2010 Air Quality Progress Report for Coventry City Council

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

1st December 2010

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Executive Summary

This latest Local Air Quality Management Progress Report provides information on the review and assessment of air quality in the borough. This review includes monitoring data collected during 2009 for the pollutants of nitrogen dioxide (NO_2) and fine particles (PM_{10}).

The air quality in Coventry continues to meet National Air Quality Strategy Objectives with the exception of nitrogen dioxide. Prior to 1st November 2009 Coventry had declared three Air Quality Management Areas for nitrogen dioxide. A number of ongoing exceedances of the annual mean objective were recorded outside these AQMAs. Local authorities have a duty under part IV Environment 1995 Act to designate those areas where the air quality objectives are unlikely to be, or are not being met, as air quality management areas. Consequently, a city wide Air Quality Management Area for nitrogen dioxide was declared, effective from 1st November 2009. Subsequent to this, a further assessment must be completed, together with an air quality action plan.

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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 7 Part A1 installations within the city. The local authority regulates one Part A2 premises, a brickworks, and 87 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 Progress Report

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

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

1.3 Air Quality Objectives

The air quality objectives applicable to Local Air Quality Management (LAQM) **in England** are set out in the Air Quality (England) Regulations 2000 (SI 928), and the Air Quality (England) (Amendment) Regulations 2002 (SI 3043). They are shown in Table 1. This table shows the objectives in units of microgrammes per cubic metre $\mu g/m^3$ (for carbon monoxide the units used are milligrammes per cubic metre, mg/m^3). Table 1 includes the number of permitted exceedences in any given year (where applicable).

Table 1 Air Quality Objectives included in Regulations for the purpose of Local Air Quality Management in England.

Pollutant	Concentration	Measured as	Date to be achieved by
Benzene	16.25 $\mu g/m^3$	Running annual mean	31.12.2003
	5.00 $\mu g/m^3$	Running annual mean	31.12.2010
1,3-Butadiene	2.25 $\mu g/m^3$	Running annual mean	31.12.2003
Carbon monoxide	10.0 mg/m^3	Running 8-hour mean	31.12.2003
Lead	0.5 $\mu g/m^3$	Annual mean	31.12.2004
	0.25 $\mu g/m^3$	Annual mean	31.12.2008
Nitrogen dioxide	200 $\mu g/m^3$ not to be exceeded more than 18 times a year	1-hour mean	31.12.2005
	40 $\mu g/m^3$	Annual mean	31.12.2005
Particles (PM_{10}) (gravimetric)	50 $\mu g/m^3$, not to be exceeded more than 35 times a year	24-hour mean	31.12.2004
	40 $\mu g/m^3$	Annual mean	31.12.2004
Sulphur dioxide	350 $\mu g/m^3$, not to be exceeded more than 24 times a year	1-hour mean	31.12.2004
	125 $\mu g/m^3$, not to be exceeded more than 3 times a year	24-hour mean	31.12.2004
	266 $\mu g/m^3$, 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 the fourth round of the Review and Assessment programme of air quality. Coventry City Council has completed the previous rounds of Review and Assessment of air quality, details of which 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 NO_2 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 will 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 NO_2. 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.

A **Progress Report** was produced in **2008**, which indicated exceedances of the NO_2 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 NO_2 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 Air Quality Management Area 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.

Timescales for the submission of documents required under Local Air Quality Management (LAQM) are given in Box 1.3 of LAQM.TG (09). The documents published by Coventry City Council as part of its obligations under LAQM, are summarized in Table 2 below:

Table 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.

Coventry City Council - England

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 NO2 objectives. Including Spon End/ Hearsall avenue as was indicated by detailed assessment of 2007 but not 2008 Progress Report.

2 New Monitoring Data

2.1 Summary of Monitoring Undertaken

2.1.1 Automatic Monitoring Sites

There are currently four automatic monitoring sites in Coventry at the locations shown in Figure 1. The stations monitor several pollutants including nitric oxide, nitrogen dioxide, total oxides of nitrogen ($NO/NO_2/NO_x$) and fine particulates (PM_{10}).

- Queensland Avenue, monitoring $NO/NO_2/NO_x$ and PM_{10}
- Foleshill Road, monitoring $NO/NO_2/NO_x$ and PM_{10}
- Ball Hill, monitoring $NO/NO_2/NO_x$
- Tollbar End, monitoring $NO/NO_2/NO_x$ and PM_{10}

Figure 1 Map of Automatic Monitoring Sites

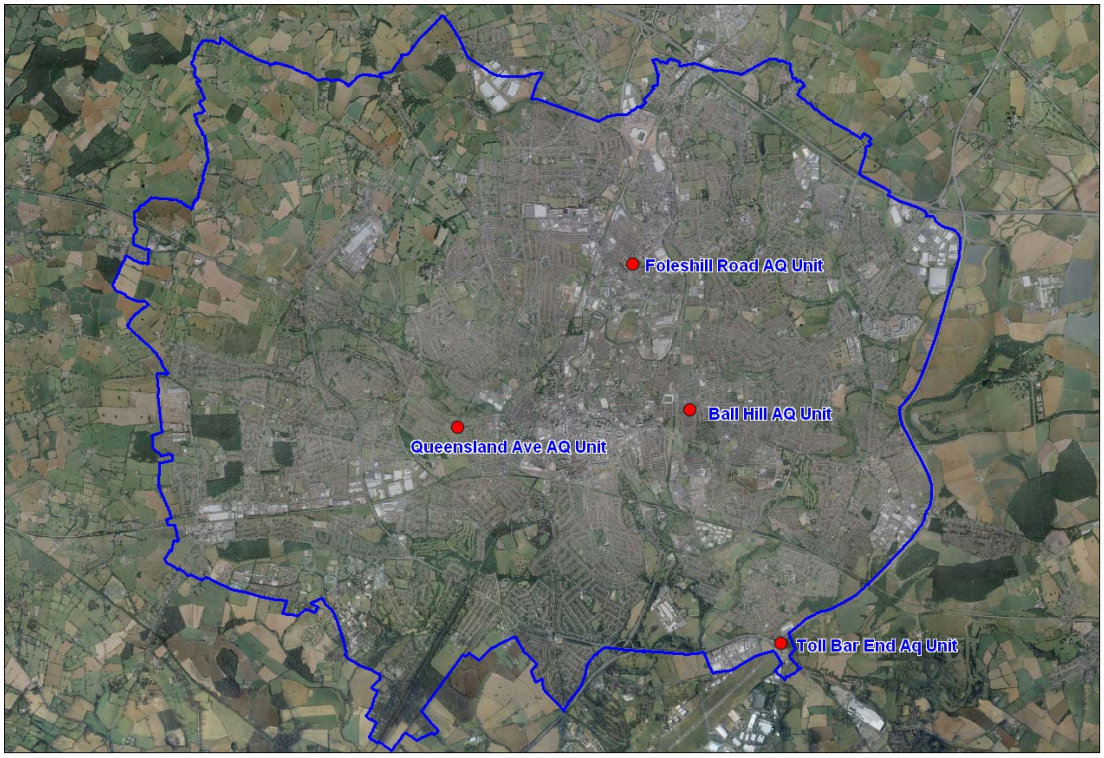

Table 3 Details of Automatic Monitoring Sites

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?
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		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

2.1.2 Non-Automatic Monitoring

Coventry City Council undertook diffusion tube monitoring at 86 sites around the city in 2009; the details of which are given in table 4.

Figure 2 Map of Non-Automatic Monitoring Sites

Table 4 Details of Non- Automatic Monitoring Sites

Site address	Site Code	Site Type	OS Grid Ref	Pollutant monitored	In AQMA ?	Relevant Exposure ? *(Y/N with distance (m) to relevant exposure)*	Distance to kerb of nearest road *(N/A if not applicable)*	Worst-case Location?
Holyhead Rd	6Nd	R	X 431990 Y 279644	NO2	Y	Y(7.2m)	3.4	Y
Holyhead Rd	6N*	R	X 431990 Y 279644	NO2	Y	Y(7.2m)	3.4	Y
Holyhead Rd	CCO1*/1N	R	X 432105 Y 279578	NO2	Y	Y(7.2m)	3.1	Y
Holyhead Rd	CCO3/3N*	UB	X 432299 Y 279898	NO2	Y	Y(5.8m)	59	Y
Holyhead Rd	CCO4/5N*	UB	X 431683 Y 281446	NO2	Y	Y(6.9m)	1.2	Y
Ball Hill	BH1	R	X 434966 Y 279204	NO2	Y	Y(5.2m)	2.6	Y
Ball Hill	BH2a	R	X 435125 Y 279284	NO2	Y	Y(0m)	3.9	Y
Ball Hill	BH4	R	X 435331 Y 279358	NO2	Y	Y(3.5m)	1.3	Y
Ball Hill	BH6i	R	X 435181 Y 279294	NO2	Y	Y(1m)	4.5	Y
Ball Hill	BH6ii	R	X 435181 Y 279294	NO2	Y	Y(1m)	4.5	Y
Ball Hill	BH8	R	X 435490 Y 279392	NO2	Y	Y(0m)	5.5	Y
Ball Hill	BH9	R	X 435645 Y 279371	NO2	Y	Y(2m)	0	Y
Ball Hill	BH10	R	X 435189 Y 279281	NO2	Y	Y(2m)	0	Y
Ball Hill	BH11	R	X 435189 Y 279281	NO2	Y	Y(2m)	0	Y
Ball Hill	BH12	R	X 435189 Y 279281	NO2	Y	Y(2m)	0	Y
City Centre	BGH1	UC	X 433370 Y 278990	NO2	Y	Y(0m)	1.8	Y
City Centre	BUR 2i	UC	X 433398 Y 279168	NO2	Y	Y(7.7m)	0.5	Y
City Centre	BUR 4i	UC	X 433387 Y 279199	NO2	Y	Y(2m)	0	Y
City Centre	BUR 4ii	UC	X 433387 Y 279199	NO2	Y	Y(2m)	0	Y
City Centre	BUR 4iii	UC	X 433387 Y 279199	NO2	Y	Y(2m)	0	Y
City Centre	BUR 6	UC	X 433373 Y 279257	NO2	Y	Y(1.8m)	1	Y
City Centre	HS1	UC	X 433468 Y 279266	NO2	Y	Y(24.6m)	0.9	Y
City Centre	HS2	UC	X 433416 Y 279235	NO2	Y	Y(2m)	3.2	Y

Site address	Site Code	Site Type	OS Grid Ref	Pollutant monitored	In AQMA ?	Relevant Exposure ? *(Y/N with distance (m) to relevant exposure)*	Distance to kerb of nearest road *(N/A if not applicable)*	Worst-case Location?
City Centre	TS2	UC	X 433465 Y 279154	NO2	Y	Y(3.7m)	4.4	Y
City Centre	CL1	UC	X 433471 Y 279043	NO2	Y	Y(0m)	21	Y
City Centre	FS1	UC	X 433567 Y 279235	NO2	Y	Y(4.9m)	1	Y
City Centre	CP1	UC	X 433522 Y 279339	NO2	Y	Y(0m)	8.1	Y
City Centre	CR1	UC	X 432998 Y 278820	NO2	Y	Y(1.6m)	4.3	Y
City Centre	CR2	UC	X 432929 Y 278828	NO2	Y	N/A	1	Y
City Centre	CR3	UC	X 432959 Y 278812	NO2	Y	Y(0m)	6.2	Y
City Centre	CR4	UC	X 433052 Y 278897	NO2	Y	Y(0m)	2.3	Y
City Centre	CR4a	UC	X 433052 Y 278897	NO2	Y	Y(0m)	2.3	Y
City Centre	GR1	UC	X 433087 Y 278702	NO2	Y	Y(0m)	N/A	Y
City Centre	GR2	R	X 433025 Y 278 084	NO2	Y	Y(0m)	N/A	Y
Tollbar End	LON 4	R	X 436520 Y 275705	NO2	Y	Y(26.3m)	5.9	Y
Tollbar End	LON 5	R	X 436520 7 275705	NO2	Y	Y(26.3m)	5.9	Y
Tollbar End	LON 6	R	X 436520 Y 275705	NO2	Y	Y(26.3m)	5.9	Y
Tollbar End	LON 7i	R	X 436540 Y 275725	NO2	Y	Y(0m)	19.4	Y
Tollbar End	LON 7ii	R	X 436543 Y 275718	NO2	Y	Y(0m)	18.3	Y
Tollbar End	LON 8a	R	X 436551 Y 275703	NO2	Y	Y(0m)	17.9	Y
Tollbar End	LON12	R	X 431703 Y 278680	NO2	Y	Y(0m)	3	Y
Tollbar End	SD1	R	X 436559 Y 275419	NO2	Y	Y(3m)	2	Y
Tollbar End	STL 1	R	X 436203 Y 275841	NO2	Y	Y(17.1m)	0.5	Y
Tollbar End	STL 2	R	X 436203 Y 275841	NO2	Y	Y(17.1m)	0.5	Y
Spon End	SE1	R	X 432091 Y 279042	NO2	Y	Y(0m)	3.4	Y
Spon End	SE1d	R	X 432091 Y 279042	NO2	Y	Y(0m)	3.4	Y
Spon End	SE3	R	X 432305 Y 279027	NO2	Y	Y(0m)	3.5	Y
Queensland Ave	QAV 01	R	X 431590 Y 278988	NO2	Y	Y(0m)	5.3	Y
Queensland	QAV01d	R	X 431590	NO2	Y	Y(0m)	5.3	Y

Ave			Y 278988					
Site address	**Site Code**	**Site Type**	**OS Grid Ref**	**Pollutant monitored**	**In AQMA ?**	**Relevant Exposure ?** *(Y/N with distance (m) to relevant exposure)*	**Distance to kerb of nearest road** *(N/A if not applicable)*	**Worst-case Location?**
Queensland Ave	QAV 6	R	X 431573 Y 279020	NO2	Y	Y(0m)	5	Y
Queensland Ave	QAV 7	R	X 431573 Y 279020	NO2	Y	Y(10.8m)	5	Y
Queensland Ave	QAV 8	R	X 431573 Y 279020	NO2	Y	Y(10.8m)	5	Y
Queensland Ave	QAV 9	R	X 431601 Y 278934	NO2	Y	Y(0m)	5.3	Y
Queensland Ave	QAV 12	R	X 431703 Y 278680	NO2	Y	Y(0.7m)	4.3	Y
Queensland Ave	QAV 13	R	X 431761 Y 278656	NO2	Y	Y(0m)	4	Y
Foleshill Road	R1	R	X 434250 Y 281513	NO2	Y	Y(13.2m)	4	Y
Foleshill Road	R2	R	X 434250 Y 281513	NO2	Y	Y(13.2m)	4	Y
Foleshill Road	R3	R	X 434250 Y 281513	NO2	Y	Y(13.2m)	4	Y
Foleshill Road	R4	R	X 434233 Y 281526	NO2	Y	Y(0m)	4	Y
Foleshill Road	R5	R	X 433716 Y 280503	NO2	Y	Y(0m)	3.7	Y
Foleshill Road	R6	R	X 433617 Y 280276	NO2	Y	Y(0m)	4.9	Y
Foleshill Road	R6a	R	X 433617 Y 280276	NO2	Y	Y(0m)	4.9	Y
Foleshill Road	R8	R	X 433992 Y 281008	NO2	Y	Y(0m)	4.3	Y
Foleshill Road	R9	R	X 434061 Y 281100	NO2	Y	Y(4.5m)	0.5	Y
Foleshill Road	R10	R	X 434511 Y 282192	NO2	Y	Y(0m)	3	Y
Foleshill Road	LR1	R	X 434880 Y 383077	NO2	Y	Y(0m)	5.6	Y
Foleshill Road	LR2	R	X 434837 Y 283030	NO2	Y	Y(0m)	4.2	Y
Foleshill Road	LR3	R	X 435016 Y 283526	NO2	Y	Y(0m)	8	Y
Foleshill Road	BR 1	R	X 435094 Y 284155	NO2	Y	Y(0m)	2.5	Y
Burnaby Rd	HL1	R	X 433689 Y 281988	NO2	Y	Y(0m)	3.5	Y
Burnaby Rd	BRN2	R	X 433605 Y 281965	NO2	Y	Y(0m)	5.5	Y
Burnaby Rd	BRN2a	R	X 433605 Y 281965	NO2	Y	Y(0m)	5.5	Y
Burnaby Rd	BRN3	R	X 433036 Y 281981	NO2	Y	Y(0m)	8.3	Y
Burnaby Rd	BRN4	R	X 433034 Y 282007	NO2	Y	Y(0m)	8.3	Y
Beake Ave	BA1	R	X 432531	NO2	Y	Y(7.5m)	2.2	Y

			Y 280769					
Site address	**Site Code**	**Site Type**	**OS Grid Ref**	**Pollutant monitored**	**In AQMA ?**	**Relevant Exposure ?** *(Y/N with distance (m) to relevant exposure)*	**Distance to kerb of nearest road** *(N/A if not applicable)*	**Worst-case Location?**
Beake Ave	BA1d	R	X 432531 Y 280769	NO2	Y	Y(7.5m)	2.2	Y
Stoney Stanton Rd	SS1	R	X 434064 Y 280083	NO2	Y	Y(0m)	3.1	Y
Stoney Stanton Rd	SS2	R	X 433994 Y 279969	NO2	Y	Y(0m)	4.5	Y
Stoney Stanton Rd	SS3	R	X 434842 Y 281272	NO2	Y	Y(0m)	3	Y
Stoney Stanton Rd	SS4	R	X 434593 Y 281057	NO2	Y	Y(0m)	3	Y
Stoney Stanton Rd	SS5	R	X 433847 Y 279814	NO2	Y	Y(0m)	3	Y
Stoney Stanton Rd	BG 1	R	X 435156 Y 281567	NO2	Y	Y(0m)	3.5	Y

R = Roadside
UB = Urban Background
S = Suburban
UC = Urban Centre

2.2 Comparison of Monitoring Results with Air Quality Objectives

2.3 Nitrogen Dioxide

Automatic Monitoring Data

Coventry City Council undertook continuous monitoring of nitrogen dioxide at four separate locations during 2009: Queensland Avenue, Ball Hill, Foleshill Road and Tollbar End. All locations are representative of public exposure. The results of the 2007, 2008 and 2009 monitoring data are condensed into Table 5 below and have been ratified using the procedures given in Appendix 1 of LAQM.TG(09) Any exceedances of the annual mean objective of 40µg/m^3 are highlighted in bold.

Table 5 Results of Automatic Monitoring for Nitrogen Dioxide: Comparison with Annual Mean Objective

Site ID	Location	Within AQMA?	Data Capture for monitoring period %	Data Capture for full calendar year 2009 %	Annual mean concentrations (µg/m^3)		
					2007	2008	2009
QU	Queensland Avenue	Y	n/a	86	29.4	26.5	28.7
FO	Foleshill Road	Y	n/a	87	34.4	32.1	34.9
BH	Ball Hill	Y	n/a	90	**48.1**[1]	**42.2**[2]	**42.3**
TB	Tollbar End	Y	n/a	77	N/A	**87.8**[3]	**63.5**

Foot Note
1. Data capture 87%
2. Data capture 80%
3. Data capture 11%

The results confirmed good data capture rates of over 90% at Ball Hill**.** Data capture rates are under 90% at Foleshill Road, Queensland Avenue and Tollbar End. This has been caused by various technical issues that have affected the monitoring stations, such as power failures, server and modem issues. The annual mean concentrations from the Tollbar station are not available for 2007.

An exceedance of the 40µg/m^3 annual mean NO_2 objective was recorded at Ball Hill and Tollbar End, but there was less than 90% data capture at Tollbar, so the data may be unreliable. Ball Hill also recorded an exceedance of the annual mean NO_2 objective in 2007 and 2008.

Table 6 Results of Automatic Monitoring for Nitrogen Dioxide: Comparison with 1-hour Mean Objective

Site ID	Location	Within AQMA?	Data Capture for monitoring period %	Data Capture for full calendar year 2009 %	Number of Exceedences of hourly mean (200 μg/m^3)		
					2007	2008	2009
QU	Queensland Avenue	Y	n/a	86	5	1	0 (54.7)
FO	Foleshill Road	Y	n/a	87	8	0	7 (173)
BH	Ball Hill	Y	n/a	90	33	0(144)	0
TB	Tollbar End	Y	n/a	77	0	1(162)	4 (169)

At Queensland Avenue, Foleshill Road and Tollbar End, data capture was less than 90% and the 99.8th percentile has been calculated as shown in brackets in Table 6 above. The 99.8th percentile of 1-hour NO_2 concentrations does not exceed 200μg/m3 at any of these locations though nor at Ball Hill and so this air quality objective has not been breached.

The air quality objective for the hourly mean of NO_2 was breached in 2007 at Ball Hill with 33 exceedances, far exceeding the UK target of 18. This was due to road works taking place next to the air quality station and is believed to be exceptionally high, and unlikely to recur.

Diffusion Tube Monitoring Data

The results of Coventry City Council's diffusion tube monitoring are summarised in Table 7 below. For 2009 the results have been bias adjusted using the national bias adjustment factor of 0.90 calculated using spreadsheet versions 09/09 as explained in Appendix 1. Any exceedances of the annual mean objective of 40μg/m^3 have been highlighted in bold. The full set of bias adjusted monthly results is given in Appendix 2.

Any sites with a data capture of <75% (9 out of 12 months) have been omitted from this table. Any sites with data capture of <90% (11 out of 12 months) are shown in italics.

Table 7 Results of Nitrogen Dioxide Diffusion Tubes

Site ID	Site Address	In AQMA?	Data Capture	Relevant Exposure? (Y/N with distance (m) to relevant exposure)	Bias Adjusted Annual Mean 2009 (µg/m3)	Bias Adjusted Distance Corrected to Façade Annual Mean 2009 (µg/m3) (where applicable)
6Nd	Holyhead Road	Y	100%	Y(7.2m)	39.71	33.56
6N*	Holyhead Road	Y	75%	Y(7.2m)	***42.23***	35.31
CCO1*/1N	Holyhead Road	Y	83%	Y(7.2m)	***42.18***	36.34
CCO3/3N	Moseley Avenue	Y	75%	Y(5.8m)	*18.14*	18.71
CCO4/5N	Brackley Close	Y	100%	Y(6.9m)	21.59	19.49
BH1	Ball Hill	Y	92%	Y(5.2m)	36.32	33.43
BH2a	Ball Hill	Y	83%	Y(0m)	***44.34***	**44.34**
BH4	Ball Hill	Y	100%	Y(3.5m)	**46.95**	**40.10**
BH6i	Ball Hill	Y	92%	Y(1m)	**42.35**	**41.19**
BH6ii	Ball Hill	Y	83%	Y(1m)	***44.61***	**43.31**
BH8	Ball Hill	Y	8%	Y(0m)	**/**	**/**
BH9	Ball Hill	Y	83%	Y(2m)	*37.32*	31.02
BH10	Ball Hill AQMS	Y	92%	Y(2m)	**40.54**	32.89
BH11	Ball Hill AQMS	Y	83%	Y(2m)	*38.70*	31.82
BH12	Ball Hill AQMS	Y	92%	Y(2m)	39.97	32.56
BGH1	City Centre	Y	83%	Y(0m)	*33.16*	33.16
BUR 2i	City Centre	Y	67%	Y(7.7m)	**/**	**/**
BUR 4i	City Centre	Y	100%	Y(2m)	28.58	28.98
BUR 4ii	City Centre	Y	92%	Y(2m)	31.42	30.69
BUR 4iii	City Centre	Y	67%	Y(2m)	**/**	**/**
BUR 6	City Centre	Y	92%	Y(1.8m)	36.00	33.44
HS1	City Centre	Y	92%	Y(24.6m)	**53.95**	37.93
HS2	City Centre	Y	92%	Y(2m)	32.59	32.22
TS1	City Centre	Y	100%	Y(3m)	**47.51**	**44.57**
TS2	City Centre	Y	92%	Y(3.7m)	**47.41**	**44.30**
CL1	City Centre	Y	83%	Y(0m)	*31.79*	31.79
FS1	City Centre	Y	92%	Y(4.9m)	**56.72**	**47.04**
CP1	City Centre	Y	8%	Y(0m)	**/**	**/**
CR1	City Centre	Y	42%	Y(1.6m)	**/**	**/**
CR2	City Centre	Y	42%	N/A	**/**	**/**
CR3	City Centre	Y	17%	Y(0m)	**/**	**/**
CR4	City Centre	Y	100%	Y(0m)	39.87	39.87
CR4a	City Centre	Y	100%	Y(0m)	39.18	39.18
GR1	City Centre	Y	8%	Y(0m)	**/**	**/**
GR2	City Centre	Y	8%	Y(0m)	**/**	**/**
LON 4	Tollbar End AQMS	Y	100%	Y(26.3m)	**45.76**	32.06
LON 5	Tollbar End AQMS	Y	100%	Y(26.3m)	**47.32**	32.79
LON 6	Tollbar End AQMS	Y	83%	Y(26.3m)	***46.94***	32.61
LON 7i	Tollbar End	Y	100%	Y(0m)	**41.85**	**41.85**
LON 7ii	Tollbar End	Y	67%	Y(0m)	**/**	**/**
LON 8a	Tollbar End	Y	83%	Y(0m)	*34.31*	34.31
LON12	Tollbar End	Y	92%	Y(0m)	39.40	39.40
SD1	Tollbar End	Y	8%	Y(3m)	**/**	**/**
STL 1	Tollbar End	Y	75%	Y(17.1m)	***44.86***	29.22
STL 2	Tollbar End	Y	75%	Y(17.1m)	***50.23***	31.21
SE1	Spon End	Y	58%	Y(0m)	**/**	**/**
SE1d	Spon End	Y	58%	Y(0m)	**/**	**/**
SE3	Spon End	Y	100%	Y(0m)	35.16	35.16
QAV 01	Queensland Avenue	Y	92%	Y(0m)	**42.82**	**42.82**

Site ID	Site Address	In AQMA?	Data Capture	Relevant Exposure? (Y/N with distance (m) to relevant exposure)	Bias Adjusted Annual Mean 2009 (µg/m3)	Bias Adjusted Distance Corrected to Façade Annual Mean 2009 (µg/m3) (where applicable)
QAV01d	Queensland Avenue	Y	100%	Y(0m)	**43.60**	**43.60**
QAV 6	Queensland Avenue AQMS	Y	100%	Y(0m)	31.73	31.73
QAV 7	Queensland Avenue AQMS	Y	92%	Y(10.8m)	34.63	29.44
QAV 8	Queensland Avenue AQMS	Y	100%	Y(10.8m)	32.56	28.08
QAV 9	Queensland Avenue	Y	8%	Y(0m)	**/**	**/**
QAV 12	Queensland Avenue	Y	75%	Y(0.7m)	***43.33***	**42.33**
QAV 13	Queensland Avenue	Y	75%	Y(0m)	*38.84*	38.84
R1	Foleshill Road AQMS	Y	83%	Y(13.2m)	*34.34*	30.36
R2	Foleshill Road AQMS	Y	92%	Y(13.2m)	33.28	29.73
R3	Foleshill Road AQMS	Y	100%	Y(13.2m)	33.61	29.93
R4	Foleshill Road	Y	92%	Y(0m)	32.95	32.95
R5	Foleshill Road	Y	100%	Y(0m)	**43.78**	**43.78**
R6	Foleshill Road	Y	92%	Y(0m)	**48.91**	**48.91**
R6a	Foleshill Road	Y	92%	Y(0m)	**46.30**	**46.30**
R8	Foleshill Road	Y	83%	Y(0m)	***47.69***	**47.69**
R9	Foleshill Road	Y	83%	Y(4.5m)	***48.40***	38.70
R10	Foleshill Road	Y	8%	Y(0m)	**/**	**/**
LR1	Longford Road	Y	58%	Y(0m)	**/**	**/**
LR2	Longford Road	Y	67%	Y(0m)	**/**	**/**
LR3	Longford Road	Y	83%	Y(0m)	*34.72*	34.72
BR 1	Bedworth Road	Y	83%	Y(0m)	*35.62*	35.62
HL1	Holbrooks	Y	83%	Y(0m)	***41.91***	**41.91**
BRN2	Burnaby Road	Y	100%	Y(0m)	37.01	37.01
BRN2a	Burnaby Road	Y	100%	Y(0m)	35.78	35.78
BRN3	Burnaby Road	Y	8%	Y(0m)	**/**	**/**
BRN4	Burnaby Road	Y	8%	Y(0m)	**/**	**/**
BA1	Beake Avenue	Y	83%	Y(7.5m)	***40.66***	33.49
BA1d	Beake Avenue	Y	92%	Y(7.5m)	39.28	32.59
SS1	Stoney Stanton Rd	Y	92%	Y(0m)	34.79	34.79
SS2	Stoney Stanton Road	Y	83%	Y(0m)	*38.46*	38.46
SS3	Stoney Stanton Road	Y	92%	Y(0m)	36.61	36.61
SS4	Stoney Stanton Road	Y	8%	Y(0m)	**/**	**/**
SS5	Stoney Stanton Road	Y	100%	Y(0m)	38.36	38.36
BG 1	Bell Green Road, 47	Y	8%	Y(0m)	**/**	**/**
AUN1	War Memorial Park AURN	Y	83%	N/A	*17.24*	N/A
AUN2	War Memorial Park AURN	Y	83%	N/A	*16.96*	N/A
AUN3	War Memorial Park AURN	Y	83%	N/A	*17.16*	N/A

Table 8 Results of Nitrogen Dioxide Diffusion Tubes

Bias adjusted nitrogen dioxide concentrations recorded in 2007, 2008 and 2009 are shown in Table 8. The national bias adjustment factors are provided as a footnote. The data shows no clear trends in the annual mean concentrations of NO_2. As previously, any exceedances of the annual mean objective are given in bold and any sites with a data capture of less than 90% are shown in italics. Any sites with a data capture of less than 75% have been omitted from this table.

Please note that in Coventry's 2009 Updated and Screening Assessment the incorrect nitrogen dioxide concentrations were reported for the 2008 period, as they were not biased adjusted. For completion, the correct bias adjusted results are shown in table 8 below for 2008.

Site ID	Site Address	In AQMA?	Bias Adjusted Annual Mean 2007 (µg/m3)	Bias Adjusted Annual Mean 2008 (µg/m3)	Bias Adjusted Annual Mean 2009 (µg/m3)
6Nd	Holyhead Road	Y	**43.98**	**46.52**	39.71
6N*	Holyhead Road	Y	**45.18**	**47.11**	***42.23***
CCO1*/1N	Holyhead Road	Y	**42.93**	**44.75**	***42.18***
CCO3/3N	Moseley Avenue	Y	21.98	21.54	*18.14*
CCO4/5N	Brackley Close	Y	24.10	24.85	21.59
BH1	Ball Hill	Y	**42.86**	**42.98**	36.32
BH2a	Ball Hill	Y	***45.46***	**46.69**	***44.34***
BH4	Ball Hill	Y	**48.18**	**50.57**	**46.95**
BH6i	Ball Hill	Y	**49.86**	**50.32**	**42.35**
BH6ii	Ball Hill	Y	**49.40**	***46.43***	***44.61***
BH8	Ball Hill	Y	35.99	34.64	**/**
BH9	Ball Hill	Y	**43.70**	***47.90***	*37.32*
BH10	Ball Hill AQMS	Y	**/**	**45.93**	**40.54**
BH11	Ball Hill AQMS	Y	**/**	**43.78**	*38.70*
BH12	Ball Hill AQMS	Y	**/**	**46.01**	39.97
BGH1	City Centre	Y	**40.32**	38.05	*33.16*
BUR 2i	City Centre	Y	**41.24**	*37.17*	**/**
BUR 4i	City Centre	Y	**42.94**	*35.33*	28.58
BUR 4ii	City Centre	Y	**45.11**	*31.98*	31.42
BUR 4iii	City Centre	Y	**44.47**	**/**	**/**
BUR 6	City Centre	Y	**49.81**	**42.70**	36.00
HS1	City Centre	Y	**50.36**	**55.12**	**53.95**
HS2	City Centre	Y	32.65	32.91	32.59
TS1	City Centre	Y	***53.07***	**51.69**	**47.51**
TS2	City Centre	Y	***51.80***	***51.55***	**47.41**
CL1	City Centre	Y	34.27	33.35	*31.79*
FS1	City Centre	Y	**63.53**	**63.29**	**56.72**
CP1	City Centre	Y	30.86	*30.52*	**/**
CR1	City Centre	Y	***41.52***	*35.96*	**/**
CR2	City Centre	Y	**/**	*39.60*	**/**
CR3	City Centre	Y	34.60	**/**	**/**
CR4	City Centre	Y	**/**	39.49	39.87
CR4a	City Centre	Y	**/**	**41.90**	39.18
GR1	City Centre	Y	/	33.41	**/**

Site ID	Site Address	In AQMA?	Bias Adjusted Annual Mean 2007 (µg/m3)	Bias Adjusted Annual Mean 2008 (µg/m3)	Bias Adjusted Annual Mean 2009 (µg/m3)
GR2	City Centre	Y	/	34.03	/
LON 4	Tollbar End AQMS	Y	**50.36**	**51.52**	**45.76**
LON 5	Tollbar End AQMS	Y	***52.27***	**53.57**	**47.32**
LON 6	Tollbar End AQMS	Y	**46.43**	**51.69**	***46.94***
LON 7i	Tollbar End	Y	***44.82***	**44.41**	**41.85**
LON 7ii	Tollbar End	Y	**40.98**	*37.17*	/
LON 8a	Tollbar End	Y	36.38	36.86	*34.31*
LON12	Tollbar End	Y	**42.95**	**42.42**	39.40
SD1	Tollbar End	Y	35.97	*36.55*	/
STL 1	Tollbar End	Y	/	**53.25**	***44.86***
STL 2	Tollbar End	Y	/	**50.55**	***50.23***
SE1	Spon End	Y	37.47	*39.91*	/
SE1d	Spon End	Y	*36.87*	*37.85*	/
SE3	Spon End	Y	38.92	**40.30**	35.16
QAV 01	Queensland Avenue	Y	**45.98**	***45.61***	**42.82**
QAV01d	Queensland Avenue	Y	**47.32**	***42.70***	**43.60**
QAV 6	Queensland Avenue AQMS	Y	37.08	33.99	31.73
QAV 7	Queensland Avenue AQMS	Y	33.32	35.78	34.63
QAV 8	Queensland Avenue AQMS	Y	35.12	34.53	32.56
QAV 9	Queensland Avenue	Y	35.24	35.48	/
QAV 12	Queensland Avenue	Y	35.47	**40.55**	***43.33***
QAV 13	Queensland Avenue	Y	39.88	37.85	*38.84*
R1	Foleshill Road AQMS	Y	34.75	35.70	*34.34*
R2	Foleshill Road AQMS	Y	35.45	35.09	33.28
R3	Foleshill Road AQMS	Y	35.62	35.82	33.61
R4	Foleshill Road	Y	*38.40*	39.13	32.95
R5	Foleshill Road	Y	**45.42**	**46.03**	**43.78**
R6	Foleshill Road	Y	**51.92**	**53.08**	**48.91**
R6a	Foleshill Road	Y	**48.54**	**50.04**	**46.30**
R8	Foleshill Road	Y	39.24	*38.42*	***47.69***
R9	Foleshill Road	Y	**43.31**	**47.64**	***48.40***
R10	Foleshill Road	Y	/	*37.68*	/
LR1	Longford Road	Y	**43.59**	***45.34***	/
LR2	Longford Road	Y	**43.36**	**43.33**	/
LR3	Longford Road	Y	/	**41.93**	*34.72*
BR 1	Bedworth Road	Y	/	***41.53***	*35.62*
HL1	Holbrooks	Y	/	***40.89***	***41.91***
BRN2	Burnaby Road	Y	36.93	36.49	37.01
BRN2a	Burnaby Road	Y	38.01	38.52	35.78
BRN3	Burnaby Road	Y	/	36.15	/
BRN4	Burnaby Road	Y	/	34.75	/
BA1	Beake Avenue	Y	***40.04***	**40.57**	***40.66***
BA1d	Beake Avenue	Y	***40.66***	**42.59**	39.28
SS1	Stoney Stanton Rd	Y	39.28	**40.32**	34.79
SS2	Stoney Stanton Road	Y	**41.68**	39.79	*38.46*
SS3	Stoney Stanton Road	Y	**40.18**	**40.35**	36.61
SS4	Stoney Stanton Road	Y	39.97	38.35	/
SS5	Stoney Stanton Road	Y	/	**42.82**	38.36
BG 1	Bell Green Road, 47	Y	/	*36.29*	/
AUN1	War Memorial Park AURN	Y	18.90	19.02	*17.24*
AUN2	War Memorial Park AURN	Y	18.60	*17.86*	*16.96*
AUN3	War Memorial Park AURN	Y	18.22	18.57	*17.16*

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Bias adjustment factor 2007 = 0.89
Bias Adjustment factor for 2008 =0.92
Bias adjustment factor for 2009=0.90

2.3.1 PM_{10}

Continuous monitoring of PM_{10} is carried out at 3 locations within Coventry; Queensland Avenue, Foleshill Road and Tollbar End. All locations are representative of public exposure. Queensland Avenue and Foleshill Road use a TEOM analyser; therefore results are calculated using the Volatile Correction model. Tollbar End uses a TEOM-FDMS analyser therefore results do not require any correction for gravimetric equivalence.

There are no exceedances of the annual mean objective of 40µg/m^3 at each site as shown in Table 9 below. The number of exceedances of the daily mean objective are shown in Table 10 below. At Queensland Avenue, there are 3 exceedances of the 24-hour mean of 50µg/m^3, 2 at Foleshill and no exceedances at Tollbar End. This is well below the objective of 35 per year.

The data capture for PM_{10} Automatic Monitoring at Tollbar End is below 90% and so this data may be unreliable. At Tollbar End data capture was less than 90% and the 90th percentile of daily means has been has been calculated as shown in brackets in Table 10 below.

Table 9 Results of PM_{10} Automatic Monitoring: Comparison with Annual Mean Objective

Site ID	Location	Within AQMA?	Data Capture for monitoring period %	Data Capture for full calendar year 2009 %	Annual mean concentrations (µg/m^3)		
					2007	2008	2009
QU	Queensland Avenue	Y[1]	n/a	91%	20	17.9[3]	17.2[3]
FO	Foleshill Road	Y[1]	n/a	91%	22	15.7[3]	17.1[3]
TB	Tollbar End	Y[1]	n/a	54%	28[2]	21.7[4]	15.6

Notes

1 AQMA declaration includes NO2 but not PM10.
2 Data Capture 83%
3 Calculation method: VCM
4 Data capture 85%

Table 10 Results of PM_{10} Automatic Monitoring: Comparison with 24-hour Mean Objective

Site ID	Location	Within AQMA?	Data Capture for monitoring period %	Data Capture 2009 %	Number of Exceedences of daily mean objective (50 μg/m^3)		
					2007	2008	2009
QU	Queensland Avenue	Y[1]	n/a	91%	3	**6**[3]	**3**[3]
FO	Foleshill Road	Y[1]	n/a	91%	9	4[3]	2[3]
TB	Tollbar End	Y[1]	n/a	54%	13(36)[2]	1(34.6)[4]	0(30.9)

Notes

1 AQMA declaration includes NO2 but not PM10.
2 Data Capture 83%
3 Calculation method: VCM
4 Data Capture 85%

2.3.2 Sulphur Dioxide

There is no monitoring of sulphur dioxide currently carried out at any locations within Coventry City Council.

2.3.3 Benzene

Benzene is monitored in the Memorial Park by DEFRA, this monitoring site location is not representative of relevant public exposure using pumped diffusion tubes. The annual mean concentration of benzene in 2009 was 0.89ug m-3 compared to the UK objective of 5.00ugm-3 to be obtained by 2010. Benzene concentrations have been falling consistently since 2004.

2.3.4 Other pollutants monitored

There is no monitoring of any other pollutants currently carried out at any locations within Coventry City Council.

2.3.5 Summary of Compliance with AQS Objectives

Coventry City Council has examined the results from monitoring within the city area. The Council declared a city wide AQMA for Nitrogen Dioxide in November 2009. Consequently there are no locations outside of the AQMA exceeding the objectives at relevant locations and no need to proceed to a Detailed Assessment.

3 New Local Developments

3.1 Road Traffic Sources

Coventry City Council has carried out an evaluation of the following road traffic pollution sources:

- Narrow congested streets with residential properties close to the kerb
- Busy streets where people may spend one hour or more close to traffic
- Roads with a high flow of buses and/or HGVs
- Junctions
- New roads constructed or proposed
- Roads with significantly changed traffic flows
- Bus or coach stations

The Council can confirm that there have been no significant developments in any of these areas since the completion of the last USA.

3.2 Other Transport Sources

Coventry City Council has carried out an evaluation of the following other transport pollution sources:

- Airports.
- Locations where diesel or steam trains are regularly stationary for periods of 15 minutes or
- more, with potential for relevant exposure within 15m
- Locations with a large number of movements of diesel locomotives, and potential long-term
- relevant exposure within 30m
- Ports for shipping.

The Council can confirm that there have been no significant developments in any of these areas since the completion of the last USA.

3.3 Industrial Sources

Coventry City Council has carried out an evaluation of the following industrial sources:

- Industrial installations: new or proposed installations for which an air quality assessment has been carried out.
- Industrial installations: existing installations where emissions have increased substantially or new relevant exposure has been introduced.
- Industrial installations: new or significantly changed installations with no previous air quality assessment.

- Major fuel storage depots storing petrol.
- Petrol stations.
- Poultry farms.

The Council can confirm that there have been no significant developments in any of these areas since the completion of the last USA.

3.4 Commercial and Domestic Sources

Coventry City Council has carried out an evaluation of the following commercial and domestic sources to evaluate

- any significant changes since submission of the 2009 USA:
- Biomass combustion plant – individual installations
- Areas where the combined impact of several biomass combustion sources may be relevant
- Areas where domestic solid fuel burning may be relevant

2 new biomass installations have been identified since the completion of the last USA: at Castle Wood School and the Severn Trent Headquarters Building and these will need to be considered as part of the next USA in 2012.

3.5 New Developments with Fugitive or Uncontrolled Sources

Coventry City Council has carried out an evaluation of the following fugitive or uncontrolled pollution sources:

- Landfill sites
- Quarries
- Unmade haulage roads on industrial sites
- Waste transfer stations etc.
- Other potential sources of fugitive particulate emissions

The Council can confirm that there have been no significant developments in any of these areas since the completion of the last USA.

Coventry City Council has identified the following new or previously unidentified local developments which may impact on air quality in the Local Authority area.

Biomass boilers at Castle Wood School and Severn Trent Headquarters building

These will be taken into consideration in the next Updating and Screening Assessment, scheduled for 2012.

4 Implementation of Action Plans

Please see table 11 overleaf for an update on progress with Coventry City Council's first action plan of 2007. Coventry is currently developing a new Action plan after declaring a new city wide management area in November 2009.

In table 11 actions highlighted in green have been completed, those in amber are ongoing and red not completed.

From a total of 44 actions 70% have been completed, 14% are ongoing and 16% have not been completed. Those not completed were in the majority as a result of being unable to secure funding.

Table 11 Action Plan Progress

No.	Measure	Focus	Lead authority	Progress to date	Progress in last 12 months	Estimated completion date	Comments relating to emission reductions
1.1	**Pool Meadow**	Make greater use of Pool Meadow Bus Station by creating a two-way bus and bicycle only route across the currently pedestrianised areas under the Frank Whittle Arch between Hale Street and Fairfax Street.	Coventry City Council - City Development Directorate – project Champions Office	Buses now able to access bus station under Whittle Arch		**Completed**	Links into other actions relating to re-design of roads in city centre AQMA
1.2	**Relocation of Taxi ranking**	Relocating taxi rank to remove source of emissions in congested street canyon The Burges in city centre AQMA	Coventry City Council - Major Projects Dept.	Taxi rank now relocated to Trinity Street		**Completed**	Links into other actions relating to re-design of roads in city centre AQMA
1.3	**Feasibility study into long-terms options for cutting congestion**	West Midlands study looking at road charging schemes to reduce congestion based on Transport	West Midlands Metropolitan Authorities, external agencies and Centro	No Transport Innovation Fund (TIF) bid made by the West Midlands in 2008		**None**	Now Links to Local Transport Plan 3 objectives – • Smarter Management (of the road network and more coordinated working between planners and transport operators)

No.	Measure	Focus	Lead authority	Progress to date	Progress in last 12 months	Estimated completion date	Comments relating to emission reductions
		Innovation Funding (TIF)					• Smarter Choices (TravelWise initiatives to discourage driver-only car trips) • Smarter Investment (making best use of the very limited funds we are likely to receive for the foreseeable future
2.1	**Bus Showcase Route**	A showcase route along the Walsgrave / Ansty Road corridor covered by the Ball Hill AQMA – reduction in congestion	Coventry City Council City Development Directorate (Transport Delivery Unit)	Improvements to bus lanes, bus shelters, passenger information parking restrictions completed		**Completed**	See action 5.1
2.2	**Park and Ride**	Investigation of further sites for east and west park and ride services to complement the existing north and south park and ride sites.	Coventry City Council City Development Directorate (Transport Delivery Unit)	Suitable locations not identified – looking at improving existing park and ride facilities in North of city		**Ongoing investigation of suitable sites**	
2.3	**On-street parking enforcement**	Decriminalised parking powers will be used by Coventry City Council to reduce illegal parking	Coventry City Council City Services (Network Management)	Civil Enforcement Officers in post – approx 30 thousand penalty charge notices issued in 2008/9 across the city		**Completed with ongoing enforcement**	

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No.	Measure	Focus	Lead authority	Progress to date	Progress in last 12 months	Estimated completion date	Comments relating to emission reductions
		which restricts traffic flows					
2.4	**On-street parking management**	Revised layouts will be implemented by Coventry City Council to restrict the potential for obstructive parking	Coventry City Council City Development Directorate (Transport Delivery Unit)	Locations and orientation of parking bays has been changed to reduce double parking and resulting congestion in Ball Hill AQMA		**Completed**	
2.5	**Traffic Signal Control**	Improved signalisation of the Ball Hill/Clay Lane junction to ease the passage of vehicles and reduce delay and congestion – Ball Hill AQMA	CCC City Development Directorate (Transport Delivery Unit)	Completed		**Completed**	
2.6	**Junction layout**	Restriction of some turning movements on Clay Lane / Brays Lane to ease traffic flows and reduce delays and congestion – Ball Hill AQMA	Coventry City Council City Development Directorate (Transport Delivery Unit)	Completed but junction not working effectively and needs to be revisited		**Completed but needs further investigation to improve further**	
2.7	**Off Street parking**	Review off street parking tariffs in the Ball Hill AQMA to encourage use of public car off street park	Coventry City Council City Development Directorate (Transport Delivery Unit)	Redesign of existing car park and signage has increased usage in addition to more user friendly charging scheme		**Completed**	

No.	Measure	Focus	Lead authority	Progress to date	Progress in last 12 months	Estimated completion date	Comments relating to emission reductions
2.8	**Re-Routing traffic**	Re-directing traffic from the M6/M69 down the A444 or wider roads with less residential exposure than the Ball Hill corridor and AQMA	Coventry City Council City Services (Network Management)	Signage completed for out of city direction – inwards needs reviewing with Highways Agency		**Outward signage completed – review need for inward signage to be changed with Highways Agency**	
3.1	**Bus Showcase route**	Bus Showcase Corridor along Hearsall Lane on edge of Queensland Avenue AQMA	Coventry City Council City Services (Network Management)	Not completed – funding not secured		**None**	
3.2	**Junction improvement at Queensland Avenue/ Allesley Old Road**	Junction improvement to reduce congestion and emissions in AQMA	Coventry City Council City Services (Network Management)	Not completed – funding not secured. Maybe revisit when look at use of urban traffic management system to improve traffic flows – this ongoing in 2010		**Look at for next Action Plan as part of UTC management system review**	
4.1	**Enforcement of idling vehicles legislation**	Reduction of emissions from idling traffic in AQMA's	Coventry City Council City Services Directorate (Environmental Services)	Feasibility study underway looking at legal powers and what other local authorities are doing – politically sensitive so not implemented as yet. More work ongoing		**Completion of feasibility study by end March 2011**	
4.2	**Improve the Council fleet**	Look for opportunities to purchase/use	Coventry City Council	Fundamental Service Review ("Moving On") ongoing looking at	The Council has	**End 2011**	

No.	Measure	Focus	Lead authority	Progress to date	Progress in last 12 months	Estimated completion date	Comments relating to emission reductions
		greener vehicles with lower emissions		vehicle fleet management across the Council. First phase underway looking at the Council's non-passenger fleet such as refuse trucks. Also linked to savings targets so not just air quality driven project	purchased 45 electric vehicles as part of an ongoing program to replace its fleet vehicles. These will be in use from September 2010		
4.3	**Expanding a city network of low emission vehicles**	Continue to pursue the current research and development projects aimed at encouraging low emission vehicles	Coventry City Council- City Development Directorate & City Services	Network of charging points installed by EON as part of Cable Project between Birmingham and Coventry City Council's		**Ongoing**	
4.4	**Improve bus emissions**	Introduce buses with less emissions	Centro and large fleet operators in Coventry – e.g. Travel Coventry, Stage Coach and Mike Decourcey Travel Ltd	Introduction of electric buses in Coventry on a trial basis - De'Courcy bus company	Ongoing work to agree partnership between Cento, Coventry City Council and	**End March 2011**	

No.	Measure	Focus	Lead authority	Progress to date	Progress in last 12 months	Estimated completion date	Comments relating to emission reductions
					De'Courcy		
4.5	**Improvements in taxi fleet**	Introduce newer vehicles with less emissions	Coventry City Council City Development Directorate (Taxi licensing)	Coventry age policy for taxi renewal is 10 years, less than the 15 years in other cities such as London. Any Hackneys over 5 years old are checked every 6 months for emissions		**Ongoing enforcement of age policy**	
5.1	**Prime Lines**	The development of bus showcase corridors across the city to increase modal shift to public transport. Improvements include new shelters, buses, bus lanes and real time information at bus stops	Coventry City Council City Development Directorate (Transport Delivery Unit	9 corridors completed Looking at funding for 2 other Primeline routes		**Completed**	
5.2	**Bus lane enforcement**	Reducing/preventin g use of lanes by vehicles other than buses, taxis and bikes	Coventry City Council City Development Directorate (Transport Delivery Unit)	Parking attendants have been recruited to enforce bus lane provisions. Surveillance cameras now in use and have been issuing warning letters to offenders. More active enforcement from end September 2010 with		**Ongoing**	

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No.	Measure	Focus	Lead authority	Progress to date	Progress in last 12 months	Estimated completion date	Comments relating to emission reductions
				fines being issues			
5.3	**Bus Rapid Transit**	High frequency limited stop bus service similar to tram linking large developments in city	Coventry City Council City Development Directorate (Transport Delivery Unit)	Funding not secured so not completed		**None**	
5.4	**Coventry Station Transport Hub**	Mixed use development around the railway station that will address key transport issues such as pedestrian access to the city centre, provision for Prime Lines and Coventry Rapid Transit, and improved bus/rail interchange	Coventry City Council City Development Directorate/ Private Development Partner	"Friargate" development at planning stages. Originally planned for implementation by 2012 but now possible phasing envisaged to generate money to continue development		**Completion by end of 2014**	
5.5	**Canley/ Western access**	Improving access to Warwick University corridor/South of city as result of large developments	Coventry City Council, external agencies and Centro	Funding not secured so not completed		**None**	
5.6	**Park and Ride**	Investigation of further sites for east and west park	Coventry City Council City Development	Suitable locations not identified – looking at improving existing park		**Ongoing**	**See action 2.2**

No.	Measure	Focus	Lead authority	Progress to date	Progress in last 12 months	Estimated completion date	Comments relating to emission reductions
		and ride services to complement the existing north and south park and ride sites.	Directorate (Transport Delivery Unit)	and ride facilities in North of city			
6.1	**Red Routes**	Provide a network of Red Routes that introduce strict controls on vehicle stopping, parking and loading, and are designed to improve the flow of traffic, together with local environmental improvement works.	CCC City Development Directorate (Transport Delivery Unit)	Work completed as part of Primeline works.		**Completed**	**See action 5.1 - Primelines**
6.2	**Urban Traffic Control (UTC)**	Upgrade the UTMC system as part of Prime Lines which should improve the efficiently of the highway network (i.e. smooth flow).	Coventry City Council City Development Directorate (Transport Delivery Unit)	Upgrade completed. Ongoing review to use system more effectively		**Completed**	
6.3	**Route Resigning**	Upgrade road direction signs along all major radial routes in the City (e.g. signs to the ring road and car parks) to	Coventry City Council City Development Directorate (Transport Planning)	Completed		**Completed**	

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No.	Measure	Focus	Lead authority	Progress to date	Progress in last 12 months	Estimated completion date	Comments relating to emission reductions
		decrease unnecessary mileage, improve journey planning and reduce emissions.					
6.4	**Variable Message Signs (VMS)**	Use of VMS to show a comparison of bus speeds against traffic speeds and also real time air quality information to help persuade people to use public transport and alternative routes	Coventry City Council City Development Directorate	4 VMS's in use around city particularly for events at Ricoh Arena to direct traffic away from close residential areas and to allocated parking		**Ongoing review**	
6.5	**General Highway Improvements**	Traffic management schemes to deliver minor highway improvement works such as road markings, sign and junction improvements	Coventry City Council City Development Directorate (Transport Planning)	Ongoing improvements		**Ongoing**	
7.1	**Cycling**	Promote cycling as a lower polluting means of transport including new cycle lanes as part of the	Coventry City Council City Development Directorate (Transport	Ongoing promotion. 2 cycle paths built at Broad Lane and Allard Way		**Ongoing**	

No.	Measure	Focus	Lead authority	Progress to date	Progress in last 12 months	Estimated completion date	Comments relating to emission reductions
		National Cycle Network and the local cycle network, and cycle parking	Planning)				
7.2	**Walking**	Promote walking as a lower polluting means of transport.	Coventry City Council City Development Directorate (Transport Planning)	Ongoing promotion. Program of removing barriers to walking routes for disabled people such as improving crossing points		**Ongoing**	
7.3	**Travel Plans**	Require green travel plans with all major planning applications as well as continue to work with schools on school-based travel plans	Coventry City Council City Development Directorate (Planning and Strategic Transportation)	Ongoing requirement through planning process and section 106 agreements		**Ongoing**	
7.4	**Safer Routes to School initiative**	Encouraging school children and staff to use more sustainable forms of travel to get to school and back, through safer routes for walking and cycling	Coventry City Council City Development Directorate (Strategic Planning)	11 primary schools have "walking buses". Promotion of walking through Walk to School Week in May 2010		**Ongoing**	
7.5	**Safer Routes to Work initiative**	Encouraging employees in the city to use more sustainable forms	Coventry City Council City Development Directorate	Council Healthy Walks Team ongoing promotion. Participation in Walk to Work week in April 2010		**Ongoing**	**See action 7.3**

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No.	Measure	Focus	Lead authority	Progress to date	Progress in last 12 months	Estimated completion date	Comments relating to emission reductions
		of travel to get to school and back, through safer routes for walking and cycling	(Strategic Planning)				
8.1	**Planning Supplementary Document on air quality**	Ensure consistency in dealing with planning applications and that any developments likely to have an impact on air quality are dealt with in an appropriate matter , in the long term bringing about significant improvements in air quality	Coventry City Council City Development Directorate (Strategic Planning) and Environmental Services	Being discussed as a regional policy/document at West Midlands level		**Ongoing**	
8.2	**Energy Efficiency measures**	Continue programme of energy efficiency improvements in the domestic sector.	Coventry City Council Housing and Policy Services and City Development Directorate	Ongoing program to provide energy efficiency heating and insulation through grant assistance. Signposting customers to Energy Savings Trust.	Participation in Switch It Off Campaign in November 2009	**Ongoing**	
8.3	**Control of Industrial emissions**	Active regulation its processes under the Pollution Prevention and	Coventry City Council City Services Directorate	Ongoing inspection program to assess compliance with permit conditions. Enforcement		**Ongoing**	

No.	Measure	Focus	Lead authority	Progress to date	Progress in last 12 months	Estimated completion date	Comments relating to emission reductions
		Control Act 2000. In addition the Council will survey its district for further premises requiring regulation under the above legislation	(Environmental Protection)	policy in place to deal with permit breaches			
8.4	**Emissions from domestic sources**	Enforce the provisions of the Clean Air Act 1993 as applied to stack height provision and dark smoke offences	Coventry City Council City Services Directorate (Environmental Protection)	Ongoing advice and enforcement		**Ongoing**	
8.5	**Control of Bonfires**	Enforce the provisions of the Clean Air Act 1993 and part III of the Environmental Protection Act 1990 regarding emissions from bonfires	Coventry City Council City Services Directorate (Environmental Protection)	Ongoing advice and enforcement		**Ongoing**	
8.6	**ISO14001**	Coventry City Council has adopted ISO14001 within its Public Protection Division with various commitments	Coventry City Council City Services Directorate	ISO1400 standard still in place. Regular internal and external audits to ensure system followed		**Ongoing**	

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No.	Measure	Focus	Lead authority	Progress to date	Progress in last 12 months	Estimated completion date	Comments relating to emission reductions
		relating to vehicle and building emissions					
8.7	**Public Information**	Raise awareness of Air Quality through the Light-Art-Installation on the top of Coventry Point	Coventry City Council City Development Directorate (Regeneration Services)	Implemented		**Ongoing**	
8.8	**Public Awareness**	Raise public awareness of air pollution through newsletters and displays around the city	Coventry City Council City Services Directorate (Environmental Protection)	Ongoing through use of website. City wide public consultation on city wide AQMA in 2009		**Ongoing**	
8.9	**Sustainable Education Development**	Education on sustainability to schools in Coventry. This can cover air pollution issues, as well as providing info about the cities' environment as a whole	CCC City Services Directorate	Sustainable Schools Steering Group run projects based on framework of areas including air quality		**Ongoing**	

No.	Measure	Focus	Lead authority	Progress to date	Progress in last 12 months	Estimated completion date	Comments relating to emission reductions
8.10	**Planning applications**	Coventry City Council's development plan	Coventry City Council City Development Directorate (Planning and Transportation) and Environmental Health	Ongoing consultation and imposition of planning conditions where applications are likely to have an adverse effect on air quality		**Ongoing**	

5 Conclusions and Proposed Actions

5.1 Conclusions from New Monitoring Data

The 2009 monitoring data has indicated exceedances of the annual mean objective for NO_2 at a number of diffusion tube locations within the city wide AQMA. Locations of tubes which exceed the annual mean objective for NO_2 once the distance correction factor is applied are included below.

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

The general trend is that the annual mean NO_2 values for 2009 are less than for 2007 and 2008 at the majority of the sites monitored. This may be attributed to improvements in the emissions from vehicles, accelerated by the UK Car Scrappage Scheme that ran from May 2009 to March 2010. The UK economy was also in recession from quarter 2 2008 until quarter 3 2009 [6.2] and the economic downturn has led to a reduction in the number of vehicles on British roads. 2009 was the first year the number of cars had decreased year on year in 64 years [6.1]

There is currently no AQMA declaration for PM_{10}. Coventry City Council has carried out continuous monitoring of PM_{10} 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. Further to this, the 24-hour mean objective was achieved at all PM_{10} monitoring locations throughout 2009.

Coventry City Council is in the process of carrying out a Further Assessment and developing an Air Quality Action Plan subsequent.

5.2 Conclusions relating to New Local Developments

Coventry City Council has identified the following new or previously unidentified local developments which may impact on air quality in the Local Authority area:

-Biomass Boilers at Castle Vale School and Severn Trent Headquarters building

This process will be taken into consideration in the next USA scheduled for 2012.

5.3 Other Conclusions

Coventry has implemented 70% of the original 2007 air quality action plan. As outlined in section 4 failure to complete certain actions have been due to difficulties in securing funding.

5.4 Proposed Actions

Coventry City Council has a city wide air quality management area declaration for NO_2 and monitoring data for PM10 indicates that no areas exceed the objectives for PM10; therefore there is no requirement to proceed to detailed assessment.

A Further Assessment and Air Quality Action Plan are due to be completed in 2010, subsequent to declaration of a city wide Air Quality Management Area in November 2009. A Progress Report is due for submission in 2011, with 2011 Detailed Assessment as necessary.

6 References

6.1 9 April 2010 Fewer cars on UK roads
http://www.autocar.co.uk/News/NewsArticle/AllCars/248738/

6.2 27 January 2010 UK economy emerges from recession
http://news.bbc.co.uk/1/hi/8479639.stm

6.3 AEA (2010) WASP – Annual Performance Criteria for NO2 Diffusion Tubes used in Local Air Quality Management (LAQM), 2008 onwards,
and Summary of Laboratory Performance in Rounds 104-108 2010

Appendices

Appendix 1:

Quality Assurance and Quality Control of Data

Diffusion Tube Bias Adjustment Factors

Table 12 Factor from Local Co-location Studies

Location	Year	Site Type	Length of Study (months)	Diffusion Tube Mean Conc. (Dm) (μg/m3)	Automatic Monitor Mean Conc. (Cm) (μg/m3)	Bias (B)	Tube Precision	Bias Adjustment Factor (A) (Cm/Dm)
Ball Hill	2009	Roadside	11	45	44	2.8%	Poor	**0.97**
Queensland Avenue	2009	Roadside	11	38	30	25.6%	Poor	**0.80**
Foleshill Road	2009	Roadside	12	37	36	2.1%	Good	**0.98**
Tollbar	2009	Roadside	9	51	65	-22.0%	Good	**1.28**
							Mean Factor	**1.01**
							National Factor	**0.90**

Discussion of Choice of Factor to Use

The decision of whether to use the local or national Bias Adjustment Factor depends upon a number of factors that should be considered. Coventry has used

- Where the Review and Assessment Helpdesk spreadsheet contains data from few, less than five, other studies the local factor may be more appropriate. There were 33 studies using the same laboratory and preparation technique as Coventry, and so on this factor, use of the national factor would be appropriate.
- The national factor may also be more appropriate for co-location sites with poor precision, 2 of the 4 co-location studies in Coventry where categorised as having poor precision.

PM Monitoring Adjustment

Queensland Avenue and Foleshill Road use a TEOM analyser, therefore results are calculated using the Volatile Correction model. Tollbar End uses a TEOM-FDMS analyser therefore results do not require any correction for gravimetric equivalence.

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QA/QC of automatic monitoring

Each NO_x analyser is operated according to manufacturers' instructions. Automatic remote calibrations of the analysers take place daily. In addition to this, Coventry City Council personnel carry out calibration every two weeks. Certified Calibration Gas is supplied by Air Liquide 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 Casella 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 2009 Gradko laboratory has demonstrated good performance with regard to WASP performance criteria [6.3].

Appendix 2: Monthly Diffusion Tube Results 2009

Site ID	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Raw Annual Mean NO_2 ($\mu g/m^3$)	Bias Adjusted Annual Mean NO_2 ($\mu g/m^3$)	Data Capture %
6Nd	57.94	26.5	10.43	49.2	43.9	43.86	44.8	43.31	44.82	57.4	49.6	57.9	44.13	39.71	100%
6N*	/	/	42.21	50.8	/	45.16	47	31.71	47.04	57.4	53.7	47.2	46.92	42.23	75%
CCO1*/1N	64.92	38.7	44.5	46.8	41.7	41.66	/	53.53	/	41.9	51.9	43.2	46.87	42.18	83%
CCO3/3N*	/	/	23.42	15.8	/	18.33	13.1	14.37	13.08	29.8	25.9	27.6	20.16	18.14	75%
CCO4/5N*	38.26	25.5	33.72	24.6	17.5	17.51	12.3	12.73	12.3	29.1	25	39.3	23.99	21.59	100%
BH1	56.67	26.5	46.2	44	/	40.7	33.6	26.96	33.63	43.7	44.7	47.3	40.36	36.32	92%
BH2a	57.3	57.9	54.99	43.4	52	51.98	/	30.96	/	45.8	47.7	50.7	49.27	44.34	83%
BH4	64.19	44.7	63.47	61.4	54.7	54.67	38.5	36.76	38.51	50.8	57.4	61.1	52.17	46.95	100%
BH6i	54.83	55.1	29.64	54.1	/	54.15	36.2	36.49	36.17	55.2	50.7	55	47.06	42.35	92%
BH6ii	54	56	54.54	/	/	55.95	41.3	33.41	41.26	47.9	45.6	65.8	49.56	44.61	83%
BH8	45.09	/	/	/	/	/	/	/	/	/	/	/	45.09	40.58	8%
BH9	52.75	/	/	31.6	51	51.02	32	30.4	31.95	44.1	41	48.9	41.47	37.32	83%
BH10	45.11	72	21.88	/	53	53.01	31.7	33.28	31.66	50.2	45.5	58.2	45.04	40.54	92%
BH11	44.6	34.7	48.32	/	/	52.29	34.9	36.69	34.86	47.1	45.4	51.2	43.00	38.70	83%
BH12	44.39	24.2	48.36	/	58.8	58.76	36.5	33.45	36.54	43.2	46	58.4	44.41	39.97	92%
BGH1	44.09	26.6	/	/	37.2	37.24	30.6	24.37	30.63	45	38.6	54.1	36.85	33.16	83%
BUR 2i	52.35	49.7	36.51	35.5	38.8	36.16	23.7	/	23.7	/	/	/	37.05	33.34	67%
BUR 4i	41.86	27.1	11.47	40.2	32.7	32.67	27.7	20.51	27.35	39.1	37	43.5	31.76	28.58	100%
BUR 4ii	45.4	35.3	34.3	37.5	39.5	39.53	27.4	22.18	27.44	40.3	35.1	/	34.91	31.42	92%
BUR 4iii	/	/	/	/	34.9	34.86	27.4	25.95	27.35	35.9	35.1	45.4	33.34	30.00	67%
BUR 6	53.87	45.2	36.51	45.7	42.8	42.81	32.5	27.85	32.52	/	40.9	39.4	40.00	36.00	92%
HS1	76.94	50	50.49	61.3	63.5	63.53	/	53.2	61.11	53.3	63.2	62.9	59.94	53.95	92%
HS2	50.36	44	34.67	36.8	36.4	36.35	22.9	/	22.88	37.9	35.7	40.5	36.21	32.59	92%
TS1	66.66	66.8	45.08	56.9	57.8	57.78	42	33.97	41.99	59	44.1	61.5	52.78	47.51	100%
TS2	74.46	38.8	22.83	57.7	62.2	62.21	49.5	/	49.5	60	45.7	56.5	52.68	47.41	92%
CL1	42.5	27.1	33.56	/	43.3	/	26.3	46.39	26.33	35.6	33.4	38.7	35.32	31.79	83%
FS1	81.29	/	26.16	79.8	77.1	77.05	47.7	50.29	47.74	69.9	62.9	73.2	63.02	56.72	92%

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Site ID	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Raw Annual Mean NO_2 ($\mu g/m^3$)	Bias Adjusted Annual Mean NO_2 ($\mu g/m^3$)	Data Capture %
CP1	46.94	/	/	/	/	/	/	/	/	/	/	/	46.94	42.25	8%
CR1	49.66	/	/	/	44.3	44.3	38.1	/	38.1	/	/	/	42.89	38.60	42%
CR2	60	/	/	/	49.9	49.89	36.3	/	36.34	/	/	/	46.49	41.84	42%
CR3	/	/	/	/	46	46.02	/	/	/	/	/	/	46.02	41.42	17%
CR4	61.73	48.4	41.54	44.5	45.3	45.29	35.4	32.17	35.39	45.8	42.1	54.1	44.30	39.87	100%
CR4a	61.1	35.5	41	46.1	43.9	43.91	34.5	33.12	34.53	46.5	47.6	54.6	43.53	39.18	100%
GR1	49.11	/	/	/	/	/	/	/	/	/	/	/	49.11	44.20	8%
GR2	45.57	/	/	/	/	/	/	/	/	/	/	/	45.57	41.01	8%
LON 4	58.17	46.2	50.99	56.9	52.3	52.27	46.5	40.92	46.46	46.8	56.7	56	50.84	45.76	100%
LON 5	53.14	34.8	51.07	59.7	52.1	52.14	56.6	46.19	56.59	50.3	57.4	60.9	52.58	47.32	100%
LON 6	50.3	33	52.42	63.7	/	/	53.9	46.03	53.93	48.6	62.3	57.5	52.16	46.94	83%
LON 7i	49.14	48.4	48.57	46.4	48	47.96	41.8	38.39	41.83	40.9	54.5	52.2	46.50	41.85	100%
LON 7ii	43.93	/	/	/	32.2	/	32.9	30.63	32.93	33.8	35	45.4	35.85	32.26	67%
LON 8a	43.4	/	47.75	36.7	32	/	38	26.14	37.98	39.4	36.9	42.9	38.12	34.31	83%
LON12	52.56	41.7	43.09	46.9	40	/	35.8	31.84	35.8	50.6	48.4	55	43.78	39.40	92%
SD1	45.52	/	/	/	/	/	/	/	/	/	/	/	45.52	40.97	8%
STL 1	/	24.2	55.2	44.2	/	/	53.9	31.71	53.85	58.2	68.1	59.3	49.85	44.86	75%
STL 2	/	32.8	51.8	/	62.2	/	62.4	47.3	62.44	65.9	62.2	55.2	55.81	50.23	75%
SE1	/	/	/	/	/	45.78	31.4	30.11	31.41	50.4	40.9	47	39.58	35.62	58%
SE1d	/	/	/	/	/	41.93	35.5	35.15	35.47	48	49.2	57	43.17	38.86	58%
SE3	52.57	34.5	35.47	37.2	44.8	44.82	1.05	35.68	38.1	44	45.4	55.2	39.07	35.16	100%
QAV 01	/	41.8	50.38	56.6	56.1	34.86	43	37.74	43.02	47.9	46.6	65.4	47.57	42.82	92%
QAV01d	59.74	38.7	42.42	55.4	46.4	46.43	44.5	41.44	44.5	53.6	47.7	60.5	48.44	43.60	100%
QAV 6	60.98	28.9	15.56	31.8	33.7	33.68	30.2	24.73	30.18	42.1	41.8	49.4	35.25	31.73	100%
QAV 7	44.25	47.5	35.06	40.6	37.7	/	31.7	21.56	31.66	39.7	45.4	48.2	38.48	34.63	92%
QAV 8	43.53	20.7	37.62	45.7	38.2	38.17	29.9	25	29.94	43.2	37	45.2	36.18	32.56	100%
QAV 9	44.59	/	/	/	/	/	/	/	/	/	/	/	44.59	40.13	8%
QAV 12	56.67	17.2	47.34	53.1	37.3	37.25	/	48.07	/	/	91.6	44.8	48.15	43.33	75%
QAV 13	53.14	16.9	42.23	48	42	41.99	/	62.9	/	40.7	40.6	/	43.15	38.84	75%
R1	50.14	51.7	38.96	39	/	/	26.3	26.5	26.33	34.7	34.2	53.8	38.16	34.34	83%
R2	49.7	25.8	39.12	39.7	/	37.31	27.6	26.01	27.64	36	43.6	54.3	36.98	33.28	92%

Site ID	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Raw Annual Mean NO_2 ($\mu g/m^3$)	Bias Adjusted Annual Mean NO_2 ($\mu g/m^3$)	Data Capture %
R3	48.26	38.3	40.03	37.2	33.9	33.89	27.6	26.04	27.6	38.8	41.3	55.3	37.35	33.61	100%
R4	51.24	14.7	42.45	34.5	/	40.35	33	21.42	33.01	49.5	41	41.6	36.61	32.95	92%
R5	59.46	40.5	50.77	50.7	51.4	51.35	41	34.66	40.97	59.5	45.9	57.6	48.64	43.78	100%
R6	70.59	42.7	60.93	62.8	/	50.51	45.3	41.21	45.32	57.1	57.8	63.5	54.34	48.91	92%
R6a	62.61	32.7	59.3	50.5	/	54.2	45	45.29	44.95	50.8	58.4	62.2	51.44	46.30	92%
R8	115.2	49.6	/	94.9	/	46.73	33.7	30.07	33.67	40.7	39.1	46.3	52.99	47.69	83%
R9	78.47	/	/	80.9	44.2	44.18	45.8	38.3	45.77	52.3	56	51.9	53.78	48.40	83%
R10	50.54	/	/	/	/	/	/	/	/	/	/	/	50.54	45.49	8%
LR1	55.38	55	/	55.8	/	/	/	34.92	/	48.7	48.4	51.2	49.91	44.92	58%
LR2	61.36	26.4	52.18	56.5	/	/	/	30.66	/	46.6	44.9	50.8	46.17	41.56	67%
LR3	36.39	31.9	29.07	49.2	/	/	38.7	32.86	38.71	49.7	38.5	40.8	38.58	34.72	83%
BR 1	54.19	43.3	33.49	49.2	/	41.32	/	23.26	34.28	40.5	36.7	39.5	39.58	35.62	83%
HL1	61.72	39.2	43.84	49.2	/	/	36.1	26.54	61.11	49.6	45.8	52.7	46.57	41.91	83%
BRN2	57.81	24.8	37.83	45.2	41.8	41.78	35.9	35.31	35.93	41.7	46.8	48.7	41.12	37.01	100%
BRN2a	48.55	17.2	40.77	49.2	38.8	38.75	36.3	34.14	36.34	43.1	45.9	48.1	39.75	35.78	100%
BRN3	57.05	/	/	/	/	/	/	/	/	/	/	/	57.05	51.35	8%
BRN4	44.44	/	/	/	/	/	/	/	/	/	/	/	44.44	40.00	8%
BA1	55.8	/	49.98	50.9	/	43.72	39.3	31.19	39.29	46.8	41.4	53.4	45.18	40.66	83%
BA1d	58.74	27.2	41.43	39.6	46.2	46.16	40.4	/	40.4	48	43.1	48.8	43.64	39.28	92%
SS1	63.52	35.9	20.86	47.7	/	39.09	28.4	27.12	28.38	44.7	43.4	46.2	38.66	34.79	92%
SS2	54.55	18.3	41.6	45.9	/	46.86	37.9	/	37.93	47.5	45.9	50.8	42.74	38.46	83%
SS3	53.16	47	/	49	39	39.03	30.5	23.06	30.51	48.3	40.8	47.1	40.68	36.61	92%
SS4	49.5	/	/	/	/	/	/	/	/	/	/	/	49.50	44.55	8%
SS5	56.75	34.3	41.44	53	39.5	39.5	36.2	35.22	36.17	48.5	43.9	47.1	42.63	38.36	100%
BG 1	52.95	/	/	/	/	/	/	/	/	/	/	/	52.95	47.66	8%
AUN1	/	/	21.91	21.2	16	16.81	11.7	11.12	18.27	24.7	19.9	30.1	19.16	17.24	83%
AUN2	/	/	10.4	23.2	16.9	16.48	11.8	10.93	20	23.8	20.2	34.6	18.84	16.96	83%
AUN3	/	/	20.78	20.7	16.1	17.61	11	10.7	20.23	24.7	19	29.9	19.06	17.16	83%