

# 2009 Air Quality Updating and Screening Assessment for *Babergh District Council*

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

April 2009

**Babergh District Council - England**

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<b>Report Reference Number</b>	BDC/USA/2009
<b>Date</b>	April 2009

## **Executive Summary**

In July 2007 the Government published its revised Air Quality Strategy in response to the requirements of the Environment Act 1995. The Strategy set health-based Air Quality Standards and Objectives for seven prescribed pollutants of greatest local concern: Carbon monoxide, Benzene, 1,3-Butadiene, Lead, Sulphur dioxide, Nitrogen dioxide and Particulate Matter (PM<sub>10</sub>).

The Environment Act 1995 requires local authorities to periodically review and assess air quality within their areas to determine whether the Air Quality Objectives will be met by specified target dates. This Updating and Screening Assessment report commences the Council's fourth round of Review and Assessment. It is intended to update previous studies in 1999, 2003 and 2006 by screening the various potential sources of prescribed pollutants that could impact on the Babergh district. Where the screening process identifies a significant risk that a potential emission source could lead to an exceedance of the Air Quality Objectives, the Council is required to proceed to a Detailed Assessment. The screening models and monitoring data used in the assessment were as recommended in the Government's pollutant specific guidance.

The Updating and Screening Assessment has concluded that six of the pollutants within the Air Quality Strategy will be met within the Babergh district. However, the annual mean objective for Nitrogen dioxide along the A12 at Lattinford Hill has been exceeded and therefore Babergh District Council is obliged to progress to a Detailed Assessment to quantify the scale and nature of the problem. This report also concludes that Babergh District Council was correct in its designation of the Cross Street Air Quality Management Area. However, this report identifies that the boundary of the current AQMA may need to be amended to incorporate properties in Ballingdon Street – this will be assessed further in a Further Assessment to be completed by November 2009.

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# **1 Introduction**

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

The district of Babergh lies within the southern part of Suffolk, covering approximately 240 square miles. The district is wedge shaped, narrowing from the west towards the Shotley peninsula, which is formed by the River Stour and the River Orwell and defines the easternmost extent of the district. The wedge extends inland for about 35 miles, widening with distance to the west, including the Stour valley, and valleys of the River Box, River Brett and River Glem.

The district includes the towns of Sudbury, Hadleigh and the southwestern outskirts of Ipswich within its area. The 2005 mid-Census estimates show Babergh's population as 86,100. Approximately 30% of Babergh's population reside in the towns and villages of Sudbury, Great Cornard, Hadleigh, Long Melford and Chapel St Mary. The remainder of the population is distributed across the rest of the district, mostly in outlying villages.

The main sources of air pollution within the district are traffic related. Babergh District Council currently has one Air Quality Management Area designated for the Cross Street area of Sudbury owing to exceedances of the annual mean objective for Nitrogen dioxide (NO<sub>2</sub>) as the result of emissions from traffic.

## **1.2 Purpose of Report**

This report fulfils the requirements of the Local Air Quality Management (LAQM) 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 exceedances 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.

## **1.3 Air Quality Objectives**

The pollutants and 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, µg/m<sup>3</sup> (milligrammes per cubic metre, mg/m<sup>3</sup> for Carbon monoxide) with the number of exceedances in each year that are permitted (where applicable).

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

Pollutant	Air Quality Objective		Date to be Achieved By
	Concentration	Measured as	
<b>Benzene</b>	16.25 µg/m <sup>3</sup>	Running annual mean	31.12.2003
	5.0 µg/m <sup>3</sup>	Running annual mean	31.12.2010
<b>1,3-Butadiene</b>	2.25 µg/m <sup>3</sup>	Running annual mean	31.12.2003
<b>Carbon monoxide</b>	10.0 mg/m <sup>3</sup>	Running 8-hour mean	31.12.2003
<b>Lead</b>	0.5 µg/m <sup>3</sup>	Annual mean	31.12.2004
	0.25 µg/m <sup>3</sup>	Annual mean	31.12.2008
<b>Nitrogen dioxide</b>	200 µg/m <sup>3</sup> not to be exceeded more than 18 times a year	1-hour mean	31.12.2005
	40 µg/m <sup>3</sup>	Annual mean	31.12.2005
<b>Particles (PM<sub>10</sub>) (gravimetric)</b>	50 µg/m <sup>3</sup> , 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

Document	Date	Outcome
Stage One Review and Assessment	March 1999	Benzene, 1,3-Butadiene and Lead not a risk – continue to monitor. Potential Risk of exceedance from Carbon monoxide, Nitrogen dioxide and Particulates – progress to Stage Two Review and Assessment.
Stage Two Review and Assessment	April 2000	Carbon monoxide, Sulphur dioxide and Particulates not likely to exceed objectives. Nitrogen dioxide will probably be exceeded along A12/A14, Cross Street and Ballingdon Street and therefore proceed to Third Round Review and Assessment.
Stage Three Review and Assessment	May 2001	Recommended the designation of AQMAs for sections of the A12 and around The Beagle PH, Sproughton. Following this, 4 AQMAs were designated. No need for further action at Cross Street/Ballingdon Street.
Stage Four Review and Assessment	November 2002	Four AQMAs were monitored using diffusion tubes. Results demonstrated that these areas were not exceeding the Annual mean objective for Nitrogen dioxide – AQMAs were therefore revoked.
USA 2003	July 2003	No areas of concern – no need to progress to Detailed Assessment.
USA 2006	May 2007	No areas of concern – no need to progress to Detailed Assessment.
Detailed Assessment	May 2008	Detailed Assessment undertaken for the Cross Street/Ballingdon Street area of Sudbury owing to monitored exceedances of Annual Mean Objective for Nitrogen dioxide – following this, an AQMA was designated in November 2008*.

\* A copy of the AQMA order including a map of the AQMA is included at Appendix G. Babergh District Council is currently working on producing an action plan within 18 months from designation, which is due to be published in May 2010. Owing to the fact that receptors in Ballingdon Street had results that were below the objective they were not included in the designation - this will need reviewing in light of the latest datasets and the AQMA order will need to be amended accordingly.

## 2 New Monitoring Data

### 2.1 Summary of Monitoring Undertaken

#### 2.1.1 Automatic Monitoring Sites

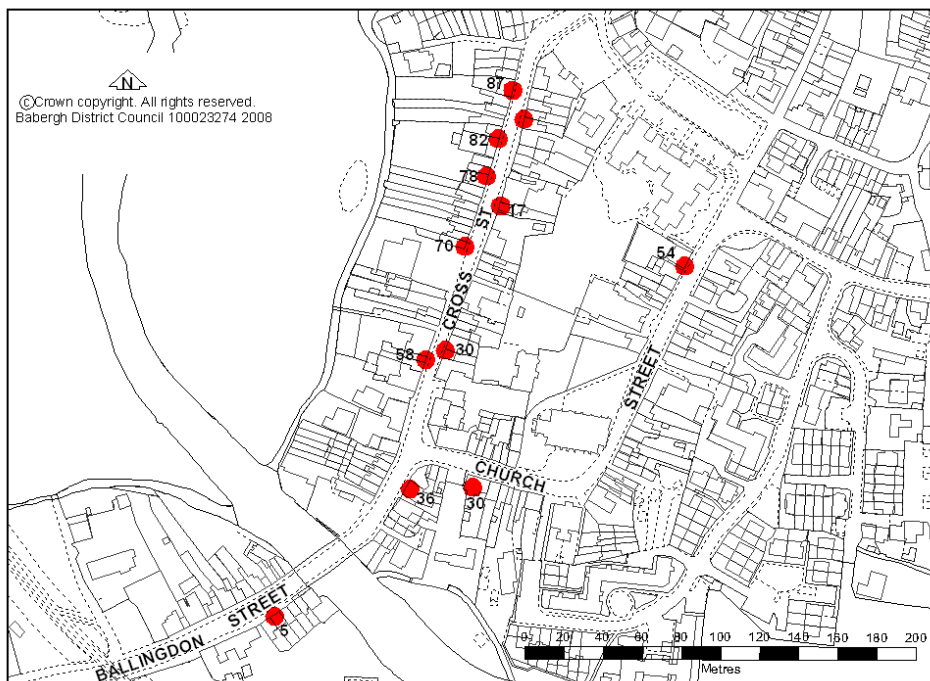
Babergh District Council currently maintains one automated air quality monitor within its district. The monitor is located at Lattinford Hill on the A12 (London bound) and measures oxides of Nitrogen. The monitor has been operational in this location since 2002. The site is calibrated on a 2-week basis by local site operatives and is fully serviced every 6 months by Casella. All data validation and ratification is undertaken by Casella Measurement Ltd.

**Table 2.1 Details of Automatic Monitoring Sites**

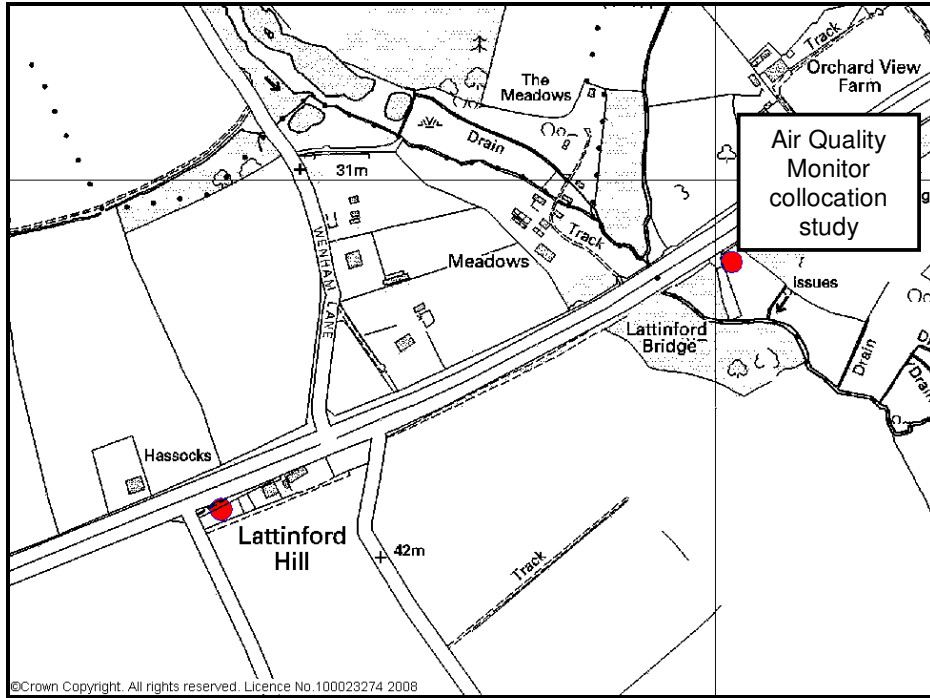
Site Name	Site Type	OS Grid Ref	Pollutants Monitored	In AQMA?	Relevant Exposure? (Y/N with distance (m) to relevant exposure)	Distance to Kerb of Nearest Road (N/A if not applicable)	Worst-Case Location?
Lattinford Bridge	Roadside	X 608011 Y 236914	NO <sub>2</sub>	N	N (163m)	9m	N

#### 2.1.2 Non-Automatic Monitoring

Babergh District Council currently measures concentrations of Nitrogen dioxide at 14 locations using diffusion tubes supplied by Harwell Scientifics Ltd. These are routinely changed by Babergh District Council staff and are collocated with triplicate diffusion tubes at the Lattinford Bridge automated air quality monitor. Suffolk County Council fund a number of duplicate diffusion tubes in the Cross Street area of Sudbury.



**Diffusion Tube monitoring at Cross Street Area of Sudbury**



**Diffusion Tube monitoring along the A12**

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**Table 2.2 Details of Non- 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?
9 Cross Street	Roadside	X 586848 Y 241133	NO <sub>2</sub>	Y	Y (0m)	1.65m	N
17 Cross Street	Roadside	X 586836 Y 241089	NO <sub>2</sub>	Y	Y (0m)	2m	N
30 Cross Street	Roadside	X 586808 Y 241015	NO <sub>2</sub>	Y	Y (0m)	2m	N
36 Cross Street	Roadside	X 586790 Y 240944	NO <sub>2</sub>	Y	Y (0m)	1.5m	N
58 Cross Street	Roadside	X 586798 Y 241010	NO <sub>2</sub>	Y	Y (0m)	3.3m	N
70 Cross Street	Roadside	X 586818 Y 241068	NO <sub>2</sub>	Y	Y (0m)	1.4m	N
78 Cross Street	Roadside	X 586829 Y 241104	NO <sub>2</sub>	Y	Y (0m)	1.15m	N
82 Cross Street	Roadside	X 586835 Y 241123	NO <sub>2</sub>	Y	Y (0m)	1.5m	N
87 Cross Street	Roadside	X 586842 Y 241148	NO <sub>2</sub>	Y	Y (0m)	0.9m	Y
5 Ballingdon Sreett	Roadside	X 586721 Y 240879	NO <sub>2</sub>	N	Y (0m)	3.6m	N
7 Ballingdon Street	Roadside	X 586723 Y 240941	NO <sub>2</sub>	N	Y(0m)	3.6m	N
30 Church Street	Roadside	X 586822 Y 240952	NO <sub>2</sub>	Y	Y (0m)	0.95m	N
54 Church Street	Roadside	X 586930 Y 241058	NO <sub>2</sub>	Y	Y (0m)	1.7m	N
A12 AQM	Roadside	X 608011 Y 236914	NO <sub>2</sub>	N	N (163m)	9m	N
A12 AQM	Roadside	X 608011 Y 236914	NO <sub>2</sub>	N	N (163m)	9m	N
A12 AQM	Roadside	X 608011 Y 236914	NO <sub>2</sub>	N	N (163m)	9m	N
A12 Lattinford Bridge	Roadside	X 607448 Y 236635	NO <sub>2</sub>	N	Y (10m)	9m	N

All samples were analysed by Harwell Scientifics Ltd using the 50:50 TEA in acetone method.

This analysis of diffusion tube samples to determine the amount of Nitrogen dioxide present on the tube is within the scope of Harwell Scientifics' UKAS schedule. In the WASP intercomparison scheme for comparing spiked Nitrogen dioxide diffusion tubes, Harwell Scientifics is currently ranked as a 'Category Good' laboratory.

The precision of the data was tested using the online tool provided by AEA Energy and Environment. Generally the data was found to be of 'good' precision, however one month of the collocation study data were found to have 'poor' precision, with CV values of 20 – 38, and this data has subsequently been removed from all statistical analysis.

All diffusion tubes have been bias corrected by a factor of 0.8. This figure was derived from the LAQM Helpdesk. The decision to not use our own local bias correction factor was taken in accordance with advice from the LAQM Helpdesk owing to the significant variation in location between the automated air quality monitor at Lattinford Bridge and the roadside locations monitored using diffusion tubes.

## 2.2 Comparison of Monitoring Results with Air Quality Objectives

### 2.2.1 Nitrogen Dioxide

Babergh District Council is aware of the exceedances of the annual objective for Nitrogen dioxide in the Cross Street area of Sudbury and declared an AQMA as a result of this in November 2008 (see previous map). However, there appear to be further exceedances to the south of the Cross Street AQMA in Ballingdon Street. This will result in amendments to the AQMA designation to incorporate those receptors with exceedances in Ballingdon Street. Concentrations of Nitrogen dioxide are also found to exceed  $60 \mu\text{g}/\text{m}^3$  at four locations within the AQMA. The Technical Guidance TG(09), issued by the Department for Environment Food and Rural Affairs (DEFRA), regards this as being indicative of a potential failure of the 1-hour objective and Babergh District Council may choose to amend its AQMA order accordingly. Nearly all diffusion tubes in the Cross Street AQMA are at the façades of private dwellings and are therefore representative of public exposure.

There is a further exceedance of the annual objective for Nitrogen dioxide at the A12 Lattinford Bridge diffusion tube monitoring site. This is a minor exceedance with annual values being  $42.9 \mu\text{g}/\text{m}^3$ . The diffusion tube at Lattinford Hill is not at the facade of the properties nearby, but it is in line with facades of the nearest receptors and a similar distance from the carriageway. This exceedance will result in Babergh District Council being required to progress to a Detailed Assessment and may ultimately result in the declaration of a further Air Quality Management Area at this location.

### Automatic Monitoring Data

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

Location	Within AQMA?	Proportion of Year With Valid Data 2008 %	Annual Mean Concentrations ( $\mu\text{g}/\text{m}^3$ )		
			2006	2007	2008
A12 - Lattinford Bridge	N	97.92%	24.7	24.8	27.1

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

Location	Within AQMA?	Data Capture 2008 %	Number of Exceedences of Hourly Mean (200 µg/m <sup>3</sup> ) <i>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.</i>		
			2006	2007	2008
A12 - Lattinford Bridge	N	98.2	0	0	0

## Diffusion Tube Monitoring Data

Babergh District Council currently monitors for Nitrogen dioxide at 15 locations using diffusion tubes supplied by Harwell Scientifics Ltd. These are routinely changed by Babergh District Council staff and are collocated with diffusion tubes at the Lattinford Bridge automated air quality monitor. Suffolk County Council fund a number of duplicate diffusion tubes, these are denoted by an asterisk (\*) in the table below – these figures are an average of the measurements from the two diffusion tubes at each location.

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

Location	Within AQMA?	Data Capture 2008 %	Annual Mean Concentrations
			2008 (µg/m <sup>3</sup> ) Adjusted for Bias
9 Cross Street	Y	100%	36.0
17 Cross Street*	Y	92%	38.3
30 Cross Street	Y	100%	<b>59.2</b>
36 Cross Street*	Y	92%	<b>40.4</b>
58 Cross Street*	Y	92%	<b>41.4</b>
70 Cross Street	Y	92%	38.7
78 Cross Street*	Y	92%	<b>58.7</b>
82 Cross Street	Y	92%	<b>59.3</b>
87 Cross Street*	Y	92%	<b>62.6</b>
5 Ballingdon Street*	N	92%	<b>43.0</b>
7 Ballingdon Street	N	100%	<b>47.0</b>
30 Church Street*	N	100%	31.6
54 Church Street*	N	83%	<b>30.3</b>
A12 AQM (Lattinford Bridge)	N	100%	24.6
A12 AQM (Lattinford Bridge)	N	100%	23.4
A12 AQM (Lattinford Bridge)	N	100%	21.3
A12 Lattinford Hill	N	100%	<b>42.9</b>

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

Location	Within AQMA?	Annual Mean Concentrations ( $\mu\text{g}/\text{m}^3$ ) Adjusted for Bias	
		2007	2008
9 Cross Street	Y	34.0	36.0
17 Cross Street	Y	36.2	38.3
30 Cross Street	Y	<b>56.0</b>	<b>59.2</b>
36 Cross Street	Y	39.8	<b>40.4</b>
58 Cross Street	Y	<b>42.5</b>	<b>41.4</b>
70 Cross Street	Y	<b>43.2</b>	38.7
78 Cross Street	Y	<b>59.5</b>	<b>58.7</b>
82 Cross Street	Y	<b>56.1</b>	<b>59.3</b>
87 Cross Street	Y	<b>64.0</b>	<b>62.6</b>
5 Ballingdon Street	N	39.9	<b>43.0</b>
7 Ballingdon Street	N	<b>47.1</b>	<b>47.0</b>
30 Church Street	N	29.8	31.6
54 Church Street	N	31.1	<u>30.3</u>
A12 AQM (Lattinford Bridge)	N	32.7	24.6
A12 AQM (Lattinford Bridge)	N	31.4	23.4
A12 AQM (Lattinford Bridge)	N	32.7	21.3
A12 Lattinford Hill	N	<b>51.5</b>	<b>42.9</b>

## 2.2.2 Particulate Matter (PM<sub>10</sub>)

Babergh District Council does not monitor for PM<sub>10</sub> and therefore has no data to present.

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### **2.2.3 Sulphur Dioxide**

Previous assessments have demonstrated that there is only a low risk from Sulphur dioxide within the Babergh district and therefore the Council does not currently monitor for this pollutant.

### **2.2.4 Benzene**

Previous assessments have demonstrated that there is only a low risk from Benzene within the Babergh district and therefore the Council does not currently monitor for this pollutant.

## **3 Road Traffic Sources**

### **3.1 Narrow Congested Streets with Residential Properties Close to the Kerb**

Stour Street, Sudbury; Melford Road, Sudbury; and Southgate Street/Hall Street, Long Melford met the screening criteria in the previous technical guidance, TG (03) and so were considered in the 2003 Updating and Screening Assessment, but no exceedances of the Air Quality Objectives were found.

Ballingdon Street and Cross Street have previously been identified as being narrow congested streets with residential properties close to the road. Cross Street has since been designated an Air Quality Management Area owing to exceedances of the annual objective for Nitrogen dioxide. Babergh District Council is currently working to produce an Air Quality Action Plan and aims to publish this by May 2010. The current extent of the AQMA may need to be revised in light of the complete 2008 diffusion tube dataset to incorporate properties in Ballingdon Street – this will be subject to a more in-depth investigation in a Further Assessment that is due for completion by the end of 2009.

There is no new relevant exposure closer to the roads concerned and so, according to the current TG(09) technical guidance, there is no need to proceed further with the review of those roads. Since 2006, no 'new' roads have been identified as falling within this category.

Babergh District 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**

King Street in Sudbury was the only road meeting the screening criteria in TG(09) and its predecessors and was considered in the 2003 Updating and Screening Assessment. No exceedances of the Air Quality Objectives were found at this location and there is no new relevant exposure closer to the road. Owing to the fact that this was adequately assessed in a previous Review and Assessment round, there is no requirement to progress to undertake a Detailed Assessment at this location.

Babergh District 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.**

TG(09) advises that roads with an 'unusually high proportion' of Heavy Duty Vehicles (HDVs) could potentially lead to exceedances of the Air Quality Objectives. TG(09) advises that exceedances could result if:

- (a) the HDV percentage exceeds 20%; and
- (b) the flow of HDVs is greater than 2,500 vehicles per day; and
- (c) there is relevant exposure within 10m of the road.

Traffic data obtained from the Highways Agency and Suffolk County Council confirms that there are only two roads in the district falling within Categories (a) or (b) above – data for these are provided in the table below.

<b>Road Section</b>	<b>HDV Usage (%)</b>	<b>AADT<sup>†</sup></b>	<b>Nearest Receptor</b>
A12 – Sproughton	27.5% (12800 vehicles)	46,559 vehicles per day	20m (approx.)
A12 – Orwell Bridge*	33.3% (18481 vehicles)	56,005 vehicles per day	30m (approx.)

\*The Orwell Bridge defines the boundary between Babergh District Council and Ipswich Borough Council

<sup>†</sup>Annual Average Daily Traffic

However, there are no relevant receptor locations within 10m of the A14 in the Babergh district – on this basis Babergh District Council is not required to undertake a Detailed Assessment owing to this criteria. No new roads have been identified that exceed 20% HDV volume within the district.

Babergh District Council confirms that there are no new/newly identified roads with high flows of buses/HGVs.

### **3.4 Junctions**

Eleven busy junctions were identified and assessed in the 2003 Updating and Screening Assessment. None of the junctions identified were found to be exceeding the Air Quality Objectives and therefore there was no need to progress to the Detailed Assessment stage. Since that date no new busy junctions have been identified that would fall into the criteria set in TG(09) and therefore Babergh District Council is not obliged to assess further.

Babergh District 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**

No new roads with over 10,000 Annual Average Daily Traffic (AADT) have been constructed since the last round of Review and Assessment and therefore Babergh District Council confirms that the situation remains unchanged since 2006.

Babergh District Council confirms that there are no new/proposed roads.

### **3.6 Roads with Significantly Changed Traffic Flows**

TG(09) states that this criteria only needs to apply to roads with over 10,000 AADT. According to figures provided by Suffolk County Council only 7 roads within the Babergh district meet this criterion (details provided in the table below). To avoid complication the A14 is represented by the A14 Ipswich Bypass section which is regarded as representative. The largest increase in traffic on these roads occurs on the A14 Ipswich Western Bypass, which saw a 2.2% increase between 2006 and 2008 - this is significantly below the 25% which defines 'significantly changed traffic flows' in TG(09).

<b>Road No.</b>	<b>Name</b>	<b>2006</b>	<b>2008</b>	<b>Difference</b>
A0012	A12 Copdock *	No data	No data	No data
A0014	Ipswich Western Bypass EB	26788	27382	+2.2%
A0014	Ipswich Western Bypass WB	24863	No data	Unknown
A0131	Ballingham Hill – Sudbury	10229	10154	-0.73%
A0134	Newton Green	15004	14992	<-0.1%
A0131	Ballingham Street, Sudbury	15320	15213	-0.69%
C0712	Waldingfield Road –Sudbury	11594	11479	-0.99%

\*The A12 Copdock Bypass is included despite lack of a survey, a visual inspection of this road confirms flows in excess of 10,000AADT, and the changes in traffic flows here are expected to be similar to those of the A14.

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

### **3.7 Bus and Coach Stations**

There are two operational bus and coach stations within the district. The maximum daily movements given below are derived from Winter 2008/09 Bus Timetables as published by Suffolk County Council. As is demonstrated by this table, no bus or coach station within the district exceeds the 2,500 movements a day stipulated by TG(09) and therefore there is no need to examine exposure at a relevant receptor.

<b>Table 5: Summary of Bus/Coach Traffic at Large Stations and Depots in the Babergh District, March 2009</b>	
<b>Bus Station/Coach Depot</b>	<b>Maximum Number of Buses Per Day</b>
Sudbury Bus Station, Hamilton Road, Sudbury	506
Hadleigh Bus Station, Magdalen Road, Hadleigh	112

Babergh District Council confirms that there are no relevant bus stations in the Local Authority area.

## **4 Other Transport Sources**

### **4.1 Airports**

There are no commercial airports operating in the district as listed in Appendix C of TG (09). However, the military installation at Wattisham supports a large number of military flights each year. There are relevant receptors within 1km of the runway. However, because of the nature of the flights, it is expected that it would be well below the criteria laid down in TG(09) of 10mppa (or freight equivalent). The Armed Forces disclose that the number of flights per annum from Wattisham is 2260 of which the majority are helicopters.

Babergh District Council confirms that there are no commercial airports in the Local Authority area.

### **4.2 Railways (Diesel and Steam Trains)**

#### **4.2.1 Stationary Trains**

Diesel and coal-fired locomotives emit airborne pollutants. Exposure to stationary locomotives may be significant, but only in terms of the 15-minute objective. TG(09) requires local authorities to identify locations where diesel or steam locomotives are regularly stationary for periods of 15 minutes or more with their engines running. According to the National Express East Anglia Winter 2008/09 timetable, there are no such locations on the section of the Norwich - London Liverpool Street line that passes through the Babergh district. On the Sudbury-Marks Tey line, trains halt at Sudbury station and typically wait for between 4 and 8 minutes, with the longest stationary period being the 06:30 train, which waits for 14 minutes. Additionally, there are no receptors within 15m of the stationary trains.

Babergh District 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**

The main Norwich – London Liverpool Street rail line passes through the district. This line is mainly served by Class 90 and Class 321 electric trains. The Branch Line from Sudbury to Marks Tey is served by Class 153 and Class 156 diesel locomotives and service frequency is hourly. Neither of the routes within the district are included in the list of railway lines with large numbers of diesel services as determined in Table 5.1 of TG(09) and accordingly Babergh District Council is not required to progress to Detailed Assessment.

Babergh District 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)**

There are no major shipping ports within the district, however adjacent districts have both the ports of Harwich and Felixstowe. The nearest relevant receptor location in the Babergh district at Shotley is approximately 750m from Felixstowe Port (Trinity III terminal) and 1050m from the nearest berths at Harwich. Harwich Haven Authority has confirmed that the total number of shipping movements in 2008 was 7198 at Felixstowe Port and 4222 at Harwich. Accordingly, this falls below the threshold laid down in TG(09) and accordingly Babergh District Council need not progress to Detailed Assessment. The reduction in shipping movements shown in 2008 is the product of the current economic situation impacting on both imports and exports - this trend has continued in 2009 and is expected to continue until the economic situation improves.

<b>Port</b>	<b>Address</b>	<b>2005</b>	<b>2008</b>	<b>Change (%)</b>	<b>Distance to BDC Receptor</b>
Port of Felixstowe	Tomline House, The Dock, Felixstowe, Suffolk	8558	7198	-15.9%	750m
Harwich International Port	Port Offices, Parkeston, Harwich, Essex.	5886	4222	-28.27%	1050m

Planning permission was granted in 2006 by the Secretary of State for redevelopment at Felixstowe South to realign the Landguard Terminal and adjacent areas to provide additional deep water berths and container handling capacity. A detailed air quality assessment of the scheme proposals was undertaken for the application and accepted by the Planning Inspector as part of the Public Inquiry. The assessment of the potential impact of the construction phase was based on a 'worst case' approach and it was determined that concentrations of pollutants would be well below their respective Air Quality Objectives in the Babergh district. For the operational phase of the reconfiguration project, pollutant concentrations would increase marginally, but all would continue to be within the Air Quality Objectives. The Planning Inspector therefore concluded that additional pollutant emissions arising from the reconfiguration scheme would not have a significant impact on receptors in Felixstowe or the Babergh district.

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

## **5 Industrial Sources**

### **5.1 Industrial Installations**

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

Since the last round of Review and Assessment, there have been no new installations listed under the Environmental Permitting (England and Wales) Regulations 2007 which would have required an air quality assessment to have been carried out. No new installations have been identified under the Clean Air Acts. Babergh District Council does not therefore regard there to be any need to assess this section further. All neighbouring authorities have been consulted on this issue and no installations operating within neighbouring districts are expected to impact on the Babergh district.

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

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

The Environmental Permitting process has provided the information that enables Babergh District Council to evaluate the alterations in emissions from existing installations. A review of the permitted installations indicates that there have not been substantially increased emissions from any of the industries inspected. In many cases the current economic situation has significantly reduced productivity resulting in a reduction in emissions. This is a process that is expected to continue until economic conditions improve.

Babergh District 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, five new activities have been permitted within the Babergh district under the Environmental Permitting (England and Wales) Regulations 2007 – three Dry Cleaners and two Waste Oil Burners less than 0.4MW net rated thermal input. However, all five activities are considered too small to emit significant quantities of the prescribed pollutants to warrant Detailed Assessment.

There have been no new planning applications for major industrial developments in the Babergh district since the last Updating and Screening exercise. There is a pre-application scoping exercise currently undertaken for the development of a biomass generator in the neighbouring district of Ipswich. This is planned to have a capacity of approximately 50MW and will be situated on the site of the former coal fired power station at Cliff Quay. The nearest receptors in the Babergh district will be

approximately 500m from the proposed stack. A full air quality impact assessment will be required for this application to progress, although no future concentrations have been modelled.

Babergh District 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

The nearest petrol terminals (major fuel storage depots) to the Babergh district are in Wymondham in Norfolk and Thurrock in Essex. Given the distance to these terminals, >40km and >60km respectively, they are not considered to have any significant impact on the air quality within the Babergh district.

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

## 5.3 Petrol Stations

There is some evidence that petrol stations will emit sufficient Benzene to put the 2010 objective at risk of being exceeded, especially if combined with higher levels from nearby busy roads. TG(09) advises that a Detailed Assessment is required where there are relevant receptor locations within 10m of the pumps of petrol stations with an annual throughput of more than 2 million litres of petrol and with a busy road nearby (defined as more than 30,000 vehicles per day). A survey conducted to assess the applicability of Stage II vapour recovery is currently being undertaken (details outlined below) and has confirmed that there are no petrol stations in the district that fulfil the criteria set down in TG (09).

Petrol Station	OS Reference	2006 (litres)	2007 (litres)	2008 (litres)	Nearest Receptor
Lady Lane, Hadleigh	X: 603540 Y: 243280	2383829	2327895	2090486	23m
Bentley Service Station	X: 610023 Y: 238302	1560000	1600000	1352000	52m
Tesco (Sudbury)	X: 587395 Y: 242840	To report	To report	To report	58m
Tesco (Copdock)*	X: 612591 Y: 242405	To report	To report	>3500000*	>200m
Harry S Lee, Sudbury	X: 588348 Y: 242242	To report	To report	To report	58m
Murco Capelgate, A12	X: 609968 Y: 238298	To report	To report	To report	60m
Underwoods, Sudbury	X: 587721 Y: 241155	1858386	2067312	1807793	42m
Gainsborough Filling Station, Sudbury	X: 588845 Y: 241592	To report	To report	To report	73m

\*Tesco (Copdock) has installed Stage II Vapour Recovery and therefore Babergh District Council has assumed an output of in excess of 3.5 million litres.

Babergh District Council confirms that there are no petrol stations meeting the specified criteria.

## **5.4 Poultry Farms**

Babergh District Council are not aware of any poultry farms that would qualify under the Environmental Permitting (England and Wales) Regulations 2007 and therefore this also fulfils the criteria of TG(09).

Babergh District Council confirms that there are no poultry farms meeting the specified criteria.

## **6 Commercial and Domestic Sources**

### **6.1 Biomass Combustion – Individual Installations**

There are no biomass combustion installations in the range specified in TG(09), (50 kW to 20 MW thermal) that would be required to be reported within this report. Small-scale biomass boilers may occur within the district however, we believe them to be small-scale domestic appliances for which we have no information at this stage (see Section 6.2).

Babergh District Council confirms that there are no biomass combustion installations in the Local Authority area.

### **6.2 Biomass Combustion – Combined Impacts**

Babergh District Council believes that there may be a small number of smaller biomass combustion installations operating within the district. Although we are uncertain as to the precise number of installations, we do not believe that the density of such installations is sufficient to have a significant combined impact at any location in the Babergh district. However, we will seek to resolve this issue over the coming 12 months and report as necessary.

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

### **6.3 Domestic Solid-Fuel Burning**

A survey of local coal merchants for the 2003 Updating and Screening Assessment confirmed that the highest density of houses in towns or villages in Babergh that still burn solid fuel as their primary source of heating was approximately 20 houses per 0.25 km<sup>2</sup>. The Southern England Regional Co-ordinator of the Approved Coal Merchants Scheme has also confirmed that since 2003, “two merchants have ceased trading, two others no longer offer a delivery service and none have increased their tonnage band, and [...] the overall burn of solid fuel in domestic appliances in Suffolk has reduced”. However, we do not have details regarding non-coal fired systems at this stage, but we will seek to resolve this over the coming 12 months and report as necessary

Babergh District Council believes that there has not been a significant expansion in the use of solid fuel within the district.

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

## **7 Fugitive or Uncontrolled Sources**

Babergh District Council undertook a site inspection of each landfill and quarrying operation on 22 April 2009 to assess their risks as fugitive sources of dust. The complaint history since 1 January 2006 for each site was also obtained; the results are given below. This list of sites has been provided by Suffolk County Council.

<b>Name</b>	<b>Process</b>	<b>O/S</b>	<b>Dust complaints</b>	<b>Dust on Roads</b>
Layham	Landfill/Quarry	X:601307 Y:240248	0	No
Bentley	Quarry	X:609099 Y:237559	0	No
Wherstead	Quarry	X:615790 Y:240402	0	No
Tattingstone	Landfill	X:612510 Y:236360	0	No

In previous rounds of Review and Assessment two processes have been identified as being a potential emitter of fugitive dust. However, these were found to not have relevant receptors within the Babergh district; the two processes identified were:

<b>Name</b>	<b>Location</b>	<b>O/S</b>	<b>Type</b>	<b>Nearest Receptor</b>
Vopak Terminal	Cliff Quay, Ipswich, Suffolk.	X: 617200 Y: 242800	Part B Petrol Terminal	Approx. 1250m
Petrochem Carless Ltd	Harwich Refinery, Refinery Road, Parkeston, Essex	X: 622850 Y: 232125	Part A (1) Refinery	>2000m

Babergh District Council confirms that there are no potential sources of fugitive Particulate Matter emissions in the Local Authority area.

## 8 Conclusions and Proposed Actions

### 8.1 Conclusions from New Monitoring Data

The results from 2008 validate the designation of the Cross Street AQMA in November 2008. However, the boundary of the AQMA will need to be revised owing to further exceedances at the northern end of Ballingdon Street. The results from 2008 also indicate that four monitoring points in Cross Street may be exceeding the  $200 \mu\text{g}/\text{m}^3$  hourly mean and this should also be considered in any variation to the AQMA order.

The monitoring results from the A12 Lattinford Hill diffusion tubes also indicate that there are exceedances of the annual mean for Nitrogen dioxide at this location with measurements of  $42.9 \mu\text{g}/\text{m}^3$ .

### 8.2 Conclusions from Assessment of Sources

There have been no sources identified within the Babergh district that either meet the criteria set out in TG(09) or that have not been assessed in previous rounds of Review and Assessment. Therefore Babergh District Council maintains its previous position that, other than road transport as outlined in section 8.1, there are no further sources of concern.

There are no planning applications/proposal for alterations to the sources that are perceived to have an impact on the Babergh District. The development of a 50MW biomass generator at Cliff Quay in neighbouring Ipswich, whilst having the potential to increase the level of pollution in the locality, its impact on Babergh should be minimal and will not result in exceedances of the Air Quality Objectives.

### 8.3 Proposed Actions

This Updating and Screening Assessment has further highlighted the issues around the Cross Street area of Sudbury and the need to extend the current AQMA boundary to include properties at the northern end of Ballingdon Street where measured concentrations exceed the  $40 \mu\text{g}/\text{m}^3$  annual mean for Nitrogen dioxide. It is also apparent that concentrations at the worst-case receptor on Cross Street may be failing the 1-hour mean for Nitrogen dioxide owing to annual means exceeding  $60 \mu\text{g}/\text{m}^3$ . To this end, Babergh District Council resolves to amend its current AQMA Order should a Further Assessment support these initial assumptions.

This report has also highlighted the need for a Detailed Assessment owing to exceedances of the  $40 \mu\text{g}/\text{m}^3$  annual mean objective for Nitrogen dioxide at Lattinford Hill on the A12. Concentrations of Nitrogen dioxide at this location were  $42.9 \mu\text{g}/\text{m}^3$  in 2008, but this was based on one diffusion tube location. As this site is similar to a number of sites along the A12, it is proposed that similar sites are identified along the A12 and if necessary monitoring will be initiated.

Action	Target
Further Assessment for Cross Street AQMA and amendments to AQMA designation if necessary	Nov 2009
Produce Action Plan for Cross Street AQMA	May 2010
Detailed Assessment for Lattinford Hill, A12	April 2010

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22. Tendring District Council, Per.comm. with Environmental Health regarding new Environmental Permits 2 April 2009.
23. The Planning Inspectorate, 2005. Report of the Public Inquiry held into proposals for a container port at Bathside Bay, Harwich.
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# Appendices

## Appendix A: QA/QC Data (Automated Monitor)

### Diffusion Tube Bias Adjustment Factors

All diffusion tubes for 2008 were bias corrected using a factor of 0.80 as published on the Review and Assessment website v.03.09.

### Discussion of Choice of Factor to Use

Babergh District Council undertakes its own collocation study at the Lattinford Bridge, however the correction factor derived from this study was not used in this report on the advice of the Review and Assessment Helpdesk. The location of the collocation study is very different from those of the diffusion tubes positioned around the district and therefore not representative. The correction factor used in is that for Harwell Scientifics 50% TEA method as provided on the spreadsheet v. 03.09.

### QA/QC of automatic monitoring

DEFRA's Technical Guidance, LAQM.TG(09) states that data capture for chemiluminescence monitors should be greater than 90% during each sampling period for the data to be valid. Data capture for each month was above DEFRA's recommended level of 90% and hence all the data is considered valid.

Data is stored in the data logger by communication between the logger and the analyser. The data capture summary below outlines the percentage of data included in the data set as validated data. Data capture statistics are for all valid data; data excluded from the statistics are periods when the analyser is in auto-calibration, or during calibration visits by local site operatives, service engineers and QA/QC auditors. However, data loss can also occur when data cannot be stored onto the logger for various reasons, including:

- power cuts to the monitor;
- analyser faults; and
- logger faults.

Data may also be excluded in periods where the analyser's calibration response is determined as unstable.

### QA/QC of diffusion tube monitoring

All samples were analysed by Harwell Scientifics using the 50:50 TEA in acetone method.

This analysis of diffusion tube samples to determine the amount of Nitrogen dioxide present on the tube is within the scope of Harwell Scientifics' UKAS schedule. In the WASP intercomparison scheme for comparing spiked Nitrogen Dioxide diffusion tubes, Harwell Scientifics is currently ranked as a 'Category Good' laboratory.

## Appendix B: Monthly Diffusion Tube Results (2008) Bias Corrected

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
30 Church Street, Sudbury, 2008	39.4	45.0	29.4	37.4	28.8	21.4	25.4	23.8	29.3	36.1	32.6	35.8
9 Cross Street, Sudbury, 2008	44.8	45.0	30.7	40.5	37.0	25.5	29.5	27.7	34.8	41.4	35.9	37.3
17 Cross Street, Sudbury, 2008	38.2	45.0	33.3	44.0	49.0	29.4	29.6	27.4	38.2	45.6	42.3	38.0
70 Cross Street, Sudbury, 2008	36.6	40.9	35.4	57.4	43.0	35.6	22.0	26.8	38.9	38.3	50.1	0.0
78 Cross Street, Sudbury, 2008	65.6	61.6	51.4	37.4	64.0	62.6	47.3	45.4	62.8	62.9	71.8	38.8
82 Cross Street, Sudbury, 2008	72.4	74.7	59.8	65.4	46.2	52.2	47.7	51.4	57.1	71.6	76.8	71.3
82 Cross Street, Sudbury, 2008	59.7	58.5	52.5	61.8	46.2	50.4	51.8	51.1	49.7	70.4	67.0	0.0
A12, AQ Monitor 1, 2008	29.0	31.7	28.7	27.1	27.4	19.8	17.8	16.1	19.3	27.1	33.1	17.9
A12, AQ Monitor 2, 2008	25.7	30.6	28.6	25.5	26.1	16.7	16.8	15.8	19.2	25.5	32.4	17.7
A12, AQ Monitor 3, 2008	25.0	30.4	27.4	23.1	23.8	11.8	16.4	14.5	17.1	21.6	27.6	17.1
A12, Lattinford Hill, Pole in verge, 2008	36.8	54.3	37.0	48.3	51.8	22.9	30.6	29.7	38.5	45.4	59.7	59.4
7 Ballingdon Street, Sudbury, 2008	65.9	62.6	41.8	54.2	49.0	38.9	43.1	40.0	42.6	57.8	65.9	48.6
7 Ballingdon Street, Sudbury, 2008	50.8	59.8	41.3	48.6	44.2	36.2	40.2	36.2	36.4	43.7	53.5	27.8
30 Church Street, Sudbury, 2008 (SCC)	35.2	36.5	28.1	32.6	30.9	23.4	24.1	25.7	30.9	37.4	34.0	35.8
54 Church Street, Sudbury, 2008 (SCC)	0.0	38.2	0.0	33.5	26.6	22.6	23.2	22.6	27.4	39.4	36.9	39.8
54 Church Street, Sudbury, 2008 (SCC)	0.0	35.9	0.0	32.1	25.4	20.0	22.9	21.3	25.8	39.3	35.4	38.5
9 Cross Street, Sudbury, 2008 (SCC)	41.8	42.1	32.2	37.4	41.0	26.2	30.5	32.2	33.9	40.3	39.9	36.1
17 Cross Street, Sudbury, 2008 (SCC)	40.5	48.7	32.8	34.8	47.4	32.6	34.1	30.3	36.9	43.1	39.6	39.0
36 Cross Street, Sudbury, 2008 (SCC)	44.3	49.9	34.2	46.2	52.5	32.6	32.8	34.0	38.0	48.2	42.0	41.9
36 Cross Street, Sudbury, 2008 (SCC)	43.6	47.7	33.3	48.1	46.5	29.6	29.8	29.4	37.4	43.8	42.0	41.6
58 Cross Street, Sudbury, 2008 (SCC)	47.4	43.8	41.9	44.8	39.9	38.3	35.2	35.6	37.7	49.4	44.3	50.6
58 Cross Street, Sudbury, 2008 (SCC)	41.8	43.6	37.6	43.0	39.4	38.1	34.0	33.4	34.8	49.3	43.1	45.4
70 Cross Street, Sudbury, 2008 (SCC)	38.1	42.3	37.7	40.6	44.8	36.0	30.5	31.1	36.2	39.8	48.6	0.0
87 Cross Street, Sudbury, 2008 (SCC)	79.6	67.0	59.1	67.2	50.6	61.3	59.5	68.6	60.2	81.1	78.2	72.7
87 Cross Street, Sudbury, 2008 (SCC)	68.1	65.5	50.2	63.7	44.6	59.3	52.8	56.7	54.6	72.6	68.2	39.9
5 Ballingdon Street, Sudbury, 2008 (SCC)	53.9	57.4	39.3	47.9	45.3	32.3	37.8	39.9	42.3	53.8	43.5	47.5
5 Ballingdon Street, Sudbury, 2008 (SCC)	53.4	49.1	36.6	40.8	45.2	29.2	32.7	37.4	41.2	43.9	38.7	42.2
30 Cross Street, Sudbury, 2008 (SCC)	65.0	65.2	49.4	71.0	80.4	56.2	54.9	55.9	62.0	66.6	61.4	61.0
30 Cross Street, Sudbury, 2008 (SCC)	58.7	61.4	45.8	66.2	73.0	46.6	47.6	48.6	58.2	54.9	53.2	58.2
78 Cross Street, Sudbury, 2008 (SCC)	57.6	63.3	58.6	62.9	59.5	56.0	52.4	52.1	58.1	72.4	73.8	70.0

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**Appendix C: Monthly Diffusion Tube Results (2007) Uncorrected**

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
30 Church Street, Sudbury, 2007	35.9	37.7	39.2	36.6	32.6	25.3	26.9	25.7	24.7	42.9	45.4	48.7
9 Cross Street, Sudbury, 2007	41.6	44.7	34.4	41.3	38.1	38.9	34.0	33.7	33.8	47.3	46.8	53.0
17 Cross Street, Sudbury, 2007	39.4	51.9	44.9	44.9	40.7	39.7	34.7	37.7	35.5	55.2	48.6	50.4
70 Cross Street, Sudbury, 2007	43.4	47.3	52.6	56.0	45.7	73.3	33.3	49.2	45.8	64.9	56.6	54.7
78 Cross Street, Sudbury, 2007	54.8	75.3	73.4	75.1	72.9	38.7	68.5	69.0	72.4	96.6	95.1	75.6
82 Cross Street, Sudbury, 2007	68.9	80.3	67.9	67.1	67.3	62.2	66.3	65.4	64.6	88.2	90.4	77.0
82 Cross Street, Sudbury, 2007	66.0	72.3	65.2	65.4	64.5	56.1	60.1	65.0	54.2	75.4	84.8	66.9
A12, AQ Monitor 1, 2007	34.8	35.4	36.1	37.1	29.0	22.7	23.0	24.7	30.4	37.8	42.1	39.2
A12, AQ Monitor 2, 2007	32.6	34.0	36.0	35.3	28.6	21.9	21.8	24.6	26.7	37.0	40.5	38.1
A12, AQ Monitor 3, 2007	28.5	33.4	33.7	34.7	27.8	19.6	20.5	24.4	24.4	35.1	40.0	37.9
A12, Lattinford Hill, Pole in verge, 2007	44.4	53.3	68.0	62.6	52.4	40.1	39.8	46.4	63.9	71.4	77.2	61.3
7 Ballingdon Street, Sudbury, 2007											65.9	64.4
7 Ballingdon Street, Sudbury, 2007											65.1	54.8
30 Church Street, Sudbury, 2007 (SCC)	33.1	45.6	43.0	32.9	44.1	29.9	30.6	32.7	33.7	43.3	46.1	46.3
54 Church Street, Sudbury, 2007 (SCC)	38.9	43.4	43.4	34.6	39.4	29.5	32.7	30.0	33.7	42.1	58.7	47.6
54 Church Street, Sudbury, 2007 (SCC)	37.8	39.9	38.9	32.8	31.1	29.2	31.1	27.3	32.5	41.7	58.0	47
9 Cross Street, Sudbury, 2007 (SCC)	36.4	58.6	44.0	37.1	38.8	40.6	36.4	35.2	37.8	41.1	58.8	54.3
17 Cross Street, Sudbury, 2007 (SCC)	36.5	52.2	45.8	45.1	44.5	39.6	40.3	37.9	44.6	54.3	54.7	54.3
36 Cross Street, Sudbury, 2007 (SCC)	43.9	56.4	56.7	53.3	51.0	49.7	48.9	43.7	45.4	67.1	59.1	60.9
36 Cross Street, Sudbury, 2007 (SCC)	37.7	56.0	51.8	46.3	46.5	35.7	40.0	42.1	43.8	59.4	56.4	56.4
58 Cross Street, Sudbury, 2007 (SCC)	56.1	55.3	55.0	53.7	52.4	46.5	50.5	49.0	51.0	61.7	61.9	54.5
58 Cross Street, Sudbury, 2007 (SCC)	53.5	52.8	53.3	50.8	42.5	41.7	48.8	48.3	50.9	57.3	59.1	54.1
70 Cross Street, Sudbury, 2007 (SCC)	46.6	53.5	49.8	54.4	62.2	72.6	36.4	47.4	56.9	63.8	61.4	51.9
87 Cross Street, Sudbury, 2007 (SCC)	75.3	89.1	75.5	73.4	93.6	78.0	86.1	70.5	79.9	86.4	93.9	85.4
87 Cross Street, Sudbury, 2007 (SCC)	75.0	77.2	71.7	65.0	84.6	70.6	76.2	67.7	71.4	76.6	89.5	82.3
5 Ballingdon Street, Sudbury, 2007 (SCC)	53.2	63.5	49.4	44.1	45.5	44.9	40.4	38.3	44.2	56.1	63.9	69.9
5 Ballingdon Street, Sudbury, 2007 (SCC)	51.1	57.8	48.2	39.0	41.5	42.3	42.5	37.8	38.6	52.6	55.7	63.2
30 Cross Street, Sudbury, 2007 (SCC)	65.0	79.6	71.3	75.9	64.5	70.1	70.2	60.4	67.1	81.9	74.4	80.8
30 Cross Street, Sudbury, 2007 (SCC)	56.7	79.4	67.8	64.8	56.8	69.5	59.6	57.5	59.4	80.3	73.1	72.1
78 Cross Street, Sudbury, 2007 (SCC)	77.0	79.5	78.0	78.1	81.1	46.5	62.9	76.6	60.7	87.6	87.5	80.6

**Babergh District Council - England**

**Appendix D: Monthly Diffusion Tube Results (2006) Uncorrected**

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
17 Cross Street, Sudbury, 2006									49.0	49.6	40.3	46.2
21 Cross Street, Sudbury, 2006	35.3	51.2	45.1	38.0	46.5	44.3	44.9	35.4				
70 Cross Street, Sudbury, 2006	44.7	51.7	44.3	49.0	47.0	52.7	46.8	45.1	43.1	48.7	48.5	40.2
78 Cross Street, Sudbury, 2006									73	70.9	84.2	74.0
82 Cross Street, Sudbury, 2006				73.1	71.6	68.2	69.7	68.1	69.4	71.5	80.3	83.3
82 Cross Street, Sudbury, 2006				72.8	71.5	66.7	66.5	64.4	66.6	57.2	75.9	72.8
99 Ballingdon Street, Sudbury, 2006	32.4	42.7	41.7	45.8	37.2	30.7	33.7	30.3				
Long Perry, Capel, 2006	38.7	32.1	28.4									
A12, AQ Monitor 1, 2006	35.8	41.4	33.6	37.1	31.3	26.4	17.3	25.7	27.8	28.8	33.7	37.3
A12, AQ Monitor 2, 2006	34.4	40.4	30.2	35.2	30.5	26.3	16.8	25.4	27.6	28.6	33.0	36.5
A12, AQ Monitor 3, 2006	24.7	36.6	19.5	32.1	29.9	24.2	25.2	24.8	23.6	27.8	31.3	30.3
A12, Lattinford Hill, Pole in verge, 2006	50.3	70.1	58.0	57.7	47.6	40.5	40.3	49.6	45.2	43.2	47.7	6.6
30 Church Street, Sudbury, 2006 (SCC)	41.7	38.6	35.3	38.8	26.7	31.7	32.6	31.2	40.1	42.9	46.8	43.2
54 Church Street, Sudbury, 2006 (SCC)									31.4	38.6	47.6	46.4
54 Church Street, Sudbury, 2006 (SCC)									27.6	36.2	43.2	45.8
9 Cross Street, Sudbury, 2006 (SCC)									40.9		52.7	49.3
17 Cross Street, Sudbury, 2006 (SCC)									45.9	45.6	54.8	51.8
21 Cross Street, Sudbury, 2006 (SCC)	54.3	49.9	45.1	38.3	41.4	47.6	44.3	35.9				
36 Cross Street, Sudbury, 2006 (SCC)	59.9	26.7	47.9	42.7	49.3	52.5	47.7	37.0	53.6	56.4	60.9	55.0
36 Cross Street, Sudbury, 2006 (SCC)	59.3	26.1	45.8	42.2	45.4	48.5	45.1	36.4	49.1	50.2	57.1	54.7
58 Cross Street, Sudbury, 2006 (SCC)	51.3	55.7	49.9	53.9	50.8	46.7	47.1	49.6	48.8	50.8	61.4	55.3
58 Cross Street, Sudbury, 2006 (SCC)	47.6	54.2	46.5	48.2	50.2	39.1	41.2	46.2	41.7	46.6	60.0	51.0
70 Cross Street, Sudbury, 2006 (SCC)	50.0	54.4	41.4	48.2	40.4	43.0	38.5	45.2	43.9	48.0	51.2	44.0
87 Cross Street, Sudbury, 2006 (SCC)	75.0	79.5	66.9	83.7	81.9	69.2	71.9	68.8	80.5	82.8	98.3	100.5
87 Cross Street, Sudbury, 2006 (SCC)	68.4	74.1	61.4	72	78.6	61.3	65.2	68.7	68.1	70.2	90.9	86.9
5 Ballingdon Street, Sudbury, 2006 (SCC)	54.8	58.7	56.4	37.3		50.1	49.2	38.2	52.6	63.0	59.8	67.8
5 Ballingdon Street, Sudbury, 2006 (SCC)	45.5	51.6	55.5	34.1		46.7	48.6	35.1	48.6	53.7	58.4	62.9
30 Cross Street, Sudbury, 2006 (SCC)									77.1	81.6	74.9	73.7
30 Cross Street, Sudbury, 2006 (SCC)									75.3	77.9	66.7	68.5
78 Cross Street, Sudbury, 2006 (SCC)									74.7	72.0	71.3	68.7
Byhams Dairy, Sudbury, 2006 (SCC)	41.2	44.2	36.9	36.4	29.6	26.7	20.8	29.8				
Byhams Dairy, Sudbury, 2006 (SCC)	41.2	44.0	33.8	32.2	29.0	25.7	15.5	27.2				
99 Ballingdon Street, Sudbury, 2006 (SCC)	37.7	46.6	36.1	44.4	40.6	31.2	33.6	34.7				

Appendix E: 5 day AADT

Road	Site Title	2000-5	2001-5	2002-5	2003-5	2004-5	2005-5	2006-5	2007-5	2008-5
B1456	FRESTON HILL		8224		8734	8643.3	8634.8	8902.5	9052.5	8773
A0134	NEWTON GREEN	13978			14472	14804	14944	15005	15200	14993
A0134	LONG MELFORD BYPASS		7676.2		8097	8371	8228	8475	8515.8	8360
A0134	ALPHETON	7961	8019.7	8292.3	8513	8633	8686	8780	8929.5	8905.6
A0137	TATTINGSTONE	9215		8754		9757	9146	9225.3	9204	9024
A1071	BOWER HOUSE TYE	5884	5786		6638	6833.5	6599	6829.7	7005	6692.5
A1071	WOLVES WOOD		7952	8110	8864	9103	9130	8974.5	9162	9016.5
A1141	EAST OF LAVENHAM	1759.3		1994						
B1068	STOKE BY NAYLAND	2162.8		2314	2291	2370	2454	2651.8	2759.5	2705
B1070	SOUTH OF RAYDON		3754.4		4071	4012.3	4040	4096.5	4133.3	4006
B1115	SCRIPPS CROSS	1587	2012	1650	2836.4			2472.7	1994	
A1141	NORTH OF HADLEIGH NORTH OF C722		4377	3967	4778	4718		5088		5359
C0494	CHANNY PARK - IPSWICH	7608.1	7129	8002.3	8306	8472.4	8486	8360.3	8335.4	8165
A0131	BALLINGDON HILL - SUDBURY	9613		8757	9084.8	10049	9613	10229	10168	10154
A0012	EAST BERGHOLT, SOUTH OF FOUR SISTERS									
A0012	COPDOCK BYPASS									
A0134	NAYLAND - NORTH OF C734		8862			8576	8619	8696.5	9074	8609.3
A1092	LONG MELFORD			9689					10031	9910
A1141	NORTH OF LAVENHAM	2203			2330				2296	2073
B1115	NORTH OF SEMER SOUTH OF B1078	2317		2234	2523					2614
B1066	SOUTH OF STANSTEAD STREET			1052	1190				1316	1237
B1071	SOUTH OF LAVENHAM	2656			2402				2687	2658
B1078	WEST OF NEDGING TYE	1759							1806	1920
B1115	EAST OF CHELSWORTH		1998	2201					2293	
B1080	NORTH OF HOLBROOK	3556		3750	3688	3707		3852		3875
B1456	NORTH WEST OF CHELMONDISTON									5398
B1508	NORTH OF BURES		3525		3700					3731
A0134	ASSINGTON		8031							
A0134	EAST OF SUDBURY			10571		10998			11952	
A1092	GLEMSFORD, BETWEEN B1065 and B1066		5779		6297					
A1141	MONKS ELEIGH VILLAGE		3251						3358	
A1141	BETWEEN MONKS ELEIGH AND SEMER		1508		2304				1545	1780
B1029	NORTH OF DEDHAM		2137		2106	2315			1984	2203
B1065	SOUTH OF GLEMSFORD		2280		2210				1971	1902
B1068	LEAVENHEATH				2803	3231			3136	
B1070	EAST BERGHOLT - SOUTH OF A12					5847	5866.5	6072	5600	5699
B1087	SOUTH OF STOKE BY NAYLAND		1941		2037	2085			2102	2327
B1115	NORTH EAST OF SUDBURY			5831	7059				7346	6629
B1115	WALDINGFIELD			8028.5	10219				8964	8515
C0711	SOUTH EAST OF ACTON			3622	4072				3730	3694
C0714	SOUTH OF WALDINGFIELD			2911	3678				3382	3563
A1071	HADLEIGH BYPASS WEST	5531								
A1071	HADLEIGH BYPASS EAST	6672								
B1070	HADLEIGH, GALLOWES HILL		3904		4198	4180		4226		3976
C0495	COPDOCK - OLD A12									
B1070	HADLEIGH LADY LANE	5282			6562				8571	5110
B1064	SOUTH OF RODBRIDGE		12778	12988	13186	13556			13195	
A0131	BALLINGDON STREET - SUDBURY	14939	14442	14268	14191	14974	15019	15320	15285	15213
A0134	EASTERN BYPASS (N.W. END) SUDBURY			13212	15489				14110	
A0134	EASTERN BYPASS (South) - SUDBURY		21684			12139			11152	
A0131	WEST OF EASTERN BYPASS - SUDBURY			11622				12827		
U8637	NORTHERN RD S. OF A134 SUDBURY			8158						
A0131	NORTHERN END OF MELFORD ROAD SUDBURY	13212							13868	
C0712	WALDINGFIELD ROAD - SUDBURY	9116	9742.8	10636	11284	11078	11643	11595	11633	11480



## Babergh District Council - England

### Appendix F: 7 day AADT

Road	Site Title	2000-7	2001-7	2002-7	2003-7	2004-7	2005-7	2006-7	2007-7	2008-7
B1456	FRESTON HILL		7899		8354	8245	8198.5	8484.8	8593	8328
A0134	NEWTON GREEN	13196			13566	13801	13904	13916	13840	13908
A0134	LONG MELFORD BYPASS		7080.5		7399	7700	7450	7667	7734.8	7524
A0134	ALPHETON	7370	7452	7675.8	7864	7873.4	7894.8	8000.3	8138.8	8060
A0137	TATTINGSTONE	8584		8160		9059	8485	8537.3	8578	8278.5
A1071	BOWER HOUSE TYE	5358	5417		6162	6253	6089	6211	6394	6064
A1071	WOLVES WOOD		7454	7596	8263.3	8357.7	8423	8245.5	8358.5	8264
A1141	EAST OF LAVENHAM	1702		1898.3						
B1068	STOKE BY NAYLAND	2038.7		2156	2146	2218.5	2296	2464.5	2534	2475.3
B1070	SOUTH OF RAYDON		3545.6		3812	3774.5	3803	3798.3	3834.7	3721
B1115	SCRIPPS CROSS	1430	1841	1524	2637.8			2283	1829	
A1141	NORTH OF HADLEIGH NORTH OF C722		4046	3690	4512	4417		4710		4998
C0494	CHANNY PARK - IPSWICH	6996.3	6518	7261	7503	7582.7	7562.3	7457	7424.6	7266
A0131	BALLINGDON HILL - SUDBURY	9133		8343	8552.6	9576	8928	9623	9633.5	9560.8
A0012	EAST BERGHOLT, SOUTH OF FOUR SISTERS									
A0012	COPDOCK BYPASS									
A0134	NAYLAND - NORTH OF C734		8465			8087	8048	8131.3	8391	7977.3
A1092	LONG MELFORD			9095					9291	9315.5
A1141	NORTH OF LAVENHAM	2025			2154				2128	1899
B1115	NORTH OF SEMER SOUTH OF B1078	2127		2146	2339					2415
B1066	SOUTH OF STANSTEAD STREET			977	1111				1226	1151
B1071	SOUTH OF LAVENHAM	2472			2502				2512	2462
B1078	WEST OF NEDGING TYE	1557							1563	1738
B1115	EAST OF CHELSWORTH		1785	2110					2018	
B1080	NORTH OF HOLBROOK	3340		3563	3542	3442		3631		3608
B1456	NORTH WEST OF CHELMONDISTON									5263
B1508	NORTH OF BURES		3335		3492					3466
A0134	ASSINGTON		7640							
A0134	EAST OF SUDBURY			9808		10336			11097	
A1092	GLEMSFORD, BETWEEN B1065 and B1066		5409		5868					
A1141	MONKS ELEIGH VILLAGE		3135						3024	
A1141	BETWEEN MONKS ELEIGH AND SEMER		1449		2192				1453	1667
B1029	NORTH OF DEDHAM		2085		2070	2231			1984	2121
B1065	SOUTH OF GLEMSFORD		2129.5		2088				1837	1797
B1068	LEAVENHEATH				2644	3023			2846	
B1070	EAST BERGHOLT - SOUTH OF A12					5402	5463	5599.7	5156	5215.7
B1087	SOUTH OF STOKE BY NAYLAND		1819		1875	1965			1913	2067
B1115	NORTH EAST OF SUDBURY			5490	6585				6702	6112
B1115	WALDINGFIELD			7486.5	9530				8229	7863
C0711	SOUTH EAST OF ACTON			3372	3873				3397	3408
C0714	SOUTH OF WALDINGFIELD			2726	3453				3129	3263
A1071	HADLEIGH BYPASS WEST	5182								
A1071	HADLEIGH BYPASS EAST	6231								
B1070	HADLEIGH, GALLOWES HILL		3550		3868	3896		3895		3706
C0495	COPDOCK - OLD A12									
B1070	HADLEIGH LADY LANE		4775		5989				7674	4674
B1064	SOUTH OF RODBRIDGE		12060	12407	12521	12701			12339	
A0131	BALLINGDON STREET - SUDBURY	14188	13778	13522	13553	14150	14184	14498	14511	14395
A0134	EASTERN BYPASS (N.W. END) SUDBURY			12267	14841				13097	
A0134	EASTERN BYPASS (South) - SUDBURY		21617			11568			9126	
A0131	WEST OF EASTERN BYPASS - SUDBURY			10480				11838		
U8637	NORTHERN RD S. OF A134 SUDBURY			7196						
A0131	NORTHERN END OF MELFORD ROAD SUDBURY	12320							12860	
C0712	WALDINGFIELD ROAD - SUDBURY	8966	9195.7	10042	10633	10411	10925	10915	10963	10797

**Appendix G: Cross Street, Sudbury AQMA Order 2008.**



<b>Air Quality Management Order 2008, Schedule 1</b>		
Air Quality Management Area: Map reference No. AQMA1/08		
	<b>BABERGH DISTRICT COUNCIL</b> Corks Lane, Hadleigh, Ipswich, IP7 6SJ Telephone : 01473 822801 minicom : 01473 825878 www.babergh.gov.uk	 <b>SCALE 1:1250</b> <small>This map is based on Ordnance Survey mapping with the permission of Ordnance Survey on behalf of the Controller of Her Majesty's Stationery Office (c) Crown copyright. Unauthorised reproduction infringes Crown copyright and may lead to prosecution or civil proceedings. Babergh District Council Licence number : 100023274 2006</small>

Date Printed : 06/11/2008