



WEST OXFORDSHIRE
DISTRICT COUNCIL



WEST OXFORDSHIRE DISTRICT COUNCIL



2010 Air Quality Progress Report for WEST OXFORDSHIRE DISTRICT COUNCIL

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

April 2010

Local Authority Officer	Andrew Ward BSc(Hons) Senior Technical Officer
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Department	Community Services Environmental Protection and Enforcement
Address	Elmfield New Yatt Road Witney Oxon OX28 1PB
Telephone	01993 861340
e-mail	andrew.ward@westoxon.gov.uk

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Executive Summary

The monitoring reported within the 2010 Progress Report for West Oxfordshire District Council does not indicate any additional areas of general concern with regard to air quality.

Within the District there are no industrial developments with air pollution implications and any development proposals have been considered with regard to their potential to increase traffic pollution in the AQMAs and other areas.

Chipping Norton AQMA

The Chipping Norton Air Quality Action Plan, as accepted by Defra, proposed the introduction of a Weight Limit for HGVs and re-routing of HGV traffic (primarily targeting the Vale of Evesham / SE England two way flow).

The proposal has the objective of reducing HGV traffic density on the A44 through Chipping Norton by routing traffic further to the West on the A40 to access the Vale of Evesham from the South. This measure would involve 'de-priming' the A44 (currently a Primary Route for HGVs) and associated modification to signage.

Oxfordshire County Council (OCC) commissioned advanced feasibility work for the implementation of the lorry management measures including consultation with neighbouring Counties and costing of proposals. This was expected to be complete by end of FY 2009 / 10. Confirmation of this and a schedule for implementation is still awaited.

Witney AQMA

The Draft Action Plan for the Witney AQMA had been deferred for a significant period pending the outcome of the Cogges Link Road (CLR) Planning Application by OCC and, in part, the installation of new continual monitoring equipment within the Witney AQMA to provide pre and post CLR development air quality data.

Planning Permission for CLR was granted in February 2009. On 25 April 2009, OCC were advised to accept a 'Town Green' application for the Witney Country Park as being 'duly made'. The Town Green application will most probably progress to a public consultation stage in due course.

The Draft Action Plan for the Witney AQMA has been written with the assumption that the CLR will proceed as per the Planning Consent. This was due for submission in the last quarter of 2009 but has been held over pending the outcome of the Town Green application. Should this application not succeed the Draft Action Plan will then be submitted to Cabinet, put out to public consultation, reviewed and then forwarded to Defra.

The installation of continual monitoring equipment within the Witney AQMA has been completed and the equipment is operational on the bridge in Bridge Street.

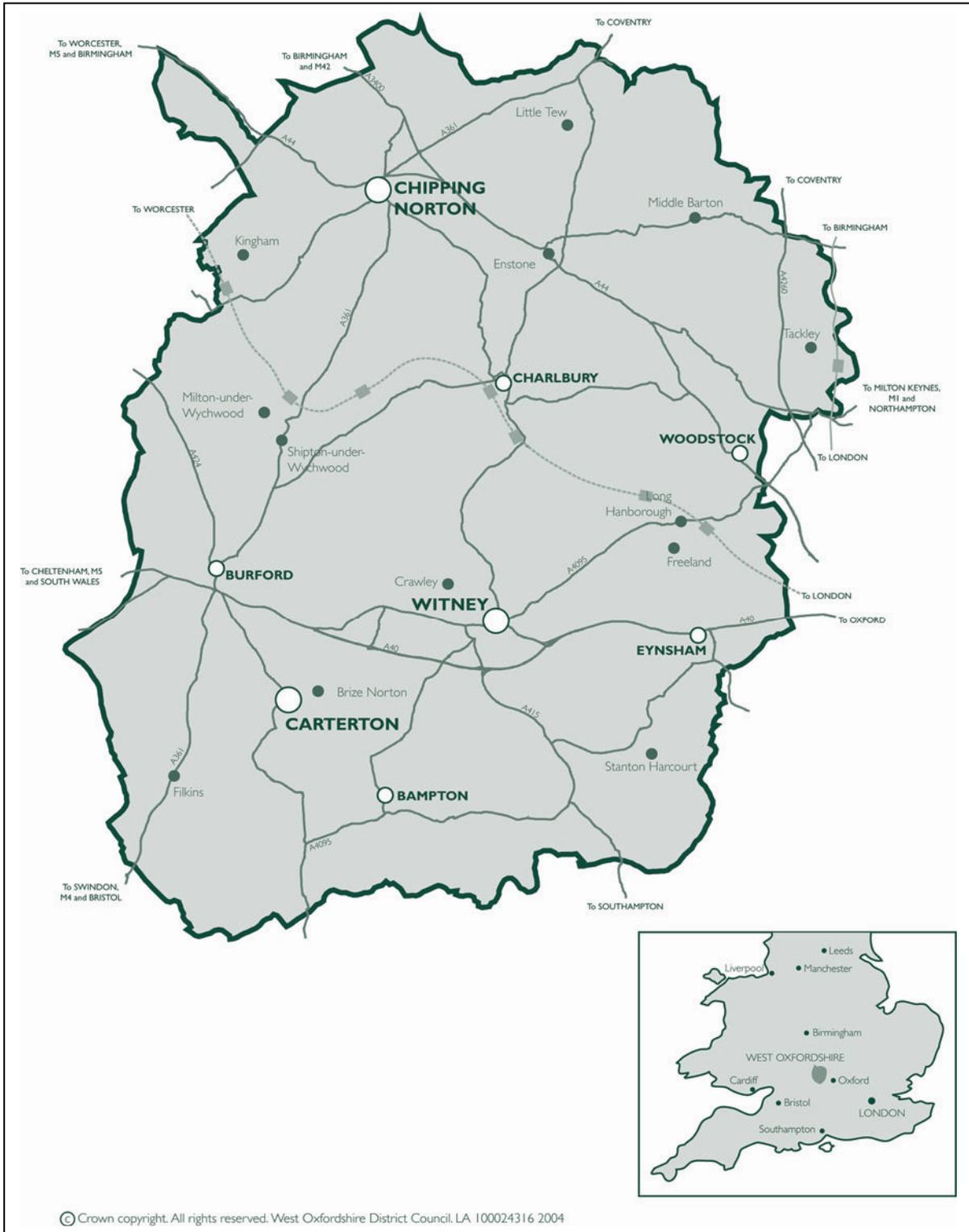


Figure 1.1 West Oxfordshire District

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1 Introduction

1.1 Description of Local Authority Area

West Oxfordshire is one of the most attractive parts of Britain, lying to the north of the River Thames, to the west of the city of Oxford and including the eastern edge of the Cotswolds, part of the District is designated an Area of Outstanding Natural Beauty.

It is a rural district covering 714 km² with a population of 96,000 spread across a large number of relatively small settlements, totalling 83 parishes.

Situated in a prime central location, there are excellent communications to most parts of the country via the A40/M40 and the A34 roads. There are railway stations at Charlbury, Hanborough and Kingham with regular services to London and Birmingham.

It has a rich architectural and historic heritage ranging from Cotswold stone cottages to the splendour of Blenheim Palace, a World Heritage site.

As can be expected from the above, tourism is buoyant and is a main contributor to the district's vibrant economy. The business sector is made up of a healthy mixture of high technology, small and medium enterprises and unemployment is (in normal times) less than 1%. The area faces no major social problems and crime figures are amongst the lowest in the country.

1.2 Purpose of Progress Report

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

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

1.3 Air Quality Objectives

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

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

Pollutant	Concentration	Measured as	Date to be achieved by
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 (PM₁₀) (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

Two AQMA declarations have been made in the District because the annual nitrogen dioxide objective in the Air Quality (England) Regulations 2000 was unlikely to be met by December 2005 and the cause of this was believed to be traffic related.

The areas are detailed in Figures 1.2 and 1.3 below and were declared on 7th February 2005 (date of order). The development of the action plans began for both areas and a continuous monitoring site established in Chipping Norton. This site has been in operation since March 2006. The original continuous monitoring site in Witney had to be decommissioned because the site was sold. However, another site in that area has been established and continuous monitoring resumed in April 2009.

Oxfordshire County Council outlined a number of traffic management options which needed looking at in more detail to investigate their feasibility and impact on air quality so that a cost benefit analysis could be applied to each option. The County employed consultants to appraise the traffic management options and the results were used by the District Council's air quality consultants to model and predict their impact on air quality.

With regard to Chipping Norton, the Air Quality Action Plan was accepted by Defra in early 2009.

In Witney, the approved traffic management option is the subject of a current Town Green application. A draft of the proposed Action Plan has been completed but, pending the outcome of the Town Green application, has not yet been approved by Cabinet nor been released for public consultation.

Figure 1.2 Map of AQMA Boundaries – Witney

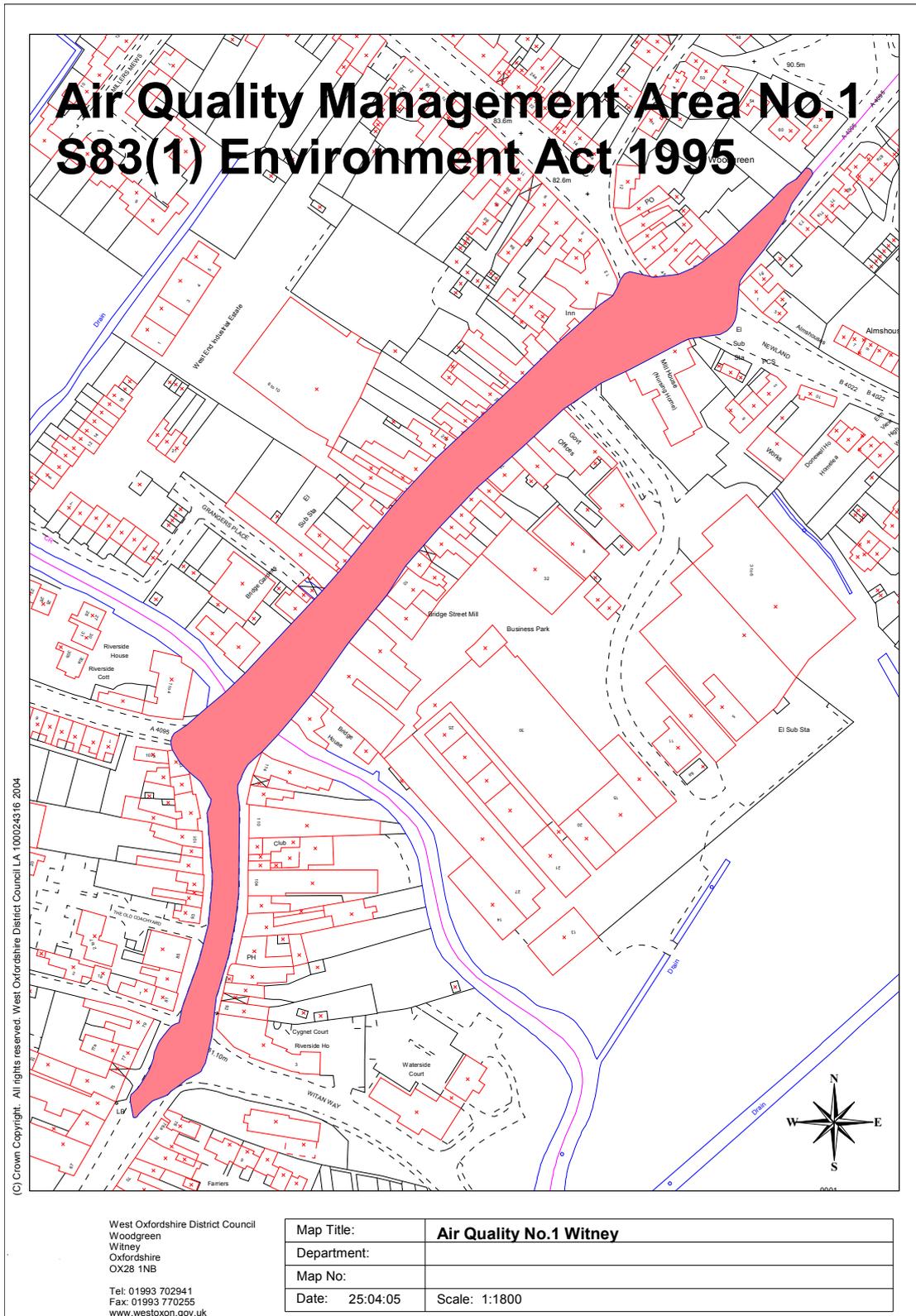
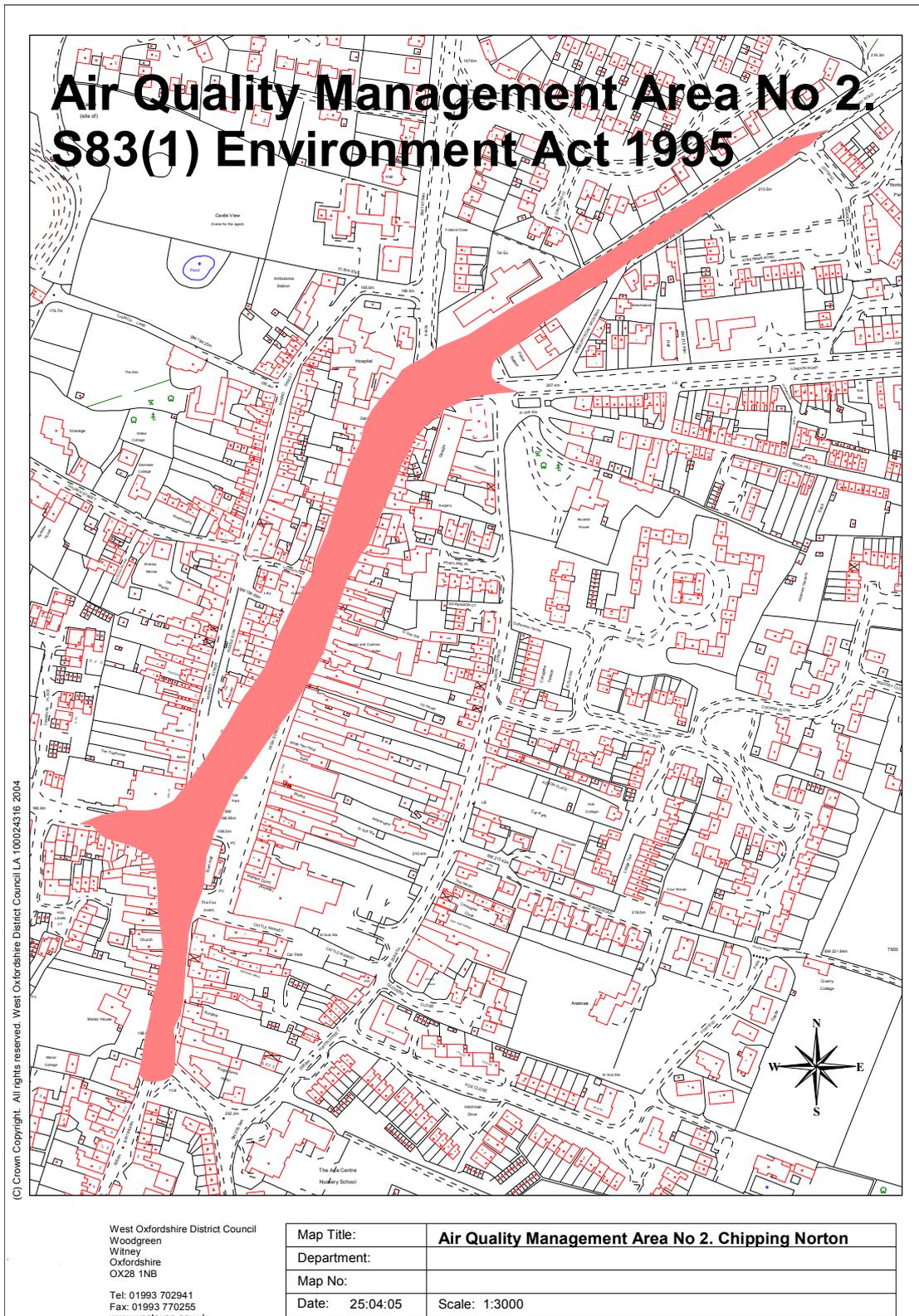


Figure 1.3 Map of AQMA Boundaries – Chipping Norton



2 New Monitoring Data

2.1 Summary of Monitoring Undertaken

2.1.1 Automatic Monitoring Sites

AQMA No 1 - Witney

Continuous monitoring of nitrogen dioxide began in Newland, Witney in August 2001 and continued there until April 2005. When this site was sold, the original chemiluminescent NO_x continuous analyser, an AP1, was relocated to Chipping Norton. A similar but newer model has just been established (May 2009) at a new location on Bridge Street within the Witney AQMA (the location is shown on the plan at Figure 2.1). Calibration checks of the instrumentation are made every two weeks by the LA and six monthly service and calibration work is carried out by Enviro Technology plc. Service reports to date have been routine but a CPU was replaced in early April 2010 (resulting in the loss of two weeks of data recording). All the data is ratified and validated by AECOM Limited. Data was collected in the period May 2009 to December 2009 and this was annualised using AURN site data.

The information provided by the new continuous monitor will be analysed to review whether the boundary of the AQMA needs to be changed. Any review of the AQMA boundary, as declared, will be used to further develop the Action Plan to improve air quality in Witney.

Annual Mean NO₂ Concentrations

Period	Annual Mean NO ₂ Concentration / µg/m ³	Hourly Exceedences
2009 Estimated * Annual Mean	32.7	0

* Monitoring in Witney did not commence until 09/05/2009. Annual mean NO₂ concentration estimate is based on the ratio of the annual mean / period mean NO₂ concentrations at nearby AURN monitoring sites.

AQMA No 2 - Chipping Norton.

A monitoring station was established in Chipping Norton to monitor nitrogen dioxide using the chemiluminescent analyser relocated from Witney. This has been done to carry out further assessment work in response to the declaration of AQMA No 2 (the location is shown on the plan at Figure 2.2). The analysis of previous results helped formulate the Chipping Norton AQMA Action Plan which was accepted by Defra

Continuing Monitoring is an integral part of the plan as submitted which is currently awaiting the results of further consultation and technical investigation prior to installation and implementation of recommended mitigation measures.

Calibration checks of the instrumentation are made every two weeks by the LA and six monthly service and calibration work is carried out by Enviro Technology plc. Service reports have been routine but an analyser failure in the third quarter of 2009 resulted in the loss of four weeks of data recording. All the data is ratified and validated by AECOM Limited

The data collected in the period January 2009 to December 2009 inclusive has been ratified and validated and is summarised in the table below.

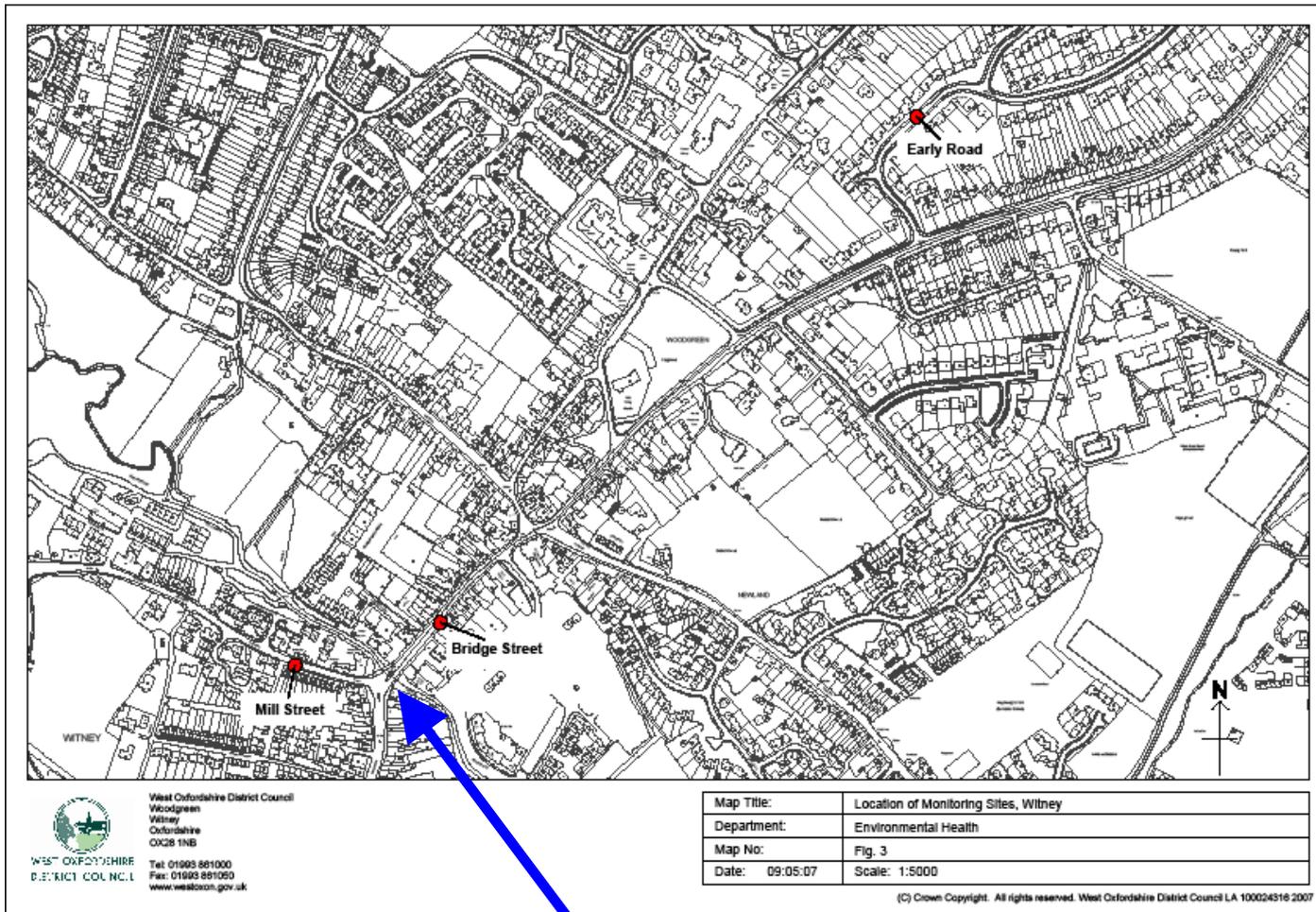
Annual Mean NO₂ Concentrations

Period	Annual Mean NO₂ Concentration / µg/m³	Hourly Exceedences
2009 Annual Mean	39.6	4

Note: Based on 85.9% Data Capture primarily due to equipment outage in 3rd quarter of 2009

Figure 2.1 Map of Automatic Monitoring Site

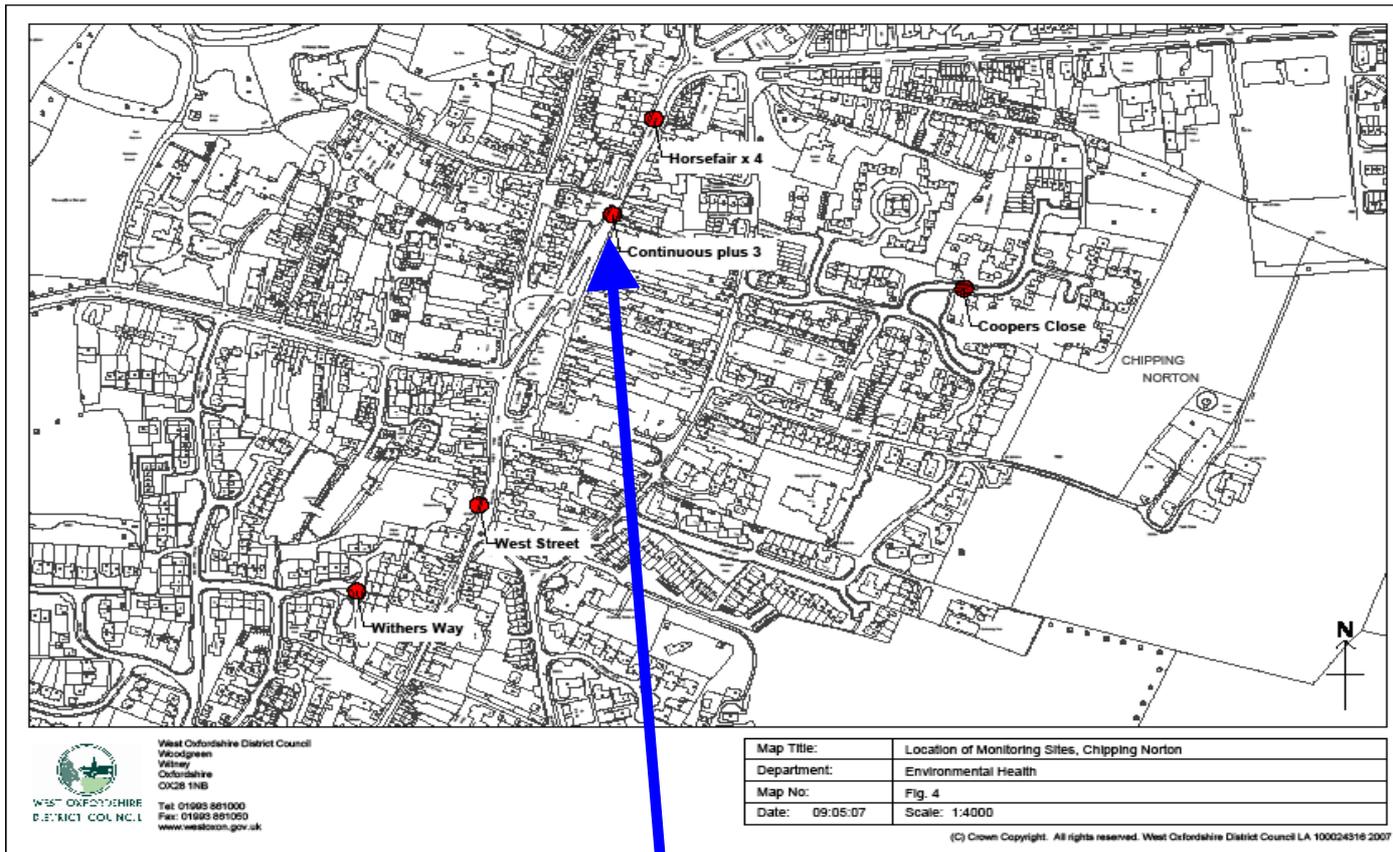
WITNEY



A Q Continuous Monitor

Figure 2.2 Map of Automatic Monitoring Site

CHIPPING NORTON



A Q Continuous Monitor

Table 2.1 Details of Automatic Monitoring Sites

Site Name	Site Type	OS Grid Ref	Pollutants Monitored	In AQMA ?	Relevant Exposure?	Distance to kerb of nearest road	Worst-case Location?
Chipping Norton	Urban Roadside	SP 31402730	NO ₂	Y	Y (2.0m to facade)	0.5m	Y
Witney**	Urban Roadside	SP 35751020	NO ₂	Y	Y (0.5m to facade)	2.0m	Y

** Operational May 2009

2.1.2 Non-Automatic Monitoring

Nitrogen Dioxide monitoring by Diffusion Tube.

The map at Figure 2.3 illustrates the diffusion tube monitoring locations in the district (note that tubes # 39 and # 40 in Carterton have been previously withdrawn and there is an additional site at Bladon, tube # 39 - 'Park Street'). Diffusion tubes are exposed for approximately 4 weeks before being sent for analysis to Harwell Scientifics at Didcot. The Overall Bias Adjustment factor available from the AEA spreadsheet v3.10, where a bias adjustment figure is provided for the participating laboratories for the period 2009, was 0.81. A Bias Adjustment Factor of 0.7 was calculated using the AEA Spreadsheet for Calculation of Diffusion Tube Precision and Accuracy and the raw NO₂ concentrations measured by the Chipping Norton Co-Location study diffusion tubes.

Table 2.2 and Appendices B and C detail the results of the monitoring across the district adjusted for laboratory bias. It shows that 'Bridge Street' and 'Mill Street' in Witney and 'Horsefair', '32, High Street' and the mean of the three co-located diffusion tubes in Chipping Norton currently exceed the objective concentration and these areas lie within the Air Quality Management Areas that were declared in March 2005. All other areas were within the objective limits. Furthermore, with the exception of one diffusion tube site in Burford and another in Woodstock, all other sites were more than one standard deviation (SD = 4 i.e. 36 µg/m³ or less) below the objective limit.

Table 2.2a Details of Non-Automatic Monitoring Sites - Within AQMAs

Annual Mean NO₂ / µg/m³ (2009) in Witney (Bias Adjusted – Local v National)

Location	Annual Mean NO ₂ / µg/m ³		USA 2009 local (2008) bias data (0.74)
	Local (0.70)	National (0.81)	
Bridge Street	45.3	52.4	43
Mill Street	38.9	45.0	42

Annual Mean NO₂ / µg/m³ (2009) in Chipping Norton (Bias Adjusted – Local v National)

Location	Annual Mean NO ₂ / µg/m ³		USA 2009 local (2008) bias data (0.74)
	Local (0.70)	National (0.81)	
Horsefair	55.1	63.8	59
31 High Street	39.9	46.1	43
Co-Location Triplicate Mean	38.5	44.6	40

The national bias adjustment factor applied in PR 2010 to the annual means is 0.81.

All references to local bias figures are for comparison purposes with data presented within USA 2009

Table 2.2b Details of Non-Automatic Monitoring Sites

Site Name	Site Type	OS Grid Ref	In AQMA ?	Relevant Exposure?	Distance to kerb of nearest road	Worst-case Location?
As detailed	Roadside or Background as specified	Not Specified	As per tables above	Appropriate to area within 3m	Generally within 3m or on building facade	Appropriate to area

For more detail see Appendices B and C

The diffusion tubes are supplied by Harwell Scientifics and analysed in accordance with Harwell Scientifics SOP HS/WI/1015, issue 14. This method meets the guidelines set out in Defra's 'Diffusion Tubes for Ambient NO₂ Monitoring: Practical Guidance.'

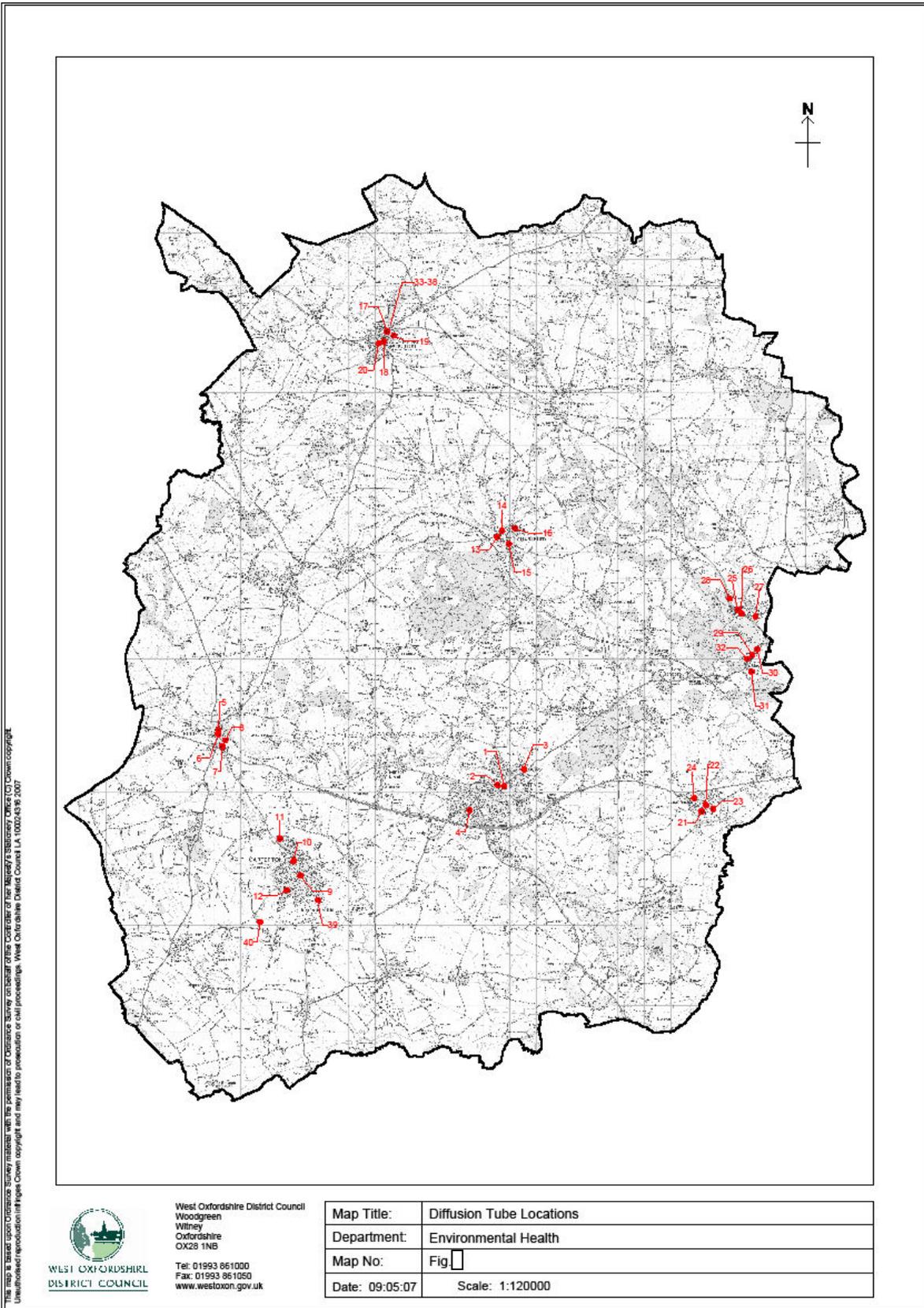
The tubes (from a specified batch) are prepared by spiking acetone : triethanolamine (50:50) on to the grids prior to the tubes being assembled.

The Overall Bias Adjustment factor available from the AEA spreadsheet v3.10, where a bias adjustment figure is provided for the participating laboratories for the period 2009 was 0.81. A Bias Adjustment Factor of 0.70 was calculated using the AEA Spreadsheet for Calculation of DiffusionTube Precision and Accuracy and the raw NO₂ concentrations measured by the Chipping Norton Co-Location study diffusion tubes.

In the WASP inter-comparison scheme for comparing spiked Nitrogen Dioxide diffusion tubes, Harwell Scientifics is currently ranked as a **Category Good** laboratory

Ratification of the WODC data was completed by AECOM Limited

Figure 2.3 Diffusion Tube Locations



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West Oxfordshire District Council
 Woodgreen
 Witney
 Oxfordshire
 OX28 1NB
 Tel: 01993 861000
 Fax: 01993 861050
 www.westoxon.gov.uk

2.2 Comparison of Monitoring Results with Air Quality Objectives

Automatic AQ Monitoring Station – Chipping Norton

The data collected in the period January 2009 to December 2009 inclusive has been ratified and validated and is summarised in the table below.

Annual Mean NO₂ Concentrations

Period	Annual Mean NO ₂ Concentration / $\mu\text{g}/\text{m}^3$	Hourly Exceedences >200 $\mu\text{g}/\text{m}^3$
2009 Annual Mean	39.6	4 (174.5 $\mu\text{g}/\text{m}^3$)

Note: Based on 85.9% Data Capture primarily due to equipment outage in 3rd quarter 2009.

The period of valid data is less than 90% of a full year, thus the relevant percentile alternative (the 99.8th percentile of hourly means) rather than the number of hours >200 $\mu\text{g}/\text{m}^3$ is included.

Automatic AQ Monitoring Station – Witney

The data collected in the period May 2009 to December 2009 inclusive has been ratified and validated and is summarised in the table below.

Annual Mean NO₂ Concentrations

Period	Annual Mean NO ₂ Concentration / $\mu\text{g}/\text{m}^3$	Hourly Exceedences >200 $\mu\text{g}/\text{m}^3$
2009 Estimated Annual Mean	32.7	Nil

Note: Monitoring in Witney did not commence until 09/05/2010 to year end. Annual mean concentration estimated based on the ratio of the annual mean / period mean concentrations at nearby AURN monitoring sites.

The data capture for the 8 month monitoring period was 99.6% thus for the calendar year the data capture for the year would be 66.4%.

The period of valid data is less than 90% of a full year, thus the relevant percentile alternative (the 99.8th percentile of hourly means) rather than the number of hours >200 $\mu\text{g}/\text{m}^3$ would be 105 $\mu\text{g}/\text{m}^3$

Diffusion Tube Site Monitoring

At Appendices B and C are details of the results of the monitoring across the district adjusted for laboratory bias. It shows that 'Bridge Street' and 'Mill Street' in Witney and 'Horsefair' and '32,High Street' in Chipping Norton and the mean of the three co-located diffusion tubes in Chipping Norton currently exceed the objective concentration and these areas lie within the Air Quality Management Areas that were declared in March 2005. All other areas were within the objective limits. Furthermore, with the exception of one diffusion tube site in Burford and another in Woodstock, all other sites were more than one standard deviation (SD = 4 i.e. 36 $\mu\text{g}/\text{m}^3$ or less) below the objective limit.

Annual Mean NO_2 / $\mu\text{g}/\text{m}^3$ (2009) in Witney (Bias Adjusted – Local v National)

Location	Annual Mean NO_2 / $\mu\text{g}/\text{m}^3$		USA 2009 local (2008) bias data (0.74)
	Local (0.70)	National (0.81)	
Bridge Street	45.3	52.1	43
Mill Street	38.9	45.0	42

Annual Mean NO_2 / $\mu\text{g}/\text{m}^3$ (2009) in Chipping Norton (Bias Adjusted – Local v National)

Location	Annual Mean NO_2 / $\mu\text{g}/\text{m}^3$		USA 2009 local (2008) bias data (0.74)
	Local (0.70)	National (0.81)	
Horsefair	55.1	63.8	59
31 High Street	39.9	46.1	43
Co-Location Triplicate Mean	38.5	44.6	40

Within the 2009 period, additional monitoring was continued at 'Park Street', Bladon. The trend from the results of the monitoring data indicates that the objective is not exceeded in this area.

The results overall therefore, do not indicate any additional areas of concern requiring a detailed assessment that have not already been identified.

2.2.1 Nitrogen Dioxide

The Chipping Norton data includes both automatic monitoring and diffusion tube monitoring. Though the automatic monitoring returned a Mean Pollution Concentration of $39.6 \mu\text{g}/\text{m}^3$ this was based on a 85.9% data capture (due primarily to equipment malfunction in the 3rd quarter of 2009 (see Appendix A).

The measured annual mean concentration is greater than $40 \mu\text{g}/\text{m}^3$ within parts of the Chipping Norton AQMA (Horsefair) and within or at the boundary of the Witney AQMA.

The Chipping Norton AQMA (Horsefair) site has not recorded more than 18 1-hour means above $200 \mu\text{g}/\text{m}^3$ (actual number is 4), and (as the period of valid data is less than 90% of a full year) the 99.8th percentile of 1-hour mean concentrations is $174.5 \mu\text{g}/\text{m}^3$.

Data from the newly established continuous monitoring station within the Witney AQMA was available from 09/05/2010 to the year end, These 8 months achieved 99.6% capture (annualise at 66.4%. The 99.8th percentile of 1-hour mean concentrations is $105.0 \mu\text{g}/\text{m}^3$.

The Witney AQMA boundary will be reassessed to include the Mill Street diffusion tube site following a planned update of the dispersion modelling.

The monitoring site locations are representative of relevant public exposure.

Automatic Monitoring Data

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

Site ID	Location	Within AQMA?	Data Capture for monitoring period ^a %	Data Capture for full calendar year 2009 ^b %	Annual mean concentrations ($\mu\text{g}/\text{m}^3$)		
					2007 ^{c, d}	2008 ^{c, d}	2009 ^c
AQMA 1	Witney	Y	99.6	66.4	N/A	N/A	32.7
AQMA 2	Chipping Norton	Y	85.9	85.9	-	39.8	39.6

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

^b i.e. data capture for the full calendar year (e.g. if monitoring was carried out for six months the maximum data capture for the full calendar year would be 50%.)

^c Means should be "annualised" as in Box 3.2 of TG(09), if monitoring was not carried out for the full year.

^d Annual mean concentrations for previous years are optional.

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

Site ID	Location	Within AQMA?	Data Capture for monitoring period ^a %	Data Capture for full calendar year 2009 ^b %	Number of Exceedences of hourly mean (200 µg/m ³) If the period of valid data is less than 90% of a full year, include the 99.8 th percentile of hourly means in brackets.		
					2007 ^c	2008 ^c	2009
AQMA 1	Witney	Y	99.6	66.4	N/A	N/A	0 (105.0)
AQMA 2	Chipping Norton	Y	85.9	85.9		5 (178.6)	4 (174.5)

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

^b i.e. data capture for the full calendar year (e.g. if monitoring was carried out for six months the maximum data capture for the full calendar year would be 50%.)

^c Numbers of exceedences for previous years are optional.

Diffusion Tube Monitoring Data

The full data set (monthly mean values) is at Appendix C.

Table 2.4a Results of Nitrogen Dioxide Diffusion Tubes - Witney

Annual Mean NO₂ / µg/m³ (2009) in Witney (Bias Adjusted – Local v National)

Location	Annual Mean NO ₂ / µg/m ³		USA 2009 local (2008) bias data (0.74)
	Local (0.70)	National (0.81)	
Bridge Street	45.3	52.4	43
Mill Street	38.9	45.0	42

Table 2.4b Results of Nitrogen Dioxide Diffusion Tubes - Chipping Norton

Annual Mean NO₂ / µg/m³ (2009) in Chipping Norton (Bias Adjusted – Local v National)

Location	Annual Mean NO ₂ / µg/m ³		USA 2009 local (2008) bias data (0.74)
	Local (0.70)	National (0.81)	
Horsefair	55.1	63.8	59
31 High Street	39.9	46.1	43
Co-Location Triplicate Mean	38.5	44.6	40

The national bias adjustment factor applied in PR 2010 to the annual means is 0.81
All references to local bias figures are for comparison purposes with data presented within USA 2009

All of the above are located within AQMAs but note that Witney, 'Mill Street' is marginally outside the current AQMA boundary which will be re-designated following further data collection from a newly installed continuous monitor and possible further dispersion modelling.

All other areas were within the objective limits. Furthermore, with the exception of one diffusion tube site in Burford and another in Woodstock, all other sites were more than one standard deviation (SD = 4 i.e. 36 $\mu\text{g}/\text{m}^3$ or less) below the objective limit.

See Appendix B for % data capture of other Diffusion Tubes

Summary of Compliance with AQS Objectives

Andrew Ward has examined the results from monitoring in the district. Concentrations outside of the AQMA are all below the objectives at relevant locations, therefore there is no need to proceed to a Detailed Assessment.

[Note that Mill Street, Witney is considered to be within the AQMA as declared. The area is anticipated to be updated for dispersion modelling.]

3 New Local Developments

The Witney AQMA includes the whole of Bridge Street (A4095) with stubs extending into 5 feeder roads. Significant changes in the vicinity which have come on line within the last year or two are Woodford Way (an inner link road which feeds indirectly into and out of the AQMA via Mill Street) and Marriott's Walk (a new leisure and retail outlet with embedded residential units and incorporating a multi story car park).

Site	AADT 2005 *	AADT 2008	% Increase
Bridge Street	27565	30800	11.7
Mill Street	9561	11600	21.3

* Original dispersion modelling and declaration of the Witney AQMA included data from this period.

This and additional data including that from a newly installed automatic monitoring station for emissions will help to update the existing dispersion modelling for the Witney AQMA. Funding for this will be subject to a application for an AQ Grant (2010 / 2011)

Andrew Ward confirms that, other than that referred to above, there are no new or newly identified local developments which may have an impact on air quality within the Local Authority area.

4 Local / Regional Air Quality Strategy

With two AQMAs declared, an Action Plan running for one and the second ready for release pending the outcome of a Town Green application, the District has addressed the significant sources of pollution and monitors progress within these declared areas.

5 Planning Applications

The proposed Cogges Link Road in Witney will provide a significant by-pass / relief road around the Witney AQMA and should significantly reduce traffic density within the AQMA. Pre and post construction air quality data will be available from the newly installed continuous monitoring station. The design and positioning of the new road should not adversely affect air quality along its route as residential properties are located well away from the carriageway.

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6 Implementation of Action Plans

See Appendix D: Action Plan Progress – Chipping Norton

7 Proposed Actions

New monitoring data is now available from the automatic analyser in Witney. A nearby diffusion tube currently lies marginally outside the AQMA as declared in 2005 – this was most likely a modelling error at the time. There is no need to proceed to a Detailed Assessment in order to rectify this.

A change is required to the boundary of this existing AQMA.

The next course of action with regard to the boundary revision is to commission a review of the dispersion modelling (last done in 2005). Reasons for the delay in publishing an Action Plan for this area are detailed in the Executive Summary.

It is proposed to apply for an AQ Grant for the required modelling. If approved, the updated information provided will not only enable the AQMA boundary to be re-evaluated but also provide a better 'before' scenario prior to the implementation of the proposed Action Plan and the activation of a relief road and the gathering of 'after' data.

The next formal actions will be to declare the revised Witney AQMA (subject to completion of modelling) and to submit 2011 Progress Report

8 References

West Oxfordshire Air Quality Data Ratification AECOM Ltd March 2010

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http://portal.oxfordshire.gov.uk/content/publicnet/council_services/roads_transport/traffic/traffic_monitoring/data-summaries/TableA-annual-average-daily-traffic-flows.pdf

Oxfordshire Highways, Cogges Link Road, Environmental Statement July 2008

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Appendices

Appendix A: QA/QC Data

Appendix B: Diffusion Tube Results Summary, 2009

Appendix C: Diffusion Tube Monitoring Data and Bias Adjustment Calculations, 2009

Appendix D: Action Plan Progress

Appendix A: QA:QC Data

QA/QC of automatic monitoring

Calibration checks of the instrumentation are made every two weeks by the LA and six monthly service and calibration work is carried out by Enviro Technology plc. All the data is ratified and validated by AECOM Limited.

QA/QC of diffusion tube monitoring

See detailed data below for information regarding diffusion tube precision.

Diffusion Tube Bias Adjustment Factors and Factor from Local Co-location Studies

Diffusion tubes are exposed for approximately 4 weeks before being sent for analysis to the supplier, Harwell Scientifics at Didcot. The Overall Bias Adjustment factor available from the AEA spreadsheet v 3/10, where the bias adjustment figure provided for the participating laboratories for the period 2009 is 0.81. A Bias Adjustment Factor of 0.70 was calculated using the AEA Spreadsheet for Calculation of Diffusion Tube Precision and Accuracy and the raw NO₂ concentrations measured by the CN Co Location study diffusion tubes.

Discussion of Choice of Factor to Use

Both local and national Bias Adjustment Factors were available but the national factor has been used because of the below ideal data capture rate of the automatic analyser within the Chipping Norton AQMA.

In one annual quarter of data collection the data capture rate fell below 90% to 67.1% - reducing the annual data capture rate to 85.9%. This is below the UK NAQS recommended capture rate of 90% but still exceeds the EU Directive for NO₂ which specifies a 75% data capture threshold for assessing compliance with limit and guidance values. The reduced capture rate was due to equipment outages but, other than for this reason, the data captured was assessed to be reliable and representative.

Calculation of Local Bias Adjustment Factor for Diffusion Tube Correction

Checking Precision and Accuracy of Triplicate Tubes



Diffusion Tubes Measurements									
Period	Start Date dd/mm/yyyy	End Date dd/mm/yyyy	Tube 1 $\mu\text{g m}^{-3}$	Tube 2 $\mu\text{g m}^{-3}$	Tube 3 $\mu\text{g m}^{-3}$	Triplicate Mean	Standard Deviation	Coefficient of Variation (CV)	95% CI of mean
1	07/01/2009	04/02/2009	60.3	69.6	70.2	67	5.6	8	13.8
2	04/02/2009	04/03/2009	72.6	69.3	67.4	70	2.6	4	6.5
3	04/03/2009	01/04/2009	76.6	78.3	76.1	77	1.2	1	2.9
4	01/04/2009	29/04/2009	71.7	68.4	71.7	71	1.9	3	4.7
5	29/04/2009	03/06/2009	40.1	46.9		44	4.8	11	43.2
6	03/06/2009	01/07/2009	59.4	58.7	46.1	55	7.5	14	18.6
7	01/07/2009	29/07/2009	40.1	40.7	40.7	41	0.3	1	0.9
8	29/07/2009	02/09/2009	41.0	36.1	38.3	38	2.5	6	6.1
9	02/09/2009	30/09/2009	35.9	39.8	34.0	37	3.0	8	7.3
10	30/09/2009	04/11/2009	49.0	50.1	56.1	52	3.8	7	9.5
11	04/11/2009	02/12/2009	43.3	43.8	42.7	43	0.6	1	1.4
12	02/12/2009	06/01/2010	63.8	62.2	65.6	64	1.7	3	4.2
13									

It is necessary to have results for at least two tubes in order to calculate the precision of the measurements

Automatic Method	Data Capture	Tubes Precision
Period Mean	(% DC)	Check
47.8	91.7	Good
39.7	93.3	Good
34.5	91.8	Good
53.1	97.0	Good
35.7	88.9	Good
40.7	90.3	Good
26.9	89.9	Good
28.9	79.9	Good
27.0	27.5	Good
42.2	91.0	Good
34.1	91.8	Good
49.9	95.0	Good

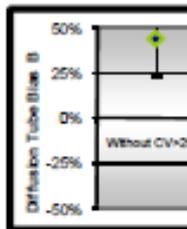
Overall survey ->

Site Name/ ID: Chipping Norton

Precision 12 out of 12 periods have a CV smaller than 20%

Accuracy (with 95% confidence interval)	
without periods with CV larger than 20%	
Bias calculated using 11 periods of data	
Bias factor A	0.7 (0.61 - 0.82)
Bias B	43% (23% - 63%)
Diffusion Tubes Mean:	56 $\mu\text{g m}^{-3}$
Mean CV (Precision):	5
Automatic Mean:	39 $\mu\text{g m}^{-3}$
Data Capture for periods used:	91%
Adjusted Tubes Mean:	39 (34 - 46) $\mu\text{g m}^{-3}$

Accuracy (with 95% confidence interval)	
WITH ALL DATA	
Bias calculated using 11 periods of data	
Bias factor A	0.7 (0.61 - 0.82)
Bias B	43% (23% - 63%)
Diffusion Tubes Mean:	56 $\mu\text{g m}^{-3}$
Mean CV (Precision):	5
Automatic Mean:	39 $\mu\text{g m}^{-3}$
Data Capture for periods used:	91%
Adjusted Tubes Mean:	39 (34 - 46) $\mu\text{g m}^{-3}$



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Version 03 - N

National Bias Adjustment Factor Calculation for Diffusion Tube Correction (v3/10)

Analysed By ¹	Method	Year ²	Site Type	Local Authority	Length of Study (months)	Diffusion Tube Mean Conc. (Dm) ($\mu\text{g m}^{-3}$)	Automatic Monitor Mean Conc. (Cm) ($\mu\text{g m}^{-3}$)	Bias (B)	Tube Precision
Hanwell Scientific Services	50% TEA In Acetone	2009	R	Falkirk Council	12	39	27	44.6%	G
Hanwell Scientific Services	50% TEA In Acetone	2009	UB	Falkirk Council	12	27	23	20.8%	G
Hanwell Scientific Services	50% TEA In Acetone	2009	R	Hambleton DC	11	28	23	22.9%	G
Hanwell Scientific Services	50% TEA In Acetone	2009	UB	Medway Council	9	23	21	12.1%	G
Hanwell Scientific Services	50% TEA In Acetone	2009	Rural	Medway Council	10	26	17	57.6%	G
Hanwell Scientific Services	50% TEA In Acetone	2009	R	Adur DC	9	53	46	16.7%	G
Hanwell Scientific Services	50% TEA In Acetone	2009	UB	Ashtford BC	12	23	22	2.6%	P
Hanwell Scientific Services	50% TEA In Acetone	2009	R	Vale of White Horse DC	9	34	30	15.1%	G
Hanwell Scientific Services	50% TEA In Acetone	2009	R	Cambridge CC	12	50	42	20.0%	G
Hanwell Scientific Services	50% TEA In Acetone	2009	B	Canterbury CC	11	20	16	26.6%	G
Hanwell Scientific Services	50% TEA In Acetone	2009	R	Canterbury CC	12	49	37	30.1%	G
Hanwell Scientific Services	50% TEA In Acetone	2009	R	Gateshead Council	10	39	34	15.8%	G
Hanwell Scientific Services	50% TEA In Acetone	2009	R	Gateshead Council	10	38	28	36.6%	P
Hanwell Scientific Services	50% TEA In Acetone	2009	R	Gateshead Council	10	41	30	37.8%	G
Hanwell Scientific Services	50% TEA In Acetone	2009	R	Gateshead Council	9	35	30	14.4%	P
Hanwell Scientific Services	50% TEA In Acetone	2009	R	Rugby BC	12	35	34	3.8%	G
Hanwell Scientific Services	50% TEA In Acetone	2009	I	Swale BC	12	26	22	18.8%	G
Hanwell Scientific Services	50% TEA In Acetone	2009	R	Swale BC	12	44	30	46.1%	P
Hanwell Scientific Services	50% TEA In Acetone	2009	K	AEA Tech Intercomparison	11	129	108	20.3%	G
Hanwell Scientific Services	50% TEA In Acetone	2009		Overall Factor ³ (19 studies)					Use

Appendix B

Diffusion Tube Results Summary, 2009

Site Name	Annual Mean NO ₂ Concentration (µg/m ³)			Data Capture (%)
	Unadjusted	Bias-Adjusted (Local)	Bias-Adjusted (National)	
Bridge Street, Witney	64.7	45.3	52.4	91.7
Mill Street, Witney	55.6	38.9	45.0	100.0
Early Rd., Witney	23.1	16.2	18.7	100.0
Abbey Rd., Witney	20.0	14.0	16.2	91.7
High St, Burford	48.4	33.9	39.2	100.0
93 High Street, Burford	43.0	30.1	34.8	83.3
Frethern Cl, Burford	19.5	13.7	15.8	100.0
Orchard Rise, Burford	16.6	11.6	13.4	100.0
Brize Norton Rd, Carterton	29.9	20.9	24.2	91.7
Upavon Way, Carterton	32.5	22.7	26.3	91.7
Garner Close, Carterton	19.3	13.5	15.7	100.0
Oakfield Road, Carterton	19.5	13.7	15.8	100.0
Dyers Hill, Charlbury	25.5	17.8	20.6	75.0
Nineacres Lane, Charlbury	24.4	17.0	19.7	100.0
Tanners Close, Charlbury	16.0	11.2	13.0	100.0
The Green, Charlbury	16.8	11.8	13.6	100.0
Horsefair, Chipping Norton	78.8	55.1	63.8	100.0
31 High Street, Chipping Norton	57.0	39.9	46.1	91.7
Co-location, Chipping Norton (Triplicate Mean)	55.1	38.5	44.6	97.2
5 Horsefair, Chipping Norton	38.0	26.6	30.8	100.0
7 Horsefair, Chipping Norton	38.6	27.0	31.3	91.7
West Street, Chipping Norton	41.2	28.9	33.4	100.0
Coopers Close, Chipping Norton	15.3	10.7	12.4	75.0
Withers Way, Chipping Norton	17.0	11.9	13.8	100.0
Acre End Street, Eynsham	24.1	16.8	19.5	75.0
Mill Street, Eynsham	21.7	15.2	17.6	100.0
Orchard Close, Eynsham	18.8	13.1	15.2	100.0
Shakespeare Rd, Eynsham	22.3	15.6	18.0	100.0
Oxford Street, Woodstock	38.8	27.1	31.4	100.0
Oxford Street(2), Woodstock	48.5	34.0	39.3	91.7
The Ley, Woodstock	18.5	13.0	15.0	100.0
Westland Way, Woodstock	19.6	13.7	15.9	100.0
Grove Road, Bladon	29.0	20.3	23.5	100.0
Grove Road(2), Bladon	38.4	26.9	31.1	100.0
Heath Lane, Bladon	19.4	13.6	15.7	100.0
Park Close, Bladon	17.4	12.2	14.1	100.0
Park Street, Bladon	43.9	30.7	35.5	91.7

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Appendix C: Diffusion Tube Monitoring Data and Bias Adjustment Calculations, 2009**Raw Monthly Diffusion Tube Monitoring Data, 2009**

Site	Site Type	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Uncorr. Annual Average
Bridge Street, Witney	R	80.8	69.7	83.9	75.4	48.0	68.6	47.3	31.3	ND	67.5	65.7	73.6	64.7
Mill Street, Witney	R	34.3	69.7	75.1	60.5	46.2	51.6	57.4	51.2	39.6	51.3	63.9	66.6	55.6
Early Rd., Witney	B	35.3	41.7	51.1	15.4	10.4	9.9	11.7	11.8	10.8	22.1	23.8	33.7	23.1
Abbey Rd., Witney	B	37.7	27.9	ND	19.4	9.8	12.1	11.4	9.8	11.5	24.3	22.0	33.8	20.0
High St, Burford	R	50.5	65.7	80.8	42.0	38.4	36.3	45.9	45.9	36.0	45.6	45.5	48.3	48.4
93 High Street, Burford	R	54.8	40.1	61.2	52.8	33.5	42.8	34.1	25.2	33.5	ND	ND	51.8	43.0
Frethern Cl, Burford	B	32.8	27.4	49.5	14.9	9.8	10.2	10.6	9.1	11.3	17.1	16.3	25.3	19.5
Orchard Rise, Burford	B	23.4	30.0	41.4	12.4	8.3	7.6	8.0	8.6	7.5	15.7	14.0	22.0	16.6
Brize Norton Rd, Carterton	R	41.2	48.8	57.9	26.8	17.6	20.1	18.1	17.0	16.2	24.8	ND	40.5	29.9
Upavon Way, Carterton	R	45.2	42.6	57.6	23.5	17.8	ND	19.3	20.1	22.3	35.3	30.7	42.9	32.5
Garner Close, Carterton	B	30.8	35.7	42.3	17.5	9.2	9.4	7.3	8.0	9.7	18.8	15.1	28.2	19.3
Oakfield Road, Carterton	B	28.0	33.8	46.7	13.7	10.0	11.3	11.7	7.1	10.7	18.0	14.4	29.0	19.5
Dyers Hill, Charlbury	R	30.3	36.2	48.5	22.0	16.2	ND	ND	16.1	17.0	13.7	ND	29.1	25.5
Nineacres Lane, Charlbury	R	35.5	36.6	50.4	17.3	14.5	16.2	13.5	13.9	15.7	22.4	25.6	30.6	24.4
Tanners Close, Charlbury	B	21.0	32.1	40.9	12.4	5.1	7.3	6.7	6.7	8.1	16.0	12.8	23.3	16.0
The Green, Charlbury	B	28.2	31.2	40.4	11.8	6.4	8.0	7.6	5.7	8.2	15.2	15.6	23.4	16.8
Horsefair, Chipping Norton	R	85.1	115.4	119.1	74.6	74.6	72.7	69.5	49.1	48.4	73.2	80.4	83.0	78.8
31 High Street, Chipping Norton	R	74.1	ND	81.4	68.1	47.3	40.1	49.2	47.1	41.7	53.7	60.9	62.9	57.0
Co-location, Chipping Norton	R	60.3	72.6	76.6	71.7	40.1	59.4	40.1	41.0	35.9	49.0	43.3	63.8	54.5
CN Co location, Chipping Norton	R	69.6	69.3	78.3	68.4	46.9	58.7	40.7	36.1	39.8	50.1	43.8	62.2	55.3

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CN Co location, Chipping Norton	R	70.2	67.4	76.1	71.7	ND	46.1	40.7	38.3	34.0	56.1	42.7	65.6	55.4
Co-location, Triplicate Mean	R	66.7	69.8	77.0	70.6	43.5	54.7	40.5	38.5	36.6	51.7	43.3	63.9	55.1
5 Horsefair, Chipping Norton	R	52.1	53.2	57.2	42.3	29.5	32.2	29.5	25.6	24.4	34.7	33.6	41.8	38.0
7 Horsefair, Chipping Norton	R	50.4	52.9	60.1	42.8	ND	37.0	28.1	22.8	23.5	32.1	31.9	42.8	38.6
West Street, Chipping Norton	R	51.4	66.5	70.6	34.4	33.0	32.0	28.3	28.4	35.8	34.5	36.3	43.6	41.2
Coopers Close, Chipping Norton	B	ND	32.0	ND	14.3	9.0	9.4	9.6	9.4	11.1	19.1	ND	24.0	15.3
Withers Way, Chipping Norton	B	27.4	31.4	32.4	11.2	8.4	10.2	7.4	7.2	10.6	18.6	13.9	25.1	17.0
Acre End Street, Eynsham	R	ND	41.0	51.5	22.8	ND	17.3	10.6	9.9	12.9	22.8	ND	27.7	24.1
Mill Street, Eynsham	R	29.4	26.9	49.7	20.4	12.7	17.8	10.5	11.8	12.5	23.4	18.1	27.7	21.7
Orchard Close, Eynsham	B	26.0	35.2	48.1	15.6	9.8	11.7	8.4	8.9	9.4	19.5	14.2	18.6	18.8
Shakespeare Rd, Eynsham	B	34.4	41.5	52.4	18.9	9.2	12.0	9.2	5.5	13.7	22.9	16.9	30.6	22.3
Oxford Street, Woodstock	R	49.2	61.7	69.1	46.5	32.4	45.3	21.9	23.2	13.4	16.9	32.8	53.0	38.8
Oxford Street(2), Woodstock	R	55.5	70.7	69.5	46.8	34.2	41.7	ND	38.2	32.9	49.5	39.5	55.1	48.5
The Ley, Woodstock	B	32.3	31.5	42.4	14.6	7.4	9.4	8.0	9.8	7.8	17.8	16.2	25.1	18.5
Westland Way, Woodstock	B	32.1	36.5	43.5	16.1	7.9	9.8	7.8	7.9	6.8	19.7	17.2	29.8	19.6
Grove Road, Bladon	R	43.0	37.2	54.8	27.9	12.0	24.6	17.0	16.1	24.8	29.2	24.5	37.3	29.0
Grove Road(2), Bladon	R	52.3	58.1	58.2	36.8	25.9	27.5	25.0	19.0	28.0	40.9	38.5	51.1	38.4
Heath Lane, Bladon	B	32.5	34.8	44.5	13.4	9.2	9.3	8.4	8.0	10.6	20.4	15.0	26.4	19.4
Park Close, Bladon	B	26.5	29.3	42.3	14.1	8.4	9.9	6.7	6.2	9.1	16.9	15.7	23.6	17.4
Park Street, Bladon	R	55.9	ND	74.6	47.9	37.7	44.6	30.4	30.8	31.6	36.1	44.4	48.5	43.9

Monthly Diffusion Tube Monitoring Data, Local Bias Factor Adjusted (0.70), 2009

Site	Site Type	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Bias Adjusted Annual Average
Bridge Street, Witney	R	56.6	48.8	58.7	52.8	33.6	48.0	33.1	21.9	ND	47.3	46.0	51.5	45.3
Mill Street, Witney	R	24.0	48.8	52.6	42.4	32.3	36.1	40.2	35.8	27.7	35.9	44.7	46.6	38.9
Early Rd., Witney	B	24.7	29.2	35.8	10.8	7.3	6.9	8.2	8.3	7.6	15.5	16.7	23.6	16.2
Abbey Rd., Witney	B	26.4	19.5	ND	13.6	6.9	8.5	8.0	6.9	8.1	17.0	15.4	23.7	14.0
High St, Burford	R	35.4	46.0	56.6	29.4	26.9	25.4	32.1	32.1	25.2	31.9	31.9	33.8	33.9
93 High Street, Burford	R	38.4	28.1	42.8	37.0	23.5	30.0	23.9	17.6	23.5	ND	ND	36.3	30.1
Frethern Cl, Burford	B	23.0	19.2	34.7	10.4	6.9	7.1	7.4	6.4	7.9	12.0	11.4	17.7	13.7
Orchard Rise, Burford	B	16.4	21.0	29.0	8.7	5.8	5.3	5.6	6.0	5.3	11.0	9.8	15.4	11.6
Brize Norton Rd, Carterton	R	28.8	34.2	40.5	18.8	12.3	14.1	12.7	11.9	11.3	17.4	ND	28.4	20.9
Upavon Way, Carterton	R	31.6	29.8	40.3	16.5	12.5	ND	13.5	14.1	15.6	24.7	21.5	30.0	22.7
Garner Close, Carterton	B	21.6	25.0	29.6	12.3	6.4	6.6	5.1	5.6	6.8	13.2	10.6	19.7	13.5
Oakfield Road, Carterton	B	19.6	23.7	32.7	9.6	7.0	7.9	8.2	5.0	7.5	12.6	10.1	20.3	13.7
Dyers Hill, Charlbury	R	21.2	25.3	34.0	15.4	11.3	ND	ND	11.3	11.9	9.6	ND	20.4	17.8
Nineacres Lane, Charlbury	R	24.9	25.6	35.3	12.1	10.2	11.3	9.5	9.7	11.0	15.7	17.9	21.4	17.0
Tanners Close, Charlbury	B	14.7	22.5	28.6	8.7	3.6	5.1	4.7	4.7	5.7	11.2	9.0	16.3	11.2
The Green, Charlbury	B	19.7	21.8	28.3	8.3	4.5	5.6	5.3	4.0	5.7	10.6	10.9	16.4	11.8
Horsefair, Chipping Norton	R	59.6	80.8	83.4	52.2	52.2	50.9	48.7	34.4	33.9	51.2	56.3	58.1	55.1
31 High Street, Chipping Norton	R	51.9	ND	57.0	47.7	33.1	28.1	34.4	33.0	29.2	37.6	42.6	44.0	39.9
Co-location, Chipping Norton	R	42.2	50.8	53.6	50.2	28.1	41.6	28.1	28.7	25.1	34.3	30.3	44.7	38.1
CN Co location, Chipping Norton	R	48.7	48.5	54.8	47.9	32.8	41.1	28.5	25.3	27.9	35.1	30.7	43.5	38.7
CN Co location, Chipping Norton	R	49.1	47.2	53.3	50.2	ND	32.3	28.5	26.8	23.8	39.3	29.9	45.9	38.7

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Co-location, Triplicate Mean	R	46.7	48.8	53.9	49.4	30.5	38.3	28.4	26.9	25.6	36.2	30.3	44.7	38.5
5 Horsefair, Chipping Norton	R	36.5	37.2	40.0	29.6	20.7	22.5	20.7	17.9	17.1	24.3	23.5	29.3	26.6
7 Horsefair, Chipping Norton	R	35.3	37.0	42.1	30.0	ND	25.9	19.7	16.0	16.5	22.5	22.3	30.0	27.0
West Street, Chipping Norton	R	36.0	46.6	49.4	24.1	23.1	22.4	19.8	19.9	25.1	24.2	25.4	30.5	28.9
Coopers Close, Chipping Norton	B	ND	22.4	ND	10.0	6.3	6.6	6.7	6.6	7.8	13.4	ND	16.8	10.7
Withers Way, Chipping Norton	B	19.2	22.0	22.7	7.8	5.9	7.1	5.2	5.0	7.4	13.0	9.7	17.6	11.9
Acre End Street, Eynsham	R	ND	28.7	36.1	16.0	ND	12.1	7.4	6.9	9.0	16.0	ND	19.4	16.8
Mill Street, Eynsham	R	20.6	18.8	34.8	14.3	8.9	12.5	7.4	8.3	8.8	16.4	12.7	19.4	15.2
Orchard Close, Eynsham	B	18.2	24.6	33.7	10.9	6.9	8.2	5.9	6.2	6.6	13.7	9.9	13.0	13.1
Shakespeare Rd, Eynsham	B	24.1	29.1	36.7	13.2	6.4	8.4	6.4	3.9	9.6	16.0	11.8	21.4	15.6
Oxford Street, Woodstock	R	34.4	43.2	48.4	32.6	22.7	31.7	15.3	16.2	9.4	11.8	23.0	37.1	27.1
Oxford Street(2), Woodstock	R	38.9	49.5	48.7	32.8	23.9	29.2	ND	26.7	23.0	34.7	27.7	38.6	34.0
The Ley, Woodstock	B	22.6	22.1	29.7	10.2	5.2	6.6	5.6	6.9	5.5	12.5	11.3	17.6	13.0
Westland Way, Woodstock	B	22.5	25.6	30.5	11.3	5.5	6.9	5.5	5.5	4.8	13.8	12.0	20.9	13.7
Grove Road, Bladon	R	30.1	26.0	38.4	19.5	8.4	17.2	11.9	11.3	17.4	20.4	17.2	26.1	20.3
Grove Road(2), Bladon	R	36.6	40.7	40.7	25.8	18.1	19.3	17.5	13.3	19.6	28.6	27.0	35.8	26.9
Heath Lane, Bladon	B	22.8	24.4	31.2	9.4	6.4	6.5	5.9	5.6	7.4	14.3	10.5	18.5	13.6
Park Close, Bladon	B	18.6	20.5	29.6	9.9	5.9	6.9	4.7	4.3	6.4	11.8	11.0	16.5	12.2
Park Street, Bladon	R	39.1	ND	52.2	33.5	26.4	31.2	21.3	21.6	22.1	25.3	31.1	34.0	30.7

Monthly Diffusion Tube Monitoring Data, National Bias Factor Adjusted (0.81), 2009

Site	Site Type	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Bias Adjusted Annual Average
Bridge Street, Witney	R	65.4	56.5	68.0	61.1	38.9	55.6	38.3	25.4	ND	54.7	53.2	59.6	52.4
Mill Street, Witney	R	27.8	56.5	60.8	49.0	37.4	41.8	46.5	41.5	32.1	41.6	51.8	53.9	45.0
Early Rd., Witney	B	28.6	33.8	41.4	12.5	8.4	8.0	9.5	9.6	8.7	17.9	19.3	27.3	18.7
Abbey Rd., Witney	B	30.5	22.6	ND	15.7	7.9	9.8	9.2	7.9	9.3	19.7	17.8	27.4	16.2
High St, Burford	R	40.9	53.2	65.4	34.0	31.1	29.4	37.2	37.2	29.2	36.9	36.9	39.1	39.2
93 High Street, Burford	R	44.4	32.5	49.6	42.8	27.1	34.7	27.6	20.4	27.1	ND	ND	42.0	34.8
Frethern Cl, Burford	B	26.6	22.2	40.1	12.1	7.9	8.3	8.6	7.4	9.2	13.9	13.2	20.5	15.8
Orchard Rise, Burford	B	19.0	24.3	33.5	10.0	6.7	6.2	6.5	7.0	6.1	12.7	11.3	17.8	13.4
Brize Norton Rd, Carterton	R	33.4	39.5	46.9	21.7	14.3	16.3	14.7	13.8	13.1	20.1	ND	32.8	24.2
Upavon Way, Carterton	R	36.6	34.5	46.7	19.0	14.4	ND	15.6	16.3	18.1	28.6	24.9	34.7	26.3
Garner Close, Carterton	B	24.9	28.9	34.3	14.2	7.5	7.6	5.9	6.5	7.9	15.2	12.2	22.8	15.7
Oakfield Road, Carterton	B	22.7	27.4	37.8	11.1	8.1	9.2	9.5	5.8	8.7	14.6	11.7	23.5	15.8
Dyers Hill, Charlbury	R	24.5	29.3	39.3	17.8	13.1	ND	ND	13.0	13.8	11.1	ND	23.6	20.6
Nineacres Lane, Charlbury	R	28.8	29.6	40.8	14.0	11.7	13.1	10.9	11.3	12.7	18.1	20.7	24.8	19.7
Tanners Close, Charlbury	B	17.0	26.0	33.1	10.0	4.1	5.9	5.4	5.4	6.6	13.0	10.4	18.9	13.0
The Green, Charlbury	B	22.8	25.3	32.7	9.6	5.2	6.5	6.2	4.6	6.6	12.3	12.6	19.0	13.6
Horsefair, Chipping Norton	R	68.9	93.5	96.5	60.4	60.4	58.9	56.3	39.8	39.2	59.3	65.1	67.2	63.8
31 High Street, Chipping Norton	R	60.0	ND	65.9	55.2	38.3	32.5	39.9	38.2	33.8	43.5	49.3	50.9	46.1
Co-location, Chipping Norton	R	48.8	58.8	62.0	58.1	32.5	48.1	32.5	33.2	29.1	39.7	35.1	51.7	44.1
CN Co location, Chipping Norton	R	56.4	56.1	63.4	55.4	38.0	47.5	33.0	29.2	32.2	40.6	35.5	50.4	44.8
CN Co location, Chipping Norton	R	56.9	54.6	61.6	58.1	ND	37.3	33.0	31.0	27.5	45.4	34.6	53.1	44.8

West Oxfordshire - England

April 2010

Co-location, Triplicate Mean	R	54.0	56.5	62.4	57.2	35.2	44.3	32.8	31.2	29.6	41.9	35.0	51.7	44.6
5 Horsefair, Chipping Norton	R	42.2	43.1	46.3	34.3	23.9	26.1	23.9	20.7	19.8	28.1	27.2	33.9	30.8
7 Horsefair, Chipping Norton	R	40.8	42.8	48.7	34.7	ND	30.0	22.8	18.5	19.0	26.0	25.8	34.7	31.3
West Street, Chipping Norton	R	41.6	53.9	57.2	27.9	26.7	25.9	22.9	23.0	29.0	27.9	29.4	35.3	33.4
Coopers Close, Chipping Norton	B	ND	25.9	ND	11.6	7.3	7.6	7.8	7.6	9.0	15.5	ND	19.4	12.4
Withers Way, Chipping Norton	B	22.2	25.4	26.2	9.1	6.8	8.3	6.0	5.8	8.6	15.1	11.3	20.3	13.8
Acre End Street, Eynsham	R	ND	33.2	41.7	18.5	ND	14.0	8.6	8.0	10.4	18.5	ND	22.4	19.5
Mill Street, Eynsham	R	23.8	21.8	40.3	16.5	10.3	14.4	8.5	9.6	10.1	19.0	14.7	22.4	17.6
Orchard Close, Eynsham	B	21.1	28.5	39.0	12.6	7.9	9.5	6.8	7.2	7.6	15.8	11.5	15.1	15.2
Shakespeare Rd, Eynsham	B	27.9	33.6	42.4	15.3	7.5	9.7	7.5	4.5	11.1	18.5	13.7	24.8	18.0
Oxford Street, Woodstock	R	39.9	50.0	56.0	37.7	26.2	36.7	17.7	18.8	10.9	13.7	26.6	42.9	31.4
Oxford Street(2), Woodstock	R	45.0	57.3	56.3	37.9	27.7	33.8	ND	30.9	26.6	40.1	32.0	44.6	39.3
The Ley, Woodstock	B	26.2	25.5	34.3	11.8	6.0	7.6	6.5	7.9	6.3	14.4	13.1	20.3	15.0
Westland Way, Woodstock	B	26.0	29.6	35.2	13.0	6.4	7.9	6.3	6.4	5.5	16.0	13.9	24.1	15.9
Grove Road, Bladon	R	34.8	30.1	44.4	22.6	9.7	19.9	13.8	13.0	20.1	23.7	19.8	30.2	23.5
Grove Road(2), Bladon	R	42.4	47.1	47.1	29.8	21.0	22.3	20.3	15.4	22.7	33.1	31.2	41.4	31.1
Heath Lane, Bladon	B	26.3	28.2	36.0	10.9	7.5	7.5	6.8	6.5	8.6	16.5	12.2	21.4	15.7
Park Close, Bladon	B	21.5	23.7	34.3	11.4	6.8	8.0	5.4	5.0	7.4	13.7	12.7	19.1	14.1
Park Street, Bladon	R	45.3	ND	60.4	38.8	30.5	36.1	24.6	24.9	25.6	29.2	36.0	39.3	35.5

Appendix D: Action Plan Progress – Chipping Norton

No.	Measure	Focus	Lead authority	Planning phase	Implementation phase	Indicator	Target annual emission reduction in the AQMA	Progress to date	Progress in last 12 months
1	HGV Routing	Reduce unit emissions in the AQMA in conjunction with County LTP	OCC	2009 - 2010	2010 - 2011	Annual returns	To within national limits	Awaiting finalisation of Consultant's Report	Development and implementation on going
2	Funding bid for regional prioritisation		OCC						Only required if Measure 1 does not deliver results
3	Continuously monitor emissions within AQMA	Identify and confirm reducing emissions trend	WODC	2005 - 2008	2009 - Current	Annual returns	To within national limits	Awaiting implementation of Measure 1	See PR 2008 and USA 2009 and PR 2010
4	Steering group		WODC		2010 onwards as required upon full implementation of Measure 1	Annual returns			
5	Development of Climate Change Policy		Government						

No.	Measure	Focus	Lead authority	Planning phase	Implementation phase	Indicator	Target annual emission reduction in the AQMA	Progress to date	Progress in last 12 months
5a	Lobby Government	Lobbying and support of Government to create policy to increase the use of cleaner vehicles and fuels	OCC has Highway Authority Network Management Duty (for the free flow of traffic etc						
5b	Engage with local public transport operators	Reduce unit emissions in the AQMA	OCC	Engage with local public transport operators (buses and taxis) to a) promote the procurement of vehicles with cleaner engine technologies and b) to promote the use of cleaner fuels.	Continuing introduction of newer, less polluting buses	Annual returns	Reduce unit emissions in the AQMA using Bus Quality Partnership Agreements (BQPA]	Manage bus emissions	

No.	Measure	Focus	Lead authority	Planning phase	Implementation phase	Indicator	Target annual emission reduction in the AQMA	Progress to date	Progress in last 12 months
5c	Engage with freight transport operators	Engage with freight transport operators to a) promote the procurement of vehicles with cleaner engine technologies and b) to promote the use of cleaner fuels.	OCC		Expected changes to emission standards	Technological development	Reduce unit emissions in the AQMA in conjunction with County LTP	HGV Routing	
5d	'Leave your car at home' initiative	WODC and OCC to Promote use of public transport - awareness levels raised in all periodic Council publicity media	WODC		Continuous				
5e	Promote use of cycles	Promotion of the use of the cycle. Awareness levels raised in all periodic Council publicity media	WODC		Continuous				
5f	School Travel Plans / Green Travel Plan	Development of School Travel Plans and promotion of WODC Green Travel Plan	OCC	The 4 nominated schools have STPs.	Continuous			'Healthcheck' on one school in March 2008	WODC Green Travel Plan due for revision 2010
6	County Bus Strategy		OCC						

No.	Measure	Focus	Lead authority	Planning phase	Implementation phase	Indicator	Target annual emission reduction in the AQMA	Progress to date	Progress in last 12 months
7	Local Transport Plans	County wide improvements to route infrastructure and traffic management	OCC						
8	Switch off idling engines	Acquisition of powers to require drivers to switch off their engines if they are left idling.			Education al approach favoured over enforcement		Visual evidence of drivers being more aware		Advice / Action as required by Community Wardens
9	Manage parking to reduce traffic congestion and improve air quality	Manage parking to reduce traffic congestion and improve air quality	WODC	2009 Awaied CPE (TMA 2004)	New Community Wardens to enforce both on and off road parking to minimise restrictions to traffic flow.			Due to be activated 25 Jan 2010	Increased / high visibility patrolling within the District by Community Wardens