidance for the second LTP, Surrey County Council also identified the two targets and intermediate indicators:

1. Limiting traffic growth on Surrey's roads to 1% per year between 2004 and 2010.
2. Increasing the proportion of buses with Euro III compliant engines in Spelthorne to 85% by 2010

In terms of quantifying progress, the two intermediate indicators are used as model inputs, so if both are on track to meet the targets, then this provides a good indication that the principal concentration based indicator is also on track.

## 8 Implementation of Action Plans

### 9.1 An overview of Action Planning to date

In light of the AQMA declaration, under Section 84(2) of the Environment Act 1995, the Council was required to prepare an Air Quality Action Plan.

The aim of this Action Plan was to identify a package of relevant measures for reducing levels of NO<sub>2</sub> within the AQMA. In doing so careful consideration was also given to any secondary impacts which could have positive or negative effects on other services or stakeholders in the Borough.

Since publishing the AQAP the Council has reported annual progress to Defra detailing how each measure is being progressed as well as reporting on those measures which have been successfully completed.

#### 8.1.1 Air Quality Updating and Screening Assessment 2009

The most recent Progress Report 2009 showed that of the 51 actions set out in the Action Plan, 37 had been completed. With this in mind, only progress on the remaining 14 measures has been reported in this report.

As part of the statutory consultation process Defra drew the following conclusions on the submitted 2009 report:

*This report submitted by SHBC is consistent with the guidance contained in LAQM.PG and TG(09) and contains information on progress with implementing the AQAP. SHBC should ensure that the Progress Report is updated annually. Additionally, we encourage the Council to use the Progress Report template which is now available for the 2010 report.*

*SHBC state that the NO<sub>2</sub> annual mean objective will be met in the area of the M3 AQMA. We encourage the inclusion of monitoring results to substantiate this statement.*

*We support the efforts being made and encourage the Council to maintain their high commitment to improving air quality in the Borough.*

*We would welcome the development and use of performance indicators for demonstrating progress with the actions in the AQAP. This would provide useful measures of success for the actions, which would demonstrate progress even if ambient NO<sub>2</sub> concentrations do not follow the required downward trajectory. Many of the measures are naturally amenable to target setting and we would recommend this be adopted where possible.*

*We encourage SHBC to attempt to address the recommendations above in its next AQAP Progress Report while maintaining their otherwise high standard of reporting.*

### **8.1.2 Modelling and Projections to Support Action Planning 2010**

The most recent report (in addition to the statutory annual Progress Reports) was the modelling and projection work undertaken to identify the likelihood of the 2010 limit value being exceeded. Details of this report are given in Section 1; however the key conclusion was that the annual mean objectives would be met for all modelled receptor locations for the year 2010. The worst case receptor locations in 2010 were predicted to be between 34  $\mu\text{g}/\text{m}^3$  and 36  $\mu\text{g}/\text{m}^3$ .

### **8.1.3 2010 Action Plan Progress**

The standard Defra template, in which this report has been written, includes Example Table 9.1, which sets out the expected key requirements for Action Plan reporting. This provides more detail than that previously presented in the Council's Progress Reports; a point alluded to in Defra's comments in 9.1.1. When presenting progress for 2010, given that 37 of the measures have been completed and the 2010 model projections work indicated that the annual mean limit value would be met, it is not deemed necessary to report on any additional elements on the remaining 14 actions. Therefore, reported progress as given in Table 9.2, is presented in the same format as the Council's previous Progress Reports.

**Table 8.2 Action Plan Progress**

Action	Description of Measure	Responsibility	Original Timescale	Progress	Comments
<b>Direct AQMA Actions</b>					
1	The Council will investigate how traffic congestion and the impact of the school run upon it can be addressed through the Local Strategic Partnership	SHBC Strategy and Policy. Environmental Services	2007-2010	Ongoing	Grant to schools in AQMA offered for provision of cycle racks and walking bus jackets. Will repeat 2010.
2	We will work with our stakeholders to use number plate recognition to identify those vehicles using the Motorway for journeys of up to two junction's maximum between J4A and J3 with the purpose of targeting alternative	SHBC Highways Agency SCC	Medium 2-5 Years	Will not be progressed.	Monitoring and modelling indicates compliance with air quality objective.
<b>Health Information</b>					
4	We will collate health information and begin mapping this on to our GIS system. We will then compare the relevant information to that of air quality hotspots and the AQMA and consider any links. To be completed by August 2007.	SHBC Environmental Services	2007	Ongoing	Still encountering problems obtaining specific details from the relevant health authority areas.
<b>Indirect AQMA Actions</b>					
5	We will press for and co-operate with Government and the Surrey County Council over improvements at J3.	County, Highways SHBC.	December 2007	Action Completed.	Improvements to on/off slip roads at J3 completed 2009/10.
6	We will work with the Highways Agency, neighbouring local authorities and Surrey County Council in order to consider	County, Highways SHBC.	On going	Ongoing	Continued support

	schemes in more detail and take note of findings from Multi-Modal Studies that reference air quality across the Borough and within the AQMA.				
8	We will actively support the larger National and South East schemes that may improve air quality along the M3 and promote a modal shift to other forms of transport.	County, Highways SHBC.	2007 and ongoing	Ongoing	Continued support
10	The Council will seek to introduce a policy of encouraging the purchase of cleaner fuelled vehicles in its own provided vehicle fleet.	Corporate Services	2007-2010	In progress	Reports prepared and with politicians for decision on provided vehicle scheme that includes restriction on emission levels.
<b>Traffic Reduction Schemes</b>					
11	The Council will support the Surrey County Council with its aims to achieve traffic reduction by improving the infrastructure needed to encourage sustainable travel and reduce unnecessary car use.	SCC/ SHBC	2007-2010	Ongoing	Discussions with transport provision underway at Director level.
<b>Traffic Reduction and Land Use Planning</b>					
14	We will complete an Air Quality Strategy for adoption by Surrey Heath Borough Council by December 2006.	Environmental Services Built Environment	December 2006	Not yet complete.	
<b>Promoting Alternative Modes of Transport</b>					
25	The Council will improve coordination and use of community transport.	SHBC SCC	2007 and ongoing	In progress	Director in discussions with interested parties and partners over rationalisation of community transport provision.

<b>28</b>	The Council will review its car allowance/loan/provision schemes in order to identify and implement reforms that encourage the use of the cleanest and most fuel efficient vehicles.	SHBC Strategy and Policy/Corporate Services	2007 and ongoing	In progress	Reports prepared and with politicians for decision on provided vehicle scheme that includes restriction on emission levels.
<b>30</b>	The Council will continue to progress the Leisure Card programme to encourage alternative travel to our leisure centres	SHBC Customer Services	2007	Will not be progressed.	
<b>Energy/Heating</b>					
<b>42</b>	The Council already has a policy in its Development Framework to allow the development of renewable energy projects. We will work with our utility partners to encourage 1 renewable energy project in the Borough by March 2008.	Sustainability/SHBC Environmental Services	2008	Ongoing	Some projects have been identified. None deemed sustainable or suitable. Still looking for right development/project to support.
<b>46</b>	We will apply for Grant funding for an energy efficiency project.	SHBC Environmental Services	Dec 2008	Funding successfully sought.	As Action 42.

## 9 Conclusions and Proposed Actions

### 9.1 Conclusions from New Monitoring Data

Surrey Heath Borough Council monitors for the pollutants PM<sub>10</sub> and NO<sub>2</sub>, by way of two continuous analysers (one for NO<sub>2</sub> and one for PM<sub>10</sub>) and 36 NO<sub>2</sub> diffusion tubes.

Assessment of the 2009 dataset showed there to be two diffusion tube sites (Sites 7 and 9) with an NO<sub>2</sub> annual mean in excess of the objective. In addition, Site 17 measures annual concentrations below, but very close to the objective, so this site was also considered in the assessment.

Further assessment of these identified sites with the appropriate facade calculations show that both the annual mean and 1 hour air quality objectives for NO<sub>2</sub> are unlikely to be exceeded. Therefore, a Detailed Assessment is not required for NO<sub>2</sub>.

Figure 3 shows the annual results since 2001 for a number of the long term NO<sub>2</sub> monitoring sites. The results suggest that annual mean ambient concentrations have been relatively stable during this period.

Assessment of the measured PM<sub>10</sub> concentrations for 2009 showed annual mean concentrations and the 90<sup>th</sup> percentile of the hourly mean concentrations to be well below the relevant objectives. Further to this, given that the nearest relevant receptor is 25 metres further back from the road than the analyser, exceedences of either objective are unlikely.

Despite not all being within the current AQMA, the sites detailed in Table 9.1 are adjacent to the M3 motorway and show annual mean NO<sub>2</sub> concentrations at locations of relevant exposure, below the NO<sub>2</sub> annual mean AQO. (Site 7 shows an annual mean of 60 µg/m<sup>3</sup> but does not represent relevant exposure – see Section 2.2). For previous years, Site 36 showed an exceedence in 2007 and Sites 7 an exceedences in 2008.

**Table 9.1. NO<sub>2</sub> Diffusion Tube Sites Adjacent to the M3 Motorway**

Site ID	Location	Within AQMA?	Annual mean concentrations (µg/m <sup>3</sup> ) Adjusted for bias and period mean		
			2007	2008	2009
<b>SH5</b>	Chestnut Avenue	N	31.1	27.5	18.5
<b>SH7</b>	M3 Brickhill roadside	N	36	<b>68</b>	<b>60</b>
<b>SH8</b>	M3 Brickhill 50m back	N	33	33	24
<b>SH16</b>	Wood Road	Y	37.0	31.8	35.8
<b>SH30</b>	Focus, Frimley Road	Y	38.6	33.9	37.3
<b>SH31</b>	Old Pond Close	Y	34.6	34.4	31.3
<b>SH32</b>	Two Hoots, Old Pond Close	Y	31.8	29.7	30.8
<b>SH33</b>	Wood Road Garages	Y	37.2	29.4	35.8
<b>SH34</b>	Brackendale Road	Y	32.1	23.8	27.8
<b>SH 35</b>	Prior End	Y	28.0	27.8	28.5
<b>SH36</b>	Youlden Drive	Y	<b>44.8</b>	28.5	27.2
<b>SH37</b>	Crawley Drive	Y	35.7	27.8	31.1
<b>SH38</b>	Swift Lane	N	37.9	29.1	28.6

## 9.2 Conclusions relating to New Local Developments

No significant changes or developments have been identified since the 2006 USA which are likely to lead to significant increases in any pollutant prescribed in the Air Quality Strategy, therefore, a Detailed Assessment is not required.

## 9.3 Other Conclusions

From the progress presented in Table 8.2, it is clear the Council has successfully continued its work in achieving the goals set in the 2005 Action Plan. Of the original 51 actions described in the 2005 Plan, 37 had been reported as either completed, or not to be continued, in the 2009 Progress Report. Table 9.2 shows that of the remaining 14 actions, 2 have since been completed (actions 5 and 46) with a further 2 actions discontinued (2 and 30).

As per the progress stated on the remaining 12 actions, the Council will continue to implement these in line with the relevant stakeholders, in pursuit of further improving air quality within the Borough.

One of the key objectives of progress reporting is to assess the effectiveness of the existing actions and to identify those that may be ineffective or indeed the need to development additional actions. At this time the Council is confident the existing actions are sufficient, given the results of the 2010 modelling projection work predict that the limit value will be met. These findings are in keeping with the 2009 diffusion tube results which show all NO<sub>2</sub> annual means to be below the 40 µg/m<sup>3</sup>.

## **9.4 Proposed Actions**

The overall conclusion for the assessment is that Surrey Heath Borough Council is not required to go to a Detailed Assessment for any of the pollutants listed in the Air Quality Strategy 2007.

The results from both the 2009 monitoring surveys and the 2010 model prediction study show that there are currently no areas of relevant exposure both within and outside of, the existing AQMA, that exceed the annual mean NO<sub>2</sub> AQO. Further to this, the predictions to 2010 suggest that limit value will also be met.

The Council will continue to undertake monitoring at the existing locations for the foreseeable future. The next report to be submitted in line with the requirements of LAQM is the 2011 Progress Report, which will update on all the elements set out in this report.

## 10 References

Surrey Heath Borough Council, Round One Review and Assessment Stage III & IV.

Surrey Heath Borough Council, Air Quality Action Plan, 2005.

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## Appendices

### Appendix A: QA/QC

#### Diffusion Tube Bias Adjustment Factors

Bias adjustment is effectively a calculated factor which shows whether diffusion tubes are over or under reading ambient concentrations and therefore allows for a correction to be made.

As there is not a local triplicate co-location site, Surrey Heath Borough Council uses a national factor as given on the review and assessment help desk website<sup>1</sup> for Lambeth Scientific Services. The preparation method is 50% TEA/acetone.

#### Factor from Local Co-location Studies (if available)

As the Council does not carry out any triplicate diffusion tube co-location study within the Borough, the national bias adjustment factor for Lambeth Scientific Services has instead been used. The factors used in this assessment are as follows:

2001 - 1.09  
2002 - 1.15  
2003 - 1.05  
2004 - 1.19  
2005 - 1.24  
2006 - 1.28  
2007 - 1.07  
2008 - 0.98  
2009 - 1.03

#### PM Monitoring Adjustment

The datasets given in the report for PM<sub>10</sub> (TEOM) can be read at gravimetric results as they have been subject to the Volatile Correction Methodology.

#### QA/QC of automatic monitoring

Details of automatic monitoring QA/QC is given in Section 2.1.

#### QA/QC of diffusion tube monitoring

The Workplace Analysis Scheme for Proficiency (WASP) is an independent analytical performance testing scheme, operated by the Health and Safety Laboratory (HSL).

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<sup>1</sup> Air Quality Management Resource Centre, University of the West of England  
[http://www.uwe.ac.uk/aqm/review/guidance\\_05.html](http://www.uwe.ac.uk/aqm/review/guidance_05.html)

WASP formed a key part of the former UK NO<sub>2</sub> Network's QA/QC, and remains an important QA/QC exercise for laboratories supplying diffusion tubes to Local Authorities for use in their Local Air Quality Management work.

Defra and the Devolved Administrations advise that diffusion tubes used for LAQM should be obtained from laboratories that have demonstrated satisfactory performance in the WASP scheme.

Out of a rating of GOOD, ACCEPTABLE, WARNING AND FAILURE, the results for 2009 show that Lambeth Scientific Services were rated as GOOD. This is classified as follows:

**GOOD:** Results obtained by the participating laboratory are on average within 13% of the assigned value. This equates to an **RPI of 169 or less**.

Under the new criteria which have been tightened for October 2009, the laboratory results for Lambeth are shown to be ACCEPTABLE. This is classified as follows:

**ACCEPTABLE:** Results obtained by the participating laboratory are on average within 15% of the assigned value. This equates to an **RPI of 225 or less**.