COTSWOLD
DISTRICT COUNCIL

2013 Air Quality Progress Report for
Cotswold District Council
In fulfillment of Part IV of the
Environment Act 1995
Local Air Quality Management

June 2013

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Executive Summary

This Progress Report for 2013 is the next stage of round 5 Review and Assessment for reporting on air quality required of local authorities. It considers Technical Guidance (LAQM.TG (09)) issued by DEFRA and the Devolved Administrations.

Cotswold District Council maintained sixteen diffusion tube monitoring sites for nitrogen dioxide across the district in 2012. They are representative of relevant exposure and relate to emissions from traffic. The sites include eight single unique sites and the others were to provide further data on sites at Thames Street Lechlade and within the Air Quality Management Area (AQMA), at the Air Balloon Roundabout junction Birdlip.

Continuous automatic monitoring for nitrogen dioxide has continued within the AQMA and in Thames Street Lechlade.

No new areas have been identified as exceeding the national objectives. However the data from Thames Street Lechlade shows exceedence from the analyser and diffusion tubes therefore it will be necessary to declare an air quality management area for a short section of Thames Street.

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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 Progress 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.

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 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 µg/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	Annual mean	31.12.2010
1,3-Butadiene	2.25 µg/m^3	Running annual mean	31.12.2003
Carbon monoxide	10 mg/m^3	Running 8-hour mean	31.12.2003
Lead	0.50 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
Particulate Matter (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 of NO_2 and dispersion modelling carried out 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. A 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	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.

Figure 1.1 Map of AQMA Boundary

2 New Monitoring Data

2.1 Summary of Monitoring Undertaken

2.1.1 Automatic Monitoring Sites

Cotswold District Council has maintained continuous monitoring within the AQMA at the Air Balloon roundabout Birdlip and at Thames Street Lechlade. The Thames Street site was maintained to provide additional information following 2012 Detailed Assessment. Thames Street is narrow street with slow moving traffic as identified in guidance TG(09) (Box 5.3 A.1).

QA/AC

Both analysers were 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 analysers at six-month intervals.

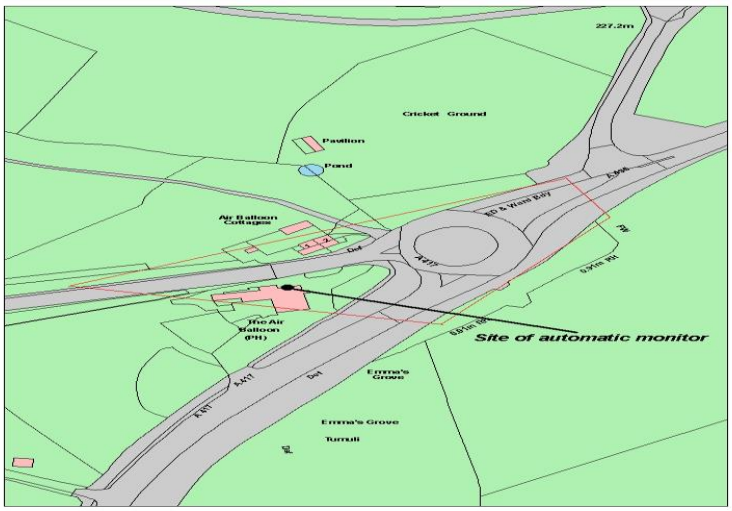
Data validation and ratification

The raw data from both analysers is collected by Environ-technology services and forwarded to the council monthly. It 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. μm^3 from this an annual mean is calculated.

Data at both sites show patterns of peaks and troughs over 24hrs with low levels recorded during night-time hours and building up at peak times as traffic movements increase.

Figure 2.1 Maps of Automatic Monitoring Sites

Automatic Monitoring Site at the Air Balloon Junction within the AQMA (**CM1)**



Automatic Monitoring Site at Thames Street Lechlade **(CM2)**

Table 2.1 Details of Automatic Monitoring Site

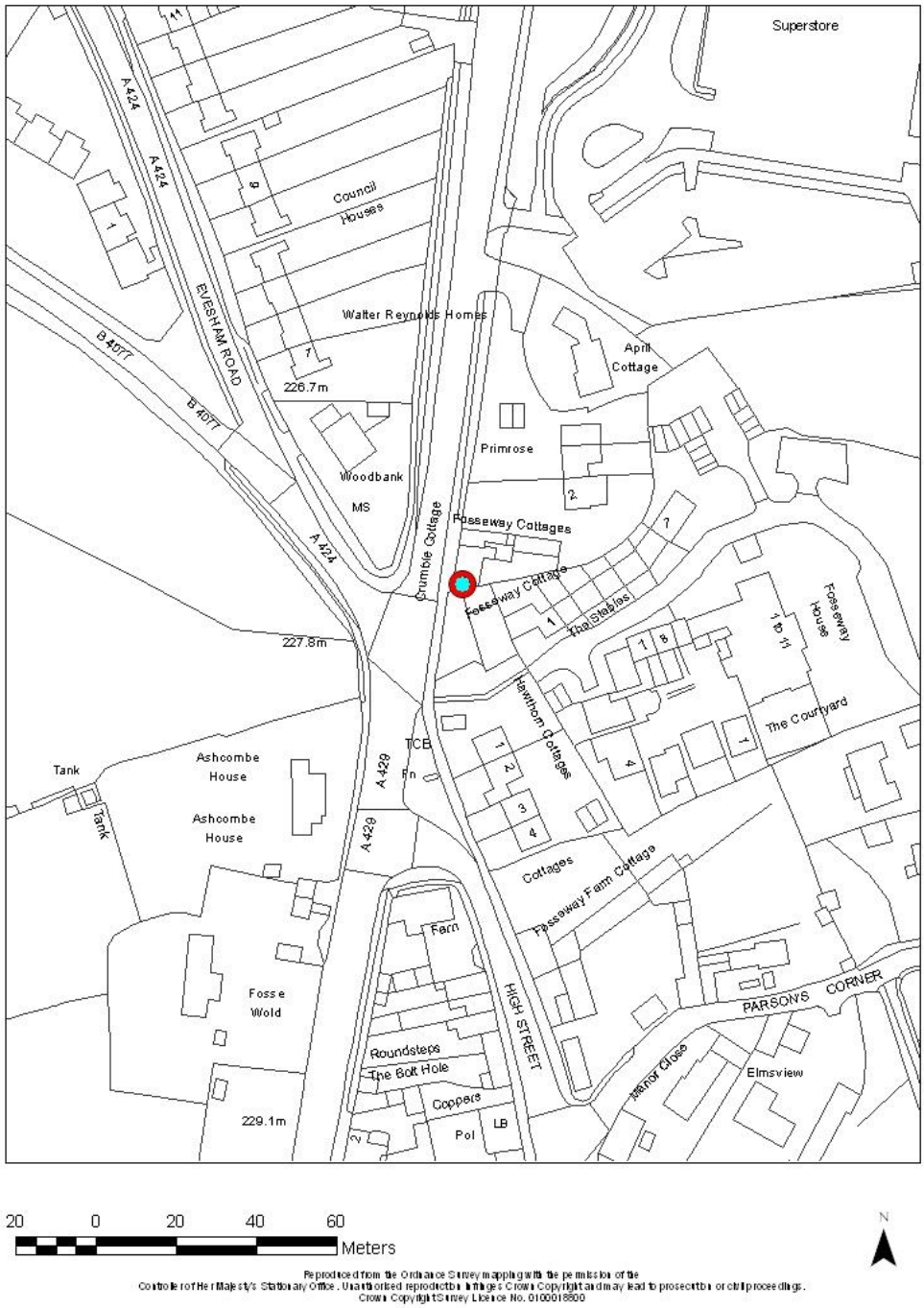
Site ID	Site Name	Site Type	X OS Grid Reference	Y OS Grid Reference	Inlet Height (m)	Pollutants Monitored	In AQMA?	Monitoring Technique	Relevant Exposure? (Y/N with distance (m) from monitoring site to relevant exposure)	Distance to Kerb of Nearest Road (m) (N/A if not applicable)	Does this Location Represent Worst-Case Exposure?
CM2	Lechlade - Thames St	Kerbside	421378	199506	1.5	NO_2	N	Chemiluminescence	y(<1m)	0.5m	Y
CM1	Air Balloon Roundabout A417 Junction	Roadside	393439	216024	2.75	NO_2	Y	Chemiluminescence	Y(<1m)	8.3m	Y

2.1.2 Non-Automatic Monitoring Sites

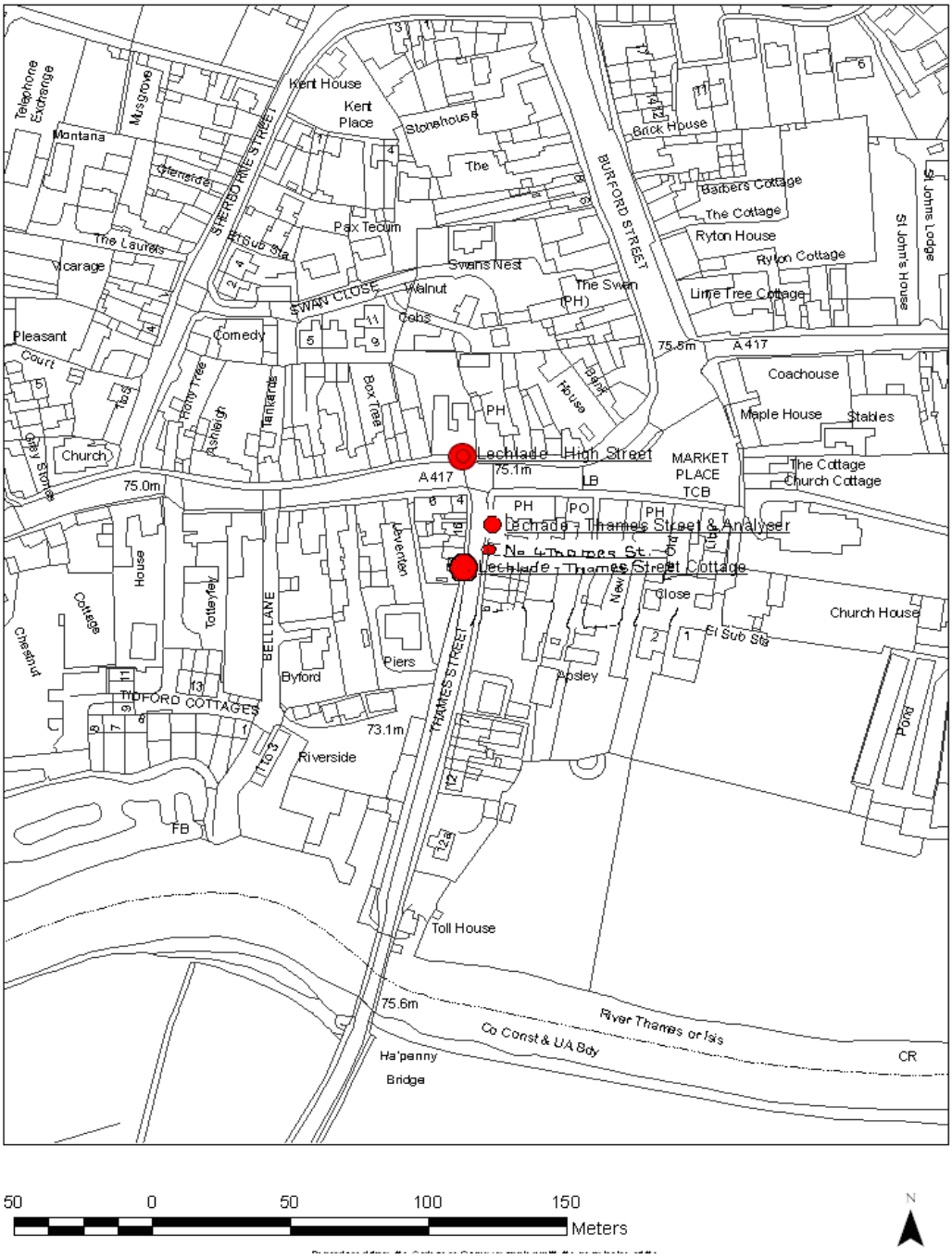
Cotswold District Council currently has sixteen diffusion tube sites for nitrogen dioxide. All sites relate to emissions from traffic and are positioned where there is relevant public exposure, in accordance with guidance in TG (09). Details of the sites are given below, see table 2.2

Figure 2.2 Maps of Non-Automatic Monitoring Sites

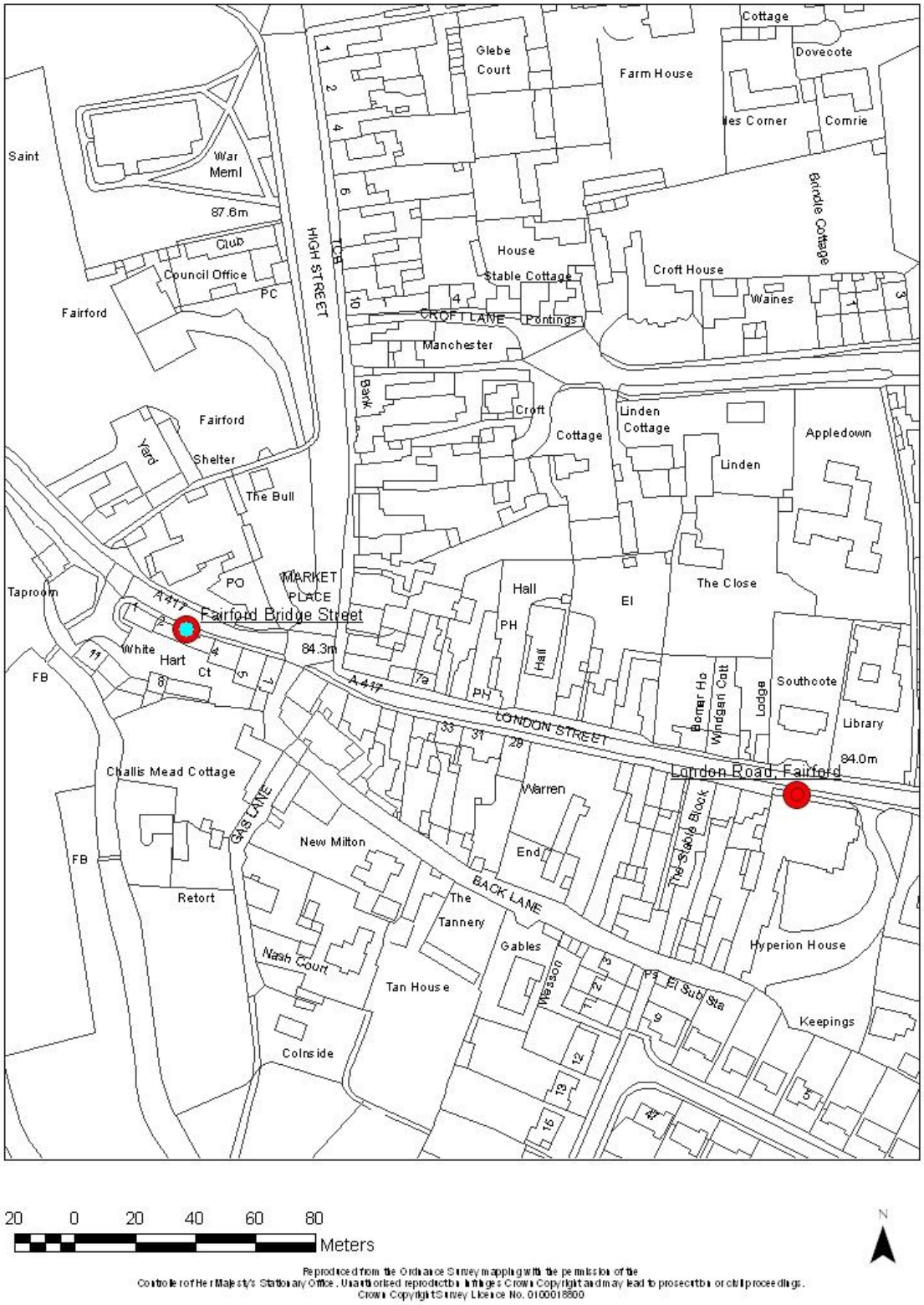
Site T1 Stow in the Wold



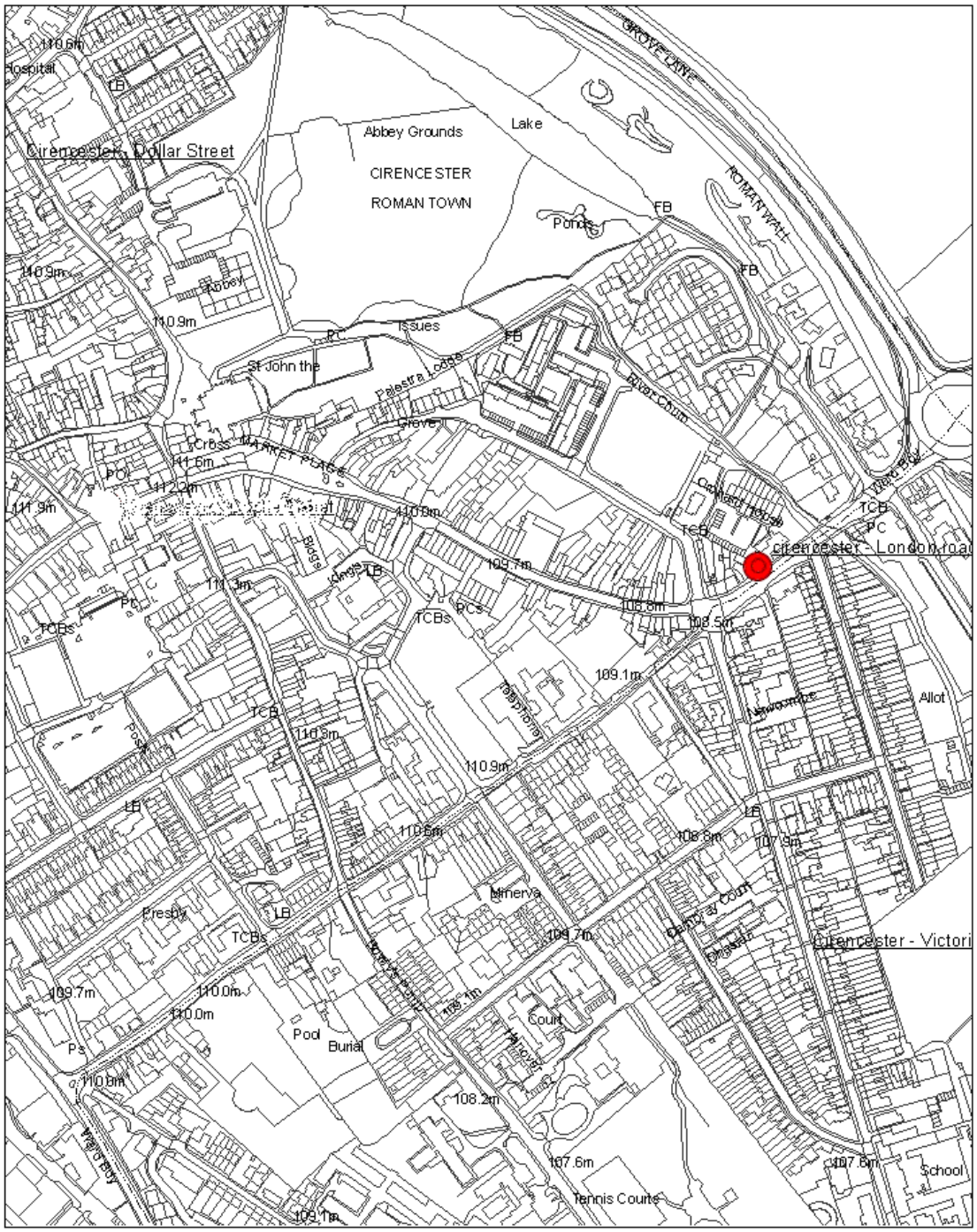
Site T2,T3,T4, T5, & analyser Thames Street, High Street Lechlade



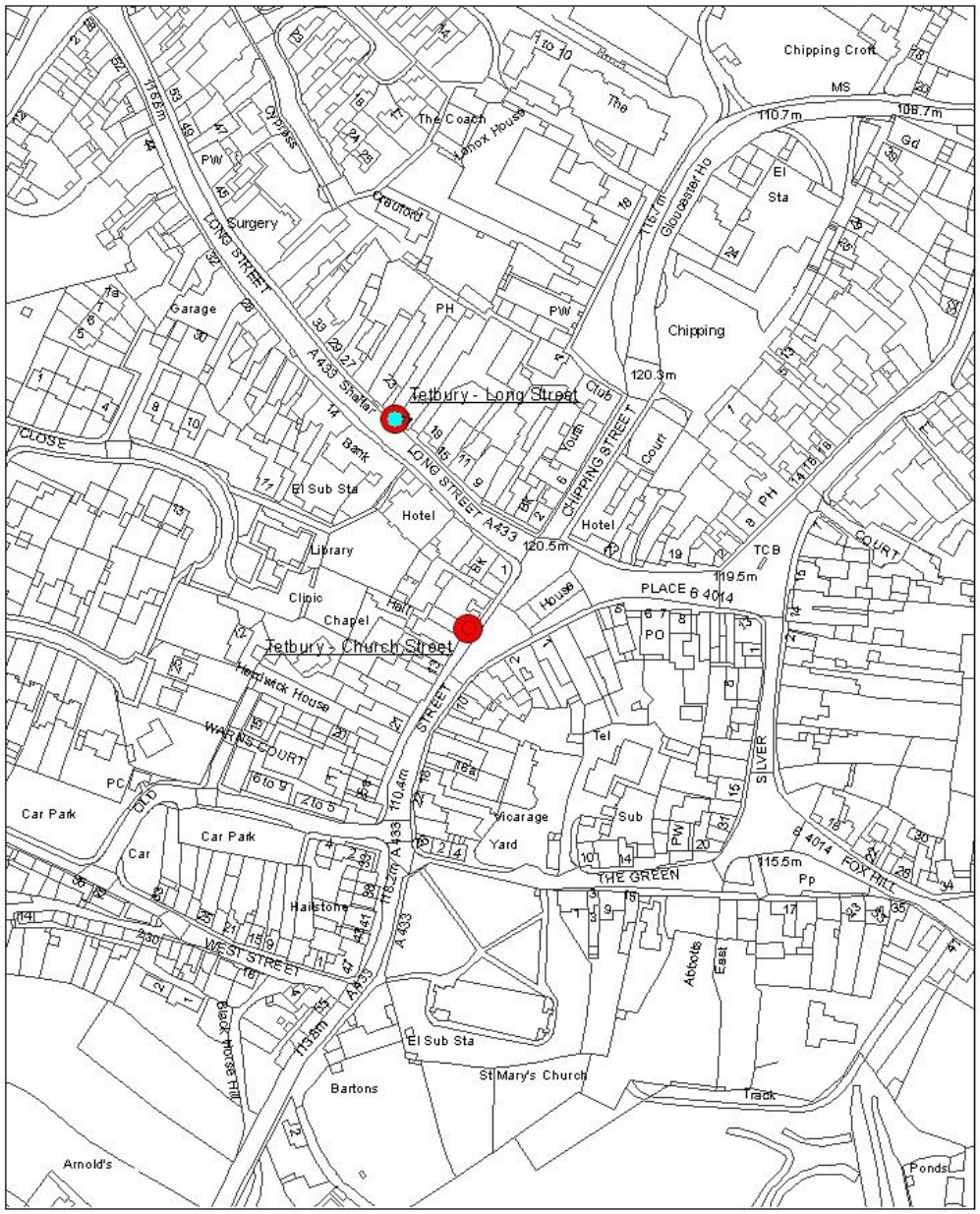
Site T6, London Road, T7 Bridge Street Fairford



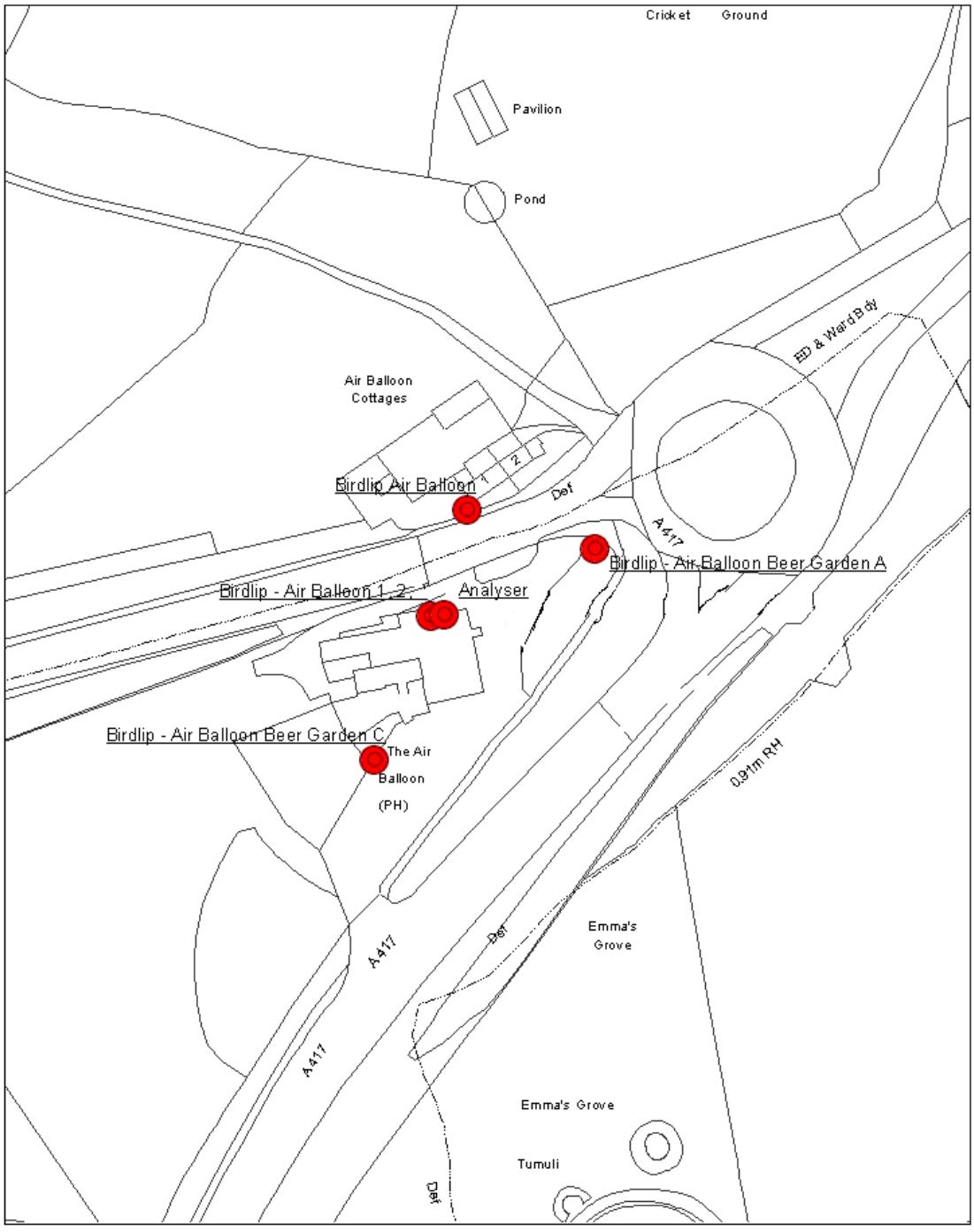
Site T8 London Road,(Wagon & Horses) Cirencester



Site T9 Church Street T10 Long Street Tetbury



Sites at Air Balloon Roundabout T11 T12 T13 T14 T15



Site T16 Stow Lodge

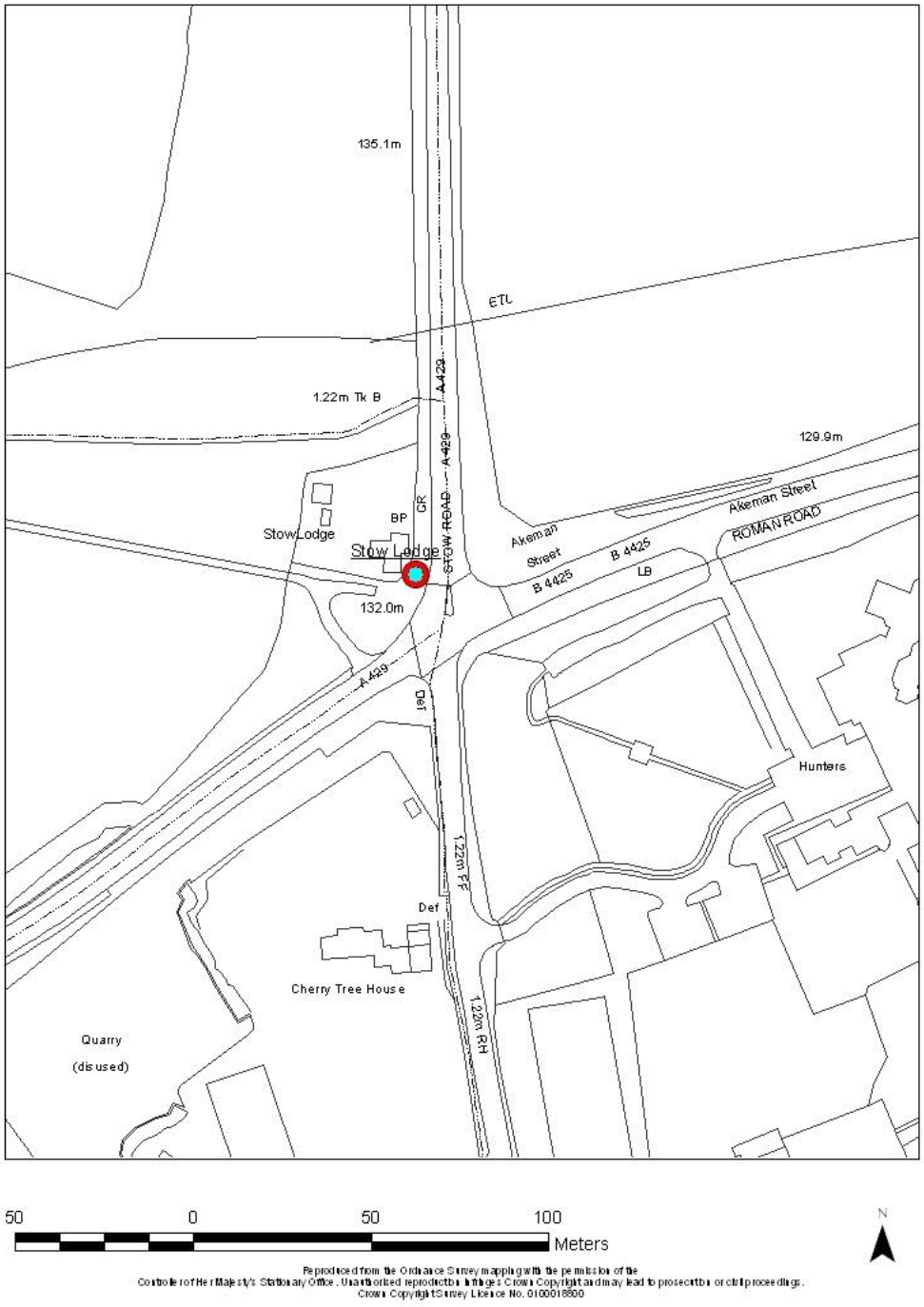


Table 2.2 Details of Non- Automatic Monitoring Sites

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	N	Y	y(<1m)	0.5m	Y
Lechlade No 2 Thames St	Kerbside	421359	199404	NO_2	N	N	Y(1m)	<1m	Y
Lechlade - Thames St cottage 4	Kerbside	421364	199477	NO_2	N	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
Birdlip - Air Balloon, C Car park	Kerbside	393424	216059	NO_2	Y	N	Y(<1M)	22m	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

2.2.1 Nitrogen Dioxide (NO_2)

Sixteen sites maintained for diffusion tubes and two continuous monitors. No new sites were identified; one site, Castle Street Cirencester as the levels had remained low and this was no longer represented relevant exposure. A new site was included to establish further data about Thames Street

Automatic Monitoring Data

Air Balloon the annual mean is lower than previous years at 36 µg/m^3 . This is not significant; the site of the analyser is not worst case scenario. It is the lowest level recorded but is at variance with the diffusion tube results which show fairly consistence results.

At Lechlade the recorded mean is 42 µg/m^3 confirming a need to proceed to declare an AQMA for this area of Thames Street.

The data from the continuous analyser recorded episodes above the 1-hour objective. These are considered to be spurious abnormal events or error in recording of the analyser. They occurred over consecutive dates in October, late night, early morning when traffic would have been at a minimum flow.

Table 2.3 Results of Automatic Monitoring for NO_2: Comparison with Annual Mean Objective

Site ID	Site Type	Within AQMA?	Valid Data Capture for Monitoring Period % [a]	Valid Data Capture 2012 % [b]	Annual Mean Concentration (µg/m^3)				
					2008* [c]	2009* [c]	2010* [c]	2011* [c]	2012 [c]
CM1	Roadside	Y	100	97	**52.2**	**42.5**	**45.2**	**48.1**	36
CM2	Roadside	N	100	100	N/A	N/A	N/A	38	**42**

Table 2.4 Results of Automatic Monitoring for NO_2: Comparison with 1-hour Mean Objective

Site ID	Site Type	Within AQMA?	Valid Data Capture for Monitoring Period % [a]	Valid Data Capture 2012 % [b]	Number of Hourly Means > 200µg/m^3				
					2008* [c]	2009* [c]	2010* [c]	2011* [c]	2012 [c]
CM1	Roadside	Y	100	97	n/a	n/a	n/a	17	3
CM2	Roadside	Y	100	92	n/a	n/a	n/a	1	14

In bold, exceedence of the NO_2 hourly mean AQS objective (200µg/m^3 – not to be exceeded more than 18 times per year)

[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 data capture for full calendar year is less than 90%, include the 99.8th percentile of hourly means in brackets

* Number of exceedences for previous years is optional

Diffusion Tube Monitoring Data

Table 2.5 shows the diffusion tube data for 2012. Levels remain high within the LAQMA as anticipated. Generally the levels elsewhere are consistent with previous years showing no significant rise or reduction. There are no new exceedences of the objectives. However, data from Thames Street Lechlade is just above 40µg/m^3 therefore it will be necessary to declare an AQMA. An additional tube within the narrow section of the street has help to define the area to declare together with previous years monitoring.

Table 2.5 Results of NO_2 Diffusion Tubes 2012

Site ID	Location	Site Type	Within AQMA?	Triplicate or Collocated Tube	Data Capture 2011 (Number of Months or %)	Data with less than 9 months has been annualised (Y/N)	Annual mean concentration (Bias Adjustment factor = 0.94) 2012 (µg/m3)
T1	Stow-in-the-Wold Fosseway Cottage	Roadside	N		100	N/A	36.8
T2	Lechlade – Thames Street	Kerbside	N		100	N/A	**41.4**
T3	Lechlade- 2 Thames Street	Kerbside	N		100	N/A	**43.4**
T4	Lechlade – Thames Street cottage	Kerbside	N		100	N/A	39.23
T5	Lechlade - High St	Kerbside	N		100	N/A	35.9
T6	Fairford – London Rd	Kerbside	N		92	N/A	33.2
T7	Fairford - Bridge St	Kerbside	N		100	N/A	39.2
T8	Cirencester - London Rd (Wagon/Horses)	Kerbside	N		100	N/A	35.7
T9	Tetbury – Church St	Kerbside	N		100	N/A	36.8
T10	Tetbury - Long Street	Kerbside	N		100	N/A	29.3
T11	Birdlip - Air Balloon	Kerbside	Y		100	N/A	**<u>68.3</u>**
T12	Birdlip - Air Balloon 2	Kerbside	Y	duplicate	100	N/A	**46.1**
T13	Birdlip - Air Balloon 3	Kerbside	Y	duplicate	100	N/A	**47.2**
T14	Birdlip - Air Balloon, beer garden A	Kerbside	Y		100	N/A	**44.6**
T15	Birdlip - Air Balloon, beer garden C	Kerbside	Y		100	N/A	27.1
T16	Stow Lodge	Kerbside	N		100	N/A	35.3

In bold, exceedence of the NO_2 annual mean AQS objective of 40µg/m^3

Underlined, annual mean > 60µg/m^3, indicating a potential exceedence of the NO_2 hourly mean AQS objective

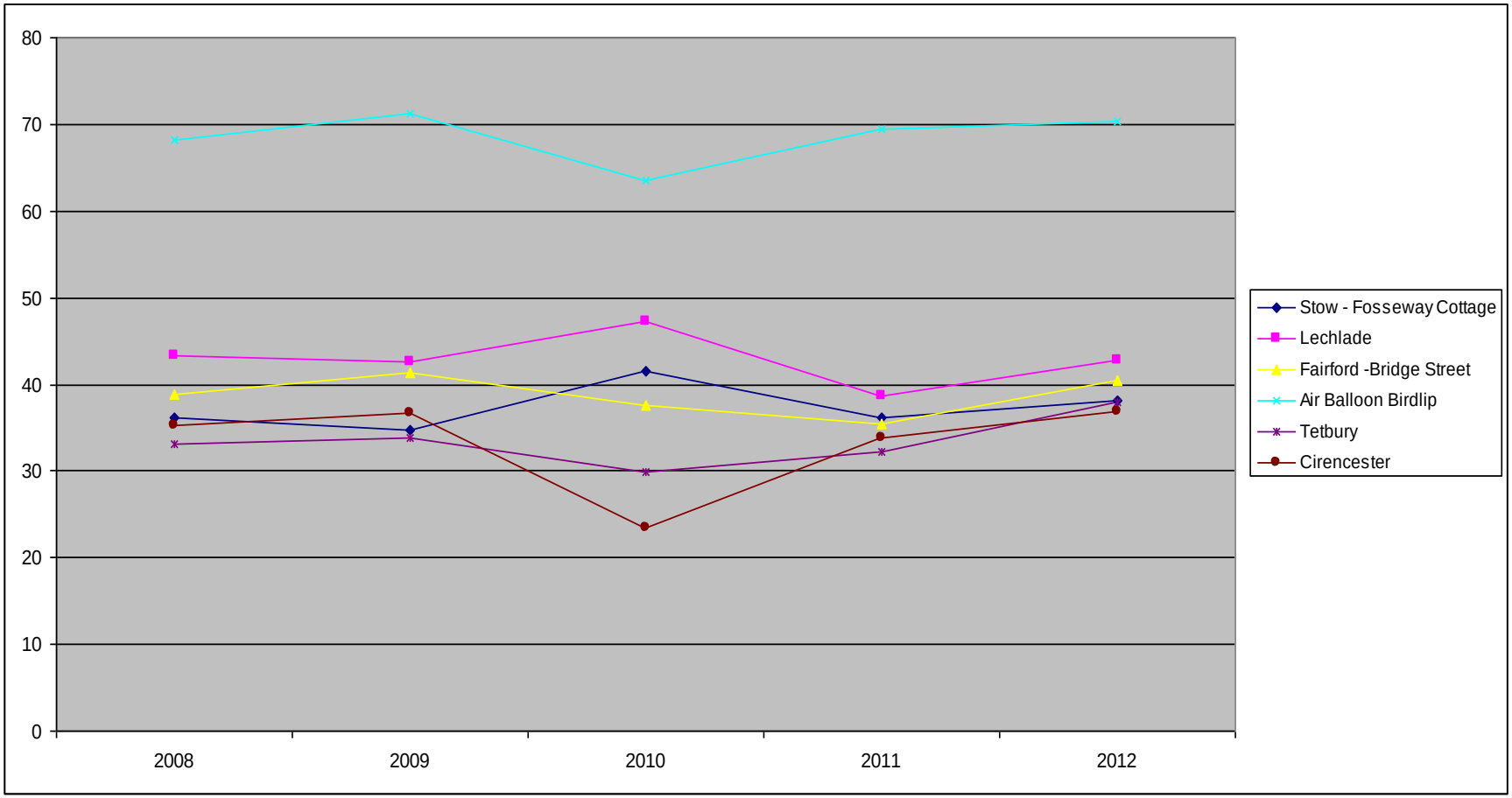
Table 2.6 Results of NO_2 Diffusion Tubes (2008 to 2012)

				Annual Mean Concentration						
Site id	Site	Site Type	Within AQMA?	Valid Data Capture for Monitoring Period %	Valid Data Capture 2012 %[b]	2008*[c] (Bias Adjustment Factor = 0.87)	2009*[c] (Bias Adjustment Factor = 0.85)	2010*[c] (Bias Adjustment Factor = 0.77)	2011*[c] (Bias Adjustment Factor = 0.83)	2012*[c] (Bias Adjustment Factor = 0.94)
T1	Stow-in-the -Wold Fosseway Cottage	Roadside	N		100	36.2	34.68	37.61	36.2	36.8
T2	Lechlade - Thames Street	Kerbside	N		100	43.4	42.52	42.85	38.7	**41.4**
T3	Lechlade -Cottage	Kerbside	N		100	na	na	na	**41.7**	**43.4**
T4	Lechlade -Cottage No 2 Thames St	Kerbside	N		100	na	na	na	na	39.23
T5	Lechlade High St	Kerbside	N	100	100	na	42.77	35.56	34.6	35.9
T6	Fairford - London Rd	Kerbside	N		100	33.1	33.8	27.11	32.3	33.2
T7	Fairford - Bridge St	Kerbside	N		100	38.8	41.38	34.12	35.5	39.2
T8	Cirencester - London Rd (Waggon/Horses)	Kerbside	N		100	35.2	36.75	35.4	33.9	35.7
T9	Tetbury - Church St	Kerbside	N		100	37	34.98	35.46	35.7	36.8
T10	Tetbury - Long Street	Kerbside	N		100	32.5	33.81	28.78	28.6	29.3
T11	Birdlip - Air Balloon	Kerbside	Y		100	68.1	71.02	57.62	69.4	**68.3**
T12	Birdlip - Air Balloon 2	Kerbside	Y		100	na	43.92	43.02	43.5	**46.1**
T13	Birdlip - Air Balloon 3	Kerbside	Y		100	na	43.92	42.7	45.3	**47.2**
T14	Birdlip - Air Balloon, beer garden A	Kerbside	Y		100	na	45.76	31.45	28.3	**44.6**
T15	Birdlip - Air Balloon, beer garden C	Kerbside	Y		100	na	31.58	30.5	29.7	27.1
T16	Stow Lodge	Kerbside	N		100	34.1	35.85	32.15	35.3	35.3

In bold, exceedence of the NO_2 annual mean AQS objective of 40µg/m^3

Underlined, annual mean > 60µg/m^3, indicating a potential exceedence of the NO_2 hourly mean AQS objective

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



This chart shows the trends for the 5 years for long term sites across the district. The values across all these sites are consistent. 2010 results appear to have a fall off in value at all but 2 sites. Lechlade and Stow the latter was attributed to road works in the area. The increase at Lechlade was indicative of a gradual rise this area has been subject of more detailed monitoring and an air quality management area will be declared for some of this street.

QA/QC of diffusion tube monitoring

Cotswold District Council's diffusion tubes are supplied and analysed by Gradko International Ltd and utilise 20% TEA in water. The tube preparation and subsequent analysis follow the procedures in the harmonised "Practical Guidance" document. The laboratory participates in the WASP scheme and its performance is classified as good.

Summary of Compliance with AQS Objectives

Cotswold District Council has examined the results from monitoring in the district.

Concentrations within the AQMA still exceed the 40µgm^3 for nitrogen dioxide at Air Balloon Birdlip and the AQMA should remain.

Concentrations outside of the AQMA are exceeding at one site therefore the council will need to declare an AQMA at this site. At all other sites the concentrations are below the objectives at relevant locations, therefore there is no need to proceed to a Detailed Assessment.

Cotswold District Council has measured concentrations of nitrogen dioxide above the annual mean objective at relevant locations outside of the AQMA, and **will need to declare an AQMA**, for an area of Thames Street Lechlade.

3 New Local Developments

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

Cotswold District Council confirms that all the following have been considered:

- **Road traffic sources**
- **Other transport sources**
- **Industrial sources**
- **Commercial and domestic sources**
- **New developments with fugitive or uncontrolled sources.**

4 Local / Regional Air Quality Strategy

Cotswold District Council in conjunction with the other local authorities within Gloucester is reviewing the joint regional strategy.

5 Air Quality Planning Policies

To address air quality matters the district currently has made use of the SPG on Planning and Air Quality produced by the Bristol, Gloucestershire and Somerset (BG&S) Environment Protection Committee.

6 Local Transport Plans and Strategies

Gloucestershire County Council LTP3 recognises the need to work with district authorities over air quality issues related to traffic, particularly where there exists an LAQMAs. In the Cotswold's district the area of the AQMA at Air Balloon Roundabout is highlighted as it is a strategic trunk route and an area of high traffic congestion and the plan commits to assisting with the Action Plan for this area.

The plan seeks to encourage green travel including supporting an increase in railway traffic and other measures that will help reduce traffic congestion. Policies are also included to ensure that for any new developments the transport network is developed sufficiently to cope with the increased number of trips that new occupiers will take.

7 Climate Change Strategies

Cotswold District Council identified Lower Carbon Emissions as a council priority as this is included in the council's Corporate Strategy. The delivery of this priority is primarily supported by addressing the council's own emissions and domestic emissions.

The council has committed to a 25% reduction in carbon dioxide from its own operations by 2015. The actions required to achieve this reduction are outlined in the Climate Change and Carbon Management Plan and combine a mixture of technical, behavioural and procedural solutions. Alongside this the council signed up to the national 10:10 campaign for reducing carbon emissions by 10% during 2010. *(There is no current update to this information)*

Green Deal Together

- We're working with 'Green Deal Together', a 'Community Interest Company' working to provide a local Green Deal service.
- The aim of Green Deal Together is to provide residents with expert, independent advice, a great value Green Deal plan and excellent customer service delivered by trusted local installers.
- For further details please see the Green Deal Together website or telephone 0300 1113330.

Warm and Well Plus

- Warm and Well Plus is the continuation of a longstanding partnership between the councils of Gloucestershire (including Cotswold District Council) and the Severn Wye Energy Agency.
- Warm and Well Plus offer Green Deal Assessments and will be working with a Green Deal Provider to offer this service to its customers in the Cotswold District.

- Warm and Well Plus have access to Energy Company Obligation funds to assist people in receipt of certain benefits with accessing free energy efficiency improvements.

In addition to the local services outlined above, residents may also use the national 'Energy Saving Advice Service' to enquire about the Green Deal and Energy Company Obligation: 0300 123 1234.

8 Implementation of Action Plan

Air Balloon Roundabout Birdlip AQMA

The Action plan for this AQMA was published in 2011. The trunk route that this the source of the pollution is outside of any measures that the district council can implement as it is a strategic trunk route maintained and run through the Highways Agency. The action plan centres around supporting green travel measures and the consideration of any new proposals there may be for improvements to the road.

A local air quality monitoring group met June 2012 to consider a proposal for changes to the lay out of the roundabout and traffic movements. The proposal was likely to have had very little impact on air quality. It was later rejected on the grounds of cost and no local support for the scheme as it was too disruptive. The Highways Agency continues to consider ways of improving traffic flow and reducing congestion in this area, Cotswold District Council will continue to keep abreast of the situation.

9 Conclusions and Proposed Actions

9.1 Conclusions from New Monitoring Data

There were no new monitoring sites during 2012. An additional site was included within Thames Street to identify the extent of a possible exceedence.

9.2 Proposed Actions

Cotswold District Council will continue to maintain all the existing sites for diffusion tube monitoring. Where possible the two continuous monitors will be maintained. There will be no change to the Air Balloon Roundabout AQMA. The council will declare an AQMA for an area of Thames Street Lechlade in respect of nitrogen dioxide, as there is an exceedence of the annual mean.

A Progress Report will be submitted for 2014.

Appendices

Appendix A: QA:QC Data

Diffusion Tube Bias Adjustment Factors

Cotswold District Council uses Gradko International Ltd to supply and analyse diffusion tubes. Bias adjustment factor of 0.94 was used for this data set from the national bias adjustment factors; version 06/13 overall factor from 40 studies.

Discussion of Choice of Factor to Use

The National bias adjustment figure was used as it was felt to give greater confidence than a local factor.

QA/QC of Diffusion Tube Monitoring

Gradko participates in the Workplace Analysis Scheme for Proficiency (WASP) scheme and demonstrated good precision over all
Details can be found at this link:
http://laqm.defra.gov.uk/documents/Tube_Precision_2013_version_06_13-Final.pdf

Quarterly summary of laboratories' performance in the WASP scheme over the preceding 12 months, (defra)

WASP Round	WASP R113	WASP R114	WASP R115	WASP R116	WASP R117	WASP R118	WASP R119	WASP R120
Round conducted in period	April - June 2011	July - September 2011	October December 2011	January – March 2012	April – June 2012	July – September 2012	October – December 2012	January – March 2013
Gradko International	100%	100%	37.5%	100%	100%	100%	100%	100%

Further details can be found at this link:

http://laqm.defra.gov.uk/diffusion-tubes/qa-qc-framework.html

Appendix B

Diffusion Tube results for 2012

site id		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean bias adjusted
T1	Stow-in-theWold - Fosseway Cottage	40.6	47.2	44.89	36.5	36.31	39.19	33.43	44.5	39.37	38.26	42.1	29.80	38.2
T2	Lechlade - Thames Street	43.3	54.5	51.97	45.3	44.9	39.85	34.04	41.4	36.99	44.76	52.5	38.69	**42.7**
T3	Lechlade -Cottage	46.9	52.8	51.93	42	44.9	32.88	46.55	49.3	37.29	52.53	53.8	41.59	**44.7**
T4	Lechlade -Cottage 2 Thames St	new				41.5	32.25	43.7	33.6	47.16	46.73	45.9	43.05	**40.5**
T5	Lechlade High St	39.4	53.3	45.82	40.6	27.22	29.48	24.65	45.7	30.06	41.93	43.1	36.57	37.0
T6	Fairford - London Rd	41.1	51.8	34.43	28.7	40.69	24.02	28.37	32.3	33.49	33.59	40.3	35.39	34.3
T7	Fairford - Bridge St	38.7	56.9	41.98	40.7		36.47	38.13	43	38.31	39.16	49.4	36.25	40.5
T8	Cirencester - London Rd (Waggon/Horses)	42.0	52.9	46.44	36.3	39.31	25.63	25.48	29.7	38.04	43.07	38.4		36.8
T9	Tetbury - Church St	46.4	53.6	45.34	35.8	38.49	25.21	30.24	29.9	44.45	38.4	40.7	40.85	37.9
T10	Tetbury - Long Street	41.3	39.3	36.18	27.4	23.96	24.52	23.92	25.9	29.51	30.75	36.5	34.20	30.2
T11	Birdlip - Air Balloon	102.1	94.9	80.13	68.2	65.16	59.77	74.89	75	82.06	59.99	58.4	50.88	**70.4**
T12	Birdlip - Air Balloon 2	45.7	55.8	57.56	51.5	63.63	49.69	42.86	46.5	40.07	50.52	43.8	40.35	**47.5**
T13	Birdlip - Air Balloon 3	47.9	54.4		49.1	60.92	45.35	44.72	49.5	42.07	48.1	40.9	69.06	**48.7**
T14	Birdlip - Air Balloon, beer garden A	30.1	36.0	40.8	52.5	60.92	52.7	49.72	49.5	52.41	52.25	53.4	38.58	**46.0**
T15	Birdlip - Air Balloon, beer garden C	36.8	41.9	38.57	28.7	missing	24.45	24.7	26.5	1.50	31.92	31.7	30.73	28.0
T16	Stow Lodge	39.0	46.0	29.66	missing	30.31	38.45	34.77	36.2	39.35	40.48	40.7	37.96	36.4