

2009 Air Quality Updating and Screening Assessment for *Wycombe District Council*



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

A Report produced by Wycombe District Council April 2009

Written by Claire Spendley

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Wycombe District Council

Executive Summary

The basis for the updating and screening assessment is to identify any significant changes that may have occurred since previous rounds of review and assessment and to identify any areas that may have been previously unassessed. The report includes continuous monitoring data from 3 sites within the Wycombe District and diffusion tube data from 34 locations throughout the district alongside information relating to transport and planning. The report concludes that as a result of diffusion tube data and previously unassessed receptors, it is necessary to proceed to a detailed assessment within High Wycombe town centre and immediate surrounding area for the pollutant NO₂ in relation to road traffic sources. Monitoring within this area is also currently being reviewed in relation to these findings.

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1 Introduction

1.1 Description of Local Authority Area

Wycombe District Council is a semi rural District situated in the South of the County of Buckinghamshire and includes part of the Chiltern Hills. High Wycombe is comprised of three main valleys which convene in the town, the roads that track through the bottom of these valleys are the dominant source of pollution for the town. The surrounding areas form a mixture of small towns and villages scattered throughout a rural patchwork; the southern most part of the District is dissected by the M40 motorway which is the main source of pollution within the area indicated by its associated Air Quality Management Area (AQMA) which spans 30m either side of the carriageway along its route through the District.

There are a number of industrial sites throughout the area many of which consist solely of light industry and none form a dominant source of pollution.

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 exceedences are considered likely, the local authority must then declare an Air Quality Management Area (AQMA) and prepare an Air Quality Action Plan (AQAP) setting out the measures it intends to put in place in pursuit of the objectives.

1.3 Air Quality Objectives

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

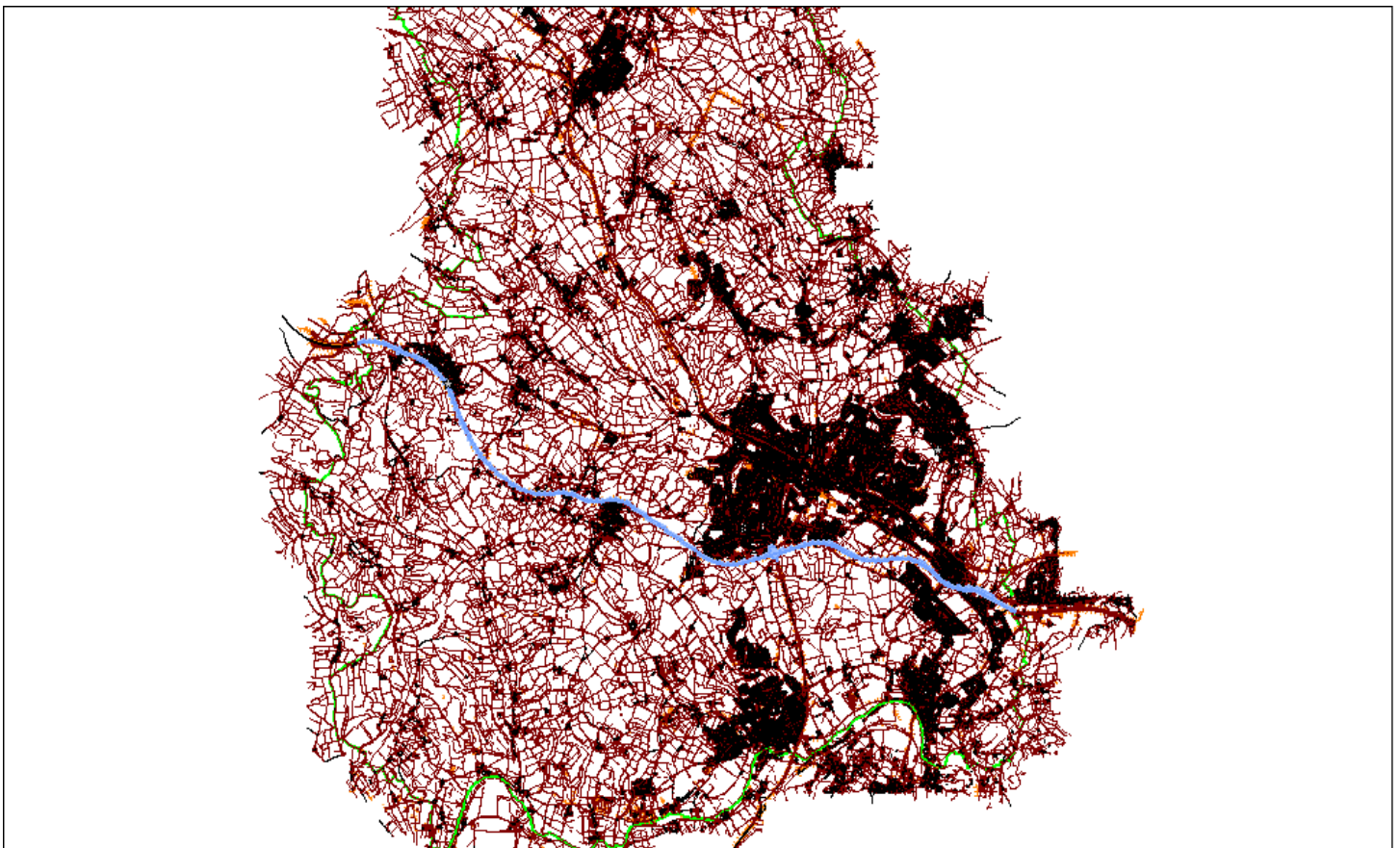
Table 1.1 Air Quality Objectives included in Regulations for the purpose of Local Air Quality Management in England.

Pollutant	Air Quality Objective		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 mg/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 ₁₀) (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

- Review and assessments of air quality in the Wycombe district indicated levels of nitrogen dioxide likely to exceed the national objectives along the M40
- We declared an air quality management area and an air quality action plan (AQAP) was completed in 2002. The AQMA spans 30m either side of the carriageway.
- An updating screening assessment (USA) in 2003 concluded no significant changes in industry, trade or traffic flow had occurred to increase the risk of pollution
- Progress reports have been completed for 2004 and 2005 detailing progress on the actions laid out in the AQAP along with the latest monitoring results
- A 2006 USA highlighted the requirement for a detailed assessment (DA) to be carried out in the West Wycombe area to investigate possible breaches in the national objectives for nitrogen dioxide.
- The 2006 DA concluded that it was not appropriate to declare a second AQMA in the West Wycombe area.
- The Progress report in 2007 concluded that there was little change with regards to air quality within the District with respect to previous years.

AQMA depicted in blue on the District map below



2 New Monitoring Data
2.1 Summary of Monitoring Undertaken
2.1.1 Automatic Monitoring Sites

Additional Sites

The monitoring site located within the village of West Wycombe is an addition since the previous round of review and assessment. This was installed as a result of a Detailed Assessment carried out in the area which concluded that an AQMA need not be declared at this time but highlighted the need for further monitoring within this area.

Calibrations & Audits

Monthly calibrations on all three sites are carried out by the officers of Wycombe District Council. Site audits are carried out by AEA (the data management company) on a 6 monthly basis. Audits are also carried out along with servicing by Supporting U (the equipment maintenance company) on a 6 monthly basis.

Data Validation & Ratification

All data from the three Wycombe stations are managed by external consultants (AEA) to quality procedures developed under the UK National Network. The data management processes represent best practice and fully meet the requirements set out in LAQM TG(09).

All data is screened and scaled (on the basis of site calibrations) and the final data sets presented within this report have benefited from a full process of data ratification, including additional data quality checks that include site UKAS quality control audits and a final data ratification process that corrects data for instrument sensitivity drift between routine calibrations.

TEOM Data

PM₁₀ monitoring data is corrected using VCM methodology.

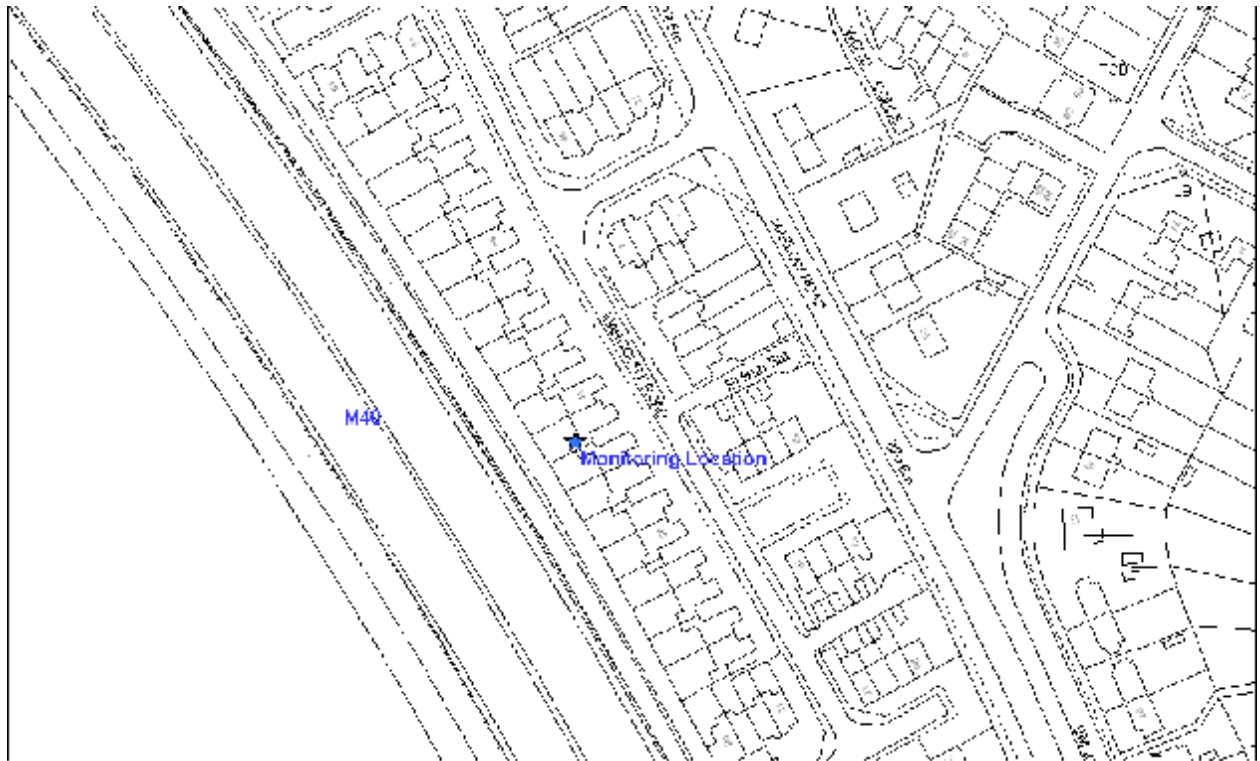
Table 2.1 Details of Automatic Monitoring Sites

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?
Stokenchurch	Suburban	X 476604 Y 195436	NO ₂	Y	Y (0m)	14m	Y
West Wycombe	Suburban	X 483040 Y 194641	NO ₂	N	Y (18m)	21m	N
Wycombe Abbey	Background	X 486820 Y 192480	NO ₂	N	N	267m	N

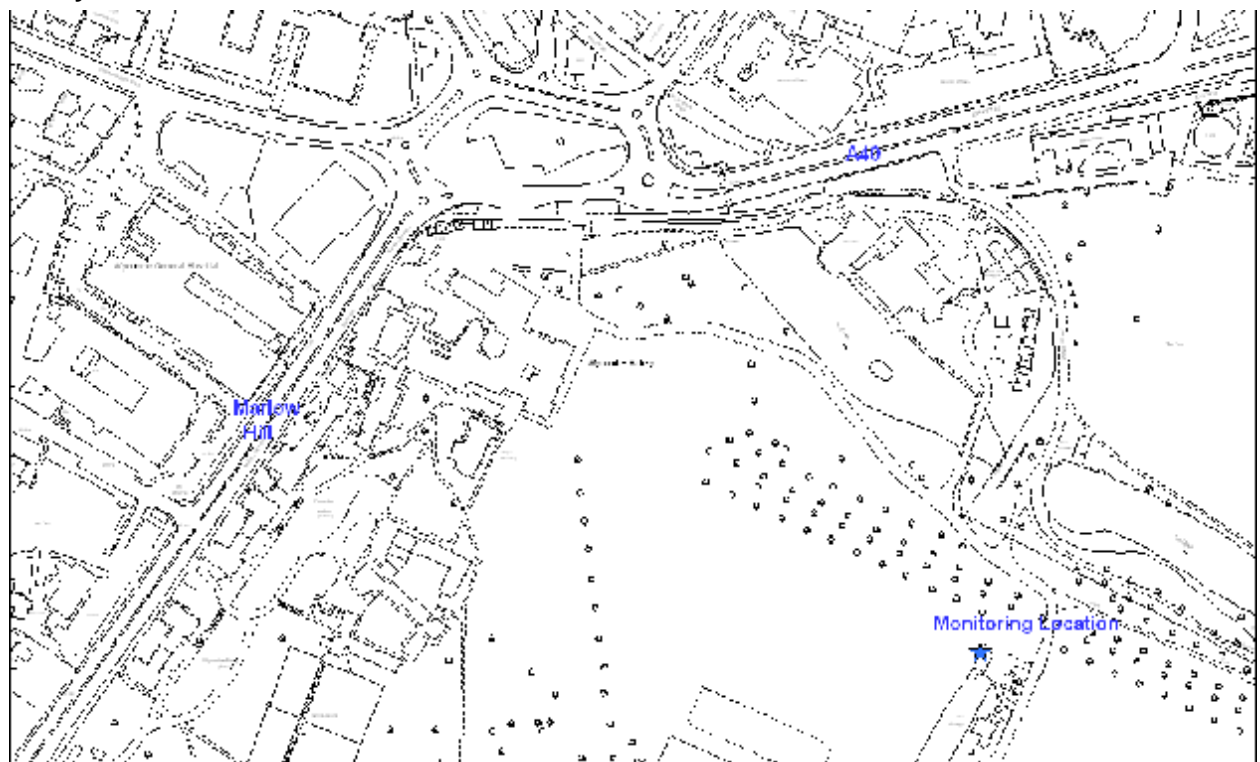
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The maps below highlight the locations of the three continuous monitoring sites.

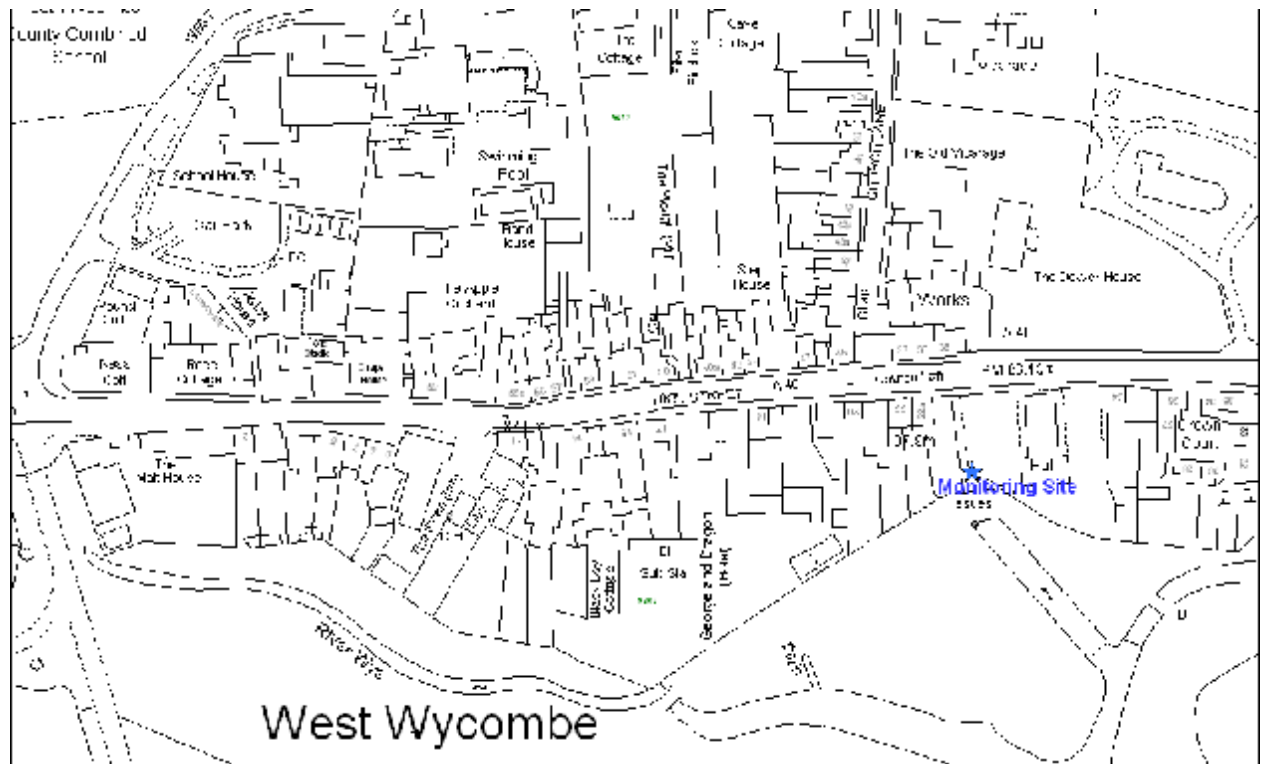
Stokenchurch site



Abbey Site



West Wycombe site



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2.1.2 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?
Tubes 1&2	Roadside	X 475,272 Y 196,243	NO ₂	Y	Y 70m	2.5m	Y
Tubes 3&4	Roadside	X 475,934 Y 196,329	NO ₂	N	Y 18m	2m	Y
Tube 49	Suburban	X 476,148 Y 195,978	NO ₂	Y	Y 18m	2m	Y
Tubes 60&61	Suburban	X 476,604 Y 195,436	NO ₂	Y	Y 0m	14m	Y
Tubes D&D1	Roadside	X 480,690 Y 192,440	NO ₂	Y	Y 70m	1m	Y
Tubes 7,8&O3	Rural	X 478,343 Y 186,402	NO ₂ & O ₃	N	Y 30m	2m	Y
Tubes 9&10	Roadside	X 485,025 Y 186,288	NO ₂	N	Y 34m	2m	N
Tubes 11&12	Urban Industrial	X 486,170 Y 186,767	NO ₂	N	Y 240m	2m	N
Tube 16	Roadside	X 489,397 Y 187,410	NO ₂	N	Y 17m	2m	Y
Tubes 17&18	Roadside	X 491,369 Y 188,471	NO ₂	N	Y 12m	2m	Y
Tubes B&B1	Roadside	X 490,250 Y 190,280	NO ₂	Y	Y 8m	2m	Y
Tubes 21&22	Urban Industrial	X 490,610 Y 190,140	NO ₂	N	Y 130m	10m	N
Tubes A&A1	Suburban	X 496,784 Y 190,218	NO ₂	Y	Y 0m	5m	Y
Tubes 45&46	Urban Background	X 486,820 Y 192,480	NO ₂	N	Y 290m	267m	N
Tubes 47&48	Roadside	X 486,379 Y 192,509	NO ₂	N	Y 0m	3.5m	Y
Tube H8	Suburban	X 485,926 Y 191,378	NO ₂	N	Y 0m	88m	Y
Tube H3	Suburban	X 485,236 Y 191,153	NO ₂	?	N	33m	Y
Tube H5	Suburban	X 485,284 Y 191,274	NO ₂	?	Y 0m	19m	Y
Tubes 25&26	Urban Industrial	X 484,576 Y 191,623	NO ₂	N	Y 58m	2m	N
Tubes 27&28	Roadside	X 485,160 Y 193,846	NO ₂	N	Y 7m	5m	Y
Tubes 33&34	Roadside	X 482,898 Y 196,193	NO ₂	N	Y 14m	3m	Y
Tubes F&F1	Roadside	X 483,038 Y 194,661	NO ₂	N	Y 0m	1.5m	Y
Tubes E&E1	Roadside	X 483,008 Y 194,671	NO ₂	N	Y 0m	1.5m	Y
Tubes H&H1	Roadside	X 482,879 Y 194,661	NO ₂	N	Y 0m	1.5m	Y
Tubes G&G1	Roadside	X 482,909 Y 194,643	NO ₂	N	Y 0m	5m	N

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Tubes 35&36	Roadside	X 480,961 Y 203,390	NO ₂	N	Y 27m	2m	Y
Tubes 51&52	Urban Centre	X 486,476 Y 193,669	NO ₂	N	Y 1m	1.5m	Y
Tubes 43&44	Roadside	X 486,614 Y 194,306	NO ₂	N	Y 6m	2m	Y
Tubes 41&42	Roadside	X 487,635 Y 194,561	NO ₂	N	Y 5m	2m	Y
Tubes 63&64	Urban Centre	X 486,778 Y 192,964	NO ₂	N	Y 0m	2m	Y
Tubes 55&56	Urban Centre	X 486,348 Y 192,823	NO ₂	N	Y 0m	14m	Y
Tubes 57&58	Urban Centre	X 486,217 Y 192,997	NO ₂	N	Y 0m	1.5m	Y
Tube 59	Urban Centre	X 486,365 Y 193,268	NO ₂	N	Y 0m	4m	Y
Tubes 53&54	Urban Centre	X 487,103 Y 192,775	NO ₂	N	Y 0m	2m	Y

Diffusion Tubes:

Wycombe District Council uses Bureau Veritas Laboratories for the diffusion tube analysis. The following statement has been given on their QA/QC procedure.

The Quality System

Bureau Veritas has a defined quality system, which forms part of the UKAS accreditation that the laboratory holds. All accredited methods are fully documented.

All external proficiency scheme results are also assessed by the Quality Manager at Bureau Veritas. The Quality Manager also carries out internal audits.

Calibration

The instrument is calibrated daily, using a series of calibration standards to ensure a satisfactory linear response is obtained. A standard check is analysed after every fifty samples to ensure that the calibration is still valid.

Quality Control

A series of ten quality control check solutions are analysed before any samples in order to check system stability and performance. An external quality control check solution prepared by netcen is analysed once per month in order to check our internal QC, results of this check are reported back to netcen.

Tube Preparation and Analysis

The NO₂ tubes are prepared and analysed in a separate, designated part of the laboratory within the main laboratory building, ambient nitrogen dioxide concentrations within the laboratory are monitored routinely. Tubes are prepared by spiking with 10% TEA in water. Blanks from each batch of tubes prepared in the laboratory are retained for verification.

Data is checked by the analyst as it is generated, QC data is plotted immediately after it is obtained. All raw data and data transfer is checked by a supervisor, data entry into the Laboratory Information Management System (LIMS) is also checked and the final reports are checked before signing.

Bias Adjustment of Diffusion Tubes

On the basis of the local co-location study at Stokenchurch, a diffusion tube bias adjustment factor of 0.83 obtained from the national database (on LAQM website) for this laboratory. This factor was chosen due to the robustness of the data in comparison with the two calculated factors from Wycombe co location studies, which came out as 0.69 and 1.25 respectively. Due to the large difference between these two factors and the fact that the national one fell between them it was thought that this would be the most accurate factor to use.

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Laboratory precision and WASP

Results from the centralised quality control schemes for Bureau Veritas laboratories as published on the LAQM helpdesk website illustrates good precision was found for all months throughout 2008 with the exception of 2.

Bureau Veritas confirms their procedures follow the guidance laid out in the Harmonisation Practical Guidance.

2.2 Comparison of Monitoring Results with AQ Objectives

No exceedences of the hourly objective of ($200 \mu\text{g}/\text{m}^3$) were recorded at any of our three automatic monitoring sites. One exceedence of the annual mean ($40 \mu\text{g}/\text{m}^3$) was seen in at our Stokenchurch site which is within the AQMA. This indicates that the AQMA should remain for NO_2 , and that there is no need to carry out any further assessments at our Abbey or West Wycombe sites in relation to NO_2 based on these results.

The diffusion tube data highlights exceedences of tubes D & D1 which are in the AQMA. Tubes 47 & 48, 51 & 52, 63 & 64, 57 & 58, 59 and 53 & 54 all exceeded the $40 \mu\text{g}/\text{m}^3$ limit. These are all new tubes situated in and around the town centre location, as they are relatively new the data is not representative of a full year and therefore is subject to change. Based on these exceedences monitoring in these areas will continue and we will proceed to a detailed assessment for NO_2 in order to fully assess the levels of NO_2 within this area.

2.2.1 Nitrogen Dioxide

The automatic monitoring data in our three sites indicated no exceedence of the hourly objective of ($200 \mu\text{g}/\text{m}^3$). One exceedence of the annual mean was seen in 2008 at our Stokenchurch site which is within the AQMA. Indicating that the AQMA should remain and there is no need to carry out any further assessments at our Abbey or West Wycombe sites in relation to this pollutant.

The Stokenchurch site is located on the façade of a bungalow representing relevant exposure for all the dwellings along this road which runs parallel to the M40 motorway.

The Wycombe Abbey site is not representative of public exposure as it is our urban background site, no exceedences were found here.

The West Wycombe monitoring location is representative of relevant exposure with dwellings and a shopping street in this area, no exceedences were seen here. The decision from the previous detailed assessment in this area will therefore remain, no further assessments are necessary at this stage, monitoring at this location however will continue.

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

Site ID	Location	Within AQMA?	Proportion of year with valid data 2008 %	Annual mean concentrations (mg/m^3)		
				2006 *	2007 *	2008
Stokenchurch	Suburban	Y	87	37	36	42
West Wycombe	Suburban	N	73.3	21	19	17
Wycombe Abbey	Background	N	99.2	30	21	30

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

Site ID	Location	Within AQMA?	Data Capture 2008 %	Number of Exceedences of hourly mean (200 µg/m ³) <i>If the period of valid data is less than 90% of a full year, include the 99.8th %ile of hourly means in brackets.</i>		
				2006 *	2007 *	2008
Stokenchurch	Suburban	Y	87	0 (117)	0 (111)	0 (132)
West Wycombe	Suburban	N	73.3	0 (73)	0 (65)	0 (63)
Wycombe Abbey	Background	N	99.2	0 (134)	0 (97)	0 (94)

Data capture for Stokenchurch site in 2006: 84.2%, 2007: 87.8%
 Data capture for West Wycombe site in 2006: 23.2%, 2007: 89.8%
 Data Capture for Wycombe Abbey site in 2006: 98.7%, 2007: 90.9%

Diffusion Tube Monitoring Data

The diffusion tube data highlights exceedences of tubes D & D1 which are in the AQMA. Tubes 47 & 48, 51 & 52, 63 & 64, 57 & 58, 59 and 53 & 54 all exceeded the 40 µg/m³ limit. These are all new tubes situated in and around the town centre location, as they are relatively new the data is not representative of a full year. Based on these exceedences monitoring in these areas will continue and we will proceed to a detailed assessment for NO₂.

Table 2.4a Results of Nitrogen Dioxide Diffusion Tubes

Site Name	Location	In AQMA?	Data Capture 2008 %	Annual Mean concentrations
				2008 (ug/m ³) Adjusted for bias
Tubes 1&2	Stokenchurch, Green	Y	100 %	30 ug/m ³ (mean)
Tubes 3&4	Stokenchurch, off the Green	N	100 %	27 ug/m ³ (mean)
Tube 49	Stokenchurch Slade Rd	Y	92 %	33 ug/m ³
Tubes 60&61	Stokenchurch, Marcourt Rd	Y	96 %	36 ug/m ³ (mean)
Tubes D&D1	Wheeler End	Y	77 %	58 ug/m³ (mean)
Tubes 7,8&O ₃	Hambleden	N	96 %	17.5 ug/m ³ (mean)
Tubes 9&10	Marlow, Pound Lane	N	100 %	23 ug/m ³ (mean)
Tubes 11&12	Marlow, Parkway	N	92 %	30 ug/m ³ (mean)
Tube 16	Bourne End	N	92 %	30 ug/m ³
Tubes 17&18	Wooburn Green	N	96 %	30 ug/m ³ (mean)
Tubes B&B1	Loudwater, Lammas Way	Y	96 %	36.5 ug/m ³ (mean)
Tubes 21&22	Loudwater, MFI	Y	92 %	31 ug/m ³ (mean)
Tubes A&A1	Loudwater, Knaves Hollow	Y	100 %	33 ug/m ³ (mean)
Tubes 45&46	High Wycombe, Abbey Sch	N	100 %	21 ug/m ³ (mean)
Tubes 47&48	High Wycombe, Abbey Sch 2	N	81 %	41 ug/m³ (mean)
Tubes 25&26	Turnpike Rd	N	96 %	30 ug/m ³ (mean)

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Tubes 27&28	Birches Rise	N	100 %	29.5 ug/m ³ (mean)
Tubes 33&34	Bradenham Rd	N	96 %	28.5 ug/m ³ (mean)
Tubes F&F1	West Wycombe, Car Park	N	96 %	30 ug/m ³ (mean)
Tubes E&E1	West Wycombe, High Street	N	96 %	31.5 ug/m ³ (mean)
Tubes H&H1	West Wycombe Chapel	N	100 %	37 ug/m ³ (mean)
Tubes G&G1	West Wycombe, Butchers	N	100 %	27 ug/m ³ (mean)
Tubes 35&36	Princes Risborough	N	96 %	26.5 ug/m ³ (mean)
Tubes 51&52	High Wycombe Morrison's	N	31 %	42.5 ug/m³ (mean)
Tubes 43&44	High Wycombe Green Hill	N	85 %	33 ug/m ³ (mean)
Tubes 41&42	High Wycombe Chadwick St	N	58 %	37 ug/m ³ (mean)
Tubes 63&64	High Wycombe Crendon St	N	23 %	46 ug/m³ (mean)
Tubes 55&56	High Wycombe Kingfisher Ct	N	23 %	30.5 ug/m ³ (mean)
Tubes 57&58	High Wycombe Lily's Walk	N	23 %	44.5 ug/m³ (mean)
Tube 59	High Wycombe, Dovecot	N	23 %	40 ug/m³
Tubes 53&54	High Wycombe London Rd	N	23 %	47 ug/m³ (mean)

Bias factor used for 2008 = 0.83

Please see appendix 1 for full monthly diffusion tube data

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Table 2.4b Results of Nitrogen Dioxide Diffusion Tubes

Site Name	Location	In AQMA?	Annual Mean concentrations (ug/m ³) Adjusted for bias		
			2006	2007	2008
Tubes 1&2	Stokenchurch, Green	Y	35 ug/m ³ (mean)	39 ug/m ³ (mean)	30 ug/m ³ (mean)
Tubes 3&4	Stokenchurch, off the Green	N	28 ug/m ³ (mean)	27 ug/m ³ (mean)	27 ug/m ³ (mean)
Tube 49	Stokenchurch Slade Rd	Y	36 ug/m ³	34 ug/m ³	33 ug/m ³
Tubes 60&61	Stokenchurch, Marcourt Rd	Y	40 ug/m ³ (mean)	35 ug/m ³ (mean)	36 ug/m ³ (mean)
Tubes D&D1	Wheeler End	Y	64 ug/m ³ (mean)	73 ug/m ³ (mean)	58 ug/m ³ (mean)
Tubes 7,8&O ₃	Hambleden	N	16 ug/m ³ (mean)	20 ug/m ³ (mean)	17.5 ug/m ³ (mean)
Tubes 9&10	Marlow, Pound Lane	N	28 ug/m ³ (mean)	27 ug/m ³ (mean)	23 ug/m ³ (mean)
Tubes 11&12	Marlow, Parkway	N	31 ug/m ³ (mean)	33 ug/m ³ (mean)	30 ug/m ³ (mean)
Tube 16	Bourne End	N	31 ug/m ³	34 ug/m ³	30 ug/m ³
Tubes 17&18	Wooburn Green	N	31 ug/m ³ (mean)	35 ug/m ³ (mean)	30 ug/m ³ (mean)
Tubes B&B1	Loudwater, Lammas Way	Y	35 ug/m ³ (mean)	37 ug/m ³ (mean)	36.5 ug/m ³ (mean)
Tubes 21&22	Loudwater, MFI	Y	35 ug/m ³ (mean)	39 ug/m ³ (mean)	31 ug/m ³ (mean)
Tubes A&A1	Loudwater, Knaves Hollow	Y	34 ug/m ³ (mean)	33 ug/m ³ (mean)	33 ug/m ³ (mean)
Tubes 45&46	High Wycombe, Abbey Sch	N	21 ug/m ³ (mean)	23 ug/m ³ (mean)	21 ug/m ³ (mean)
Tubes 47&48	High Wycombe, Abbey Sch 2	N	-	-	41 ug/m ³ (mean)
Tubes 25&26	Turnpike Rd	N	31 ug/m ³ (mean)	33 ug/m ³ (mean)	30 ug/m ³ (mean)
Tubes 27&28	Birches Rise	N	33 ug/m ³ (mean)	37 ug/m ³ (mean)	29.5 ug/m ³ (mean)
Tubes 33&34	Bradenham Rd	N	33 ug/m ³ (mean)	30 ug/m ³ (mean)	28.5 ug/m ³ (mean)
Tubes F&F1	West Wycombe, Car Park	N	36 ug/m ³ (mean)	32 ug/m ³ (mean)	30 ug/m ³ (mean)
Tubes E&E1	West Wycombe, High Street	N	32 ug/m ³ (mean)	36 ug/m ³ (mean)	31.5 ug/m ³ (mean)
Tubes H&H1	West Wycombe Chapel	N	37 ug/m ³ (mean)	43 ug/m ³ (mean)	37 ug/m ³ (mean)
Tubes G&G1	West Wycombe, Butchers	N	39 ug/m ³ (mean)	28 ug/m ³ (mean)	27 ug/m ³ (mean)
Tubes 35&36	Princes Risborough	N	26 ug/m ³ (mean)	29 ug/m ³ (mean)	26.5 ug/m ³ (mean)
Tubes 51&52	High Wycombe Morrison's	N	-	-	42.5 ug/m ³ (mean)
Tubes 43&44	High Wycombe Green Hill	N	31 ug/m ³ (mean)	33 ug/m ³ (mean)	33 ug/m ³ (mean)
Tubes 41&42	High Wycombe Chadwick St	N	35 ug/m ³ (mean)	35 ug/m ³ (mean)	37 ug/m ³ (mean)
Tubes 63&64	High Wycombe Crendon St	N	-	-	46 ug/m ³ (mean)
Tubes 55&56	High Wycombe Kingfisher Ct	N	-	-	30.5 ug/m ³ (mean)
Tubes 57&58	High Wycombe Lily's Walk	N	-	-	44.5 ug/m ³ (mean)
Tube 59	High Wycombe, Dovecot	N	-	-	40 ug/m ³
Tubes 53&54	High Wycombe London Rd	N	-	-	47 ug/m ³ (mean)

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2.2.2 PM₁₀

The West Wycombe site is representative of relevant exposure based on dwellings and a shopping street within the vicinity. The Wycombe Abbey site however is an urban background location, therefore not representative of relevant exposure.

No exceedence of the annual mean ($40 \mu\text{g}/\text{m}^3$) for PM₁₀ were seen from either of the two monitoring sites in 2006, 2007 or 2008.

There were not more than 35 exceedences of the hourly objective ($50 \mu\text{g}/\text{m}^3$) at either of the sites in 2006, 2007 or 2008 also the 90th percentile did not exceed ($50 \mu\text{g}/\text{m}^3$) at either of the sites in 2006, 2007 or 2008.

Therefore concluding no further assessments are required for PM₁₀.

All data have been adjusted in accordance with the volatile correction method.

Table 2.5a Results of PM₁₀ Automatic Monitoring: Comparison with Annual Mean Objective

Site ID	Location	Within AQMA?	Data Capture 2008 %	Annual mean concentrations (mg/m^3)		
				2006 *	2007 *	2008
West Wycombe	Suburban	N	72.4	17	17	17
Wycombe Abbey	Background	N	74.5	22	18	17

Table 2.5b Results of PM₁₀ Automatic Monitoring: Comparison with 24-hour Mean Objective

Site ID	Location	Within AQMA?	Data Capture 2008 %	Number of Exceedences of hourly mean ($50 \text{ mg}/\text{m}^3$) <i>If data capture < 90%, include the 90th %ile of hourly means in brackets.</i>		
				2006 *	2007 *	2008
West Wycombe	Suburban	N	72.4	1(29)	6 (29)	0 (29)
Wycombe Abbey	Background	N	74.5	9 (37)	5 (33)	1 (28)

2.2.3 Sulphur Dioxide

The Wycombe Abbey site is not representative of relevant exposure, however there are no identified specific sources of sulphur dioxide within the Wycombe District that require monitoring. Monitoring at this site occurs as a result of historical monitoring equipment still being in place. Based on the data shown below the lack of any exceedences of the objectives and lack of identified sources within the District the relevance of this monitoring site is very limited and therefore its existence will be reviewed over the next year.

Site ID	Location	Within AQMA?	Data Capture 2008 %	Annual mean concentrations (mg/m^3)		
				2006 *	2007 *	2008
Wycombe Abbey	Background	N	98.8	5	3	2

Wycombe District Council

Site ID	Location	Within AQMA?	Data Capture 2008 %	Number of Exceedences of 15 min mean (266mg/m ³) <i>If data capture < 90%, include the 90th %ile of hourly means in brackets.</i>		
				2006 *	2007 *	2008
Wycombe Abbey	Background	N	98.8	0	0	0

Site ID	Location	Within AQMA?	Data Capture 2008 %	Number of Exceedences of hourly mean (250 mg/m ³) <i>If data capture < 90%, include the 90th %ile of hourly means in brackets.</i>		
				2006 *	2007 *	2008
Wycombe Abbey	Background	N	98.8	0	0	0

Site ID	Location	Within AQMA?	Data Capture 2008 %	Number of Exceedences of 24 hour mean (125 mg/m ³) <i>If data capture < 90%, include the 90th %ile of hourly means in brackets.</i>		
				2006 *	2007 *	2008
Wycombe Abbey	Background	N	98.8	0	0	0

2.2.4 Benzene

Results from the national survey and monitoring undertaken in the District in 1998 indicated that benzene levels would not exceed the 2010 objective of 5ugm³. It was also identified in our Stage 1 report that there was no need to carry out any further assessments in relation to benzene. It was therefore concluded that no further monitoring of benzene in the District was necessary at that stage, this was also the conclusion of the 2006 USA and as no new sources have been identified since this date, hence this is also the conclusion of this USA.

2.2.5 Other pollutants monitored

No need has been identified to monitor any further pollutants within the Wycombe District as no significant changes have occurred since the last round of review and assessments and the round 1 findings before that.

Wycombe District Council

3 Road Traffic Sources

3.1 Narrow Congested Streets with Residential Properties Close to the Kerb

Wycombe District Council has identified the A40 London Road, A40 Oxford Road, Crendon Street, Marlow Hill and the Hughenden Road as streets with traffic flows >5000 vehicles per day, this was based on officer counts (full traffic data is yet to arrive from Bucks County Council) as a result diffusion tubes have been installed (see results in section 2.4) the initial results indicate exceedences in the objectives therefore also highlighting the need for a detailed assessment in these locations.

Wycombe District Council has identified congested streets with a flow above 5,000 vehicles per day and residential properties close to the kerb, not adequately considered in previous rounds of Review and Assessment, and **will need to proceed to a Detailed Assessment.**

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

No new shopping streets have been identified within the Wycombe District, the new shopping centre (Eden) is not roadside and is partially enclosed and therefore need not be considered. The old shopping street locations remain unchanged.

Wycombe 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.

Wycombe District Council are still awaiting full traffic data from Bucks County Council (requested in March) however initial roadside counts by officers have not indicated any significant changes on previous years.

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

3.4 Junctions

There have been no new busy junctions or roads identified in the District since previous assessments based on data provided by Bucks County Council and officer counts.

Wycombe 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

Based on data provided by Bucks County Council and District awareness there have been no new roads requiring assessment identified within the District.

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

3.6 Roads with Significantly Changed Traffic Flows

Wycombe District Council are still awaiting full traffic data from Bucks County Council (requested in March) however initial roadside counts by officers have not indicated any significant changes on previous years.

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

3.7 Bus and Coach Stations

The new bus station is situated within the Eden shopping centre development, there are no residential properties within 10m of the station. The only public exposure comes from people waiting for buses, this is estimated not to exceed 1hr and would therefore not be considered relevant exposure. The bus station when completed in 2006 was termed 'state of the art' as it is also equipped with a sliding door screen and concourse waiting area which aims to keep passengers away from potentially harmful fumes.

Wycombe District Council has assessed the new bus station, and concluded that it will not be necessary to proceed to a Detailed Assessment.

Wycombe District Council

4 Other Transport Sources

4.1 Airports

Based on the constant review of planning applications within the district we can confirm that no new airports have been built within the district.

Wycombe District Council confirms that there are no new airports in the Local Authority area.

4.2 Railways (Diesel and Steam Trains)

4.2.1 Stationary Trains

As a result of consultation with Chiltern Railways and First Great Western Railways we can confirm that there are no trains within the relevant exposure distance that regularly wait for more than 15min.

Wycombe 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

Wycombe 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)

Wycombe 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

Based on our continual review of planning applications and our air quality working group meetings, we can confirm that there are no new proposed installations for which air quality assessments have been required.

Wycombe 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

Based on the continual review of planning applications and our work regarding IPPC legislation we can confirm that there are no installations with substantially increased emissions within the District.

Wycombe 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

Based on the continual review of planning applications we can confirm that there are no new or proposed industrial installations that could contribute to the annual mean concentrations of NO₂, SO₂ or PM₁₀.

Wycombe 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

Based on continual reviews of planning applications, we can confirm that there are no new major fuel depots within the District since the previous round of Review and assessment.

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

Wycombe District Council

5.3 Petrol Stations

No petrol stations within the district have relevant exposure within 10m of the pump. There are currently no identified stations near to busy roads with a throughput of more than 2000m³ of petrol that have not been considered within previous reports. As part of our IPPC work we are currently reassessing all our petrol stations in relation to the new Stage II vapour recovery requirements, should the outcome from this highlight any stations with the relevant throughput then monitoring of these will be implemented.

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

5.4 Poultry Farms

Based on our continual review of planning applications and good relations with the Environment Agency we can confirm that there are no new poultry farms containing 100,000 (turkey birds) or above 200,000 (chickens) within the Wycombe District.

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

6 Commercial and Domestic Sources

6.1 Biomass Combustion – Individual Installations

Based on our continual review of planning applications and air quality assessments we can confirm that there are no new biomass combustion installations that have caused a measurable difference in the air quality within the district.

6.2 Biomass Combustion – Combined Impacts

Based on the continual review of planning applications we can confirm that there are no biomass combustion plants within the district that burn between 50KW – 20 MW.

Wycombe District Council confirms that there are no biomass combustion plant in the Local Authority area burning 50KW to 20MW units.

6.3 Domestic Solid-Fuel Burning

Based on our smoke control area and response to smoke related complaints we can confirm that there are no areas of significant domestic fuel use within the district.

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

Wycombe District Council

7 Fugitive or Uncontrolled Sources

Based on our continual review of planning applications and enforcement of IPPC legislation we can confirm that there are no new or unassessed fugitive or uncontrolled emissions.

8 Conclusions and Proposed Actions

8.1 Conclusions from New Monitoring Data

The latest continuous monitoring data highlights exceedences within the AQMA at our Stokenchurch site which confirms the AQMA is still necessary in this area for this source. No other exceedences were identified.

The diffusion tube data highlighted exceedences within the AQMA (tubes D & D1) and exceedences outside the AQMA along the A40 London Road (tubes 53 & 54), Oxford Road (tube 59), Crendon Street (tubes 63 & 64), Marlow Hill (tubes 47 & 48), Lily's Walk (tubes 57 & 58) and Hughenden Road (tubes 51 & 52). These were shown by new diffusion tubes recently installed and therefore are based on < 100% data capture, all of these locations are directly within or surrounding the town centre and highlight the need for a detailed assessment within this entire area to be carried out for the pollutant NO₂ based on road traffic sources.

8.2 Conclusions from Assessment of Sources

Residential properties close to the kerb which had previously not been assessed were identified in the round as Crendon Street (tubes 63 & 64), Hughenden Road (tubes 51 & 52), Oxford Road (tube 59), Marlow Hill (tubes 47 & 48), Lily's Walk (tube 59) and London Road (tubes 53 & 54), tubes have been installed at all of these locations and indicate that a problem may exist and as such a detailed assessment within these areas will be carried out for the pollutant NO₂ based on road traffic sources.

8.3 Proposed Actions

Based on the findings detailed within this report it is necessary for us to proceed to a Detailed Assessment for the pollutant NO₂ in relation to traffic sources, this is based on a number of town centre diffusion tube exceedences and traffic counts. The assessment area will include the town centre and each of the arterial roads feeding into this which have highlighted exceedences, namely London Road, Marlow Hill and Hughenden Road.

As part of the detailed assessment within the town centre we will consider the installation of new monitoring equipment to measure NO₂.

The data has confirmed no changes to the AQMA are required as no new exceedences have been seen in the surrounding area. It is not necessary to revoke the AQMA based on exceedences within the existing boundary.

The next course of action for us is therefore to submit a 2010 progress report as well as a 2010 Detailed Assessment for NO₂ based on road traffic sources in the town centre and the immediate surrounding area.

Local Air Quality Management Technical Guidance TG (09). DEFRA

Appendix 1 – Diffusion Tube Data

Tube No	Periods													Raw Mean
	1	2	3	4	5	6	7	8	9	10	11	12	13	
1	41	23	50	37	31	50	38	24	18	44	21	46	51	36.5
2	42	26	49	42	16	54	38	24	19	37	33	46	51	36.7
3	47	34	51	32	26	18	22	28	26	34	30	41	37	32.8
4	48	36	58	30	30	23	19	29	23	20	29	41	39	32.7
49	46	39	60	63	31	22		37	32	37	36	40	34	39.8
60	41	45	62	48	49	17	28	36	46	41	52	50	42	42.8
61	49	45	56	49	43	18	46	31	41	41		48	46	42.8
16		35	50	32	34	37	30	21	28	38	30	39	52	35.5
7	30	16	38	16	15	17	12	11	10	23	59	23	26	22.8
8	31	16	35	16	18	17		11	7	18	19	20	29	19.8
9	34	22	45	32	23	29	17	15	17	27	18	32	56	28.2
10	37	23	40	30	21	34	22	15	19	27	23	31	40	27.8
11	44	34	65	29	29	52	29	19	17	38	25	39	46	35.8
12	44		55	31	42	38	28	21		20	30	37	47	35.7
17	45	33	58	37	28	33	25	23	19	35	36	43	52	36
18	45	37	56	33	29	36	25	23	27		32	37	48	35.7
21	42	25	54		31	46	32	21	23	36	41	42	48	36.8
22	42	31	52		34	42	35	20	23	36	37	45	49	37.2
25	48	34	59	34	29	40		19	22	37	48	39	47	38
26	46	29	45	32	31	36	26	18	23	35	31	41	48	33.9
27	39	43	48	36	32	28	28	23	21	31	28	39	41	33.6
28	41	39	72	33	37	37	22	27	21	33	36	38	43	36.8
33	38	35	55	36	29	28	31	21	25	30	37	46	44	35
34	45	34	44	35	28	28		18	24	31	33	40	45	34.1
35	41	27	50	37	27	23	31		21	25	32	43	34	32.6
36	39	26	51	36	27	21	24	20	20	29	29	40	39	30.8
41	58	39	67	37							42	42	45	47.1
42	55	40	60	40	37						29	33	45	42.4
43	45	50	46	34	29	40	34			33	44	39	37	39.2
44	44	43	42	37	36	34	32			33	48	44	46	39.9
45	36	22	40	22	20	16	14	17	13	24	36	35	35	25.4
46	34	21	46	29	21	14	17	16	15	23	23	34	38	25.5
A	39	68	67	43	32	27	28	41	36	35	32	37	26	39.3
A1	39	68	67	43	32	27	28	41	36	35	32	37	26	39.3
B	52	46	62	40	39	39	39	38	40	45	35	46	38	42.9
B1	49	45	66	42	34	39	37		40	45	42	51	48	44.8
D	72	56		78	79		82		46	62	36	81	82	67.4
D1	85	59		83	75		74		68	58	57	76	87	72.2
E	44	35	45	42	40	39	29	24	32		34	41	46	37.6
E1	47	34	51	43	34	43	36	25	24	38	35	42	46	38.3
F	48	36	49	43	41	29	27	23	37		30	33	41	36.4
F1	43	38	53	41	30	28	26	26	29	30	43	40	38	35.8
G	38	33	42	25	33	27	28	24	29	29	25	41	40	31.8
G1	37	37	44	37	32	29	24	26	26	27	47	33	38	33.6
H	53	43	54	41	39	57	39	32	30	39	46	50	55	44.5
H1	51	39	55	49	46	40	46	30	35	37	42	49	53	44
47			66	61	47	36	48	35	38	22	47	57	60	47
48				70	47	34	51	37	39	53	50	64	70	51.5
51										30	55	57	56	49.5
52										47	48	59	59	53.5
57													52	52
58													56	56
59										47	47	47	51	48
63											28	55	69	50.7
64											49	61	71	60.3
55											29	31	56	38.7
56											28	31	45	34.7
53											51	52	63	55.3
54											48	56	69	57.7

