

Coventry City Council - England



Coventry City Council

2012 Air Quality Updating and Screening Assessment for *Coventry City Council*

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

September 2012, revised March 2013

Coventry City Council - England

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Executive Summary

Coventry City Council has carried out this updating and screening assessment in fulfilment of their local air quality management obligations under Part IV of the Environment Act 1995. This report reviews the results of air quality monitoring carried out in Coventry City Council's borough from January 2009 to December 2011.

Coventry declared a city-wide AQMA in late 2009, and as a consequence of that there are no exceedences of the air quality standards outside of an AQMA. There are several areas that exceed the air quality standards across the city, though there are no new areas of exceedence that have not been identified in previous reports. Therefore there is no need for a Detailed Assessment.

Since the last updating and screening assessment, the only changes in local developments are six new biomass boilers and the airport now being closed to passenger flights. Part of the city centre has been pedestrianised and public transport re-routed to other parts of the city. Work will be needed to assess the impact of this on local air quality. There have been no other significant changes to road traffic or industrial sources. It is hoped that with work underway on a new Action Plan, the areas of exceedence can be reduced.

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1 Introduction

1.1 Description of Local Authority Area

Coventry City Council is a unitary metropolitan authority situated in the West Midlands. The city covers 38.1 square miles and has a population of approximately 306,000. The city of Coventry is situated 95 miles northwest of London and 19 miles east of Birmingham. Coventry is near the M6, M69, M45 and M42, and is served by the A45 and A46 dual carriageways.

Typical sources of air pollution include emissions from the commercial and domestic sector, road traffic and industrial processes. Coventry is classed as a smoke control area, making it an offence to emit smoke from a chimney caused by the use of an unauthorised appliance, or the burning of unauthorised fuel.

Coventry City Council regulates 88 industrial processes under the Environmental Permitting regime. In addition to this, the Environment Agency regulates 8 Part A1 installations within the city. The local authority regulates 0 Part A2 premises; the brickworks closed in July 2012. There are 88 other industrial installations of significance regulated under Part B of the Environmental Permitting Regulations 2007, including petrol filling stations and dry cleaners.

Previous reports within earlier rounds of Coventry City Council's review and assessment programme confirmed that emissions from road traffic are the major source of pollution within the city.

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.

1.3 Air Quality Objectives

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

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metre, mg/m³ for carbon monoxide) with the number of exceedences in each year that are permitted (where applicable).

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

Pollutant	Air Quality Objective		Date to be achieved by
	Concentration	Measured as	
Benzene	16.25 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 (PM₁₀) (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

This Progress Report continues round four of Coventry City Council's Review and Assessment cycle. The results of previous rounds are summarised below:

Round one, initiated in 1998, involved several stages:

- **Stage 1 (Review and Assessment)** involved the identification of the main sources of air pollution in and around Coventry, reviewing the levels of air pollutants for which prescribed standards and objectives had been set, and estimating the likely future levels.
- **Stage 2** required the local authority to provide further screening of pollutant concentrations within the area. The purpose of screening was to assess whether the air quality objectives would be achieved by the target date.
- **Stage 3** was a more complex assessment of monitoring and modelling.

For **Round Two** the review and assessment process was revised to include an **Updating and Screening Assessment (USA)**, followed by a **Detailed Assessment** whenever necessary. The USA identified two locations in Coventry that were assessed to be unlikely to meet the annual mean objective for nitrogen dioxide by the target date of 2005. These were the Ball Hill area of Walsgrave Road and an area of the city centre including Trinity Street and the Burges. They were both designated as Air Quality Management Areas (AQMAs) in August 2003.

As exceedances of the Air Quality Objectives were predicted in the USA a **Detailed Assessment** was produced. The outcome of which was that the junction of Queensland Avenue and Allesley Old Road was also unlikely to meet the 2005 annual mean objective for NO₂ and was declared an AQMA in August 2004.

For **Round Three**, an **Updating and Screening Assessment** was completed in **2006**, which found that for the majority of pollutants, levels in Coventry still remain below the UK objectives. The exception to this was nitrogen dioxide where more areas were found to exceed the UK objective annual mean for 2005 and would require Detailed Assessment. These areas were:

- Foleshill Road
- London Road / Tollbar Island
- Radford Road / Beake Avenue junction (if residential property is introduced)
- Spon End / Hearsall Lane
- Stoney Stanton Road
- Croft Road, City Centre

The **2007 Detailed Assessment** found that all areas identified by the USA were confirmed as exceeding the UK objective for annual mean NO₂. Following DEFRA's suggestion that conjoining areas should be designated a single AQMA, the City Council had to consult and determine whether to:

- a) designate the whole of Coventry an AQMA, or
- b) designate two separate AQMAs; one covering the city centre and northern area of the city and one covering Tollbar End.

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A **Progress Report** was produced in **2008**, which indicated exceedences of the NO₂ annual mean objective at the following locations:

- Stoney Stanton Road
- Foleshill Road / Longford Road
- Beake Avenue / Radford Road junction
- Tollbar End
- Croft Road / Victoria Road
- London Road near the Ringway
- Holyhead Road
- Fairfax Street

but not at Spon End / Hearsall Lane as indicated by the Detailed Assessment.

However the **Updating and Screening Assessment of 2009**, beginning the fourth round of review and assessment, found exceedence of NO₂ at Spon End/ Hearsall Lane as the **Detailed Assessment of 2007** had predicted but was not found to be the case in the **Progress Report of 2008**.

A city wide AQMA for nitrogen dioxide was declared, effective from 1st November 2009. Subsequent to this a further assessment must be completed within 12 months, together with an Air Quality Action Plan.

The **2010 Progress Report** indicated that the following areas showed exceedences of the NO₂ annual mean objective:

- Ball Hill, Walsgrave Road
- Trinity Street
- Fairfax Street
- Queensland Avenue
- Tollbar End, London Road
- Foleshill Road

Despite this, however, concentrations of NO₂ had been steadily decreasing at the majority of locations across Coventry within the last few years.

The **2011 Progress Report** indicated that the following areas were in exceedence of the NO₂ air quality standard:

- Ball Hill, Walsgrave Road
- Hales Street, Fairfax Street and Trinity Street in the city centre
- Queensland Avenue
- Longford Road
- Foleshill Road

Coventry City Council is currently working on the Air Quality Action Plan to accompany the designation of a city-wide AQMA in late 2009. The boundary of the city-wide AQMA is shown in Figure 1.1.

Due to data management issues it has been difficult to begin modelling work to assess the current state of air quality in our problem areas and predict the benefits of any traffic or fleet management schemes. However, plans have been put in place to

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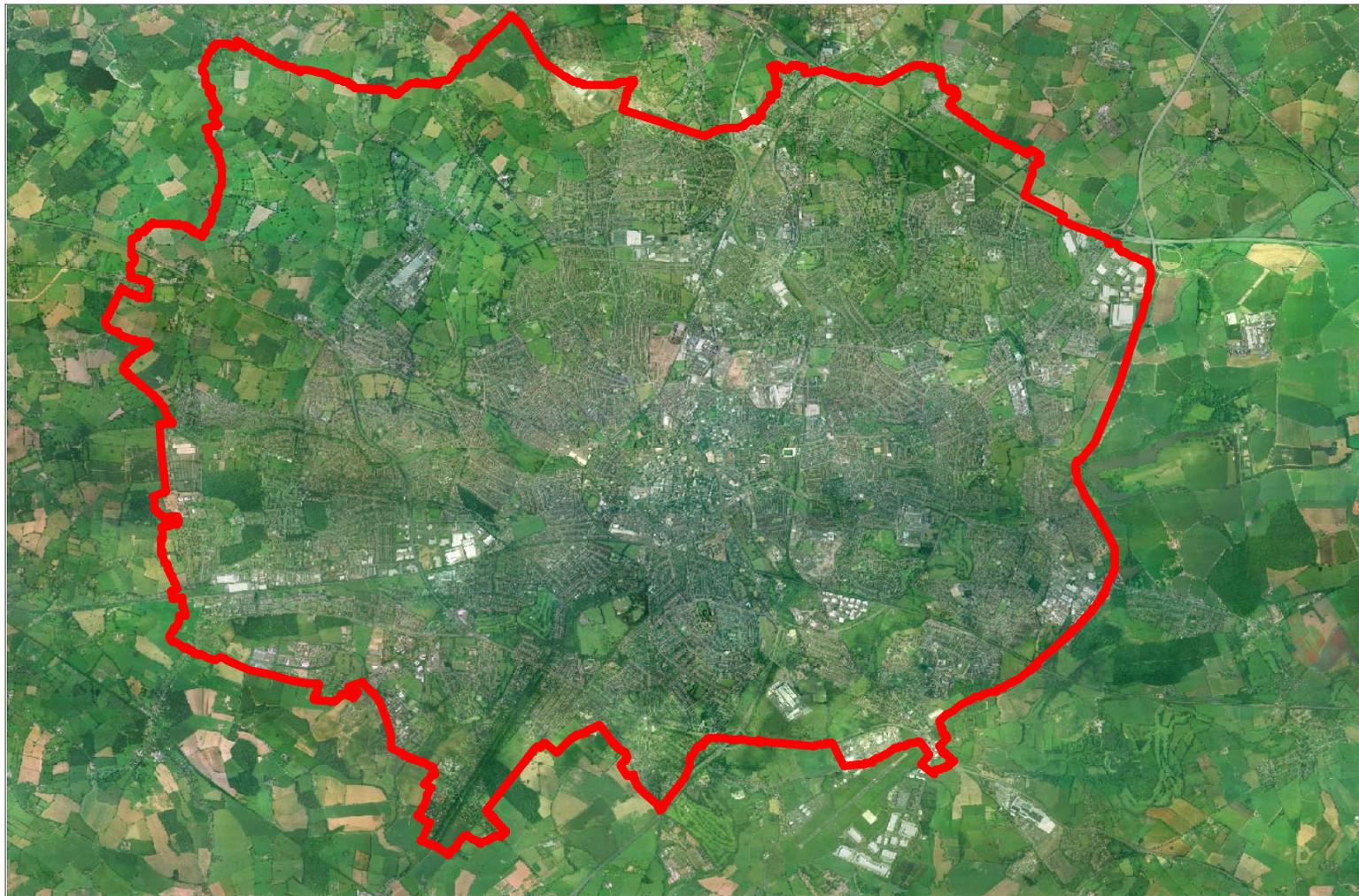
improve this situation and work has now begun on the Further Assessment and required Action Plan.

Table 1.2 Summary of previous Review and Assessment reports

Year	Type	Summary
1998	Stage 1 (Round 1)	The main sources of air pollution within and around Coventry City Council's boundary were identified, reviewing the levels of air pollutants for which prescribed standards and objectives have been set, and estimating the likely future levels.
2000	Stage 2 (Round 1)	Coventry City Council provided further screening of pollutant concentrations within the area. The purpose of screening was to assess whether the air quality objectives would be achieved by the target date.
2001	Stage 3 (Round 1)	Coventry City Council carried out a more complex assessment of monitoring and modelling which led to the declaration of the first two of the city's AQMAs.
2003	Updating and Screening Assessment (Round 2)	Two locations in Coventry were assessed to be unlikely to meet the annual mean objective for nitrogen dioxide by the target date of 2005. These were the Ball Hill area of Walsgrave Road and an area of the city centre including Trinity Street and the Burges. They were both designated as AQMAs in August 2003.
2004	Detailed Assessment (Round 2)	The junction of Queensland Avenue and Allesley Old Road was also unlikely to meet the 2005 annual mean objective for nitrogen dioxide by 2005 and was declared an AQMA in August 2004.
2006	Updating and Screening Assessment (Round 3)	For the majority of pollutants, levels in Coventry still remain below the UK objectives. The exception to this is nitrogen dioxide where more areas have been found to exceed the UK objective annual mean for 2005 and will need to proceed to Detailed Assessment. The USA also concluded that given the number of areas to proceed to Detailed Assessment it is highly likely that Coventry will have to declare further Air Quality Management Areas.
2007	Detailed Assessment (Round 3)	All areas identified by the Updating and Screening Assessment 2006 were confirmed as exceeding the UK objective for annual mean nitrogen dioxide.
2008	Progress Report (Round 3)	The Progress Report indicates exceedances of the NO ₂ annual mean objective at a number of locations across the city.
2009	Updating and Screening Assessment (Round 4)	A number of locations outside the AQMAs continued to exceed NO ₂ objectives. Including Spon End/ Hearsall avenue as was indicated by detailed assessment of 2007 but not 2008 Progress Report.
2010	Progress Report (Round 4)	A city-wide AQMA was declared, effective from 1 st November 2009.
2011	Progress Report (Round 4)	Several areas of Coventry continued to exceed the annual mean objective for NO ₂ .

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Figure 1.1 Coventry City Council's AQMA boundary



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2 New Monitoring Data

2.1 Summary of Monitoring Undertaken

2.1.1 Automatic Monitoring Sites

Information regarding the locations and relevant exposure at the continuous monitoring stations are shown in Figure 2.1 and Table 2.1.

During 2010, we had consistent problems with the functionality of our monitoring equipment. Lack of resources within the council and issues with the service engineer resulted in faulty equipment not being identified and repaired as required. This continued into 2011.

At Tollbar End, we repeatedly called out our service engineers after noticing that the data from the stations didn't look correct. However, it took several months to discover that the fault was that the analyser was sampling from inside the cabin, and therefore the data was significantly smoothed out. This data was completely rejected as it was impossible to adjust or scale it robustly, resulting in a data capture of 67% for 2011.

At Queensland Avenue, the gas cylinders became poisoned due to a problem with the valves on the analyser. This resulted in the equipment being out of service for a large portion of the year, and the poisoned gas cylinder meant that no calibrations could be undertaken for a significant period of time. As a consequence, the validated dataset only spans 66% of 2011.

At the Foleshill Road monitoring site, data capture was 84% for 2011. This was due to a failure of the air conditioner which caused the analyser to overheat and therefore we experienced data loss.

Data capture at Ball Hill was good, with a validated dataset of 95% for 2011. There were very few problems at this station.

In order to prevent these problems occurring again, we signed a contract with a new service contractor in July 2011, which outlined specific service and repair responsibilities against which the service company will be assessed. Faults have been identified and in some cases replacement of whole analyser units has been required.

Data capture rates at 2 of our 4 automatic stations for 2010 were less than the 75% required by the guidance LAQM TG(09). Therefore, we give information of the location of all our continuous monitoring sites but will only be able to provide reliable continuous monitoring data for Foleshill Road and Ball Hill for 2009 and 2010.

Since the last USA, we have installed a new station at Hales Street in the city centre. This station has also had data capture and communication issues and therefore 2010 and 2011 data will not be reported.

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Professional technical support has also been provided by air quality colleagues at Birmingham City Council. We are confident that these actions will improve functionality and data capture for future periods.

2.1.2 QA/QC of automatic monitoring

Each NO_x analyser is operated according to manufacturers' instructions. Coventry City Council officers carry out calibration of the equipment every two weeks. Certified Calibration Gas is supplied by BOC and this is used to obtain a span value for each analyser during the calibration. The equipment is also tested against zero air. The data is collected and scaled, and any instrumental drift is corrected during data processing. The filter is changed after every calibration. Engineers from TRL Ltd service the analysers at six monthly intervals.

A visual inspection of the TEOM analyser is carried out fortnightly, and the filter changed as required during routine site visits. All site visits are documented to ensure any problems are recorded and any works noted. All calibrations are recorded.

Figure 2.1 Map of Automatic Monitoring Sites



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Table 2.2 Details about Automatic Monitoring Stations

Site Name	Site Type	OS Grid Ref		Pollutants Monitored	Monitoring Technique	In AQMA?	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?
		X	Y						
Queensland Avenue	Roadside	X 431572	Y 279022	PM ₁₀ NO ₂	TEOM-VCM method applied	Y	Y(9m)	3.5m	N
Foleshill Road	Roadside	X 434251	Y 281512	PM ₁₀ NO ₂	TEOM-VCM method applied	Y	Y(9m)	6m	N
Ball Hill	Roadside	X 435129	Y 279282	NO ₂	N/A	Y	Y(2.5m)	3.5m	N
Tollbar End	Roadside	X 436530	Y 275696	PM ₁₀ NO ₂	FDMS	Y	Y(25m)	4.5m	N
Hales Street	Roadside	X 433414	Y 279279	NO ₂	N/A	Y	Y (2m)	3.2m	N

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2.1.3 Non-Automatic Monitoring

Coventry City Council operates a network of 97 diffusion tubes around the city, as shown in Figure 2.2. The survey was expanded in December 2010 and all duplicate sites were converted to triplicate in order to assess the coefficient of variation of the tubes, due to differing results of duplicate tubes in past years. New tubes were also deployed at Bell Green, Far Gosford Street, Gulson Road and at residential locations near to the M6.

Details of the locations of NO₂ diffusion tubes can be found in Table 2.3.

Coventry City Council use Gradko International for analysis of diffusion tubes. The preparation method used is 20% TEA in water.

The diffusion tube results have been bias adjusted using the National Diffusion Tube Bias Adjustment Factor Spreadsheet, as Coventry's continuous monitoring stations have not had sufficient data capture to produce a robust adjustment factor. From the National Diffusion Tube Bias Adjustment Factor Spreadsheet, 26 Local Authorities submitted results for 2011 using the same laboratory and preparation method, and therefore the adjustment factor of 0.89 is considered to be representative.

QA/QC of non-automatic monitoring

Gradko International are part of the Workplace Analysis Scheme for Proficiency (WASP), and in 2011 they were deemed to be satisfactory. The tubes are stored and deployed according to the manufacturer's instructions and field and fridge blanks are used each month to ensure that no contamination has occurred.

Figure 2.2 Map of Non-Automatic Monitoring Sites



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Table 2.3 Details of Non-Automatic Monitoring Locations

Site ID	Location	Site Type	OS grid ref		In AQMA?	Relevant Exposure? (Y/N with distance (m) to relevant exposure)	Distance to kerb of nearest road (N/A if not applicable)	Worst Case Location?
			X	Y				
6Nd	Holyhead Road	Roadside	431990	279644	Y	Y(7.2m)	3.4	Y
6Ndd	Holyhead Road	Roadside	431990	279644	Y	Y(7.2m)	3.4	Y
6N*	Holyhead Road	Roadside	431990	279644	Y	Y(7.2m)	3.4	Y
CCO1*/1N	Holyhead Road	Roadside	432105	279578	Y	Y(7.2m)	3.1	Y
CCO3/3N*	Holyhead Road	Urban background	432299	279898	Y	Y(5.8m)	N/A	N/A
CCO4/5N*	Holyhead Road	Urban background	431683	281446	Y	Y(6.9m)	1.2	N/A
HR1	Holyhead Road	Façade	432683	279240	Y	Y(0m)	5.8	Y
BH1	Ball Hill	Roadside	434966	279204	Y	Y(5.2m)	2.6	Y
BH2a	Ball Hill	Façade	435126	279286	Y	Y(0m)	3.9	Y
BH4	Ball Hill	Roadside	435331	279358	Y	Y(3.5m)	1.3	Y
BH6i	Ball Hill	Roadside	435184	279298	Y	Y(1m)	4.5	Y
BH6ii	Ball Hill	Roadside	435184	279298	Y	Y(1m)	4.5	Y
BH6iii	Ball Hill	Roadside	435184	279298	Y	Y(1m)	4.5	Y
BH9	Ball Hill	Roadside	435645	279371	Y	Y(2m)	0.1	Y
BH10	Ball Hill	Roadside	435189	279281	Y	Y(2m)	0.1	Y
BH11	Ball Hill	Roadside	435189	279281	Y	Y(2m)	0.1	Y
BH12	Ball Hill	Roadside	435189	279281	Y	Y(2m)	0.1	Y
BH13	Ball Hill	Façade	435508	279387	Y	N/A	N/A	N/A
BGH1	City Centre	Façade	433370	278990	Y	Y(0m)	1.8	Y
BUR2i	City Centre	Roadside	433398	279168	Y	Y(7.7m)	0.5	Y
BUR4i	City Centre	Roadside	433387	279199	Y	Y(2m)	0.01	Y
BUR4ii	City Centre	Roadside	433387	279199	Y	Y(2m)	0.01	Y
BUR4iii	City Centre	Roadside	433387	279199	Y	Y(2m)	0.01	Y
BUR6	City Centre	Roadside	433373	279257	Y	Y(1.8m)	1	Y

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Site ID	Location	Site Type	OS grid ref		In AQMA?	Relevant Exposure? (Y/N with distance (m) to relevant exposure)	Distance to kerb of nearest road (N/A if not applicable)	Worst Case Location?
			X	Y				
HS1	City Centre	Roadside	433467	279267	Y	Y(24.6m)	0.9	Y
HS2	City Centre	Roadside	433420	279236	Y	Y(2m)	35	Y
TS1	City Centre	Roadside	433465	279154	Y	Y(3m)	3.6	Y
TS2	City Centre	Roadside	433496	279241	Y	Y(3.7m)	4.4	Y
CL1	City Centre	Façade	433471	279043	Y	Y(0m)	21	Y
FS1	City Centre	Roadside	433569	279234	Y	Y(4.9m)	1	Y
CR4	City Centre	Roadside	433052	278897	Y	Y(0m)	2.3	Y
CR4a	City Centre	Roadside	433052	278897	Y	Y(0m)	2.3	Y
CR4b	City Centre	Roadside	433052	278897	Y	Y(0m)	2.3	Y
LON4	Tollbar End	Roadside	436520	275705	Y	Y(26.3m)	5.9	Y
LON5	Tollbar End	Roadside	436520	275705	Y	Y(26.3m)	5.9	Y
LON6	Tollbar End	Roadside	436520	275705	Y	Y(26.3m)	5.9	Y
LON7i	Tollbar End	Façade	436540	275727	Y	Y(0m)	19.4	Y
LON7ii	Tollbar End	Façade	436545	275713	Y	Y(0m)	18.3	Y
LON8a	Tollbar End	Façade	436551	275703	Y	Y(0m)	17.9	Y
LON12	London Road	Façade	434075	278450	Y	Y(0m)	5.1	Y
LON13	London Road	Façade	434987	277129	Y	Y(0m)	7.1	Y
STL1	Tollbar End	Roadside	436203	275841	Y	Y(17.1m)	12	Y
STL2	Tollbar End	Roadside	436203	275841	Y	Y(17.1m)	12	Y
STL3	Tollbar End	Roadside	436203	275841	Y	Y(17.1m)	12	Y
SE1	Spon End	Roadside	432084	279042	Y	Y(0m)	3.4	Y
SE1d	Spon End	Roadside	432084	279042	Y	Y(0m)	3.4	Y
SE1dd	Spon End	Roadside	432084	279042	Y	Y(0m)	3.4	Y
SE3	Spon End	Façade	432303	279028	Y	Y(0m)	0	Y
QAV01	Queensland Avenue	Roadside	431595	278991	Y	Y(0m)	5.3	Y
QAV01d	Queensland Avenue	Roadside	431595	278991	Y	Y(0m)	5.3	Y

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Site ID	Location	Site Type	OS grid ref		In AQMA?	Relevant Exposure? (Y/N with distance (m) to relevant exposure)	Distance to kerb of nearest road (N/A if not applicable)	Worst Case Location?
			X	Y				
QAV01dd	Queensland Avenue	Roadside	431595	278991	Y	Y(0m)	5.3	Y
QAV6	Queensland Avenue	Roadside	431573	279020	Y	Y(0m)	1.1	Y
QAV7	Queensland Avenue	Roadside	431573	279020	Y	Y(10.8m)	1.1	Y
QAV8	Queensland Avenue	Roadside	431573	279020	Y	Y(10.8m)	1.1	Y
QAV12	Queensland Avenue	Façade	431704	278680	Y	Y(0.7m)	5.2	Y
QAV13	Queensland Avenue	Façade	431763	278657	Y	Y(0m)	4.9	Y
R1	Foleshill Road	Roadside	434250	281513	Y	Y(13.2m)	5.1	Y
R2	Foleshill Road	Roadside	434250	281513	Y	Y(13.2m)	5.1	Y
R3	Foleshill Road	Roadside	434250	281513	Y	Y(13.2m)	5.1	Y
R4	Foleshill Road	Façade	434233	281526	Y	Y(0m)	0	Y
R5	Foleshill Road	Façade	433716	280503	Y	Y(0m)	3.7	Y
R6	Foleshill Road	Façade	433617	280276	Y	Y(0m)	4.9	Y
R6a	Foleshill Road	Façade	433617	280276	Y	Y(0m)	4.9	Y
R6b	Foleshill Road	Façade	433617	280276	Y	Y(0m)	4.9	Y
R8	Foleshill Road	Façade	433992	281008	Y	Y(0m)	4.3	Y
R9	Foleshill Road	Roadside	434059	281105	Y	Y(4.5m)	4.9	Y
LR1	Longford Road	Façade	434836	283030	Y	Y(0m)	5.6	Y
LR2	Longford Road	Façade	434880	283077	Y	Y(0m)	4.2	Y
LR3	Longford Road	Façade	435016	283515	Y	Y(0m)	8.5	Y
LP1	Longford Park Urban BG	Urban background	435083	283316	Y	N/A	N/A	N/A
BR1	Longford Road	Roadside	435094	284156	Y	Y(0m)	4.9	Y
HL1	Holbrook Lane	Roadside	433690	281987	Y	Y(0m)	3.5	Y
BRN2	Burnaby Road	Façade	433605	281965	Y	Y(0m)	5.5	Y
BRN2a	Burnaby Road	Façade	433605	281965	Y	Y(0m)	5.5	Y
BRN2b	Burnaby Road	Façade	433605	281965	Y	Y(0m)	5.5	Y
BA1	Beake Avenue/Radford Road	Roadside	432531	280769	Y	Y(7.5m)	2.2	Y

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Site ID	Location	Site Type	OS grid ref		In AQMA?	Relevant Exposure? (Y/N with distance (m) to relevant exposure)	Distance to kerb of nearest road (N/A if not applicable)	Worst Case Location?
			X	Y				
BA1d	Beake Avenue/Radford Road	Roadside	432531	280769	Y	Y(7.5m)	2.2	Y
BA1dd	Beake Avenue/Radford Road	Roadside	432531	280769	Y	Y(7.5m)	2.2	Y
SS1	Stoney Stanton Road	Façade	434062	280082	Y	Y(0m)	3.1	Y
SS2	Stoney Stanton Road	Façade	433994	279969	Y	Y(0m)	4.5	Y
SS3	Stoney Stanton Road	Façade	434842	281272	Y	Y(0m)	0	Y
SS5	Stoney Stanton Road	Façade	433847	279814	Y	Y(0m)	3	Y
AUN1	Memorial Park	Urban background	432785	277475	Y	N/A	116.4	N/A
AUN2	Memorial Park	Urban background	432785	277475	Y	N/A	116.4	N/A
AUN3	Memorial Park	Urban background	432785	277475	Y	N/A	116.4	N/A
EH1	Earlsdon High Street	Façade	431978	278050	Y	Y(0m)	4.6	Y
EH2	Earlsdon High Street	Roadside	431932	278005	Y	Y(3m)	4.7	Y
EH3	Earlsdon High Street	Façade	431950	277998	Y	Y(0m)	5.5	Y
EH4	Earlsdon High Street	Roadside	431971	278022	Y	Y(3m)	3.1	Y
BELL1	Bell Green	Façade	435849	282211	Y	Y (0m)	1.7	Y
BELL2	Bell Green	Façade	435826	282158	Y	Y (0m)	5.7	Y
WL1	Woodway Lane (M6)	Façade	437692	282814	Y	Y (0m)	12.55	Y
CH1	Jubilee Crescent	Façade	432877	281436	Y	Y (0m)	8.9	Y
FGS1	Far Gosford Street	Façade	434330	278973	Y	Y (0m)	2.9	Y
FGS2	Far Gosford Street	Façade	434450	279001	Y	Y (0m)	5.1	Y
FGS3	Far Gosford Street	Façade	434530	279026	Y	Y (0m)	2.4	Y
GR1	Gulson Road	Façade	434678	278922	Y	Y(0m)	4.5	Y

2.2 Comparison of Monitoring Results with AQ Objectives

2.2.1 Nitrogen Dioxide

Automatic Monitoring Data

Data capture from two of Coventry's continuous monitoring stations in 2009 and 2010 was too low to be used as a representative annual mean. Therefore it is only concentrations from the Ball Hill and Foleshill Road stations that are reported in Table 2.4 and Table 2.5 for 2009 and 2010. No data was available for Hales Street due to ongoing communication problems. Monitoring data has been ratified using the procedures given in Appendix 1 of LAQM.TG(09). An exceedence of the $40\mu\text{g}/\text{m}^3$ annual mean NO_2 objective was recorded at Ball Hill and Tollbar End in 2011.

In 2011, data capture at Foleshill Road, Queensland Avenue and Tollbar End was below 90%, and therefore the annual mean concentrations reported have been adjusted in a way similar to the method stated in LAQM.TG(09), and have been supplemented by data from a variety of sources. Data from Foleshill Road and Queensland Avenue were adjusted with data from Birmingham Stratford Road, which showed a close agreement with monitored data from 2010. Data from Tollbar End was adjusted with data from an analyser co-located at the site by colleagues at Birmingham City Council to compare the performance of Coventry's analyser.

Table 2.4 Results of Automatic Monitoring for Nitrogen Dioxide: Comparison with Annual Mean Objective

Site ID	Within AQMA?	Proportion of year with valid data 2011 %	Annual mean concentrations ($\mu\text{g}/\text{m}^3$)		
			2011	2010	2009
Ball Hill	Y	95%	41	49.0 ¹	42.3 ²
Foleshill Road	Y	84%	30	39.8 ³	34.9 ⁴
Queensland Avenue	Y	66%	33	-	-
Tollbar End	Y	67%	50	-	-

Any exceedences of the annual mean standard of $40\mu\text{g}/\text{m}^3$ are highlighted in bold.

¹ Data capture 93%

² Data capture 90%

³ Data capture 75%

⁴ Data capture 87%

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Table 2.5 Results of Automatic Monitoring for Nitrogen Dioxide: Comparison with 1-hour Mean Objective

Site ID	Within AQMA?	Data Capture 2011 %	Number of Exceedences of hourly mean (200 µg/m ³) <i>If the period of valid data is less than 90% of a full year, include the 99.8th %ile of hourly means in brackets.</i>		
			2009	2010	2011
Ball Hill	Y	95%	0	0	0
Foleshill Road	Y	84%	7 (173)	0 (144.7)	0
Queensland Ave	Y	66%	-	-	0
Tollbar End	Y	67%	-	-	0

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Diffusion Tube Monitoring Data

Two diffusion tubes were removed from the survey in 2010; CC04/5N* and BUR2i. CC04/5N* was removed as it was not a true urban background site in accordance with the guidance LAQM/TG09; it was within 10m of a road and therefore was not an urban background site. BUR2i was discontinued as the lamppost in the city centre to which it was attached was removed.

Results of diffusion tube monitoring are shown in Table 2.6. Values in bold are those that are greater than $40\mu\text{g}/\text{m}^3$; values in italics have a data capture of less than 90%. Tubes with a data capture less than 75% have been annualised in accordance with guidance in LAQM.TG(09).

Details of the bias adjustment factor used is given in the footnotes below. For further information about bias adjustment, please see Appendix A.

Table 2.6 Results of Nitrogen Dioxide Diffusion Tubes

Site ID	Location	Within AQMA?	Relevant public exposure? Y/N	Single/Triplicate?	Data Capture 2011	2011 Annual Mean Bias adjusted distance corrected to façade where applicable ($\mu\text{g}/\text{m}^3$)	Annual Mean Concentrations ($\mu\text{g}/\text{m}^3$)	
							2010	2009
6Nd	Holyhead Road, United Reform Church	Y	Y(7.2m)	Triplicate	67%	<i>39.01</i>	34.62	32.89
6Ndd	Holyhead Road, United Reform Church	Y	Y(7.2m)	Triplicate	67%	41.03	/	/
6N	Holyhead Road, United Reform Church	Y	Y(7.2m)	Triplicate	67%	<i>39.01</i>	34.62	32.89
CC01*/1N	Holyhead Road, Beaumont Court	Y	Y(7.3m)	Single	50%	<i>38.15</i>	33.89	/
CC03/3N*	Moseley Avenue, Coundon Social	Y	N/A	Single	100%	19.70	21.18	/

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Site ID	Location	Within AQMA?	Relevant public exposure? Y/N	Single/Triplicate?	Data Capture 2011	2011 Annual Mean Bias adjusted distance corrected to façade where applicable ($\mu\text{g}/\text{m}^3$)	Annual Mean Concentrations ($\mu\text{g}/\text{m}^3$)	
							2010	2009
	Services,							
HR1	Holyhead Road, cleaning shop	Y	Y(0m)	Single	83%	61.60	/	/
BH1	Walsgrave Road, Library	Y	Y(5.2m)	Single	92%	39.11	40.16	36.32
BH2a	Walsgrave Road, 161	Y	Y(0m)	Single	100%	48.67	45.81	44.34
BH4	Walsgrave Road, 243	Y	Y(3.5m)	Single	100%	41.35	41.05	39.58
BH6i	Walsgrave Road, Post Office	Y	Y(1m)	Triplicate	100%	48.47	44.71	/
BH6ii	Walsgrave Road, Post Office	Y	Y(1m)	Triplicate	100%	46.12	47.86	41.76
BH6iii	Walsgrave Road, Post Office	Y	Y(1m)	Triplicate	92%	48.34	/	/
BH9	Walsgrave Road, 347	Y	Y(2m)	Single	67%	29.47	29.02	28.50
BH10	Ball Hill Aun	Y	Y(2m)	Triplicate	100%	45.21	43.88	40.54
BH11	Ball Hill Aun	Y	Y(2m)	Triplicate	100%	45.38	43.39	38.70
BH12	Ball Hill Aun	Y	Y(2m)	Triplicate	100%	45.10	41.84	39.97
BH13	196/198 Walsgrave Road	Y	Y(0m)	Single	42%	37.28	/	/
BGH1	Broadgate House, Room 311	Y	Y(0m)	Single	100%	39.58	38.34	33.16
BUR4i	Burges, Plaza Studio	Y	Y(2m)	Triplicate	100%	35.39	39.14	28.58
BUR4ii	Burges, Plaza Studio	Y	Y(2m)	Triplicate	100%	37.11	37.01	31.42
BUR4iii	Burges, Plaza Studio	Y	Y(2m)	Triplicate	100%	37.92	35.00	30.00
BUR6	Burges, Kong	Y	Y(1.8m)	Single	92%	40.82	/	36.00
HS1	Hales Street	Y	Y(24.6m)	Single	75%	39.98	43.06	53.95
HS2	Hales Street, palmer lane	Y	Y(2m)	Single	92%	29.47	33.58	32.59
TS1	Trinity Street	Y	Y(3m)	Single	100%	51.27	50.68	47.51
TS2	Trinity Street	Y	Y(3.7m)	Single	100%	49.51	48.38	47.41
CL1	Flats adjacent to Cathedral Lanes	Y	Y(0m)	Single	100%	36.31	32.83	31.79
FS1	Fairfax Street, Pool Meadow	Y	Y(4.9m)	Single	92%	68.26	57.07	56.72
CR4	Lower Precinct car park, Queen Victoria Rd	Y	Y(0m)	Triplicate	100%	40.71	39.72	37.21

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Site ID	Location	Within AQMA?	Relevant public exposure? Y/N	Single/Triplicate?	Data Capture 2011	2011 Annual Mean Bias adjusted distance corrected to façade where applicable (µg/m ³)	Annual Mean Concentrations (µg/m ³)	
							2010	2009
CR4a	Lower Precinct car park, Queen Victoria Rd	Y	Y(0m)	Triplicate	100%	39.32	37.61	36.63
CR4b	Lower Precinct car park, Queen Victoria Rd	Y	Y(0m)	Triplicate	100%	40.65	/	/
High1	Outside Barclays Bank, High Street	Y	N/A	Single	50%	47.44	/	/
ES1	Outside Brown's, Earl Street	Y	N/A	Single	58%	30.15	/	/
LPS1	Outside Wetherspoons, Little Park Street	Y	N/A	Single	58%	40.52	/	/
BUR7	Outside Showboat, Burges	Y	N/A	Single	42%	45.52	/	/
CS1	On corner of Upper Well St/Corporation St	Y	N/A	Single	58%	36.26	/	/
CS2	Next to bus stop on Corporation St	Y	N/A	Single	58%	46.34	/	/
LON4	London Road	Y	Y(26.3m)	Triplicate	100%	31.44	29.96	30.53
LON5	London Road	Y	Y(26.3m)	Triplicate	100%	31.63	30.00	31.17
LON6	London Road	Y	Y(26.3m)	Triplicate	100%	31.23	30.12	31.01
LON7i	London Road, Glengary Hotel	Y	Y(0m)	Single	92%	35.11	32.99	33.31
LON7ii	London Road, Glengary Hotel	Y	Y(0m)	Single	100%	27.21	27.65	26.13
LON8a	London Road, 703	Y	Y(0m)	Single	83%	26.58	26.51	27.40
LON12	80 London Road	Y	Y(0m)	Single	92%	44.01	38.34	39.40
LON13	261 London Road	Y	Y (0m)	Single	100%	33.36	/	/
STL1	Stonehouse Lane	Y	Y(17.1m)	Triplicate	92%	37.55	31.52	32.84
STL2	Stonehouse Lane	Y	Y(17.1m)	Triplicate	100%	37.28	31.11	35.61
STL3	Stonehouse Lane	Y	Y(17.1m)	Triplicate	100%	37.53	/	/
SE1	Spon End, 58a	Y	Y(0m)	Triplicate	100%	38.55	37.86	35.62
SE1d	Spon End, 58a	Y	Y(0m)	Triplicate	100%	41.09	41.53	38.86

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Site ID	Location	Within AQMA?	Relevant public exposure? Y/N	Single/Triplicate?	Data Capture 2011	2011 Annual Mean Bias adjusted distance corrected to façade where applicable ($\mu\text{g}/\text{m}^3$)	Annual Mean Concentrations ($\mu\text{g}/\text{m}^3$)	
							2010	2009
SE1dd	Spon End, 58a	Y	Y(0m)	Triplicate	100%	42.14	/	/
SE3	97 Spon End	Y	Y(0m)	Single	100%	38.73	36.81	35.16
QAV01	Queensland Avenue, Fairytale Flowers	Y	Y(0m)	Triplicate	100%	43.37	41.05	38.29
QAV01d	Queensland Avenue, Fairytale Flowers	Y	Y(0m)	Triplicate	100%	44.30	41.49	38.91
QAV01dd	Queensland Avenue, Fairytale Flowers	Y	Y(0m)	Triplicate	100%	45.14	/	/
QAV6	Queensland Avenue	Y	Y(0m)	Triplicate	92%	24.65	25.84	25.74
QAV7	Queensland Avenue	Y	Y(10.8m)	Triplicate	100%	25.66	26.13	27.23
QAV8	Queensland Avenue	Y	Y(10.8m)	Triplicate	100%	25.53	26.19	26.17
QAV12	Queensland Avenue, 2	Y	Y(0.7m)	Single	100%	38.26	37.90	43.33
QAV13	Hearsall Lane, 181	Y	Y(0m)	Single	100%	41.92	37.15	38.84
R1	Foleshill Road	Y	Y(13.2m)	Triplicate	92%	27.80	29.37	29.76
R2	Foleshill Road	Y	Y(13.2m)	Triplicate	92%	27.50	29.92	29.20
R3	Foleshill Road	Y	Y(13.2m)	Triplicate	100%	28.51	29.32	29.38
R4	Foleshill Road, Surestart	Y	Y(0m)	Single	92%	36.04	36.77	32.95
R5	Foleshill Road, 275	Y	Y(0m)	Single	92%	43.44	42.15	43.78
R6	Foleshill Road, 193	Y	Y(0m)	Triplicate	100%	53.91	48.98	48.91
R6a	Foleshill Road, 193	Y	Y(0m)	Triplicate	100%	55.64	48.30	46.30
R6b	Foleshill Road, 193	Y	Y(0m)	Triplicate	100%	56.73	/	/
R8	Foleshill Road, 415	Y	Y(0m)	Single	83%	39.81	38.30	47.69
R9	Foleshill Road, 324	Y	Y(4.5m)	Single	75%	40.32	34.63	36.88
LR1	23 Longford Road	Y	Y(0m)	Single	100%	42.18	42.85	44.92
LR2	24 Longford Road	Y	Y(0m)	Single	100%	44.85	42.60	41.56
LR3	Longford Road, 139	Y	Y(0m)	Single	92%	41.56	40.63	34.72

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Site ID	Location	Within AQMA?	Relevant public exposure? Y/N	Single/Triplicate?	Data Capture 2011	2011 Annual Mean Bias adjusted distance corrected to façade where applicable ($\mu\text{g}/\text{m}^3$)	Annual Mean Concentrations ($\mu\text{g}/\text{m}^3$)	
							2010	2009
LP1	Longford Park	Y	N/A	Single	83%	23.47	/	/
BR1	Bedworth Road, electricity substation next to 296	Y	Y(0m)	Single	92%	39.56	37.23	35.62
HL1	56 Holbrooks, Hubards Florists	Y	Y(0m)	Single	100%	40.53	37.98	41.91
BRN2	Burnaby Road, 19	Y	Y(0m)	Triplicate	100%	38.84	36.47	37.01
BRN2a	Burnaby Road, 19	Y	Y(0m)	Triplicate	100%	40.92	36.39	35.78
BRN2b	Burnaby Road, 19	Y	Y(0m)	Triplicate	100%	39.22	/	/
BA1	Beake Avenue/Radford Road	Y	Y(7.5m)	Triplicate	67%	39.99	34.89	37.65
BA1d	Beake Avenue/Radford Road	Y	Y(7.5m)	Triplicate	50%	42.14	36.30	36.47
BA1dd	Beake Avenue/Radford Road	Y	Y(7.5m)	Triplicate	42%	45.16	/	/
SS1	Stoney Stanton Road, 154	Y	Y(0m)	Single	75%	37.55	38.39	34.79
SS2	Stoney Stanton Road, 155	Y	Y(0m)	Single	75%	37.53	38.76	38.46
SS3	R/O 21 Torcastle Close (faces SS Rd)	Y	Y(0m)	Single	100%	38.68	37.74	36.61
SS5	R/O 10 Arthur Street, facing city college, SS road	Y	Y(0m)	Single	75%	42.67	40.06	38.36
AUN1	War Memorial Park	Y	N/A	Triplicate	92%	17.06	21.82	17.24
AUN2	War Memorial Park	Y	N/A	Triplicate	92%	17.67	20.46	16.96
AUN3	War Memorial Park	Y	N/A	Triplicate	75%	16.71	21.72	17.16
EH1	Earlson High Street	Y	Y(0m)	Single	100%	35.19	37.23	/
EH2	Earlson High Street	Y	Y(3m)	Single	92%	34.68	34.96	/
EH3	Earlson High Street	Y	Y(0m)	Single	92%	28.53	30.02	/
EH4	Earlson High Street	Y	Y(3m)	Single	100%	30.92	32.90	/
BELL1	16 Hall Green Road	Y	Y (0m)	Single	100%	39.98	/	/
BELL2	314 Bell Green Road	Y	Y (0m)	Single	100%	39.18	/	/
WL1	The Jolly Collier, Woodway Lane	Y	Y (0m)	Single	83%	34.37	/	/

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Site ID	Location	Within AQMA?	Relevant public exposure? Y/N	Single/Triplicate?	Data Capture 2011	2011 Annual Mean Bias adjusted distance corrected to façade where applicable ($\mu\text{g}/\text{m}^3$)	Annual Mean Concentrations ($\mu\text{g}/\text{m}^3$)	
							2010	2009
CH1	337 Cheveral Ave	Y	Y (0m)	Single	100%	30.29	/	/
FGS1	34 Far Gosford Street	Y	Y (0m)	Single	92%	41.39	/	/
FGS2	Select & Save, Far Gosford Street	Y	Y (0m)	Single	100%	37.97	/	/
FGS3	74 Far Gosford Street	Y	Y (0m)	Single	100%	38.18	/	/
GR1	217 Gulson Road	Y	Y(0m)	Single	100%	37.25	/	/
AGR1	Inside compound - M6 contribution only	Y	#N/A	Single	75%	40.31	/	/
AGR2	Alderman's Green Road N of M6	Y	#N/A	Single	83%	38.70	/	/

Tubes are bias adjusted using the National Diffusion Tube Bias Adjustment Factor Spreadsheet. Results for 2011 have been adjusted using a factor of 0.89.

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The results confirm there are exceedences of the annual mean for nitrogen dioxide at the following locations:

- Walsgrave Road
- Ball Hill
- Trinity Street, Fairfax Street, Queen Victoria Road and the Burges in the city centre
- London Road
- Spon End
- Queensland Avenue
- Hearsall Lane
- Foleshill Road
- Longford Road
- Beake Avenue/Radford Road

2.2.2 PM₁₀

Three of Coventry's five continuous monitoring stations monitor for PM₁₀. The Foleshill Road and Queensland Avenue stations monitor PM₁₀ using a Tapered Element Oscillating Microbalance (TEOM), whereas the Tollbar End station uses a TEOM with Filter Dynamics Measurement System (FDMS), which measures the volatile component of atmospheric particles. Concentrations of PM₁₀ in 2011 are shown in Table 2.7 and Table 2.8.

Table 2.7 Results of Automatic Monitoring of PM₁₀: Comparison with Annual Mean Objective

Site ID	Site Type	Within AQMA?	Valid Data Capture 2011 %	Confirm Gravimetric Equivalent (Y or N/A)	Annual Mean Concentration $\mu\text{g}/\text{m}^3$ 2011
Foleshill Road	Roadside	Y	87%	Y	18
Queensland Avenue	Roadside	Y	92%	Y	16
Tollbar	Roadside	Y	67%	Y	25

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Table 2.8 Results of Automatic Monitoring for PM₁₀: Comparison with 24-hour mean Objective

Site ID	Site Type	Within AQMA?	Valid Data Capture 2011 %	Confirm Gravimetric Equivalent	Number of Exceedences of 24-Hour Mean (50 $\mu\text{g}/\text{m}^3$)
					2011
Foleshill Road	Roadside	Y	87%	Y	18
Queensland Avenue	Roadside	Y	92%	Y	1
Tollbar	Roadside	Y	67%	Y	0

2.2.3 Sulphur Dioxide

Sulphur dioxide is not currently monitored by Coventry City Council.

2.2.4 Benzene

Benzene is monitored by DEFRA as part of the Non-Automatic Hydrocarbon Network at Coventry's Memorial Park. This location is not representative of public exposure. The annual mean for benzene in 2011 was $0.5 \mu\text{g}/\text{m}^3$ and is therefore significantly below the annual mean objective of $5 \mu\text{g}/\text{m}^3$.

3 Road Traffic Sources

3.1 Narrow Congested Streets with Residential Properties Close to the Kerb

Coventry City 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

Coventry City 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.

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

3.4 Junctions

Coventry City 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

Coventry City Council confirms that there are no new/proposed roads.

3.6 Roads with Significantly Changed Traffic Flows

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

3.7 Bus and Coach Stations

Coventry City Council has assessed potential NO₂ and PM₁₀ emissions at bus stations located within the city during previous rounds of review and assessment. There is no relevant exposure with reference to the 1-hour exposure criteria within 10 metres of Pool Meadow bus station, therefore there is no need to proceed further with the assessment of bus stations in Coventry.

Coventry City Council confirms that there are no relevant bus stations in the Local Authority area.

4 Other Transport Sources

4.1 Airports

Coventry Airport stopped running passenger flights in December 2009, but continues to operate cargo services.

Coventry City Council confirms that there are no airports in the Local Authority area.

4.2 Railways (Diesel and Steam Trains)

4.2.1 Stationary Trains

Coventry City 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

Coventry City 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)

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

5 Industrial Sources

5.1 Industrial Installations

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

Coventry City Council has approved several new installations since the last USA. They are as follows:

- 7 mobile crushers
- 1 metal and plastic coating facility
- 1 surface cleaning facility
- 2 di-isocyanate processes
- 1 powder coating plant
- 1 vehicle refinisher
- 1 waste oil burner

All of the above processes are regulated under the Environmental Permitting Regulations. In November 2011, 6 of the 7 mobile crusher permits were surrendered, though these crushers generally operate outside the borough and therefore do not impact on local air quality. The other processes have limited NO_x output, especially in comparison to the NO_x contribution from road traffic, and therefore it is not considered necessary to assess these in more detail.

Coventry City Council has assessed new/proposed industrial installations, and concluded that it will not be necessary to proceed to a Detailed Assessment.

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

Coventry City Council confirms that there are no industrial installations with substantially increased emissions or new relevant exposure in their vicinity within its area or nearby in a neighbouring authority.

5.1.3 New or Significantly Changed Installations with No Previous Air Quality Assessment

Coventry City Council has assessed new/proposed industrial installations, and concluded that it will not be necessary to proceed to a Detailed Assessment.

5.2 Major Fuel (Petrol) Storage Depots

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

5.3 Petrol Stations

Coventry City Council confirms that there are no petrol stations meeting the specified criteria.

5.4 Poultry Farms

Coventry City Council confirms that there are no poultry farms meeting the specified criteria.

6 Commercial and Domestic Sources

6.1 Biomass Combustion – Individual Installations

There have been six new biomass combustion installations since the last updating and screening assessment, at the following locations:

- John Shelton School
- Stivichall School
- Castle Wood School
- Bradley Adams Bedrooms
- Severn Trent
- Sainsbury's Courthouse Green

All these biomass installations have been assessed by Coventry City Council at the planning stage. The applicant submitted to us a form giving detailed information about the proposed installation, which we used to assess the stack height and any air quality impacts in line with DEFRA and EPUK guidance. All the above installations have been assessed in this way and have been deemed to have negligible impact on air quality.

Coventry City 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

Coventry City 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

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

7 Fugitive or Uncontrolled Sources

Coventry City Council has considered dust emissions from a number of uncontrolled and fugitive sources that may give rise to elevated PM₁₀ concentrations. Since the last round of review and assessment there has been no planning approval granted for any major construction works with the potential for dust generation during the construction/demolition phase.

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

8 Conclusions and Proposed Actions

8.1 Conclusions from New Monitoring Data

The latest monitoring data has indicated continual exceedences of the annual mean objective for NO₂ at a number of diffusion tube locations across the city, as follows:

- Walsgrave Road
- Ball Hill
- Trinity Street, Fairfax Street, Queen Victoria Road and the Burges in the city centre
- London Road
- Spon End
- Queensland Avenue
- Hearsall Lane
- Foleshill Road
- Longford Road
- Beake Avenue/Radford Road

These are all within the city-wide designated AQMA.

There is evidence of a slight increase in NO₂ concentrations between 2009-2011 at some of the sites in particular the following:

- Ball Hill, Walsgrave Road
- Trinity Street, Fairfax Street
- Foleshill Road

There is currently no AQMA declaration for PM₁₀. Coventry City Council has carried out continuous monitoring of PM₁₀ at three locations, and this has shown that the annual mean objective is not currently being exceeded. It is considered unlikely that the objective will be exceeded at these locations.

8.2 Conclusions from Assessment of Sources

Since the last round of review and assessment, Coventry Airport stopped running passenger flights in December 2009, but continues to operate cargo services. This may have a benefit on local air quality.

Since the last round of Review and Assessment, there have been no new industrial sources or introduction of new exposure to industrial sources. All existing sources have not undergone any changes which may lead to increased pollutant emissions. Six new biomass installations have been identified and calculations show that the emissions are below that required for a detailed assessment for both NO₂ and PM₁₀.

8.3 Proposed Actions

Coventry City Council are currently working on the Air Quality Action Plan to accompany the designation of a city-wide AQMA in late 2009. Due to data management issues it has been difficult to begin modelling work to assess the current state of air quality in our problem areas and predict the benefits of any traffic or fleet management schemes.

However, plans have been put in place to improve this situation and work has now begun on the Further Assessment and required Action Plan. Once this work has been completed the Council will also review how the pedestrianisation of Broadgate has affected air quality in the City with the bus routes being moved out of the city centre to the surrounding areas. This work may be part of a future USA report depending on the resources available to undertake this work.

9 References

National Diffusion Tube Bias Adjustment Factor Spreadsheet,
http://laqm.defra.gov.uk/documents/Diffusion_Tube_Bias_Factors-v09_11.xls,
version 04/11.

Local Air Quality Management Technical Guidance LAQM.TG(09),
<http://www.defra.gov.uk/publications/files/pb13081-tech-guidance-laqm-tg-09-090218.pdf>, February 2009.

Summary of Laboratory Performance in WASP NO2 Proficiency Testing
Scheme for Rounds 108-115, [http://laqm.defra.gov.uk/documents/WASP-Rounds-108-115-\(January-2010-December-2011\).pdf](http://laqm.defra.gov.uk/documents/WASP-Rounds-108-115-(January-2010-December-2011).pdf) , December 2011.

Appendices

Appendix A: Quality Assurance/Quality Control of Data

Diffusion Tube Bias Adjustment Factors

The bias adjustment for 2011 was taken from the National Diffusion Tube Bias Adjustment Factor spreadsheet, as issues with automatic monitoring data made it impossible to obtain a robust local bias adjustment factor. There were 26 studies that contributed and therefore the adjustment factor of 0.89 is thought to be representative. Figure 9.1 shows details of the adjustment factor.

Figure 9.1 A screenshot of the National Diffusion Tube Bias Adjustment Factor spreadsheet, showing the laboratory, preparation method and factor used.

National Diffusion Tube Bias Adjustment Factor Spreadsheet							Spreadsheet Version Number: 03/12				
Follow the steps below in the correct order to show the results of relevant co-location studies							This spreadsheet will be updated at the end of September 2012				
Data only apply to tubes exposed monthly and are not suitable for correcting individual short-term monitoring periods							LACM Helpdesk Website				
Whenever presenting adjusted data, you should state the adjustment factor used and the version of the spreadsheet							The LAQM Helpdesk is operated on behalf of Defra and the Devolved Administrations by Bureau Veritas, in conjunction with				
This spreadsheet will be updated every few months; the factors may therefore be subject to change. This should not discourage their immediate use.							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 ² shown in blue at the foot of the final column.							
If a laboratory is not chosen, we have no data for this laboratory.		If a preparation method is not chosen, we have no data for this method at this laboratory.	If a year is not chosen, we have no data ²	If you have your own co-location study then see footnote ¹ . 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 <small>To make your entries, choose (M) from the preparation list</small>	Year ² <small>To make your entries, choose (M)</small>	Site Type	Local Authority	Length of Study (months)	Diffusion Tube Mean Conc. (Dm) ($\mu\text{g}/\text{m}^3$)	Automatic Monitor Mean Conc. (Cm) ($\mu\text{g}/\text{m}^3$)	Bias (B)	Tube Precision ³	Bias Adjustment Factor (A) (Cm/Dm)	
Gradko	20% TEA in water	2011	UB	Belfast City Council	12	36	29	23.5%	G	0.81	
Gradko	20% TEA in water	2011	R	Bromsgrove District Council (W)	10	56	53	6.0%	G	0.94	
Gradko	20% TEA in water	2011	R	Monmouthshire County Council	11	47	40	17.9%	S	0.85	
Gradko	20% TEA in water	2011	K	New Forest District Council	10	49	42	16.7%	G	0.86	
Gradko	20% TEA in water	2011	R	New Forest District Council	12	34	26	29.9%	G	0.77	
Gradko	20% TEA in water	2011	R	Fareham Borough Council	12	39	33	17.4%	G	0.85	
Gradko	20% TEA in water	2011	R	Rushcliffe BC	11	35	39	-9.5%	G	1.10	
Gradko	20% TEA in water	2011	R	Carlisle City Council	12	35	28	24.8%	G	0.80	
Gradko	20% TEA in water	2011	O	North Warwickshire Borough Council	12	48	39	23.0%	G	0.81	
Gradko	20% TEA in water	2011	R	Wokingham Borough Council	11	41	38	8.6%	G	0.92	
Gradko	20% TEA in water	2011	Overall Factor² (26 studies)						Use	0.89	

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QA/QC of automatic monitoring

Each NO_x analyser is operated according to the manufacturers' instructions. Coventry City Council personnel carry out calibration every two weeks. Certified Calibration Gas is supplied by BOC and this is used to obtain a span value for each analyser during the calibration. The data is collected and scaled, and any instrumental drift is corrected during data processing. The filter is changed after every calibration. Engineers from TRL service the analysers at six monthly intervals.

A visual inspection of the TEOM analyser is carried out fortnightly, and the filter changed as required during routine site visits.

All site visits are documented to ensure any problems are recorded and any works noted. All calibrations are recorded.

QA/QC of diffusion tube monitoring

The test laboratory currently used by Coventry City Council is Gradko International Ltd. Gradko participates in the Workplace Analysis for proficiency (WASP) scheme managed by the Health and Safety Laboratory.

For 2011 Gradko laboratory has demonstrated good performance with regard to WASP performance criteria.

Appendix B: Monthly NO₂ Diffusion Tube Results 2011

Site Reference	Jan	Feb	March	April	May	June	July	August	Sept	Oct	Nov	Dec	Annual Mean NO ₂ (adj)	DC %
6Nd	48.41	54.43	/	58.47	40.81	49.39	53.13	55.33	51.81	Lamp post removed	/	/	50.11	67%
6Ndd	65.30	55.64	/	54.36	49.22	50.64	54.13	52.34	55.16	Lamp post removed	/	/	53.15	67%
6N	55.89	49.33	/	54.42	42.10	52.85	48.55	53.79	58.17	Lamp post removed	/	/	50.51	67%
CC01*/1N	62.10	51.49	/	54.32	48.60	49.06	51.95	/	/	/	/	/	48.83	50%
CC03/3N*	34.99	24.53	31.67	23.60	12.57	16.11	17.75	18.39	18.67	14.88	30.82	21.57	19.70	100%
HR1	72.52	58.50	66.77	67.93	/	67.00	56.20	61.53	0.00	/	65.89	55.64	50.91	83%
BH1	61.19	45.60	/	53.11	24.62	47.40	50.18	48.23	46.84	31.05	22.65	52.53	39.11	92%
BH2a	70.82	43.98	67.08	62.42	49.82	51.45	58.63	58.38	48.85	29.75	55.09	59.88	48.67	100%
BH4	73.27	52.83	69.88	66.85	48.57	55.54	58.23	54.35	53.71	27.88	62.75	56.88	50.49	100%
BH6i	73.35	57.73	70.00	69.40	49.00	60.03	59.43	55.02	50.31	49.52	57.46	58.67	52.65	100%
BH6ii	64.51	56.66	62.87	67.83	51.39	55.86	57.09	54.14	51.23	39.63	56.38	55.91	49.95	100%
BH6iii	77.20	50.76	78.25	100.43	46.15	56.08	62.06	54.94	/	16.85	54.52	51.70	52.50	92%
BH9	60.08	35.47	51.39	50.82	35.61	40.53	46.62	43.01	/	/	/	/	43.02	67%
BH10	63.30	46.55	60.80	58.73	41.59	48.77	49.18	51.16	49.39	42.80	53.09	44.15	45.21	100%
BH11	67.29	45.64	66.29	60.14	43.56	46.58	47.33	48.99	52.97	27.17	60.08	45.75	45.38	100%
BH12	64.83	50.58	57.51	58.20	39.32	43.63	49.04	48.91	47.69	44.46	58.00	45.90	45.10	100%

Coventry City Council - England

Site Reference	Jan	Feb	March	April	May	June	July	August	Sept	Oct	Nov	Dec	Annual Mean NO2 (adj)	DC %
BH13	/	/	/	/	/	/	/	41.13	51.15	43.12	42.87	38.90	37.28	42%
BGH1	55.34	44.62	53.69	50.63	38.42	44.10	53.01	44.97	34.73	37.09	47.58	29.42	39.58	100%
BUR4i	57.01	40.19	61.74	47.44	35.84	37.55	46.08	37.26	0.00	28.14	47.03	38.86	35.39	100%
BUR4ii	56.79	43.45	51.10	49.81	32.20	33.15	40.84	39.07	36.25	27.99	49.51	40.22	37.11	100%
BUR4iii	53.90	42.50	53.54	49.20	36.49	36.67	44.83	36.55	40.42	27.69	52.27	37.22	37.92	100%
BUR6	54.88	45.22	62.23	/	41.09	45.74	45.98	47.19	49.55	34.56	52.08	25.93	40.82	92%
HS1	57.79	51.89	/	/	40.87	38.73	47.72	45.21	40.91	33.46	/	47.69	39.98	75%
HS2	44.44	38.81	48.39	/	25.99	25.92	30.11	30.18	25.91	27.40	41.57	25.54	29.47	92%
TS1	68.28	58.10	67.40	66.17	48.48	53.38	57.04	51.28	58.37	55.58	62.28	44.88	51.27	100%
TS2	66.25	46.51	64.82	65.01	51.25	52.33	50.13	51.17	73.81	64.61	46.93	34.75	49.51	100%
CL1	48.88	37.51	45.81	79.17	25.99	35.19	40.28	35.21	49.17	32.16	33.00	27.16	36.31	100%
FS1	86.52	/	90.28	83.40	62.52	70.72	79.73	74.96	100.75	55.71	79.24	59.87	68.26	92%
CR4	58.39	46.76	47.82	47.45	30.92	38.11	45.65	41.48	40.05	47.07	56.77	48.38	40.71	100%
CR4a	59.88	46.48	46.00	47.57	35.15	37.95	39.75	40.21	38.79	39.53	57.36	41.52	39.32	100%
CR4b	54.67	47.39	53.34	47.77	32.97	36.68	43.16	41.97	39.93	50.38	55.03	44.79	40.65	100%
High1	/	/	/	/	/	61.77	64.05	58.88	52.51	/	50.89	37.22	51.97	50%
ES1	/	/	/	/	/	32.21	23.65	31.22	27.48	38.20	48.23	35.21	32.34	58%
LPS1	/	/	/	/	/	54.42	55.55	52.57	49.21	35.34	53.16	38.01	46.32	58%
BUR7	/	/	/	/	/	/	47.90	46.13	58.80	/	58.51	48.78	49.86	42%
CS1	/	/	/	/	/	37.70	54.24	40.48	0.00	43.56	57.40	31.41	36.26	58%
CS2	/	/	/	/	/	47.30	61.04	64.20	68.98	32.42	55.15	43.96	51.08	58%
LON4	69.00	46.57	60.27	59.30	53.02	65.57	66.09	61.95	56.89	49.39	56.30	48.43	51.38	100%

Coventry City Council- England

Site Reference	Jan	Feb	March	April	May	June	July	August	Sept	Oct	Nov	Dec	Annual Mean NO2 (adj)	DC %
LON5	66.03	52.80	61.43	60.14	58.64	63.83	64.42	64.57	57.34	56.78	41.17	51.66	51.83	100%
LON6	57.81	39.51	59.94	63.20	58.85	56.89	59.72	61.79	57.28	60.53	60.77	49.55	50.87	100%
LON7i	71.11	47.70	/	72.40	45.82	53.04	46.43	52.43	44.76	42.40	50.42	46.04	46.33	92%
LON7ii	53.26	32.78	45.40	46.84	37.16	43.59	42.81	42.94	36.78	37.81	44.22	32.39	36.79	100%
LON8a	49.25	34.40	33.61	41.89	36.89	43.37	42.37	/	/	39.45	32.98	38.00	34.91	83%
LON12	61.13	42.79	57.30	48.24	43.04	/	53.32	49.51	45.51	51.16	52.69	39.25	44.01	92%
LON13	48.24	36.53	39.65	37.99	32.03	35.51	37.17	35.61	37.52	42.10	41.81	25.72	33.36	100%
STL1	59.15	46.59	60.84	/	61.71	74.78	62.47	66.03	84.70	73.50	68.04	55.06	57.68	92%
STL2	65.95	63.85	60.51	55.51	63.38	70.66	52.34	64.41	78.10	86.00	62.54	47.53	57.17	100%
STL3	62.27	64.99	56.28	60.52	63.79	71.28	58.94	62.61	72.90	89.85	71.22	42.55	57.64	100%
SE1	50.26	45.41	39.99	50.53	37.99	31.06	25.28	39.91	43.53	57.94	58.97	38.91	38.55	100%
SE1d	58.05	46.43	52.30	48.43	35.18	33.71	41.49	42.92	41.57	59.39	60.61	33.98	41.09	100%
SE1dd	54.97	51.41	54.53	49.70	35.54	42.56	41.18	42.20	43.35	59.39	56.84	36.53	42.14	100%
SE3	57.82	42.04	43.81	60.22	36.31	36.80	37.40	37.86	37.54	52.90	49.33	30.17	38.73	100%
QAV01	65.77	60.83	72.30	57.24	45.75	51.34	56.67	51.59	55.72	61.55	49.92	41.91	49.73	100%
QAV01d	68.32	56.89	70.59	64.22	37.04	55.61	53.46	52.76	52.38	66.31	64.53	44.10	50.89	100%
QAV01dd	63.75	58.04	77.72	61.31	44.88	51.05	58.16	54.39	50.36	62.75	71.34	46.49	51.93	100%
QAV6	48.41	36.58	38.97	/	27.35	20.84	32.59	33.82	33.85	43.93	45.36	30.80	31.76	92%
QAV7	46.71	31.12	53.70	40.58	28.87	26.20	31.93	33.12	33.56	47.92	49.02	32.22	33.74	100%
QAV8	47.45	41.58	45.72	38.28	27.93	30.41	25.05	33.57	33.38	47.11	49.53	31.60	33.49	100%
QAV12	57.06	40.06	48.47	45.23	33.49	35.63	39.74	36.50	39.73	53.70	51.94	34.28	38.26	100%
QAV13	52.91	47.84	59.99	50.65	36.96	44.88	37.14	43.85	46.56	54.78	52.67	36.95	41.92	100%

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Site Reference	Jan	Feb	March	April	May	June	July	August	Sept	Oct	Nov	Dec	Annual Mean NO2 (adj)	DC %
R1	50.00	39.50	37.63	42.35	27.11	/	30.92	32.40	31.68	30.07	42.11	37.77	32.49	92%
R2	56.99	32.24	48.05	41.10	/	17.60	36.32	31.38	33.12	28.84	38.02	31.19	31.95	92%
R3	54.03	41.08	45.21	41.47	27.68	48.82	33.38	31.75	30.83	31.91	35.90	33.22	33.76	100%
R4	/	29.48	49.60	44.67	32.94	36.99	44.93	40.11	50.05	37.68	46.84	32.11	36.04	92%
R5	63.12	45.76	/	62.66	43.23	17.97	60.48	49.58	41.65	67.41	50.97	34.04	43.44	92%
R6	71.79	50.34	65.84	68.23	50.35	51.82	65.99	63.60	54.08	64.75	57.74	62.28	53.91	100%
R6a	69.70	54.37	67.17	68.38	56.38	57.70	67.05	62.41	52.10	65.85	60.63	68.53	55.64	100%
R6b	68.87	56.23	72.16	70.22	55.61	62.90	65.83	62.04	51.55	69.92	59.60	69.96	56.73	100%
R8	57.22	42.05	53.25	51.06	35.73	39.69	44.72	/	/	39.63	43.69	40.26	39.81	83%
R9	59.99	48.05	/	56.11	/	47.41	/	45.34	56.86	54.32	56.50	51.07	47.03	75%
LR1	36.09	46.16	61.76	53.73	37.93	42.97	45.54	44.69	53.26	45.95	51.78	48.91	42.18	100%
LR2	63.40	47.08	62.68	66.66	37.30	31.36	48.12	42.11	62.63	48.87	53.90	40.58	44.85	100%
LR3	54.55	37.36	45.85	52.17	37.75	46.28	/	46.40	65.43	39.18	48.85	39.85	41.56	92%
LP1	42.96	28.02	34.07	30.47	15.11	/	25.94	25.01	0.00	/	36.18	25.92	23.47	83%
BR1	51.67	44.25	54.74	47.31	/	37.82	43.34	37.56	50.78	38.53	48.58	34.42	39.56	92%
HL1	57.69	38.91	56.55	45.89	35.18	42.05	48.30	42.09	41.10	42.93	52.12	43.65	40.53	100%
BRN2	48.07	43.05	51.64	45.53	34.83	33.10	42.49	39.82	47.86	46.37	49.25	41.61	38.84	100%
BRN2a	50.43	38.77	57.16	48.38	36.03	41.08	41.04	40.10	56.86	47.99	51.30	42.52	40.92	100%
BRN2b	53.22	36.65	50.07	37.42	37.63	41.41	41.61	40.62	54.37	47.05	41.13	47.65	39.22	100%
BA1	63.37	/	55.77	52.79	41.98	39.46	52.66	/	/	50.65	37.36	/	43.84	67%
BA1d	66.39	/	49.41	46.39	/	52.15	53.54	/	/	44.63	/	/	46.35	50%
BA1dd	57.96	/	65.81	56.10	/	47.28	/	/	/	53.26	/	/	49.91	42%

Coventry City Council- England

Site Reference	Jan	Feb	March	April	May	June	July	August	Sept	Oct	Nov	Dec	Annual Mean NO2 (adj)	DC %
SS1	58.19	40.16	44.13	37.01	33.90	36.52	/	/	/	34.22	52.56	42.99	37.55	75%
SS2	61.73	/	45.53	41.60	/	35.64	49.70	46.94	0.00	/	58.92	39.51	37.53	75%
SS3	56.65	33.72	43.85	46.55	28.02	37.45	43.33	39.61	58.71	38.91	49.92	44.86	38.68	100%
SS5	57.64	45.46	52.98	46.30	43.74	49.03	/	/	/	44.97	53.69	37.64	42.67	75%
AUN1	32.84	/	27.13	20.87	11.16	12.73	14.03	15.98	18.34	17.81	23.10	16.86	17.06	92%
AUN2	30.47	19.27	27.94	20.16	11.31	/	16.93	15.87	14.19	18.37	27.31	16.51	17.67	92%
AUN3	31.95	/	/	21.14	11.51	10.60	18.23	15.98	13.58	/	24.97	20.98	16.71	75%
EH1	53.86	41.22	44.43	45.17	30.75	32.37	41.02	37.23	40.34	31.20	34.87	41.99	35.19	100%
EH2	52.28	37.28	45.97	41.82	28.85	33.05	36.96	35.35	43.84	30.25	/	42.98	34.68	92%
EH3	49.09	29.71	41.10	36.99	25.69	27.20	31.31	27.34	32.73	24.09	27.35	/	28.53	92%
EH4	46.21	31.49	46.11	50.57	23.31	26.42	31.59	31.01	38.05	26.55	34.28	31.31	30.92	100%
BELL1	52.32	51.36	52.22	46.22	36.29	37.71	41.00	40.58	42.71	49.63	46.61	42.38	39.98	100%
BELL2	49.85	46.42	51.93	45.74	37.59	38.30	42.31	40.19	52.22	43.48	40.44	39.85	39.18	100%
WL1	62.33	36.60	56.28	53.52	27.89	29.88	49.96	30.27	0.00	/	39.39	/	34.37	83%
CH1	43.11	37.46	43.49	33.93	21.56	25.26	28.73	25.65	37.08	33.77	32.93	45.38	30.29	100%
FGS1	61.02	40.58	49.74	55.32	40.36	44.50	43.72	44.95	46.29	44.83	40.31	/	41.39	92%
FGS2	55.82	34.81	51.46	78.72	30.30	36.82	41.03	38.56	34.23	31.96	36.30	41.95	37.97	100%
FGS3	59.24	41.79	49.09	43.48	38.21	39.99	45.16	42.02	38.02	34.43	45.64	37.71	38.18	100%
GR1	51.32	41.99	46.72	44.19	34.23	35.85	43.77	39.85	47.12	32.02	40.06	45.13	37.25	100%
AGR1	/	/	35.72	61.39	/	36.07	31.92	43.88	43.78	49.00	35.59	70.33	40.31	75%
AGR2	/	/	38.23	40.79	37.68	36.91	37.50	43.22	43.47	40.17	30.78	86.09	38.70	83%