COTSWOLD
DISTRICT COUNCIL

2015 Updating and Screening Assessment for
Cotswold District Council

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

May 2015

Local Authority Officer	Public Protection Principal Officer
Department	Public Protection
Address	Trinity Road Cirencester GL7 1PX
Telephone	01285 623000
e-mail	Neighbourhoodservices@cotswold.gov.uk
Report Reference number	USA 2015
Date	May 2015

Executive Summary

This Updating and Screening report for 2015 is the start of round six of reporting on air quality required of local authorities. It considers the guidance in Technical Guidance (LAQM.TG(09)) issued by Defra and the Devolved Administrations.

Cotswold District Council has continued to maintain diffusion tube monitoring sites for nitrogen dioxide across the district. The sites are representative of relevant exposure and relate to emissions from traffic. Monitoring sites are within two Air Quality Management Areas (AQMA): the Air Balloon Roundabout in Birdlip, declared in 2008 and an area of Thames Street Lechlade, declared 2014. The council has maintained two automatic monitors for nitrogen Dioxide (NO_2) at these sites until early 2014. Due to technical issues there has been insufficient data available from the continuous analyser Birdlip to report on. However, the continuing diffusion tube data in the area shows no significant change in the levels of NO_2; it remains above the National Objective, as expected as there has been no change in the usage of the road.

Traffic management within this area is outside the control of Cotswold District Council; but the council will continue to encourage and support alternative transport

and any measures considered by the Highways Agency to improve the situation. Central government funding has been a made available to alter this strategic trunk route in due course, with no details on proposals for improvement it is not known at this time if it will address the air quality issue, but this seems unlikely as the air quality problems are principally related to the number of HGV's, the topography: the steep incline will always give rise to the slow moving traffic as it negotiates this section of the road.

Monitoring at Thames Street, Lechlade shows a fall in levels both in the diffusion tube results and the analyser; consideration will be given to revoking the AMQA however, real time monitoring will continuing for a further 12 months.

The report concludes that there are no new areas of concern that have been identified within Cotswold District Council's area.

Table of contents

List of Tables

List of Figures

Appendices

1 Introduction

1.1 Description of Local Authority Area

Cotswold District Council is predominantly a rural area, geographically the largest of the Gloucestershire local authorities and crossed by three main traffic routes:

- A419/A417, which is a strategic trunk road crossing from northwest to southeast;
- A429 southwest to northeast; and
- A40 which crosses the district west to east.

These roads mainly pass through countryside, bypassing most of the main towns, apart from the A429 that passes through the outskirts of Stow-on-the-Wold and Moreton-in-Marsh. Large portions of the District are classified as an area of outstanding natural beauty.

There are no industrial areas within the district or close by that make a significant impact on air quality. The industries within the district that emit any of the prescribed pollutants are not located close to relevant public exposure. The scale on which they operate does not produce emissions that contribute significantly to the air quality.

1.2 Purpose of Report

This report fulfils the requirements of the Local Air Quality Management process as set out in Part IV of the Environment Act (1995), the Air Quality Strategy for England, Scotland, Wales and Northern Ireland 2007 and the relevant Policy and Technical Guidance documents. The LAQM process places an obligation on all local authorities to regularly review and assess air quality in their areas, and to determine whether or not the air quality objectives are likely to be achieved. Where exceedences are considered likely, the local authority must then declare an Air Quality Management Area (AQMA) and prepare an Air Quality Action Plan (AQAP) setting out the measures it intends to put in place in pursuit of the objectives.

The objective of this Updating and Screening Assessment is to identify any matters that have changed which may lead to risk of an air quality objective being exceeded. A checklist approach and screening tools are used to identify significant new sources or changes and whether there is a need for a Detailed Assessment. The USA report should provide an update of any outstanding information requested previously in Review and Assessment reports.

1.3 Air Quality Objectives

The air quality objectives applicable to LAQM **in England** are set out in the Air Quality (England) Regulations 2000 (SI 928), The Air Quality (England) (Amendment) Regulations 2002 (SI 3043), and are shown in Table 1.1. This table shows the objectives in units of micrograms per cubic metre $\mu g/m^3$ (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 LAQM in England

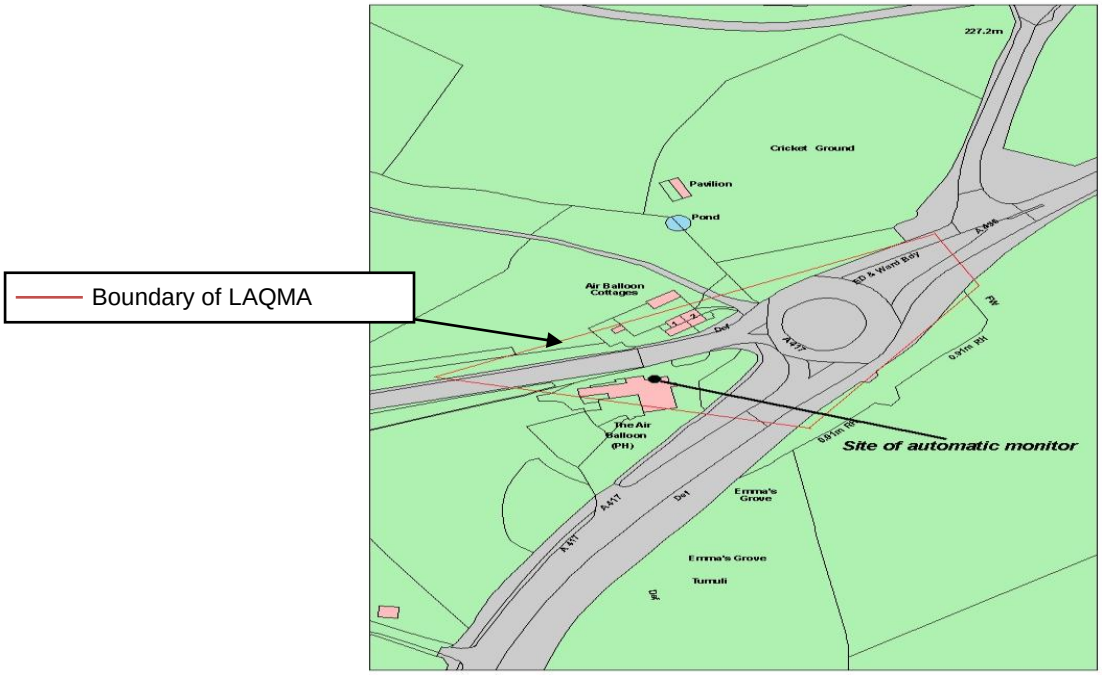
Pollutant	Air Quality Objective		Date to be achieved by
	Concentration	Measured as	
Benzene	16.25 µg/m^3	Running annual mean	31.12.2003
	5.00 µg/m^3	Running annual mean	31.12.2010
1,3-Butadiene	2.25 µg/m^3	Running annual mean	31.12.2003
Carbon monoxide	10.0 mg/m^3	Running 8-hour mean	31.12.2003
Lead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

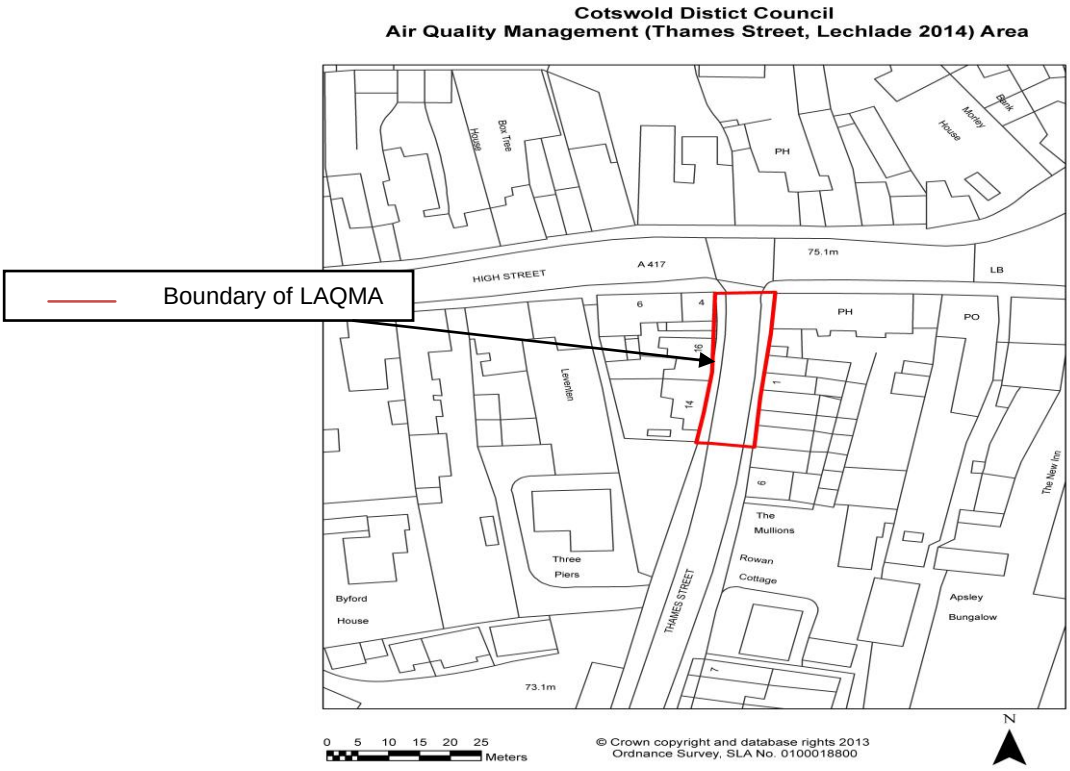
1.4 Summary of Previous Review and Assessments

Report Submitted	Outcome
Updating and Screening 2006	Diffusion tube monitoring carried out for NO_2 and Benzene. No new issues identified. Monitoring continued for NO_2 at the Air Balloon roundabout junction of the A417 at Birdlip in relation to potential exceedence identified.
Detailed Assessment 2007 for nitrogen dioxide (NO_2) at A417 junction	Automatic monitoring undertaken for NO_2 and dispersion modelling undertaken at Birdlip confirmed need to declare AQMA.
Progress Report 2007	No new issues. Monitoring for NO_2 continued with no changes.
Declaration of Local Air Quality Management Area April 2008	Declared in respect of nitrogen dioxide exceedence of annual mean related to traffic emissions. (See figure 1) Order amended 2010 to include 1 hourly objective.
Round 4 Updating and Screening 2009	Monitoring of NO_2 continued across the district. Continuous monitoring was reported on from within the Air Quality Management area at Birdlip; A Further Assessment was submitted 2010 for this site.
Progress Report 2010	Identified a possible exceedence at Thames Street Lechlade. Continuous monitoring planned for this site. Diffusion tube monitoring continued across the district and continuous monitoring within the AQMA. No new areas of concern were identified.
Progress Report 2011	Diffusion tube monitoring was reported on with no new areas identified. Continuous monitoring began in Thames Street Lechlade to be reported on in 2012; continuous monitoring continued within the existing AQMA.
Action Plan for AQMA at Air Balloon Roundabout 2012	Action Plan was published. The issue is relates to traffic on this major trunk route; controls are outside the control of the district council. The plan concludes that support and encouragement through a working party will be given to measures that may help to control traffic and encourage alternative transport.
Report Submitted	**Outcome**
Round 5 Updating and Screening 2012	Diffusion tube monitoring continued for NO_2. Additional tube introduced in Thames Street. Two analysers maintained one within the LAQMA at Birdlip and one in Thames Street Lechlade. No new issues identified.
Detailed Assessment for Lechlade	Automatic monitoring undertaken of NO_2 – short term data and results from analyser were inconclusive analyser results: 38µg/m^3. Monitoring is to continue to provide consistent long term data.
Progress Report 2013	No changes to previous years monitoring. Data confirmed the need to declare an Air Quality Management Area for Thames Street Lechlade in respect of nitrogen dioxide.
Progress Report 2014	No changes to the levels from the preceding years monitoring. An LAQMA was declared for an area of Thames Street Lechlade, for NO_2.

Figure 1.1 Map(s) of AQMA Boundaries

Air Balloon Birdlip





2 New Monitoring Data

2.1 Summary of Monitoring Undertaken

2.1.1 Automatic Monitoring Sites

Cotswold District Council has maintained a continuous monitoring within the AQMA at Thames Street Lechlade.

QA/AC

The analyser was installed and commissioned by the supplier. Routine calibrations are undertaken in keeping with QA/QC controls; calibration checks are undertaken least every 2 weeks. These checks are carried by out Cotswold District Council officers in accordance with the supplier's procedures. Calibration checks include replacing the filter and running checks using supplied gases at known concentrations. The supplier has serviced the analyser at six-month intervals.

Data validation and ratification

The raw data from the analyser is collected by Enviro-technology services and forwarded to the council monthly. This has been validated and ratified in house. The raw data has been scanned for consistency and anomalies, data capture assessed, high and negative readings considered. The data is corrected using readings from the regular calibration information and transposed into consistent units, i.e. μgm^3 from this an annual mean is calculated.

There have been problems with intermittent power supply and failure of the unit at the Air Balloon that has severely affected the continuity and consistency of data. The analyser has been in place for 8 years and there has been little change in the levels of $NO_{2,}$ It is likely that the analyser will be decommissioned later this year. However diffusion tubes remain in place.

Figure 2.1 Map of Automatic Monitoring Sites

Thames Street Lechlade

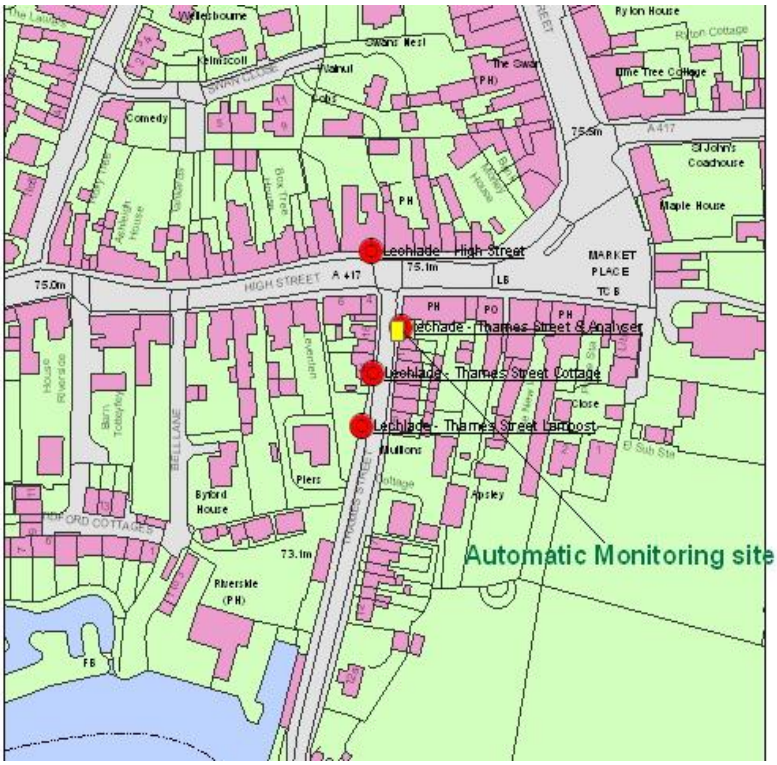


Table 2.1 Details of Automatic Monitoring Sites

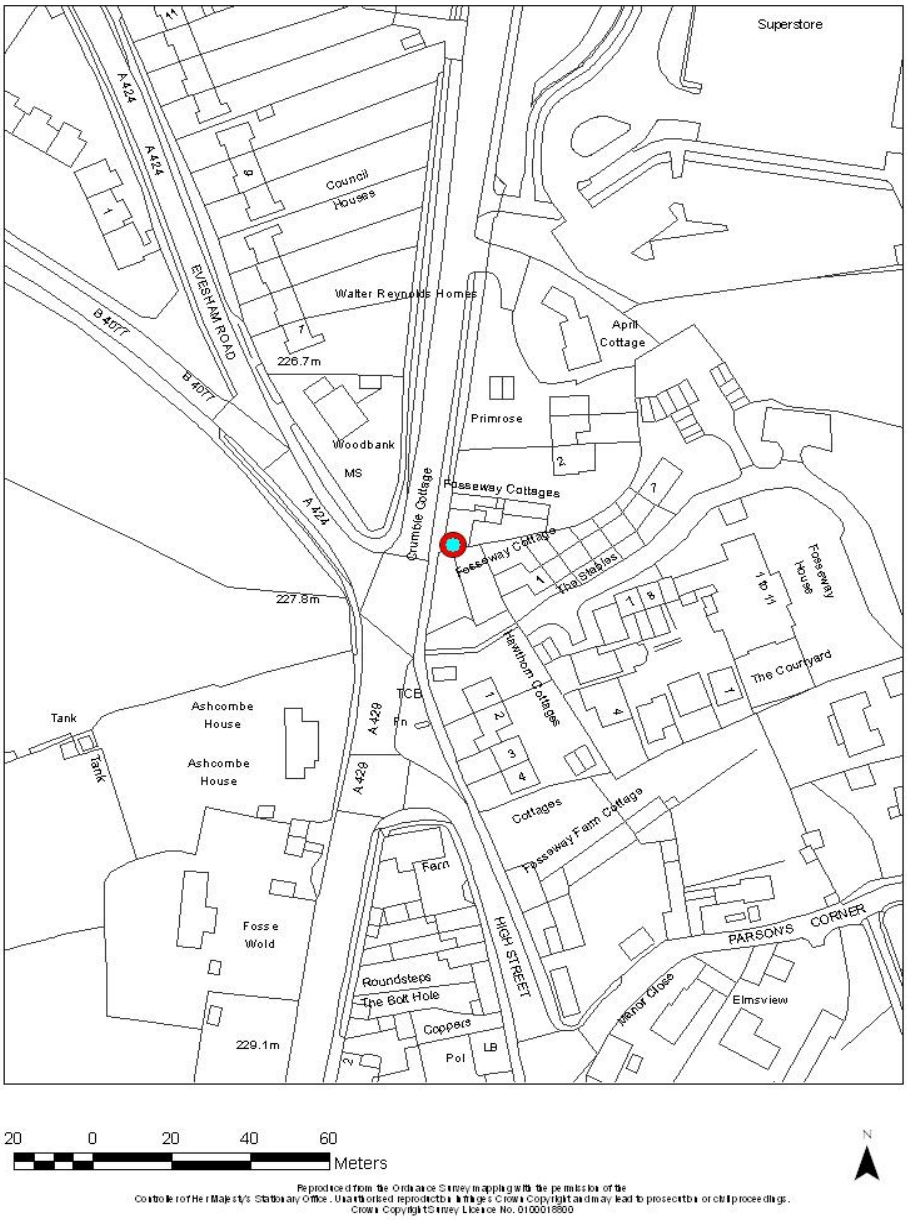
Site ID	Site Name	Site Type	X OS Grid Reference	Y OS Grid Reference	Inlet Height (m)	Pollutants Monitored	In AQMA?	Monitoring Technique	Relevant Exposure? (Y/N with distance (m) from monitoring site to relevant exposure)	Distance to Kerb of Nearest Road (m) (N/A if not applicable)	Does this Location Represent Worst-Case Exposure?
CM2	Lechlade - Thames St	Kerbside	421378	199506	1.5	NO_2	y	Chemiluminescence	y(<1m)	0.5m	Y

2.1.2 Non-Automatic Monitoring Sites

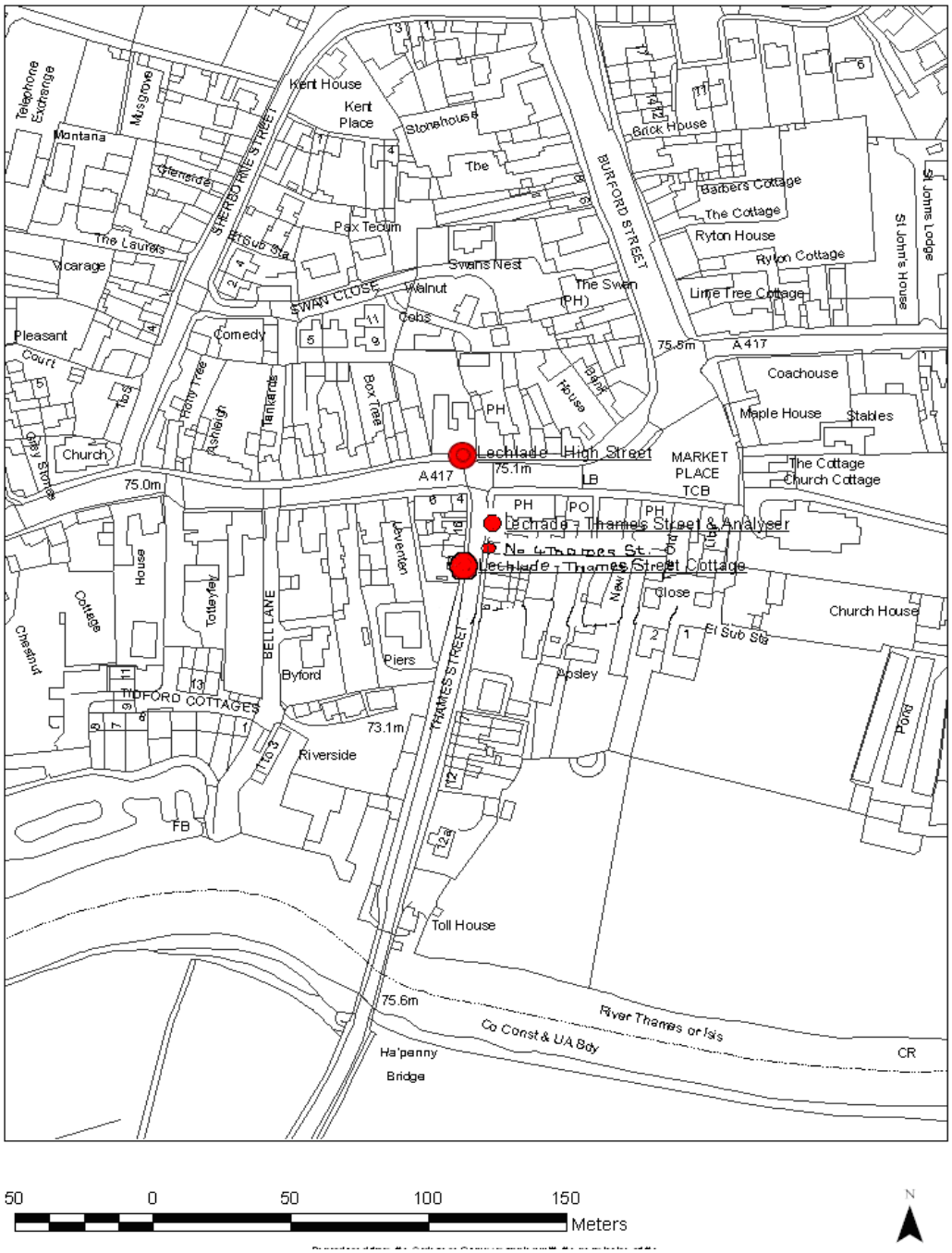
Cotswold District Council currently has sixteen diffusion tube sites for nitrogen dioxide. All sites relate to emissions from traffic and are positioned where there is relevant public exposure, in accordance with guidance in TG (09). Details of the sites are given below, see table 3

Figure 2.2 Maps of Non-Automatic Monitoring Sites

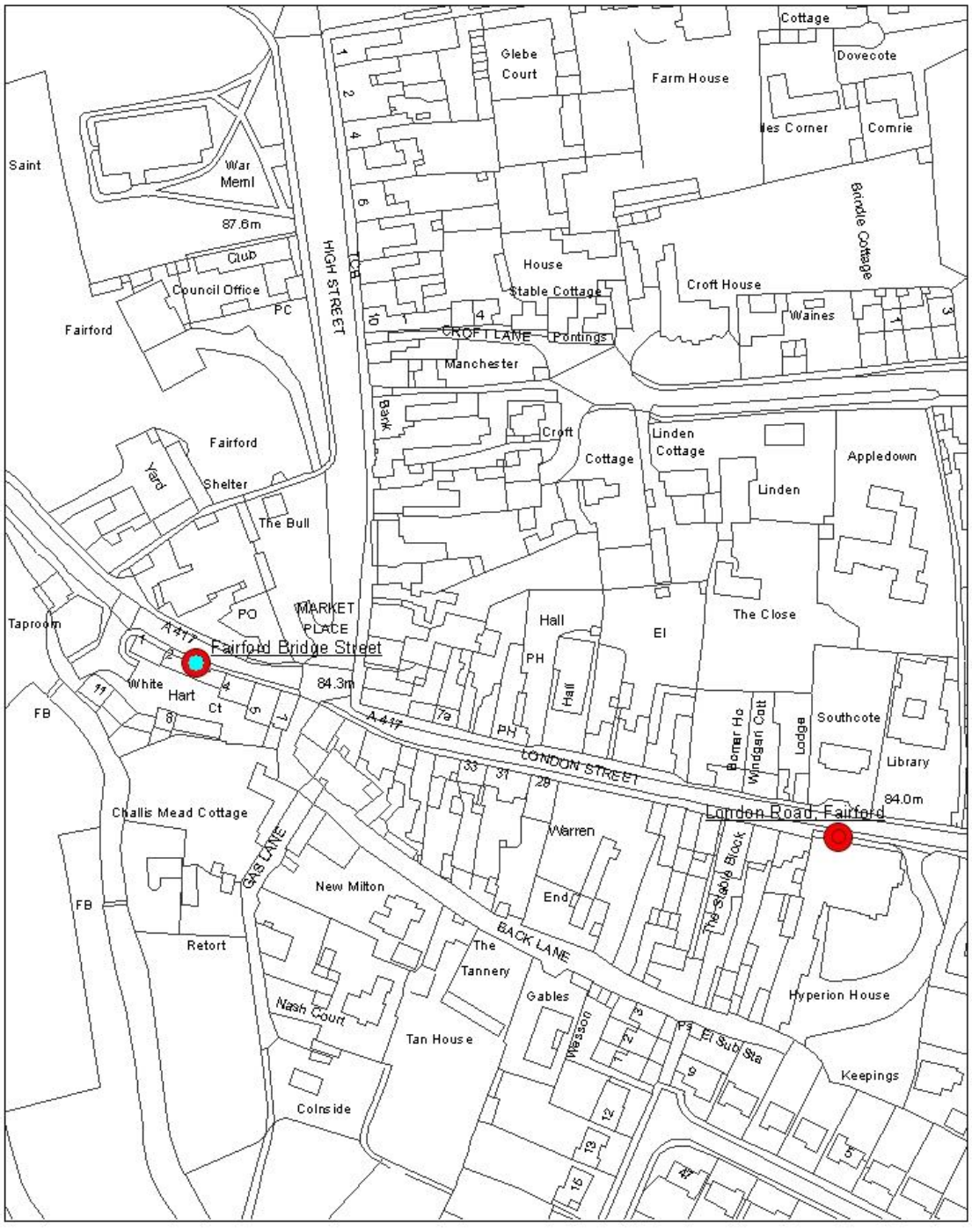
Site T1 Stow in the Wold



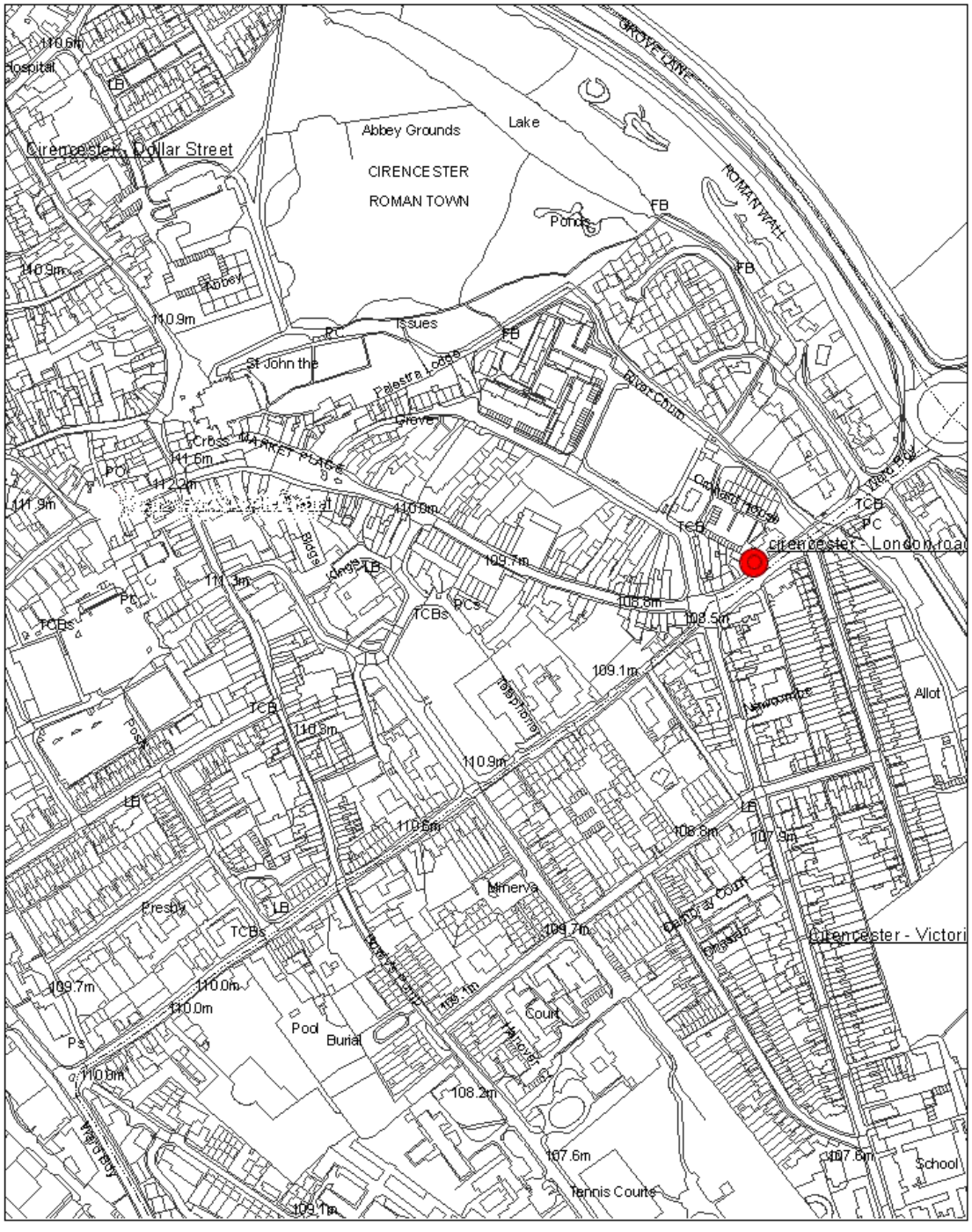
Site T2, T3, T4, T5, & analyser Thames Street, High Street Lechlade



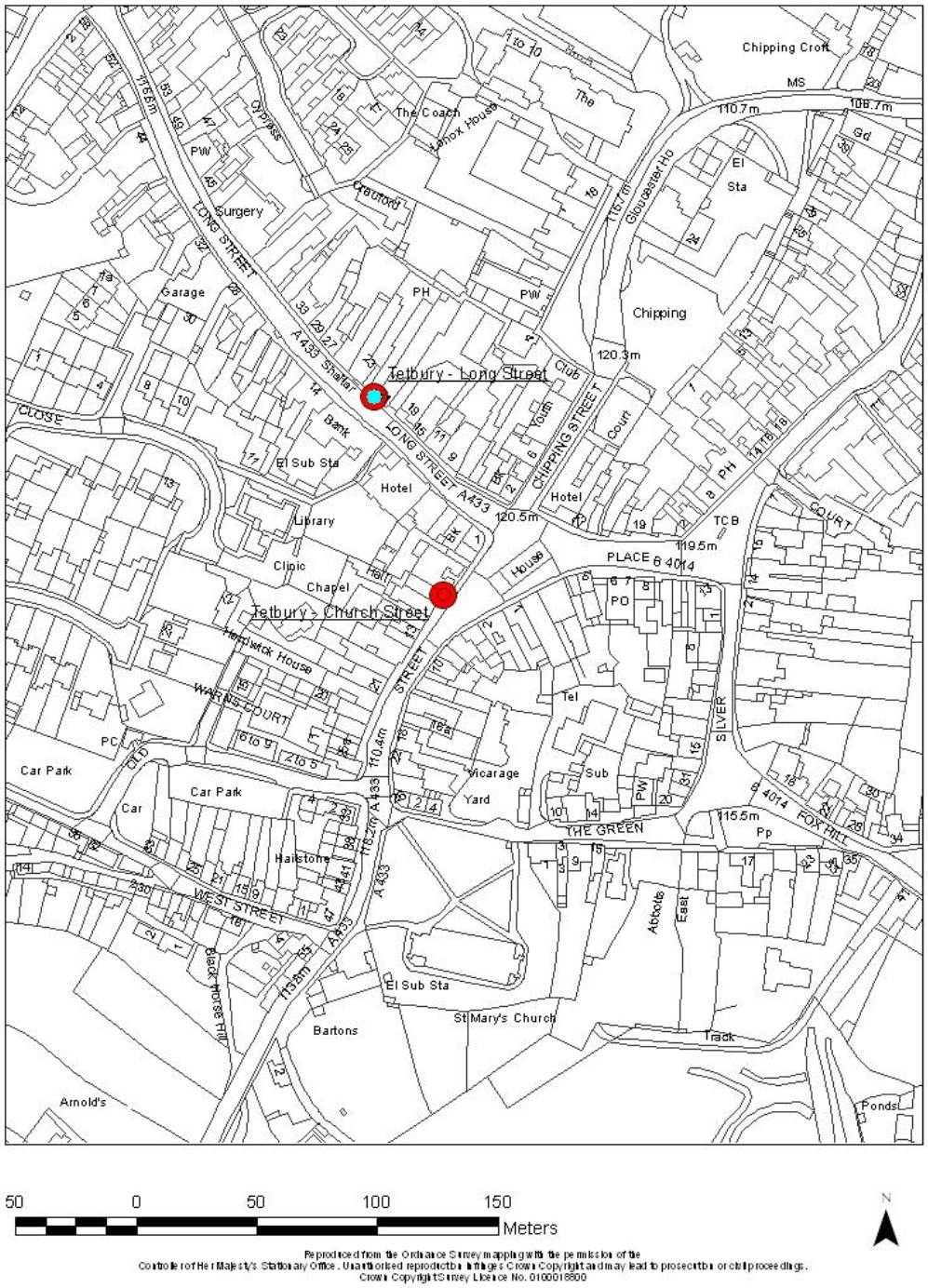
Site T6, London Road, T7 Bridge Street Fairford



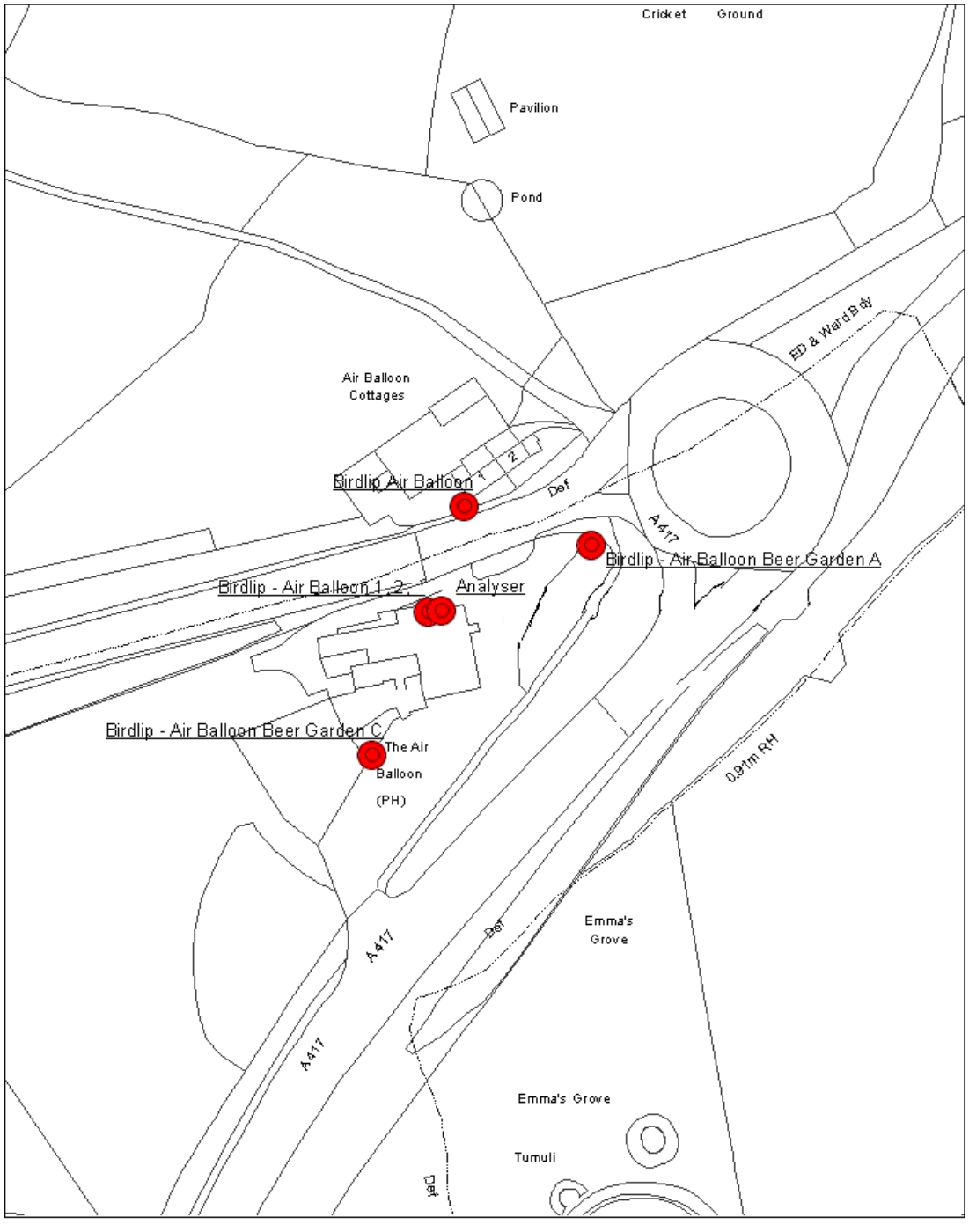
Site T8 London Road,(Wagon & Horses) Cirencester



Site T9 Church Street T10 Long Street Tetbury



Sites at Air Balloon Roundabout T11 T12 T13 T14 T15



Site T16 Stow Lodge

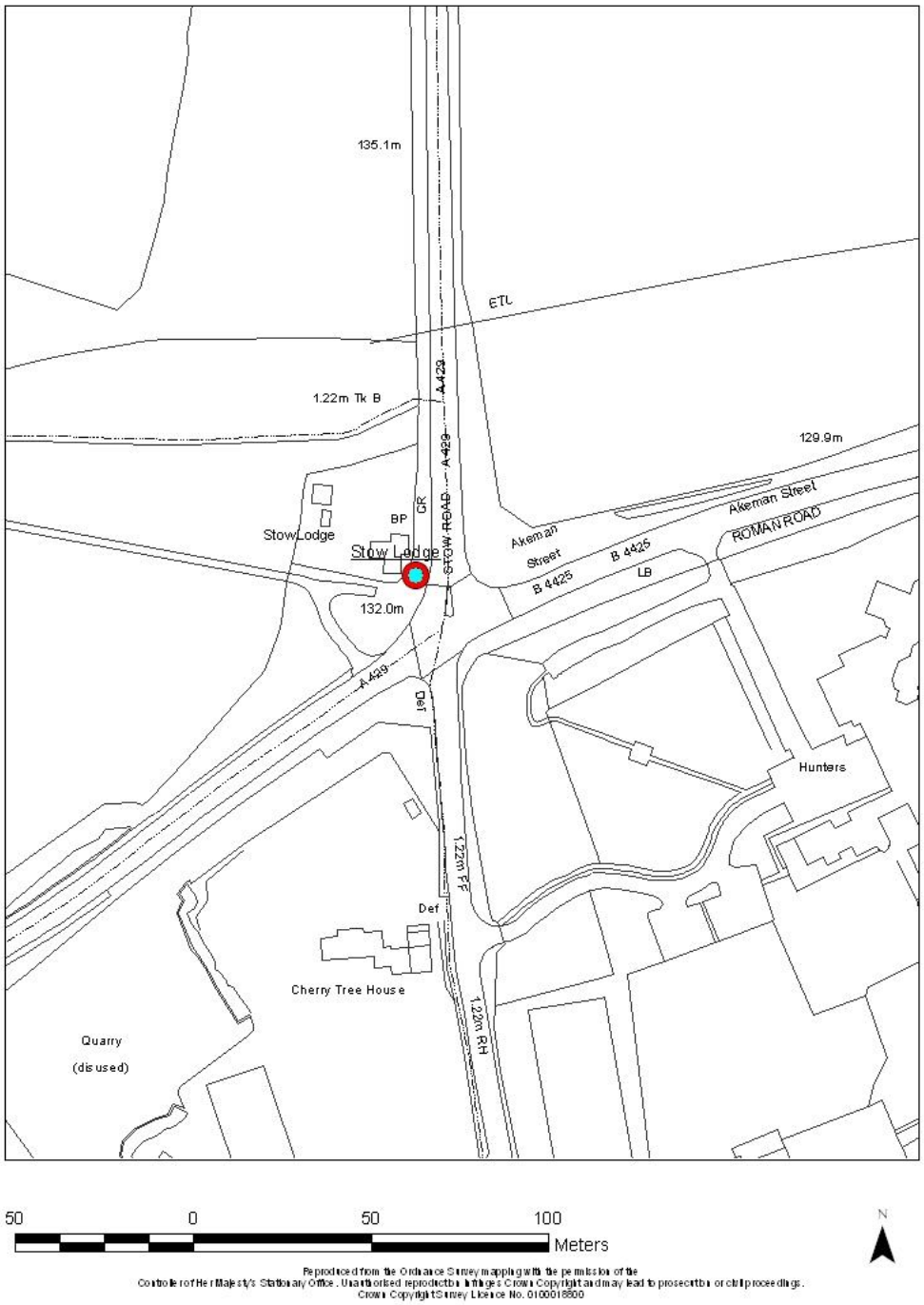


Table 2.2 Details of Non- Automatic Monitoring Sites

Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutants Monitored	In AQMA?	Is monitoring collocated with a Continuous Analyser (Y/N)	Relevant Exposure? *(Y/N with distance (m) to relevant exposure)*	Distance to kerb of nearest road *(N/A if not applicable)*	Does this location represent worst-case exposure?
Stow-in-the Wold - Fosseway Cottage	Roadside	419079	226054	NO_2	N	N	y (1m)	3m	N
Lechlade -Thames St	Kerbside	421378	199506	NO_2	Y	Y	y(<1m)	0.5m	Y
Lechlade No 2 Thames St	Kerbside	421359	199404	NO_2	Y	N	Y(1m)	<1m	Y
Lechlade - Thames St cottage 4	Kerbside	421364	199477	NO_2	Y	N	y(<1m)	1.5m	Y
Lechlade – High St	Kerbside	421367	199532	NO_2	N	N	y (<1m)	<1m	Y
Fairford - London Rd	Kerbside	415378	200949	NO_2	N	N	y (1m)	1m	Y
Fairford Bridge St	Kerbside	415167	201004	NO_2	N	N	y (1m)	1m	Y
Cirencester -Castle St	Kerbside	402222	202010	NO_2	N	N	y(1m)	1m	Y
Cirencester – London Rd (Wagon/Horses)	Kerbside	402735	201962	NO_2	N	N	y (<1m)	<1m	Y
Tetbury - Long St	Kerbside	389007	193197	NO_2	N	N	y(1m)	1m	Y
Tetbury - Church St	Kerbside	389034	193110	NO_2	N	N	y(1m)	1m	Y
Birdlip Air Balloon	Kerbside	393446	216118	NO_2	Y	N	y(1m)	1m	Y
Birdlip - Air Balloon 1	Kerbside	393459	216124	NO_2	Y	Y	y(1m)	4m	Y
Birdlip - Air Balloon 2	Kerbside	393459	216124	NO_2	Y	Y	y(1m)	4m	Y
Birdlip - Air Balloon, beer garden B	Kerbside	393459	216091	NO_2	Y	N	Y(<1M)	1m	Y
Stow Lodge	Kerbside	403943	202961	NO_2	N	N	y(5m)	0.5m	Y

2.2 Comparison of Monitoring Results with Air Quality Objectives

There have been no major changes to roads, in development, or industrial processes across the district; that would impact on air quality therefore Cotswold District Council has maintained monitoring as in previous years. The focus is on nitrogen dioxide from traffic emissions.

2.2.1 Nitrogen Dioxide

Automatic Monitoring Data

Continuous monitoring within AQMA at the Air Balloon Roundabout junction has been undertaken for 8 years. In 2014 there were constant problems with power outages; consequently the data collection was poor and inconsistent. This analyser will be decommissioned in 2015 with an option to re-install in the area if there are major changes to the layout of the road.

Central government has made funds available to make major alterations to this road in due course. At the time of writing no details as to effects and timescales are available. However it is possible that because of the topography of the area, mainly the steep incline, and the high volume of HGV's using this route prosed changes in up grading part of the route and changing road lay out will have minimal effect on the air quality. Cotswold District Council will keep an watching brief on the development of this project.

Reported data for previous years has remained fairly constant.

Monitoring at Thames Street Lechlade has continued. Due to power outages data capture was 73.4%. In accordance with guidance the ratified data was adjusted for short term data capture from the national network (details given in appendix). Selections of the sites for this exercise were those used in a previous AQ report for consistency. The result was an estimated annual mean of 34.5μg/m^3 in assessing this and the data from

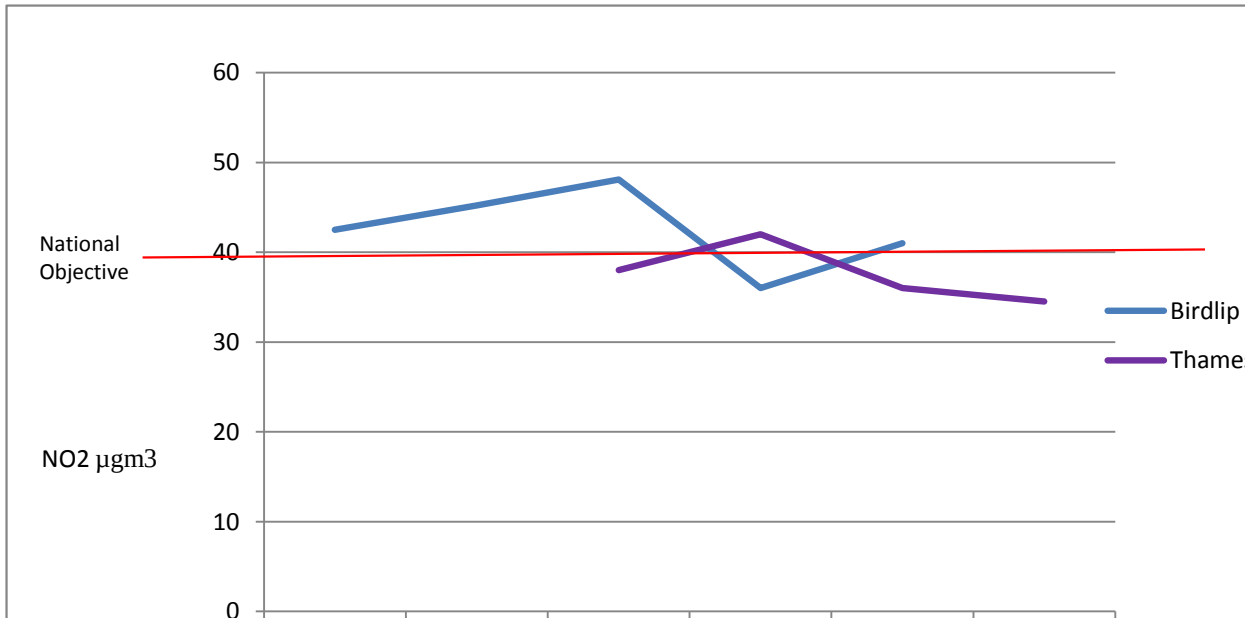
2013 the annual mean at 36μg/m^3 and the consideration of diffusion tube monitoring in the area where there are 3 tubes only one of which is exceeding the national objective by 0.63 at 40.63μg/m^3 Cotswold District Council will consider revoking the air quality management area declared in 2014. However the continuous analyser will remain in place for a further twelve months.

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

Site ID	Site Type	Within AQMA?	Valid Data Capture for period of monitoring %[a]	Valid Data Capture 2014 % [b]	Annual Mean Concentration μg/m^3				
					2010* [c]	2011* [c]	2012*	2013*	2014 [c]
CM2	Kerbside	Y	73.5%	100	n/a	38	**42**	36	34.5

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.
*Annual mean concentrations for previous years are optional.

Figure 2.3 Trends in Annual Mean Nitrogen Dioxide Concentrations measures at Automatic Monitoring Sites



This chart shows the trends in levels at Air Balloon Birdlip up to 2013 no data was available for 2013 due to technical problems; however the levels show only a marginal shift upwards from 36 in 2012 to 41 in 2013. Thames Street shows a falling trend over 2 years reporting an annualised figure of 34.5 μgm^3 the data was adjusted for short term data capture. (see text for further details)

Table 2.4 Results of Automatic Monitoring for Nitrogen Dioxide: Comparison with 1-hour mean Objective

Site ID	Site Type	Within AQMA?	Valid Data Capture for period of monitoring %[a]	Valid Data Capture 2014 % [b]	Number of Exceedences of Hourly Mean (200 μg/m^3)				
					2010* [c]	2011* [c]	2012* [c]	2013* [c]	2014 [c]
CM2	Kerbside	Y	73.5	100	na	1	14	6	4(106)

[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] If the period of valid data is less than 90%, include the 99.8th percentile of hourly means in brackets
*Number of exceedences for previous years are optional.

Diffusion Tube Monitoring Data

No new areas have been identified that required monitoring; Cotswold District Council has therefore retained its existing sites across the district. The sites all relate to traffic emissions. There have been no new roads or major changes that have affected traffic flows. The results reflect therefore a consistency across the levels for the last five years.

Table 2.5 Results of Nitrogen Dioxide Diffusion Tubes in 2014

Site ID	Location	Site Type	Within AQMA?	Triplicate or Collocated Tube	Data Capture 2014 (Number of Months or %)	Data with less than 9 months has been annualised (Y/N)	Confirm if data has been distance corrected (Y/N)	Annual mean concentration (Bias Adjustment factor = 0.81) 2014 (μg/m^3)
T1	Stow - Fosse Cottage	Roadside	N		91.7	N	N	35.18
T2	Lechlade Thames St 1	Kerbside	Y		100	N	N	38.19
T2	Lechlade Thames St 2	Kerbside	Y		100	N	N	37.95
T3	Lechlade Thames St Cott No4	Kerbside	Y		100	N	N	**40.63**
T5	Lechlade High Street	Kerbside	N		100	N	N	33.26
T6	Lechlade Thames St N2	Kerbside	Y		91.7	N	N	36.07
T8	Fairford London Road	Kerbside	N		100	N	N	27.89
T7	Fairford Bridge St	Kerbside	N		100	N	N	33.45
T8	Cirencester Wagon + horses	Kerbside	N		91.7	N	N	29.78
T19	Tetbury Church St	Kerbside	N		100	N	N	34.78
T10	Tetbury Long St	Kerbside	N		100	N	N	27.01
T12	Birdlip - Air Balloon 2	Kerbside	Y		100	N	N	**40.30**
T13	Birdlip - Air Balloon 3	Kerbside	Y		100	N	N	**41.38**
T13	Birdlip Air Balloon Beer Garden	Kerbside	Y		83.3	N	N	**43.26**
T11	Birdlip Cottages	Kerbside	Y		100	N	N	**61.46**
T15	Birdlip Air balloon car park	Kerbside	Y		83.3	N	N	23.01
T16	Stow Lodge	Kerbside	N		91.7	N	N	32.22

Table 2.6 Results of Nitrogen Dioxide Diffusion Tubes (2010 to 2014)

Site ID	Site Type	Within AQMA?	Annual mean concentration (adjusted for bias) μg/m^3				
			2010* (Bias Adjustment Factor = 77)	2011* (Bias Adjustment Factor = 83)	2012* (Bias Adjustment Factor = 94)	2013* (Bias Adjustment Factor = 95)	2014 (Bias Adjustment Factor = 0.81)
T1	Stow-in-the -Wold Fosseway Cottage	N	37.61	36.2	36.8	30.71	35.18
T2	Lechlade - Thames Street	Y	42.85	38.7	**41.4**	38.92	38.19
T3	Lechlade –Cottage no 4	Y	na	**41.7**	**43.4**	**42.96**	40.63
T4	Lechlade -Cottage No 2 Thames St	Y	na	na	39.23	39.89	36.07
T5	Lechlade High St	N	35.56	34.6	35.9	32.65	33.26
T6	Fairford - London Rd	N	27.11	32.3	33.2	28.11	27.89
T7	Fairford - Bridge St	N	34.12	35.5	39.2	33.97	33.45
T8	Cirencester - London Rd (Waggon/Horses)	N	35.4	33.9	35.7	33.28	29.78
T9	Tetbury - Church St	N	35.46	35.7	36.8	32.04	34.78
T10	Tetbury - Long Street	N	28.78	28.6	29.3	26.67	27.01
T11	Birdlip - Air Balloon	Y	57.62	69.4	**68.3**	**61.93**	**61.46**
T12	Birdlip - Air Balloon 2	Y	43.02	43.5	**46.1**	**42.18**	**40.30**
T13	Birdlip - Air Balloon 3	Y	42.7	45.3	**47.2**	**41.60**	**41.38**
T14	Birdlip - Air Balloon, beer garden A	Y	31.45	28.3	**44.6**	**42.93**	**43.26**
T15	Birdlip - Air Balloon, beer car park C	Y	30.5	29.7	27.1	27.44	23.01
T16	Stow Lodge	N	32.15	35.3	35.3	33.74	32.22

*Optional

Figure 2.4 Trends in Annual Mean Nitrogen Dioxide Concentrations measured at Diffusion Tube Monitoring Sites

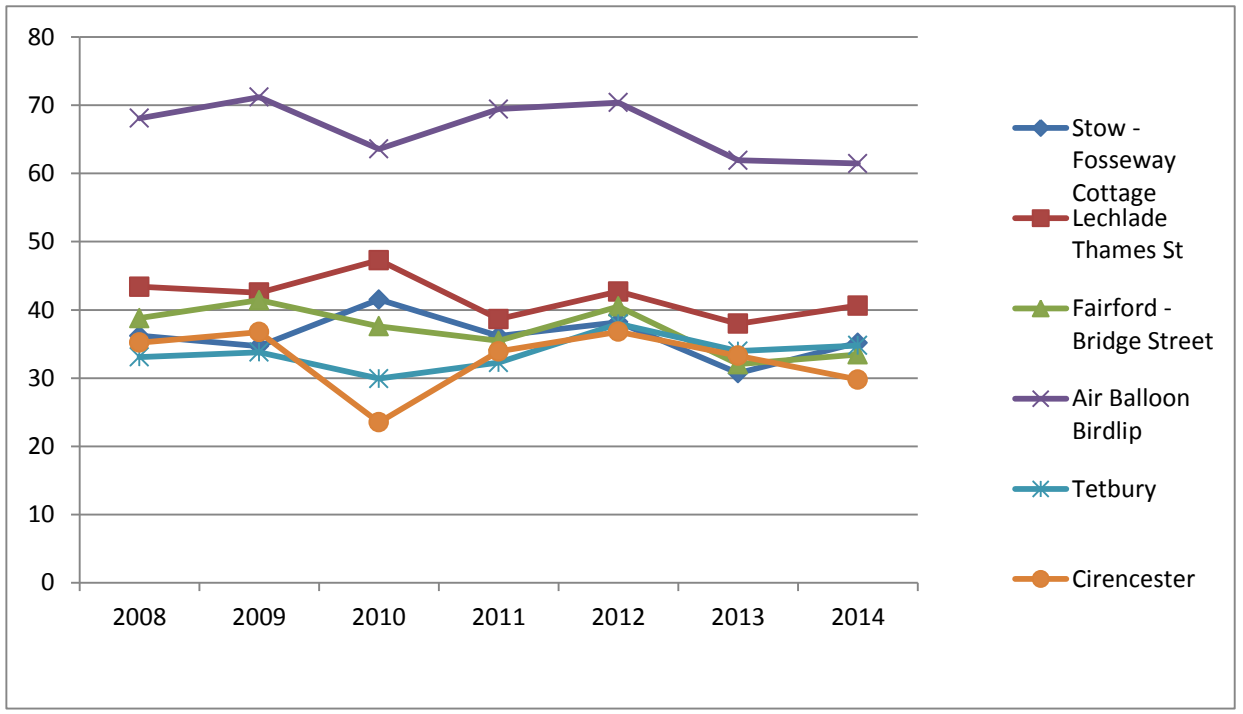


Chart showing 7 years data at main long term monitoring sites within the Cotswold District. The results are showing the annual mean levels of NO_2 bias adjusted and expressed in $\mu g/m^3$. Levels are showing a steady trend since 2010, with only slight variation year on year, notably at the Air Balloon Birdlip where the level has steadied and maintained the decrease following the high level at 70 $\mu g/m^3$ in 2012. The National object is 40 $\mu g/m^3$.

Summary of Compliance with AQS Objectives

Cotswold District Council has examined the results from monitoring in the district. Concentrations are all below the objectives, therefore there is no need to proceed to a Detailed Assessment.

Cotswold District Council 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.

3 Road Traffic Sources

3.1 Narrow Congested Streets with Residential Properties Close to the Kerb

Cotswold District Council confirms that there are no new/newly identified congested streets with a flow above 5,000 vehicles per day and residential properties close to the kerb, that have not been adequately considered in previous rounds of Review and Assessment.

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

Cotswold 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.

There have been no changes across the District that have resulted in a high flow of buses or hgv's.

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

3.4 Junctions

Road layouts across the district have remained the as they were with no changes.

Cotswold 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

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

3.6 Roads with Significantly Changed Traffic Flows

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

3.7 Bus and Coach Stations

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

4 Other Transport Sources

4.1 Airports

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

4.2 Railways (Diesel and Steam Trains)

4.2.1 Stationary Trains

Cotswold 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

Cotswold 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)

Cotswold 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

There have no significant changes to the processes within an around the district. No complaints and no breach of permits.

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

There are no new or proposed applications that will or have required an air quality assessment.

Cotswold 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

Cotswold District Council 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

Cotswold 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

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

5.3 Petrol Stations

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

5.4 Poultry Farms

Poultry farms are considered in relation to PM_{10} emissions. The likelihood for problems has been shown to be where the numbers of birds kept exceed certain criteria as defined in TG(09).

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

6 Commercial and Domestic Sources

6.1 Biomass Combustion – Individual Installations

There are a number of biomass boiler installations within the district mainly in rural areas no installations have been identified as requiring further assessment.

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

6.2 Biomass Combustion – Combined Impacts

Where small biomass individually may be acceptable in combination they could lead to increased PM_{10} concentrations. The biomass boilers within the district are in isolation. No combined sources have been identified.

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

6.3 Domestic Solid-Fuel Burning

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

7 Fugitive or Uncontrolled Sources

Cotswold District Council confirms that there are no potential sources of fugitive particulate matter emissions in the Local Authority area.

8 Conclusions and Proposed Actions

8.1 Conclusions from New Monitoring Data

Cotswold District Council has not identified any new areas or significantly changed circumstances that have or would potentially lead to exceedance of the national objectives for the pollutants under consideration. Nitrogen dioxide remains the only pollutant that continues to be monitored where emissions are from road traffic vehicles where there is relevant public exposure. Levels remain high within Air Balloon roundabout AQMA as there continues to be a significant volume of traffic on this strategic trunk route. However, there is no increase the level they vary very little over the last few years as can be seen from the trend graphs. As the continuing high levels at the Air Balloon are not increasing from year to year and because of technical problems with the unit and the power supply the unit will be decommissioned later this year; diffusion tube monitoring will continue.

Monitoring results at Thames Street Lechlade showed a decrease in levels below the national objective at 40 from both the analyser data and the diffusion tubes bearing in mind that there is accepted tolerance in results of diffusion tubes of +/- 20% . Consideration will be given to revoking the AQMA declared 2014. Real time monitoring will continue for a further twelve months.

8.2 Conclusions from Assessment of Sources

There are no developments of road, other transport, industrial installations, fugitive emissions, residential or commercial that have changed or newly developed were there are likely to be any potential exceedences outside the existing AQMA.

8.3 Proposed Actions

Monitoring will continue at the same sites as identified in accordance with Defra guidance TG(09). No new sites have been identified that require monitoring to be undertaken.

Cotswold District Council will consider revoking the AQMA for Thames Street Lechlade and will maintain the analyser in the area for further twelve months and report on the results in 2016. Action plan will not be produced at this time.

A Progress Report will be produced as required in 2016.

The council will take note of any further developments in the proposed improvement to the roads within the AQMA at the Air Balloon roundabout at Birdlip.

Appendices

Appendix A: QA/QC Data

Diffusion Tube Bias Adjustment Factors

ESG Didcot laboratories were used supply and analyser the diffusion tubes for monitoring nitrogen dioxide. The following provides information regarding methodology and bias adjustment figures used.

ESG Nitrogen Dioxide Diffusion Tube Analysis

"The samples have been analysed in accordance with ESG's standard operating procedure ANU/SOP/1015 Issue 1. This method meets the guidelines set out in DEFRA's 'Diffusion Tubes For Ambient NO2 Monitoring: Practical Guidance.'

The tubes were prepared by spiking acetone:triethanolamine (50:50) onto the grids prior to the tubes being assembled. The tubes were desorbed with distilled water and the extract analysed using a segmented flow autoanalyser with ultraviolet detection. All samples were received in good condition, unless otherwise stated in the comments field of results table. Please note:

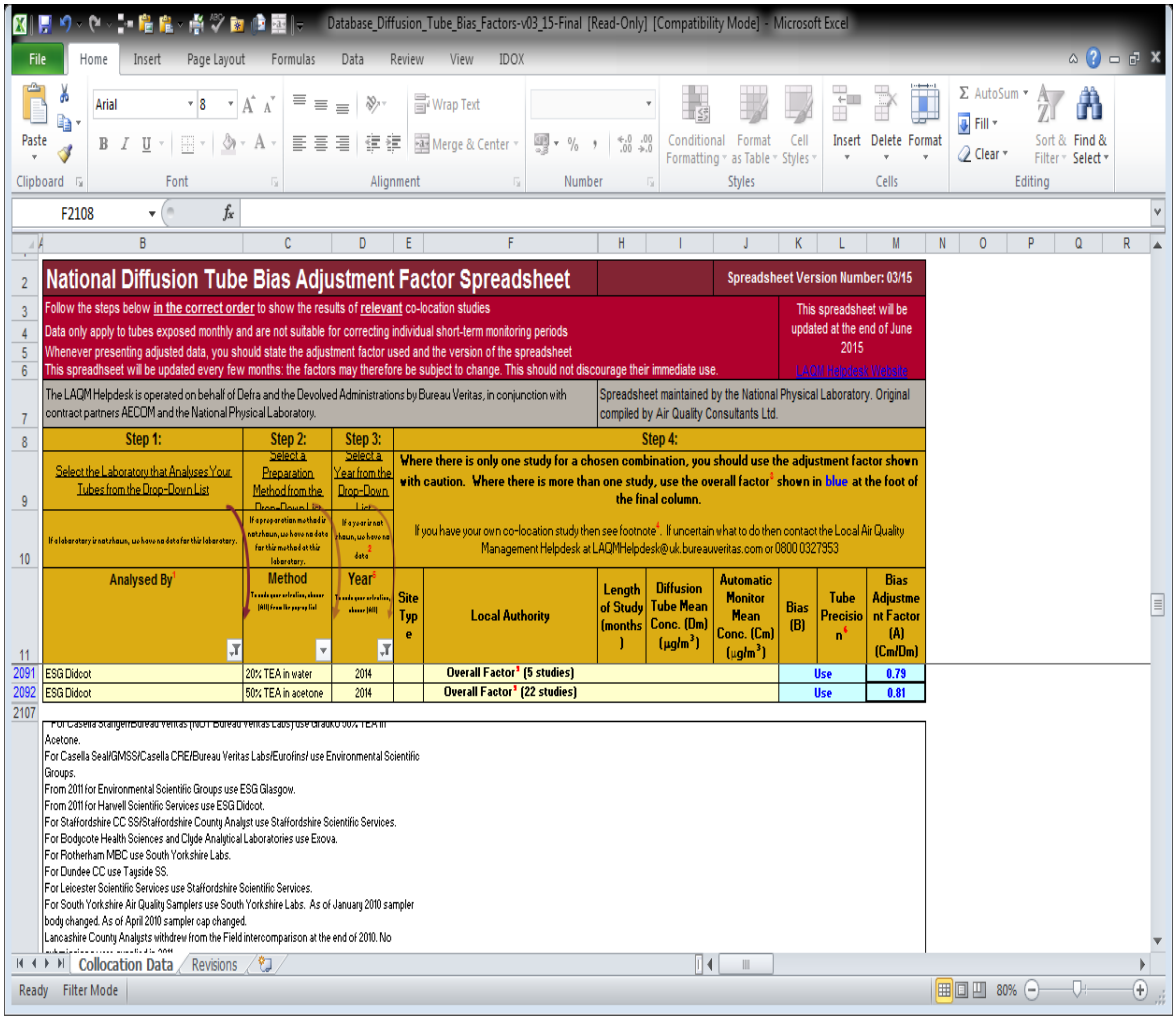
(i) As set out in the practical guidance, the results were initially calculated assuming an ambient temperature of 11^{o}C, the reported values **have** been adjusted to 20^{o}C to allow for direct comparison with EU limits.

This analysis of diffusion tube samples to determine the amount of nitrogen dioxide present on the tube is within the scope of our UKAS schedule. Any further calculations and assessments requiring exposure details and conditions fall outside the scope of our accreditation. In the WASP intercomparison scheme for comparing spiked Nitrogen Dioxide diffusion tubes, ESG currently holds the highest rank of a **Satisfactory** laboratory."

http://laqm.defra.gov.uk/documents/LAQM-WASP-Rounds-117-124-(April-2012--March-2014)-NO2-report.pdf

Discussion of Choice of Factor to Use

Local co-location results were not used as there was no analyser data to use due to technical problems. National bias adjustment factors have been used from 03/15 database. (see below) The factor used is 0.81 based on 22 studies.



Database_Diffusion_Tube_Bias_Factors-v03_15-Final [Read-Only] [Compatibility Mode] - Microsoft Excel

National Diffusion Tube Bias Adjustment Factor Spreadsheet — Spreadsheet Version Number: 03/15

Follow the steps below in the correct order to show the results of relevant co-location studies
Data only apply to tubes exposed monthly and are not suitable for correcting individual short-term monitoring periods
Whenever presenting adjusted data, you should state the adjustment factor used and the version of the spreadsheet
This spreadsheet will be updated every few months: the factors may therefore be subject to change. This should not discourage their immediate use.

This spreadsheet will be updated at the end of June 2015
LAQM Helpdesk Website

The LAQM Helpdesk is operated on behalf of Defra and the Devolved Administrations by Bureau Veritas, in conjunction with contract partners AECOM and the National Physical Laboratory.

Spreadsheet maintained by the National Physical Laboratory. Original compiled by Air Quality Consultants Ltd.

Step 1:	Step 2:	Step 3:	Step 4:								
Select the Laboratory that Analyses Your Tubes from the Drop-Down List	Select a Preparation Method from the Drop-Down List	Select a Year from the Drop-Down List	Where there is only one study for a chosen combination, you should use the adjustment factor shown with caution. Where there is more than one study, use the overall factor[3] shown in blue at the foot of the final column.								
If a laboratory is not shown, we have no data for this laboratory.	If a preparation method is not shown, we have no data for this method at this laboratory.	If a year is not shown, we have no data[2]	If you have your own co-location study then see footnote[4]. If uncertain what to do then contact the Local Air Quality Management Helpdesk at LAQMHelpdesk@uk.bureauveritas.com or 0800 0327953								
Analysed By[1]	Method	Year[2]	Site Type	Local Authority	Length of Study (months)	Diffusion Tube Mean Conc. (Dm) (µg/m³)	Automatic Monitor Mean Conc. (Cm) (µg/m³)	Bias (B)	Tube Precision[4]	Bias Adjustment Factor (A) (Cm/Dm)	
ESG Didcot	20% TEA in water	2014		Overall Factor[3] (5 studies)				Use		0.79	
ESG Didcot	50% TEA in acetone	2014		Overall Factor[3] (22 studies)				Use		0.81	

For Casella Stalgen/Bureau Veritas (NOT Bureau Veritas Labs) use Gradko 50% TEA in Acetone.
For Casella Seal/GMISS/Casella CRE/Bureau Veritas Labs/Eurofins/ use Environmental Scientific Groups.
From 2011 for Environmental Scientific Groups use ESG Glasgow.
From 2011 for Harwell Scientific Services use ESG Didcot.
For Staffordshire CC SS/Staffordshire County Analyst use Staffordshire Scientific Services.
For Bodycote Health Sciences and Clyde Analytical Laboratories use Exova.
For Rotherham MBC use South Yorkshire Labs.
For Dundee CC use Tayside SS.
For Leicester Scientific Services use Staffordshire Scientific Services.
For South Yorkshire Air Quality Samplers use South Yorkshire Labs. As of January 2010 sampler body changed. As of April 2010 sampler cap changed.
Lancashire County Analysts withdrew from the Field intercomparison at the end of 2010. No

Collocation Data | Revisions | Ready | Filter Mode | 80%

Copy of bias adjustment factor database used version 03/15

Short-term to Long-term Data Adjustment

Automatic Monitoring Data

Cotswold District Council has maintained the automatic monitoring site in Thames Street Lechlade. The chemiluminescence analyser is situated within the LAQMA at this site. The data capture was less than 75% (73.64%) therefore it has been adjusted for this short term data capture.

The annual mean has been adjusted in accordance with guidance from TG(09): this estimation uses data from long term automatic background sites to adjust the data:

Long-term site	Annual Mean 2009 (Am)	Period Mean 2009 (Pm)	Ratio (Am/Pm)
Charlton Mackrell	6.7	5.1	1.31
Harwell	6.1	7.4	0.82
Leominster	9.5	7.14	1.33
		Average $\mathbf{R_A}$	1.15

Adjusted annual mean for site (**s**):
s measured mean **M** x $\mathbf{R_A}$ **= 30 X 1.15 =** **34.5µg/m^3** annualised mean

QA/QC of Automatic Monitoring

The analyser was installed and commissioned by the supplier. Routine calibrations are undertaken in keeping with QA/QC controls; calibration checks are undertaken least every 2 weeks. These checks are carried by out Cotswold District Council officers in accordance with the supplier's procedures. Calibration checks include replacing the filter and running checks using supplied gases at known concentrations. The supplier has serviced the analyser at six-month intervals.

Diffusion Tube results for 2014 showing annual mean results bias adjusted.

	Site ID	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec	Annual mean bias adjusted (0.81)	Data collection %
T1	Stow - Fosse Cottage	30.50	48.7	48.6	52.8	37.3	missing	52.2	34.1	42.7	47.6	49.2	34.1	35.18	91.7
T2	Lechlade Thames St 1	42.25	51.4	47.4	50.7	31.7	31.7	45.3	62	52.4	42.6	69.6	38.7	38.19	100
T2	Lechlade Thames St 2	33.52	45.9	50.9	48.5	47.5	47.5	51.00	32.9	54.3	48.5	60.1	41.6	37.95	100
T3	Lechlade Thames St Cott No4	41.16	50.8	40.6	54.4	49.7	49.7	48.30	30	63	54.4	65.1	54.7	**40.63**	100
T4	Lechlade High Street	31.08	35.4	48.3	35.3	46.6	37.4	41.80	47.3	52.1	39.6	42.2	35.6	33.26	100
T5	Lechlade Thames St No 2	35.50	43.1	50.5	43.7	37.4	46.6	51.8	42.4	61	46.6		31.3	36.07	91.7
T6	Fairford London Road	28.22	38.3	34.8	45.5	31.6	22.7	31.8	45	29.7	33.3	34.9	37.4	27.89	100
T7	Fairford Bridge St	45.72	38.3	43.5	32.6	30.3	42.3	48.60	47.5	36.4	44.4	47.3	38.7	33.45	100
T8	Cirencester Wagon + horses	30.20	48.1	32	35.2	42.3	33.3	34.50	30.9	44.7	34.6	38.6	missing	29.78	91.7
T9	Tetbury Church St	28.00	38.1	42.1	44.50	56.8	36.7	54.50	44.1	43.6	40.6	41	45.2	34.78	100
T10	Tetbury Long St	30.14	35.6	32.9	34.00	41.9	26.1	27.90	43.3	35.1	34.2	30.6	28.4	27.01	100
T11	Birdlip - Air Balloon 2	37.56	43.4	32.90	56.1	57.4	54.4	56.3	49.7	62.9	42.1	54.7	49.6	**40.30**	100
T12	Birdlip - Air Balloon 3	33.89	41.4	52.7	57.6	62	52	58.4	56.5	65.8	47.4	44.9	40.5	**41.38**	100
T13	Birdlip Air Balloon Beer Garden	44.16	52.6	60.5	58	47.1	missing	62.8	51.5	63.4	46.6		47.4	**43.26**	83.3
T14	Birdlip Cottages	63.33	93.5	91.1	78.3	70.5	62.5	71.3	72.7	66.9	76.1	79.4	84.9	61.46	100
T15	Birdlip Air balloon car park	missing	missing	27	30.3	20.8	20.6	32.2	25.6	36.8	34	n/a	n/a	23.01	83.3
T16	Stow Lodge	35.60	47	38	40.30	37.5	30.5	30.40	37.6	39.4	47.6	53.6	missing	32.22	91.7